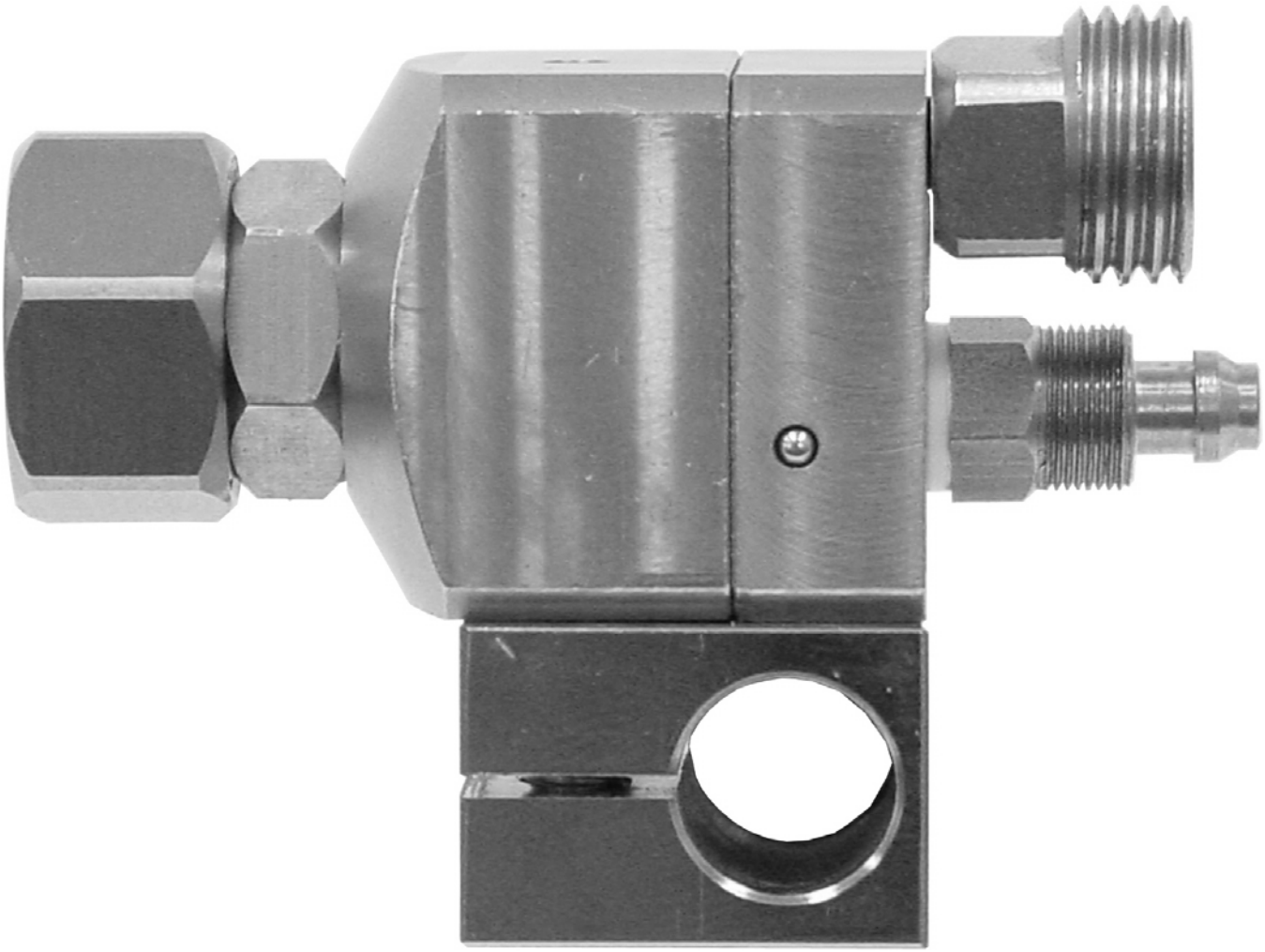
Operating manual
for
Automatic-spray valve
KA-2 / AIRLESS



Read this manual carefully before installing, operating or servicing this equipment.
Keep always handy for further use.

