

ASSEMBLY INSTRUCTIONS

AQUApress Press fittings



MA-Aq
10.2024 Rev. 1

Focus in details®

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Informationen Serie Aquapress

■ Schwer Fittings' **Aquapress series** includes a wide range of **stainless steel press fittings (M-profile), welding fittings, solder and push-on fittings, pipes, as well as pipe accessories (pipe clamps) and assembly equipment** (press tools, press machines, saws, deburrers, bending units).

The system is being applied in the field of private water supply, industry and shipbuilding. Whether drinking water and sanitary systems, heating and air conditioning technology, hydraulic cooling, fire protection or compressed air systems, the fittings have opened up a wide field of applications.

■ The press fittings are available with **different connection variants** such as internal/external thread, flange connection or push-in end. Fittings with press connections, pipe bends with radii of 15°- 90° and adapters round off the range of press fittings.

Due to the **selectable O-ring materials** (e.g. EPDM, NBR, FKM, HNBR), the connections are suitable for media such **as water, oil, gas**, etc. The use of stainless steel (material 1.4404, AISI 316L) guarantees a **long service life** and is therefore not more expensive than other materials in the long run.

The fittings can withstand **pressures of 16 bar and temperatures of 85° C** over time. The associated microprocessor-controlled press tools feature a compact design, a reliable, constant thrust force and a short pressing time. The resulting fast assembly time reduces assembly costs. **The type and design of the jointing clamps for stainless steel pipe systems is compatible with the pressing system commonly used in the market.** Standard O-ring seal: Viton® (green).



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Safety instructions

■ General safety regulations

Observe the **agenerally applicable safety regulations** when handling tools and machines.

Wear appropriate **protective clothing**.



■ Lines and media

Before assembly or disassembly, make sure that the pipe or lines **are not under pressure**. Likewise, when installing the piping systems, ensure that **no additional loads or stresses** are applied to the connections. Do not exceed **pressure and temperature limits**. Beware of harmful and **hazardous media** in the system. Observe the **temperatures at the lines**.

■ Workplace

Ensure **a clean workplace** and a clean working method. Have the required utensils ready before assembly.

■ Wear protective goggles

Due to convenience, the workman tends to blow away the chips on the pipe, which can cause chips and dirt to get into the eye. Therefore, **we strongly recommend wearing safety glasses**.

■ Foreign objects

Strictly ensure that the fittings are **not contaminated with dirt or foreign objects** before assembly, as they may cause leakage.



Pipe selection safety instructions

If possible, we recommend using Schwer Fittings pipes (TAq-R) with material 1.4404 (AISI 316L) listed in our catalogue or in the eShop, as the specified tolerances are precisely matched to our press fittings.



Pipes according to EN 10217-7, tested by the German Technical and Scientific Association for Gas and Water (DVGW), with corresponding marking on the pipes.



■ Welded stainless steel pipes DVGW

D	s	L	TAq-No.
15	1.0	6 m	TAq-R15x1-4LE
18	1.0	6 m	TAq-R18x1-4LE
22	1.2	6 m	TAq-R22x12-4LE
28	1.2	6 m	TAq-R28x12-4LE
35	1.5	6 m	TAq-R35x15-4LE
42	1.5	6 m	TAq-R42x15-4LE
54	1.5	6 m	TAq-R54x15-4LE

■ Material: 1.4404

Further dimensions on request. For pipe clamps, please see chapter RS.

According to EN 10217-7, tested by the German Technical and Scientific Association for Gas and Water (DVGW).

Tolerances according to EN ISO 1127, D3/T3 resp. D4/T3

Production length: approx. 6.0 m



Pipe processing

For the following assembly it is very important that the pipes are professionally cut and deburred. The processing can be done by hand or with electric machines.

■ Pipe cutting

The **pipe should be cut absolutely at right angles in a jig** (MO-AV6-62) with a suitable **hacksaw** (MO-MSB300). If no jig is available, use vice with clamping protection jaws (Caution: Do not deform the pipes).

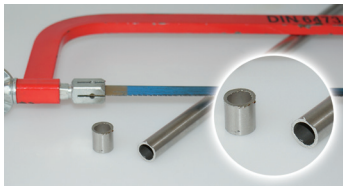


Likewise, the pipe can also be cut to length with a sharp **pipe cutter** (MO-RAS) (not recommended for thick-walled pipes). **Do not exert too much pressure** on the cutting wheel or on the jaws of the vice, otherwise there is a risk of deformation of the pipe ends.



