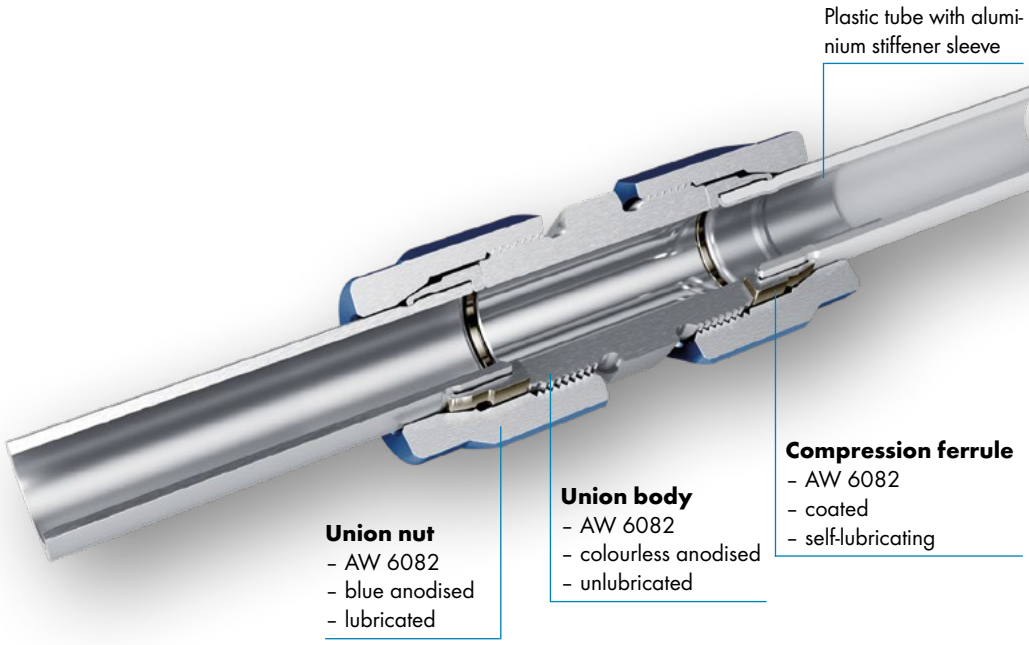
SERTO®

The aluminium tube union

Light, robust, versatile

Aluminium tube unions with the SERTO principle



Characteristics

Feature	Customer benefit
• Very light – almost one third of the weight of stainless steel or brass	Weight reduction
• Good resistance to corrosion, weathering, sea water, thermofluids, mineral oils, petrol and various gases	Safe operation under a wide range of conditions
• Initially lubricated, therefore ready for installation	Cost and time savings
• Radial tube union system	Time and space savings; increased safety and easy mounting and disassembly

Examples of applications

- Cooling systems for power electronics
- Piping for lightweight construction
- Pneumatic, fuel, lubricant and brake lines in vehicles

Specifications

Working pressure (PN): up to 100 bar; details see product tables (safety factor 4)
Temperature: -196 °C to +120 °C
Helium leakage rate: < 10^{-6} mbar • l/s

Recommended tubes

Drawn tubes with the alloys AW 6060 (T6 / T4) or AW 5049 (H111) and with diameter tolerances according to DIN EN 754-7 (seamless drawn) or 754-8 (not seamless drawn).

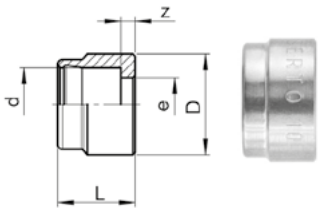
Fields of operation


Power engineering


Lightweigt construction


Mobility

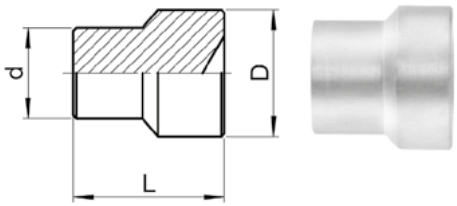
Klemmring
Bague de serrage
Compression ferrule



SO 10001

Type -d	Mat.-Nr.	bar	L	D	z	e	kg/100
SO 10001-8	116.0010.080	100	7.0	10.5	1.0	6.0	0.060
SO 10001-10	116.0010.100	100	7.5	12.7	1.0	8.0	0.080
SO 10001-12	116.0010.120	100	8.5	14.7	1.0	9.0	0.120
SO 10001-15	116.0010.150	100	10.0	18.0	1.5	12.0	0.190
SO 10001-18	116.0010.180	100	10.0	22.0	1.5	15.0	0.310
SO 10001-22 OR	116.0009.220	64	11.0	25.7	1.5	18.0	0.390
SO 10001-28 OR	116.0009.280	64	13.0	32.7	2.0	24.0	0.720
SO 10001-35 OR	116.0009.350	40	13.0	39.0	2.0	30.0	0.780

