

# Valves and connections for $SF_6$



**DILO.** Sustainably tight.

Made ∎ in ∎ Germany

## Table of contents



	Page
General	04 – 09
Mounting instructions with torque table	10 – 14
DILO couplings for SF <sub>6</sub> -switchgear	15 – 70
Couplings DN6	15 – 24
Couplings DN7	25 – 30
Couplings DN8	31 – 40
Couplings DN12	41 – 54
Couplings DN20	55 - 66
Couplings DN40	67 – 72
DILO soldering unions	73 – 80
DILO ball valves	81 - 86
DILO hoses	87 – 94
DILO transition pieces and adapters	95 – 12
	100 4
DILO SF <sub>6</sub> bottle connections	123 – 13

## General



DILO offers the widest valves and couplings product range in the world. Whether for medium voltage switchgear, high voltage switchgear or gas-insulated lines (GIL) our products always meet your requirements.

When using the DILO coupling system a leak rate of better than  $1 \times 10^{-8}$  mbar l/sec. is achieved corresponding to less than 1 cm<sup>3</sup> in 3 years.

The DILO sealing principle prevents the loss of  $SF_6$  gas and moisture from penetrating the  $SF_6$  gas system. DILO couplings will eliminate the loss of  $SF_6$  gas by incorrect gas handling. Thanks to their reliability, quality and durability DILO couplings are the world's most widely used connecting system for  $SF_6$  switchgear.

#### General

The DILO seal principle	05
Explanation of DILO-pressure stages	06
Surface treatment and cleaning	07
Quality assurance	08
Symbols for valves and fittings	09



## The DILO seal principle

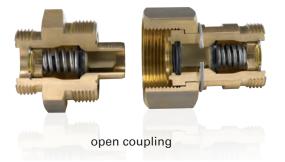
DILO is a seal principle without intermediate seal in the form of groove and tongue with little depth of immersion. This principle guarantees permanent tightness at high static and dynamic alternating stresses which might result from vacuum and pressure in connection with high temperatures and vibrations inside the tubing systems.

Sealing in accordance with the DILO principle is effected by direct contact of the sealing profiles of the groove and tongue parts. The different radii of curvature of groove and tongue are in a certain relation to each other. Thus, two ring-shaped sealing areas are produced which create high stability.

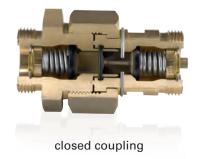
The additional braking surface prevents plastic deformations at the ring-shaped sealing areas.

DILO fittings are easy to assemble and require no maintenance. They can loosened and reconnected as often as desired. Thus, the re-use of the DILO seal is guaranteed. Due to the little depth of immersion of DILO groove and tongue the tubes can be immediately pulled out laterally after loosing the clamping nut.

### The DILO seal principle



DILO couplings allow a connection to be made by simply screwing the two coupling parts together. Before the metal to metal seal closes the pressure and vacuum tight coupling is sealed



inside by means of an O-ring. When loosening the coupling parts again the same O-ring prevents gas loss whilst the self seal valves close.

#### Advantages of application

- Self-closing coupling system
- Pressure and vacuum-tight even when coupling and uncoupling
- Permanent tightness even when frequently connected and disconnected
- Applicable up to PN 64 bar

- Suitable for temperatures from -40 °C to +80 °C
- Direct connection to DILO service carts without adapter
- Available in different materials even for outdoor switchgear

## Explanation of DILO-pressure stages

Series	ML1	Valves	Accessories	Hoses
Pressure stage up to	PN64		PN50 / 64	

#### **DILO-Type explanation**

Explanation of abbreviations used in our catalogue

ML Soldering-stub unions with metric connecting dimensions

Illustration of different structural shapes of DILO-soldering unions

A Soldering union

- B Screw-in stub-soldering union
- M Gauge connecting union

### Material standards

Material No. DIN **Material designation DILO** material code letter 1.4571 X6CrNiMoTi17-12-2 С CW614N Ρ CuZn39Pb3 Т EN AW-6082 EN AW-ALSi1MgMn Е 1.4305 X10CrNiS189 CW713R CuZn37Mn3Al2PbSi Н







## Surface treatment and cleaning

Before dispatch or storage, the finished valves and fittings must be treated as follows:

- austenitic material is cleaned
- brass material is cleaned
- aluminium material is anodised, the thread is lubricated with Molykote

### Version

Version of the screw-in stub with O-ring sealing (can also be supplied in special design with edge acc. to DIN 3852-1 form B and DIN EN ISO 1179-4 form B).

Design of the screw-in holes for the isometric thread as well as for Whitworth-pipe threads according to DIN 3852-1 form X and DIN EN ISO 1179-1.

### **Technical data of threads**

Type of thread	Standards	Code designation	Illustration
Metric thread	DIN 13 thread angle 60°	М	
Whitworth thread	DIN/ISO 228 thread angle 55°	G	

### **Soldering process**

DILO-soldering unions can be soldered by the well-known "autogenous" soldering techniques.

### Packing

Parts are all hermetically sealed in PVC to ensure they are kept free of dust and dirt. The unions are protected against damage by plastic caps.

### O-ring and rubber seal

For all coupling parts an EPDM rubber seal is used as sealing material.

## Quality assurance

Quality assurance takes the first place within the DILO-organization. Our approved and authorized experts permanently check the material carefully. The entire raw material is ordered according to DILO approval-/ order regulations. Thus it is guaranteed that all necessary tests have been carried out which is confirmed in test certificates according to EN 10204 (3.1).

By marking of the raw materials and finished products, the identity of materials is guaranteed. Our fittings areTÜV-approved. Furthermore a certificate according to ISO 9001:2008 is available.

### Approvals and tests

DILO products have been approved by international classification organisations such as:

- Certification according to ISO 9001:2008
- HP0 approval as pressure equipment manufacturer
- Production control in accordance witch EC 97/23 regulations

CADO + CERTIFICAT	CERTIFICATE Decentification Body	17019111830 • 0070 CERTIFICATE 0070	CONTRACTOR OF THE ADDRESS OF THE ADD
• CERTIFICA	of TÜV SÜD Management Service GmbH certifies that	The company DLC Armaturen und Anlagen OmbH B Frundsbergsteste 36 87227 Babenhausen	Zentifikat-Mc: 2:48-001-AUD 65-05-1713-001 Comman tes Gen Mannel und Anschrift Gen Mannellanzer Stear Der Anschrift Stear Der Anschrift De Aller Stear Der Anschrift De Aller Stear De Aller Stear Stear Barter Stear Stear Stear Barter Stear Stear Stear Stear Barter Stear
ртификат	Dilo Armaturen- und Anlagen GmbH Frundsbegatata 56 D-87727 Babenhausen	The beam subtle decording to AD 2000 Merkblark HP and EN ISO 3334-2. The concerns has proved to success of the protectimities for the environment of pressure exploration to the ISO 3234-2. The concerns has proved to success of the protectimise spectrum in the Pressure Equipment Directive V772EC. Independent by the advantantime to proceeding secturising to the decementary to the advantantime to proceeding secturising to the spectra of the the spectrum secturising to the the spectrum secturising to the advantantime to proceeding secturising to the the spectrum secturising to the advantantime to proceeding secturising to the the spectrum secturising to the spectrum secturising to the the spectrum secturising to the spectrum secturising to the spectrum secturising to the spectrum secturising to the the spectrum secturising to the spectrum secturising to the spectrum secturising to the spectrum secturising to the spectrum secturising to the spectrum secturising to the spectrum secture secturising to the spectrum secture sec	Contraction of the contraction
品推进非 + CE	has established and applies a Cuality Management System for Development, Production and Sales of High Pressure and Vacuum Pfilings, SFr, Bantenance- and Masaring Divides.	the abase modules have to be observed     The condexy     The condexy     The condexy     The condexy     the second condexy and the second condexy	Optimized investigation of the second
:	An audit was performed, Report No. 70015247 Proof has been furnished that the requirements according to ISO 9001:2008	The scope of the audit is detailed in our confirmation dated 2011-12- 15 W The detailed in our confirmation dated 2011-12- W The detailed in our confirmatio	Desprove, 603 Desp Ferigungsstatte: Bookstang per Produkting per Fritz Roberts Service Gaster Control of the Service Control Fritz Roberts Service Gaster
AT + CERTIFICAT	Me huffled: The certificate is wild unit 2015-10-11 Certificate Registration No. 12 100 4355 TMS	Munich, January 27, 2012 Dir (202) Inclusive States Dir (202) Inclusive States Dir (202) Inclusive States Dir (202) Inclusive States Munich Munich Munich	Auguber 5 8 87 200 Auguber 5 8 87 200 Prog. and Prog. and Prog
ZERTIFIKAT	Hereits, 2015-16-18 OPE STALLARGE A	The Sch Main Mark Sch	Annald as



## Symbols for valves and fittings

### Soldering stub soldering-union





Screw-in stub-soldering union





Gauge connection union





### **Coupled coupling**





### **Coupling halfs**



### Hose



### **Blanking disk**





Transition piece





Ball valve





## **Mounting instructions**

### General

- Specify the pipe lenghts exactly and cut off rectangularly.
- Burr the pipe extremity and clean it metallically bright.
- Apply the soldering flux where soldering is to be carried out.
- When soldering, use the auxiliary means recommended by DILO and observe the instructions of the soldering materials supplier.
- Do not touch the soldered parts until the solder has solidified and cooled down (Do not quench the soldering area with water).
- Remove the soldering material by rinsing with water and by pickling is.
- Dry union before mounting.
- When mounting only use the connecting components not being damaged by impacts or by overflowed soldering material.
- It must be strictly observed that the tubing system is tension-free supported and that the tubing sections align to each other. Possible divergences can be straightened with the DILO straightening tool.
- Before final mounting, check that all DILO-groove and tongue parts are clear of impurities.
- In order to reduce the friction, the tube unions should be greased with suitable grease at the threads and contact surfaces of the clamping nut, especially when made of austenitic materials. Thus the torque is better converted into axial force and galling of the threads is avoided. When selecting the grease, observe the operating temperatures, the media, the corrosive degree and the materials.
- A fast and strong tightening of the clamping nut guarantees perfect tightness.

The standard version of the screw-in stub of the DILO screw-in unions is equipped with O-ring sealing.

When mounting DILO screw-in unions we recommend using softmetal-sealings (e. g. copper plates opposite the housing or block) for sealing of screw-in stub DIN 3852-1 form B and DIN EN ISO 1179-4.

When all these instructions are observed the mounting will be simple and time-saving. Pipes which are too short or not precisely aligned will require extra work.



## Mounting instructions

### Mounting illustration:



1. Rectangularly saw off the pipes



2. Deburring of the pipe extremities inside and outside



3. Clean to a bright metallic finish



4. Apply the soldering flux on the pipe



5. Apply the soldering flux at the part to be soldered



6. Use of auxiliary materials

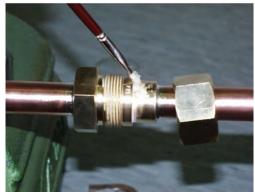
## Mounting instructions



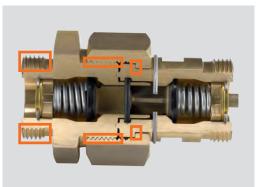
7. Observe the instructions of the soldering materials supplier



8. Before assembling clean the DILO tongue and groove part



9. Lubricate with appropriate lubricants



10. Lubricating points at a DILO tube union



 Tighten fast and strongly the clamping nut by counteracting force according to torque table



12. A screw in plug is sealed into a housing or block with an O ring or copper seal ring.

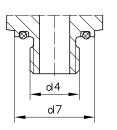


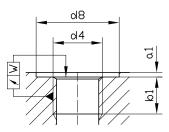
## Mounting example

Screw-in stub with O-ring sealing

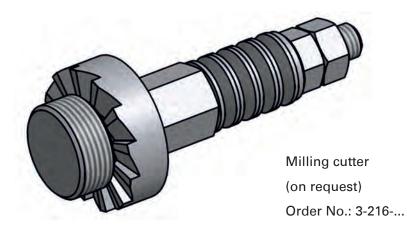
Torque see torque diagram Screw-in thread

Screw-in hole see table Make screw-in hole according to DIN 3852-1 form X and DIN EN ISO 1179-1 Use milling cutter for tight seat





DN	d4	d7	d8	a1	b1	W
8	M16 x 1,5 G 3/8 A	26	27	1,5	14	0,1
12	G 1/2 A	36	37	2,5	16	0,1
20	M33 x 2 G 1 A	49	50	2,5	20	0,2
40	G 1 1/2 A	65	66	2,5	24	0,2



## Torque table

DILO profile connection			
Size of jaw	Material	Torque Nm	
24	AL	40	
24	Stainless steel / Brass	40	
32	AL	62	
32	Stainless steel / Brass	77	
41	AL	88	
41	Stainless steel / Brass	120	
50	AL	110	
50	Stainless steel / Brass	140	
65	Stainless steel / Brass	150	

Screw-in thread			
Screw-in thread	Material	Torque Nm	
G1/4	AL	15	
G3/8	AL	40	
G3/8	Stainless steel / Brass	40	
G1/2	AL	68	
G1A	AL	120	
G1A	Stainless steel / Brass	130	
G1½	AL	120	
G1½	Brass	140	
M16x1,5	AL / Stainless steel / Brass	40	
M33x2	AL	120	
M33x2	Stainless steel / Brass	130	

Coupling 3-408-R	Torque 15 Nm
-	

Coupling 3-888-R	Torque 15 Nm

Coupling DN40	Torque 80 Nm
---------------	--------------

Covering caps		
Size of jaw	Torque Nm	
24	20	
32	40	
50	40	

## **DILO** couplings DN6





The coupling allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an O-ring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

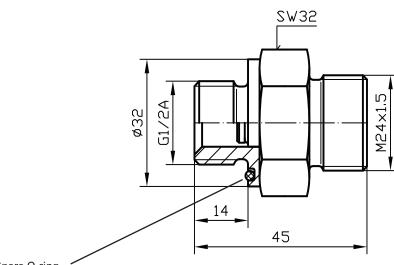
#### DILO couplings DN6

<b>3-408-R005</b>	Coupling groove part / BG PN10 DN6	16
<b>3-408-R006</b>	Flange coupling PN10 DN6	17
<b>3-408-R009</b>	Gauge connecting piece DN6	18
<b>3-408-R007</b>	Covering cap DN6	18
<b>3-408-R001</b>	Coupling tongue part PN10 DN6	19
∎ 6-1161-R013	Coupling tongue part PN10 DN6 with connecting coupling for measuring device	20
<b>3-408-R021/R022</b>	Soldering stub connection DN16	21
<b>3-408-R020</b>	Gauge connecting coupling DN6	21
<b>3-419-R004</b>	Transition piece to DN8 connections	22
<b>3-419-R003</b>	Adapter piece	23

## **BG PN10 DN6** Coupling groove part

Order No.: 3-408-R005 T Material: AL





3-408-R001 3-408-R007 3-408-R007 3-408-R020 3-408-R020 3-408-R021/22

Suitable connecting parts

Spare O-ring Order No. 05-0057-R087

### PN10 DN6 Flange coupling



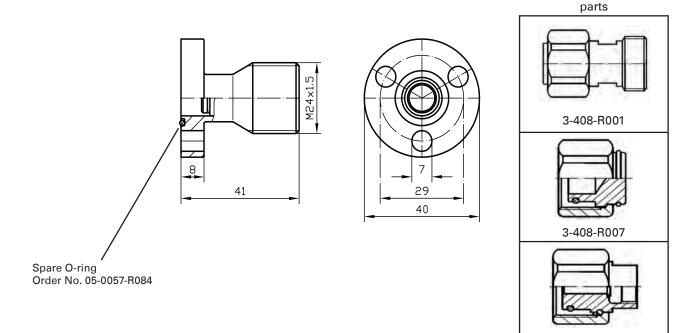
Suitable connecting

3-408-R020

3-408-R021/22

Order No.: 3-408-R006 T Material: AL





## PN10 DN6 Gauge connecting piece

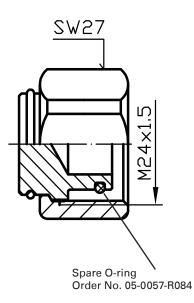
Order No.: 3-408-R009 T Material: AL



## PN10 DN6 Covering cap

Order No.: 3-408-R007 T Material: AL



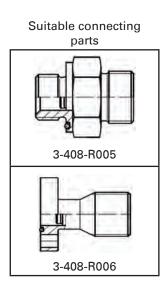


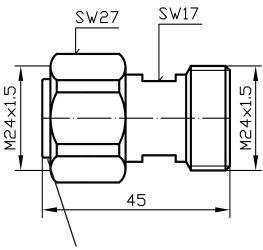
## PN10 DN6 Coupling tongue part



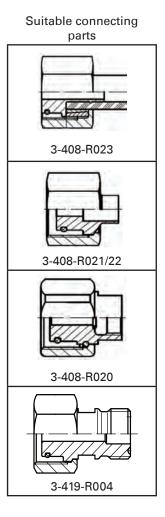
Order No.: 3-408-R001 T Material: AL





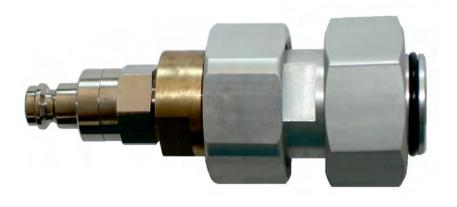


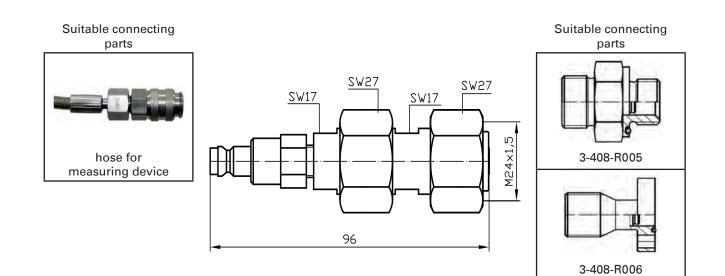
Spare O-ring Order No. 05-0057-R084



## **PN10 DN6 Coupling tongue part** with connecting coupling for measuring device

Order No.: 6-1161-R013 Material: AL / Brass



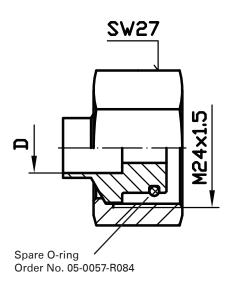


### PN10 DN6 Soldering stub connection



Order No.: 3-408-R021 C D = 10 mm 3-408-R022 C D = 6 mm Material: Stainless steel