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1 Introducion

The AIRLESS automatic spray valve **KA-2/AIRLESS** is a spray valve, which atomizes fluids, as f.i. colours or release agents under high pressure without atomizing air. The control of valve has to be done via external solenoid valves. Depending on viscosity of fluid, the application can be adjusted individually via AIRLESS-nozzle dimension (not included in delivery) and the material pressure. The supply of control air (for opening and closing the needle) and material should be done via three hoses.
The AIRLESS automatic spray valve **KA-2/AIRLESS** is a precision tool. Always keep clean and observe minimum instructions to maintain a long usefull life of the valve.

2 Safety

2.1 Duties of the user

- The user must read this service manual carefully before performing any operations.
- Application and service operations should not be carried out if the user is not absolutely sure of the purpose and consequence of the operations.

2.2 Definitive Use

The AIRLESS automatic spray valve **KA-2/AIRLESS** is a pneumatically controlled spray valve without atomizing air. It is suitable for sprayable materials. It is not suitable for spraying aggressive or heated materials. In case of doubt, contact the manufacturer.

2.3 Warning against danger

This operating manual warns users of operations which may put their health at risk. The warnings are indicated by combinations of text and symbols corresponding to the different danger classes.

WARNING!
Signs a possible dangerous situation.
If you don´t avoid, *death or severe injuries* can follow.

CAUTION!
Indicates a situation which may be dangerous.
Failure to heed the caution may result in *personal injury*. This indication is also used where material damage is possible.

IMPORTANT!
Indicates tips for usage and other helpful information.

3 Function Description

The AIRLESS automatic spray valve **KA-2/AIRLESS** is pneumatically controlled. The needle function is: Air open / air return. Only when control air is defect or switched off, the valve is closed by needle spring (8).
The spraying material can be fed to the valve up to a **max. pressure of 150 bar** via high pressure pump (and high pressure hose). If higher material pressure is needed, please contact the manufacturer. By installation of a standard airless nozzle (not included in delivery) and the high material pressure, the fluid will be atomized without atomizing air.

4 Installation

The **KA-2/AIRLESS** can be installed in any position. Vibrations of the valve caused by fast intermitting cycles require solid and massive installation. For solid attachment the use of clamp (optional) is recommended. Distance to spraying surface and version of installed airless nozzle varies width of application. Vibration of the equipped machine to the valve should be limited as far as possible.
Before using valve, make sure that all hoses are assembled tight and all connections are assembled in correct order.

4.1 Hose connection

Connect the three hoses as follows:
1. Control air (black hose), connection (draw.-no.: 13): to 3/2-way solenoid valve
2. Control air (black hose), connection (draw.-no.: 13): to 3/2-way solenoid valve
3. fluid to (transparent hose), connection (draw.-no.: 14): to pump

Before Starting:

- When connecting the pressure hoses to the spray valve, ensure that all the connection screws are tight.
- Follow the application notes of the spraying material manufacturer.

4.2 Operating instructions

CAUTION !
Never point the sprayjet against persons. Wearing eye protection is strongly recommended. Spraying procedures cause noises depending on the used pressure. If necessary, wearing of ear protection is recommend.

WARNING !
Danger caused by combustible and noxious spraying material. Safety instructions on fluid can and material data of fluid manufacturer must definitely be observed.

WARNING !
Before opening the spray valve it has to be disconnected from the air and fluid supply. Otherwise ejected elements can cause danger.

The AIRLESS automatic spray valve **KA-2/AIRLESS** needs 6 bar control air pressure. Set material pressure according to required spray droplet sizes.

In any case, please observe the regulations of the professional/trade association having liability for industrial safety and insurance.
Intermittend use as well as continuous use is possible. Depending on application the control air pressure has to be suited to the intermission cycles and the material pressure.

IMPORTANT !
Maximum material pressure is 150 bar. Do not exceed maximum allowed pressure. In case higher pressure is needed, please contact the manufacturer.

IMPORTANT !
In case of damaged threads please send spray valve back to manufacturer for inspection.

It is harmless to leave fluid within the valve (no connection to outside air), if system stays under pressure.

5 Repair and Maintenance

Before starting maintenance or repair work, ensure that all air operated tools are disconnected from the air supply and fluid supply.

