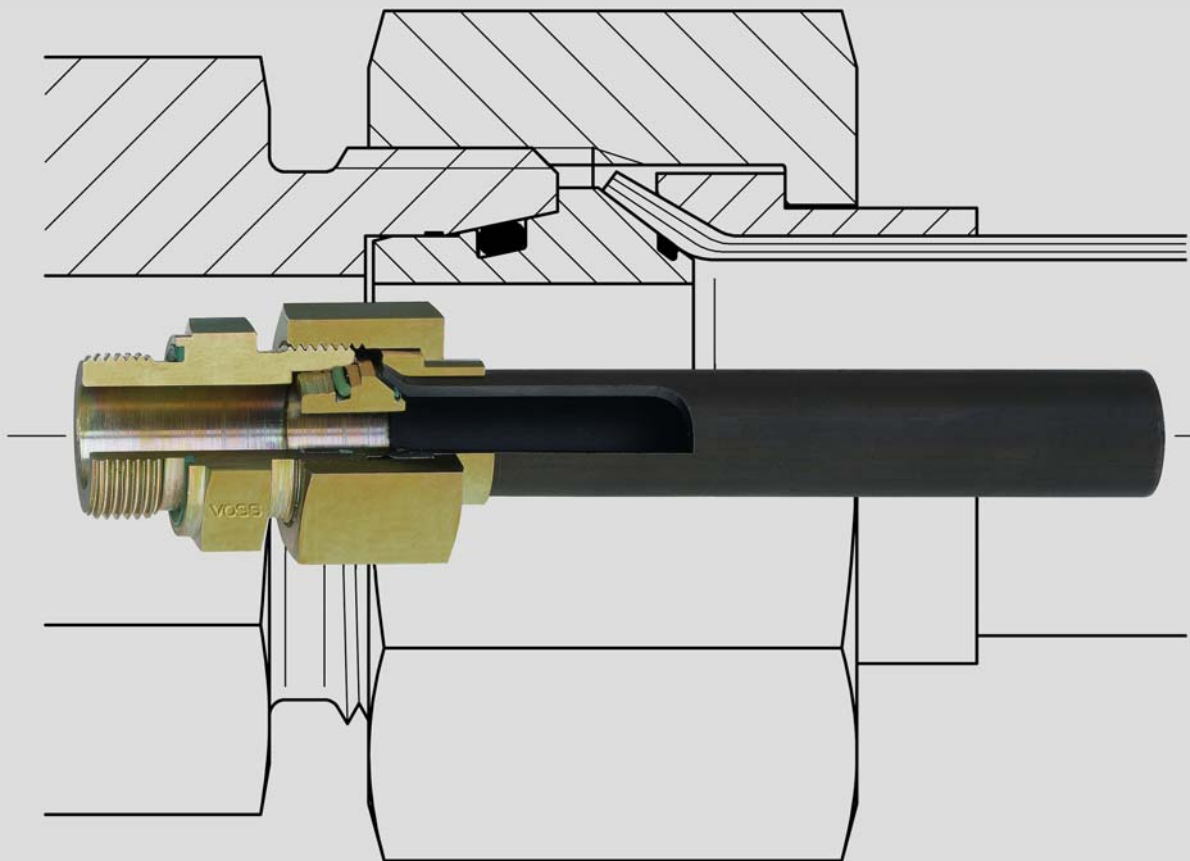


VOSS

37° Flared Cone Adapter



Experience plus ideas



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GmbH + Co. KG

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Sales agents world-wide

Please contact our
Wipperfürth office for a list of
regional sales agents.

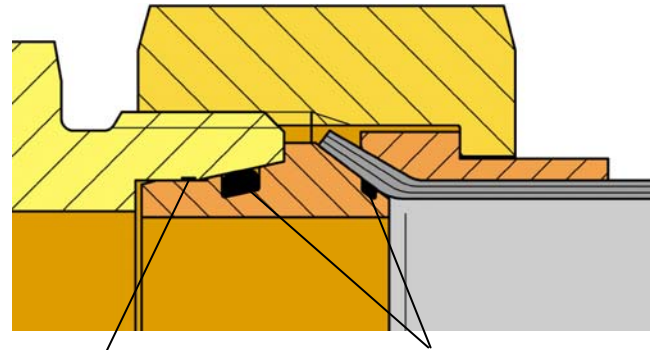
37° Flared Cone Adapter

VOSS Fluid is adding to its broad line of products a 37° flared cone fitting. This system which consists of 4 parts allows flared tubes to be connected reliably and in a leak free way to the entire line of VOSS DIN fittings.

The 37° flared cone fitting consists of the following components:

- Standard stud in accordance with DIN
- 37° flared cone adapter
- Support sleeve
- Union nut

The important component is the 37° flared cone adapter. It forms the joint from the 24° cone to the 37° flared connection in accordance with SAE. O-rings seal both cones to eliminate leak paths. A further important component is the retaining facility of the 37° flared cone adapter. In the course of final assembly, the retaining facility is pressed into the stud of the fitting. Now the flared cone adapter has been firmly joined to the standard stud. Should a repeated assembly become



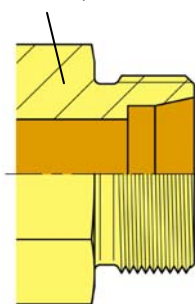
Retainer at the 37° flared cone adapter

Elastomer seals made of FKM/FPM

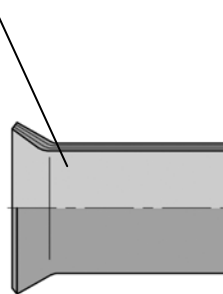
necessary, the adapter cannot be lost. This ensures reliable repeated assembly work.

Construction of the 37° flared cone adapter

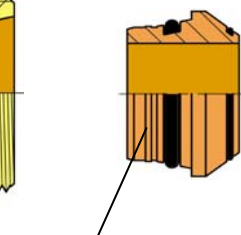
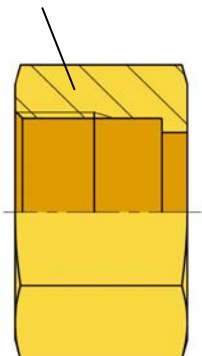
Standard stud in accordance with DIN 3861/ISO 8434-1



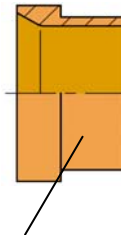
Formed tube



Union nut



37° flared cone adapter

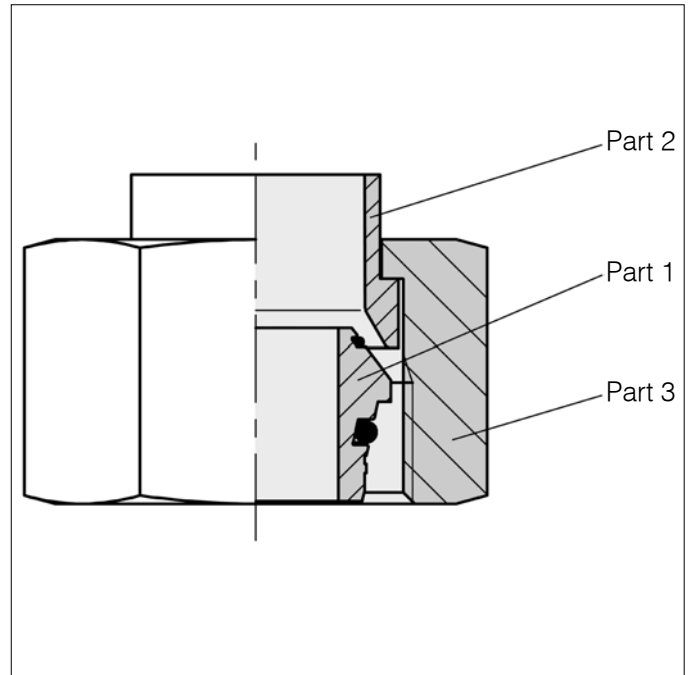


Support sleeve

37° flared cone connection components

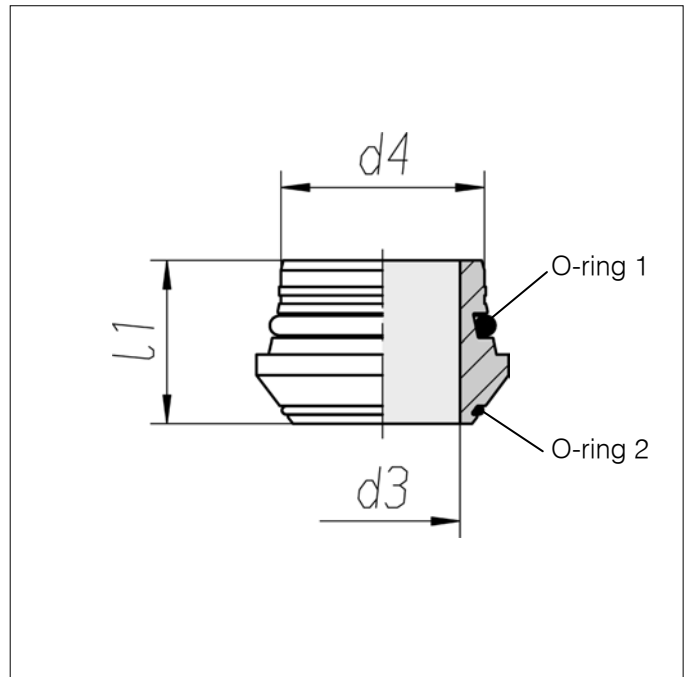
Consisting of:

- 37° flared cone adapter
- Support sleeves
- Union nuts



Series	Pressure	Tube OD	kg/100 approx.	Order number complete	Order number Part 1	Order number Part 2	Order number Part 3
L	PN 500	6	1,7	0 0 41 60 20 58	0 0 41 00 20 58	0 0 41 20 20 00	0 0 41 40 21 00
L	PN 500	8	2,6	0 0 41 61 20 58	0 0 41 01 20 58	0 0 41 21 20 00	0 0 41 41 21 00
L	PN 500	10	3,4	0 0 41 62 20 58	0 0 41 02 20 58	0 0 41 22 20 00	0 0 41 42 21 00
L	PN 400	12	4,8	0 0 41 63 20 58	0 0 41 03 20 58	0 0 41 23 20 00	0 0 41 43 21 00
L	PN 400	15	7,7	0 0 41 64 20 58	0 0 41 04 20 58	0 0 41 24 20 00	0 0 41 44 21 00
L	PN 400	18	10,7	0 0 41 65 20 58	0 0 41 05 20 58	0 0 41 25 20 00	0 0 41 45 21 00
L	PN 250	22	15,3	0 0 41 66 20 58	0 0 41 06 20 58	0 0 41 26 20 00	0 0 41 46 21 00
L	PN 250	28	17,4	0 0 41 67 20 58	0 0 41 07 20 58	0 0 41 27 20 00	0 0 41 47 21 00
L	PN 250	35	27,8	0 0 41 68 20 58	0 0 41 08 20 58	0 0 41 28 20 00	0 0 41 48 21 00
L	PN 250	42	45,7	0 0 41 69 20 58	0 0 41 09 20 58	0 0 41 29 20 00	0 0 41 49 21 00
S	PN 630	6	2,5	0 0 41 70 20 58	0 0 41 00 20 58	0 0 41 20 20 00	0 0 41 50 21 00
S	PN 630	8	3,1	0 0 41 71 20 58	0 0 41 01 20 58	0 0 41 21 20 00	0 0 41 51 21 00
S	PN 630	10	4,6	0 0 41 72 20 58	0 0 41 02 20 58	0 0 41 22 20 00	0 0 41 52 21 00
S	PN 630	12	5,4	0 0 41 73 20 58	0 0 41 03 20 58	0 0 41 23 20 00	0 0 41 53 21 00
S	PN 630	14	8,1	0 0 41 74 20 58	0 0 41 10 20 58	0 0 41 30 20 00	0 0 41 44 21 00
S	PN 630	16	11,2	0 0 41 75 20 58	0 0 41 11 20 58	0 0 41 31 20 00	0 0 41 54 21 00
S	PN 400	20	16,8	0 0 41 76 20 58	0 0 41 12 20 58	0 0 41 32 20 00	0 0 41 46 21 00
S	PN 400	25	30,3	0 0 41 77 20 58	0 0 41 13 20 58	0 0 41 33 20 00	0 0 41 55 21 00
S	PN 400	30	35,0	0 0 41 78 20 58	0 0 41 14 20 58	0 0 41 34 20 00	0 0 41 56 21 00
S	PN 400	38	54,0	0 0 41 79 20 58	0 0 41 15 20 58	0 0 41 35 20 00	0 0 41 57 21 00

37° flared cone adapter

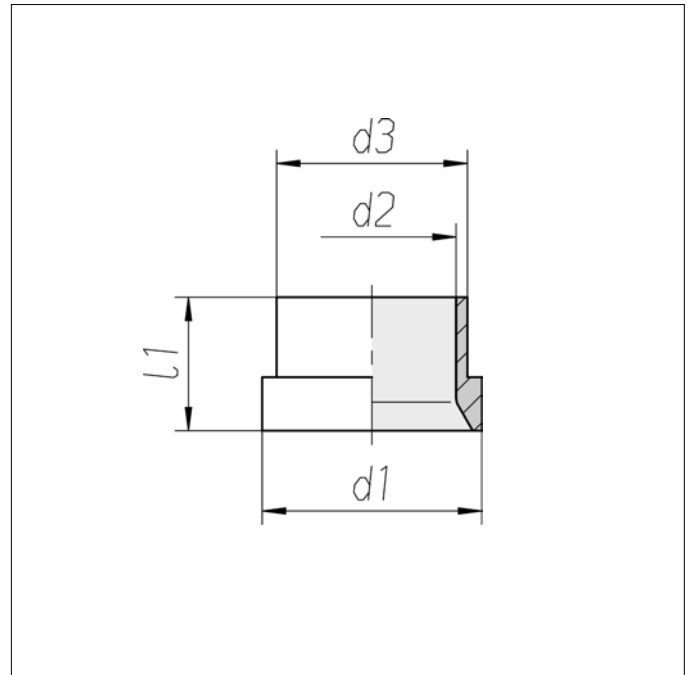


Series	Pressure	Tube OD d4	d3	l1	kg/100 approx.**	Order number	O-ring 1	Order number O-ring 1	O-ring 2	Order number O-ring 2
L	PN 500	6*	3	11,5	0,3	0 0 41 00 20 58	4,0 x 1,5	0 9 00 00 97 00	4,4 x 0,8	0 9 01 55 97 00
L	PN 500	8*	5	12,0	0,4	0 0 41 01 20 58	6,0 x 1,5	0 9 00 02 97 00	6,0 x 0,8	0 9 01 56 97 00
L	PN 500	10*	6	12,5	0,6	0 0 41 02 20 58	7,5 x 1,5	0 9 00 41 97 00	7,5 x 0,8	0 9 01 57 97 00
L	PN 400	12*	8	12,5	0,8	0 0 41 03 20 58	9,0 x 1,5	0 9 00 42 97 00	9,5 x 0,8	0 9 01 58 97 00
L	PN 400	15	11	12,5	1,0	0 0 41 04 20 58	12,0 x 2,0	0 9 00 44 97 00	12,5 x 0,8	0 9 01 59 97 00
L	PN 400	18	14	13,0	1,3	0 0 41 05 20 58	15,0 x 2,0	0 9 00 38 97 00	15,0 x 1,0	0 9 08 88 97 00
L	PN 250	22	17	14,2	2,1	0 0 41 06 20 58	20,0 x 2,0	0 9 06 19 97 00	18,0 x 1,0	0 9 08 98 97 00
L	PN 250	28	23	14,7	2,9	0 0 41 07 20 58	26,0 x 2,0	0 9 06 58 97 00	23,0 x 1,0	0 9 01 62 97 00
L	PN 250	35	28	18,5	6,1	0 0 41 08 20 58	32,0 x 2,5	0 9 00 92 97 00	30,0 x 1,0	0 9 08 96 97 00
L	PN 250	42	35	20,5	8,1	0 0 41 09 20 58	38,0 x 2,5	0 9 00 94 97 00	37,0 x 1,0	0 9 01 63 97 00
S	PN 630	6*	3	11,5	0,3	0 0 41 00 20 58	4,0 x 1,5	0 9 00 00 97 00	4,4 x 0,8	0 9 01 55 97 00
S	PN 630	8*	5	12,0	0,4	0 0 41 01 20 58	6,0 x 1,5	0 9 00 02 97 00	6,0 x 0,8	0 9 01 56 97 00
S	PN 630	10*	6	12,5	0,6	0 0 41 02 20 58	7,5 x 1,5	0 9 00 41 97 00	7,5 x 0,8	0 9 01 57 97 00
S	PN 630	12*	8	12,5	0,8	0 0 41 03 20 58	9,0 x 1,5	0 9 00 42 97 00	9,5 x 0,8	0 9 01 58 97 00
S	PN 630	14	9	14,0	1,2	0 0 41 10 20 58	10,0 x 2,0	0 9 00 43 97 00	11,0 x 1,0	0 9 01 60 97 00
S	PN 630	16	11	15,0	1,5	0 0 41 11 20 58	12,0 x 2,0	0 9 00 44 97 00	12,5 x 1,0	0 9 01 61 97 00
S	PN 400	20	14	18,5	2,8	0 0 41 12 20 58	16,3 x 2,4	0 9 00 45 97 00	16,0 x 1,0	0 9 08 93 97 00
S	PN 400	25	19	20,0	4,0	0 0 41 13 20 58	20,3 x 2,4	0 9 00 46 97 00	20,0 x 1,0	0 9 08 94 97 00
S	PN 400	30	23	22,0	6,0	0 0 41 14 20 58	25,3 x 2,4	0 9 00 47 97 00	25,0 x 1,0	0 9 08 95 97 00
S	PN 400	38	30	26,0	9,3	0 0 41 15 20 58	33,3 x 2,4	0 9 00 48 97 00	32,0 x 1,8	0 9 01 64 97 00

* 37° flared cone adapters for tube ODs 6-12mm are the same for series L and S

** Weight without O-ring

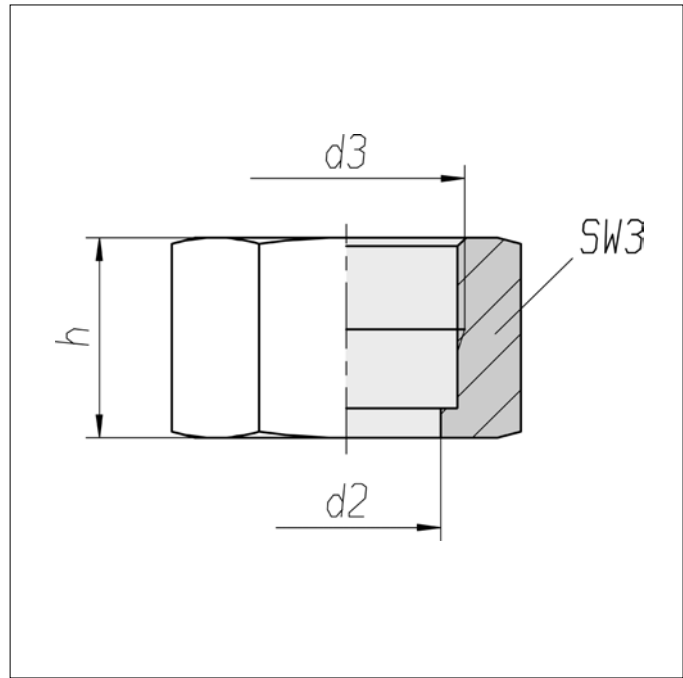
Support sleeves



Series	Pressure	Tube OD d2	d3	d1	l1	kg/100 approx.	Order number
L	PN 500	6*	7,6	10,2	10,5	0,2	0 0 41 20 20 00
L	PN 500	8*	9,3	12,2	11,0	0,3	0 0 41 21 20 00
L	PN 500	10*	11,5	14,2	12,5	0,4	0 0 41 22 20 00
L	PN 400	12*	13,6	16,2	13,0	0,5	0 0 41 23 20 00
L	PN 400	15	17,5	20,2	14,0	1,0	0 0 41 24 20 00
L	PN 400	18	21,0	24,2	14,5	1,5	0 0 41 25 20 00
L	PN 250	22	24,2	27,8	18,0	1,7	0 0 41 26 20 00
L	PN 250	28	30,2	33,8	17,0	2,0	0 0 41 27 20 00
L	PN 250	35	38,0	42,7	19,0	3,8	0 0 41 28 20 00
L	PN 250	42	45,0	49,7	21,0	5,2	0 0 41 29 20 00
S	PN 630	6*	7,6	10,2	10,5	0,2	0 0 41 20 20 00
S	PN 630	8*	9,3	12,2	11,0	0,3	0 0 41 21 20 00
S	PN 630	10*	11,5	14,2	12,5	0,4	0 0 41 22 20 00
S	PN 630	12*	13,6	16,2	13,0	0,5	0 0 41 23 20 00
S	PN 630	14	17,5	20,2	14,5	1,2	0 0 41 30 20 00
S	PN 630	16	18,5	22,0	17,0	1,3	0 0 41 31 20 00
S	PN 400	20	24,2	27,8	17,5	2,5	0 0 41 32 20 00
S	PN 400	25	28,5	32,8	20,0	3,2	0 0 41 33 20 00
S	PN 400	30	34,0	39,0	21,5	4,9	0 0 41 34 20 00
S	PN 400	38	42,0	48,5	26,5	7,7	0 0 41 35 20 00

* Support sleeves of tube ODs
6-12mm are the same for
series L and S

Union nuts



Series	Pressure	Tube OD d1	d3	d2	h	SW3	kg/100 approx.	Order number
L	PN 500	6	M 12 x 1,5	7,8	17,0	14	1,2	0 0 41 40 21 00
L	PN 500	8	M 14 x 1,5	9,5	18,0	17	1,9	0 0 41 41 21 00
L	PN 500	10	M 16 x 1,5	11,7	19,5	19	2,4	0 0 41 42 21 00
L	PN 400	12	M 18 x 1,5	13,8	20,5	22	3,5	0 0 41 43 21 00
L	PN 400	15*	M 22 x 1,5	17,7	23,0	27	5,7	0 0 41 44 21 00
L	PN 400	18	M 26 x 1,5	21,2	23,0	32	7,9	0 0 41 45 21 00
L	PN 250	22*	M 30 x 2,0	24,4	27,5	36	11,5	0 0 41 46 21 00
L	PN 250	28	M 36 x 2,0	30,4	27,5	41	12,5	0 0 41 47 21 00
L	PN 250	35	M 45 x 2,0	38,3	30,0	50	17,9	0 0 41 48 21 00
L	PN 250	42	M 52 x 2,0	45,3	34,0	60	32,4	0 0 41 49 21 00
S	PN 630	6	M 14 x 1,5	7,8	18,0	17	2,0	0 0 41 50 21 00
S	PN 630	8	M 16 x 1,5	9,5	19,0	19	2,4	0 0 41 51 21 00
S	PN 630	10	M 18 x 1,5	11,7	20,5	22	3,6	0 0 41 52 21 00
S	PN 630	12	M 20 x 1,5	13,8	21,0	24	4,1	0 0 41 53 21 00
S	PN 630	14*	M 22 x 1,5	17,7	23,0	27	5,7	0 0 41 44 21 00
S	PN 630	16	M 24 x 1,5	18,7	26,5	30	8,4	0 0 41 54 21 00
S	PN 400	20*	M 30 x 2,0	24,4	27,5	36	11,5	0 0 41 46 21 00
S	PN 400	25	M 36 x 2,0	28,7	30,5	46	23,1	0 0 41 55 21 00
S	PN 400	30	M 42 x 2,0	34,2	32,0	50	24,1	0 0 41 56 21 00
S	PN 400	38	M 52 x 2,0	42,3	38,0	60	37,0	0 0 41 57 21 00

* Union nuts for tube ODs
14 and 15 are the same
20 and 22 mm are the same

VOSS

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

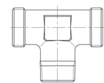



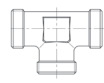
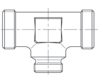
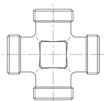



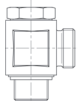

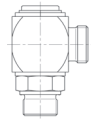
Tube Connection Pieces, 24° Stud Program and Individual/Accessories



Experience plus ideas


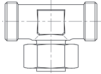












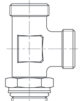











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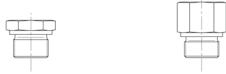
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Type/Page

Sealing rings
(Seal-edge rings for banjo
and gauge couplings)

DKA



Pg. 202

Sealing rings for eccentric
banjo couplings

KDS

OR



Pg. 203

Sealing rings for threaded
studs

ED

OR



Pg. 204

Sealing rings for taper
couplings (DKO) and flared
cones

OR



Pg. 205

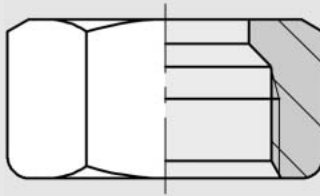
Sealing rings for flange
couplings

OR

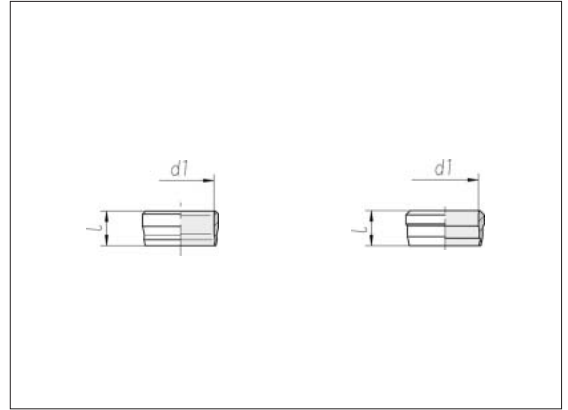


Pg. 206-207

Tube connection components



1S and 2S cutting rings



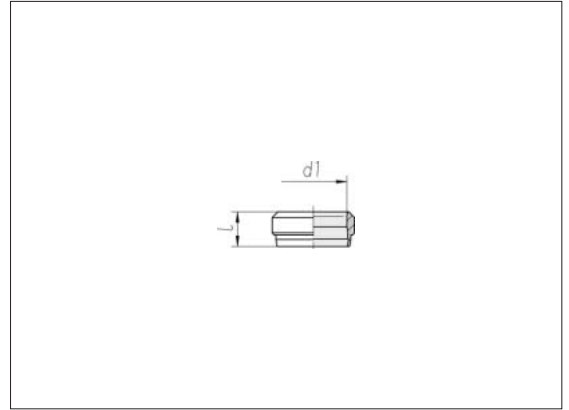
Series	l	Pressure	Order No.	Pressure	Order No.	Order No.
Tube OD			1S cutting ring		2S cutting ring	2SVA cutting ring
d1						
LL 4	6.5	PN 100	0 0 06 00 20 00*			
LL 5	7.5	PN 100	0 0 06 05 20 00			
LL 6	7.5	PN 100	0 0 06 10 20 00			
LL 8	7.5	PN 100	0 0 06 15 20 00			
L 6	8.8			PN 315	0 0 10 00 20 00**	0 0 10 00 60 00
L 8	8.8			PN 315	0 0 10 05 20 00	0 0 10 05 60 00
L 10	9.8			PN 315	0 0 10 10 20 00	0 0 10 10 60 00
L 12	9.8			PN 315	0 0 10 15 20 00	0 0 10 15 60 00
L 15	10.2			PN 315	0 0 10 20 20 00	0 0 10 20 60 00
L 18	10.2			PN 315	0 0 10 25 20 00	0 0 10 25 60 00
L 22	12.5			PN 160	0 0 10 30 20 00	0 0 10 30 60 00
L 28	12.5			PN 160	0 0 10 35 20 00	0 0 10 35 60 00
L 35	13.5			PN 160	0 0 10 40 20 00	0 0 10 40 60 00
L 42	13.5			PN 160	0 0 10 45 20 00	0 0 10 45 60 00
S 6	8.8			PN 630	0 0 10 00 20 00	0 0 10 00 60 00
S 8	8.8			PN 630	0 0 10 05 20 00	0 0 10 05 60 00
S 10	9.8			PN 630	0 0 10 10 20 00	0 0 10 10 60 00
S 12	9.8			PN 630	0 0 10 15 20 00	0 0 10 15 60 00
S 14	10.2			PN 630	0 0 10 20 20 00	0 0 10 20 60 00
S 16	10.2			PN 400	0 0 10 25 20 00	0 0 10 25 60 00
S 20	12.5			PN 400	0 0 10 30 20 00	0 0 10 30 60 00
S 25	12.5			PN 400	0 0 10 35 20 00	0 0 10 35 60 00
S 30	13.5			PN 400	0 0 10 40 20 00	0 0 10 40 60 00
S 38	13.5			PN 315	0 0 10 45 20 00	0 0 10 45 60 00

Cutting rings of tube OD 6 – 12 mm are identical in L + S series

* Sample product code, see: D04LLX
DIN 3861-ALL4-St

** DPR06LX
ISO 8434-1-CR-L6-St

2S *plus* cutting rings

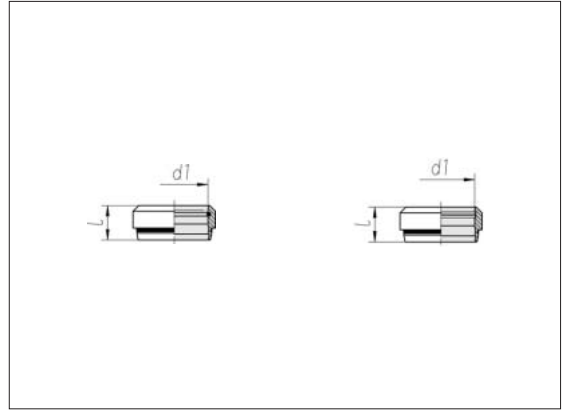


Series Tube OD d1	Pressure	l	Order No. 2S <i>plus</i> cutting ring
L 6	PN 500	9.3	0 0 18 00 21 00*
L 8	PN 500	9.3	0 0 18 05 21 00
L 10	PN 500	9.8	0 0 18 10 21 00
L 12	PN 400	9.8	0 0 18 15 21 00
L 15	PN 400	10.2	0 0 18 20 21 00
L 18	PN 400	10.2	0 0 18 25 21 00
L 22	PN 250	11.5	0 0 18 30 21 00
L 28	PN 250	11.5	0 0 18 35 21 00
L 35	PN 250	13.5	0 0 18 40 21 00
L 42	PN 250	13.5	0 0 18 45 21 00
S 6	PN 800	9.3	0 0 18 00 21 00
S 8	PN 800	9.3	0 0 18 05 21 00
S 10	PN 800	9.8	0 0 18 10 21 00
S 12	PN 630	9.8	0 0 18 15 21 00
S 14	PN 630	10.2	0 0 18 70 21 00
S 16	PN 630	10.2	0 0 18 75 21 00
S 20	PN 420	12.5	0 0 18 80 21 00
S 25	PN 420	12.5	0 0 18 85 21 00
S 30	PN 420	13.5	0 0 18 90 21 00
S 38	PN 420	13.5	0 0 18 95 21 00

Cutting rings of tube OD 6 – 12 mm
are identical in L + S series

* Sample product code, see:
ISO 8434-1-CR-L6-St

ES-4 cutting rings

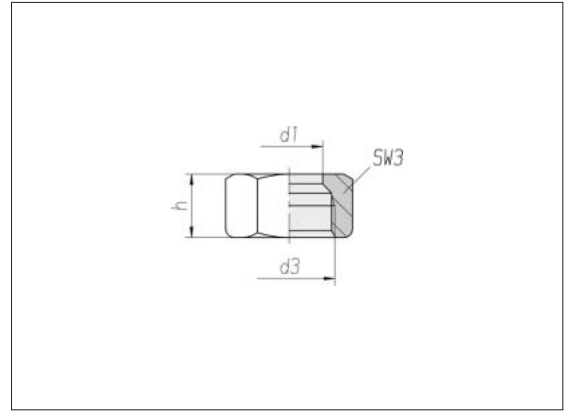


Series	l	Pressure	Order No. ES-4 cutting ring	Pressure	Order No. ES-4VA cutting ring
Tube OD	d1				
L 6	8.8	PN 500	0 0 11 00 20 39*	PN 315	0 0 11 00 60 39
L 8	8.8	PN 500	0 0 11 05 20 39	PN 315	0 0 11 05 60 39
L 10	9.8	PN 500	0 0 11 10 20 39	PN 315	0 0 11 10 60 39
L 12	9.8	PN 400	0 0 11 15 20 39	PN 315	0 0 11 15 60 39
L 15	10.2	PN 400	0 0 11 20 20 39	PN 315	0 0 11 20 60 39
L 18	10.2	PN 400	0 0 11 25 20 39	PN 315	0 0 11 25 60 39
L 22	11.5	PN 250	0 0 11 30 20 39	PN 160	0 0 11 30 60 39
L 28	11.5	PN 250	0 0 11 35 20 39	PN 160	0 0 11 35 60 39
L 35	13.5	PN 250	0 0 11 40 20 39	PN 160	0 0 11 40 60 39
L 42	13.5	PN 250	0 0 11 45 20 39	PN 160	0 0 11 45 60 39
S 6	8.8	PN 800	0 0 11 00 20 39	PN 630	0 0 11 00 60 39
S 8	8.8	PN 800	0 0 11 05 20 39	PN 630	0 0 11 05 60 39
S 10	9.8	PN 800	0 0 11 10 20 39	PN 630	0 0 11 10 60 39
S 12	9.8	PN 630	0 0 11 15 20 39	PN 630	0 0 11 15 60 39
S 14	10.2	PN 630	0 0 11 70 20 39	PN 630	0 0 11 70 60 39
S 16	10.2	PN 630	0 0 11 75 20 39	PN 400	0 0 11 75 60 39
S 20	12.5	PN 420	0 0 11 80 20 39	PN 400	0 0 11 80 60 39
S 25	12.5	PN 420	0 0 11 85 20 39	PN 400	0 0 11 85 60 39
S 30	13.5	PN 420	0 0 11 90 20 39	PN 400	0 0 11 90 60 39
S 38	13.5	PN 420	0 0 11 95 20 39	PN 315	0 0 11 95 60 39

Cutting rings of tube OD 6 – 12 mm are identical in L + S series

* Sample product code, see: ISO 8434-1-CR-L6-St

Union nuts



Series Tube OD d1	Pressure	d3	SW3	h	Order No. Union nut
LL 4	PN 100	M 8 x 1	10	11	0 0 03 00 21 00*
LL 5	PN 100	M 10 x 1	12	11.5	0 0 03 05 21 00
LL 6	PN 100	M 10 x 1	12	11.5	0 0 03 10 21 00
LL 8	PN 100	M 12 x 1	14	12	0 0 03 15 21 00
L 6	PN 500	M 12 x 1.5	14	14.5	0 0 04 00 21 00**
L 8	PN 500	M 14 x 1.5	17	14.5	0 0 04 05 21 00
L 10	PN 500	M 16 x 1.5	19	15.5	0 0 04 10 21 00
L 12	PN 400	M 18 x 1.5	22	15.5	0 0 04 15 21 00
L 15	PN 400	M 22 x 1.5	27	17	0 0 04 20 21 00
L 18	PN 400	M 26 x 1.5	32	18	0 0 04 25 21 00
L 22	PN 250	M 30 x 2	36	20	0 0 04 30 21 00
L 28	PN 250	M 36 x 2	41	21	0 0 04 35 21 00
L 35	PN 250	M 45 x 2	50	24	0 0 04 40 21 00
L 42	PN 250	M 52 x 2	60	24	0 0 04 45 21 00
S 6	PN 800	M 14 x 1.5	17	16.5	0 0 04 50 21 00
S 8	PN 800	M 16 x 1.5	19	16.5	0 0 04 55 21 00
S 10	PN 800	M 18 x 1.5	22	17.5	0 0 04 60 21 00
S 12	PN 630	M 20 x 1.5	24	17.5	0 0 04 65 21 00
S 14	PN 630	M 22 x 1.5	27	20.5	0 0 04 70 21 00
S 16	PN 630	M 24 x 1.5	30	20.5	0 0 04 75 21 00
S 20	PN 420	M 30 x 2	36	24	0 0 04 80 21 00
S 25	PN 420	M 36 x 2	46	27	0 0 04 85 21 00
S 30	PN 420	M 42 x 2	50	29	0 0 04 90 21 00
S 38	PN 420	M 52 x 2	60	32.5	0 0 04 95 21 00

The union nuts are coated with sliding wax to reduce assembly forces

* Sample product code, see:
M04LLX
DIN 3870-ALL4

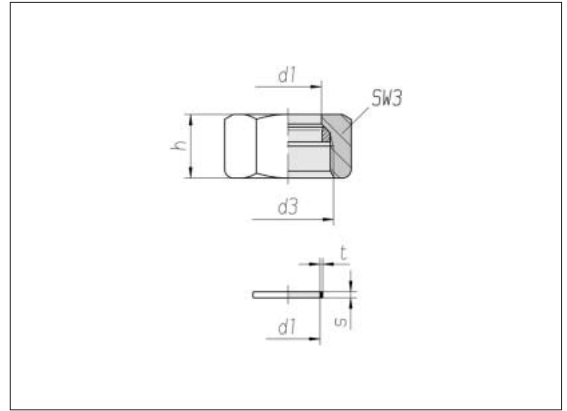
** M06LX
ISO 8434-1-N-L6-St

VOSSForm^{SQR} VOSSForm^{SQR}VA

Steel set / stainless steel set
consisting of

- SQR nuts
- Moulded seals

The standard material of the
moulded seals is FPM / FKM



Series	d3	SW3	h	kg/100 approx.	Pressure	Order No.* SQR nut + Spare seal	Pressure	Order No.** SQRVA nut + Spare seal	d1	s	t	Order No. Spare seal
L 6	M 12 x 1.5	14	14.5	1.1	PN 500	0 0 15 50 21 67	PN 315	0 0 15 50 60 67	6	1.8	0.7	0 9 12 30 97 90
L 8	M 14 x 1.5	17	14.5	1.7	PN 500	0 0 15 51 21 67	PN 315	0 0 15 51 60 67	8	1.8	0.7	0 9 12 31 97 90
L 10	M 16 x 1.5	19	15.5	2.0	PN 500	0 0 15 52 21 67	PN 315	0 0 15 52 60 67	10	2.0	0.7	0 9 12 32 97 90
L 12	M 18 x 1.5	22	15.5	2.8	PN 400	0 0 15 53 21 67	PN 315	0 0 15 53 60 67	12	2.0	0.7	0 9 12 33 97 90
L 15	M 22 x 1.5	27	17	4.7	PN 400	0 0 15 54 21 67	PN 315	0 0 15 54 60 67	15	2.0	0.7	0 9 12 34 97 90
L 18	M 26 x 1.5	32	18	6.9	PN 400	0 0 15 55 21 67	PN 315	0 0 15 55 60 67	18	2.0	0.7	0 9 12 35 97 90
L 22	M 30 x 2	36	20	8.9	PN 250	0 0 15 56 21 67	PN 160	0 0 15 56 60 67	22	2.0	0.7	0 9 12 36 97 90
L 28	M 36 x 2	41	21	9.4	PN 250	0 0 15 57 21 67	PN 160	0 0 15 57 60 67	28	2.0	0.7	0 9 12 37 97 90
L 35	M 45 x 2	50	24	15.0	PN 250	0 0 15 58 21 67	PN 160	0 0 15 58 60 67	35	2.6	0.9	0 9 12 38 97 90
L 42	M 52 x 2	60	24	23.0	PN 250	0 0 15 59 21 67	PN 160	0 0 15 59 60 67	42	2.6	0.9	0 9 12 39 97 90
S 6	M 14 x 1.5	17	16.5	2.0	PN 800	0 0 15 60 21 67	PN 630	0 0 15 60 60 67	6	1.8	0.7	0 9 12 30 97 90
S 8	M 16 x 1.5	19	16.5	2.3	PN 800	0 0 15 61 21 67	PN 630	0 0 15 61 60 67	8	1.8	0.7	0 9 12 31 97 90
S 10	M 18 x 1.5	22	17.5	3.5	PN 800	0 0 15 62 21 67	PN 630	0 0 15 62 60 67	10	2.0	0.7	0 9 12 32 97 90
S 12	M 20 x 1.5	24	17.5	3.9	PN 630	0 0 15 63 21 67	PN 630	0 0 15 63 60 67	12	2.0	0.7	0 9 12 33 97 90
S 14	M 22 x 1.5	27	20.5	5.8	PN 630	0 0 15 64 21 67	PN 630	0 0 15 64 60 67	14	2.0	0.7	0 9 12 40 97 90
S 16	M 24 x 1.5	30	20.5	7.1	PN 630	0 0 15 65 21 67	PN 400	0 0 15 65 60 67	16	2.0	0.7	0 9 12 41 97 90
S 20	M 30 x 2	36	24	11.3	PN 420	0 0 15 66 21 67	PN 400	0 0 15 66 60 67	20	2.5	0.9	0 9 12 42 97 90
S 25	M 36 x 2	46	27	21.2	PN 420	0 0 15 67 21 67	PN 400	0 0 15 67 60 67	25	2.5	0.9	0 9 12 43 97 90
S 30	M 42 x 2	50	29	23.3	PN 420	0 0 15 68 21 67	PN 400	0 0 15 68 60 67	30	2.6	0.9	0 9 12 44 97 90
S 38	M 52 x 2	60	32.5	34.4	PN 420	0 0 15 69 21 67	PN 315	0 0 15 69 60 67	38	2.6	0.9	0 9 12 45 97 90

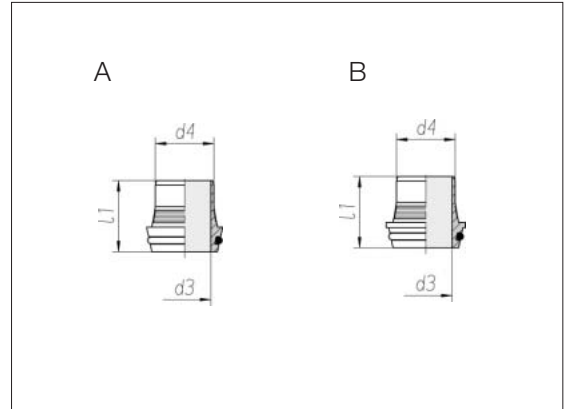
The steel union nuts are coated with
gliding wax in order to reduce
assembly effort.

* Material: Steel

** Material: Stainless steel

Flared cone

L series



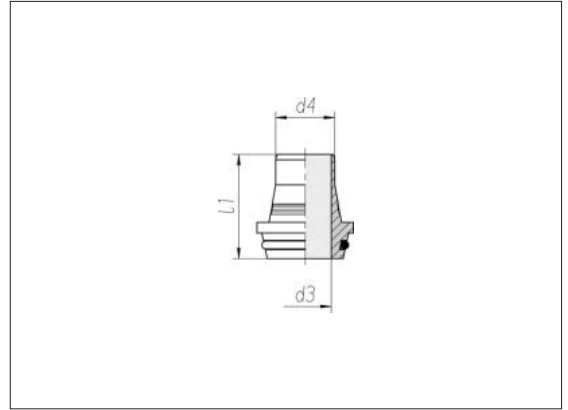
3

Series Tube d1 x s	Pressure	d3	d4	l1	Type	kg/100 approx.	Order No.
L 6 x 1	PN 500	2.9	4.2	16.5	A	0.3	0 0 34 00 99 00*
L 8 x 1	PN 500	4.9	6.2	18	A	0.4	0 0 34 05 99 00
L 10 x 1	PN 500	6.3	8.2	19	A	0.6	0 0 34 10 99 00
L 10 x 1.5	PN 500	5.5	7.2	19	A	0.6	0 0 34 11 99 00
L 12 x 1	PN 400	8.0	10.2	21.5	A	0.9	0 0 34 15 99 00
L 12 x 1.5	PN 400	7.5	9.2	21.5	A	0.8	0 0 34 16 99 00
L 15 x 1.5	PN 400	10.2	12.2	21.5	A	1.1	0 0 34 21 99 00
L 15 x 2	PN 400	9.1	11.3	21.5	A	1.2	0 0 34 22 99 00
L 18 x 1.5	PN 400	13.0	15.2	22	B	1.5	0 0 34 26 99 00
L 18 x 2	PN 400	12.0	14.3	22	B	1.6	0 0 34 27 99 00
L 22 x 1.5	PN 250	16.2	19.2	23.5	B	2.0	0 0 34 31 99 00
L 22 x 2	PN 250	16.2	18.3	23.5	B	2.0	0 0 34 32 99 00
L 28 x 2	PN 250	21.0	24.3	27	B	3.8	0 0 34 37 99 00
L 28 x 3	PN 250	19.5	22.3	27	B	3.6	0 0 34 39 99 00
L 35 x 2	PN 250	28.5	31.3	31	B	5.3	0 0 34 41 99 00
L 35 x 3	PN 250	26.5	29.3	31	B	6.1	0 0 34 43 99 00
L 42 x 3	PN 250	33.5	36.3	31	B	7.7	0 0 34 47 99 00

* Sample product code, see:
BOEKEGL6X1

Flared cone

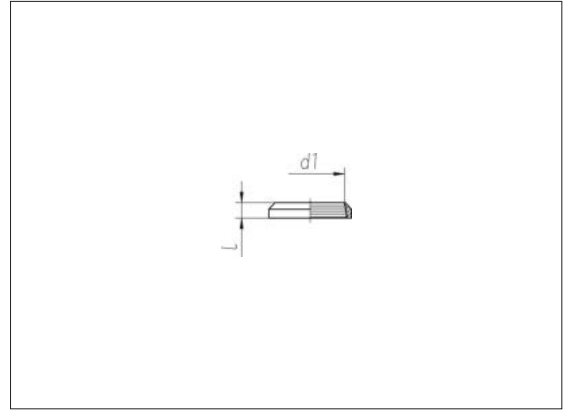
S series



Series Tube OD d1 x s	Pressure	d3	d4	l1	kg/100 approx.	Order No.
S 8 x 1,5	PN 800	4	5.2	20	0.5	0 0 34 56 99 00*
S 8 x 2	PN 800	3	4.2	20	0.5	0 0 34 57 99 00
S 10 x 1.5	PN 800	5.5	7.2	21	0.8	0 0 34 61 99 00
S 10 x 2	PN 800	4.5	6.2	21	0.8	0 0 34 62 99 00
S 12 x 1.5	PN 630	7.5	9.2	22.5	1.0	0 0 34 66 99 00
S 12 x 2	PN 630	6.5	8.2	22.5	1.1	0 0 34 67 99 00
S 12 x 3	PN 630	4.5	6.2	22.5	1.1	0 0 34 69 99 00
S 14 x 2	PN 630	8.5	10.3	26	1.5	0 0 34 71 99 00
S 16 x 2	PN 630	10.5	12.3	26.5	1.8	0 0 34 77 99 00
S 16 x 2.5	PN 630	9.5	11.3	26.5	1.6	0 0 34 78 99 00
S 16 x 3	PN 630	8.5	10.3	26.5	1.8	0 0 34 79 99 00
S 20 x 2	PN 420	13.5	16.3	32	3.4	0 0 34 81 99 00
S 20 x 2.5	PN 420	13.5	15.3	32	3.3	0 0 34 82 99 00
S 20 x 3	PN 420	12.5	14.3	32	3.5	0 0 34 83 99 00
S 20 x 3.5	PN 420	11	13.3	32	3.1	0 0 34 84 99 00
S 20 x 4	PN 420	10	12.3	32	3.1	0 0 40 04 99 00
S 25 x 2.5	PN 420	18	20.3	34.5	5.9	0 0 34 86 99 00
S 25 x 3	PN 420	17	19.3	34.5	6.1	0 0 34 87 99 00
S 25 x 4	PN 420	15	17.3	34.5	6.5	0 0 34 88 99 00
S 30 x 3	PN 420	22	24.3	34.5	6.8	0 0 34 92 99 00
S 30 x 4	PN 420	20	22.3	34.5	7.4	0 0 34 93 99 00
S 30 x 5	PN 420	17	20.3	34.5	8.5	0 0 34 94 99 00
S 38 x 3	PN 420	30	32.3	38	8.9	0 0 34 96 99 00
S 38 x 4	PN 420	27	30.3	38	12.8	0 0 34 97 99 00
S 38 x 5	PN 420	25	28.3	38	12.0	0 0 34 98 99 00
S 38 x 6	PN 420	23	26.3	38	11.8	0 0 34 99 99 00

* Sample product code, see:
BOEKEGS8X1.5

Clamping rings

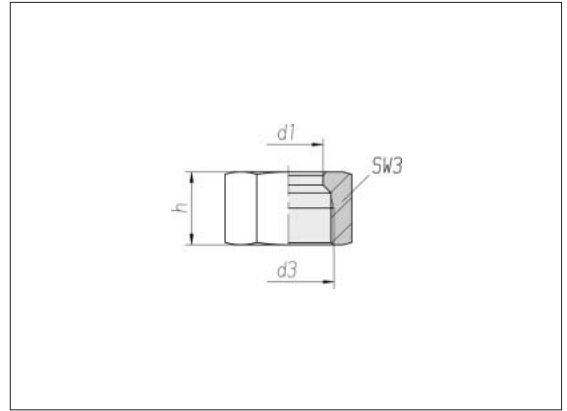


Series Tube OD d1	Pressure	l	kg/100 approx.	Order No.
L 6	PN 500	3.8	0.1	0 0 31 00 19 00*
L 8	PN 500	3.8	0.1	0 0 31 05 19 00
L 10	PN 500	3.8	0.1	0 0 31 10 19 00
L 12	PN 400	3.8	0.2	0 0 31 15 19 00
L 15	PN 400	4.5	0.3	0 0 31 20 19 00
L 18	PN 400	4.5	0.4	0 0 31 25 19 00
L 22	PN 250	5.0	0.5	0 0 31 30 19 00
L 28	PN 250	5.5	0.5	0 0 31 35 19 00
L 35	PN 250	7.0	1.4	0 0 31 40 19 00
L 42	PN 250	7.0	1.6	0 0 31 45 19 00
S 8	PN 800	4.5	0.3	0 0 31 55 19 00
S 10	PN 800	4.5	0.3	0 0 31 60 19 00
S 12	PN 630	4.5	0.3	0 0 31 65 19 00
S 14	PN 630	6.5	0.5	0 0 31 70 19 00
S 16	PN 630	6.5	0.6	0 0 31 75 19 00
S 20	PN 420	9.0	1.1	0 0 31 80 19 00
S 25	PN 420	10.0	2.3	0 0 31 85 19 00
S 30	PN 420	10.0	2.6	0 0 31 90 19 00
S 38	PN 420	13.5	5.7	0 0 31 95 19 00

* Sample product code, see:
BOEKLEL6

Union nuts

for flared couplings

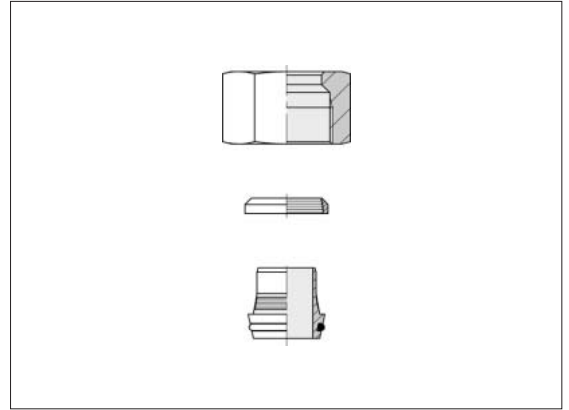


Series Tube OD d1	Pressure	d3	SW3	h	kg/100 approx.	Order No.
L 6	PN 500	M 12 x 1.5	14	17.8	1.2	0 0 32 00 21 00*
L 8	PN 500	M 14 x 1.5	17	17.8	1.8	0 0 32 05 21 00
L 10	PN 500	M 16 x 1.5	19	18.8	2.2	0 0 32 10 21 00
L 12	PN 400	M 18 x 1.5	22	18.8	3.1	0 0 32 15 21 00
L 15	PN 400	M 22 x 1.5	27	20.3	5.0	0 0 32 20 21 00
L 18	PN 400	M 26 x 1.5	32	21.3	7.5	0 0 32 25 21 00
L 22	PN 250	M 30 x 2	36	24.0	9.9	0 0 32 30 21 00
L 28	PN 250	M 36 x 2	41	25.0	11.2	0 0 32 35 21 00
L 35	PN 250	M 45 x 2	50	28.0	17.2	0 0 32 40 21 00
L 42	PN 250	M 52 x 2	60	28.0	26.7	0 0 32 45 21 00
S 8	PN 800	M 16 x 1.5	19	20.0	2.5	0 0 32 55 21 00
S 10	PN 800	M 18 x 1.5	22	21.5	3.7	0 0 32 60 21 00
S 12	PN 630	M 20 x 1.5	24	21.5	4.1	0 0 32 65 21 00
S 14	PN 630	M 22 x 1.5	27	26.0	6.5	0 0 32 70 21 00
S 16	PN 630	M 24 x 1.5	30	26.0	8.1	0 0 32 75 21 00
S 20	PN 420	M 30 x 2	36	30.5	12.6	0 0 32 80 21 00
S 25	PN 420	M 36 x 2	46	38.0	28.4	0 0 32 85 21 00
S 30	PN 420	M 42 x 2	50	39.0	29.5	0 0 32 90 21 00
S 38	PN 420	M 52 x 2	60	46.0	45.2	0 0 32 95 21 00

* Sample product code, see:
ML6BOE

Flared fittings

L series
complete



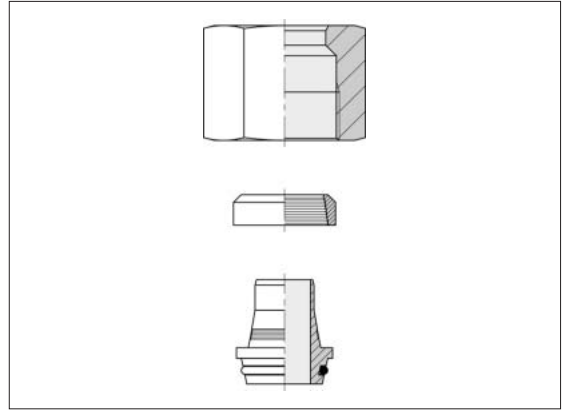
3

Series Tube d1 x s	Pressure	kg/100 approx.	Order No.
L 6 x 1	PN 500	1.6	0 0 33 00 99 00*
L 8 x 1	PN 500	2.3	0 0 33 05 99 00
L 10 x 1	PN 500	2.9	0 0 33 10 99 00
L 10 x 1.5	PN 500	2.9	0 0 33 11 99 00
L 12 x 1	PN 400	4.2	0 0 33 15 99 00
L 12 x 1.5	PN 400	4.2	0 0 33 16 99 00
L 15 x 1.5	PN 400	6.4	0 0 33 21 99 00
L 15 x 2	PN 400	6.4	0 0 33 22 99 00
L 18 x 1.5	PN 400	9.4	0 0 33 26 99 00
L 18 x 2	PN 400	9.5	0 0 33 27 99 00
L 22 x 1.5	PN 250	12.4	0 0 33 31 99 00
L 22 x 2	PN 250	12.4	0 0 33 32 99 00
L 28 x 2	PN 250	15.5	0 0 33 37 99 00
L 28 x 3	PN 250	15.3	0 0 33 39 99 00
L 35 x 2	PN 250	23.9	0 0 33 41 99 00
L 35 x 3	PN 250	24.7	0 0 33 43 99 00
L 42 x 3	PN 250	36.0	0 0 33 47 99 00

* Sample product code, see:
BOEETKL6X1

Flared fittings

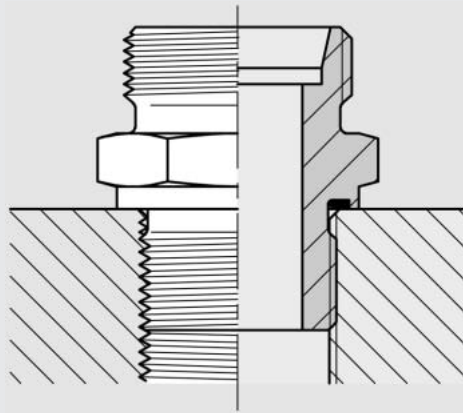
S series
complete



Series Tube d1 x s	Pressure	kg/100 approx.	Order No.
S 8 x 1.5	PN 800	4.8	0 0 33 56 99 00*
S 8 x 2	PN 800	5.0	0 0 33 57 99 00
S 10 x 1.5	PN 800	5.6	0 0 33 61 99 00
S 10 x 2	PN 800	5.6	0 0 33 62 99 00
S 12 x 1.5	PN 630	6.5	0 0 33 66 99 00
S 12 x 2	PN 630	6.6	0 0 33 67 99 00
S 12 x 3	PN 630	6.7	0 0 33 69 99 00
S 14 x 2	PN 630	10.3	0 0 33 71 99 00
S 16 x 2	PN 630	11.0	0 0 33 77 99 00
S 16 x 2.5	PN 630	11.0	0 0 33 78 99 00
S 16 x 3	PN 630	11.4	0 0 33 79 99 00
S 20 x 2	PN 420	15.7	0 0 33 81 99 00
S 20 x 2.5	PN 420	15.7	0 0 33 82 99 00
S 20 x 3	PN 420	15.7	0 0 33 83 99 00
S 20 x 3.5	PN 420	15.7	0 0 33 84 99 00
S 20 x 4	PN 420	15.5	0 0 33 85 99 00
S 25 x 2.5	PN 420	25.3	0 0 33 86 99 00
S 25 x 3	PN 420	25.3	0 0 33 87 99 00
S 25 x 4	PN 420	25.5	0 0 33 88 99 00
S 30 x 3	PN 420	37.5	0 0 33 92 99 00
S 30 x 4	PN 420	38.0	0 0 33 93 99 00
S 30 x 5	PN 420	39.2	0 0 33 94 99 00
S 38 x 3	PN 420	60.0	0 0 33 96 99 00
S 38 x 4	PN 420	61.7	0 0 33 97 99 00
S 38 x 5	PN 420	62.2	0 0 33 98 99 00
S 38 x 6	PN 420	62.3	0 0 33 99 99 00

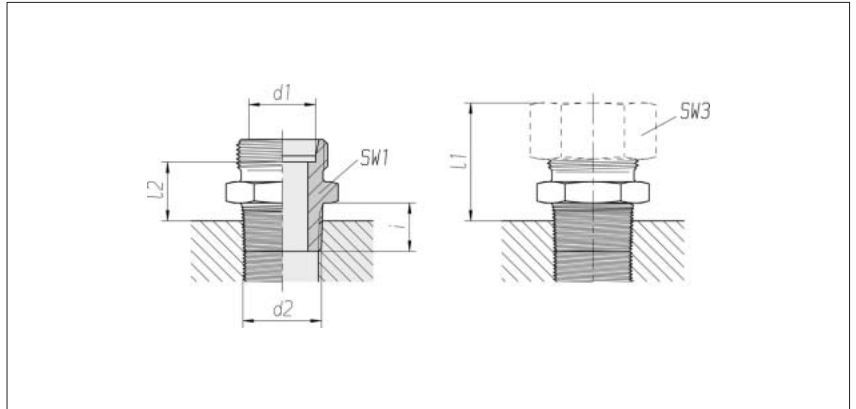
* Sample product code, see:
BOEETKS8X1.5

Male stud couplings



Straight male stud couplings

Thread:
metric fine thread,
tapered



Series Tube OD d1	Pressure	d2		SW1	SW3	l1 approx.	l2 approx.	i	kg/100 approx.	Order No. Single component	Order No. *
LL 4	PN 100	M 8 x 1	taper	10	10	20	10.5	8	0.6	0 7 01 00 20 00	-
LL 6	PN 100	M 8 x 1	taper	11	12	20.5	9	8	0.6	0 7 01 11 20 00	-
LL 6	PN 100	M 10 x 1	taper	11	12	20.5	9	8	0.8	0 7 01 10 20 00	-
LL 8	PN 100	M 10 x 1	taper	12	14	23.5	11	8	1.0	0 7 01 15 20 00	-
L 6	PN 315	M 10 x 1	taper	14	14	24.5	10	8	1.3	0 7 02 00 20 00	0 1 02 00 20 07**
L 8	PN 315	M 12 x 1.5	taper	17	17	27	12	12	2.1	0 7 02 05 20 00	0 1 02 05 20 07
L 10	PN 315	M 14 x 1.5	taper	17	19	28	13	12	2.5	0 7 02 10 20 00	0 1 02 10 20 07
L 12	PN 315	M 16 x 1.5	taper	19	22	28.5	14	12	3.2	0 7 02 15 20 00	0 1 02 15 20 07
L 15	PN 315	M 18 x 1.5	taper	24	27	30	15	12	4.7	0 7 02 20 20 00	0 1 02 20 20 07
L 18	PN 315	M 22 x 1.5	taper	27	32	32	16	14	6.8	0 7 02 25 20 00	0 1 02 25 20 07
S 6	PB 630	M 12 x 1.5	taper	17	17	30	15	12	2.8	0 7 02 50 20 00	0 1 02 50 20 07
S 8	PB 630	M 14 x 1.5	taper	17	19	32	17	12	3.7	0 7 02 55 20 00	0 1 02 55 20 07
S 10	PB 630	M 16 x 1.5	taper	19	22	32.5	16.5	12	4.3	0 7 02 60 20 00	0 1 02 60 20 07
S 12	PB 630	M 18 x 1.5	taper	22	24	34.5	18.5	12	6.0	0 7 02 65 20 00	0 1 02 65 20 07
S 14	PB 630	M 20 x 1.5	taper	27	27	38.5	20.5	14	8.7	0 7 02 70 20 00	0 1 02 70 20 07
S 16	PB 400	M 22 x 1.5	taper	27	30	38.5	20	14	9.0	0 7 02 75 20 00	0 1 02 75 20 07

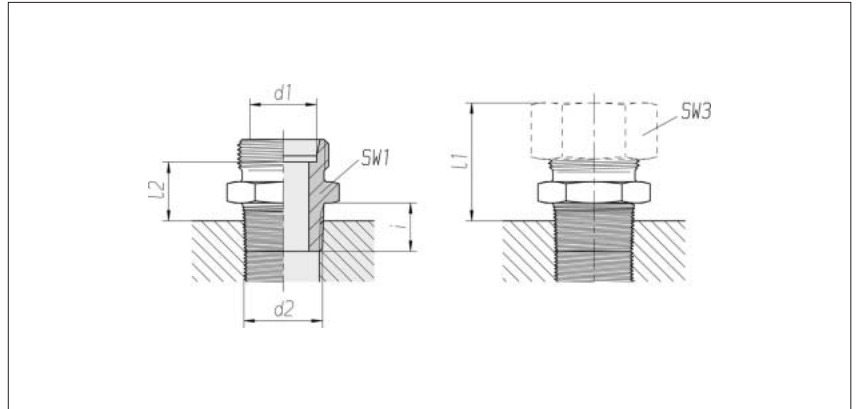
The operating pressure PB 630
only applies for threaded bores with
tapered threads

* With union nut and 2S cutting ring

** Sample product code, see:
GE06LM
DIN 2353-AL6-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
tapered



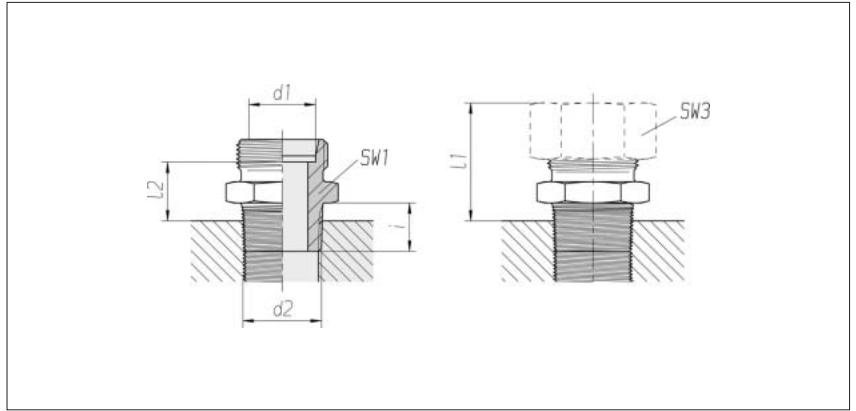
Series	Pressure	d2		SW1	SW3	l1	l2	i	kg/100	Order No.	Order No.
Tube OD						approx.	approx.		approx.	Single component	*
d1											
LL 4	PN 100	R 1/8		10	10	20	10.5	8	0.8	0 7 03 00 20 00	-
LL 5	PN 100	R 1/8		11	12	21	9.5	8	0.9	0 7 03 05 20 00	-
LL 6	PN 100	R 1/8		11	12	20.5	9	8	0.8	0 7 03 10 20 00	-
LL 8	PN 100	R 1/8		12	14	23.5	11	8	0.9	0 7 03 15 20 00	-
LL 8	PN 100	R 1/4		14	14	25	12.5	12	1.7	0 7 03 17 20 00	-
L 6	PN 315	R 1/8		14	14	24.5	10	8	1.2	0 7 04 00 20 00	0 1 04 00 20 07**
L 6	PN 315	R 1/4		14	14	25.5	11	12	1.9	0 7 04 02 20 00	0 1 04 02 20 07
L 8	PN 315	R 1/8		14	17	26	11	8	1.5	0 7 04 06 20 00	0 1 04 06 20 07
L 8	PN 315	R 1/4		17	17	27	12	12	2.2	0 7 04 05 20 00	0 1 04 05 20 07
L 8	PN 315	R 3/8		19	17	28	13	12	3.4	0 7 04 07 20 00	0 1 04 07 20 07
L 8	PN 315	R 1/2		24	17	28.5	13.5	14	5.9	0 7 04 08 20 00	0 1 04 08 20 07
L 10	PN 315	R 1/4		17	19	28	13	12	2.3	0 7 04 10 20 00	0 1 04 10 20 07
L 10	PN 315	R 3/8		19	19	28	13	12	3.1	0 7 04 12 20 00	0 1 04 12 20 07
L 10	PN 315	R 1/2		24	19	29.5	14.5	14	5.6	0 7 04 13 20 00	0 1 04 13 20 07
L 12	PN 315	R 1/4		19	22	28.5	14	12	2.8	0 7 04 16 20 00	0 1 04 16 20 07
L 12	PN 315	R 3/8		19	22	28.5	14	12	3.3	0 7 04 15 20 00	0 1 04 15 20 07
L 12	PN 315	R 1/2		24	22	29	14.5	14	5.5	0 7 04 17 20 00	0 1 04 17 20 07
L 15	PN 315	R 1/4		24	27	30	15	12	4.4	0 7 04 23 20 00	0 1 04 23 20 07
L 15	PN 315	R 3/8		24	27	30	15	12	4.4	0 7 04 21 20 00	0 1 04 21 20 07
L 15	PN 315	R 1/2		24	27	30.5	15.5	14	5.8	0 7 04 20 20 00	0 1 04 20 20 07
L 18	PN 315	R 1/2		27	32	32.5	16	14	6.4	0 7 04 25 20 00	0 1 04 25 20 07
L 22	PB 160	R 1/2		32	36	34.5	18	14	8.1	0 7 04 31 20 00	0 1 04 31 20 07
L 22	PB 160	R 3/4		32	36	35	18.5	16	9.6	0 7 04 30 20 00	0 1 04 30 20 07
L 28	PB 160	R 3/4		41	41	36	19.5	16	13.9	0 7 04 36 20 00	0 1 04 36 20 07
L 28	PB 160	R 1		41	41	37	20.5	18	15.6	0 7 04 35 20 00	0 1 04 35 20 07

* With union nut and 2S cutting ring

** Sample product code, see:
GE06LR
DIN 2353-BL6-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
tapered



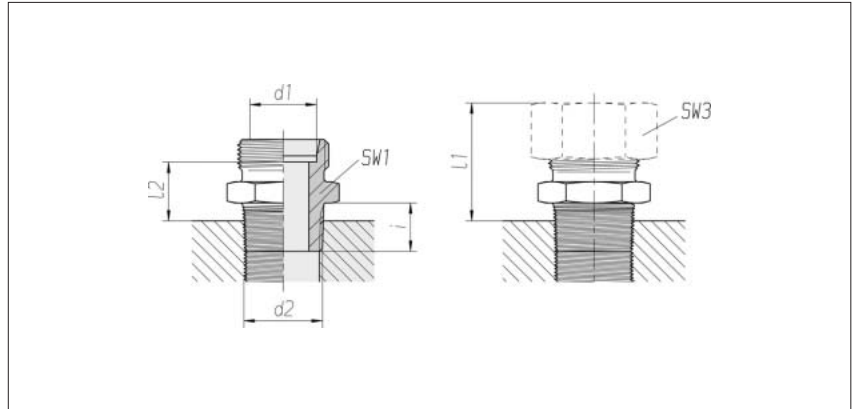
Series	Pressure	d2		SW1	SW3	l1	l2	i	kg/100	Order No.	Order No.
Tube OD						approx.	approx.		approx.	Single component	*
d1											
S 6	PB 630	R 1/4		17	17	30	15	12	3.0	0 7 04 50 20 00	0 1 04 50 20 07
S 8	PB 630	R 1/4		17	19	32	17	12	3.4	0 7 04 55 20 00	0 1 04 55 20 07
S 10	PB 630	R 3/8		19	22	32.5	16.5	12	4.4	0 7 04 60 20 00	0 1 04 60 20 07
S 12	PB 630	R 3/8		22	24	34.5	18.5	12	5.8	0 7 04 65 20 00	0 1 04 65 20 07
S 14	PB 630	R 3/8		24	27	38	20	12	6.8	0 7 04 71 20 00	0 1 04 71 20 07
S 14	PB 630	R 1/2		27	27	38.5	20.5	14	8.9	0 7 04 70 20 00	0 1 04 70 20 07
S 16	PB 400	R 3/8		27	30	38	19.5	12	7.9	0 7 04 76 20 00	0 1 04 76 20 07
S 16	PB 400	R 1/2		27	30	38.5	20	14	8.5	0 7 04 75 20 00	0 1 04 75 20 07
S 20	PB 400	R 3/4		32	36	44	22.5	16	14.1	0 7 04 80 20 00	0 1 04 80 20 07

The operating pressure PB 630 only applies for threaded bores with tapered threads

* With union nut and 2S cutting ring

Straight male stud couplings

Thread:
NPT (ANSI/ASME B 1
- 20/01/1983)



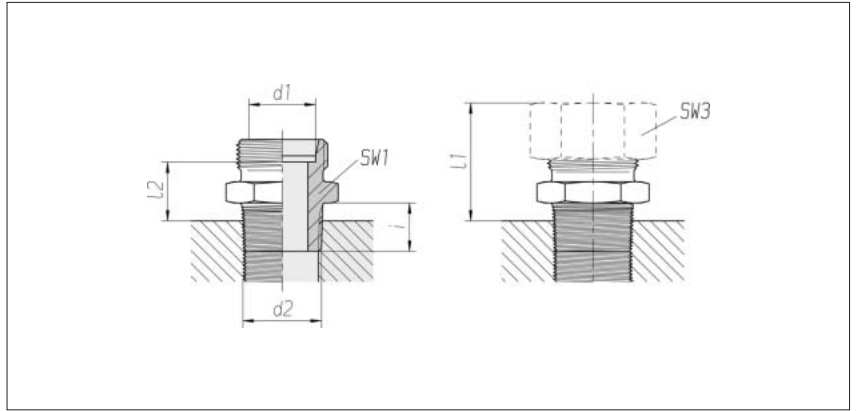
Series Tube OD d1	Pressure	d2	SW1	SW3	l1 approx.	l2 approx.	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
LL 4	PN 100	1/8 NPT	11	10	21	11.5	9.9	15	0.9	0 7 05 00 20 00	-
LL 6	PN 100	1/8 NPT	11	12	21.5	10	9.9	15	0.9	0 7 05 10 20 00	-
LL 8	PN 100	1/8 NPT	12	14	24.5	12	9.9	15	1.0	0 7 05 15 20 00	-
L 6	PN 315	1/8 NPT	12	14	25	10.5	9.9	15	1.2	0 7 06 00 20 00**	0 1 06 00 20 07
L 6	PN 315	1/4 NPT	17	14	25.5	10.5	15.1	35	2.6	0 7 06 02 20 00	0 1 06 02 20 07
L 8	PN 315	1/8 NPT	14	17	26.5	11.5	9.9	15	1.5	0 7 06 06 20 00	0 1 06 06 20 07
L 8	PN 315	1/4 NPT	17	17	28	13	15.1	35	2.5	0 7 06 05 20 00	0 1 06 05 20 07
L 8	PN 315	3/8 NPT	19	17	29	14	15.2	55	3.9	0 7 06 07 20 00	0 1 06 07 20 07
L 10	PN 315	1/8 NPT	17	19	28.5	13.5	9.9	15	2.3	0 7 06 11 20 00	0 1 06 11 20 07
L 10	PN 315	1/4 NPT	17	19	29	14	15.1	35	2.5	0 7 06 10 20 00	0 1 06 10 20 07
L 10	PN 315	3/8 NPT	19	19	30	15	15.2	55	3.7	0 7 06 12 20 00	0 1 06 12 20 07
L 10	PN 315	1/2 NPT	24	19	32.5	17.5	19.8	110	7.2	0 7 06 13 20 00	0 1 06 13 20 07
L 12	PN 315	1/4 NPT	19	22	29.5	15	15.1	35	3.2	0 7 06 16 20 00	0 1 06 16 20 07
L 12	PN 315	3/8 NPT	19	22	29.5	15	15.2	55	3.6	0 7 06 15 20 00	0 1 06 15 20 07
L 12	PN 315	1/2 NPT	24	22	31	16.5	19.8	110	6.4	0 7 06 17 20 00	0 1 06 17 20 07
L 15	PN 315	3/8 NPT	24	27	31	16	15.2	55	5.2	0 7 06 21 20 00	0 1 06 21 20 07
L 15	PN 315	1/2 NPT	24	27	32.5	17.5	19.8	110	6.8	0 7 06 20 20 00	0 1 06 20 20 07
L 18	PN 315	1/2 NPT	27	32	34.5	18	19.8	110	7.2	0 7 06 25 20 00	0 1 06 25 20 07
L 18	PN 160	3/4 NPT	30	32	34.5	18	20.1	175	9.1	0 7 06 27 20 00	0 1 06 27 20 07
L 22	PN 160	1/2 NPT	32	36	36.5	20	19.8	110	9.9	0 7 06 31 20 00	0 1 06 31 20 07
L 22	PN 160	3/4 NPT	32	36	36.5	20	20.1	175	10.1	0 7 06 30 20 00	0 1 06 30 20 07
L 28	PN 160	1 NPT	41	41	39.5	23	25.0	265	17.2	0 7 06 35 20 00	0 1 06 35 20 07
L 35	PN 160	1 1/4 NPT	46	50	45	23.5	25.6	315	25.6	0 7 06 40 20 00	0 1 06 40 20 07
L 42	PN 160	1 1/2 NPT	55	60	48	25	26.0	385	35.2	0 7 06 45 20 00	0 1 06 45 20 07

* With union nut and 2S cutting ring

** Sample product code, see:
GE06L1/8NPTX

Straight male stud couplings

Thread:
NPT (ANSI/ASME B 1
- 20/01/1983)



Series Tube OD d1	Pressure	d2	SW1	SW3	l1 approx.	l2 approx.	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
S 6	PN 630	1/4 NPT	17	17	31	16	15.1	35	3.3	0 7 06 50 20 00**	0 1 06 50 20 07
S 8	PN 630	1/4 NPT	17	19	33	18	15.1	35	3.8	0 7 06 55 20 00	0 1 06 55 20 07
S 10	PN 630	1/4 NPT	19	22	33.5	17.5	15.1	35	4.3	0 7 06 61 20 00	0 1 06 61 20 07
S 10	PN 630	3/8 NPT	19	22	33.5	17.5	15.2	55	4.8	0 7 06 60 20 00	0 1 06 60 20 07
S 12	PN 630	1/4 NPT	22	24	34.5	19.5	15.1	35	5.8	0 7 06 66 20 00	0 1 06 66 20 07
S 12	PN 630	3/8 NPT	22	24	35.5	19.5	15.2	55	6.2	0 7 06 65 20 00	0 1 06 65 20 07
S 12	PN 630	1/2 NPT	24	24	37	21	19.8	110	9.0	0 7 06 67 20 00	0 1 06 67 20 07
S 14	PN 630	3/8 NPT	24	27	39	21	15.2	55	7.2	0 7 06 71 20 00	0 1 06 71 20 07
S 14	PN 630	1/2 NPT	27	27	40.5	22.5	19.8	110	9.9	0 7 06 70 20 00	0 1 06 70 20 07
S 16	PN 400	3/8 NPT	27	30	39	20.5	15.2	55	8.4	0 7 06 76 20 00	0 1 06 76 20 07
S 16	PN 400	1/2 NPT	27	30	40.5	22	19.8	110	9.4	0 7 06 75 20 00	0 1 06 75 20 07
S 16	PN 400	3/4 NPT	30	30	40.5	22	20.1	175	13.5	0 7 06 77 20 00	0 1 06 77 20 07
S 20	PN 400	1/2 NPT	32	36	45.5	24	19.8	110	12.7	0 7 06 81 20 00	0 1 06 81 20 07
S 20	PN 400	3/4 NPT	32	36	45.5	24	20.1	175	14.9	0 7 06 80 20 00	0 1 06 80 20 07
S 25	PN 400	3/4 NPT	41	46	50.5	26.5	20.1	175	22.7	0 7 06 86 20 00	0 1 06 86 20 07
S 25	PN 400	1 NPT	41	46	52.5	28.5	25.0	265	28.1	0 7 06 85 20 00	0 1 06 85 20 07
S 30	PN 400	1 1/4 NPT	46	50	56	29.5	25.6	315	39.3	0 7 06 90 20 00	0 1 06 90 20 07
S 38	PN 315	1 1/2 NPT	55	60	63	32	26.0	385	57.2	0 7 06 95 20 00	0 1 06 95 20 07

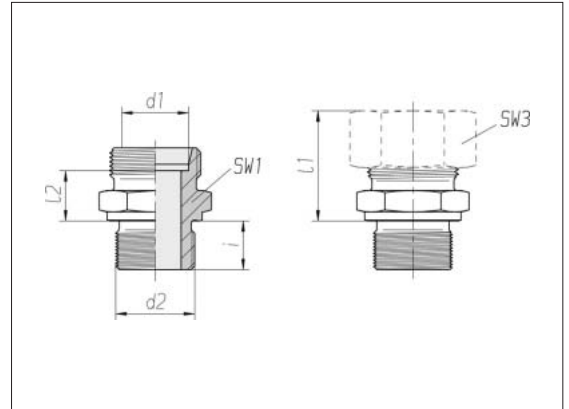
* With union nut and 2S cutting ring

** Sample product code, see:
GE06S1/4NPTX

Straight male stud couplings

Thread:
metric fine thread,
straight

Sealed with seal edge



Series	Pressure	d2	SW1	SW3	l1 approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
Tube OD d1											
L 6	PN 100	M 8 x 1	12	14	23	8.5	8	-	1.1	0 7 09 01 20 00**	0 1 09 01 20 07
L 6	PN 315	M 10 x 1	14	14	23	8.5	8	20	1.4	0 7 09 00 20 00	0 1 09 00 20 07
L 6	PN 315	M 12 x 1.5	17	14	24.5	10	10	30	2.2	0 7 09 02 20 00	0 1 09 02 20 07
L 6	PN 315	M 14 x 1.5	19	14	25.5	11	11	50	3.2	0 7 09 03 20 00	0 1 09 03 20 07
L 8	PN 315	M 10 x 1	17	17	24.5	9.5	8	20	1.9	0 7 09 06 20 00	0 1 09 06 20 07
L 8	PN 315	M 12 x 1.5	17	17	25	10	12	30	2.2	0 7 09 05 20 00	0 1 09 05 20 07
L 8	PN 315	M 12 x 1.5	17	17	25	10	11	30	2.1	1 7 09 21 20 00	1 1 09 21 20 07
L 8	PN 315	M 14 x 1.5	19	17	25	10	12	50	2.9	0 7 09 07 20 00	0 1 09 07 20 07
L 8	PN 315	M 16 x 1.5	22	17	26.5	11.5	12	70	4.2	0 7 09 08 20 00	0 1 09 08 20 07
L 8	PN 315	M 18 x 1.5	24	17	26.5	11.5	12	90	5.2	0 7 09 09 20 00	0 1 09 09 20 07
L 10	PN 315	M 10 x 1	17	19	25.5	10.5	8	20	2.1	0 7 09 14 20 00	0 1 09 14 20 07
L 10	PN 315	M 12 x 1.5	17	19	26	11	12	30	2.5	0 7 09 11 20 00	0 1 09 11 20 07
L 10	PN 315	M 14 x 1.5	19	19	26	11	12	50	3.0	0 7 09 10 20 00	0 1 09 10 20 07
L 10	PN 315	M 16 x 1.5	22	19	27.5	12.5	12	70	4.2	0 7 09 12 20 00	0 1 09 12 20 07
L 10	PN 315	M 18 x 1.5	24	19	27.5	12.5	12	90	5.2	0 7 09 13 20 00	0 1 09 13 20 07
L 10	PN 315	M 22 x 1.5	27	19	29	14	14	140	8.1	1 7 09 14 20 00	1 1 09 14 20 07
L 12	PN 315	M 14 x 1.5	19	22	27	12.5	12	50	3.4	0 7 09 16 20 00	0 1 09 16 20 07
L 12	PN 315	M 16 x 1.5	22	22	27	12.5	12	70	4.0	0 7 09 15 20 00	0 1 09 15 20 07
L 12	PN 315	M 18 x 1.5	24	22	27	12.5	12	90	4.5	0 7 09 17 20 00	0 1 09 17 20 07
L 12	PN 315	M 22 x 1.5	27	22	28.5	14	14	140	7.8	0 7 09 18 20 00	0 1 09 18 20 07
L 15	PN 315	M 16 x 1.5	24	27	28	13	12	70	4.8	0 7 09 21 20 00	0 1 09 21 20 07
L 15	PN 315	M 18 x 1.5	24	27	28.5	13.5	12	90	5.1	0 7 09 20 20 00	0 1 09 20 20 07
L 15	PN 315	M 22 x 1.5	27	27	30	15	14	140	7.8	0 7 09 22 20 00	0 1 09 22 20 07
L 18	PN 315	M 18 x 1.5	27	32	30.5	14	12	90	6.6	0 7 09 26 20 00	0 1 09 26 20 07
L 18	PN 315	M 22 x 1.5	27	32	31	14.5	14	140	7.7	0 7 09 25 20 00	0 1 09 25 20 07
L 18	PN 160	M 26 x 1.5	32	32	30	13.5	16	190	10.8	0 7 09 27 20 00	0 1 09 27 20 07

Continuation on page 66

Sealed with sealing surface
Order No. 0709 ... in 0707...
Order No. 0109 ... in 0107...

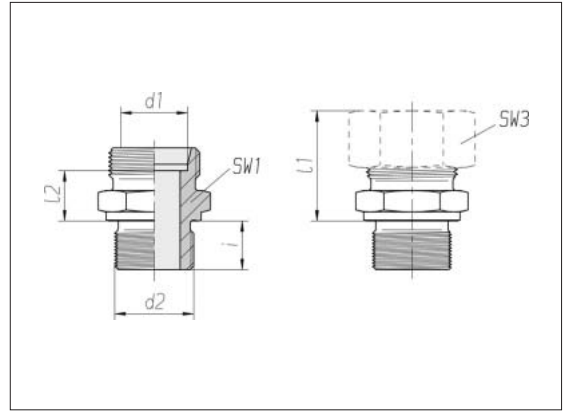
* With union nut and 2S cutting ring

** Sample product code, see:
GE06LM8x1X
ISO 8434-1-SDS-L6xM8x1, typeB-St

Straight male stud couplings

Thread:
metric fine thread,
straight

Sealed with seal edge



Series Tube OD d1	Pressure	d2	SW1	SW3	l1 approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
L 22	PN 160	M 18 x 1.5	32	36	33	16.5	12	90	8.7	0 7 09 33 20 00	0 1 09 33 20 07
L 22	PN 160	M 22 x 1.5	32	36	33	16.5	14	140	9.3	0 7 09 31 20 00	0 1 09 31 20 07
L 22	PN 160	M 26 x 1.5	32	36	33	16.5	16	190	10.1	0 7 09 30 20 00	0 1 09 30 20 07
L 22	PN 160	M 33 x 2	41	36	34	17.5	18	300	18.5	0 7 09 32 20 00	0 1 09 32 20 07
L 28	PN 160	M 33 x 2	41	41	34	17.5	18	300	16.7	0 7 09 35 20 00	0 1 09 35 20 07
L 35	PN 160	M 42 x 2	50	50	39	17.5	20	500	27.8	0 7 09 40 20 00	0 1 09 40 20 07
L 42	PN 160	M 48 x 2	55	60	42	19	22	600	35.4	0 7 09 45 20 00	0 1 09 45 20 07

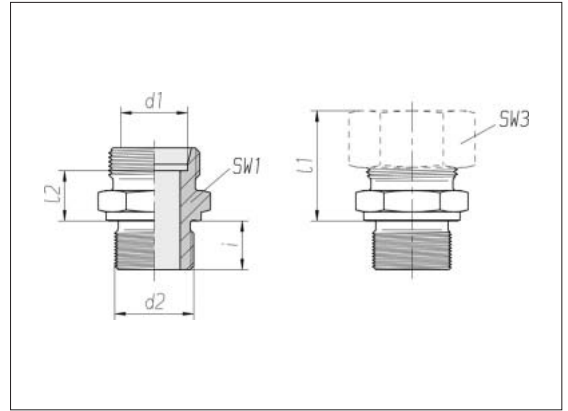
Sealed with sealing surface
Order No. 0709 ... in 0707...
Order No. 0109 ... in 0107...

* With union nut and 2S cutting ring

Straight male stud couplings

Thread:
metric fine thread,
straight

Sealed with seal edge



Series	Pressure	d2	SW1	SW3	l1 approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
S 6	PB 630	M 12 x 1.5	17	17	28	13	12	45	3.1	0 7 09 50 20 00**	0 1 09 50 20 07
S 8	PB 630	M 12 x 1.5	17	19	30	15	12	45	3.6	0 7 09 56 20 00	0 1 09 56 20 07
S 8	PB 630	M 14 x 1.5	19	19	30	15	12	60	4.3	0 7 09 55 20 00	0 1 09 55 20 07
S 10	PB 630	M 16 x 1.5	22	22	31	15	12	80	5.4	0 7 09 60 20 00	0 1 09 60 20 07
S 12	PB 630	M 18 x 1.5	24	24	33	17	12	120	7.1	0 7 09 65 20 00	0 1 09 65 20 07
S 12	PB 400	M 22 x 1.5	27	24	33.5	17.5	14	170	10.3	0 7 09 68 20 00	0 1 09 68 20 07
S 14	PB 630	M 20 x 1.5	27	27	37	19	14	160	9.2	0 7 09 70 20 00	0 1 09 70 20 07
S 16	PB 400	M 18 x 1.5	24	30	36.5	18	12	120	7.8	0 7 09 79 20 00	0 1 09 79 20 07
S 16	PB 400	M 22 x 1.5	27	30	37	18.5	14	170	9.7	0 7 09 75 20 00	0 1 09 75 20 07
S 16	PB 400	M 27 x 2	32	30	39	20.5	16	280	15.8	0 7 09 77 20 00	0 1 09 77 20 07
S 20	PB 400	M 22 x 1.5	32	36	42.5	20.5	14	170	14.2	0 7 09 81 20 00	0 1 09 81 20 07
S 20	PB 400	M 27 x 2	32	36	42.5	20.5	16	280	15.3	0 7 09 80 20 00	0 1 09 80 20 07
S 20	PB 400	M 33 x 2	41	36	44.5	22.5	18	450	25.0	0 7 09 82 20 00	0 1 09 82 20 07
S 25	PB 400	M 27 x 2	41	46	47	23	16	280	24.1	0 7 09 86 20 00	0 1 09 86 20 07
S 25	PB 400	M 33 x 2	41	46	47	23	18	450	26.6	0 7 09 85 20 00	0 1 09 85 20 07
S 30	PB 250	M 33 x 2	46	50	50	23.5	18	450	32.5	0 7 09 91 20 00	0 1 09 91 20 07
S 30	PB 250	M 42 x 2	50	50	50	23.5	20	540	42.8	0 7 09 90 20 00	0 1 09 90 20 07
S 38	PB 250	M 48 x 2	55	60	57	26	22	700	57.3	0 7 09 95 20 00	0 1 09 95 20 07

Sealed with sealing surface
Order No. 0709 ... in 0707...
Order No. 0109 ... in 0107...

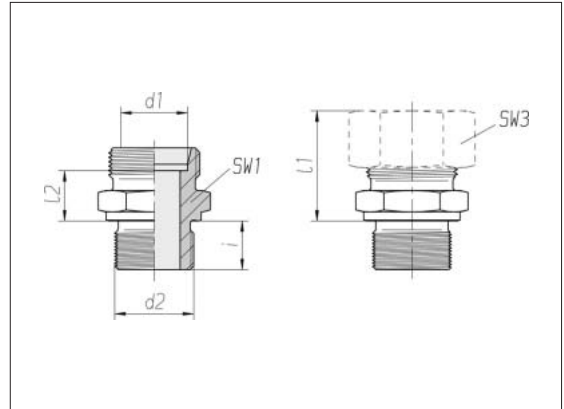
* With union nut and 2S cutting ring

** Sample product code, see:
GE06SMX
ISO 8434-1-SDS-S6xM12x1.5, typeB-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



Series Tube OD d1	Pressure	d2	SW1	SW3	l1 approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
L 6	PN 315	G 1/8 A	14	14	23	8.5	8	20	1.4	0 7 10 00 20 00**	0 1 10 00 20 07
L 6	PN 315	G 1/4 A	19	14	23.5	9	12	50	2.4	0 7 10 02 20 00	0 1 10 02 20 07
L 6	PN 315	G 3/8 A	22	14	26	11.5	12	80	4.0	0 7 10 03 20 00	0 1 10 03 20 07
L 6	PN 315	G 1/2 A	27	14	26.5	12	14	140	7.4	0 7 10 04 20 00	0 1 10 04 20 07
L 8	PN 315	G 1/8 A	17	17	24.5	9.5	8	20	1.8	0 7 10 06 20 00	0 1 10 06 20 07
L 8	PN 315	G 1/4 A	19	17	25	10	12	50	2.7	0 7 10 05 20 00	0 1 10 05 20 07
L 8	PN 315	G 3/8 A	22	17	26.5	11.5	12	80	4.4	0 7 10 07 20 00	0 1 10 07 20 07
L 8	PN 315	G 1/2 A	27	17	27	12	14	140	7.4	0 7 10 08 20 00	0 1 10 08 20 07
L 10	PN 315	G 1/8 A	17	19	25.5	10.5	8	20	2.1	0 7 10 11 20 00	0 1 10 11 20 07
L 10	PN 315	G 1/4 A	19	19	26	11	12	50	3.0	0 7 10 10 20 00	0 1 10 10 20 07
L 10	PN 315	G 3/8 A	22	19	27.5	12.5	12	80	4.5	0 7 10 12 20 00	0 1 10 12 20 07
L 10	PN 315	G 1/2 A	27	19	28	13	14	140	7.2	0 7 10 13 20 00	0 1 10 13 20 07
L 12	PN 315	G 1/4 A	19	22	26.5	12	12	50	3.2	0 7 10 16 20 00	0 1 10 16 20 07
L 12	PN 315	G 3/8 A	22	22	27	12.5	12	80	4.2	0 7 10 15 20 00	0 1 10 15 20 07
L 12	PN 315	G 1/2 A	27	22	27.5	13	14	140	7.1	0 7 10 17 20 00	0 1 10 17 20 07
L 12	PN 315	G 3/4 A	32	22	28.5	14	16	190	9.0	0 7 10 18 20 00	0 1 10 18 20 07
L 15	PN 315	G 1/4 A	24	27	28	13	12	50	4.6	0 7 10 23 20 00	0 1 10 23 20 07
L 15	PN 315	G 3/8 A	24	27	28.5	13.5	12	80	5.2	0 7 10 21 20 00	0 1 10 21 20 07
L 15	PN 315	G 1/2 A	27	27	29	14	14	140	7.1	0 7 10 20 20 00	0 1 10 20 20 07
L 15	PN 315	G 3/4 A	32	27	30	15	16	190	11.7	0 7 10 22 20 00	0 1 10 22 20 07
L 18	PN 315	G 3/8 A	27	32	30.5	14	12	80	6.7	0 7 10 26 20 00	0 1 10 26 20 07
L 18	PN 315	G 1/2 A	27	32	31	14.5	14	140	7.0	0 7 10 25 20 00	0 1 10 25 20 07
L 18	PN 315	G 3/4 A	32	32	31	14.5	16	190	11.0	0 7 10 27 20 00	0 1 10 27 20 07

Continuation on page 69

Sealed with sealing surface
Order No. 0710 ... in 0708...
Order No. 0110 ... in 0108...

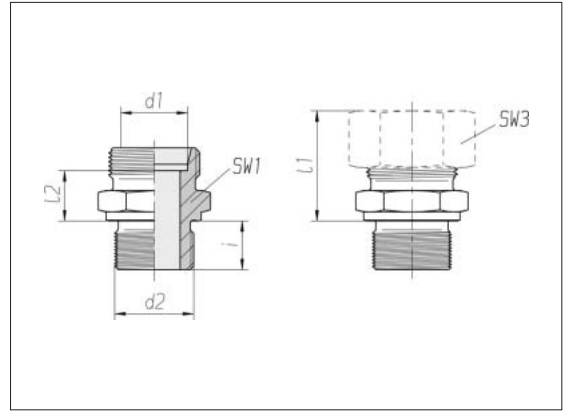
* With union nut and 2S cutting ring

** Sample product code, see:
GE06LRX
ISO 8434-1-SDS-L6xG1/8A, typeB-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



3

Series Tube OD d1	Pressure	d2		SW1	SW3	l1 approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
L 18	PN 160	G 1	A	41	32	32	15.5	18	330	20.3	0 7 10 28 20 00**	0 1 10 28 20 07
L 22	PN 160	G 1/2	A	32	36	33	16.5	14	140	8.8	0 7 10 31 20 00	0 1 10 31 20 07
L 22	PN 160	G 3/4	A	32	36	33	16.5	16	190	10.3	0 7 10 30 20 00	0 1 10 30 20 07
L 22	PN 160	G 1	A	41	36	34	17.5	18	330	18.5	0 7 10 32 20 00	0 1 10 32 20 07
L 28	PN 160	G 3/4	A	41	41	34	17.5	16	190	14.3	0 7 10 36 20 00	0 1 10 36 20 07
L 28	PN 160	G 1	A	41	41	34	17.5	18	330	16.9	0 7 10 35 20 00	0 1 10 35 20 07
L 28	PN 160	G 1 1/4	A	50	41	35	18.5	20	540	25.8	0 7 10 37 20 00	0 1 10 37 20 07
L 35	PN 160	G 1	A	50	50	39	17.5	18	330	24.1	0 7 10 41 20 00	0 1 10 41 20 07
L 35	PN 160	G 1 1/4	A	50	50	39	17.5	20	540	27.4	0 7 10 40 20 00	0 1 10 40 20 07
L 42	PN 160	G 1 1/4	A	55	60	42	19	20	540	33.1	0 7 10 46 20 00	0 1 10 46 20 07
L 42	PN 160	G 1 1/2	A	55	60	42	19	22	630	34.9	0 7 10 45 20 00	0 1 10 45 20 07

Sealed with sealing surface
Order No. 0710 ... in 0708...
Order No. 0110 ... in 0108...

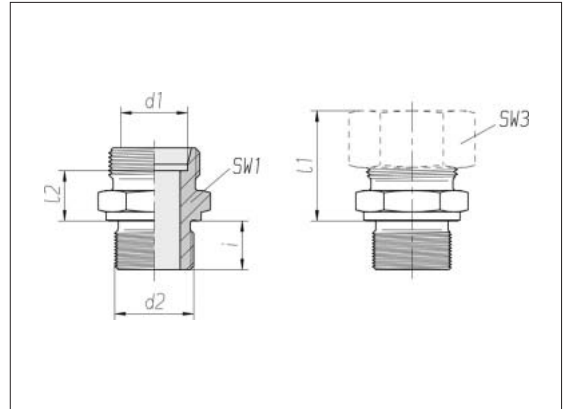
* With union nut and 2S cutting ring

** Sample product code, see:
GE18LR1X
ISO 8434-1-SDS-L18xG1A, typeB-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



Series	Pressure	d2		SW1	SW3	l1	l2	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.			-10 %	approx.	Single component	*
d1												
S 6	PB 630	G 1/4 A		19	17	28	13	12	60	3.5	0 7 10 50 20 00**	0 1 10 50 20 07
S 6	PB 630	G 3/8 A		22	17	30.5	15.5	12	100	5.3	0 7 10 52 20 00	0 1 10 52 20 07
S 6	PB 630	G 1/2 A		27	17	29	14	14	160	6.7	0 7 10 53 20 00	0 1 10 53 20 07
S 8	PB 630	G 1/4 A		19	19	30	15	12	60	4.1	0 7 10 55 20 00	0 1 10 55 20 07
S 8	PB 630	G 3/8 A		22	19	30.5	15.5	12	100	5.5	0 7 10 57 20 00	0 1 10 57 20 07
S 8	PB 630	G 1/2 A		27	19	33	18	14	160	8.9	0 7 10 58 20 00	0 1 10 58 20 07
S 10	PB 630	G 1/4 A		19	22	30.5	14.5	12	60	4.2	0 7 10 61 20 00	0 1 10 61 20 07
S 10	PB 630	G 3/8 A		22	22	31	15	12	100	5.6	0 7 10 60 20 00	0 1 10 60 20 07
S 10	PB 630	G 1/2 A		27	22	29.5	13.5	14	160	7.8	0 7 10 62 20 00	0 1 10 62 20 07
S 12	PB 630	G 1/4 A		22	24	32.5	16.5	12	60	5.7	0 7 10 66 20 00	0 1 10 66 20 07
S 12	PB 630	G 3/8 A		22	24	33	17	12	100	6.2	0 7 10 65 20 00	0 1 10 65 20 07
S 12	PB 630	G 1/2 A		27	24	34	17.5	14	160	9.7	0 7 10 67 20 00	0 1 10 67 20 07
S 12	PB 400	G 3/4 A		32	24	36	19.5	16	280	14.9	0 7 10 68 20 00	0 1 10 68 20 07
S 14	PB 630	G 3/8 A		24	27	37	19	12	100	7.5	0 7 10 71 20 00	0 1 10 71 20 07
S 14	PB 630	G 1/2 A		27	27	37	19	14	160	9.8	0 7 10 70 20 00	0 1 10 70 20 07
S 14	PB 400	G 3/4 A		32	27	39	21	16	280	16.4	0 7 10 72 20 00	0 1 10 72 20 07
S 16	PB 400	G 3/8 A		27	30	36.5	18	12	100	8.4	0 7 10 76 20 00	0 1 10 76 20 07
S 16	PB 400	G 1/2 A		27	30	37	18.5	14	160	9.1	0 7 10 75 20 00	0 1 10 75 20 07
S 16	PB 400	G 3/4 A		32	30	39	20.5	16	280	15.5	0 7 10 77 20 00	0 1 10 77 20 07
S 20	PB 400	G 1/2 A		32	36	42	20.5	14	160	13.3	0 7 10 81 20 00	0 1 10 81 20 07
S 20	PB 400	G 3/4 A		32	36	42	20.5	16	280	15.1	0 7 10 80 20 00	0 1 10 80 20 07
S 20	PB 400	G 1 A		41	36	44	22.5	18	440	27.5	0 7 10 82 20 00	0 1 10 82 20 07
S 25	PB 400	G 3/4 A		41	46	47	23	16	280	24.1	0 7 10 86 20 00	0 1 10 86 20 07
S 25	PB 400	G 1 A		41	46	47	23	18	440	26.6	0 7 10 85 20 00	0 1 10 85 20 07

Continuation on page 71

Sealed with sealing surface
Order No. 0710 ... in 0708...
Order No. 0110 ... in 0108...

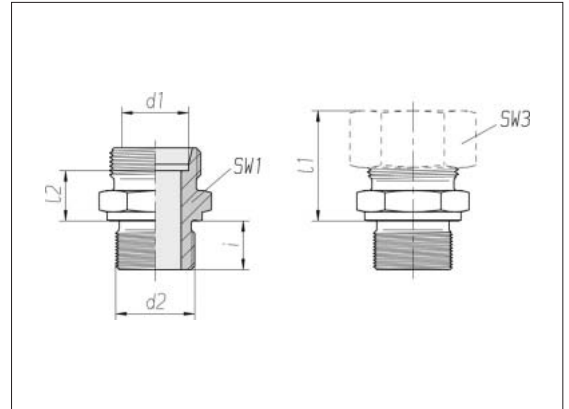
* With union nut and 2S cutting ring

** Sample product code, see:
GE06SRX
ISO 8434-1-SDS-S6xG1/4A, typeB-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



3

Series	Pressure	d2	SW1	SW3	l1	l2	i	Nm	kg/100	Order No.	Order No.
Tube OD					approx.			-10 %	approx.	Single component	*
d1											
S 25	PB 250	G 1 1/4 A	50	46	47	23	20	580	44.0	0 7 10 87 20 00	0 1 10 87 20 07
S 30	PB 250	G 3/4 A	46	50	50	23.5	16	280	29.9	0 7 10 93 20 00	0 1 10 93 20 07
S 30	PB 250	G 1 A	46	50	50	23.5	18	440	32.8	0 7 10 91 20 00	0 1 10 91 20 07
S 30	PB 250	G 1 1/4 A	50	50	50	23.5	20	580	41.7	0 7 10 90 20 00	0 1 10 90 20 07
S 38	PB 250	G 1 A	55	60	57	26	18	440	49.2	0 7 10 98 20 00	0 1 10 98 20 07
S 38	PB 250	G 1 1/4 A	55	60	57	26	20	580	55.0	0 7 10 96 20 00	0 1 10 96 20 07
S 38	PB 250	G 1 1/2 A	55	60	57	26	22	700	56.6	0 7 10 95 20 00	0 1 10 95 20 07

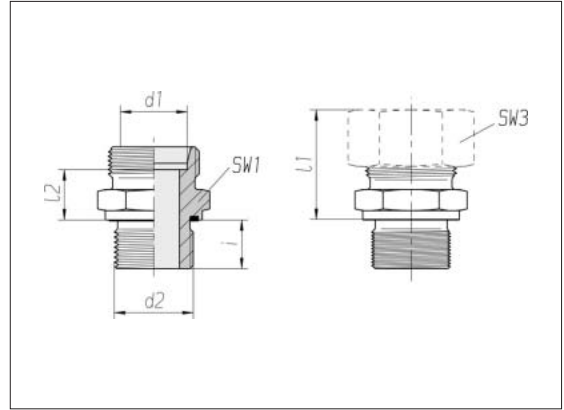
Sealed with sealing surface
Order No. 0710 ... in 0708...
Order No. 0110 ... in 0108...

