

# ASSEMBLY INSTRUCTION

## Compression Fittings



MA-SR  
09.2025 Rev. 5

Focus in details®

**schwer**  
fittings



## Safety Instructions

### ■ General safety regulations

Please pay attention to **general safety regulations** when working with tools and machines. Wear protective clothing!

### ■ Pipeline and medium

Before assembly or disassembly make sure, the tube or pipeline **is not under pressure**. Take care **not to apply any additional tension or stress** to the coupling, when setting up the pipeline.

Do not exceed any **temperature or pressure limits**. Pay attention when using dangerous or harmful mediums. Respect the **temperature at the pipeline**.

### ■ Workplace

**Keep your workplace clean**. Make sure you have the all necessary material available before starting the assembly.

### ■ Wear Safety glasses

Some workers just remove chips from the tubes by using pressurized air. Dust and chips can harm your eyes, therefore **wear safety glasses**.

### ■ Foreign particles

Take care that the coupling is **free of dirt and foreign particles** before assembly. Contaminated parts may cause leakages.

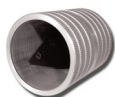


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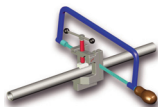
**Gliss  
Lubricant**  
MO-5GP



**Pipe  
Deburrer**  
MO-RE



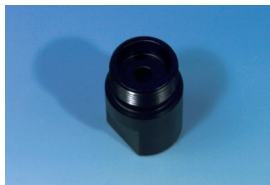
**Pre-Assembly  
Stud**  
SR-592 ...



**Pipe Cutting  
Tool**  
MO-AV



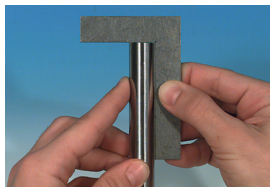
## Assembly Instruction



When mounting stainless steel pipes the pre-assembly is to be carried out exclusively in the hardened VOMO.

A direct assembly in the stainless steel must be avoided! The cones of the VOMOS are subject wear and must therefore be checked at regular intervals with a cone gauge.

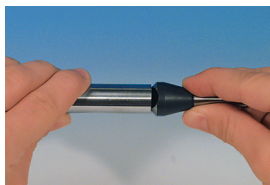
In order to prevent incorrect assembly from the outset, worn VOMOS should be replaced with new ones.



We recommend only seamless soft annealed stainless steel tubes made of material 1.4571 according to EN ISO 10216-5 or DIN EN ISO 1127 tolerance class D4/T3.

**Note:** no welded tubes!

Saw off the tubes at right angles in a jig, permissible angular deviation from the tube axis max 0.5°.



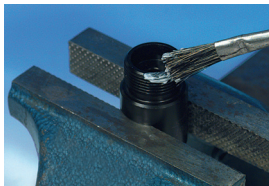
**Do not use a pipe cutter!**

Slightly deburr tubes inside and outside. Chamfer max. 0.2 x 45° permissible.

For thin-walled tubes we recommend to use reinforcing sleeves!



## Assembly Instruction



For the corresponding pipe, use the corresponding pre-assembly connecting piece in the vice.

**Note:** For dimensions over 16 mm, we recommend pre-assembly with an electro-hydraulic pre-assembly device.

The pre-assembly connecting pieces (VOMO) must be regularly (after 60 pre-assemblies) with a be checked with a cone gauge.



Lubricate the 24° female cone and the male thread of the VOMO, as well as the entire.

Lubricate the entire inside of the coupling nut with SR-5GP lubricant.

If possible, screw the coupling nut the VOMO once loosely, so that the grease can be better can distribute.

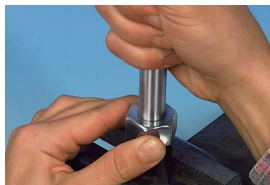
Slide the union nut and cutting ring over the tube end.

**Attention:** Cutting edge always in direction of the connection cone.



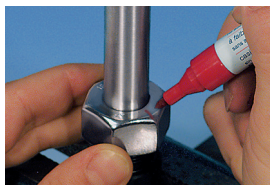


## Assembly Instruction

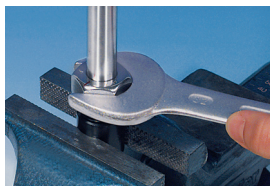


Push the unit tube, cutting ring and union nut into the VOMO. Tighten the union nut onto the VOMO by hand.