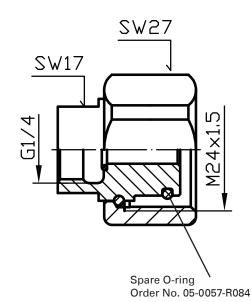




### PN10 DN6 Gauge connecting coupling

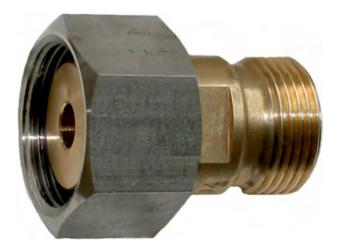
Order No.: 3-408-R020 T Material: AL

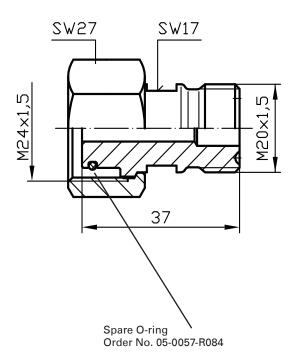




## PN10 DN6 Transition piece to DN8 connections

Order No.: 3-419-R004 Material: Stainless steel / Brass



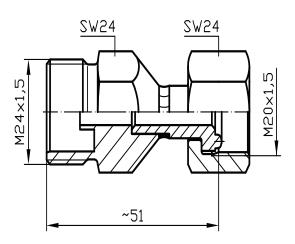


## PN10 DN6 Adapter piece



Order No.: 3-419-R003 Material: Stainless steel / Brass





## **DILO** couplings DN7





The plug connection allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an Oring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

### DILO couplings DN7

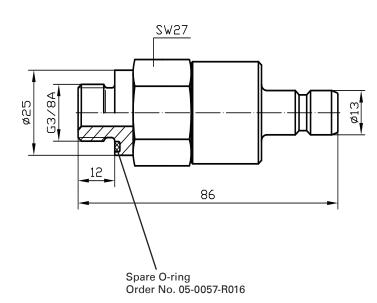
3-308-R003	Plug connection groove part PN30 DN7	26
3-308-R016	Covering cap for plug connection groove part PN30 DN7	27
	Diverse and estimate a set DN20 DN7	20

- 3-308-R002 Plug connection tongue part PN30 DN7 28
  6-11161-R015 Plug connection tongue part PN30 DN7 29
  - with connecting coupling for measuring device
- 3-308-R006 Covering cap for plug connection 30 tongue part PN30 DN7

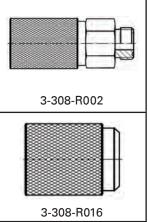
## PN30 DN7 Plug connection groove part

Order No.: 3-308-R003 T Material: AL





Suitable connecting parts

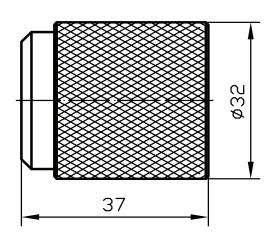


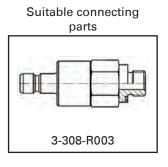
## **PN30 DN6** Covering cap for plug connection groove part



Order No.: 3-308-R016 T Material: AL



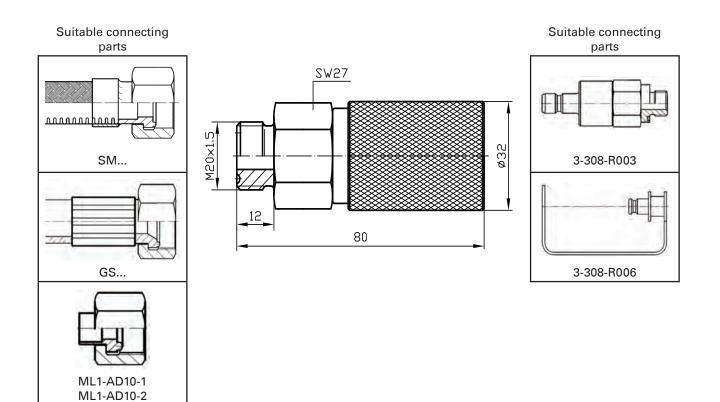




## PN30 DN7 Plug connection tongue part

Order No.: 3-308-R002 T Material: AL





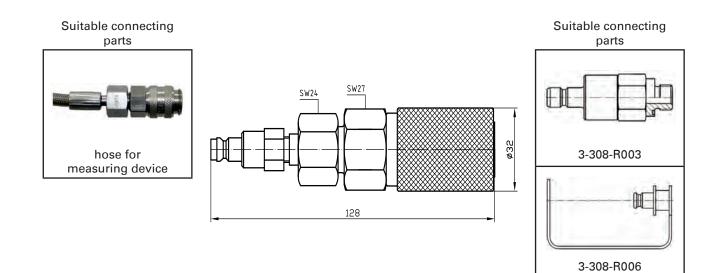
3-251-R001



### PN30 DN7 Plug connection tongue part with connecting coupling for measuring device

Order No.: 6-1161-R015 Material: AL

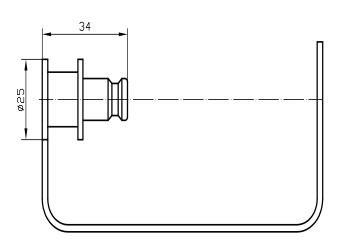


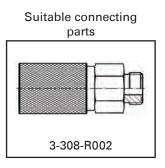


## **PN30 DN7** Covering cap for plug connection tongue part

Order No.: 3-308-R006 Material: PVC







## **DILO** couplings DN8





The coupling allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an O-ring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C. In special version these couplings are also available for a temperature range of -60 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

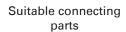
#### DILO couplings DN8

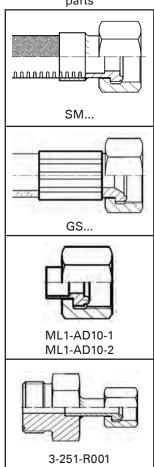
VK/A-02/8	Coupling groove part / A PN64 DN8	32
■VK/B(G)-03/8	Coupling groove part PN64 DN8 with O-ring	33
SK-272-R001	Flange coupling PN64 DN8	34
SK-272-R003	Flange coupling PN64 DN8	35
<b>3-778-R001</b>	Flange coupling PN64 DN8 with 2-hole flange	36
■VK/KN-04/8	Covering cap für coupling groove part PN64 DN8	37
VK/F-02/8	Coupling tongue part PN64 DN8	38
<b>6</b> -1161-R011	Coupling tongue part PN64 DN8 with connecting coupling for measuring device	39
SK-372-R020/ R021	Gauge connecting coupling PN64 DN8	40

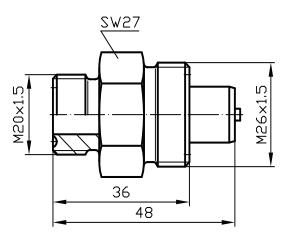
## A PN64 DN8 Coupling groove part

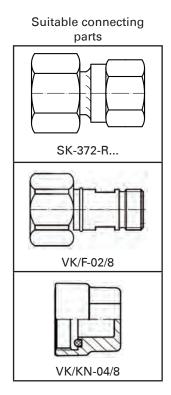


Order No.	Material	
VK/A-02/8 T	AL	
VK/A-02/8 E	Stainless steel	
VK/A-02/8 P	Brass	







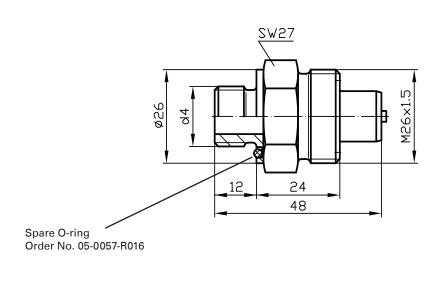


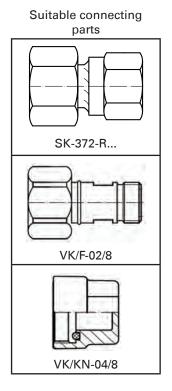
### PN64 DN8 Coupling groove part with O-ring





d4	Order No.	Material
M16 x 1,5	VK/B-03/8 T	AL
M16 x 1,5	VK/B-03/8 E	Stainless steel
M16 x 1,5	VK/B-03/8 H	Brass
G 3/8 A	VK/BG-03/8 T	AL
G 3/8 A	VK/BG-03/8 E	Stainless steel
G 3/8 A	VK/BG-03/8 H	Brass



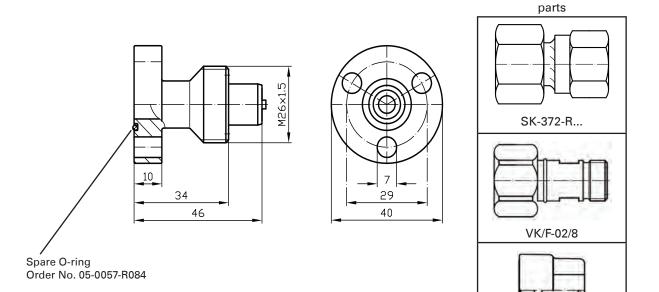


In special version the screw-in thread can also be supplied with sealing edge according to DIN 3852-1 and DIN EN ISO 1179.

## PN64 DN8 Flange coupling

Order No.: SK-272-R001 T Material: AL





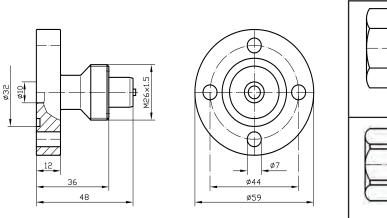
Suitable connecting

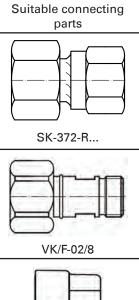
VK/KN-04/8

## PN64 DN8 Flange coupling

Order No.: SK-272-R003 T Material: AL





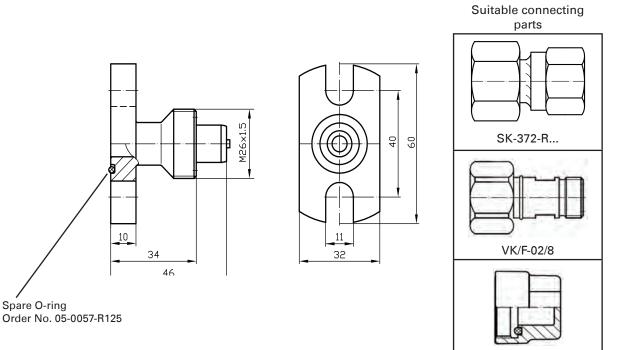


VK/KN-04/8

## **PN64 DN8** Flange coupling with 2-hole flange

Order No.: 3-778-R001 T Material: AL





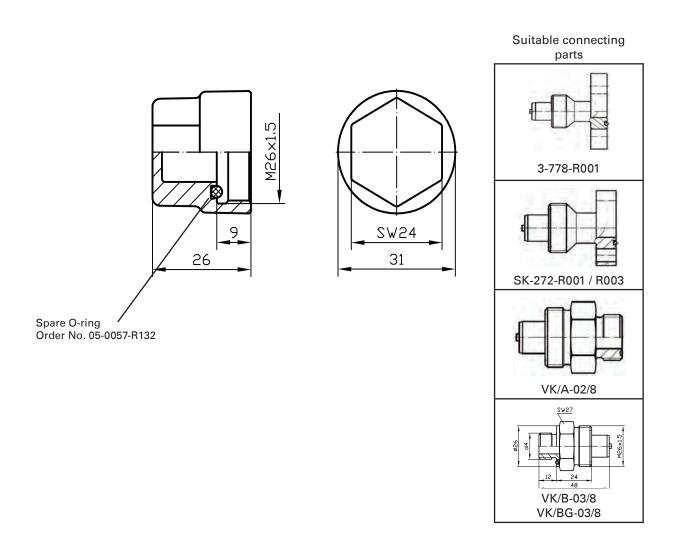
VK/KN-04/8

#### **PN64 DN8** Covering cap for coupling groove part





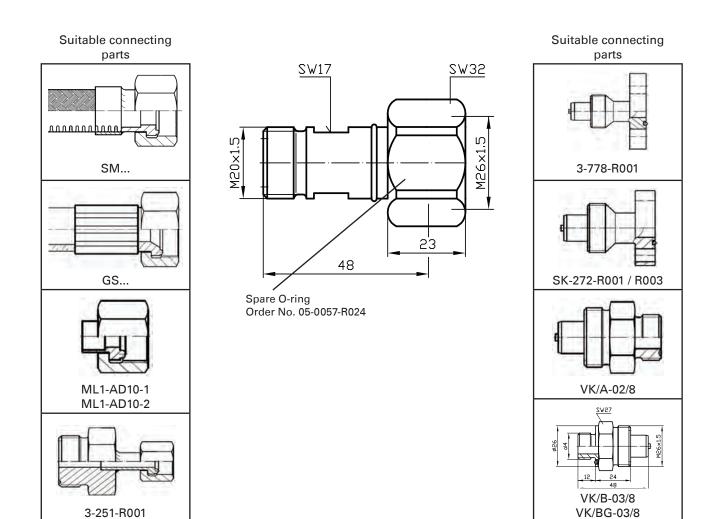
Order No.	Material
VK/KN-04/8 T	AL
VK/KN-04/8 E	Stainless steel



#### PN64 DN8 Coupling tongue part



Order No.	Material
VK/F-02/8 T	AL
VK/F-02/8 E	Stainless steel
VK/F-02/8 P	Brass



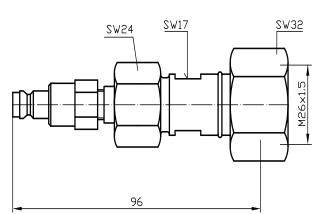


#### PN64 DN8 Coupling tongue part with connecting coupling for measuring device

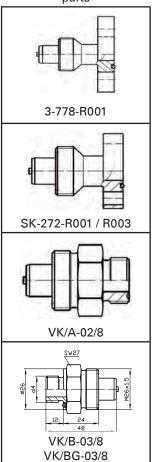
Order No.: 6-1161-R011 Material: Brass







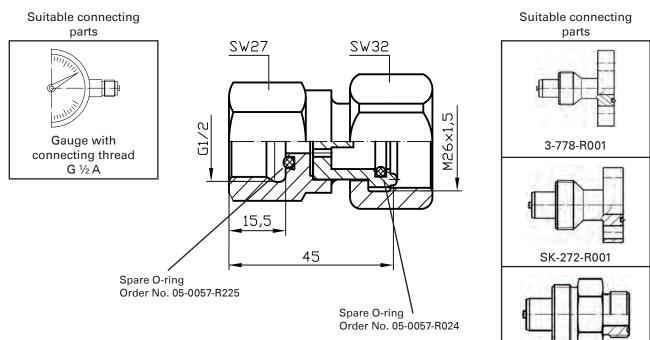
Suitable connecting parts



#### PN64 DN8 Gauge connecting coupling

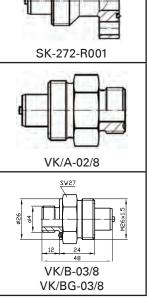


Order No.	Material
SK-372-R020 P	Brass
SK-372-R021 C	Stainless steel



#### Description

The gauge connecting coupling serves as connecting piece to a coupling groove part DN8. When coupling, a pin in the gauge connecting coupling opens the flow of the opposite coupling groove part (forced opening). This allows to read the present operating pressure on the screwed-in gauge. When disconnecting, the concial nipple of the groove part is closed by spring load (pressure and vacuum tight). If the gauge connecting coupling is not connected the gauge shows "zero pressure". The connecting coupling allows to install the gauge in any required position (rotatable 360°).