* With union nut and 2S cutting ring

Straight male stud couplings

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2	SW1	SW3	l1* approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	M 10 x 1	14	14	23	8.5	8	15	1.4	0 7 84 39 20 00***	0 1 84 39 20 XX
L 6	PN 500	M 12 x 1.5	17	14	24.5	10	12	25	2.3	1 7 84 61 20 00	1 1 84 61 20 XX
L 8	PN 500	M 10 x 1	14	17	24.5	9.5	8	15	1.6	1 7 84 44 20 00	1 1 84 44 20 XX
L 8	PN 500	M 12 x 1.5	17	17	25	10	12	25	2.1	0 7 84 40 20 00	0 1 84 40 20 XX
L 8	PN 500	M 14 x 1.5	19	17	25	10	12	50	2.8	0 7 84 11 20 00	0 1 84 11 20 XX
L 8	PN 400	M 16 x 1.5	22	17	26.5	11.5	12	70	4.1	1 7 84 86 20 00	1 1 84 86 20 XX
L 10	PN 500	M 12 x 1.5	17	19	26	11	12	25	2.4	1 7 84 62 20 00	1 1 84 62 20 XX
L 10	PN 500	M 14 x 1.5	19	19	26	11	12	50	2.9	0 7 84 41 20 00	0 1 84 41 20 XX
L 10	PN 400	M 16 x 1.5	22	19	27.5	12.5	12	70	4.2	1 7 84 60 20 00	1 1 84 60 20 XX
L 10	PN 400	M 18 x 1.5	24	19	27.5	12.5	12	90	4.9	0 7 84 04 20 00	0 1 84 04 20 XX
L 10	PN 400	M 22 x 1.5	27	19	29	14	14	130	8.0	1 7 84 87 20 00	1 1 84 87 20 XX
L 12	PN 400	M 10 x 1	19	22	26.5	12	8	15	2.7	1 7 84 89 20 00	1 1 84 89 20 XX
L 12	PN 400	M 12 x 1.5	19	22	27	12.5	12	25	3.0	1 7 84 85 20 00	1 1 84 85 20 XX
L 12	PN 400	M 14 x 1.5	19	22	25.5	11	12	50	2.9	1 7 84 40 20 00	1 1 84 40 20 XX
L 12	PN 400	M 16 x 1.5	22	22	27	12.5	12	70	3.9	0 7 84 42 20 00	0 1 84 42 20 XX
L 12	PN 400	M 18 x 1.5	24	22	27	12.5	12	90	4.4	1 7 84 48 20 00	1 1 84 48 20 XX
L 12	PN 400	M 22 x 1.5	27	22	28.5	14	14	130	6.4	1 7 84 49 20 00	1 1 84 49 20 XX
L 15	PN 400	M 16 x 1.5	24	27	28	13	12	70	4.8	1 7 84 56 20 00	1 1 84 56 20 XX
L 15	PN 400	M 18 x 1.5	24	27	28.5	13.5	12	90	5.1	0 7 84 43 20 00	0 1 84 43 20 XX
L 15	PN 400	M 22 x 1.5	27	27	30	15	14	130	7.1	1 7 84 50 20 00	1 1 84 50 20 XX
L 15	PN 250	M 26 x 1.5	32	27	30	15	16	180	11.3	1 7 84 54 20 00	1 1 84 54 20 XX

Continuation on page 73

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection		Supplementary to Order No.
2S		07
ES-4		09
BV-10		Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

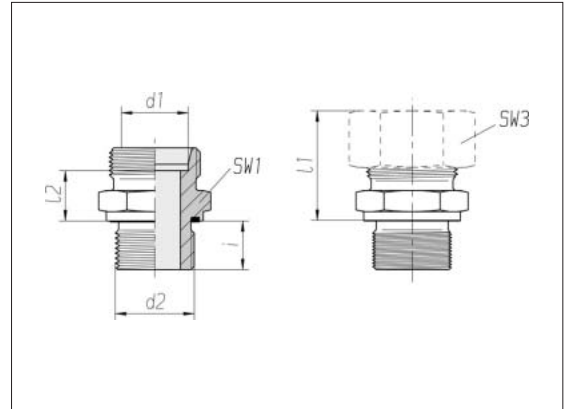
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GE06LMEDOMD ISO 8434-1-SDS-L6xM10x1, typeE-St

Straight male stud couplings

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



3

Series Tube OD d1	Pressure	d2	SW1	SW3	l1* approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
L 18	PN 400	M 18 x 1.5	27	32	30.5	14	12	90	6.5	1 7 84 45 20 00	1 1 84 45 20 XX
L 18	PN 400	M 22 x 1.5	27	32	31	14.5	14	130	7.4	0 7 84 44 20 00	0 1 84 44 20 XX
L 18	PN 250	M 26 x 1.5	32	32	31	14.5	16	180	9.4	1 7 84 47 20 00	1 1 84 47 20 XX
L 22	PN 250	M 22 x 1.5	32	36	33	16.5	14	130	9.0	1 7 84 46 20 00	1 1 84 46 20 XX
L 22	PN 250	M 26 x 1.5	32	36	33	16.5	16	180	10.1	0 7 84 45 20 00	0 1 84 45 20 XX
L 22	PN 250	M 33 x 2	41	36	34	17.5	18	230	18.6	1 7 84 73 20 00	1 1 84 73 20 XX
L 28	PN 250	M 26 x 1.5	41	41	36	19.5	16	180	16.2	1 7 84 59 20 00	1 1 84 59 20 XX
L 28	PN 250	M 33 x 2	41	41	34	17.5	18	230	16.4	0 7 84 46 20 00	0 1 84 46 20 XX
L 28	PN 250	M 42 x 2	50	41	36	19.5	20	330	32.2	1 7 84 51 20 00	1 1 84 51 20 XX
L 35	PN 250	M 33 x 2	46	50	39	17.5	18	230	21.7	1 7 84 39 20 00	1 1 84 39 20 XX
L 35	PN 250	M 42 x 2	50	50	39	17.5	20	330	27.3	0 7 84 47 20 00	0 1 84 47 20 XX
L 42	PN 250	M 42 x 2	55	60	42	19	20	330	33.6	1 7 84 78 20 00	1 1 84 78 20 XX
L 42	PN 250	M 48 x 2	55	60	42	19	22	500	34.6	0 7 84 48 20 00	0 1 84 48 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

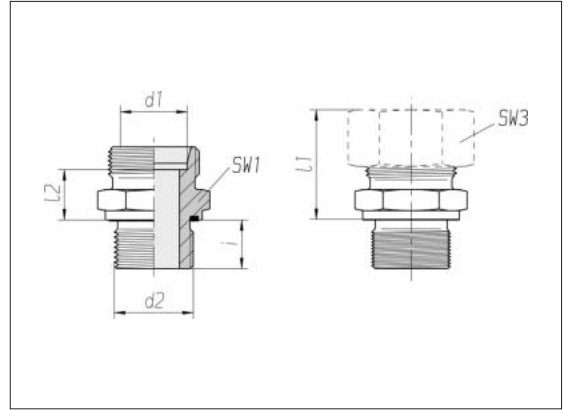
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Straight male stud couplings

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2	SW1	SW3	l1* approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
S 6	PN 800	M 12 x 1.5	17	17	28	13	12	50	2.9	0 7 84 49 20 00***	0 1 84 49 20 XX
S 8	PN 800	M 14 x 1.5	19	19	30	15	12	60	4.1	0 7 84 50 20 00	0 1 84 50 20 XX
S 10	PN 800	M 16 x 1.5	22	22	31	15	12	80	5.3	0 7 84 51 20 00	0 1 84 51 20 XX
S 12	PN 630	M 18 x 1.5	24	24	33	17	12	90	7.1	0 7 84 52 20 00	0 1 84 52 20 XX
S 12	PN 630	M 22 x 1.5	27	24	33.5	17.5	14	130	10.2	1 7 84 83 20 00	1 1 84 83 20 XX
S 14	PN 630	M 20 x 1.5	27	27	37	19	14	130	9.4	0 7 84 53 20 00	0 1 84 53 20 XX
S 16	PN 630	M 18 x 1.5	27	30	36.5	18	12	90	8.1	0 7 84 06 20 00	0 1 84 06 20 XX
S 16	PN 630	M 22 x 1.5	27	30	37	18.5	14	130	9.6	0 7 84 54 20 00	0 1 84 54 20 XX
S 16	PN 420	M 27 x 2	32	30	39	20.5	16	200	15.7	1 7 84 68 20 00	1 1 84 68 20 XX
S 20	PN 420	M 22 x 1.5	32	36	42.5	20.5	14	130	13.9	0 7 84 02 20 00	0 1 84 02 20 XX
S 20	PN 420	M 27 x 2	32	36	42.5	20.5	16	200	15.1	0 7 84 55 20 00	0 1 84 55 20 XX
S 25	PN 420	M 27 x 2	41	46	47	23	16	200	23.7	1 7 84 79 20 00	1 1 84 79 20 XX
S 25	PN 420	M 33 x 2	41	46	47	23	18	250	26.5	0 7 84 56 20 00	0 1 84 56 20 XX
S 30	PN 420	M 42 x 2	50	50	50	23.5	20	500	41.7	0 7 84 57 20 00	0 1 84 57 20 XX
S 38	PN 420	M 48 x 2	55	60	57	26	22	600	56.4	0 7 84 58 20 00	0 1 84 58 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

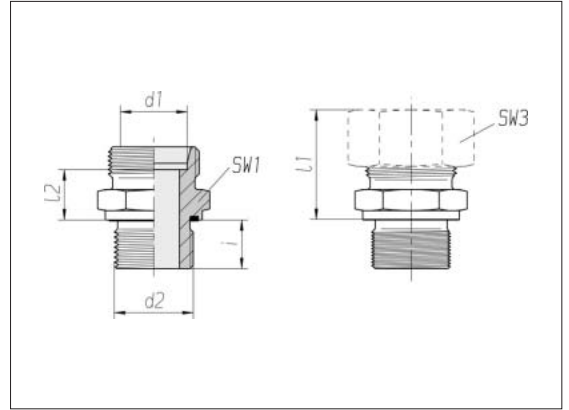
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see:
GE06SMEDOMD
ISO 8434-1-SDS-S6xM12x1.5, typeE-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2		SW1	SW3	l1*	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
Tube OD d1						approx.						
L 6	PN 500	G 1/8 A		14	14	23	8.5	8	20	1.3	0 7 84 19 20 00***	0 1 84 19 20 XX
L 6	PN 500	G 1/4 A		19	14	24.5	10	12	50	2.7	1 7 84 08 20 00	1 1 84 08 20 XX
L 6	PN 400	G 3/8 A		22	14	26	11.5	12	80	3.8	1 7 84 94 20 00	1 1 84 94 20 XX
L 8	PN 500	G 1/8 A		14	17	24.5	9.5	8	20	1.5	1 7 84 22 20 00	1 1 84 22 20 XX
L 8	PN 500	G 1/4 A		19	17	25	10	12	50	2.7	0 7 84 20 20 00	0 1 84 20 20 XX
L 8	PN 400	G 3/8 A		22	17	26.5	11.5	12	80	4.4	1 7 84 23 20 00	1 1 84 23 20 XX
L 8	PN 400	G 1/2 A		27	17	27	12	14	100	7.2	1 7 84 91 20 00	1 1 84 91 20 XX
L 10	PN 500	G 1/8 A		17	19	25.5	10.5	8	20	2.0	1 7 84 93 20 00	1 1 84 93 20 XX
L 10	PN 500	G 1/4 A		19	19	26	11	12	50	2.9	0 7 84 21 20 00	0 1 84 21 20 XX
L 10	PN 400	G 3/8 A		22	19	27.5	12.5	12	80	4.2	1 7 84 17 20 00	1 1 84 17 20 XX
L 10	PN 400	G 1/2 A		27	19	28	13	14	100	6.3	1 7 84 18 20 00	1 1 84 18 20 XX
L 12	PN 400	G 1/4 A		19	22	27	12.5	12	50	3.2	0 7 84 10 20 00	0 1 84 10 20 XX
L 12	PN 400	G 3/8 A		22	22	27	12.5	12	80	4.2	0 7 84 22 20 00	0 1 84 22 20 XX
L 12	PN 400	G 1/2 A		27	22	27.5	13	14	100	6.7	0 7 84 12 20 00	0 1 84 12 20 XX
L 12	PN 250	G 3/4 A		32	22	28.5	14	16	180	11.7	1 7 84 21 20 00	1 1 84 21 20 XX
L 15	PN 400	G 3/8 A		24	27	28.5	13.5	12	80	5.1	1 7 84 07 20 00	1 1 84 07 20 XX
L 15	PN 400	G 1/2 A		27	27	29	14	14	100	7.1	0 7 84 23 20 00	0 1 84 23 20 XX
L 15	PN 250	G 3/4 A		32	27	30	15	16	180	11.7	1 7 84 19 20 00	1 1 84 19 20 XX
L 18	PN 400	G 3/8 A		27	32	30.5	14	12	80	6.6	1 7 84 92 20 00	1 1 84 92 20 XX
L 18	PN 400	G 1/2 A		27	32	31	14.5	14	100	7.0	0 7 84 24 20 00	0 1 84 24 20 XX
L 18	PN 315	G 3/4 A		32	32	31	14.5	16	180	10.9	1 7 84 28 20 00	1 1 84 28 20 XX

Continuation on page 76

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

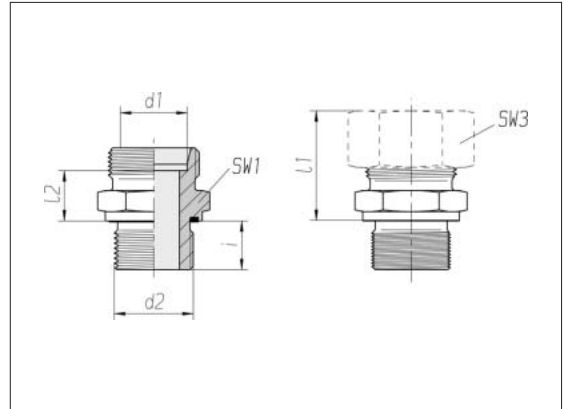
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GE06LREDOMD
ISO 8434-1-SDS-L6xG1/8A, typeE-2T

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2		SW1	SW3	l1* approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
L 22	PN 250	G 1/2 A		32	36	33	16.5	14	100	8.7	1 7 84 16 20 00	1 1 84 16 20 XX
L 22	PN 250	G 3/4 A		32	36	33	16.5	16	180	10.2	0 7 84 25 20 00	0 1 84 25 20 XX
L 22	PN 250	G 1 A		41	36	34	17.5	18	230	18.4	1 7 84 71 20 00	1 1 84 71 20 XX
L 28	PN 250	G 3/4 A		41	41	34	17.5	16	180	14.6	1 7 84 12 20 00	1 1 84 12 20 XX
L 28	PN 250	G 1 A		41	41	34	17.5	18	230	16.5	0 7 84 26 20 00	0 1 84 26 20 XX
L 28	PN 250	G 1 1/4 A		50	41	35	18.5	20	330	25.2	1 7 84 90 20 00	1 1 84 90 20 XX
L 35	PN 250	G 1 A		50	50	39	17.5	18	230	23.8	1 7 84 36 20 00	1 1 84 36 20 XX
L 35	PN 250	G 1 1/4 A		50	50	39	17.5	20	330	27.1	0 7 84 27 20 00	0 1 84 27 20 XX
L 42	PN 250	G 1 1/2 A		55	60	42	19	22	500	34.3	0 7 84 28 20 00	0 1 84 28 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting	
tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

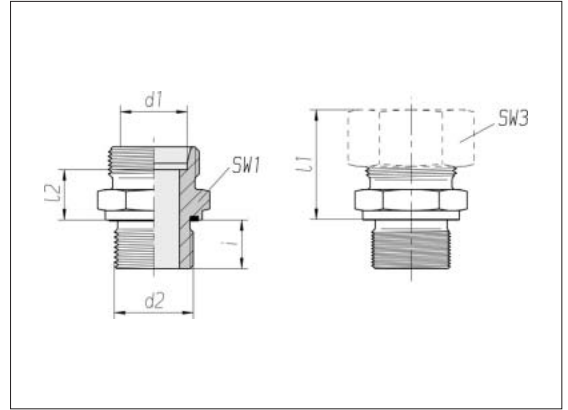
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2		SW1	SW3	l1*	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
Tube OD d1						approx.						
S 6	PN 800	G 1/4 A		19	17	28	13	12	60	3.5	0 7 84 29 20 00***	0 1 84 29 20 XX
S 6	PN 630	G 1/2 A		27	17	33	18	14	150	8.6	1 7 84 25 20 00	1 1 84 25 20 XX
S 8	PN 800	G 1/4 A		19	19	30	15	12	60	4.1	0 7 84 30 20 00	0 1 84 30 20 XX
S 8	PN 800	G 3/8 A		22	19	30.5	15.5	12	90	5.7	1 7 84 13 20 00	1 1 84 13 20 XX
S 10	PN 800	G 1/4 A		19	22	30.5	14.5	12	60	4.2	0 7 84 15 20 00	0 1 84 15 20 XX
S 10	PN 800	G 3/8 A		22	22	31	15	12	90	5.5	0 7 84 31 20 00	0 1 84 31 20 XX
S 10	PN 630	G 1/2 A		27	22	33.5	17.5	14	150	8.9	1 7 84 24 20 00	1 1 84 24 20 XX
S 12	PN 630	G 1/4 A		22	24	32.5	16.5	12	60	5.6	1 7 84 14 20 00	1 1 84 14 20 XX
S 12	PN 630	G 3/8 A		22	24	33	17	12	90	6.2	0 7 84 32 20 00	0 1 84 32 20 XX
S 12	PN 630	G 1/2 A		27	24	33.5	17.5	14	150	9.1	0 7 84 17 20 00	0 1 84 17 20 XX
S 12	PN 420	G 3/4 A		32	24	35.5	19.5	16	200	13.4	1 7 84 15 20 00	1 1 84 15 20 XX
S 14	PN 630	G 1/2 A		27	27	37	19	14	150	9.6	0 7 84 33 20 00	0 1 84 33 20 XX
S 16	PN 630	G 3/8 A		27	30	36.5	18	12	90	8.1	1 7 84 09 20 00	1 1 84 09 20 XX
S 16	PN 630	G 1/2 A		27	30	37	18.5	14	150	9.2	0 7 84 34 20 00	0 1 84 34 20 XX
S 16	PN 420	G 3/4 A		32	30	39	20.5	16	200	13.8	1 7 84 26 20 00	1 1 84 26 20 XX
S 16	PN 420	G 1 A		41	30	41	22.5	18	250	23.7	1 7 84 72 20 00	1 1 84 72 20 XX
S 20	PN 420	G 1/2 A		32	36	42	20.5	14	150	13.5	1 7 84 06 20 00	1 1 84 06 20 XX
S 20	PN 420	G 3/4 A		32	36	42	20.5	16	200	14.9	0 7 84 35 20 00	0 1 84 35 20 XX
S 20	PN 420	G 1 A		41	36	44	22.5	18	250	25.0	1 7 84 38 20 00	1 1 84 38 20 XX

Continuation on page 78

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

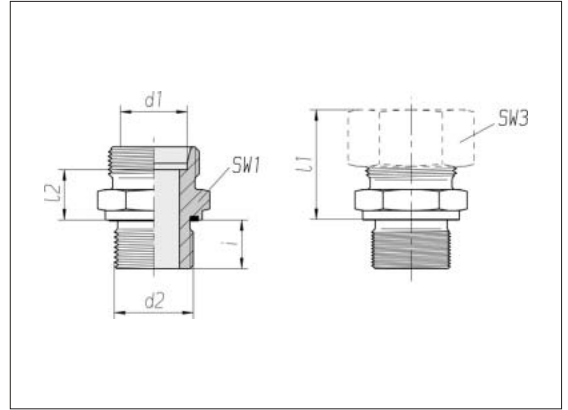
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GE06SREDOMD
ISO 8434-1-SDS-S6xG1/4A, typeE-St

Straight male stud couplings

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2		SW1	SW3	l1*	l2	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.			-10 %	approx.	Single component	**
d1												
S 25	PN 420	G 3/4 A		41	46	47	23	16	200	23.7	0 7 84 03 20 00	0 1 84 03 20 XX
S 25	PN 420	G 1 A		41	46	47	23	18	250	26.3	0 7 84 36 20 00	0 1 84 36 20 XX
S 30	PN 420	G 1 A		46	50	50	23.5	18	250	33.0	1 7 84 11 20 00	1 1 84 11 20 XX
S 30	PN 420	G 1 1/4 A		50	50	50	23.5	20	500	41.9	0 7 84 37 20 00	0 1 84 37 20 XX
S 38	PN 420	G 1 1/4 A		55	60	57	26	20	500	55.5	1 7 85 21 20 00	1 1 85 21 20 XX
S 38	PN 420	G 1 1/2 A		55	60	57	26	22	600	55.9	0 7 84 38 20 00	0 1 84 38 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting	Supplementary to Order No.
tube connection	
2S	07
ES-4	09
BV-10	Refer to the front page

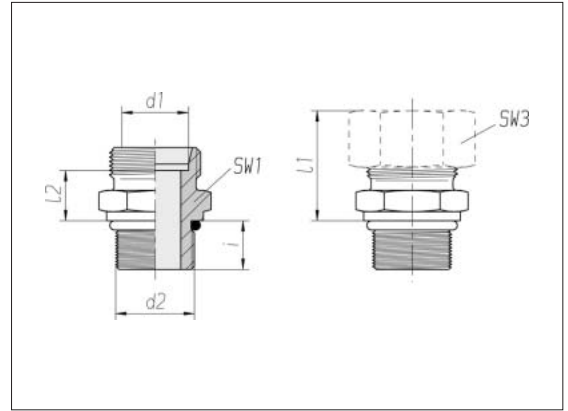
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Straight male stud couplings

Thread:
UN/UNF
ISO 11926-2/3
SAE J 514

Sealed with O-ring



Series	Pressure	d2	SW1	SW3	l1*	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
Tube OD d1					approx.						
L 6	PN 315	7/16-20 UNF-2A	17	14	23.5	9	9.2	18	1.9	0 7 82 40 20 00***	0 1 82 40 20 XX
L 8	PN 315	7/16-20 UNF-2A	17	17	25	10	9.2	18	2.1	0 7 82 41 20 00	0 1 82 41 20 XX
L 8	PN 315	1/ 2-20 UNF-2A	17	17	25	10	9.2	28	2.2	0 7 82 42 20 00	0 1 82 42 20 XX
L 8	PN 315	9/16-18 UNF-2A	19	17	25	10	10	30	2.8	0 7 82 43 20 00	0 1 82 43 20 XX
L 10	PN 315	7/16-20 UNF-2A	17	19	27	12	9.2	18	2.4	0 7 82 96 20 00	0 1 82 96 20 XX
L 10	PN 315	9/16-18 UNF-2A	19	19	26	11	10	30	2.8	0 7 82 44 20 00	0 1 82 44 20 XX
L 12	PN 315	9/16-18 UNF-2A	19	22	27	12.5	10	30	3.2	0 7 82 46 20 00	0 1 82 46 20 XX
L 12	PN 315	3/ 4-16 UNF-2A	24	22	27	12.5	11.2	50	4.5	0 7 82 48 20 00	0 1 82 48 20 XX
L 12	PN 315	7/ 8-14 UNF-2A	27	22	27.5	13	12.7	60	7.0	0 7 82 50 20 00	0 1 82 50 20 XX
L 15	PN 315	9/16-18 UNF-2A	24	27	29	14	10	30	4.8	0 7 82 51 20 00	0 1 82 51 20 XX
L 15	PN 315	3/ 4-16 UNF-2A	24	27	29	14	11.2	50	5.4	0 7 82 52 20 00	0 1 82 52 20 XX
L 15	PN 315	7/ 8-14 UNF-2A	27	27	29	14	12.7	60	7.5	0 7 82 53 20 00	0 1 82 53 20 XX
L 18	PN 315	3/ 4-16 UNF-2A	27	32	31	14.5	11.2	50	6.6	0 7 82 54 20 00	0 1 82 54 20 XX
L 18	PN 315	7/ 8-14 UNF-2A	27	32	31	14.5	12.7	60	7.4	0 7 82 55 20 00	0 1 82 55 20 XX
L 18	PN 315	1 1/16-12 UN -2A	32	32	31	14.5	15	95	9.6	0 7 82 90 20 00	0 1 82 90 20 XX
L 22	PN 160	7/ 8-14 UNF-2A	32	36	33	16.5	12.7	60	9.8	0 7 82 56 20 00	0 1 82 56 20 XX
L 22	PN 160	1 1/16-12 UN -2A	32	36	33	16.5	15	95	10.2	0 7 82 57 20 00	0 1 82 57 20 XX
L 22	PN 160	1 5/16-12 UN -2A	41	36	33	16.5	15	150	17.3	0 7 82 58 20 00	0 1 82 58 20 XX

Continuation on page 80

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

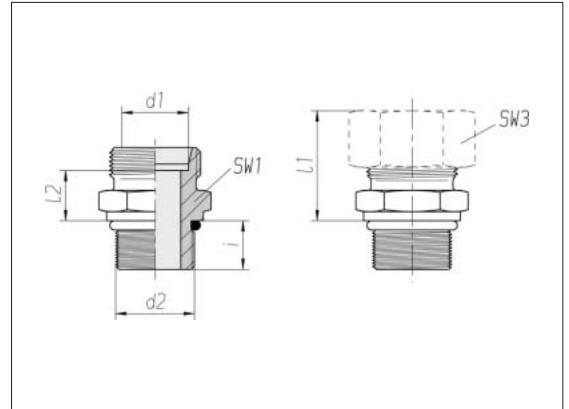
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GE06L7/16UNFOMD

Straight male stud couplings

Thread:
UN/UNF
ISO 11926-2/3
SAE J 514

Sealed with O-ring



Series	Pressure	d2	SW1	SW3	l1*	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
Tube OD d1					approx.						
S 6	PN 630	7/16-20 UNF-2A	17	17	28	13	9.2	20	2.7	0 7 82 64 20 00***	0 1 82 64 20 XX
S 8	PN 630	7/16-20 UNF-2A	17	19	30	15	9.2	20	3.2	0 7 82 88 20 00	0 1 82 88 20 XX
S 8	PN 630	1/ 2-20 UNF-2A	17	19	30	15	9.2	30	3.4	0 7 82 65 20 00	0 1 82 65 20 XX
S 10	PN 630	9/16-18 UNF-2A	19	22	31	15	10	35	4.1	0 7 82 66 20 00	0 1 82 66 20 XX
S 10	PN 630	3/ 4-16 UNF-2A	24	22	31	15	11.2	70	6.6	0 7 82 67 20 00	0 1 82 67 20 XX
S 12	PN 630	3/ 4-16 UNF-2A	24	24	33.5	17.5	11.2	70	7.4	0 7 82 69 20 00	0 1 82 69 20 XX
S 12	PN 630	7/ 8-14 UNF-2A	27	24	32.5	16.5	12.7	100	9.7	0 7 82 70 20 00	0 1 82 70 20 XX
S 14	PN 630	9/16-18 UNF-2A	24	27	37	19	10	35	6.8	0 7 82 71 20 00	0 1 82 71 20 XX
S 14	PN 630	3/ 4-16 UNF-2A	24	27	37	19	11.2	70	7.6	0 7 82 72 20 00	0 1 82 72 20 XX
S 16	PN 400	3/ 4-16 UNF-2A	27	30	37	18.5	11.2	70	8.1	0 7 82 73 20 00	0 1 82 73 20 XX
S 16	PN 400	7/ 8-14 UNF-2A	30	30	33.5	15	14	100	8.7	0 7 82 74 20 00	0 1 82 74 20 XX
S 16	PN 400	1 1/16-12 UN -2A	32	30	37	18.5	15	170	14.4	0 7 82 75 20 00	0 1 82 75 20 XX
S 20	PN 400	3/ 4-16 UNF-2A	32	36	42	20.5	11.2	70	12.7	0 7 82 77 20 00	0 1 82 77 20 XX
S 20	PN 400	7/ 8-14 UNF-2A	32	36	42	20.5	12.7	100	13.8	0 7 82 78 20 00	0 1 82 78 20 XX
S 20	PN 400	1 1/16-12 UN -2A	32	36	42	20.5	15	170	15.0	0 7 82 79 20 00	0 1 82 79 20 XX
S 25	PN 400	1 1/16-12 UN -2A	41	46	47	23	15	170	23.5	0 7 82 94 20 00	0 1 82 94 20 XX
S 25	PN 400	1 5/16-12 UN -2A	41	46	47	23	15	270	25.7	0 7 82 80 20 00	0 1 82 80 20 XX
S 30	PN 400	1 1/16-12 UN -2A	46	50	50	23.5	15	170	30.1	0 7 82 81 20 00	0 1 82 81 20 XX
S 30	PN 400	1 5/16-12 UN -2A	46	50	50	23.5	15	270	30.7	0 7 82 82 20 00	0 1 82 82 20 XX
S 30	PN 400	1 5/ 8-12 UN -2A	50	50	50	23.5	15	285	38.1	0 7 82 85 20 00	0 1 82 85 20 XX
S 38	PN 315	1 5/ 8-12 UN -2A	55	60	57	26	15	285	51.6	0 7 82 95 20 00	0 1 82 95 20 XX
S 38	PN 315	1 7/ 8-12 UN -2A	55	60	57	26	15	325	51.9	0 7 82 83 20 00	0 1 82 83 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

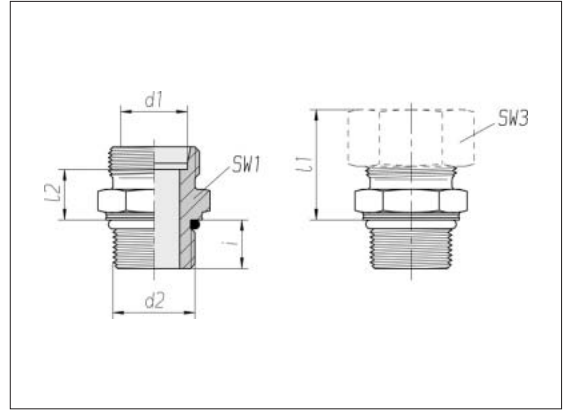
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GE06S7/16UNFOMD

Straight male stud couplings

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



Series Tube OD d1	Pressure	d2	SW1	SW3	l1* approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	M 10 x 1	14	14	24	9.5	8.5	15	1.5	0 7 46 00 20 00***	0 1 46 00 20 XX
L 6	PN 500	M 14 x 1.5	19	14	24.5	10	11	35	2.6	0 7 46 01 20 00	0 1 46 01 20 XX
L 8	PN 500	M 12 x 1.5	17	17	25	10	11	25	2.2	0 7 46 05 20 00	0 1 46 05 20 XX
L 10	PN 500	M 14 x 1.5	19	19	26	11	11	35	2.9	0 7 46 10 20 00	0 1 46 10 20 XX
L 10	PN 400	M 16 x 1.5	22	19	27.5	12.5	11.5	40	4.0	0 7 46 13 20 00	0 1 46 13 20 XX
L 10	PN 400	M 18 x 1.5	24	19	27.5	12.5	12.5	45	5.2	0 7 46 14 20 00	0 1 46 14 20 XX
L 10	PN 400	M 22 x 1.5	27	19	29	14	13	60	6.6	0 7 46 11 20 00	0 1 46 11 20 XX
L 12	PN 400	M 12 x 1.5	19	22	27	12.5	11	25	3.0	0 7 46 16 20 00	0 1 46 16 20 XX
L 12	PN 400	M 14 x 1.5	19	22	27.5	13	11	35	3.2	0 7 46 17 20 00	0 1 46 17 20 XX
L 12	PN 400	M 16 x 1.5	22	22	27	12.5	11.5	40	4.0	0 7 46 15 20 00	0 1 46 15 20 XX
L 12	PN 400	M 18 x 1.5	24	22	27	12.5	12.5	45	5.1	0 7 46 19 20 00	0 1 46 19 20 XX
L 12	PN 400	M 22 x 1.5	27	22	28.5	14	13	60	7.6	0 7 46 18 20 00	0 1 46 18 20 XX
L 15	PN 400	M 14 x 1.5	24	27	29	13.5	11	35	4.8	0 7 46 21 20 00	0 1 46 21 20 XX
L 15	PN 400	M 18 x 1.5	24	27	29	13.5	12.5	45	5.2	0 7 46 20 20 00	0 1 46 20 20 XX
L 15	PN 400	M 22 x 1.5	27	27	30.5	15	13	60	7.7	0 7 46 22 20 00	0 1 46 22 20 XX
L 18	PN 400	M 22 x 1.5	27	32	31	14.5	13	60	7.5	0 7 46 25 20 00	0 1 46 25 20 XX
L 22	PN 250	M 27 x 2	32	36	33	16.5	16	100	10.5	0 7 46 30 20 00	0 1 46 30 20 XX
L 22	PN 250	M 33 x 2	41	36	34	17.5	16	160	18.4	0 7 46 32 20 00	0 1 46 32 20 XX
L 28	PN 250	M 33 x 2	41	41	34	17.5	16	160	16.4	0 7 46 35 20 00	0 1 46 35 20 XX
L 35	PN 250	M 42 x 2	50	50	39	17.5	16	210	26.5	0 7 46 40 20 00	0 1 46 40 20 XX
L 42	PN 250	M 48 x 2	55	60	42	19	17.5	260	33.0	0 7 46 45 20 00	0 1 46 45 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting
tube connection Supplementary to Order No.

2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

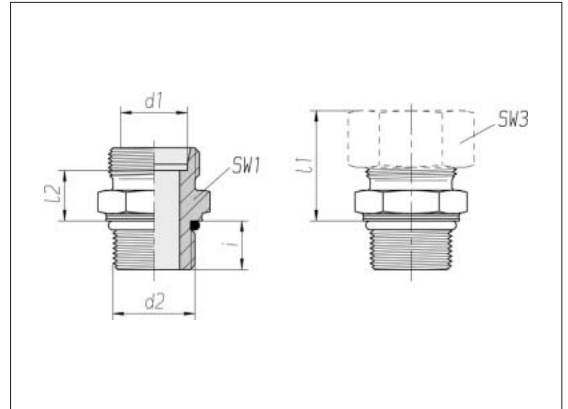
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see:
GEO06LMOMD
ISO 8434-1-SDS-L6xM10x1, typeF-St

Straight male stud couplings

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



3

Series	Pressure	d2	SW1	SW3	l1*	l2	i	Nm -10 %	kg/100 ca.	Order No. Single component	Order No. **
S 6	PN 800	M 12 x 1.5	17	17	28	13	11	35	2.9	0 7 46 50 20 00	0 1 46 50 20 XX
S 8	PN 800	M 14 x 1.5	19	19	30	15	11	40	4.1	0 7 46 55 20 00	0 1 46 55 20 XX
S 10	PN 800	M 16 x 1.5	22	22	31	15	12.5	55	5.5	0 7 46 60 20 00	0 1 46 60 20 XX
S 12	PN 630	M 14 x 1.5	22	24	33	17	11	40	5.9	0 7 46 67 20 00	0 1 46 67 20 XX
S 12	PN 630	M 16 x 1.5	22	24	31.5	15.5	12.5	55	6.0	0 7 46 66 20 00	0 1 46 66 20 XX
S 12	PN 630	M 18 x 1.5	24	24	33	17	14	70	7.5	0 7 46 65 20 00	0 1 46 65 20 XX
S 16	PN 630	M 22 x 1.5	27	30	37	18.5	15	100	9.9	0 7 46 75 20 00	0 1 46 75 20 XX
S 20	PN 420	M 27 x 2	32	36	42	20.5	18.5	170	16.4	0 7 46 80 20 00	0 1 46 80 20 XX
S 25	PN 420	M 33 x 2	41	46	47	23	18.5	310	26.9	0 7 46 85 20 00	0 1 46 85 20 XX
S 30	PN 420	M 33 x 2	46	50	50	23.5	18.5	310	33.7	0 7 46 91 20 00	0 1 46 91 20 XX
S 30	PN 420	M 42 x 2	50	50	50	23.5	19	330	49.3	0 7 46 90 20 00	0 1 46 90 20 XX
S 38	PN 420	M 48 x 2	55	60	57	26	21.5	420	57.1	0 7 46 95 20 00	0 1 46 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting
tube connection Supplementary to Order No.

2S 07

ES-4 09

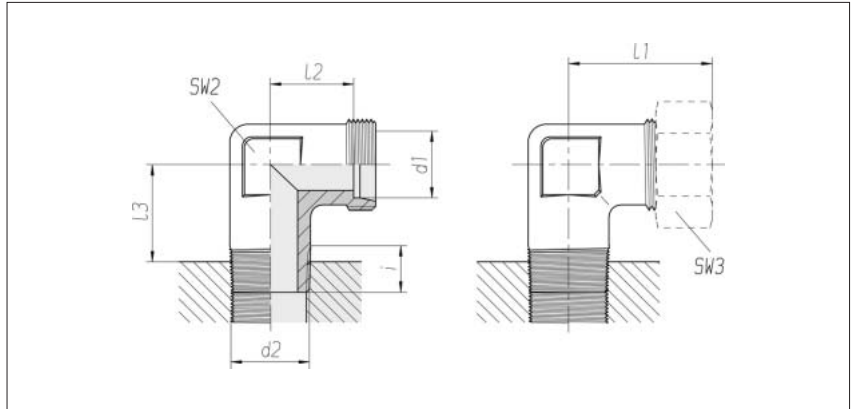
BV-10 Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Elbow male stud couplings

Thread:
metric fine thread,
tapered



Series	Pressure	d2		SW2	SW3	l1	l2	l3	i	kg/100	Order No.	Order No.
Tube OD						approx.		approx.		approx.	Single component	*
d1												
LL 4	PN 100	M 8 x 1	taper	9	10	21	11	12	8	0.9	0 7 13 00 20 00	-
LL 6	PN 100	M 6 x 1	taper	11	12	21	9.5	12	8	1.5	0 7 13 96 20 00	-
LL 6	PN 100	M 8 x 1	taper	11	12	21	9.5	12	8	1.6	0 7 13 11 20 00	-
LL 6	PN 100	M 10 x 1	taper	11	12	21	9.5	12	8	1.7	0 7 13 10 20 00	-
LL 8	PN 100	M 10 x 1	taper	12	14	23	11.5	15	8	2.2	0 7 13 15 20 00	-
L 6	PN 315	M 10 x 1	taper	12	14	27	12	15	8	2.9	0 7 14 00 20 00	0 1 14 00 20 07**
L 8	PN 315	M 12 x 1.5	taper	14	17	29	14	18	12	4.3	0 7 14 05 20 00	0 1 14 05 20 07
L 10	PN 315	M 14 x 1.5	taper	17	19	30	15	19	12	6.2	0 7 14 10 20 00	0 1 14 10 20 07
L 12	PN 315	M 16 x 1.5	taper	19	22	32	17	20	12	8.5	0 7 14 15 20 00	0 1 14 15 20 07
L 12	PN 315	M 18 x 1.5	taper	19	22	36	21	24	12	8.2	0 7 14 17 20 00	0 1 14 17 20 07
L 15	PN 315	M 18 x 1.5	taper	19	27	36	21	24	12	8.3	0 7 14 20 20 00	0 1 14 20 20 07
L 18	PN 315	M 22 x 1.5	taper	24	32	40	23.5	26.5	14	13.0	0 7 14 25 20 00	0 1 14 25 20 07
S 6	PB 630	M 12 x 1.5	taper	14	17	31	16	18	12	5.2	0 7 14 50 20 00	0 1 14 50 20 07
S 8	PB 630	M 14 x 1.5	taper	17	19	32	17	19	12	7.4	0 7 14 55 20 00	0 1 14 55 20 07
S 10	PB 630	M 16 x 1.5	taper	19	22	34	17.5	20	12	10.1	0 7 14 60 20 00	0 1 14 60 20 07
S 12	PB 630	M 18 x 1.5	taper	22	24	38	21.5	20	12	12.9	0 7 14 65 20 00	0 1 14 65 20 07
S 14	PB 630	M 20 x 1.5	taper	19	27	40	22	22.5	14	10.4	0 7 14 70 20 00	0 1 14 70 20 07
S 16	PB 400	M 22 x 1.5	taper	24	30	43	24.5	22.5	14	14.5	0 7 14 75 20 00	0 1 14 75 20 07

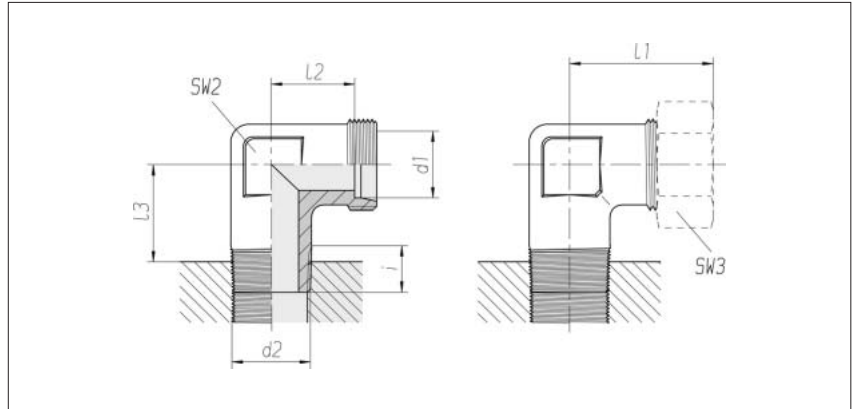
The operating pressure PB 630 only applies for threaded bores with tapered threads

* With union nut and 2S cutting ring

** Sample product code, see: WE06LM
DIN 2353-FL6-St

Elbow male stud couplings

Thread:
Whitworth pipe thread,
tapered



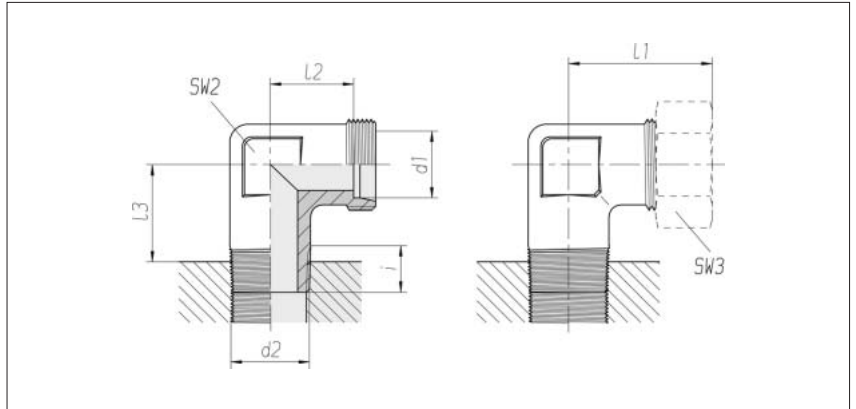
Series	Pressure	d2	SW2	SW3	l1	l2	l3	i	kg/100	Order No.	Order No.
Tube OD					approx.		approx.		approx.	Single component	*
d1											
LL 4	PN 100	R 1/8	11	10	21	11	12	8	1.0	0 7 15 00 20 00	-
LL 6	PN 100	R 1/8	11	12	21	9.5	12	8	1.6	0 7 15 10 20 00	-
LL 8	PN 100	R 1/8	12	14	23	11.5	15	8	2.2	0 7 15 15 20 00	-
L 6	PN 315	R 1/8	12	14	27	12	15	8	2.7	0 7 16 00 20 00	0 1 16 00 20 07**
L 6	PN 315	R 1/4	14	14	29	14	18	12	4.5	0 7 16 02 20 00	0 1 16 02 20 07
L 6	PN 315	R 3/8	17	14	32	17	19	12	6.8	0 7 16 03 20 00	0 1 16 03 20 07
L 8	PN 315	R 1/8	14	17	29	14	21	8	4.6	0 7 16 06 20 00	0 1 16 06 20 07
L 8	PN 315	R 1/4	14	17	29	14	18	12	4.8	0 7 16 05 20 00	0 1 16 05 20 07
L 8	PN 315	R 3/8	19	17	30	15	20	15	8.8	0 7 16 07 20 00	0 1 16 07 20 07
L 10	PN 315	R 1/8	17	19	30	15	20	8	6.7	0 7 16 11 20 00	0 1 16 11 20 07
L 10	PN 315	R 1/4	17	19	30	15	19	12	5.9	0 7 16 10 20 00	0 1 16 10 20 07
L 10	PN 315	R 3/8	19	19	31	16	20	15	9.3	0 7 16 12 20 00	0 1 16 12 20 07
L 10	PN 315	R 1/2	19	19	35	20	24	10	9.6	0 7 16 13 20 00	0 1 16 13 20 07
L 12	PN 315	R 1/4	19	22	32	17	20	12	8.5	0 7 16 16 20 00	0 1 16 16 20 07
L 12	PN 315	R 3/8	19	22	32	17	20	12	9.1	0 7 16 15 20 00	0 1 16 15 20 07
L 12	PN 315	R 1/2	19	22	35	20	24	14	9.7	0 7 16 17 20 00	0 1 16 17 20 07
L 15	PN 315	R 3/8	19	27	36	21	24	12	9.0	0 7 16 21 20 00	0 1 16 21 20 07
L 15	PN 315	R 1/2	19	27	36	21	24	14	9.5	0 7 16 20 20 00	0 1 16 20 20 07
L 15	PN 160	R 3/4	27	27	36.5	21.5	31	16	18.6	0 7 16 22 20 00	0 1 16 22 20 07
L 18	PN 315	R 1/2	24	32	40	23.5	26.5	14	12.6	0 7 16 25 20 00	0 1 16 25 20 07
L 22	PN 160	R 3/4	27	36	44	27.5	31	16	17.3	0 7 16 34 20 00	0 1 16 34 20 07

* With union nut and 2S cutting ring

** Sample product code, see:
WE06LR
DIN 2353-GL6-St

Elbow male stud couplings

Thread:
Whitworth pipe thread,
tapered



Series	Pressure	d2	SW2	SW3	l1 approx.	l2	l3	i approx.	kg/100 approx.	Order No. Single component	Order No. *
S 6	PB 630	R 1/4	14	17	31	16	18	12	5.4	0 7 16 50 20 00	0 1 16 50 20 07**
S 8	PB 630	R 1/4	17	19	32	17	19	12	7.0	0 7 16 55 20 00	0 1 16 55 20 07
S 10	PB 630	R 3/8	19	22	34	17.5	20	12	10.2	0 7 16 60 20 00	0 1 16 60 20 07
S 12	PB 630	R 3/8	22	24	38	21.5	20	12	12.7	0 7 16 65 20 00	0 1 16 65 20 07
S 12	PB 630	R 1/2	19	24	38	21.5	24	14	10.3	0 7 16 67 20 00	0 1 16 67 20 07
S 14	PB 630	R 1/4	19	27	40	22	22	12	9.3	0 7 16 73 20 00	0 1 16 73 20 07
S 14	PB 630	R 3/8	19	27	40	22	22	12	9.7	0 7 16 71 20 00	0 1 16 71 20 07
S 14	PB 630	R 1/2	19	27	40	22	22.5	14	10.5	0 7 16 70 20 00	0 1 16 70 20 07
S 16	PB 400	R 1/2	24	30	43	24.5	22.5	14	13.9	0 7 16 75 20 00	0 1 16 75 20 07
S 16	PB 400	R 3/4	27	30	43	24.5	31	16	18.9	0 7 16 77 20 00	0 1 16 77 20 07
S 20	PB 400	R 1/2	27	36	48	26.5	30	14	21.6	0 7 16 81 20 00	0 1 16 81 20 07
S 20	PB 400	R 3/4	27	36	48	26.5	31	16	21.7	0 7 16 84 20 00	0 1 16 84 20 07

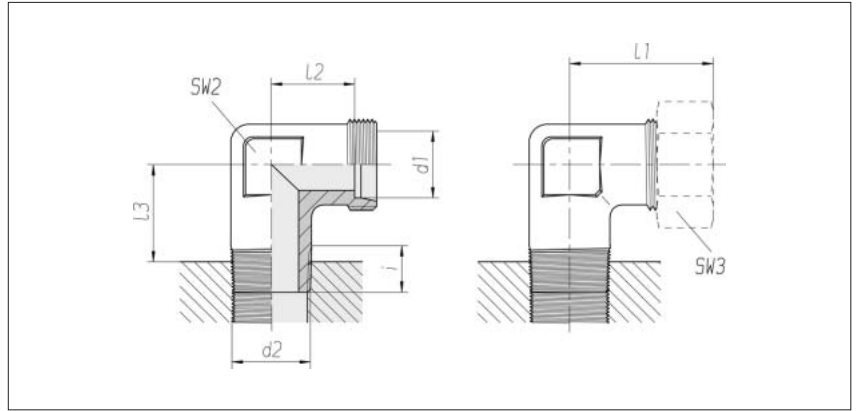
The operating pressure PB 630 only applies for threaded bores with tapered threads

* With union nut and 2S cutting ring

** Sample product code, see: WE06SR
DIN 2353-GS6-St

Elbow male stud couplings

Thread:
NPT (ANSI/ASME B 1
-20.01/01/1983)



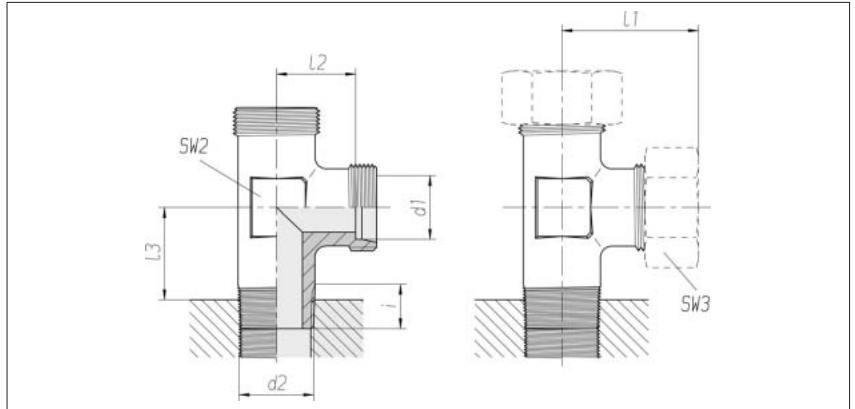
Series Tube OD d1	Pressure	d2	SW2	SW3	l1	l2 approx.	l3 approx.	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
LL 4	PN 100	1/8 NPT	11	10	21	11	11.5	9.9	15	1.8	0 7 17 00 20 00	-
LL 6	PN 100	1/8 NPT	11	12	21	9.5	11.5	9.9	15	1.7	0 7 17 10 20 00	-
LL 8	PN 100	1/8 NPT	12	14	23	11.5	15.9	9.9	15	2.4	0 7 17 15 20 00	-
L 6	PN 315	1/8 NPT	12	14	27	12	15.9	9.9	15	3.0	0 7 18 00 20 00**	0 1 18 00 20 07
L 6	PN 315	1/4 NPT	14	14	29	14	20.2	15.1	35	4.9	0 7 18 02 20 00	0 1 18 02 20 07
L 8	PN 315	1/4 NPT	14	17	29	14	20.2	15.1	35	4.7	0 7 18 05 20 00	0 1 18 05 20 07
L 10	PN 315	1/4 NPT	17	19	30	15	21.2	15.1	35	6.2	0 7 18 10 20 00	0 1 18 10 20 07
L 12	PN 315	1/4 NPT	19	22	32	17	22.2	15.1	35	8.6	0 7 18 16 20 00	0 1 18 16 20 07
L 12	PN 315	3/8 NPT	19	22	32	17	21.9	15.2	55	9.0	0 7 18 15 20 00	0 1 18 15 20 07
L 12	PN 315	1/2 NPT	24	22	36	21	19.5	19.8	110	12.3	0 7 18 17 20 00	0 1 18 17 20 07
L 15	PN 315	1/2 NPT	24	27	39	24	22.5	19.8	110	14.2	0 7 18 20 20 00	0 1 18 20 20 07
L 18	PN 315	1/2 NPT	24	32	40	23.5	23.5	19.8	110	12.9	0 7 18 25 20 00	0 1 18 25 20 07
L 22	PN 160	3/4 NPT	27	36	44	27.5	28.5	20.1	175	17.4	0 7 18 30 20 00	0 1 18 30 20 07
L 28	PN 160	1 NPT	36	41	47	30.5	32.5	25.0	265	28.5	0 7 18 35 20 00	0 1 18 35 20 07
L 35	PN 160	1 1/4 NPT	41	50	56	34.5	37.0	25.6	315	47.7	0 7 18 40 20 00	0 1 18 40 20 07
L 42	PN 160	1 1/2 NPT	50	60	63	40	44.0	26.0	385	72.3	0 7 18 45 20 00	0 1 18 45 20 07
S 6	PN 630	1/4 NPT	14	17	31	16	20.2	15.1	35	5.6	0 7 18 50 20 00	0 1 18 50 20 07
S 8	PN 630	1/4 NPT	17	19	32	17	21.2	15.1	35	7.3	0 7 18 55 20 00	0 1 18 55 20 07
S 10	PN 630	3/8 NPT	19	22	34	17.5	21.9	15.2	55	10.4	0 7 18 60 20 00	0 1 18 60 20 07
S 12	PN 630	3/8 NPT	22	24	38	21.5	22.9	15.2	55	12.6	0 7 18 65 20 00	0 1 18 65 20 07
S 14	PN 630	1/2 NPT	24	27	43	25	19.5	19.8	110	14.9	0 7 18 70 20 00	0 1 18 70 20 07
S 16	PN 400	1/2 NPT	24	30	43	24.5	19.5	19.8	110	14.6	0 7 18 75 20 00	0 1 18 75 20 07
S 20	PN 400	3/4 NPT	27	36	48	26.5	28.5	20.1	175	21.5	0 7 18 80 20 00	0 1 18 80 20 07
S 25	PN 400	1 NPT	36	46	54	30	32.5	25.0	265	37.6	0 7 18 85 20 00	0 1 18 85 20 07
S 30	PN 400	1 1/4 NPT	41	50	62	35.5	37.0	25.6	315	64.8	0 7 18 90 20 00	0 1 18 90 20 07
S 38	PN 315	1 1/2 NPT	50	60	72	41	44.0	26.0	385	97.1	0 7 18 95 20 00	0 1 18 95 20 07

* With union nut and 2S cutting ring

** Sample product code, see:
WE06L1/8NPTX

Male stud barrel tees

Thread:
metric fine thread,
tapered



Series	Pressure	d2		SW2	SW3	l1 approx.	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. *
LL 4	PN 100	M 8 x 1	taper	9	10	21	11	12	8	1.2	0 7 21 00 20 00	-
LL 6	PN 100	M 10 x 1	taper	9	12	21	9.5	12	8	1.2	0 7 21 10 20 00	-
LL 8	PN 100	M 10 x 1	taper	12	14	23	11.5	15	8	2.8	0 7 21 15 20 00	-
L 6	PN 315	M 10 x 1	taper	12	14	27	12	15	8	3.8	0 7 22 00 20 00	0 1 22 00 20 07**
L 8	PN 315	M 12 x 1.5	taper	14	17	29	14	18	12	5.4	0 7 22 05 20 00	0 1 22 05 20 07
L 10	PN 315	M 14 x 1.5	taper	17	19	30	15	19	12	7.2	0 7 22 10 20 00	0 1 22 10 20 07
L 12	PN 315	M 16 x 1.5	taper	19	22	32	17	20	12	10.1	0 7 22 15 20 00	0 1 22 15 20 07
L 15	PN 315	M 18 x 1.5	taper	19	27	36	21	24	12	10.4	0 7 22 20 20 00	0 1 22 20 20 07
L 18	PN 315	M 22 x 1.5	taper	24	32	40	23.5	26.5	14	16.5	0 7 22 25 20 00	0 1 22 25 20 07
S 6	PB 630	M 12 x 1.5	taper	14	17	31	16	18	12	7.0	0 7 22 50 20 00	0 1 22 50 20 07
S 8	PB 630	M 14 x 1.5	taper	17	19	32	17	19	12	9.3	0 7 22 55 20 00	0 1 22 55 20 07
S 10	PB 630	M 16 x 1.5	taper	19	22	34	17.5	20	12	11.8	0 7 22 60 20 00	0 1 22 60 20 07
S 12	PB 630	M 18 x 1.5	taper	22	24	38	21.5	20	12	16.8	0 7 22 65 20 00	0 1 22 65 20 07
S 14	PB 630	M 20 x 1.5	taper	19	27	40	22	22.5	14	13.2	0 7 22 70 20 00	0 1 22 70 20 07
S 16	PB 400	M 22 x 1.5	taper	24	30	43	24.5	22.5	14	16.5	0 7 22 75 20 00	0 1 22 75 20 07

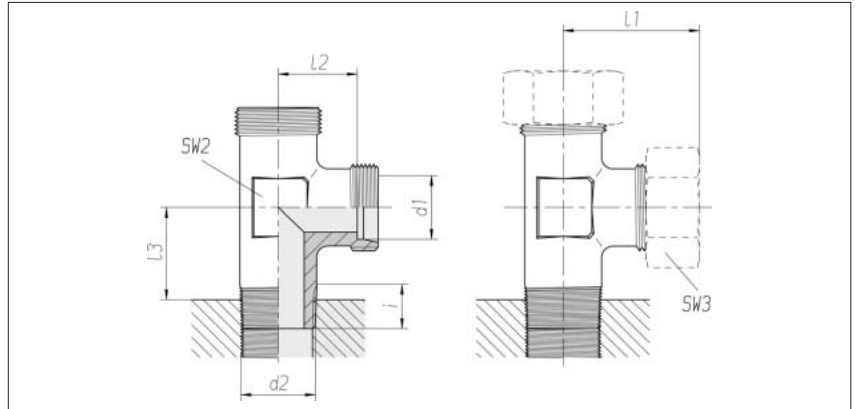
The operating pressure PB 630 only applies for threaded bores with tapered threads

* With union nut and 2S cutting ring

** Sample product code, see: LE06LM
DIN 2353-AAL6-St

Male stud barrel tees

Thread:
Whitworth pipe thread,
tapered



Series	Pressure	d2	SW2	SW3	l1 approx.	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. *
LL 4	PN 100	R 1/8	9	10	21	11	12	8	1.3	0 7 23 00 20 00	-
LL 6	PN 100	R 1/8	9	12	21	9.5	12	8	1.2	0 7 23 10 20 00	-
LL 8	PN 100	R 1/8	12	14	23	11.5	15	8	2.8	0 7 23 15 20 00	-
L 6	PN 315	R 1/8	12	14	27	12	15	8	3.7	0 7 24 00 20 00	0 1 24 00 20 07**
L 8	PN 315	R 1/4	14	17	29	14	18	12	5.6	0 7 24 05 20 00	0 1 24 05 20 07
L 10	PN 315	R 1/4	17	19	30	15	19	12	7.3	0 7 24 10 20 00	0 1 24 10 20 07
L 12	PN 315	R 3/8	19	22	32	17	20	12	9.8	0 7 24 15 20 00	0 1 24 15 20 07
L 15	PN 315	R 1/2	19	27	36	21	24	14	11.7	0 7 24 20 20 00	0 1 24 20 20 07
L 18	PN 315	R 1/2	24	32	40	23.5	26.5	14	15.7	0 7 24 25 20 00	0 1 24 25 20 07
S 6	PB 630	R 1/4	14	17	31	16	18	12	12.1	0 7 24 50 20 00	0 1 24 50 20 07
S 8	PB 630	R 1/4	17	19	32	17	19	12	9.0	0 7 24 55 20 00	0 1 24 55 20 07
S 10	PB 630	R 3/8	19	22	34	17.5	20	12	11.9	0 7 24 60 20 00	0 1 24 60 20 07
S 12	PB 630	R 3/8	22	24	38	21.5	20	12	16.2	0 7 24 65 20 00	0 1 24 65 20 07
S 14	PB 630	R 1/2	19	27	40	22	22.5	14	13.7	0 7 24 70 20 00	0 1 24 70 20 07
S 16	PB 400	R 1/2	24	30	43	24.5	22.5	14	16.5	0 7 24 75 20 00	0 1 24 75 20 07

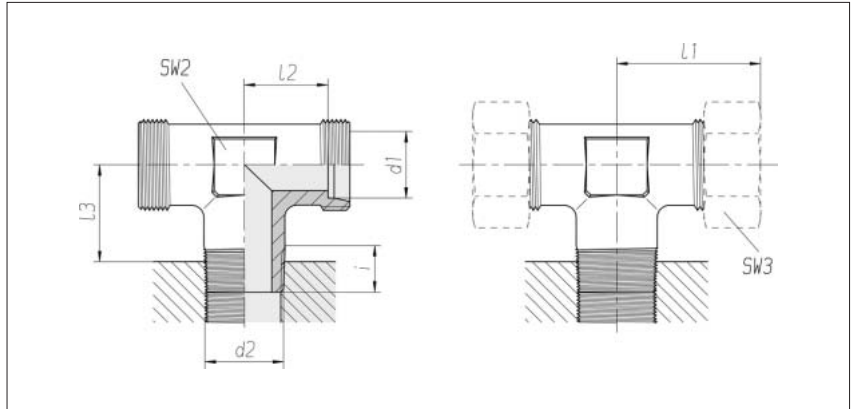
The operating pressure PB 630
only applies for threaded bores with
tapered threads

* With union nut and 2S cutting ring

** Sample product code, see:
LE06LR
DIN 2353-ABL6-St

Male stud branch tees

Thread:
metric fine thread,
tapered



Series Tube OD d1	Pressure	d2		SW2	SW3	l1 approx.	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. *
LL 4	PN 100	M 8 x 1	taper	9	10	21	11	12	8	1.2	0 7 27 00 20 00	-
LL 6	PN 100	M 10 x 1	taper	9	12	21	9.5	12	8	1.2	0 7 27 10 20 00	-
LL 8	PN 100	M 10 x 1	taper	12	14	23	11.5	15	8	2.8	0 7 27 15 20 00	-
L 6	PN 315	M 10 x 1	taper	12	14	27	12	15	8	3.6	0 7 28 00 20 00	0 1 28 00 20 07**
L 8	PN 315	M 12 x 1.5	taper	14	17	29	14	18	12	5.5	0 7 28 05 20 00	0 1 28 05 20 07
L 10	PN 315	M 14 x 1.5	taper	17	19	30	15	19	12	7.2	0 7 28 10 20 00	0 1 28 10 20 07
L 12	PN 315	M 16 x 1.5	taper	19	22	32	17	20	12	9.8	0 7 28 15 20 00	0 1 28 15 20 07
L 15	PN 315	M 18 x 1.5	taper	19	27	36	21	24	12	10.2	0 7 28 20 20 00	0 1 28 20 20 07
L 18	PN 315	M 22 x 1.5	taper	24	32	40	23.5	26.5	14	14.1	0 7 28 25 20 00	0 1 28 25 20 07
S 6	PB 630	M 12 x 1.5	taper	14	17	31	16	18	12	6.6	0 7 28 50 20 00	0 1 28 50 20 07
S 8	PB 630	M 14 x 1.5	taper	17	19	32	17	19	12	9.2	0 7 28 55 20 00	0 1 28 55 20 07
S 10	PB 630	M 16 x 1.5	taper	19	22	34	17.5	20	12	12.1	0 7 28 60 20 00	0 1 28 60 20 07
S 12	PB 630	M 18 x 1.5	taper	22	24	38	21.5	20	12	16.7	0 7 28 65 20 00	0 1 28 65 20 07
S 14	PB 630	M 20 x 1.5	taper	19	27	40	22	22.5	14	13.2	0 7 28 70 20 00	0 1 28 70 20 07
S 16	PB 400	M 22 x 1.5	taper	24	30	43	24.5	22.5	14	16.1	0 7 28 75 20 00	0 1 28 75 20 07

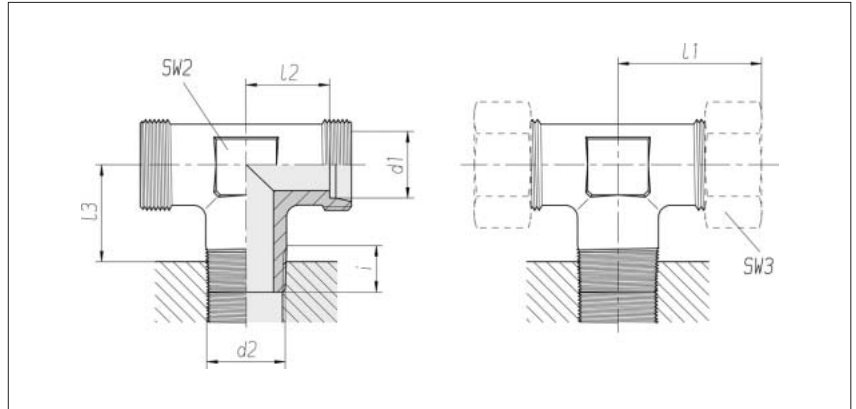
The operating pressure PB 630
only applies for threaded bores with
tapered threads

* With union nut and 2S cutting ring

** Sample product code, see:
TE06LM
DIN 2353-ML6-St

Male stud branch tees

Thread:
Whitworth pipe thread,
tapered



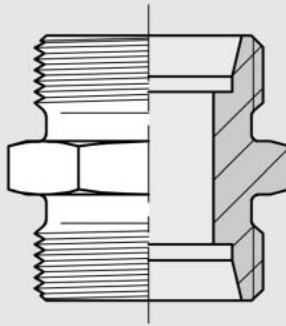
Series	Pressure	d2	SW2	SW3	l1 approx.	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. *
Tube OD											
d1											
LL 4	PN 100	R 1/8	9	10	21	11	12	8	1.3	0 7 29 00 20 00	-
LL 6	PN 100	R 1/8	9	12	21	9.5	12	8	1.2	0 7 29 10 20 00	-
LL 8	PN 100	R 1/8	12	14	23	11.5	15	8	2.7	0 7 29 15 20 00	-
L 6	PN 315	R 1/8	12	14	27	12	15	8	3.6	0 7 30 00 20 00	0 1 30 00 20 07**
L 8	PN 315	R 1/4	14	17	29	14	18	12	5.8	0 7 30 05 20 00	0 1 30 05 20 07
L 10	PN 315	R 1/4	17	19	30	15	19	12	7.2	0 7 30 10 20 00	0 1 30 10 20 07
L 12	PN 315	R 1/4	19	22	32	17	20	12	10.2	0 7 30 16 20 00	0 1 30 16 20 07
L 12	PN 315	R 3/8	19	22	32	17	20	12	10.0	0 7 30 15 20 00	0 1 30 15 20 07
L 15	PN 315	R 1/2	19	27	36	21	24	14	11.6	0 7 30 20 20 00	0 1 30 20 20 07
L 18	PN 315	R 1/2	24	32	40	23.5	26.5	14	15.7	0 7 30 25 20 00	0 1 30 25 20 07
S 6	PB 630	R 1/4	14	17	31	16	18	12	7.1	0 7 30 50 20 00	0 1 30 50 20 07
S 8	PB 630	R 1/4	17	19	32	17	19	12	9.2	0 7 30 55 20 00	0 1 30 55 20 07
S 10	PB 630	R 3/8	19	22	34	17.5	20	12	12.1	0 7 30 60 20 00	0 1 30 60 20 07
S 12	PB 630	R 3/8	22	24	38	21.5	20	12	16.3	0 7 30 65 20 00	0 1 30 65 20 07
S 14	PB 630	R 1/2	19	27	40	22	22.5	14	13.8	0 7 30 70 20 00	0 1 30 70 20 07
S 16	PB 400	R 1/2	24	30	43	24.5	22.5	14	18.5	0 7 30 75 20 00	0 1 30 75 20 07

The operating pressure PB 630 only applies for threaded bores with tapered threads

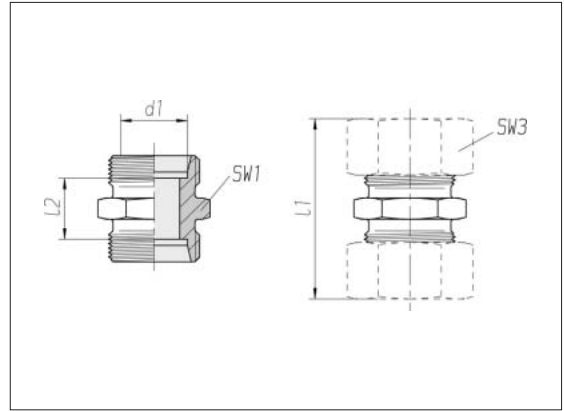
* With union nut and 2S cutting ring

** Sample product code, see: TE06LR
DIN 2353-NL6-St

Connecting adapters



Straight couplings



Series Tube OD d1	Pressure	SW1	SW3	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
LL 4	PN 100	9	10	31	12	0.5	0 7 11 00 20 00	-
LL 6	PN 100	11	12	32	9	0.7	0 7 11 10 20 00	-
LL 8	PN 100	12	14	35	12	1.0	0 7 11 15 20 00	-
L 6	PN 500	12	14	39	10	1.2	0 7 12 00 20 00***	0 1 12 00 20 XX
L 8	PN 500	14	17	40	11	1.6	0 7 12 05 20 00	0 1 12 05 20 XX
L 10	PN 500	17	19	42	13	2.2	0 7 12 10 20 00	0 1 12 10 20 XX
L 12	PN 400	19	22	43	14	2.8	0 7 12 15 20 00	0 1 12 15 20 XX
L 15	PN 400	24	27	46	16	4.9	0 7 12 20 20 00	0 1 12 20 20 XX
L 18	PN 400	27	32	48	16	6.7	0 7 12 25 20 00	0 1 12 25 20 XX
L 22	PN 250	32	36	52	20	8.8	0 7 12 30 20 00	0 1 12 30 20 XX
L 28	PN 250	41	41	54	21	13.6	0 7 12 35 20 00	0 1 12 35 20 XX
L 35	PN 250	46	50	63	20	21.0	0 7 12 40 20 00	0 1 12 40 20 XX
L 42	PN 250	55	60	66	21	29.4	0 7 12 45 20 00	0 1 12 45 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

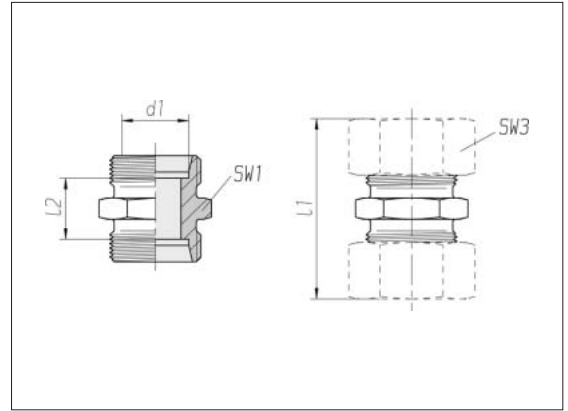
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see:
G06LX
ISO 8434-1-S-L6-St

Straight couplings



Series Tube OD d1	Pressure	SW1	SW3	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
S 6	PN 800	14	17	45	16	2.5	0 7 12 50 20 00	0 1 12 50 20 XX
S 8	PN 800	17	19	47	18	3.7	0 7 12 55 20 00	0 1 12 55 20 XX
S 10	PN 800	19	22	49	17	4.3	0 7 12 60 20 00	0 1 12 60 20 XX
S 12	PN 630	22	24	51	19	5.9	0 7 12 65 20 00	0 1 12 65 20 XX
S 14	PN 630	24	27	57	22	7.5	0 7 12 70 20 00	0 1 12 70 20 XX
S 16	PN 630	27	30	57	21	8.7	0 7 12 75 20 00	0 1 12 75 20 XX
S 20	PN 420	32	36	66	23	14.2	0 7 12 80 20 00	0 1 12 80 20 XX
S 25	PN 420	41	46	74	26	25.0	0 7 12 85 20 00	0 1 12 85 20 XX
S 30	PN 420	46	50	80	27	32.3	0 7 12 90 20 00	0 1 12 90 20 XX
S 38	PN 420	55	60	90	29	53.8	0 7 12 95 20 00	0 1 12 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

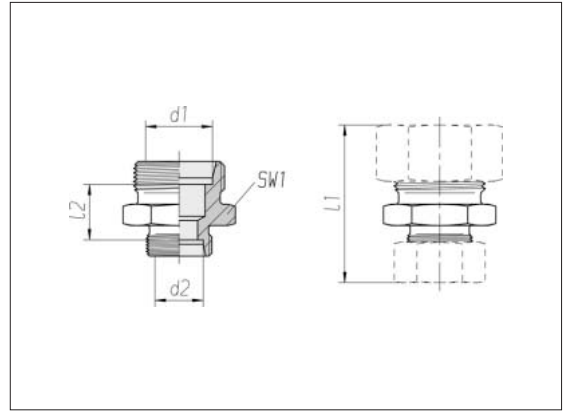
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Straight reducing couplings

For tube-to-tube connection according to DIN 2353 / ISO 8434-1



Series Tube OD d1	Pressure	Series Tube OD d2	SW1	l1* approx.	l2 approx.	kg/100 approx.	Order No. Single component	Order No. **
LL 6	PN 100	LL 4	11	31.5	10.5	0.7	0 7 11 12 20 00	-
LL 8	PN 100	LL 4	12	34.5	12.5	0.9	0 7 11 18 20 00	-
L 8	PN 500	L 6	14	40.5	11	1.5	0 7 12 06 20 00***	0 1 12 06 20 XX
L 10	PN 500	L 6	17	41.5	12	2.0	0 7 12 12 20 00	0 1 12 12 20 XX
L 10	PN 500	L 8	17	42	12	2.1	0 7 12 11 20 00	0 1 12 11 20 XX
L 12	PN 400	L 6	19	42	13	2.5	0 7 12 18 20 00	0 1 12 18 20 XX
L 12	PN 400	L 8	19	42.5	13	2.6	0 7 12 17 20 00	0 1 12 17 20 XX
L 12	PN 400	L 10	19	43.5	14	2.7	0 7 12 16 20 00	0 1 12 16 20 XX
L 15	PN 400	L 8	24	44	14	4.0	0 7 12 23 20 00	0 1 12 23 20 XX
L 15	PN 400	L 10	24	45	15	4.1	0 7 12 22 20 00	0 1 12 22 20 XX
L 15	PN 400	L 12	24	44.5	15	4.2	0 7 12 21 20 00	0 1 12 21 20 XX
L 18	PN 400	L 10	27	47	15.5	5.6	0 7 12 28 20 00	0 1 12 28 20 XX
L 18	PN 400	L 12	27	46.5	15.5	5.7	0 7 12 27 20 00	0 1 12 27 20 XX
L 18	PN 400	L 15	27	48	16.5	6.1	0 7 12 26 20 00	0 1 12 26 20 XX
L 22	PN 250	L 10	32	49	17.5	7.5	0 7 12 34 20 00	0 1 12 34 20 XX
L 22	PN 250	L 12	32	48.5	17.5	7.6	0 7 12 33 20 00	0 1 12 33 20 XX
L 22	PN 250	L 15	32	50	18.5	8.1	0 7 12 32 20 00	0 1 12 32 20 XX
L 22	PN 250	L 18	32	51	18	8.6	0 7 12 31 20 00	0 1 12 31 20 XX

Continuation on page 97

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

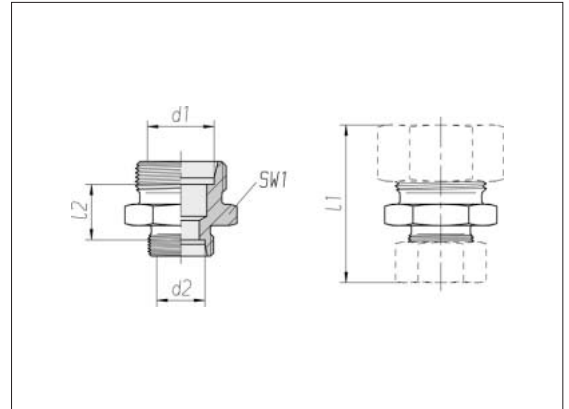
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GR08/06LX
ISO 8434-1-RDS-L8xL6-St

Straight reducing couplings

For tube-to-tube connection according to DIN 2353 / ISO 8434-1



3

Series Tube OD d1	Pressure	Series Tube OD d2	SW1	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
L 28	PN 250	L 10	41	50	18.5	12.2	0 7 11 82 20 00	0 1 11 82 20 XX
L 28	PN 250	L 18	41	52	19	12.3	0 7 12 37 20 00	0 1 12 37 20 XX
L 28	PN 250	L 22	41	54	21	13.2	0 7 12 36 20 00	0 1 12 36 20 XX
L 35	PN 250	L 22	46	59	21	19.0	0 7 12 42 20 00	0 1 12 42 20 XX
L 35	PN 250	L 28	46	59	21	19.0	0 7 12 41 20 00	0 1 12 41 20 XX
L 42	PN 250	L 28	55	62	22.5	26.8	0 7 12 47 20 00	0 1 12 47 20 XX
L 42	PN 250	L 35	55	66	21.5	29.3	0 7 12 46 20 00	0 1 12 46 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

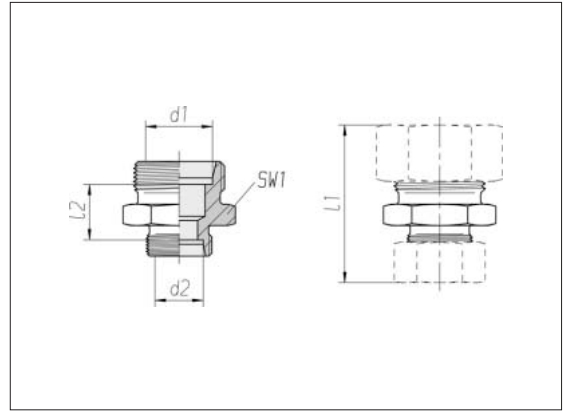
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Straight reducing couplings

For tube-to-tube connection according to DIN 2353 / ISO 8434-1



Series Tube OD d1	Pressure	Series Tube OD d2	SW1	l1*	l2 approx.	kg/100 approx.	Order No. Single component	Order No. **
S 8	PN 800	S 6	17	48	18	3.4	0 7 12 56 20 00***	0 1 12 56 20 XX
S 10	PN 800	S 6	19	48.5	17.5	4.0	0 7 12 62 20 00	0 1 12 62 20 XX
S 10	PN 800	S 8	19	48.5	17.5	4.2	0 7 12 61 20 00	0 1 12 61 20 XX
S 12	PN 630	S 6	22	50.5	19.5	5.4	0 7 12 68 20 00	0 1 12 68 20 XX
S 12	PN 630	S 8	22	50.5	19.5	5.6	0 7 12 67 20 00	0 1 12 67 20 XX
S 12	PN 630	S 10	22	51	19	5.8	0 7 12 66 20 00	0 1 12 66 20 XX
S 14	PN 630	S 10	24	54.5	20.5	6.9	0 7 12 72 20 00	0 1 12 72 20 XX
S 14	PN 630	S 12	24	54.6	20.5	7.0	0 7 12 71 20 00	0 1 12 71 20 XX
S 16	PN 630	S 8	27	54	20.5	7.8	0 7 12 79 20 00	0 1 12 79 20 XX
S 16	PN 630	S 10	27	54.5	20	7.9	0 7 12 78 20 00	0 1 12 78 20 XX
S 16	PN 630	S 12	27	54.5	20	8.0	0 7 12 77 20 00	0 1 12 77 20 XX
S 16	PN 400	L 12	27	52.5	19.5	7.7	0 7 11 98 20 00	0 1 11 98 20 XX
S 16	PN 630	S 14	27	58	21.5	8.7	0 7 12 76 20 00	0 1 12 76 20 XX
S 20	PN 420	S 10	32	56.5	22	12.2	0 7 12 84 20 00	0 1 12 84 20 XX
S 20	PN 420	S 12	32	56.5	22	12.5	0 7 12 83 20 00	0 1 12 83 20 XX
S 20	PN 420	S 14	32	63	23.5	12.9	0 7 12 82 20 00	0 1 12 82 20 XX
S 20	PN 420	S 16	32	60	23	12.9	0 7 12 81 20 00	0 1 12 81 20 XX
S 25	PN 420	S 16	41	68	26.5	22.0	0 7 12 87 20 00	0 1 12 87 20 XX
S 25	PN 420	S 20	41	68	25.5	23.2	0 7 12 86 20 00	0 1 12 86 20 XX
S 30	PN 420	S 20	46	71	26	29.4	0 7 12 92 20 00	0 1 12 92 20 XX
S 30	PN 420	S 25	46	77	26.5	31.1	0 7 12 91 20 00	0 1 12 91 20 XX
S 38	PN 420	S 30	55	87	29.5	48.8	0 7 12 96 20 00	0 1 12 96 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

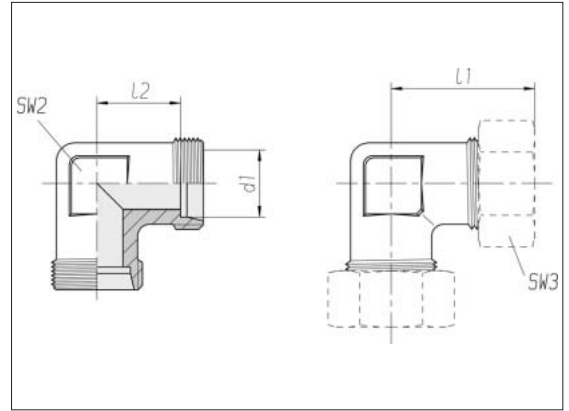
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GR08/06SX
ISO 8434-1-RDS-S8xS6-St

Elbow couplings



Series	Pressure	SW2	SW3	l1*	l2	kg/100	Order No.	Order No.
Tube OD				approx.		approx.	Single component	**
d1								
LL 4	PN 100	9	10	21	11	1.3	0 7 19 00 20 00	-
LL 6	PN 100	11	12	21	9.5	1.5	0 7 19 10 20 00	-
LL 8	PN 100	12	14	23	11.5	2.3	0 7 19 15 20 00	-
L 6	PN 500	12	14	27	12	2.8	0 7 20 00 20 00***	0 1 20 00 20 XX
L 8	PN 500	14	17	29	14	4.1	0 7 20 05 20 00	0 1 20 05 20 XX
L 10	PN 500	17	19	30	15	5.6	0 7 20 10 20 00	0 1 20 10 20 XX
L 12	PN 400	19	22	32	17	7.7	0 7 20 15 20 00	0 1 20 15 20 XX
L 15	PN 400	19	27	36	21	7.4	0 7 20 20 20 00	0 1 20 20 20 XX
L 18	PN 400	24	32	40	23.5	11.9	0 7 20 25 20 00	0 1 20 25 20 XX
L 22	PN 250	27	36	44	27.5	15.2	0 7 20 30 20 00	0 1 20 30 20 XX
L 28	PN 250	36	41	47	30.5	25.1	0 7 20 35 20 00	0 1 20 35 20 XX
L 35	PN 250	41	50	56	34.5	43.1	0 7 20 40 20 00	0 1 20 40 20 XX
L 42	PN 250	50	60	63	40	78.2	0 7 20 45 20 00	0 1 20 45 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

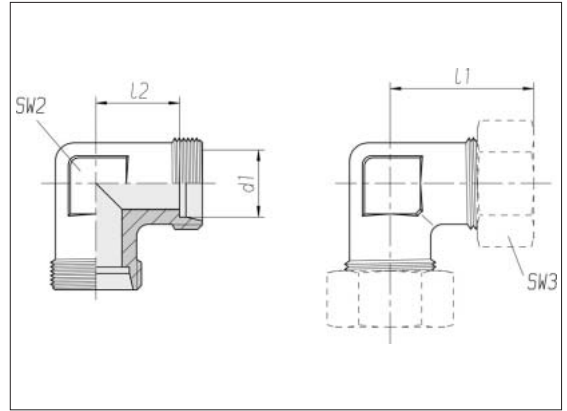
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: W06LX ISO 8434-1-E-L6-St

Elbow couplings



Series	Pressure	SW2	SW3	l1*	l2	kg/100	Order No.	Order No.
Tube OD				approx.		approx.	Single component	**
d1								
S 6	PN 800	14	17	31	16	5.1	0 7 20 50 20 00	0 1 20 50 20 XX
S 8	PN 800	17	19	32	17	7.2	0 7 20 55 20 00	0 1 20 55 20 XX
S 10	PN 800	19	22	34	17.5	9.8	0 7 20 60 20 00	0 1 20 60 20 XX
S 12	PN 630	22	24	38	21.5	14.4	0 7 20 65 20 00	0 1 20 65 20 XX
S 14	PN 630	19	27	40	22	10.4	0 7 20 70 20 00	0 1 20 70 20 XX
S 16	PN 630	24	30	43	24.5	12.7	0 7 20 75 20 00	0 1 20 75 20 XX
S 20	PN 420	27	36	48	26.5	20.5	0 7 20 80 20 00	0 1 20 80 20 XX
S 25	PN 420	36	46	54	30	34.9	0 7 20 85 20 00	0 1 20 85 20 XX
S 30	PN 420	41	50	62	35.5	58.8	0 7 20 90 20 00	0 1 20 90 20 XX
S 38	PN 420	50	60	72	41	103.1	0 7 20 95 20 00	0 1 20 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

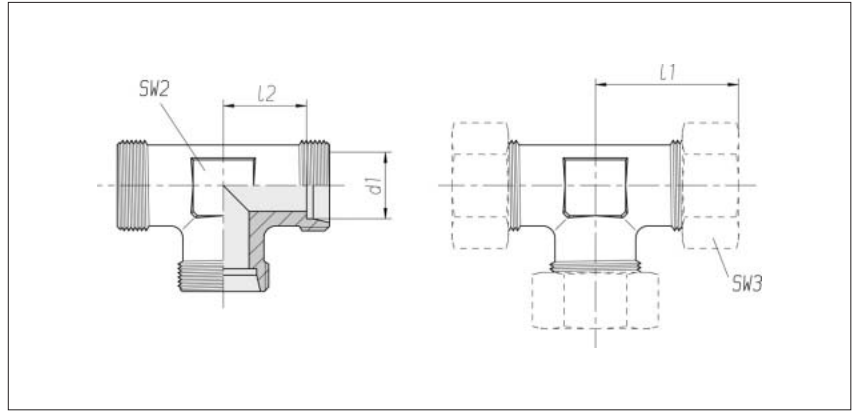
Supplementary to Order No. for complete fitting
tube connection Supplementary to Order No.

2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Stud branch tees



Series Tube OD d1	Pressure	SW2	SW3	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
LL 4	PN 100	9	10	21	11	1.1	0 7 33 00 20 00	-
LL 6	PN 100	9	12	21	9.5	1.0	0 7 33 10 20 00	-
LL 8	PN 100	12	14	23	11.5	2.8	0 7 33 15 20 00	-
L 6	PN 500	12	14	27	12	3.5	0 7 34 00 20 00***	0 1 34 00 20 XX
L 8	PN 500	14	17	29	14	5.1	0 7 34 05 20 00	0 1 34 05 20 XX
L 10	PN 500	17	19	30	15	6.7	0 7 34 10 20 00	0 1 34 10 20 XX
L 12	PN 400	19	22	32	17	9.1	0 7 34 15 20 00	0 1 34 15 20 XX
L 15	PN 400	19	27	36	21	10.0	0 7 34 20 20 00	0 1 34 20 20 XX
L 18	PN 400	24	32	40	23.5	15.0	0 7 34 25 20 00	0 1 34 25 20 XX
L 22	PN 250	27	36	44	27.5	18.6	0 7 34 30 20 00	0 1 34 30 20 XX
L 28	PN 250	36	41	47	30.5	29.9	0 7 34 35 20 00	0 1 34 35 20 XX
L 35	PN 250	41	50	56	34.5	52.3	0 7 34 40 20 00	0 1 34 40 20 XX
L 42	PN 250	50	60	63	40	91.5	0 7 34 45 20 00	0 1 34 45 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

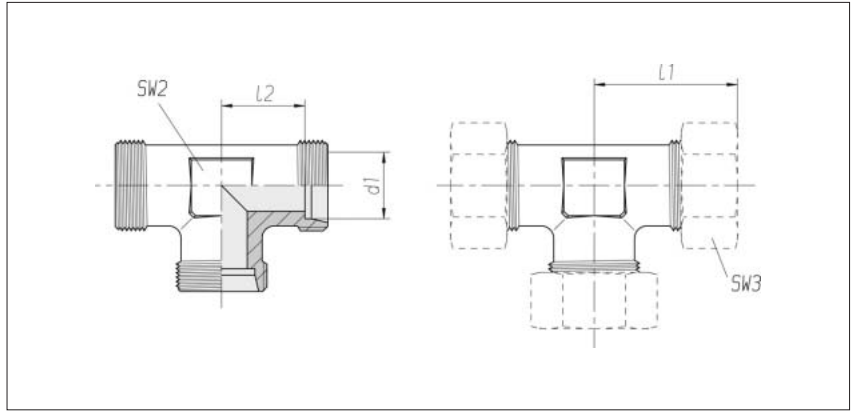
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: T06LX
ISO 8434-1-T-L6-St

Stud branch tees



Series Tube OD d1	Pressure	SW2	SW3	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
S 6	PN 800	14	17	31	16	6.7	0 7 34 50 20 00***	0 1 34 50 20 XX
S 8	PN 800	17	19	32	17	9.1	0 7 34 55 20 00	0 1 34 55 20 XX
S 10	PN 800	19	22	34	17.5	11.5	0 7 34 60 20 00	0 1 34 60 20 XX
S 12	PN 630	22	24	38	21.5	17.3	0 7 34 65 20 00	0 1 34 65 20 XX
S 14	PN 630	19	27	40	22	13.1	0 7 34 70 20 00	0 1 34 70 20 XX
S 16	PN 630	24	30	43	24.5	16.5	0 7 34 75 20 00	0 1 34 75 20 XX
S 20	PN 420	27	36	48	26.5	26.0	0 7 34 80 20 00	0 1 34 80 20 XX
S 25	PN 420	36	46	54	30	43.6	0 7 34 85 20 00	0 1 34 85 20 XX
S 30	PN 420	41	50	62	35.5	71.5	0 7 34 90 20 00	0 1 34 90 20 XX
S 38	PN 420	50	60	72	41	125.8	0 7 34 95 20 00	0 1 34 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting
tube connection Supplementary to Order No.

2S	07
ES-4	09
BV-10	Refer to the front page

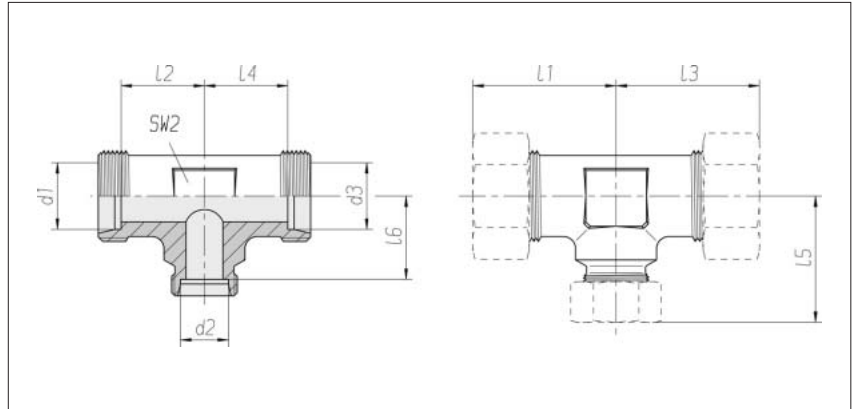
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: T06SX
ISO 8434-1-T-S6-St

Branch reducing tees

Three-sided tube connection according to DIN 2353 / ISO 8434-1



Series	Pressure	d2	d3	SW2	l1* approx.	l2	l3* approx.	l4	l5* approx.	l6	kg/100 approx.	Order No. Single component	Order No. **
LL 4	PN 100	8	4	12	22.5	13	22.5	13	24	11.5	3.1	0 7 33 89 20 00	-
L 6	PN 500	8	6	14	28.5	14	28.5	14	29	14	5.1	0 7 99 77 20 00	0 1 99 77 20 07
L 6	PN 500	10	6	17	29.5	15	29.5	15	30	15	6.6	0 7 99 56 20 00	0 1 99 56 20 07
L 8	PN 500	6	8	14	29	14	29	14	28.5	14	5.2	0 7 34 06 20 00	0 1 34 06 20 07
L 8	PN 500	10	8	17	30	15	30	15	30	15	6.9	0 7 99 76 20 00	0 1 99 76 20 07
L 8	PN 400	12	8	19	32	17	32	17	31.5	17	9.7	0 7 99 51 20 00	0 1 99 51 20 07
L 8	PN 500	8	6	14	29	14	28.5	14	29	14	5.0	0 7 99 59 20 00	0 1 99 59 20 07
L 10	PN 500	6	10	17	30	15	30	15	29.5	15	6.6	0 7 34 12 20 00**	0 1 34 12 20 07
L 10	PN 500	8	10	17	30	15	30	15	30	15	6.7	0 7 34 11 20 00	0 1 34 11 20 07
L 10	PN 500	10	6	17	30	15	29.5	15	30	15	6.5	0 7 33 54 20 00***	0 1 33 54 20 07
L 10	PN 400	12	10	19	32	17	32	17	31.5	17	8.9	0 7 99 52 20 00	0 1 99 52 20 07
L 10	PN 400	15	10	19	36	21	36	21	36	21	10.5	0 7 99 46 20 00	0 1 99 46 20 07
L 12	PN 400	6	12	19	31.5	17	31.5	17	31.5	17	9.4	0 7 34 18 20 00	0 1 34 18 20 07
L 12	PN 400	8	8	19	31.5	17	32	17	32	17	9.3	0 7 99 93 20 00	0 1 99 93 20 07
L 12	PN 400	8	12	19	31.5	17	31.5	17	32	17	9.3	0 7 34 17 20 00	0 1 34 17 20 07
L 12	PN 400	10	10	19	31.5	17	32	17	32	17	9.2	0 7 97 32 20 00	0 1 97 32 20 07
L 12	PN 400	10	12	19	31.5	17	31.5	17	32	17	9.0	0 7 34 16 20 00	0 1 34 16 20 07
L 12	PN 400	12	10	19	31.5	17	32	17	31.5	17	9.1	0 7 99 55 20 00	0 1 99 55 20 07
L 12	PN 400	12	8	19	31.5	17	32	17	31.5	17	9.2	0 7 99 54 20 00	0 1 99 54 20 07
L 12	PN 400	15	12	19	35.5	21	35.5	21	36	21	9.9	0 7 99 47 20 00	0 1 99 47 20 07
L 12	PN 400	18	12	24	38.5	24	38.5	24	40	23.5	15.5	0 7 99 38 20 00	0 1 99 38 20 07

Continuation on page 104

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

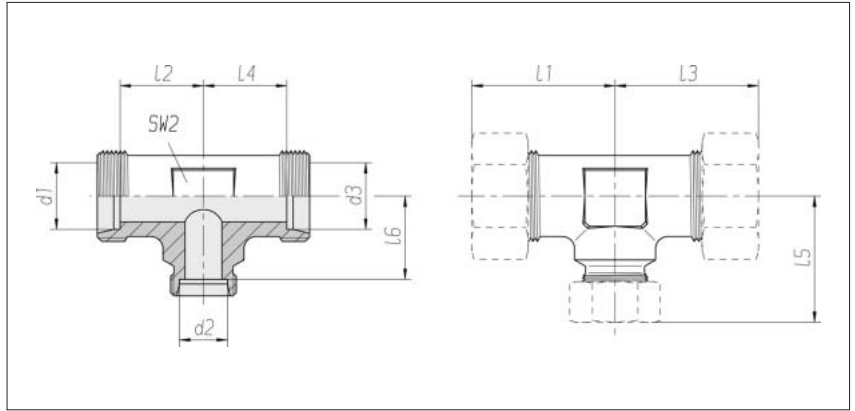
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: TR10/06/10LX ISO 8434-1-RDBT-L10xL6xL10-St

**** TR10/10/06LX ISO 8434-1-RDRT-L10xL10xL6-St

Branch reducing tees

Three-sided tube connection according to DIN 2353 / ISO 8434-1



Series Tube OD d1	Pressure	d2	d3	SW2	l1* approx.	l2	l3* approx.	l4	l5* approx.	l6	kg/100 approx.	Order No. Single component	Order No. **
L 15	PN 400	6	15	19	36	21	36	21	36	21	10.2	0 7 34 24 20 00	0 1 34 24 20 07
L 15	PN 400	10	10	19	36	21	36	21	36	21	9.9	0 7 99 49 20 00	0 1 99 49 20 07
L 15	PN 400	10	15	19	36	21	36	21	36	21	9.8	0 7 34 22 20 00	0 1 34 22 20 07
L 15	PN 400	12	12	19	36	21	35.5	21	35.5	21	9.9	0 7 97 61 20 00	0 1 97 61 20 07
L 15	PN 400	12	15	19	36	21	36	21	35.5	21	9.9	0 7 34 21 20 00	0 1 34 21 20 07
L 15	PN 400	15	12	19	36	21	35.5	21	36	21	9.9	0 7 97 73 20 00	0 1 97 73 20 07
L 15	PN 250	22	15	27	43	28	43	28	44	27.5	22.6	0 7 99 97 20 00	0 1 99 97 20 07

Continuation on page 105

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

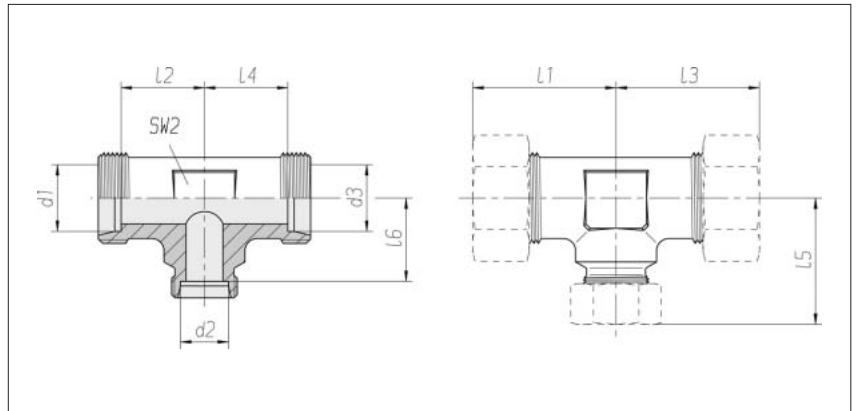
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Branch reducing tees

Three-sided tube connection according to DIN 2353 / ISO 8434-1



Series Tube OD d1	Pressure	d2	d3	SW2	l1* approx.	l2	l3* approx.	l4	l5* approx.	l6	kg/100 approx.	Order No. Single component	Order No. **
L 18	PN 400	10	10	24	40	23.5	39	24	39	24	15.2	0 7 99 40 20 00	0 1 99 40 20 07
L 18	PN 400	10	18	24	40	23.5	40	23.5	39	24	15.4	0 7 34 28 20 00	0 1 34 28 20 07
L 18	PN 400	12	18	24	40	23.5	40	23.5	38.5	24	15.1	0 7 34 27 20 00	0 1 34 27 20 07
L 18	PN 400	15	18	24	40	23.5	40	23.5	39	24	15.4	0 7 34 26 20 00**	0 1 34 26 20 07
L 18	PN 400	18	10	24	40	23.5	39	24	40	23.5	15.1	0 7 99 42 20 00	0 1 99 42 20 07
L 18	PN 250	22	18	27	44	27.5	44	27.5	44	27.5	22.2	0 7 99 96 20 00	0 1 99 96 20 07
L 22	PN 250	10	22	27	44	27.5	44	27.5	43	28	20.4	0 7 34 34 20 00	0 1 34 34 20 07
L 22	PN 250	12	22	27	44	27.5	44	27.5	42.5	28	19.7	0 7 34 33 20 00	0 1 34 33 20 07
L 22	PN 250	15	15	27	44	28	43	27.5	43	28	21.2	0 7 99 36 20 00	0 1 99 36 20 07
L 22	PN 250	15	22	27	44	27.5	44	27.5	43	28	19.9	0 7 34 32 20 00	0 1 34 32 20 07
L 22	PN 250	18	18	27	44	27.5	44	27.5	44	27.5	21.2	0 7 33 56 20 00	0 1 33 56 20 07
L 22	PN 250	18	22	27	44	27.5	44	27.5	44	27.5	20.5	0 7 34 31 20 00	0 1 34 31 20 07
L 22	PN 250	22	18	27	44	27.5	44	27.5	44	27.5	19.8	0 7 33 65 20 00	0 1 33 65 20 07

Continuation on page 106

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

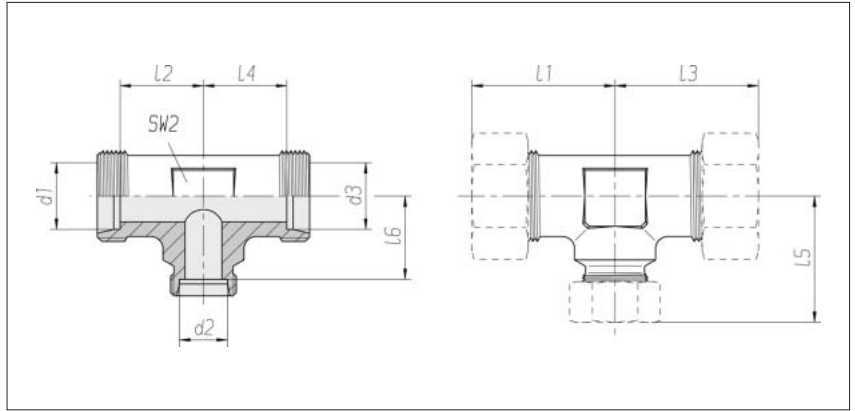
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see:
TR18/15/18LX
ISO 8434-1-RDBT-L18xL15xL18-St

Branch reducing tees

Three-sided tube connection according to DIN 2353 / ISO 8434-1



Series Tube OD d1	Pressure	d2	d3	SW2	l1* approx.	l2	l3* approx.	l4	l5* approx.	l6	kg/100 approx.	Order No. Single component	Order No. **
L 28	PN 250	10	28	36	47	30.5	47	30.5	46	31	31.8	0 7 99 31 20 00	0 1 99 31 20 07
L 28	PN 250	12	28	36	47	30.5	47	30.5	45.5	31	32.1	0 7 34 39 20 00	0 1 34 39 20 07
L 28	PN 250	15	28	36	47	30.5	47	30.5	46	31	32.3	0 7 34 38 20 00	0 1 34 38 20 07
L 28	PN 250	18	28	36	47	30.5	47	30.5	47	30.5	31.7	0 7 34 37 20 00	0 1 34 37 20 07
L 28	PN 250	22	22	36	47	30.5	47	30.5	47	30.5	32.3	0 7 96 35 20 00	0 1 96 35 20 07
L 28	PN 250	22	28	36	47	30.5	47	30.5	47	30.5	30.0	0 7 34 36 20 00	0 1 34 36 20 07
L 35	PN 250	28	35	41	56	34.5	56	34.5	54	37.5	54.0	0 7 34 41 20 00	0 1 34 41 20 07
L 42	PN 250	18	42	50	63	40	63	40	60	43.5	92.2	0 7 34 49 20 00	0 1 34 49 20 07
L 42	PN 250	28	42	50	63	40	63	40	60	43.5	97.4	0 7 34 47 20 00	0 1 34 47 20 07

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

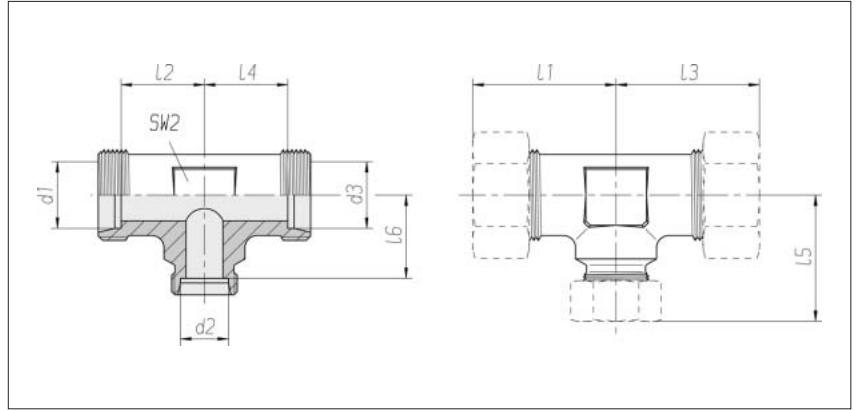
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Branch reducing tees

Three-sided tube connection according to DIN 2353 / ISO 8434-1



Series Tube OD d1	Pressure	d2	d3	SW2	l1* approx.	l2	l3* approx.	l4	l5* approx.	l6	kg/100 approx.	Order No. Single component	Order No. **
S 10	PN 800	6	10	19	33.5	17.5	33.6	17.6	33	18	11.7	0 7 34 62 20 00***	0 1 34 62 20 XX
S 12	PN 630	8	8	22	37.5	21.5	37	22	37	22	16.9	0 7 99 30 20 00****	0 1 99 30 20 XX
S 12	PN 630	8	12	22	37.5	21.5	37.5	21.5	37	22	17.5	0 7 34 67 20 00	0 1 34 67 20 XX
S 12	PN 630	10	12	22	37.5	21.5	37.5	21.5	37.5	21.5	17.6	0 7 34 66 20 00	0 1 34 66 20 XX
S 12	PN 630	16	12	24	41.6	25.5	41.5	25.4	43	24.5	17.7	0 7 97 82 20 00	0 1 97 82 20 XX
S 16	PN 630	6	16	24	43	24.5	43	24.5	41	26	16.8	0 7 99 29 20 00	0 1 99 29 20 XX
S 16	PN 630	8	16	24	43	24.5	43	24.5	41	26	17.1	0 7 34 79 20 00	0 1 34 79 20 XX
S 16	PN 630	10	16	24	43	24.5	43	24.5	41.5	25.5	17.1	0 7 34 78 20 00	0 1 34 78 20 XX
S 16	PN 630	12	16	24	43	24.5	43	24.5	41.5	25.5	16.9	0 7 34 77 20 00	0 1 34 77 20 XX
S 16	PN 420	20	16	27	47	28.5	47	28.5	45	26.5	26.7	0 7 99 22 20 00	0 1 99 22 20 XX
S 20	PN 420	10	20	27	45	26.5	45	26.5	45.5	29.5	26.4	0 7 34 84 20 00	0 1 34 84 20 XX
S 20	PN 420	12	20	27	45	26.5	45	26.5	45.5	29.5	26.5	0 7 34 83 20 00	0 1 34 83 20 XX
S 20	PN 420	16	20	27	45	26.5	45	26.5	47	28.5	25.9	0 7 34 81 20 00	0 1 34 81 20 XX
S 20	PN 420	25	20	36	50	31.5	50	31.5	54	30	45.3	0 7 97 45 20 00	0 1 97 45 20 XX
S 25	PN 420	12	25	36	54	30	54	30	50.5	34.5	44.8	0 7 34 89 20 00	0 1 34 89 20 XX
S 25	PN 420	16	25	36	54	30	54	30	52	33.5	44.5	0 7 34 87 20 00	0 1 34 87 20 XX
S 25	PN 420	20	25	36	54	30	54	30	50	31.5	43.4	0 7 34 86 20 00	0 1 34 86 20 XX
S 25	PN 420	30	25	41	61	37	61	37	62	35.5	77.8	0 7 33 98 20 00	0 1 33 98 20 XX
S 38	PN 420	16	38	50	72	41	72	41	67	48.5	120.4	0 7 34 99 20 00	0 1 34 99 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

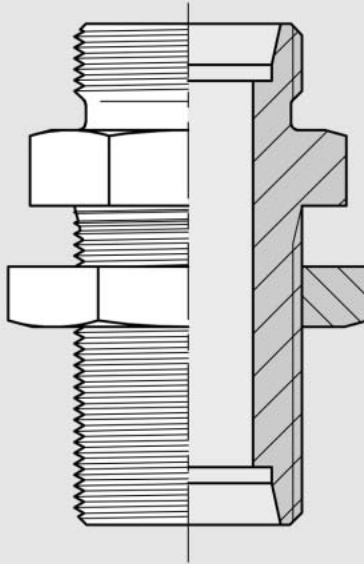
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

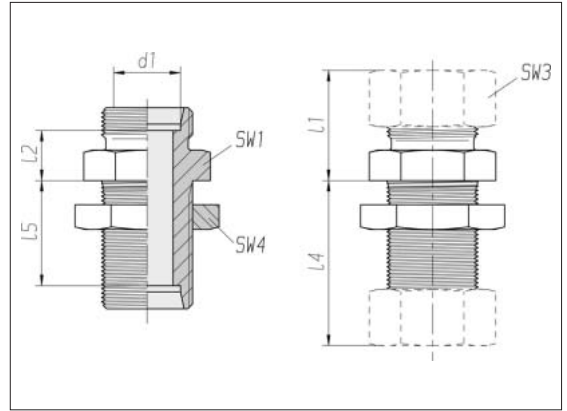
*** Sample product code, see: TR10/06/10SX ISO 8434-1-RDBT-S10xS06xS10-St
**** TR12/08/08SX ISO 8434-1-RDRT-S08xS08xS12-St

Bulkhead couplings



Experience plus ideas

Straight bulkhead couplings



Series Tube OD d1	Pressure	SW1	SW3	SW4	l1* approx.	l2	l4* approx.	l5	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	17	14	17	22	7	42	27	3.8	0 1 37 00 20 66***	0 1 37 00 20 XX
L 8	PN 500	19	17	19	23	8	42	27	4.9	0 1 37 05 20 66	0 1 37 05 20 XX
L 10	PN 500	22	19	22	25	10	43	28	6.6	0 1 37 10 20 66	0 1 37 10 20 XX
L 12	PN 400	24	22	24	25	10	44	29	7.6	0 1 37 15 20 66	0 1 37 15 20 XX
L 15	PN 400	27	27	30	27	12	46	31	12.8	0 1 37 20 20 66	0 1 37 20 20 XX
L 18	PN 400	32	32	36	30	13.5	49	32.5	19.9	0 1 37 25 20 66	0 1 37 25 20 XX
L 22	PN 250	36	36	41	33	16.5	51	34.5	24.8	0 1 37 30 20 66	0 1 37 30 20 XX
L 28	PN 250	41	41	46	35	18.5	52	35.5	33.8	0 1 37 35 20 66	0 1 37 35 20 XX
L 35	PN 250	50	50	55	40	18.5	58	36.5	53.9	0 1 37 40 20 66	0 1 37 40 20 XX
L 42	PN 250	60	60	65	42	19	59	36	75.6	0 1 37 45 20 66	0 1 37 45 20 XX
S 6	PN 800	19	17	19	27	12	44	29	6.5	0 1 37 50 20 66	0 1 37 50 20 XX
S 8	PN 800	22	19	22	28	13	44	29	8.7	0 1 37 55 20 66	0 1 37 55 20 XX
S 10	PN 800	24	22	24	31	14.5	46	29.5	11.0	0 1 37 60 20 66	0 1 37 60 20 XX
S 12	PN 630	27	24	27	31	14.5	47	30.5	13.9	0 1 37 65 20 66	0 1 37 65 20 XX
S 14	PN 630	30	27	30	35	17	50	32	17.8	0 1 37 70 20 66	0 1 37 70 20 XX
S 16	PN 630	32	30	32	35	16.5	50	31.5	19.7	0 1 37 75 20 66	0 1 37 75 20 XX
S 20	PN 420	41	36	41	39	17.5	55	33.5	34.5	0 1 37 80 20 66	0 1 37 80 20 XX
S 25	PN 420	46	46	46	44	20	59	35	49.2	0 1 37 85 20 66	0 1 37 85 20 XX
S 30	PN 420	50	50	50	48	21.5	64	37.5	61.7	0 1 37 90 20 66	0 1 37 90 20 XX
S 38	PN 420	65	60	65	53	22	68	37	108.0	0 1 37 95 20 66	0 1 37 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting	
tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

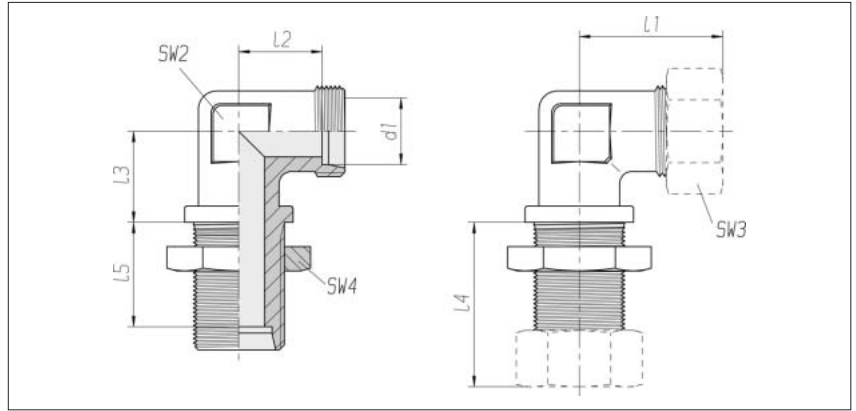
Max. bulkhead wall thickness 16 mm

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: SV06LOMD
ISO 8434-1-BHSLN-L6-St

Elbow bulkhead couplings



Series	Pressure	SW2	SW3	SW4	l1*	l2	l3	l4*	l5	kg/100 approx.	Order No. Single component	Order No. **
Tube OD					approx.			approx.				
d1												
L 6	PN 315	12	14	17	27	12	14	42	27	4.9	0 1 38 00 20 66***	0 1 38 00 20 XX
L 8	PN 315	12	17	19	29	14	17	42	27	6.1	0 1 38 05 20 66	0 1 38 05 20 XX
L 10	PN 315	14	19	22	30	15	18	43	28	7.9	0 1 38 10 20 66	0 1 38 10 20 XX
L 12	PN 315	17	22	24	32	17	20	44	29	9.6	0 1 38 15 20 66	0 1 38 15 20 XX
L 15	PN 315	19	27	30	36	21	23	46	31	16.9	0 1 38 20 20 66	0 1 38 20 20 XX
L 18	PN 315	24	32	36	40	23.5	24	49	32.5	25.5	0 1 38 25 20 66	0 1 38 25 20 XX
L 22	PN 160	27	36	41	44	27.5	30	51	34.5	31.8	0 1 38 30 20 66	0 1 38 30 20 XX
L 28	PN 160	36	41	46	47	30.5	34	52	35.5	46.2	0 1 38 35 20 66	0 1 38 35 20 XX
L 35	PN 160	41	50	55	56	34.5	39	58	36.5	76.9	0 1 38 40 20 66	0 1 38 40 20 XX
L 42	PN 160	50	60	65	63	40	43	59	36	112.3	0 1 38 45 20 66	0 1 38 45 20 XX
S 6	PN 630	12	17	19	31	16	17	44	29	7.6	0 1 38 50 20 66	0 1 38 50 20 XX
S 8	PN 630	14	19	22	32	17	18	44	29	10.2	0 1 38 55 20 66	0 1 38 55 20 XX
S 10	PN 630	17	22	24	34	17.5	20	46	29.5	12.4	0 1 38 60 20 66	0 1 38 60 20 XX
S 12	PN 630	17	24	27	38	21.5	21	47	30.5	16.0	0 1 38 65 20 66	0 1 38 65 20 XX
S 14	PN 630	19	27	30	40	22	23	50	32	19.6	0 1 38 70 20 66	0 1 38 70 20 XX
S 16	PN 400	24	30	32	43	24.5	24	50	31.5	23.8	0 1 38 75 20 66	0 1 38 75 20 XX
S 20	PN 400	27	36	41	48	26.5	30	55	33.5	39.9	0 1 38 80 20 66	0 1 38 80 20 XX
S 25	PN 400	36	46	46	54	30	34	59	35	60.9	0 1 38 85 20 66	0 1 38 85 20 XX
S 30	PN 400	41	50	50	62	35.5	39	64	37.5	93.2	0 1 38 90 20 66	0 1 38 90 20 XX
S 38	PN 315	50	60	65	72	41	43	68	37	144.9	0 1 38 95 20 66	0 1 38 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

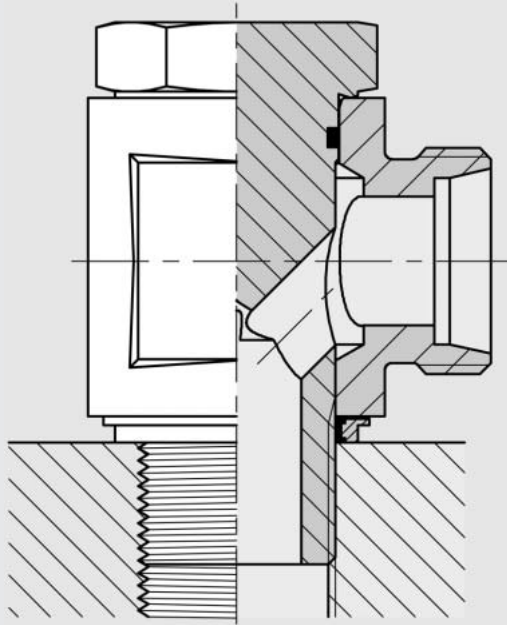
Max. bulkhead wall thickness 16 mm

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: WSV06LOMD ISO 8434-1-BHELN-L6-St