WARNING !
Danger caused by combustible and noxious spraying material. Safety instructions on fluid can and material data of fluid manufacturer must definitly be observed.

WARNING !
Before opening the spray valve it has to be disconnected from the air and fluid supply. Otherwise ejected elements can cause danger.

The AIRLESS automatic spray valves of series **KA-2/AIRLESS** are high precision tools. Always keep clean and observe minimum instructions to maintain a long and useful life of valve. We recommend lubricating moveable parts regularly, and greasing threads, especially the nozzle threads, when replacing or cleaning the nozzle. It is recommended to use clean and filtered application fluid only. Control air should be slightly oiled.

5.1 Cleaning

To clean valve, spray solvent until pure solvent leaves nozzle. Do not submerge entire valve in solvent. At longer working interruptions it is adviseable to clean nozzle by putting this part only into solvent. If necessary, use a soft brush. Moving parts and threads should always be greased slightly.
The valve should be cleaned using an appropriate thinner. To clean small drill holes, use our special nozzle cleaning needles.

5.2 Possible case of failure: Needle sticks

- Check, if sufficient control air is supplied (6 bar).
- Check, if o-ring (7.1) is in propper order.
- Check, if needle sticks within needle gasket (4) and/or within o-ring (6).

5.3 Installation and changing of airless nozzle

Disconnect spray valve from air and fluid supply. Unscrew cap nut (1). Put in gasket (2). Insert airless nozzle into seat adapter (3). Screw cap nut (1) tight.

5.4 Installation and changing the needle unit

Disconnect spray valve from air and fluid supply.

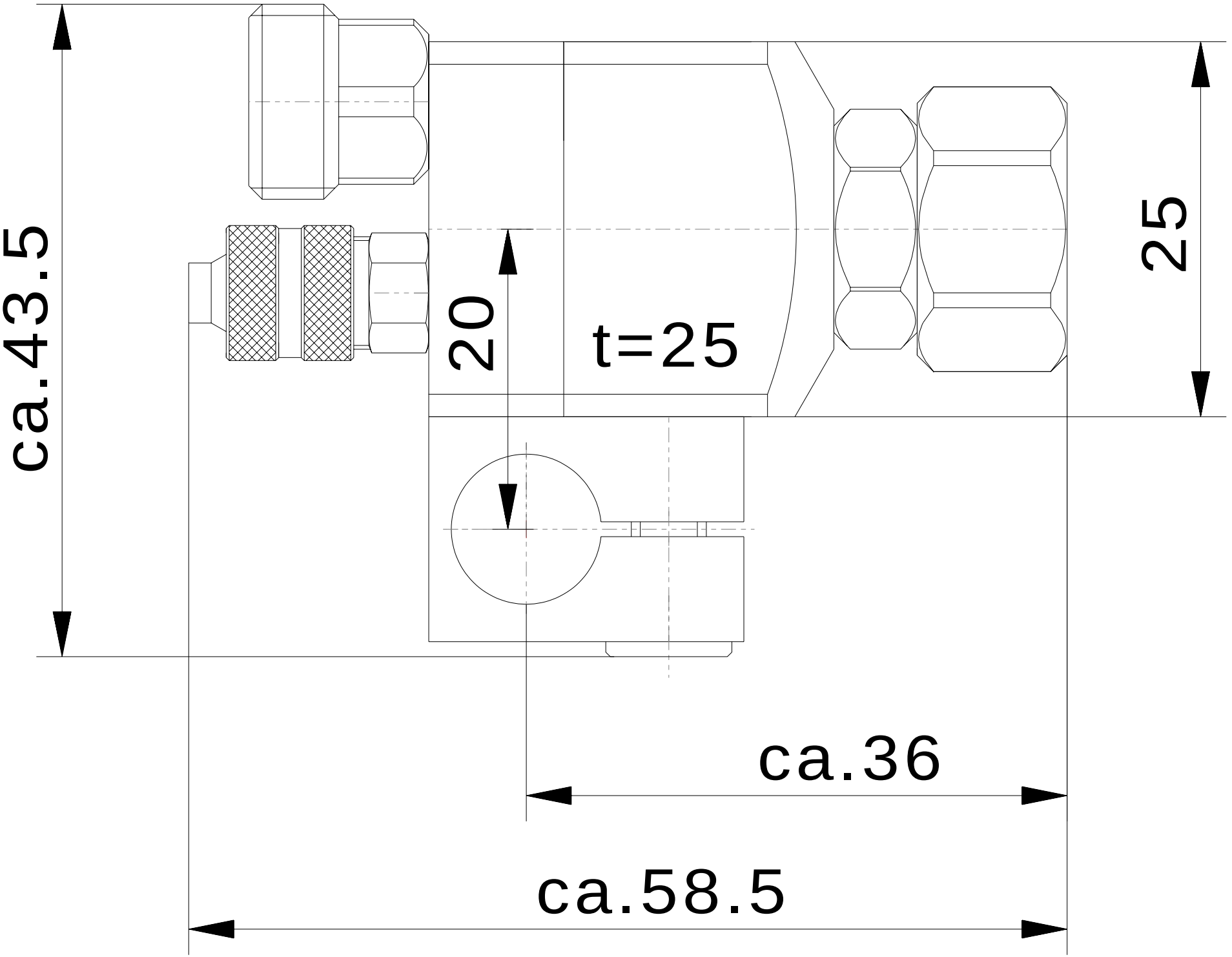
- Take off closing plate (11) by unscrewing screws (12).
- Pull out needle spring (8) and needle (7).
- Unscrew collar ring (1) and take off AIRLESS-nozze (not included in delivery) and gasket (2)
- Screw out seat adapter (3).