Abschlusszapfen
Bouchon d'arrêt
Plug



SO 10002

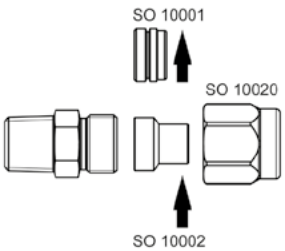
Type -d	Mat.-Nr.	L	D	kg/100
SO 10002-8	116.0020.080	10.5	10.5	0.190
SO 10002-10	116.0020.100	12.0	12.7	0.310
SO 10002-12	116.0020.120	14.0	14.7	0.510
SO 10002-15	116.0020.150	15.0	18.0	0.830
SO 10002-18	116.0020.180	16.8	22.0	1.310
SO 10002-22	116.0020.220	19.0	25.7	2.090
SO 10002-28	116.0020.280	22.5	32.7	4.030
SO 10002-35	116.0020.350	19.0	39.0	4.900

Anwendungsbeispiele:

Der Abschlusszapfen lässt sich in jede Verschraubung anstelle eines Klemmringes der gleichen Grösse einsetzen.

Montagehinweis: Anschlussmutter mit 1/4 Umdrehung anziehen.

Exemples d'utilisation:



Le bouchon d'arrêt s'insère dans tout raccord au lieu d'une bague de serrage de la même taille.

Note d'installation: Serrez l'écrou d'accouplement de 1/4 de tour.

Sample combinations:

The plug can be inserted into all unions instead of a compression ferrule of the same size.

Assembly information: Tighten the union nut with 1/4 turn.

d=Rohraussen-ø
e=kleinste Bohrung

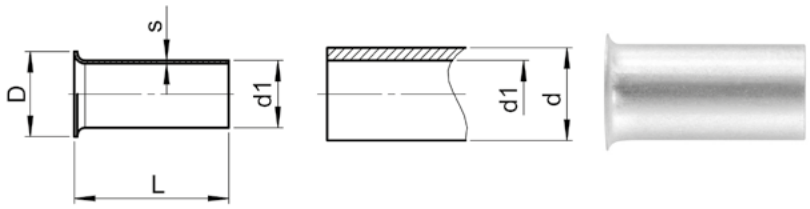
d=ø extérieur du tube
e=ø-min. de passage

d=tube outside diameter
e=minimum bore

Stützhülse
zur Rohrverstärkung

Douille d'appui
pour renforcer les tubes

Stiffener sleeve
to reinforce tubes



SO 10003

Type -d -d1	Mat.-Nr.	L	D	s	kg/100
SO 10003-8-6	116.0030.140	12.0	7.5	0.25	0.020
SO 10003-10-7	116.0030.180	15.0	9.5	0.30	0.030
SO 10003-10-8	116.0030.190	16.0	9.5	0.30	0.030
SO 10003-12-9	116.0030.230	20.0	11.5	0.40	0.060
SO 10003-12-10	116.0030.240	20.0	11.5	0.40	0.060
SO 10003-15-12	116.0030.420	24.0	14.5	0.50	0.120
SO 10003-18-15	116.0030.610	26.0	16.5	0.60	0.190
SO 10003-18-16	116.0030.620	26.0	17.5	0.60	0.200

Werkstoff: Aluminium AW 6060

Für die Verwendung von Aluminium-Verschraubungen in Kombination mit Kunststoff-Rohren.

Matériau: Aluminium AW 6060

Pour l'usage des raccords en aluminium en combinaison avec des tubes en plastique.

Material: Aluminium AW 6060

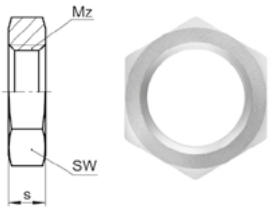
For the use of aluminium unions in combination with plastic tubes.

d=Rohraussen-ø
d1=Rohrinnen-ø
s=Rohrwandstärke

d=ø extérieur du tube
d1=ø intérieur de tube
s=epaisseur de la paroi du tube

d=tube outside diameter
d1=tube inside diameter
s=tube wall thickness

Sechskantmutter METR
Ecrou à six pans METR
Hexagon nut METR



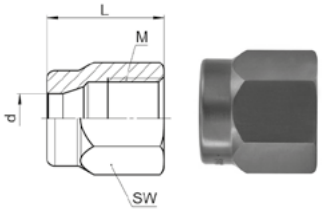
SO 10006 METR

Type -Mz	Mat.-Nr.	SW	s	kg/100
Mz=metrisches Gewinde (zylindrisch)		Mz=Filetage métrique (cylindrique)		Mz=Metric thread (parallel)
SO 10006-M14x1	116.0063.220	19	7.00	0.330
SO 10006-M16x1	116.0063.260	22	7.00	0.450
SO 10006-M24x1,5	116.0063.405	30	12.00	1.200
SO 10006-M28x1,5	116.0063.445	36	14.00	2.100