Banjo and rotary couplings

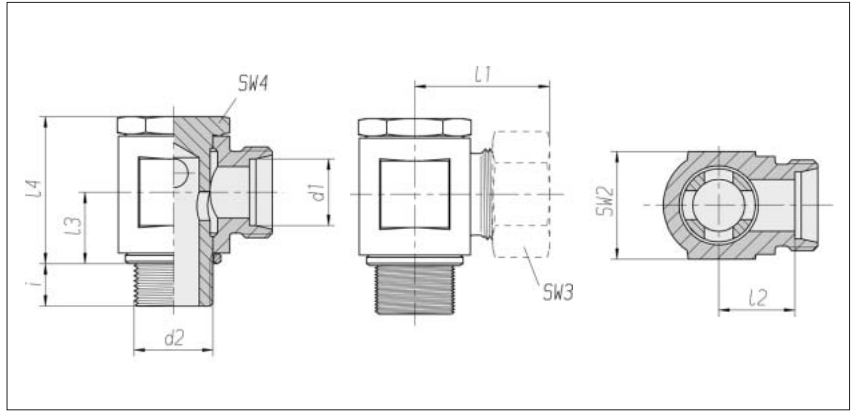


Banjo couplings

Standard design

Thread:
metric fine thread,
straight

With metallic seal-edge ring
for DIN 3852 / ISO 9974
d4 narrow swivel angle ***



Series	Pressure	d2	SW2	SW3	SW4	I1	I2	I3	I4	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.					-10 %	approx.	Single component	*
d1														
LL 4	PB 100	M 8 x 1	12	10	12	21	10.5	8	18.5	6	10	2.0	1 1 50 00 20 81	-
LL 6	PB 100	M 10 x 1	14	12	14	22	10	9	20.5	6	15	2.7	1 1 50 10 20 81	-
LL 8	PB 100	M 10 x 1	14	14	14	23	11	10	22.5	6	15	3.1	1 1 50 15 20 81	-
L 6	PB 250	M 10 x 1	14	14	14	25	10.5	10	23.5	6	20	3.6	1 1 51 00 20 81**	1 1 51 00 20 07
L 8	PB 250	M 12 x 1.5	17	17	17	28	13	12	27	9	30	5.5	1 1 51 05 20 81	1 1 51 05 20 07
L 10	PB 250	M 14 x 1.5	19	19	19	29	14	13	28	9	45	6.8	1 1 51 10 20 81	1 1 51 10 20 07
L 12	PB 250	M 16 x 1.5	22	22	22	30	15.5	15	33	9	65	10.1	1 1 51 15 20 81	1 1 51 15 20 07
L 12	PB 250	M 18 x 1.5	24	22	24	31	16.5	18.5	38	9	90	13.0	1 1 51 17 20 81	1 1 51 17 20 07
L 15	PB 250	M 18 x 1.5	24	27	24	33	17.5	18.5	38	9	90	13.4	1 1 51 20 20 81	1 1 51 20 20 07
L 18	PB 160	M 22 x 1.5	30	32	27	36.5	20	22	44	11	100	21.1	1 1 51 25 20 81	1 1 51 25 20 07
L 22	PB 160	M 26 x 1.5	36	36	32	41.5	25	24.5	48	13	150	31.3	1 1 51 30 20 81	1 1 51 30 20 07
S 6	PB 250	M 12 x 1.5	17	17	17	29	14	12	27	9	30	6.0	1 1 51 50 20 81	1 1 51 50 20 07
S 8	PB 250	M 14 x 1.5	19	19	19	30	15	13	28	9	45	7.7	1 1 51 55 20 81	1 1 51 55 20 07
S 10	PB 250	M 16 x 1.5	22	22	22	32	16	15	33	9	70	11.2	1 1 51 60 20 81	1 1 51 60 20 07
S 12	PB 250	M 18 x 1.5	24	24	24	33	17	16.5	35	9	90	14.0	1 1 51 65 20 81	1 1 51 65 20 07
S 14	PB 250	M 20 x 1.5	27	27	27	38	20	18.5	39	11	110	18.6	1 1 51 70 20 81	1 1 51 70 20 07
S 16	PB 160	M 22 x 1.5	30	30	27	40	21	20.5	42	11	100	21.9	1 1 51 75 20 81	1 1 51 75 20 07
S 20	PB 160	M 27 x 2	36	36	32	46	24	23.5	48	13	150	35.1	1 1 51 80 20 81	1 1 51 80 20 07

* With union nut and 2S cutting ring

** Sample product code, see:
SWVE06LMOMD

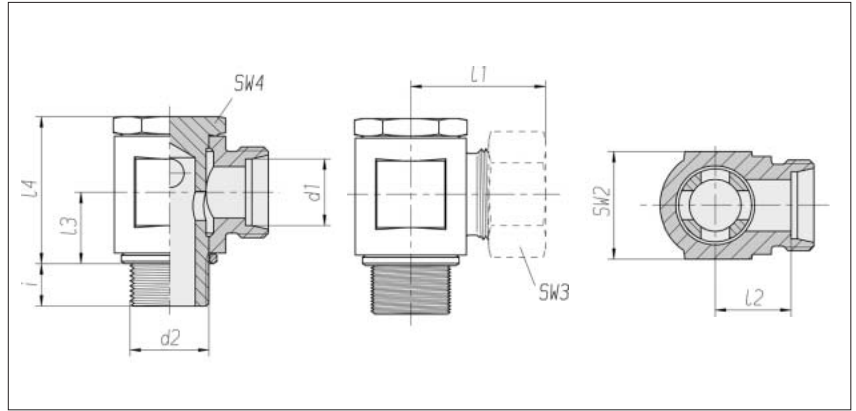
*** With elastomer sealing ring (KDS)
on the thread on request

Banjo couplings

Standard design

Thread:
Whitworth pipe thread,
straight

With metallic seal-edge ring
for DIN 3852 / ISO 1179
d4 narrow swivel angle ***



Series	Pressure	d2	SW2	SW3	SW4	l1 approx.	l2	l3	l4	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. *
Tube OD d1														
LL 4	PB 100	G 1/8 A	14	10	14	22	11.5	8	18.5	6	15	2.5	1 1 52 00 20 81	-
LL 6	PB 100	G 1/8 A	14	12	14	22	10	9	20.5	6	15	2.7	1 1 52 10 20 81	-
LL 8	PB 100	G 1/8 A	14	14	14	23	11	10	22.5	6	15	3.1	1 1 52 15 20 81	-
L 6	PB 250	G 1/8 A	14	14	14	25	10.5	10	23.5	6	20	3.5	1 1 53 00 20 81**	1 1 53 00 20 07
L 8	PB 250	G 1/4 A	19	17	19	28	13	12	27	9	45	6.5	1 1 53 05 20 81	1 1 53 05 20 07
L 10	PB 250	G 1/4 A	19	19	19	29	14	13	28	9	50	6.8	1 1 53 10 20 81	1 1 53 10 20 07
L 12	PB 250	G 3/8 A	22	22	22	30	15.5	15.5	33	9	75	10.3	1 1 53 15 20 81	1 1 53 15 20 07
L 12	PB 250	G 1/2 A	27	22	27	32.5	18	19	38	11	110	16.8	1 1 53 17 20 81	1 1 53 17 20 07
L 15	PB 250	G 1/2 A	27	27	27	34.5	19	19	38	11	110	17.6	1 1 53 20 20 81	1 1 53 20 20 07
L 18	PB 160	G 1/2 A	30	32	27	36.5	20	22	44	11	100	20.2	1 1 53 25 20 81	1 1 53 25 20 07
L 22	PB 160	G 3/4 A	36	36	32	41.5	25	24	48	13	150	31.8	1 1 53 30 20 81	1 1 53 30 20 07
S 6	PB 250	G 1/4 A	19	17	19	30	15	12	27	9	45	7.3	1 1 53 50 20 81	1 1 53 50 20 07
S 8	PB 250	G 1/4 A	19	19	19	30	15	13	28	9	50	7.4	1 1 53 55 20 81	1 1 53 55 20 07
S 10	PB 250	G 3/8 A	22	22	22	32	16	15.5	33	9	70	11.1	1 1 53 60 20 81	1 1 53 60 20 07
S 12	PB 250	G 3/8 A	24	24	22	32	16	16.5	36	9	70	14.0	1 1 53 65 20 81	1 1 53 65 20 07
S 14	PB 250	G 1/2 A	27	27	27	38	20	19	38.5	11	115	18.4	1 1 53 70 20 81	1 1 53 70 20 07
S 16	PB 160	G 1/2 A	30	30	27	39.5	21	20.5	42	11	100	22.0	1 1 53 75 20 81	1 1 53 75 20 07
S 20	PB 160	G 3/4 A	36	36	32	45.5	24	24	48	13	150	34.6	1 1 53 80 20 81	1 1 53 80 20 07

* With union nut and 2S cutting ring

** Sample product code, see:
SWWE06LROMD

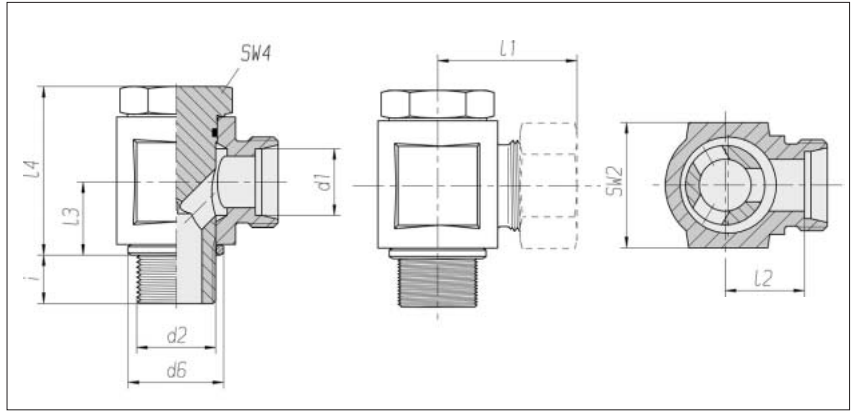
*** With elastomer sealing ring (KDS)
on the thread on request

Banjo couplings

Low-restrictive design with eccentric flow channel

Thread:
metric fine thread,
straight

With seal-edge ring for
DIN 3852 / ISO 9974
d4 narrow swivel angle



Series	Pressure	d2	d6	SW2	SW4	I1	I2	I3	I4	i	Nm	kg/100	Order No.	Order No..
Tube OD						approx.					-10 %	approx.	Single component *	*
d1														
L 6	PB 500	M 10 x 1	14	19	14	27	12	10.5	25.3	8	30	5.1	1 1 55 00 20 81**	1 1 55 00 20 07
L 8	PB 400	M 12 x 1.5	17	22	17	29.5	14.5	14	31.5	12	42	9.5	1 1 55 05 20 81	1 1 55 05 20 07
L 10	PB 350	M 14 x 1.5	19	22	19	30.5	15.5	14	33	12	42	9.9	1 1 55 10 20 81	1 1 55 10 20 07
L 12	PB 350	M 16 x 1.5	21	27	22	33	18	16.5	38.5	12	60	16.3	1 1 55 15 20 81	1 1 55 15 20 07
L 12	PB 315	M 18 x 1.5	23	30	24	35	20	18.5	42.5	12	70	20.7	1 1 55 17 20 81	1 1 55 17 20 07
L 15	PB 315	M 18 x 1.5	23	30	24	36	21	18.5	42.5	12	70	21.6	1 1 55 20 20 81	1 1 55 20 20 07
L 15	PB 315	M 22 x 1.5	27	36	27	37	22	21.5	47.5	14	160	29.8	1 1 55 22 20 81	1 1 55 22 20 07
L 18	PB 315	M 22 x 1.5	27	36	27	38	21.5	21.5	47.5	14	160	29.8	1 1 55 25 20 81	1 1 55 25 20 07
L 22	PB 200	M 26 x 1.5	31	41	32	42.5	26	24	55.5	16	140	46.4	1 1 55 30 20 81	1 1 55 30 20 07
L 28	PB 200	M 33 x 2	39	50	41	48	31.5	30.5	68	18	350	88.3	1 1 55 35 20 81	1 1 55 35 20 07
L 35	PB 200	M 42 x 2	49	60	50	57	35.5	35.5	78	20	500	145.6	1 1 55 40 20 81	1 1 55 40 20 07
L 42	PB 200	M 48 x 2	55	70	60	63	40	40.5	88.5	22	600	215.4	1 1 55 45 20 81	1 1 55 45 20 07
S 6	PB 500	M 12 x 1.5	17	22	17	31.5	16.5	14	30.5	12	57	9.9	1 1 55 50 20 81	1 1 55 50 20 07
S 8	PB 450	M 14 x 1.5	19	22	19	31.5	16.5	14	31	12	90	10.9	1 1 55 55 20 81	1 1 55 55 20 07
S 10	PB 400	M 16 x 1.5	21	27	22	35	18.5	16.5	37	12	100	17.0	1 1 55 60 20 81	1 1 55 60 20 07
S 12	PB 400	M 18 x 1.5	23	30	24	37	20.5	18.5	40	12	130	22.9	1 1 55 65 20 81	1 1 55 65 20 07
S 14	PB 400	M 20 x 1.5	25	32	27	41	23	20	43	14	160	28.5	1 1 55 70 20 81	1 1 55 70 20 07
S 16	PB 400	M 22 x 1.5	27	36	27	41	22.5	21.5	47	14	180	32.0	1 1 55 75 20 81	1 1 55 75 20 07
S 20	PB 400	M 27 x 2	32	46	36	49	27.5	24	55	16	300	59.6	1 1 55 80 20 81	1 1 55 80 20 07
S 25	PB 250	M 33 x 2	39	50	41	55	31	30.5	66.5	18	380	94.8	1 1 55 85 20 81	1 1 55 85 20 07
S 30	PB 250	M 42 x 2	49	60	50	63	36.5	35.5	75.5	20	600	154.0	1 1 55 90 20 81	1 1 55 90 20 07
S 38	PB 250	M 48 x 2	55	70	60	72	41	40.5	86.5	22	750	231.7	1 1 55 95 20 81	1 1 55 95 20 07

* With union nut and 2S cutting ring

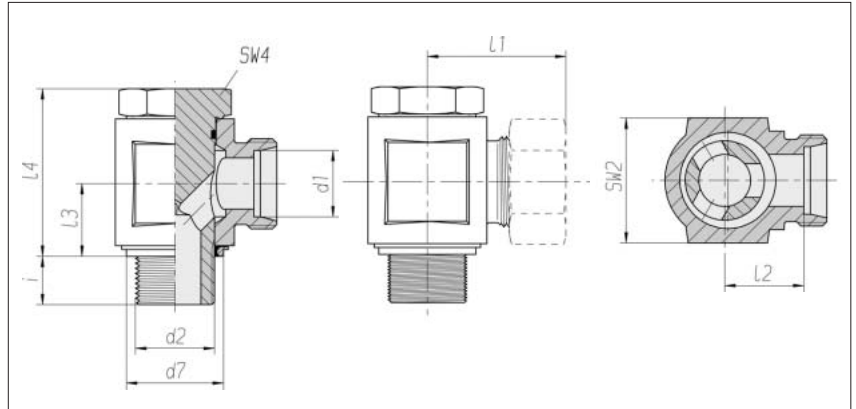
** Sample product code, see:
WH06LMOMD

Banjo couplings

Low-restrictive design
with eccentric flow channel

Thread:
metric fine thread,
straight

With soft seal
for DIN 3852 /
ISO 9974
d4 narrow swivel angle



Series	Pressure	d2	d7	SW2	SW4	l1*	l2	l3	l4	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.					-10 %	approx.	Single component	**
d1														
L 6	PB 500	M 10 x 1	14.9	19	14	27	12	10.5	25.3	8	30	5.1	1 1 55 01 20 81***	1 1 55 01 20 XX
L 8	PB 400	M 12 x 1.5	17	22	17	29.5	14.5	14	31.5	12	42	9.4	1 1 55 06 20 81	1 1 55 06 20 XX
L 10	PB 350	M 14 x 1.5	18.9	22	19	30.5	15.5	14	33	12	42	7.9	1 1 55 11 20 81	1 1 55 11 20 XX
L 12	PB 350	M 16 x 1.5	21.9	27	22	33	18	16.5	38.5	12	60	16.3	1 1 55 16 20 81	1 1 55 16 20 XX
L 12	PB 315	M 18 x 1.5	23.9	30	24	35	20	18.5	42.5	12	70	20.5	1 1 56 80 20 81	1 1 56 80 20 XX
L 15	PB 315	M 18 x 1.5	23.9	30	24	36	21	18.5	42.5	12	70	21.6	1 1 55 21 20 81	1 1 55 21 20 XX
L 15	PB 315	M 22 x 1.5	30	36	27	37	22	21.5	47.5	14	160	29.7	1 1 56 82 20 81	1 1 55 82 20 XX
L 18	PB 315	M 22 x 1.5	26.9	36	27	38	21.5	21.5	47.5	14	160	29.9	1 1 55 26 20 81	1 1 55 26 20 XX
L 22	PB 200	M 26 x 1.5	31.9	41	32	42.5	26	24	55.5	16	140	46.5	1 1 55 31 20 81	1 1 55 31 20 XX
L 28	PB 200	M 33 x 2	39.9	50	41	48	31.5	30.5	68	18	350	87.8	1 1 55 36 20 81	1 1 55 36 20 XX
L 35	PB 200	M 42 x 2	49.9	60	50	57	35.5	35.5	78	20	500	147.4	1 1 55 41 20 81	1 1 55 41 20 XX
L 42	PB 200	M 48 x 2	55.9	70	60	63	40	40.5	88.5	22	600	216.9	1 1 55 46 20 81	1 1 55 46 20 XX
S 6	PB 500	M 12 x 1.5	17	22	17	31.5	16.5	14	30.5	12	57	9.9	1 1 55 51 20 81	1 1 55 51 20 XX
S 8	PB 450	M 14 x 1.5	18.9	22	19	31.5	16.5	14	31	12	90	10.9	1 1 55 56 20 81	1 1 55 56 20 XX
S 10	PB 400	M 16 x 1.5	21.9	27	22	35	18.5	16.5	37	12	100	17.4	1 1 55 61 20 81	1 1 55 61 20 XX
S 12	PB 400	M 18 x 1.5	23.9	30	24	37	20.5	18.5	40	12	130	22.9	1 1 55 66 20 81	1 1 55 66 20 XX
S 16	PB 400	M 22 x 1.5	26.9	36	27	41	22.5	21.5	47	14	180	32.0	1 1 55 76 20 81	1 1 55 76 20 XX
S 20	PB 400	M 27 x 2	32.9	46	36	49	27.5	24	55	16	300	59.7	1 1 55 81 20 81	1 1 55 81 20 XX
S 25	PB 250	M 33 x 2	39.9	50	41	55	31	30.5	66.5	18	380	93.4	1 1 55 86 20 81	1 1 55 86 20 XX
S 30	PB 250	M 42 x 2	49.9	60	50	63	36.5	35.5	75.5	20	600	157.3	1 1 55 91 20 81	1 1 55 91 20 XX
S 38	PB 250	M 48 x 2	55.9	70	60	72	41	40.5	86.5	22	750	232.8	1 1 55 96 20 81	1 1 55 96 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

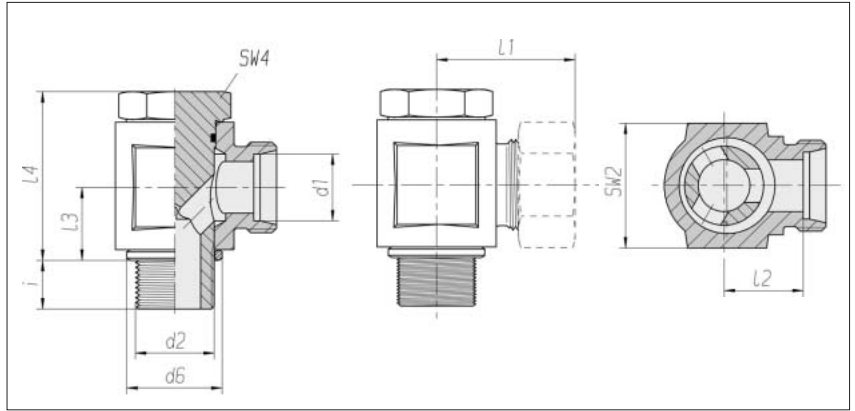
*** Sample product code, see: WH06LMKDSOMD

Banjo couplings

Low-restrictive design with eccentric flow channel

Thread:
Whitworth pipe thread, straight

With seal-edge ring for DIN 3852 / ISO 1179 d4 narrow swivel angle



Series	Pressure	d2	d6	SW2	SW4	L1	L2	I3	I4	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.					-10 %	approx.	Single component	*
d1														
L 6	PB 500	G 1/8 A	14	19	14	27	12	10.5	25.3	8	25	5.0	1 1 57 00 20 81**	1 1 57 00 20 07
L 8	PB 400	G 1/4 A	18	22	19	29.5	14.5	14	31.5	12	40	10.0	1 1 57 05 20 81	1 1 57 05 20 07
L 10	PB 350	G 1/4 A	18	22	19	30.5	15.5	14	33	12	38	10.4	1 1 57 10 20 81	1 1 57 10 20 07
L 12	PB 350	G 3/8 A	22	27	22	33	18	16.5	38.5	12	75	16.5	1 1 57 15 20 81	1 1 57 15 20 07
L 12	PB 315	G 1/2 A	26	32	27	37	22	21.5	45.5	14	110	28.4	1 1 57 19 20 81	1 1 57 19 20 07
L 15	PB 315	G 1/2 A	26	32	27	37	22	21.5	45.5	14	110	28.7	1 1 57 20 20 81	1 1 57 20 20 07
L 18	PB 315	G 1/2 A	26	36	27	38	21.5	21.5	47.5	14	110	29.3	1 1 57 25 20 81	1 1 57 25 20 07
L 22	PB 200	G 3/4 A	32	46	36	45	28.5	24	56.5	16	160	56.3	1 1 57 30 20 81	1 1 57 30 20 07
L 28	PB 200	G 1 A	39	50	41	48	31.5	30.5	68	18	270	88.1	1 1 57 35 20 81	1 1 57 35 20 07
L 35	PB 200	G 1 1/4 A	49	60	50	57	35.5	35.5	78	20	500	147.9	1 1 57 40 20 81	1 1 57 40 20 07
L 42	PB 200	G 1 1/2 A	55	70	60	63	40	40.5	88.5	22	600	218.6	1 1 57 45 20 81	1 1 57 45 20 07
S 6	PB 500	G 1/4 A	18	22	19	31.5	16.5	14	30.5	12	53	10.3	1 1 57 50 20 81	1 1 57 50 20 07
S 8	PB 450	G 1/4 A	18	22	19	31.5	16.5	14	31	12	53	10.6	1 1 57 55 20 81	1 1 57 55 20 07
S 10	PB 400	G 3/8 A	22	27	22	35	18.5	16.5	37	12	120	17.3	1 1 57 60 20 81	1 1 57 60 20 07
S 12	PB 400	G 3/8 A	22	27	22	35	18.5	16.5	37.5	12	120	17.8	1 1 57 65 20 81	1 1 57 65 20 07
S 14	PB 400	G 1/2 A	26	32	27	41	23	21.5	43	14	160	29.1	1 1 57 70 20 81	1 1 57 70 20 07
S 16	PB 400	G 1/2 A	26	36	27	41	22.5	21.5	47	14	160	31.5	1 1 57 75 20 81	1 1 57 75 20 07
S 20	PB 400	G 3/4 A	32	46	36	49	27.5	24	55	16	330	59.4	1 1 57 80 20 81	1 1 57 80 20 07
S 25	PB 250	G 1 A	39	50	41	55	31	30.5	66.5	18	380	93.2	1 1 57 85 20 81	1 1 57 85 20 07
S 30	PB 250	G 1 1/4 A	49	60	50	63	36.5	35.5	75.5	20	600	156.7	1 1 57 90 20 81	1 1 57 90 20 07
S 38	PB 250	G 1 1/2 A	55	70	60	72	41	40.5	86.5	22	800	232.3	1 1 57 95 20 81	1 1 57 95 20 07

* With union nut and 2S cutting ring

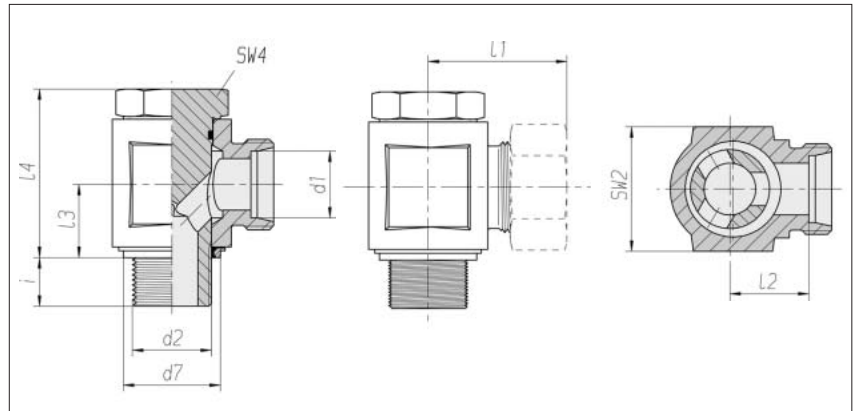
** Sample product code, see: WH06LROMD

Banjo couplings

Low-restrictive design with eccentric flow channel

Thread:
Whitworth pipe thread, straight

With soft seal
for DIN 3852 / ISO 1179
d4 narrow swivel angle



Series	Pressure	d2		d7	SW2	SW4	I1*	I2*	I3	I4	i	Nm	kg/100	Order No.	Order No.
Tube OD							approx.					-10 %	approx.	Single component	**
d1															
L 6	PB 500	G 1/8 A		14.9	19	14	27	12	10.5	25.3	8	25	5.0	1 1 57 01 20 81***1	1 1 57 01 20 XX
L 8	PB 400	G 1/4 A		18.9	22	19	29.5	14.5	14	31.5	12	40	9.8	1 1 57 06 20 81	1 1 57 06 20 XX
L 10	PB 350	G 1/4 A		18.9	22	19	30.5	15.5	14	33	12	38	10.1	1 1 57 11 20 81	1 1 57 11 20 XX
L 12	PB 350	G 3/8 A		21.9	27	22	33	18	16.5	38.5	12	75	16.2	1 1 57 16 20 81	1 1 57 16 20 XX
L 12	PB 315	G 1/2 A		30.0	32	27	37	22	21.5	45.5	14	110	27.7	1 1 56 81 20 81	1 1 56 81 20 XX
L 15	PB 315	G 1/2 A		26.9	32	27	37	22	21.5	45.5	14	110	28.4	1 1 57 21 20 81	1 1 57 21 20 XX
L 18	PB 315	G 1/2 A		26.9	36	27	38	21.5	21.5	47.5	14	110	29.6	1 1 57 26 20 81	1 1 57 26 20 XX
L 22	PB 200	G 3/4 A		32.9	46	36	45	28.5	24	56.5	16	160	56.8	1 1 57 31 20 81	1 1 57 31 20 XX
L 28	PB 200	G 1 A		39.9	50	41	48	31.5	30.5	68	18	270	86.6	1 1 57 36 20 81	1 1 57 36 20 XX
L 35	PB 200	G 1 1/4 A		49.9	60	50	57	35.5	35.5	78	20	500	146.6	1 1 57 41 20 81	1 1 57 41 20 XX
L 42	PB 200	G 1 1/2 A		55.9	70	60	63	40	40.5	88.5	22	600	214.5	1 1 57 46 20 81	1 1 57 46 20 XX
S 6	PB 500	G 1/4 A		18.9	22	19	31.5	16.5	14	30.5	12	53	10.4	1 1 57 51 20 81	1 1 57 51 20 XX
S 8	PB 450	G 1/4 A		18.9	22	19	31.5	16.5	14	31	12	53	10.5	1 1 57 56 20 81	1 1 57 56 20 XX
S 10	PB 400	G 3/8 A		21.9	27	22	35	18.5	16.5	37	12	120	17.3	1 1 57 61 20 81	1 1 57 61 20 XX
S 12	PB 400	G 3/8 A		21.9	27	22	35	18.5	16.5	37.5	12	120	17.5	1 1 57 66 20 81	1 1 57 66 20 XX
S 16	PB 400	G 1/2 A		26.9	36	27	41	22.5	21.5	47	14	160	31.2	1 1 57 76 20 81	1 1 57 76 20 XX
S 20	PB 400	G 3/4 A		32.9	46	36	49	27.5	24	55	16	330	59.4	1 1 57 81 20 81	1 1 57 81 20 XX
S 25	PB 250	G 1 A		39.9	50	41	55	31	30.5	66.5	18	380	93.8	1 1 57 86 20 81	1 1 57 86 20 XX
S 30	PB 250	G 1 1/4 A		49.9	60	50	63	36.5	35.5	75.5	20	600	155.2	1 1 57 91 20 81	1 1 57 91 20 XX
S 38	PB 250	G 1 1/2 A		55.9	70	60	72	41	40.5	86.5	22	800	231.1	1 1 57 96 20 81	1 1 57 96 20 XX

Supplementary to Order No. for complete fitting	Supplementary to Order No.
tube connection	
2S	07
ES-4	09
BV-10	Refer to the front page

* I1 and I2 apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

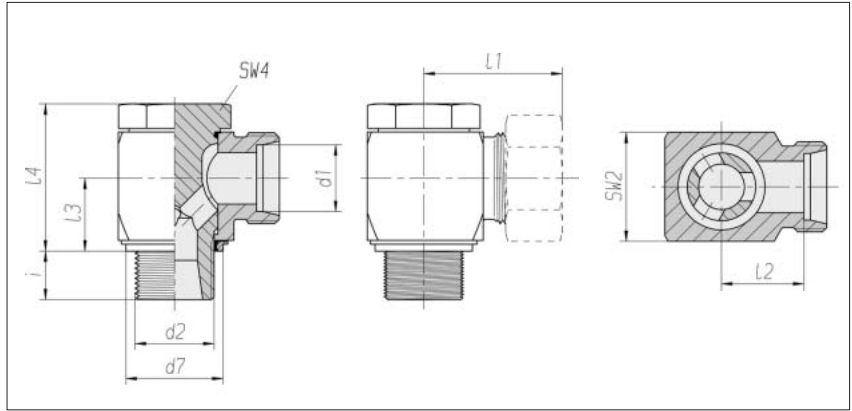
*** Sample product code, see: WH06LRKDSOMD

Banjo couplings

Compact version –
high pressure

Thread:
metric fine thread,
straight

With seal-edge ring for
DIN 3852 / ISO 9974
d4 narrow swivel angle



Series	Pressure	d2	d7	SW2	SW4	l1*	l2	l3	l4	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.					-10 %	approx.	Single component	**
d1														
L 6	PB 500	M 10 x 1	14.9	14	14	27.5	13	10	21	8	25	3.6	1 1 50 20 20 81	1 1 50 20 20 XX
L 8	PB 500	M 12 x 1.5	17.9	19	19	28.5	14	13.5	27	10	50	7.5	1 1 50 21 20 81	1 1 50 21 20 XX
L 10	PB 500	M 14 x 1.5	19.9	19	19	29.5	15	13.5	27	10	60	8.2	1 1 50 22 20 81	1 1 50 22 20 XX
L 12	PB 400	M 16 x 1.5	21.9	24	22	32	17.5	16	32.5	10	80	12.4	1 1 50 23 20 81	1 1 50 23 20 XX
L 12	PB 315	M 18 x 1.5	23.9	24	22	34.5	20	18.5	36	10	100	14.2	1 1 50 24 20 81	1 1 50 24 20 XX
L 15	PB 400	M 18 x 1.5	23.9	27	24	35	20	18.5	37	10	100	19.2	1 1 50 25 20 81	1 1 50 25 20 XX
L 18	PB 400	M 22 x 1.5	27.9	30	27	36.5	20.5	21.5	43	12	140	27.9	1 1 50 26 20 81	1 1 50 26 20 XX
L 22	PB 250	M 26 x 1.5	31.9	36	32	43	27	24	48	16	180	42.0	1 1 50 27 20 81	1 1 50 27 20 XX
L 28	PB 250	M 33 x 2	39.9	46	41	48	31.5	30.5	59	18	380	86.0	1 1 50 28 20 81	1 1 50 28 20 XX
L 35	PB 250	M 42 x 2	49.9	55	50	57	35.5	35.5	70	20	500	145.7	1 1 50 29 20 81	1 1 50 29 20 XX
L 42	PB 250	M 48 x 2	55.9	65	55	62.5	40	40.5	80	22	600	219.2	1 1 50 30 20 81	1 1 50 30 20 XX
S 6	PB 500	M 12 x 1.5	17.9	19	19	30.5	16	13.5	27	10	50	7.9	1 1 50 31 20 81	1 1 50 31 20 XX
S 8	PB 500	M 14 x 1.5	19.9	19	19	30.5	16	13.5	27	10	60	8.9	1 1 50 32 20 81	1 1 50 32 20 XX
S 10	PB 500	M 16 x 1.5	21.9	24	22	34	18	16	32.5	10	80	13.1	1 1 50 33 20 81	1 1 50 33 20 XX
S 12	PB 400	M 18 x 1.5	23.9	27	24	35.5	19.5	18.5	37	10	110	19.5	1 1 50 34 20 81	1 1 50 34 20 XX
S 16	PB 400	M 22 x 1.5	27.9	30	27	39.5	21.5	21.5	43	12	140	28.2	1 1 50 36 20 81	1 1 50 36 20 XX
S 20	PB 315	M 27 x 2	32.9	36	32	47.5	26	24	48	16	300	45.4	1 1 50 37 20 81	1 1 50 37 20 XX
S 25	PB 250	M 33 x 2	39.9	46	41	55	31	30.5	59	18	380	85.9	1 1 50 38 20 81	1 1 50 38 20 XX
S 30	PB 250	M 42 x 2	49.9	55	50	63	36.5	35.5	70	20	600	144.7	1 1 50 39 20 81	1 1 50 39 20 XX
S 38	PB 250	M 48 x 2	55.9	65	55	71.5	41	40.5	80	22	700	232.0	1 1 50 40 20 81	1 1 50 40 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

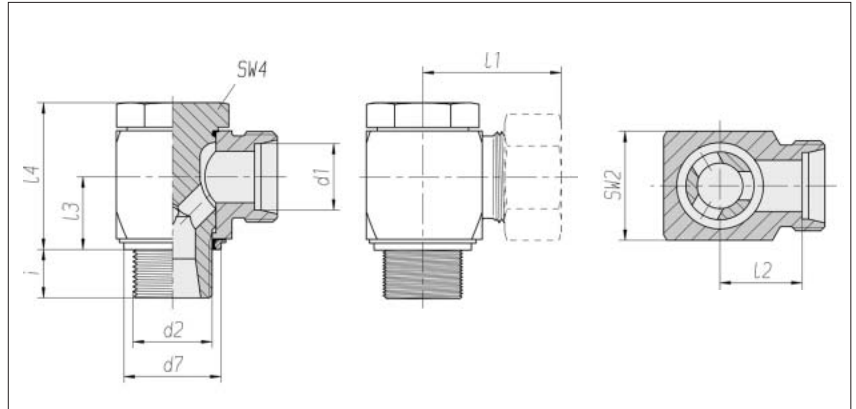
** With union nut and 2S, ES-4
or BV-10 tube connection
components

Banjo couplings

Compact version –
high pressure

Thread:
Whitworth pipe thread,
straight

With soft seal
for DIN 3852 / ISO 1179
d4 narrow swivel angle



Series	Pressure	d2		d7	SW2	SW4	l1*	l2	l3	l4	i	Nm	kg/100	Order No.	Order No.
Tube OD							approx.					-10 %	approx.	Single component	**
d1															
L 6	PB 500	G	1/8 A	14.9	14	14	27.5	13	10	21	8	25	5.9	1 1 50 41 20 81	1 1 50 41 20 XX
L 6	PB 500	G	1/4 A	18.9	19	19	29.5	15	13.5	27	10	45	5.9	1 1 50 42 20 81	1 1 50 42 20 XX
L 8	PB 500	G	1/4 A	18.9	19	19	28.5	14	13.5	27	10	45	9.3	1 1 50 43 20 81	1 1 50 43 20 XX
L 10	PB 500	G	1/4 A	18.9	19	19	29.5	15	13.5	27	10	45	10.2	1 1 50 44 20 81	1 1 50 44 20 XX
L 12	PB 400	G	1/4 A	18.9	22	19	29.5	15	15.5	30	10	45	15.8	1 1 50 45 20 81	1 1 50 45 20 XX
L 12	PB 400	G	3/8 A	21.9	24	22	32	17.5	16	32.5	10	75	15.9	1 1 50 46 20 81	1 1 50 46 20 XX
L 15	PB 400	G	1/2 A	26.9	30	27	36	21	21.5	43	12	110	28.4	1 1 50 47 20 81	1 1 50 47 20 XX
L 18	PB 400	G	1/2 A	26.9	30	27	36.5	20.5	21.5	43	12	110	32.0	1 1 50 48 20 81	1 1 50 48 20 XX
L 22	PB 250	G	3/4 A	32.9	36	32	43	27	24	48	16	210	48.5	1 1 50 49 20 81	1 1 50 49 20 XX
L 28	PB 250	G 1	A	39.9	46	41	48	31.5	30.5	59	18	380	88.2	1 1 50 50 20 81	1 1 50 50 20 XX
L 35	PB 250	G 1	1/4 A	49.9	55	50	57	35.5	35.5	70	20	500	150.8	1 1 50 51 20 81	1 1 50 51 20 XX
L 42	PB 250	G 1	1/2 A	55.9	65	55	62.5	40	40.5	80	22	650	234.1	1 1 50 52 20 81	1 1 50 52 20 XX
S 6	PB 500	G	1/4 A	18.9	19	19	30.5	16	13.5	27	10	50	8.7	1 1 50 53 20 81	1 1 50 53 20 XX
S 8	PB 500	G	1/4 A	18.9	19	19	30.5	16	13.5	27	10	50	10.3	1 1 50 54 20 81	1 1 50 54 20 XX
S 10	PB 500	G	3/8 A	21.9	24	22	34	18	16	32.5	10	80	17.0	1 1 50 55 20 81	1 1 50 55 20 XX
S 12	PB 400	G	3/8 A	21.9	24	22	34	18	16	32.5	10	80	17.9	1 1 50 56 20 81	1 1 50 56 20 XX
S 14	PB 400	G	1/2 A	26.9	30	27	39.5	22	19.5	41	12	160	30.3	1 1 50 57 20 81	1 1 50 57 20 XX
S 16	PB 400	G	1/2 A	26.9	30	27	39.5	21.5	21.5	43	12	160	31.6	1 1 50 58 20 81	1 1 50 58 20 XX
S 20	PB 315	G	3/4 A	32.9	36	32	47.5	26	24	48	16	250	51.8	1 1 50 59 20 81	1 1 50 59 20 XX
S 25	PB 250	G 1	A	39.9	46	41	55	31	30.5	59	18	380	103.0	1 1 50 60 20 81	1 1 50 60 20 XX
S 30	PB 250	G 1	1/4 A	49.9	55	50	63	36.5	35.5	70	20	600	163.7	1 1 50 61 20 81	1 1 50 61 20 XX
S 38	PB 250	G 1	1/2 A	55.9	65	55	71.5	41	40.5	80	22	700	262.7	1 1 50 62 20 81	1 1 50 62 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

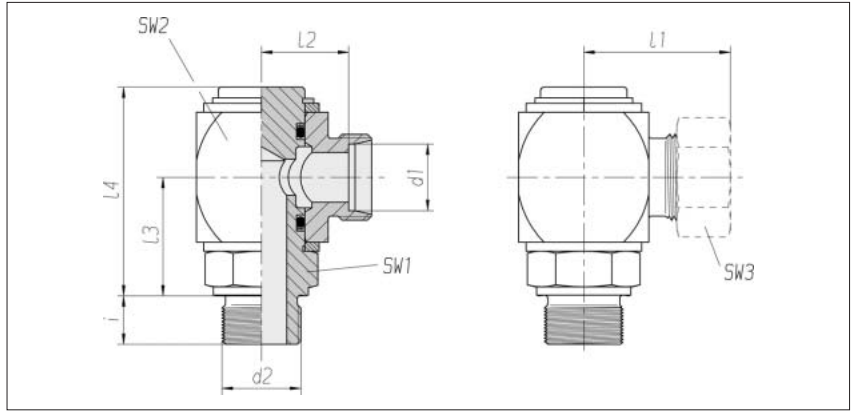
** With union nut and 2S, ES-4
or BV-10 tube connection
components

Rotary couplings

Thread:
metric fine thread,
straight

Sealed with seal edge

Design:
of square bar steel



Series	Pressure	d2	SW1	SW2	SW3	l1	l2	l3	l4	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.					-10 % approx.		Single component	*
L 6	PB 100	M 10 x 1	22	27	14	31	16.5	26.5	47	8	25	18.1	0 1 75 00 10 81**	0 1 75 00 10 07
L 8	PB 100	M 12 x 1.5	22	27	17	31	16.5	26.5	47	12	35	18.4	0 1 75 05 10 81	0 1 75 05 10 07
L 10	PB 100	M 14 x 1.5	22	27	19	32	17.5	26.5	47	12	50	19.3	0 1 75 10 10 81	0 1 75 10 10 07
L 12	PB 100	M 16 x 1.5	22	27	22	31.5	17.5	26.5	47	12	80	18.9	0 1 75 15 10 81	0 1 75 15 10 07
L 12	PB 100	M 16 x 1.5	22	27	22	31.5	17.5	26.5	47	12	80	18.9	0 1 75 16 10 81***	0 1 75 16 10 07
L 15	PB 100	M 18 x 1.5	27	36	27	38.5	23.5	33.5	58.5	12	100	40.8	0 1 75 20 10 81	0 1 75 20 10 07
L 15	PB 100	M 22 x 1.5	27	36	27	38.5	23.5	33.5	58.5	14	160	41.3	0 1 75 22 10 81	0 1 75 22 10 07
L 18	PB 100	M 22 x 1.5	27	36	32	39	23	33.5	58.5	14	160	41.0	0 1 75 25 10 81	0 1 75 25 10 07
L 22	PB 100	M 26 x 1.5	32	41	36	43	27	38	65.5	16	220	54.3	0 1 75 30 10 81	0 1 75 30 10 07
L 28	PB 100	M 33 x 2	41	46	41	46	29.5	42.5	72	18	300	78.4	0 1 75 35 10 81	0 1 75 35 10 07
S 6	PB 400	M 12 x 1.5	22	27	17	33	18.5	26.5	47	12	50	20.0	0 1 75 50 10 81	0 1 75 50 10 07
S 8	PB 400	M 14 x 1.5	22	27	19	33	18.5	26.5	47	12	60	20.3	0 1 75 55 10 81	0 1 75 55 10 07
S 10	PB 400	M 16 x 1.5	22	27	22	34	18	26.5	47	12	100	20.3	0 1 75 60 10 81	0 1 75 60 10 07
S 12	PB 400	M 18 x 1.5	27	36	24	39	23	33.5	58.5	12	120	42.7	0 1 75 65 10 81	0 1 75 65 10 07
S 14	PB 400	M 20 x 1.5	27	36	27	42.5	25	33.5	58.5	14	170	43.2	0 1 75 70 10 81	0 1 75 70 10 07
S 16	PB 400	M 22 x 1.5	27	36	30	42.5	24.5	33.5	58.5	14	190	42.9	0 1 75 75 10 81	0 1 75 75 10 07
S 16	PB 400	M 22 x 1.5	27	36	30	42.5	24.5	33.5	58.5	14	190	42.9	1 1 75 75 10 81***	1 1 75 75 10 07
S 20	PB 400	M 27 x 2	32	41	36	47.5	26	38	65.5	16	300	56.8	0 1 75 80 10 81	0 1 75 80 10 07
S 25	PB 250	M 33 x 2	41	46	46	53	29	42.5	72	18	450	79.0	0 1 75 85 10 81	0 1 75 85 10 07

These couplings are intended for slow rotating and swivelling movements with a swivelling angle of up to 360° and temperatures of up to 70 °C

* With union nut and 2S cutting ring

** Sample product code, see: DWWE06LMOMD

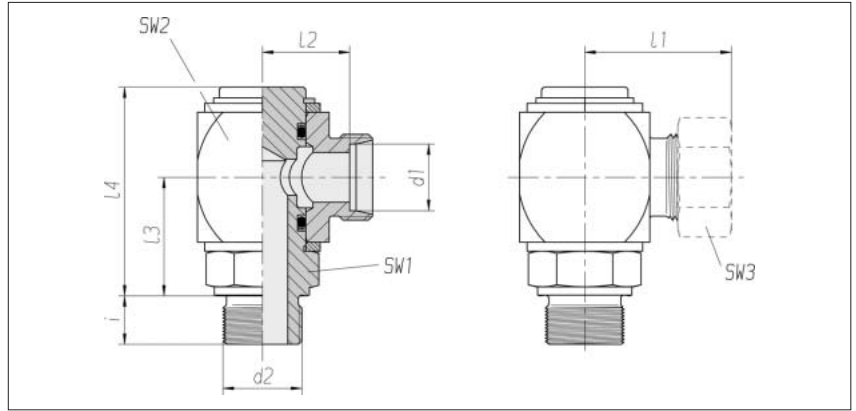
*** Sealed with PEFLEX seal

Rotary couplings

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge

Design:
of square bar steel



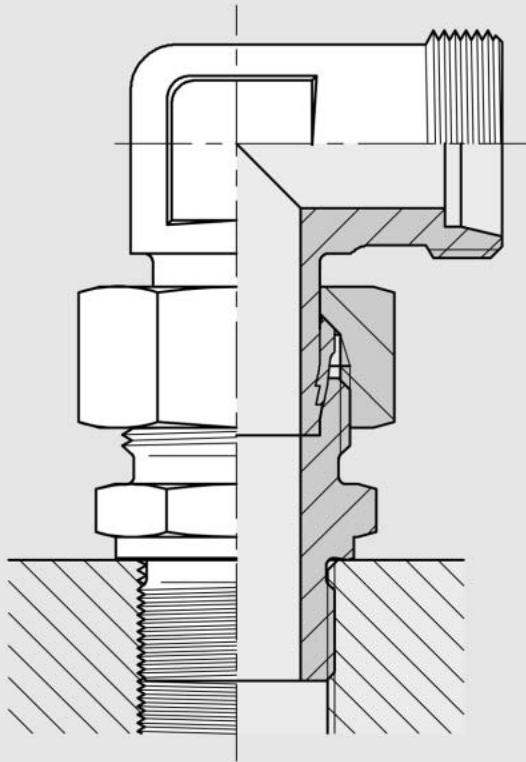
Series	Pressure	d2		SW1	SW2	SW3	l1	l2	l3	l4	i	Nm	kg/100	Order No.	Order No.
Tube OD							approx.					-10 %	approx.	Single component	*
d1															
L 6	PB 100	G 1/8	A	22	27	14	31	16.5	26.5	47	8	25	18.9	0 1 76 00 10 81**	0 1 76 00 10 07
L 8	PB 100	G 1/4	A	22	27	17	31	16.5	26.5	47	12	50	19.4	0 1 76 05 10 81	0 1 76 05 10 07
L 10	PB 100	G 1/4	A	22	27	19	32	17.5	26.5	47	12	50	18.9	0 1 76 10 10 81	0 1 76 10 10 07
L 12	PB 100	G 3/8	A	22	27	22	31.5	17.5	26.5	47	12	80	18.9	0 1 76 15 10 81	0 1 76 15 10 07
L 15	PB 100	G 1/2	A	27	36	27	38.5	23.5	33.5	58.5	14	170	41.8	0 1 76 20 10 81	0 1 76 20 10 07
L 18	PB 100	G 1/2	A	27	36	32	39	23	33.5	58.5	14	170	40.4	0 1 76 25 10 81	0 1 76 25 10 07
L 22	PB 100	G 3/4	A	32	41	36	43	27	38	65.5	16	240	55.1	0 1 76 30 10 81	0 1 76 30 10 07
L 28	PB 100	G 1	A	41	46	41	46	29.5	42.5	72	18	370	77.3	0 1 76 35 10 81	0 1 76 35 10 07
S 6	PB 400	G 1/4	A	22	27	17	33	18.5	26.5	47	12	60	20.0	0 1 76 50 10 81	0 1 76 50 10 07
S 8	PB 400	G 1/4	A	22	27	19	33	18.5	26.5	47	12	60	20.3	0 1 76 55 10 81	0 1 76 55 10 07
S 10	PB 400	G 3/8	A	22	27	22	34	18	26.5	47	12	110	20.7	0 1 76 60 10 81	0 1 76 60 10 07
S 12	PB 400	G 3/8	A	27	36	24	39	23	33.5	58.5	12	110	42.4	0 1 76 65 10 81	0 1 76 65 10 07
S 14	PB 400	G 1/2	A	27	36	27	42.5	25	33.5	58.5	14	200	43.7	0 1 76 70 10 81	0 1 76 70 10 07
S 16	PB 400	G 1/2	A	27	36	30	42.5	24.5	33.5	58.5	14	200	42.4	0 1 76 75 10 81	0 1 76 75 10 07
S 20	PB 400	G 3/4	A	32	41	36	47.5	26	38	65.5	16	320	57.4	0 1 76 80 10 81	0 1 76 80 10 07
S 25	PB 250	G 1	A	41	46	46	53	29	42.5	72	18	500	98.0	0 1 76 85 10 81	0 1 76 85 10 07

These couplings are intended for slow rotating and swivelling movements with a swivelling angle of up to 360° and temperatures of up to 70 °C

* With union nut and 2S cutting ring

** Sample product code, see: DWWE06LROMD

Adjustable stud couplings
with tube socket
male connector

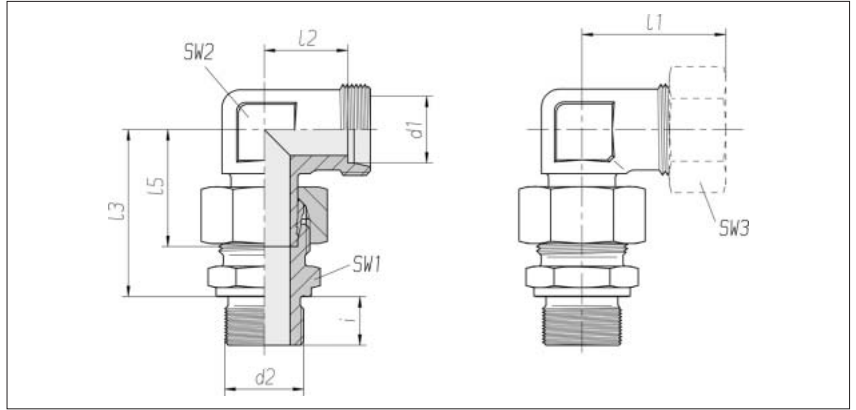


Adjustable stud elbows

Male connector

Thread:
metric fine thread,
straight

Sealed with seal edge



Series	Pressure	d2	SW1	SW2	SW3	l1	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. *
Tube OD d1						approx.							
L 6	PN 315	M 10 x 1	14	12	14	27	12	34.5	26	8	5.3	0 1 58 01 20 07***	0 1 58 00 20 07
L 8	PN 315	M 12 x 1.5	17	12	17	29	14	37.5	27.5	12	5.9	0 1 58 06 20 07	0 1 58 05 20 07
L 10	PN 315	M 14 x 1.5	19	14	19	30	15	40	29	12	7.8	0 1 58 11 20 07	0 1 58 10 20 07
L 12	PN 315	M 16 x 1.5	22	17	22	32	17	42	29.5	12	10.3	0 1 58 16 20 07	0 1 58 15 20 07
L 15	PN 315	M 18 x 1.5	24	19	27	36	21	46	32.5	12	16.6	0 1 58 21 20 07	0 1 58 20 20 07
L 18	PN 315	M 22 x 1.5	27	24	32	40	23.5	50	35.5	14	25.4	0 1 58 26 20 07	0 1 58 25 20 07
L 22	PN 160	M 26 x 1.5	32	27	36	44	27.5	55	38.5	16	25.2	0 1 58 31 20 07	0 1 58 30 20 07
L 28	PN 160	M 33 x 2	41	36	41	47	30.5	59	41.5	18	49.5	0 1 58 36 20 07	0 1 58 35 20 07
L 35	PN 160	M 42 x 2	50	41	50	56	34.5	68.5	51	20	79.4	0 1 58 41 20 07	0 1 58 40 20 07
L 42	PN 160	M 48 x 2	55	50	60	63	40	75	56	22	143.4	0 1 58 46 20 07	0 1 58 45 20 07
S 6	PB 630**	M 12 x 1.5	17	12	17	31	16	40	27	12	7.3	0 1 58 51 20 07	0 1 58 50 20 07
S 8	PB 630**	M 14 x 1.5	19	14	19	32	17	42.5	27.5	12	10.1	0 1 58 56 20 07	0 1 58 55 20 07
S 10	PB 630**	M 16 x 1.5	22	17	22	34	17.5	45	30	12	13.3	0 1 58 61 20 07	0 1 58 60 20 07
S 12	PB 630**	M 18 x 1.5	24	17	24	38	21.5	48	31	12	17.5	0 1 58 66 20 07	0 1 58 65 20 07
S 14	PB 630**	M 20 x 1.5	27	19	27	40	22	54	35	14	23.2	0 1 58 71 20 07	0 1 58 70 20 07
S 16	PB 400	M 22 x 1.5	27	24	30	43	24.5	55	36.5	14	27.8	0 1 58 76 20 07	0 1 58 75 20 07
S 20	PB 400	M 27 x 2	32	27	36	48	26.5	65	44.5	16	42.6	0 1 58 81 20 07	0 1 58 80 20 07
S 25	PB 400	M 33 x 2	41	36	46	54	30	73	50	18	81.6	0 1 58 86 20 07	0 1 58 85 20 07
S 30	PB 250	M 42 x 2	50	41	50	62	35.5	78.5	55	20	112.0	0 1 58 91 20 07	0 1 58 90 20 07
S 38	PB 250	M 48 x 2	55	50	60	72	41	89	63	22	165.5	0 1 58 96 20 07	0 1 58 95 20 07

* With union nut and 2S cutting ring

** Safety factor 2.0

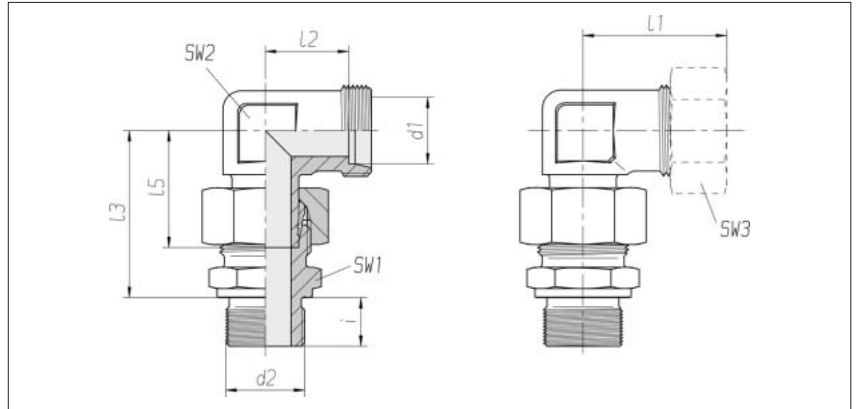
*** Sample product code, see: EWW06LMOMD

Adjustable stud elbows

Male connector

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



Series	Pressure	d2		SW1	SW2	SW3	l1 approx.	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. *
Tube OD d1														
L 6	PN 315	G 1/8 A	14	12	14	27	12	34.5	26	8	5.3	0 1 59 01 20 07**	0 1 59 00 20 07	
L 8	PN 315	G 1/4 A	19	12	17	29	14	37.5	27.5	12	6.7	0 1 59 06 20 07	0 1 59 05 20 07	
L 10	PN 315	G 1/4 A	19	14	19	30	15	40	29	12	7.9	0 1 59 11 20 07	0 1 59 10 20 07	
L 12	PN 315	G 3/8 A	22	17	22	32	17	42	29.5	12	11.1	0 1 59 16 20 07	0 1 59 15 20 07	
L 15	PN 315	G 1/2 A	27	19	27	36	21	46.5	32.5	14	18.8	0 1 59 21 20 07	0 1 59 20 20 07	
L 18	PN 315	G 1/2 A	27	24	32	40	23.5	50	35.5	14	24.8	0 1 59 26 20 07	0 1 59 25 20 07	
L 22	PN 160	G 3/4 A	32	27	36	44	27.5	55	38.5	16	34.0	0 1 59 31 20 07	0 1 59 30 20 07	
L 28	PN 160	G 1 A	41	36	41	47	30.5	59	41.5	18	61.7	0 1 59 36 20 07	0 1 59 35 20 07	
L 35	PN 160	G 1 1/4 A	50	41	50	56	34.5	68.5	51	20	83.6	0 1 59 41 20 07	0 1 59 40 20 07	
L 42	PN 160	G 1 1/2 A	55	50	60	63	40	75	56	22	110.5	0 1 59 46 20 07	0 1 59 45 20 07	
S 6	PB 630	G 1/4 A	19	12	17	31	16	40	27	12	7.8	0 1 59 51 20 07	0 1 59 50 20 07	
S 8	PB 630	G 1/4 A	19	14	19	32	17	42.5	27.5	12	9.8	0 1 59 56 20 07	0 1 59 55 20 07	
S 10	PB 630	G 3/8 A	22	17	22	34	17.5	45	30	12	13.4	0 1 59 61 20 07	0 1 59 60 20 07	
S 12	PB 630	G 3/8 A	22	17	24	38	21.5	48	31	12	16.9	0 1 59 66 20 07	0 1 59 65 20 07	
S 14	PB 630	G 1/2 A	27	19	27	40	22	54	35	14	24.2	0 1 59 71 20 07	0 1 59 70 20 07	
S 16	PB 400	G 1/2 A	27	24	30	43	24.5	55	36.5	14	29.2	0 1 59 76 20 07	0 1 59 75 20 07	
S 20	PB 400	G 3/4 A	32	27	36	48	26.5	65	44.5	16	44.7	0 1 59 81 20 07	0 1 59 80 20 07	
S 25	PB 400	G 1 A	41	36	46	54	30	73	50	18	80.9	0 1 59 86 20 07	0 1 59 85 20 07	
S 30	PB 250	G 1 1/4 A	50	41	50	62	35.5	78.5	55	20	118.4	0 1 59 91 20 07	0 1 59 90 20 07	
S 38	PB 250	G 1 1/2 A	55	50	60	72	41	89	63	22	197.3	0 1 59 96 20 07	0 1 59 95 20 07	

* With union nut and 2S cutting ring

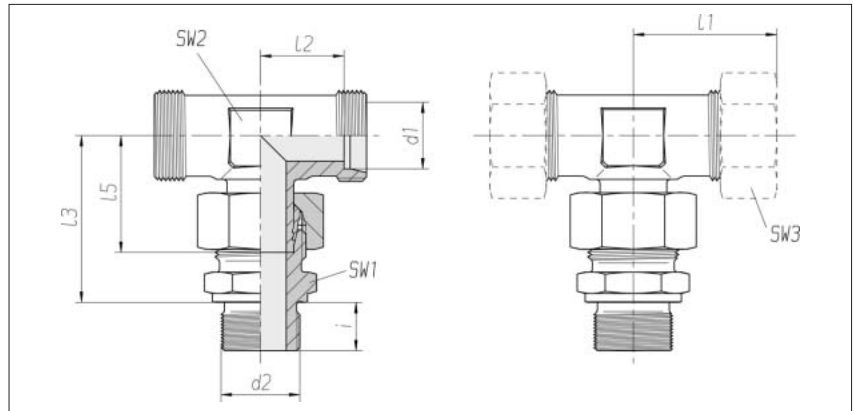
** Sample product code, see:
EWW06LROMD

Adjustable stud branch tees

Male connector

Thread:
metric fine thread,
straight

Sealed with seal edge



Series	Pressure	d2	SW1	SW2	SW3	l1	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. *
Tube OD d1						approx.							
L 6	PN 315	M 10 x 1	14	12	14	27	12	34.5	26	8	5.0	0 1 60 01 20 07***	0 1 60 00 20 07
L 8	PN 315	M 12 x 1.5	17	12	17	29	14	37.5	27.5	12	6.7	0 1 60 06 20 07	0 1 60 05 20 07
L 10	PN 315	M 14 x 1.5	19	14	19	30	15	40	29	12	8.6	0 1 60 11 20 07	0 1 60 10 20 07
L 12	PN 315	M 16 x 1.5	22	17	22	32	17	42	29.5	12	11.3	0 1 60 16 20 07	0 1 60 15 20 07
L 15	PN 315	M 18 x 1.5	24	19	27	36	21	46	32.5	12	24.0	0 1 60 21 20 07	0 1 60 20 20 07
L 18	PN 315	M 22 x 1.5	27	24	32	40	23.5	50	35.5	14	26.8	0 1 60 26 20 07	0 1 60 25 20 07
L 22	PN 160	M 26 x 1.5	32	27	36	44	27.5	55	38.5	16	28.8	0 1 60 31 20 07	0 1 60 30 20 07
L 28	PN 160	M 33 x 2	41	36	41	47	30.5	59	41.5	18	54.7	0 1 60 36 20 07	0 1 60 35 20 07
L 35	PN 160	M 42 x 2	50	41	50	56	34.5	68.5	51	20	86.6	0 1 60 41 20 07	0 1 60 40 20 07
L 42	PN 160	M 48 x 2	55	50	60	63	40	75	56	22	216.7	0 1 60 46 20 07	0 1 60 45 20 07
S 6	PB 630**	M 12 x 1.5	17	12	17	31	16	40	27	12	10.5	0 1 60 51 20 07	0 1 60 50 20 07
S 8	PB 630**	M 14 x 1.5	19	14	19	32	17	42.5	27.5	12	11.8	0 1 60 56 20 07	0 1 60 55 20 07
S 10	PB 630**	M 16 x 1.5	22	17	22	34	17.5	45	30	12	15.4	0 1 60 61 20 07	0 1 60 60 20 07
S 12	PB 630**	M 18 x 1.5	24	17	24	38	21.5	48	31	12	20.1	0 1 60 66 20 07	0 1 60 65 20 07
S 14	PB 630**	M 20 x 1.5	27	19	27	40	22	54	35	14	26.3	0 1 60 71 20 07	0 1 60 70 20 07
S 16	PB 400	M 22 x 1.5	27	24	30	43	24.5	55	36.5	14	32.0	0 1 60 76 20 07	0 1 60 75 20 07
S 20	PB 400	M 27 x 2	32	27	36	48	26.5	65	44.5	16	48.5	0 1 60 81 20 07	0 1 60 80 20 07
S 25	PB 400	M 33 x 2	41	36	46	54	30	73	50	18	45.4	0 1 60 86 20 07	0 1 60 85 20 07
S 30	PB 250	M 42 x 2	50	41	50	62	35.5	78.5	55	20	127.8	0 1 60 91 20 07	0 1 60 90 20 07
S 38	PB 250	M 48 x 2	55	50	60	72	41	89	63	22	188.5	0 1 60 96 20 07	0 1 60 95 20 07

* With union nut and 2S cutting ring

** Safety factor 2.0

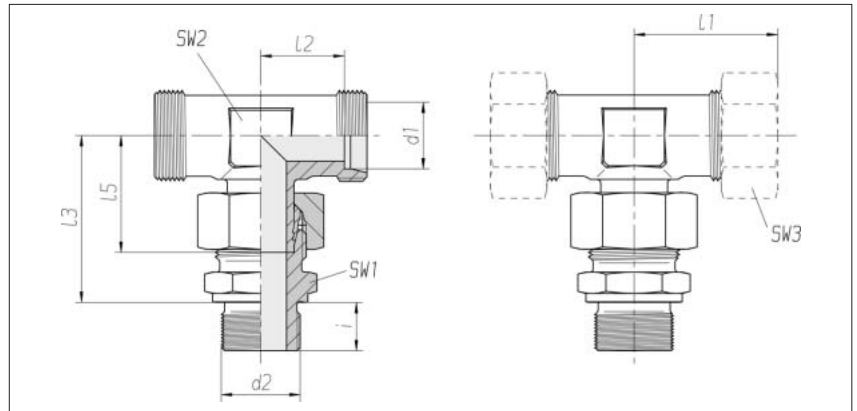
*** Sample product code, see: EVT06LMOMD

Adjustable stud branch tees

Male connector

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



Series	Pressure	d2		SW1	SW2	SW3	l1	l2	l3	l5	i	kg/100	Order No.	Order No.
Tube OD							approx.					approx.	Single component	*
d1														
L 6	PN 315	G 1/8 A	14	12	14	27	12	34.5	26	8	5.0	0 1 61 01 20 07**	0 1 61 00 20 07	
L 8	PN 315	G 1/4 A	19	12	17	29	14	37.5	27.5	12	7.2	0 1 61 06 20 07	0 1 61 05 20 07	
L 10	PN 315	G 1/4 A	19	14	19	30	15	40	29	12	9.0	0 1 61 11 20 07	0 1 61 10 20 07	
L 12	PN 315	G 3/8 A	22	17	22	32	17	42	29.5	12	11.7	0 1 61 16 20 07	0 1 61 15 20 07	
L 15	PN 315	G 1/2 A	27	19	27	36	21	46.5	32.5	14	20.9	0 1 61 21 20 07	0 1 61 20 20 07	
L 18	PN 315	G 1/2 A	27	24	32	40	23.5	50	35.5	14	26.1	0 1 61 26 20 07	0 1 61 25 20 07	
L 22	PN 160	G 3/4 A	32	27	36	44	27.5	55	38.5	16	37.5	0 1 61 31 20 07	0 1 61 30 20 07	
L 28	PN 160	G 1 A	41	36	41	47	30.5	59	41.5	18	54.3	0 1 61 36 20 07	0 1 61 35 20 07	
L 35	PN 160	G 1 1/4 A	50	41	50	56	34.5	68.5	51	20	86.4	0 1 61 41 20 07	0 1 61 40 20 07	
L 42	PN 160	G 1 1/2 A	55	50	60	63	40	75	56	22	183.8	0 1 61 46 20 07	0 1 61 45 20 07	
S 6	PB 630	G 1/4 A	19	12	17	31	16	40	27	12	10.9	0 1 61 51 20 07	0 1 61 50 20 07	
S 8	PB 630	G 1/4 A	19	14	19	32	17	42.5	27.5	12	11.5	0 1 61 56 20 07	0 1 61 55 20 07	
S 10	PB 630	G 3/8 A	22	17	22	34	17.5	45	30	12	15.5	0 1 61 61 20 07	0 1 61 60 20 07	
S 12	PB 630	G 3/8 A	22	17	24	38	21.5	48	31	12	19.0	0 1 61 66 20 07	0 1 61 65 20 07	
S 14	PB 630	G 1/2 A	27	19	27	40	22	54	35	14	27.4	0 1 61 71 20 07	0 1 61 70 20 07	
S 16	PB 400	G 1/2 A	27	24	30	43	24.5	55	36.5	14	31.4	0 1 61 76 20 07	0 1 61 75 20 07	
S 20	PB 400	G 3/4 A	32	27	36	48	26.5	65	44.5	16	48.3	0 1 61 81 20 07	0 1 61 80 20 07	
S 25	PB 400	G 1 A	41	36	46	54	30	73	50	18	45.5	0 1 61 86 20 07	0 1 61 85 20 07	
S 30	PB 250	G 1 1/4 A	50	41	50	62	35.5	78.5	55	20	127.6	0 1 61 91 20 07	0 1 61 90 20 07	
S 38	PB 250	G 1 1/2 A	55	50	60	72	41	89	63	22	188.0	0 1 61 96 20 07	0 1 61 95 20 07	

* With union nut and 2S cutting ring

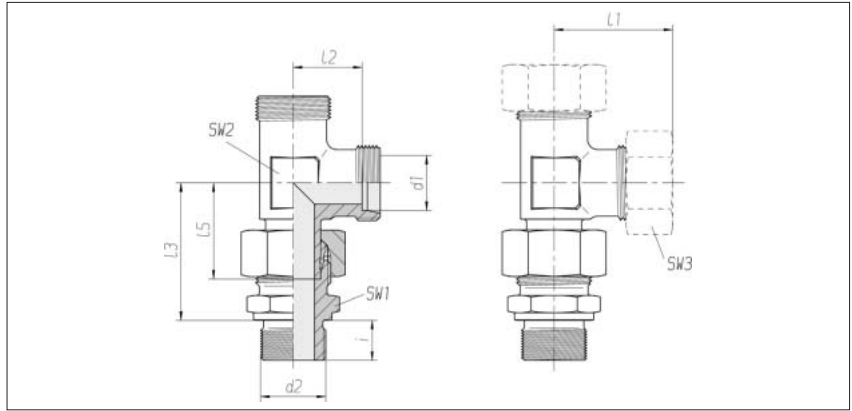
** Sample product code, see:
EVT06LROMD

Adjustable stud barrel tees

Male connector

Thread:
metric fine thread,
straight

Sealed with seal edge



Series	Pressure	d2	SW1	SW2	SW3	L1	L2	L3	L5	i	kg/100 approx.	Order No. Single component	Order No. *
Tube OD d1						approx.							
L 6	PN 315	M 10 x 1	14	12	14	27	12	34.5	26	8	4.8	0 1 62 01 20 07***	0 1 62 00 20 07
L 8	PN 315	M 12 x 1.5	17	12	17	29	14	37.5	27.5	12	6.6	0 1 62 06 20 07	0 1 62 05 20 07
L 10	PN 315	M 14 x 1.5	19	14	19	30	15	40	29	12	8.7	0 1 62 11 20 07	0 1 62 10 20 07
L 12	PN 315	M 16 x 1.5	22	17	22	32	17	42	29.5	12	11.7	0 1 62 16 20 07	0 1 62 15 20 07
L 15	PN 315	M 18 x 1.5	24	19	27	36	21	46	32.5	12	18.4	0 1 62 21 20 07	0 1 62 20 20 07
L 18	PN 315	M 22 x 1.5	27	24	32	40	23.5	50	35.5	14	26.6	0 1 62 26 20 07	0 1 62 25 20 07
L 22	PN 160	M 26 x 1.5	32	27	36	44	27.5	55	38.5	16	28.9	0 1 62 31 20 07	0 1 62 30 20 07
L 28	PN 160	M 33 x 2	41	36	41	47	30.5	59	41.5	18	55.3	0 1 62 36 20 07	0 1 62 35 20 07
L 35	PN 160	M 42 x 2	50	41	50	56	34.5	68.5	51	20	87.0	0 1 62 41 20 07	0 1 62 40 20 07
L 42	PN 160	M 48 x 2	55	50	60	63	40	75	56	22	156.8	0 1 62 46 20 07	0 1 62 45 20 07
S 6	PB 630**	M 12 x 1.5	17	12	17	31	16	40	27	12	8.4	0 1 62 51 20 07	0 1 62 50 20 07
S 8	PB 630**	M 14 x 1.5	19	14	19	32	17	42.5	27.5	12	13.9	0 1 62 56 20 07	0 1 62 55 20 07
S 10	PB 630**	M 16 x 1.5	22	17	22	34	17.5	45	30	12	15.4	0 1 62 61 20 07	0 1 62 60 20 07
S 12	PB 630**	M 18 x 1.5	24	17	24	38	21.5	48	31	12	20.2	0 1 62 66 20 07	0 1 62 65 20 07
S 14	PB 630**	M 20 x 1.5	27	19	27	40	22	54	35	14	25.7	0 1 62 71 20 07	0 1 62 70 20 07
S 16	PB 400	M 22 x 1.5	27	24	30	43	24.5	55	36.5	14	31.5	0 1 62 76 20 07	0 1 62 75 20 07
S 20	PB 400	M 27 x 2	32	27	36	48	26.5	65	44.5	16	78.2	0 1 62 81 20 07	0 1 62 80 20 07
S 25	PB 400	M 33 x 2	41	36	46	54	30	73	50	18	70.7	0 1 62 86 20 07	0 1 62 85 20 07
S 30	PB 250	M 42 x 2	50	41	50	62	35.5	78.5	55	20	126.0	0 1 62 91 20 07	0 1 62 90 20 07
S 38	PB 250	M 48 x 2	55	50	60	72	41	89	63	22	186.7	0 1 62 96 20 07	0 1 62 95 20 07

* With union nut and 2S cutting ring

** Safety factor 2.0

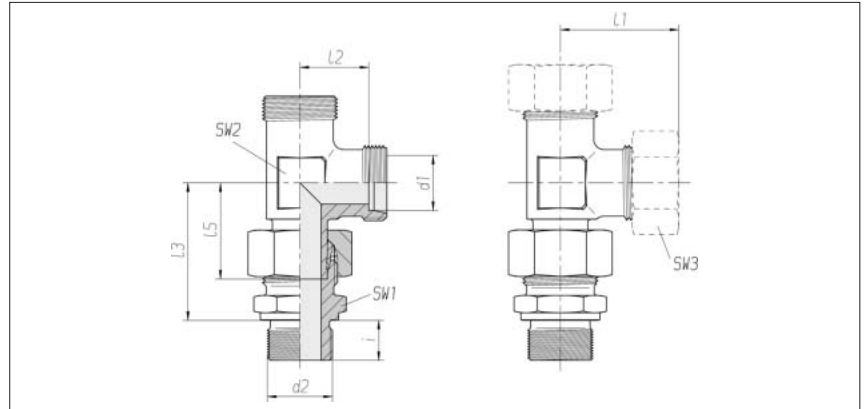
*** Sample product code, see: EVL06LMOMD

Adjustable stud barrel tees

Male connector

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge



Series	Pressure	d2		SW1	SW2	SW3	l1	l2	l3	l5	i	kg/100	Order No.	Order No.
Tube OD							approx.					approx.	Single component	*
d1														
L 6	PN 315	G 1/8 A	14	12	14	27	12	34.5	26	8	4.8	0 1 63 01 20 07**	0 1 63 00 20 07	
L 8	PN 315	G 1/4 A	19	12	17	29	14	37.5	27.5	12	7.2	0 1 63 06 20 07	0 1 63 05 20 07	
L 10	PN 315	G 1/4 A	19	14	19	30	15	40	29	12	8.9	0 1 63 11 20 07	0 1 63 10 20 07	
L 12	PN 315	G 3/8 A	22	17	22	32	17	42	29.5	12	11.8	0 1 63 16 20 07	0 1 63 15 20 07	
L 15	PN 315	G 1/2 A	27	19	27	36	21	46.5	32.5	14	20.4	0 1 63 21 20 07	0 1 63 20 20 07	
L 18	PN 315	G 1/2 A	27	24	32	40	23.5	50	35.5	14	26.0	0 1 63 26 20 07	0 1 63 25 20 07	
L 22	PN 160	G 3/4 A	32	27	36	44	27.5	55	38.5	16	29.2	0 1 63 31 20 07	0 1 63 30 20 07	
L 28	PN 160	G 1 A	41	36	41	47	30.5	59	41.5	18	55.9	0 1 63 36 20 07	0 1 63 35 20 07	
L 35	PN 160	G 1 1/4 A	50	41	50	56	34.5	68.5	51	20	86.9	0 1 63 41 20 07	0 1 63 40 20 07	
L 42	PN 160	G 1 1/2 A	55	50	60	63	40	75	56	22	136.8	0 1 63 46 20 07	0 1 63 45 20 07	
S 6	PB 630	G 1/4 A	19	12	17	31	16	40	27	12	9.1	0 1 63 51 20 07	0 1 63 50 20 07	
S 8	PB 630	G 1/4 A	19	14	19	32	17	42.5	27.5	12	13.6	0 1 63 56 20 07	0 1 63 55 20 07	
S 10	PB 630	G 3/8 A	22	17	22	34	17.5	45	30	12	15.5	0 1 63 61 20 07	0 1 63 60 20 07	
S 12	PB 630	G 3/8 A	22	17	24	38	21.5	48	31	12	19.1	0 1 63 66 20 07	0 1 63 65 20 07	
S 14	PB 630	G 1/2 A	27	19	27	40	22	54	35	14	26.8	0 1 63 71 20 07	0 1 63 70 20 07	
S 16	PB 400	G 1/2 A	27	24	30	43	24.5	55	36.5	14	30.9	0 1 63 76 20 07	0 1 63 75 20 07	
S 20	PB 400	G 3/4 A	32	27	36	48	26.5	65	44.5	16	49.8	0 1 63 81 20 07	0 1 63 80 20 07	
S 25	PB 400	G 1 A	41	36	46	54	30	73	50	18	70.8	0 1 63 86 20 07	0 1 63 85 20 07	
S 30	PB 250	G 1 1/4 A	50	41	50	62	35.5	78.5	55	20	125.7	0 1 63 91 20 07	0 1 63 90 20 07	
S 38	PB 250	G 1 1/2 A	55	50	60	72	41	89	63	22	186.2	0 1 63 96 20 07	0 1 63 95 20 07	

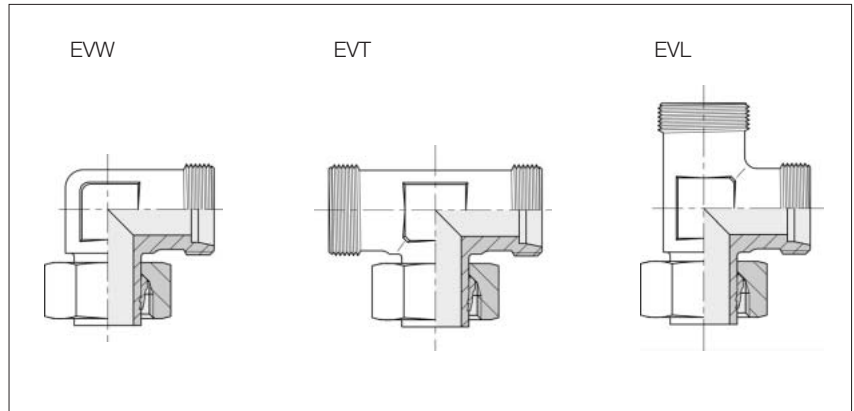
* With union nut and 2S cutting ring

** Sample product code, see:
EVL06LROMD

Adjustable stud couplings

Male connector

Component parts
Tube socket pre-assembled



Series	Pressure	kg/100 approx.	Order No.	kg/100 approx.	Order No.	kg/100 approx.	Order No.
Tube OD			EVW		EVT		EVL
d1							
L 6	PN 315	2.8	0 1 58 03 20 07*	3.8	0 1 60 03 20 07*	3.4	0 1 62 03 20 07*
L 8	PN 315	3.8	0 1 58 08 20 07	4.8	0 1 60 08 20 07	4.7	0 1 62 08 20 07
L 10	PN 315	5.0	0 1 58 13 20 07	6.0	0 1 60 13 20 07	6.0	0 1 62 13 20 07
L 12	PN 315	6.6	0 1 58 18 20 07	7.9	0 1 60 18 20 07	7.9	0 1 62 18 20 07
L 15	PN 315	11.5	0 1 58 23 20 07	14.2	0 1 60 23 20 07	13.7	0 1 62 23 20 07
L 18	PN 315	17.8	0 1 58 28 20 07	21.1	0 1 60 28 20 07	20.8	0 1 62 28 20 07
L 22	PN 160	23.5	0 1 58 33 20 07	27.8	0 1 60 33 20 07	27.2	0 1 62 33 20 07
L 28	PN 160	34.1	0 1 58 38 20 07	38.6	0 1 60 38 20 07	39.1	0 1 62 38 20 07
L 35	PN 160	57.7	0 1 58 43 20 07	66.0	0 1 60 43 20 07	66.1	0 1 62 43 20 07
L 42	PN 160	87.2	0 1 58 48 20 07	101.8	0 1 60 48 20 07	100.6	0 1 62 48 20 07
S 6	PN 630	4.4	0 1 58 53 20 07	5.8	0 1 60 53 20 07	5.6	0 1 62 53 20 07
S 8	PN 630	5.9	0 1 58 58 20 07	7.6	0 1 60 58 20 07	7.8	0 1 62 58 20 07
S 10	PN 630	8.3	0 1 58 63 20 07	10.3	0 1 60 63 20 07	10.3	0 1 62 63 20 07
S 12	PN 630	10.5	0 1 58 68 20 07	13.5	0 1 60 68 20 07	13.4	0 1 62 68 20 07
S 14	PN 630	14.6	0 1 58 73 20 07	17.9	0 1 60 73 20 07	17.7	0 1 62 73 20 07
S 16	PN 400	19.9	0 1 58 78 20 07	24.1	0 1 60 78 20 07	22.5	0 1 62 78 20 07
S 20	PN 400	29.4	0 1 58 83 20 07	34.8	0 1 60 83 20 07	34.8	0 1 62 83 20 07
S 25	PN 400	54.1	0 1 58 88 20 07	63.0	0 1 60 88 20 07	63.5	0 1 62 88 20 07
S 30	PN 400	76.2	0 1 58 93 20 07	90.8	0 1 60 93 20 07	91.4	0 1 62 93 20 07
S 38	PN 315	118.9	0 1 58 98 20 07	141.7	0 1 60 98 20 07	141.7	0 1 62 98 20 07

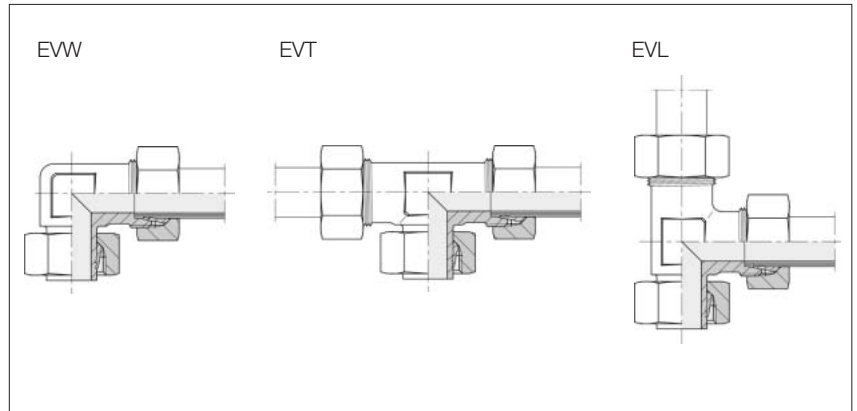
* Sample product code, see:
EWW06LOMD
EVT06LOMD
EVL06LOMD

Adjustable stud couplings

Male connector

Component parts
Tube socket pre-assembled

Cutting ring connection
at tube end



Series	Pressure	kg/100 approx.	Order No. EVW*	kg/100 approx.	Order No. EVT*	kg/100 approx.	Order No. EVL*
L 6	PN 315	3.9	0 1 58 02 20 07**	5.9	0 1 60 02 20 07**	5.7	0 1 62 02 20 07**
L 8	PN 315	5.5	0 1 58 07 20 07	8.2	0 1 60 07 20 07	8.1	0 1 62 07 20 07
L 10	PN 315	7.0	0 1 58 12 20 07	10.2	0 1 60 12 20 07	10.3	0 1 62 12 20 07
L 12	PN 315	9.6	0 1 58 17 20 07	13.9	0 1 60 17 20 07	13.6	0 1 62 17 20 07
L 15	PN 315	16.4	0 1 58 22 20 07	23.7	0 1 60 22 20 07	23.2	0 1 62 22 20 07
L 18	PN 315	24.2	0 1 58 27 20 07	34.7	0 1 60 27 20 07	34.8	0 1 62 27 20 07
L 22	PN 160	32.9	0 1 58 32 20 07	45.4	0 1 60 32 20 07	45.4	0 1 62 32 20 07
L 28	PN 160	45.0	0 1 58 37 20 07	59.2	0 1 60 37 20 07	59.5	0 1 62 37 20 07
L 35	PN 160	71.4	0 1 58 42 20 07	96.1	0 1 60 42 20 07	95.5	0 1 62 42 20 07
L 42	PN 160	111.7	0 1 58 47 20 07	147.4	0 1 60 47 20 07	147.1	0 1 62 47 20 07
S 6	PN 630	6.4	0 1 58 52 20 07	9.6	0 1 60 52 20 07	9.5	0 1 62 52 20 07
S 8	PN 630	8.2	0 1 58 57 20 07	12.1	0 1 60 57 20 07	12.2	0 1 62 57 20 07
S 10	PN 630	11.7	0 1 58 62 20 07	17.2	0 1 60 62 20 07	17.1	0 1 62 62 20 07
S 12	PN 630	14.6	0 1 58 67 20 07	20.9	0 1 60 67 20 07	21.0	0 1 62 67 20 07
S 14	PN 630	20.3	0 1 58 72 20 07	29.2	0 1 60 72 20 07	29.1	0 1 62 72 20 07
S 16	PN 400	26.9	0 1 58 77 20 07	38.5	0 1 60 77 20 07	37.4	0 1 62 77 20 07
S 20	PN 400	40.4	0 1 58 82 20 07	58.1	0 1 60 82 20 07	57.8	0 1 62 82 20 07
S 25	PN 400	76.7	0 1 58 87 20 07	105.6	0 1 60 87 20 07	105.3	0 1 62 87 20 07
S 30	PN 400	99.9	0 1 58 92 20 07	137.5	0 1 60 92 20 07	136.4	0 1 62 92 20 07
S 38	PN 315	154.5	0 1 58 97 20 07	208.9	0 1 60 97 20 07	208.7	0 1 62 97 20 07

* With union nut and 2S cutting ring

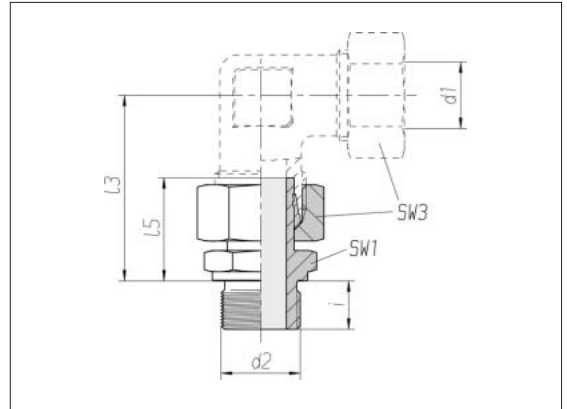
** Sample product code, see:
EWW06L
EVT06L
EVL06L

Straight stud standpipe adapters

Thread:
metric fine thread,
straight

Sealed with seal edge

Tube socket pre-assembled



Series Tube OD d1	Pressure	d2	SW1	SW3	l3	l5	i	Nm -10 %	kg/100 approx.	Order No.
L 6	PN 315	M 10 x 1	14	14	36.5	24.5	8	20	2.4	0 1 64 03 20 07**
L 8	PN 315	M 12 x 1.5	17	17	40.5	26.5	12	30	4.0	0 1 64 08 20 07
L 10	PN 315	M 14 x 1.5	19	19	42.5	27.5	12	50	4.9	0 1 64 13 20 07
L 12	PN 315	M 16 x 1.5	22	22	47.5	30.5	12	70	6.8	0 1 64 18 20 07
L 12	PN 315	M 18 x 1.5	24	22	47.5	30.5	12	90	7.8	1 1 99 17 20 07
L 12	PN 315	M 22 x 1.5	27	22	49	32	14	140	10.8	0 1 85 71 20 07
L 15	PN 315	M 18 x 1.5	24	27	52.5	31.5	12	90	9.8	0 1 64 23 20 07
L 18	PN 315	M 22 x 1.5	27	32	55	31.5	14	140	14.0	0 1 64 28 20 07
L 22	PN 160	M 26 x 1.5	32	36	60	32.5	16	190	19.6	0 1 64 33 20 07
L 28	PN 160	M 33 x 2	41	41	65.5	35	18	300	26.9	0 1 64 38 20 07
L 35	PN 160	M 42 x 2	50	50	77	42.5	20	500	45.7	0 1 64 43 20 07
L 42	PN 160	M 48 x 2	55	60	86.5	46.5	22	600	60.7	0 1 64 48 20 07
S 6	PB 630*	M 12 x 1.5	17	17	43	27	12	45	4.4	0 1 64 53 20 07
S 8	PB 630*	M 14 x 1.5	19	19	46.5	29.5	12	60	6.0	0 1 64 58 20 07
S 10	PB 630*	M 16 x 1.5	22	22	49.5	32	12	80	8.3	0 1 64 63 20 07
S 12	PB 630*	M 18 x 1.5	24	24	55.5	34	12	120	11.0	0 1 64 68 20 07
S 14	PB 630*	M 20 x 1.5	27	27	58.5	36.5	14	160	14.7	0 1 64 73 20 07
S 16	PB 400	M 22 x 1.5	27	30	61.5	37	14	170	17.0	0 1 64 78 20 07
S 20	PB 400	M 27 x 2	32	36	69.5	43	16	280	25.3	0 1 64 83 20 07
S 25	PB 400	M 33 x 2	41	46	78	48	18	450	48.8	0 1 64 88 20 07
S 30	PB 250	M 42 x 2	50	50	86.5	51	20	540	65.9	0 1 64 93 20 07
S 38	PB 250	M 48 x 2	55	60	101	60	22	700	95.2	0 1 64 98 20 07

* Safety factor 2.0

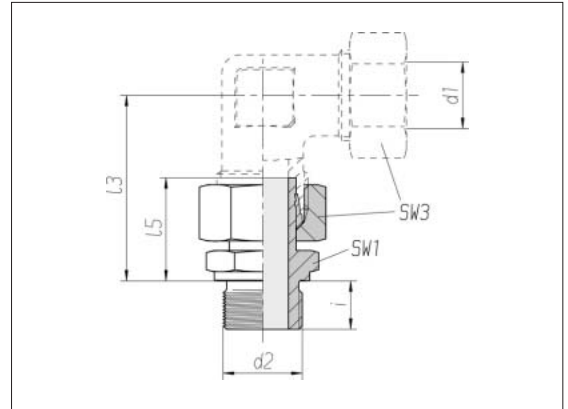
** Sample product code, see:
EVGE06LM

Straight stud standpipe adapters

Thread:
Whitworth pipe thread,
straight

Sealed with seal edge

Tube socket pre-assembled



Series	Pressure	d2		SW1	SW3	l3	l5	i	Nm -10 %	kg/100 approx.	Order No.
Tube OD											
d1											
L 6	PN 315	G 1/8 A		14	14	36.5	24.5	8	20	2.4	0 1 65 03 20 07*
L 8	PN 315	G 1/4 A		19	17	43.5	29.5	12	50	4.6	0 1 65 08 20 07
L 10	PN 315	G 1/4 A		19	19	42.5	27.5	12	50	5.1	0 1 65 13 20 07
L 12	PN 315	G 1/4 A		19	22	50.5	33.5	12	50	7.0	0 1 97 37 20 07
L 12	PN 315	G 3/8 A		22	22	51	34	12	80	8.2	0 1 65 18 20 07
L 12	PN 315	G 1/2 A		27	22	51.5	34.5	14	140	9.8	0 1 97 38 20 07
L 15	PN 315	G 3/8 A		22	27	52.5	31.5	12	80	9.6	0 1 86 04 20 07
L 15	PN 315	G 1/2 A		27	27	53	32	14	140	11.9	0 1 65 23 20 07
L 18	PN 315	G 1/2 A		27	32	55	31.5	14	140	13.6	0 1 65 28 20 07
L 22	PN 160	G 3/4 A		32	36	60	32.5	16	190	18.7	0 1 65 33 20 07
L 28	PN 160	G 1 A		41	41	65.5	35	18	330	27.1	0 1 65 38 20 07
L 35	PN 160	G 1 1/4 A		50	50	77	42.5	20	540	44.8	0 1 65 43 20 07
L 42	PN 160	G 1 1/2 A		55	60	86.5	46.5	22	630	60.7	0 1 65 48 20 07
S 6	PB 630	G 1/4 A		19	17	43	27	12	60	4.9	0 1 65 53 20 07
S 8	PB 630	G 1/4 A		19	19	46.5	29.5	12	60	5.8	0 1 65 58 20 07
S 10	PB 630	G 3/8 A		22	22	49.5	32	12	100	8.7	0 1 65 63 20 07
S 12	PB 630	G 1/4 A		19	24	55	33.5	12	60	8.4	0 1 94 24 20 07
S 12	PB 630	G 3/8 A		22	24	55.5	34	12	100	10.0	0 1 65 68 20 07
S 14	PB 630	G 1/2 A		27	27	58.5	36.5	14	160	15.4	0 1 65 73 20 07
S 16	PB 400	G 1/2 A		27	30	61.5	37	14	160	16.3	0 1 65 78 20 07
S 20	PB 400	G 3/4 A		32	36	69.5	43	16	280	26.0	0 1 65 83 20 07
S 25	PB 400	G 1 A		41	46	78	48	18	440	48.5	0 1 65 88 20 07
S 30	PB 250	G 1 1/4 A		50	50	86.5	51	20	580	67.2	0 1 65 93 20 07
S 38	PB 250	G 1 1/2 A		55	60	101	60	22	700	96.9	0 1 65 98 20 07

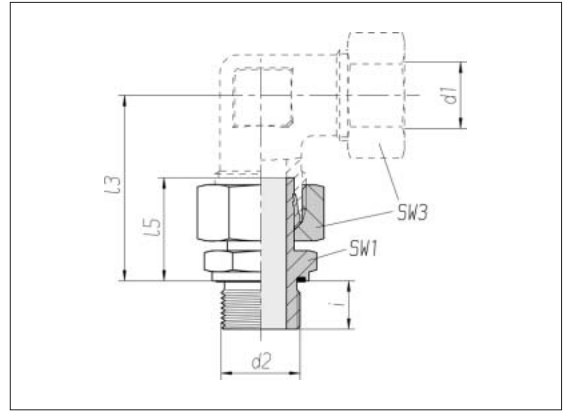
* Sample product code, see:
EVGE06LR

Straight stud standpipe adapters

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal

Tube socket pre-assembled



Series Tube OD d1	Pressure	d2	SW1	SW3	l3	l5	i	Nm -10 %	kg/100 approx.	Order No.
L 6	PN 315	M 10 x 1	14	14	36.5	24.5	8	15	2.3	0 1 74 80 20 07*
L 8	PN 315	M 12 x 1.5	17	17	40.5	26.5	12	25	3.9	0 1 74 81 20 07
L 10	PN 315	M 14 x 1.5	19	19	42.5	27.5	12	50	4.9	0 1 74 82 20 07
L 12	PN 315	M 16 x 1.5	22	22	47.5	30.5	12	70	6.8	0 1 74 83 20 07
L 15	PN 315	M 18 x 1.5	24	27	52.5	31.5	12	90	9.8	0 1 74 84 20 07
L 18	PN 315	M 22 x 1.5	27	32	55	31.5	14	130	14.0	0 1 74 85 20 07
L 22	PN 160	M 26 x 1.5	32	36	60	32.5	16	180	19.4	0 1 74 86 20 07
L 28	PN 160	M 33 x 2	41	41	65.5	35	18	230	27.0	0 1 74 87 20 07
L 35	PN 160	M 42 x 2	50	50	77	42.5	20	330	45.3	0 1 74 88 20 07
L 42	PN 160	M 48 x 2	55	60	86.5	46.5	22	500	62.7	0 1 74 89 20 07
S 6	PN 630	M 12 x 1.5	17	17	43	27	12	50	4.3	0 1 74 90 20 07
S 8	PN 630	M 14 x 1.5	19	19	46.5	29.5	12	60	6.0	0 1 74 91 20 07
S 10	PN 630	M 16 x 1.5	22	22	49.5	32	12	80	8.6	0 1 74 92 20 07
S 12	PN 630	M 18 x 1.5	24	24	55.5	34	12	90	10.9	0 1 74 93 20 07
S 14	PN 630	M 20 x 1.5	27	27	58.5	36.5	14	130	14.6	0 1 74 94 20 07
S 16	PN 400	M 22 x 1.5	27	30	61.5	37	14	130	16.7	0 1 74 95 20 07
S 20	PN 400	M 27 x 2	32	36	69.5	43	16	200	25.4	0 1 74 96 20 07
S 25	PN 400	M 33 x 2	41	46	78	48	18	250	48.6	0 1 74 97 20 07
S 30	PN 400	M 42 x 2	50	50	86.5	51	20	500	66.2	0 1 74 98 20 07
S 38	PN 315	M 48 x 2	55	60	101	60	22	600	93.3	0 1 74 99 20 07

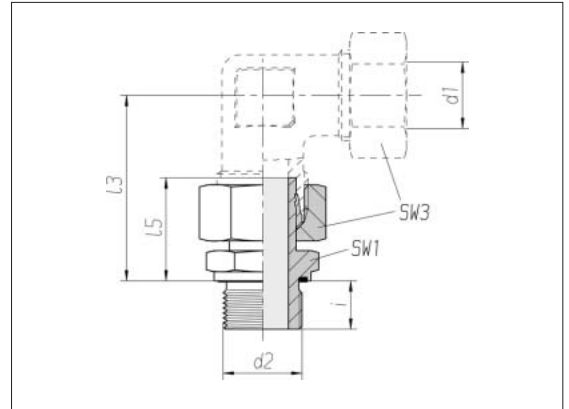
* Sample product code, see:
EVGE06LMED

Straight stud standpipe adapters

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal

Tube socket pre-assembled



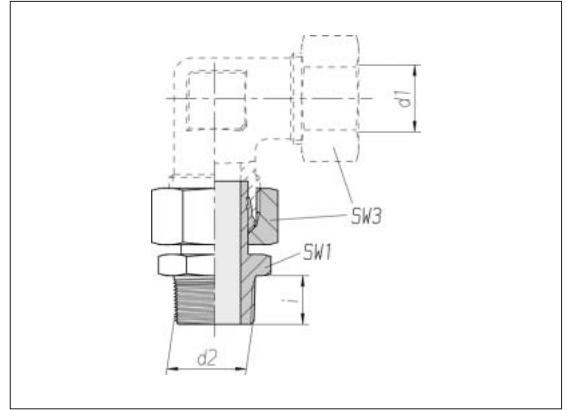
Series	Pressure	d2		SW1	SW3	l3	l5	i	Nm -10 %	kg/100 approx.	Order No.
L 6	PN 315	G 1/8 A		14	14	36.5	24.5	8	20	2.3	0 1 77 80 20 07*
L 8	PN 315	G 1/4 A		19	17	43.5	29.5	12	50	4.6	0 1 77 81 20 07
L 10	PN 315	G 1/4 A		19	19	42.5	27.5	12	50	5.0	0 1 77 82 20 07
L 12	PN 315	G 1/4 A		19	22	50.5	33.5	12	50	7.0	1 1 77 03 20 07
L 12	PN 315	G 3/8 A		22	22	51	34	12	80	8.0	0 1 77 83 20 07
L 12	PN 315	G 1/2 A		27	22	51.5	34.5	14	100	10.1	1 1 77 01 20 07
L 15	PN 315	G 1/2 A		27	27	53	32	14	100	11.7	0 1 77 84 20 07
L 18	PN 315	G 1/2 A		27	32	55	31.5	14	100	13.4	0 1 77 85 20 07
L 22	PN 160	G 1/2 A		27	36	60	32.5	14	100	15.4	0 1 77 74 20 07
L 22	PN 160	G 3/4 A		32	36	60	32.5	16	180	18.4	0 1 77 86 20 07
L 28	PN 160	G 1 A		41	41	65.5	35	18	230	26.8	0 1 77 87 20 07
L 35	PN 160	G 1 1/4 A		50	50	77	42.5	20	330	43.9	0 1 77 88 20 07
L 42	PN 160	G 1 1/2 A		55	60	86.5	46.5	22	500	62.3	0 1 77 89 20 07
S 6	PN 630	G 1/4 A		19	17	43	27	12	60	4.9	0 1 77 90 20 07
S 8	PN 630	G 1/4 A		19	19	46.5	29.5	12	60	5.8	0 1 77 91 20 07
S 10	PN 630	G 3/8 A		22	22	49.5	32	12	90	8.7	0 1 77 92 20 07
S 12	PN 630	G 3/8 A		22	24	55.5	34	12	90	9.9	0 1 77 93 20 07
S 12	PN 630	G 1/2 A		27	24	56	34.5	14	150	12.8	0 1 77 79 20 07
S 14	PN 630	G 1/2 A		27	27	58.5	36.5	14	150	15.4	0 1 77 94 20 07
S 16	PN 400	G 1/2 A		27	30	61.5	37	14	150	16.2	0 1 77 95 20 07
S 20	PN 400	G 3/4 A		32	36	69.5	43	16	200	25.5	0 1 77 96 20 07
S 25	PN 400	G 1 A		41	46	78	48	18	250	48.8	0 1 77 97 20 07
S 30	PN 400	G 1 1/4 A		50	50	86.5	51	20	500	66.7	0 1 77 98 20 07
S 38	PN 315	G 1 1/2 A		55	60	101	60	22	600	95.3	0 1 77 99 20 07

* Sample product code, see:
EVGE06LRED

Straight stud standpipe adapters

Thread:
NPT (ANSI/ASME B 1
-20.01/01/1983)

Tube socket pre-assembled



Series	Pressure	d2	SW1	SW3	l3 approx.	l5 approx.	i	Nm -10 %	kg/100 approx.	Order No.
L 6	PN 315	1/8 NPT	11	14	38.5	26.5	9.9	15	2.2	0 1 72 80 20 07*
L 8	PN 315	1/4 NPT	14	17	43.5	29.5	15.1	35	3.5	0 1 72 81 20 07
L 10	PN 315	1/4 NPT	14	19	45.5	30.5	15.1	35	4.2	0 1 72 82 20 07
L 12	PN 315	3/8 NPT	19	22	50	33	15.2	55	7.2	0 1 72 83 20 07
L 15	PN 315	1/2 NPT	22	27	56.5	35.5	19.8	110	11.0	0 1 72 84 20 07
L 18	PN 315	1/2 NPT	22	32	58.5	35	19.8	110	13.0	0 1 72 85 20 07
L 22	PN 160	3/4 NPT	27	36	63.5	36	20.1	175	18.2	0 1 72 86 20 07
L 28	PN 160	1 NPT	36	41	71	40.5	25	265	25.9	0 1 72 87 20 07
L 35	PN 160	1 1/4 NPT	46	50	83	48.5	25.6	315	42.8	0 1 72 88 20 07
L 42	PN 160	1 1/2 NPT	50	60	92.5	52.5	26	385	57.5	0 1 72 89 20 07
S 6	PN 630	1/4 NPT	14	17	46	30	15.1	35	4.3	0 1 72 90 20 07
S 8	PN 630	1/4 NPT	14	19	49.9	32.5	15.1	35	4.9	0 1 72 91 20 07
S 10	PN 630	3/8 NPT	19	22	52	34.5	15.2	55	8.0	0 1 72 92 20 07
S 12	PN 630	3/8 NPT	19	24	58	36.5	15.2	55	8.6	0 1 72 93 20 07
S 14	PN 630	1/2 NPT	22	27	62	40	19.8	110	13.8	0 1 72 94 20 07
S 16	PN 400	1/2 NPT	22	30	65	40.5	19.8	110	14.7	0 1 72 95 20 07
S 20	PN 400	3/4 NPT	27	36	73	46.5	20.1	175	23.9	0 1 72 96 20 07
S 25	PN 400	1 NPT	36	46	83.5	53.5	25	265	46.0	0 1 72 97 20 07
S 30	PN 400	1 1/4 NPT	46	50	92.5	57	25.6	315	65.2	0 1 72 98 20 07
S 38	PN 315	1 1/2 NPT	50	60	107	66	26	385	86.3	0 1 72 99 20 07

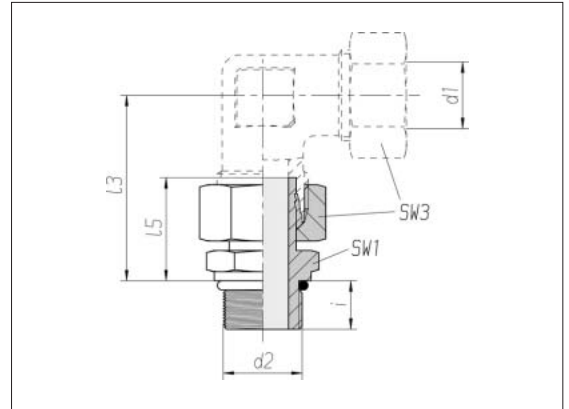
* Sample product code, see:
EVGE06L1/8NPT

Straight stud standpipe adapters

Thread:
UN/UNF
ISO 11926-2/3
SAE J 514

Sealed with O-ring

Tube socket pre-assembled

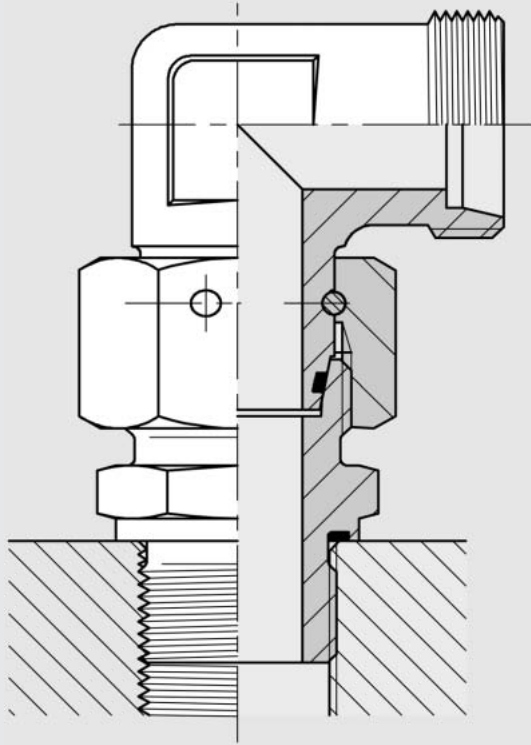


Series	Pressure	d2	SW1	SW3	l3	l5	i	Nm -10 %	kg/100 approx.	Order No.
L 8	PN 315	7/16-20 UNF-2A	17	17	41.5	27.5	9.2	18	3.7	0 1 73 01 20 07*
L 10	PN 315	9/16-18 UNF-2A	19	19	43	28	10.0	30	4.9	0 1 73 02 20 07
L 12	PN 315	3/ 4-16 UNF-2A	24	22	52.5	31.5	11.2	50	10.0	0 1 73 03 20 07
L 15	PN 315	3/ 4-16 UNF-2A	24	27	53.5	32.5	11.2	50	10.0	0 1 73 04 20 07
L 18	PN 315	3/ 4-16 UNF-2A	24	32	55.5	32	11.2	50	12.3	0 1 73 05 20 07
L 18	PN 315	7/ 8-14 UNF-2A	27	32	55.5	32	12.7	60	14.1	0 1 73 06 20 07
L 22	PN 160	7/ 8-14 UNF-2A	27	36	60	32.5	12.7	60	16.8	0 1 73 07 20 07
L 22	PN 160	1 1/16-12 UN -2A	36	36	60	32.5	15.0	95	21.4	0 1 73 08 20 07
L 28	PN 160	1 5/16-12 UN -2A	41	41	65.5	35	15.0	150	19.1	0 1 73 10 20 07
S 8	PN 630	7/16-20 UNF-2A	17	19	54	37	9.2	20	**	0 1 73 30 20 07
S 10	PN 630	9/16-18 UNF-2A	19	22	49.5	32	10.0	35	7.1	0 1 73 15 20 07
S 10	PN 630	3/ 4-16 UNF-2A	24	22	50	32.5	11.2	70	10.0	0 1 73 16 20 07
S 12	PN 630	7/16-20 UNF-2A	17	24	50.5	29	9.2	20	8.1	0 1 73 31 20 07
S 12	PN 630	3/ 4-16 UNF-2A	24	24	54	32.5	11.2	70	10.0	0 1 73 19 20 07
S 14	PN 630	3/ 4-16 UNF-2A	24	27	58.5	36.5	11.2	70	13.6	0 1 73 20 20 07
S 16	PN 400	3/ 4-16 UNF-2A	24	30	56.5	32	11.2	70	17.2	0 1 73 21 20 07
S 16	PN 400	7/ 8-14 UNF-2A	27	30	59.5	35	12.7	100	14.9	0 1 73 22 20 07
S 20	PN 400	7/ 8-14 UNF-2A	30	36	68.5	42	12.7	100	21.0	0 1 73 24 20 07
S 20	PN 400	1 1/16-12 UN -2A	36	36	68.5	42	15.0	170	28.7	0 1 73 25 20 07
S 20	PN 400	1 5/ 8-12 UN -2A	50	36	71.5	45	15.0	285	**	0 1 73 32 20 07
S 25	PN 400	1 1/16-12 UN -2A	32	46	78	48	15.0	170	**	0 1 73 33 20 07
S 25	PN 400	1 5/16-12 UN -2A	41	46	77	47	15.0	270	**	0 1 73 26 20 07
S 30	PN 400	1 5/ 8-12 UN -2A	50	50	86.5	51	15.0	285	**	0 1 73 34 20 07

* Sample product code, see:
EVGE08L7/16UNF

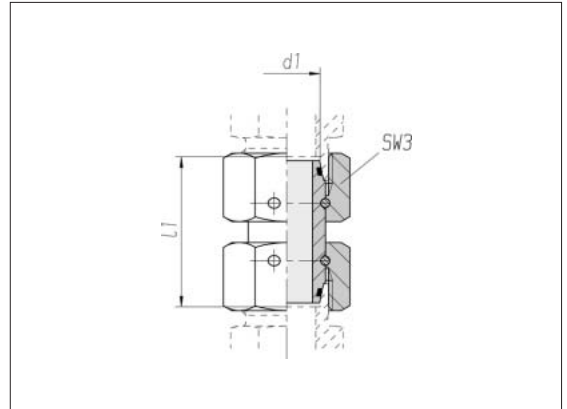
** On request

24° taper couplings



Straight couplings

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1



Series Tube OD d1	Pressure	SW3	l1	kg/100 approx.	Order No.
L 6	PN 500	14	39	3.1	1 1 78 00 20 58*
L 8	PN 500	17	39.5	4.6	1 1 78 01 20 58
L 10	PN 500	19	39.5	6.0	1 1 78 02 20 58
L 12	PN 400	22	39.5	7.9	1 1 78 03 20 58
L 15	PN 400	27	42.5	14.8	1 1 78 04 20 58
L 18	PN 400	32	45	18.8	1 1 78 05 20 58
L 22	PN 250	36	49.5	25.6	1 1 78 06 20 58
L 28	PN 250	41	51.5	31.7	1 1 78 07 20 58
L 35	PN 250	50	61	49.8	1 1 78 08 20 58
L 42	PN 250	60	62.5	78.1	1 1 78 09 20 58
S 6	PN 800	17	40.5	4.7	1 1 78 10 20 58
S 8	PN 800	19	40.5	6.1	1 1 78 11 20 58
S 10	PN 800	22	43.5	8.5	1 1 78 12 20 58
S 12	PN 630	24	44	10.4	1 1 78 13 20 58
S 14	PN 630	27	48.5	15.6	1 1 78 14 20 58
S 16	PN 630	30	49	18.6	1 1 78 15 20 58
S 20	PN 420	36	60.5	29.6	1 1 78 16 20 58
S 25	PN 420	46	67.5	56.9	1 1 78 17 20 58
S 30	PN 420	50	72.5	68.6	1 1 78 18 20 58
S 38	PN 420	60	83	99.6	1 1 78 19 20 58

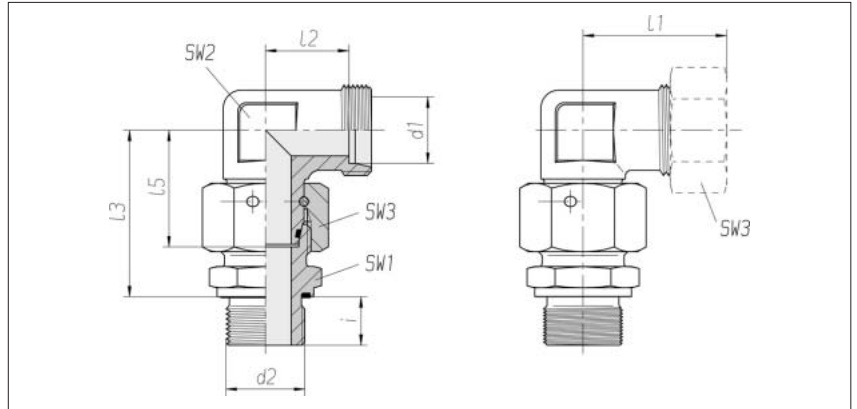
* Sample product code, see:
GZ06LVIT

Adjustable stud elbows

With taper and O-ring
Cutting ring connection
at tube end

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2	SW1	SW2	SW3	l1*	l2	l3	l5	i	kg/100	Order No.	Order No.
Tube OD						approx.					approx.	Single component	**
d1													
L 6	PN 500	M 10 x 1	14	12	14	27	12	34.5	26	8	5.5	1 1 58 01 20 00***	1 1 58 00 20 XX
L 8	PN 500	M 12 x 1.5	17	14	17	29	14	37.5	27.5	12	8.3	1 1 58 06 20 00	1 1 58 05 20 XX
L 10	PN 500	M 14 x 1.5	19	14	19	30	15	40	29	12	8.1	1 1 58 11 20 00	1 1 58 10 20 XX
L 12	PN 400	M 16 x 1.5	22	19	22	32	17	42	29.5	12	14.8	1 1 58 16 20 00	1 1 58 15 20 XX
L 15	PN 400	M 18 x 1.5	24	19	27	36	21	46	32.5	12	18.3	1 1 58 21 20 00	1 1 58 20 20 XX
L 18	PN 400	M 22 x 1.5	27	24	32	40	23.5	50	35.5	14	25.9	1 1 58 26 20 00	1 1 58 25 20 XX
L 22	PN 250	M 26 x 1.5	32	27	36	44	27.5	55	38.5	16	35.3	1 1 58 31 20 00	1 1 58 30 20 XX
L 28	PN 250	M 33 x 2	41	36	41	47	30.5	59	41.5	18	52.0	1 1 58 36 20 00	1 1 58 35 20 XX
L 35	PN 250	M 42 x 2	50	41	50	56	34.5	68.5	51	20	87.2	1 1 58 41 20 00	1 1 58 40 20 XX
L 42	PN 250	M 48 x 2	55	50	60	63	40	75	56	22	127.6	1 1 58 46 20 00	1 1 58 45 20 XX
S 6	PN 800	M 12 x 1.5	17	14	17	31	16	40	27	12	9.5	1 1 58 51 20 00	1 1 58 50 20 XX
S 8	PN 800	M 14 x 1.5	19	17	19	32	17	42.5	27.5	12	12.6	1 1 58 56 20 00	1 1 58 55 20 XX
S 10	PN 800	M 16 x 1.5	22	19	22	34	17.5	45	30	12	17.5	1 1 58 61 20 00	1 1 58 60 20 XX
S 12	PN 630	M 18 x 1.5	24	17	24	38	21.5	48	31	12	17.8	1 1 58 66 20 00	1 1 58 65 20 XX
S 14	PN 630	M 20 x 1.5	27	19	27	40	22	54	35	14	14.9	1 1 58 71 20 00	1 1 58 70 20 XX
S 16	PN 630	M 22 x 1.5	27	24	30	43	24.5	55	36.5	14	30.0	1 1 58 76 20 00	1 1 58 75 20 XX
S 20	PN 420	M 27 x 2	32	27	36	48	26.5	65	44.5	16	30.7	1 1 58 81 20 00	1 1 58 80 20 XX
S 25	PN 420	M 33 x 2	41	36	46	54	30	73	50	18	82.3	1 1 58 86 20 00	1 1 58 85 20 XX
S 30	PN 420	M 42 x 2	50	41	50	62	35.5	78.5	55	20	78.1	1 1 58 91 20 00	1 1 58 90 20 XX
S 38	PN 420	M 48 x 2	55	50	60	72	41	89	63	22	116.9	1 1 58 96 20 00	1 1 58 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

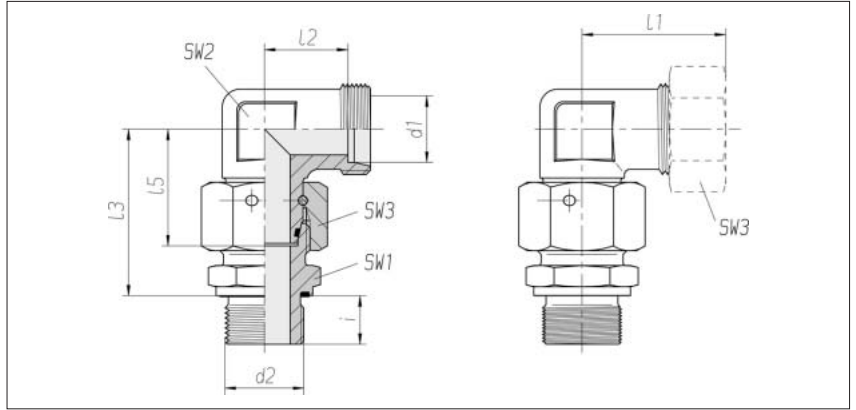
*** Sample product code, see: EW06LMEDOMD

Adjustable stud elbows

With taper and O-ring
Cutting ring connection
at tube end

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2		SW1	SW2	SW3	l1* approx.	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	G 1/8 A		14	12	14	27	12	34.5	26	8	5.5	1 1 59 01 20 00***	1 1 59 00 20 XX
L 8	PN 500	G 1/4 A		19	14	17	29	14	37.5	27.5	12	8.8	1 1 59 06 20 00	1 1 59 05 20 XX
L 10	PN 500	G 1/4 A		19	14	19	30	15	40	29	12	8.3	1 1 59 11 20 00	1 1 59 10 20 XX
L 12	PN 400	G 3/8 A		22	19	22	32	17	42	29.5	12	15.1	1 1 59 16 20 00	1 1 59 15 20 XX
L 15	PN 400	G 1/2 A		27	19	27	36	21	46.5	32.5	14	19.9	1 1 59 21 20 00	1 1 59 20 20 XX
L 18	PN 400	G 1/2 A		27	24	32	40	23.5	50	35.5	14	25.8	1 1 59 26 20 00	1 1 59 25 20 XX
L 22	PN 250	G 3/4 A		32	27	36	44	27.5	55	38.5	16	35.4	1 1 59 31 20 00	1 1 59 30 20 XX
L 28	PN 250	G 1 A		41	36	41	47	30.5	59	41.5	18	51.2	1 1 59 36 20 00	1 1 59 35 20 XX
L 35	PN 250	G 1 1/4 A		50	41	50	56	34.5	68.5	51	20	87.6	1 1 59 41 20 00	1 1 59 40 20 XX
L 42	PN 250	G 1 1/2 A		55	50	60	63	40	75	56	22	127.5	1 1 59 46 20 00	1 1 59 45 20 XX
S 6	PN 800	G 1/4 A		19	14	17	31	16	40	27	12	9.7	1 1 59 51 20 00	1 1 59 50 20 XX
S 8	PN 800	G 1/4 A		19	17	19	32	17	42.5	27.5	12	12.5	1 1 59 56 20 00	1 1 59 55 20 XX
S 10	PN 800	G 3/8 A		22	19	22	34	17.5	45	30	12	11.9	1 1 59 61 20 00	1 1 59 60 20 XX
S 12	PN 630	G 3/8 A		22	17	24	38	21.5	48	31	12	17.0	1 1 59 66 20 00	1 1 59 65 20 XX
S 14	PN 630	G 1/2 A		27	19	27	40	22	54	35	14	14.9	1 1 59 71 20 00	1 1 59 70 20 XX
S 16	PN 630	G 1/2 A		27	24	30	43	22	55	36.5	14	29.0	1 1 59 76 20 00	1 1 59 75 20 XX
S 20	PN 420	G 3/4 A		32	27	36	48	26.5	65	44.5	16	45.0	1 1 59 81 20 00	1 1 59 80 20 XX
S 25	PN 420	G 1 A		41	36	46	54	30	73	50	18	83.8	1 1 59 86 20 00	1 1 59 85 20 XX
S 30	PN 420	G 1 1/4 A		50	41	50	62	35.5	78.5	55	20	118.4	1 1 59 91 20 00	1 1 59 90 20 XX
S 38	PN 420	G 1 1/2 A		55	50	60	72	41	89	63	22	173.8	1 1 59 96 20 00	1 1 59 95 20 XX

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

Supplementary to Order No. for complete fitting	
tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

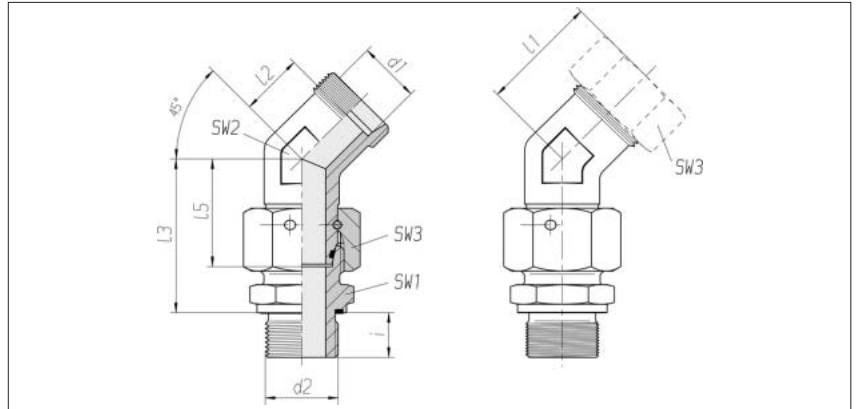
*** Sample product code, see:
EW06LREDOMD

Adjustable 45° stud elbows

With taper and O-ring
Cutting ring connection
at tube end

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2	SW1	SW2	SW3	l1* approx.	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 315	M 10 x 1	14	19	14	29	14	34.5	26	8	***	1 1 70 01 20 00****	1 1 70 00 20 XX
L 8	PN 315	M 12 x 1.5	17	19	17	30	15	37.5	27.5	12	***	1 1 70 06 20 00	1 1 70 05 20 XX
L 10	PN 315	M 14 x 1.5	19	19	19	31	16	40	29	12	***	1 1 70 11 20 00	1 1 70 10 20 XX
L 12	PN 315	M 16 x 1.5	22	19	22	32	17	42	29.5	12	***	1 1 70 16 20 00	1 1 70 15 20 XX
L 15	PN 315	M 18 x 1.5	24	19	27	32	17	46	32.5	12	***	1 1 70 21 20 00	1 1 70 20 20 XX
L 18	PN 315	M 22 x 1.5	27	24	32	35.5	19	50	35.5	14	***	1 1 70 26 20 00	1 1 70 25 20 XX
L 22	PN 160	M 26 x 1.5	32	27	36	39	22.5	55	38.5	16	***	1 1 70 31 20 00	1 1 70 30 20 XX
L 28	PN 160	M 33 x 2	41	36	41	41	24.5	59	41.5	18	***	1 1 70 36 20 00	1 1 70 35 20 XX
L 35	PN 160	M 42 x 2	50	41	50	48.5	27	68.5	51	20	***	1 1 70 41 20 00	1 1 70 40 20 XX
L 42	PN 160	M 48 x 2	55	50	60	49	26	75	56	22	***	1 1 70 46 20 00	1 1 70 45 20 XX
S 6	PN 630	M 12 x 1.5	17	19	17	31	16	40	27	12	***	1 1 70 51 20 00	1 1 70 50 20 XX
S 8	PN 630	M 14 x 1.5	19	19	19	31	16	42.5	27.5	12	***	1 1 70 56 20 00	1 1 70 55 20 XX
S 10	PN 630	M 16 x 1.5	22	19	22	33	16.5	45	30	12	***	1 1 70 61 20 00	1 1 70 60 20 XX
S 12	PN 630	M 18 x 1.5	24	19	24	33.5	17	48	31	12	***	1 1 70 66 20 00	1 1 70 65 20 XX
S 14	PN 630	M 20 x 1.5	27	19	27	35	17	54	35	14	***	1 1 70 71 20 00	1 1 70 70 20 XX
S 16	PN 400	M 22 x 1.5	27	24	30	37.5	19	55	36.5	14	***	1 1 70 76 20 00	1 1 70 75 20 XX
S 20	PN 400	M 27 x 2	32	27	36	43	21.5	65	44.5	16	***	1 1 70 81 20 00	1 1 70 80 20 XX
S 25	PN 400	M 33 x 2	41	36	46	47	23	73	50	18	***	1 1 70 86 20 00	1 1 70 85 20 XX
S 30	PN 400	M 42 x 2	50	41	50	50.5	24	78.5	55	20	***	1 1 70 91 20 00	1 1 70 90 20 XX
S 38	PN 315	M 48 x 2	55	50	60	52	21	89	63	22	***	1 1 70 96 20 00	1 1 70 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page..