## **DILO** couplings DN12





The coupling allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an O-ring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C. In special version these couplings are also available for a temperature range of -60 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

#### DILO couplings DN12

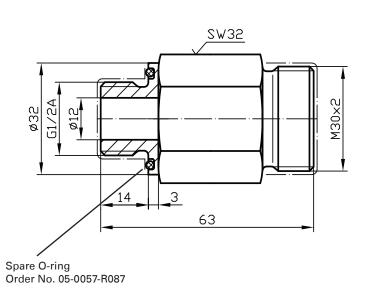
<b>3-888-R005</b>	Coupling groove part / BG PN10 DN12	42
<b>3-888-R007</b>	Covering cap	43
<b>3-888-R001</b>	Coupling tongue part PN10 DN12	44
<b>6</b> -1161-R014	Coupling tongue part PN10 DN12 with connecting coupling for measuring device	45
<b>3-888-R031</b>	Gauge connecting coupling PN10 DN12	46
<b>3-888-R009</b>	Gauge connecting coupling PN10 DN12	47

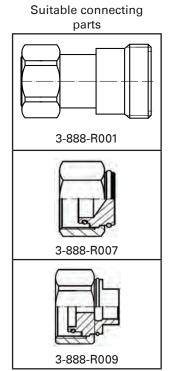
DILO couplings DN12

### **BG PN10 DN12** Coupling groove part

Order No.: 3-888-R005 T Material: AL



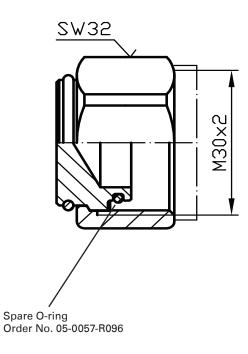




#### PN10 DN12 Covering cap

Order No.: 3-888-R007 T Material: AL





## Suitable connecting parts



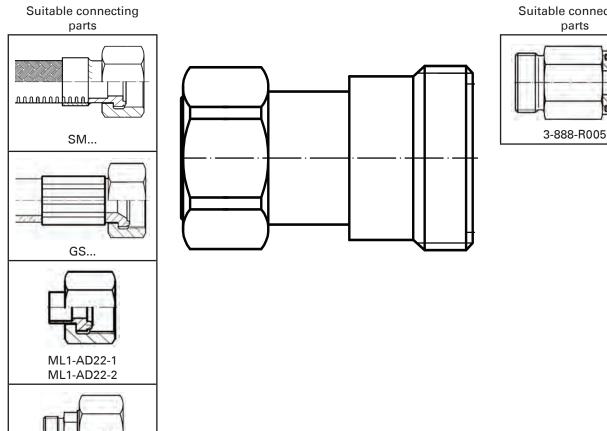


DILO couplings DN12

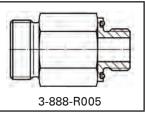
#### **PN10 DN12** Coupling tongue part

Order No.: 3-888-R001 T Material: AL





Suitable connecting

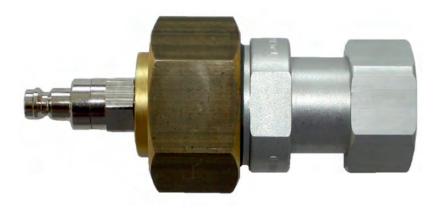


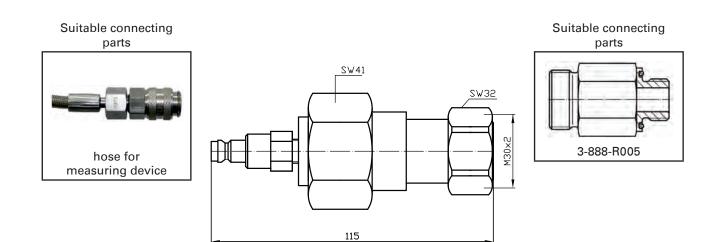
3-240



#### PN10 DN12 Coupling tongue part with connecting coupling for measuring device

Order No.: 6-1161-R014 Material: AL

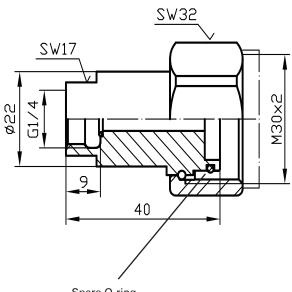




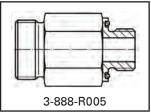
#### PN10 DN12 Gauge connecting coupling

Order No.: 3-888-R031 T Material: AL





Spare O-ring Order No. 05-0057-R096 Suitable connecting parts

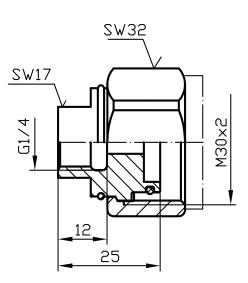


### PN10 DN12 Gauge connecting coupling

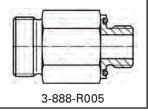


Order No.: 3-888-R009 T Material: AL









## **DILO couplings DN12**





The plug connection allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an Oring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

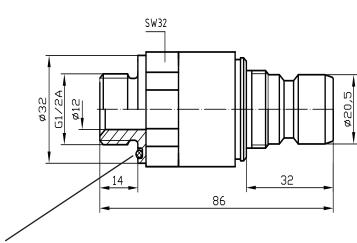
#### DILO couplings DN12

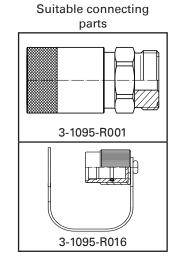
- 3-1095-R005 Plug connection groove part PN8 DN12 50
- 3-1095-R016 Covering cap für plug connection 51 groove part PN8 DN12
- 3-1095-R001 Plug connection tongue part PN8 DN12 52
- 3-1095-R002 Plug connection tongue part PN8 DN12 53 with connecting coupling for measuring device
- 3-1095-R017 Density gauge connection PN8 DN12 54

#### PN8 DN12 Plug connection groove part

Order No.: 3-1095-R005 T Material: AL







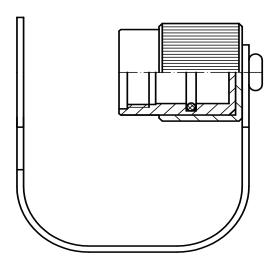
Spare O-ring Order No. 05-0057-R087

#### **PN8 DN12** Covering cap for plug connection groove part



Order No.: 3-1095-R016 T Material: AL





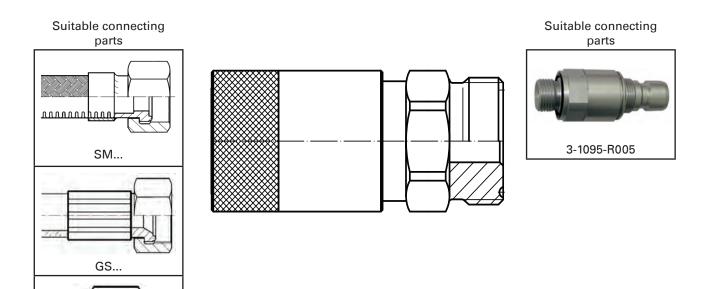


3-1095-R005

#### PN8 DN12 Plug connection tongue part

Order No.: 3-1095-R001 T Material: AL





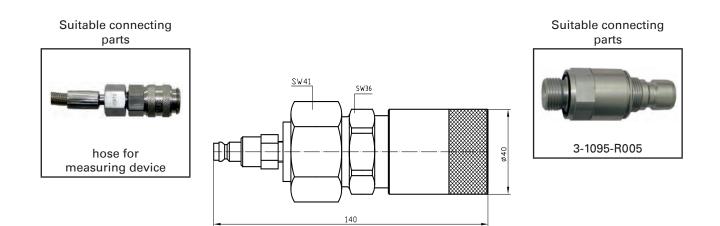
ML1-AD22-1 ML1-AD22-2



#### PN8 DN12 Plug connection tongue part with connecting coupling for measuring device

Order No.: 3-1095-R002 T Material: AL

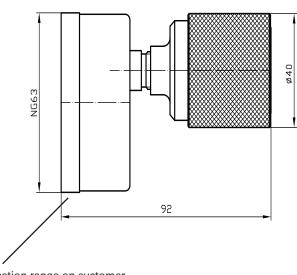




### PN8 DN12 Density gauge connection

Order No.: 3-1095-R017 T Material: AL







Indication range on customer request

## **DILO couplings DN20**





The coupling allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an O-ring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C. In special version these couplings are also available for a temperature range of -60 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

#### DILO couplings DN20

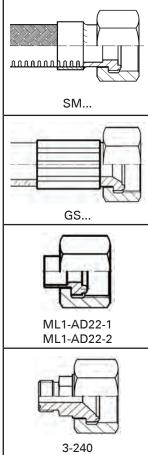
VK/A-02/20	Coupling groove part / A PN64 DN20	56
■VK/B(G)-03/20	Coupling groove part PN64 DN20 with O-ring	57
VK/FL-01/20	Flange coupling PN64 DN20	58
<b>3-777-R001</b>	Flange coupling PN64 DN20 with 2-hole flange	59
<b>3-685-R001</b>	Flange coupling PN64 DN20	60
■VK/KN-04/20	Covering cap for coupling groove part PN64 DN20	61
VK/F-02/20	Coupling tongue part PN64 DN20	62
<b>3</b> -1121-R003	DN20 Quick coupling	63
∎ 6-1161-R012	Coupling tongue part PN64 DN20 with connecting coupling for measuring device	64
<b>6</b> -1206-R001	Coupling tongue part	65
<b>6-1092-R006</b>	Coupling tongue part	66
■ 6-1281-R001	Coupling tongue part with air filter	67
SK-282-R020	Gauge connecting coupling PN64 DN20	68

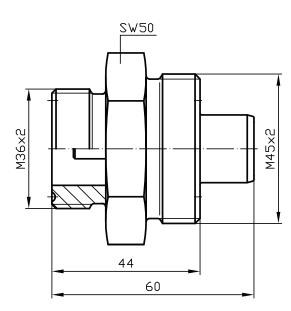


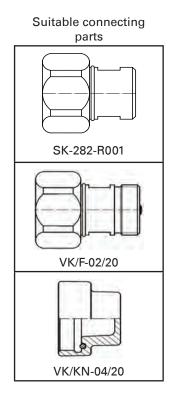


Order No.	Material
VK/A-02/20 T	AL
VK/A-02/20 P	Brass
VK/A-02/20 E	Stainless steel







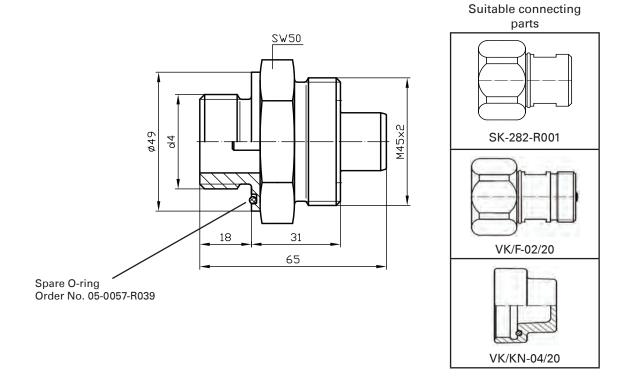


#### PN64 DN20 Coupling groove part with O-ring





d4	Order No.	Material
M33 x 2	VK/B-03/20 T	AL
M33 x 2	VK/B-03/20 P	Brass
M33 x 2	VK/B-03/20 E	Stainless steel
G 1 A	VK/BG-03/20 T	AL
G 1 A	VK/BG-03/20 P	Brass
G 1 A	VK/BG-03/20 E	Stainless steel

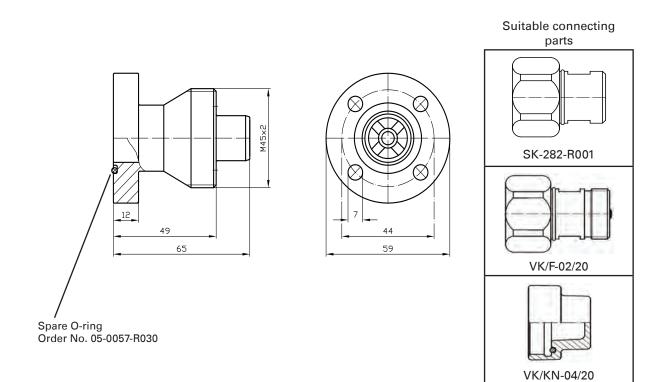


In special version the screw-in thread can also be supplied with sealing edge according to DIN 3852-1 and DIN EN ISO 1179.

#### PN64 DN20 Flange coupling



Order No.	Material
VK/FL-01/20 T	AL
VK/FL-01/20 E	Stainless steel

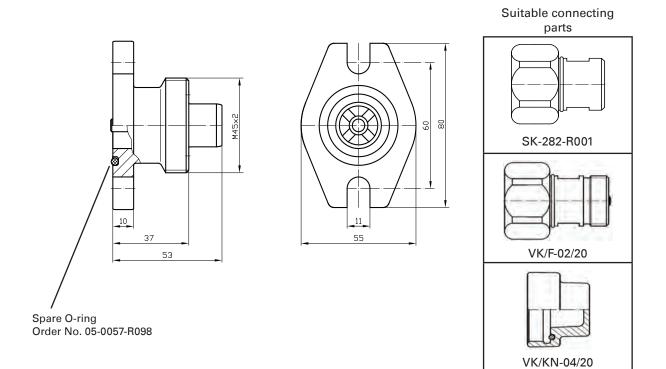


#### **PN64 DN20** Flange coupling with 2-hole flange



Order No.: 3-777-R001 T Material: AL

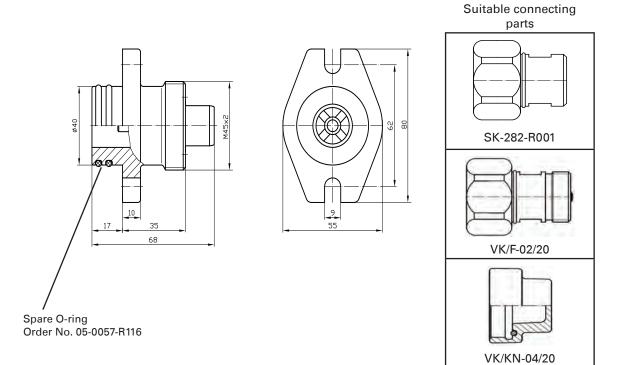




## PN64 DN20 Flange coupling

Order No.: 3-685-R001 T Material: AL



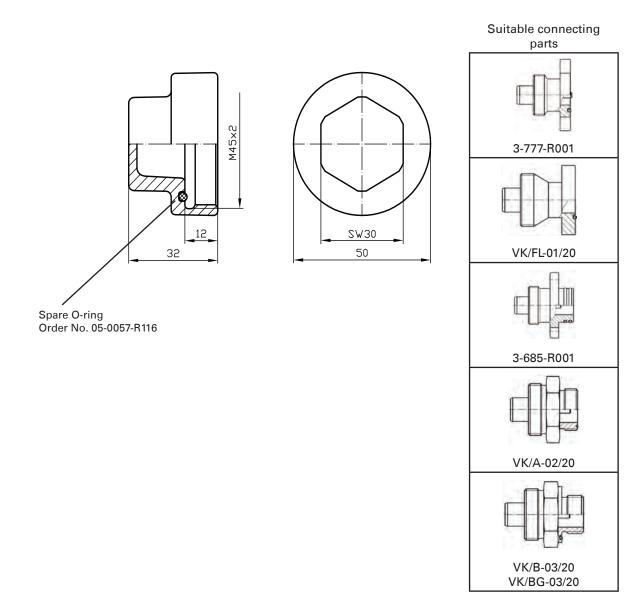


#### PN64 DN20 Covering cap for coupling groove part





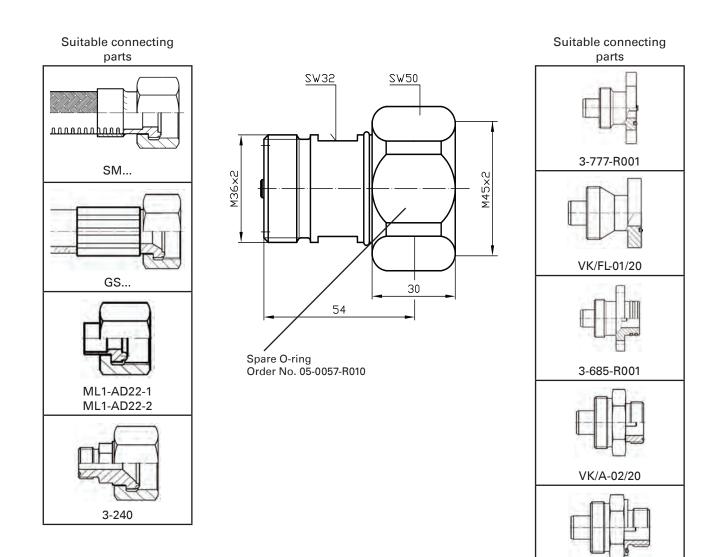
Order No.	Material
VK/KN-04/20 T	AL
VK/KN-04/20 E	Stainless steel