Sechskantmutter für SO 11524, SO 12721 Ecrou à six pans pour SO 11524, SO 12721 Hexagon nut for SO 11524, SO 12721

s=Wandstärke s=epaisseur de la paroi s=wall thickness

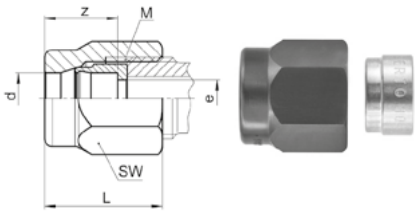
Anschlussmutter
Ecrou
Union nut



SO 10020

Type -d	Mat.-Nr.	bar	M	SW	L	kg/100
SO 10020-8	116.0200.080	100	12x1.0	14	16.0	0.340
SO 10020-10	116.0200.100	100	14x1.0	17	18.5	0.620
SO 10020-12	116.0200.120	100	16x1.0	19	20.0	0.770
SO 10020-15	116.0200.150	100	20x1.5	24	24.0	1.530
SO 10020-18	116.0200.180	100	24x1.5	30	25.0	2.640
SO 10020-22	116.0200.220	64	28x1.5	32	28.0	2.710
SO 10020-28	116.0200.280	64	36x2.0	41	32.0	4.970
SO 10020-35	116.0200.350	40	42x2.0	50	32.0	7.880

Armaturenanschluss
Ecrou et bague de raccordement
Nut connection



SO 10021

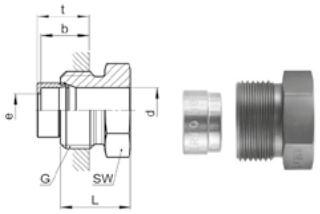
Type -d	Mat.-Nr.	bar	M	SW	L	z	e	kg/100
SO 10021-8	116.0210.080	100	12x1.0	14	16.0	8.5	6.0	0.400
SO 10021-10	116.0210.100	100	14x1.0	17	18.5	10.5	8.0	0.700
SO 10021-12	116.0210.120	100	16x1.0	19	20.0	12.0	9.0	0.890
SO 10021-15	116.0210.150	100	20x1.5	24	24.0	13.0	12.0	1.720
SO 10021-18	116.0210.180	100	24x1.5	30	25.0	13.5	15.0	2.960
SO 10021-22	116.0210.220	64	28x1.5	32	28.0	16.5	18.0	3.100
SO 10021-28	116.0210.280	64	36x2.0	41	32.0	16.5	24.0	5.690
SO 10021-35	116.0210.350	40	42x2.0	50	32.0	17.0	30.0	8.660

d=Rohraussen-ø
e=kleinste Bohrung

d=ø extérieur du tube
e=ø-min. de passage

d=tube outside diameter
e=minimum bore

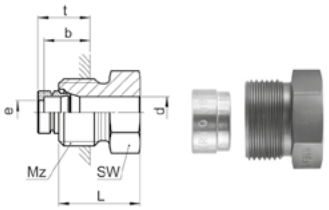
Anschlussnippel
Ecrou de raccordement mâle
Nipple connection



SO 11001

Type -d -G	Mat.-Nr.	bar	SW	L	b	t	e	kg/100
G=Rohrgewinde (zylindrisch)		G=Filetage-gaz BSP (cylindrique)			G=BSP thread (parallel)			
SO 11001-8-¼	118.0905.170	100	14	15.0	9.0	10.0	6.0	0.400
SO 11001-10-⅜	118.0905.280	100	17	15.0	9.0	10.0	8.0	0.620

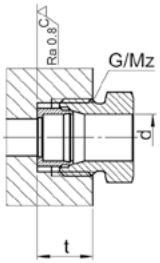
Anschlussnippel METR
Ecrou de raccordement mâle METR
Nipple connection METR



SO 11001 METR

Type -d -Mz	Mat.-Nr.	bar	SW	L	b	t	e	kg/100
Mz=metrisches Gewinde (zylindrisch)		Mz=Filetage métrique (cylindrique)			Mz=Metric thread (parallel)			
SO 11001-10-M16x1	118.0901.284	100	17	15.0	9.0	10.0	8.0	0.600
SO 11001-12-M18x1	118.0901.332	100	19	15.0	10.0	11.0	9.0	0.700

Anwendungsbeispiele: **Exemples d'utilisation:** **Sample combinations:**

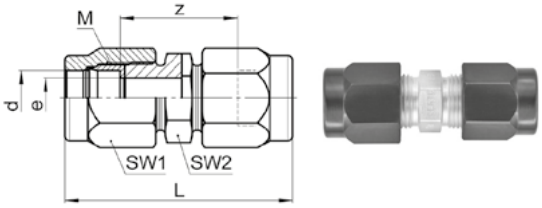


d=Rohraussen-ø
e=kleinste Bohrung
L=Mass in montiertem Zustand

d=ø extérieur du tube
e=ø-min. de passage
L=après montage

d=tube outside diameter
e=minimum bore
L=installed length

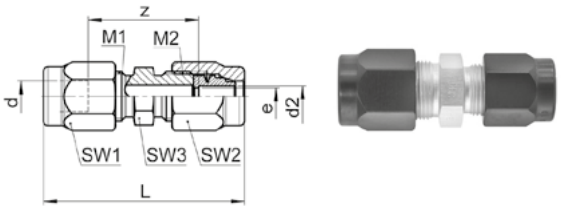
Gerade Verschraubung
Union double
Straight union