Caution:

The displacement of material results in a reduction of the passage. Despite deburring, this cannot be removed.



■ Deburring the pipe ends

- 1 **Remove** existing burrs with a **deburrer** (MO-RE10) on the outside and inside. If not at hand, deburring can also be done on the outside with a flat file and on the inside with a round file or an internal deburring tool. A slight, burr-free **external chamfer** is recommended.



Caution:

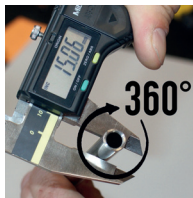
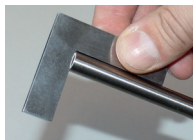
Careful deburring is very important and avoids possible damage to the O-ring when inserting the pipe into the press fitting. This could lead to leakage later on!

- 2 Remove and dispose of **chips and dirt particles** properly after cutting and deburring. Your workplace should always be clean.



■ Checking the pipe ends

- 3 Use an angle to check the **squareness** of the cut pipe.
- 4 Check the **pipe diameter** and the **roundness** of the pipe with a calliper (observe pipe tolerances).



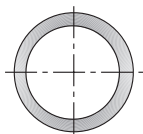


Selection of seals

O-rings



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			for gas	for oil	for water
			yellow	green	black
			HNBR	FKM (Viton®)	EPDM
Temperature:			-20°C – +70°C	-20°C – +180°C	-20°C – +120°C
Ø	b	s	Aq-No.	Aq-No.	Aq-No.
15	15	2.6	Aq-OR-H15	Aq-OR-V15	Aq-OR-E15
18	18	2.6	Aq-OR-H18	Aq-OR-V18	Aq-OR-E18
22	22	3.2	Aq-OR-H22	Aq-OR-V22	Aq-OR-E22
28	28	3.1	Aq-OR-H28	Aq-OR-V28	Aq-OR-E28
35	35	3.1	Aq-OR-H35	Aq-OR-V35	Aq-OR-E35
42	42	4.1	Aq-OR-H42	Aq-OR-V42	Aq-OR-E42
54	54	4.1	Aq-OR-H54	Aq-OR-V54	Aq-OR-E54
76.1	76.8	8	Aq-OR-H761	Aq-OR-V761	Aq-OR-E761
88.9	89.3	8.2	Aq-OR-H889	Aq-OR-V889	Aq-OR-E889
108	108.6	11	Aq-OR-H108	Aq-OR-V108	Aq-OR-E108

Further materials on request.

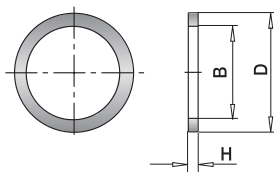
Standard O-ring: Viton® (green)



■ Flat seal



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for water

black
EPDM

Temperature:

-20°C – +120°C

Ø	B	D	H	Aq-No.
15	15	23	2	Aq-FD-E15
18	15	23	2	Aq-FD-E18
22	22.5	29.6	2	Aq-FD-E22
28	27	38.6	2	Aq-FD-E28
35	35	44.6	2	Aq-FD-E35
42	40	50.6	2	Aq-FD-E42
54	53.5	67	3	Aq-FD-E54

■ Further materials on request.



Assembly instructions for

■ Preparation

- Before installing a fitting, make sure that **the elastic seals are present and correctly located in their receptacles**.
- There **must not be any visible damage** to the O-ring.
- It is recommended that **the pipe be moistened with soapy water** to facilitate insertion into the press fitting.
- Do not use grease, oil or other substances (lubricants, etc.) on the seals.



■ Joining the pipe and fitting

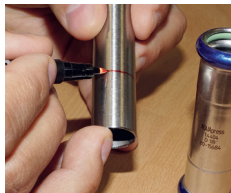
- When inserting the **pipe** into the press fitting, **turn it slightly** and push it as far as it will go. A slight resistance due to the O-ring can be felt.
- Inserting the pipe into the press fitting at an angle should be avoided at all costs, as this could damage the O-ring or cause it to move out of position.





Assembly instructions for press fittings

- If the press fitting **does not have a stop (e.g. sliding sleeve)**, the insertion depth E must be observed.
- If there is no indication of this, a **mark** is made with a felt-tip pen **at least 25 mm from the pipe end**.