#### PN64 DN20 Coupling tongue part



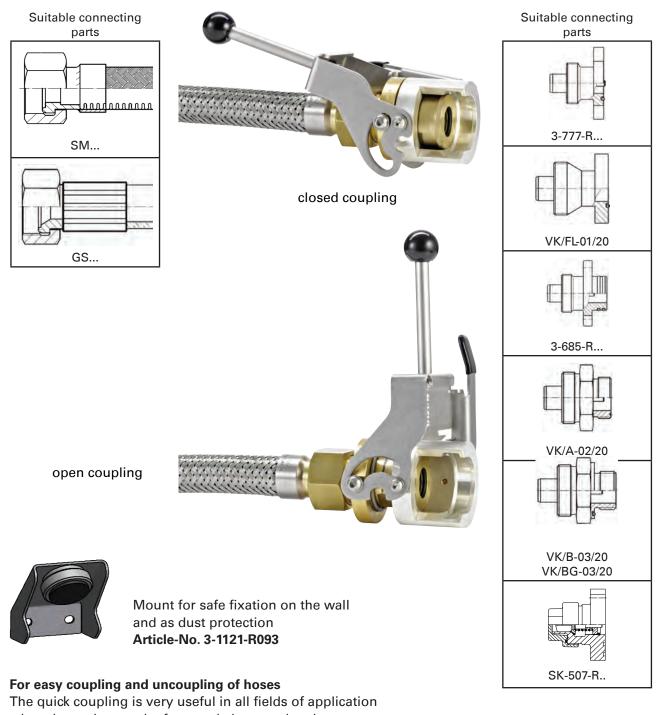
Order No.	Material
VK/F-02/20 T	AL
VK/F-02/20 E	Stainless steel
VK/F-02/20 P	Brass



VK/B-03/20 VK/BG-03/20

#### 3-1121-R003 DN20 Quick coupling





where hoses have to be frequently loosened and reconnected e. g. during final tests of completely mounted GIS fields. Thanks to the clamp lock the DN20 hoses can easily be connected without any loss of  $SF_6$  gas. Thus the handling times in GIS production are shortened and productivity is increased considerably.

#### Important note:

The quick coupling is only compatible with DILO coupling groove parts of version 2 (additional "V2" stamp on the flange or wrench size).

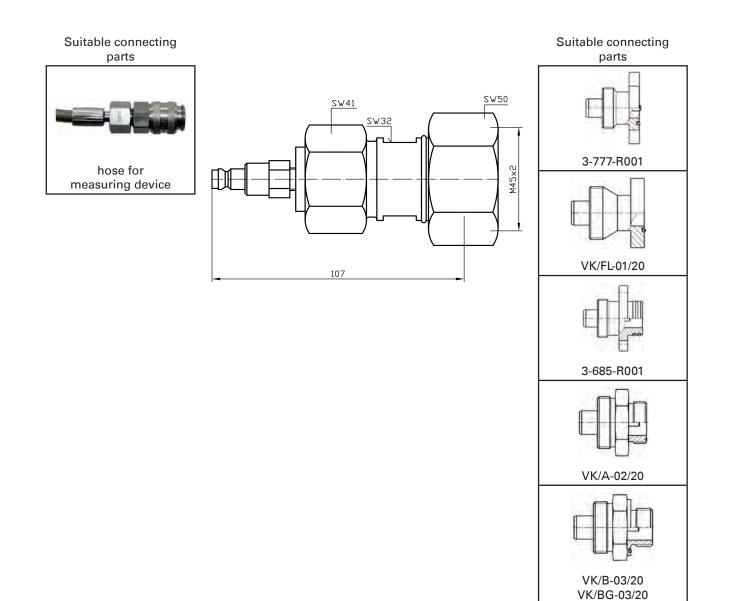
Please see our product video!



#### PN64 DN20 Coupling tongue part with connecting coupling for measuring device

Order No.: 6-1161-R012 Material: Brass



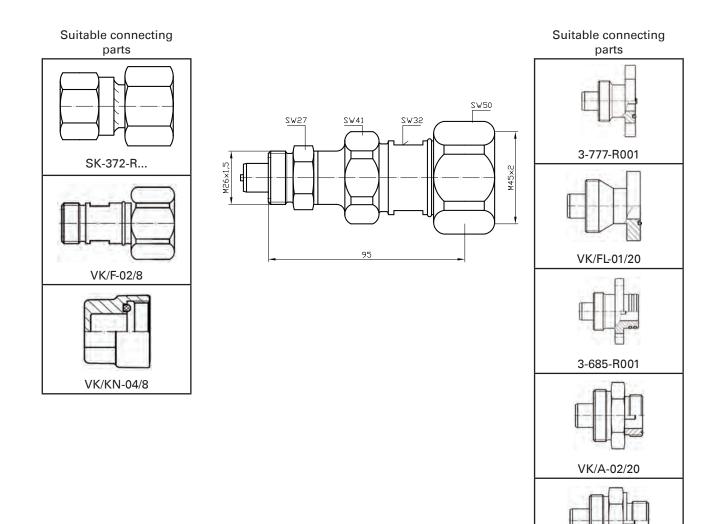




#### PN64 DN20 Coupling tongue part

Order No.: 6-1206-R001 Material: Brass



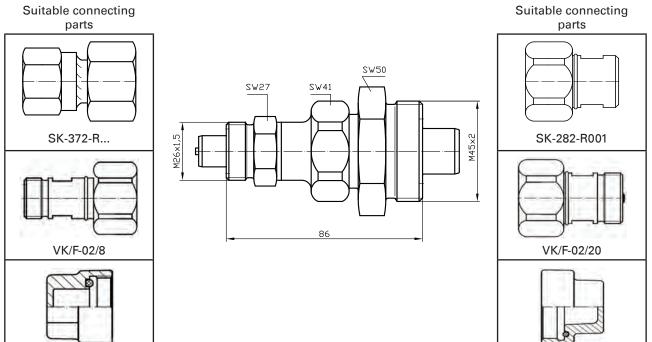


VK/B-03/20 VK/BG-03/20

#### PN64 DN20 Coupling tongue part with connecting coupling for measuring device

Order No.: 6-1092-R006 Material: Brass





VK/KN-04/20

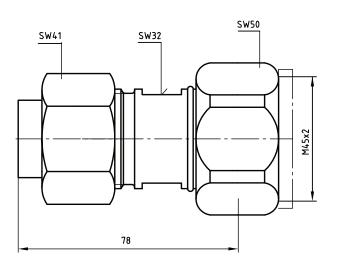
VK/KN-04/8

#### PN64 DN20 Coupling tongue part with air filter

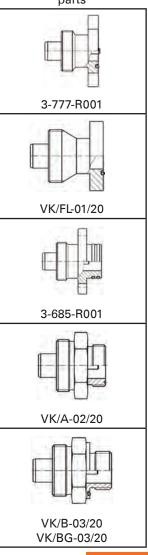


Order No.: 6-1281-R001 Material: Brass





Suitable connecting parts



#### Description

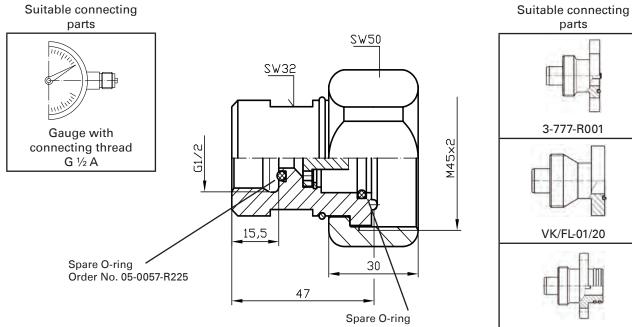
This coupling tongue part allows gas compartments which are under vacuum to be flooded with air after the  $SF_6$  gas recovery and it is not necessary to use any service cart.

The integrated 100- $\mu m$  filter sieve prevents dirt particles from ambient air penetrating the gas compartment during the flooding process.

#### **PN64 DN20** Gauge connecting coupling



Order No.	Material
SK-282-R020 T	AL
SK-282-R020 P	Brass



Order No. 05-0057-R010

#### Description

The gauge connecting coupling serves as connecting piece to a coupling groove part DN20. When coupling, a pin in the gauge connecting coupling opens the flow of the opposite coupling groove part (forced opening). This allows to read the present operating pressure on the screwed-in gauge. When disconnecting, the concial nipple of the groove part is closed by spring load (pressure and vacuum tight). If the gauge connecting coupling is not connected the gauge shows "zero pressure". The connecting coupling allows to install the gauge in any required position (rotatable 360°).

# 3-777-R001 VK/FL-01/20 3-685-R001 VK/A-02/20 VK/B-03/20

VK/BG-03/20

parts

## **DILO** couplings DN40





The coupling allows to establish a connection by simply fitting both coupling parts into each other. Before load relieving of the coupling seats the pressure- and vacuum tight coupling is sealed inside with an O-ring during the coupling process. The coupling is forced to be open in coupled position. If both coupling sides are separated again the sealing seats shut off automatically.

All couplings are temperature-resistant from -40 °C to +80 °C.

The suitable connecting parts for DILO couplings must be ordered separately.

#### DILO couplings DN40

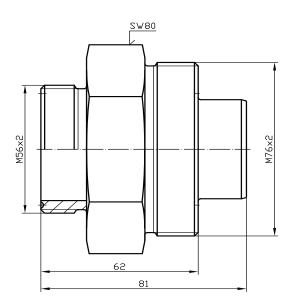
VK/A-02/40	Coupling groove part / A PN16 DN40	70
VK/FL-01/40	Flange coupling PN16 DN40	71

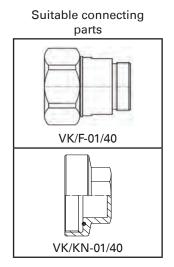
- VK/KN-01/40 Covering cap PN16 DN40
  72
- VK/F-01/40 Coupling tongue part PN16 DN40 73
- C 1000 D001 Coursing to react DN10 DN10 70
- 6-1092-R001 Coupling tongue part PN16 DN40
   74

## A PN16 DN40 Coupling groove part

Order No.: VK/A-02/40 E Material: Stainless steel



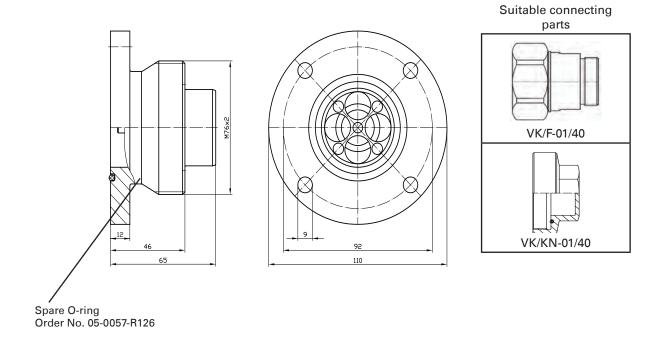




## PN16 DN40 Flange coupling

Order No.: VK/FL-01/40 E Material: Stainless steel

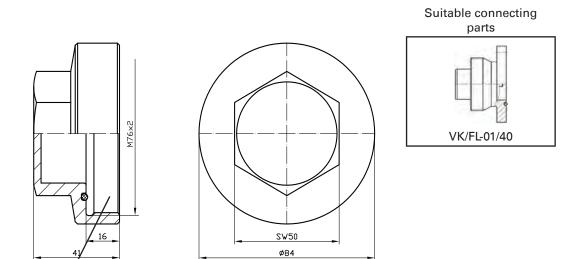




#### PN16 DN40 Covering cap

Order No.: VK/KN-01/40 T Material: AL





C 3106-05

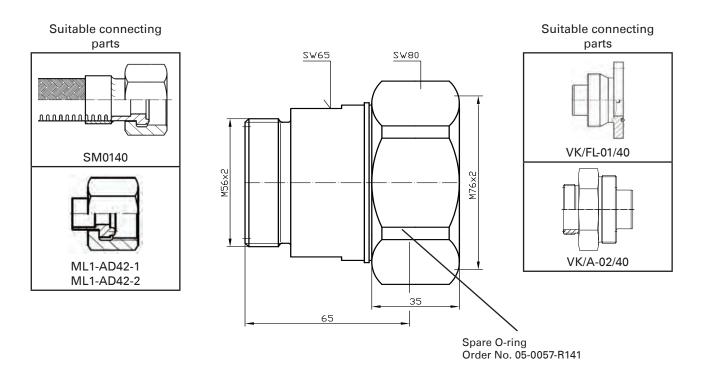
Spare O-ring Order No. 05-0057-R126

## PN16 DN40 Coupling tongue part



Order No.: VK/F-01/40 E Material: Stainless steel

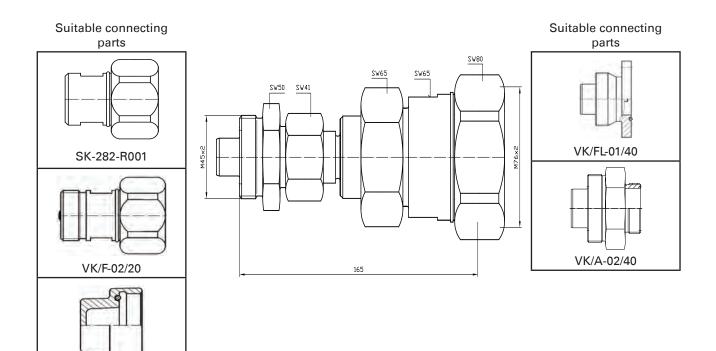




## PN16 DN40 Coupling tongue part

Order No: 6-1092-R001 Material: Brass/ Stainless steel

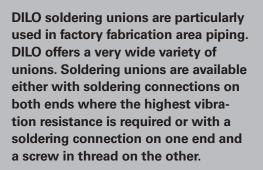




## **DILO** soldering unions







DILO soldering unions withstand pressures up to 64 bar.

Different materials are available for all applications.

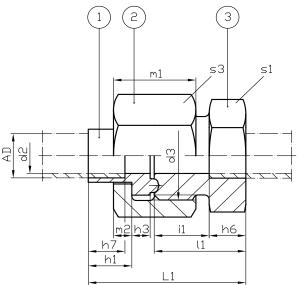
The suitable connecting parts for DILO couplings must be ordered separately.

DILO soldering unions of the ML1 series for pressures up to PN64

ML1A-AD	Soldering stub-soldering union PN64	76
ML1BO-AD	Screw-in stub-soldering union PN64 with O-ring	77
ML1M-AD10	Gauge union PN64 DN8	78
<b>3-328-R020</b>	Gauge union PN64 DN8	79
ML18	Blanking disk PN64	80
VST03	Plug PN64	81
<mark>-</mark> 05-1545-R	Tee piece	82
<b>05-1545-R</b>	Angle piece	83
<mark>-</mark> 05-1545-R	Plug-in angle piece	84

## PN64 Soldering stub-soldering union





Tube outside diameter Ø AD	d2	d3	L1	11	h1	h3	h6	h7	m1	m2	i1	s1	s3	Order No.
10	8	M20x1,5	35	20	9,5	4	8	8	18	4	12	22	24	ML1A-AD10 P
10	8	M20x1,5	35	20	9,5	4	8	8	18	4	12	22	24	ML1A-AD10 C
15	12	M26x1,5	52	22	13,5	5	10	10	20	5	12	27	32	ML1A-AD15 P
22	19	M36x2	54	31	15,5	6	12	12	26	7	16	41	41	ML1A-AD22 P
22	19	M36x2	54	31	15,5	6	12	12	26	7	16	41	41	ML1A-AD22 C
42	35	M56x2	65	37	19,5	7	20	20	29	7	18	60	65	ML1A-AD42 P
42	35	M56x2	65	37	19,5	7	20	20	29	7	18	60	65	ML1A-AD42 C

Piece	Designation	Order No.	Material
1	Soldering shoulder-tongue part	ML1-AD1	P = Brass / C = Stainless steel
2	Clamping nut	ML1-AD2	P = Brass / C = Stainless steel
3	Soldering stub-groove part	ML1-AD3	P = Brass / C = Stainless steel

Note: For the nominal width (outside diameter 10) the clamping nut is made of stainless steel.