SO 11021

Type -d	Mat.-Nr.	bar	M	SW1	SW2	L	z	e	kg/100
SO 11021-8	118.1020.080	100	12x1.0	14	12	41.0	24.5	6.0	1.280
SO 11021-10	118.1020.100	100	14x1.0	17	14	47.0	25.5	8.0	2.000
SO 11021-12	118.1020.120	100	16x1.0	19	17	50.0	26.0	9.0	2.680
SO 11021-18	118.1020.180	100	24x1.5	30	24	64.0	37.0	15.0	8.310
SO 11021-22	118.1020.220	64	28x1.5	32	30	71.0	38.0	18.0	9.700
SO 11021-28	118.1020.280	64	36x2.0	41	36	82.0	49.0	24.0	17.900
SO 11021-35	118.1020.350	40	42x2.0	50	46	85.0	51.0	30.0	26.600

Gerade Verschraubung reduziert
Union double réduite
Straight reduction union



SO 11021 RED

Type -d -d2	Mat.-Nr.	bar	M1	M2	SW1	SW2	SW3	L	z	e	kg/100
SO 11021-12-10	118.1024.240	100	16x1.0	14x1.0	19	17	17	49.0	26.0	8.0	2.500

d=Rohraussen-ø
e=kleinste Bohrung
L=Mass in montiertem Zustand

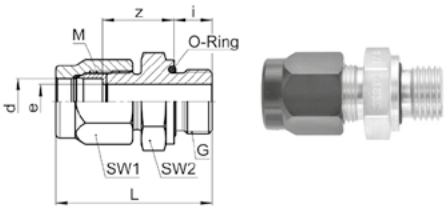
d=ø extérieur du tube
e=ø-min. de passage
L=après montage

d=tube outside diameter
e=minimum bore
L=installed length

Gerade Einschraubverschraubung
mit Conovor O-Ringabdichtung (FKM)

Union mâle
avec joint torique système Conovor (FKM)

Male adaptor union
with Conovor O-ring seal (FKM)



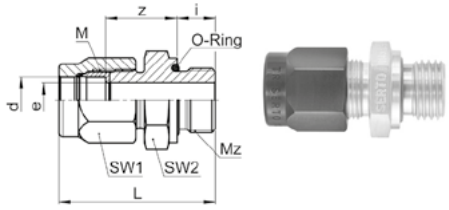
SO 11124 OR

Type -d -G	Mat.-Nr.	bar	M	SW1	SW2	L	D	i	t	O-Ring	z	e	kg/100
G=Rohrgewinde (zylindrisch)	G=Filetage-gaz BSP (cylindrique)							G=BSP thread (parallel)					
SO 11124-8-⅛ OR	118.1171.160	100	12x1.0	14	14	32.0	15.0	8.0	1.0	8.73x1.78	15.5	5.0	0.900
SO 11124-8-¼ OR	118.1171.170	100	12x1.0	14	19	35.5	19.0	10.0	1.5	11.1x1.78	17.0	6.0	1.310
SO 11124-10-¼ OR	118.1171.270	100	14x1.0	17	19	39.0	19.0	10.0	1.5	11.1x1.78	18.0	8.0	1.600
SO 11124-10-½ OR	118.1171.285	100	14x1.0	17	27	43.5	27.0	12.0	2.5	18.72x2.62	21.0	8.0	3.000
SO 11124-10-1 OR	118.1171.300	100	14x1.0	17	41	47.5	42.0	14.0	2.5	27.8x3.6	23.0	8.0	6.200
SO 11124-12-¼ OR	118.1171.380	100	16x1.0	19	19	40.0	19.0	10.0	1.5	11.1x1.78	18.0	8.0	1.900
SO 11124-12-⅜ OR	118.1171.390	100	16x1.0	19	22	40.5	23.0	10.0	2.0	14.0x1.78	18.5	9.0	2.320
SO 11124-12-½ OR	118.1171.400	100	16x1.0	19	27	45.0	27.0	12.0	2.5	18.72x2.62	21.0	9.0	3.200
SO 11124-15-½ OR	118.1171.534	100	20x1.5	24	27	50.0	27.0	12.0	2.5	18.72x2.62	25.5	12.0	4.400
SO 11124-15-¾ OR	118.1171.536	100	20x1.5	24	32	51.0	33.0	12.0	2.5	23.47x2.62	26.5	12.0	6.000
SO 11124-18-½ OR	118.1171.646	100	24x1.5	30	27	51.0	27.0	12.0	2.5	18.72x2.62	25.5	13.0	5.700
SO 11124-18-¾ OR	118.1171.648	100	24x1.5	30	32	54.0	33.0	12.0	2.5	23.47x2.62	28.5	15.0	7.380
SO 11124-22-¾ OR	118.1171.768	64	28x1.5	32	32	55.0	33.0	12.0	2.5	23.47x2.62	26.5	18.0	7.000
SO 11124-28-1 OR	118.1171.850	64	36x2.0	41	41	63.0	42.0	14.0	2.5	27.8x3.6	32.5	24.0	12.450
SO 11124-35-1 ¼ OR	118.1171.944	40	42x2.0	50	50	70.5	52.0	16.0	2.5	37.69x3.53	37.5	30.0	20.800