Re-assemble new parts in reverse order slightly greased. It is not recommended to use old needles and nozzles because even slightly damaged needle shafts would immediately cause leakage in gasket (4) and o-ring (6).

5.4 Changing needle gasket

IMPORTANT !
Do not use metallical aid to remove and insert gaskets and gasket seats !
Gaskets and gasket seats can be damaged.

After pulling out needle (7) (see "changing the needle unit"), o-ring (6) can be taken out of the valve body by means of using a pointed object. Re-assemble by laying the new o-ring into the provided slot. O-Ring (7.1) can be changed on piston. Gasket (4) is not symmetrical. It is to be placed into the seat of valve body The somewhat wider opening must be positioned to point to the front of spray valve “in direction nozzle”. Screw seat adapter (3) tight.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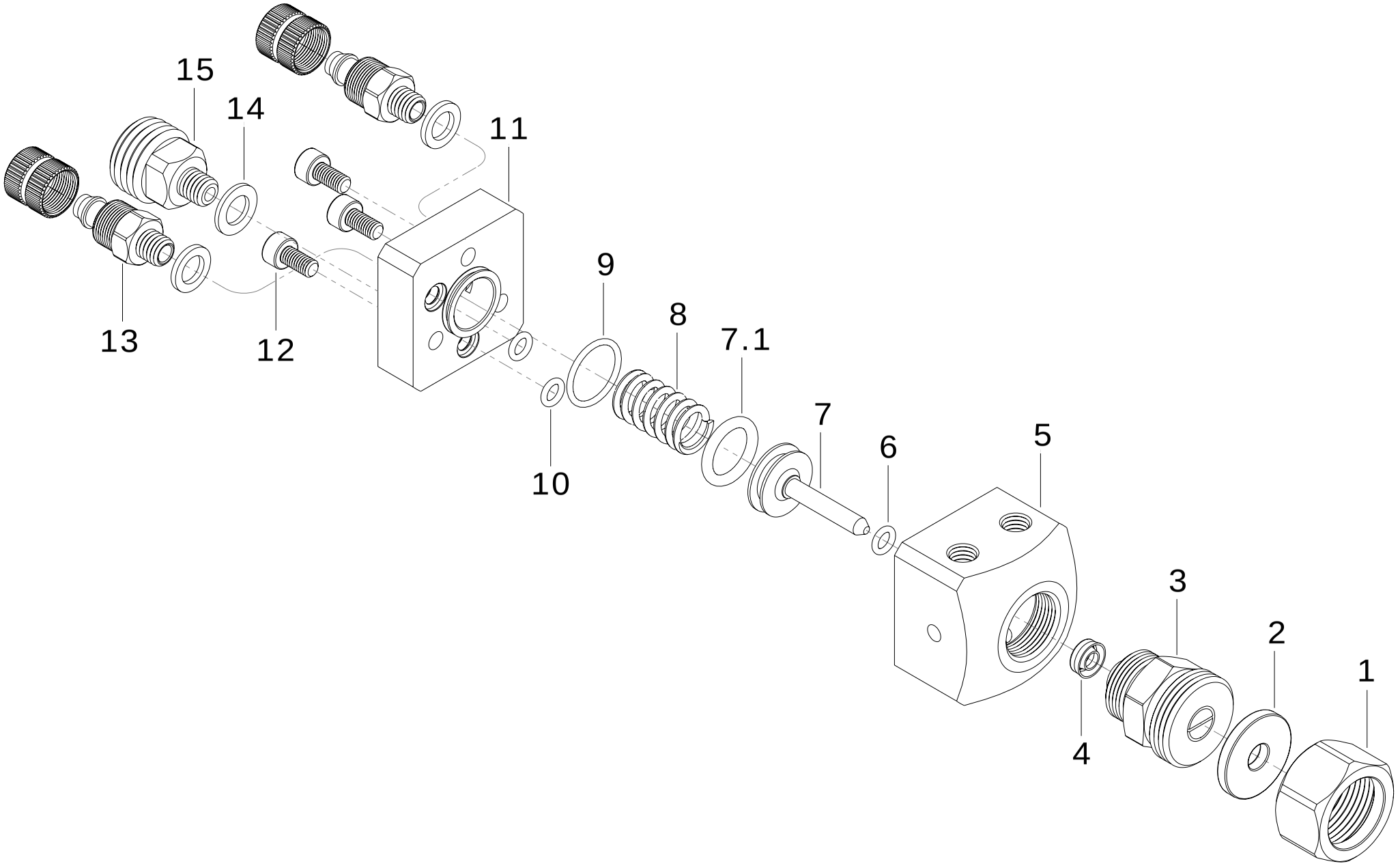
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7.1
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6. Spareparts list