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** On request

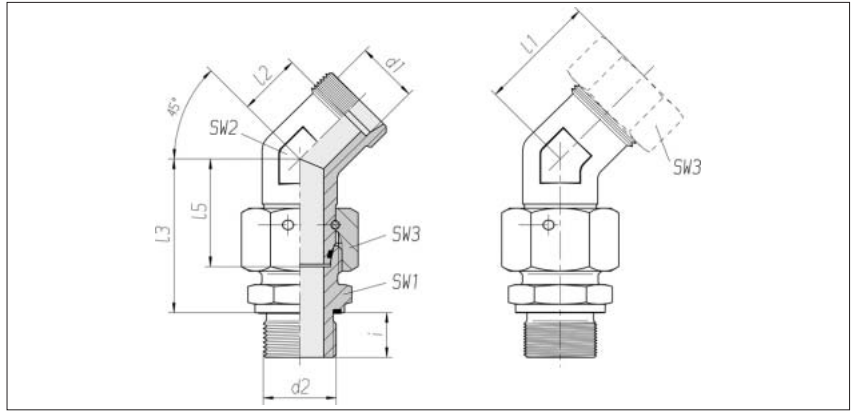
**** Sample product code, see: EV06LMEDOMD

Adjustable 45° stud elbows

With taper and O-ring
Cutting ring connection
at tube end

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2		SW1	SW2	SW3	l1*	l2	l3	l5	i	kg/100	Order No.	Order No.
Tube OD							approx.					approx.	Single component	**
d1														
L 6	PN 315	G 1/8 A	14	19	14	29	14	34.5	26	8	***	1 1 72 01 20 00****	1 1 72 00 20 XX	
L 8	PN 315	G 1/4 A	17	19	17	30	15	37.5	27.5	12	***	1 1 72 06 20 00	1 1 72 05 20 XX	
L 10	PN 315	G 1/4 A	19	19	19	31	16	40	29	12	***	1 1 72 11 20 00	1 1 72 10 20 XX	
L 12	PN 315	G 3/8 A	22	19	22	32	17	42	29.5	12	***	1 1 72 16 20 00	1 1 72 15 20 XX	
L 15	PN 315	G 1/2 A	24	19	27	32	17	46	32.5	14	***	1 1 72 21 20 00	1 1 72 20 20 XX	
L 18	PN 315	G 1/2 A	27	24	32	35.5	19	50	35.5	14	***	1 1 72 26 20 00	1 1 72 25 20 XX	
L 22	PN 160	G 3/4 A	32	27	36	39	22.5	55	38.5	16	***	1 1 72 31 20 00	1 1 72 30 20 XX	
L 28	PN 160	G 1 A	41	36	41	41	24.5	59	41.5	18	***	1 1 72 36 20 00	1 1 72 35 20 XX	
L 35	PN 160	G 1 1/4 A	50	41	50	48.5	27	68.5	51	20	***	1 1 72 41 20 00	1 1 72 40 20 XX	
L 42	PN 160	G 1 1/2 A	55	50	60	49	26	75	56	22	***	1 1 72 46 20 00	1 1 72 45 20 XX	
S 6	PN 630	G 1/4 A	17	19	17	31	16	40	27	12	***	1 1 72 51 20 00	1 1 72 50 20 XX	
S 8	PN 630	G 1/4 A	19	19	19	31	16	42.5	27.5	12	***	1 1 72 56 20 00	1 1 72 55 20 XX	
S 10	PN 630	G 3/8 A	22	19	22	33	16.5	45	30	12	***	1 1 72 61 20 00	1 1 72 60 20 XX	
S 12	PN 630	G 3/8 A	24	19	24	33.5	17	48	31	12	***	1 1 72 66 20 00	1 1 72 65 20 XX	
S 14	PN 630	G 1/2 A	27	19	27	35	17	54	35	14	***	1 1 72 71 20 00	1 1 72 70 20 XX	
S 16	PN 400	G 1/2 A	27	24	30	37.5	19	55	36.5	14	***	1 1 72 76 20 00	1 1 72 75 20 XX	
S 20	PN 400	G 3/4 A	32	27	36	43	21.5	65	44.5	16	***	1 1 72 81 20 00	1 1 72 80 20 XX	
S 25	PN 400	G 1 A	41	36	46	47	23	73	50	18	***	1 1 72 86 20 00	1 1 72 85 20 XX	
S 30	PN 400	G 1 1/4 A	50	41	50	50.5	24	78.5	55	20	***	1 1 72 91 20 00	1 1 72 90 20 XX	
S 38	PN 315	G 1 1/2 A	55	50	60	52	21	89	63	22	***	1 1 72 96 20 00	1 1 72 95 20 XX	

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

*** On request

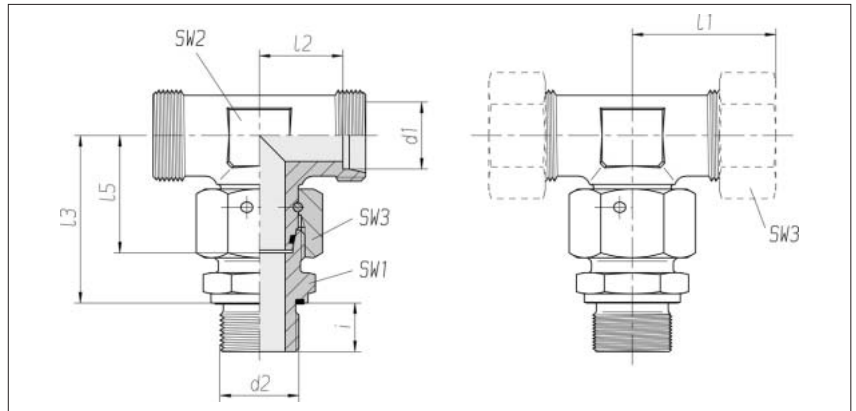
**** Sample product code, see:
EV06LREDOMD

Adjustable stud branch tees

With taper and O-ring
Cutting ring connection
at tube end

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2	SW1	SW2	SW3	l1*	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. **
Tube OD						approx.							
d1													
L 6	PN 500	M 10 x 1	14	12	14	27	12	34.5	26	8	4.9	1 1 60 01 20 00***	1 1 60 00 20 XX
L 8	PN 500	M 12 x 1.5	17	14	17	29	14	37.5	27.5	12	9.4	1 1 60 06 20 00	1 1 60 05 20 XX
L 10	PN 500	M 14 x 1.5	19	17	19	30	15	40	29	12	12.5	1 1 60 11 20 00	1 1 60 10 20 XX
L 12	PN 400	M 16 x 1.5	22	19	22	32	17	42	29.5	12	16.3	1 1 60 16 20 00	1 1 60 15 20 XX
L 15	PN 400	M 18 x 1.5	24	19	27	36	21	46	32.5	12	20.5	1 1 60 21 20 00	1 1 60 20 20 XX
L 18	PN 400	M 22 x 1.5	27	24	32	40	23.5	50	35.5	14	28.5	1 1 60 26 20 00	1 1 60 25 20 XX
L 22	PN 250	M 26 x 1.5	32	27	36	44	27.5	55	38.5	16	38.8	1 1 60 31 20 00	1 1 60 30 20 XX
L 28	PN 250	M 33 x 2	41	36	41	47	30.5	59	41.5	18	56.8	1 1 60 36 20 00	1 1 60 35 20 XX
L 35	PN 250	M 42 x 2	50	41	50	56	34.5	68.5	51	20	68.6	1 1 60 41 20 00	1 1 60 40 20 XX
L 42	PN 250	M 48 x 2	55	50	60	63	40	75	56	22	105.8	1 1 60 46 20 00	1 1 60 45 20 XX
S 6	PN 800	M 12 x 1.5	17	14	17	31	16	40	27	12	8.1	1 1 60 51 20 00	1 1 60 50 20 XX
S 8	PN 800	M 14 x 1.5	19	17	19	32	17	42.5	27.5	12	10.4	1 1 60 56 20 00	1 1 60 55 20 XX
S 10	PN 800	M 16 x 1.5	22	19	22	34	17.5	45	30	12	15.3	1 1 60 61 20 00	1 1 60 60 20 XX
S 12	PN 630	M 18 x 1.5	24	17	24	38	21.5	48	31	12	13.4	1 1 60 66 20 00	1 1 60 65 20 XX
S 14	PN 630	M 20 x 1.5	27	19	27	40	22	54	35	14	27.5	1 1 60 71 20 00	1 1 60 70 20 XX
S 16	PN 630	M 22 x 1.5	27	24	30	43	24.5	55	36.5	14	33.0	1 1 60 76 20 00	1 1 60 75 20 XX
S 20	PN 420	M 27 x 2	32	27	36	48	26.5	65	44.5	16	36.4	1 1 60 81 20 00	1 1 60 80 20 XX
S 25	PN 420	M 33 x 2	41	36	46	54	30	73	50	18	92.9	1 1 60 86 20 00	1 1 60 85 20 XX
S 30	PN 420	M 42 x 2	50	41	50	62	35.5	78.5	55	20	91.1	1 1 60 91 20 00	1 1 60 90 20 XX
S 38	PN 420	M 48 x 2	55	50	60	72	41	89	63	22	141.4	1 1 60 96 20 00	1 1 60 95 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

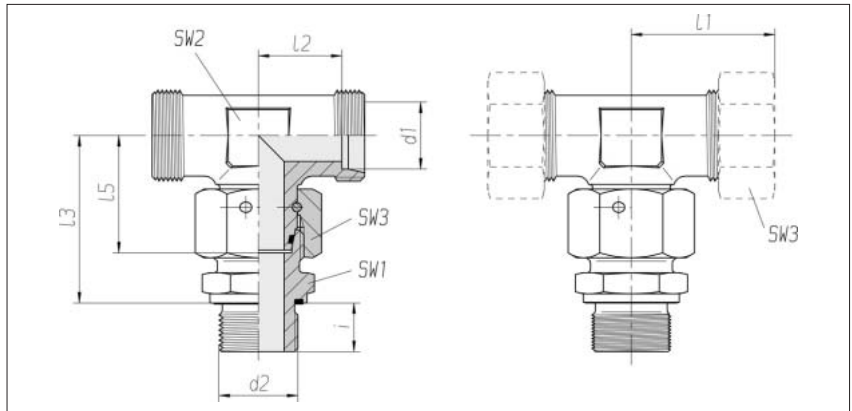
*** Sample product code, see: ET06LMEDOMD

Adjustable stud branch tees

With taper and O-ring
Cutting ring connection
at tube end

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2		SW1	SW2	SW3	l1* approx.	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	G 1/8 A		14	12	14	27	12	34.5	26	8	6.2	1 1 61 01 20 00***	1 1 61 00 20 XX
L 8	PN 500	G 1/4 A		19	14	17	29	14	37.5	27.5	12	7.2	1 1 61 06 20 00	1 1 61 05 20 XX
L 10	PN 500	G 1/4 A		19	17	19	30	15	40	29	12	12.2	1 1 61 11 20 00	1 1 61 10 20 XX
L 12	PN 400	G 3/8 A		22	19	22	32	17	42	29.5	12	16.5	1 1 61 16 20 00	1 1 61 15 20 XX
L 15	PN 400	G 1/2 A		27	19	27	36	21	46.5	32.5	14	15.4	1 1 61 21 20 00	1 1 61 20 20 XX
L 18	PN 400	G 1/2 A		27	24	32	40	23.5	50	35.5	14	28.0	1 1 61 26 20 00	1 1 61 25 20 XX
L 22	PN 250	G 3/4 A		32	27	36	44	27.5	55	38.5	16	38.4	1 1 61 31 20 00	1 1 61 30 20 XX
L 28	PN 250	G 1 A		41	36	41	47	30.5	59	41.5	18	57.0	1 1 61 36 20 00	1 1 61 35 20 XX
L 35	PN 250	G 1 1/4 A		50	41	50	56	34.5	68.5	51	20	96.7	1 1 61 41 20 00	1 1 61 40 20 XX
L 42	PN 250	G 1 1/2 A		55	50	60	63	40	75	56	22	140.2	1 1 61 46 20 00	1 1 61 45 20 XX
S 6	PN 800	G 1/4 A		19	14	17	31	16	40	27	12	8.0	1 1 61 51 20 00	1 1 61 50 20 XX
S 8	PN 800	G 1/4 A		19	17	19	32	17	42.5	27.5	12	14.7	1 1 61 56 20 00	1 1 61 55 20 XX
S 10	PN 800	G 3/8 A		22	19	22	34	17.5	45	30	12	15.4	1 1 61 61 20 00	1 1 61 60 20 XX
S 12	PN 630	G 3/8 A		22	17	24	38	21.5	48	31	12	27.2	1 1 61 66 20 00	1 1 61 65 20 XX
S 14	PN 630	G 1/2 A		27	19	27	40	22	54	35	14	28.0	1 1 61 71 20 00	1 1 61 70 20 XX
S 16	PN 630	G 1/2 A		27	24	30	43	24.5	55	36.5	14	33.5	1 1 61 76 20 00	1 1 61 75 20 XX
S 20	PN 420	G 3/4 A		32	27	36	48	26.5	65	44.5	16	50.7	1 1 61 81 20 00	1 1 61 80 20 XX
S 25	PN 420	G 1 A		41	36	46	54	30	73	50	18	93.0	1 1 61 86 20 00	1 1 61 85 20 XX
S 30	PN 420	G 1 1/4 A		50	41	50	62	35.5	78.5	55	20	132.6	1 1 61 91 20 00	1 1 61 90 20 XX
S 38	PN 420	G 1 1/2 A		55	50	60	72	41	89	63	22	141.4	1 1 61 96 20 00	1 1 61 95 20 XX

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

Supplementary to Order No. for complete fitting
tube connection Supplementary to Order No.

2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

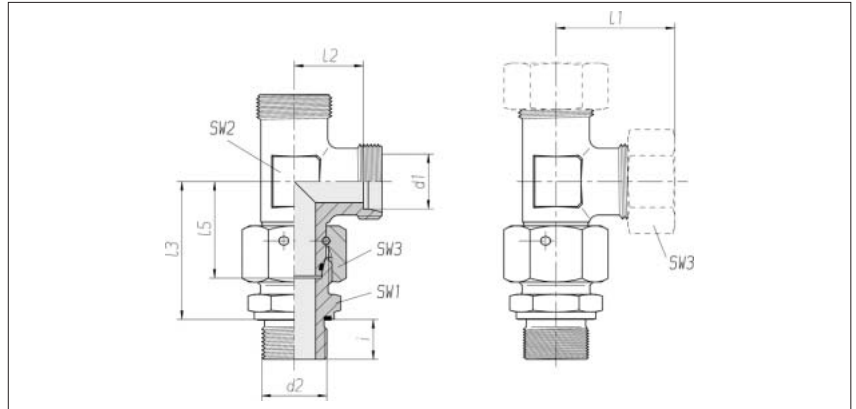
*** Sample product code, see:
ET06LREDOMD

Adjustable stud barrel tees

With taper and O-ring
Cutting ring connection at
tube end

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2	SW1	SW2	SW3	l1* approx.	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	M 10 x 1	14	12	14	27	12	34.5	26	8	6.2	1 1 62 01 20 00***	1 1 62 00 20 XX
L 8	PN 500	M 12 x 1.5	17	14	17	29	14	37.5	27.5	12	9.3	1 1 62 06 20 00	1 1 62 05 20 XX
L 10	PN 500	M 14 x 1.5	19	17	19	30	15	40	29	12	12.3	1 1 62 11 20 00	1 1 62 10 20 XX
L 12	PN 400	M 16 x 1.5	22	19	22	32	17	42	29.5	12	16.3	1 1 62 16 20 00	1 1 62 15 20 XX
L 15	PN 400	M 18 x 1.5	24	19	27	36	21	46	32.5	12	20.5	1 1 62 21 20 00	1 1 62 20 20 XX
L 18	PN 400	M 22 x 1.5	27	24	32	40	23.5	50	35.5	14	28.0	1 1 62 26 20 00	1 1 62 25 20 XX
L 22	PN 250	M 26 x 1.5	32	27	36	44	27.5	55	38.5	16	39.0	1 1 62 31 20 00	1 1 62 30 20 XX
L 28	PN 250	M 33 x 2	41	36	41	47	30.5	59	41.5	18	56.5	1 1 62 36 20 00	1 1 62 35 20 XX
L 35	PN 250	M 42 x 2	50	41	50	56	34.5	68.5	51	20	68.4	1 1 62 41 20 00	1 1 62 40 20 XX
L 42	PN 250	M 48 x 2	55	50	60	63	40	75	56	22	140.4	1 1 62 46 20 00	1 1 62 45 20 XX
S 6	PN 800	M 12 x 1.5	19	14	17	31	16	40	27	12	7.9	1 1 62 51 20 00	1 1 62 50 20 XX
S 8	PN 800	M 14 x 1.5	19	17	19	32	17	42.5	27.5	12	14.6	1 1 62 56 20 00	1 1 62 55 20 XX
S 10	PN 800	M 16 x 1.5	22	19	22	34	17.5	45	30	12	14.5	1 1 62 61 20 00	1 1 62 60 20 XX
S 12	PN 630	M 18 x 1.5	24	17	24	38	21.5	48	31	12	13.7	1 1 62 66 20 00	1 1 62 65 20 XX
S 14	PN 630	M 20 x 1.5	27	19	27	40	22	54	35	14	17.9	1 1 62 71 20 00	1 1 62 70 20 XX
S 16	PN 630	M 22 x 1.5	27	24	30	43	24.5	55	36.5	14	33.2	1 1 62 76 20 00	1 1 62 75 20 XX
S 20	PN 420	M 27 x 2	32	27	36	48	26.5	65	44.5	16	50.6	1 1 62 81 20 00	1 1 62 80 20 XX
S 25	PN 420	M 33 x 2	41	36	46	54	30	73	50	18	26.3	1 1 62 86 20 00	1 1 62 85 20 XX
S 30	PN 420	M 42 x 2	50	41	50	62	35.5	78.5	55	20	92.3	1 1 62 91 20 00	1 1 62 90 20 XX
S 38	PN 420	M 48 x 2	55	50	60	72	41	89	63	22	139.9	1 1 62 96 20 00	1 1 62 95 20 XX

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

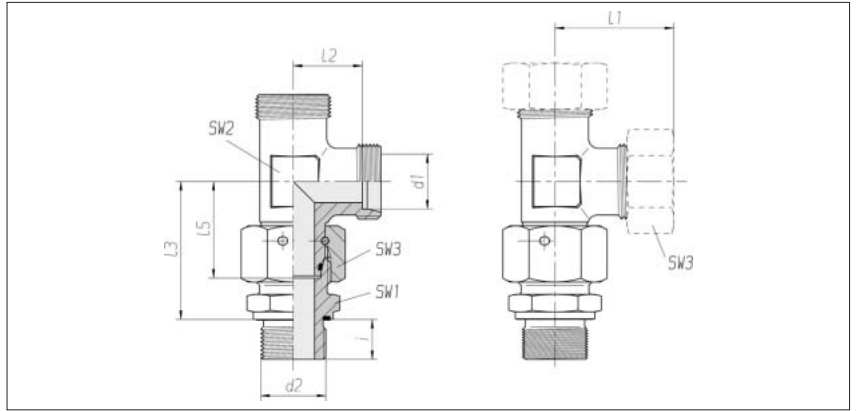
*** Sample product code, see:
EL06LMEDOMD

Adjustable stud barrel tees

With taper and O-ring
Cutting ring connection
at tube end

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2		SW1	SW2	SW3	l1* approx.	l2	l3	l5	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 500	G 1/8 A		14	12	14	27	12	34.5	26	8	6.1	1 1 63 01 20 00***	1 1 63 00 20 XX
L 8	PN 500	G 1/4 A		19	14	17	29	14	37.5	27.5	12	9.8	1 1 63 06 20 00	1 1 63 05 20 XX
L 10	PN 500	G 1/4 A		19	17	19	30	15	40	29	12	12.4	1 1 63 11 20 00	1 1 63 10 20 XX
L 12	PN 400	G 3/8 A		22	19	22	32	17	42	29.5	12	16.5	1 1 63 16 20 00	1 1 63 15 20 XX
L 15	PN 400	G 1/2 A		27	19	27	36	21	46.5	32.5	14	22.7	1 1 63 21 20 00	1 1 63 20 20 XX
L 18	PN 400	G 1/2 A		27	24	32	40	23.5	50	35.5	14	27.8	1 1 63 26 20 00	1 1 63 25 20 XX
L 22	PN 250	G 3/4 A		32	27	36	44	27.5	55	38.5	16	38.0	1 1 63 31 20 00	1 1 63 30 20 XX
L 28	PN 250	G 1 A		41	36	41	47	30.5	59	41.5	18	56.4	1 1 63 36 20 00	1 1 63 35 20 XX
L 35	PN 250	G 1 1/4 A		50	41	50	56	34.5	68.5	51	20	68.4	1 1 63 41 20 00	1 1 63 40 20 XX
L 42	PN 250	G 1 1/2 A		55	50	60	63	40	75	56	22	140.0	1 1 63 46 20 00	1 1 63 45 20 XX
S 6	PN 800	G 1/4 A		19	14	17	31	16	40	27	12	7.9	1 1 63 51 20 00	1 1 63 50 20 XX
S 8	PN 800	G 1/4 A		19	17	19	32	17	42.5	27.5	12	14.5	1 1 63 56 20 00	1 1 63 55 20 XX
S 10	PN 800	G 3/8 A		22	19	22	34	17.5	45	30	12	17.8	1 1 63 61 20 00	1 1 63 60 20 XX
S 12	PN 630	G 3/8 A		22	17	24	38	21.5	48	31	12	19.6	1 1 63 66 20 00	1 1 63 65 20 XX
S 14	PN 630	G 1/2 A		27	19	27	40	22	54	35	14	17.9	1 1 63 71 20 00	1 1 63 70 20 XX
S 16	PN 630	G 1/2 A		27	24	30	43	24.5	55	36.5	14	31.8	1 1 63 76 20 00	1 1 63 75 20 XX
S 20	PN 420	G 3/4 A		32	27	36	48	26.5	65	44.5	16	35.9	1 1 63 81 20 00	1 1 63 80 20 XX
S 25	PN 420	G 1 A		41	36	46	54	30	73	50	18	63.8	1 1 63 86 20 00	1 1 63 85 20 XX
S 30	PN 420	G 1 1/4 A		50	41	50	62	35.5	78.5	55	20	134.3	1 1 63 91 20 00	1 1 63 90 20 XX
S 38	PN 420	G 1 1/2 A		55	50	60	72	41	89	63	22	139.9	1 1 63 96 20 00	1 1 63 95 20 XX

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

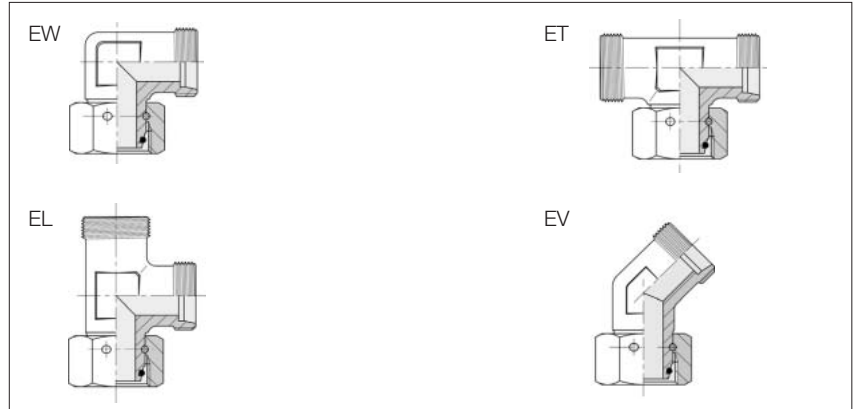
** With union nut and 2S, ES-4
or BV-10 tube connection
components

*** Sample product code, see:
EL06LREDOMD

Adjustable stud couplings

With taper and O-ring

Component parts



Series	Pressure	kg/100	Order No.	kg/100	Order No.	kg/100	Order No.	Pressure	kg/100	Order No.
Tube OD		approx.	EW	approx.	ET	approx.	EL		approx.	EV
d1										
L 6	PN 500	4.1	1 1 58 03 20 58*	4.9	1 1 60 03 20 58*	4.8	1 1 62 03 20 58*	PN 315	6.9	1 1 70 03 20 58*
L 8	PN 500	6.2	1 1 58 08 20 58	6.9	1 1 60 08 20 58	7.0	1 1 62 08 20 58	PN 315	7.0	1 1 70 08 20 58
L 10	PN 500	5.3	1 1 58 13 20 58	9.2	1 1 60 13 20 58	9.6	1 1 62 13 20 58	PN 315	7.8	1 1 70 13 20 58
L 12	PN 400	10.1	1 1 58 18 20 58	12.0	1 1 60 18 20 58	12.0	1 1 62 18 20 58	PN 315	8.6	1 1 70 18 20 58
L 15	PN 400	12.9	1 1 58 23 20 58	15.4	1 1 60 23 20 58	15.4	1 1 62 23 20 58	PN 315	12.6	1 1 70 23 20 58
L 18	PN 400	18.6	1 1 58 28 20 58	21.5	1 1 60 28 20 58	21.3	1 1 62 28 20 58	PN 315	17.8	1 1 70 28 20 58
L 22	PN 250	25.3	1 1 58 33 20 58	27.7	1 1 60 33 20 58	28.1	1 1 62 33 20 58	PN 160	23.6	1 1 70 33 20 58
L 28	PN 250	34.2	1 1 58 38 20 58	39.7	1 1 60 38 20 58	39.2	1 1 62 38 20 58	PN 160	33.6	1 1 70 38 20 58
L 35	PN 250	57.4	1 1 58 43 20 58	68.0	1 1 60 43 20 58	67.7	1 1 62 43 20 58	PN 160	54.6	1 1 70 43 20 58
L 42	PN 250	103.0	1 1 58 48 20 58	113.8	1 1 60 48 20 58	112.4	1 1 62 48 20 58	PN 160	83.6	1 1 70 48 20 58
S 6	PN 800	6.2	1 1 58 53 20 58	7.7	1 1 60 53 20 58	7.8	1 1 62 53 20 58	PN 630	7.3	1 1 70 53 20 58
S 8	PN 800	8.5	1 1 58 58 20 58	10.5	1 1 60 58 20 58	10.2	1 1 62 58 20 58	PN 630	8.2	1 1 70 58 20 58
S 10	PN 800	12.2	1 1 58 63 20 58	14.0	1 1 60 63 20 58	14.0	1 1 62 63 20 58	PN 630	9.5	1 1 70 63 20 58
S 12	PN 630	10.8	1 1 58 68 20 58	13.5	1 1 60 68 20 58	13.3	1 1 62 68 20 58	PN 630	11.2	1 1 70 68 20 58
S 14	PN 630	14.9	1 1 58 73 20 58	18.1	1 1 60 73 20 58	18.0	1 1 62 73 20 58	PN 630	13.6	1 1 70 73 20 58
S 16	PN 630	20.1	1 1 58 78 20 58	24.6	1 1 60 78 20 58	22.6	1 1 62 78 20 58	PN 400	18.8	1 1 70 78 20 58
S 20	PN 420	30.5	1 1 58 83 20 58	35.6	1 1 60 83 20 58	35.3	1 1 62 83 20 58	PN 400	28.6	1 1 70 83 20 58
S 25	PN 420	55.4	1 1 58 88 20 58	63.7	1 1 60 88 20 58	62.8	1 1 62 88 20 58	PN 400	52.3	1 1 70 88 20 58
S 30	PN 420	77.9	1 1 58 93 20 58	91.6	1 1 60 93 20 58	91.7	1 1 62 93 20 58	PN 400	69.7	1 1 70 93 20 58
S 38	PN 420	118.6	1 1 58 98 20 58	147.8	1 1 60 98 20 58	149.3	1 1 62 98 20 58	PN 315	106.8	1 1 70 98 20 58

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

* Sample product code, see:
EW06LVITOMD
ISO 8434-1-SWOE-L6-St

ET06LVITOMD
ISO 8434-1-SWOBT-L6-St

EL06LVITOMD
ISO 8434-1-SWORT-L6-St

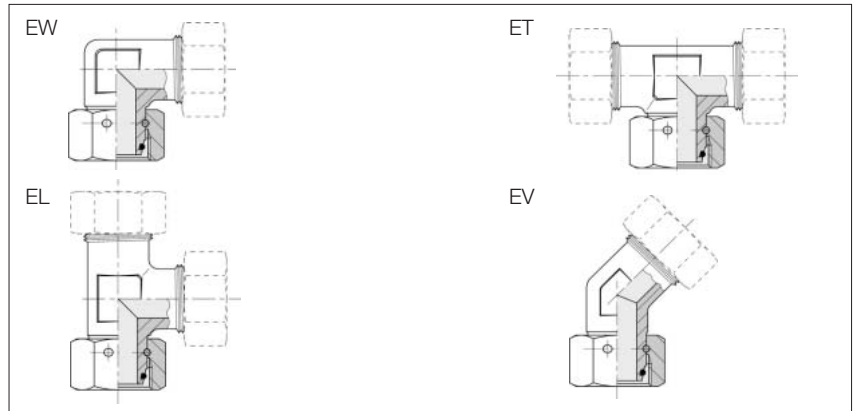
EV06LVITOMD
ISO 8434-1-SWOE45-L6-St

Adjustable stud couplings

With taper and O-ring

Cutting ring connection at tube end

Component parts



Series Tube OD d1	Pressure	kg/100 approx.	Order No. EW*	kg/100 approx.	Order No. ET*	kg/100 approx.	Order No. EL*	Pressure	kg/100 approx.	Order No. EV*
L 6	PN 500	**	1 1 58 02 20 XX	**	1 1 60 02 20 XX	**	1 1 62 02 20 XX	PN 315	**	1 1 70 02 20 XX
L 8	PN 500	**	1 1 58 07 20 XX	**	1 1 60 07 20 XX	**	1 1 62 07 20 XX	PN 315	**	1 1 70 07 20 XX
L 10	PN 500	**	1 1 58 12 20 XX	**	1 1 60 12 20 XX	**	1 1 62 12 20 XX	PN 315	**	1 1 70 12 20 XX
L 12	PN 400	**	1 1 58 17 20 XX	**	1 1 60 17 20 XX	**	1 1 62 17 20 XX	PN 315	**	1 1 70 17 20 XX
L 15	PN 400	**	1 1 58 22 20 XX	**	1 1 60 22 20 XX	**	1 1 62 22 20 XX	PN 315	**	1 1 70 22 20 XX
L 18	PN 400	**	1 1 58 27 20 XX	**	1 1 60 27 20 XX	**	1 1 62 27 20 XX	PN 315	**	1 1 70 27 20 XX
L 22	PN 250	**	1 1 58 32 20 XX	**	1 1 60 32 20 XX	**	1 1 62 32 20 XX	PN 160	**	1 1 70 32 20 XX
L 28	PN 250	**	1 1 58 37 20 XX	**	1 1 60 37 20 XX	**	1 1 62 37 20 XX	PN 160	**	1 1 70 37 20 XX
L 35	PN 250	**	1 1 58 42 20 XX	**	1 1 60 42 20 XX	**	1 1 62 42 20 XX	PN 160	**	1 1 70 42 20 XX
L 42	PN 250	**	1 1 58 47 20 XX	**	1 1 60 47 20 XX	**	1 1 62 47 20 XX	PN 160	**	1 1 70 47 20 XX
S 6	PN 800	**	1 1 58 52 20 XX	**	1 1 60 52 20 XX	**	1 1 62 52 20 XX	PN 630	**	1 1 70 52 20 XX
S 8	PN 800	**	1 1 58 57 20 XX	**	1 1 60 57 20 XX	**	1 1 62 57 20 XX	PN 630	**	1 1 70 57 20 XX
S 10	PN 800	**	1 1 58 62 20 XX	**	1 1 60 62 20 XX	**	1 1 62 62 20 XX	PN 630	**	1 1 70 62 20 XX
S 12	PN 630	**	1 1 58 67 20 XX	**	1 1 60 67 20 XX	**	1 1 62 67 20 XX	PN 630	**	1 1 70 67 20 XX
S 14	PN 630	**	1 1 58 72 20 XX	**	1 1 60 72 20 XX	**	1 1 62 72 20 XX	PN 630	**	1 1 70 72 20 XX
S 16	PN 630	**	1 1 58 77 20 XX	**	1 1 60 77 20 XX	**	1 1 62 77 20 XX	PN 400	**	1 1 70 77 20 XX
S 20	PN 420	**	1 1 58 82 20 XX	**	1 1 60 82 20 XX	**	1 1 62 82 20 XX	PN 400	**	1 1 70 82 20 XX
S 25	PN 420	**	1 1 58 87 20 XX	**	1 1 60 87 20 XX	**	1 1 62 87 20 XX	PN 400	**	1 1 70 87 20 XX
S 30	PN 420	**	1 1 58 92 20 XX	**	1 1 60 92 20 XX	**	1 1 62 92 20 XX	PN 400	**	1 1 70 92 20 XX
S 38	PN 420	**	1 1 58 97 20 XX	**	1 1 60 97 20 XX	**	1 1 62 97 20 XX	PN 315	**	1 1 70 97 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	57
ES-4	38
BV-10	Refer to the front page

* With union nut and 2S, ES-4 or BV-10 tube connection components

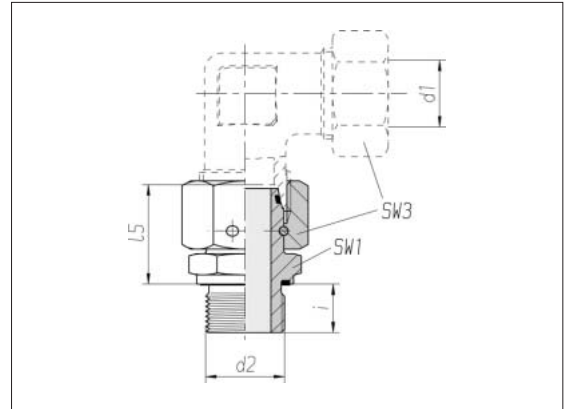
** On request

Straight stud standpipe adapters

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2	SW1	SW3	l5	i	Nm -10 %	kg/100 approx.	Order No.
L 6	PN 500	M 10 x 1	14	14	24.5	8	15	2.6	1 1 64 03 20 00*
L 8	PN 500	M 12 x 1.5	17	17	26.5	12	25	4.4	1 1 64 08 20 00
L 10	PN 500	M 14 x 1.5	19	19	27.5	12	50	5.7	1 1 64 13 20 00
L 12	PN 400	M 16 x 1.5	22	22	30.5	12	70	8.3	1 1 64 18 20 00
L 15	PN 400	M 18 x 1.5	24	27	31.5	12	90	11.9	1 1 64 23 20 00
L 15	PN 400	M 22 x 1.5	27	27	32.5	14	130	13.2	1 1 98 70 20 00
L 18	PN 400	M 22 x 1.5	27	32	31.5	14	130	15.3	1 1 64 28 20 00
L 22	PN 250	M 26 x 1.5	32	36	32.5	16	180	20.2	1 1 64 33 20 00
L 28	PN 250	M 33 x 2	41	41	35	18	230	28.6	1 1 64 38 20 00
L 35	PN 250	M 42 x 2	50	50	42.5	20	330	50.0	1 1 64 43 20 00
L 42	PN 250	M 48 x 2	55	60	46.5	22	500	71.6	1 1 64 48 20 00
S 6	PN 800	M 12 x 1.5	17	17	27	12	50	4.7	1 1 64 53 20 00
S 8	PN 800	M 14 x 1.5	19	19	29.5	12	60	6.4	1 1 64 58 20 00
S 10	PN 800	M 16 x 1.5	22	22	32	12	80	9.0	1 1 64 63 20 00
S 12	PN 630	M 18 x 1.5	24	24	34	12	90	11.1	1 1 64 68 20 00
S 14	PN 630	M 20 x 1.5	27	27	36.5	14	130	15.7	1 1 64 73 20 00
S 16	PN 630	M 22 x 1.5	27	30	37	14	130	17.6	1 1 64 78 20 00
S 20	PN 420	M 27 x 2	32	36	43	16	200	27.6	1 1 64 83 20 00
S 25	PN 420	M 33 x 2	41	46	48	18	250	50.5	1 1 64 88 20 00
S 30	PN 420	M 42 x 2	50	50	51	20	500	69.7	1 1 64 93 20 00
S 38	PN 420	M 48 x 2	55	60	60	22	600	76.4	1 1 64 98 20 00

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

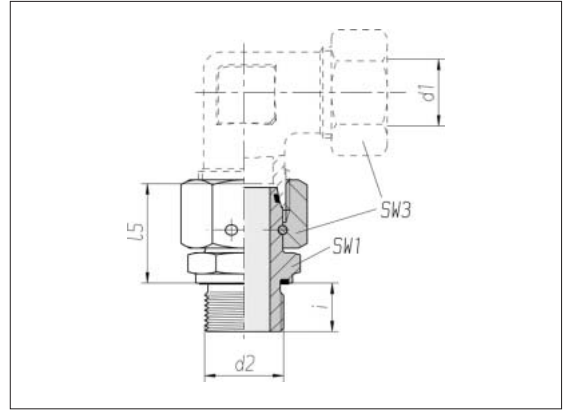
* Sample product code, see:
EGE06LMED
ISO 8434-1-SWOSDS-L6xM10x1, typeE-St

Straight stud standpipe adapters

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2		SW1	SW3	l5	i	Nm -10 %	kg/100 approx.	Order No.
L 6	PN 500	G 1/8 A		14	14	24.5	8	20	2.6	1 1 65 03 20 00*
L 8	PN 500	G 1/4 A		19	17	29.5	12	50	5.7	1 1 65 08 20 00
L 10	PN 500	G 1/4 A		19	19	27.5	12	50	5.6	1 1 65 13 20 00
L 10	PN 400	G 1/2 A		27	19	28.5	14	100	9.8	1 1 98 30 20 00
L 12	PN 400	G 3/8 A		22	22	34	12	80	9.6	1 1 65 18 20 00
L 12	PN 400	G 1/2 A		27	22	32	14	100	11.8	1 1 98 40 20 00
L 15	PN 400	G 3/8 A		22	27	32.5	12	80	11.6	1 1 98 56 20 00
L 15	PN 400	G 1/2 A		27	27	32	14	100	14.1	1 1 65 23 20 00
L 18	PN 400	G 1/2 A		27	32	31.5	14	100	14.4	1 1 65 28 20 00
L 18	PN 250	G 3/4 A		32	32	31	16	180	17.2	1 1 98 65 20 00
L 22	PN 250	G 1/2 A		27	36	32	14	100	17.1	1 1 98 66 20 00
L 22	PN 250	G 3/4 A		32	36	32.5	16	180	20.1	1 1 65 33 20 00
L 28	PN 250	G 1 A		41	41	35	18	230	29.3	1 1 65 38 20 00
L 35	PN 250	G 1 1/4 A		50	50	42.5	20	330	50.9	1 1 65 43 20 00
L 42	PN 250	G 1 1/2 A		55	60	46.5	22	500	72.2	1 1 65 48 20 00

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

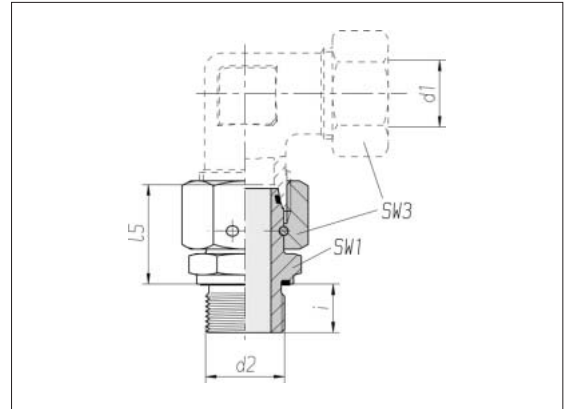
* Sample product code, see:
EGE06LRED
ISO 8434-1-SWOSDS-L6xG1/8A, typeE-St

Straight stud standpipe adapters

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal

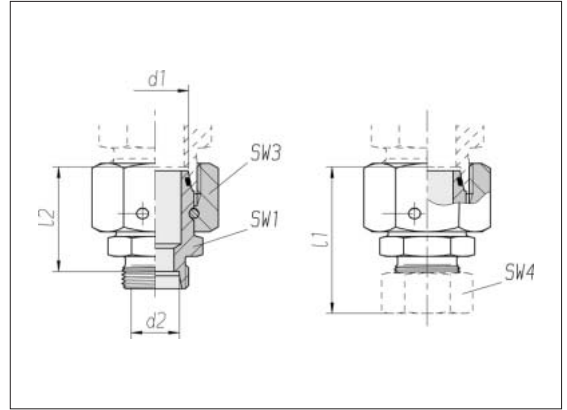


Series Tube OD d1	Pressure	d2		SW1	SW3	l5	i	Nm -10 %	kg/100 approx.	Order No.
S 6	PN 800	G 1/4 A		19	17	27	12	60	5.4	1 1 65 53 20 00
S 8	PN 800	G 1/4 A		19	19	29.5	12	60	6.4	1 1 65 58 20 00
S 10	PN 800	G 3/8 A		22	22	32	12	90	9.4	1 1 65 63 20 00
S 12	PN 630	G 1/4 A		19	24	30	12	60	7.9	1 1 98 58 20 00
S 12	PN 630	G 3/8 A		22	24	34	12	90	10.0	1 1 65 68 20 00
S 12	PN 630	G 1/2 A		27	24	35.5	14	150	14.4	1 1 98 57 20 00
S 14	PN 630	G 1/2 A		27	27	36.5	14	150	16.4	1 1 65 73 20 00
S 16	PN 630	G 1/2 A		27	30	37	14	150	17.1	1 1 65 78 20 00
S 20	PN 420	G 1/2 A		27	36	43	14	150	21.2	1 1 98 31 20 00
S 20	PN 420	G 3/4 A		32	36	43	16	200	27.2	1 1 65 83 20 00
S 25	PN 420	G 1 A		41	46	48	18	250	50.6	1 1 65 88 20 00
S 30	PN 420	G 1 1/4 A		50	50	51	20	500	68.5	1 1 65 93 20 00
S 38	PN 420	G 1 1/2 A		55	60	60	22	600	95.5	1 1 65 98 20 00

Special pressure stages apply in
combination with the 2S cutting
ring (refer to Page 48)

Reducing couplings

With taper and O-ring fit in bore type
W DIN 3861 / ISO 8434-1



Series Tube OD d1	Pressure	Series Tube OD d2	SW1	SW3	SW4	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
L 8	PN 500	L 6	12	17	14	38	23.5	2.9	1 1 81 00 20 58***	1 1 81 00 20 XX
L 10	PN 500	L 6	14	19	14	39.5	25	3.8	1 1 81 01 20 58	1 1 81 01 20 XX
L 10	PN 500	L 8	14	19	17	39.5	25	3.8	1 1 81 02 20 58	1 1 81 02 20 XX
L 12	PN 400	L 6	17	22	14	39.5	25	5.0	1 1 81 03 20 58	1 1 81 03 20 XX
L 12	PN 400	S 6	17	22	17	43	28	5.6	1 1 81 95 20 58	1 1 81 95 20 XX
L 12	PN 400	L 8	17	22	17	39.5	25	5.1	1 1 81 04 20 58	1 1 81 04 20 XX
L 12	PN 400	L 10	17	22	19	40.5	26	5.2	1 1 81 05 20 58	1 1 81 05 20 XX
L 15	PN 400	L 6	19	27	14	42.5	28	8.7	1 1 81 06 20 58	1 1 81 06 20 XX
L 15	PN 400	L 8	19	27	17	42.5	28	8.8	1 1 81 07 20 58	1 1 81 07 20 XX
L 15	PN 400	L 10	19	27	19	43.5	29	8.9	1 1 81 08 20 58	1 1 81 08 20 XX
L 15	PN 400	L 12	19	27	22	43.5	29	9.0	1 1 81 09 20 58	1 1 81 09 20 XX
L 18	PN 400	L 6	24	32	14	42.5	28	11.1	1 1 81 10 20 58	1 1 81 10 20 XX
L 18	PN 400	L 8	24	32	17	42.5	28	11.1	1 1 81 11 20 58	1 1 81 11 20 XX
L 18	PN 400	S 8	24	32	19	45	30	11.6	1 1 81 97 20 58	1 1 81 97 20 XX
L 18	PN 400	L 10	24	32	19	43.5	29	11.2	1 1 81 12 20 58	1 1 81 12 20 XX
L 18	PN 400	L 12	24	32	22	43.5	29	11.3	1 1 81 13 20 58	1 1 81 13 20 XX
L 18	PN 400	L 15	24	32	27	45	30	11.8	1 1 81 14 20 58	1 1 81 14 20 XX
L 22	PN 250	L 6	27	36	14	46.5	32	15.4	1 1 81 15 20 58	1 1 81 15 20 XX
L 22	PN 250	L 10	27	36	19	47.5	33	15.7	1 1 81 17 20 58	1 1 81 17 20 XX
L 22	PN 250	L 12	27	36	22	47.5	33	16.1	1 1 81 18 20 58	1 1 81 18 20 XX
L 22	PN 250	L 15	27	36	27	49	34	16.2	1 1 81 19 20 58	1 1 81 19 20 XX
L 22	PN 250	L 18	27	36	32	49.5	33.5	16.6	1 1 81 20 20 58	1 1 81 20 20 XX

Continuation on page 157

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	57
ES-4	38
BV-10	Refer to the front page

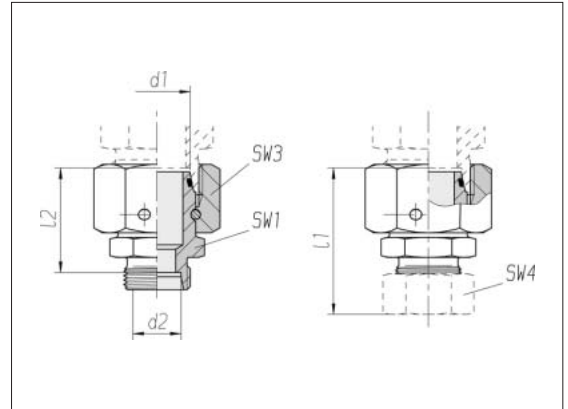
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** On the tube side with union nut and 2S, ES-4 or BV-10 connection components

*** Sample product code, see: RED08/06LOMDVIT

Reducing couplings

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1



Series Tube OD d1	Pressure	Series Tube OD d2	SW1	SW3	SW4	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
L 28	PN 250	L 8	32	41	17	48.5	34	20.1	1 1 81 22 20 58	1 1 81 22 20 XX
L 28	PN 250	L 10	32	41	19	49.5	35	20.1	1 1 81 23 20 58	1 1 81 23 20 XX
L 28	PN 250	L 12	32	41	22	49.5	35	20.1	1 1 81 24 20 58	1 1 81 24 20 XX
L 28	PN 250	L 15	32	41	27	51	36	20.6	1 1 81 25 20 58	1 1 81 25 20 XX
L 28	PN 250	S 16	32	41	30	55	36.5	21.5	1 1 81 92 20 58	1 1 81 92 20 XX
L 28	PN 250	L 18	32	41	32	51.5	35.5	21.0	1 1 81 26 20 58	1 1 81 26 20 XX
L 28	PN 250	S 20	32	41	36	58	36.5	23.2	1 1 81 91 20 58	1 1 81 91 20 XX
L 28	PN 250	L 22	32	41	36	53.5	37.5	21.0	1 1 81 27 20 58	1 1 81 27 20 XX
L 35	PN 250	L 8	41	50	17	52	37	30.6	1 1 81 29 20 58	1 1 81 29 20 XX
L 35	PN 250	L 10	41	50	19	52.5	38	32.3	1 1 81 30 20 58	1 1 81 30 20 XX
L 35	PN 250	L 12	41	50	22	52.5	38	31.3	1 1 81 31 20 58	1 1 81 31 20 XX
L 35	PN 250	L 15	41	50	27	54	39	31.6	1 1 81 32 20 58	1 1 81 32 20 XX
L 35	PN 250	L 18	41	50	32	54.5	38.5	31.9	1 1 81 33 20 58	1 1 81 33 20 XX
L 35	PN 250	L 22	41	50	36	56.5	40.5	32.1	1 1 81 34 20 58	1 1 81 34 20 XX
L 35	PN 250	L 28	41	50	41	57	40.5	32.3	1 1 81 35 20 58	1 1 81 35 20 XX
L 42	PN 250	L 8	50	60	17	55.5	40.5	51.9	1 1 81 36 20 58	1 1 81 36 20 XX
L 42	PN 250	L 18	50	60	32	58	42	52.7	1 1 81 41 20 58	1 1 81 41 20 XX
L 42	PN 250	L 22	50	60	36	60	44	51.5	1 1 81 42 20 58	1 1 81 42 20 XX
L 42	PN 250	L 28	50	60	41	60.5	44	51.5	1 1 81 43 20 58	1 1 81 43 20 XX
L 42	PN 250	L 35	50	60	50	64.5	43	53.1	1 1 81 44 20 58	1 1 81 44 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

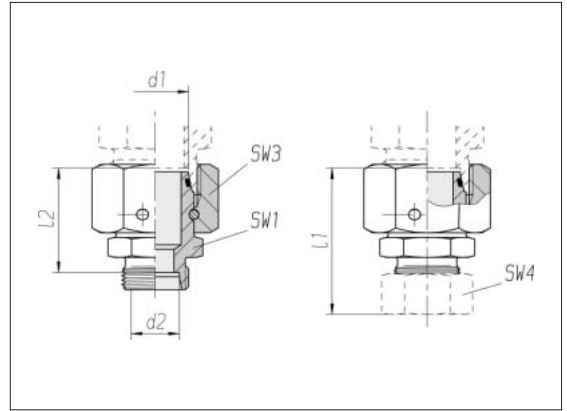
Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	57
ES-4	38
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** On the tube side with union nut and 2S, ES-4 or BV-10 connection components

Reducing couplings

With taper and O-ring fit in bore type
W DIN 3861 / ISO 8434-1



Series Tube OD d1	Pressure	Series Tube OD d2	SW1	SW3	SW4	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
S 8	PN 800	S 6	14	19	17	41.5	27	4.3	1 1 81 45 20 58***	1 1 81 45 20 XX
S 10	PN 800	S 6	17	22	17	42	27.5	5.5	1 1 81 46 20 58	1 1 81 46 20 XX
S 10	PN 800	S 8	17	22	19	42	27.5	5.7	1 1 81 47 20 58	1 1 81 47 20 XX
S 12	PN 630	S 6	19	24	17	44.5	30	7.0	1 1 81 48 20 58	1 1 81 48 20 XX
S 12	PN 630	S 8	19	24	19	44.5	30	7.1	1 1 81 49 20 58	1 1 81 49 20 XX
S 12	PN 630	S 10	19	24	22	45.5	29.5	7.3	1 1 81 50 20 58	1 1 81 50 20 XX
S 14	PN 630	S 8	19	27	19	46.5	31.5	9.5	1 1 81 52 20 58	1 1 81 52 20 XX
S 14	PN 630	S 12	22	27	24	47	31	10.4	1 1 81 54 20 58	1 1 81 54 20 XX
S 16	PN 630	S 6	22	30	17	46.5	32	11.4	1 1 81 55 20 58	1 1 81 55 20 XX
S 16	PN 630	S 8	22	30	19	46.5	32	11.6	1 1 81 56 20 58	1 1 81 56 20 XX
S 16	PN 630	S 10	22	30	22	47.5	31.5	11.7	1 1 81 57 20 58	1 1 81 57 20 XX
S 16	PN 630	S 12	22	30	24	47.5	31.5	12.0	1 1 81 58 20 58	1 1 81 58 20 XX
S 16	PN 400	L 12	22	30	22	46.5	32	11.6	1 1 81 93 20 58	1 1 81 93 20 XX
S 16	PN 630	S 14	24	30	27	49.5	31.5	12.8	1 1 81 59 20 58	1 1 81 59 20 XX
S 20	PN 420	S 6	27	36	17	50.5	36	17.0	1 1 81 60 20 58	1 1 81 60 20 XX
S 20	PN 420	S 8	27	36	19	50.5	36	17.2	1 1 81 61 20 58	1 1 81 61 20 XX
S 20	PN 420	S 10	27	36	22	51.5	35.5	17.0	1 1 81 62 20 58	1 1 81 62 20 XX
S 20	PN 420	S 12	27	36	24	51.5	35.5	17.3	1 1 81 63 20 58	1 1 81 63 20 XX
S 20	PN 420	S 16	27	36	30	54.5	36.5	17.9	1 1 81 65 20 58	1 1 81 65 20 XX

Continuation on page 159

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	57
ES-4	38
BV-10	Refer to the front page

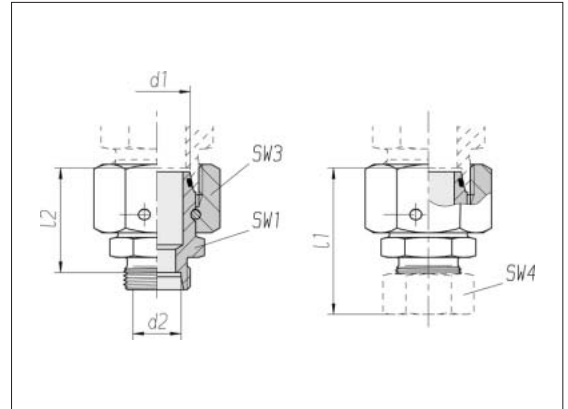
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** On the tube side with union nut and 2S, ES-4 or BV-10 connection components

*** Sample product code, see: RED08/06SOMDVIT

Reducing couplings

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1



Series Tube OD d1	Pressure	Series Tube OD d2	SW1	SW3	SW4	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
S 25	PN 420	S 6	32	46	17	50.5	36	30.9	1 1 81 66 20 58	1 1 81 66 20 XX
S 25	PN 420	S 8	32	46	19	50.5	36	30.9	1 1 81 67 20 58***	1 1 81 67 20 XX
S 25	PN 420	S 10	32	46	22	54	38	31.2	1 1 81 68 20 58	1 1 81 68 20 XX
S 25	PN 420	S 12	32	46	24	54	38	31.3	1 1 81 69 20 58	1 1 81 69 20 XX
S 25	PN 420	S 16	32	46	30	57	39	31.7	1 1 81 71 20 58	1 1 81 71 20 XX
S 25	PN 420	S 20	32	46	36	60.5	39	32.8	1 1 81 72 20 58	1 1 81 72 20 XX
S 30	PN 420	S 6	41	50	17	59	44	40.4	1 1 81 73 20 58	1 1 81 73 20 XX
S 30	PN 420	S 8	41	50	19	59	44	39.9	1 1 81 74 20 58	1 1 81 74 20 XX
S 30	PN 420	S 10	41	50	22	59.5	43.5	40.4	1 1 81 75 20 58	1 1 81 75 20 XX
S 30	PN 420	S 12	41	50	24	59.5	43.5	40.5	1 1 81 76 20 58	1 1 81 76 20 XX
S 30	PN 420	S 16	41	50	30	62.5	44.5	40.6	1 1 81 78 20 58	1 1 81 78 20 XX
S 30	PN 420	S 20	41	50	36	66	44.5	42.2	1 1 81 79 20 58	1 1 81 79 20 XX
S 30	PN 420	S 25	41	50	46	69	45	44.8	1 1 81 80 20 58	1 1 81 80 20 XX
S 38	PN 420	S 6	50	60	17	62.5	47.5	57.6	1 1 81 82 20 58	1 1 81 82 20 XX
S 38	PN 420	S 8	50	60	19	62.5	47.5	57.8	1 1 81 83 20 58	1 1 81 83 20 XX
S 38	PN 420	S 10	50	60	22	63	47	58.4	1 1 81 84 20 58	1 1 81 84 20 XX
S 38	PN 420	S 12	50	60	24	63	47	59.2	1 1 81 85 20 58	1 1 81 85 20 XX
S 38	PN 420	S 16	50	60	30	66	48	59.2	1 1 81 86 20 58	1 1 81 86 20 XX
S 38	PN 420	S 20	50	60	36	69.5	48	59.7	1 1 81 87 20 58	1 1 81 87 20 XX
S 38	PN 420	S 25	50	60	46	72.5	48.5	62.3	1 1 81 88 20 58	1 1 81 88 20 XX
S 38	PN 420	S 30	50	60	50	75.5	49	63.6	1 1 81 89 20 58	1 1 81 89 20 XX

Special pressure stages apply in combination with the 2S cutting ring (refer to Page 48)

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	57
ES-4	38
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

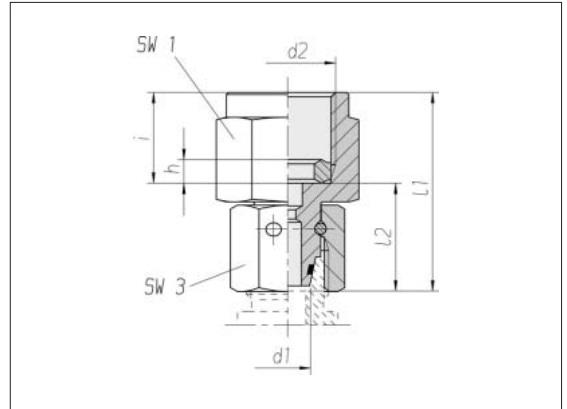
** On the tube side with union nut and 2S, ES-4 or BV-10 connection components

*** Sample product code, see: RED25/08SOMDVIT

Gauge couplings

Female thread:
Whitworth pipe thread

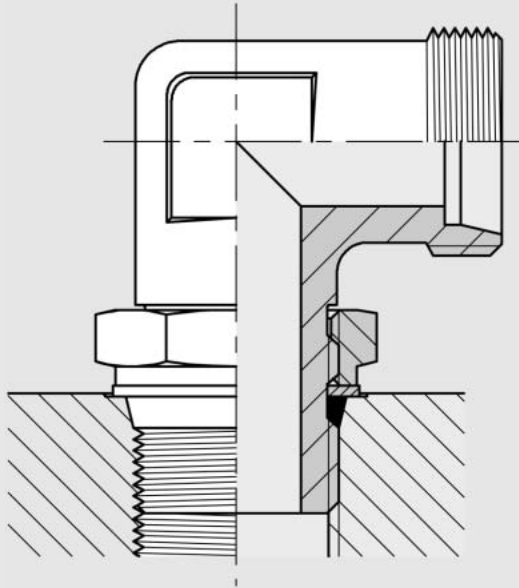
Male connector
with taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1



Series	Pressure	d2		SW1	SW3	l1	l2	i	h	kg/100	Order No.
Tube OD						approx.			approx.		
d1											
L 6	PN 315	G 1/4		19	14	37.5	23	14.5	4.6	4.8	1 1 42 00 20 58*
L 8	PN 315	G 1/4		19	17	37.5	23	14.5	4.6	5.5	1 1 42 05 20 58
L 10	PN 315	G 1/4		19	19	36	21.5	14.5	4.6	5.8	1 1 42 10 20 58
L 12	PN 315	G 1/4		19	22	36	21.5	14.5	4.6	6.9	1 1 42 15 20 58
S 6	PN 630	G 1/2		27	17	44.5	24.5	20	5.2	10.3	1 1 42 50 20 58
S 8	PN 630	G 1/4		19	19	35.5	21	14.5	4.6	5.7	1 1 42 57 20 58
S 8	PN 630	G 1/2		27	19	44.5	24.5	20	5.2	11.7	1 1 42 55 20 58
S 10	PN 630	G 1/2		27	22	43.5	23.5	20	5.2	11.3	1 1 42 60 20 58
S 12	PN 630	G 1/4		19	24	39	24.5	14.5	4.6	8.2	1 1 42 66 20 58
S 12	PN 630	G 1/2		27	24	45	25	20	5.2	12.2	1 1 42 65 20 58

* Sample product code, see:
MAVE06LRVIT

Adjustable couplings
with lock nut

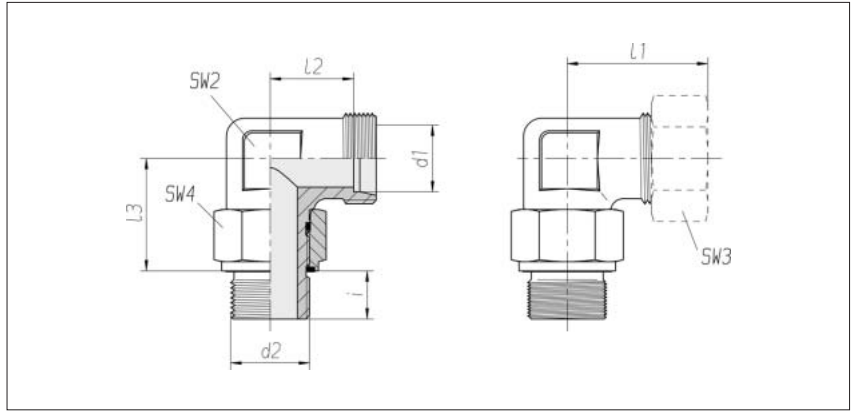


Experience plus ideas

Adjustable elbow couplings with lock nut

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2	SW2	SW3	SW4	l1* approx.	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 315	M 10 x 1	14	14	14	29	14	21.5	8	4.4	1 1 13 00 20 81	1 1 13 00 20 XX
L 6	PN 315	M 12 x 1.5	14	14	17	29	14	24.5	12	5.8	1 1 13 01 20 81	1 1 13 01 20 XX
L 6	PN 315	M 14 x 1.5	17	14	19	31	16	27	12	8.1	1 1 13 02 20 81	1 1 13 02 20 XX
L 8	PN 315	M 12 x 1.5	14	17	17	31	16	24.5	12	6.1	1 1 13 05 20 81	1 1 13 05 20 XX
L 10	PN 315	M 14 x 1.5	17	19	19	32	17	27	12	7.4	1 1 13 10 20 81	1 1 13 10 20 XX
L 12	PN 315	M 16 x 1.5	17	22	22	36	17	28	12	9.6	1 1 13 15 20 81	1 1 13 15 20 XX
L 12	PN 315	M 18 x 1.5	22	22	24	36	21	30	12	14.6	1 1 13 16 20 81	1 1 13 16 20 XX
L 15	PN 315	M 18 x 1.5	22	27	24	36	21	30	12	13.7	1 1 13 20 20 81	1 1 13 20 20 XX
L 15	PN 315	M 22 x 1.5	22	27	27	37	22	32	14	16.4	1 1 13 21 20 81	1 1 13 21 20 XX
L 18	PN 315	M 22 x 1.5	27	32	27	42	25.5	35.5	14	24.6	1 1 13 25 20 81	1 1 13 25 20 XX
L 18	PN 315	M 18 x 1.5	24	32	24	40	23.5	34	12	16.1	1 1 13 26 20 81	1 1 13 26 20 XX
L 18	PN 160	M 26 x 1.5	27	32	32	42	25.5	37	16	27.0	1 1 13 27 20 81	1 1 13 27 20 XX
L 22	PN 160	M 27 x 2	27	36	32	44	27.5	40	16	27.9	1 1 13 30 20 81	1 1 13 30 20 XX
L 22	PN 160	M 26 x 1.5	27	36	32	44	27.5	37	16	24.2	1 1 13 31 20 81	1 1 13 31 20 XX
L 28	PN 160	M 33 x 2	41	41	41	49	32.5	50.5	18	65.9	1 1 13 35 20 81	1 1 13 35 20 XX
L 28	PN 160	M 26 x 1.5	36	41	32	47	30.5	43	16	36.3	1 1 13 36 20 81	1 1 13 36 20 XX
L 35	PN 160	M 42 x 2	50	50	50	59.5	36	55.5	20	103.9	1 1 13 40 20 81	1 1 13 40 20 XX
L 42	PN 160	M 48 x 2	50	60	55	63	40	57.5	22	106.4	1 1 13 45 20 81	1 1 13 45 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

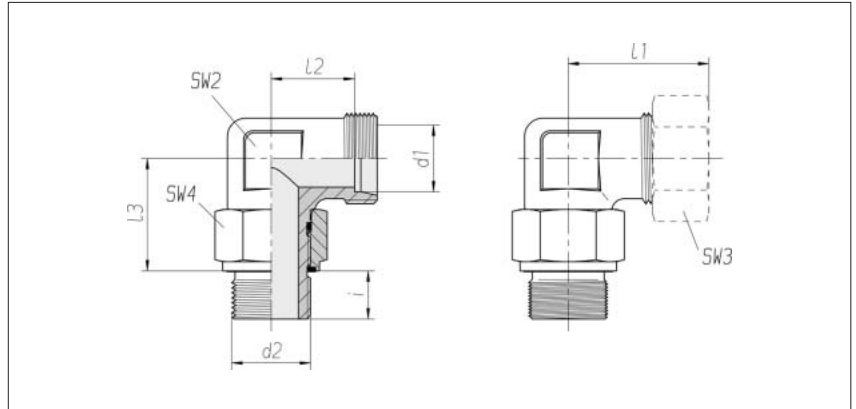
* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

Adjustable elbow couplings with lock nut

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2	SW2	SW3	SW4	l1*	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. **
Tube OD						approx.						
d1												
S 6	PN 315	M 12 x 1.5	14	17	17	31.5	16.5	24.5	12	6.9	1 1 13 50 20 81	1 1 13 50 20 XX
S 8	PN 315	M 14 x 1.5	17	19	19	33	18	27	12	9.2	1 1 13 55 20 81	1 1 13 55 20 XX
S 10	PN 315	M 16 x 1.5	17	22	22	38	17.5	28	12	12.2	1 1 13 60 20 81	1 1 13 60 20 XX
S 10	PN 315	M 12 x 1.5	17	22	17	34	17.5	26.5	12	7.9	1 1 13 61 20 81	1 1 13 61 20 XX
S 12	PN 315	M 18 x 1.5	22	24	24	38	21.5	30	12	17.1	1 1 13 65 20 81	1 1 13 65 20 XX
S 16	PN 315	M 22 x 1.5	27	30	27	45	26.5	35.5	14	27.4	1 1 13 75 20 81	1 1 13 75 20 XX
S 20	PN 250	M 27 x 2	27	36	32	49	27.5	40	16	34.3	1 1 13 80 20 81	1 1 13 80 20 XX
S 25	PN 160	M 33 x 2	41	46	41	56	32	50.5	18	76.9	1 1 13 85 20 81	1 1 13 85 20 XX
S 30	PN 160	M 42 x 2	50	50	50	63	36.5	55.5	20	121.4	1 1 13 90 20 81	1 1 13 90 20 XX
S 38	PN 160	M 48 x 2	50	60	55	72	41	57.5	22	133.1	1 1 13 95 20 81	1 1 13 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

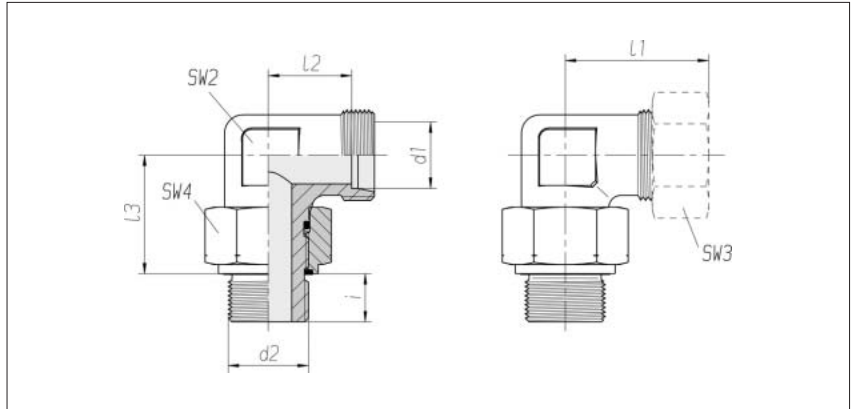
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Adjustable elbow couplings with lock nut

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2		SW2	SW3	SW4	l1* approx.	l2	l3	i	kg/100 approx. Single component	Order No.	Order No. **
L 6	PN 315	G 1/8 A		14	14	14	29	14	21	8	4.1	1 1 44 00 20 81	1 1 44 00 20 XX
L 6	PN 315	G 1/4 A		17	14	19	31	16	26	12	7.8	1 1 44 01 20 81	1 1 44 01 20 XX
L 8	PN 315	G 1/4 A		17	17	19	31	16	26	12	7.9	1 1 44 05 20 81	1 1 44 05 20 XX
L 10	PN 315	G 1/4 A		17	19	19	32	17	26	12	7.9	1 1 44 10 20 81	1 1 44 10 20 XX
L 12	PN 315	G 3/8 A		19	22	22	34	19	29	12	11.2	1 1 44 15 20 81	1 1 44 15 20 XX
L 12	PN 315	G 1/4 A		17	22	19	32	17	26	12	7.6	1 1 44 16 20 81	1 1 44 16 20 XX
L 12	PN 250	G 1/2 A		22	22	27	36	21	30	14	15.4	1 1 44 17 20 81	1 1 44 17 20 XX
L 15	PN 250	G 1/2 A		22	27	27	36	21	30	14	15.3	1 1 44 20 20 81	1 1 44 20 20 XX
L 18	PN 250	G 1/2 A		27	32	27	42	25.5	37	14	25.9	1 1 44 25 20 81	1 1 44 25 20 XX
L 22	PN 160	G 1/2 A		27	36	27	44	27.5	37	14	24.5	1 1 44 31 20 81	1 1 44 31 20 XX
L 22	PN 160	G 3/4 A		27	36	36	44	27.5	39	16	33.6	1 1 44 30 20 81	1 1 44 30 20 XX
L 28	PN 160	G 1 A		41	41	41	49	32.5	50.5	18	70.5	1 1 44 35 20 81	1 1 44 35 20 XX
L 28	PN 160	G 3/4 A		36	41	36	47	30.5	44.5	16	43.7	1 1 44 36 20 81	1 1 44 36 20 XX
L 35	PN 160	G 1 1/4 A		50	50	50	59.5	36	56	20	111.5	1 1 44 40 20 81	1 1 44 40 20 XX
L 42	PN 160	G 1 1/2 A		50	60	55	63	40	57.5	22	115.4	1 1 44 45 20 81	1 1 44 45 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

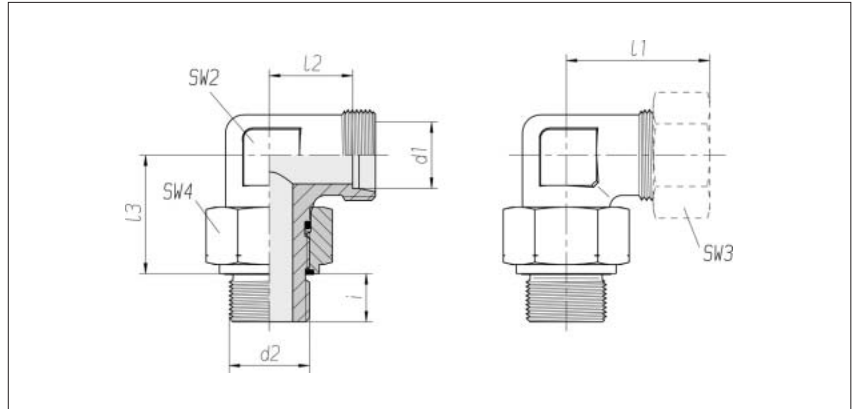
* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

Adjustable elbow couplings with lock nut

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series	Pressure	d2		SW2	SW3	SW4	l1*	l2	l3	i	kg/100 approx.	Order No. Single component	Order No. **
Tube OD							approx.						
d1													
S 6	PN 315	G 1/4 A		17	17	19	33	18	26	12	8.7	1 1 44 50 20 81	1 1 44 50 20 XX
S 8	PN 315	G 1/4 A		17	19	19	33	18	26	12	8.5	1 1 44 55 20 81	1 1 44 55 20 XX
S 10	PN 315	G 3/8 A		19	22	22	36	19.5	29	12	12.1	1 1 44 60 20 81	1 1 44 60 20 XX
S 12	PN 315	G 3/8 A		19	24	22	38	21.5	29	12	12.1	1 1 44 65 20 81	1 1 44 65 20 XX
S 14	PN 315	G 1/2 A		22	27	27	40	22	30	14	19.3	1 1 44 70 20 81	1 1 44 70 20 XX
S 16	PN 315	G 1/2 A		27	30	27	45	26.5	37	14	27.3	1 1 44 75 20 81	1 1 44 75 20 XX
S 16	PN 250	G 3/4 A		27	30	36	45	26.5	39	16	35.3	1 1 44 76 20 81	1 1 44 76 20 XX
S 20	PN 250	G 3/4 A		27	36	36	49	27.5	39	16	36.2	1 1 44 80 20 81	1 1 44 80 20 XX
S 25	PN 250	G 1 A		41	46	41	56	32	50.5	18	75.0	1 1 44 85 20 81	1 1 44 85 20 XX
S 25	PN 250	G 3/4 A		36	46	36	54	30	44.5	16	46.5	1 1 44 86 20 81	1 1 44 86 20 XX
S 30	PN 160	G 1 1/4 A		50	50	50	87	36.5	56	20	118.7	1 1 44 90 20 81	1 1 44 90 20 XX
S 38	PN 160	G 1 1/2 A		50	60	55	72	41	57.5	22	129.5	1 1 44 95 20 81	1 1 44 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

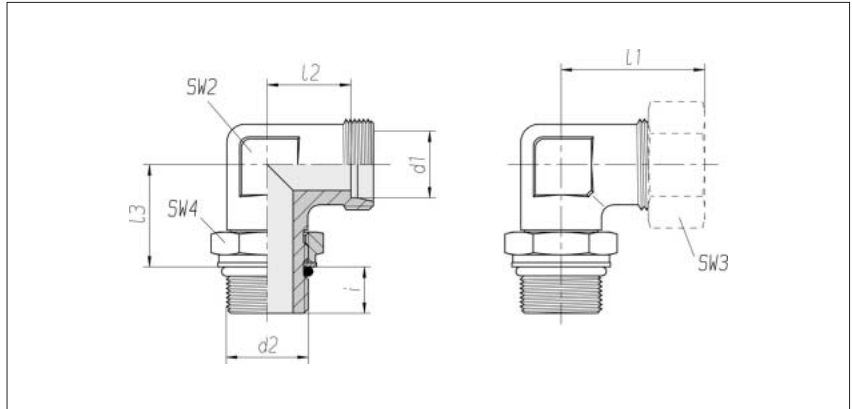
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

Adjustable elbow couplings with lock nut

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



Series	Pressure	d2	SW2	SW3	SW4	l1*	l2	l3	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.				-10 %	approx.	Single component	**
d1													
L 6	PN 315	M 10 x 1	12	14	14	27	12	20	7	15	2.6	0 1 47 00 20 81***	0 1 47 00 20 XX
L 8	PN 315	M 12 x 1.5	12	17	17	29	14	22	10	25	3.7	0 1 47 05 20 81	0 1 47 05 20 XX
L 10	PN 315	M 14 x 1.5	14	19	19	30	15	25	10	35	4.8	0 1 47 10 20 81	0 1 47 10 20 XX
L 12	PN 315	M 16 x 1.5	17	22	22	32	17	26	10	40	6.5	0 1 47 15 20 81	0 1 47 15 20 XX
L 15	PN 315	M 18 x 1.5	19	27	24	36	21	30	11	45	10.4	0 1 47 20 20 81	0 1 47 20 20 XX
L 18	PN 315	M 22 x 1.5	24	32	27	40	23.5	33	12	60	15.7	0 1 47 25 20 81	0 1 47 25 20 XX
L 22	PN 160	M 27 x 2	27	36	32	44	27.5	35	14	100	20.7	0 1 47 30 20 81	0 1 47 30 20 XX
L 28	PN 160	M 33 x 2	36	41	41	47	30.5	38	14	160	34.5	0 1 47 35 20 81	0 1 47 35 20 XX
L 35	PN 160	M 42 x 2	41	50	50	58	34.5	48	14	210	52.7	0 1 47 40 20 81	0 1 47 40 20 XX
L 42	PN 160	M 48 x 2	50	60	55	63	40	49	16	260	81.3	0 1 47 45 20 81	0 1 47 45 20 XX
S 6	PN 400	M 12 x 1.5	12	17	17	31	16	22	10	35	4.6	0 1 47 50 20 81	0 1 47 50 20 XX
S 8	PN 400	M 14 x 1.5	14	19	19	32	17	26	10	45	6.4	0 1 47 55 20 81	0 1 47 55 20 XX
S 10	PN 400	M 16 x 1.5	17	22	22	34	17.5	27	11	55	8.6	0 1 47 60 20 81	0 1 47 60 20 XX
S 12	PN 400	M 18 x 1.5	17	24	24	38	21.5	31	12	70	11.6	0 1 47 65 20 81	0 1 47 65 20 XX
S 16	PN 400	M 22 x 1.5	24	30	27	43	24.5	35	14	100	17.9	0 1 47 75 20 81	0 1 47 75 20 XX
S 20	PN 400	M 27 x 2	27	36	32	48	26.5	39	16	170	28.7	0 1 47 80 20 81	0 1 47 80 20 XX
S 25	PN 315	M 33 x 2	36	46	41	54	30	44	16	310	48.0	0 1 47 85 20 81	0 1 47 85 20 XX
S 30	PN 250	M 42 x 2	41	50	50	62	35.5	51	17	330	76.5	0 1 47 90 20 81	0 1 47 90 20 XX
S 38	PN 200	M 48 x 2	50	60	55	72	41	54	19	420	114.5	0 1 47 95 20 81	0 1 47 95 20 XX

Supplementary to Order No. for complete fitting	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

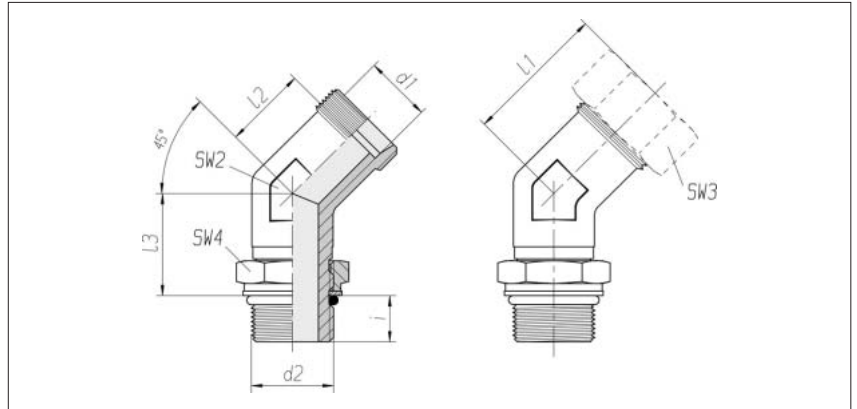
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: WEE06LMOROMD

Adjustable 45° stud elbows with lock nut

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



Series	Pressure	d2	SW2	SW3	SW4	l1* approx.	l2	l3	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 315	M 10 x 1	19	14	14	29	14	20	7	15	6.1	1 1 45 00 20 81***	1 1 45 00 20 XX
L 8	PN 315	M 12 x 1.5	19	17	17	31	16	22	10	25	7.1	1 1 45 05 20 81	1 1 45 05 20 XX
L 10	PN 315	M 14 x 1.5	19	19	19	32	17	25	10	35	8.1	1 1 45 10 20 81	1 1 45 10 20 XX
L 12	PN 315	M 16 x 1.5	19	22	22	34	19	26	10	40	8.7	1 1 45 15 20 81	1 1 45 15 20 XX
L 15	PN 315	M 18 x 1.5	19	27	24	32	17	30	11	45	9.7	1 1 45 20 20 81	1 1 45 20 20 XX
L 18	PN 315	M 22 x 1.5	24	32	27	35.5	19	33	12	60	17.7	1 1 45 25 20 81	1 1 45 25 20 XX
L 22	PN 160	M 27 x 2	27	36	32	39	22.5	35	14	100	19.8	1 1 45 30 20 81	1 1 45 30 20 XX
L 28	PN 160	M 33 x 2	36	41	41	41	24.5	38	14	160	32.3	1 1 45 35 20 81	1 1 45 35 20 XX
L 35	PN 160	M 42 x 2	41	50	50	50.5	27	48	14	210	53.7	1 1 45 40 20 81	1 1 45 40 20 XX
L 42	PN 160	M 48 x 2	50	60	55	50	40	49	16	260	69.5	1 1 45 45 20 81	1 1 45 45 20 XX
S 6	PN 400	M 12 x 1.5	19	17	17	31	16	22	10	35	7.6	1 1 45 50 20 81	1 1 45 50 20 XX
S 8	PN 400	M 14 x 1.5	19	19	19	32	17	26	10	45	9.1	1 1 45 55 20 81	1 1 45 55 20 XX
S 10	PN 400	M 16 x 1.5	19	22	22	34.5	18	27	11	55	10.4	1 1 45 60 20 81	1 1 45 60 20 XX
S 12	PN 400	M 18 x 1.5	19	24	24	33.5	17	31	12	70	12.4	1 1 45 65 20 81	1 1 45 65 20 XX
S 16	PN 400	M 22 x 1.5	24	30	27	42.5	19	35	14	100	18.3	1 1 45 75 20 81	1 1 45 75 20 XX
S 20	PN 400	M 27 x 2	27	36	32	43	21.5	39	16	170	27.7	1 1 45 80 20 81	1 1 45 80 20 XX
S 25	PN 315	M 33 x 2	36	46	41	47	23	44	16	310	45.2	1 1 45 85 20 81	1 1 45 85 20 XX
S 30	PN 250	M 42 x 2	41	50	50	50.5	24	51	17	330	72.0	1 1 45 90 20 81	1 1 45 90 20 XX
S 38	PN 200	M 48 x 2	50	60	55	59	28	54	19	420	104.2	1 1 45 95 20 81	1 1 45 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

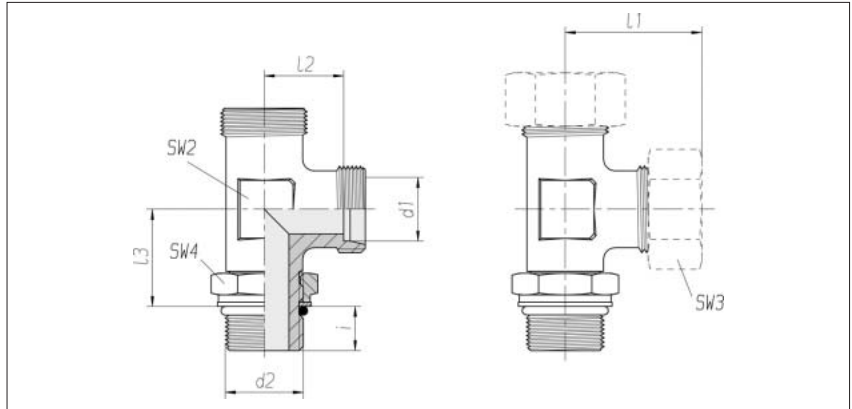
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: VEE06LMOROMD

Adjustable L-couplings with lock nut

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



Series	Pressure	d2	SW2	SW3	SW4	l1*	l2	l3	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.				-10 %	approx.	Single component	**
d1													
L 6	PN 315	M 10 x 1	14	14	14	29	14	20	7	15	4.8	1 1 46 00 20 81***	1 1 46 00 20 XX
L 8	PN 315	M 12 x 1.5	17	17	17	31	16	22	10	25	6.9	1 1 46 05 20 81	1 1 46 05 20 XX
L 10	PN 315	M 14 x 1.5	17	19	19	32	17	25	10	35	7.0	1 1 46 10 20 81	1 1 46 10 20 XX
L 12	PN 315	M 16 x 1.5	19	22	22	34	19	26	10	40	10.6	1 1 46 15 20 81	1 1 46 15 20 XX
L 15	PN 315	M 18 x 1.5	19	27	24	36	21	30	11	45	12.2	1 1 46 20 20 81	1 1 46 20 20 XX
L 18	PN 315	M 22 x 1.5	27	32	27	43	26.5	33	12	60	25.4	1 1 46 25 20 81	1 1 46 25 20 XX
L 22	PN 160	M 27 x 2	27	36	32	44	27.5	35	14	100	****	1 1 46 30 20 81	1 1 46 30 20 XX
L 28	PN 160	M 33 x 2	36	41	41	47	30.5	38	14	160	****	1 1 46 35 20 81	1 1 46 35 20 XX
L 35	PN 160	M 42 x 2	41	50	50	58	34.5	48	14	210	****	1 1 46 40 20 81	1 1 46 40 20 XX
L 42	PN 160	M 48 x 2	50	60	55	63	40	49	16	260	****	1 1 46 45 20 81	1 1 46 45 20 XX
S 6	PN 400	M 12 x 1.5	17	17	17	31	16	22	10	35	7.5	1 1 46 50 20 81	1 1 46 50 20 XX
S 8	PN 400	M 14 x 1.5	17	19	19	32	17	26	10	45	8.9	1 1 46 55 20 81	1 1 46 55 20 XX
S 10	PN 400	M 16 x 1.5	19	22	22	36	19.5	27	11	55	13.4	1 1 46 60 20 81	1 1 46 60 20 XX
S 12	PN 400	M 18 x 1.5	27	24	24	41	24.5	31	12	70	26.7	1 1 46 65 20 81	1 1 46 65 20 XX
S 16	PN 400	M 22 x 1.5	22	30	27	43	24.5	35	14	100	****	1 1 46 75 20 81	1 1 46 75 20 XX
S 20	PN 400	M 27 x 2	27	36	32	48	26.5	39	16	170	****	1 1 46 80 20 81	1 1 46 80 20 XX
S 25	PN 315	M 33 x 2	36	46	41	54	30	44	16	310	****	1 1 46 85 20 81	1 1 46 85 20 XX
S 30	PN 250	M 42 x 2	41	50	50	62	35.5	51	17	330	****	1 1 46 90 20 81	1 1 46 90 20 XX
S 38	PN 200	M 48 x 2	50	60	55	72	41	54	19	420	****	1 1 46 95 20 81	1 1 46 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

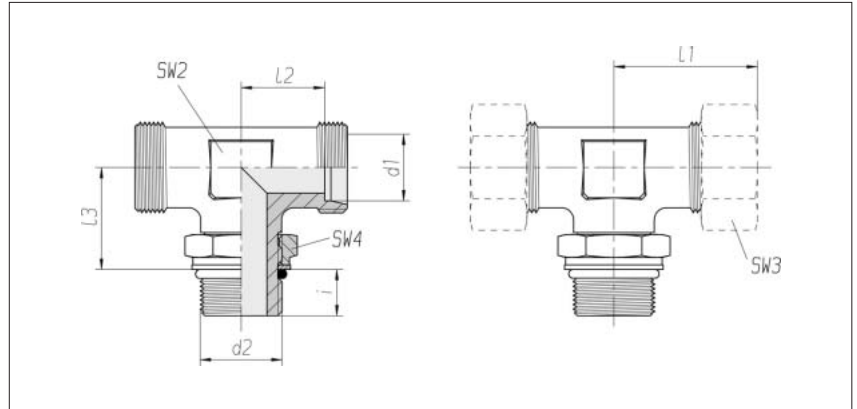
*** Sample product code, see: LEE06LMOROMD

**** On request

Adjustable stud branch tees with lock nut

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



Series	Pressure	d2	SW2	SW3	SW4	l1*	l2	l3	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. **
Tube OD d1						approx.							
L 6	PN 315	M 10 x 1	14	14	14	30	15	20	7	15	4.7	1 1 47 00 20 81***	1 1 47 00 20 XX
L 8	PN 315	M 12 x 1.5	14	17	17	30	15	22	10	25	5.5	1 1 47 05 20 81	1 1 47 05 20 XX
L 10	PN 315	M 14 x 1.5	17	19	19	32.5	17.5	25	10	35	7.3	1 1 47 10 20 81	1 1 47 10 20 XX
L 12	PN 315	M 16 x 1.5	19	22	22	35	20	26	10	40	10.8	1 1 47 15 20 81	1 1 47 15 20 XX
L 15	PN 315	M 18 x 1.5	22	27	24	36	21	30	11	45	15.4	1 1 47 20 20 81	1 1 47 20 20 XX
L 18	PN 315	M 22 x 1.5	27	32	27	42	25.5	33	12	60	81.3	1 1 47 25 20 81	1 1 47 25 20 XX
L 22	PN 160	M 27 x 2	27	36	32	44	27.5	35	14	100	****	1 1 47 30 20 81	1 1 47 30 20 XX
L 28	PN 160	M 33 x 2	36	41	41	47	30.5	38	14	160	****	1 1 47 35 20 81	1 1 47 35 20 XX
L 35	PN 160	M 42 x 2	41	50	50	58	34.5	48	14	210	****	1 1 47 40 20 81	1 1 47 40 20 XX
L 42	PN 160	M 48 x 2	50	60	55	63	40	49	16	260	****	1 1 47 45 20 81	1 1 47 45 20 XX
S 6	PN 400	M 12 x 1.5	17	17	17	30	15	22	10	35	7.3	1 1 47 50 20 81	1 1 47 50 20 XX
S 8	PN 400	M 14 x 1.5	19	19	19	35	20	26	10	45	12.4	1 1 47 55 20 81	1 1 47 55 20 XX
S 10	PN 400	M 16 x 1.5	19	22	22	36.5	20	27	11	55	13.5	1 1 47 60 20 81	1 1 47 60 20 XX
S 12	PN 400	M 18 x 1.5	22	24	24	38	21.5	31	12	70	18.7	1 1 47 65 20 81	1 1 47 65 20 XX
S 16	PN 400	M 22 x 1.5	22	30	27	43	24.5	35	14	100	****	1 1 47 75 20 81	1 1 47 75 20 XX
S 20	PN 400	M 27 x 2	27	36	32	48	26.5	39	16	170	****	1 1 47 80 20 81	1 1 47 80 20 XX
S 25	PN 315	M 33 x 2	36	46	41	54	30	44	16	310	****	1 1 47 85 20 81	1 1 47 85 20 XX
S 30	PN 250	M 42 x 2	41	50	50	62	35.5	51	17	330	****	1 1 47 90 20 81	1 1 47 90 20 XX
S 38	PN 200	M 48 x 2	50	60	55	72	41	54	19	420	****	1 1 47 95 20 81	1 1 47 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

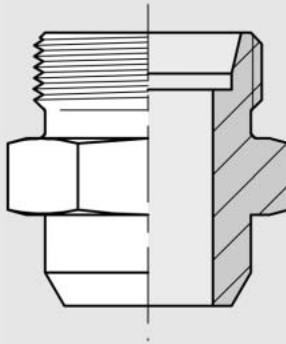
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

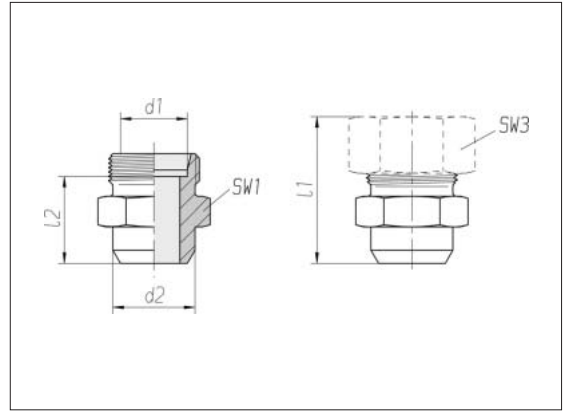
*** Sample product code, see: TEE06LMOROMD

**** On request

Welding couplings



Welding bosses



Series Tube OD d1	Pressure	d2	SW1	SW3	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 315	10	12	14	29	14	1.0	0 7 39 00 00 00***	0 1 39 00 00 XX
L 8	PN 315	12	14	17	31	16	1.5	0 7 39 05 00 00	0 1 39 05 00 XX
L 10	PN 315	14	17	19	33	18	2.1	0 7 39 10 00 00	0 1 39 10 00 XX
L 12	PN 315	16	19	22	33	18	2.6	0 7 39 15 00 00	0 1 39 15 00 XX
L 15	PN 315	19	22	27	37	22	4.3	0 7 39 20 00 00	0 1 39 20 00 XX
L 18	PN 315	22	27	32	40	23.5	6.6	0 7 39 25 00 00	0 1 39 25 00 XX
L 22	PN 160	27	32	36	45	28.5	9.7	0 7 39 30 00 00	0 1 39 30 00 XX
L 28	PN 160	32	41	41	47	30.5	15.9	0 7 39 35 00 00	0 1 39 35 00 XX
L 35	PN 160	40	46	50	54	32.5	22.8	0 7 39 40 00 00	0 1 39 40 00 XX
L 42	PN 160	46	55	60	58	35	32.8	0 7 39 45 00 00	0 1 39 45 00 XX
S 6	PN 630	11	14	17	34	19	2.1	0 7 39 50 00 00	0 1 39 50 00 XX
S 8	PN 630	13	17	19	36	21	3.0	0 7 39 55 00 00	0 1 39 55 00 XX
S 10	PN 630	15	19	22	39	22.5	4.0	0 7 39 60 00 00	0 1 39 60 00 XX
S 12	PN 630	17	22	24	41	24.5	5.5	0 7 39 65 00 00	0 1 39 65 00 XX
S 14	PN 630	19	24	27	45	27	7.0	0 7 39 70 00 00	0 1 39 70 00 XX
S 16	PN 400	21	27	30	45	26.5	8.3	0 7 39 75 00 00	0 1 39 75 00 XX
S 20	PN 400	26	32	36	51	29.5	12.9	0 7 39 80 00 00	0 1 39 80 00 XX
S 25	PN 400	31	41	46	56	32	22.2	0 7 39 85 00 00	0 1 39 85 00 XX
S 30	PN 400	36	46	50	62	35.5	29.5	0 7 39 90 00 00	0 1 39 90 00 XX
S 38	PN 315	44	55	60	69	38	45.5	0 7 39 95 00 00	0 1 39 95 00 XX

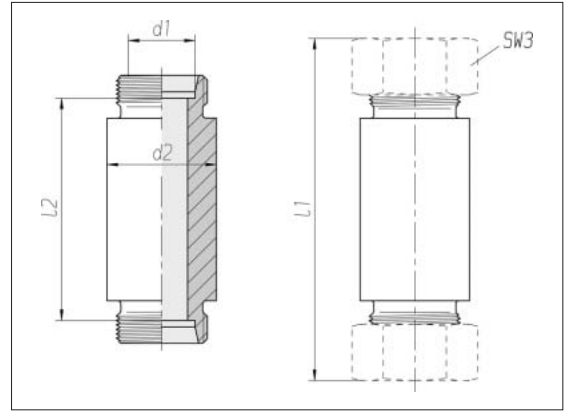
Supplementary to Order No. for complete fitting tube connection		Supplementary to Order No.
2S		07
ES-4		09
BV-10		Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see:
AS06LX
ISO 8434-1-WDS-L6-St

Welding bulkhead couplings



Series Tube OD d1	Pressure	d2	SW3	l1* approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 315	18	14	85	56	10.3	0 7 41 00 00 00***	0 1 41 00 00 XX
L 8	PN 315	20	17	85	56	12.1	0 7 41 05 00 00	0 1 41 05 00 XX
L 10	PN 315	22	19	87	58	14.3	0 7 41 10 00 00	0 1 41 10 00 XX
L 12	PN 315	25	22	87	58	17.7	0 7 41 15 00 00	0 1 41 15 00 XX
L 15	PN 315	28	27	100	70	25.9	0 7 41 20 00 00	0 1 41 20 00 XX
L 18	PN 315	32	32	101	69	33.4	0 7 41 25 00 00	0 1 41 25 00 XX
L 22	PN 160	36	36	105	73	40.0	0 7 41 30 00 00	0 1 41 30 00 XX
L 28	PN 160	40	41	106	73	44.5	0 7 41 35 00 00	0 1 41 35 00 XX
L 35	PN 160	50	50	114	71	72.3	0 7 41 40 00 00	0 1 41 40 00 XX
L 42	PN 160	60	60	115	70	100.5	0 7 41 45 00 00	0 1 41 45 00 XX
S 6	PN 630	20	17	89	60	13.5	0 7 41 50 00 00	0 1 41 50 00 XX
S 8	PN 630	22	19	89	60	16.2	0 7 41 55 00 00	0 1 41 55 00 XX
S 10	PN 630	25	22	91	59	20.0	0 7 41 60 00 00	0 1 41 60 00 XX
S 12	PN 630	28	24	91	59	25.0	0 7 41 65 00 00	0 1 41 65 00 XX
S 14	PN 630	30	27	107	72	33.7	0 7 41 70 00 00	0 1 41 70 00 XX
S 16	PN 400	35	30	107	71	44.4	0 7 41 75 00 00	0 1 41 75 00 XX
S 20	PN 400	38	36	114	71	51.5	0 7 41 80 00 00	0 1 41 80 00 XX
S 25	PN 400	45	46	120	72	72.3	0 7 41 85 00 00	0 1 41 85 00 XX
S 30	PN 400	50	50	126	73	87.3	0 7 41 90 00 00	0 1 41 90 00 XX
S 38	PN 315	60	60	133	72	125.1	0 7 41 95 00 00	0 1 41 95 00 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

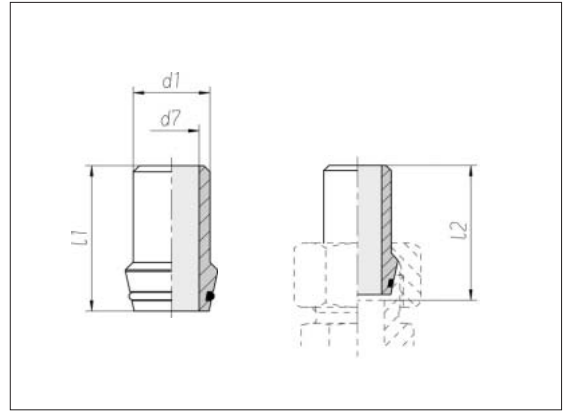
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see:
ESV06LX
ISO 8434-1-WDBHS-L6-St

Welding nipples with O-ring seal

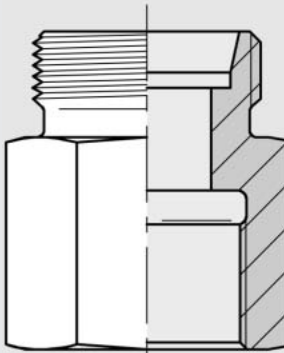
Welding end without
tube centring



Series Tube OD d1	Pressure	d7	for tube	l1	l2	kg/100 approx.	Order No.	Dim. O-ring	Order No. O-ring
S 6	PN 500	3	6 x 1.5	31	31.5	0.7	0 0 70 51 99 00*	4 x 1.5	0 9 00 00 99 67
S 8	PN 400	4.5	8 x 1.5	31	31.5	1.1	0 0 70 56 99 00	6 x 1.5	0 9 00 02 99 67
S 8	PN 500	4	8 x 2	31	31.5	1.1	0 0 70 57 99 00	6 x 1.5	0 9 00 02 99 67
S 10	PN 315	6.5	10 x 1.5	32.5	33.5	1.5	0 0 70 61 99 00	7.5 x 1.5	0 9 00 41 99 67
S 10	PN 400	6	10 x 2	32.5	33.5	1.7	0 0 70 62 99 00	7.5 x 1.5	0 9 00 41 99 67
S 10	PN 400	5	10 x 2.5	32.5	33.5	1.8	0 0 70 63 99 00	7.5 x 1.5	0 9 00 41 99 67
S 12	PN 315	8	12 x 1.5	32.5	33.5	2.1	0 0 70 66 99 00	9 x 1.5	0 9 00 42 99 67
S 12	PN 400	8	12 x 2	32.5	33.5	2.2	0 0 70 67 99 00	9 x 1.5	0 9 00 42 99 67
S 12	PN 400	7	12 x 2.5	32.5	33.5	2.5	0 0 70 68 99 00	9 x 1.5	0 9 00 42 99 67
S 14	PN 315	9	14 x 2	38.5	39.5	3.0	0 0 70 72 99 00	10 x 2	0 9 00 43 99 67
S 14	PN 315	9	14 x 2.5	38.5	39.5	3.3	0 0 70 73 99 00	10 x 2	0 9 00 43 99 67
S 16	PN 315	11	16 x 2	39	41	3.2	0 0 70 77 99 00	12 x 2	0 9 00 44 99 67
S 16	PN 315	11	16 x 2.5	39	41	4.1	0 0 70 78 99 00	12 x 2	0 9 00 44 99 67
S 16	PN 400	10	16 x 3	39	41	4.4	0 0 70 79 99 00	12 x 2	0 9 00 44 99 67
S 20	PN 250	14.5	20 x 2	45	47	6.0	0 0 70 81 99 00	16.3 x 2.4	0 9 00 45 99 67
S 20	PN 315	14	20 x 2.5	45	47	5.8	0 0 70 82 99 00	16.3 x 2.4	0 9 00 45 99 67
S 20	PN 315	14	20 x 3	45	47	6.9	0 0 70 83 99 00	16.3 x 2.4	0 9 00 45 99 67
S 20	PN 400	12	20 x 4	45	47	7.5	0 0 70 84 99 00	16.3 x 2.4	0 9 00 45 99 67
S 25	PN 315	18	25 x 2.5	50	53.5	8.5	0 0 70 86 99 00	20.3 x 2.4	0 9 00 46 99 67
S 25	PN 315	18	25 x 3	50	53.5	9.5	0 0 70 87 99 00	20.3 x 2.4	0 9 00 46 99 67
S 25	PN 400	17	25 x 4	50	53.5	11.0	0 0 70 88 99 00	20.3 x 2.4	0 9 00 46 99 67
S 25	PN 400	15	25 x 5	50	53.5	12.3	0 0 70 89 99 00	20.3 x 2.4	0 9 00 46 99 67
S 30	PN 250	23	30 x 3	52	57	14.9	0 0 70 92 99 00	25.3 x 2.4	0 9 00 47 99 67
S 30	PN 315	22	30 x 4	52	57	14.6	0 0 70 93 99 00	25.3 x 2.4	0 9 00 47 99 67
S 30	PN 400	20	30 x 5	52	57	17.6	0 0 70 94 99 00	25.3 x 2.4	0 9 00 47 99 67
S 38	PN 250	30	38 x 4	56.5	64	22.7	0 0 70 97 99 00	33.3 x 2.4	0 9 00 48 99 67
S 38	PN 315	28	38 x 5	56.5	64	24.6	0 0 70 98 99 00	33.3 x 2.4	0 9 00 48 99 67
S 38	PN 315	26	38 x 6	56.5	64	27.2	0 0 70 99 99 00	33.3 x 2.4	0 9 00 48 99 67

* Sample product code, see:
SKA06X1,5

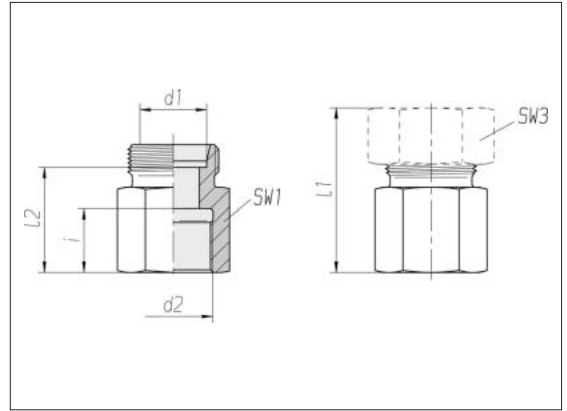
Female stud and
gauge couplings



Experience plus ideas

Straight female stud couplings

Female thread:
metric fine thread



Series	Pressure	d2	SW1	SW3	l1* approx.	l2	i	kg/100 approx.	Order No. Single component	Order No. **
L 6	PN 315	M 10 x 1	14	14	34.5	19.5	12.5	1.8	0 7 43 00 20 00***	0 1 43 00 20 XX
L 8	PN 315	M 10 x 1	14	17	34.5	19.5	12.5	1.8	0 7 43 06 20 00	0 1 43 06 20 XX
L 8	PN 315	M 12 x 1.5	17	17	39	24	17	3.1	0 7 43 05 20 00	0 1 43 05 20 XX
L 10	PN 315	M 14 x 1.5	19	19	40	25	17	3.7	0 7 43 10 20 00	0 1 43 10 20 XX
L 12	PN 315	M 16 x 1.5	22	22	41	26	17	5.1	0 7 43 15 20 00	0 1 43 15 20 XX
L 15	PN 315	M 18 x 1.5	24	27	43	28	17	6.5	0 7 43 20 20 00	0 1 43 20 20 XX
L 18	PN 315	M 22 x 1.5	30	32	46	29.5	19	10.9	0 7 43 25 20 00	0 1 43 25 20 XX
L 22	PN 160	M 26 x 1.5	32	36	51	34.5	21	12.1	0 7 43 30 20 00	0 1 43 30 20 XX
L 28	PN 160	M 33 x 2	41	41	54	37.5	24	20.8	0 7 43 35 20 00	0 1 43 35 20 XX
L 35	PN 160	M 42 x 2	55	50	62	40.5	26	45.2	0 7 43 40 20 00	0 1 43 40 20 XX
L 42	PN 160	M 48 x 2	60	60	65	42	28	51.5	0 7 43 45 20 00	0 1 43 45 20 XX
S 6	PB 630	M 10 x 1	19	17	40.5	25.5	16.5	4.8	0 7 43 51 20 00	0 1 43 51 20 XX
S 6	PB 630	M 12 x 1.5	17	17	41	26	17	3.0	0 7 43 50 20 00	0 1 43 50 20 XX
S 8	PB 630	M 14 x 1.5	19	19	41	26	17	4.2	0 7 43 55 20 00	0 1 43 55 20 XX
S 10	PB 630	M 16 x 1.5	22	22	43	26.5	17	5.8	0 7 43 60 20 00	0 1 43 60 20 XX
S 12	PB 630	M 18 x 1.5	24	24	44	27.5	17	6.9	0 7 43 65 20 00	0 1 43 65 20 XX
S 14	PB 630	M 20 x 1.5	27	27	49	31	19	9.6	0 7 43 70 20 00	0 1 43 70 20 XX
S 16	PB 400	M 22 x 1.5	30	30	49	30.5	19	11.5	0 7 43 75 20 00	0 1 43 75 20 XX
S 20	PB 400	M 27 x 2	36	36	56	34.5	22	18.6	0 7 43 80 20 00	0 1 43 80 20 XX
S 25	PB 400	M 33 x 2	41	46	61	37	24	24.1	0 7 43 85 20 00	0 1 43 85 20 XX
S 30	PB 400	M 42 x 2	55	50	68	41.5	26	49.3	0 7 43 90 20 00	0 1 43 90 20 XX
S 38	PB 315	M 48 x 2	60	60	74	43	28	60.5	0 7 43 95 20 00	0 1 43 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

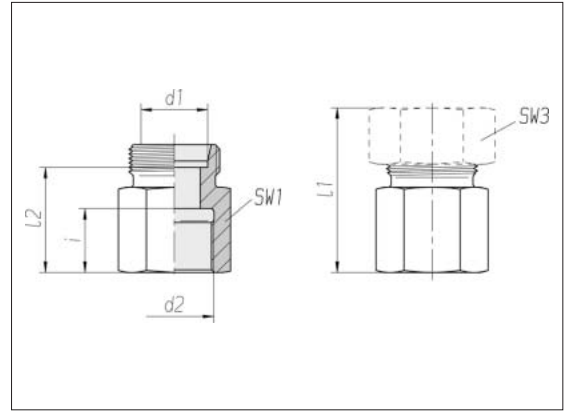
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GAI06LMX

Straight female stud couplings

Female thread:
Whitworth pipe thread



Series	Pressure	d2	SW1	SW3	l1*	l2	i	kg/100	Order No.	Order No.
Tube OD					approx.			approx.	Single component	**
d1										
L 6	PN 315	G 1/8	14	14	34	19	12	1.8	0 7 44 00 20 00***	0 1 44 00 20 XX
L 8	PN 315	G 1/4	19	17	39	24	17	3.8	0 7 44 05 20 00	0 1 44 05 20 XX
L 8	PN 315	G 3/8	24	17	40	25	17	6.2	0 7 44 07 20 00	0 1 44 07 20 XX
L 10	PN 315	G 1/4	19	19	40	25	17	3.9	0 7 44 10 20 00	0 1 44 10 20 XX
L 10	PN 315	G 3/8	24	19	41	26	17	6.2	0 7 44 12 20 00	0 1 44 12 20 XX
L 10	PN 315	G 1/2	27	19	45	30	20	8.1	0 7 44 13 20 00	0 1 44 13 20 XX
L 12	PN 315	G 1/4	19	22	40	25	17	4.0	0 7 44 16 20 00	0 1 44 16 20 XX
L 12	PN 315	G 3/8	24	22	41	26	17	6.2	0 7 44 15 20 00	0 1 44 15 20 XX
L 12	PN 315	G 1/2	27	22	45.5	31	20	8.4	0 7 44 17 20 00	0 1 44 17 20 XX
L 15	PN 315	G 1/2	27	27	46	31	20	8.6	0 7 44 20 20 00	0 1 44 20 20 XX
L 18	PN 315	G 1/2	27	32	47	30.5	20	8.9	0 7 44 25 20 00	0 1 44 25 20 XX
L 22	PN 160	G 3/4	36	36	52	35.5	22	17.3	0 7 44 30 20 00	0 1 44 30 20 XX
L 28	PN 160	G 1	41	41	54.5	38	24.5	20.9	0 7 44 35 20 00	0 1 44 35 20 XX
L 35	PN 160	G 1 1/4	55	50	62.5	41	26.5	45.7	0 7 44 40 20 00	0 1 44 40 20 XX
L 42	PN 160	G 1 1/2	60	60	65.5	42.5	28.5	52.8	0 7 44 45 20 00	0 1 44 45 20 XX

Supplementary to Order No. for complete fitting	Supplementary to Order No.
tube connection	
2S	07
ES-4	09
BV-10	Refer to the front page

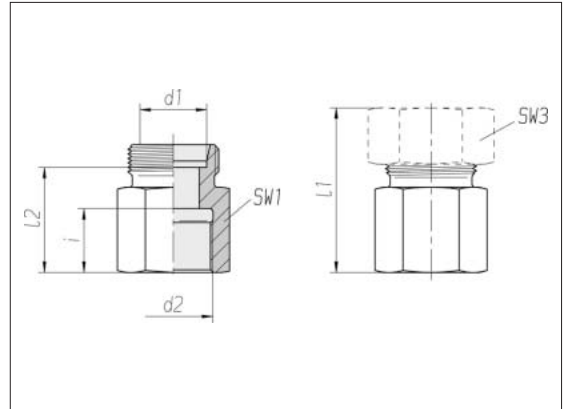
* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: GAI06LRX

Straight female stud couplings

Female thread:
Whitworth pipe thread



Series Tube OD d1	Pressure	d2	SW1	SW3	l1* approx.	l2	i	kg/100 approx.	Order No. Single component	Order No. **
S 6	PB 630	G 1/4	19	17	41	26	17	4.2	0 7 44 50 20 00	0 1 44 50 20 XX
S 6	PB 630	G 1/4	19	17	35.5	21	12	3.5	0 7 44 54 20 00	0 1 44 54 20 XX
S 8	PB 630	G 1/4	19	19	41	26	17	4.4	0 7 44 55 20 00	0 1 44 55 20 XX
S 10	PB 630	G 3/8	24	22	43	26.5	17	6.9	0 7 44 60 20 00	0 1 44 60 20 XX
S 12	PB 630	G 1/4	22	24	43	26.5	17	6.8	0 7 44 66 20 00	0 1 44 66 20 XX
S 12	PB 630	G 3/8	24	24	43	26.5	17	7.1	0 7 44 65 20 00	0 1 44 65 20 XX
S 12	PB 630	G 1/2	27	24	47	30.5	20	8.8	0 7 44 67 20 00	0 1 44 67 20 XX
S 14	PB 630	G 1/2	27	27	50	32	20	9.4	0 7 44 70 20 00	0 1 44 70 20 XX
S 16	PB 400	G 1/2	27	30	50	31.5	20	9.3	0 7 44 75 20 00	0 1 44 75 20 XX
S 20	PB 400	G 3/4	36	36	56	34.5	22	18.9	0 7 44 80 20 00	0 1 44 80 20 XX
S 25	PB 400	G 1	41	46	61.5	37.5	24.5	24.0	0 7 44 85 20 00	0 1 44 85 20 XX
S 30	PB 400	G 1 1/4	55	50	68.5	42	26.5	50.3	0 7 44 90 20 00	0 1 44 90 20 XX
S 38	PB 315	G 1 1/2	60	60	74.5	43.5	28.5	61.5	0 7 44 95 20 00	0 1 44 95 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

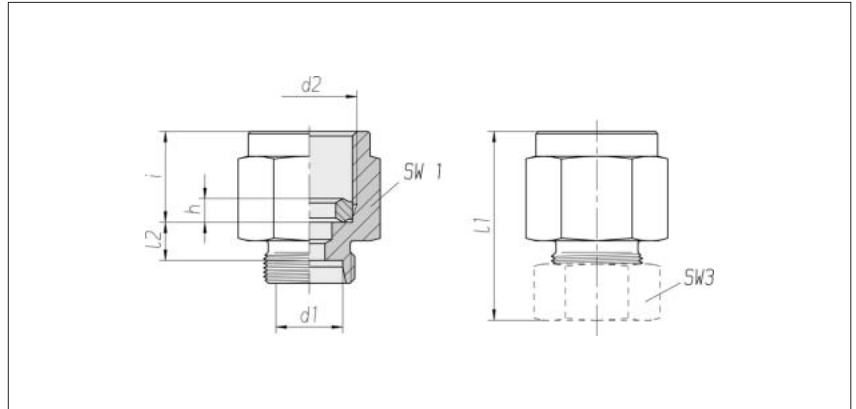
* Apply to complete fittings with
2S or ES-4 tube connection
components.
For BV-10 Refer to the front page.