Gerade Einschraubverschraubung METR
mit Conovor O-Ringabdichtung (FKM)

Union mâle METR
avec joint torique système Conovor (FKM)

Male adaptor union METR
with Conovor O-ring seal (FKM)



SO 11124 OR METR

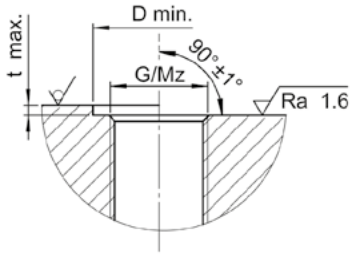
Type -d -Mz	Mat.-Nr.	bar	M	SW1	SW2	L	D	i	t	O-Ring	z	e	kg/100
Mz=metrisches Gewinde (zylindrisch)	Mz=Filetage métrique (cylindrique)							Mz=Metric thread (parallel)					
SO 11124-10-M14x1.5 OR	118.1173.280	100	14x1.0	17	19	38.0	19.5	10.0	1.5	11.1x1.78	17.0	8.0	1.600
SO 11124-12-M12x1.5 OR	118.1173.320	100	16x1.0	19	17	39.0	17.5	10.0	1.5	9.25x1.78	17.0	6.0	1.700
SO 11124-15-M18x1.5 OR	118.1173.390	100	20x1.5	24	22	47.0	23.5	10.0	2.0	15.6x1.78	24.0	12.0	3.400

Fortsetzung nächste Seite | Suite à la prochaine page | Continued on next page

d=Rohraussen-ø
e=kleinste Bohrung
L=Mass in montiertem Zustand

d=ø extérieur du tube
e=ø-min. de passage
L=après montage

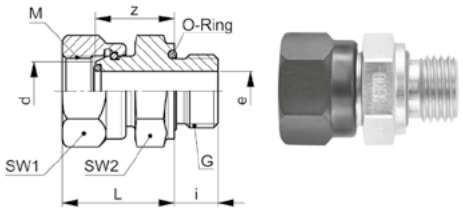
d=tube outside diameter
e=minimum bore
L=installed length

Aluminium	Aluminium	Aluminium
Einbauempfehlung:	**Conseil de montage:**	**Recommendation for installation:**
		
Einsatzbereich: Temperatur zwischen -20 °C und +120 °C	**Champ d'application: Température entre -20 °C et +120 °C**	**Range of use: Temperature between -20 °C and +120 °C**
Die Vorteile dieser O-Ringabdichung: - keine Dichtmittelreste in Geräten - einwandfreie Abdichtung - keine Beschädigung von Geräten durch konische Gewinde - schnelle Montage	Les avantages de cette étanchéité à joint torique: - aucun reste de scellant dans les équipements - une étanchéité parfaite - aucun endommagement de l'équipement par le filetage conique - facilité d'installation	Advantages of this O-ring seal: - no sealing residues in devices - perfect seal - no damage to devices due to tapered thread - rapid assembly
Conovor patentierte O-Ring Abdichtung	Etanchéité à joint torique brevetée Conovor	Conovor patented O-ring seal

Einstellbare Einschraubverschraubung
mit Conovor O-Ringabdichtung (FKM)

Union mâle orientable
avec joint torique système Conovor (FKM)

Adjustable male adaptor union
with Conovor O-ring seal (FKM)



SO 11335 OR

Type -d -G	Mat.-Nr.	bar	M	SW1	SW2	L	D	i	t	O-Ring	z	e	kg/100
G=Rohrgewinde (zylindrisch)	G=Filetage-gaz BSP (cylindrique)							G=BSP thread (parallel)					
SO 11335-8-¼ OR	118.1651.170	100	12x1.0	17	19	21.5	19.0	10.0	1.5	11.1x1.78	15.0	6.0	1.400
SO 11335-10-¼ OR	118.1651.270	100	14x1.0	19	19	24.5	19.0	10.0	1.5	11.1x1.78	17.0	8.0	1.500
SO 11335-12-⅜ OR	118.1651.390	100	16x1.0	22	22	25.5	23.0	10.0	2.0	14.0x1.78	18.0	9.0	2.300
SO 11335-15-½ OR	118.1651.534	100	20x1.5	27	27	31.5	27.0	12.0	2.5	17.12x2.62	22.0	12.0	4.100
SO 11335-18-¾ OR	118.1651.648	100	24x1.5	32	32	32.5	33.0	12.0	2.5	23.47x2.62	23.0	15.0	6.100
SO 11335-22-¾ OR	118.1651.768	64	28x1.5	36	32	32.5	33.0	12.0	2.5	23.47x2.62	23.0	18.0	6.100
SO 11335-35-1 ¼ OR	118.1651.944	40	42x2.0	55	50	43.5	52.0	16.0	2.5	37.69x3.53	31.0	30.0	18.400

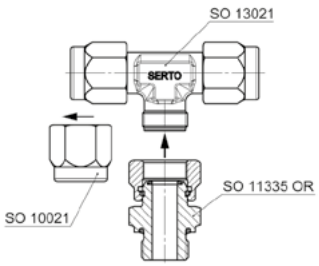
Anwendungsbeispiele:

Mit der einstellbaren Einschraubverschraubung lassen sich verschiedene Grundteile einfach verbinden. Kompakte Bauweise, schnelle Montage, einfache Fixierung der Komponenten in der gewünschten Stellung.

d = Kenngrösse: entspricht dem Rohraussen-ø des Armaturenanschlusses SO 10021, der gegen die einstellbare Einschraubverschraubung SO 11335 OR ausgetauscht werden kann.