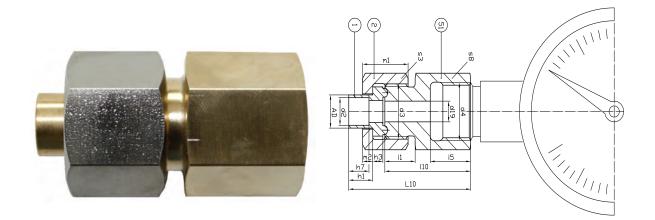
## PN64 Screw-in stub-soldering union with O-ring

Tube outside d2 d3 d4 d7 l2 l2 b1 b3 b7 m1 m2 i1 l2 b2 s2 s3 c order No																	
Tube outside diameter Ø AD	d2	d3	d4	d7	L2	12	h1	h3	h7	m1	m2	i1	i2	a2	s2	s3	Order No.
10	8	M20x1,5	M16x1,5	26	40	25	9,5	4	8	18	4	12	12	2	27	24	ML1BO-AD10 P
10	8	M20x1,5	M16x1,5	26	40	25	9,5	4	8	18	4	12 12 2 27 24 ML1B					ML1BO-AD10T
10	8 M20x1,5 G 3/8 A 26 40 25 9,5 4 8 18 4 1					12	12	2	27	24	ML1BO-AD10G P						
10	8	M20x1,5	G 3/8 A	26	40	25	9,5	4	8	18	4	12	12	2	27	24	ML1BO-AD10GT
15	12	M26x1,5	G ½ A	32	47	27	13,5	5	10	20	5	12	14	3	32	32	ML1BO-AD15G P
22	19	M36x2	M33x2	49	59	36	15,5	6	12	26	7	16	18	3	50	41	ML1BO-AD22 P
22	19	M36x2	M33x2	49	59	36	15,5	6	12	26	7	16	18	3	50	41	ML1BO-AD22T
22	19	M36x2	G1A	49	59	36	15,5	6	12	26	7	16	18	3	50	41	ML1BO-AD22G P
22	19	M36x2	G 1 A	49	59	36	15,5	6	12	26	7	16	18	3	50	41	ML1BO-AD22GT
42	35	M56x2	G 1½ A	65	69	41	19,5	7	20	29	7	18	22	3	65	65	ML1BO-AD42G P
Piece	Des	signation	1				Orde	er No	э.				Mat	eria	I		
1	Sol	dering sl	noulder-t	ong	ue p	art	ML1	AD_			-1		P =	Bra	ss / (	C = S	Stainless steel
2	Cla	mping n		ML1	AD_			-2		P =	Bra	ss / (	C = S	Stainless steel			
13	Scr (M	ew-in stu 16x1,5 / N	ıb //33x2)		ML1	-AD_			-13		P =	Bra	ss /T	- = A	L		
14	Screw-in stub (G 3/8 A / G ½ A / G 1 A / G 1½ A)							ML1-AD14					P = Brass /T = AL				

Note: For the nominal width (outside diameter 10) the clamping nut is made of stainless steel. Regarding material AL only part 13 or 14 is made of AL, part 1 and 2 are made of stainless steel.

In special version the screw-in thread can also be supplied with sealing edge according to DIN 3852-1 and DIN EN ISO 1179.

## PN64 DN8 Gauge union



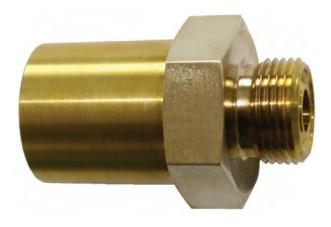
Tube outside diameter Ø AD	d2	d3	d4	d19	L10	I10	h1	h3	h7	m1	m2	i1	i5	s3	s8	Order No.
10	8	M20x1,5	G 1/2	7,5	49	34	9,5	4	8	18	4	12	16	24	24	ML1M-AD10/51
10	8	M20x1,5	G 1/4	5,5	44	29	9,5	4	8	18	4	12	13	24	22	ML1M-AD10/59

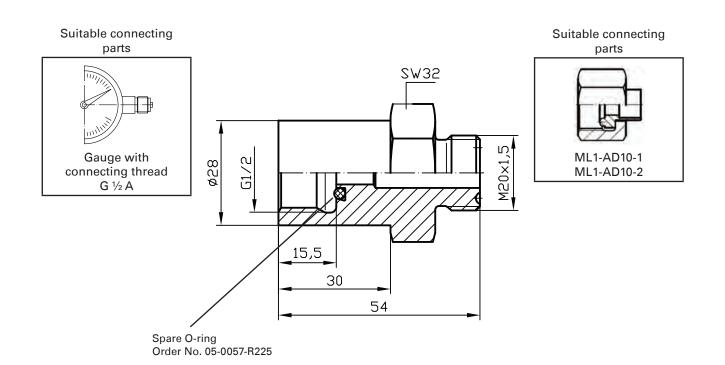
Piece	Designation	Order No.	Material
1	Soldering shoulder-tongue part	ML1-AD10-1 P	Brass
2	Clamping nut	ML1-AD10-2 C	Stainless steel
3	Gauge connecting piece	M1-10-51 P	Brass
3	Gauge connecting piece	M1-10-59 P	Brass

## PN64 DN8 Gauge union



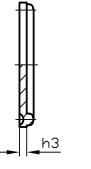
Order No.: 3-328-R020 P Material: Brass

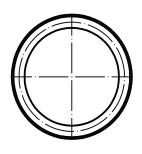




## PN64 Blanking disk



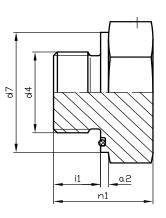




Tube outside diameter Ø AD	h3	Order No.	Material
10	1,5	ML1-10-8 P	Brass
22	2	ML1-22-8 P	Brass
42	3	ML1-42-8 P	Brass

## pn64 Plug



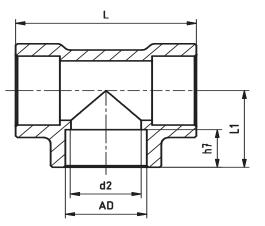


Metric fine thread ISO								v	Vhitworth pipe threa	ad	Spare O-ring
d4	d7	n1	i1	a2	s2	Order No.	Material	d4	Order No.	Material	Order No.
	23	23	12	2	24			G 1/4 A	VST03 / G 1/4 AT	AL	05-0057-R088
M16x1,5	26	24	12	2	27	VST03 / M16x1,5	AL	G 3/8 A	VST03 / G 3/8 AT	AL	05-0057-R016
	36	32	15	3	36			G 1/2 A	VST03 / G 1/2 AT	AL	05-0057-R033
M33x2	49	38	18	3	50	VST03 / M33x2T	AL	G1A	VST03 / G 1 AT	AL	05-0057-R039
	65	45	22	3	65			G 1½ A	VST03 / G 11/2 AT	AL	05-0057-R126



# Tee piece

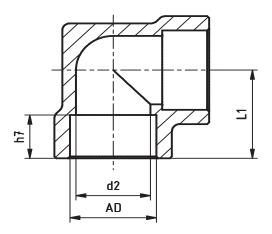




Tube outside diameter Ø AD	PN	d2	L	L1	h7	Order No.	Material
10	64	8	29	14,5	8	05-1545-R001	Brass
15	64	12	38	19	10	05-1545-R004	Brass
22	64	19	49	24,5	12	05-1545-R002	Brass
42	25	39	90	45	20	05-1545-R003	Brass

# Angle piece

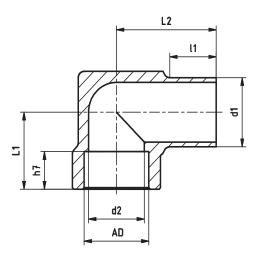




Tube outside diameter Ø AD	PN	d2	L1	h7	Order No.	Material
10	64	8	14,5	8	05-1545-R005	Brass
15	64	12	19	10	05-1545-R008	Brass
22	64	19	24,5	12	05-1545-R006	Brass
42	25	39	45	20	05-1545-R007	Brass

# Plug-in angle piece





Tube outside diameter Ø AD	PN	d2	L1	h7	L2	d1	11	Order No.	Material
10	64	8	14,5	8	21,5	10	10	05-1545-R010	Brass
15	64	12	19	10	26	15	13	05-1545-R011	Brass
22	64	19	24,5	12	34	22	16	05-1545-R012	Brass
42	25	39	45	20	56,4	42	24	05-1545-R013	Brass

# **DILO** ball valves





The ball valve has a compact design and is maintenance-free. The notch on the spindle head and the position of the handle show the flow rate (closed or opened). The flow rate is controlled by a ball which is stored in a sealing. Each ball valve is tested for tightness in our works.

All ball valves are temperature-resistant from -40 °C to +80 °C.

The suitable connecting parts must be ordered separately.

#### DILO ball valves for pressures up to PN64

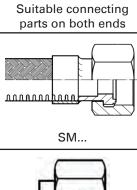
3-365-R001	Ball valve PN64 DN8	84

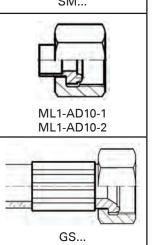
- 3-365-R008 Ball valve with handwheel PN64 DN8 85
- **3-383-R001** Ball valve PN64 DN20 86
- 3-679-R001 Ball valve PN25 DN40 87

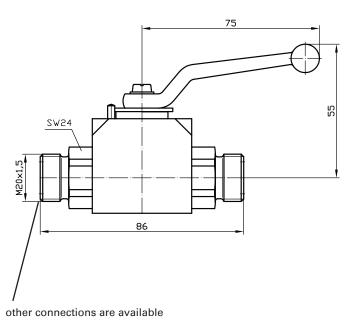
## PN64 DN8 Ball valve

Order No.: 3-365-R001 P Material: Brass









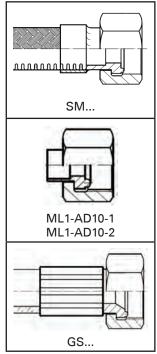
## PN64 DN8 Ball valve with handwheel

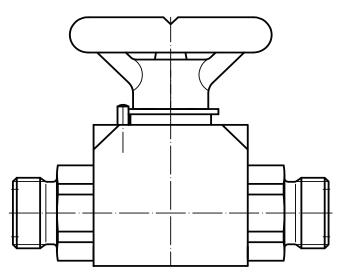


Order No.: 3-365-R008 P Material: Brass



Suitable connecting parts on both ends

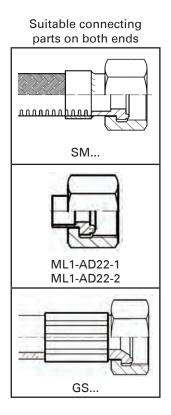


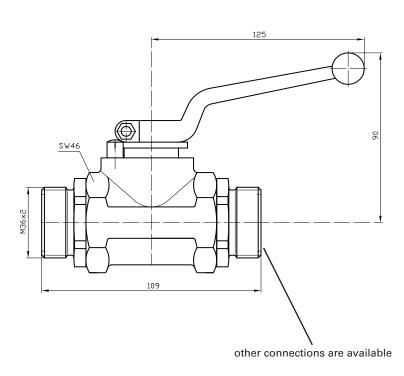


## PN64 DN20 Ball valve

Order No.: 3-383-R001 P Material: Brass







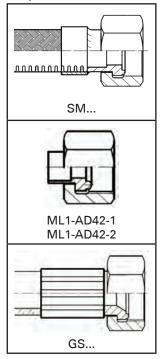
## PN25 DN40 Ball valve

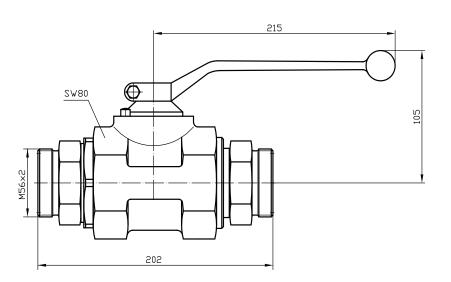


Order No.: 3-679-R001 P Material: Brass



Suitable connecting parts on both ends





## **DILO** hoses





We also offer wire braided stainless steel hoses as well as rubber hoses. Both hose types can be used up to 64 bar. They are pressure and vacuum tight and are available with different coupling connections. No matter whether you need a hose for connection to  $SF_{\rm g}$  maintenance devices, gas insulated fabrication plants or other devices, we can offer the appropriate hose connection.

The suitable connecting parts must be ordered separately.

#### **DILO** hoses for pressures up to PN64

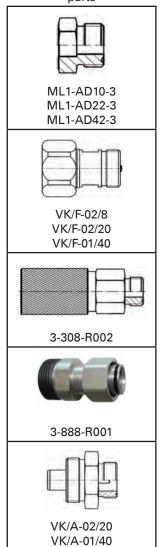
SM01	Wire braided hose DN8 / DN20 / DN40	90
SM03	Wire braided hose with elbow connection DN8 / DN20 / DN40	91
SM07	Wire braided hose with elbow connections DN8 / DN20	92
SM10	Wire braided hose with protective hose DN8 / DN20 / DN40	93
GS01	Rubber hose DN8 / DN20 / DN40	94
GS03	Rubber hose with elbow connection DN8 / DN20	95
Orderin	ig examples	96

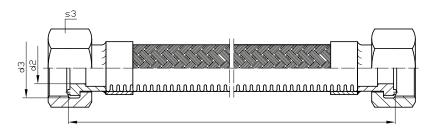
## DN8 / DN20 / DN40 Wire braided hose



admissible static operating pressure at 20°C SF 3	nominal pressure level DIN EN ISO 10380 SF 4	AD	DN	d2	d3	s3	minimum bending radius / onetime bending	nominal bending radius / frequent movements	Order No.* NL in mm
64	64	10	8	8	M20x1,5	24	38	130	SM018L
55	40	22	20	19	M36x2	41	70	170	SM0120L
60	40	42	40	35	M56x2	65	130	300	SM0140L

Suitable connecting parts





\*Ordering example see page 94

#### Structure of the rust- and acid resistant wire braided hose:

Full metal wall made of 1.4404 with outside wire sheating made of stainless steel, both ends completely equipped with DILO-connections made of brass.

(For nominal diameter AD10 the clamping nut is made of stainless steel).

Supply length: max. 25 m

## **DN8 / DN20 / DN40** Wire braided hose with elbow connection

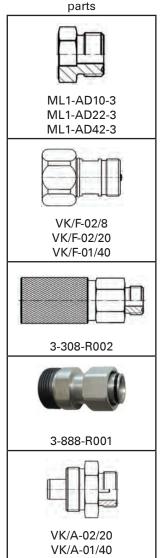


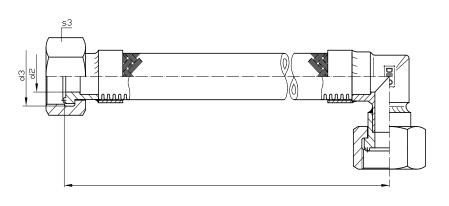
\*Ordering examples see page 94



admissible static operating pressure at 20°C SF 3	nominal pressure level DIN EN ISO 10380 SF 4	AD	DN	d2	d3	s3	minimum bending radius / onetime bending	nominal bending radius / frequent movements	Order No.* NL in mm
64	64	10	8	8	M20x1,5	24	38	130	SM038L
55	40	22	20	19	M36x2	41	70	170	SM0320L
60	40	42	40	35	M56x2	65	130	300	SM0340L

Suitable connecting





#### Structure of the rust- and acid resistant wire braided hose:

Full metal wall made of 1.4404 with outside wire sheating made of stainless steel, both ends completely equipped with DILO-connections made of brass.

(For nominal diameter AD10 the clamping nut is made of stainless steel).

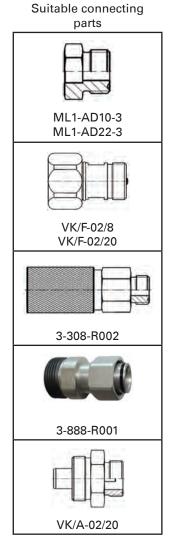
Supply length: max. 25 m

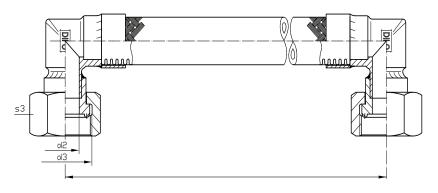
# Wire braided hose with elbow connections



admissible static opera- ting pressure at 20°C SF 3	nominal pressure level DIN EN ISO 10380 SF 4	AD	DN	d2	d3	s3	minimum bending radi- us / onetime bending	nominal ben- ding radius / frequent movements	Order No.* NL in mm
64	64	10	8	8	M20x1,5	24	38	130	SM078L
55	40	22	20	19	M36x2	41	70	170	SM0720L

\*Ordering example see page 94





#### Structure of the rust- and acid resistant wire braided hose:

Full metal wall made of 1.4404 with outside wire sheating made of stainless steel, both ends completely equipped with DILO-connections made of brass.

(For nominal diameter AD10 the clamping nut is made of stainless steel).