draw.-no.	part-no.	qty	description
1	410130	1	collar ring, wrench size 17 x 10mm
2	640097	1	gasket 15 x 4,5 x 2mm, PA
3	220583	1	seat adapter, wrench size 14 x 20,5mm
4	640155	1	gasket (Variseal) 3,0 x 2,15 x 1,35
5	511213	1	valve body KA 2/AIRLESS, 25 x 25 x 19mm
6	640000	1	o-ring 3 x 1 / Viton®
7	111455	1	needle with cone point from tungsten cabide, Ø3 x 25mm, compl.
7.1	640366	1	o-ring 8,5 x 1,8 / Viton®
8	820088	1	spring 1,2 x 12,4mm
9	640052	1	o-ring 10 x 1 / Viton®
10	640000	2	o-ring 3 x 1 / Viton®
11	511214	1	closing plate KA 2/AIRLESS, 25 x 25 x 9,5mm
12	610008	3	screw DIN 912 M3 x6
13	220089	2	pipe fitting, complete, wrench size 8 x 19mm
14	640162	1	gasket, copper, 5 x 9 x 1mm
15	220584	1	pipe fitting, high pressure, stainless steel, M5 - 1/4", short
	910015	1	clamp, complete, 21,5 x 25 x 15mm (optional)

7. Technical data

measurements : 44mm lenght x 25mm x 25mm (without connections)
weight : approx. 150g (with clamp approx. 185g)
control air pressure : 6 bar
material pressure : max. 150 bar (with two air connections, 1 x opening, 1 x closing)
max. 120 bar (with one air connection, 1 x opening, closing by spring)

Special design on request. Technical alterations reserved. August 2009.

8 Manufacturer declaration

The spray valve **KA-2/AIRLESS** was constructed and produced by
ALFRED SCHÜTZE Apparatebau GmbH, Hannoversche Straße 69-71, 28309 Bremen – Germany in accordance with the guidelines and standards of DIN EN 292. This spray valve can be combined with other modules or machines, which comply to DIN EN 292, without limiting the conformity.

Place	Date	Signature of manufacturer
Bremen	19.08.2009	