Press the tube against the stop in the base of the VOMOS.



A marking sign on the nut facilitates the observation of the required turns.



Tighten 1 to 1 1/4 turns with a wrench. Please use the necessary wrench length according to the table.

Here the tube can be turned radially up to approx. 1/2 turn radially, after that it should not rotate.

Dimension	Dimension	Necessary key length
12L / 15L / 18L	12S / 14S / 16S	500 mm
22L	20S	900 mm
28L / 35L	25S / 30S	1200 mm
42L	38S	1500 mm



## Check



Loosen the union nut.

Check the cut of the cutting edge. The throw-up covers part from the cutting ring face evenly around the entire circumference.

The cutting ring may be rotated radially but it must not be possible to move it forwards. Due to the tough material 1.4571, the cutting edge does not throw up in the same way as with steel tubes.



## Final assembly onto the body



After a positive result, insert the pre-assembled tube into the screwed connection piece. Tighten the union nut approx. 1/4 – 1/2 turn above the noticeable increase in force.

The connecting piece must be with a wrench.

For the larger dimensions, extensions for the open-end wrenches are necessary according to the table (pipe extension).

Dimension	Dimension	Necessary key length
12L / 15L / 18L	12S / 14S / 16S	500 mm
22L	20S	900 mm
28L / 35L	25S / 30S	1200 mm
42L	38S	1500 mm



## Reinforcing Rings SR-595



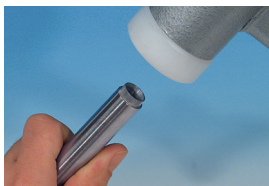
For cost reasons, thin-walled tubes are often used, which cannot withstand the pressure of the cutting ring during assembly.

In order to guarantee the function of the fitting, we recommend the use of our sf reinforcement sleeves.



### ■ Assembly:

The reinforcement sleeves can be easily into the tube up to the knurl into the tube.



The knurled part is driven into the tube with a soft hammer.

An interference fit is created, whereby the tube is not expanded.



The reinforcing sleeve fits tightly and supports the tube against constriction during assembly.



## Hand-Pre-Assembly Machine

### ■ Pace1Press

for 24° Compression Fittings according to EN ISO 8434-1  
for steel and stainless steel



MO-P1pressTE

- For consistent pre assembly quality
- no effort required for assembly
- also for use in limited space
- reduced assembly time saves money



**Studs  
complete Set**  
MO-P1VO6-42L  
MO-P1VO6-38S

**Additional  
battery**  
MO-RP1BP

**Tripod with  
machine holder**  
MO-P1TPMH

**Table  
holder**  
MO-P1THMH



## Electro-hydraulic Pre-assembly Machine

### VARO

for 24° Compression Fittings according to EN ISO 8434-1  
for 37° Flare fittings



### MO-VARO

- compact and robust machine
- manual adjusting of working pressure with digital display
- short set-up and assembly time
- clear tables for set-up



**Attachment**  
MO-VARO-  
VVGS642.1

**VARO Pre-As-  
sembly Studs**  
MO-VARO-VS

**Counter  
Plates**  
MO-VARO-GP

**Tool  
Holder**  
MO-VARO-WH1



## Technical Information

### Pressure rating

#### Pressures

Series	Pipe OD	Nominal Pressure*
<b>LL</b> (very light)	4-8 mm	100 bar
<b>L</b> (light)	6-18 mm	315 bar
	22-42 mm	160 bar
<b>S</b> (heavy)	6-14 mm	630 bar
	16-30 mm	400 bar
	38 mm	315 bar

\* at 20° C. For higher temperatures, please refer to the pressure reduction table.