** With union nut and 2S, ES-4
or BV-10 tube connection
components

Gauge couplings

Female thread:
Whitworth pipe thread

Standard coupling



3

Series	Pressure	d2		SW1	SW3	l1*	l2	i	h	kg/100	Order No.	Order No.
Tube OD						approx.				approx.	Single component	**
d1												
L 6	PN 315	G 1/4		19	14	37	7.5	14.5	4.6	3.4	0 1 42 00 20 81***	0 1 42 00 20 XX
L 8	PN 315	G 1/4		19	17	37	7.5	14.5	4.6	3.6	0 1 42 05 20 81	0 1 42 05 20 XX
L 10	PN 315	G 1/4		19	19	38	8.5	14.5	4.6	3.9	0 1 42 10 20 81	0 1 42 10 20 XX
L 12	PN 315	G 1/4		19	22	38	8.5	14.5	4.6	4.0	0 1 42 15 20 81	0 1 42 15 20 XX
S 6	PN 630	G 1/2		27	17	46	11	20	5.2	8.2	0 1 42 50 20 81	0 1 42 50 20 XX
S 8	PN 630	G 1/4		19	19	39	9.5	14.5	4.6	4.2	0 1 42 56 20 81	0 1 42 56 20 XX
S 8	PN 630	G 1/2		27	19	46	11	20	5.2	8.5	0 1 42 55 20 81	0 1 42 55 20 XX
S 10	PN 630	G 1/2		27	22	47	10.5	20	5.2	8.8	0 1 42 60 20 81	0 1 42 60 20 XX
S 12	PN 630	G 1/2		27	24	47	10.5	20	5.2	9.0	0 1 42 65 20 81	0 1 42 65 20 XX

Supplementary to Order No. for complete fitting	
tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

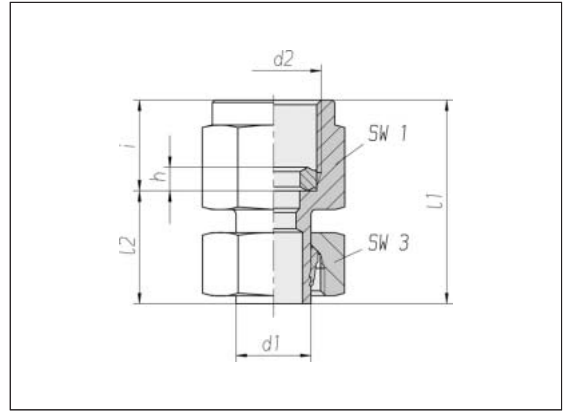
** With union nut and 2S, ES-4 or BV-10 tube connection components

*** Sample product code, see: MAV06LROMD

Gauge couplings

Female thread:
Whitworth pipe thread

Male version
pre-assembled

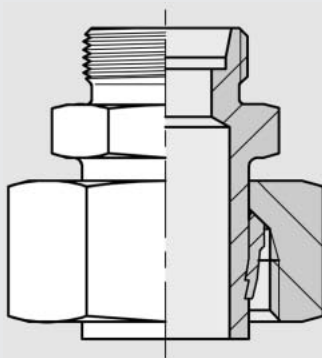


Series	Pressure	d2	SW1	SW3	l1	l2	i	h	kg/100	Order No.
Tube OD					approx.				approx.	
d1										
L 6	PN 315	G 1/8	19	14	38	23.5	14.5	¹⁾	5.2	0 1 42 03 20 07
L 6	PN 315	G 1/4	19	14	38	23.5	14.5	4.6	4.8	0 1 42 04 20 07*
L 8	PN 315	G 1/4	19	17	38	23.5	14.5	4.6	5.5	0 1 42 09 20 07
L 10	PN 315	G 1/4	19	19	39.5	25	14.5	4.6	6.2	0 1 42 13 20 07
L 12	PN 315	G 1/4	19	22	40.5	26	14.5	4.6	7.4	0 1 42 18 20 07
S 6	PN 630	G 1/2	27	17	45	25	20	5.2	9.9	0 1 42 54 20 07
S 8	PN 630	G 1/2	27	19	45	25	20	5.2	10.4	0 1 42 59 20 07
S 10	PN 630	G 1/2	27	22	47	27	20	5.2	12.0	0 1 42 61 20 07
S 12	PN 630	G 1/2	27	24	47.5	27.5	20	5.2	12.9	0 1 42 69 20 07

* Sample product code, see:
MAVEV06LR

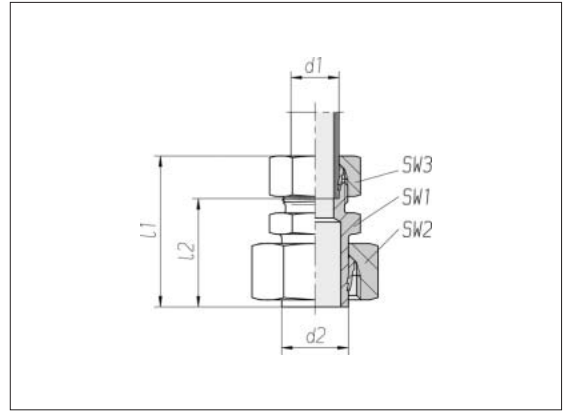
¹⁾ without seal-edge ring

Reducing couplings



Reducing inserts

With hexagon for locking
 Tube socket pre-assembled



Tube socket d2	Pressure	Series Tube OD d1	SW1	SW2	SW3	l1 approx.	l2	kg/100 approx.	Order No. Single component	Order No. *
L 8	PN 315	L 6	12	17	14	40.5	26	2.9	0 1 48 05 20 74**	0 1 48 05 20 73
L 10	PN 315	L 8	14	19	17	42.5	28	3.8	0 1 48 10 20 74	0 1 48 10 20 73
L 10	PN 315	L 6	12	19	14	41.5	27	3.4	0 1 48 11 20 74	0 1 48 11 20 73
L 12	PN 315	L 10	17	22	19	45.5	31	5.2	0 1 48 15 20 74	0 1 48 15 20 73
L 12	PN 315	L 8	14	22	17	44.5	30	4.8	0 1 48 16 20 74	0 1 48 16 20 73
L 12	PN 315	L 6	14	22	14	44.5	30	4.7	0 1 48 17 20 74	0 1 48 17 20 73
L 15	PN 315	L 12	19	27	22	48	33	8.2	0 1 48 20 20 74	0 1 48 20 20 73
L 15	PN 315	L 10	17	27	19	47	32	7.7	0 1 48 21 20 74	0 1 48 21 20 73
L 15	PN 315	L 8	17	27	17	46	31	7.5	0 1 48 22 20 74	0 1 48 22 20 73
L 15	PN 315	L 6	17	27	14	46	31	7.4	0 1 48 23 20 74	0 1 48 23 20 73
L 18	PN 315	L 15	24	32	27	47.5	32.5	11.9	0 1 48 25 20 74	0 1 48 25 20 73
L 18	PN 315	L 12	19	32	22	46.5	31.5	10.3	0 1 48 26 20 74	0 1 48 26 20 73
L 18	PN 315	L 10	19	32	19	46.5	31.5	10.2	0 1 48 27 20 74	0 1 48 27 20 73
L 18	PN 315	L 8	19	32	17	45.5	30.5	10.2	0 1 48 28 20 74	0 1 48 28 20 73
L 18	PN 315	L 6	19	32	14	45.5	30.5	11.0	0 1 48 29 20 74	0 1 48 29 20 73
L 22	PN 160	L 18	27	36	32	50.5	34	16.2	0 1 48 30 20 74	0 1 48 30 20 73
L 22	PN 160	L 15	24	36	27	48.5	33.5	14.7	0 1 48 31 20 74	0 1 48 31 20 73
L 22	PN 160	L 12	24	36	22	47.5	32.5	14.1	0 1 48 32 20 74	0 1 48 32 20 73
L 22	PN 160	L 10	24	36	19	47.5	32.5	14.1	0 1 48 33 20 74	0 1 48 33 20 73
L 22	PN 160	L 8	24	36	17	46.5	31.5	14.5	0 1 48 34 20 74	0 1 48 34 20 73
L 22	PN 160	S 20	32	36	36	61.5	40	21.5	0 1 98 36 20 74	0 1 98 36 20 73
L 28	PN 160	L 22	32	41	36	54	37.5	20.2	0 1 48 35 20 74	0 1 48 35 20 73
L 28	PN 160	L 18	30	41	32	52	35.5	19.1	0 1 48 36 20 74	0 1 48 36 20 73
L 28	PN 160	L 15	30	41	27	50	35	18.4	0 1 48 37 20 74	0 1 48 37 20 73
L 28	PN 160	L 12	30	41	22	49	34	18.3	0 1 48 38 20 74	0 1 48 38 20 73
L 28	PN 160	L 10	30	41	19	49	34	17.8	0 1 48 39 20 74	0 1 48 39 20 73
L 28	PN 160	L 8	30	41	17	50	35	17.5	0 1 99 02 20 74	0 1 99 02 20 73

Continuation on page 183

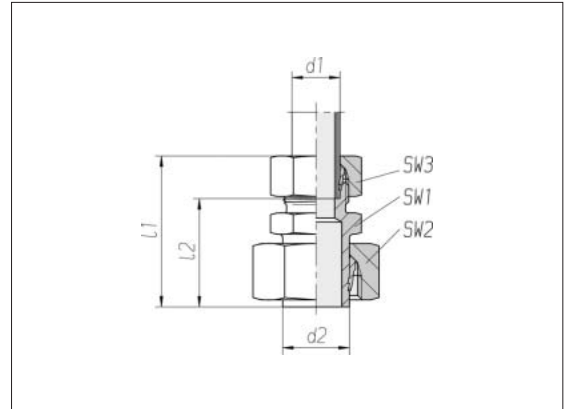
Other diameter combinations on request

* With union nut and 2S cutting ring

** Sample product code, see: KOR08/06LOMD

Reducing inserts

With hexagon for locking
 Tube socket pre-assembled



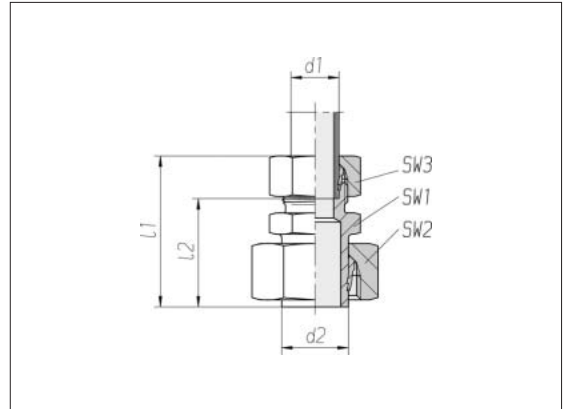
Tube socket d2	Pressure	Series Tube OD d1	SW1	SW2	SW3	l1 approx.	l2	kg/100 approx.	Order No. Single component	Order No. *
L 35	PN 160	L 28	41	50	41	61.5	45	31.8	0 1 48 40 20 74	0 1 48 40 20 73
L 35	PN 160	L 22	36	50	36	60.5	44	28.8	0 1 48 41 20 74	0 1 48 41 20 73
L 35	PN 160	L 18	36	50	32	58.5	42	28.7	0 1 48 42 20 74	0 1 48 42 20 73
L 35	PN 160	L 15	36	50	27	56.5	41.5	29.1	0 1 48 43 20 74	0 1 48 43 20 73
L 35	PN 160	L 12	36	50	22	55	40.5	28.6	0 1 48 44 20 74	0 1 48 44 20 73
L 42	PN 160	L 35	46	60	50	69	47.5	47.8	0 1 48 45 20 74	0 1 48 45 20 73
L 42	PN 160	L 28	46	60	41	64	47.5	45.1	0 1 48 46 20 74	0 1 48 46 20 73
L 42	PN 160	L 22	46	60	36	63	46.5	44.9	0 1 48 47 20 74	0 1 48 47 20 73
L 42	PN 160	L 18	46	60	32	61	44.5	46.2	0 1 48 48 20 74	0 1 48 48 20 73
L 42	PN 160	L 15	46	60	27	60	45	45.0	0 1 48 49 20 74	0 1 48 49 20 73
L 42	PN 160	L 10	46	60	19	59	44	44.2	0 1 99 80 20 74	0 1 99 80 20 73

Other diameter combinations
 on request

* With union nut and 2S cutting ring

Reducing inserts

With hexagon for locking
Tube socket pre-assembled



Tube socket d2	Pressure	Series Tube OD d1	SW1	SW2	SW3	l1 approx.	l2	kg/100 approx.	Order No. Single component	Order No. *
S 8	PN 630	S 6	14	19	17	45	30	4.4	0 1 48 55 20 74**	0 1 48 55 20 73
S 10	PN 630	S 8	17	22	19	49	34	6.7	0 1 48 60 20 74	0 1 48 60 20 73
S 10	PN 630	S 6	14	22	17	47	32	5.9	0 1 48 61 20 74	0 1 48 61 20 73
S 12	PN 630	S 10	19	24	22	50	33.5	7.8	0 1 48 65 20 74	0 1 48 65 20 73
S 12	PN 630	S 8	17	24	19	49	34	7.4	0 1 48 66 20 74	0 1 48 66 20 73
S 12	PN 630	S 6	14	24	17	47	32	6.6	0 1 48 67 20 74	0 1 48 67 20 73
S 14	PN 630	S 12	22	27	24	55	38.5	12.0	0 1 48 70 20 74	0 1 48 70 20 73
S 14	PN 630	S 10	19	27	22	53	36.5	10.6	0 1 48 71 20 74	0 1 48 71 20 73
S 14	PN 630	S 8	17	27	19	52	37	10.0	0 1 48 72 20 74	0 1 48 72 20 73
S 14	PN 630	S 6	17	27	17	50	35	9.6	0 1 48 73 20 74	0 1 48 73 20 73
S 16	PN 400	S 14	24	30	27	58	40	14.7	0 1 48 75 20 74	0 1 48 75 20 73
S 16	PN 400	S 12	22	30	24	55	38.5	13.3	0 1 48 76 20 74	0 1 48 76 20 73
S 16	PN 400	S 10	19	30	22	53	36.5	11.9	0 1 48 77 20 74	0 1 48 77 20 73
S 16	PN 400	S 8	17	30	19	52	37	11.6	0 1 48 78 20 74	0 1 48 78 20 73
S 16	PN 400	S 6	17	30	17	50	35	11.1	0 1 48 79 20 74	0 1 48 79 20 73
S 16	PN 315	L 12	19	30	22	50.5	36	11.6	1 1 48 02 20 74	1 1 48 02 20 73
S 16	PN 315	L 15	24	30	27	54	39	13.4	0 1 97 87 20 74	0 1 97 87 20 73
S 20	PN 400	S 16	27	36	30	62	43.5	20.3	0 1 48 80 20 74	0 1 48 80 20 73
S 20	PN 400	S 14	24	36	27	62	44	19.1	0 1 48 81 20 74	0 1 48 81 20 73
S 20	PN 400	S 12	22	36	24	59	42.5	17.9	0 1 48 82 20 74	0 1 48 82 20 73
S 20	PN 400	S 10	22	36	22	57	40.5	16.8	0 1 48 83 20 74	0 1 48 83 20 73
S 20	PN 400	S 8	22	36	19	56	41	17.2	0 1 48 84 20 74	0 1 48 84 20 73
S 20	PN 400	S 6	22	36	17	55	40	7.4	0 1 99 01 20 74	0 1 99 01 20 73

Continuation on page 185

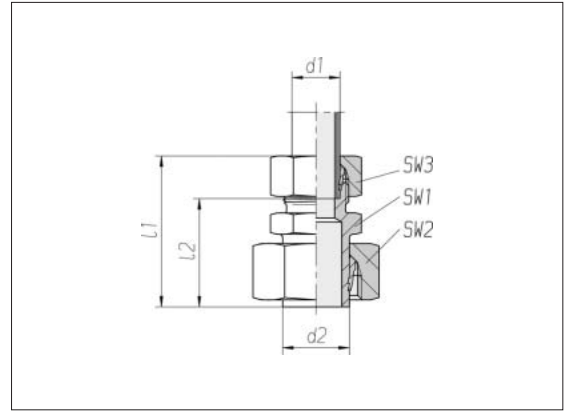
Other diameter combinations on request

* With union nut and 2S cutting ring

** Sample product code, see: KOR08/06SOMD

Reducing inserts

With hexagon for locking
 Tube socket pre-assembled

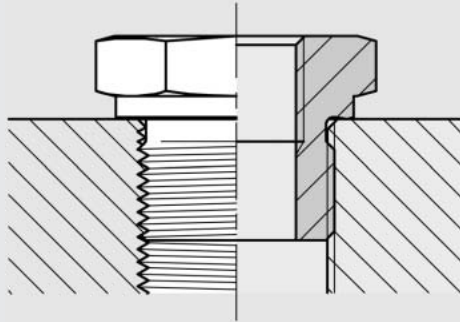


Tube socket d2	Pressure	Series Tube OD d1	SW1	SW2	SW3	l1 approx.	l2	kg/100 approx.	Order No. Single component	Order No. *
S 25	PN 400	S 20	32	46	36	70	48.5	37.0	0 1 48 85 20 74	0 1 48 85 20 73
S 25	PN 400	S 16	27	46	30	65	46.5	33.2	0 1 48 86 20 74	0 1 48 86 20 73
S 25	PN 400	S 14	27	46	27	65	47	33.1	0 1 48 87 20 74	0 1 48 87 20 73
S 25	PN 400	S 12	27	46	24	62	45.5	32.6	0 1 48 88 20 74	0 1 48 88 20 73
S 25	PN 400	S 10	27	46	22	60	43.5	31.9	0 1 48 89 20 74	0 1 48 89 20 73
S 25	PN 400	S 8	27	46	19	59	44	31.5	0 1 99 00 20 74	0 1 99 00 20 73
S 25	PN 160	L 22	32	46	36	64	47.5	36.0	0 1 98 37 20 74	0 1 98 37 20 73
S 25	PN 315	L 18	27	46	32	60	43.5	31.7	0 1 98 62 20 74	0 1 98 62 20 73
S 30	PN 400	S 25	41	50	46	78	54	49.4	0 1 48 90 20 74	0 1 48 90 20 73
S 30	PN 400	S 20	32	50	36	73	51.5	39.9	0 1 48 91 20 74	0 1 48 91 20 73
S 30	PN 400	S 16	32	50	30	68	49.5	37.9	0 1 48 92 20 74	0 1 48 92 20 73
S 30	PN 400	S 14	32	50	27	68	50	18.1	0 1 48 93 20 74	0 1 48 93 20 73
S 30	PN 400	S 12	32	50	24	65	48.5	37.5	0 1 48 94 20 74	0 1 48 94 20 73
S 38	PN 315	S 30	46	60	50	87	60.5	71.4	0 1 48 95 20 74	0 1 48 95 20 73
S 38	PN 315	S 25	41	60	46	84	60	64.5	0 1 48 96 20 74	0 1 48 96 20 73
S 38	PN 315	S 20	41	60	36	79	57.5	60.5	0 1 48 97 20 74	0 1 48 97 20 73
S 38	PN 315	S 16	41	60	30	74	55.5	58.9	0 1 48 98 20 74	0 1 48 98 20 73
S 38	PN 315	S 10	41	60	22	71	54.5	28.2	0 1 99 87 20 74	0 1 99 87 20 73

Other diameter combinations
 on request

* With union nut and 2S cutting ring

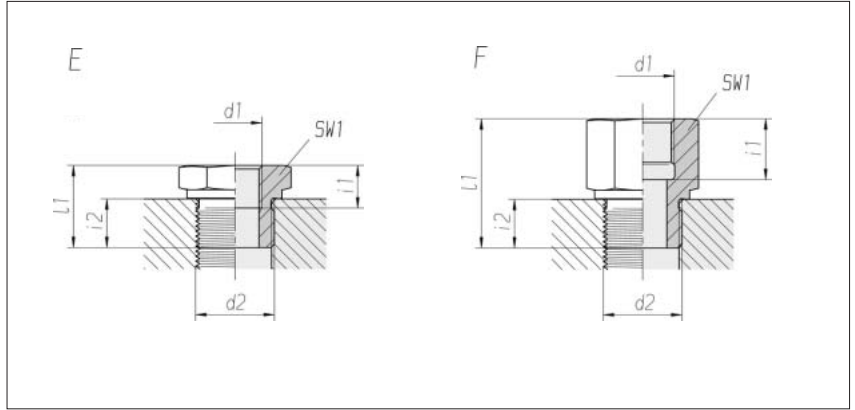
Component Parts



Reducing couplings

Both threads:
Whitworth pipe thread,
straight

Sealed with seal edge



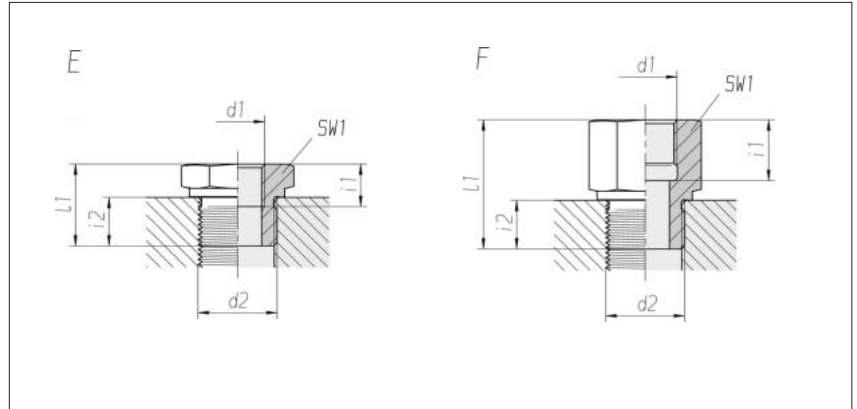
Male thread d2	Female thread d1	Pressure	SW1	l1	i1	i2	Type	Nm -10 %	kg/100 approx.	Order No.
G 1/8 A	G 3/8	PB 630	24	32	17	8	F	25	6.3	0 1 49 00 20 00*
G 1/8 A	G 1/4	PB 630	19	31	17	8	F	25	3.7	0 1 49 01 20 00
G 1/4 A	G 3/4	PB 630	36	43	22	12	F	60	17.0	0 1 49 02 20 00
G 1/4 A	G 1/2	PB 630	27	40	20	12	F	60	8.6	0 1 49 03 20 00
G 1/4 A	G 3/8	PB 630	24	36	17	12	F	60	6.6	0 1 49 04 20 00
G 1/4 A	G 1/8	PB 630	19	28	12	12	F	60	4.0	0 1 49 05 20 00
G 3/8 A	G 3/4	PB 400	36	44	22	12	F	110	17.7	0 1 49 06 20 00
G 3/8 A	G 1/2	PB 400	27	41	20	12	F	110	9.6	0 1 49 07 20 00
G 3/8 A	G 1/4	PB 400	22	36	17	12	F	110	7.0	0 1 49 08 20 00
G 3/8 A	G 1/8	PB 400	22	22.5	8	12	E	110	3.9	0 1 49 09 20 00
G 1/2 A	G 1 1/4	PB 250	55	53	26.5	14	F	200	48.0	0 1 49 10 20 00
G 1/2 A	G 1	PB 400	41	49	24.5	14	F	200	22.1	0 1 49 11 20 00
G 1/2 A	G 3/4	PB 400	36	46	22	14	F	200	18.2	0 1 49 12 20 00
G 1/2 A	G 3/8	PB 400	27	36	17	14	F	200	9.1	0 1 49 13 20 00
G 1/2 A	G 1/4	PB 400	27	24	12	14	E	200	5.5	0 1 49 14 20 00
G 1/2 A	G 1/8	PB 400	27	24	8	14	E	200	6.6	0 1 49 15 20 00
G 3/4 A	G 1 1/2	PB 250	60	57	28.5	16	F	320	56.5	0 1 49 16 20 00
G 3/4 A	G 1 1/4	PB 250	55	55	26.5	16	F	320	48.7	0 1 49 17 20 00
G 3/4 A	G 1	PB 400	41	51	24.5	16	F	320	23.7	0 1 49 18 20 00
G 3/4 A	G 1/2	PB 400	32	41	20	16	F	320	14.4	0 1 49 19 20 00
G 3/4 A	G 3/8	PB 400	32	26	12	16	E	320	8.7	0 1 49 20 20 00
G 3/4 A	G 1/4	PB 400	32	26	12	16	E	320	10.2	0 1 49 21 20 00

Continuation on page 189

Reducing couplings

Both threads:
Whitworth pipe thread,
straight

Sealed with seal edge



Male thread d2	Female thread d1	Pressure	SW1	l1	i1	i2	Type	Nm -10 %	kg/100 approx.	Order No.	
G 1	A	G 1 1/2	PB 250	60	59	28.5	18	F	500	58.6	0 1 49 22 20 00*
G 1	A	G 1 1/4	PB 250	55	57	26.5	18	F	500	50.9	0 1 49 23 20 00
G 1	A	G 3/4	PB 400	41	47	22	18	F	500	27.3	0 1 49 24 20 00
G 1	A	G 1/2	PB 400	41	29	14	18	E	500	15.4	0 1 49 25 20 00
G 1	A	G 3/8	PB 400	41	29	12	18	E	500	17.9	0 1 49 26 20 00
G 1	A	G 1/4	PB 400	41	29	12	18	E	500	19.5	0 1 49 27 20 00
G 1 1/4 A	A	G 1 1/2	PB 250	60	60	28.5	20	F	600	62.1	0 1 49 28 20 00
G 1 1/4 A	A	G 1	PB 250	50	52	24.5	20	F	600	45.8	0 1 49 29 20 00
G 1 1/4 A	A	G 3/4	PB 250	50	32	16	20	E	600	26.4	0 1 49 30 20 00
G 1 1/4 A	A	G 1/2	PB 250	50	32	14	20	E	600	31.0	0 1 49 31 20 00
G 1 1/2 A	A	G 1 1/4	PB 250	55	58	26.5	22	F	800	52.7	0 1 49 32 20 00
G 1 1/2 A	A	G 1	PB 250	55	36	18	22	E	800	34.0	0 1 49 33 20 00
G 1 1/2 A	A	G 3/4	PB 250	55	36	16	22	E	800	42.2	0 1 49 34 20 00
G 1 1/2 A	A	G 1/2	PB 250	55	36	14	22	E	800	47.8	0 1 49 35 20 00

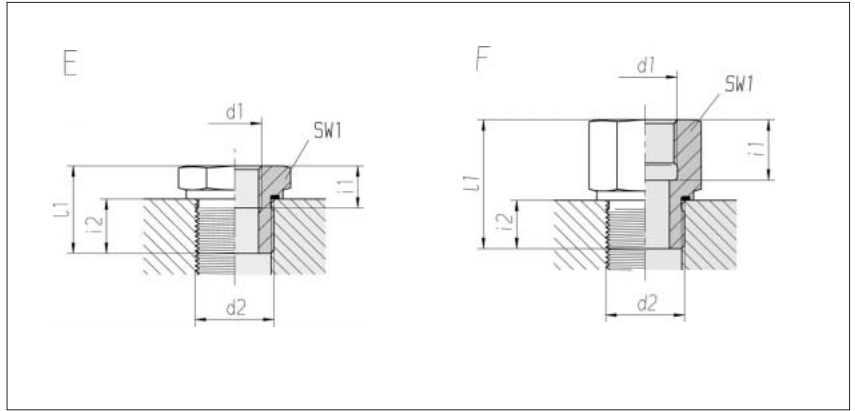
Reducing couplings with metric threads on request

* Sample product code, see: RI1X11/2X

Reducing couplings

Both threads:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



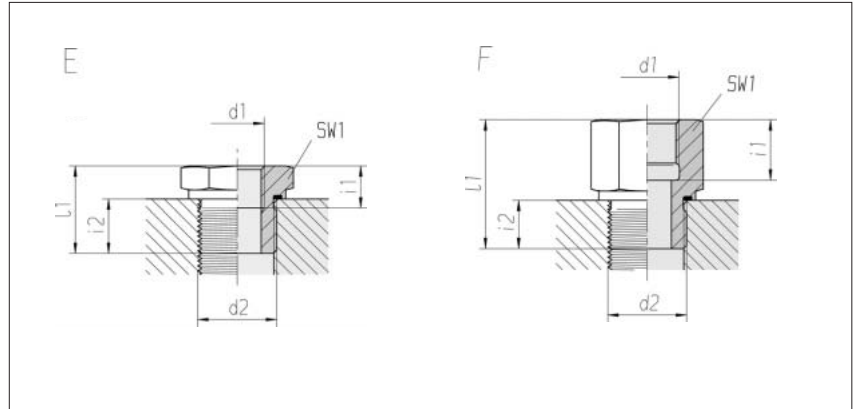
Male thread d2	Female thread d1	Pressure	SW1	l1	i1	i2	Type	Nm -10 %	kg/100 approx.	Order No.
G 1/8 A	G 3/8	PN 630	24	33.5	17	8	F	20	6.8	1 1 49 00 20 00*
G 1/8 A	G 1/4	PN 630	19	32.5	17	8	F	20	4.2	1 1 49 01 20 00
G 1/4 A	G 3/4	PN 630	36	44.5	22	12	F	60	18.5	1 1 49 02 20 00
G 1/4 A	G 1/2	PN 630	30	41.5	20	12	F	60	12.4	1 1 49 03 20 00
G 1/4 A	G 3/8	PN 630	24	37.5	17	12	F	60	7.3	1 1 49 04 20 00
G 1/4 A	G 1/8	PN 630	19	31.5	12	12	F	60	4.6	1 1 49 05 20 00
G 3/8 A	G 3/4	PN 400	36	45.5	22	12	F	90	19.1	1 1 49 06 20 00
G 3/8 A	G 1/2	PN 630	30	42.5	20	12	F	90	13.2	1 1 49 07 20 00
G 3/8 A	G 1/4	PN 630	22	37.5	17	12	F	90	7.2	1 1 49 08 20 00
G 3/8 A	G 1/8	PN 630	22	22.5	8	12	E	90	3.8	1 1 49 09 20 00
G 1/2 A	G 1 1/4	PN 400	55	54.5	26.5	14	F	150	50.3	1 1 49 10 20 00
G 1/2 A	G 1	PN 400	41	50.5	24.5	14	F	150	23.7	1 1 49 11 20 00
G 1/2 A	G 3/4	PN 400	36	47.5	22	14	F	150	19.4	1 1 49 12 20 00
G 1/2 A	G 1/2	PN 630	30	42	20	14	F	150	12.3	1 1 49 40 20 00
G 1/2 A	G 3/8	PN 630	27	37.5	17	14	F	150	9.7	1 1 49 13 20 00
G 1/2 A	G 1/4	PN 630	27	24	12	14	E	150	5.6	1 1 49 14 20 00
G 1/2 A	G 1/8	PN 630	27	24	8	14	E	150	6.5	1 1 49 15 20 00
G 3/4 A	G 1 1/2	PN 315	60	58.5	28.5	16	F	200	59.6	1 1 49 16 20 00
G 3/4 A	G 1 1/4	PN 400	55	56.5	26.5	16	F	200	51.4	1 1 49 17 20 00
G 3/4 A	G 1	PN 400	41	52.5	24.5	16	F	200	24.7	1 1 49 18 20 00
G 3/4 A	G 1/2	PN 400	32	42.5	20	16	F	200	15.0	1 1 49 19 20 00
G 3/4 A	G 3/8	PN 400	32	26	12	16	E	200	8.5	1 1 49 20 20 00
G 3/4 A	G 1/4	PN 400	32	26	12	16	E	200	10.1	1 1 49 21 20 00

Continuation on page 191

Reducing couplings

Both threads:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Male thread d2	Female thread d1	Pressure	SW1	l1	i1	i2	Type	Nm -10 %	kg/100 approx.	Order No.
G 1	A G 1 1/2	PN 315	60	61	28.5	18	F	250	62.6	1 1 49 22 20 00*
G 1	A G 1 1/4	PN 400	55	59	26.5	18	F	250	54.9	1 1 49 23 20 00
G 1	A G 3/4	PN 400	41	49	22	18	F	250	28.6	1 1 49 24 20 00
G 1	A G 1/2	PN 400	41	29	14	18	E	250	15.2	1 1 49 25 20 00
G 1	A G 3/8	PN 400	41	29	12	18	E	250	17.8	1 1 49 26 20 00
G 1	A G 1/4	PN 400	41	29	12	18	E	250	19.3	1 1 49 27 20 00
G 1 1/4 A	G 1 1/2	PN 315	60	62	28.5	20	F	500	65.9	1 1 49 28 20 00
G 1 1/4 A	G 1	PN 400	50	54	24.5	20	F	500	48.2	1 1 49 29 20 00
G 1 1/4 A	G 3/4	PN 400	50	32	16	20	E	500	26.0	1 1 49 30 20 00
G 1 1/4 A	G 1/2	PN 400	50	32	14	20	E	500	30.9	1 1 49 31 20 00
G 1 1/2 A	G 1 1/4	PN 315	55	60	26.5	22	F	600	55.3	1 1 49 32 20 00
G 1 1/2 A	G 1	PN 315	55	36	18	22	E	600	33.6	1 1 49 33 20 00
G 1 1/2 A	G 3/4	PN 315	55	36	16	22	E	600	41.6	1 1 49 34 20 00
G 1 1/2 A	G 1/2	PN 315	55	36	14	22	E	600	46.7	1 1 49 35 20 00
G 2	A G 1 1/2	PN 160	70	65	28.5	24	F	700	105.0	1 1 49 41 20 00
G 2	A G 1 1/4	PN 160	70	45	26.5	24	E	700	69.6	1 1 49 47 20 00

Reducing couplings with metric threads on request

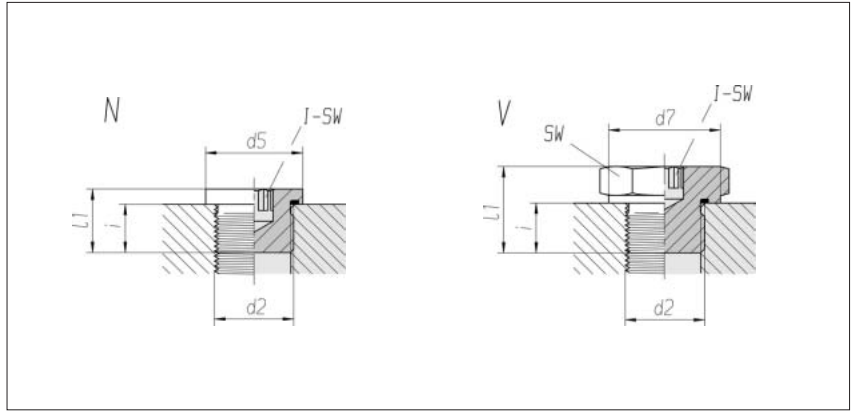
* Sample product code, see: RI1EDX11/2

Blanking screws

For threaded holes
according to DIN 3852 /
ISO 9974

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal



d2	Pressure	SW	d5	d7	I-SW	l1	i	Type	Nm -10 %	kg/100 approx.	Order No.
M 8 x 1	PN 400		12.0		4	12.3	8	N	10	0.5	0 1 89 14 21 00**
M 10 x 1	PN 400		14.0		5	12.3	8	N	12	0.7	0 1 89 20 21 00
M 10 x 1	PN 400	14		13.9		18	8	V	12	1.6	1 1 89 20 21 00
M 12 x 1.5	PN 400		17.0		6	17.3	12	N	23	1.4	0 1 89 21 21 00
M 14 x 1.5	PN 400		19.0		6	17.3	12	N	30	1.9	0 1 89 22 21 00
M 14 x 1.5	PN 400	19		18.9		22	12	V	30	3.4	1 1 89 22 21 00
M 16 x 1.5	PN 400		21.9		8	17.3	12	N	50	2.4	0 1 89 23 21 00
M 18 x 1.5	PN 400		23.9		8	17.3	12	N	65	3.2	0 1 89 24 21 00
M 18 x 1.5	PN 400	24		23.9		22	12	V	65	5.6	1 1 89 24 21 00
M 20 x 1.5	PN 400		25.9		10	19.3	14	N	75	4.0	0 1 89 25 21 00
M 22 x 1.5	PN 400		27.0		10	19.3	14	N	90	5.0	0 1 89 26 21 00
M 24 x 1.5	PN 400		29.9		12	19.3	14	N	80	5.8	0 1 89 27 21 00
M 26 x 1.5	PN 400		31.9		12	21.3	16	N	110	7.4	0 1 89 28 21 00
M 27 x 2	PN 400		32.0		12	21.3	16	N	130	7.7	0 1 89 29 21 00
M 33 x 2	PN 400		39.9		17	22.8	16	N	225	12.4	0 1 89 30 21 00
M 33 x 2*	PN 400	46		46		17	33	V	250	27.4	1 1 89 30 21 00
M 42 x 2	PN 315		49.9		22	22.8	16	N	310	18.6	0 1 89 31 21 00
M 42 x 2*	PN 400	60		57		22	38	V	400	53.4	1 1 89 31 21 00
M 48 x 2	PN 315		55.0		24	22.8	16	N	380	24.4	0 1 89 32 21 00
M 48 x 2*	PN 400	65		64		24	40	V	500	69.2	1 1 89 32 21 00

* Threaded hole
according to DIN 3852. type X,
d4 = wide

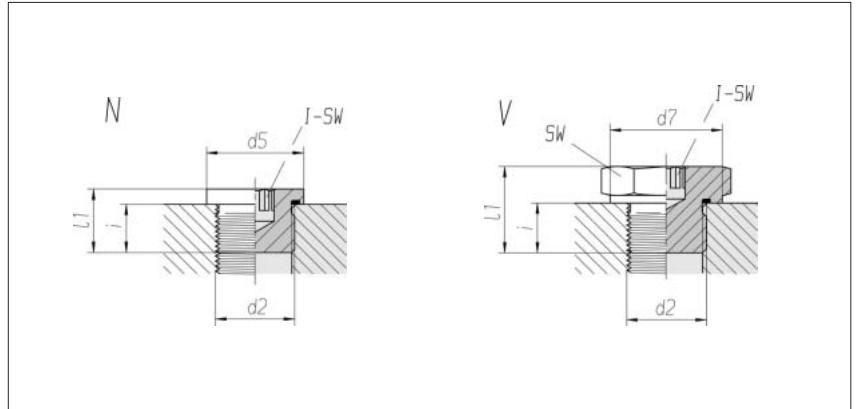
** Sample product code, see:
VSTI8X1ED

Blanking screws

For threaded holes according to DIN 3852 / ISO 1179

Thread: Whitworth pipe thread, straight

Sealed with PEFLEX seal



d2	Pressure	SW	d5	d7	I-SW	l1	i	Type	Nm -10 %	kg/100 approx.	Order No.
G 1/8 A	PN 400		14.0		5	12.3	8	N	12	0.7	0 1 89 33 21 00**
G 1/4 A	PN 400		18.9		6	17.3	12	N	25	1.8	0 1 89 34 21 00
G 3/8 A	PN 400		22.0		8	17.3	12	N	50	2.7	0 1 89 35 21 00
G 1/2 A	PN 400		26.9		10	19.3	14	N	70	4.4	0 1 89 36 21 00
G 3/4 A	PN 400		32.0		12	21.3	16	N	120	7.5	0 1 89 37 21 00
G 1 A	PN 400		39.9		17	22.8	16	N	200	12.3	0 1 89 38 21 00
G 1 A*	PN 400	46		46	17	33	18	V	250	27.2	1 1 89 38 21 00
G 1 1/4 A	PN 315		49.9		22	22.8	16	N	320	19.4	0 1 89 39 21 00
G 1 1/4 A*	PN 400	60		57	22	38	20	V	400	54.3	1 1 89 39 21 00
G 1 1/2 A	PN 315		55.0		24	22.8	16	N	400	25.2	0 1 89 40 21 00
G 1 1/2 A*	PN 400	65		64	24	40	22	V	500	69.3	1 1 89 40 21 00

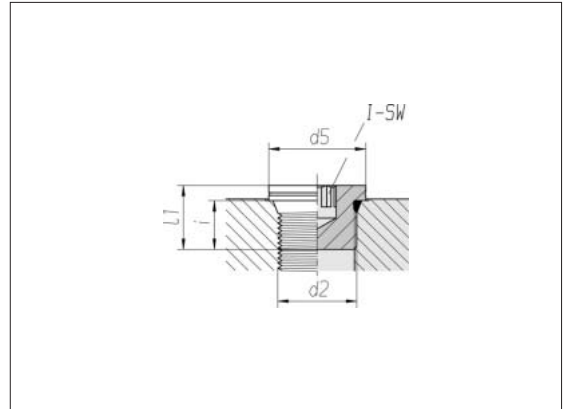
* Threaded hole according to DIN 3852. type X, d4 = wide

** Sample product code, see: VST11/8ED

Blanking screws

Thread:
metric fine thread,
ISO 6149
straight

Sealed with O-ring



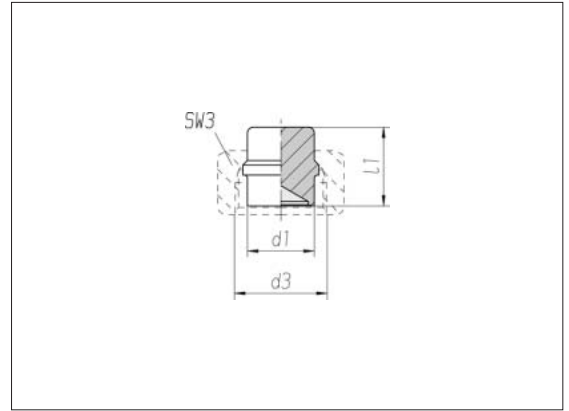
d2	Pressure	d5	I-SW	l1	i	Nm -10 %	kg/100 approx.	Order No.
M 10 x 1	PN 630	14	5	13	9.5	20	0.7	0 1 90 01 21 00*
M 12 x 1.5	PN 630	17	6	15	11	35	1.2	0 1 90 02 21 00
M 14 x 1.5	PN 630	19	6	15	11	45	1.7	0 1 90 03 21 00
M 16 x 1.5	PN 630	22	8	16.5	12.5	55	2.2	0 1 90 04 21 00
M 18 x 1.5	PN 630	24	8	18.5	14	70	3.5	0 1 90 05 21 00
M 22 x 1.5	PN 630	27	10	19.5	15	100	5.0	0 1 90 07 21 00
M 26 x 1.5	PN 400	31	12	21	16	150	7.5	0 1 90 10 21 00
M 27 x 2	PN 400	32	12	23	18.5	170	8.7	0 1 90 11 21 00
M 33 x 2	PN 400	40	17	24	18.5	310	13.5	0 1 90 12 21 00
M 42 x 2	PN 400	50	17	24.5	19	330	24.0	0 1 90 13 21 00
M 48 x 2	PN 400	55	17	27	21.5	420	35.3	0 1 90 14 21 00

* Sample product code, see:
VST110X10R

Blanking plugs

With seal edge
fitting bore type
W DIN 3861 / ISO 8434-1

For blind connections of
tube couplings



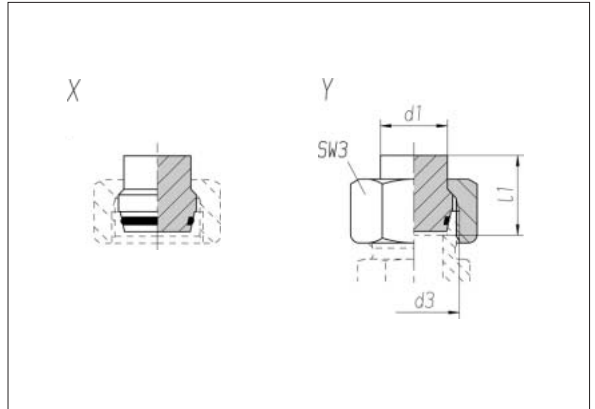
Series Tube OD d1	Pressure	d3	SW3	l1 approx.	kg/100 approx.	Order No.
L 6	PN 315	M 12 x 1.5	14	19.5	0.5	0 7 93 65 20 00*
L 8	PN 315	M 14 x 1.5	17	19.5	0.8	0 7 93 66 20 00
L 10	PN 315	M 16 x 1.5	19	21	1.3	0 7 93 67 20 00
L 12	PN 315	M 18 x 1.5	22	21.8	2.0	0 7 93 68 20 00
L 15	PN 315	M 22 x 1.5	27	22	3.0	0 7 93 69 20 00
L 18	PN 315	M 26 x 1.5	32	24	4.6	0 7 93 70 20 00
L 22	PN 160	M 30 x 2	36	26	7.4	0 7 93 71 20 00
L 28	PN 160	M 36 x 2	41	26.5	11.5	0 7 93 72 20 00
L 35	PN 160	M 45 x 2	50	32	22.1	0 7 93 73 20 00
L 42	PN 160	M 52 x 2	60	32.5	31.5	0 7 93 74 20 00
S 6	PN 630	M 14 x 1.5	17	19.5	0.5	0 7 93 65 20 00
S 8	PN 630	M 16 x 1.5	19	19.5	0.8	0 7 93 66 20 00
S 10	PN 630	M 18 x 1.5	22	21	1.3	0 7 93 67 20 00
S 12	PN 630	M 20 x 1.5	24	21.8	2.0	0 7 93 68 20 00
S 14	PN 630	M 22 x 1.5	27	23.5	2.9	0 7 93 79 20 00
S 16	PN 400	M 24 x 1.5	30	25.5	4.0	0 7 93 80 20 00
S 20	PN 400	M 30 x 2	36	30.5	7.4	0 7 93 81 20 00
S 25	PN 400	M 36 x 2	46	32.5	11.8	0 7 93 82 20 00
S 30	PN 400	M 42 x 2	50	35.5	18.3	0 7 93 83 20 00
S 38	PN 315	M 52 x 2	60	40	33.1	0 7 93 84 20 00

* Sample product code, see:
BUZ06LX

Blanking plugs

With taper and O-ring
fit in bore type
W DIN 3861 / ISO 8434-1

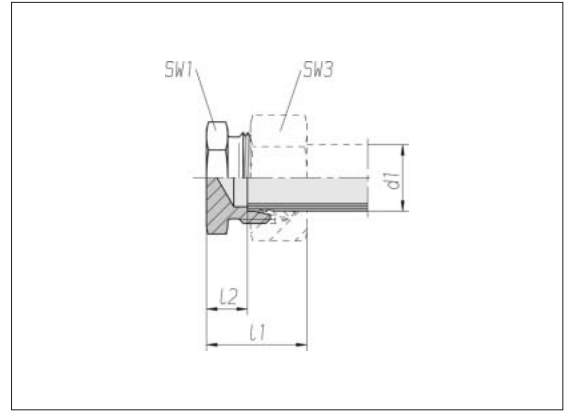
For blind connections of
tube couplings



Series Tube OD d1	Pressure	d3	SW3	l1	kg/100 approx.	Order No. X	kg/100 approx.	Order No. Y
L 6	PN 500	M 12 x 1.5	14	19	2.4	1 7 93 14 20 58*	1.6	1 1 93 04 20 58*
L 8	PN 500	M 14 x 1.5	17	19	3.0	1 7 93 15 20 58	2.5	1 1 93 05 20 58
L 10	PN 500	M 16 x 1.5	19	20.5	4.7	1 7 93 16 20 58	3.4	1 1 93 06 20 58
L 12	PN 400	M 18 x 1.5	22	21	5.9	1 7 93 17 20 58	4.8	1 1 93 07 20 58
L 15	PN 400	M 22 x 1.5	27	21	7.5	1 7 93 08 20 58	7.5	1 1 93 08 20 58
L 18	PN 400	M 26 x 1.5	32	23.5	11.4	1 7 93 09 20 58	11.4	1 1 93 09 20 58
L 22	PN 250	M 30 x 2	36	26	16.3	1 7 93 10 20 58	16.3	1 1 93 10 20 58
L 28	PN 250	M 36 x 2	41	26.5	22.3	1 7 93 11 20 58	22.3	1 1 93 11 20 58
L 35	PN 250	M 45 x 2	50	32	37.4	1 7 93 12 20 58	37.4	1 1 93 12 20 58
L 42	PN 250	M 52 x 2	60	32.5	55.9	1 7 93 13 20 58	55.9	1 1 93 13 20 58
S 6	PN 800	M 14 x 1.5	17	19	2.4	1 7 93 14 20 58	2.4	1 1 93 14 20 58
S 8	PN 800	M 16 x 1.5	19	19	3.0	1 7 93 15 20 58	3.0	1 1 93 15 20 58
S 10	PN 800	M 18 x 1.5	22	21	4.7	1 7 93 16 20 58	4.7	1 1 93 16 20 58
S 12	PN 630	M 20 x 1.5	24	21.5	5.9	1 7 93 17 20 58	5.9	1 1 93 17 20 58
S 14	PN 630	M 22 x 1.5	27	24	8.5	1 7 93 18 20 58	8.5	1 1 93 18 20 58
S 16	PN 630	M 24 x 1.5	30	25	10.7	1 7 93 19 20 58	10.7	1 1 93 19 20 58
S 20	PN 420	M 30 x 2	36	30.5	18.3	1 7 93 20 20 58	18.3	1 1 93 20 20 58
S 25	PN 420	M 36 x 2	46	32.5	33.0	1 7 93 21 20 58	33.0	1 1 93 21 20 58
S 30	PN 420	M 42 x 2	50	35.5	39.2	1 7 93 22 20 58	39.2	1 1 93 22 20 58
S 38	PN 420	M 52 x 2	60	40.5	62.8	1 7 93 23 20 58	62.8	1 1 93 23 20 58

* Sample product code, see:
VKA06VIT
VKAM06LVIT

Tube blanking screws



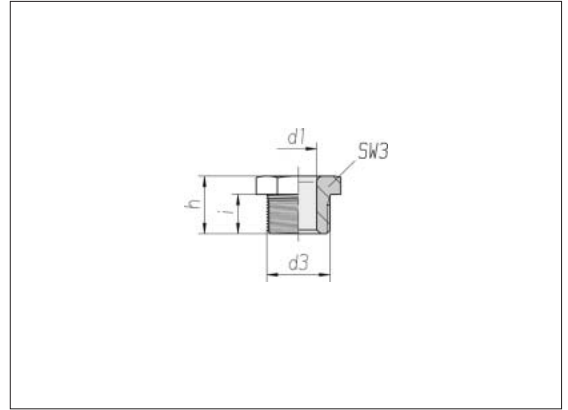
Series Tube OD d1	Pressure	SW1	SW3	l1 approx.	l2	kg/100 approx.	Order No. **
L 6	PN 315	12	14	22	7.0	0.8	0 7 93 34 20 00*
L 8	PN 315	14	17	23	8.0	1.2	0 7 93 35 20 00
L 10	PN 315	17	19	24	9.0	1.6	0 7 93 36 20 00
L 12	PN 315	19	22	25	10.0	2.2	0 7 93 37 20 00
L 15	PN 315	24	27	26	11.0	3.8	0 7 93 38 20 00
L 18	PN 315	27	32	28	11.5	5.4	0 7 93 39 20 00
L 22	PN 160	32	36	30	13.5	7.7	0 7 93 40 20 00
L 28	PN 160	41	41	31	14.5	13.3	0 7 93 41 20 00
L 35	PN 160	46	50	36	14.5	20.1	0 7 93 42 20 00
L 42	PN 160	55	60	39	16.0	34.0	0 7 93 43 20 00
S 6	PN 630	14	17	26	11.0	1.6	0 7 93 44 20 00
S 8	PN 630	17	19	28	13.0	2.6	0 7 93 45 20 00
S 10	PN 630	19	22	29	12.5	3.1	0 7 93 46 20 00
S 12	PN 630	22	24	31	14.5	4.5	0 7 93 47 20 00
S 14	PN 630	24	27	34	16.0	5.9	0 7 93 48 20 00
S 16	PN 400	27	30	34	15.5	6.8	0 7 93 49 20 00
S 20	PN 400	32	36	39	17.5	12.0	0 7 93 50 20 00
S 25	PN 400	41	46	44	20.0	21.3	0 7 93 51 20 00
S 30	PN 400	46	50	47	20.5	28.1	0 7 93 52 20 00
S 38	PN 315	55	60	54	23.0	49.8	0 7 93 53 20 00

* Sample product code, see:
ROV06LX

** without union nut and cutting ring

Male tube fittings

Thread:
metric fine thread,
straight



Series Tube OD d1	Pressure	d3	SW3	i	h	kg/100 approx.	Order No.
LL 4	PN 100	M 8 x 1	8	8	12	0.3	0 0 01 00 20 00*
LL 6	PN 100	M 10 x 1	10	9	13	0.4	0 0 01 10 20 00
LL 8	PN 100	M 12 x 1	12	9.5	14	0.6	0 0 01 15 20 00
L 6	PN 250	M 12 x 1.5	12	11.5	16	0.9	0 0 02 00 20 00**
L 8	PN 250	M 14 x 1.5	14	11.5	16	1.1	0 0 02 05 20 00
L 10	PN 250	M 16 x 1.5	17	11.5	17	1.5	0 0 02 10 20 00
L 12	PN 250	M 18 x 1.5	19	12	18	1.9	0 0 02 15 20 00

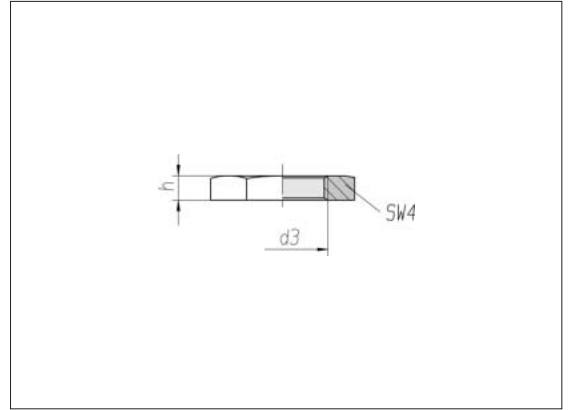
Connection dimensions in body
see DIN 2353

* Sample product code, see:
S04LLX
DIN 3871-ALL4

** S06LX
DIN 3871-AL6

Hexagon nuts

For bulkhead couplings



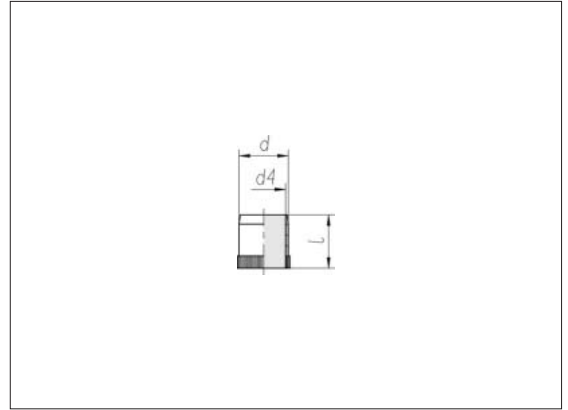
3

d3	SW4	h	kg/100 approx.	Order No.
M 12 x 1.5	17	6	0.7	0 0 81 00 21 00*
M 14 x 1.5	19	6	0.8	0 0 81 02 21 00
M 16 x 1.5	22	6	1.0	0 0 81 04 21 00
M 18 x 1.5	24	6	1.2	0 0 81 06 21 00
M 20 x 1.5	27	6	1.5	0 0 81 08 21 00
M 22 x 1.5	30	7	2.2	0 0 81 10 21 00
M 24 x 1.5	32	7	2.4	0 0 81 12 21 00
M 26 x 1.5	36	8	3.8	0 0 81 14 21 00
M 30 x 2	41	8	4.9	0 0 81 16 21 00
M 36 x 2	46	9	5.9	0 0 81 18 21 00
M 42 x 2	50	9	5.8	0 0 81 20 21 00
M 45 x 2	55	9	7.5	0 0 81 22 21 00
M 52 x 2	65	10	12.1	0 0 81 26 21 00

* Sample product code, see:
GM06LX
ISO 8434-1-LN-L6-St

Reinforcing sleeves

For thin-walled or soft tubes; not for plastic tubes
Material: brass

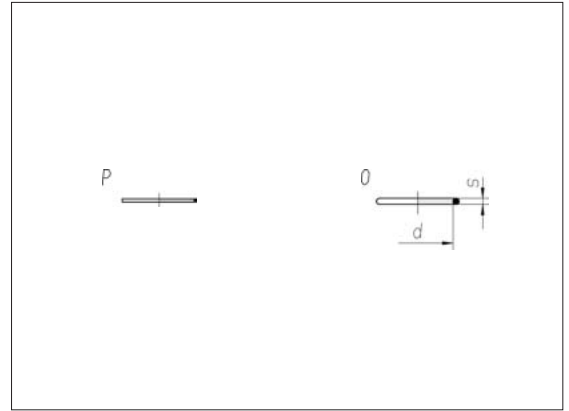


For tube OD x wall thickness	d	d4	l	kg/100 approx.	Order No.
6 x 1	4	2.6	15.5	0.09	0 0 20 00 50 00*
6 x 0.75	4.5	3.1	12.5	0.08	0 0 20 02 50 00
6 x 0.5	5	3.6	12.5	0.10	0 0 20 04 50 00
8 x 1	6	4.6	15.5	0.15	0 0 20 08 50 00
8 x 0.75	6.5	5.1	12.5	0.13	0 0 20 12 50 00
10 x 1.5	7	5.6	17	0.20	0 0 20 14 50 00
10 x 1	8	6.6	16.5	0.22	0 0 20 16 50 00
10 x 0.75	8.5	7.1	16.5	0.24	0 0 20 18 50 00
12 x 1.5	9	7.6	16.5	0.26	0 0 20 24 50 00
12 x 1	10	8.6	16.5	0.29	0 0 20 28 50 00
12 x 0.75	10.5	9.3	16.5	0.26	0 0 20 30 50 00
14 x 1	12	10.2	18	0.50	0 0 20 32 50 00
15 x 1.5	12	10.2	17	0.46	0 0 20 34 50 00
15 x 1	13	11.2	17	0.50	0 0 20 36 50 00
18 x 1.5	15	13.2	17.5	0.59	0 0 20 38 50 00
18 x 1	16	14.2	17.5	0.61	0 0 20 40 50 00
20 x 1	18	16.2	22	0.88	0 0 20 42 50 00
22 x 1.5	19	17.2	18	0.75	0 0 20 44 50 00
22 x 1	20	18.2	18	0.80	0 0 20 46 50 00
25 x 1.5	22	20.2	23.5	1.10	0 0 20 48 50 00
25 x 1	23	21.2	23.5	1.20	0 0 20 50 50 00
28 x 2	24	22.2	18	1.40	0 0 20 52 50 00
28 x 1.5	25	23.2	18	0.90	0 0 20 54 50 00
28 x 1	26	24.2	18	1.00	0 0 20 56 50 00
35 x 2	31	28.8	22.5	1.87	0 0 20 58 50 00
35 x 1.5	32	29.8	22.5	1.90	0 0 20 60 50 00
35 x 1	33	30.8	22.5	2.10	0 0 20 62 50 00
42 x 2	38	35.8	23.5	2.40	0 0 20 64 50 00
42 x 1.5	39	36.8	23.5	2.50	0 0 20 66 50 00

* Sample product code, see:
VH04MSX

Sealing rings for ES-4 cutting rings

- P Moulded seal for the outer cone
- O O-ring for the inner section



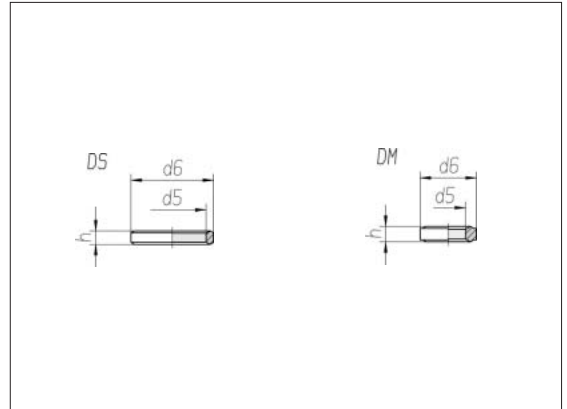
3

Series Tube OD	d	s	Order No. P	Order No. O
L 6	6	1	0 9 12 00 97 83	0 9 07 32 97 83
L 8	8	1	0 9 12 01 97 83	0 9 07 60 97 83
L 10	10	1	0 9 12 02 97 83	0 9 08 90 97 83
L 12	12	1	0 9 12 03 97 83	0 9 08 91 97 83
L 15	15	1	0 9 12 05 97 83	0 9 08 88 97 83
L 18	18	1	0 9 12 07 97 83	0 9 08 98 97 83
L 22	22	1	0 9 12 09 97 83	0 9 08 99 97 83
L 28	28	1	0 9 12 11 97 83	0 9 08 87 97 83
L 35	35	1	0 9 12 13 97 83	0 9 08 86 97 83
L 42	42	1	0 9 12 15 97 83	0 9 08 85 97 83
S 6	6	1	0 9 12 00 97 83	0 9 07 32 97 83
S 8	8	1	0 9 12 01 97 83	0 9 07 60 97 83
S 10	10	1	0 9 12 02 97 83	0 9 08 90 97 83
S 12	12	1	0 9 12 03 97 83	0 9 08 91 97 83
S 14	14	1	0 9 12 04 97 83	0 9 08 92 97 83
S 16	16	1	0 9 12 06 97 83	0 9 08 93 97 83
S 20	20	1	0 9 12 08 97 83	0 9 08 94 97 83
S 25	25	1	0 9 12 10 97 83	0 9 08 95 97 83
S 30	30	1	0 9 12 12 97 83	0 9 08 96 97 83
S 38	38	1	0 9 12 14 97 83	0 9 08 97 97 83

Sealing rings

DS Seal-edge ring for
banjo couplings with
male thread

DM Seal-edge ring for
gauge couplings with
female thread

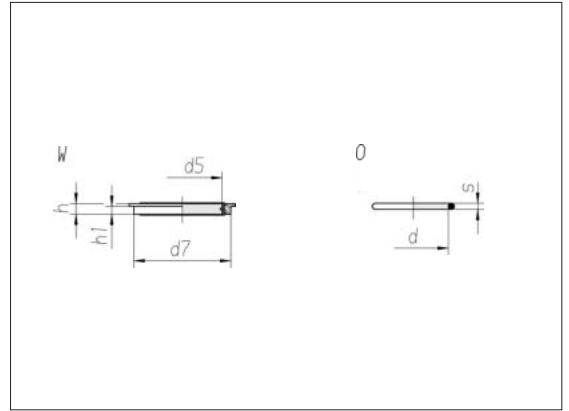


d2	d5	d6	h	kg/100 approx.	Type	Order No. DS/DM
M 8 x 1	8.1	12	2.5	0.10	DS	0 0 80 69 21 00
M 10 x 1	10.1	14	2.5	0.12	DS	0 0 80 70 21 00*
M 12 x 1.5	12.1	17	3	0.22	DS	0 0 80 71 21 00
M 14 x 1.5	14.1	19	3	0.25	DS	0 0 80 72 21 00
M 16 x 1.5	16.1	21	3	0.28	DS	0 0 80 73 21 00
M 18 x 1.5	18.1	23	3	0.30	DS	0 0 80 74 21 00
M 20 x 1.5	20.1	25	3	0.32	DS	0 0 80 75 21 00
M 22 x 1.5	22.1	27	4.5	0.59	DS	0 0 80 14 21 00
M 26 x 1.5	26.15	31	3.5	0.47	DS	0 0 80 77 21 00
M 27 x 2	27.15	32	3.5	0.48	DS	0 0 80 78 21 00
M 33 x 2	33.15	39	3.5	0.71	DS	0 0 80 79 21 00
M 42 x 2	42.15	49	3.5	1.02	DS	0 0 80 80 21 00
M 48 x 2	48.15	55	3.5	1.16	DS	0 0 80 81 21 00
G 1/8 A	9.8	14	2.5	0.12	DS	0 0 80 82 21 00
G 1/4 A	13.3	18	3	0.21	DS	0 0 80 83 21 00
G 3/8 A	16.8	22	3	0.31	DS	0 0 80 84 21 00
G 1/2 A	21.1	26	4.5	0.53	DS	0 0 80 85 21 00
G 3/4 A	26.6	32	3.5	0.55	DS	0 0 80 86 21 00
G 1 A	33.4	39	3.5	0.71	DS	0 0 80 87 21 00
G 1 1/4 A	42.1	49	3.5	1.05	DS	0 0 80 88 21 00
G 1 1/2 A	48.0	55	3.5	1.16	DS	0 0 80 89 21 00
G 1/4 A	5.8	11.2	4.6	0.22	DM	0 0 80 56 21 00
G 1/2 A	11.0	18.3	5.2	0.57	DM	0 0 80 58 21 00

* Sample product code, see:
DKA10X

Sealing rings

- W Soft seal ring for eccentric banjo couplings with male thread
- O O-ring for hollow screws on eccentric banjo couplings



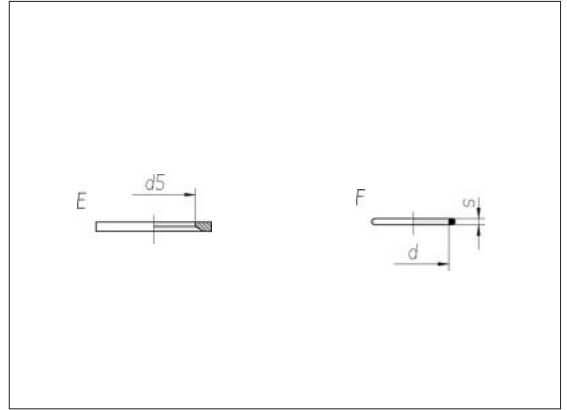
d2	d5	d7	h	h1	O-ring d x s	kg/100 approx.	Order No. W	Order No. O
M 10 x 1	10.3	14.9	2.5	1.1	8 x 1.5	0.16	0 0 90 50 99 00*	0 9 00 04 99 90
M 12 x 1.5	12.3	17.0	3	1.6	10.5 x 1.5	0.21	0 0 90 51 99 00	0 9 07 52 99 90
M 14 x 1.5	14.3	18.9	3	1.6	12.5 x 1.5	0.24	0 0 90 52 99 00	0 9 07 64 99 90
M 16 x 1.5	17.0	21.9	3	2.1	14 x 1.5	0.31	0 0 90 53 99 00	0 9 06 02 99 90
M 18 x 1.5	18.3	23.9	3	-	16 x 1.5	0.35	0 0 90 54 99 00	0 9 06 62 99 90
M 22 x 1.5	22.3	26.9	4.5	2.6	20 x 1.5	0.66	0 0 90 56 99 00	0 9 07 65 99 90
M 26 x 1.5	26.3	31.9	3.5	2.6	23 x 2	0.65	0 0 90 57 99 00	0 9 00 90 99 90
M 27 x 2	27.3	32.9	3.5	2.6	24 x 2	0.72	0 0 90 58 99 00	0 9 07 53 99 90
M 33 x 2	33.6	39.9	3.5	2.6	29 x 2.5	0.86	0 0 90 59 99 00	0 9 06 63 99 90
M 42 x 2	42.4	49.9	3.5	-	38 x 2.5	1.19	0 0 90 60 99 00	0 9 00 94 99 90
M 48 x 2	48.4	55.9	3.5	2.6	43 x 3	1.59	0 0 90 61 99 00	0 9 00 78 99 90
G 1/8 A	10.3	14.9	2.5	1.1	8 x 1.5	0.16	0 0 90 50 99 00	0 9 00 04 99 90
G 1/4 A	14.3	18.9	3	1.6	12.5 x 1.5	0.24	0 0 90 52 99 00	0 9 07 64 99 90
G 3/8 A	17	21.9	3	2.1	15 x 1.5	0.31	0 0 90 53 99 00	0 9 00 88 99 90
G 1/2 A	22.3	26.9	4.5	2.6	19 x 1.5	0.66	0 0 90 56 99 00	0 9 00 89 99 90
G 3/4 A	27.3	32.9	3.5	2.6	24 x 2	0.72	0 0 90 58 99 00	0 9 07 53 99 90
G 1 A	33.6	39.9	3.5	2.6	29 x 2.5	0.86	0 0 90 59 99 00	0 9 06 63 99 90
G 1 1/4 A	42.4	49.9	3.5	-	38 x 2.5	1.19	0 0 90 60 99 00	0 9 00 94 99 90
G 1 1/2 A	48.4	55.9	3.5	2.6	43 x 3	1.59	0 0 90 61 99 00	0 9 00 78 99 90

Sealing rings

For threaded studs

E DIN 3852-T 11
ISO 1179-2
ISO 9974-2

F ISO 6149-2 / -3
ISO 11926-2 / -3



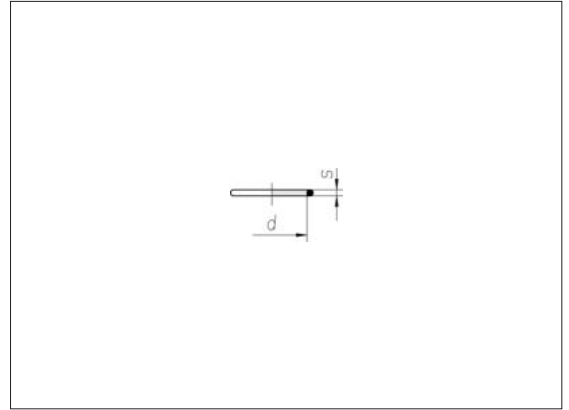
Thread d2	PEFLEX d5	Order No.* E	O-ring d x s	Order No.* F
M 10 x 1	8.4	0 9 05 22 99 00**	8.1 x 1.6	0 9 08 28 99 90
M 12 x 1.5	9.8	0 9 05 01 99 00	9.3 x 2.2	0 9 08 29 99 90
M 14 x 1.5	11.6	0 9 05 02 99 00	11.3 x 2.2	0 9 08 30 99 90
M 16 x 1.5	13.8	0 9 05 03 99 00	13.3 x 2.2	0 9 08 31 99 90
M 18 x 1.5	15.7	0 9 05 05 99 00	15.3 x 2.2	0 9 08 32 99 90
M 20 x 1.5	17.8	0 9 05 06 99 00		
M 22 x 1.5	19.6	0 9 05 08 99 00	19.3 x 2.2	0 9 08 33 99 90
M 26 x 1.5	23.9	0 9 05 10 99 00		
M 27 x 2	23.9	0 9 05 10 99 00	23.6 x 2.9	0 9 08 34 99 90
M 33 x 2	29.7	0 9 05 11 99 00	29.6 x 2.9	0 9 08 35 99 90
M 42 x 2	38.8	0 9 05 12 99 00	38.6 x 2.9	0 9 08 36 99 90
M 48 x 2	44.7	0 9 05 13 99 00	44.6 x 2.9	0 9 08 37 99 90
G 1/8 A	8.4	0 9 05 22 99 00		
G 1/4 A	11.6	0 9 05 02 99 00		
G 3/8 A	14.7	0 9 05 04 99 00		
G 1/2 A	18.5	0 9 05 07 99 00		
G 3/4 A	23.9	0 9 05 10 99 00		
G 1 A	29.7	0 9 05 11 99 00		
G 1 1/4 A	38.8	0 9 05 12 99 00		
G 1 1/2 A	44.7	0 9 05 13 99 00		
7/16-20 UNF-2A			8.92 x 1.83	0 9 00 24 99 00
9/16-18 UNF-2A			11.89 x 1.98	0 9 00 26 99 00
3/ 4-16 UNF-2A			16.36 x 2.21	0 9 00 27 99 00
7/ 8-14 UNF-2A			19.18 x 2.46	0 9 00 28 99 00
1 1/16-12 UN -2A			23.47 x 2.95	0 9 00 29 99 00
1 5/16-12 UN -2A			29.47 x 2.95	0 9 00 31 99 00
1 5/ 8-12 UN -2A			37.47 x 3	0 9 00 32 99 00

* Material: NBR
other materials on request

** Sample product code, see:
ED10X1X

Sealing rings (O-rings)

For taper couplings (DKO)
and flared cones



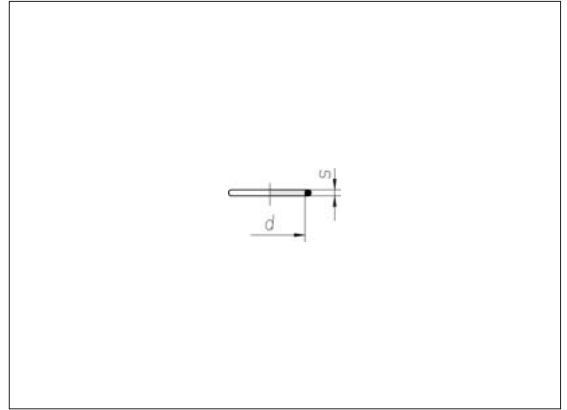
3

Series Tube OD	d x s	Order No.*
L + S 6	4 x 1.5	0 9 00 00 97 00
L + S 8	6 x 1.5	0 9 00 02 97 00
L + S 10	7.5 x 1.5	0 9 00 41 97 00
L + S 12	9 x 1.5	0 9 00 42 97 00
L 15	12 x 2	0 9 00 44 97 00
L 18	15 x 2	0 9 00 38 97 00
L 22	20 x 2	0 9 06 19 97 00
L 28	26 x 2	0 9 06 58 97 00
L 35	32 x 2.5	0 9 00 92 97 00
L 42	38 x 2.5	0 9 00 94 97 00
S 14	10 x 2	0 9 00 43 97 00
S 16	12 x 2	0 9 00 44 97 00
S 20	16.3 x 2.4	0 9 00 45 97 00
S 25	20.3 x 2.4	0 9 00 46 97 00
S 30	25.3 x 2.4	0 9 00 47 97 00
S 38	33.3 x 2.4	0 9 00 48 97 00

* Material: FPM/FKM
other materials on request

Sealing rings (O-rings)

For flange couplings



Series Tube OD	Flange size	D**	d x s	Order No.*
L 10		35	20 x 2.5	0 9 06 59 99 00
L 12		35	20 x 2.5	0 9 06 59 99 00
L 15		35	20 x 2.5	0 9 06 59 99 00
L 15		40	26 x 2.5	0 9 00 18 99 00
L 18		40	26 x 2.5	0 9 00 18 99 00
L 18	3/4"		25 x 3.53	0 9 06 71 99 90
L 22		40	26 x 2.5	0 9 00 18 99 00
L 22	3/4"		25 x 3.53	0 9 06 71 99 90
L 28		40	26 x 2.5	0 9 00 18 99 00
L 28		55	32 x 2.5	0 9 00 92 99 00
L 28	1"		32.92 x 3.53	0 9 06 72 99 90
L 35		55	32 x 2.5	0 9 00 92 99 00
L 35	1 1/4"		37.7 x 3.53	0 9 06 73 99 90
L 42	1 1/2"		47.22 x 3.53	0 9 06 54 99 90

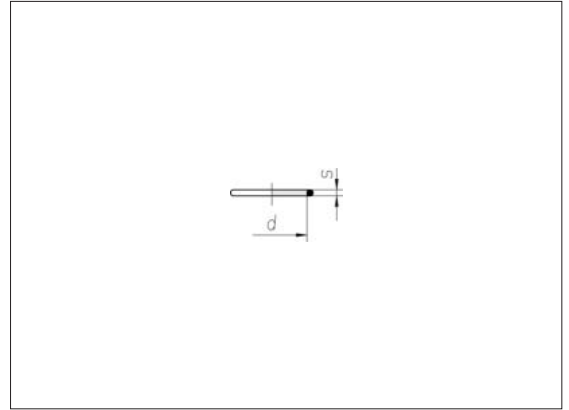
Continuation on page 207

* Material: NBR
other materials on request

** Hole circle diameter

Sealing rings (O-rings)

For flange couplings

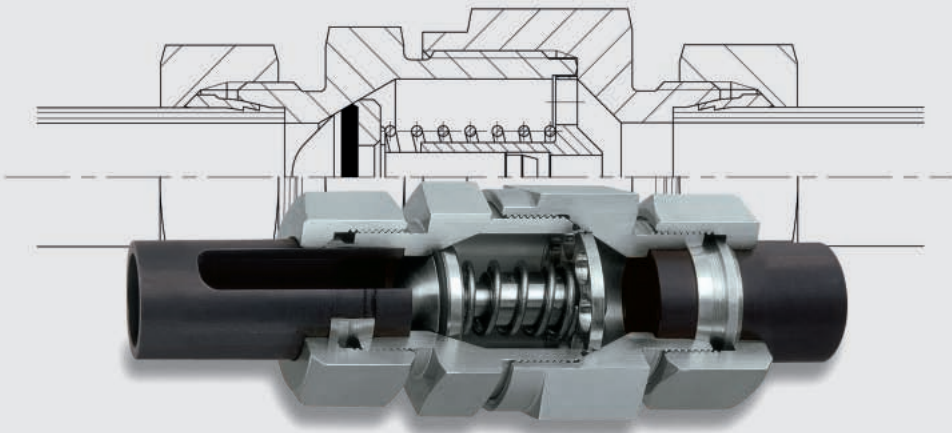


Series Tube OD	Flange size	D**	d x s	Order No.*
S 12		35	20 x 2.5	0 9 06 59 99 00
S 16	1/2"		18.64 x 3.53	0 9 06 74 99 90
S 16		35	20 x 2.5	0 9 06 59 99 00
S 16	3/4"		25 x 3.53	0 9 06 71 99 90
S 20		35	20 x 2.5	0 9 06 59 99 00
S 20		40	26 x 2.5	0 9 00 18 99 00
S 20		55	32 x 2.5	0 9 00 92 99 00
S 20	3/4"		25 x 3.53	0 9 06 71 99 90
S 25		55	32 x 2.5	0 9 00 92 99 00
S 25	3/4"		25 x 3.53	0 9 06 71 99 90
S 25	1 1/4"		37.7 x 3.53	0 9 06 73 99 90
S 30		55	32 x 2.5	0 9 00 92 99 00
S 30	1"		32.92 x 3.53	0 9 06 72 99 90
S 30	1 1/4"		37.7 x 3.53	0 9 06 73 99 90
S 38	1 1/4"		37.7 x 3.53	0 9 06 73 99 90
S 38	1 1/2"		47.22 x 3.53	0 9 06 54 99 90

* Material: NBR
other materials on request

** Hole circle diameter

Hydraulic Valves



Contents Type/Page

Product information
Hydraulic valves

Pg. 271

Function description
Non-return valves

Pg. 272-273

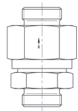
Non-return valves

RHD

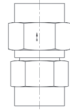
RHDI

RHV

RHZ



Pg. 274



Pg. 275-276



Pg. 277-278



Pg. 279-280

Function description
Non-return valve plug-in
cartridges

Pg. 281

Non-return valve plug-in
cartridges

RVP



Pg. 282

Function description
Inner valve-part installation
kits

Pg. 283

Inner valve-part installation
kits

I-TL



Pg. 284

Contents

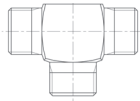
Type/Page

Function description
Shuttle valves with ball seat

Pg. 285

Shuttle valves with ball seat

WV



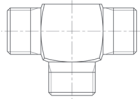
Pg. 286-287

Function description
for shuttle valves with soft
seal (closing cylinder)

Pg. 288

Shuttle valves
soft-sealing

WV

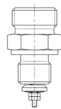


Pg. 289

Function description
Line-break protection
devices

Pg. 290-291

Line-break protection
devices



Pg. 292

Product Information Hydraulic Valves

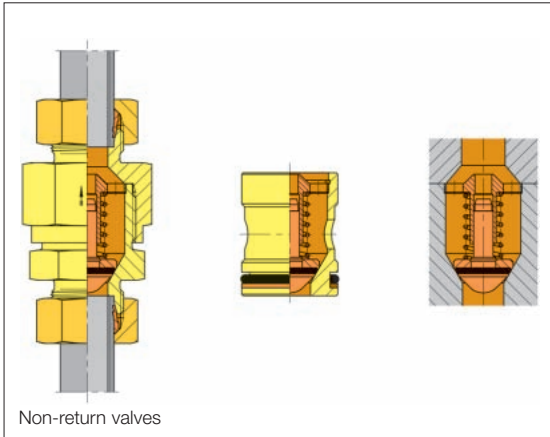
A logical addition to the broad range of the tube couplings are VOSS hydraulic valves for simple functional processes in hydraulic control circuits;

- Non-return valves for line and block installation
- Intelligent couplings with throttle functions
- Shuttle valves with a ball seat and soft seal
- Line-break protection devices
- Special valves

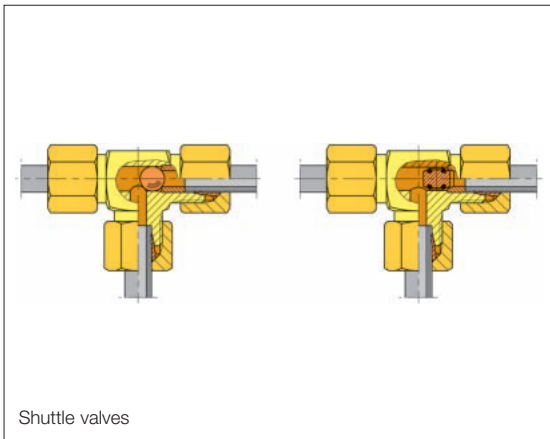
The following valves provide an overview of the common valve types and sizes we keep in stock for you.

We will be happy to advise you on modifications, additional functional details or special customer-related developments.

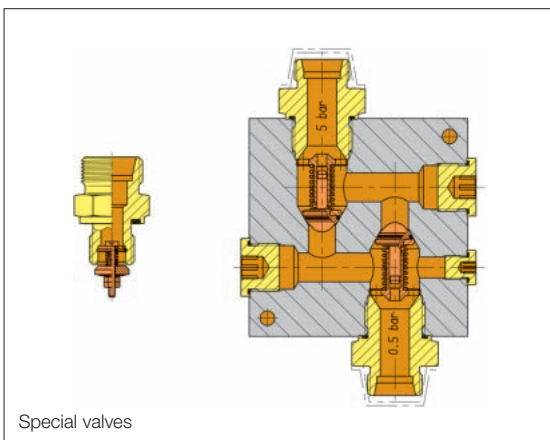
Additional VOSS valves are available on request.



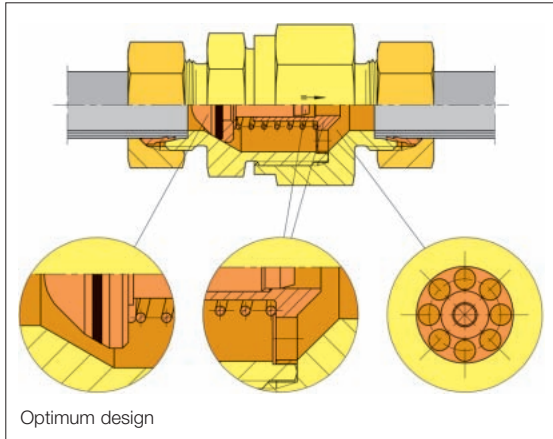
Non-return valves



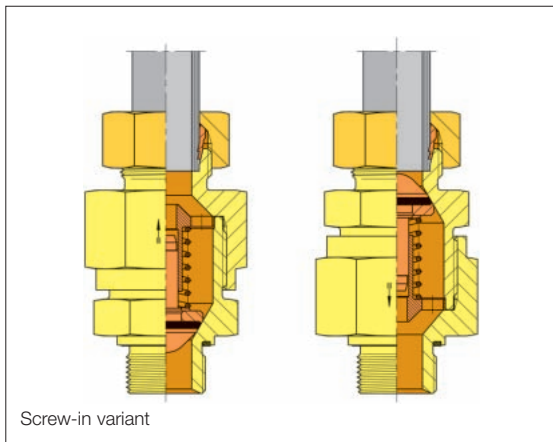
Shuttle valves



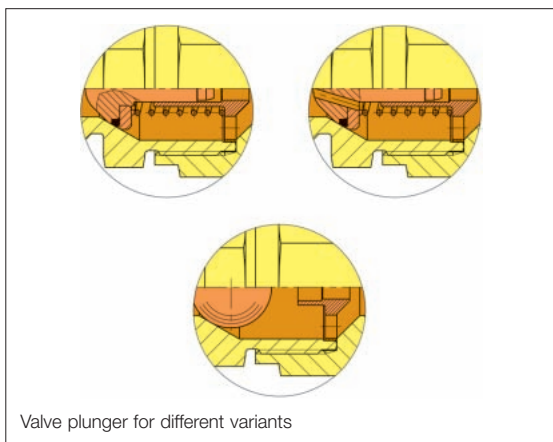
Special valves



Optimum design



Screw-in variant



Valve plunger for different variants

Function description Non-return valves

VOSS non-return valves are available in the following design variants:

- Line non-return valves with tube coupling on both ends
- Screw-in non-return valves with metric fine thread or Whitworth pipe thread and sealed with profile seal
- Non-return valve plug-in cartridges
- Inner valve-part installation kit

Non-return valves are also used as intake or pre-loading valves depending on the opening pressure.

- Sealing is carried out by a spring-loaded taper with a chambered soft seal
- Stroke limitation and damping pin on taper reduce wear
- With screw-in non-return valves, flow direction from/to threaded stud
- Especially low-resistance flow due to shape of inner parts

Opening pressures

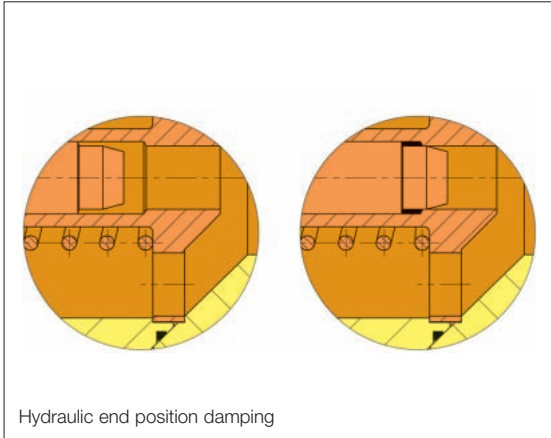
- The opening pressure is 1 bar in the standard design.
- Special opening pressures are listed in the following table for valves with an 2S cutting ring and an ES-4 cutting ring

Table of special opening pressures

	bar	Key No.:	
		2S	ES-4
Special opening pressure	0.2	-20	-30
Special opening pressure	0.5	-19	-29
Special opening pressure	1.5	-21	-31
Special opening pressure	2	-18	-28
Special opening pressure	2.5	-17	-27
Special opening pressure	3	-16	-26
Special opening pressure	4	-14	-24
Special opening pressure	4.5	-13	-23
Special opening pressure	5	-12	-22
Special opening pressure	6	-11	-25

With special opening pressures, the digits 9 and 10 of the Order No. (07 with 2S cutting ring and 09 with ES-4 cutting ring) are replaced with the corresponding Key No. in accordance with the table.

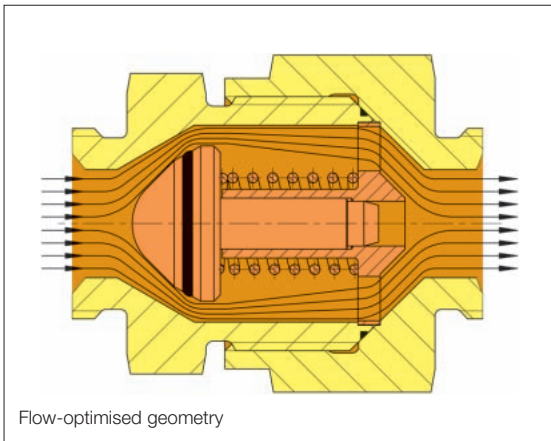
Ordering example: Non-return valve 0 6 00 01 20 07 with 6 bar opening pressure 0 6 00 01 20 11



The valves can always be realised with opening pressures (e.g. 0.1 bar) or even without springs as intake valves. With opening pressures of less than 0.5 bar, a vertical installation position with an upward flow direction is recommended (to avoid friction forces and ensure a centred sealing seat). However, then the plunger weight affects the opening pressure.

Opening-pressure tolerance $\pm 20\%$

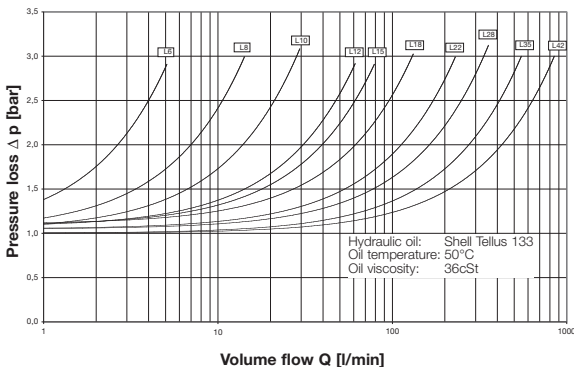
Valves under 0.2 bar:
no tolerance specification possible
(too many influencing factors).



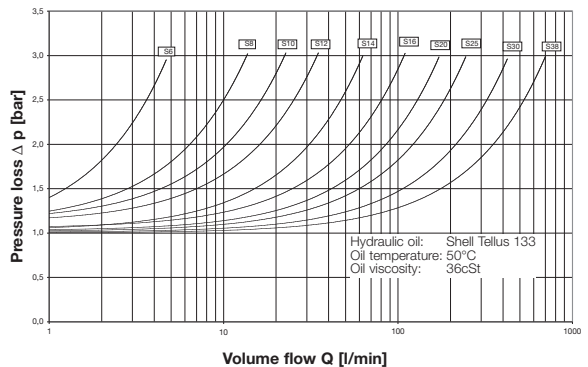
Maximum opening pressure

Tube OD	max. opening pressure bar	Tube OD	max. opening pressure bar
L 6 – L 28	6	S 6 – S 30	6
L 35	5	S 38	5
L 42	2		

Pressure loss curves: Non-return valves, opening pressure 1 bar, L series
VOSS Art. No.: 0 6 00 xx xx xx - 0 6 04 xx xx xx



Pressure loss curves: Non-return valves, opening pressure 1 bar, S series
VOSS Art. No.: 0 6 00 xx xx xx - 0 6 04 xx xx xx

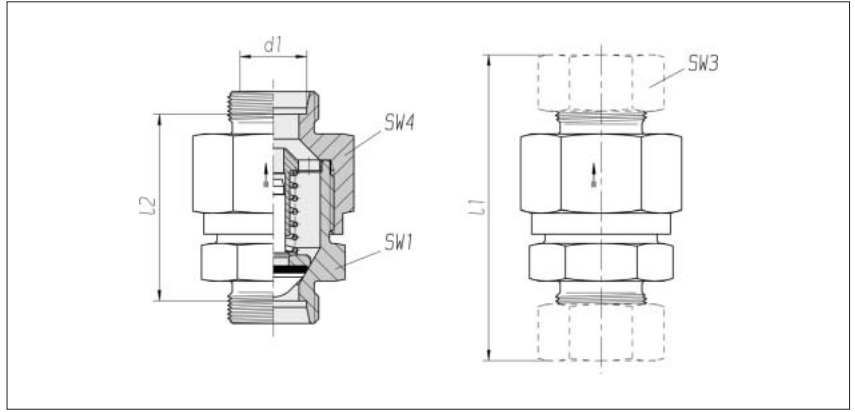


Flow resistances

Non-return valves

Tube coupling on both ends
with 2S cutting ring

Opening pressure 1 bar
(standard design)



Series	Pressure*	SW1	SW3	SW4	l1** approx.	l2	kg/100 approx.	Order No. Single component	Order No. ***
L 6	PB 250	17	14	17	58	29	4.4	0 6 00 01 20 81****	0 6 00 01 20 XX
L 8	PB 250	19	17	19	59	30	5.5	0 6 00 02 20 81	0 6 00 02 20 XX
L 10	PB 250	22	19	24	69.5	40.5	9.8	0 6 00 03 20 81	0 6 00 03 20 XX
L 12	PB 250	27	22	30	72.5	43.5	16.5	0 6 00 04 20 81	0 6 00 04 20 XX
L 15	PB 250	30	27	32	77.5	47.5	20.5	0 6 00 05 20 81	0 6 00 05 20 XX
L 18	PB 160	36	32	36	83.5	51.5	29.0	0 6 00 06 20 81	0 6 00 06 20 XX
L 22	PB 160	41	36	46	93.5	61.5	49.5	0 6 00 07 20 81	0 6 00 07 20 XX
L 28	PB 100	50	41	55	103	70	78.4	0 6 00 08 20 81	0 6 00 08 20 XX
L 35	PB 100	60	50	65	117.5	74.5	122.7	0 6 00 09 20 81	0 6 00 09 20 XX
L 42	PB 100	65	60	75	122.5	77.5	162.6	0 6 00 10 20 81	0 6 00 10 20 XX
S 6	PB 630	19	17	19	63.5	34.5	6.6	0 6 00 11 20 81	0 6 00 11 20 XX
S 8	PB 630	19	19	19	63.5	34.5	6.8	0 6 00 12 20 81	0 6 00 12 20 XX
S 10	PB 630	22	22	24	72.5	40.5	11.5	0 6 00 13 20 81	0 6 00 13 20 XX
S 12	PB 630	24	24	27	74.5	42.5	14.5	0 6 00 14 20 81	0 6 00 14 20 XX
S 14	PB 630	27	27	32	82.5	47.5	20.9	0 6 00 15 20 81	0 6 00 15 20 XX
S 16	PB 400	32	30	36	86.5	50.5	27.8	0 6 00 16 20 81	0 6 00 16 20 XX
S 20	PB 400	41	36	46	97.5	54.5	49.5	0 6 00 17 20 81	0 6 00 17 20 XX
S 25	PB 400	46	46	50	106.5	58.5	62.7	0 6 00 18 20 81	0 6 00 18 20 XX
S 30	PB 250	55	50	60	122	69	107.8	0 6 00 19 20 81	0 6 00 19 20 XX
S 38	PB 250	65	60	70	136.5	75.5	161.3	0 6 00 20 20 81	0 6 00 20 20 XX

Supplementary to Order No. for complete fitting tube connection	Supplementary to Order No.
2S	07
ES-4	09
BV-10	Refer to the front page

* Test pressure PP = 1.5 x table value

** Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

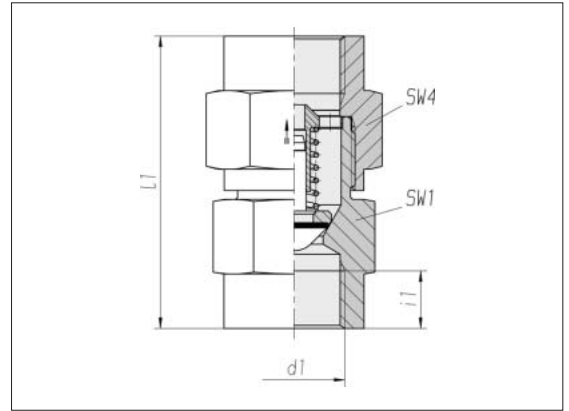
*** With union nut and 2S, ES-4 or BV-10 tube connection components

**** Sample product code, see: RHD06LOMD

Non-return valves

Both sides fitted with inner threads (in inch)

Opening pressure 1 bar (standard design)



Series	Pressure*	d1	SW1	SW4	l1	i1	kg/100 approx.	Order No.
L 6	PB 250	G 1/8 A	19	19	50.5	8	10.4	0 6 70 25 20 00**
L 6	PB 250	G 1/4 A	19	19	55	12	11.7	0 6 70 26 20 00
L 10	PB 250	G 3/8 A	24	27	68.5	12	21.0	0 6 70 27 20 00
L 15	PB 250	G 1/2 A	32	36	74	14	35.5	0 6 70 28 20 00
L 18	PB 160	G 3/4 A	41	46	84	16	80.7	0 6 70 29 20 00
L 22	PB 160	G 1 A	46	50	96.5	18	89.2	0 6 70 30 20 00
L 28	PB 100	G 1 1/4 A	60	60	110	20	189.0	0 6 70 31 20 00
L 35	PB 100	G 1 1/2 A	65	70	119	22	237.6	0 6 70 32 20 00

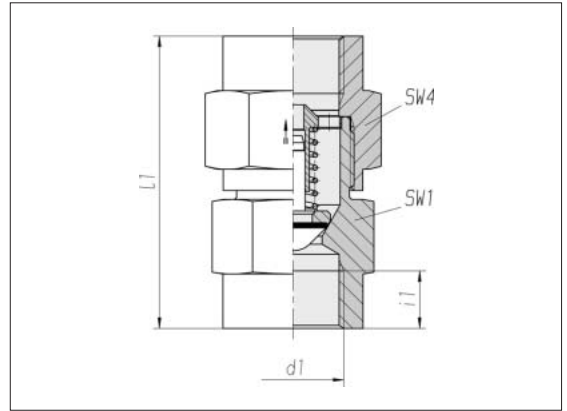
* Test pressure PP = 1.5 x table value

** Sample product code, see: RHD1/8

Non-return valves

Both sides fitted with UNF inner thread according to SAE J 514 and ISO 11926-1

Opening pressure 1 bar (standard design)



Series Tube OD	Pressure*	d1	SW1	SW4	l1	i1	kg/100 approx.	Order No.
S 6	PB 630	7/16-20 UNF	19	19	57.5	4	11.5	0 6 70 35 20 00
S 8	PB 630	1/ 2-20 UNF	19	19	57.5	5	10.1	0 6 70 36 20 00
S 10	PB 630	9/16-18 UNF	22	24	68	7	17.4	0 6 70 37 20 00
S 12	PB 630	3/ 4-16 UNF	27	27	74.5	8	25.6	0 6 70 38 20 00
S 16	PB 400	7/ 8-14 UNF	32	36	80	12	44.0	0 6 70 39 20 00
S 20	PB 400	1 1/16-12 UN	41	46	91.5	16	79.8	0 6 70 40 20 00
S 25	PB 400	1 5/16-12 UN	46	50	98	20	93.0	0 6 70 41 20 00
S 30	PB 250	1 5/ 8-12 UN	55	60	104	25	153.8	0 6 70 42 20 00
S 38	PB 250	1 7/ 8-12 UN	65	70	117	32	221.4	0 6 70 44 20 00

* Test pressure PP = 1.5 x table value

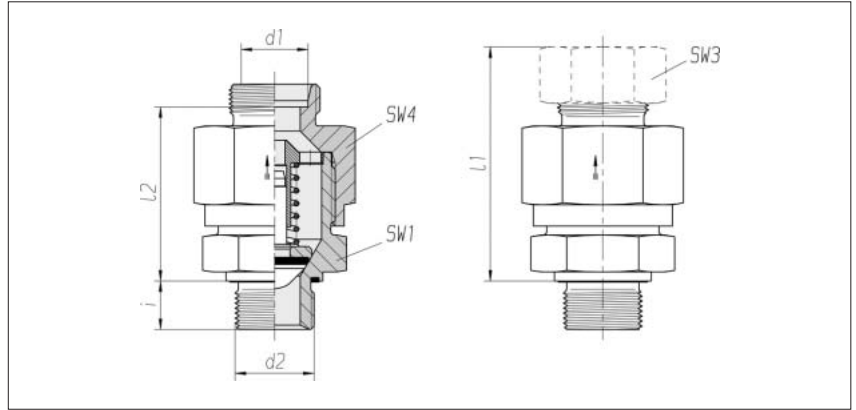
Non-return valves

Flow direction from threaded stud

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal

Opening pressure 1 bar
(standard design)



Series	Pressure*	d2	SW1	SW3	SW4	l1** approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. ***
L 6	PB 250	M 10 x 1	17	14	17	43.5	29	8	15	4.6	0 6 01 30 20 81****	0 6 01 30 20 XX
L 8	PB 250	M 12 x 1.5	19	17	19	44	29	12	25	7.5	0 6 01 31 20 81	0 6 01 31 20 XX
L 10	PB 250	M 14 x 1.5	22	19	24	55	40	12	50	10.6	0 6 01 32 20 81	0 6 01 32 20 XX
L 12	PB 250	M 16 x 1.5	27	22	30	57	42.5	12	70	17.3	0 6 01 33 20 81	0 6 01 33 20 XX
L 15	PB 250	M 18 x 1.5	30	27	32	61	45.5	12	90	20.8	0 6 01 34 20 81	0 6 01 34 20 XX
L 18	PB 160	M 22 x 1.5	36	32	36	66.5	50	14	130	36.6	0 6 01 35 20 81	0 6 01 35 20 XX
L 22	PB 160	M 26 x 1.5	41	36	46	74	57.5	16	180	49.9	0 6 01 36 20 81	0 6 01 36 20 XX
L 28	PB 100	M 33 x 2	50	41	55	83	66.5	18	230	81.5	0 6 01 37 20 81	0 6 01 37 20 XX
L 35	PB 100	M 42 x 2	60	50	65	92.5	71	20	330	124.8	0 6 01 38 20 81	0 6 01 38 20 XX
L 42	PB 100	M 48 x 2	65	60	75	99.5	76.5	22	500	169.6	0 6 01 39 20 81	0 6 01 39 20 XX
S 6	PB 630	M 12 x 1.5	19	17	19	46.5	31.5	12	50	9.0	0 6 01 40 20 81	0 6 01 40 20 XX
S 8	PB 630	M 14 x 1.5	19	19	19	46.5	31.5	12	60	7.0	0 6 01 41 20 81	0 6 01 41 20 XX
S 10	PB 630	M 16 x 1.5	22	22	24	54	38	12	80	15.6	0 6 01 42 20 81	0 6 01 42 20 XX
S 12	PB 630	M 18 x 1.5	24	24	27	57	41	12	90	15.4	0 6 01 43 20 81	0 6 01 43 20 XX
S 14	PB 630	M 20 x 1.5	27	27	32	62.5	44.5	14	130	27.2	0 6 01 44 20 81	0 6 01 44 20 XX
S 16	PB 400	M 22 x 1.5	32	30	36	66.5	48	14	130	36.0	0 6 01 45 20 81	0 6 01 45 20 XX
S 20	PB 400	M 27 x 2	41	36	46	73.5	52	16	200	50.3	0 6 01 46 20 81	0 6 01 46 20 XX
S 25	PB 400	M 33 x 2	46	46	50	81	57	18	250	87.3	0 6 01 47 20 81	0 6 01 47 20 XX
S 30	PB 250	M 42 x 2	55	50	60	92.5	66	20	500	113.2	0 6 01 48 20 81	0 6 01 48 20 XX
S 38	PB 250	M 48 x 2	65	60	70	103	72	22	600	197.3	0 6 01 49 20 81	0 6 01 49 20 XX

Supplementary to Order No. for complete fitting

tube connection

Supplementary to Order No.