Marking

- After the connection has been made and it has been verified that the pipe has been fully inserted into the sleeve, it is advisable **to mark the final position with a marker** (MO-MOS06).
- This is to check that **no displacement** occurs in connections during the installation of other press-fit connections and during the pressing process. In this way, a possible error can be corrected before pressing.





Assembly instructions Press fittings

Pressing

- Use only **jointing clamps with M contour**.
- During preparations, observe the specifications and safety instructions of the appropriate press tool.
- Use the correct size of jointing clamps for the size of the fitting.
- The inner groove of the jointing clamps must **completely enclose** the profile of the press fitting.
- When pressing the fitting, the clamps must close completely.



Check

- Check the pressing as well as the insertion depth of the pipe on the **control mark** made with the felt-tip pen.



Technical information

■ Technical information

Caution:

Double pressing is not permitted, as this could affect the tightness.

■ Press fittings

Technical data

Water

Max. pressure 16 bar
Temperature -20° C – +85° C

Compressed air

Max. pressure 16 bar

Gas

Max. pressure 5 bar
Temperature -20° C – +70° C

Material

1.4404 / AISI 316L

Pipe OD	Wall thickness
15	1
18	1
22	1.2
28	1.2
35	1.5
42	1.5
54	1.5
76.1	2
88.9	2
108	2

■ Seals

Technical data

HNBR

for gas
Max. pressure 5 bar
Temperature -20° C – +70° C

FKM (Viton®)

for oil
Max. pressure 16 bar
Temperature -20° C – +180° C

EPDM

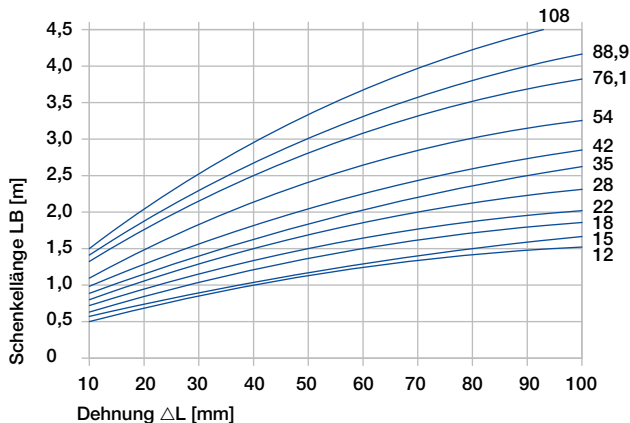
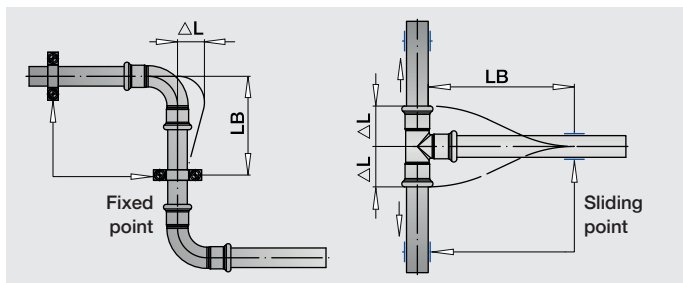
for water
Max. pressure 16 bar
Temperature -20° C – +120° C



Pipe mounting

Expansion compensation

Pipelines expand differently due to **thermal stress**. These **changes in length** can be compensated for by setting fixed and sliding points, expansion compensators or appropriately calculated expansion joints.





Pipe mounting

■ Fixed points and sliding points

The pipe clamps (**fixed points**) have the task of maintaining the correct position of the pipes. **Sliding points** allow axial movement in the event of thermal expansion due to temperature fluctuations (Fig. 1).

For pipes with no change of direction, it is recommended to place the clamp approximately **in the middle** of the pipe.

Care should be taken to position the sliding fasteners so that they do not behave like fixed points. Please take into account possible expansion of the pipe (Fig. 2).

Fastening points must not be placed directly in front of or on top of the fitting (Fig. 3).