Montagehinweis: Anschlussmutter mit 1/8 Umdrehung anziehen. Wir empfehlen eine zusätzliche Schmierung auf der Planfläche.

Exemples d'utilisation:



L'union orientable mâle permet de connecter facilement différentes corps de raccord. Construction compacte, montage rapide, fixation facile des composants dans la position désirée.

d = dimension nominale: correspond au dia. extérieur du tube de l'écrou et bague de raccordement SO 10021, lequel peut être échangé contre l'union mâle orientable SO 11335 OR.

Note d'installation: Serrez l'écrou de 1/8 de tour. Nous recommandons une lubrification supplémentaire sur la surface plane.

Sample combinations:

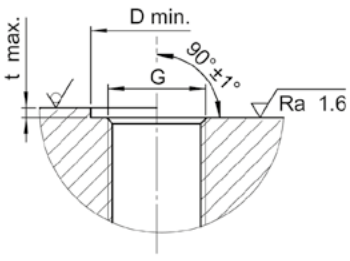
With the adjustable male adaptor union different basic components can easily be connected. Compact construction, quick assembly, and easy fixing of the components in the desired position.

d = nominal size: corresponds to tube outside diameter of the nut connection SO 10021 which can be replaced by the adjustable male adaptor union SO 11335 OR.

Assembly information: Tighten the union nut with 1/8 turn. We recommend additional lubrication on the plane surface.

Einbauempfehlung:

Conseil de montage:



Recommendation for installation:

d=Rohraussen-ø
e=kleinste Bohrung
L=Mass in montiertem Zustand

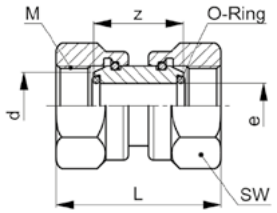
d=ø extérieur du tube
e=ø-min. de passage
L=après montage

d=tube outside diameter
e=minimum bore
L=installed length

Einstellbare Verschraubung
mit O-Ringabdichtung (FKM)

Union orientable
avec joint torique (FKM)

Adjustable union
with O-ring seal (FKM)

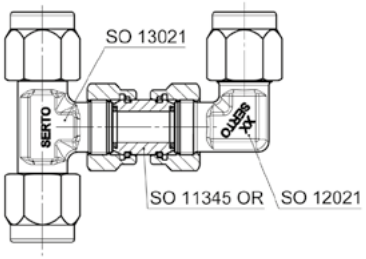


SO 11345 OR

Type -d	Mat.-Nr.	bar	M	SW	L	O-Ring	z	e	kg/100
SO 11345-8 OR	118.1350.080	100	12x1.0	17	29.0	6.0x1.0	16.0	6.0	1.200
SO 11345-10 OR	118.1350.100	100	14x1.0	19	33.0	8.0x1.0	18.0	8.0	1.600
SO 11345-12 OR	118.1350.120	100	16x1.0	22	33.0	9.0x1.5	18.0	9.0	2.200
SO 11345-15 OR	118.1350.150	100	20x1.5	27	41.0	12.0x1.5	22.0	12.0	4.100
SO 11345-18 OR	118.1350.180	100	24x1.5	32	41.0	15.0x2.0	22.0	15.0	5.600
SO 11345-22 OR	118.1350.220	64	28x1.5	36	41.0	18.0x2.0	22.0	18.0	6.700

Anwendungsbeispiele:

Exemples d'utilisation:



Sample combinations:

Einsatzbereich: Temperatur zwischen -20 °C und +120 °C

Mit der einstellbaren Verschraubung lassen sich verschiedene Grundteile einfach verbinden. Kompakte Bauweise, schnelle Montage, einfache Fixierung der Komponenten in der gewünschten Stellung.

Beachten Sie auch die Möglichkeiten mit SO 11335 OR.

d = Kenngrösse: entspricht dem Rohraussen-ø des Armaturenanschlusses SO 10021, der gegen die einstellbare Verschraubung SO 11345 OR ausgetauscht werden kann.

Montagehinweis: Beide Anschlussmuttern mit 1/8 Umdrehung anziehen. Wir empfehlen eine zusätzliche Schmierung auf der Planfläche.

Champ d'application: Température entre -20 °C et +120 °C

L'union orientable permet de connecter facilement différentes corps de raccord. Construction compacte, montage rapide, fixation facile des composants dans la position désirée.

Voir également les possibilités avec SO 11335 OR.

d = dimension nominale: correspond au dia. extérieur du tube de l'écrou et bague de raccordement SO 10021, lequel peut être échangé contre l'union orientable SO 11345 OR.

Note d'installation: Serrez les deux écrous de 1/8 de tour. Nous recommandons une lubrification supplémentaire sur la surface plane.