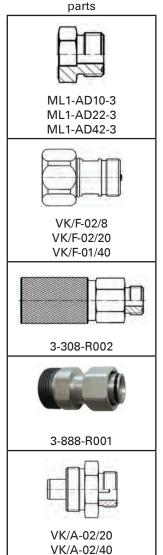
Supply length: max. 25 m



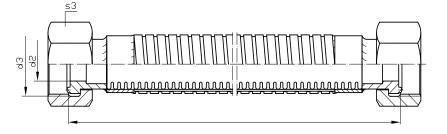


admissible static opera- ting pressure at 20°C SF 3	nominal pressure level DIN EN ISO 10380 SF 4	AD	DN	d2	d3	s3	minimum bending radi- us / onetime bending	nominal ben- ding radius / frequent movements	Order No.* NL in mm
64	64	10	8	8	M20x1,5	24	38	130	SM108L
55	40	22	20	19	M36x2	41	70	170	SM1020L
60	40	42	40	35	M56x2	65	130	300	SM1040L

Suitable connecting



\*Ordering example see page 94



#### Structure of the rust- and acid resistant wire braided hose:

Full metal wall made of 1.4404 with outside wire sheating made of stainless steel, both ends completely equipped with DILO-connections made of brass.

(For nominal diameter AD10 the clamping nut is made of stainless steel).

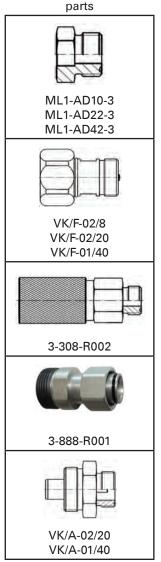
Protective hose, resistant to twisting, flexible, high tensile with high mechanical strength in accordance with DIN EN ISO 15465. Supply length: max. 25 m

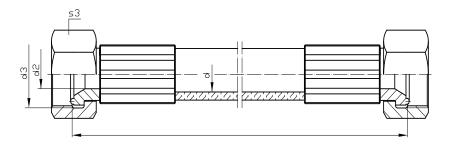
## DN8 / DN20 / DN40 **Rubber hose**



Pressure stage bar	Fitting AD	Hose DN	Hose d	Fitting d2	Fitting d3	Fitting s3	Bending radius	Order No.* NL in mm
64	10	8	7,9	5,5	M20x1,5	24	50	GS0108L
50	22	20	19	15,5	M36x2	41	240	GS0120L
64	42	40	38	33	M56x2	65	500	GS0140L

Suitable connecting





\*Ordering example see page 94

#### Range of application and temperature:

From -40 °C up to +100 °C according to the medium used (see DIN EN 853/854)

#### Materials and composition:

The hoses consist of an internal layer made of synthetic rubber which is oil- and waterproof and of external rubber layer whick is oil- and weatherproof.

#### Fitting material: Brass

(For nominal diameter AD10 the clamping nut is made of stainless steel)

The hose fitting is made in pressnipple form.

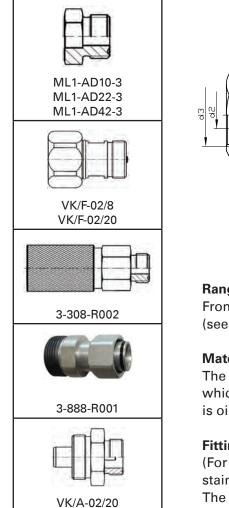
# Rubber hose with elbow connection



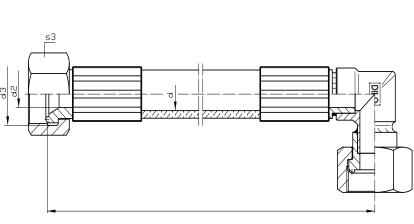


Pressure stage bar	Fitting AD	Hose DN	Hose d	Fitting d2	Fitting d3	Fitting s3	Bending radius	Order No.*	NL in mm
64	10	8	7,9	5,5	M20x1,5	24	50	GS0308L _	
50	22	20	19	15,5	M36x2	41	240	GS0320L _	

\*Ordering example see page 94



Suitable connecting parts



#### Range of application and temperature:

From -40 °C up to +100 °C according to the medium used (see DIN EN 853/854)

#### Materials and composition:

The hoses consist of an internal layer made of synthetic rubber which is oil- and waterproof and of external rubber layer whick is oil- and weatherproof.

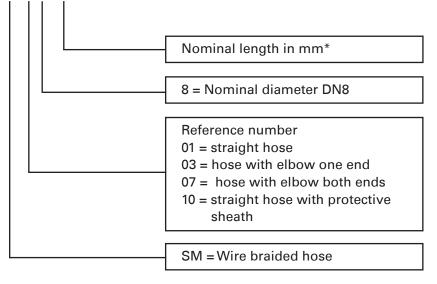
#### Fitting material: Brass

(For nominal diameter AD10 the clamping nut is made of stainless steel) The hose fitting is made in pressnipple form.

## Ordering examples Wire braided hoses and rubber hoses

#### Wire braided hoses

Ordering example: SM 018 L00450

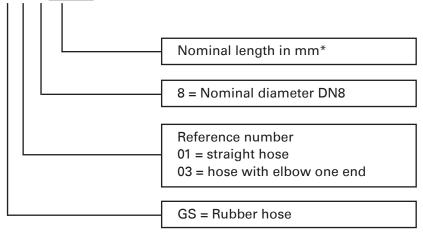


\*Wire braided hoses are available in the following length increments:

Length	Length increment
< 1 m	50 mm
1 m bis < 5 m	100 mm
5 m bis < 10 m	500 mm
10 m bis < 20 m	1 m

#### **Rubber hoses**

Ordering example: GS 01 08 L00450



\*Rubber hoses are available in the following length increments:

Length Length increment

< 1 m	50 mm
1 m bis < 5 m	100 mm
5 m bis < 10 m	500 mm
10 m bis < 20 m	1 m

## **DILO** transition pieces and adapters





Our product range comprises a large variety of transition pieces and adapters to establish connections between components with different nominal lengths. Thus DILO connecting couplings and hoses allow the comfortable adaption to other coupling systems on switchgear.

The suitable connecting parts must be ordered separately.

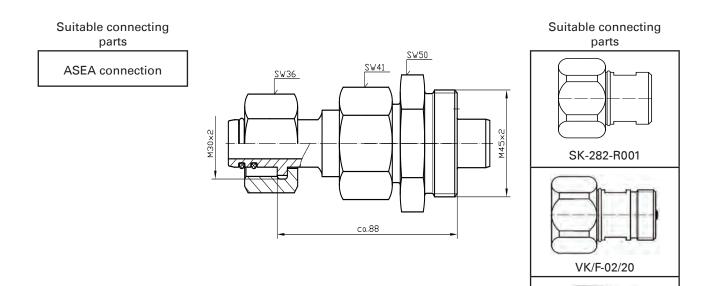
#### DILO transition pieces and adapters for pressures up to PN64

<ul> <li>6-1033-R001/</li> <li>6-1058-R/</li> <li>SK-279-R / 6-1027-R</li> </ul>	Adapter DILO couplings DN20 ASEA / Magrini / Siemens/ Westinghouse	98 - 101
<b>3-920-R002/R001</b>	Adapter - Hansen connection	102 - 103
<b>3</b> -353-R005/R006	Adapter DILO DN8 - Michelin valve	104 - 105
■ 6-1059-R/6-1203-R	Adapter with flange coupling on both ends	106
K022R02	Tee piece with DILO couplings	107
<b>3-351-R001 P</b>	Screw-in stub	108
SK-386 T/3-240-R/ 3-251-R001/3-314-R001	Transition pieces	109 - 112
■ 3-227-R001/3-311-R001/ 3-984-R001	Intermediate pieces	113
<ul> <li>3-816-R001/R002/ R003/R005</li> </ul>	Transition pieces	114 - 117
<ul> <li>K018R02/R06/</li> <li>3-717-R/K018R07/</li> <li>K018R</li> </ul>	Angle pieces	118 - 122
<b>K</b> 020R	Tee pieces	123 - 124
<b>3-718-R006/R036</b>	Distributor	125 - 126
<b>3</b> -1026-R002	Tubings	127

## PN64 DN20 Adapter DN20 DILO coupling -ASEA connection

Order No.: 6-1033-R001 Material: Brass



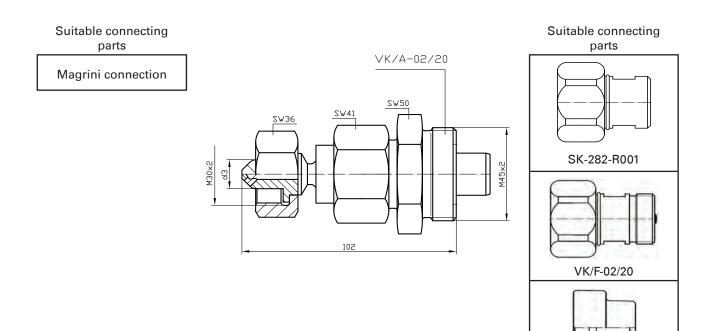




## PN64 DN20 Adapter DN20 DILO coupling -Magrini connection



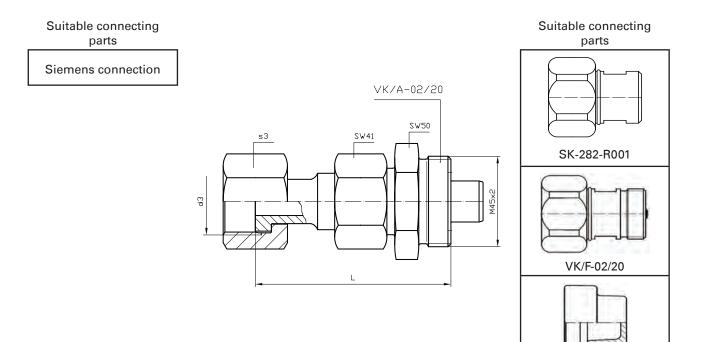
d3	Order No.	Material
Ø 14	6-1058-R001	Brass
Ø 16	6-1058-R002	Brass



## PN64 DN20 Adapter DN20 DILO coupling -Siemens connection



d3	L	S3	Order No.	Material
G 3/4	97	32	SK-279-R001 P	Brass
G 1	98	41	SK-279-R002 P	Brass
G 1 1/4	93	50	SK-279-R003 P	Brass

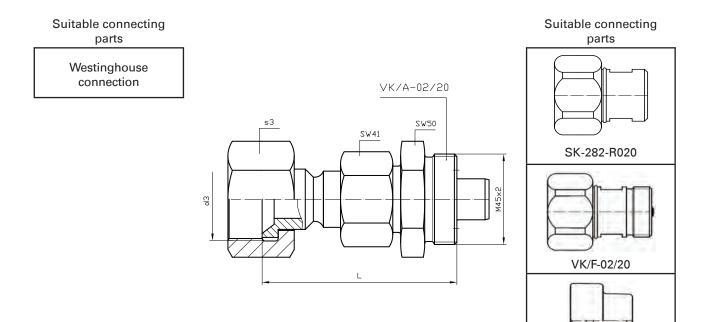




## PN64 DN20 Adapter DN20 DILO coupling -Westinghouse connection



d3	L	S3	Order No.	Material
1 5/8 - 12UN	97	50	6-1027-R001	Brass
1 5/16 - 12UN	95	41	6-1027-R002	Brass
1 1/16 - 12UN	90	32	6-1027-R003	Brass



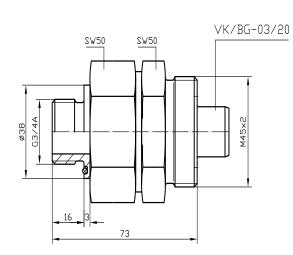
## PN64 DN20 Adapter DN20 DILO coupling -Hansen connection

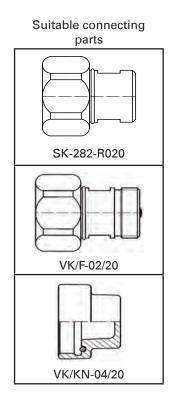
Order No.: 3-920-R002 P Material: Brass



# Suitable connecting parts

Hansen connection G 3/4 A







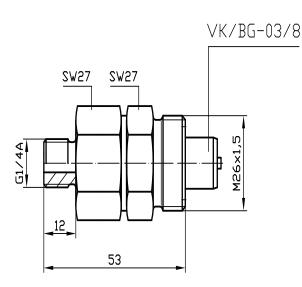
## PN64 DN8 Adapter DN8 DILO coupling -Hansen connection

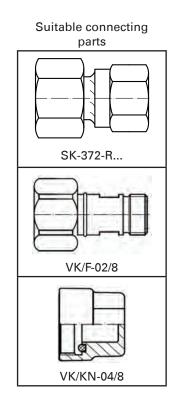
Order No.: 3-920-R001 P Material: Brass



Suitable connecting parts

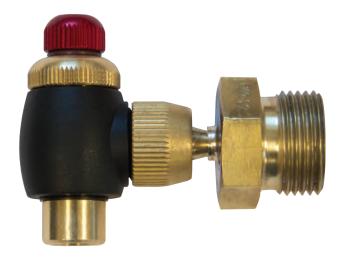
Hansen connection G 1/4 A

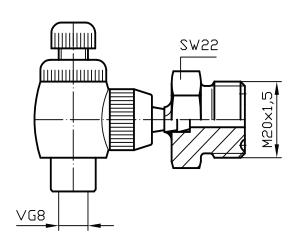


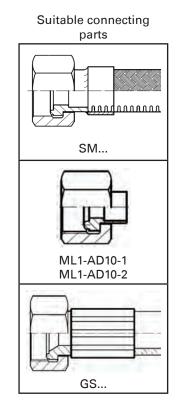


## PN2 DN8 DILO DN8 adapter – Michelin valve

Order No.: 3-353-R005 P Material: Brass



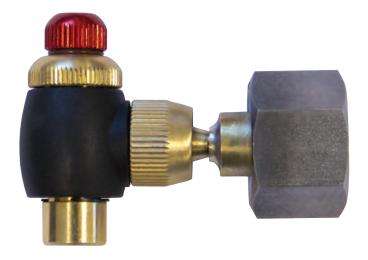


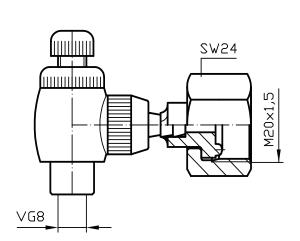


## PN2 DN8 DILO DN8 adapter – Michelin valve



Order No.: 3-353-R006 P Material: Brass





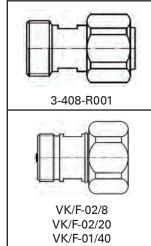
Suitable connecting parts ML1-AD10-3 ML1-AD10-3 VK/F-02/8 VK/F-02/8 VK/A-02/8

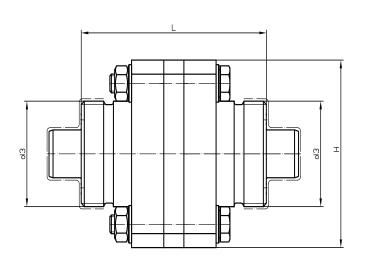
# Adapter with flange coupling on both ends



DN	for coupling tongue part	d3	L	н	PN	Order No.	Material
6	3-408-R001	M24x1,5	92	Ø 40	10	6-1059-R004	AL
8	VK/F-02/8	M26x1,5	74	Ø 40	64	6-1059-R012	AL
20	VK/F-02/20	M45x2	92	Ø 80	64	6-1059-R011	AL
40	VK/F-01/40	M76x2	102	Ø 110	16	6-1203-R001	Stainless steel