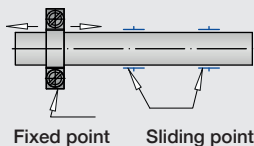


Fig. 1

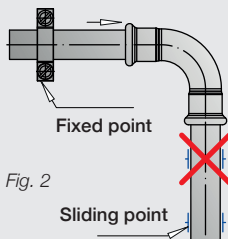


Fig. 2

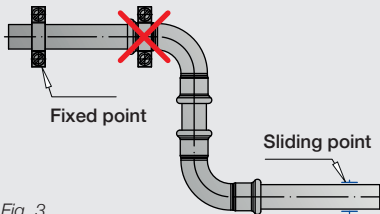


Fig. 3



Pipe mounting

■ Spaces

■ Recommended guide values between the fastening points:

The spaces between fastening points are important because too little spacing can prevent expansion and that too much spacing could cause vibration.

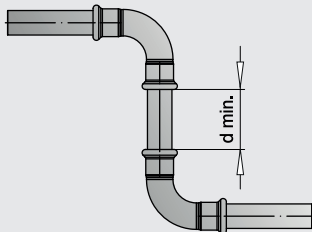
Pipe	Space
15 x 1.0	1.25 m
18 x 1.0	1.50 m
22 x 1.2	2.00 m
28 x 1.2	2.25 m
35 x 1.5	2.75 m
42 x 1.5	3.00 m
54 x 1.5	3.50 m

Pipe clamps with rubber inserts

allow damping of noise and provide better stress behaviour.

■ Minimum spaces between press fittings:

Two press fittings in close proximity can affect the tightness of the pipe connections. Please observe the minimum spaces.



Ø	d min.
15	20 mm
18	20 mm
22	20 mm
28	30 mm
35	30 mm
42	30 mm
54	30 mm



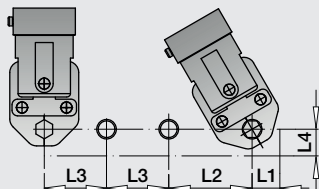
Pipe mounting

■ Clearances

■ Minimum clearances for pressing:

Minimum clearances depending on the different sizes of the press tools:

Ø	L1	L2	L3	L4
15	25	75	56	24
18	27	81	60	24
22	35	81	76	32
28	35	81	76	32
35	45	85	76	32
42	76	120	120	78
54	86	125	125	88



■ Pipe mounting:

The **load-bearing capacity** of the pipe mounting must correspond to the weight of the piping.

Use fixed and sliding points correctly so that length changes due to **thermal stress** can be compensated.

Our product managers for your application will be happy to answer any questions you may have.



Pressing tools and cutting machine

Press machine RPZ

for RPZ and PM4000:



Jointing clamps
2-membered



Jointing clamps
3-membered

Scope of delivery

- 1x press machine
- 1x battery 14.4 V, 3.2 Ah Li-Ion
- 1x quick charger 230 V
- 1x sturdy steel case

Jointing clamps (M-profile)

Ø	Aq-No.
15	Aq-PBM15
18	Aq-PBM18
22	Aq-PBM22
28	Aq-PBM28
35	Aq-PBM35
42 (3-membered)	Aq-PBM42
54 (3-membered)	Aq-PBM54

Press machine PM4000



Scope of delivery

- 1x press machine
- 1x battery 18 V / 4.0 Ah Li-Ion
- 1x quick charger 230 V
- 1x plastic case

Pipe cutting machine RTM



Scope of delivery

- 1x pipe cutting machine
- 1x assembly table
- 1x foot control
- 1x cutting disk

Online Shop



HYDRAULIC / PNEUMATIC

INSTRUMENTATION

VACUUM

SANITARY

SCHWER FITTINGS



Muffe gerade

Aq-M22-4LV

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WERKSTOFF

1.4404

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Ihr Preis €
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1

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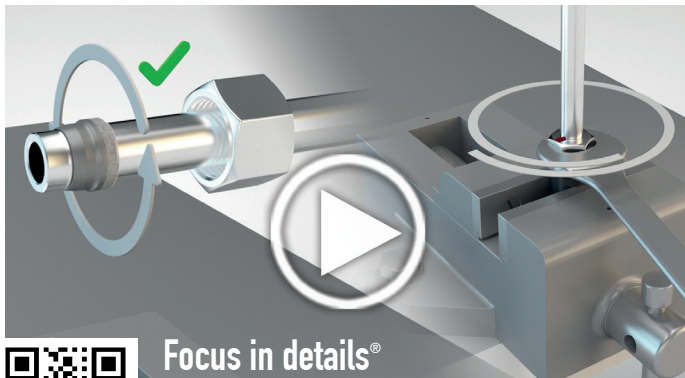


Installation Videos

■ Installation Videos

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