Range of use: Temperature between -20 °C and +120 °C

With the adjustable union different basic components can easily be connected. Compact construction, quick assembly, and easy fixing of the components in the desired position.

See SO 11335 OR for additional possibilities.

d = nominal size: corresponds to tube outside dia. of the nut connection SO 10021 which can be replaced by the adjustable union SO 11345 OR.

Assembly information: Tighten both union nuts with 1/8 turn. We recommend additional lubrication on the plane surface.

d=Rohraussen-ø
e=kleinste Bohrung
L=Mass in montiertem Zustand

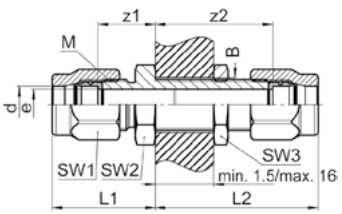
d=ø extérieur du tube
e=ø-min. de passage
L=après montage

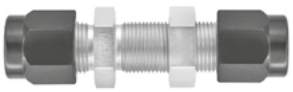
d=tube outside diameter
e=minimum bore
L=installed length

Gerade Schottverschraubung
Durchführungslänge max. 16 mm

Union double traversée de cloison
pour cloison max. 16 mm

Panel mount union
max. panel thickness 16 mm





SO 11524

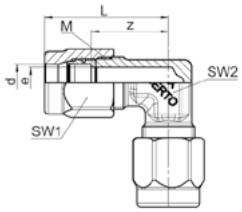
Type -d	Mat.-Nr.	bar	M	SW1	SW2	SW3	L1	L2	B	z1	z2	e	kg/100
SO 11524-10	118.1540.100	100	14x1.0	17	19	19	26.0	43.5	14.5	15.5	33.0	8.0	2.900
SO 11524-12	118.1540.120	100	16x1.0	19	22	22	28.0	46.0	16.5	16.0	34.0	9.0	4.300
SO 11524-18	118.1540.180	100	24x1.5	30	30	30	37.0	56.0	24.5	23.5	42.5	15.0	12.400
SO 11524-22	118.1540.220	64	28x1.5	32	36	36	41.0	61.0	28.5	24.5	44.5	18.0	15.800

Sechskantmutter siehe SO 10006 METR

Ecrou à six pans voir SO 10006 METR

Hexagon nut see SO 10006 METR

Winkelverschraubung
Coude
Elbow union



SO 12021

Type -d	Mat.-Nr.	bar	M	SW1	SW2	L	z	e	kg/100
SO 12021-10	118.2000.100	100	14x1.0	17	14	31.0	20.5	8.0	2.400
SO 12021-12	118.2000.120	100	16x1.0	19	17	33.5	21.5	9.0	3.200
SO 12021-15	118.2000.150	100	20x1.5	24	19	41.0	28.5	12.0	6.000
SO 12021-18	118.2000.180	100	24x1.5	30	22	44.0	30.5	15.0	9.500
SO 12021-22	118.2000.220	64	28x1.5	32	27	48.0	31.5	18.0	10.900
SO 12021-28	118.2000.280	64	36x2.0	41	32	56.5	40.0	24.0	20.100
SO 12021-35	118.2000.350	40	42x2.0	50	41	62.0	45.0	30.0	31.600

d=Rohraussen-ø
e=kleinste Bohrung
L=Mass in montiertem Zustand

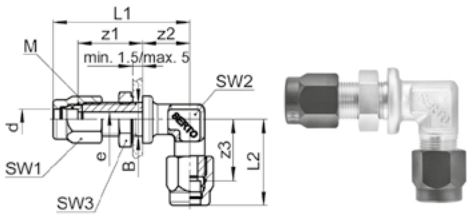
d=ø extérieur du tube
e=ø-min. de passage
L=après montage

d=tube outside diameter
e=minimum bore
L=installed length

Winkel-Schottverschraubung
Durchführungslänge max. 5 mm

Coude traversée de cloison
pour cloison max. 5 mm

Panel mount elbow union
max. panel thickness 5 mm



SO 12721

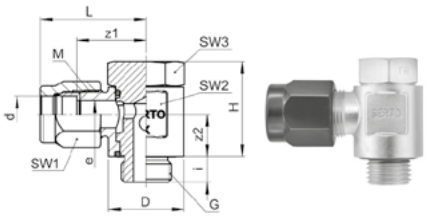
Type -d	Mat.-Nr.	bar	M	SW1	SW2	SW3	L1	L2	B	z1	z2	z3	e	kg/100
SO 12721-10	118.2700.100	100	14x1.0	17	17	19	52.0	34.0	14.5	23.0	18.0	23.5	8.0	4.100