Suitable connecting parts on both ends



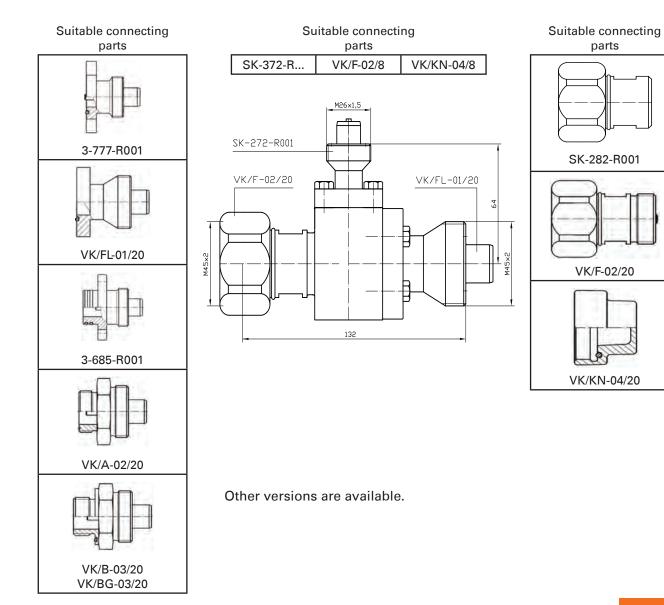


## PN64 DN8 / DN20 Tee piece with DILO couplings



Order No.: K022R02 Material: AL

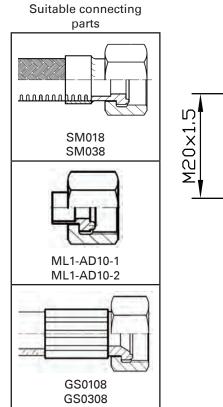


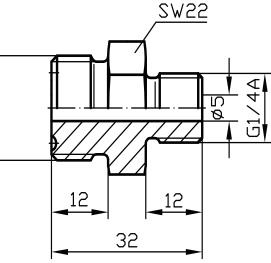


## PN64 DN8 Screw-in stub

Order No.: 3-351-R001 P Material: Brass







Suitable connecting parts

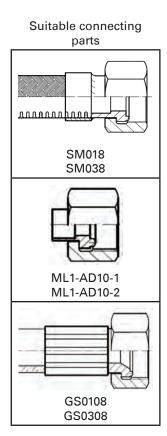
G ¼ internal thread

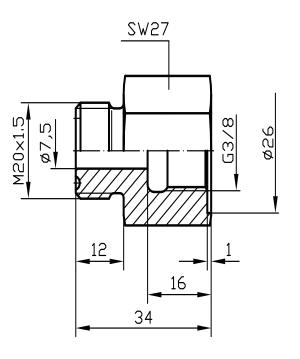
## PN64 DN8 Transition piece DN8



Order No.: SK-386 T Material: AL





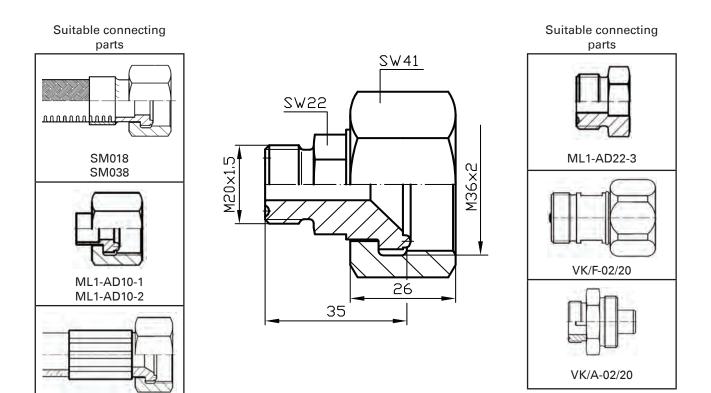


Suitable connecting parts

G 3/8 external thread



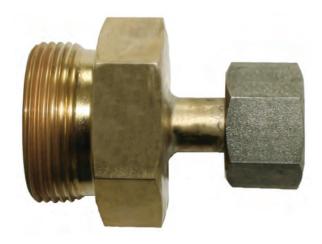
Order No.	Material
3-240-R001 P	Brass
3-240-R002 C	Stainless steel

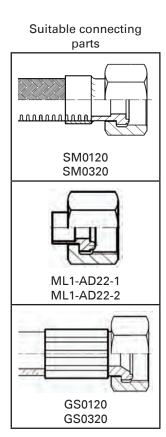


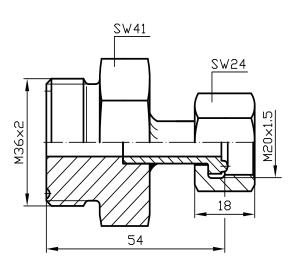
GS0108 GS0308



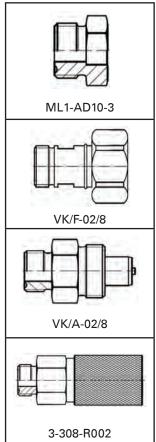
Order No.: 3-251-R001 P Material: Brass







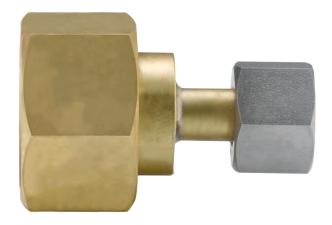


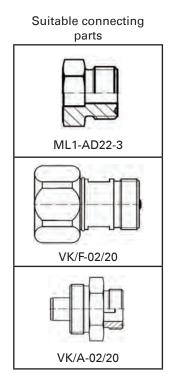


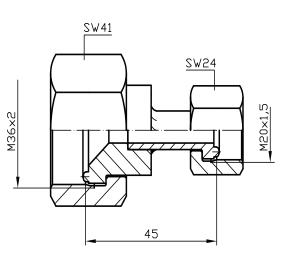
DILO transition pieces and adapters

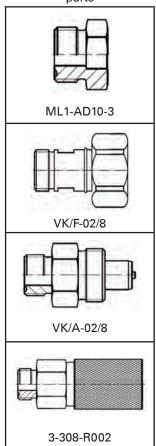
## PN64 DN20 / DN8 Transition piece

Order No.: 3-314-R001 P Material: Brass







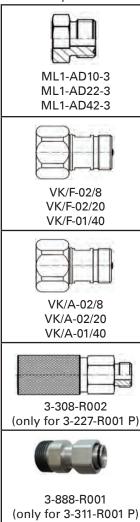


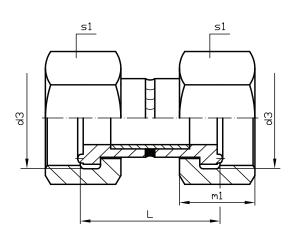
## PN64 DN8 / DN20 / DN40 Intermediate piece





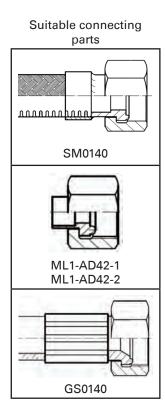
AD	d3	L	m1	s1	Order No.	Material
10	M20x1,5	32	18	24	3-227-R001 P	Brass
22	M36x2	48	26	41	3-311-R001 P	Brass
42	M56x2	58	29	65	3-984-R001 P	Brass

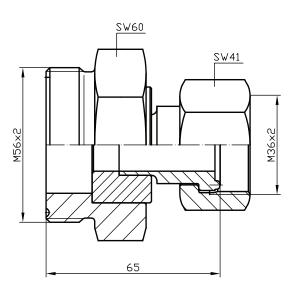


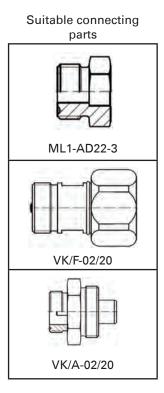


Order No.: 3-816-R001 P Material: Brass



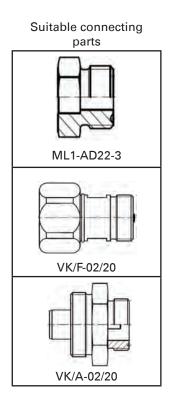


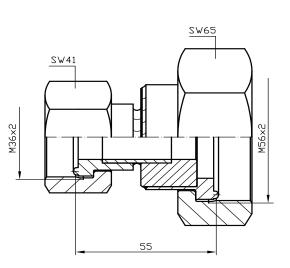


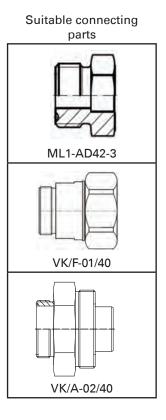


Order No.: 3-816-R002 Material: Brass



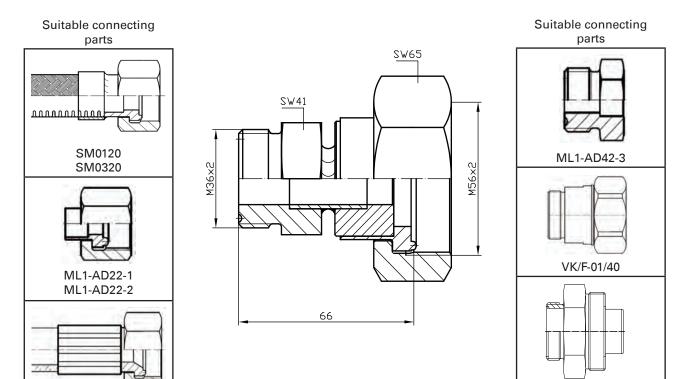






Order No.: 3-816-R003 Material: Brass



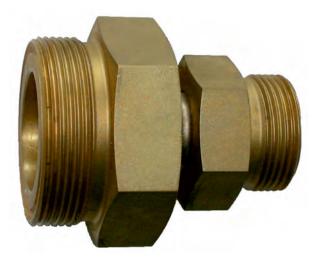


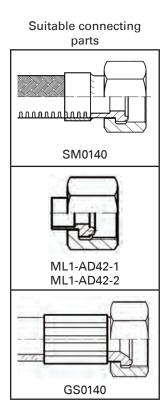
VK/A-02/40

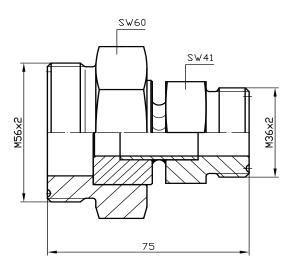
GS0120 GS0320

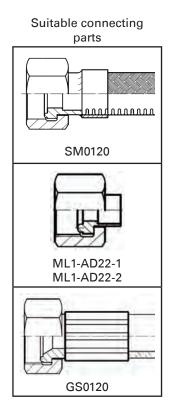


Order No.: 3-816-R005 P Material: Brass





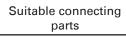


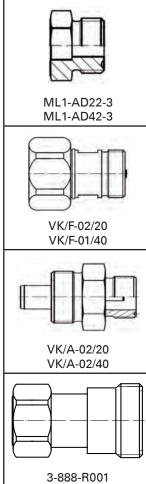


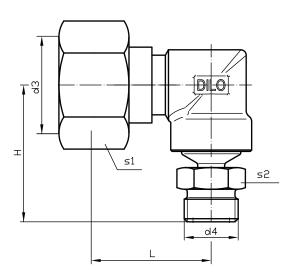
## PN64 DN8 /DN20 / DN40 Angle piece

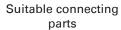


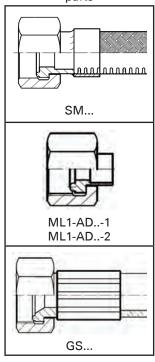
AD	d3	d4	L	н	s1	s2	Bestellnummer	Werkstoff
10/22	M36x2	M20x1,5	45	51	41	22	K018R02	Brass
22/42	M56x2	M36x2	64	81	65	41	K018R06	Brass









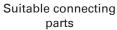


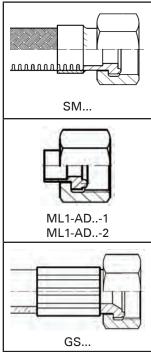
## PN64 DN8 /DN20 / DN40 Angle piece

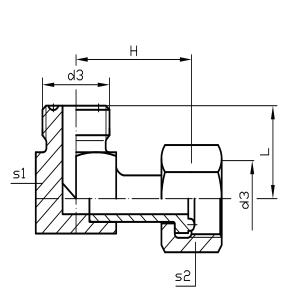


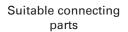


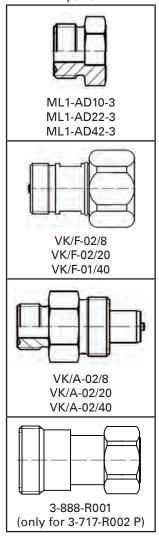
AD	d3	L	н	s1	s2	Order No.	Material
10	M20x1,5	32	31	22	24	3-717-R001 P	Brass
22	M36x2	48	46	36	41	3-717-R002 P	Brass
42	M56x2	58	65	60	65	K018R07	Brass







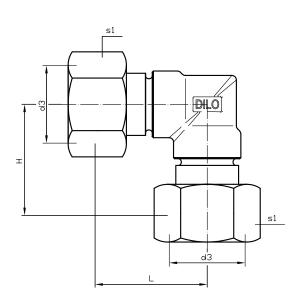


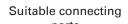


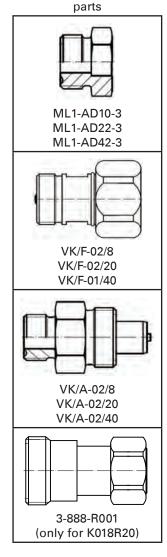
## PN64 DN8 /DN20 / DN40 Angle piece



AD	d3	L	н	s1	Order No.	Material
10	M20x1,5	32	32	24	K018R10	Brass
22	M36x2	50	50	41	K018R20	Brass
42	M56x2	65	80	65	K018R32	Brass



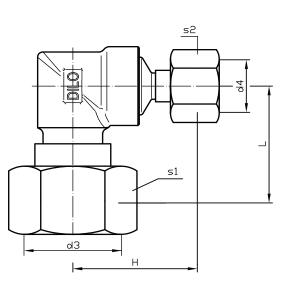


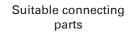


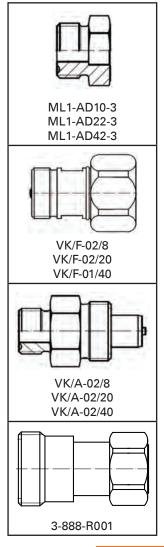
## PN64 DN8 / DN20 / DN40 Angle piece



	۹D	d3	d4	L	н	s1	s2	Order No.	Material
10	)/22	M36x2	M20x1,5	45	46	41	24	K018R27	Brass
22	2/42	M56x2	M36x2	64	72	65	41	K018R31	Brass



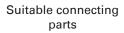


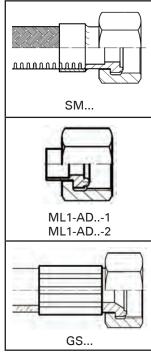


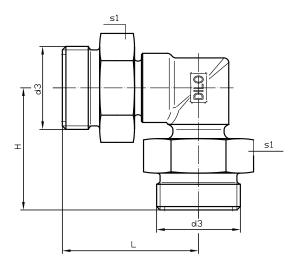
## PN64 DN8 / DN20 Angle piece



AD	d3	L	н	s1	Order No.	Material
10	M20x1,5	38	34	22	K018R41	Brass
22	M36x2	59	53	41	K018R40	Brass
42	M56x2	85	73	60	K018R29	Brass



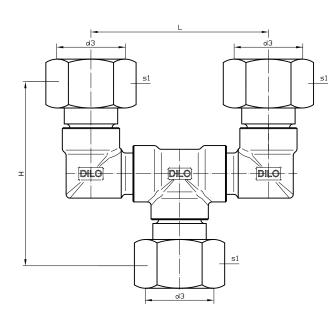


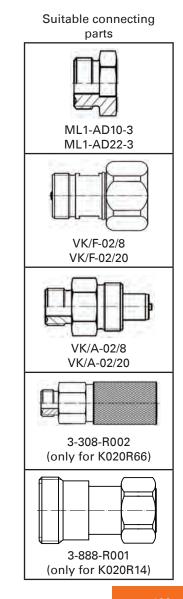


## PN64 DN8 / DN20 Tee piece



AD	d3	L	н	s1	Order No.	Material
10	M20x1,5	56	64	24	K020R66	Brass
22	M36x2	93	98	41	K020R14	Brass

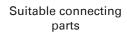


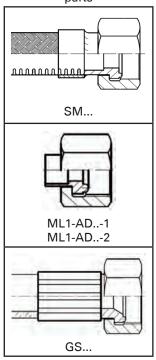


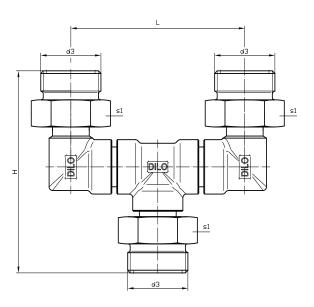
## PN64 DN8 / DN20 Tee piece



AD	d3	L	Н	s1	Order No.	Material
10	M20x1,5	56	75	22	K020R26	Brass
22	M36x2	104	112	41	K020R59	Brass

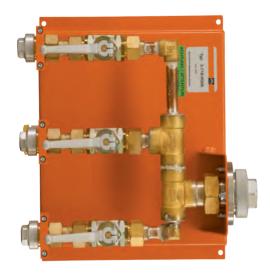


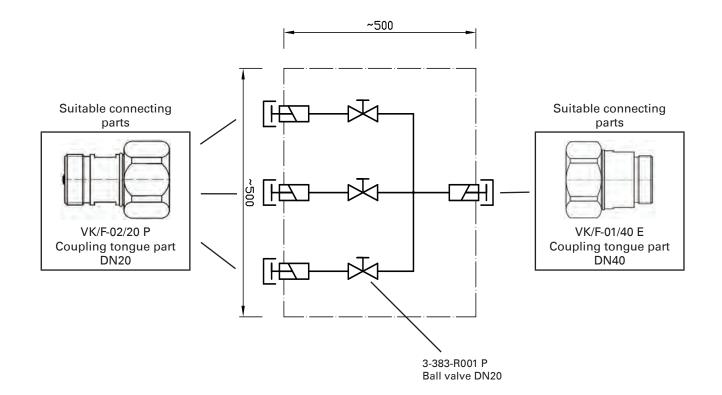




## 3 x DN20 / 1 x DN40 Distributor

Order No.: 3-718-R006

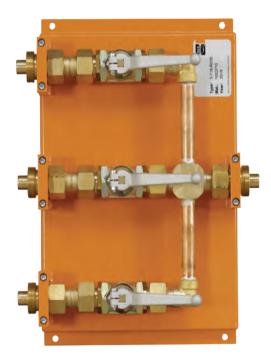




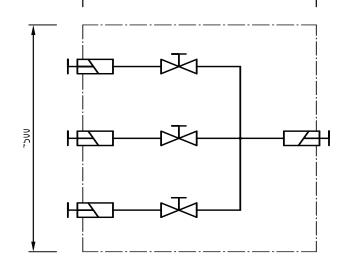
Other versions are available.