### DVGW assembly attachment

#### Assembly according to DVGW

Mounting Instruction of removable tube couplings for metal gas pipes

1. Solderless tube fittings with outside thread Form A, E and F may not be used in installations according to DVGW - TRGI and TRF.
2. DVGW-Mark of conformity: DG4502BM0334
3. Suitable for gases according to DVGW worksheet G 260

4. Nominal pressure::	<b>Series</b>	<b>Outer diameter of tube Ø</b>	<b>Nominal pressure PN bar</b>
	<b>L</b>	06, 08, 08, 10, 12, 15, 18	250
		22, 35, 42	100
	<b>S</b>	06, 08, 10, 12, 14, 16, 20, 25, 30, 38	250

5. Permissible service temperature: minus 20° C up to plus 70° C
6. Tubes to be according to EN ISO 1127 or DIN 2462
7. Axial force: tensile and push strength
8. Repeated usability: 10 times



## Technical Information

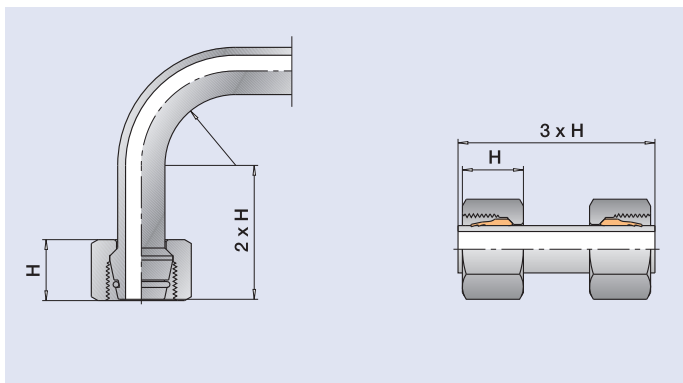
### Minimum wall thickness pipes

#### Pipes

Pipe diameter in mm                      Min. wall thickness in mm

6, 8	1,0
10, 12, 14, 15, 16	1,5
18, 20, 22, 25, 28	2,0
30, 35	2,5
38, 42	3,0

### Advice for elbows and short pieces

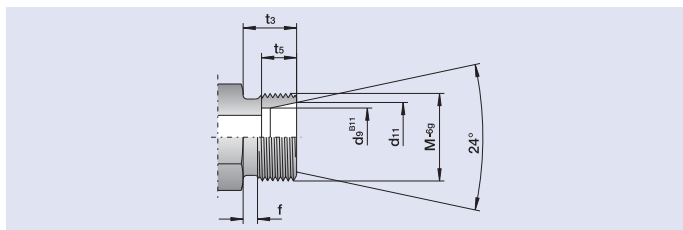


The minimum length of the straight end of an elbow should be equivalent to min.  $2 \times H$ , i.e. twice the thickness of the union nut. The minimum length of a straight pipe should be  $3 \times H$ .



# Technical Information

## ■ Dimensions pipe connections

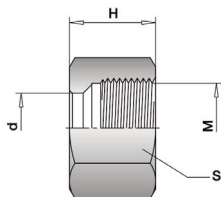
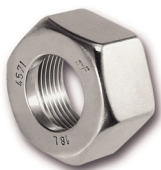


Series	Tube- outside-Ø	$d_9$	M DIN 13	$t_5$ <sup>+0,3</sup>	$t_3$ <sup>±0,2</sup>	$f$ <sup>+0,3</sup>	$d_{11}$ <sup>+0,1</sup>
<b>LL</b>	4	4,14 <sup>+0,075</sup>	M 8 x 1,0	4,0	8	2	5,0
	6	6,14 <sup>+0,075</sup>	M 10 x 1,0	5,5	8	2	7,5
	8	8,15 <sup>+0,09</sup>	M 12 x 1,0	5,5	9	2	9,5
	10	10,15 <sup>+0,09</sup>	M 14 x 1,0	5,5	9	2	11,5
	12	12,15 <sup>+0,11</sup>	M 16 x 1,0	6,0	9	2	13,5
<b>L</b>	6	6,14 <sup>+0,075</sup>	M 12 x 1,5	7,0	10	3	8,1
	8	8,15 <sup>+0,09</sup>	M 14 x 1,5	7,0	10	3	10,1
	10	10,15 <sup>+0,09</sup>	M 16 x 1,5	7,0	11	3	12,3
	12	12,15 <sup>+0,11</sup>	M 18 x 1,5	7,0	11	3	14,3
	15	15,15 <sup>+0,11</sup>	M 22 x 1,5	7,0	12	3	17,3
	18	18,15 <sup>+0,11</sup>	M 26 x 1,5	7,5	12	3	20,3
	22	22,16 <sup>+0,13</sup>	M 30 x 2,0	7,5	14	4	24,3
	28	28,16 <sup>+0,13</sup>	M 36 x 2,0	7,5	14	4	30,3
	35	35,30 <sup>+0,1</sup>	M 45 x 2,0	10,5	16	4	38,0
	42	42,30 <sup>+0,1</sup>	M 52 x 2,0	11,0	16	4	45,0
<b>S</b>	6	6,14 <sup>+0,075</sup>	M 14 x 1,5	7,0	12	3	8,1
	8	8,15 <sup>+0,09</sup>	M 16 x 1,5	7,0	12	3	10,1
	10	10,15 <sup>+0,09</sup>	M 18 x 1,5	7,5	12	3	12,3
	12	12,15 <sup>+0,11</sup>	M 20 x 1,5	7,5	12	3	14,3
	14	14,15 <sup>+0,11</sup>	M 22 x 1,5	8,0	14	3	16,3
	16	16,15 <sup>+0,11</sup>	M 24 x 1,5	8,5	14	3	18,3
	20	20,16 <sup>+0,13</sup>	M 30 x 2,0	10,5	16	4	22,9
	25	25,16 <sup>+0,13</sup>	M 36 x 2,0	12,0	18	4	27,9
	30	30,16 <sup>+0,13</sup>	M 42 x 2,0	13,5	20	4	33,0
	38	38,30 <sup>+0,1</sup>	M 52 x 2,0	16,0	22	4	41,0