Sechskantmutter siehe SO 10006 METR

Ecrou à six pans voir SO 10006 METR

Hexagon nut see SO 10006 METR

Schwenkverschraubung
Coude banjo
Single banjo



SO 12824

Type -d -G	Mat.-Nr.	bar	M	SW1	SW2	SW3	L	D	H	i	z1	z2	e	kg/100
SO 12824-8-⅛	118.2841.160	100	12x1.0	14	14	13	26.0	15.0	20.5	6.5	17.5	9.0	5.5	1.400
SO 12824-10-¼	118.2841.270	100	14x1.0	17	19	17	32.0	20.0	28.0	8.5	21.0	12.5	6.5	2.900
SO 12824-12-⅜	118.2841.390	100	16x1.0	19	24	22	35.0	25.0	31.5	8.5	23.0	14.0	8.5	4.800
SO 12824-15-½	118.2841.534	100	20x1.5	24	30	27	42.0	30.0	38.0	10.0	29.5	17.0	12.0	8.400

O-Ring: FKM

Joint: FKM

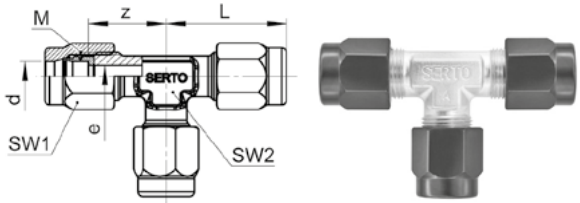
O-Ring: FKM

d=Rohraussen-ø
e= kleinste Bohrung
L= Mass in montiertem Zustand

d=ø extérieur du tube
e= ø-min. de passage
L=après montage

d=tube outside diameter
e=minimum bore
L=installed length

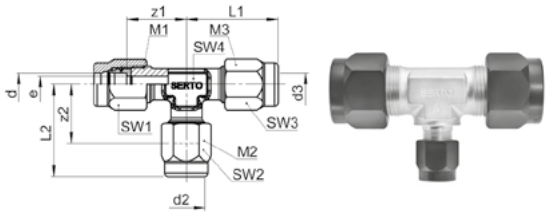
T-Verschraubung
Té égal
Tee union



SO 13021

Type -d	Mat.-Nr.	bar	M	SW1	SW2	L	z	e	kg/100
SO 13021-10	118.3000.100	100	14x1.0	17	14	31.0	20.5	8.0	3.400
SO 13021-12	118.3000.120	100	16x1.0	19	17	33.5	21.5	9.0	4.500
SO 13021-15	118.3000.150	100	20x1.5	24	19	39.0	26.0	12.0	8.100
SO 13021-18	118.3000.180	100	24x1.5	30	22	44.0	30.5	15.0	13.300
SO 13021-22	118.3000.220	64	28x1.5	32	27	48.0	31.5	18.0	15.800
SO 13021-28	118.3000.280	64	36x2.0	41	32	56.5	40.0	24.0	28.400
SO 13021-35	118.3000.350	40	42x2.0	50	41	62.0	45.0	30.0	43.300

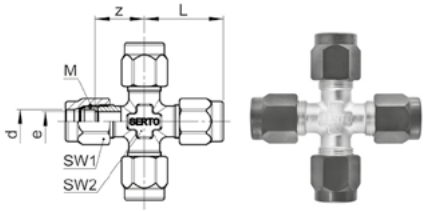
T-Verschraubung reduziert
Té réduit
Tee reduction union



SO 13021 RED

Type -d -d2 -d3	Mat.-Nr.	bar	M1	M2	M3	SW1	SW2	SW3	SW4	L1	L2	z1	z2	e	kg/100
SO 13021-18-10-18	118.3004.584	100	24x1.5	14x1.0	24x1.5	30	17	30	22	43.0	36.5	29.5	28.0	8.0	10.700
SO 13021-18-12-18	118.3004.599	100	24x1.5	16x1.0	24x1.5	30	19	30	22	43.0	38.0	29.5	28.0	9.0	10.900
SO 13021-22-12-22	118.3004.740	64	28x1.5	16x1.0	28x1.5	32	19	32	27	48.0	40.0	31.5	30.0	9.0	13.300
SO 13021-22-18-22	118.3004.862	64	28x1.5	24x1.5	28x1.5	32	30	32	27	48.0	45.0	31.5	33.5	15.0	15.600

Kreuzverschraubung
Croix égale
Cross union



SO 14021

Type -d	Mat.-Nr.	bar	M	SW1	SW2	L	z	e	kg/100
SO 14021-12	118.4000.120	100	16x1.0	19	14	33.5	21.5	9.0	5.400

d=Rohraussen-ø
e= kleinste Bohrung
L= Mass in montiertem Zustand

d=ø extérieur du tube
e= ø-min. de passage
L=après montage

d=tube outside diameter
e=minimum bore
L=installed length

Switzerland
SERTO AG
CH-8500 Frauenfeld
Tel. +41 52 368 11 11
info-ch@serto.com
www.serto.com

Germany
SERTO GmbH
D-34123 Kassel
Tel. +49 561 58004-0
info-de@serto.com

France
SERTO S.A.R.L.
F-77164 Ferrières en Brie
Tel. +33 1 64 30 38 38
info-fr@serto.com

Italy
SERTO Italiana S.r.l.
I-24030 Brembate di Sopra (BG)
Tel. +39 035 333 000
info-it@serto.com

USA
SERTO US Inc.
West Valley City, UT 84128 / USA
Tel. +1 385 247 0200
info-us@serto.com

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