2S

07

ES-4

09

BV-10

Refer to the front page

* Test pressure PP = 1.5 x table value

** Apply to complete fittings with 2S or ES-4 tube connection components. For BV-10 Refer to the front page.

*** With union nut and 2S, ES-4 or BV-10 tube connection components

**** Sample product code, see: RHV06LMEDOMD

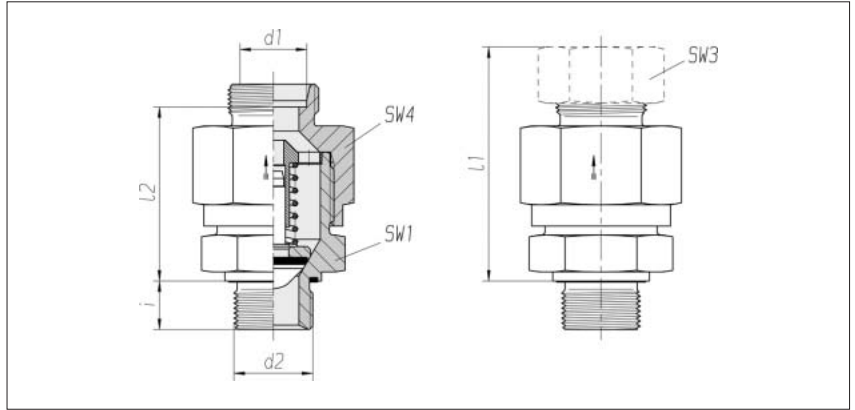
Non-return valves

Flow direction from threaded stud

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal

Opening pressure 1 bar
(standard design)



Series	Pressure*	d2	SW1	SW3	SW4	l1**	l2	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.			-10 %	approx.	Single component	***
d1												
L 6	PB 250	G 1/8 A	17	14	17	43.5	29	8	20	5.7	0 6 02 30 20 81****	0 6 02 30 20 XX
L 8	PB 250	G 1/4 A	19	17	19	45	30	12	50	6.2	0 6 02 31 20 81	0 6 02 31 20 XX
L 10	PB 250	G 1/4 A	22	19	24	55.5	40.5	12	50	10.6	0 6 02 32 20 81	0 6 02 32 20 XX
L 12	PB 250	G 3/8 A	27	22	30	57	42.5	12	80	17.2	0 6 02 33 20 81	0 6 02 33 20 XX
L 15	PB 250	G 1/2 A	30	27	32	60.5	45.5	14	100	21.9	0 6 02 34 20 81	0 6 02 34 20 XX
L 18	PB 160	G 1/2 A	36	32	36	67.5	51	14	100	30.1	0 6 02 35 20 81	0 6 02 35 20 XX
L 22	PB 160	G 3/4 A	41	36	46	73	56.5	16	180	48.8	0 6 02 36 20 81	0 6 02 36 20 XX
L 28	PB 100	G 1 A	50	41	55	83	66.5	18	230	81.0	0 6 02 37 20 81	0 6 02 37 20 XX
L 35	PB 100	G 1 1/4 A	60	50	65	93.5	72	20	330	126.6	0 6 02 38 20 81	0 6 02 38 20 XX
L 42	PB 100	G 1 1/2 A	65	60	75	99.5	76.5	22	500	170.1	0 6 02 39 20 81	0 6 02 39 20 XX
S 6	PB 630	G 1/4 A	19	17	19	46.5	31.5	12	60	7.0	0 6 02 40 20 81	0 6 02 40 20 XX
S 8	PB 630	G 1/4 A	19	19	19	46.5	31.5	12	60	6.8	0 6 02 41 20 81	0 6 02 41 20 XX
S 10	PB 630	G 3/8 A	22	22	24	54	38	12	90	12.0	0 6 02 42 20 81	0 6 02 42 20 XX
S 12	PB 630	G 3/8 A	24	24	27	57	41	12	90	14.9	0 6 02 43 20 81	0 6 02 43 20 XX
S 14	PB 630	G 1/2 A	27	27	32	62.5	44.5	14	150	22.2	0 6 02 44 20 81	0 6 02 44 20 XX
S 16	PB 400	G 1/2 A	32	30	36	66.5	48	14	150	28.1	0 6 02 45 20 81	0 6 02 45 20 XX
S 20	PB 400	G 3/4 A	41	36	46	73.5	52	16	200	50.2	0 6 02 46 20 81	0 6 02 46 20 XX
S 25	PB 400	G 1 A	46	46	50	81.5	57.5	18	250	65.7	0 6 02 47 20 81	0 6 02 47 20 XX
S 30	PB 250	G 1 1/4 A	55	50	60	90.5	64	20	500	108.2	0 6 02 48 20 81	0 6 02 48 20 XX
S 38	PB 250	G 1 1/2 A	65	60	70	102.5	71.5	22	600	162.1	0 6 02 49 20 81	0 6 02 49 20 XX

Supplementary to Order No. for complete fitting

tube connection

Supplementary to Order No.

2S

07

ES-4

09

BV-10

Refer to the front page

* Test pressure PP = 1.5 x table value

** Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

*** With union nut and 2S, ES-4 or BV-10 tube connection components

**** Sample product code, see: RHW06LREDOMD

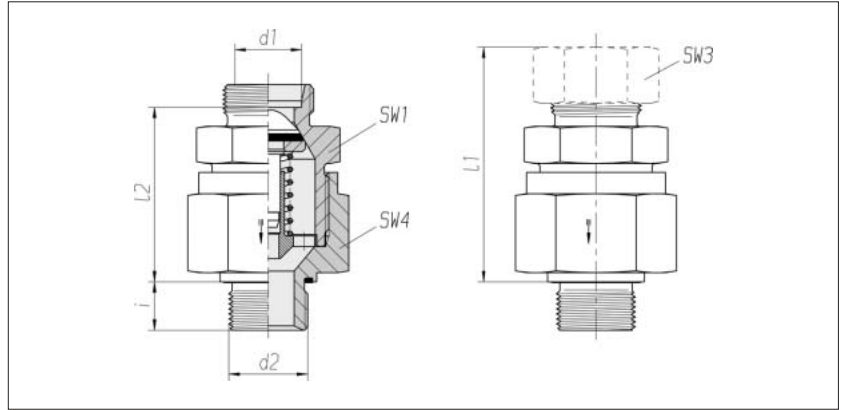
Non-return valves

Flow direction to threaded stud

Thread:
metric fine thread,
straight

Sealed with PEFLEX seal

Opening pressure 1 bar
(standard design)



Series	Pressure*	d2	SW1	SW3	SW4	l1** approx.	l2	i	Nm -10 %	kg/100 approx.	Order No. Single component	Order No. ***
L 6	PB 250	M 10 x 1	17	14	17	42.5	28	8	15	5.7	0 6 03 30 20 81****	0 6 03 30 20 XX
L 8	PB 250	M 12 x 1.5	19	17	19	43.5	28.5	12	25	5.5	0 6 03 31 20 81	0 6 03 31 20 XX
L 10	PB 250	M 14 x 1.5	22	19	24	53.5	38.5	12	50	10.3	0 6 03 32 20 81	0 6 03 32 20 XX
L 12	PB 250	M 16 x 1.5	27	22	30	55.5	41	12	70	16.5	0 6 03 33 20 81	0 6 03 33 20 XX
L 15	PB 250	M 18 x 1.5	30	27	32	59.5	44	12	90	19.9	0 6 03 34 20 81	0 6 03 34 20 XX
L 18	PB 160	M 22 x 1.5	36	32	36	64.5	48	14	130	28.3	0 6 03 35 20 81	0 6 03 35 20 XX
L 22	PB 160	M 26 x 1.5	41	36	46	72.5	56	16	180	47.9	0 6 03 36 20 81	0 6 03 36 20 XX
L 28	PB 100	M 33 x 2	50	41	55	82	65.5	18	230	79.4	0 6 03 37 20 81	0 6 03 37 20 XX
L 35	PB 100	M 42 x 2	60	50	65	93	71.5	20	330	125.8	0 6 03 38 20 81	0 6 03 38 20 XX
L 42	PB 100	M 48 x 2	65	60	75	98.5	75.5	22	500	194.0	0 6 03 39 20 81	0 6 03 39 20 XX
S 6	PB 630	M 12 x 1.5	19	17	19	46.5	31.5	12	50	9.3	0 6 03 40 20 81	0 6 03 40 20 XX
S 8	PB 630	M 14 x 1.5	19	19	19	46.5	31.5	12	60	9.2	0 6 03 41 20 81	0 6 03 41 20 XX
S 10	PB 630	M 16 x 1.5	22	22	24	54	38	12	80	11.8	0 6 03 42 20 81	0 6 03 42 20 XX
S 12	PB 630	M 18 x 1.5	24	24	27	57	41	12	90	18.9	0 6 03 43 20 81	0 6 03 43 20 XX
S 14	PB 630	M 20 x 1.5	27	27	32	61.5	43.5	14	130	27.9	0 6 03 44 20 81	0 6 03 44 20 XX
S 16	PB 400	M 22 x 1.5	32	30	36	65	46.5	14	130	27.5	0 6 03 45 20 81	0 6 03 45 20 XX
S 20	PB 400	M 27 x 2	41	36	46	73.5	52	16	200	50.3	0 6 03 46 20 81	0 6 03 46 20 XX
S 25	PB 400	M 33 x 2	46	46	50	81	57	18	250	65.5	0 6 03 47 20 81	0 6 03 47 20 XX
S 30	PB 250	M 42 x 2	55	50	60	92.5	66	20	500	133.8	0 6 03 48 20 81	0 6 03 48 20 XX
S 38	PB 250	M 48 x 2	65	60	70	103.5	72.5	22	600	196.9	0 6 03 49 20 81	0 6 03 49 20 XX

Supplementary to Order No. for complete fitting

tube connection

Supplementary to Order No.

2S

07

ES-4

09

BV-10

Refer to the front page

* Test pressure PP = 1.5 x table value

** Apply to complete fittings with 2S or ES-4 tube connection components.
For BV-10 Refer to the front page.

*** With union nut and 2S, ES-4 or BV-10 tube connection components

**** Sample product code, see: RHZ06LMEDOMD

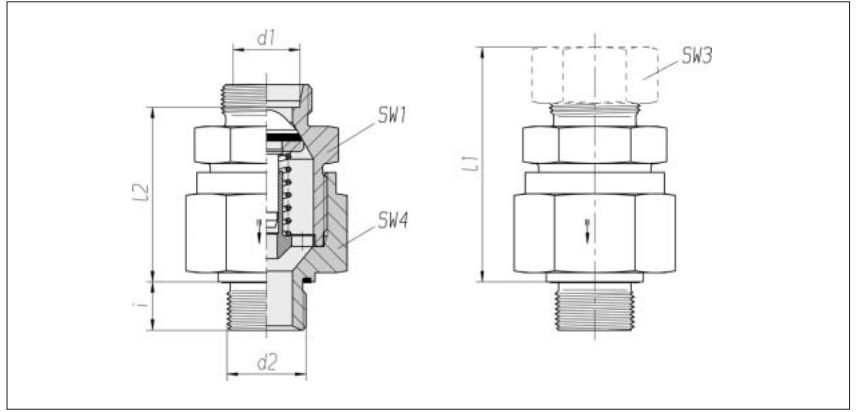
Non-return valves

Flow direction to threaded stud

Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal

Opening pressure 1 bar
(standard design)



Series	Pressure*	d2	SW1	SW3	SW4	l1**	l2	i	Nm	kg/100	Order No.	Order No.
Tube OD						approx.			-10 %	approx.	Single component	***
d1												
L 6	PB 250	G 1/8 A	17	14	17	42.5	28	8	20	4.5	0 6 04 30 20 81****	0 6 04 30 20 XX
L 8	PB 250	G 1/4 A	19	17	19	43.5	28.5	12	50	5.8	0 6 04 31 20 81	0 6 04 31 20 XX
L 10	PB 250	G 1/4 A	22	19	24	55	40	12	50	10.6	0 6 04 32 20 81	0 6 04 32 20 XX
L 12	PB 250	G 3/8 A	27	22	30	56	41.5	12	80	16.8	0 6 04 33 20 81	0 6 04 33 20 XX
L 15	PB 250	G 1/2 A	30	27	32	59	44	14	100	20.8	0 6 04 34 20 81	0 6 04 34 20 XX
L 18	PB 160	G 1/2 A	36	32	36	64.5	48	14	100	28.0	0 6 04 35 20 81	0 6 04 35 20 XX
L 22	PB 160	G 3/4 A	41	36	46	73.5	57	16	180	49.4	0 6 04 36 20 81	0 6 04 36 20 XX
L 28	PB 100	G 1 A	50	41	55	83.5	67	18	230	81.9	0 6 04 37 20 81	0 6 04 37 20 XX
L 35	PB 100	G 1 1/4 A	60	50	65	93	71.5	20	330	121.7	0 6 04 38 20 81	0 6 04 38 20 XX
L 42	PB 100	G 1 1/2 A	65	60	75	98.5	75.5	22	500	167.2	0 6 04 39 20 81	0 6 04 39 20 XX
S 6	PB 630	G 1/4 A	19	17	19	46.5	31.5	12	60	7.0	0 6 04 40 20 81	0 6 04 40 20 XX
S 8	PB 630	G 1/4 A	19	19	19	46.5	31.5	12	60	6.9	0 6 04 41 20 81	0 6 04 41 20 XX
S 10	PB 630	G 3/8 A	22	22	24	54	38	12	90	12.0	0 6 04 42 20 81	0 6 04 42 20 XX
S 12	PB 630	G 3/8 A	24	24	27	57	41	12	90	15.0	0 6 04 43 20 81	0 6 04 43 20 XX
S 14	PB 630	G 1/2 A	27	27	32	61.5	43.5	14	150	21.6	0 6 04 44 20 81	0 6 04 44 20 XX
S 16	PB 400	G 1/2 A	32	30	36	66.5	48	14	150	28.0	0 6 04 45 20 81	0 6 04 45 20 XX
S 20	PB 400	G 3/4 A	41	36	46	73.5	52	16	200	50.7	0 6 04 46 20 81	0 6 04 46 20 XX
S 25	PB 400	G 1 A	46	46	50	81	57	18	250	65.6	0 6 04 47 20 81	0 6 04 47 20 XX
S 30	PB 250	G 1 1/4 A	55	50	60	92.5	66	20	500	108.5	0 6 04 48 20 81	0 6 04 48 20 XX
S 38	PB 250	G 1 1/2 A	65	60	70	103.5	72.5	22	600	161.8	0 6 04 49 20 81	0 6 04 49 20 XX

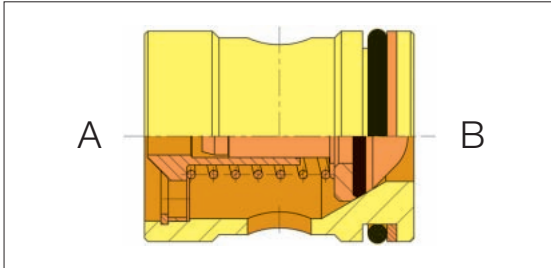
Supplementary to Order No. for complete fitting	Supplementary to Order No.
tube connection	
2S	07
ES-4	09
BV-10	Refer to the front page

* Test pressure PP = 1.5 x table value

** Apply to complete fittings with 2S or ES-4 tube connection components. For BV-10 Refer to the front page.

*** With union nut and 2S, ES-4 or BV-10 tube connection components

**** Sample product code, see: RHZ06LREDOMD

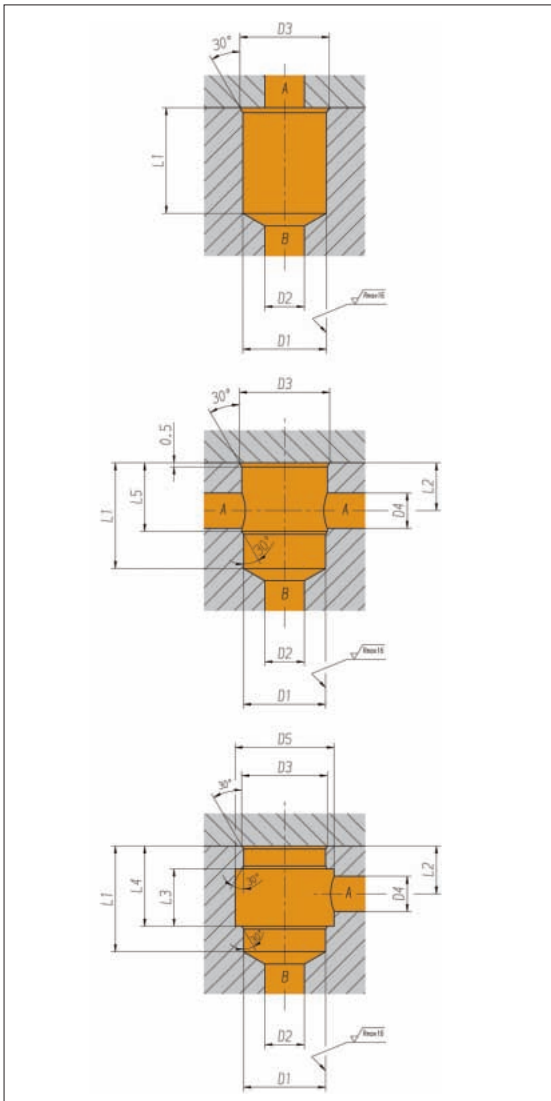


Function description Non-return valve plug-in cartridges

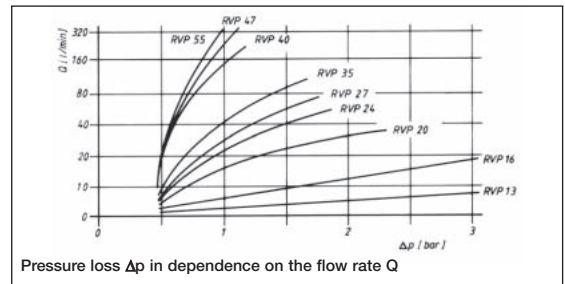
As a plug-in element for hydraulic devices with a plate structure or for direct installation in devices and machine housings, VOSS non-return valve plug-in cartridges release the flow in one direction and block it in the opposite direction.

The non-return valve plug-in cartridges are also used as intake or pre-loading valves depending on the opening pressure.

- Due to their compact design, VOSS non-return valve plug-in cartridges are also suitable for tight installation situations.
- Sealing is carried out by a spring-loaded taper with a chambered soft seal.
- Stroke limitation and damping pin on taper reduce wear to a minimum.
- Due to the shape of the inner parts, VOSS non-return valve plug-in cartridges provide for a particularly low-resistance flow.
- Thanks to the passage cross bore, VOSS non-return valve plug-in cartridges enable differing supply and flow-through directions. The housing cartridges are also available without a cross bore on request.



Flow resistance



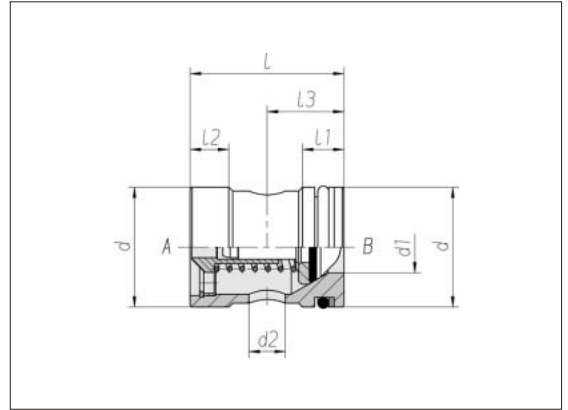
Mounting hole

Type	D1 (D10)	D2	D3 (+0,2)	D4	D5	L1 min.	L2	L3	L4	L5
RVP 13	4	13.7	4	14	23.3	12	9	15	14.5	
RVP 16	6	16.7	6	18.5	26.8	14.5	11.5	18.5	18	
RVP 20	8	20.7	8	23.5	30.3	16	14	21	20.5	
RVP 24	10	25	10	27.5	35.3	18	16	24	23.5	
RVP 27	12	28	12	31.5	38.3	20	19	27	26.5	
RVP 35	15	36	15	40.5	44.8	19.5	23	32.5	27.5	
RVP 40	19	41	19	47.5	50.8	23	27.5	38.5	33	
RVP 47	24	48	24	56	60.3	28	35	48	40.5	
RVP 55	30	56.2	30	70	70.3	28	43	56	43.5	

Non-return valve plug-in cartridges

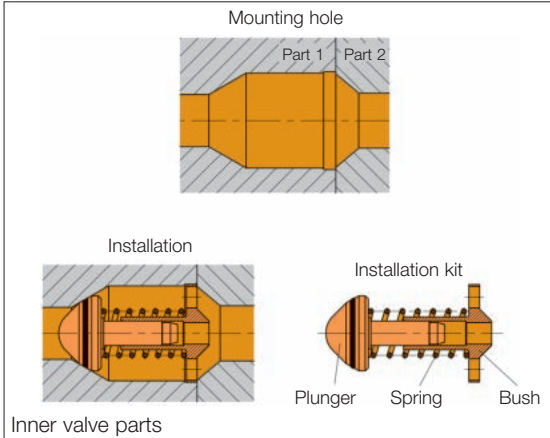
Flow direction B-A

Opening pressure 1 bar
(standard design)



Type	Pressure	d	d1	d2	l	l1	l2	l3	kg/100 approx.	Order No.
RVP 13	PB 400	13	4	3	23	8	6	11	1.6	0 6 05 00 20 00*
RVP 16	PB 400	16	6	4.5	26.5	8	7	12	2.7	0 6 05 01 20 00
RVP 20	PB 400	20	8	6	30	9	7	14	4.3	0 6 05 02 20 00
RVP 24	PB 400	24	10	7	35	11	8	17	6.4	0 6 05 03 20 00
RVP 27	PB 400	27	12	8.5	38	11	8	18	8.9	0 6 05 04 20 00
RVP 35	PB 400	35	15	11	44.5	12	9.5	25	18.5	0 6 05 05 20 00
RVP 40	PB 250	40	19	13.5	50.5	12	11	27.5	25.2	0 6 05 06 20 00
RVP 47	PB 250	47	24	17	60	12	13	32	40.4	0 6 05 07 20 00
RVP 55	PB 250	55	30	21.5	70	14	13	42	62.6	0 6 05 08 20 00

* Sample product code, see:
RVP13



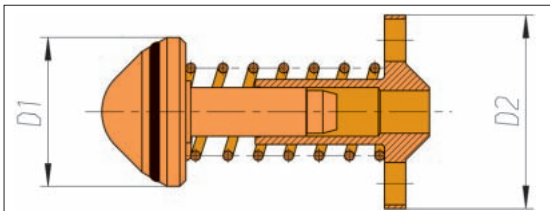
Function description Inner valve-part installation kit

VOSS inner valve parts can be used as an installation kit directly in assemblies, such as valve blocks, distributors and units using the specified mounting holes.

The advantages lie in the compact design, consisting of a plunger with a permanently attached chambered soft seal, spring and bush, as well as the low-resistance flow properties adopted from the non-return valves.

General technical data for all non-return valves

- Material and surface protection: Housing of steel, galvanised surface, NBR seals, other materials available on request
- Installation position: as desired
- Operating pressure: 100 / 160 / 250 / 400 / 630 bar
- Temperature range: -40 °C to +120 °C (other temperatures available on request)
- Pressure fluids: on mineral oil basis (other media available on request)



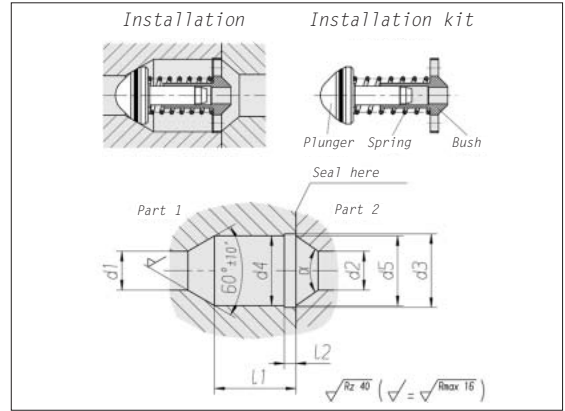
Tube OD	Series	D1	D2	Order No. Compl. set of inner parts (1 bar, NBR seal)*
L	6	7.5	9.3	0 6 69 03 20 00
L	8	8.5	11.3	0 6 69 04 20 00
L	10	11.7	15.3	0 6 69 05 20 00
L	12	14.8	18.8	0 6 69 06 20 00
L	15	15.8	20.8	0 6 69 07 20 00
L	18	19.8	25.8	0 6 69 08 20 00
L	22	24.5	31.8	0 6 69 09 20 00
L	28	30	39.8	0 6 69 10 20 00
L	35	38	49.8	0 6 69 11 20 00
L	42	41	55.8	0 6 69 12 20 00
S	6	7.5	9.3	0 6 69 03 20 00
S	8	8.5	10.8	0 6 69 13 20 00
S	10	9.6	12.8	0 6 69 14 20 00
S	12	11.7	15.3	0 6 69 05 20 00
S	14	14.8	18.8	0 6 69 06 20 00
S	16	17	22.3	0 6 69 15 20 00
S	20	21.7	27.8	0 6 69 16 20 00
S	25	27	34.8	0 6 69 17 20 00
S	30	30	40.8	0 6 69 18 20 00
S	38	38	50.8	0 6 69 19 20 00

Identification dimensions

* For plunger with FPM / FKM seal, change the last 2 digits of the order number from "00" to "58"; inner parts with special opening pressures available on request

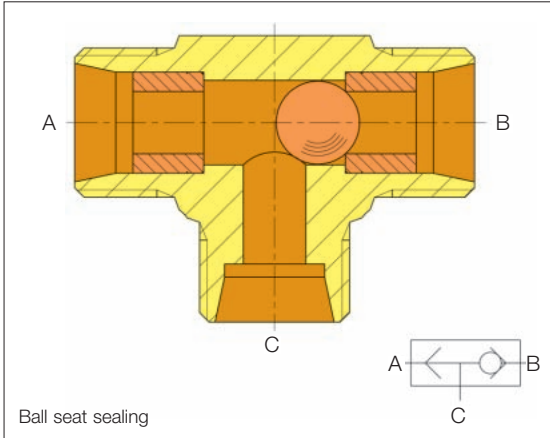
Inner valve-part installation kit

Opening pressure 1 bar
(standard design)



Series	d1	d2	d3 + 0,1	d4 + 0,1	d5 ± 0,1	l1 ± 0,1	l2 + 0,2	α	Order No.
L 6	4	4	9.6	8.6	8.6	16.5	2.5	70°	0 6 69 03 20 00*
L 8	6	6	11.5	10.5	10.5	16.0	2.5	70°	0 6 69 04 20 00
L 10	8	8	15.5	14.5	14.5	21.8	2.5	70°	0 6 69 05 20 00
L 12	10	10	19.0	18.0	18.0	21.0	3	70°	0 6 69 06 20 00
L 15	12	12	21.0	20.0	20.0	23.0	3	70°	0 6 69 07 20 00
L 18	15	15	26.0	25.0	25.0	24.5	3.5	70°	0 6 69 08 20 00
L 22	19	19	32.0	31.0	30.6	29.2	4	80°	0 6 69 09 20 00
L 28	24	24	40.0	39.0	38.5	34.5	4.5	90°	0 6 69 10 20 00
L 35	30	30	50.0	49.0	48.6	32.2	4.5	70°	0 6 69 11 20 00
L 42	36	36	56.0	55.0	54.2	31.7	5.5	70°	0 6 69 12 20 00
S 6	4	4	9.6	8.6	8.6	16.5	2.5	70°	0 6 69 03 20 00
S 8	5	5	11.0	10.0	10.0	15.0	2.5	70°	0 6 69 13 20 00
S 10	7	7	13.0	12.0	12.0	22.0	2.5	70°	0 6 69 14 20 00
S 12	8	8	15.5	14.5	14.5	21.8	2.5	70°	0 6 69 05 20 00
S 14	10	10	19.0	18.0	18.0	21.0	3	70°	0 6 69 06 20 00
S 16	12	12	22.5	21.5	21.5	24.0	3	70°	0 6 69 15 20 00
S 20	16	16	28.0	27.0	27.0	28.0	3.5	70°	0 6 69 16 20 00
S 25	20	20	35.0	34.0	33.6	28.7	4	70°	0 6 69 17 20 00
S 30	25	25	41.0	40.0	39.6	32.3	4.5	70°	0 6 69 18 20 00
S 38	32	32	51.0	50.0	49.2	34.7	4.5	70°	0 6 69 19 20 00

* Sample product code, see:
ITL06L



Function description Shuttle valves

Ball seat

VOSS shuttle valves (WV) act as automatic gates within a closed hydraulic circulation system.

With two blockable inlet openings and one outlet opening, the VOSS shuttle valve connects the connection A or B to C depending on the pressure oil feed, whereby the other connection is sealed off with a movable ball.

The simple, sturdy valve design provides a maintenance-free solution to your application problems. Operation is automatic.

VOSS shuttle valves belong to the non-return valves according to DIN ISO 1219.

Design, ball seat valve

Installation as tube installation and as special design also with taper connection

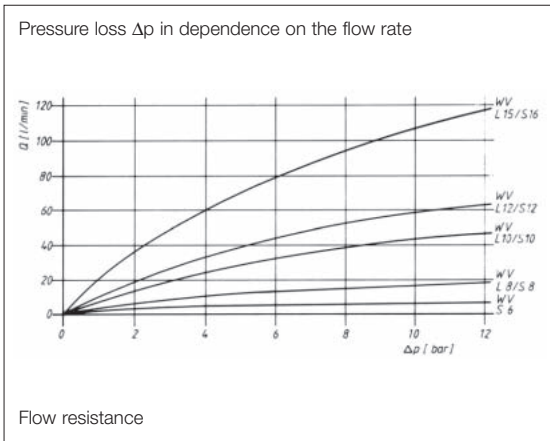
Any desired installation position possible

Material and surface protection: Housing of steel, surface galvanised, VOSS Zink-Nickel

Pressure fluids on mineral oil basis (other media available on request)

Temperature range:

-40 °C to +120 °C permissible leakage: 1 cm³/min



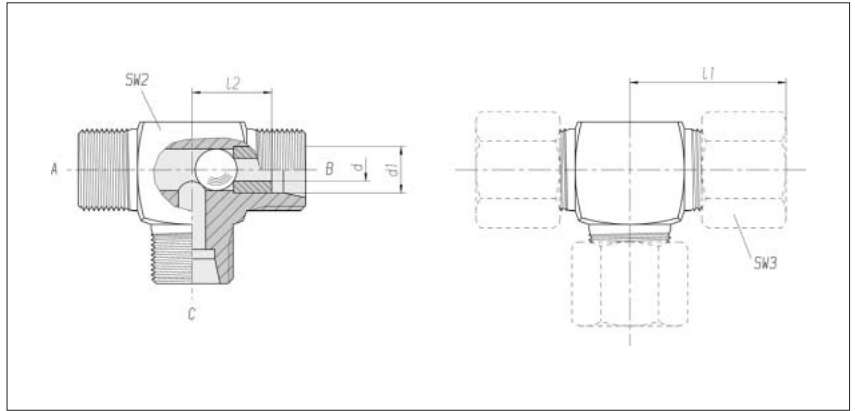
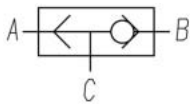
CAUTION!

Do not use for compressed air or gases, and not in conjunction with welded tapers!

Shuttle valves

Ball seat

Tube installation



Series	Pressure	d	SW2	SW3	l1 approx.	l2	kg/100 approx.	Order No. Single component	Order No. **
L 8	PB 250	4.5	14	17	29	14	5.7	5 6 90 99 22 81*	5 6 90 99 22 07
L 10	PB 250	6	17	19	30	15	7.4	5 6 90 99 82 81	5 6 90 99 82 07
L 12	PB 250	7.5	19	22	32	17	10.8	5 6 90 99 70 81	5 6 90 99 70 07
L 15	PB 250	10	19	27	36	21	12.4	5 6 90 99 62 81	5 6 90 99 62 07
S 6	PB 630	3	14	17	31	16	6.9	5 6 90 99 32 81	5 6 90 99 32 07
S 8	PB 630	4.5	17	19	32	17	9.5	5 6 90 99 92 81	5 6 90 99 92 07
S 10	PB 630	6	19	22	34	17.5	12.4	5 6 90 99 02 81	5 6 90 99 02 07
S 12	PB 630	7.5	22	24	38	21.5	17.7	5 6 90 99 52 81	5 6 90 99 52 07
S 16	PB 400	10	24	30	43	24.5	18.8	5 6 90 99 42 81	5 6 90 99 42 07

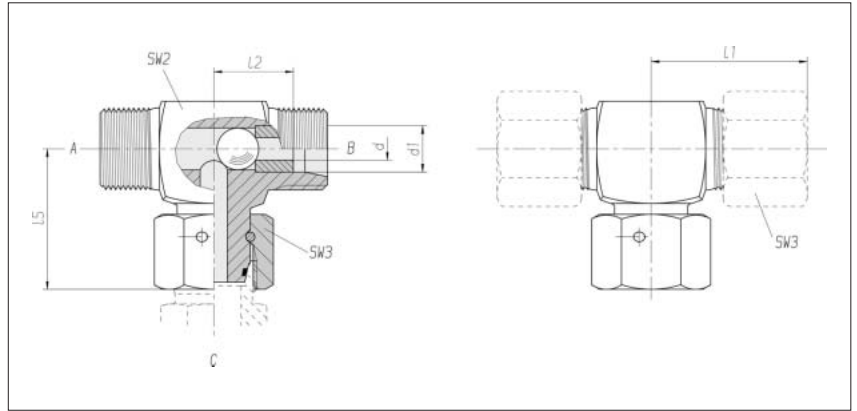
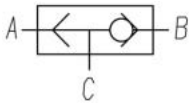
* Sample product code, see:
WV08LOMD

** With union nut and 2S cutting ring

Shuttle valves

Ball seat

with taper connection



Series	Pressure	d	SW2	SW3	l1	l2	l5	kg/100 approx.	Order No. Single component **	Order No.
Tube OD					approx.					
L 12	PB 250	7.5	19	22	32	17	29	13.4	5 6 90 99 11 81*	5 6 90 99 11 07

* Sample product code, see: WW-ET12LOMD

** With union nut and 2S cutting ring

Function description Shuttle valves

Soft-sealing

VOSS soft-sealing shuttle valves act in a hydraulic circulation systems according to the same operating principle as the ball seat variant.

Design, soft-sealing ball seat valve, installation as tube installation (other designs available on request)

Any desired installation position possible
Material and surface protection: Housing of steel, surface galvanised, VOSS Zink-Nickel
Seals of NBR (FPM / FKM on request)

Pressure fluids on mineral oil basis (other media available on request)

Freedom from leaks, from 3 bar absolute ultra-fine sealing (medium: hydraulic oil)

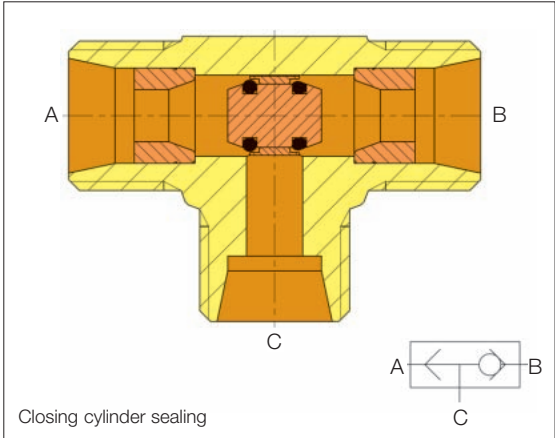
The sealing principle:

- The sliding sleeve on the closing cylinder
- releases the sealing area when it contacts the sleeve
 - protects the O-ring directed toward the flow against being flushed out

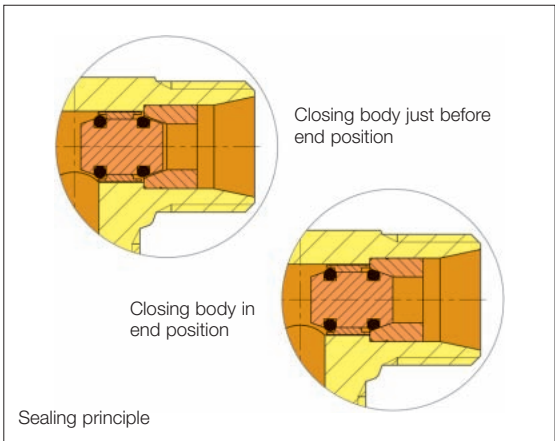
Temperature range:

-35 °C to +100 °C with NBR seal

-25 °C to +200 °C with FPM / FKM seal (on request)



Closing cylinder sealing



Sealing principle



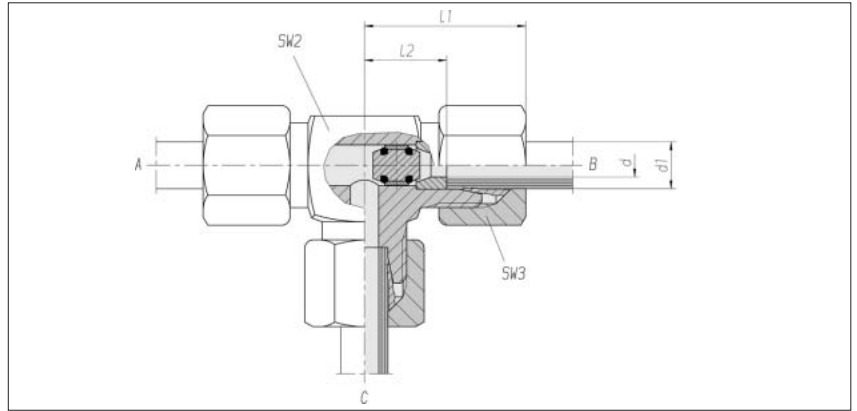
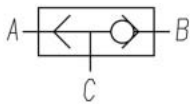
CAUTION!

Do not use for compressed air or gases, and not in conjunction with welded tapers!

Shuttle valves

Soft-sealing

Tube installation



Series	Pressure	d	SW2	SW3	l1	l2	kg/100	Order No.	Order No.
Tube OD					approx.		approx.	Single component	**
d1									
L 8	PB 250	4.5	14	17	29	14	5.8	5 6 90 98 02 81*	5 6 90 98 02 07
L 10	PB 250	6	17	19	30	15	7.4	5 6 90 98 12 81	5 6 90 98 12 07
L 12	PB 250	7.5	19	22	32	17	11.1	5 6 90 98 22 81	5 6 90 98 22 07
L 15	PB 250	10	19	27	36	21	26.0	5 6 90 98 32 81	5 6 90 98 32 07
S 6	PB 630	3	14	17	31	16	12.6	5 6 90 98 42 81	5 6 90 98 42 07
S 8	PB 630	4.5	17	19	32	17	12.1	5 6 90 98 52 81	5 6 90 98 52 07
S 10	PB 630	6	19	22	34	17.5	22.1	5 6 90 98 53 81	5 6 90 98 53 07
S 12	PB 630	7.5	22	24	38	21.5	17.9	5 6 90 98 54 81	5 6 90 98 54 07
S 16	PB 400	10	24	30	43	24.5	19.7	5 6 90 98 55 81	5 6 90 98 55 07

* Sample product code, see: WV08LOMD

** With union nut and 2S cutting ring

Function description Line-break protection devices

VOSS line-break protection devices block the consumer in the case of a sudden pressure drop due to the failure of the feed line, preventing an uncontrollable drop in the load. The lost counter-pressure and the resulting volume flow away from the consumer cause the valve disc to close immediately. The line-break protection devices are adjusted to a reaction volume flow which results in the valve closing when exceeded. Under normal operating conditions, the line-break protection device is held open by a spring. The easily accessible adjustment permits adjustment to the size and process speed of the consumer.

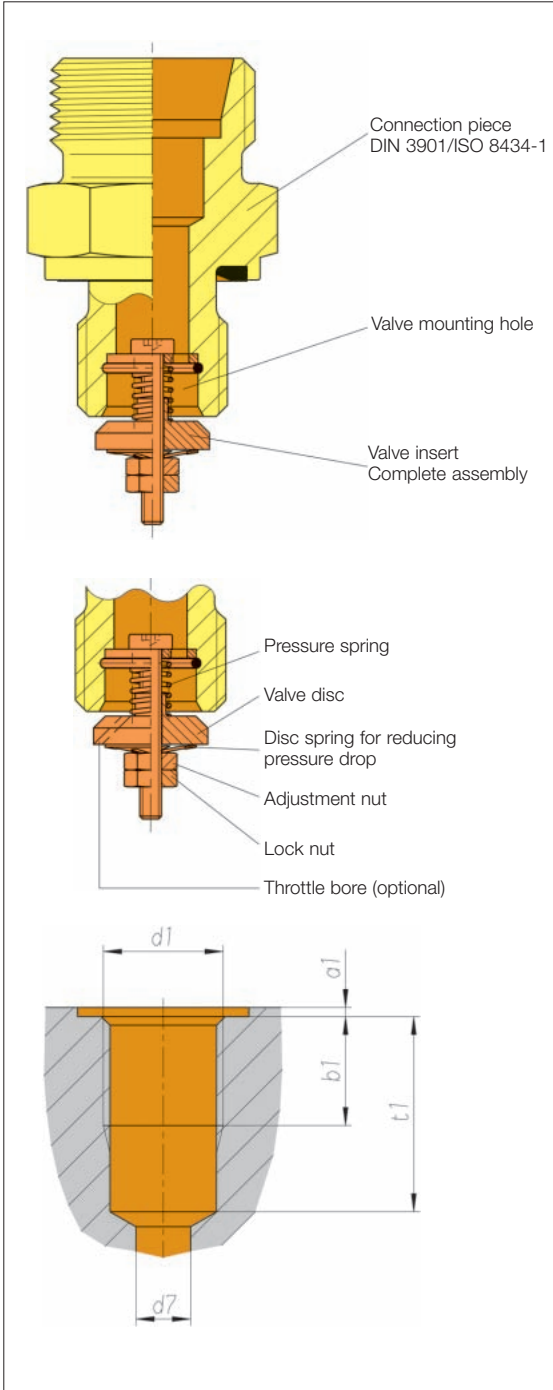
The operation of the disc spring under the valve disk increases the flow cross-section in the opening direction. The pressure drop via the valve is reduced without affecting the closing properties.

The integration of the function in the screw-in connecting piece reduces the assembly effort required. The installation size, e.g. of a cylinder, can be designed smaller. This decreases costs due to a reduced space requirement and lower weight.

- Four connection sizes G 1/4, G 3/8, G 1/2 and G 3/4
- Typical applications: excavators, forklift trucks, lifts, lifting platforms
- Threaded stud type E, DIN 3852 Part 11 Sealed with PEFLEX ring as standard
- Line-break protection devices with integrated throttle bore for controlled load decrease available on request
- Presetting for minimisation of assembly effort available on request
- Industrial property rights applied for

Mounting hole

d1	d7 +0.2	a1 max.	b1 min.	t1 min.
G 1/4	6	1.5	12	21.5
G 3/8	9.5	2	12	25.5
G 1/2	10.5	2.5	14	26
G 3/4	14.0	2.5	16	32



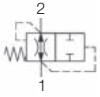
Technical data

Characteristics

- Connection variables G 1/4, G 3/8, G 1/2, G 3/4
- Reaction volume flow

G 1/4	8 - 16.5 l/min
G 3/8	6 - 40.0 l/min
G 1/2	20 - 70.0 l/min
G 3/4	45 - 130.0 l/min
- Flow direction

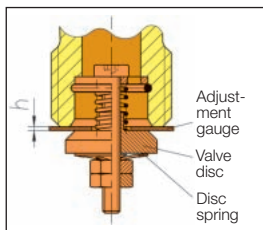
2 - 1	free flow
1 - 2	Valve blocked when set reaction volume flow exceeded
- Ambient temperature -20 °C to +80 °C
- Installation position as desired
- Operating pressure max. PN 315 bar
- Pressure fluid range Hydraulic oil as per DIN 51 524 T 1, T 2, T 3 (others on request)
33 mm²/s (recommended)
- Medium viscosity



Valve adjustment

The level of the reaction volume flow is dependent on the adjustment dimension "h". Adjustment is carried out after loosening the lock nut with the adjustment nut, whereby the adjustment dimension "h" is specified with valve adjustment gauges or feeler gauge blades of corresponding thickness. The adjustment must be locked by tightening the lock nut.

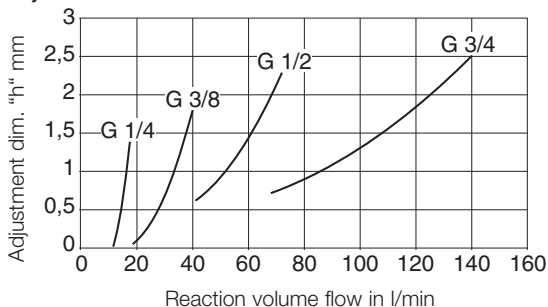
Adjustment dim. „h“



Preadjustment

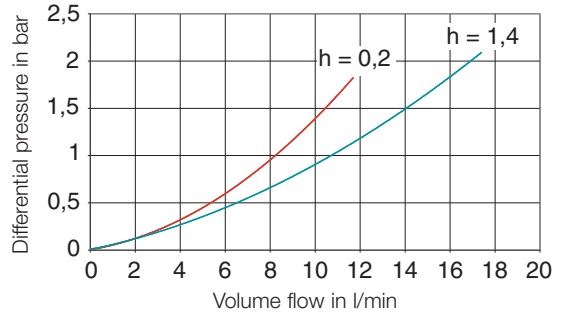
Type	"h"
G 1/4	1.4
G 3/8	1.8
G 1/2	2.3
G 3/4	2.5

Adjustment curves at $v = 33 \text{ mm}^2/\text{s}$

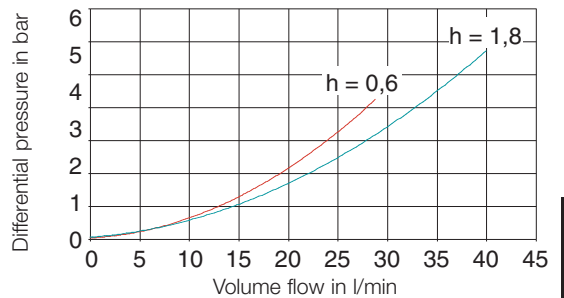


Pressure difference in dependence on the volume flow with $v = 33 \text{ mm}^2/\text{s}$

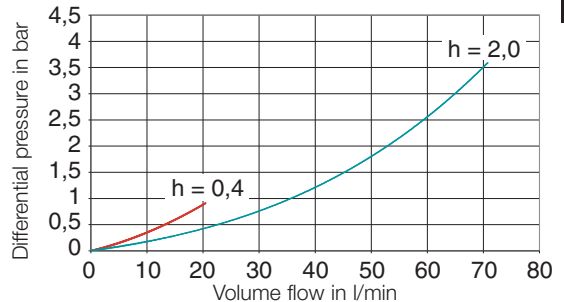
G 1/4 without throttle bore



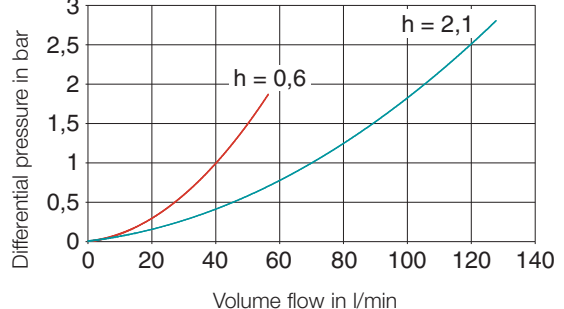
G 3/8 without throttle bore



G 1/2 without throttle bore



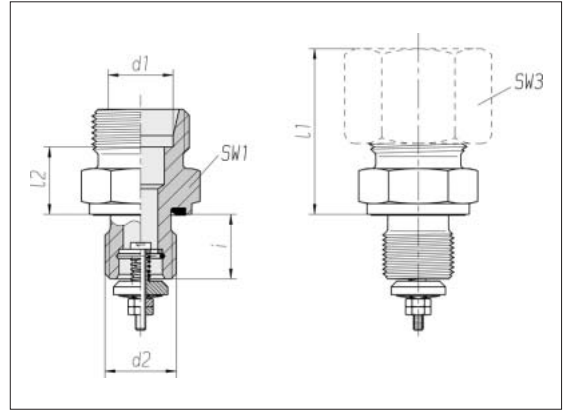
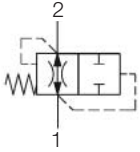
G 3/4 without throttle bore



Line-break protection devices

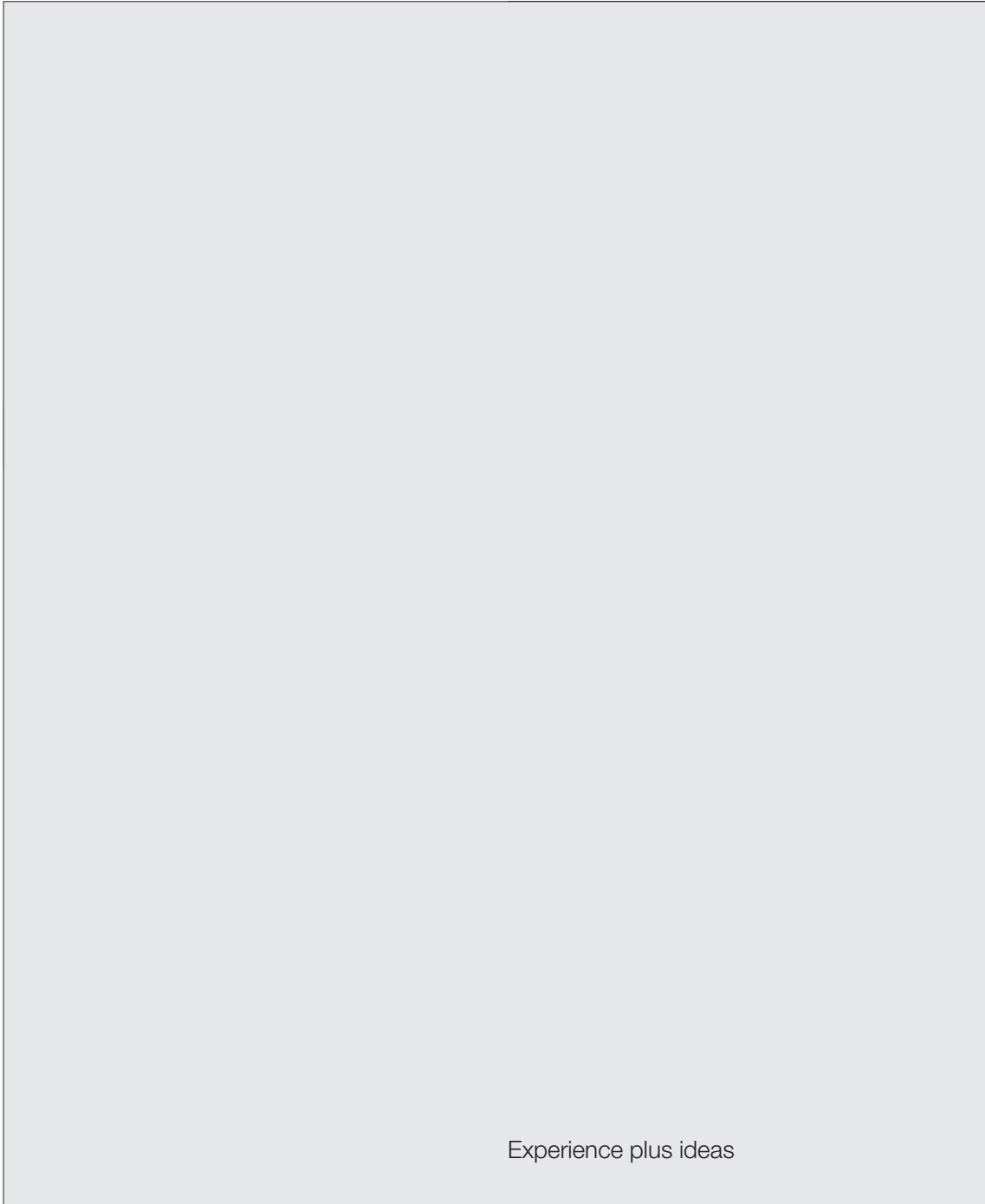
Thread:
Whitworth pipe thread,
straight

Sealed with PEFLEX seal



Series Tube OD d1	Pressure	d2	SW1	SW3	l1 approx.	l2	i	Nm -10%	kg/100 approx.	Order No. Single component	Order No. *
L 8	PN 315	G 1/4 A	19	17	25	10	12	50	2.8	0 6 30 05 20 81	0 6 30 05 20 07
L 8	PN 315	G 3/8 A	22	17	26.5	11.5	12	80	4.3	0 6 30 01 20 81	0 6 30 01 20 07
L 12	PN 315	G 1/4 A	19	22	27	12.5	12	50	6.2	0 6 30 00 20 81	0 6 30 00 20 07
L 12	PN 315	G 3/8 A	22	22	27	12.5	12	80	4.5	0 6 30 06 20 81	0 6 30 06 20 07
L 15	PN 315	G 1/2 A	27	27	29	14	14	100	7.3	0 6 30 02 20 81	0 6 30 02 20 07
L 22	PN 160	G 3/4 A	32	36	33	16.5	16	180	12.6	0 6 30 03 20 81	0 6 30 03 20 07

Assembly Instructions



Experience plus ideas

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Assembly Instructions 2S <i>plus</i> tube couplings	Pg. 328-331
Assembly Instructions ES-4 tube couplings	Pg. 332-335
Assembly Instructions ES-4VA tube couplings	Pg. 336-339
Assembly Instructions VOSSForm ^{SOP} tube couplings	Pg. 340-345
Assembly Instructions VOSSForm ^{SOP} VA tube couplings	Pg. 346-351
Assembly Instructions BV-10 flared couplings	Pg. 352-355
Assembly Instructions Taper (DKO) and weld nipple	Pg. 356-357
Assembly Instructions ZAKO flange couplings	Pg. 358-361
Assembly Instructions Flange couplings with cutting- ring and welding connection	Pg. 362-363
Assembly Instructions Screw-in connecting piece according to ISO 6149/11926-1	Pg. 364-365

Assembly Instructions for 2S Tube Couplings

1. Notes

These assembly instructions describe the two assembly options provided for in the German standard DIN 3859 Part 2:

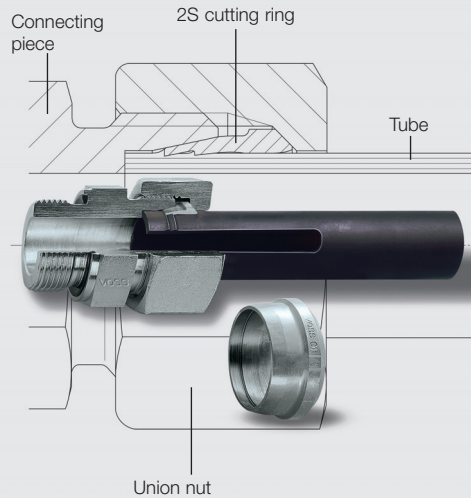
- Direct assembly in the coupling connecting piece.
- Pre-assembly in hardened pre-assembly mandrel.

All the data below were determined under the following preconditions:

- Seamless steel tubes for precision applications to EN 10305-1.
- Tube material 1.0255+N to DIN 1630.
- Corrosion protection VOSS Zink-Nickel.

We recommend the use of VOSS pre-assembly devices for series-production assembly. The specifications in the respective operating instructions apply to the assembly procedures here.

Compliance with the assembly instructions is extremely important for fulfilling the functions of the 2S cutting ring couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.



Caution!

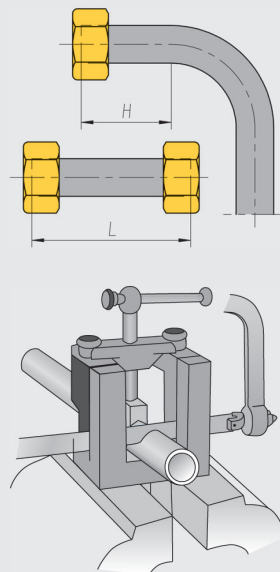
Please observe the safety instructions for installation and the recommendation on the use of tube supports (see page 374).

2. Tube preparation

2.1 Minimum dimensions of the straight tube ends must be taken into account for determining the tube lengths.

With machine pre-assembly, the minimum lengths are contained in the respective operating instructions of the pre-assembly devices.

Series	Tube-OD	H	L
L	6/ 8	31	39
L	10/12	33	42
L	15	36	45
L	18	38	48
L	22/28	42	53
L	35/42	48	60
S	6/ 8	35	44
S	10/12	37	47
S	14/16	43	54
S	20	50	63
S	25	54	68
S	30	58	72
S	38	65	82



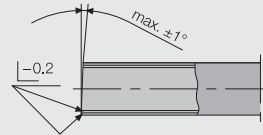
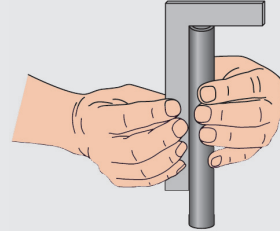
2.2 Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible. Do not use tube cutters or abrasive cutting machines.

2.3 Slightly deburr tube ends inside and outside. Clean tube.



Caution!

- Tubes cut crooked or improperly deburred reduce the service life and freedom from leaks of the coupling.
- With thin-walled steel tubes or soft tubes of non-ferrous metals, reinforcing sleeves should be used (see page 374).



3. Assembly preparation

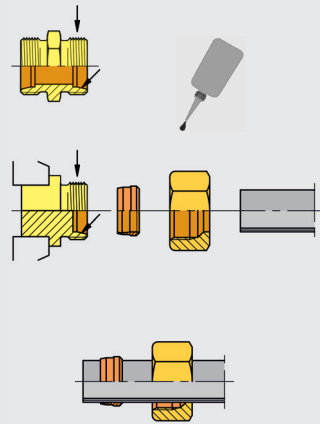
3.1 To simplify assembly, we recommend lubricating the mating pieces of the coupling or the manual pre-assembly mandrel.

3.2 Push the union nut and the 2S cutting ring onto the tube end consecutively. The cutting edges of the 2S cutting ring face the tube end.



Caution!

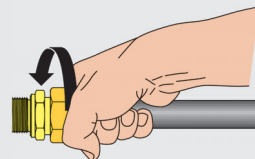
Ensure the proper position of the 2S cutting ring, or otherwise incorrect assembly will result.



4. Direct assembly in coupling connecting piece

4.1 Insert the tube end into the coupling connecting piece as far as possible and press on. During the assembly process the tube must be held on the stop to prevent incorrect assembly.

4.2 Screw on the union nut by hand until the coupling connecting piece, the 2S cutting ring and the union nut are felt to make contact.



4.3 Tighten the union nut with the open-end spanner.

- up to a tube OD of 18 mm 1 1/2 turns
- from a tube OD of 20 mm 1 1/4 turns

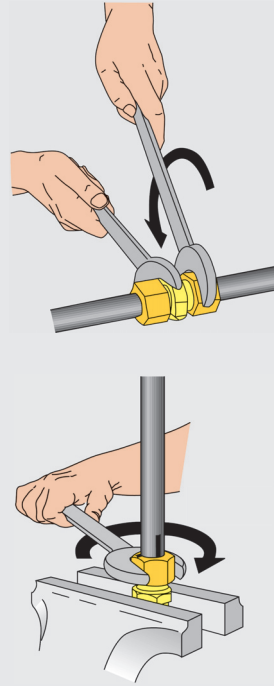
Notes:

- For assembly within the tube, tighten the coupling connecting piece with a spanner.
- To comply with the specified number of turns, it is recommended that marking lines be applied to the union nut and the tube.
- The assembly specification in 4.3 also applies to pre-assembly in a vice.

Caution!



- Each coupling body may only be used once for initial assembly. In the case of multiple use, malfunctions can occur.
- Following assembly a visual inspection including checking of the correct assembly is absolutely necessary (see point 6. Checking).



5. Pre-assembly in hardened pre-assembly mandrel

The hardened pre-assembly mandrel is wear-resistant and enable uniform assembly results, as they are more closely toleranced. They should be checked for trueness to gauge size after approx. every 50 pre-assemblies.

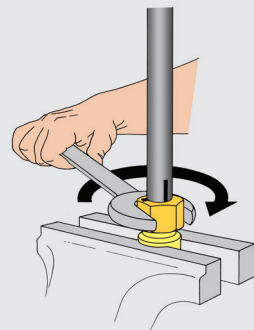
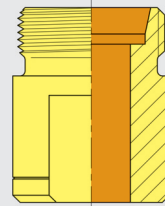
Replace pre-assembly mandrels which are not true to gauge size or are damaged in the cone area to prevent incorrect assembly.

- 5.1 Insert the tube end into the pre-assembly mandrel as far as possible and press on. During the assembly process the tube must be held on the stop to prevent incorrect assembly.
- 5.2 Screw on the union nut by hand until the pre-assembly mandrel, the 2S cutting ring and the union nut are felt to make contact.
- 5.3 Tighten the union nut with the open-end spanner.
 - up to a tube OD of 18 mm 1 1/2 turns
 - from a tube OD of 20 mm 1 1/4 turns

Caution!



Following each pre-assembly a visual inspection including checking of the correct assembly is absolutely necessary (see point 6. Checking).



6. Checking

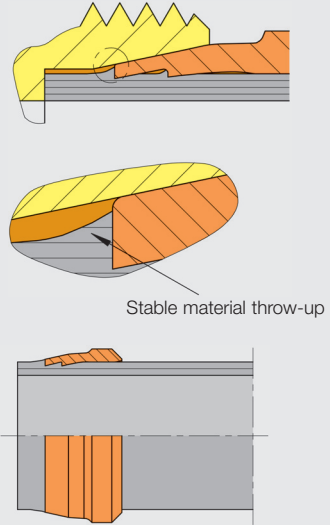
Unscrew union nut and check the shoulder throw-up. The shoulder throw-up must cover at least 80% of the cutting-edge face surface.

It may be possible to turn the cutting ring on the tube in this position. Possible soiling must be removed.



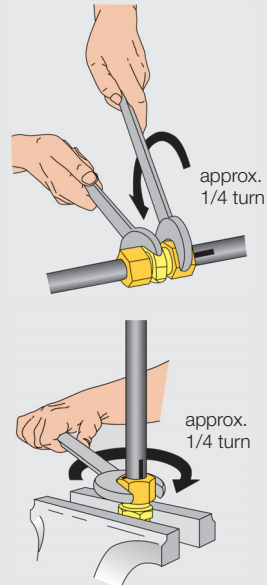
Caution!

If the shoulder throw-up is insufficient, repeat assembly with application of increased force. The result must be checked again.



7. Finish assembly

- 7.1 Carefully reinsert the **tube end mounted** in the coupling connecting piece in which it was assembled. Then tighten the union nut hand-tight and stress-free.
 - 7.1.1 Tighten union nut with spanner (without extension) up to noticeable increase in force.
 - 7.1.2 Then tighten another 1/4 turn.
- 7.2 Carefully insert the **tube end pre-assembled** in the hardened pre-assembly mandrel or machine pre-assembled in a (new) coupling connecting piece not yet used for assembly and tighten the union nut hand-tight and stress-free.
 - 7.2.1 Tighten union nut with spanner (without extension) up to noticeable increase in force.
 - 7.2.2 Then tighten another 1/4 turn.



8. Repeat assembly

Repeated installations can be carried out on the tube coupling. When doing so, the union nut is tightened again with the same amount of force as during the initial assembly.

Assembly Instructions for 2SVA Tube Couplings

1. Notes

2SVA cutting rings **must** be pre-assembled in hardened tools.

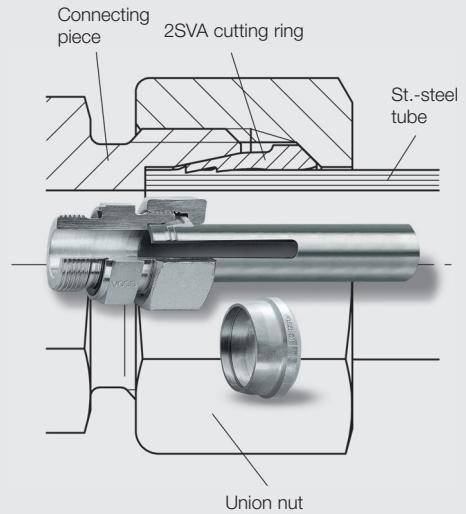
These assembly instructions describe the pre-assembly in the hardened manual pre-assembly connecting piece.

All the data below were determined under the following preconditions:

- Seamless cold-drawn stainless steel tubes with tolerances to EN 10305-1.
- Heat treated scale-free (heat treatment methods to DIN 17458), of material 1.4571+m.
- Use of assembly paste MPE.

With series-production assembly and from the cutting ring sizes L 15 or S 16, we recommend the use of VOSS pre-assembly devices for pre-assembling the 2SVA cutting rings. The specifications in the respective operating instructions apply to the assembly procedures here.

Compliance with the assembly instructions is extremely important for fulfilling the functions of the 2SVA cutting ring couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.



Caution!

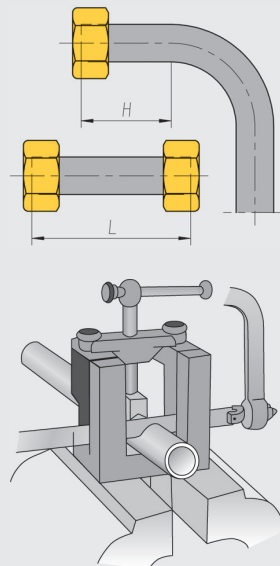
Please observe the safety instructions for installation and the recommendation on the use of tube supports (see page 374).

2. Tube preparation

2.1 Minimum dimensions of the straight tube ends must be taken into account for determining the tube lengths.

With machine pre-assembly, the minimum lengths are contained in the respective operating instructions of the pre-assembly devices.

Series	Tube-OD	H	L
L	6/ 8	31	39
L	10/12	33	41
L	15	36	45
L	18	38	48
L	22/28	42	53
L	35/42	48	60
S	6/ 8	35	44
S	10/12	37	47
S	14/16	43	54
S	20	50	63
S	25	54	68
S	30	58	72
S	38	65	82



- 2.2 Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible.
Do not use tube cutters or abrasive cutting machines.
- 2.3 Slightly deburr tube ends inside and outside. Clean tube.



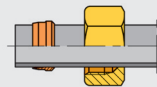
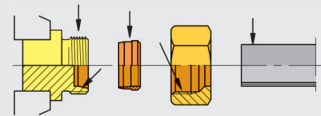
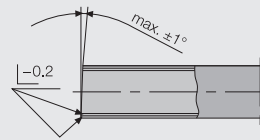
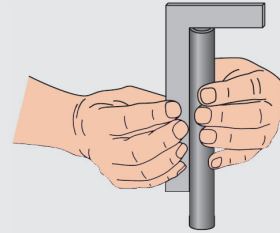
Caution!

- Tubes sawed off crooked or improperly deburred reduce the service life and freedom from leaks of the coupling.
- With thin-walled stainless-steel tubes, reinforcing sleeves should be used (see page 374).

2.4 Assembly paste

Lubricate the taper and the thread of the pre-assembly connecting piece, and the cutting ring and the thread of the union nut with assembly paste (e.g. MPE assembly paste).

- 2.5 Push the union nut and the 2SVA cutting ring onto the tube end consecutively. The cutting edges of the 2SVA cutting ring face the tube end.



3. Pre-assembly in hardened pre-assembly connecting piece

The hardened pre-assembly connecting pieces are wear-resistant and enable uniform assembly results, as they are more closely tolerated.

They should be checked for trueness to gauge size after approx. every 50 pre-assemblies.

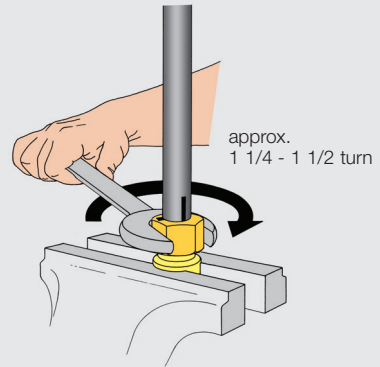
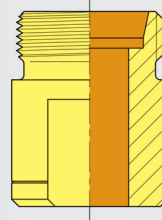
Replace pre-assembly connecting pieces which are not true to gauge size or are damaged in the cone area to prevent incorrect assembly.

- 3.1 Insert the tube end into the pre-assembly connecting piece as far as possible and press on. During the assembly process the tube must be held on the stop to prevent incorrect assembly.
- 3.2 Screw on the union nut by hand until the pre-assembly connecting piece, the 2SVA cutting ring and the union nut are felt to make contact.
- 3.3 Tighten the union nut approx. $1 \frac{1}{4}$ - $1 \frac{1}{2}$ rotation. The cutting edges penetrate into the tube jacket and produce a visible material throw-up in front of the first cutting edge.



Caution!

After every pre-assembly a visual inspection including checking of the correct assembly results is absolutely necessary (see point 4. Checking).

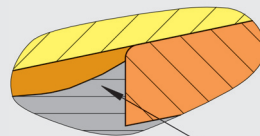
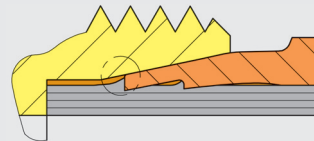


4. Checking

- 4.1 Unscrew union nut and check shoulder throw-up.

The shoulder throw-up must cover approx. 70% of the cutting-edge face surface.

It may be possible to turn the cutting ring in this position. Remove possible soiling.

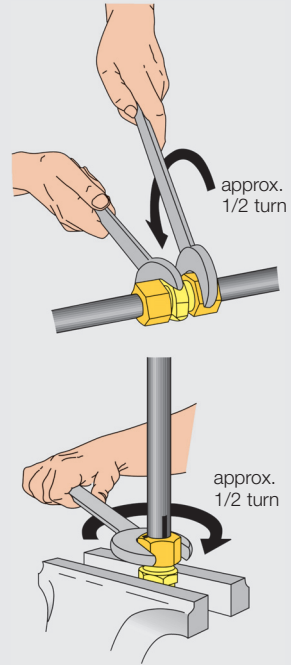


Caution!

With an insufficient shoulder throw-up, repeat assembly with increased force and check again.

5. Finish assembly

- 5.1 Carefully insert the tube end pre-assembled in the hardened manual pre-assembly connecting piece or machine pre-assembled in a new coupling connecting piece and tighten the union nut hand-tight and stress-free.
- 5.2 Tighten union nut with spanner (without extension) up to noticeable increase in force.
- 5.3 Then tighten another 1/2 turn.



6. Repeat assembly

- 6.1 Repeated installations can be carried out on the tube coupling.
- 6.2 During the new finish assembly, tighten the union nut until a noticeable increase in force is felt.
- 6.3 Then tighten another 1/2 turn.



Caution!

The assembly result, such as shoulder throw-up etc., must be checked (see 4. Checking).

Assembly Instructions 2S plus Tube Couplings

1. Notes

These assembly instructions describe the two assembly methods provided for under DIN 3859, Part 2:

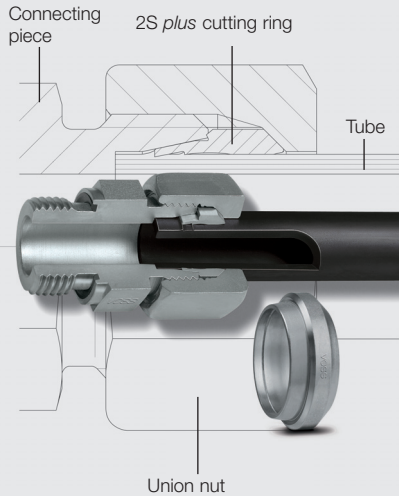
- Direct assembly in the coupling connecting piece.
- Preassembly in the hardened pre-assembly support.

All the following data were determined on the basis of the following preconditions:

- Seamless steel tubes for precision applications to EN 10305-1.
- Corrosion protection VOSS Zink-Nickel.

For series assemblies we recommend the use of VOSS pre-assembly equipment. The information in the respective assembly instructions apply for the assembly procedures here.

In order for the 2S plus cutting ring couplings to fulfil their function, observance of the assembly instructions is of the greatest importance. Incorrect handling can result in risks with respect to safety and leak tightness that can under certain circumstances result in the complete failure of the coupling.



Caution!

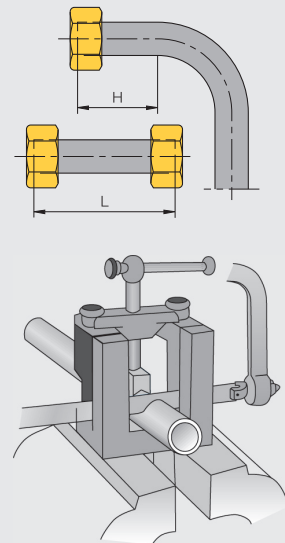
Please observe the safety instructions for installation and the recommendation on the use of tube supports (see page 374).

2. Tube preparation

2.1 Minimum lengths of the straight pipe ends must be taken into consideration when determining the tube lengths.

With machine pre-assembly, the minimum lengths can be found in the operating instructions of the respective pre-assembly equipment.

Series	Tube-OD	H	L
L	6/ 8	31	39
L	10/12	33	42
L	15	36	45
L	18	38	48
L	22/28	42	53
L	35/42	48	60
S	6/ 8	35	44
S	10/12	37	47
S	14/16	43	54
S	20	50	63
S	25	54	68
S	30	58	72
S	38	65	82

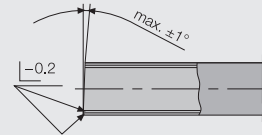
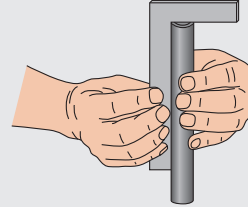


- 2.2 Saw off the tube at right angles. An angle tolerance of $\pm 1^\circ$ is admissible. Do not use tube cutters or angle grinders.
- 2.3 Deburr the tube ends lightly on the inside and outside. Clean the tube.



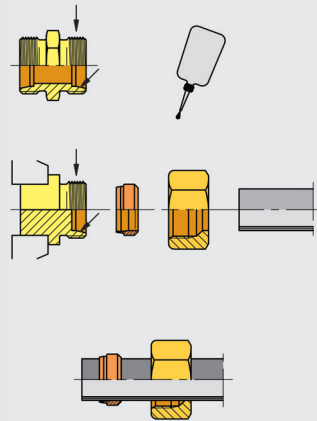
Caution!

- Tubes sawn off crooked or incorrectly deburred tubes reduce the service life and leak tightness of the connection.
- Use reinforcement sleeves with thin-walled steel tubes or soft tubes of NF metals (see page 374).



3. Assembly preparation

- 3.1 To simplify assembly, we recommend that the thread and the taper of the coupling connecting piece of the manual pre-assembly support are coated with lubricant.
- 3.2 Push the union nut and the 2S *plus* cutting ring onto the tube end. The cutting edges of the 2S *plus* cutting ring face towards the tube end.

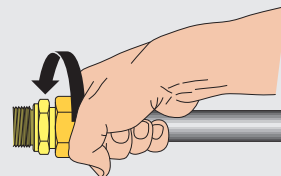


Caution!

Ensure that the 2S *plus* cutting ring is positioned correctly, otherwise assembly will not be correct.

4. Direct assembly in the coupling connecting piece

- 4.1 Insert the tube end into the coupling connecting piece and push in completely. During the assembly process, the tube must be held fully inserted to prevent incorrect assembly.
- 4.2 Screw on the union nut until there is tangible contact between the coupling connecting piece, 2S *plus* cutting ring and union nut.

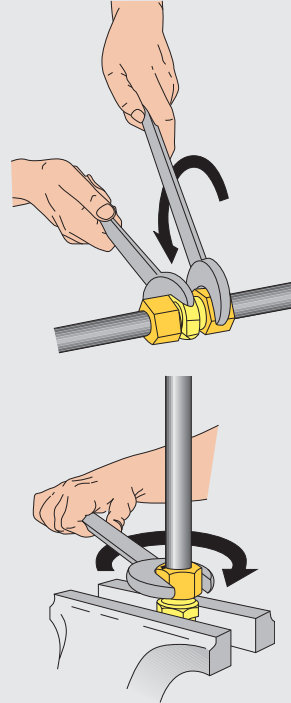


4.3 Tighten the union nut with an open-end wrench.

- Up to tube OD 18 mm 1 1/2 turns
- Up to tube OD 20 mm 1 1/4 turns

Notes:

- When installing in the pipeline, hold the coupling connecting piece with a wrench.
- In order to ensure the prescribed number of turns, we recommend that marks are made on the union nut and tube.
- The assembly procedure described under 4.3 also applies to pre-assembly in a vice.



Caution!

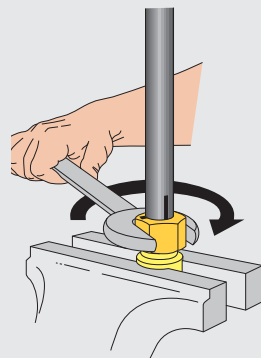
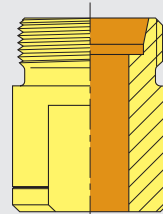
- Each coupling connecting piece may only be used once for an initial assembly. If it is used several times, functional impairments are possible.
- After assembly, a visual inspection to check the correct assembly result is absolutely crucial (see under point 6. checking).

5. Pre-assembly in hardened pre-assembly mandrel

The hardened pre-assembly supports are wear-resistant and permit uniform assembly results as they have closer tolerances.

They should, however, be inspected for correct dimensions after approx. 50 pre-assemblies.

- 5.1 Replace pre-assembly supports that are no longer within the tolerances or are damaged in the taper area to prevent incorrect assembly.
- 5.2 Screw on the union nut until there is tangible contact between the pre-assembly support, 2S plus cutting ring and union nut.
- 5.3 Tighten the union nut with an open-end wrench.
 - Up to tube OD 18 mm 1 1/2 turns
 - Up to tube OD 20 mm 1 1/4 turns



Caution!

After each pre-assembly, a visual inspection to check the correct assembly result is absolutely crucial (see under point 6. checking).

6. Checking

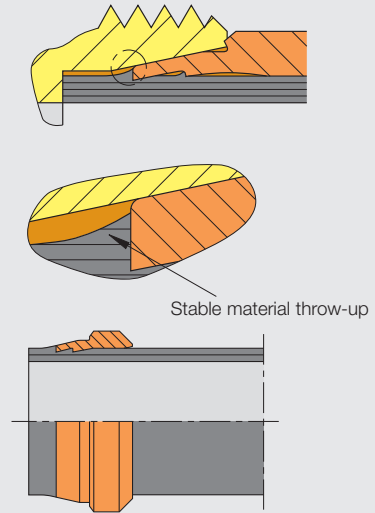
Loosen the union nut and inspect the material discharge. The material discharge must cover at least 80% of the cutting edge face.

In this position it must still be possible to turn the cutting ring on the tube. Remove any impurities.



Caution!

If the collar is not raised sufficient, repeat the assembly with greater force. Check the result again.



7. Final Assembly

7.1 Carefully insert the tube end installed in the **coupling connecting piece** again into the coupling connecting piece in which it was installed. Then tighten the union nut strain-free by hand.

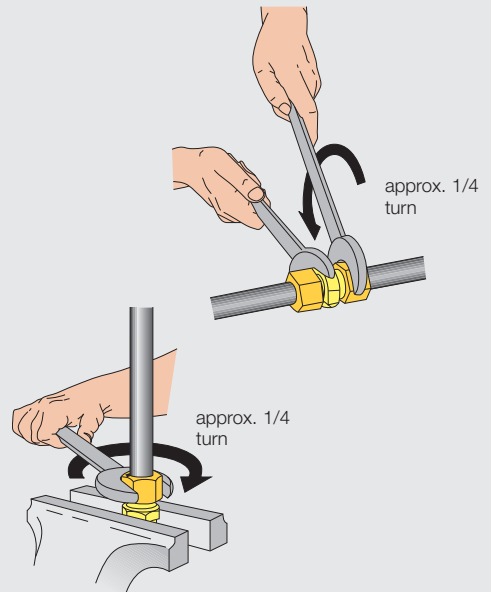
7.1.1 Tighten the union nut with a wrench (without extension) until a noticeable increase in force is felt.

7.1.2 Then tighten by a further 1/4 turn.

7.2 Carefully insert the tube end installed in the **hardened pre-assembly support** or machine pre-assembled pipe end into a (new) coupling connecting piece that has not yet been used for assembly and tighten the union nut strain-free by hand.

7.2.1 Tighten the union nut with a wrench (without extension) until a noticeable increase in force is felt.

7.2.2 Then tighten by a further 1/4 turn.



8. Repeat Assembly

Repeat assemblies can be carried out on the tube coupling. Tighten the union nut with the same force as for the original installation.

Assembly Instructions for ES-4 Tube Couplings

1. Notes

These assembly instructions describe the two assembly options provided for in the German standard DIN 3859 Part 2:

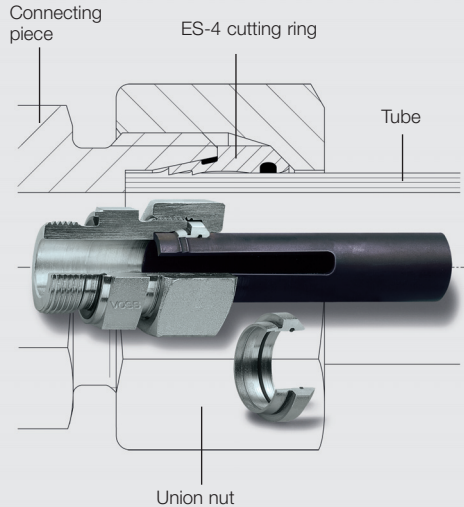
- Direct assembly in the coupling connecting piece.
- Pre-assembly in hardened pre-assembly mandrel.

All the data below were determined under the following preconditions:

- Seamless steel tubes for precision applications to EN 10305-1.
- Tube material 1.0255+N to DIN 1630.
- Corrosion protection VOSS Zink-Nickel.

We recommend the use of VOSS pre-assembly devices for series-production assembly. The specifications in the respective operating instructions apply to the assembly procedures here.

Compliance with the assembly instructions is extremely important for fulfilling the functions of the ES-4 cutting ring couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.



Caution!

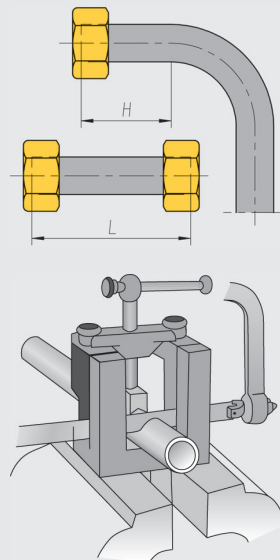
Please observe the safety instructions for installation and recommendation on the use of tube support (see page 374).

2. Tube preparation

2.1 Minimum dimensions of the straight tube ends must be taken into account for determining the tube lengths.

With machine pre-assembly, the minimum lengths are contained in the respective operating instructions of the pre-assembly devices.

Series	Tube-OD	H	L
L	6/ 8	31	39
L	10/12	33	42
L	15	36	45
L	18	38	48
L	22/28	42	53
L	35/42	48	60
S	6/ 8	35	44
S	10/12	37	47
S	14/16	43	54
S	20	50	63
S	25	54	68
S	30	58	72
S	38	65	82



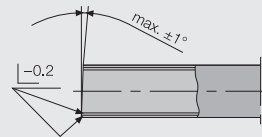
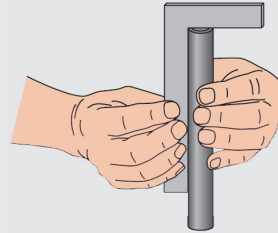
2.2 Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible. Do not use tube cutters or abrasive cutting machines.

2.3 Slightly deburr tube ends inside and outside. Clean tube.



Caution!

- Burrs on the outside tube diameter can damage the inner O-ring.
- Tubes cut crooked or improperly deburred reduce the service life and freedom from leaks of the coupling.
- With thin-walled steel tubes or soft tubes of non-ferrous metals, reinforcing sleeves should be used (see page 374).



3. Assembly preparation

3.1 To simplify assembly, we recommend lubricating the thread and the taper of the coupling connecting piece or the manual pre-assembly mandrel.

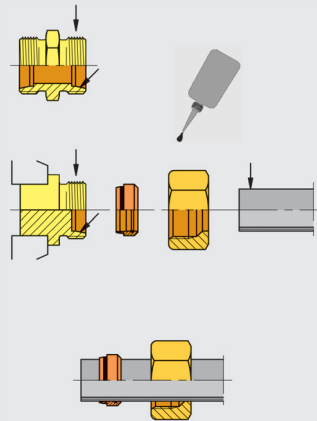
3.2 Wetting of the tube end with lubricant makes it easier to push the ES-4 cutting ring onto the tube.

3.3 Push the union nut and the ES-4 cutting ring onto the tube end consecutively. The cutting edges of the ES-4 cutting ring face the tube end.



Caution!

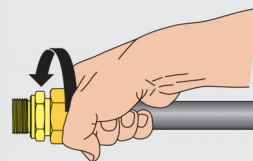
Ensure that the ES-4 cutting ring is positioned correctly, otherwise assembly will not be correct.



4. Direct assembly in coupling connecting piece

4.1 Insert the tube end into the coupling connecting piece as far as possible and press on. During the assembly process the tube must be held on the stop to prevent incorrect assembly.

4.2 Screw on the union nut by hand until the coupling connecting piece, the ES-4 cutting ring and the union nut are felt to make contact.



4.3 Tighten the union nut with approx. 1 1/4 turns (at least 1 to a maximum of 1 1/2 turns). When doing so, the ES-4 cutting ring contacts the connecting piece face.

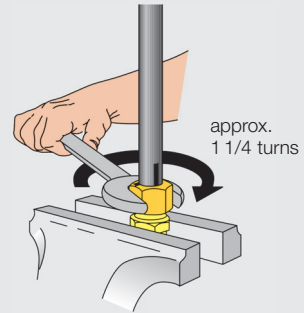
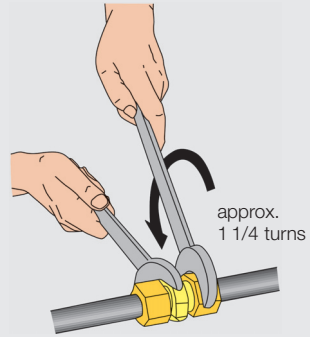
Notes:

- For assembly within the tube, tighten the coupling connecting piece with a spanner.
- To comply with the specified number of turns, it is recommended that marking lines be applied to the union nut and the tube.



Caution!

- Each coupling connecting piece may only be used once for initial assembly. In the case of multiple use, malfunctions can occur.
- Following assembly a visual inspection including checking of the correct assembly results is absolutely necessary (see point 6. Checking).



5. Pre-assembly in hardened pre-assembly mandrel

The hardened pre-assembly mandrels are wear-resistant and enable uniform assembly results, as they are more closely toleranced. They should be checked for trueness to gauge size after approx. every 50 pre-assemblies.

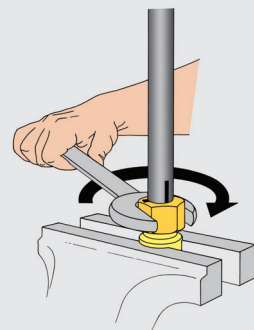
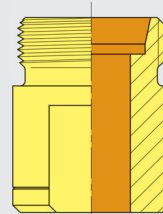
Replace pre-assembly mandrels which are not true to gauge size or are damaged in the cone area to prevent incorrect assembly.

- 5.1 Insert the tube end into the pre-assembly mandrel as far as possible and press on. During the assembly process the tube must be held on the stop to prevent incorrect assembly.
- 5.2 Screw on the union nut by hand until the pre-assembly mandrel, the ES-4 cutting ring and the union nut are felt to make contact.
- 5.3 Tighten the union nut with approx. 1 1/4 turns (at least 1 to a maximum of 1 1/2 turns). When doing so, the ES-4 cutting ring contacts the preassembly mandrel face.



Caution!

Following each pre-assembly a visual inspection including checking of the correct assembly results is absolutely necessary (see point 6. Checking).



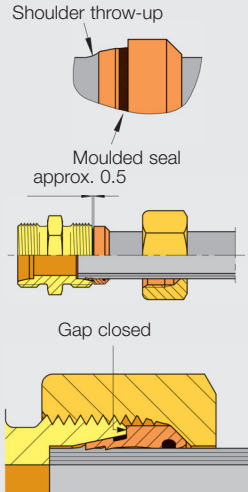
6. Checking

- 6.1 Unscrew the union nut and check the shoulder throw-up, gap width and the moulded seal.
The shoulder throw-up must cover at least 80% of the cutting-edge face surface.
The moulded seal must not be damaged. Remove possible soiling and replace the moulded seal if necessary.
- 6.2 Due to slight springing back during disassembly of the tube coupling, a gap of approx. 0.5 mm results between the ES-4 cutting ring and the coupling face (or pre-assembly coupling piece face).
This gap is closed again during finish assembly.



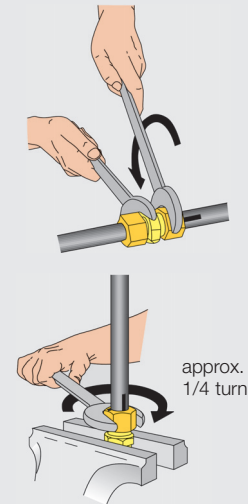
Caution!

- With a different gap width or an insufficient shoulder throw-up, repeat assembly with increased force and check again.
- It may still be possible to turn the ES-4 cutting ring on the tube.



7. Finish assembly

- 7.1 **Carefully reinsert the tube end mounted in the coupling connecting piece** in which it was assembled. When inserting, make sure that the moulded seal is not damaged and lies properly in the seal groove. Then tighten the union nut hand-tight and stress-free.
- 7.1.1 Tighten the union nut with the spanner with the same amount of force as during initial assembly. When doing so, the ES-4 cutting ring firmly contacts the connecting piece face.
- 7.2 **Carefully insert the tube end pre-assembled in the hardened pre-assembly mandrel** or machine pre-assembled in a (new) coupling connecting piece not yet used for assembly and tighten the union nut hand-tight and stress-free. When inserting, make sure that the moulded seal is not damaged and lies properly in the seal groove.
- 7.2.1 Tighten union nut with spanner (without extension) up to noticeable increase in force.
- 7.2.2 Then tighten another 1/4 turn. When doing so, the ES-4 cutting ring contacts the connecting piece face gap-free again.



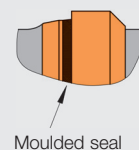
8. Repeat assembly

- 8.1 Each time the tube coupling is unscrewed, the moulded seal must be checked for damage and replaced if necessary.
- 8.2 In case of repeat finish mounting, the union nut must be tightened again with the same amount of force as during initial assembly.



Caution!

The assembly result, such as the shoulder throw-up, moulded seal and gap, must be checked (see 6. Checking).



Assembly Instructions for ES-4VA Tube Couplings

1. Notes

ES-4VA cutting rings **must** be pre-assembled in hardened tools.

These assembly instructions describe the pre-assembly in the hardened manual preassembly mandrel.

All the data below were determined under the following preconditions:

- Seamless cold-drawn stainless steel tubes with tolerances to EN 10305-1.
- Heat treated scale-free (heat treatment methods to DIN 17458), of material 1.4571+m.
- Use of assembly paste MPE.

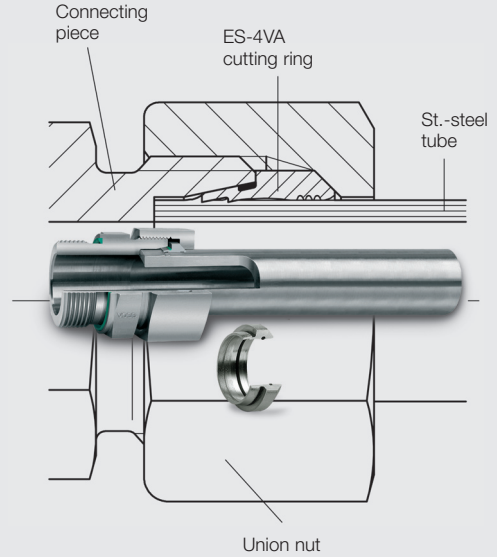
With series-production assembly and from the cutting ring sizes L 15 or S 16, we recommend the use of VOSS pre-assembly devices for pre-assembling the ES-4VA cutting rings. The specifications in the respective operating instructions apply to the assembly procedures here.

Compliance with the assembly instructions is extremely important for fulfilling the functions of the ES-4VA cutting ring couplings. Incorrect handling will lead to risks with regard to safety and leaking of the connection.



Caution!

Please observe the safety instructions for installation and the recommendation on the use of tube supports (see page 374).

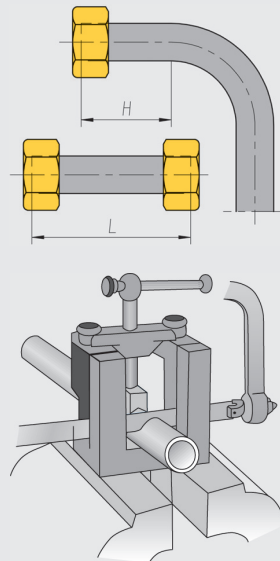


2. Tube preparation

2.1. Minimum dimensions of the straight tube ends must be taken into account for determining the tube lengths.

With machine pre-assembly, the minimum lengths are contained in the respective operating instructions of the pre-assembly devices.

Series	Tube-OD	H	L
L	6/ 8	31	39
L	10/12	33	42
L	15	36	45
L	18	38	48
L	22/28	42	53
L	35/42	48	60
S	6/ 8	35	44
S	10/12	37	47
S	14/16	43	54
S	20	50	63
S	25	54	68
S	30	58	72
S	38	65	82



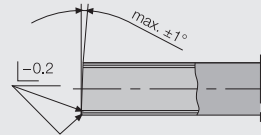
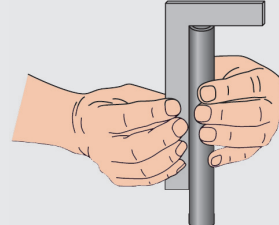
2.2 Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible. Do not use tube cutters or abrasive cutting machines.

2.3 Slightly deburr tube ends inside and outside. Clean tube.



Caution!

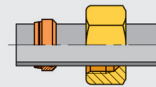
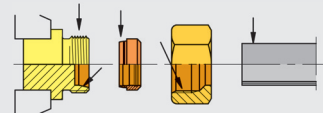
- Tubes cut crooked or improperly deburred reduce the service life and freedom from leaks of the coupling.
- With thin-walled stainless-steel tubes, reinforcing sleeves of the material 1.4571 must be used (see page 374).



3. Preparing pre-assembly

3.1 To properly carry out pre-assembly, the threads of the assembly mandrel and the union nut, as well as the taper surfaces must be lubricated with assembly paste (e.g. MPE assembly paste).

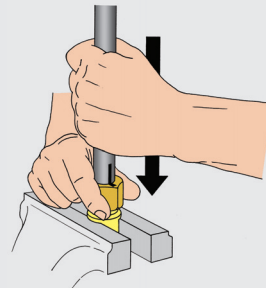
3.2 In the next step the union nut and ES-4VA cutting ring must be pushed onto the tube end. Ensure proper positioning when doing so (see illustration).



4. Pre-assembly in hardened pre-assembly mandrel

The hardened pre-assembly mandrels are wear-resistant and enable uniform assembly results, as they are more closely tolerated. They should be checked for trueness to gauge size after approx. every 50 pre-assemblies.

Replace pre-assembly mandrels which are not true to gauge size or are damaged in the cone area to prevent incorrect assembly.

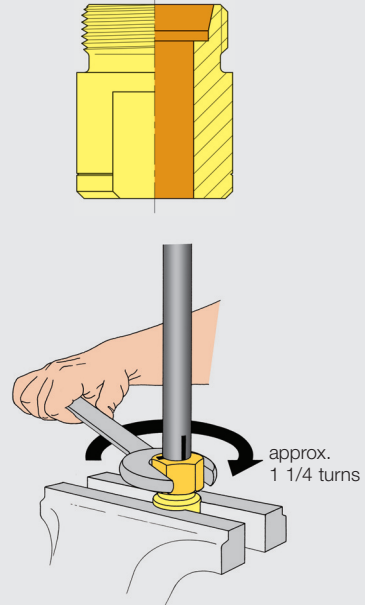


- 4.1 Insert the tube end into the manual pre-assembly mandrel as far as possible and press on. During the assembly process the tube must be held on the stop to prevent incorrect assembly.
- 4.2 Screw on the union nut by hand until the manual pre-assembly mandrel, the ES-4VA cutting ring and the union nut are felt to make contact.
- 4.3 Tighten the union nut with approx. 1 1/4 turns (at least 1 to a maximum of 1 1/2 turns). When doing so, the ES-4VA cutting ring contacts the manual pre-assembly mandrel face. A marking line on the union nut and tube simplifies observance of the specified number of turns.



Caution!

Following pre-assembly a visual inspection including checking of the correct assembly results is absolutely necessary (see point 5. Checking).



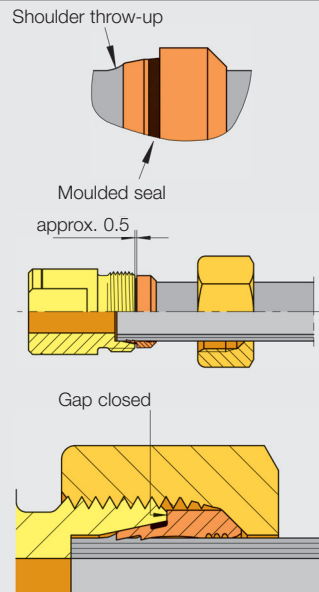
5. Checking

- 5.1 Unscrew the union nut and check the shoulder throw-up, gap width and the moulded seal. The shoulder throw-up must cover at least 70% of the cutting-edge face surface. The moulded seal must not be damaged. Remove possible soiling and replace the moulded seal if necessary.
- 5.2 Due to slight springing back during disassembly of the tube coupling, a gap of approx. 0.5 mm results between the ES-4VA cutting ring and the manual pre-assembly mandrel face. This gap is closed again during finish assembly.



Caution!

- With a different gap width or an insufficient shoulder throw-up, repeat assembly with increased force and check again.
- It may still be possible to turn the ES-4VA cutting ring on the tube.



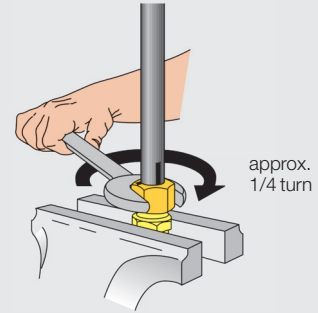
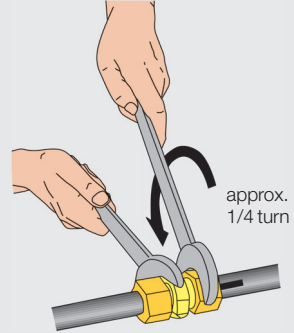
6. Finish assembly

- 6.1 Join the tube end pre-assembled by machine or in the hardened pre-assembly mandrel into a new coupling connecting piece. When inserting, make sure that the moulded seal is not damaged and lies properly in the seal groove.
- 6.2 Tighten union nut hand-tight.
- 6.3 Tighten the union nut with a spanner (without extension) up to a noticeable increase in force.
- 6.4 Tighten another 1/4 turn. When doing so, the ES-4VA cutting ring firmly contacts the connecting piece face.



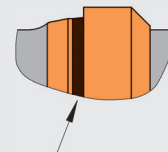
Caution!

During final tightening, always tighten the coupling connecting piece with a spanner or clamp in a vice.



7. Repeat assembly

- 7.1 Each time the tube coupling is unscrewed, the moulded seal must be checked for damage and replaced if necessary.
- 7.2 In case of repeat finish mounting, the union nut must be tightened again with the same amount of force as during initial assembly. Tighten the coupling connecting piece with a spanner.



Moulded seal

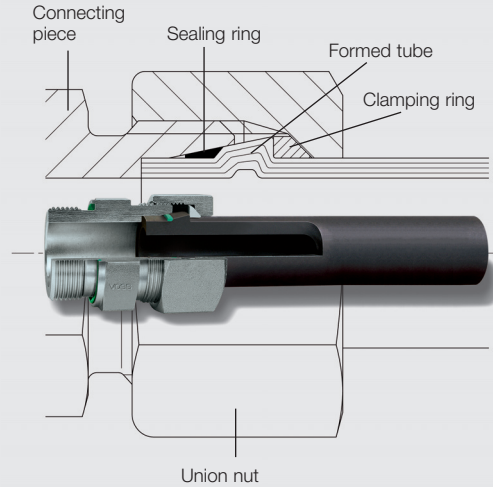
Assembly Instructions for VOSSForm^{SQR} Tube Couplings

1. Notes

These assembly instructions describe the tube forming and final assembly of VOSSForm^{SQR}.

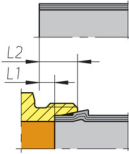
Compliance with the assembly instructions is extremely important for fulfilling the functions of the VOSSForm^{SQR} tube coupling.

Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.

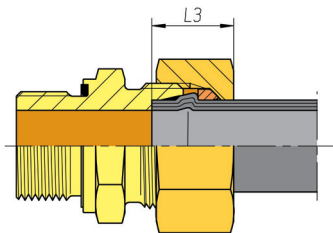


2. Tube preparation

2.1 When determining the tube lengths, the upsetting lengths L1/L2 must be taken into consideration. The tube is shortened by this distance during the forming process.

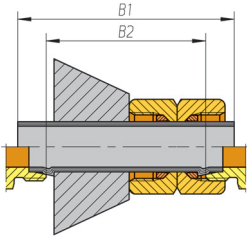


Furthermore, minimum lengths for clamping of the tube ends have to be taken into consideration.

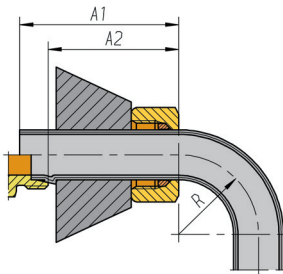


Height of completely assembled VOSSForm^{SQR} connection.