## Technical Information

### Nut dimension



	PN	$\varnothing \approx d$	M	S	H	SR-No.
LL	100	4	M 8 x 1,0	10	11,0	SR-5014LL
LL	100	6	M 10 x 1,0	12	11,5	SR-5016LL
LL	100	8	M 12 x 1,0	14	12,0	SR-5018LL
L	315	6	M 12 x 1,5	14	14,5	SR-5016L
L	315	8	M 14 x 1,5	17	14,5	SR-5018L
L	315	10	M 16 x 1,5	19	15,5	SR-50110L
L	315	12	M 18 x 1,5	22	15,5	SR-50112L
L	315	15	M 22 x 1,5	27	17,0	SR-50115L
L	315	18	M 26 x 1,5	32	18,0	SR-50118L
L	160	22	M 30 x 2,0	36	20,0	SR-50122L
L	160	28	M 36 x 2,0	41	21,0	SR-50128L
L	160	35	M 45 x 2,0	50	24,0	SR-50135L
L	160	42	M 52 x 2,0	60	24,0	SR-50142L
S	630	6	M 14 x 1,5	17	16,5	SR-5016S
S	630	8	M 16 x 1,5	19	16,5	SR-5018S
S	630	10	M 18 x 1,5	22	17,5	SR-50110S
S	630	12	M 20 x 1,5	24	17,5	SR-50112S
S	630	14	M 22 x 1,5	27	20,5	SR-50114S
S	400	16	M 24 x 1,5	30	20,5	SR-50116S
S	400	20	M 30 x 2,0	36	24,0	SR-50120S
S	400	25	M 36 x 2,0	46	27,0	SR-50125S
S	400	30	M 42 x 2,0	50	29,0	SR-50130S
S	315	38	M 52 x 2,0	60	32,5	SR-50138S

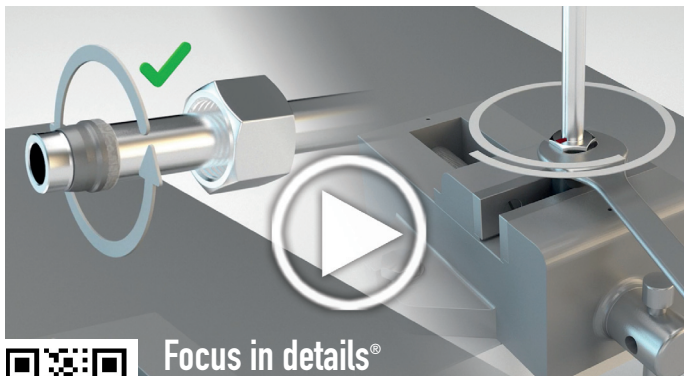


## Installation Videos

### ■ Installation Videos

Our installation videos can be found at:

[www.schwer.com](http://www.schwer.com)



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