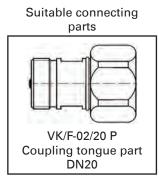
## 4 x DN20 Distributor

Order No.: 3-718-R036







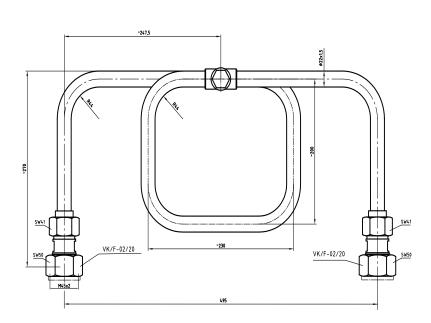




## Tubings

Order No.: 3-1026-R002





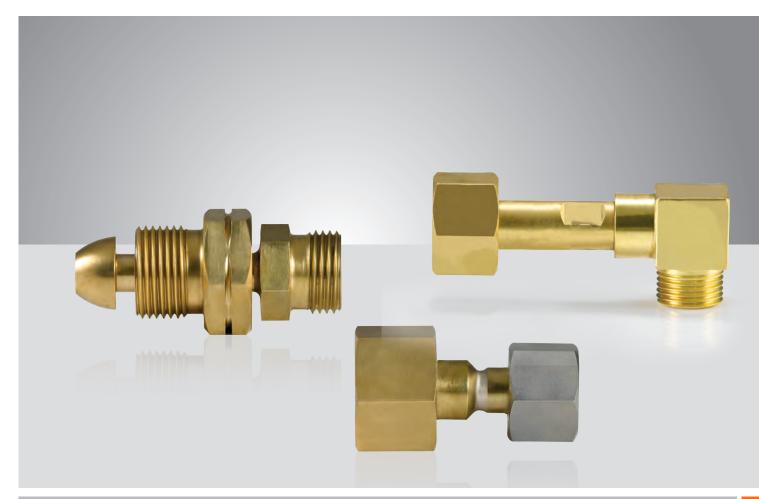
3-777-R001 3-777-R001 VK/FL-01/20 VK/FL-01/20 3-685-R001 0 VK/A-02/20 VK/A-02/20 VK/B-03/20 VK/B-03/20 VK/B-03/20

Suitable connecting parts

Other versions are available.

## DILO SF<sub>6</sub> bottle connections





DILO offers a wide range of connections suitable for all commercial  $SF_6$ bottles. Thus safe and quick connection of hoses of DILO service carts or  $SF_6$  gas refilling devices to the  $SF_6$ gas bottles is guaranteed. This refers to bottle connections for new gas as well as for reuse gas.

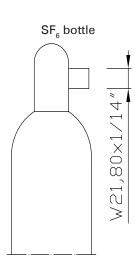
The suitable connecting parts must be ordered separately.

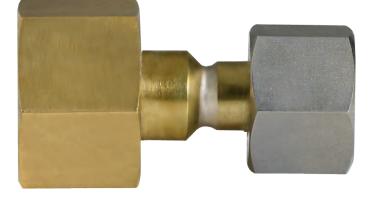
### DILO SF<sub>6</sub> bottle connections

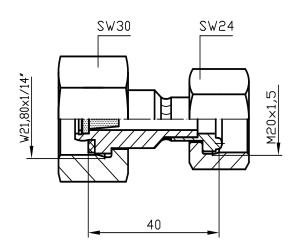
<b>3-316-R001</b>	SF <sub>6</sub> bottle connection	130
<b>3-858-R001</b>	Angle SF <sub>6</sub> bottle connection	131
<b>3-643-R001</b>	Chinese SF <sub>6</sub> bottle connection	132
<b>3-643-R002</b>	Chinese SF <sub>6</sub> bottle connection	133
<b>3-245-R001</b>	American $SF_6$ bottle connection	134
<b>3-334-R002</b>	American $SF_6$ bottle connection	135
<b>3-245-R002</b>	English SF <sub>6</sub> bottle connection	136
<b>3-245-R004</b>	English SF <sub>6</sub> bottle connection	137
<b>3-851-R002</b>	Connection for reuse gas bottle	138
<b>3-851-R003</b>	Connection for reuse gas bottle	139
<b>3-858-R002</b>	Angle for connection of reuse gas bottle	140
6-1037-R050	Storage connecting hose DN20	141
6-1041-R050	Storage connecting hose DN8	142

# $\frac{\text{PN64 DN8}}{\text{SF}_6}$ bottle connection W21.80x1/14" - DIN 477 No. 6

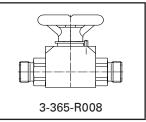
Order No.: 3-316-R001 P Material: Stainless steel / Brass







Suitable connecting parts



## PN64 DN8 Angle SF<sub>6</sub> bottle connection W21.80x1/14" - DIN 477 No. 6



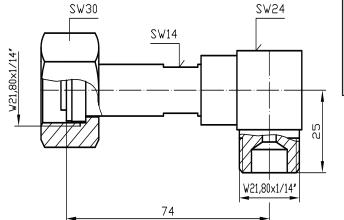
Order No.: 3-858-R001 P Material: Brass

600 I SF<sub>6</sub> container





Suitable connecting parts



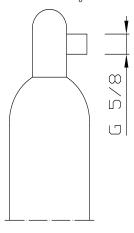


C 3834-00

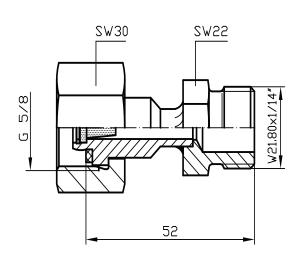
# PN64 DN8 Chinese SF bottle connection G 5/8 - DIN 477 No. 7 $^{6}$

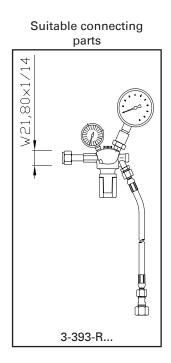
Order No.: 3-643-R001 P Material: Brass

Chinese SF<sub>6</sub> bottle







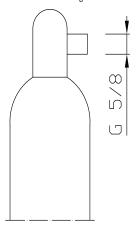


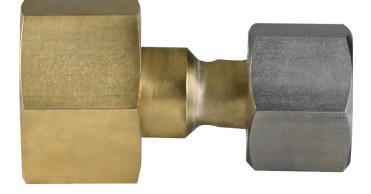
## PN64 DN8 Chinese SF<sub>6</sub> bottle connection G 5/8 -DIN 477 No. 7<sup>6</sup>

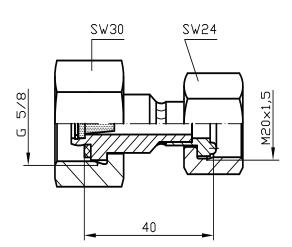


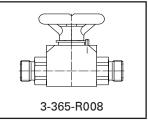
Order No.: 3-643-R002 P Material: Stainless steel / Brass

Chinese  $SF_6$  bottle



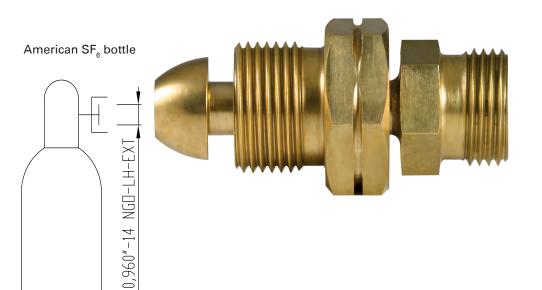


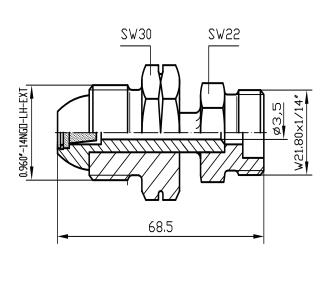


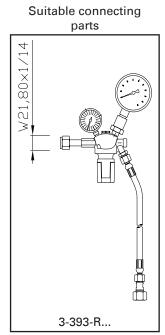


## PN64 DN8 American SF<sub>6</sub> bottle connection 0.960"-14NGO-LH-EXT - CGA 590

Order No.: 3-245-R001 P Material: Brass





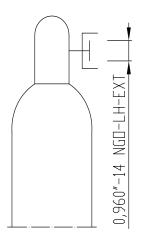


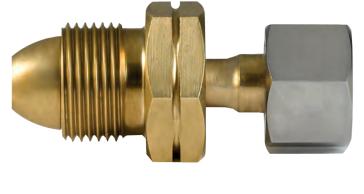


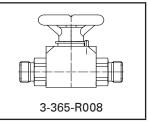
## PN64 DN8 American SF<sub>6</sub> bottle connection 0.960"-14NGO-LH-EXT - CGA 590

Order No.: 3-334-R002 P Material: Stainless steel / Brass

American SF<sub>6</sub> bottle

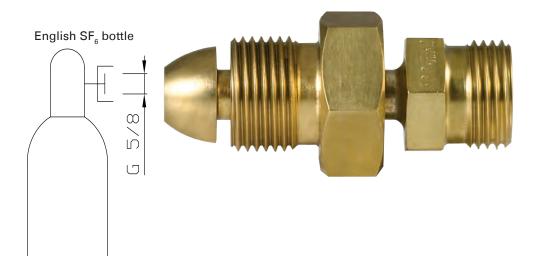


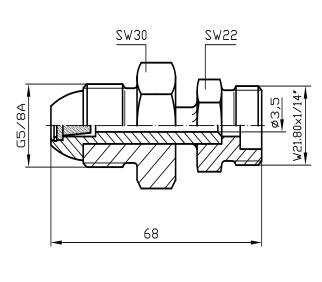


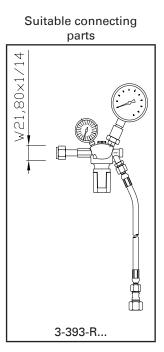


# $\begin{array}{l} \mbox{PN64 DN8} \\ \mbox{English SF}_6 \mbox{ bottle connection G 5/8 -} \\ \mbox{BS No. 3} \end{array}$

Order No.: 3-245-R002 P Material: Brass







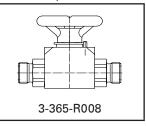
## **PN64 DN8** English $SF_6$ bottle connection G 5/8 - BS No. 3



Order No.: 3-245-R004 P Material: Stainless steel / Brass



SW30 SW24 SW30 SW24 SW20 SW

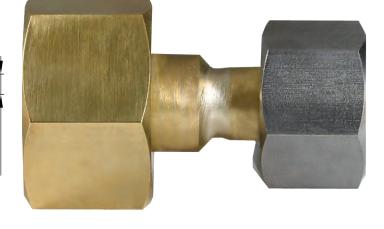


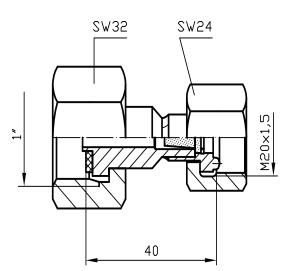
## PN64 DN8 Connection for reuse gas bottle 1" -DIN 477 No. 8

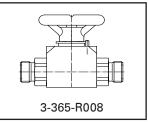
Order No.: 3-851-R002 P Material: Stainless steel / Brass

*"* 

Reuse gas bottle





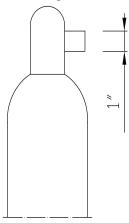




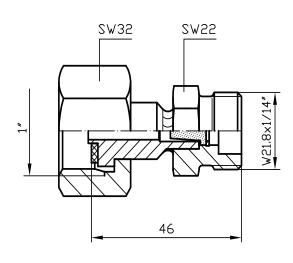
## PN64 DN8 Connection for reuse gas bottle 1" -DIN 477 No. 8

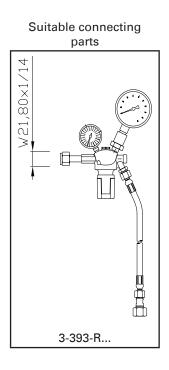
Order No.: 3-851-R003 P Material: Brass

Reuse gas bottle



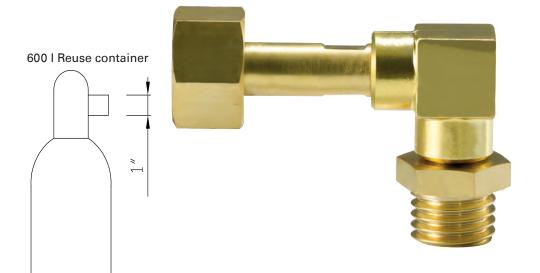


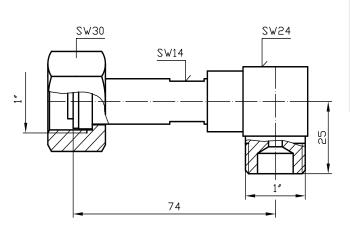


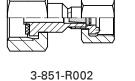


## PN64 DN8 Angle for connection of reuse gas bottle 1" -DIN 477 No. 8

Order No.: 3-858-R002 P Material: Brass



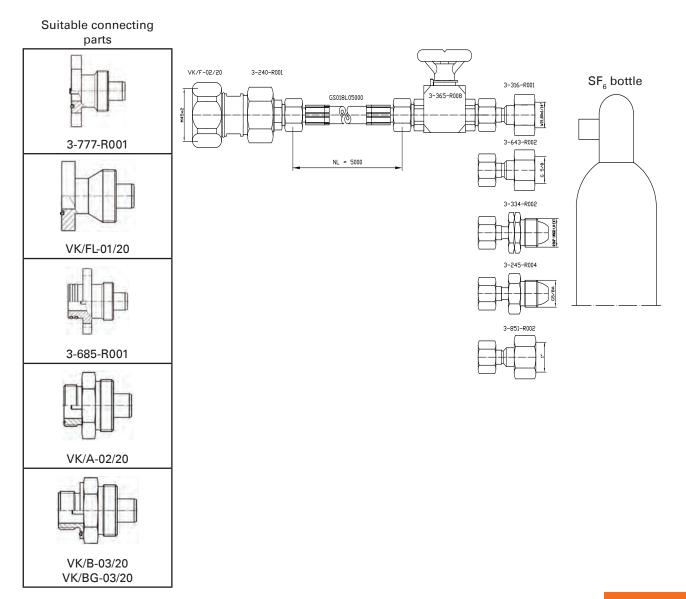




## PN64 DN20 Storage connecting hose DN20

Order No.: 6-1037-R050

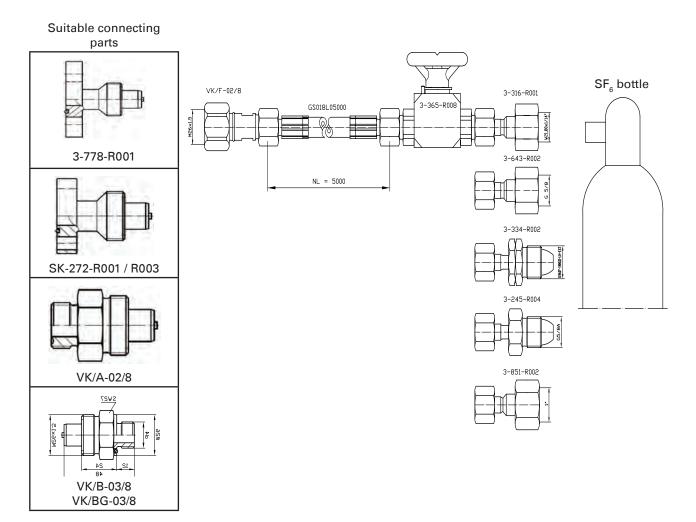




## PN64 DN8 Storage connecting hose DN8

Order No.: 6-1041-R050





## For your notes







## $SF_{6}$ gas handling

Besides  ${\rm SF}_6$  couplings and valves DILO supplies a wide range of devices for  ${\rm SF}_6$  gas handling.

For further information please ask for our special leaflet.



### High pressure tube unions

High pressure tube unions are DILO's second core competence. For further information please ask for our special leaflet.

### DILO Armaturen und Anlagen GmbH

Frundsbergstrasse 36 D-87727 Babenhausen/Bayern

Tel: + 49 (0) 83 33 - 302-0 Fax: + 49 (0) 83 33 - 302-52 E-Mail: info@dilo-gmbh.com Subject to change without notice. © Copyright DILO V\_GB\_04