Series	Tube-OD	s	L1	L2	L3 approx.	A1	A2	B1	B2
L	6	1	5.1	12.1	15.8	69	56	91	65
		1.5	5.6	12.6	16.5				
		2	4.9	11.9	16.5				
L	8	1	5.1	12.1	15.8	64	51	86	60
		1.5	5.1	12.1	16.5				
		2	4.4	11.4	16.5				
		2.5	3.8	10.8	16.5				
L	10	1	5.2	12.2	15.8	59	46	81	55
		1.5	5.2	12.2	16.5				
		2	4.5	11.5	16.5				
L	12	1	5.2	12.2	15.8	58	45	80	54
		1.5	5.1	12.1	16.5				
		2	4.3	11.3	16.5				
L	15	1.5	5.6	12.6	18.0	68	54	91	64
		2	4.7	11.7	18.0				
		2.5	4.5	11.5	18.0				
L	18	1.5	5.8	13.3	19.0	73	59	98	70
		2	4.7	12.2	19.0				
		2.5	4.5	12.0	19.0				
		3	4.5	12.0	19.0				
L	22	1.5	6.6	14.1	20.3	82	68	108	79
		2	5.5	13.0	20.3				
		2.5	4.9	12.4	20.3				
		3	4.8	12.3	20.3				
L	28	2	5.5	13.0	20.2	91	77	116	88
		2.5	4.9	12.4	20.2				
		3	5.0	12.5	20.2				
L	35	2	7.7	18.2	24.7	115	97	145	109
		2.5	6.7	17.2	24.7				
		3	7.2	17.7	25.7				
		4	6.9	17.4	25.7				
L	42	2	7.5	18.5	25.2	116	97	146	109
		2.5	6.9	17.9	25.2				
		3	7.0	18.0	26.2				
		4	6.7	17.7	26.2				
S	6	1	5.1	12.1	16.3	69	56	91	65
		1.5	5.6	12.6	17.0				
		2	4.9	11.9	17.0				
S	8	1	5.1	12.1	16.3	64	51	86	60
		1.5	5.1	12.1	17.0				
		2	4.4	11.4	17.0				
		2.5	3.8	10.8	17.0				

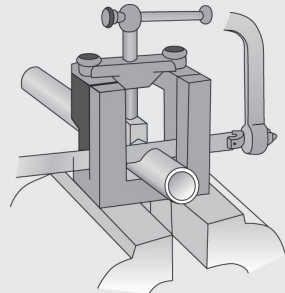


Minimum lengths for clamping in straight tubes



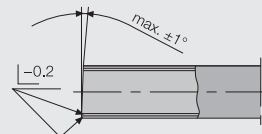
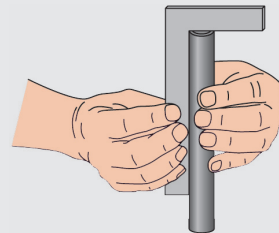
Minimum lengths for clamping in curved tubes
(for $R \geq 3x$ Tube-OD)

Series	Tube-OD	s	L1	L2	L3 ca.	A1	A2	B1	B2
S	10	1.5	6.1	13.6	19.0	62	48	87	59
		2	5.1	12.6	19.0				
		2.5	4.5	12.0	19.0				
S	12	1.5	5.7	13.2	19.0	62	48	87	59
		2	4.9	12.4	19.0				
		2.5	4.4	11.9	19.0				
S	14	1.5	6.0	14.0	21.0	70	55	97	67
		2	5.3	13.3	21.0				
		2.5	4.8	12.8	21.0				
S	16	1.5	6.2	14.7	21.5	73	58	100	69
		2	5.2	13.7	21.5				
		2.5	4.8	13.3	21.5				
S	20	2	7.8	18.3	25.6	86	67	118	80
		2.5	6.4	16.9	25.6				
		3	6.0	16.5	25.6				
S	25	3.5	5.8	16.3	25.6	100	80	135	94
		4	5.6	16.1	25.6				
		2.5	7.7	19.7	28.7				
		3	6.7	18.7	28.7				
S	30	3	6.3	18.3	28.7	123	102	160	118
		4	6.0	18.0	28.7				
		2	7.7	21.2	31.2				
		2.5	6.9	20.4	31.2				
S	38	3	7.4	20.9	32.2	134	108	178	125
		4	6.9	20.4	32.2				
		5	6.7	20.2	32.2				
		2.5	10.5	26.5	35.1				
		3	8.8	24.8	35.1				
		4	8.8	24.8	36.1				
5	8.1	24.1	36.1						
6	7.8	23.8	36.1						



2.2 Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible. Do not use tube cutters or abrasive cutting machines.

2.3 Slightly deburr tube ends inside and outside, and clean tubing.



Caution!

- Burrs on the outside and inside tube diameter can negatively affect the forming process.
- Tubes sawed off crooked or improperly deburred reduce the service life and freedom from leaks of the coupling.

3. Oiling of the tools and steel tubes

3.1 Oiling of the tools

Clamping jaws:

At every tool change or after 100 forming operations, the outer taper of the clamping jaws must be oiled lightly with hydraulic oil or a non-gumming MoS₂-based lubricant.



Caution!

Take care to ensure that no oil is applied to the clamping jaw splines to prevent the holding function from being impaired.

Forming head:

The forming head is coated with corrosion inhibitor on delivery. This coating must be removed before the first use of the tool for forming.

As the tubes are always oiled (see point 2), additional oiling of the forming head is not necessary.

3.2 Oiling of the steel tubes

Oiling of phosphated steel tubes:

In order to reduce tool wear, roughly every 10th tube should be coated with a thin film of hydraulic oil on the inside and outside in the forming area.

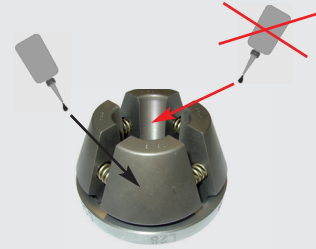
Oiling of galvanised steel tubes:

In order to reduce tool wear, every tube should be coated with a thin film of hydraulic oil on the inside and outside in the forming area.



Caution!

An excessively thick oil film on the outside of the tube will be trapped between forming head and tube during forming and this falsifies the precision of the contours.



4. Pre-assembly tube forming

Process-reliable pre-assembly

Forming with the VOSSForm100 pre-assembly device is extremely simple. The simple pushing in of the tube end against the stop and the monitored forming allows no errors to occur.

The inner mandrel on the forming head prevents a constriction of the tube in the formed area. The inside tube diameter is completely retained, preventing pressure losses due to inward arching.

The operating instructions of the pre-assembly device must always be observed.

4.1 Slide union nut with integrated clamping ring onto tube end so that inner thread side faces forming side.



4.2 Forming process

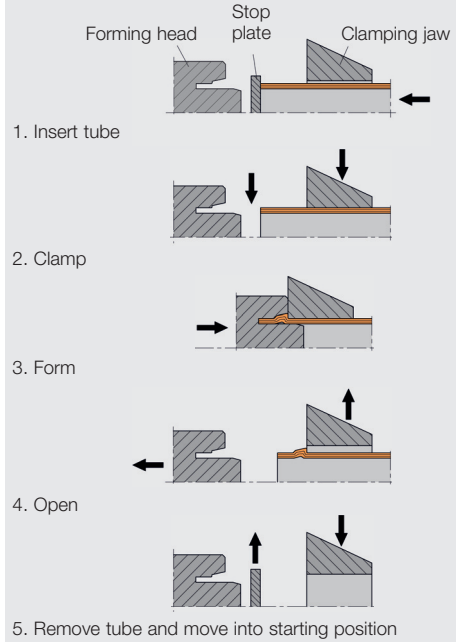
Forming begins with the tube being pushed into the pre-assembly machine against the stop plate. Pressing the Start button triggers the process (1.).

The clamping jaws close and clamp the tube in place. The stop plate swivels out of the forming area (2.).

The forming head moves forward and forms the VOSS contour plastically on the tube (3.).

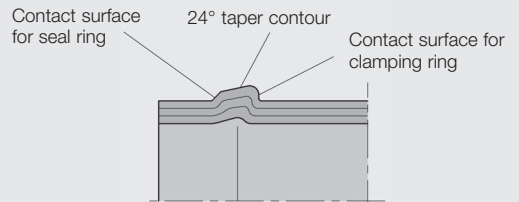
The forming head moves back and the clamping jaws open (4.).

Removal of the tube is monitored. As a result, the device can automatically move into the starting position again and begin the next tube forming process without the necessity of manual resetting (5.).



5. Checking

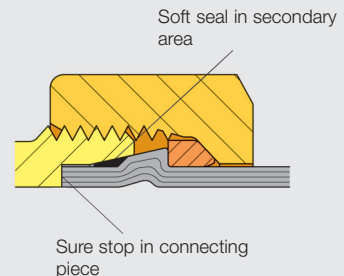
- A visual inspection of the quality of the three characteristic features is sufficient.



6. Assembly safety

Assembly safety with sure stop

Safe assemblies mean safe connections. With the VOSSForm^{SOFT} System the face of the tube end strikes against the bottom of the standard DIN/ISO connecting piece during assembly. When the nut is tightened, the end of assembly becomes clear from a noticeable increase in force. Under and over-tightening can be virtually eliminated. In addition, the assembly distance is reduced, and with it the mounting time. The formed-on contour is deeply inserted into the 24° taper, ensuring stable seating.



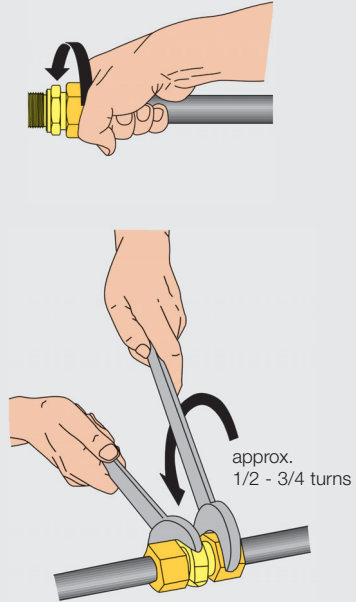
7. Final assembly

- 7.1 Fit seal ring.
- 7.2 Oil coupling parts and tube.
- 7.3 Screw on union nut by hand until all coupling components contact the block, i.e. are tightened hand-tight.

The final tightening (distance-dependent assembly) must be carried out with approx. 1/2 - 3/4 turn of the union nut.

For assembly within a tube, brace the coupling connecting piece with a spanner.

A marking line on the union nut and tube simplifies observance of the tightening distance.



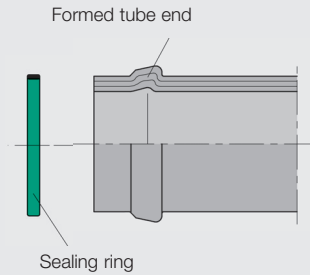
8. Repeat assemblies

- 8.1 Each time the tube coupling is unscrewed, the moulded seal must be checked for damage and replaced if necessary.
- 8.2 During a repeated finish assembly, the union nut must only be tightened by 1/4-1/2 turn after hand tightening.



Caution!

The forming result, such as a 24° taper contour, the contact surface for the moulded seal and the clamping ring must be checked (see 5. Checking).



9. Tightening torques

9.1 Distance-dependent assembly can be checked by checking the torque applied. The tightening torques are approximate values. They were determined under the following conditions:

- Seamless precision steel tubes according to EN 10305-1.
- Tube material 1.0255+N according to DIN 1630.
- Corrosion protection for the fitting components of VOSS Zink-Nickel.
Union nut additionally waxed.

Series	Tube-OD	Tightening torque Nm ± 5 %	Series	Tube-OD	Tightening torque Nm ± 5 %
L	6	20	S	6	25
L	8	30	S	8	40
L	10	40	S	10	50
L	12	50	S	12	60
L	15	70	S	14	75
L	18	90	S	16	85
L	22	120	S	20	140
L	28	160	S	25	190
L	35	250	S	30	270
L	42	380	S	38	400

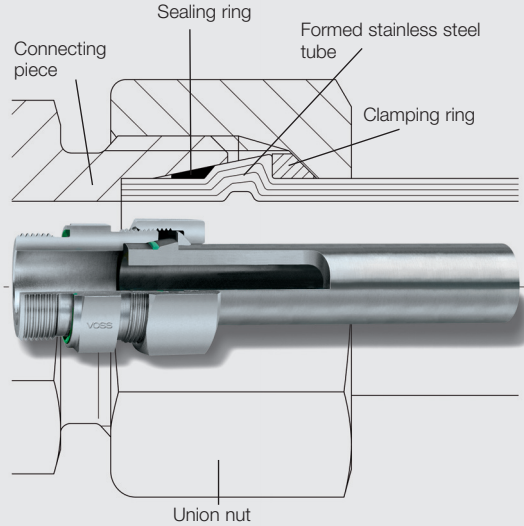
Assembly Instructions for VOSSForm^{SQR} VA Tube Couplings

1. Notes

These assembly instructions describe the tube forming and final assembly of VOSSForm^{SQR} VA.

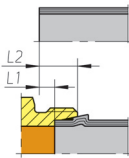
Compliance with the assembly instructions is extremely important for fulfilling the functions of the VOSSForm^{SQR} VA tube coupling.

Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.

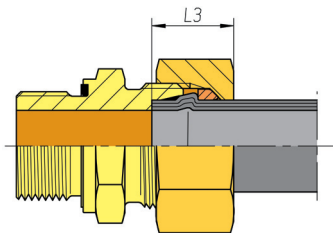


2. Tube preparation

2.1 When determining the tube lengths, the upsetting lengths L1/L2 must be taken into consideration. The tube is shortened by this distance during the forming process.

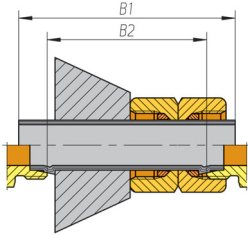


Furthermore, minimum lengths for clamping of the tube ends have to be taken into consideration.

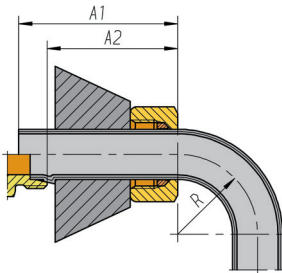


Height of completely assembled VOSSForm^{SQR} VA connection.

Series	Tube-OD	s	L1	L2	L3 approx.	A1	A2	B1	B2
L 6	6	1	5.1	12.1	15.6	68	56	90	65
		1.5	5.4	12.4	16.3				
		2	4.9	11.9	16.3				
L 8	8	1	5.4	12.4	15.6	63	51	84	60
		1.5	5.2	12.2	16.3				
		2	4.6	11.6	16.3				
		2.5	4.1	11.1	16.3				
L 10	10	1	5.4	12.4	15.6	59	46	81	55
		1.5	5.8	12.8	16.3				
		2	4.9	11.9	16.3				
L 12	12	1	5.6	12.6	15.6	58	45	79	54
		1.5	5.5	12.5	16.3				
		2	4.9	11.9	16.3				
L 15	15	1.5	5.8	12.8	17.8	67	54	90	64
		2	5.1	12.1	17.8				
		2.5	4.7	11.7	17.8				
L 18	18	1.5	5.7	13.2	18.8	72	59	96	70
		2	5	12.5	18.8				
		2.5	4.5	12.0	18.8				
		3	4.8	12.3	18.8				
L 22	22	1.5	6.5	14.0	19.7	82	68	107	79
		2	5.9	13.4	19.7				
L 28	28	2	5.5	13.0	19.3	90	77	114	88
		2.5	5.5	13.0	19.3				
		3	5.7	13.2	19.3				
L 35	35	2	8.1	18.6	24.4	115	97	145	109
		2.5	7.7	18.2	24.4				
		3	7.5	18.0	25.4				
L 42	42	2	7.9	18.9	24.9	116	97	148	109
		3	8.4	19.4	25.9				



Minimum lengths for clamping in straight tubes



Minimum lengths for clamping in curved tubes
(for $R \geq 3x$ tube-OD)

Series	Tube-AD	s	L1	L2	L3 approx.	A1	A2	B1	B2
S	6	1	5.1	12.1	16.1	68	56	90	65
		1.5	5.4	12.4	16.8				
		2	4.9	11.9	16.8				
S	8	1	5.4	12.4	16.1	63	51	84	60
		1.5	5.2	12.2	16.8				
		2	4.6	11.6	16.8				
		2.5	4.1	11.1	16.8				
S	10	1.5	6.4	13.9	18.8	62	48	87	59
		2	5.6	13.1	18.8				
		2.5	5	12.5	18.8				
S	12	1.5	5.5	13.0	18.8	61	48	85	59
		2	5.3	12.8	18.8				
		2.5	5.1	12.6	18.8				
		3	4.6	12.1	18.8				
S	14	1.5	6.2	14.2	20.8	69	55	95	67
		2	5.5	13.5	20.8				
		2.5	4.9	12.9	20.8				
		3	5	13.0	20.8				
S	16	1.5	6.6	15.1	20.8	73	58	99	69
		2	5.4	13.9	20.8				
		2.5	4.7	13.2	20.8				
		3	4.7	13.2	20.8				
S	20	2	7	17.5	25.3	85	67	115	80
		2.5	6.9	17.4	25.3				
		3	6.2	16.7	25.3				
S	25	2	7.9	19.9	28.3	100	80	134	94
		2.5	6.9	18.9	28.3				
		3	6.7	18.7	28.3				
		4	6.8	18.8	28.3				
S	30	2.5	7.5	21.0	30.8	123	102	161	118
		3	7.9	21.4	31.8				
		4	7.8	21.3	31.8				
		5	7.8	21.3	31.8				
S	38	3	10	26.0	36.9	134	108	176	125
		4	9.7	25.7	37.9				
		5	9.1	25.1	37.9				
		5	9.1	25.1	37.9				

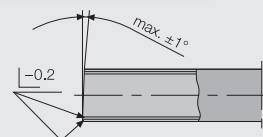
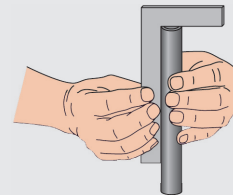
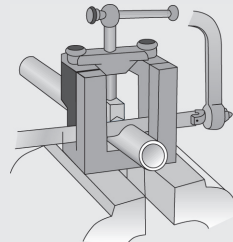
2.2 Tube specification:

- Seamless cold-drawn stainless steel tubes with tolerances to EN 10305-1.
- Heat treated scale-free (heat treatment methods to DIN 17458), of material 1.4571+m.

2.3 Saw off the stainless steel tube at right angles. An angle tolerance of $\pm 1^\circ$ is admissible.

Do not use tube cutters or angle grinders.

2.4 Slightly deburr tube ends inside and outside, and clean tubing.



Caution!

- Burrs on the outside and inside tube diameter can negatively affect the forming process.
- Tubes sawed off crooked or improperly deburred reduce the service life and freedom from leaks of the coupling.

3. Oiling of the tools and stainless steel tubes

3.1 Oiling of the tools

Clamping jaws:

At every tool change or after 100 forming operations, the outer taper of the clamping jaws must be oiled lightly with hydraulic oil or a non-gumming MoS₂-based lubricant.

Caution!



Take care to ensure that no oil is applied to the clamping jaw splines to prevent the holding function from being impaired.

Forming Head:

The forming head is coated with corrosion inhibitor on delivery. This coating must be removed before the first use of the tool for forming.

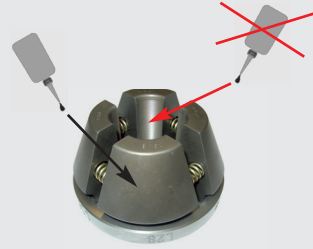
3.2 Oiling of the stainless steel tubes

To ensure flawless forming, each tube must be coated on the inside and outside in the forming area with a thin film of oil.

Caution!



An excessively thick oil film on the outside of the tube will be trapped between upsetting tool and tube during forming and this falsifies the precision of the contours. The VOSS forming oil FOE must always be used (normal hydraulic oil is not admissible).



4. Pre-assembly tube forming

Process-reliable pre-assembly

Forming with the VOSSForm100 pre-assembly device is extremely simple. The simple pushing in of the tube end against the stop and the monitored forming allows no errors to occur.

The inner mandrel on the forming head prevents a constriction of the tube in the formed area. The inside tube diameter is completely retained, preventing pressure losses due to inward arching.

The operating instructions of the pre-assembly device must always be observed.

- 4.1 Slide union nut with integrated clamping ring onto tube end so that inner thread side faces forming side.



4.2 Forming process

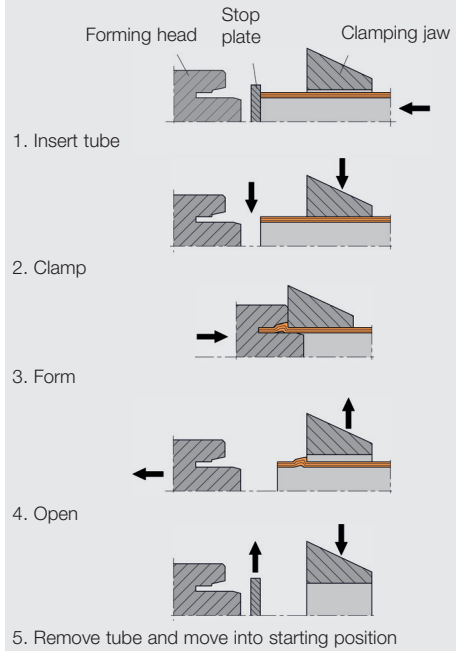
Forming begins with the tube being pushed into the pre-assembly machine against the stop plate. Pressing the Start button triggers the process (1.).

The clamping jaws close and clamp the tube in place. The stop plate swivels out of the forming area (2.).

The forming head moves forward and forms the VOSS contour plastically on the tube (3.).

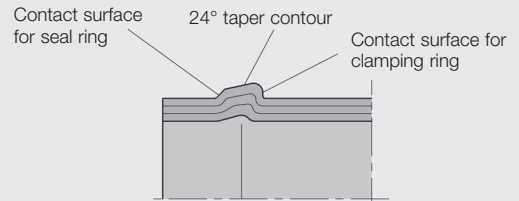
The forming head moves back and the clamping jaws open (4.).

Removal of the tube is monitored. As a result, the device can automatically move into the starting position again and begin the next tube forming process without the necessity of manual resetting (5.).



5. Checking

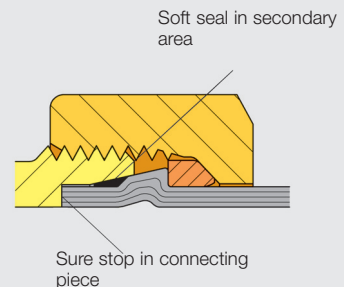
- A visual inspection of the quality of the three characteristic features is sufficient.



6. Assembly safety

Assembly safety with sure stop

Safe assemblies mean safe connections. With the VOSSForm^{SGR} VA System the face of the tube end strikes against the bottom of the standard DIN/ISO St.-steel connecting piece during assembly. When the st.-steel nut is tightened, the end of assembly becomes clear from a the noticeable increase in force. Under and over-tightening can be virtually eliminated. In addition, the assembly distance is reduced, and with it the mounting time. The formed-on contour is deeply inserted into the 24° taper, ensuring stable seating.



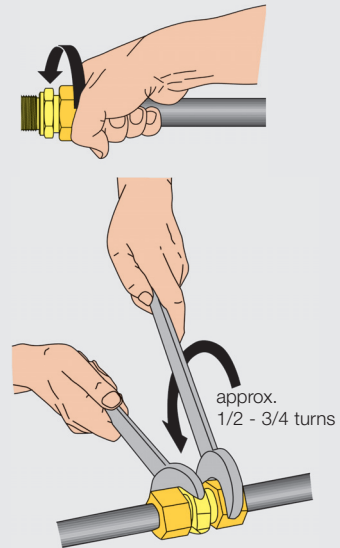
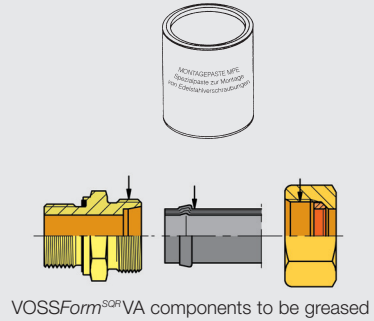
7. Final assembly

- 7.1 Fit seal ring.
- 7.2 Coat support thread, union nut and contact surfaces of clamping ring and tube with assembly paste MPE.
- 7.3 Screw on union nut by hand until all coupling components contact the block, i.e. are tightened hand-tight.

The final tightening (distance-dependent assembly) must be carried out with approx. 1/2 - 3/4 turn of the union nut.

For assembly within a tube, brace the coupling connecting piece with a spanner.

A marking line on the union nut and tube simplifies observance of the tightening distance.



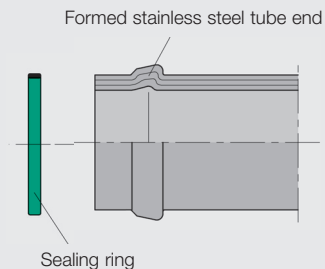
8. Repeat assemblies

- 8.1 Each time the tube coupling is unscrewed, the moulded seal must be checked for damage and replaced if necessary.
- 8.2 During a repeated finish assembly, the union nut must only be tightened by 1/4-1/2 turn after hand tightening.



Caution!

The forming result, such as a 24° taper contour, the contact surface for the moulded seal and the clamping ring must be checked (see 5. Checking).



9. Tightening torques

Distance-dependent assembly can be checked by checking the torque applied. The tightening torques are approximate values. They were determined using assembly paste MPE.

Series	Tube-OD	Tightening torque Nm ± 5 %	Series	Tube-OD	Tightening torque Nm ± 5 %
L	6	25	S	6	30
L	8	35	S	8	50
L	10	55	S	10	65
L	12	65	S	12	85
L	15	90	S	14	115
L	18	125	S	16	125
L	22	150	S	20	220
L	28	220	S	25	300
L	35	380	S	30	430
L	42	580	S	38	640

Assembly Instructions for BV-10 Flared Couplings

1. Notes

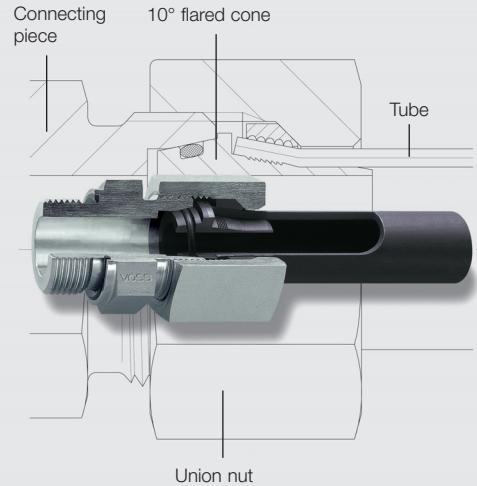
These assembly instructions describe the pre-assembly and final assembly of BV-10 flared couplings.

All the data below were determined under the following preconditions:

- Seamless steel tubes for precision applications to EN 10305-1.
- Tube material 1.0255+N to DIN 1630.
- Fitting components oiled as described in these assembly instructions.

Various VOSS pre-assembly devices are available for pre-assembly of the flared cone. The specifications in the respective operating instructions apply to the assembly procedures here.

Compliance with the assembly instructions is extremely important for fulfilling the functions of the BV-10 flared couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.



2. Tube preparation

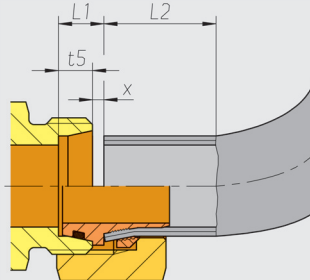
2.1 Determine the tubing dimensions using the following table of dimensions.

Series	Tube-OD	t5 DIN 3861	x appr.	L1 appr.	L2 appr.
L	6	7.0	0.8	7.8	55
L	8	7.0	1.1	8.1	55
L	10	7.0	0.5	7.5	60
L	12	7.0	0.5	7.5	62
L	15	7.0	0.5	7.5	62
L	18	7.5	1.5	9.0	63
L	22	7.5	1.5	9.0	65
L	28	7.5	1.5	9.0	72
L	35	10.5	2.8	13.3	75
L	42	11.0	3.0	14.0	75
S	8	7.0	2.4	9.4	55
S	10	7.5	2.4	9.9	60
S	12	7.5	2.4	9.9	60
S	14	8.0	3.4	11.4	65
S	16	8.5	2.5	11.0	65
S	20	10.5	3.5	14.0	70
S	25	12.0	3.5	15.5	75
S	30	13.5	4.5	18.0	75
S	38	16.0	5.0	21.0	78

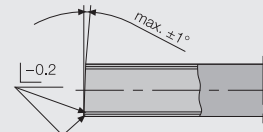
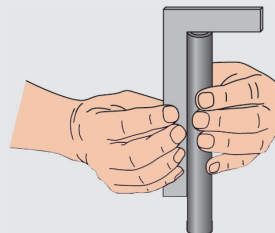
2.2 Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible.

Do not use tube cutters or abrasive cutting machines.

Slightly deburr tube end inside and outside. Clean tubing.



The illustration shows a 10° flared cone with an outer supporting stop.



3. Pre-assembly devices

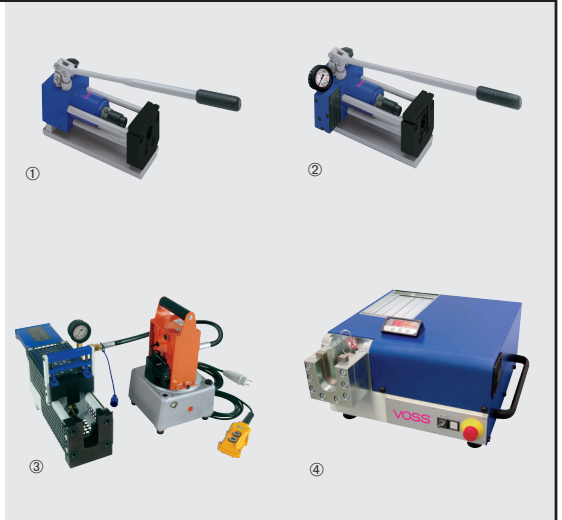
The following pre-assembly devices are available for assembling the 10° flared cone:

- ① Type 80 N
- ② Type 80 N2
- ③ Type 86 E/P
- ④ Type 90 Basic



Caution!

Be sure to follow the operating instructions of the pre-assembly device used at all times.



4. Pre-assembly

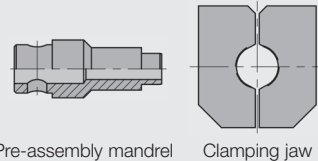
4.1 When using the pre-assembly devices Type 86 and Type 90 Basic, set the assembly pressure (approximate value) to match the outside diameter and wall thickness of the tube as specified in the Pressure Table mounted on the device. Be sure to observe the operating instructions.

4.2 Place the flared-cone pre-assembly mandrel and the clamping jaw that match the outside tube diameter and wall thickness to be assembled in the assembly chamber.

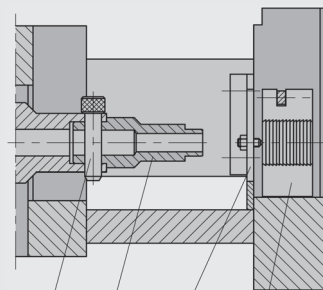
Insert locking pin! The locking plate must also be in place, see operating instructions.

4.3 Slide the union nut and clamping ring onto the tube as shown.

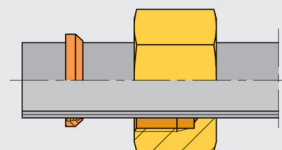
Flared cone
Pre-assembly tools



Pre-assembly mandrel Clamping jaw



Locking pin Locking plate
Pre assembly mandrel Clamping jaw



4.4 Always oil the teeth and cylindrical collar of the 10° flared cone and slide them onto the neck of the pre-assembly mandrel.

4.5 Slide the tube fitted with the union nut and clamping ring through the hole in the clamping jaw from the outside until it meets the centre of the 10° flared cone.

The union nut and clamping ring remain outside the assembly chamber!

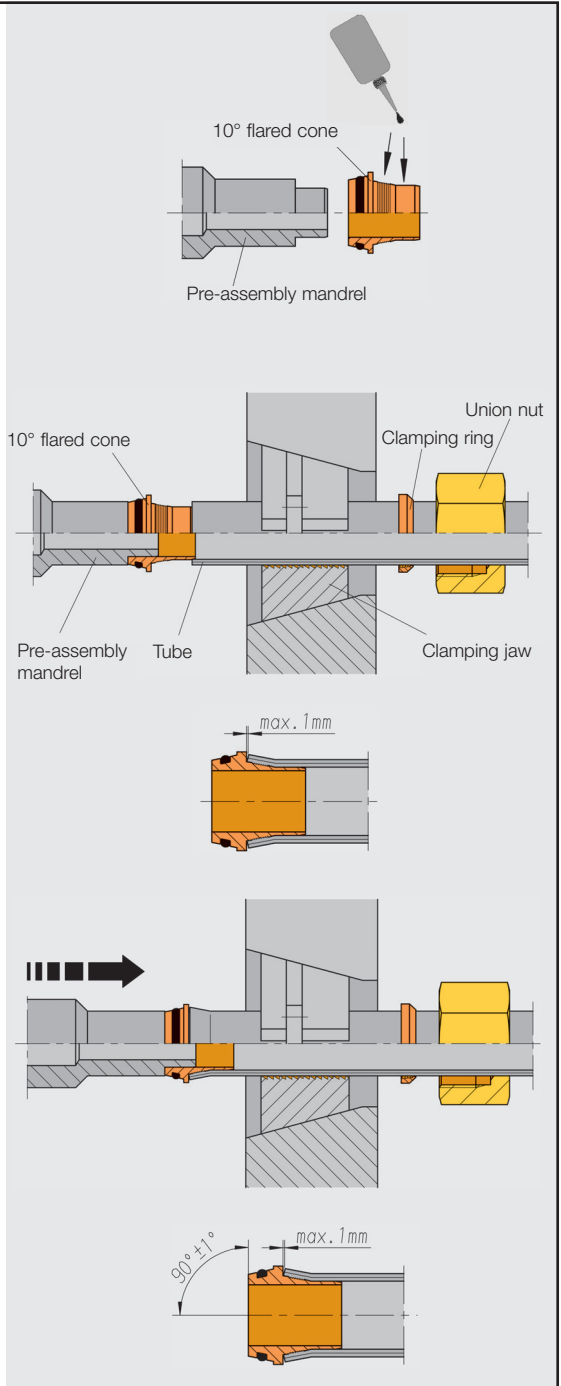
Ensure correct clamping jaw pretension (see operating instructions). The tube may not slip through when the assembly process is started.

4.6 Press the 10° flared cone into the tube. See the operating instructions for instructions on triggering the press-in process.

The flared cone is ideally mounted when a gap of > 0 to a maximum of 1 mm remains.

4.7 Check the gap width and make sure the flared cone fits squarely.

4.8 The pre-assembled tube with the 10° flared cone is now ready for final assembly.



5. Final assembly

- 5.1 Make sure the O-ring is correctly inserted in the groove of the flared cone.

Thoroughly oil the thread and taper surfaces on the union nut, flared cone and coupling connecting piece to better overcome frictional resistance.

- 5.2 Insert the pre-assembled tube end into the cone of the coupling connecting piece at a straight angle.

Make sure the O-ring is not damaged.

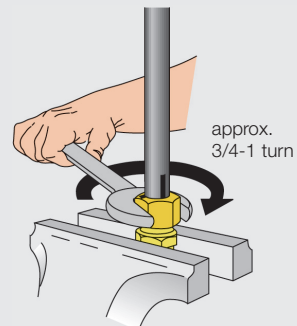
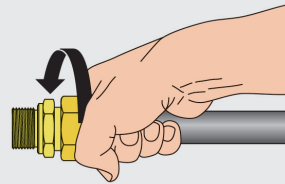
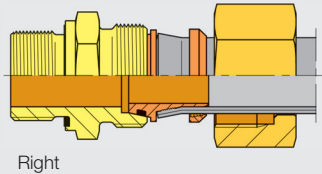
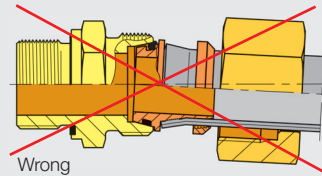
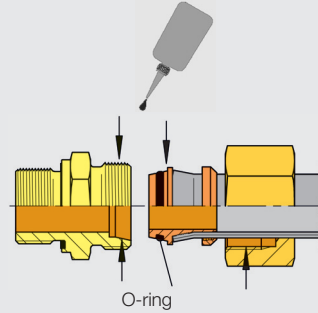
Ensure a tension-free connection of the pre-assembled tube end and the coupling connecting piece!

- 5.3 Screw on union nut by hand until all coupling components contact the block, i.e. are tightened hand-tight.

- 5.4 The final tightening (distance-dependent assembly) must be carried out with 3/4 - 1 turn of the union nut.

For assembly within a tube, tighten the coupling connecting piece with a spanner.

A marking line on the union nut and tube simplifies observance of the tightening distance.



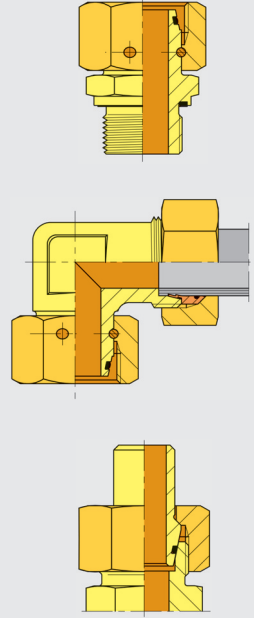
Assembly instructions for taper (DKO) and weld nipple

1. Notes

These assembly instructions describe the assembly of VOSS couplings and coupling parts with taper coupling (DKO) according to DIN 3865.

- The pre-assembly and assembly of the tubes are illustrated under the respective coupling systems (see corresponding coupling variant).
- Welded coupling preparation for weld nipple is described in detail in 4.

Compliance with the corresponding assembly instructions is extremely important for fulfilling the functions of the taper couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.



2. Assembly of taper coupling

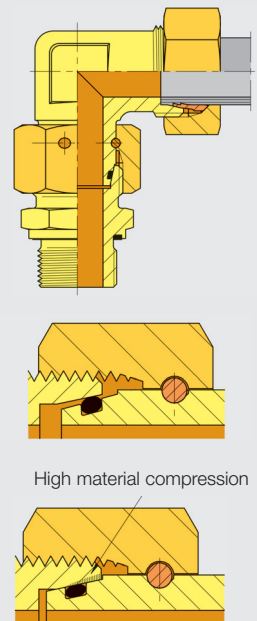
Assembly procedure

1. Checking whether O-ring is seated in groove of taper.
2. Oil or grease thread, cone surface and O-ring.
3. Guide taper into cone and press on firmly. Tighten union nut hand tight.
4. Then tighten the union nut with a wrench to the specified turn angle, or finally tighten the union nut to the torque shown in the table opposite.



Caution!

Be sure to observe the manufacturer's instructions when assembling hose fittings.



3. Assembly instructions

Tightening torques with VOSS Zink-Nickel surface protection agent, union nut waxed, thread oiled.

Series Tube-OD	Thread of the union nut	Stroke- dependent initial assembly	Stroke- dependent repeat assembly	Tightening torque Nm \pm 5 %	Series Tube-OD	Thread of the union nut	Stroke- dependent initial assembly	Stroke- dependent repeat assembly	Tightening torque Nm \pm 5 %
L 6	M 12 x 1,5	approx. 2/3	approx. 1/3	20	S 6	M 14 x 1,5	approx. 2/3	approx. 1/3	25
L 8	M 14 x 1,5	approx. 2/3	approx. 1/3	30	S 8	M 16 x 1,5	approx. 2/3	approx. 1/3	40
L 10	M 16 x 1,5	approx. 2/3	approx. 1/3	40	S 10	M 18 x 1,5	approx. 2/3	approx. 1/3	50
L 12	M 18 x 1,5	approx. 2/3	approx. 1/3	50	S 12	M 20 x 1,5	approx. 2/3	approx. 1/3	60
L 15	M 22 x 1,5	approx. 2/3	approx. 1/3	70	S 16	M 24 x 1,5	approx. 1/2	approx. 1/3	85
L 18	M 26 x 1,5	approx. 1/2	approx. 1/3	90	S 20	M 30 x 2,0	approx. 1/2	approx. 1/3	140
L 22	M 30 x 2,0	approx. 1/2	approx. 1/3	120	S 25	M 36 x 2,0	approx. 1/3	approx. 1/4	190
L 28	M 36 x 2,0	approx. 1/3	approx. 1/3	160	S 30	M 42 x 2,0	approx. 1/3	approx. 1/4	270
L 35	M 45 x 2,0	approx. 1/3	approx. 1/3	250	S 38	M 52 x 2,0	approx. 1/3	approx. 1/4	400
L 42	M 52 x 2,0	approx. 1/3	approx. 1/4	380					

4. Assembly of weld nipple couplings

4.1 Assembly procedure

- The weld nipples are bare metal (oiled) and designed with a V-seam when delivered.
- The weld nipples are welded onto the prepared tube end without an O-ring.
- Special guidelines with regard to the welding process including checking and documentation must be observed for the pre-treatment of the tube end.
- Weld nipples can be used in any tube coupling in accordance with DIN 2353/ISO 8434-1.

4.2 Tube length determination

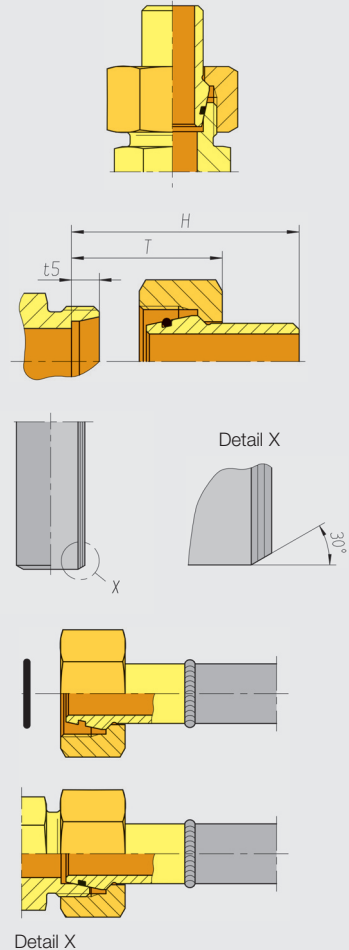
Dimensions				
Series	Tube-OD	H approx.	T approx.	t5
S	8	32.0	15.5	7.0
	10	33.5	17.0	7.5
	12	33.5	17.0	7.5
	14	40.0	18.5	8.0
	16	40.5	17.5	8.5
	20	47.0	22.5	10.5
	25	53.5	25.0	12.0
	30	57.5	28.0	13.5
	38	64.5	32.0	16.0

4.3 Tube preparation

Welding seam preparation of the tube
Welding edge form 21 according to DIN 2559

4.4 Final assembly of weld nipple fittings is performed on the same principle as for the conical nipple fittings

1. Fit O-ring.
2. Oil thread, cone surface and O-ring.
3. Tighten union nut hand tight.
4. Tighten union nut until noticeable increase in force is felt.
5. Carry out final assembly of nut with approx. 1/4 turn.



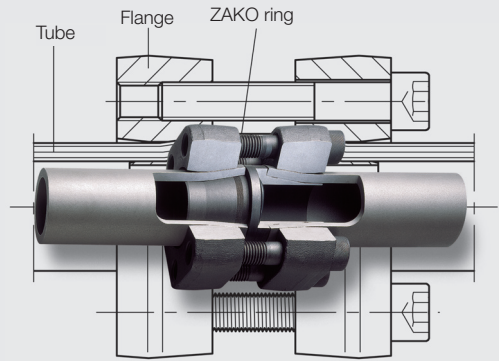
Assembly Instructions for ZAKO Flange Couplings

1. Notes

The ZAKO programme of flange couplings caters to piping systems with outside diameters of between 16 and 120 mm. It is used in the versions with an SAE hole pattern and as a square flange.

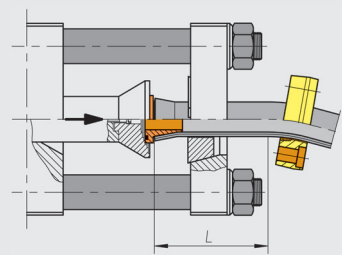
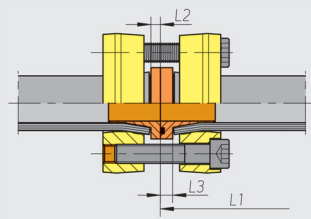
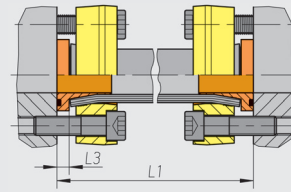
- The same assembly principle generally applies to the entire ZAKO flange programme.
- Various pre-assembly devices are available for pre-assembling the ZAKO rings, depending on the tube dimensions. The specifications in the respective operating instructions apply to the assembly procedures here.

Compliance with the assembly instructions is extremely important for fulfilling the functions of the ZAKO flange couplings. Incorrect handling will lead to risks with regard to safety and leaking of the connection.



2. Tube preparation

- 2.1 Tube lengths for coupling flanges: To determine the tube lengths, first the theoretical total tube length L_1 is determined. Then the dimension L_3 must be subtracted from the total tube length for each tube coupling. (See table for dimension L_3 .)
- 2.2 Tube lengths for tube-to-port flange couplings: To determine the tube lengths for tube-to-port flange couplings, the dimension L_3 applies for the connection surface of the ZAKO ring with O-ring. For the connection surface ZAKO ring without O-ring, the dimension L_2 must be taken into account.



Tube-OD mm	Coupling flange L3 mm
16	8.0
20	8.0
25	8.5
30	8.5
38/42	9.0
50	10.0
60	15.0
65	11.0
75	16.0
80	16.0
88	20.0
101.6	20.0
114.3	20.0
120	20.0

Tube-OD mm	Coupling flange L3 mm	L2 mm
16	8.0	5.5
20	8.0	5.5
25	8.5	5.5
30	8.5	6.0
38	9.0	7.0
50	10.0	7.0
60	15.0	12.0
65	11.0	8.0
75	16.0	12.0
80	16.0	13.0
88	20.0	16.0
101,6	20.0	16.0
114,3	20.0	16.0
120	20.0	16.0

- 2.3 Compliance with straight tube length:
To assembly the ZAKO rings, a minimum tube length of the straight tube end must be taken into account with curved tubing.

The minimum tube length is dependent on the respective assembly conditions of the assembly device used. Please observe the specifications listed here.

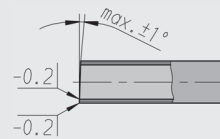
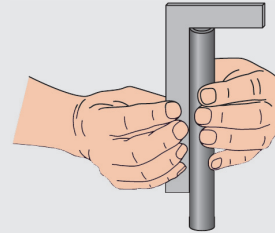
2.4 Preparing tube end:

Saw off tube at a right angle. An angular tolerance of $\pm 1^\circ$ is permissible.

Do not use tube cutters or abrasive cutting machines.

Deburr tube ends inside and outside. To ensure optimum grip, it is recommended that only slight deburring be carried out on the outside and more thoroughly on the inside.

The tube ends must not be damaged on the inside and outside, and must be free of chips, dirt, rust and other soiling.



3. Pre-assembly of ZAKO ring

The illustrated pre-assembly refers to the pre-assembly device type 85.

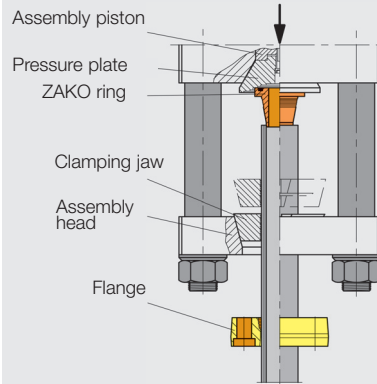
The procedures are similar for the pre-assembly devices type 80 N2, type 84 and type 90 Basic.

With the pre-assembly device type 120, the procedure differs considerably.

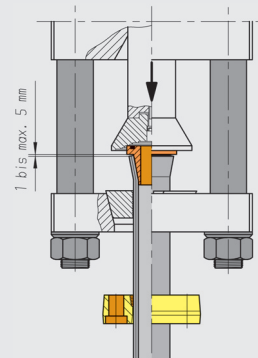
The assembly procedure is shown in simplified form here.

- 3.1 Thoroughly oil the conical and straight section of the ZAKO ring to reduce friction during assembly.
- 3.2 Slide the ZAKO flange onto the tube so that the toothed, conical bore section faces the tube end.
- 3.3 Guide in the tube through the opening in the yoke plate of the pre-assembly device while pressing the ZAKO ring against the pressure plate. Then place the clamping jaw around the tube. To ensure that the pre-assembly procedure functions properly, the clamping jaw must be positioned in the conical opening of the yoke plate by sliding it on the tube.
- 3.4 Trigger the assembly process as described in the operating instructions of the pre-assembly device. The piston stroke drives the ZAKO ring into the tube until a gap of 1 to 5 mm remains (see table). This does not affect the coupling.

Tube wall thickness	Gap width
< 8 mm	max. 1 mm
≥ 8 mm < 16 mm	max. 3 mm
≥ 16 mm	max. 5 mm



Before assembly

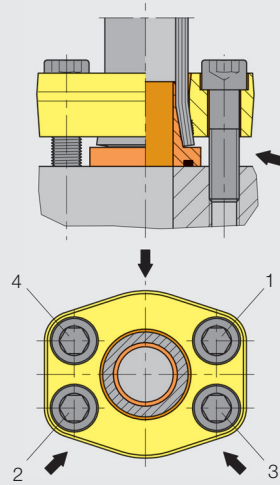


After assembly

4. Final assembly of flange coupling

- 4.1 Oil threads of securing screws to reduce friction during assembly.
- 4.2 Position the flange connection with its pre-mounted ZAKO ring on the screw-on surface and manually tighten the securing screws. The tube must be stress-free and at right angles to the screw-on surface.
- 4.3 Then carefully tighten the securing screws diagonally and evenly in several steps using a spanner; do not use a pneumatic driver.
- 4.4 To complete the assembly process, tighten all 4 screws in the sequence 1, 2, 3, 4 (see illustration). When tighten the screws, make sure that the permissible tightening torques for the screws are not exceeded (see table).
- 4.5 After final tightening, the flange must be parallel to the connection surface. Should the deviation from parallel during checking (measure at all 3 points) be greater than 0.5 mm, a correction must be made with reassembly.

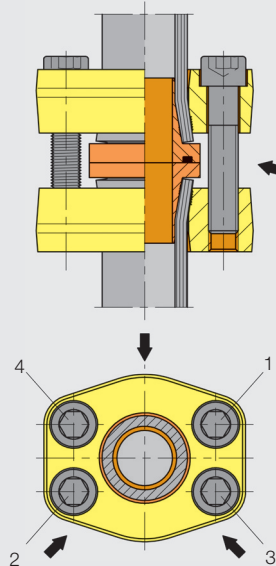
Dimension mm	Tightening torque for screws 10.9 (Nm max.) *
M 8	35
M10	69
M12	120
M14	190
M16	295
M20	580
M24	800
M30	1500



5. Final assembly of tube-to-port flange coupling

It must be ensured that one of the ZAKO rings used is "without groove".

- 5.1 Oil threads of securing screws to reduce friction during assembly.
- 5.2 Align the tube couplings flush with the pre-mounted ZAKO rings, join and tighten the securing screws manually. The tubes must be stress-free and at right angles to each other.
- 5.3 Then carefully tighten the securing screws diagonally and evenly in several steps using a spanner; do not use a pneumatic driver.
- 5.4 To complete the assembly process, tighten all 4 screws in the sequence 1, 2, 3, 4 (see illustration). When tighten the screws, make sure that the permissible tightening torques for the screws are not exceeded (see table in 4.)
- 5.5 After final tightening, the flange must be parallel to the connection surface. Should the deviation from parallel during checking (measure at all 3 points) be greater than 1 mm, a correction must be made with reassembly.



* Nm = Recommended tightening torques for M8 – M 30 cap screws with friction coefficient μ_{tot} 0.14

6. Using pre-assembly devices

The following pre-assembly devices are available for pre-assembling the 10° ZAKO rings:

- Type 80 N (not shown)
- Type 80 N2 (not shown)
- Type 86 E (not shown)
- Type 90 Basic ①

With these 4 device types, not only all cutting rings and the VOSS 10° flared cone rings, but also the ZAKO rings from an outside tube diameter of 16 to 38 (42) mm can be pre-mounted. The required tools are contained in this catalogue.

- Type 82 (not shown)
- Type 85 ②

With this device series the ZAKO rings from an outside tube diameter of 16 to 120 mm can be pre-mounted.

- The device type 82 is operated with a hand pump and is designed for the tube range from 16 to 50 mm outside diameter (OD).
- The device type 85 covers the tube range from 38 to 120 mm OD.

- Type 120 ③

This pre-assembly device covers the tube range from 50 to 120 mm OD. The pre-assembly process is carried out with extreme precision and the procedure remains simple even with tube dimensions of 120 x 20 mm.



Caution!

Be sure to follow the operating instructions of the respective pre-assembly device used at all times.

7. Repeat assembly

ZAKO flanges can be dismantled and reassembled as often as required. Always follow the instructions for the final assembly of ZAKO couplings during reassembly.

- The O-ring must not be damaged and must be correctly seated in the groove.
- During final tightening, retighten the screws diagonally and evenly in several steps.
- Only tighten the screws until the maximum torque is reached.

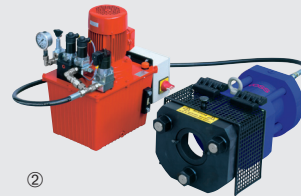
The same instructions also apply to the ZAKO flange coupling for SAE hose couplings (see illustration).

8. Note of checking

Following initial assembly the distance between the ZAKO ring and the flange plate should be at least 3 mm. Should settling make it necessary to retighten the screws, the flange plate can be pulled up to 1 mm before the ZAKO ring while taking the parallelism into account.



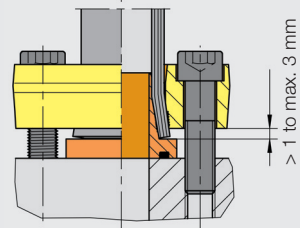
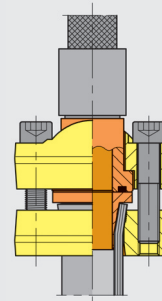
①



②



③



Assembly instructions for flange couplings with cutting-ring and welding connection

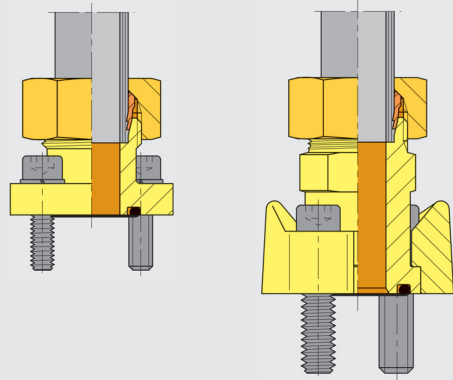
1. Notes

These assembly instructions describe the assembly of the flange connecting piece.

The tube is pre-assembled and assembled with cutting ring couplings in the same manner illustrated in the assembly instructions for tube couplings (see corresponding coupling variants).

Welding coupling preparation is described in detail in 4.

Compliance with the corresponding assembly instructions is extremely important for fulfilling the functions of the flanged couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.



2. Assembly of square flanged coupling with cutting ring or flared coupling

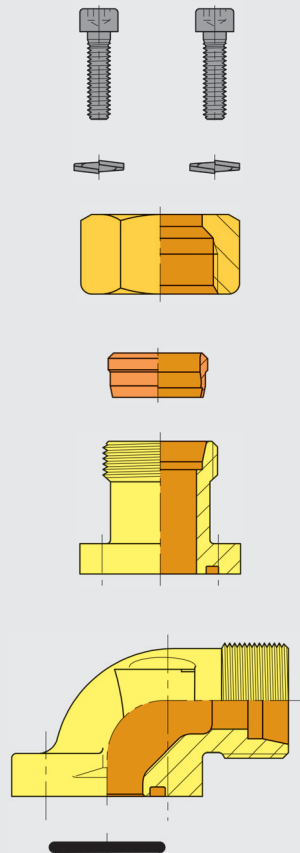
- Assembly of tubing as described in 1.
- Assembly of flange connecting piece.

Carefully lay the round seal ring (O-ring) in the groove of the flange connecting piece previously cleaned and tighten the flange coupling piece evenly and diagonally on the coupling surface with the 4 cheese head screws (DIN 912-8.8) while observing the tightening torque.

- Tightening torques

Cheese head screw DIN 912-8.8	Tightening torque Nm*
M 6	10
M 8	25

* Nm = Recommended tightening torques for cheese head screws M6/8 with friction value μ total: 0.14



3. Assembly of SAE flanged couplings with cutting ring or flared coupling

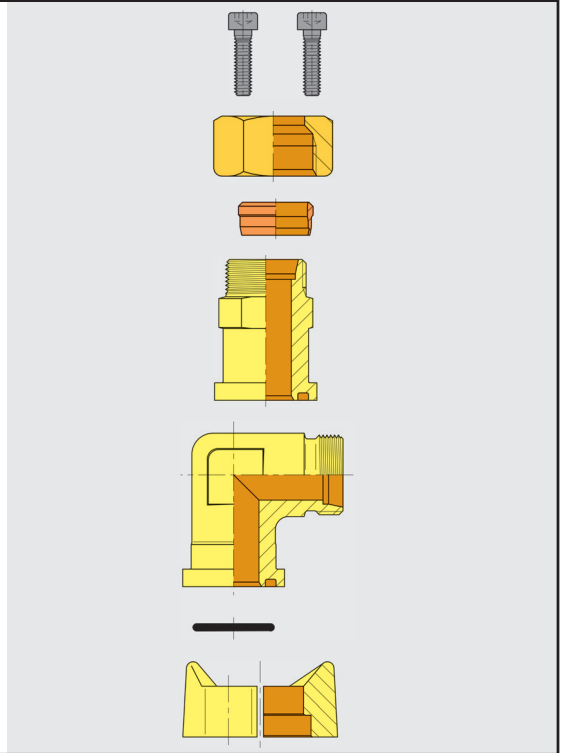
- Assembly of tubing as described in 1.
- Assembly of flange connecting piece.

Carefully lay the round seal ring (O-ring) in the groove of the flange connecting piece previously cleaned and tighten the flange coupling piece evenly and diagonally on the coupling surface with the 4 cheese head screws (DIN 912-8.8) and the flange halves while observing the tightening torque.

- Tightening torques

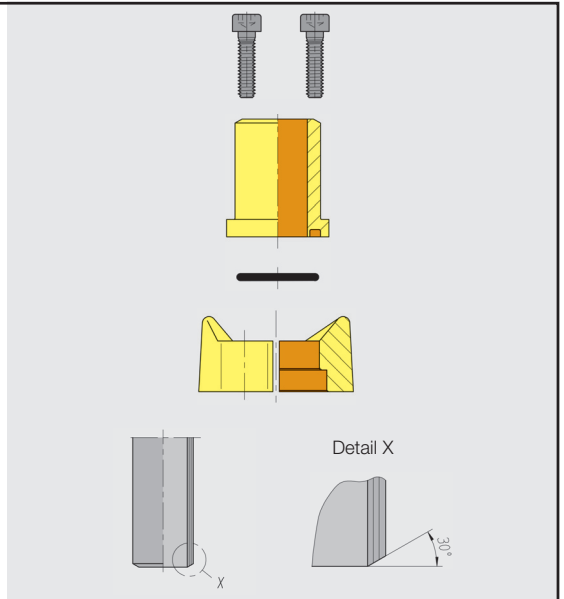
Cheese head screw DIN 912-8.8	Tightening torque (Nm* max.)
M 8	25
M 10	50
M 12	85
M 14	135
M 16	210

* Nm = Recommended tightening torques for cheese head screws M 8 – M 16 with friction value μ total: 0.14



4. Assembly of SAE flanged coupling with welding coupling

- Screw flanged coupling without round seal ring hand-tight at coupling surface.
- Cut off tube at a right angle and chamfer tube ends inside and outside for welding on.
- Tack on tube at three points distributed around circumference of weld nipple coupling.
- Detach flanged coupling again and properly weld flange connecting piece to tube.
- Clean welding area thoroughly inside and outside. Clean groove for round seal ring (O-ring) if necessary.
- Before making flanged coupling, lay O-ring in previously cleaned groove of flange connecting piece. Joint tubing with flange connecting piece at coupling surface and secure using SAE flange halves. Tighten 4 cheese head screws (DIN 912-8.8) evenly and diagonally while observing tightening torque.
- Welding seam preparation tube, attach welding edge form 21 according to DIN 2559.
- Tightening torque (see 3.)



Assembly instructions for screw-in connecting piece according to ISO 6149/11926-1

1. Notes

These assembly instructions describe the assembly of adjustable couplings with a lock nut for threaded bores according to:

- ISO 6149-1 metric fine thread
- ISO 11926-1 UN/UNF thread

Compliance with the assembly instructions is extremely important for fulfilling the functions of the screw-in couplings. Improper handling leads to risks with regard to safety and freedom from leaks, which can also result in the complete failure of the coupling under certain conditions.

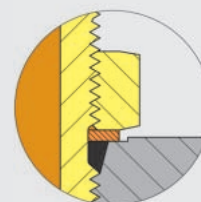
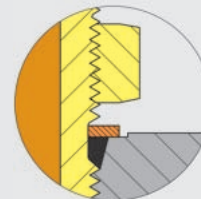
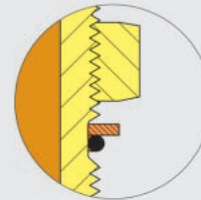
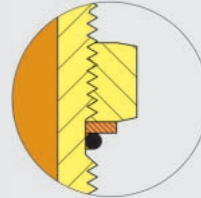
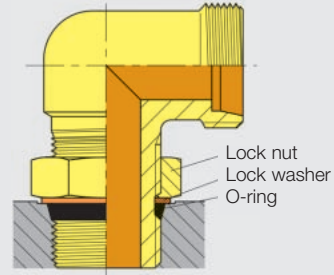


Caution!

Inspect the thread before use.

2. Assembly sequence

- The assembly sequence is identical for metric fine threads and UN/UNF threads.
- Distinguishing characteristic: The thread type can be determined by measuring the outside thread diameter and the thread pitch.
- Screw back lock nut.
- Push O-ring and lock washer up to upper undercut end.
- Grease O-ring.
- Screw coupling into threaded bore by hand until lock washer is in place.
- Set desired direction.
- Tighten lock nut.
Hold coupling body in place.



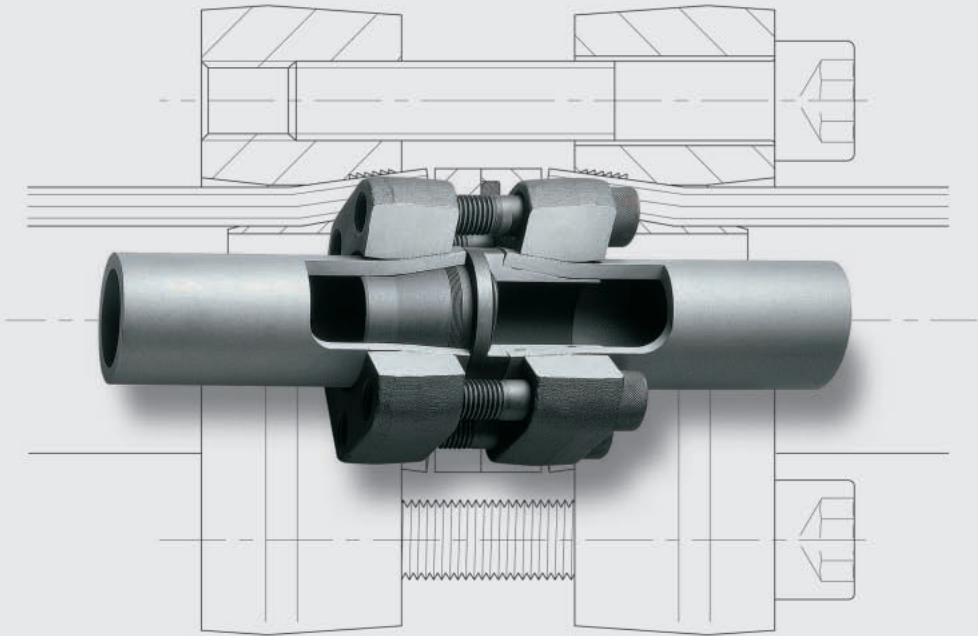
3. Tightening torques

Series	Thread	Tightening torque Nm -10%*	Series	Thread	Tightening torque Nm -10%*
L	M 10 x 1	15	L	7/16-20 UNF-2A	18
	M 12 x 1.5	25		1/ 2-20 UNF-2A	28
	M 14 x 1.5	35		9/16-18 UNF-2A	30
	M 16 x 1.5	40		3/ 4-16 UNF-2A	50
	M 18 x 1.5	45		7/ 8-14 UNF-2A	60
	M 22 x 1.5	60		1 1/16-12 UN -2A	95
	M 27 x 2	100		1 3/16-12 UN -2A	120
	M 33 x 2	160		1 5/16-12 UN -2A	150
	M 42 x 2	210		1 5/ 8-12 UN -2A	200
	M 48 x 2	260		1 7/ 8-12 UN -2A	260
S	M 12 x 1.5	35	S	7/16-20 UNF-2A	20
	M 14 x 1.5	45		1/ 2-20 UNF-2A	30
	M 16 x 1.5	55		9/16-18 UNF-2A	35
	M 18 x 1.5	70		3/ 4-16 UNF-2A	70
	M 22 x 1.5	100		7/ 8-14 UNF-2A	100
	M 27 x 2	170		1 1/16-12 UN -2A	170
	M 33 x 2	310		1 5/16-12 UN -2A	270
	M 42 x 2	330		1 5/ 8-12 UN -2A	285
	M 48 x 2	420		1 7/ 8-12 UN -2A	325

* The tightening torques indicated are based on the combination steel /steel

Flange couplings / ZAKO / ZAKO LP

- Flange couplings with cutting-ring connection
- ZAKO flared flanges
- ZAKO LP flared flanges



Experience plus ideas

Contents Type/Page

Product information

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Flange couplings
with cutting-ring connection
complete

Pg. 220-226

Flange couplings
with cutting-ring and square
flange connection

BFG

BFW



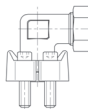
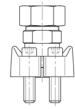
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Pg. 221+222

Flange couplings
with cutting-ring connection
and divided SAE flange

GFS

WFS



Pg. 223+225

Pg. 224+226

Flange couplings
with cutting-ring connection
Component parts

Pg. 228-231

Flange couplings
with cutting-ring and
square flange connection

BFG

BFW

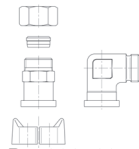


Pg. 228

Pg. 229

Flange couplings
with cutting-ring connection
and divided SAE flange

GFS, WFS



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ZAKO flared flanges

Complete

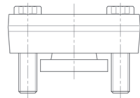
Pg. 234-243

Connection flange couplings,

FE/3

3.000 psi

Standard series, 250 bar



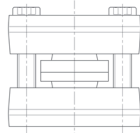
Pg. 234-235

Tube flange couplings,

FG/3

3.000 psi

Standard series, 250 bar



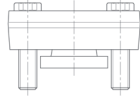
Pg. 236

Connection flange couplings,

FE/6

6.000 psi

High-pressure series, 400 bar



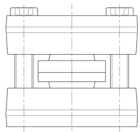
Pg. 237-238

Tube flange couplings,

FG/6

6.000 psi

High-pressure series, 400 bar

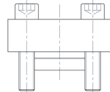


Pg. 239

Tube flange couplings

FE

Square flanges, 400 bar

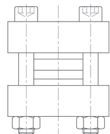


Pg. 240-241

Tube flange couplings

FG

Square flanges, 400 bar



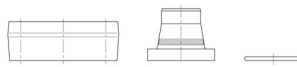
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ZAKO flared flanges
Component parts

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Connection flange couplings, FE/3, K, OR
3.000 psi
Standard series, 250 bar



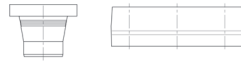
Pg. 246-247

Tube flange couplings, FE/3, K, OR, KO, FV/3
3.000 psi
Standard series, 250 bar



Pg. 248

Tube/hose flange couplings, KO, FV/3
3.000 psi
Standard series, 250 bar



Pg. 249

Connection flange couplings, FE/6, K, OR
6.000 psi
High-pressure series, 400 bar



Pg. 250

Tube flange couplings, FE/6, K, OR, KO, FV/6
6.000 psi
High-pressure series, 400 bar



Pg. 251

Tube/hose flange couplings, KO, FV/6
6.000 psi
High-pressure series, 400 bar

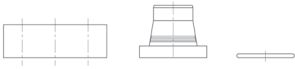


Pg. 252

Contents

Type/Page

Connecting flange couplings
Square flanges, 400 bar



Pg. 253-254

Tube flange couplings
Square flanges, 400 bar

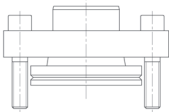


Pg. 255-256

ZAKO LP flared flanges
Complete

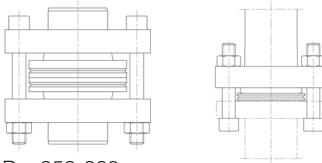
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Connection flange couplings, 60 bar



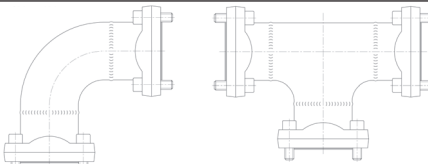
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Tube flange couplings, 60 bar



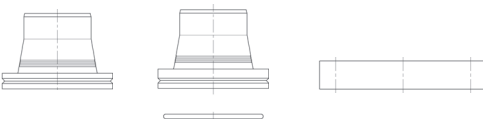
Pg. 259-260

Tube connecting pieces, 60 bar



Pg. 261-262

ZAKO LP flared flanges
Component parts

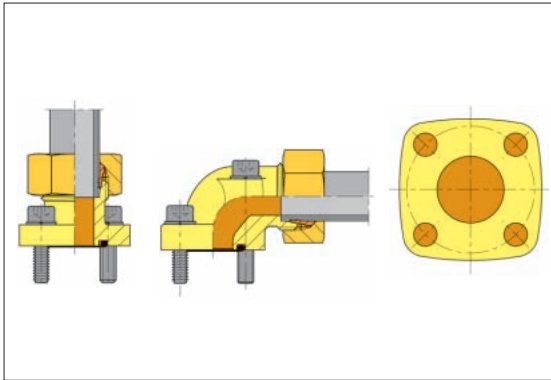


Pg. 263-265

Product Information Flange Couplings

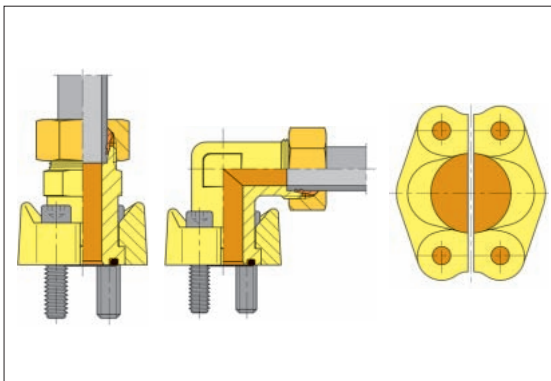
In addition to the tube couplings for the various installation criteria, flanges are frequently used in hydraulic systems, preferably with medium-range and larger dimensions. Different flange versions are available to enable compliance with the different requirements.

Flange couplings with square flange and cutting-ring connection



The flange couplings with a square flange connection are characterized by particularly compact outside dimensions. They are supplied in straight and elbow designs. The product range consists of the outside tube diameters from 10 mm to 35 mm. Flange sealing is carried out with an elastic round sealing ring (O-ring), and the mounting connection with cheese head screws. The flange connections are designed for the connection hole patterns of leading pump manufacturers.

SAE flange couplings with cutting-ring connection



The SAE flange couplings are supplied in standard and high-pressure designs with hole patterns in accordance with SAE J 518 or ISO 6162.

The device-side connection is carried out with 2 flange halves secured with 4 cheese head screws. In contrast to the male threads, the screws can be mounted on the couplings with smaller tools and reduced force. The tube-side connection can be produced with cutting rings or BV-10 flared couplings.

SAE flange couplings with cutting-ring connection – elbow design

A particular advantage of the SAE flange couplings with an elbow design is their directional adjustability. However, the accessibility of the mounting screws must be ensured when installing the tube.

SAE flange couplings with welded connection on request

The VOSS ZAKO system with the 10° flare principle is available for especially high loads, such as vibrations and pressure jolts or high pressures with larger tube dimensions.

General Note

In order for the flange couplings listed in this catalogue to fulfill their function, it is extremely important that the respective installation instructions and the note in the technical remarks are followed exactly.

ZAKO flange couplings

The ZAKO programme of flange couplings caters to tubing systems with outside diameters of between 16 and 120 mm. Both the connecting and the tube-to-port flange couplings are available for standard (250 bar) or high pressure (400 bar) and are classified accordingly in the standard and high-pressure series. VOSS offers the SAE and square flanges listed in this catalogue (Fig. 1 and 2).

To pre-assemble the ZAKO flange couplings, press the ZAKO ring into the tube end (similar to the flared cone of BV-10 tube couplings in conjunction with 10° flared cones). The tube fixture for both systems is therefore identical (see Fig. 3). The difference lies in the fact that the flared cone is sealed by means of a DKO head. On the tube side, sealing is achieved with high surface pressure at the flared section and the labyrinth seal effect of the small teeth on the cone surface. The flange presses a large area of the tube end against the ZAKO ring, ensuring especially high holding forces. As a result, the system remains leak-tight even when exposed to vibrations or reverse bending stress.

Hydraulic engineers appreciate the following characteristics of ZAKO flanges:

- Particularly suitable for extreme loading.
- Notching and incision-free tube holding with the 10° flared cone principle.
- Use of standard coupling bores.
- Easy assembly, even with thick-walled tubes.
- Minimisation of assembly errors, as the ZAKO ring must be pre-assembled in an assembly aid.

- Suitable for stainless-steel tubes with tolerances according to DIN 2391-C.
- Complete range of flanges in the standard and high-pressure lines with hole patterns according to SAE and square flange.

Note on safety:

A wide range of different operating conditions often cause loads on tube connections with unforeseeable parameters. To ensure safe operation, please observe the following:

- In addition to the outer diameter of the tube, also take the wall thickness into account.
- VOSS 10° flared couplings may only be pre-assembled with the specially designed VOSS pre-assembly devices.
- Always observe the assembly instructions of the device used!

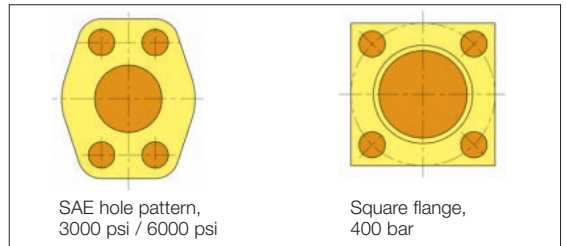


Fig. 1

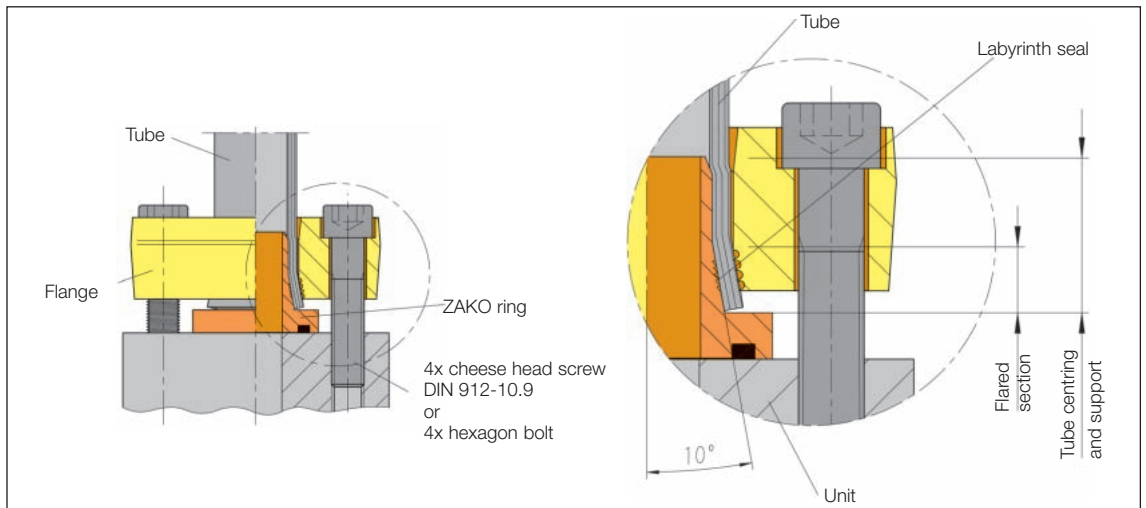


Fig. 2

Product information about ZAKO Low Pressure Flange Couplings

The ZAKO Low Pressure flange program has been specially designed for applications in the low pressure area, for example return lines or lubrication lines. The quick and easy pre-assembly and final assembly make this tube coupling system an economical alternative to welding.

Due to the many years of experience with our 10° flared system, we guarantee a quadruple safety factor at an operating pressure of 60 bar, also with ZAKO Low pressure flange coupling.

The quick and clean pre-assembly of thin-walled tubing, having a tube outside diameter of 48.3 to 114.3 mm, is normally carried out on our 10° flared machine. Only a tool change is required.

With the pre-assembly the ZAKO Low Pressure ring is pressed with hydraulic force into the tube. The tube which is now pre-assembled has such a high pressing force on the front side of the coupling due to the 10° flare that alternating bending stresses, oscillations, pressure impulses and deviations in temperature are tolerated.

In addition to the technical advantages, which this coupling offers as opposed to welding, the economical benefit should be mentioned. The normal working stages for welding, such as crimping, adjustment, seal welding and cleaning and the transportation connected with it as well as the maintenance work and expenditure incurred for training of staff are completely dispensed with when using the ZAKO Low Pressure.

90° tube bends and T-pieces are obtainable in addition to the ZAKO Low Pressure flange program with coupling flanges

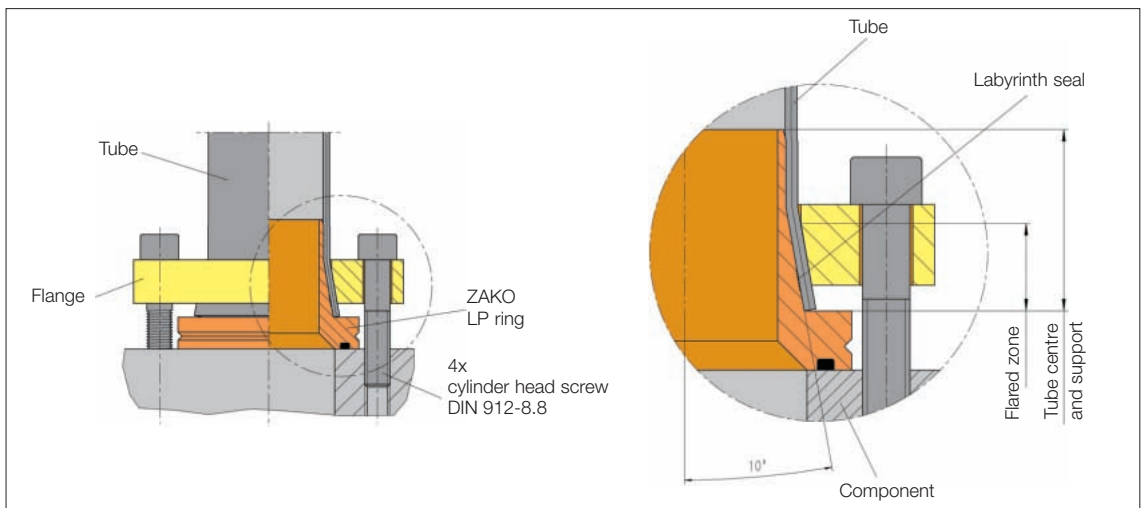
and flange connections. Due to this, further cost saving can be achieved because the tube bending processes and the resulting assembly times do not apply.

As a standard, all components of the ZAKO Low Pressure series have the chrome VI-free surface protection of VOSS Zink-Nickel.

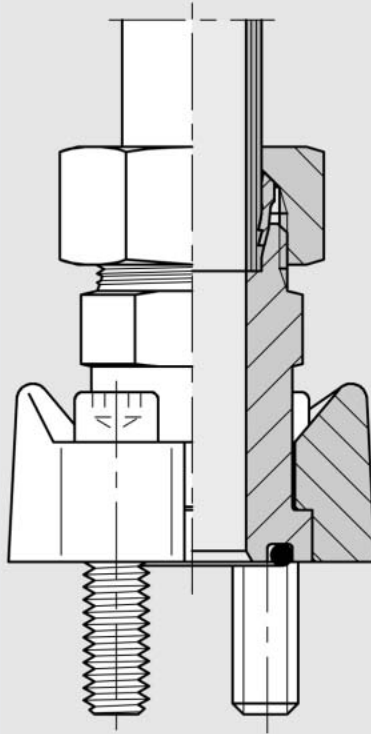
Owing to the fact that the ZAKO Low Pressure series was designed for low pressure, the dimensions of the individual components are reduced in addition to the tightening torque. This additionally simplifies assembly, especially with regard to positions difficult to access.

An overview of the features of the ZAKO Low Pressure tube coupling system are:

- Notch-free and cut-free tube clamping using the successful 10° flared principle.
- Quick, clean and easy pre-assembly.
- Use of the existing ZAKO pre-assembly equipment.
- The same pre-assembly and assembly processes as with the standard ZAKO high pressure series, however with reduced tightening torque.
- Reduction of the assembly times due to the saving of welding and cleaning processes.
- Quadruple reliability of the system against bursting.
- Flange program available with hole patterns according to SAE including 90° tube bend and T-piece.
- Chrome VI-free corrosion protection as a standard VOSS Zink-Nickel.



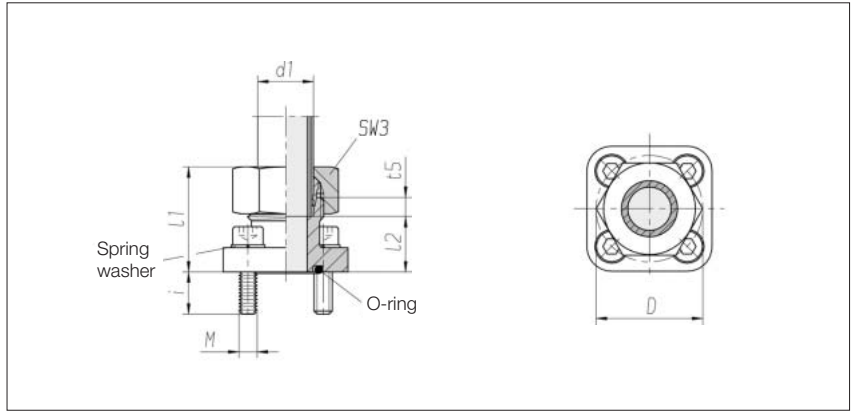
Flange couplings
with cutting-ring connection
complete



Experience plus ideas

Straight flange couplings

With cutting-ring and square flange connection



Series	PB	Hole circle dia. D	SW3	l1 approx.	l2	t5	i	4 x cheese head screw DIN 912-8.8	O-ring	Nm* kg/100 approx.	Order No. complete	Order No. **
L 10	315	35	19	38	23	7	12.5	M 6 x 22	20 x 2.5	10	13.4	0 1 95 36 20 81*** 0 1 95 36 20 07
L 12	315	35	22	38	23	7	12.5	M 6 x 22	20 x 2.5	10	12.7	0 1 95 37 20 81 0 1 95 37 20 07
L 15	250	35	27	38	23	7	12.5	M 6 x 22	20 x 2.5	10	13.1	0 1 95 38 20 81 0 1 95 38 20 07
L 15	100	40	27	43	28	7	12.5	M 6 x 22	26 x 2.5	10	15.8	0 1 95 39 20 81 0 1 95 39 20 07
L 18	100	40	32	44	27.5	7.5	12.5	M 6 x 22	26 x 2.5	10	16.3	0 1 95 40 20 81 0 1 95 40 20 07
L 22	100	40	36	44	27.5	7.5	12.5	M 6 x 22	26 x 2.5	10	15.6	0 1 95 41 20 81 0 1 95 41 20 07
L 28	100	40	41	51	34.5	7.5	12.5	M 6 x 22	26 x 2.5	10	19.4	0 1 95 14 20 81 0 1 95 14 20 07
L 28	100	55	41	49	32.5	7.5	11.5	M 8 x 25	32 x 2.5	25	38.4	0 1 95 90 20 81 0 1 95 90 20 07
S 16	315	35	30	40	21.5	8.5	12.5	M 6 x 22	20 x 2.5	10	12.8	0 1 95 10 20 81 0 1 95 10 20 07

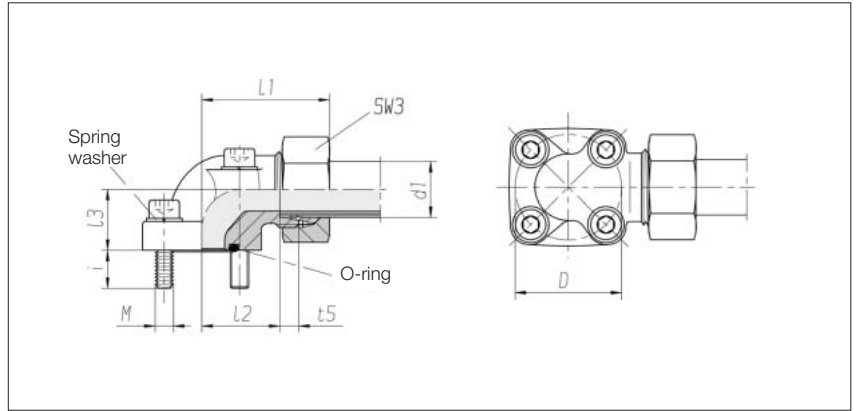
* Nm = Recommended tightening torques for cheese head screws M 6 with friction value μ total 0,14

** With union nut and 2S cutting ring

*** Sample product code, see: BFG10L/LK35

Elbow flange couplings

With cutting-ring and square flange connection



Series	PB	Hole circle dia. D	SW3	l1 approx.	l2	l3	t5	i approx.	4 x cheese head screw DIN 912-8.8	O-ring	Nm*	kg/100 approx.	Order No. complete	Order No. **
L 10	315	35	19	46	31	16.5	7	12.5	2 x M 6 x 22 2 x M 6 x 35	20 x 2.5	10	18.6	0 1 95 42 20 81***	0 1 95 42 20 07
L 12	315	35	22	46	31	16.5	7	12.5	2 x M 6 x 22 2 x M 6 x 35	20 x 2.5	10	16.8	0 1 95 62 20 81	0 1 95 62 20 07
L 15	250	35	27	46	31	16.5	7	12.5	2 x M 6 x 22 2 x M 6 x 35	20 x 2.5	10	17.8	0 1 95 63 20 81	0 1 95 63 20 07
L 15	100	40	27	46	31	22.5	7	12.5	4 x M 6 x 22	26 x 2.5	10	20.4	0 1 95 64 20 81	0 1 95 64 20 07
L 18	100	35	32	47	30.5	20	7.5	12.5	2 x M 6 x 22 2 x M 6 x 40	20 x 2.5	10	22.8	0 1 95 45 20 81	0 1 95 45 20 07
L 18	100	40	32	47	30.5	22.5	7.5	12.5	4 x M 6 x 22	26 x 2.5	10	20.6	0 1 95 43 20 81	0 1 95 43 20 07
L 22	100	40	36	47	30.5	22.5	7.5	12.5	4 x M 6 x 22	26 x 2.5	10	20.9	0 1 95 44 20 81	0 1 95 44 20 07
L 28	100	40	41	49	32.5	28	7.5	12.5	2 x M 6 x 22 2 x M 6 x 50	26 x 2.5	10	29.9	0 1 95 15 20 81	0 1 95 15 20 07
L 35	100	40	50	52	30.5	34	10.5	12.5	2 x M 6 x 22 2 x M 6 x 60	26 x 2.5	10	39.5	0 1 95 27 20 81	0 1 95 27 20 07
L 35	100	55	50	60	38.5	32	10.5	11.5	2 x M 8 x 25 2 x M 8 x 60	32 x 2.5	25	57.9	0 1 95 17 20 81	0 1 95 17 20 07

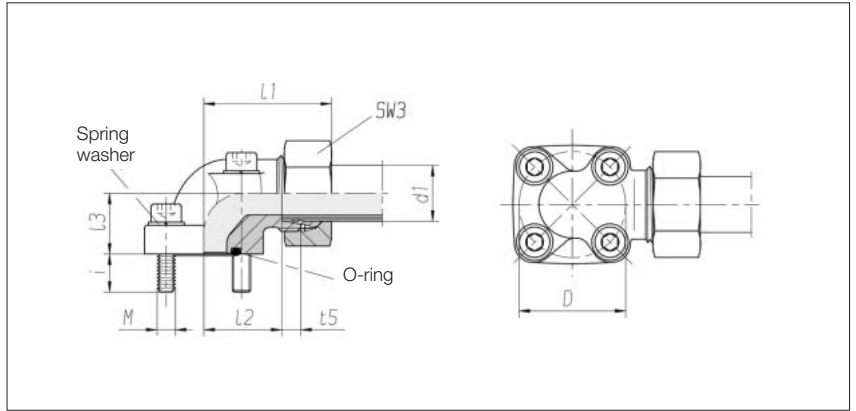
* Nm = Recommended tightening torques for cheese head screws M 6/8 with friction value μ total 0.14

** With union nut and 2S cutting ring

*** Sample product code, see: BFW10L/LK35

Elbow flange couplings

With cutting-ring and square flange connection



Series	PB	Hole circle dia. D	SW3	l1 approx.	l2	l3	t5	i	4 x cheese head screw DIN 912-8.8	O-ring	Nm*	kg/100 approx.	Order No. complete	Order No. **
S 16	315	35	30	48	29.5	20	8.5	12.5	2 x M 6 x 22 2 x M 6 x 40	20 x 2.5 10	10	22.1	0 1 95 25 20 81***	0 1 95 25 20 07
S 20	315	35	36	56	34.5	25	10.5	11	2 x M 6 x 22 2 x M 6 x 45	20 x 2.5 10	10	29.1	0 1 95 11 20 81	0 1 95 11 20 07
S 20	250	55	36	56	34.5	24	10.5	11	2 x M 8 x 25 2 x M 8 x 50	32 x 1.5 25	25	52.9	0 1 95 18 20 81	0 1 95 18 20 07
S 20	250	40	36	51	29.5	22	10.5	12.5	2 x M 6 x 22 2 x M 6 x 45	26 x 2.5 10	10	25.5	0 1 95 13 20 81	0 1 95 13 20 07
S 25	250	55	46	61	37	30	12	11.5	2 x M 8 x 25 2 x M 8 x 55	32 x 1.5 25	25	61.3	0 1 95 89 20 81	0 1 95 89 20 07
S 30	250	55	50	62	35.5	32	13.5	11	2 x M 8 x 25 2 x M 8 x 50	32 x 1.5 25	25	58.4	0 1 95 24 20 81	0 1 95 24 20 07

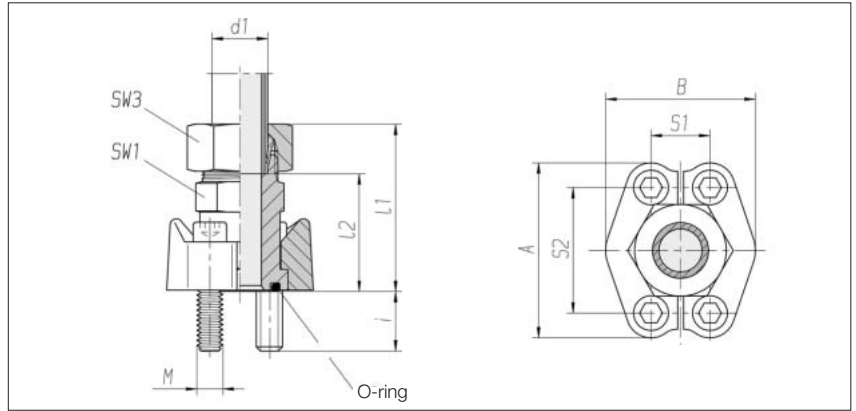
* Nm = Recommended tightening torques for cheese head screws M 6/8 with friction value μ total 0,14

** With union nut and 2S cutting ring

*** Sample product code, see: BFW16S/LK35

Straight flange couplings

With cutting-ring connection and divided SAE flange
Hole pattern according to SAE J 518 C / ISO 6162
Standard series (3000 psi)



Flange size	Series	PB	SW1	SW3	I1	I2 approx.	S1	S2	A	B	i	4 x cheese head screw DIN 912-8.8	O-ring	Nm*	Order No. complete	Order No. **
3/4"	L 18	315	30	32	62	45.5	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 00 20 81***	0 3 05 00 20 07
3/4"	L 22	160	30	36	62	45.5	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 01 20 81	0 3 05 01 20 07
1"	L 28	160	36	41	63	46.5	26.2	52.4	70	59	14	M 10 x 30	32.92 x 3.53	50	0 3 05 02 20 81	0 3 05 02 20 07
1 1/4"	L 35	160	41	50	69	47.5	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 03 20 81	0 3 05 03 20 07
1 1/4"	L 35	160	41	50	69	47.5	30.2	58.7	79	73	19	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/2"	L 42	160	46	60	76	53	35.7	69.9	94	83	14	M 12 x 35	47.22 x 3.53	85	0 3 05 04 20 81	0 3 05 04 20 07
3/4"	S 20	350	30	36	69	46.5	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 05 20 81	0 3 05 05 20 07
3/4"	S 25	350	30	46	69	45	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 06 20 81	0 3 05 06 20 07
1"	S 30	350	36	50	76	49.5	26.2	52.4	70	59	14	M 10 x 30	32.92 x 3.53	50	0 3 05 08 20 81	0 3 05 08 20 07
1 1/4"	S 25	280	41	46	72	48	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 07 20 81	0 3 05 07 20 07
1 1/4"	S 25	280	41	46	72	48	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/4"	S 30	280	41	50	75	48.5	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 09 20 81	0 3 05 09 20 07
1 1/4"	S 30	280	41	50	75	48.5	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/4"	S 38	280	46	60	81	50.5	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 10 20 81	0 3 05 10 20 07
1 1/4"	S 38	280	46	60	81	50.5	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/2"	S 38	210	46	60	85	54	35.7	69.9	94	83	19	M 12 x 35	47.22 x 3.53	85	0 3 05 11 20 81	0 3 05 11 20 07

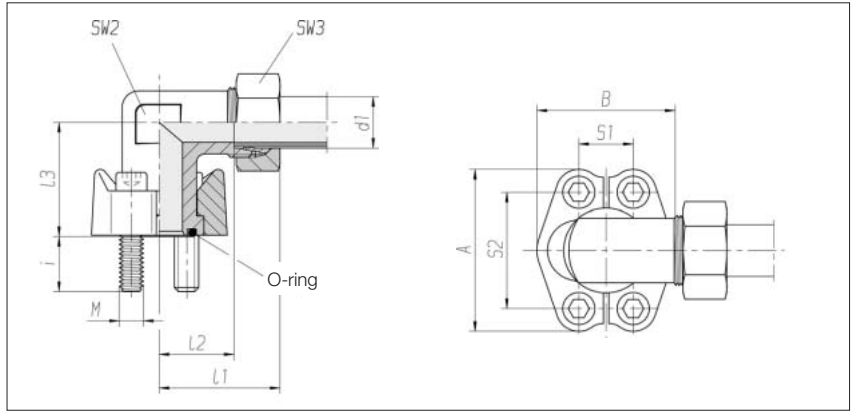
* Nm = Recommended tightening torques for cheese head screws M10/12 with friction value μ total 0.14

** With union nut and 2S cutting ring

*** Sample product code, see: GFS33/18L

Elbow flange couplings

With cutting-ring connection and divided SAE flange
Hole pattern according to SAEJ 518 C / ISO 6162
Standard series (3000 psi)



Flange size	Series Tube OD d1	PB	SW2	SW3	I1	I2	I3	S1	S2	A	B	i	4 x cheese head screw DIN 912-8.8	O-ring	Nm*	Order No. complete	Order No. **
3/4"	L 18	315	30	32	48	31.5	42	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 12 20 81***	0 3 05 12 20 07
3/4"	L 22	160	30	36	50	33.5	42	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 13 20 81	0 3 05 13 20 07
1"	L 28	160	36	41	53	36.5	45	26.2	52.4	70	59	14	M 10 x 30	32.92 x 3.53	50	0 3 05 14 20 81	0 3 05 14 20 07
1 1/4"	L 35	160	41	50	68	46.5	50	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 15 20 81	0 3 05 15 20 07
1 1/4"	L 35	160	41	50	68	46.5	50	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/2"	L 42	160	50	60	77	56	76	35.7	69.9	94	83	19	M 12 x 35	47.22 x 3.53	85	0 3 05 16 20 81	0 3 05 16 20 07
3/4"	S 20	350	30	36	54	32.5	42	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 17 20 81	0 3 05 17 20 07
3/4"	S 25	350	30	46	57	33	42	22.2	47.6	65	52	16	M 10 x 30	25 x 3.53	50	0 3 05 18 20 81	0 3 05 18 20 07
1"	S 30	350	36	50	63	36.5	45	26.2	52.4	70	59	14	M 10 x 30	32.92 x 3.53	50	0 3 05 20 20 81	0 3 05 20 20 07
1 1/4"	S 25	280	41	46	67	43	50	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 19 20 81	0 3 05 19 20 07
1 1/4"	S 25	280	41	46	67	43	50	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/4"	S 30	280	41	50	70	43.5	50	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 21 20 81	0 3 05 21 20 07
1 1/4"	S 30	280	41	50	70	43.5	50	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/4"	S 38	280	41	60	74	43	50	30.2	58.7	79	73	24	M 12 x 40	37.7 x 3.53	85	0 3 05 22 20 81	0 3 05 22 20 07
1 1/4"	S 38	280	41	60	74	43	50	30.2	58.7	79	73	14	M 10 x 30	37.7 x 3.53	50	On request	On request
1 1/2"	S 38	210	50	60	87	56	76	35.7	69.9	94	83	19	M 12 x 35	47.22 x 3.53	85	0 3 05 23 20 81	0 3 05 23 20 07

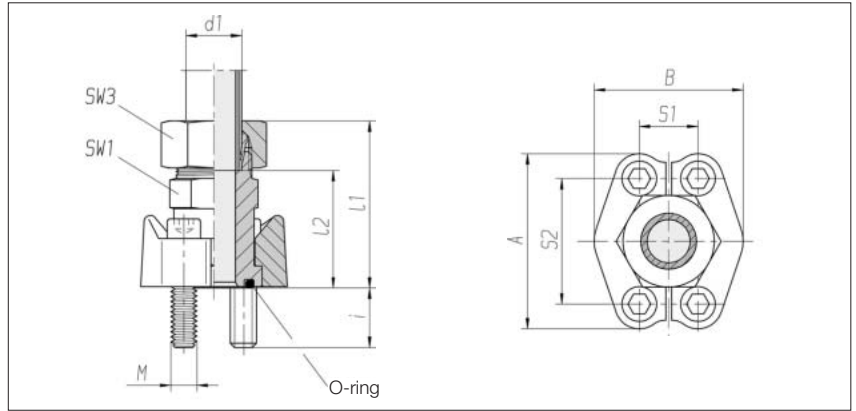
* Nm = Recommended tightening torques for cheese head screws M10/12 with friction value μ total 0,14

** With union nut and 2S cutting ring

*** Sample product code, see: WFS33/18L

Straight flange couplings

With cutting-ring connection and divided SAE flange
Hole pattern according to SAE J 518 C / ISO 6162
High-pressure series (6000 psi)



Flange size	Series Tube OD d1	PB	SW1	SW3	I1	I2 approx.	S1	S2	A	B	i	4 x cheese head screw DIN 912-8.8	O-ring	Nm*	Order No. complete	Order No. **
3/4"	S 16	400	30	30	69	50.5	23.8	50.8	71	60	16	M 10 x 35	25 x 3.53	50	0 3 05 24 20 81***	0 3 05 24 20 07
3/4"	S 20	400	30	36	72	50.5	23.8	50.8	71	60	16	M 10 x 35	25 x 3.53	50	0 3 05 25 20 81	0 3 05 25 20 07
3/4"	S 25	400	30	46	75	51	23.8	50.8	71	60	16	M 10 x 35	25 x 3.53	50	0 3 05 26 20 81	0 3 05 26 20 07
1"	S 25	400	41	46	84	60	27.8	57.2	81	70	21	M 12 x 45	32.92 x 3.53	85	0 3 05 27 20 81	0 3 05 27 20 07
1"	S 30	400	41	50	87	60.5	27.8	57.2	81	70	21	M 12 x 45	32.92 x 3.53	85	0 3 05 28 20 81	0 3 05 28 20 07
1 1/4"	S 30	400	41	50	92	65.5	31.8	66.7	95	78	23	M 14 x 50	37.7 x 3.53	135	0 3 05 30 20 81	0 3 05 30 20 07
1 1/4"	S 38	315	46	60	98	67	31.8	66.7	95	78	23	M 14 x 50	37.7 x 3.53	135	0 3 05 32 20 81	0 3 05 32 20 07
1 1/2"	S 38	315	46	60	104	73	36.5	79.4	113	95	25	M 16 x 55	47.22 x 3.53	210	0 3 05 34 20 81	0 3 05 34 20 07

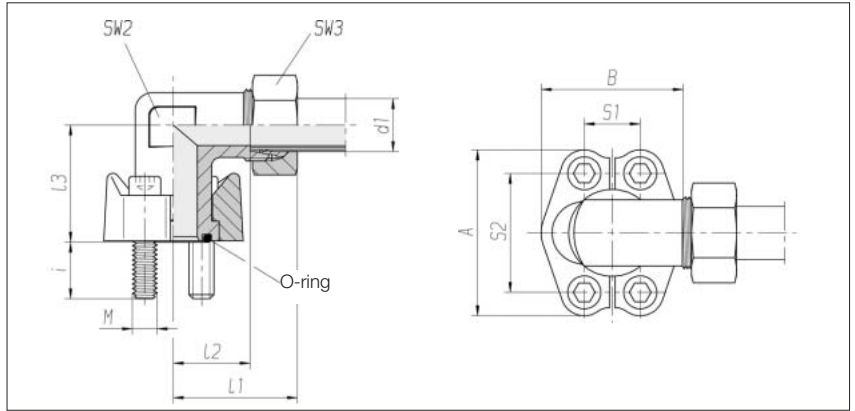
* Nm = Recommended tightening torques for cheese head screws M10 - 16 with friction value μ total 0.14

** With union nut and 2S cutting ring

*** Sample product code, see: GFS63/16S

Elbow flange couplings

With cutting-ring connection and divided SAE flange
 Hole pattern according to SAE J 518 C / ISO 6162
 High-pressure series (6000 psi)



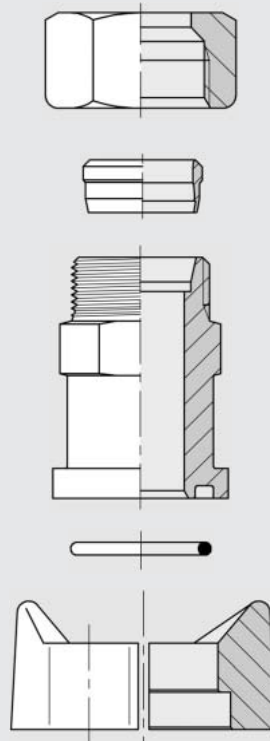
Flange size	Series Tube OD d1	PB	SW2	SW3	l1	l2	l3	S1	S2	A	B	i	4 x cheese head screw DIN 912-8.8	O-ring	Nm*	Order No. complete	Order No. **
1/2"	S 16	400	24	30	48	29.5	39	18.3	40.5	56	47	14	M 8 x 30	18.66 x 3.53	25	0 3 05 35 20 81***	0 3 05 35 20 07
3/4"	S 16	400	32	30	55	36.5	48	23.8	50.8	71	60	16	M 10 x 35	25 x 3.53	50	0 3 05 36 20 81	0 3 05 36 20 07
3/4"	S 20	400	32	36	57	35.5	48	23.8	50.8	71	60	16	M 10 x 35	25 x 3.53	50	0 3 05 37 20 81	0 3 05 37 20 07
3/4"	S 25	400	32	46	60	36	48	23.8	50.8	71	60	16	M 10 x 35	25 x 3.53	50	0 3 05 38 20 81	0 3 05 38 20 07
1"	S 25	400	41	46	65	41	60	27.8	57.2	81	70	21	M 12 x 45	32.92 x 3.53	85	0 3 05 39 20 81	0 3 05 39 20 07
1"	S 30	400	41	50	68	41.5	60	27.8	57.2	81	70	21	M 12 x 45	32.92 x 3.53	85	0 3 05 40 20 81	0 3 05 40 20 07
1 1/4"	S 30	400	46	50	71	44.5	68	31.8	66.7	95	78	23	M 14 x 50	37.7 x 3.53	135	0 3 05 42 20 81	0 3 05 42 20 07
1 1/4"	S 38	315	46	60	76	45	68	31.8	66.7	95	78	23	M 14 x 50	37.7 x 3.53	135	0 3 05 44 20 81	0 3 05 44 20 07
1 1/2"	S 38	315	50	60	87	56	76	36.5	79.4	113	95	25	M 16 x 55	47.22 x 3.53	210	0 3 05 46 20 81	0 3 05 46 20 07

* Nm = Recommended tightening torques for cheese head screws
 M10 - 16 with friction value μ total 0,14

** With union nut and 2S cutting ring

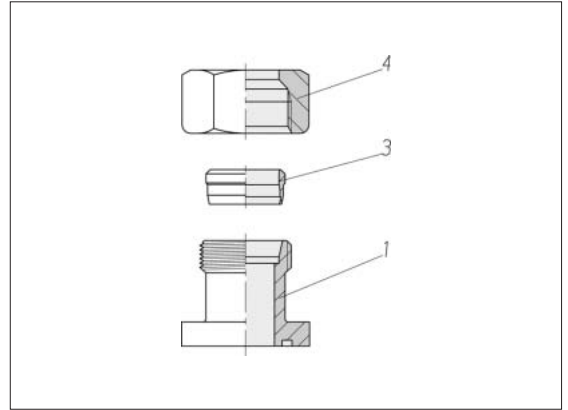
*** Sample product code, see: WFS62/16S

Flange couplings
with cutting-ring connection
Component parts



Straight flange couplings Component parts

With cutting-ring and square flange connection

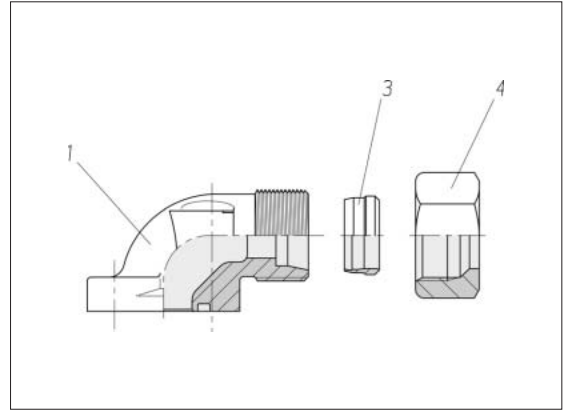


Series	PB	Hole circle dia.	kg/100 approx.	Order No. Part 1	Order No. Part 3	Order No. Part 4
L 10	315	35	9.5	0 7 95 36 20 00*	0 0 10 10 20 00	0 0 04 10 21 00
L 12	315	35	9.7	0 7 95 37 20 00	0 0 10 15 20 00	0 0 04 15 21 00
L 15	250	35	10.2	0 7 95 38 20 00	0 0 10 20 20 00	0 0 04 20 21 00
L 15	100	40	12.4	0 7 95 39 20 00	0 0 10 20 20 00	0 0 04 20 21 00
L 18	100	40	12.2	0 7 95 40 20 00	0 0 10 25 20 00	0 0 04 25 21 00
L 22	100	40	12.3	0 7 95 41 20 00	0 0 10 30 20 00	0 0 04 30 21 00
L 28	100	40	15.9	0 7 95 14 20 00	0 0 10 35 20 00	0 0 04 35 21 00
L 28	100	55	30.4	0 7 95 90 20 00	0 0 10 35 20 00	0 0 04 35 21 00
S 16	315	35	16.4	0 7 95 10 20 00	0 0 10 75 20 00	0 0 04 75 21 00

* Sample product code, see:
BFG10L/LK35OMD

Elbow flange couplings Component parts

With cutting-ring and square flange connection

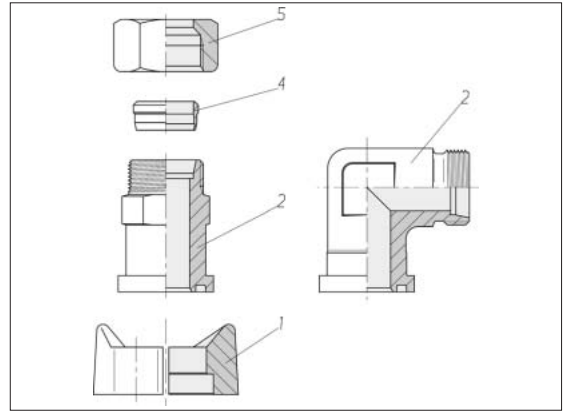


Series Tube OD	PB	Hole circle dia.	kg/100 approx.	Order No. Part 1	Order No. Part 3	Order No. Part 4
L 10	315	35	14.2	0 7 95 42 20 00*	0 0 10 10 20 00	0 0 04 10 21 00
L 12	315	35	15.7	0 7 95 62 20 00	0 0 10 15 20 00	0 0 04 15 21 00
L 15	250	35	15.0	0 7 95 63 20 00	0 0 10 20 20 00	0 0 04 20 21 00
L 15	100	40	20.1	0 7 95 64 20 00	0 0 10 20 20 00	0 0 04 20 21 00
L 18	100	35	17.9	0 7 95 45 20 00	0 0 10 25 20 00	0 0 04 25 21 00
L 18	100	40	16.9	0 7 95 43 20 00	0 0 10 25 20 00	0 0 04 25 21 00
L 22	100	40	17.7	0 7 95 44 20 00	0 0 10 30 20 00	0 0 04 30 21 00
L 28	100	40	26.0	0 7 95 15 20 00	0 0 10 35 20 00	0 0 04 35 21 00
L 35	100	40	32.2	0 7 95 27 20 00	0 0 10 40 20 00	0 0 04 40 21 00
L 35	100	55	46.6	0 7 95 17 20 00	0 0 10 40 20 00	0 0 04 40 21 00
S 12	315	35	27.1	0 7 95 88 20 00	0 0 10 15 20 00	0 0 04 65 21 00
S 16	315	35	17.3	0 7 95 25 20 00	0 0 10 75 20 00	0 0 04 75 21 00
S 20	315	35	22.3	0 7 95 11 20 00	0 0 10 80 20 00	0 0 04 80 21 00
S 20	250	55	44.9	0 7 95 18 20 00	0 0 10 80 20 00	0 0 04 80 21 00
S 20	250	40	20.2	0 7 95 13 20 00	0 0 10 80 20 00	0 0 04 80 21 00
S 25	250	55	49.1	0 7 95 89 20 00	0 0 10 85 20 00	0 0 04 85 21 00
S 30	250	55	49.8	0 7 95 24 20 00	0 0 10 90 20 00	0 0 04 90 21 00

* Sample product code, see:
BFW10L/LK35OMD

Straight/elbow flange couplings Component parts

With cutting-ring connection
and divided SAE flange
Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)



Flange size	Series Tube OD	kg/100 approx.	Order No. Part 1*	kg/100 approx.	Order No. Part 2**	kg/100 approx.	Order No. Part 2***	Order No. Part 4	Order No. Part 5
3/4"	L 18	8.6	0 3 97 79 20 50	21.3	0 3 96 00 20 00	31.4	0 3 96 12 20 00	0 0 10 25 20 00	0 0 04 25 21 00
3/4"	L 22	8.6	0 3 97 79 20 50	20.2	0 3 96 01 20 00	29.6	0 3 96 13 20 00	0 0 10 30 20 00	0 0 04 30 21 00
1"	L 28	11.6	0 3 97 80 20 50	28.2	0 3 96 02 20 00	40.4	0 3 96 14 20 00	0 0 10 35 20 00	0 0 04 35 21 00
1 1/4"	L 35	15.7	0 3 97 81 20 50	36.3	0 3 96 03 20 00	67.0	0 3 96 15 20 00	0 0 10 40 20 00	0 0 04 40 21 00
1 1/4"	L 35	32.0	0 3 96 97 20 50	36.3	0 3 96 03 20 00	67.0	0 3 96 15 20 00	0 0 10 40 20 00	0 0 04 40 21 00
1 1/2"	L 42	45.5	0 3 97 82 20 50	48.2	0 3 96 04 20 00	110.9	0 3 96 16 20 00	0 0 10 45 20 00	0 0 04 45 21 00
3/4"	S 20	8.6	0 3 97 79 20 50	23.8	0 3 96 05 20 00	31.9	0 3 96 17 20 00	0 0 10 80 20 00	0 0 04 80 21 00
3/4"	S 25	8.6	0 3 97 79 20 50	24.1	0 3 96 06 20 00	33.3	0 3 96 18 20 00	0 0 10 85 20 00	0 0 04 85 21 00
1"	S 30	11.6	0 3 97 80 20 50	36.4	0 3 96 08 20 00	45.2	0 3 96 20 20 00	0 0 10 90 20 00	0 0 04 90 21 00
1 1/4"	S 25	15.7	0 3 97 81 20 50	43.3	0 3 96 07 20 00	62.2	0 3 96 19 20 00	0 0 10 85 20 00	0 0 04 85 21 00
1 1/4"	S 25	32.0	0 3 96 97 20 50	43.3	0 3 96 07 20 00	62.2	0 3 96 19 20 00	0 0 10 85 20 00	0 0 04 85 21 00
1 1/4"	S 30	15.7	0 3 97 81 20 50	43.8	0 3 96 09 20 00	69.4	0 3 96 21 20 00	0 0 10 90 20 00	0 0 04 90 21 00
1 1/4"	S 30	32.0	0 3 96 97 20 50	43.8	0 3 96 09 20 00	69.4	0 3 96 21 20 00	0 0 10 90 20 00	0 0 04 90 21 00
1 1/4"	S 38	15.7	0 3 97 81 20 50	53.2	0 3 96 10 20 00	76.5	0 3 96 22 20 00	0 0 10 95 20 00	0 0 04 95 21 00
1 1/4"	S 38	32.0	0 3 96 97 20 50	53.2	0 3 96 10 20 00	76.5	0 3 96 22 20 00	0 0 10 95 20 00	0 0 04 95 21 00
1 1/2"	S 38	45.5	0 3 97 82 20 50	63.2	0 3 96 11 20 00	98.3	0 3 96 23 20 00	0 0 10 95 20 00	0 0 04 95 21 00

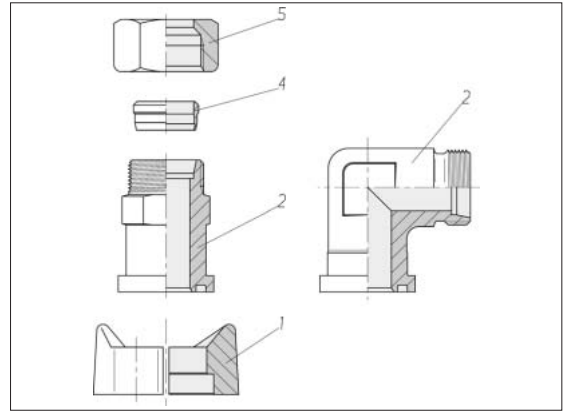
Order No. Part 1: in dependence on
screw size, see Pg. 223/224

* = 2 flange halves
** = Straight flange connecting piece
*** = Elbow flange connecting piece

Sample product code, see:
FHS33X
GFS33/18LX
WFS33/18LX

Straight/elbow flange couplings Component parts

With cutting-ring connection
and divided SAE flange
Hole pattern according to
SAE J 518 C / ISO 6162
High-pressure series
(6000 psi)

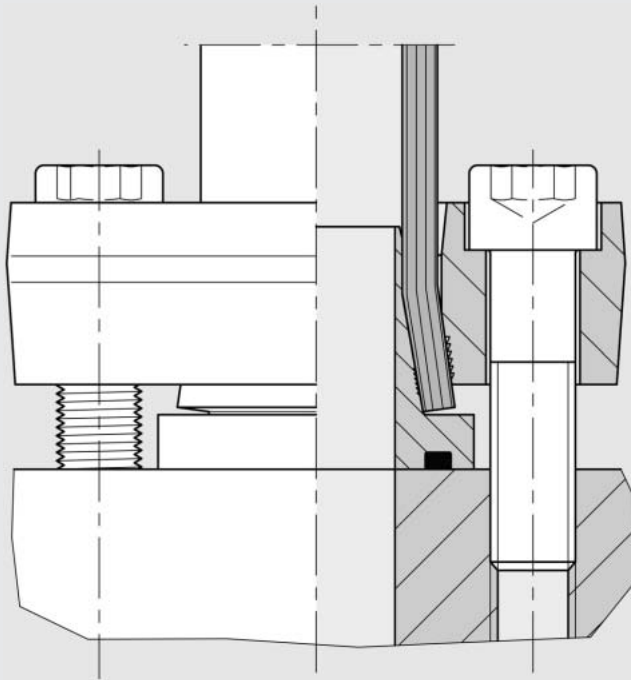


Flange size	Series	kg/100 approx.	Order No. Part 1*	kg/100 approx.	Order No. Part 2**	kg/100 approx.	Order No. Part 2***	Order No. Part 4	Order No. Part 5
1/2"	S 16	25.0	0 3 97 86 20 50	-	-	15.7	0 3 96 60 20 00	0 0 10 75 20 00	0 0 04 75 21 00
3/4"	S 16	33.2	0 3 97 87 20 50	27.2	0 3 96 24 20 00	43.0	0 3 96 36 20 00	0 0 10 75 20 00	0 0 04 75 21 00
3/4"	S 20	33.2	0 3 97 87 20 50	27.9	0 3 96 25 20 00	42.5	0 3 96 37 20 00	0 0 10 80 20 00	0 0 04 80 21 00
3/4"	S 25	33.2	0 3 97 87 20 50	30.0	0 3 96 26 20 00	45.8	0 3 96 38 20 00	0 0 10 85 20 00	0 0 04 85 21 00
1"	S 25	25.0	0 3 97 88 20 50	46.1	0 3 96 27 20 00	59.3	0 3 96 39 20 00	0 0 10 85 20 00	0 0 04 85 21 00
1"	S 30	25.0	0 3 97 88 20 50	43.4	0 3 96 28 20 00	61.2	0 3 96 40 20 00	0 0 10 90 20 00	0 0 04 90 21 00
1 1/4"	S 30	39.0	0 3 97 89 20 50	57.4	0 3 96 30 20 00	82.9	0 3 96 42 20 00	0 0 10 90 20 00	0 0 04 90 21 00
1 1/4"	S 38	39.0	0 3 97 89 20 50	64.8	0 3 96 32 20 00	96.5	0 3 96 44 20 00	0 0 10 95 20 00	0 0 04 95 21 00
1 1/2"	S 38	68.3	0 3 97 90 20 50	82.0	0 3 96 34 20 00	131.7	0 3 96 46 20 00	0 0 10 95 20 00	0 0 04 95 21 00

* = 2 flange halves
** = Straight flange connecting piece
*** = Elbow flange connecting piece

Sample product code, see:
FHS63X
GFS63/16SX
WFS63/16SX

ZAKO flared flanges complete

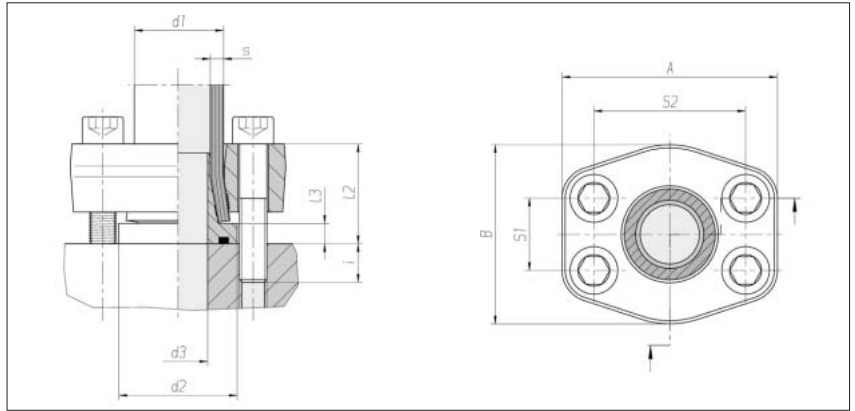


Experience plus ideas

Tube-to-port flange couplings ZAKO system

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible operating
pressure (PB) 250 bar¹⁾



Flange size	Tube d1 x s	d2	d3	l2 approx.	l3	S1	S2	A	B	i	4 x cheese head screw.	Nm*	kg/100 approx.	Order No. complete	Order No. ***
1/2"	16 x 2	30	10.5	32	8	17.5	38.1	55	45	13	M 8 x 45	35	43.9	0 5 13 00 19 00**	0 5 13 00 19 86
1/2"	16 x 2.5	30	10.5	32	8	17.5	38.1	55	45	13	M 8 x 45	35	43.9	0 5 13 01 19 00	0 5 13 01 19 86
1/2"	16 x 3	30	10.5	32	8	17.5	38.1	55	45	13	M 8 x 45	35	43.9	0 5 13 29 19 00	0 5 13 29 19 86
3/4"	20 x 2.5	38	13.5	32	8	22.2	47.6	65	50	13	M 10 x 45	69	54.7	0 5 13 02 19 00	0 5 13 02 19 86
3/4"	20 x 3	38	13.5	32	8	22.2	47.6	65	50	13	M 10 x 45	69	54.8	0 5 13 03 19 00	0 5 13 03 19 86
3/4"	20 x 3.5	38	13.5	32	8	22.2	47.6	65	50	13	M 10 x 45	69	55.0	0 5 13 21 19 00	0 5 13 21 19 86
3/4"	25 x 3	38	17	32.5	8.5	22.2	47.6	65	50	12.5	M 10 x 45	69	66.9	0 5 13 04 19 00	0 5 13 04 19 86
3/4"	25 x 4	38	17	32.5	8.5	22.2	47.6	65	50	12.5	M 10 x 45	69	67.3	0 5 13 22 19 00	0 5 13 22 19 86
1"	30 x 4	46	20	37.5	8.5	26.2	52.4	72	60	12.5	M 10 x 50	69	80.1	0 5 13 05 19 00	0 5 13 05 19 86
1"	30 x 5	46	20	37.5	8.5	26.2	52.4	72	60	12.5	M 10 x 50	69	81.3	0 5 13 25 19 00	0 5 13 25 19 86
1 1/4"	38 x 4	52	28	44	9	30.2	58.7	79	73	16	M 12 x 60	120	106.7	0 5 13 06 19 00	0 5 13 06 19 86
1 1/4"	38 x 5	52	28	44	9	30.2	58.7	79	73	16	M 12 x 60	120	107.2	0 5 13 07 19 00	0 5 13 07 19 86
1 1/4"	38 x 6	52	28	44	9	30.2	58.7	79	73	16	M 12 x 60	120	107.3	0 5 13 28 19 00	0 5 13 28 19 86
1 1/4"	42 x 2	52	34	44	9	30.2	58.7	79	73	16	M 10 x 60	69	80.1	0 5 13 16 19 00	0 5 13 16 19 86
1 1/2"	50 x 2.5	63	42	46	10	35.7	69.9	94	83	14	M 12 x 60	120	136.3	0 5 13 08 19 00	0 5 13 08 19 86
1 1/2"	50 x 5	63	42	46	10	35.7	69.9	94	83	14	M 12 x 60	120	136.9	0 5 13 09 19 00	0 5 13 09 19 86
1 1/2"	50 x 6	63	42	46	10	35.7	69.9	94	83	14	M 12 x 60	120	136.8	0 5 13 10 19 00	0 5 13 10 19 86
1 1/2"	50 x 8	63	42	46	10	35.7	69.9	94	83	14	M 12 x 60	120	140.0	0 5 13 20 19 00	0 5 13 20 19 86
2"	65 x 3	75	46	60	11	42.9	77.8	102	97	15	M 12 x 75	120	189.0	0 5 13 11 19 00	0 5 13 11 19 86
2"	65 x 4	75	46	60	11	42.9	77.8	102	97	15	M 12 x 75	120	183.0	0 5 13 12 19 00	0 5 13 12 19 86
2"	65 x 5	75	46	60	11	42.9	77.8	102	97	15	M 12 x 75	120	186.3	0 5 13 13 19 00	0 5 13 13 19 86
3"	80 x 3	100	71	66	16	61.9	106.4	135	131	24	M 16 x 90	295	405.6	0 5 13 14 19 00	0 5 13 14 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

¹⁾ According to the ASME Code, a reduced operating pressure applies for the flange sizes 2" and 3"

* Recommended tightening torques (Nm max.) at 10.9

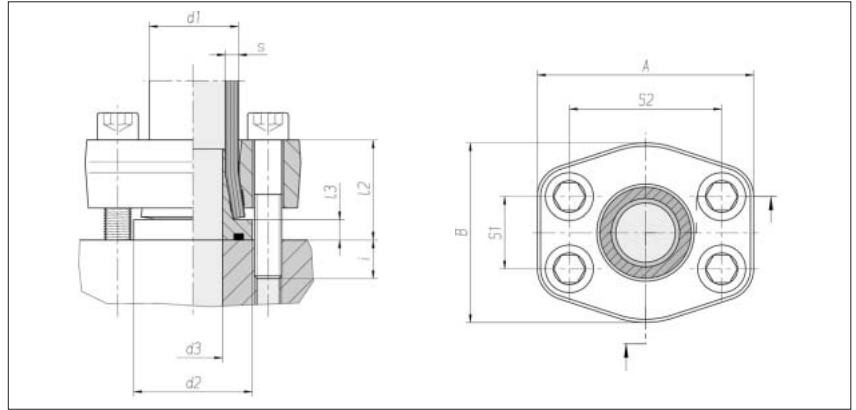
** Sample product code, see: FE-1620-8/3
*** without screws

Tube-to-port flange couplings ZAKO system

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible
operating pressure (PB)
250 bar¹⁾

Reducing couplings



Flange size	Tube d1 x s	d2	d3	l2 approx.	l3 approx.	S1	S2	A	B	i approx.	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
1"	25 x 3	38	17	38.5	8.5	26.2	52.4	72	60	16.5	M 10 x 55	69	64.0	0 5 13 23 19 00**	0 5 13 23 19 86
1"	25 x 4	38	17	38.5	8.5	26.2	52.4	72	60	16.5	M 10 x 55	69	64.6	0 5 13 24 19 00	0 5 13 24 19 86
1 1/4"	30 x 4	46	20	42	8.5	30.2	58.7	79	73	18	M 12 x 60	120	105.5	0 5 13 26 19 00	0 5 13 26 19 86
1 1/4"	30 x 5	46	20	43.5	8.5	30.2	58.7	79	73	16.5	M 12 x 60	120	105.7	0 5 13 27 19 00	0 5 13 27 19 86
2"	50 x 2.5	63	42	52.5	10	42.9	77.8	102	97	22.5	M 12 x 75	120	193.0	0 5 13 75 19 00	0 5 13 75 19 86
2"	50 x 5	63	42	53	10	42.9	77.8	102	97	22	M 12 x 75	120	193.2	0 5 13 76 19 00	0 5 13 76 19 86
2"	50 x 6	63	42	55	10	42.9	77.8	102	97	20	M 12 x 75	120	193.1	0 5 13 77 19 00	0 5 13 77 19 86
2"	50 x 8	63	42	56	10	42.9	77.8	102	97	19	M 12 x 75	120	197.4	0 5 13 78 19 00	0 5 13 78 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

¹⁾ According to the ASME Code, a reduced operating pressure applies for the flange sizes 2"

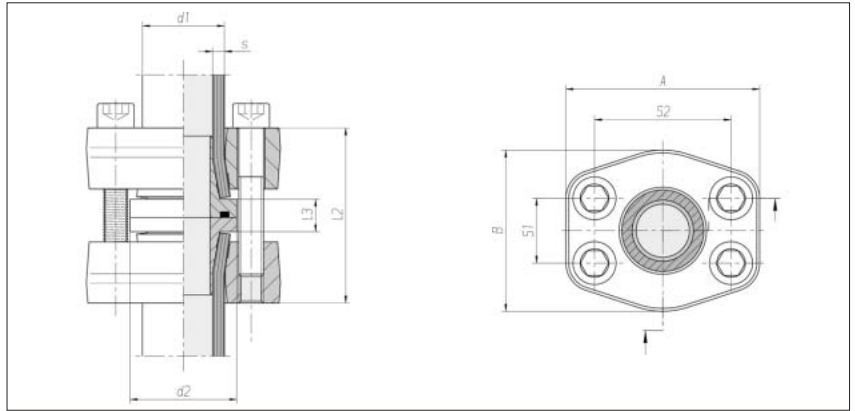
* Recommended tightening torques (Nm max.) at 10.9

** Sample product code, see: FE-2530-16/3
*** without screws

Tube-to-tube flange couplings ZAKO system

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible operating
pressure (PB) 250 bar¹⁾



Flange size	Tube d1 x s	d2	l2 approx.	l3	S1	S2	A	B	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
1/2"	16 x 2	30	61.5	13.5	17.5	38.1	55	45	M 8 x 55	35	77.5	0 5 14 00 19 00**	0 5 14 00 19 86
1/2"	16 x 2.5	30	61.5	13.5	17.5	38.1	55	45	M 8 x 55	35	77.5	0 5 14 01 19 00	0 5 14 01 19 86
1/2"	16 x 3	30	61.5	13.5	17.5	38.1	55	45	M 8 x 55	35	77.5	0 5 14 80 19 00	0 5 14 80 19 86
3/4"	20 x 2.5	38	61.5	13.5	22.2	47.6	65	50	M 10 x 55	69	96.6	0 5 14 02 19 00	0 5 14 02 19 86
3/4"	20 x 3	38	61.5	13.5	22.2	47.6	65	50	M 10 x 55	69	97.0	0 5 14 03 19 00	0 5 14 03 19 86
3/4"	20 x 3.5	38	61.5	13.5	22.2	47.6	65	50	M 10 x 55	69	97.4	0 5 14 81 19 00	0 5 14 81 19 86
3/4"	25 x 3	38	62	14	22.2	47.6	65	50	M 10 x 55	69	106.0	0 5 14 04 19 00	0 5 14 04 19 86
3/4"	25 x 4	38	62	14	22.2	47.6	65	50	M 10 x 55	69	106.4	0 5 14 82 19 00	0 5 14 82 19 86
1"	30 x 4	46	72.5	14.5	26.2	52.4	72	60	M 10 x 60	69	149.0	0 5 14 05 19 00	0 5 14 05 19 86
1"	30 x 5	46	72.5	14.5	26.2	52.4	72	60	M 10 x 60	69	151.2	0 5 14 85 19 00	0 5 14 85 19 86
1 1/4"	38 x 4	52	86	16	30.2	58.7	79	73	M 12 x 75	120	198.6	0 5 14 06 19 00	0 5 14 06 19 86
1 1/4"	38 x 5	52	86	16	30.2	58.7	79	73	M 12 x 75	120	197.1	0 5 14 07 19 00	0 5 14 07 19 86
1 1/4"	38 x 6	52	86	16	30.2	58.7	79	73	M 12 x 75	120	197.0	0 5 14 89 19 00	0 5 14 89 19 86
1 1/2"	50 x 2.5	63	89	17	35.7	69.9	94	83	M 12 x 75	120	255.8	0 5 14 08 19 00	0 5 14 08 19 86
1 1/2"	50 x 5	63	89	17	35.7	69.9	94	83	M 12 x 75	120	256.3	0 5 14 09 19 00	0 5 14 09 19 86
1 1/2"	50 x 6	63	89	17	35.7	69.9	94	83	M 12 x 75	120	255.8	0 5 14 10 19 00	0 5 14 10 19 86
1 1/2"	50 x 8	63	89	17	35.7	69.9	94	83	M 12 x 75	120	256.8	0 5 14 90 19 00	0 5 14 90 19 86
1 1/2"	50 x 9	63	89	17	35.7	69.9	94	83	M 12 x 75	120	257.1	0 5 14 91 19 00	0 5 14 91 19 86
2"	65 x 3	75	117	19	42.9	77.8	102	97	M 12 x 100	120	359.6	0 5 14 11 19 00	0 5 14 11 19 86
2"	65 x 4	75	117	19	42.9	77.8	102	97	M 12 x 100	120	353.2	0 5 14 12 19 00	0 5 14 12 19 86
2"	65 x 5	75	117	19	42.9	77.8	102	97	M 12 x 100	120	357.1	0 5 14 13 19 00	0 5 14 13 19 86
3"	80 x 3	100	129	29	61.9	106.4	135	131	M 16 x 110	295	756.0	0 5 14 14 19 00	0 5 14 14 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

¹⁾ According to the ASME Code, a reduced operating pressure applies for the flange sizes 2" and 3"

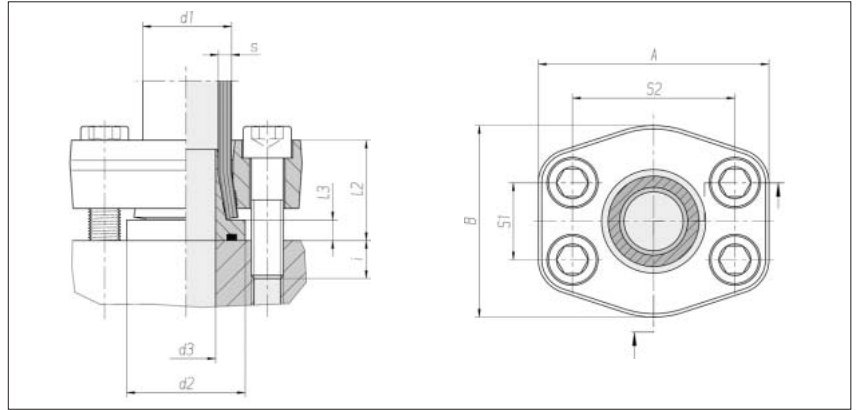
* Recommended tightening torques (Nm max.) at 10.9

** Sample product code, see: FG-1620-8/3
*** without screws

Tube-to-port flange couplings ZAKO system

Hole pattern according to
SAE J 518 C / ISO 6162
High-pressure series
(6000 psi)

Max. permissible operating
pressure (PB) 400 bar



Flange size	Tube d1 x s	d2	d3	l2	l3 approx.	S1	S2	A	B	i	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
1/2"	16 x 2	30	10.5	32	8	18.3	40.5	56	48	12	M 8 x 40	35	38.6	0 5 13 52 19 00**	0 5 13 52 19 86
1/2"	16 x 2.5	30	10.5	32	8	18.3	40.5	56	48	12	M 8 x 40	35	38.6	0 5 13 30 19 00	0 5 13 30 19 86
1/2"	16 x 3	30	10.5	32	8	18.3	40.5	56	48	12	M 8 x 40	35	38.6	0 5 13 31 19 00	0 5 13 31 19 86
3/4"	20 x 2.5	38	13.5	37	8	23.9	50.8	71	60	13	M 10 x 40	69	69.2	0 5 13 53 19 00	0 5 13 53 19 86
3/4"	20 x 3	38	13.5	37	8	23.9	50.8	71	60	13	M 10 x 40	69	69.3	0 5 13 32 19 00	0 5 13 32 19 86
3/4"	20 x 3.5	38	13.5	37	8	23.9	50.8	71	60	13	M 10 x 40	69	69.6	0 5 13 33 19 00	0 5 13 33 19 86
3/4"	25 x 3	38	17	37.5	8.5	23.9	50.8	71	60	14.5	M 10 x 40	69	65.6	0 5 13 34 19 00	0 5 13 34 19 86
3/4"	25 x 4	38	17	37.5	8.5	23.9	50.8	71	60	14.5	M 10 x 40	69	66.0	0 5 13 35 19 00	0 5 13 35 19 86
1"	30 x 4	46	20	42.5	8.5	27.8	57.2	81	70	14.5	M 12 x 40	120	97.6	0 5 13 36 19 00	0 5 13 36 19 86
1"	30 x 5	46	20	42.5	8.5	27.8	57.2	81	70	14.5	M 12 x 40	120	98.7	0 5 13 37 19 00	0 5 13 37 19 86
1 1/4"	38 x 4	52	28	44	9	31.7	66.7	95	78	17.1	M 14 x 45	190	127.2	0 5 13 55 19 00	0 5 13 55 19 86
1 1/4"	38 x 5	52	28	44	9	31.7	66.7	95	78	17.1	M 14 x 45	190	127.0	0 5 13 38 19 00	0 5 13 38 19 86
1 1/4"	38 x 6	52	28	44	9	31.7	66.7	95	78	17.1	M 14 x 45	190	140.3	0 5 13 39 19 00	0 5 13 39 19 86
1 1/2"	50 x 5	63	36	56.5	10	36.5	79.4	113	95	22	M 16 x 60	295	230.8	0 5 13 56 19 00	0 5 13 56 19 86
1 1/2"	50 x 6	63	36	56.5	10	36.5	79.4	113	95	22	M 16 x 60	295	230.7	0 5 13 40 19 00	0 5 13 40 19 86
1 1/2"	50 x 8	63	36	56.5	10	36.5	79.4	113	95	22	M 16 x 60	295	233.1	0 5 13 41 19 00	0 5 13 41 19 86
2"	65 x 8	75	46	65	11	44.5	96.8	133	114	30	M 20 x 90	580	383.5	0 5 13 42 19 00	0 5 13 42 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

* Recommended tightening torques (Nm max.) at 10.9

** Sample product code, see: FE-1620-8/6

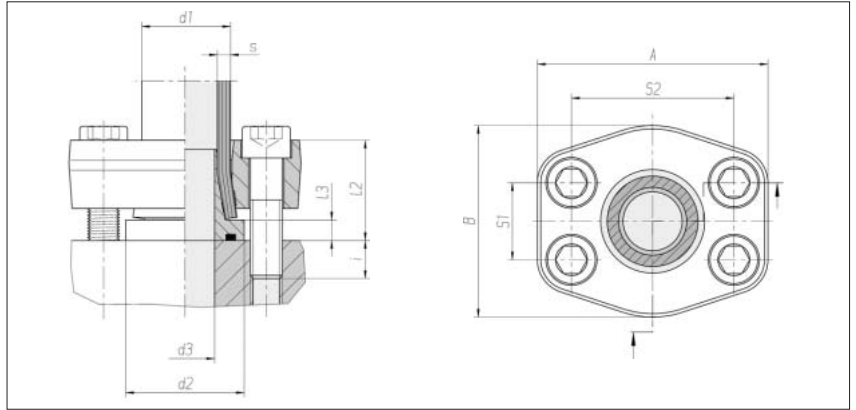
*** without screws

Tube-to-port flange couplings ZAKO system

Hole pattern according to
SAEJ 518 C / ISO 6162
High-pressure series
(6000 psi)

Max. permissible operating
pressure (PB) 400 bar

Reducing couplings



Flange size	Tube d1 x s	d2	d3	l2 approx.	l3	S1	S2	A	B	i	4 x cheese approx. head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
1"	38 x 5	46	26	43	9	27.8	57.2	81	70	14	M 12 x 40	120	89.9	0 5 13 54 19 00**	0 5 13 54 19 86
2"	50 x 5	63	36	58	10	44.5	96.8	133	114	32	M 20 x 90	580	438.5	0 5 13 57 19 00	0 5 13 57 19 86
2"	50 x 6	63	36	60	10	44.5	96.8	133	114	30	M 20 x 90	580	438.4	0 5 13 58 19 00	0 5 13 58 19 86
2"	50 x 8	63	36	61	10	44.5	96.8	133	114	29	M 20 x 90	580	440.7	0 5 13 43 19 00	0 5 13 43 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

* Recommended tightening torques (Nm max.) at 10.9

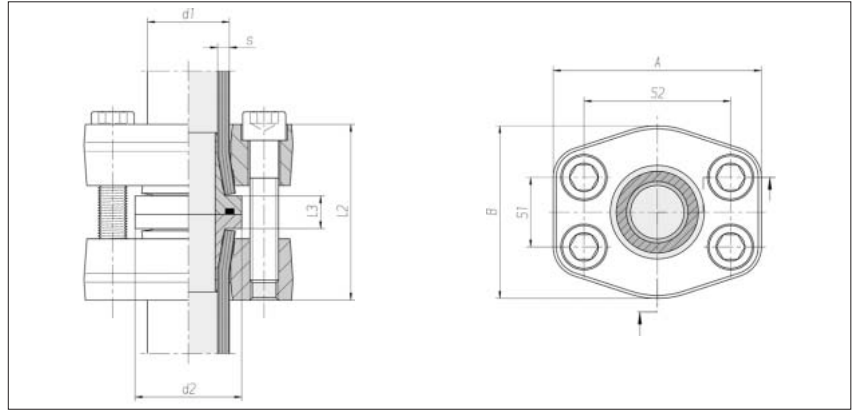
** Sample product code, see: FE-3850-16/6

*** without screws

Tube-to-tube flange couplings ZAKO system

Hole pattern according to
SAE J 518 C / ISO 6162
High-pressure series
(6000 psi)

Max. permissible operating
pressure (PB) 400 bar



Flange size	Tube d1 x s	d2	l2 approx.	l3	S1	S2	A	B	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
1/2"	16 x 2	30	61.5	13.5	18.3	40.5	56	48	M 8 x 50	35	72.0	0 5 14 50 19 00**	0 5 14 50 19 86
1/2"	16 x 2.5	30	61.5	13.5	18.3	40.5	56	48	M 8 x 50	35	72.0	0 5 14 30 19 00	0 5 14 30 19 86
1/2"	16 x 3	30	61.5	13.5	18.3	40.5	56	48	M 8 x 50	35	72.0	0 5 14 31 19 00	0 5 14 31 19 86
3/4"	20 x 2.5	38	71.5	13.5	23.9	50.8	71	60	M 10 x 50	69	132.5	0 5 14 51 19 00	0 5 14 51 19 86
3/4"	20 x 3	38	71.5	13.5	23.9	50.8	71	60	M 10 x 50	69	132.9	0 5 14 32 19 00	0 5 14 32 19 86
3/4"	20 x 3.5	38	71.5	13.5	23.9	50.8	71	60	M 10 x 50	69	133.2	0 5 14 33 19 00	0 5 14 33 19 86
3/4"	25 x 3	38	72	14	23.9	50.8	71	60	M 10 x 50	69	128.2	0 5 14 34 19 00	0 5 14 34 19 86
3/4"	25 x 4	38	72	14	23.9	50.8	71	60	M 10 x 50	69	128.9	0 5 14 35 19 00	0 5 14 35 19 86
1"	30 x 4	46	82.5	14.5	27.8	57.2	81	70	M 12 x 50	120	193.6	0 5 14 36 19 00	0 5 14 36 19 86
1"	30 x 5	46	82.5	14.5	27.8	57.2	81	70	M 12 x 50	120	195.8	0 5 14 37 19 00	0 5 14 37 19 86
1 1/4"	38 x 4	52	86	16	31.7	66.7	95	78	M 14 x 60	190	248.6	0 5 14 53 19 00	0 5 14 53 19 86
1 1/4"	38 x 5	52	86	16	31.7	66.7	95	78	M 14 x 60	190	248.9	0 5 14 38 19 00	0 5 14 38 19 86
1 1/4"	38 x 6	52	86	16	31.7	66.7	95	78	M 14 x 60	190	262.7	0 5 14 39 19 00	0 5 14 39 19 86
1 1/2"	50 x 5	63	110	17	36.5	79.4	113	95	M 16 x 75	295	442.6	0 5 14 54 19 00	0 5 14 54 19 86
1 1/2"	50 x 6	63	110	17	36.5	79.4	113	95	M 16 x 75	295	442.2	0 5 14 40 19 00	0 5 14 40 19 86
1 1/2"	50 x 8	63	110	17	36.5	79.4	113	95	M 16 x 75	295	444.7	0 5 14 41 19 00	0 5 14 41 19 86
1 1/2"	50 x 9	63	110	17	36.5	79.4	113	95	M 16 x 75	295	446.0	0 5 14 55 19 00	0 5 14 55 19 86
2"	65 x 8	75	127	19	44.5	96.8	133	114	M 20 x 110	580	699.0	0 5 14 42 19 00	0 5 14 42 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

* Recommended tightening torques (Nm max.) at 10.9

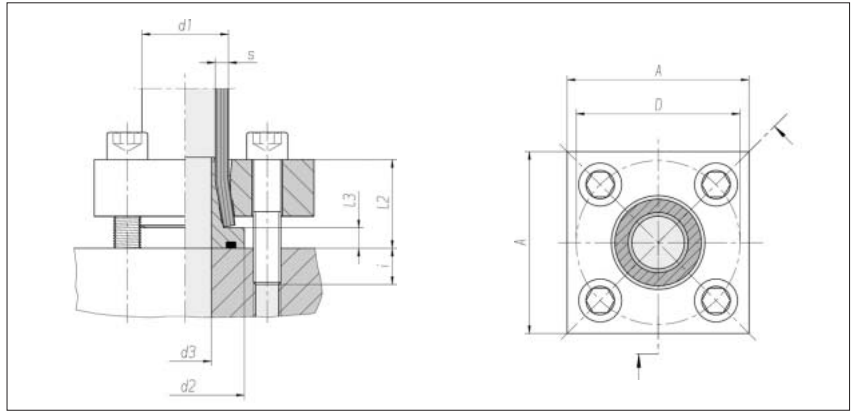
** Sample product code, see: FG-1620-8/6

*** without screws

Tube-to-port flange couplings ZAKO system

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar¹⁾



Flange size NW	Tube d1 x s	d2	d3	l2 approx.	l3	D	A	i approx.	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
12	16 x 2	30	10.5	28	8	42	50	12	M 8 x 40	35	42.2	0 5 15 15 19 00**	0 5 15 15 19 86
11	16 x 2.5	30	10.5	28	8	42	50	12	M 8 x 40	35	42.2	0 5 13 60 19 00	0 5 13 60 19 86
10	16 x 3	30	10.5	28	8	42	50	12	M 8 x 40	35	42.2	0 5 13 61 19 00	0 5 13 61 19 86
15	20 x 2.5	38	13.5	32	8	50	55	13	M 10 x 45	69	55.2	0 5 15 16 19 00	0 5 15 16 19 86
14	20 x 3	38	13.5	32	8	50	55	13	M 10 x 45	69	55.3	0 5 13 62 19 00	0 5 13 62 19 86
13	20 x 3.5	38	13.5	32	8	50	55	13	M 10 x 45	69	55.6	0 5 13 63 19 00	0 5 13 63 19 86
19	25 x 3	38	17	32.5	8.5	50	55	12.5	M 10 x 45	69	65.4	0 5 13 64 19 00	0 5 13 64 19 86
17	25 x 4	38	17	32.5	8.5	50	55	12.5	M 10 x 45	69	65.8	0 5 13 65 19 00	0 5 13 65 19 86
22	30 x 4	46	20	37.5	8.5	62	65	17.5	M 12 x 55	120	87.3	0 5 13 66 19 00	0 5 13 66 19 86
20	30 x 5	46	20	37.5	8.5	62	65	17.5	M 12 x 55	120	88.1	0 5 13 67 19 00	0 5 13 67 19 86
30	38 x 4	52	28	39	9	72	80	16	M 12 x 55 ¹⁾	120	124.4	0 5 15 17 19 00	0 5 15 17 19 86
28	38 x 5	52	28	39	9	72	80	16	M 12 x 55 ¹⁾	120	124.9	0 5 13 68 19 00	0 5 13 68 19 86
26	38 x 6	52	28	39	9	72	80	16	M 12 x 55 ¹⁾	120	125.1	0 5 13 69 19 00	0 5 13 69 19 86
45	50 x 2.5	63	42	56	10	85	85	19	M 14 x 75	190	197.4	0 5 15 00 19 00	0 5 15 00 19 86
40	50 x 5	63	42	56	10	85	85	19	M 14 x 75	190	197.9	0 5 15 23 19 00	0 5 15 23 19 86
38	50 x 6	63	42	56	10	85	85	19	M 14 x 75	190	197.9	0 5 15 24 19 00	0 5 15 24 19 86
34	50 x 8	63	42	56	10	85	85	19	M 14 x 75	190	201.1	0 5 15 01 19 00	0 5 15 01 19 86
32	50 x 9	63	42	56	10	85	85	19	M 14 x 75	190	201.1	0 5 15 25 19 00	0 5 15 25 19 86

Continuation on page 241

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Triple safety

* Recommended tightening torques
(Nm max.) at 10.9

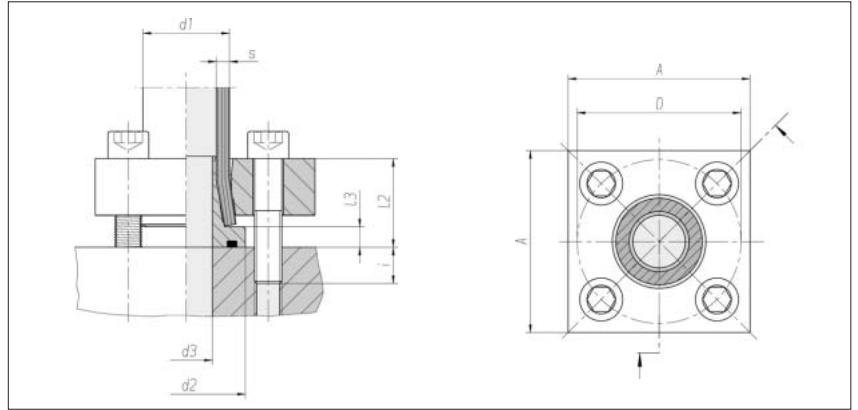
** Sample product code, see:
FE-1620

*** without screws

Tube-to-port flange couplings ZAKO system

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar¹⁾



Flange size NW	Tube d1 x s	d2	d3	l2 approx.	l3	D	A	i	4 x cheese approx. head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
45	50 x 2.5	63	42	56	10	98	100	19	M 16 x 75	295	290.1	0 5 15 18 19 00**	0 5 15 18 19 86
40	50 x 5	63	42	56	10	98	100	19	M 16 x 75	295	290.5	0 5 15 19 19 00	0 5 15 19 19 86
38	50 x 6	63	42	56	10	98	100	19	M 16 x 75	295	290.5	0 5 13 70 19 00	0 5 13 70 19 86
34	50 x 8	63	42	56	10	98	100	19	M 16 x 75	295	294.0	0 5 13 71 19 00	0 5 13 71 19 86
32	50 x 9	63	42	56	10	98	100	19	M 16 x 75	295	294.0	0 5 15 20 19 00	0 5 15 20 19 86
54	60 x 3	75	47	64	15	98	100	26	M 16 x 90	295	289.0	0 5 15 02 19 00	0 5 15 02 19 86
50	60 x 5	75	47	64	15	98	100	26	M 16 x 90	295	295.0	0 5 15 21 19 00	0 5 15 21 19 86
40	60 x 10	75	47	64	15	98	100	26	M 16 x 90	295	292.0	0 5 15 03 19 00	0 5 15 03 19 86
49	65 x 8	75	46	60	11	118	120	30	M 20 x 90	580	430.5	0 5 13 72 19 00	0 5 13 72 19 86
50	75 x 12.5	95	45	72	16	118	120	28	M 20 x 100	580	522.0	0 5 13 80 19 00	0 5 13 80 19 86
74	80 x 3	100	71	76	16	145	150	34	M 24 x 110	800	820.0	0 5 15 04 19 00	0 5 15 04 19 86
64	80 x 8	100	60	80	16	145	150	30	M 24 x 110	800	861.0	0 5 15 22 19 00	0 5 15 22 19 86
60	80 x 10	100	60	80	16	145	150	30	M 24 x 110	800	859.0	0 5 13 73 19 00	0 5 13 73 19 86
60	88 x 14	110	54	84	20	145	150	36	M 24 x 120	800	951.0	0 5 13 81 19 00	0 5 13 81 19 86
70	101.6 x 16	114	62	88.5	20	145	150	32	M 24 x 120	800	1132.0	0 5 13 83 19 00	0 5 13 83 19 86
80	114.3 x 17.5	140	74	92	20	175	180	38	M 30 x 130	1500	1400.0	0 5 15 64 19 00	0 5 15 64 19 86
80	120 x 20	140	74	92	20	175	180	38	M 30 x 130	1500	1347.0	0 5 13 82 19 00	0 5 13 82 19 86

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

¹⁾ Triple safety

* Recommended tightening torques (Nm max.) at 10.9

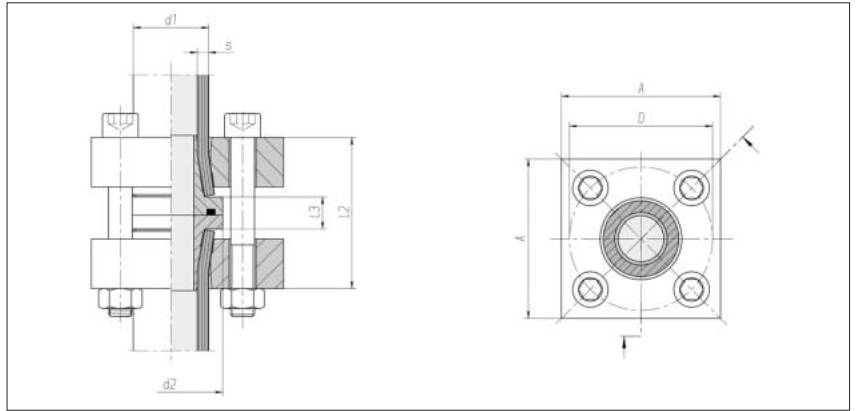
** Sample product code, see: FE-5025

*** without screws

Tube-to-tube flange couplings ZAKO system

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar¹⁾



Flange size NW	Tube d1 x s	d2	l2 approx.	l3	D	A	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
12	16 x 2	30	53.5	13.5	42	50	M 8 x 65	35	81.2	0 5 15 30 19 00**	0 5 15 30 19 86
11	16 x 2.5	30	53.5	13.5	42	50	M 8 x 65	35	81.3	0 5 14 60 19 00	0 5 14 60 19 86
10	16 x 3	30	53.5	13.5	42	50	M 8 x 65	35	81.4	0 5 14 61 19 00	0 5 14 61 19 86
15	20 x 2.5	38	61.5	13.5	50	55	M 10 x 75	69	106.3	0 5 15 31 19 00	0 5 15 31 19 86
14	20 x 3	38	61.5	13.5	50	55	M 10 x 75	69	106.8	0 5 14 62 19 00	0 5 14 62 19 86
13	20 x 3.5	38	61.5	13.5	50	55	M 10 x 75	69	107.1	0 5 14 63 19 00	0 5 14 63 19 86
19	25 x 3	38	62	14	50	55	M 10 x 75	69	126.6	0 5 14 64 19 00	0 5 14 64 19 86
17	25 x 4	38	62	14	50	55	M 10 x 75	69	127.3	0 5 14 65 19 00	0 5 14 65 19 86
22	30 x 4	46	72.5	14.5	62	65	M 12 x 90	120	168.0	0 5 14 66 19 00	0 5 14 66 19 86
20	30 x 5	46	72.5	14.5	62	65	M 12 x 90	120	170.4	0 5 14 67 19 00	0 5 14 67 19 86
30	38 x 4	52	76	16	72	80	M 12 x 90 ¹⁾	120	243.1	0 5 15 32 19 00	0 5 15 32 19 86
28	38 x 5	52	76	16	72	80	M 12 x 90 ¹⁾	120	243.4	0 5 14 68 19 00	0 5 14 68 19 86
26	38 x 6	52	76	16	72	80	M 12 x 90 ¹⁾	120	243.5	0 5 14 69 19 00	0 5 14 69 19 86
45	50 x 2.5	63	109	17	85	85	M 14 x 120	190	379.3	0 5 15 10 19 00	0 5 15 10 19 86
40	50 x 5	63	109	17	85	85	M 14 x 120	190	379.8	0 5 15 38 19 00	0 5 15 38 19 86
38	50 x 6	63	109	17	85	85	M 14 x 120	190	379.3	0 5 15 39 19 00	0 5 15 39 19 86
34	50 x 8	63	109	17	85	85	M 14 x 120	190	385.5	0 5 15 11 19 00	0 5 15 11 19 86
32	50 x 9	63	109	17	85	85	M 14 x 120	190	385.9	0 5 15 40 19 00	0 5 15 40 19 86

Continuation on page 243

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Triple safety

* Recommended tightening torques
(Nm max.) at 10.9

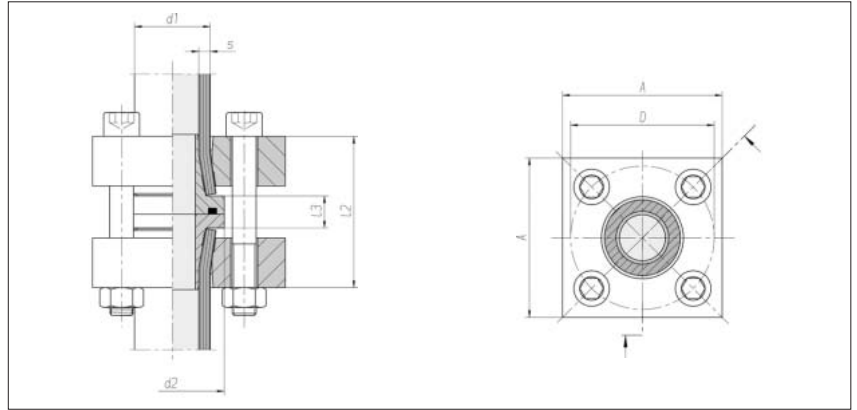
** Sample product code, see:
FG-1620

*** without screws

Tube-to-tube flange couplings ZAKO system

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar¹⁾



Flange size NW	Tube d1 x s	d2	l2 approx.	l3	D	A	4 x cheese head screw	Nm*	kg/100 approx.	Order No. complete	Order No. ***
45	50 x 2.5	63	109	17	98	100	M 16 x 130	295	565.2	0 5 15 33 19 00	0 5 15 33 19 86
40	50 x 5	63	109	17	98	100	M 16 x 130	295	565.7	0 5 15 34 19 00	0 5 15 34 19 86
38	50 x 6	63	109	17	98	100	M 16 x 130	295	565.2	0 5 14 70 19 00	0 5 14 70 19 86
34	50 x 8	63	109	17	98	100	M 16 x 130	295	571.4	0 5 14 71 19 00	0 5 14 71 19 86
32	50 x 9	63	109	17	98	100	M 16 x 130	295	571.8	0 5 15 35 19 00	0 5 15 35 19 86
54	60 x 3	75	115	27	98	100	M 16 x 140	295	551.0	0 5 15 12 19 00	0 5 15 12 19 86
50	60 x 5	75	115	27	98	100	M 16 x 140	295	568.3	0 5 15 36 19 00	0 5 15 36 19 86
40	60 x 10	75	115	27	98	100	M 16 x 140	295	554.8	0 5 15 13 19 00	0 5 15 13 19 86
49	65 x 8	75	117	19	118	120	M 20 x 140	580	820.0	0 5 14 72 19 00	0 5 14 72 19 86
50	75 x 12.5	95	150	28	118	120	M 20 x 180	580	1003.0	0 5 15 41 19 00	0 5 15 41 19 86
74	80 x 3	100	134	29	145	150	M 24 x 180	800	1580.0	0 5 15 19 19 00	0 5 15 19 19 86
64	80 x 8	100	141	36	145	150	M 24 x 180	800	1658.0	0 5 15 37 19 00	0 5 15 37 19 86
60	80 x 10	100	141	36	145	150	M 24 x 180	800	1654.0	0 5 14 73 19 00	0 5 14 73 19 86
60	88 x 14	110	172	36	145	150	M 24 x 200	800	1796.0	0 5 15 42 19 00	0 5 15 42 19 86
70	101.6 x 16	114	173	36	145	150	M 24 x 160	800	2054.0	0 5 14 75 19 00	0 5 14 75 19 86
80	114.3 x 17.5	140	180	36	175	180	M 30 x 170	1500	2565.0	0 5 15 65 19 00	0 5 15 65 19 86
80	120 x 20	140	180	36	175	180	M 30 x 170	1500	2465.0	0 5 14 74 19 00	0 5 14 74 19 86

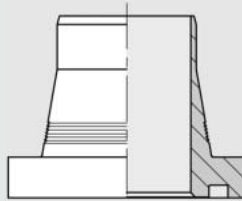
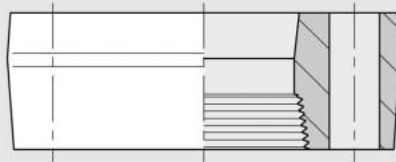
When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

¹⁾ Triple safety

* Recommended tightening torques (Nm max.) at 10.9

*** without screws

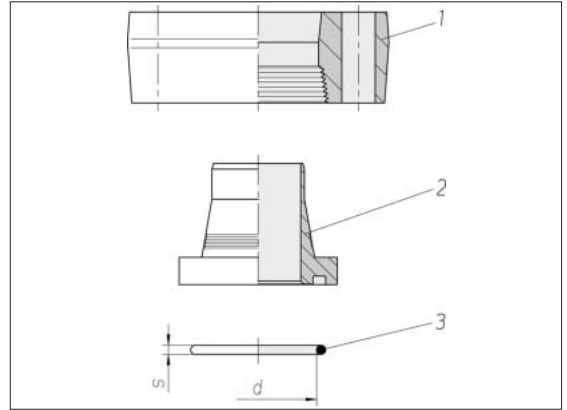
ZAKO flared flanges Component parts



Tube-to-port flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible operating
pressure (PB) 250 bar



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	O-ring d x s	Order No. Part 3
1/2"	16 x 2	30.6	0 5 10 00 19 00*	4.1	0 0 36 00 99 00**	18.6 x 3.5	0 9 06 74 99 90
1/2"	16 x 2.5	30.6	0 5 10 00 19 00	4.1	0 0 36 02 99 00	18.6 x 3.5	0 9 06 74 99 90
1/2"	16 x 3	30.6	0 5 10 00 19 00	4.1	0 0 36 04 99 00	18.6 x 3.5	0 9 06 74 99 90
3/4"	20 x 2.5	33.7	0 5 10 01 19 00	6.5	0 0 36 06 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	20 x 3	33.7	0 5 10 01 19 00	6.6	0 0 36 08 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	20 x 3.5	33.7	0 5 10 01 19 00	6.9	0 0 36 10 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	25 x 3	45.5	0 5 10 02 19 00	6.9	0 0 36 12 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	25 x 4	45.5	0 5 10 02 19 00	7.2	0 0 36 14 99 00	25 x 3.5	0 9 06 71 99 90
1"	25 x 3	45.5	0 5 10 04 19 00	6.9	0 0 36 12 99 00	25 x 3.5	0 9 06 71 99 90
1"	25 x 4	45.5	0 5 10 04 19 00	7.2	0 0 36 14 99 00	25 x 3.5	0 9 06 71 99 90
1"	30 x 4	54.1	0 5 10 05 19 00	10.3	0 0 36 16 99 00	32.9 x 3.5	0 9 06 72 99 90
1"	30 x 5	54.1	0 5 10 05 19 00	11.5	0 0 36 18 99 00	32.9 x 3.5	0 9 06 72 99 90
1"	38 x 5	54.1	0 5 10 06 19 00	11.6	0 0 36 20 99 00	32.9 x 3.5	0 9 06 72 99 90
1 1/4"	30 x 4	69.8	0 5 10 08 19 00	10.3	0 0 36 16 99 00	32.9 x 3.5	0 9 06 72 99 90
1 1/4"	30 x 5	69.8	0 5 10 08 19 00	11.5	0 0 36 18 99 00	32.9 x 3.5	0 9 06 72 99 90
1 1/4"	38 x 4	66.8	0 5 10 10 19 00	14.5	0 0 36 22 99 00	37.7 x 3.5	0 9 06 73 99 90
1 1/4"	38 x 5	66.8	0 5 10 10 19 00	15.0	0 0 36 24 99 00	37.7 x 3.5	0 9 06 73 99 90
1 1/4"	38 x 6	66.8	0 5 10 10 19 00	15.2	0 0 36 26 99 00	37.7 x 3.5	0 9 06 73 99 90
1 1/4"	42 x 2	65.8	0 5 10 16 19 00	15.9	0 0 36 60 99 00	37.7 x 3.5	0 9 06 73 99 90

Continuation on page 247

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Complete with O-ring
(unmounted)

Sample product code, see:

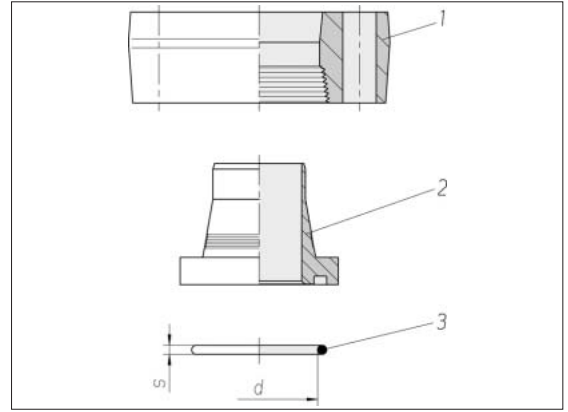
* FE-1600-8/3

** K-1620-8

Tube-to-port flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible operating
pressure (PB) 250 bar²⁾



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	O-ring d x s	Order No. Part 3
1 1/2"	50 x 2.5	83.3	0 5 10 11 19 00*	27.6	0 0 36 28 99 00**	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 5	83.3	0 5 10 11 19 00	28.1	0 0 36 30 99 00	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 6	83.3	0 5 10 11 19 00	28.0	0 0 36 32 99 00	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 8	83.3	0 5 10 11 19 00	31.3	0 0 36 34 99 00	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 9	83.3	0 5 10 11 19 00	31.0	0 0 36 36 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 2.5	136.1	0 5 10 15 19 00	27.6	0 0 36 28 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 5	136.1	0 5 10 15 19 00	28.1	0 0 36 30 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 6	136.1	0 5 10 15 19 00	28.0	0 0 36 32 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 8	136.1	0 5 10 15 19 00	31.3	0 0 36 34 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 9	136.1	0 5 10 15 19 00	31.0	0 0 36 36 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	65 x 3	123.4	0 5 10 12 19 00	35.2	0 0 36 38 99 00	60 x 3.5	0 9 07 54 99 90
2"	65 x 4	123.4	0 5 10 12 19 00	28.8	0 0 36 40 99 00	60 x 3.5	0 9 07 54 99 90
2"	65 x 5	123.4	0 5 10 12 19 00	32.6	0 0 36 42 99 00	56.7 x 3.5	0 9 06 55 99 90
3"	80 x 3	250.7	0 5 10 14 19 00	86.9	0 0 36 48 99 00	85.3 x 3.5	0 9 06 85 99 90

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

¹⁾ Complete with O-ring (unmounted)

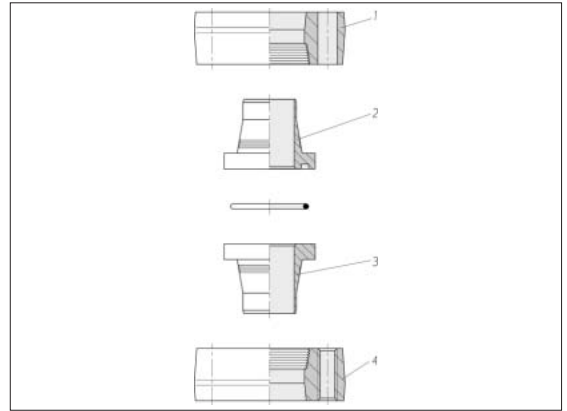
²⁾ According to the ASME Code, a reduced operating pressure applies for the flange sizes 2" and 3"

Sample product code, see:
* FE-5000-24/3
** K-5025-24

Tube-to-tube flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible operating
pressure (PB) 250 bar²⁾



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	kg/100 approx.	Order No. Part 3	kg/100 approx.	Order No. Part 4
1/2"	16 x 2	30.6	0 5 10 00 19 00**	4.1	0 0 36 00 99 00**	3.3	0 0 36 01 19 00**	28.6	0 5 10 50 19 00**
1/2"	16 x 2.5	30.6	0 5 10 00 19 00	4.1	0 0 36 02 99 00	3.4	0 0 36 03 19 00	28.6	0 5 10 50 19 00
1/2"	16 x 3	30.6	0 5 10 00 19 00	4.1	0 0 36 04 99 00	3.5	0 0 36 05 19 00	28.6	0 5 10 50 19 00
3/4"	20 x 2.5	33.7	0 5 10 01 19 00	6.5	0 0 36 06 99 00	5.3	0 0 36 07 19 00	34.0	0 5 10 51 19 00
3/4"	20 x 3	33.7	0 5 10 01 19 00	6.6	0 0 36 08 99 00	5.7	0 0 36 09 19 00	34.0	0 5 10 51 19 00
3/4"	20 x 3.5	33.7	0 5 10 01 19 00	6.9	0 0 36 10 99 00	5.7	0 0 36 11 19 00	34.0	0 5 10 51 19 00
3/4"	25 x 3	45.5	0 5 10 02 19 00	6.9	0 0 36 12 99 00	5.6	0 0 36 13 19 00	30.8	0 5 10 52 19 00
3/4"	25 x 4	45.5	0 5 10 02 19 00	7.2	0 0 36 14 99 00	5.9	0 0 36 15 19 00	30.8	0 5 10 52 19 00
1"	30 x 4	54.1	0 5 10 05 19 00	10.3	0 0 36 16 99 00	8.8	0 0 36 17 19 00	57.7	0 5 10 55 19 00
1"	30 x 5	54.1	0 5 10 05 19 00	11.5	0 0 36 18 99 00	9.9	0 0 36 19 19 00	57.7	0 5 10 55 19 00
1 1/4"	38 x 4	66.8	0 5 10 10 19 00	14.5	0 0 36 22 99 00	13.9	0 0 36 23 19 00	73.4	0 5 10 57 19 00
1 1/4"	38 x 5	66.8	0 5 10 10 19 00	15.0	0 0 36 24 99 00	13.7	0 0 36 25 19 00	73.4	0 5 10 57 19 00
1 1/4"	38 x 6	66.8	0 5 10 10 19 00	15.2	0 0 36 26 99 00	13.6	0 0 36 27 19 00	73.4	0 5 10 57 19 00
1 1/4"	42 x 2	46.0	0 5 10 16 19 00	16.0	0 0 36 60 99 00	15.0	0 0 36 61 19 00	48.0	0 5 10 63 19 00
1 1/2"	50 x 2.5	83.3	0 5 10 11 19 00	27.6	0 0 36 28 99 00	24.9	0 0 36 29 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 5	83.3	0 5 10 11 19 00	28.1	0 0 36 30 99 00	24.9	0 0 36 31 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 6	83.3	0 5 10 11 19 00	28.0	0 0 36 32 99 00	24.4	0 0 36 33 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 8	83.3	0 5 10 11 19 00	31.3	0 0 36 34 99 00	27.4	0 0 36 35 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 9	83.3	0 5 10 11 19 00	31.0	0 0 36 36 99 00	27.1	0 0 36 37 19 00	90.0	0 5 10 58 19 00
2"	65 x 3	123.4	0 5 10 12 19 00	35.2	0 0 36 38 99 00	32.4	0 0 36 39 19 00	129.4	0 5 10 59 19 00
2"	65 x 4	123.4	0 5 10 12 19 00	28.8	0 0 36 40 99 00	26.9	0 0 36 41 19 00	129.4	0 5 10 59 19 00
2"	65 x 5	123.4	0 5 10 12 19 00	32.6	0 0 36 42 99 00	32.0	0 0 36 43 19 00	129.4	0 5 10 59 19 00
3"	80 x 3	250.7	0 5 10 14 19 00	86.9	0 0 36 48 99 00	79.8	0 0 36 49 19 00	257.9	0 5 10 61 19 00

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

²⁾ According to the ASME Code,
a reduced operating pressure
applies for the flange sizes 2" and 3"

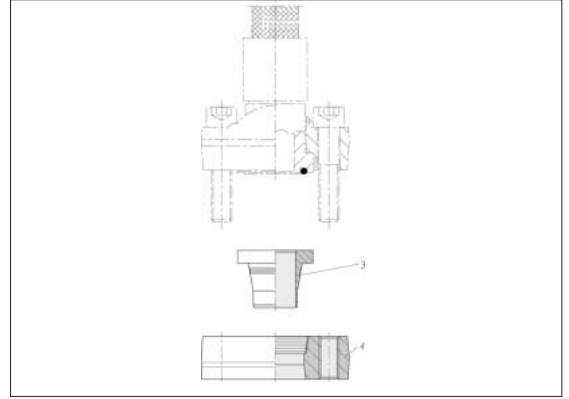
¹⁾ Complete with O-ring
(supplied as separate part)

** Sample product code, see:
(Part 1 to Part 4)
FE-1600-8/3
K-1620-8
KO-1620-8
FV-1600-8/3

Tube-to-hose flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
Standard series
(3000 psi)

Max. permissible operating
pressure (PB) 250 bar¹⁾



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 3	kg/100 approx.	Order No. Part 4
1/2"	16 x 2	3.3	0 0 36 01 19 00*	28.6	0 5 10 50 19 00**
1/2"	16 x 2.5	3.4	0 0 36 03 19 00	28.6	0 5 10 50 19 00
1/2"	16 x 3	3.5	0 0 36 05 19 00	28.6	0 5 10 50 19 00
3/4"	20 x 2.5	5.3	0 0 36 07 19 00	34.0	0 5 10 51 19 00
3/4"	20 x 3	5.7	0 0 36 09 19 00	34.0	0 5 10 51 19 00
3/4"	20 x 3.5	5.7	0 0 36 11 19 00	34.0	0 5 10 51 19 00
3/4"	25 x 3	5.6	0 0 36 13 19 00	30.8	0 5 10 52 19 00
3/4"	25 x 4	5.9	0 0 36 15 19 00	30.8	0 5 10 52 19 00
1"	30 x 4	8.8	0 0 36 17 19 00	57.7	0 5 10 55 19 00
1"	30 x 5	9.9	0 0 36 19 19 00	57.7	0 5 10 55 19 00
1 1/4"	30 x 4	8.8	0 0 36 17 19 00	75.5	0 5 10 62 19 00
1 1/4"	30 x 5	9.9	0 0 36 19 19 00	75.5	0 5 10 62 19 00
1 1/4"	38 x 4	13.9	0 0 36 23 19 00	73.4	0 5 10 57 19 00
1 1/4"	38 x 5	13.7	0 0 36 25 19 00	73.4	0 5 10 57 19 00
1 1/4"	38 x 6	13.6	0 0 36 27 19 00	73.4	0 5 10 57 19 00
1 1/4"	42 x 2	16.0	0 0 36 61 19 00	48.0	0 5 10 63 19 00
1 1/2"	50 x 2.5	24.9	0 0 36 29 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 5	24.9	0 0 36 31 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 6	24.4	0 0 36 33 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 8	27.4	0 0 36 35 19 00	90.0	0 5 10 58 19 00
1 1/2"	50 x 9	27.1	0 0 36 37 19 00	90.0	0 5 10 58 19 00
2"	65 x 3	32.4	0 0 36 39 19 00	129.4	0 5 10 59 19 00
2"	65 x 4	26.9	0 0 36 41 19 00	129.4	0 5 10 59 19 00
2"	65 x 5	32.0	0 0 36 43 19 00	129.4	0 5 10 59 19 00
3"	80 x 3	79.8	0 0 36 49 19 00	257.9	0 5 10 61 19 00

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

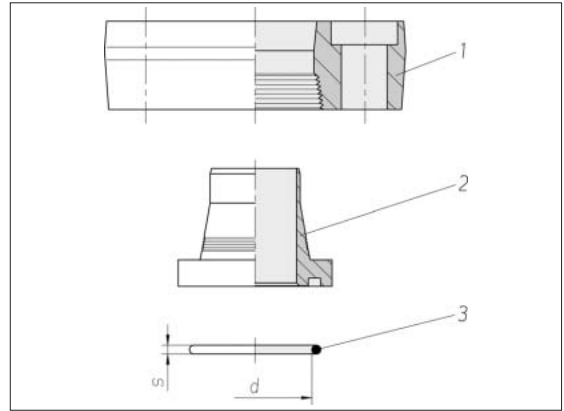
¹⁾ According to the ASME Code,
a reduced operating pressure
applies for the flange sizes 2" and 3"

Sample product code, see:
* KO-1620-8
** FV-1600-8/3

Tube-to-port flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
High-pressure series
(6000 psi)

Max. permissible operating
pressure (PB) 400 bar



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	O-ring d x s	Order No. Part 3
1/2"	16 x 2	26.1	0 5 10 20 19 00*	4.1	0 0 36 00 99 00**	18.6 x 3.5	0 9 06 74 99 90
1/2"	16 x 2.5	26.1	0 5 10 20 19 00	4.1	0 0 36 02 99 00	18.6 x 3.5	0 9 06 74 99 90
1/2"	16 x 3	26.1	0 5 10 20 19 00	4.1	0 0 36 04 99 00	18.6 x 3.5	0 9 06 74 99 90
3/4"	20 x 2.5	49.4	0 5 10 21 19 00	6.5	0 0 36 06 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	20 x 3	49.4	0 5 10 21 19 00	6.6	0 0 36 08 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	20 x 3.5	49.4	0 5 10 21 19 00	6.9	0 0 36 10 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	25 x 3	45.5	0 5 10 22 19 00	6.9	0 0 36 12 99 00	25 x 3.5	0 9 06 71 99 90
3/4"	25 x 4	45.5	0 5 10 22 19 00	7.2	0 0 36 14 99 00	25 x 3.5	0 9 06 71 99 90
1"	30 x 4	68.7	0 5 10 23 19 00	10.3	0 0 36 16 99 00	32.9 x 3.5	0 9 06 72 99 90
1"	30 x 5	68.7	0 5 10 23 19 00	11.5	0 0 36 18 99 00	32.9 x 3.5	0 9 06 72 99 90
1"	38 x 5	59.6	0 5 10 24 19 00	11.7	0 0 36 20 99 00	32.9 x 3.5	0 9 06 72 99 90
1 1/4"	38 x 4	86.1	0 5 10 25 19 00	14.5	0 0 36 22 99 00	37.7 x 3.5	0 9 06 73 99 90
1 1/4"	38 x 5	86.1	0 5 10 25 19 00	15.0	0 0 36 24 99 00	37.7 x 3.5	0 9 06 73 99 90
1 1/4"	38 x 6	86.1	0 5 10 25 19 00	15.1	0 0 36 26 99 00	37.7 x 3.5	0 9 06 73 99 90
1 1/2"	50 x 5	154.0	0 5 10 28 19 00	28.1	0 0 36 30 99 00	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 6	154.0	0 5 10 28 19 00	28.0	0 0 36 32 99 00	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 8	154.0	0 5 10 28 19 00	31.3	0 0 36 34 99 00	47.2 x 3.5	0 9 06 54 99 90
1 1/2"	50 x 9	154.0	0 5 10 28 19 00	31.0	0 0 36 36 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 5	304.0	0 5 10 32 19 00	28.1	0 0 36 30 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 6	304.0	0 5 10 32 19 00	28.0	0 0 36 32 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 8	304.0	0 5 10 32 19 00	31.3	0 0 36 34 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	50 x 9	304.0	0 5 10 32 19 00	31.0	0 0 36 36 99 00	47.2 x 3.5	0 9 06 54 99 90
2"	65 x 8	248.3	0 5 10 30 19 00	47.1	0 0 36 44 99 00	56.7 x 3.5	0 9 06 55 99 90

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Complete with O-ring
(supplied as separate part)

Sample product code, see:

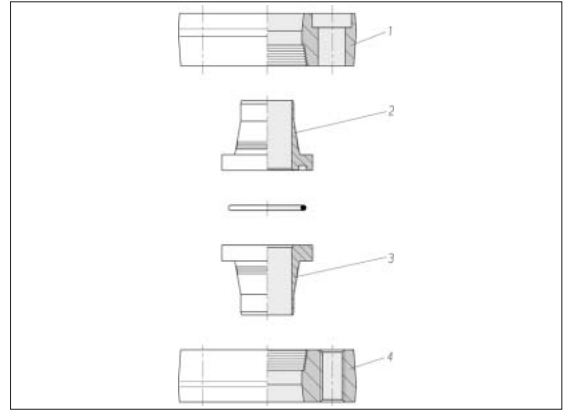
* FE-1600-8/6

** K-1620-8

Tube-to-tube flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
High-pressure series
(6000 psi)

Max. permissible operating
pressure (PB) 400 bar



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	kg/100 approx.	Order No. Part 3	kg/100 approx.	Order No. Part 4
1/2"	16 x 2	26.1	0 5 10 20 19 00**	4.1	0 0 36 00 99 00**	3.3	0 0 36 01 19 00**	28.5	0 5 10 70 19 00**
1/2"	16 x 2.5	26.1	0 5 10 20 19 00	4.1	0 0 36 02 99 00	3.4	0 0 36 03 19 00	28.5	0 5 10 70 19 00
1/2"	16 x 3	26.1	0 5 10 20 19 00	4.1	0 0 36 04 99 00	3.5	0 0 36 05 19 00	28.5	0 5 10 70 19 00
3/4"	20 x 2.5	49.4	0 5 10 21 19 00	6.5	0 0 36 06 99 00	5.3	0 0 36 07 19 00	55.7	0 5 10 71 19 00
3/4"	20 x 3	49.4	0 5 10 21 19 00	6.6	0 0 36 08 99 00	5.7	0 0 36 09 19 00	55.7	0 5 10 71 19 00
3/4"	20 x 3.5	49.4	0 5 10 21 19 00	6.9	0 0 36 10 99 00	5.7	0 0 36 11 19 00	55.7	0 5 10 71 19 00
3/4"	25 x 3	45.5	0 5 10 22 19 00	6.9	0 0 36 12 99 00	5.6	0 0 36 13 19 00	52.6	0 5 10 72 19 00
3/4"	25 x 4	45.5	0 5 10 22 19 00	7.2	0 0 36 14 99 00	5.9	0 0 36 15 19 00	52.6	0 5 10 72 19 00
1"	30 x 4	68.7	0 5 10 23 19 00	10.3	0 0 36 16 99 00	8.8	0 0 36 17 19 00	82.0	0 5 10 73 19 00
1"	30 x 5	68.7	0 5 10 23 19 00	11.5	0 0 36 18 99 00	9.9	0 0 36 19 19 00	82.0	0 5 10 73 19 00
1 1/4"	38 x 4	86.1	0 5 10 25 19 00	14.5	0 0 36 22 99 00	13.9	0 0 36 23 19 00	100.5	0 5 10 75 19 00
1 1/4"	38 x 5	86.1	0 5 10 25 19 00	15.0	0 0 36 24 99 00	13.6	0 0 36 25 19 00	100.5	0 5 10 75 19 00
1 1/4"	38 x 6	86.1	0 5 10 25 19 00	15.1	0 0 36 26 99 00	13.5	0 0 36 27 19 00	100.5	0 5 10 75 19 00
1 1/2"	50 x 5	154.0	0 5 10 28 19 00	28.1	0 0 36 30 99 00	24.9	0 0 36 31 19 00	177.2	0 5 10 76 19 00
1 1/2"	50 x 6	154.0	0 5 10 28 19 00	28.0	0 0 36 32 99 00	24.4	0 0 36 33 19 00	177.2	0 5 10 76 19 00
1 1/2"	50 x 8	154.0	0 5 10 28 19 00	31.3	0 0 36 34 99 00	27.4	0 0 36 35 19 00	177.2	0 5 10 76 19 00
1 1/2"	50 x 9	154.0	0 5 10 28 19 00	31.0	0 0 36 36 99 00	27.1	0 0 36 37 19 00	177.2	0 5 10 76 19 00
2"	65 x 8	230.0	0 5 10 30 19 00	47.1	0 0 36 44 99 00	42.6	0 0 36 45 19 00	253.1	0 5 10 77 19 00

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Complete with O-ring
(supplied as separate part)

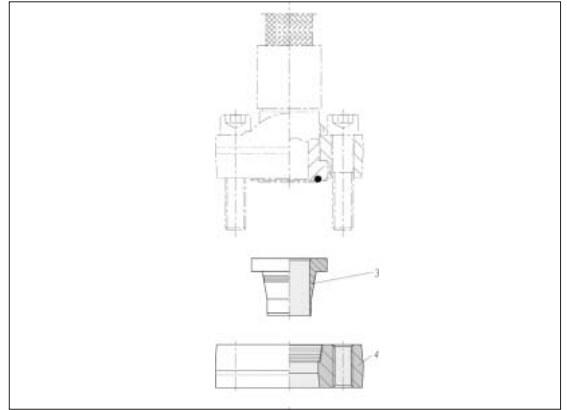
** Sample product code, see:
(Part 1 to Part 4)
FE-1600-8/6

K-1620-8
KO-1620-8
FV-1600-8/6

Tube-to-hose flange couplings ZAKO system Component parts

Hole pattern according to
SAE J 518 C / ISO 6162
High-pressure series
(6000 psi)

Max. permissible operating
pressure (PB) 400 bar



Flange size	Tube d1 x s	kg/100 approx.	Order No. Part 3	kg/100 approx.	Order No. Part 4
1/2"	16 x 2	3.3	0 0 36 01 19 00*	28.5	0 5 10 70 19 00**
1/2"	16 x 2.5	3.4	0 0 36 03 19 00	28.5	0 5 10 70 19 00
1/2"	16 x 3	3.5	0 0 36 05 19 00	28.5	0 5 10 70 19 00
3/4"	20 x 2.5	5.3	0 0 36 07 19 00	55.7	0 5 10 71 19 00
3/4"	20 x 3	5.7	0 0 36 09 19 00	55.7	0 5 10 71 19 00
3/4"	20 x 3.5	5.7	0 0 36 11 19 00	55.7	0 5 10 71 19 00
3/4"	25 x 3	5.6	0 0 36 13 19 00	52.6	0 5 10 72 19 00
3/4"	25 x 4	5.9	0 0 36 15 19 00	52.6	0 5 10 72 19 00
1"	30 x 4	8.8	0 0 36 17 19 00	82.0	0 5 10 73 19 00
1"	30 x 5	9.8	0 0 36 19 19 00	82.0	0 5 10 73 19 00
1"	38 x 5	11.0	0 0 36 21 19 00	70.1	0 5 10 74 19 00
1 1/4"	38 x 4	13.8	0 0 36 23 19 00	100.5	0 5 10 75 19 00
1 1/4"	38 x 5	13.6	0 0 36 25 19 00	100.5	0 5 10 75 19 00
1 1/4"	38 x 6	13.5	0 0 36 27 19 00	100.5	0 5 10 75 19 00
1 1/2"	50 x 6	24.4	0 0 36 33 19 00	177.2	0 5 10 76 19 00
1 1/2"	50 x 8	27.4	0 0 36 35 19 00	177.2	0 5 10 76 19 00
1 1/2"	50 x 9	27.1	0 0 36 37 19 00	177.2	0 5 10 76 19 00
2"	65 x 8	42.6	0 0 36 45 19 00	253.1	0 5 10 77 19 00

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

Sample product code, see:

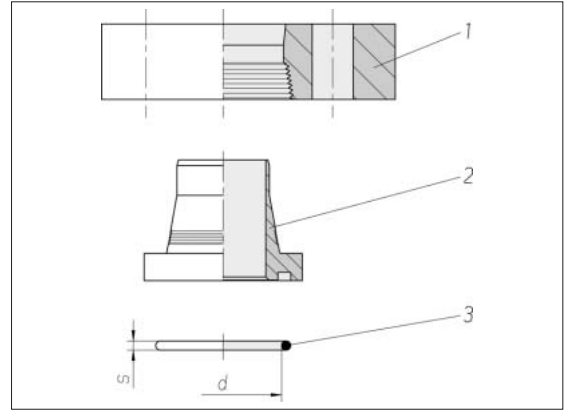
* KO-1620-8

** FV-1600-8/6

Tube-to-port flange couplings ZAKO system Component parts

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar²⁾



Flange size NW	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	O-ring d x s	Order No. Part 3
12	16 x 2	30.6	0 5 11 00 19 00*	4.1	0 0 36 00 99 00**	18.6 x 3.5	0 9 06 74 99 90
11	16 x 2.5	30.6	0 5 11 00 19 00	4.1	0 0 36 02 99 00	18.6 x 3.5	0 9 06 74 99 90
10	16 x 3	30.6	0 5 11 00 19 00	4.1	0 0 36 04 99 00	18.6 x 3.5	0 9 06 74 99 90
15	20 x 2.5	35.2	0 5 11 01 19 00	6.5	0 0 36 06 99 00	25 x 3.5	0 9 06 71 99 90
14	20 x 3	35.2	0 5 11 01 19 00	6.6	0 0 36 08 99 00	25 x 3.5	0 9 06 71 99 90
13	20 x 3.5	35.2	0 5 11 01 19 00	6.9	0 0 36 10 99 00	25 x 3.5	0 9 06 71 99 90
19	25 x 3	45.0	0 5 11 02 19 00	6.9	0 0 36 12 99 00	25 x 3.5	0 9 06 71 99 90
17	25 x 4	45.0	0 5 11 02 19 00	7.3	0 0 36 14 99 00	25 x 3.5	0 9 06 71 99 90
22	30 x 4	54.8	0 5 11 03 19 00	10.3	0 0 36 16 99 00	32.9 x 3.5	0 9 06 72 99 90
20	30 x 5	54.8	0 5 11 03 19 00	11.5	0 0 36 18 99 00	32.9 x 3.5	0 9 06 72 99 90
30	38 x 4	87.7	0 5 11 04 19 00	14.5	0 0 36 22 99 00	37.7 x 3.5	0 9 06 73 99 90
28	38 x 5	87.7	0 5 11 04 19 00	15.0	0 0 36 24 99 00	37.7 x 3.5	0 9 06 73 99 90
26	38 x 6	87.7	0 5 11 04 19 00	15.2	0 0 36 26 99 00	37.7 x 3.5	0 9 06 73 99 90
45	50 x 2.5	129.0	0 5 11 22 19 00	27.6	0 0 36 28 99 00	47.2 x 3.5	0 9 06 54 99 90
40	50 x 5	129.0	0 5 11 22 19 00	28.1	0 0 36 30 99 00	47.2 x 3.5	0 9 06 54 99 90
38	50 x 6	129.0	0 5 11 22 19 00	28.1	0 0 36 32 99 00	47.2 x 3.5	0 9 06 54 99 90
34	50 x 8	129.0	0 5 11 22 19 00	31.3	0 0 36 34 99 00	47.2 x 3.5	0 9 06 54 99 90
32	50 x 9	129.0	0 5 11 22 19 00	31.5	0 0 36 36 99 00	47.2 x 3.5	0 9 06 54 99 90
45	50 x 2.5	207.7	0 5 11 05 19 00	27.6	0 0 36 28 99 00	47.2 x 3.5	0 9 06 54 99 90
40	50 x 5	207.7	0 5 11 05 19 00	28.1	0 0 36 30 99 00	47.2 x 3.5	0 9 06 54 99 90
38	50 x 6	207.7	0 5 11 05 19 00	28.1	0 0 36 32 99 00	47.2 x 3.5	0 9 06 54 99 90
34	50 x 8	207.7	0 5 11 05 19 00	31.3	0 0 36 34 99 00	47.2 x 3.5	0 9 06 54 99 90
32	50 x 9	207.7	0 5 11 05 19 00	31.5	0 0 36 36 99 00	47.2 x 3.5	0 9 06 54 99 90

Continuation on page 254

When selecting the tube dimensions, refer to the pressure specifications of the tube manufacturer.

²⁾ According to the ASME Code, a reduced operating pressure applies for the flange size NW 40
Order No.: 0 5 11 25 19 00

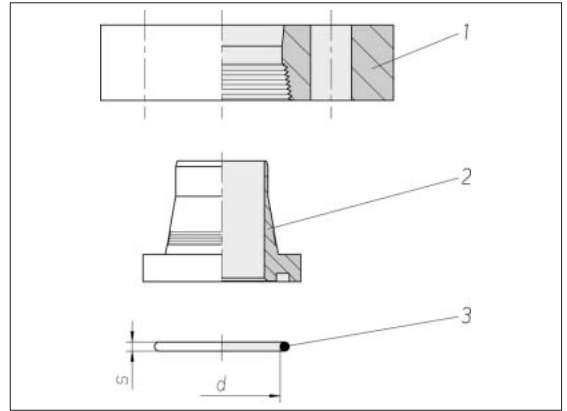
¹⁾ Complete with O-ring (supplied as separate part)

Sample product code, see:
* FE-1600
** K-1620-8

Tube-to-port flange couplings ZAKO system Component parts

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar²⁾



Flange size NW	Tube d1 x s	kg/100 approx.	Order No. Part 1	kg/100 approx.	Order No. Part 2 ¹⁾	O-ring d x s	Order No. Part 3
54	60 x 3	182.2	0 5 11 23 19 00*	43.9	0 0 36 52 99 00**	56.7 x 3.5	0 9 06 55 99 90
50	60 x 5	182.2	0 5 11 23 19 00	50.0	0 0 36 58 99 00	56.7 x 3.5	0 9 06 55 99 90
40	60 x 10	182.2	0 5 11 23 19 00	47.1	0 0 36 54 99 00	56.7 x 3.5	0 9 06 55 99 90
40	60 x 10	383.7	0 5 11 25 19 00	88.7	0 0 36 81 99 00	60 x 5	0 9 01 09 99 90
49	65 x 8	280.2	0 5 11 06 19 00	47.1	0 0 36 44 99 00	56.7 x 3.5	0 9 06 55 99 90
50	75 x 12.5	307.0	0 5 11 08 19 00	99.0	0 0 36 62 99 00	60 x 5	0 9 01 09 99 90
74	80 x 3	552.0	0 5 11 07 19 00	86.9	0 0 36 48 99 00	85.3 x 3.5	0 9 06 85 99 90
64	80 x 8	552.0	0 5 11 07 19 00	128.1	0 0 36 56 99 00	75 x 5	0 9 07 66 99 90
60	80 x 10	552.0	0 5 11 07 19 00	126.3	0 0 36 50 99 00	75 x 5	0 9 07 66 99 90
60	88 x 14	576.0	0 5 11 09 19 00	158.0	0 0 36 64 99 00	75 x 5	0 9 07 66 99 90
50	75 x 12.5	584.0	0 5 11 24 19 00	150.0	0 0 36 80 99 00	75 x 5	0 9 07 66 99 90
70	101.6 x 16	648.0	0 5 11 13 19 00	172.0	0 0 36 86 99 00	80 x 5	0 9 01 13 99 90
80	114.3 x 17.5	760.0	0 5 11 41 19 00	260.0	0 0 36 98 99 00	95 x 5	0 9 01 12 99 90
80	120 x 20	725.8	0 5 11 11 19 00	260.0	0 0 36 84 99 00	95 x 5	0 9 01 12 99 90

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

²⁾ According to the ASME Code,
a reduced operating pressure
applies for the flange size NW 40
Order No.: 0 5 11 25 19 00

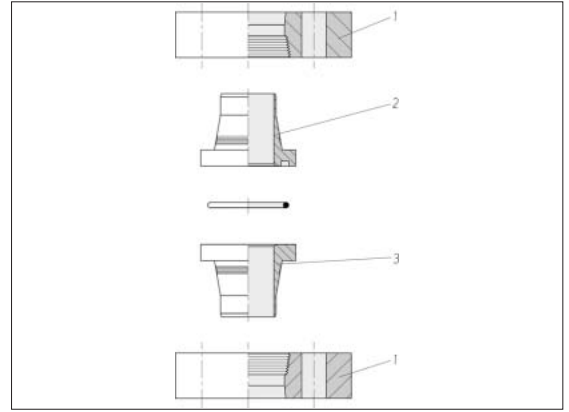
¹⁾ Complete with O-ring
(supplied as separate part)

Sample product code, see:
* FE-6000
** K-6030-8

Tube-to-tube flange couplings ZAKO system Component parts

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar



Flange size NW	Tube d1 x s	kg/100 approx.	Order No. Part 1 ²⁾	kg/100 approx.	Order No. Part 2 ¹⁾	kg/100 approx.	Order No. Part 3
12	16 x 2	30.6	0 5 11 00 19 00*	4.1	0 0 36 00 99 00*	3.3	0 0 36 01 19 00*
11	16 x 2.5	30.6	0 5 11 00 19 00	4.1	0 0 36 02 99 00	3.4	0 0 36 03 19 00
10	16 x 3	30.6	0 5 11 00 19 00	4.1	0 0 36 04 99 00	3.5	0 0 36 05 19 00
15	20 x 2.5	35.2	0 5 11 01 19 00	6.5	0 0 36 06 99 00	5.3	0 0 36 07 19 00
14	20 x 3	35.2	0 5 11 01 19 00	6.6	0 0 36 08 99 00	5.7	0 0 36 09 19 00
13	20 x 3.5	35.2	0 5 11 01 19 00	6.9	0 0 36 10 99 00	5.7	0 0 36 11 19 00
19	25 x 3	45.0	0 5 11 02 19 00	6.9	0 0 36 12 99 00	5.6	0 0 36 13 19 00
17	25 x 4	45.0	0 5 11 02 19 00	7.3	0 0 36 14 99 00	5.9	0 0 36 15 19 00
22	30 x 4	54.8	0 5 11 03 19 00	10.3	0 0 36 16 99 00	8.8	0 0 36 17 19 00
20	30 x 5	54.8	0 5 11 03 19 00	11.5	0 0 36 18 99 00	9.8	0 0 36 19 19 00
30	38 x 4	87.7	0 5 11 04 19 00	14.5	0 0 36 22 99 00	13.9	0 0 36 23 19 00
28	38 x 5	87.7	0 5 11 04 19 00	15.0	0 0 36 24 99 00	13.7	0 0 36 25 19 00
26	38 x 6	87.7	0 5 11 04 19 00	15.2	0 0 36 26 99 00	13.6	0 0 36 27 19 00
45	50 x 2.5	129.0	0 5 11 22 19 00	27.6	0 0 36 28 99 00	24.9	0 0 36 29 19 00
40	50 x 5	129.0	0 5 11 22 19 00	28.1	0 0 36 30 99 00	24.9	0 0 36 31 19 00
38	50 x 6	129.0	0 5 11 22 19 00	28.1	0 0 36 32 99 00	24.4	0 0 36 33 19 00
34	50 x 8	129.0	0 5 11 22 19 00	31.3	0 0 36 34 99 00	27.4	0 0 36 35 19 00
32	50 x 9	129.0	0 5 11 22 19 00	31.5	0 0 36 36 99 00	27.6	0 0 36 37 19 00
45	50 x 2.5	207.7	0 5 11 05 19 00*	27.6	0 0 36 28 99 00	24.9	0 0 36 29 19 00
40	50 x 5	207.7	0 5 11 05 19 00	28.1	0 0 36 30 99 00	24.9	0 0 36 31 19 00
38	50 x 6	207.7	0 5 11 05 19 00	28.1	0 0 36 32 99 00	24.4	0 0 36 33 19 00
34	50 x 8	207.7	0 5 11 05 19 00	31.3	0 0 36 34 99 00	27.4	0 0 36 35 19 00
32	50 x 9	207.7	0 5 11 05 19 00	31.5	0 0 36 36 99 00	27.6	0 0 36 37 19 00

Continuation on page 256

When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Complete with O-ring
(supplied as separate part)

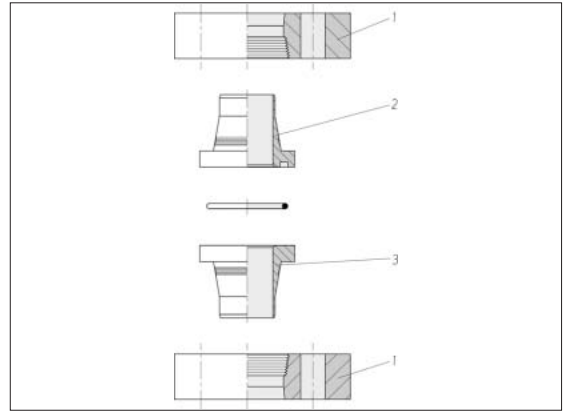
²⁾ 2 each per tube-to-tube flange
coupling

Sample product code, see:
* FE-1600
K-1620-8
KO-1620-8

Tube-to-tube flange couplings ZAKO system Component parts

VOSS square
flange hole pattern
High-pressure series

Max. permissible operating
pressure (PB) 400 bar



Flange size NW	Tube d1 x s	kg/100 approx.	Order No. Part 1 ²⁾	kg/100 approx.	Order No. Part 2 ¹⁾	kg/100 approx.	Order No. Part 3
54	60 x 3	182.2	0 5 11 23 19 00*	43.9	0 0 36 52 99 00*	40.0	0 0 36 53 19 00*
50	60 x 5	182.2	0 5 11 23 19 00	50.0	0 0 36 58 99 00	51.0	0 0 36 59 19 00
40	60 x 10	182.2	0 5 11 23 19 00	47.5	0 0 36 54 99 00	40.0	0 0 36 55 19 00
49	65 x 8	280.2	0 5 11 06 19 00	47.1	0 0 36 44 99 00	42.6	0 0 36 45 19 00
50	75 x 12.5	307.0	0 5 11 08 19 00	99.0	0 0 36 62 99 00	94.0	0 0 36 63 19 00
74	80 x 3	552.0	0 5 11 07 19 00	86.9	0 0 36 48 99 00	79.8	0 0 36 49 19 00
64	80 x 8	552.0	0 5 11 07 19 00	128.1	0 0 36 56 99 00	122.3	0 0 36 57 19 00
60	80 x 10	552.0	0 5 11 07 19 00	126.3	0 0 36 50 99 00	120.1	0 0 36 51 19 00
60	88 x 14	576.0	0 5 11 09 19 00	158.0	0 0 36 64 99 00	154.0	0 0 36 65 19 00
70	101.6 x 16	400.0	0 5 11 13 19 00	172.0	0 0 36 86 99 00	154.0	0 0 36 87 19 00
70	101.6 x 16	420.0	0 5 11 14 19 00	–	–	–	–
80	114.3 x 17.5	772.5	0 5 11 41 19 00	260.0	0 0 36 98 99 00	230.0	0 0 36 99 19 00
80	120 x 20	725.8	0 5 11 11 19 00	260.0	0 0 36 84 99 00	230.0	0 0 36 83 19 00
80	120 x 20	759.5	0 5 11 12 19 00	–	–	–	–

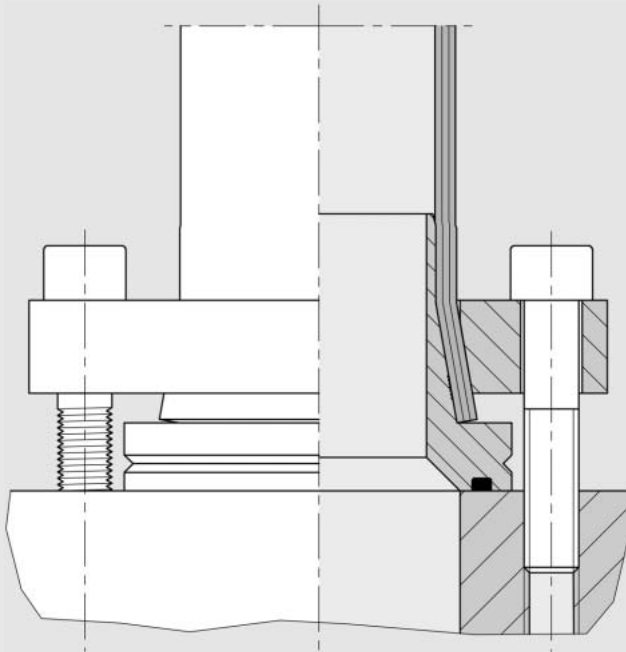
When selecting the tube dimensions,
refer to the pressure specifications of
the tube manufacturer.

¹⁾ Complete with O-ring
(supplied as separate part)

²⁾ 2 each per tube-to-tube flange
coupling

Sample product code, see:
* FE-6000
K-6030-8
KO-6030-8

ZAKO Low Pressure

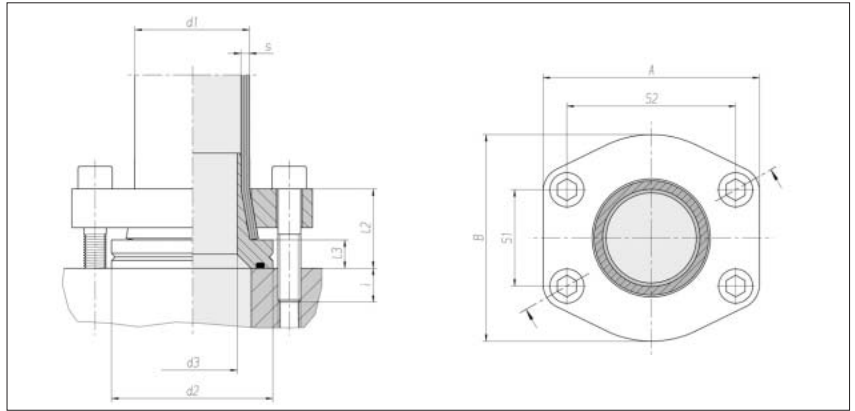


Experience plus ideas

Tube-to-port flange couplings ZAKO system Low Pressure

Hole pattern according to
SAE J 518 C / ISO 6162-1

Max. permissible operating
pressure (PB) 60 bar



Flange size NW	Tube d1 x s	d2	d3	l2 approx.	l3	S1	S2	A	B	i	4 x cheese head screw*	Nm**	kg/100 approx.	Order No.
1 1/2"	48.3 x 3.2	63	39	35	10	35.7	69.9	94	83	15.5	M 12 x 50	85	82.6	0 5 18 60 20 00
1 1/2"	48.3 x 4	63	36.5	35	10	35.7	69.9	94	83	15.5	M 12 x 50	85	85.1	0 5 18 62 20 00
2"	60.3 x 3.6	72	49	42	15	42.9	77.8	102	97	18	M 12 x 60	85	109.8	0 5 18 80 20 00
2 1/2"	60.3 x 3.6	85	49	42	15	50.8	88.9	114	109	18	M 12 x 60	85	161.8	0 5 18 64 20 00
2 1/2"	60.3 x 4.5	85	47.5	42	15	50.8	88.9	114	109	18	M 12 x 60	85	149.5	0 5 18 66 20 00
3"	76.1 x 3.6	100	65.5	50	16	61.9	106.4	135	131	20	M 16 x 70	210	262.2	0 5 18 68 20 00
3"	76.1 x 4.5	100	63.5	50	16	61.9	106.4	135	131	20	M 16 x 70	210	216.8	0 5 18 70 20 00
3 1/2"	88.9 x 3.6	114	78	56	20	69.9	120.7	152	140	19	M 16 x 75	210	341.0	0 5 18 72 20 00
3 1/2"	88.9 x 5	114	74.5	56	20	69.9	120.7	152	140	19	M 16 x 75	210	347.2	0 5 18 74 20 00
5"	114.3 x 3.6	150	103	57	20	92.1	152.4	184	181	18.5	M 16 x 75	210	525.1	0 5 18 76 20 00
5"	114.3 x 6.3	150	96	57	20	92.1	152.4	184	181	18.5	M 16 x 75	210	548.7	0 5 18 78 20 00

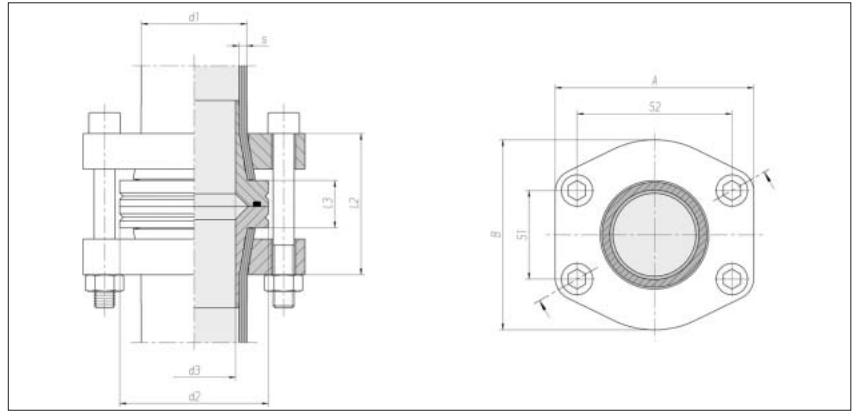
* Screws according to DIN 912,
property class 8.8

** Recommended tightening torque
(Nm max.) at friction coefficient
 μ total: 0,14

Tube-to-tube flange couplings ZAKO system Low Pressure

Hole pattern according to
SAE J 518 C / ISO 6162-1

Max. permissible operating
pressure (PB) 60 bar



Flange size NW	Tube d1 x s	d2	d3	l2 approx.	l3	S1	S2	A	B	4 x cheese head screw*	Nm**	kg/100 approx.	Order No.
1 1/2"	48.3 x 3.2	63	39	66	17	35.7	69.9	94	83	M 12 x 80	85	168.0	0 5 18 61 20 00
1 1/2"	48.3 x 4	63	36.5	66	17	35.7	69.9	94	83	M 12 x 80	85	173.0	0 5 18 63 20 00
2"	60.3 x 3.6	72	49	81	27	42.9	77.8	102	97	M 12 x 100	85	222.0	0 5 18 81 20 00
2 1/2"	60.3 x 3.6	85	49	81	27	50.8	88.9	114	109	M 12 x 100	85	323.0	0 5 18 65 20 00
2 1/2"	60.3 x 4.5	85	47.5	81	27	50.8	88.9	114	109	M 12 x 100	85	302.0	0 5 18 67 20 00
3"	76.1 x 3.6	100	65.5	96	28	61.9	106.4	135	131	M 16 x 110	210	530.0	0 5 18 69 20 00
3"	76.1 x 4.5	100	63.5	96	28	61.9	106.4	135	131	M 16 x 110	210	446.0	0 5 18 71 20 00
3 1/2"	88.9 x 3.6	114	78	108	36	69.9	120.7	152	140	M 16 x 130	210	682.0	0 5 18 73 20 00
3 1/2"	88.9 x 5	114	74.5	108	36	69.9	120.7	152	140	M 16 x 130	210	693.0	0 5 18 75 20 00
5"	114.3 x 3.6	150	103	108	36	92.1	152.4	184	181	M 16 x 130	210	1044.0	0 5 18 77 20 00
5"	114.3 x 6.3	150	96	108	36	92.1	152.4	184	181	M 16 x 130	210	1087.0	0 5 18 79 20 00

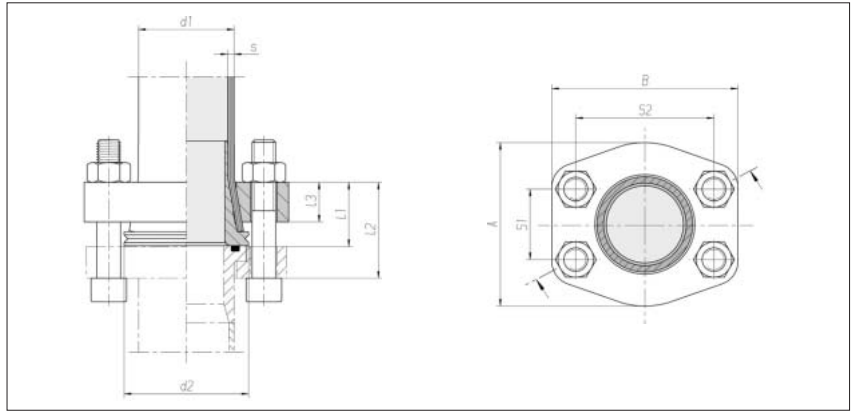
* Screws according to DIN 912,
property class 8.8

** Recommended tightening torque
(Nm max.) at friction coefficient
 μ total: 0,14

Tube-to-tube flange couplings ZAKO system Low Pressure

Hole pattern according to
SAE J 518 C / ISO 6162-1

Max. permissible operating
pressure (PB) 60 bar



Flange size NW	Tube d1 x s	d2	l1 approx.	l2 approx.	l3	S1	S2	A	B	4 x cheese head screw*	Nm**	kg/100 approx.	Order No.
1 1/2"	48.3 x 3.2	63	31.5	47.5	20	35.7	69.9	83	94	M12 x 70	85	86.0	0 5 18 82 20 00
1 1/2"	48.3 x 4	63	31.5	47.5	20	35.7	69.9	83	94	M12 x 70	85	88.0	0 5 18 83 20 00
2"	60.3 x 3.6	72	39	55	20.5	42.9	77.8	97	102	M12 x 80	85	113.0	0 5 18 84 20 00
2 1/2"	60.3 x 3.6	85	39	58	20.5	50.8	88.9	109	114	M12 x 80	85	161.0	0 5 18 85 20 00
2 1/2"	60.3 x 4.5	85	39	58	20.5	50.8	88.9	109	114	M12 x 80	85	152.0	0 5 18 86 20 00
3"	76.1 x 3.6	100	46	68	27	61.9	106.4	131	135	M16 x 90	210	268.0	0 5 18 87 20 00
3"	76.1 x 4.5	100	46	68	27	61.9	106.4	131	135	M16 x 90	210	229.0	0 5 18 88 20 00
3 1/2"	88.9 x 3.6	114	52	74	27.5	69.9	120.7	140	152	M16 x 110	210	341.0	0 5 18 89 20 00
3 1/2"	88.9 x 5	114	52	74	27.5	69.9	120.7	140	152	M16 x 110	210	347.0	0 5 18 90 20 00
5"	114.3 x 3.6	150	52.5	80.5	27.5	92.1	152.4	181	184	M16 x 110	210	519.0	0 5 18 91 20 00
5"	114.3 x 6.3	150	52.5	80.5	27.5	92.1	152.4	181	184	M16 x 110	210	539.0	0 5 18 92 20 00

* Screws according to DIN 912,
property class 8.8

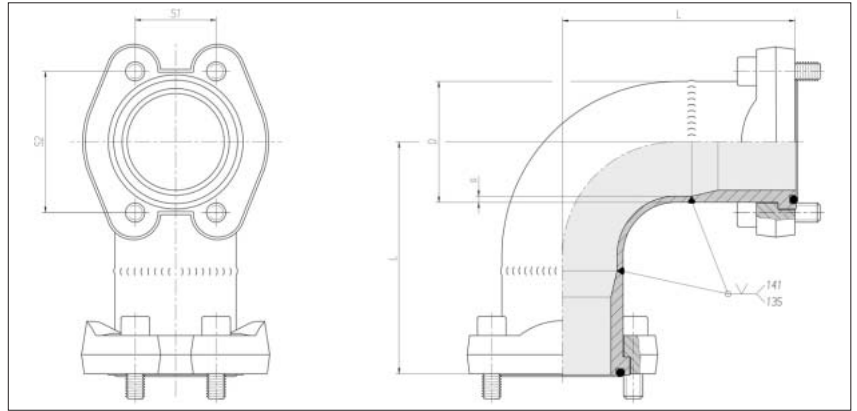
** Recommended tightening torque
(Nm max.) at friction coefficient
 μ total: 0,14

Tube-to-tube flange couplings ZAKO system Low Pressure

Hole pattern according to
SAE J 518 C / ISO 6162-1

90° bend

Max. permissible operating
pressure (PB) 60 bar



Flange size NW	L	S1	S2	4 x cheese head screw*	O-ring	Nm**	Order No.
1 1/2"	102	35.7	69.9	M 12 x 35	47.22 x 3.53	85	0 5 00 58 20 00
2"	111	42.9	77.8	M 12 x 35	56.74 x 3.53	85	0 5 00 60 20 00
2 1/2"	127	50.8	88.9	M 12 x 40	69.44 x 3.53	85	0 5 00 62 20 00
3"	130	61.9	106.4	M 16 x 45	85.32 x 3.53	210	0 5 00 64 20 00
3 1/2"	152	69.9	120.7	M 16 x 45	98.02 x 3.53	210	0 5 00 66 20 00
5"	175	92.1	152.4	M 16 x 50	136.12 x 3.53	210	0 5 00 68 20 00

* Screws according to DIN 912,
property class 8.8

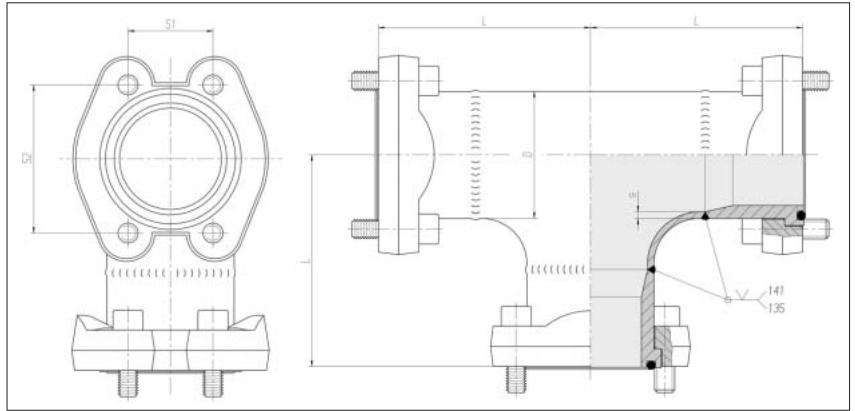
** Recommended tightening torque
(Nm max.) at friction coefficient
 μ total: 0,14

Tube-to-tube flange couplings ZAKO system Low Pressure

Hole pattern according to
SAE J 518 C / ISO 6162-1

T- piece

Max. permissible operating
pressure (PB) 60 bar

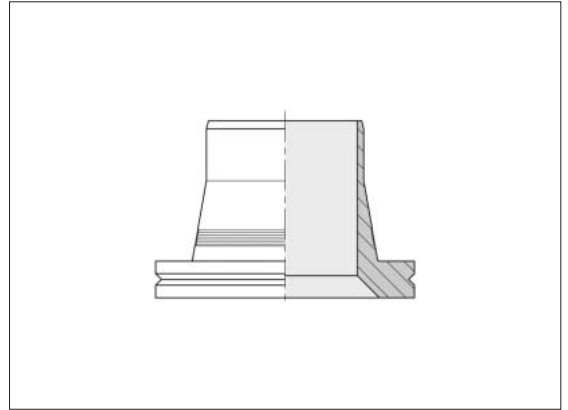


Flange size NW	L	S1	S2	4 x cheese Zyl.-Schr.*	O-ring	Nm**	Order No.
1 1/2"	102	35.7	69.9	M 12 x 35	47.22 x 3.53	85	0 5 00 59 20 00
2"	111	42.9	77.8	M 12 x 35	56.74 x 3.53	85	0 5 00 61 20 00
2 1/2"	127	50.8	88.9	M 12 x 40	69.44 x 3.53	85	0 5 00 63 20 00
3"	130	61.9	106.4	M 16 x 45	85.32 x 3.53	210	0 5 00 65 20 00
3 1/2"	152	69.9	120.7	M 16 x 45	98.02 x 3.53	210	0 5 00 67 20 00
5"	175	92.1	152.4	M 16 x 50	136.12 x 3.53	210	0 5 00 69 20 00

* Screws according to DIN 912,
property class 8.8

** Recommended tightening torque
(Nm max.) at friction coefficient
 μ total: 0,14

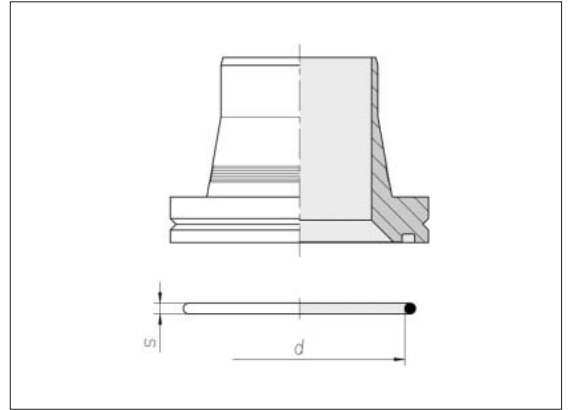
ZAKO ring
ZAKO system
Low Pressure



Flange size NW	Tube d x s	Order No.
1 1/2"	48.3 x 3.2	0 5 17 11 20 00
1 1/2"	48.3 x 4	0 5 17 01 20 00
2"	60.3 x 3.6	0 5 17 21 20 00
2 1/2"	60.3 x 3.6	0 5 17 13 20 00
2 1/2"	60.3 x 4.5	0 5 17 03 20 00
3"	76.1 x 3.6	0 5 17 15 20 00
3"	76.1 x 4.5	0 5 17 05 20 00
3 1/2"	88.9 x 3.6	0 5 17 17 20 00
3 1/2"	88.9 x 5	0 5 17 07 20 00
5"	114.3 x 3.6	0 5 17 19 20 00
5"	114.3 x 6.3	0 5 17 09 20 00

ZAKO ring with O-ring ZAKO system Low Pressure

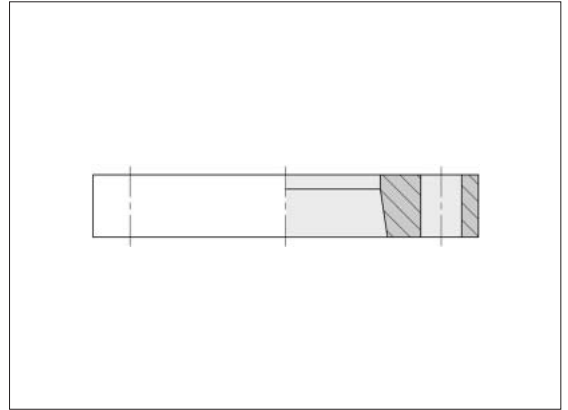
O-ring is supplied
seperately



Flange size NW	Tube d x s	O-ring d x s	Order No.
1 1/2"	48.3 x 3.2	47.22 x 3.53	0 5 17 10 20 67
1 1/2"	48.3 x 4	47.22 x 3.53	0 5 17 00 20 67
2"	60.3 x 3.6	56.74 x 3.53	0 5 17 20 20 67
2 1/2"	60.3 x 3.6	69.44 x 3.53	0 5 17 12 20 67
2 1/2"	60.3 x 4.5	69.44 x 3.53	0 5 17 02 20 67
3"	76.1 x 3.6	85.32 x 3.53	0 5 17 14 20 67
3"	76.1 x 4.5	85.32 x 3.53	0 5 17 04 20 67
3 1/2"	88.9 x 3.6	98.02 x 3.53	0 5 17 16 20 67
3 1/2"	88.9 x 5	98.02 x 3.53	0 5 17 06 20 67
5"	114.3 x 3.6	136.12 x 3.53	0 5 17 18 20 67
5"	114.3 x 6.3	136.12 x 3.53	0 5 17 08 20 67

SAE- flange ZAKO system Low Pressure

Hole pattern according to
SAE J 518 C / ISO 6162-1



Flange size NW	Tube AD	Order No.
1 1/2"	48.3	0 5 18 10 20 00
2"	60.3	0 5 18 15 20 00
2 1/2"	60.3	0 5 18 11 20 00
3"	76.1	0 5 18 12 20 00
3 1/2"	88.9	0 5 18 13 20 00
5"	114.3	0 5 18 14 20 00

