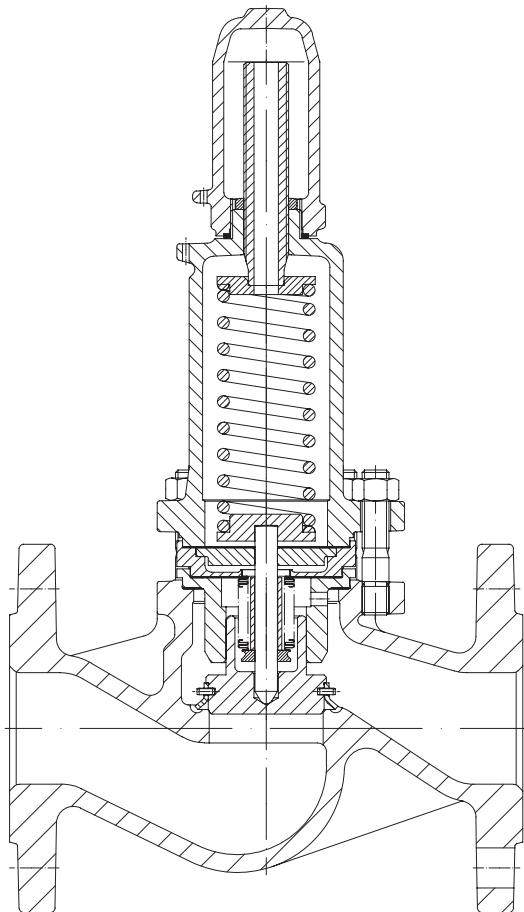


Operating and installation instructions

Pressure regulating valve PRESO® (spring loaded)



PRESO®
(Series 750)

Contents

1.0 General information on operating instructions	2	5.4 Safety valves	7
2.0 Notes on possible dangers	2	6.0 Putting the valve into operation	7
2.1 Significance of symbols	2	6.1 Setting instructions	8
2.2 Explanatory notes on safety information	2	6.1.1 Removing the cap	9
3.0 Storage and transport	3	6.1.2 Changing the pressure range "without" spring change.....	9
4.0 Description	3	6.1.3 Changing the pressure range "with" spring change	9
4.1 Scope of applications	3	7.0 Care and maintenance	10
4.2 Operating principles	3	8.0 Troubleshooting	10
4.3 Diagram.....	4	9.0 Troubleshooting table	11
4.4 Parts list	4	10.0 Dismantling the valve or the top part	12
4.5 Technical data Technical data - remarks	5	11.0 Warranty / Guarantee	12
4.6 Marking	5	12.0 EC declaration of conformity	13
5.0 Installation	6		
5.1 General notes on installation.....	6		
5.2 Requirements at the place of installation	6		
5.3 Strainer	7		

1.0 General information on operating instructions

These operating instructions provide information on mounting and maintaining the fittings. Please contact the supplier or the manufacturer in case of problems which cannot be solved by reference to the operating instructions.

They are binding on the transport, storage, installation, start-up, operation, maintenance and repair.

The notes and warnings must be observed and adhered to.

- Handling and all work must be carried out by expert personnel or all activities must be supervised and checked.

It is the owner's responsibility to define areas of responsibility and competence and to monitor the personnel.

- In addition, current regional safety requirements must be applied and observed when taking the fittings out of service as well as when maintaining and repairing them.

The manufacturer reserves the right to introduce technical modifications at any time.

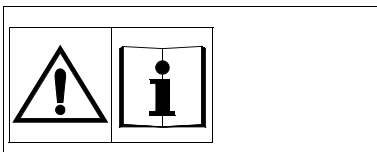
These Operating Instructions comply with the requirements of EU Directives.

2.0 Notes on possible dangers

2.1 Significance of symbols



Warning of general danger.



Non-compliance with operating instructions is dangerous!
Read the operating instructions before installation, operation, maintenance or disassembly and adhere to them strictly.

2.2 Explanatory notes on safety information

In these Operating and Installation Instructions dangers, risks and items of safety information are highlighted to attract special attention.

Information marked with the above symbol and "**ATTENTION!**" describe practices, a failure to comply with which can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.

All other information not specifically emphasised such as transport, installation, operating and maintenance instructions as well as technical data (in the operating instructions, product documentation and on the device itself) must also be complied with to the fullest extent in order to avoid faults which in turn can cause serious injury to persons or damage to property.

3.0 Storage and transport



ATTENTION !

- *Protect against external force (like impact, vibration, etc.).*
- *Valve mountings such as actuators, handwheels, hoods must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.*
- *Suitable materials handling and lifting equipment should be used.*
See catalog sheet for weights.

- At -20°C to +65°C.
- The paint is a base coat to protect against corrosion during transportation and storage. Do not damage paint protection.

4.0 Description

4.1 Scope of applications

Pressure regulating valves are used for „passing excess media in pressure systems“. The valve has no safety function.



ATTENTION !

- *Refer to the data sheet for applications, limits on use and possibilities.*
- *Certain media require or preclude the use of special materials.*
- *The valves are designed for standard operating conditions. If conditions exceed these requirements, e.g. aggressive or abrasive media, the operator should state the higher requirements when ordering.*
- *Valves made from grey cast iron are not authorised for use in systems subject to TRD 110.*

The information complies to the Pressure Equipment Directive 97/23/EC.

It is the responsibility of the machine planner to ensure compliance.

The special markings on the valve must be taken into account.

Refer to the catalogue sheet to see which materials are used in standard versions.

Please contact the supplier or the manufacturer if you have any questions.

4.2 Operating principles

A pressure regulating valve is a valve where a preset pressure or a differential pressure is adjusted an the valve opens and closes automatically.

The over flow function is regulated through a spring.

4.3 Diagram

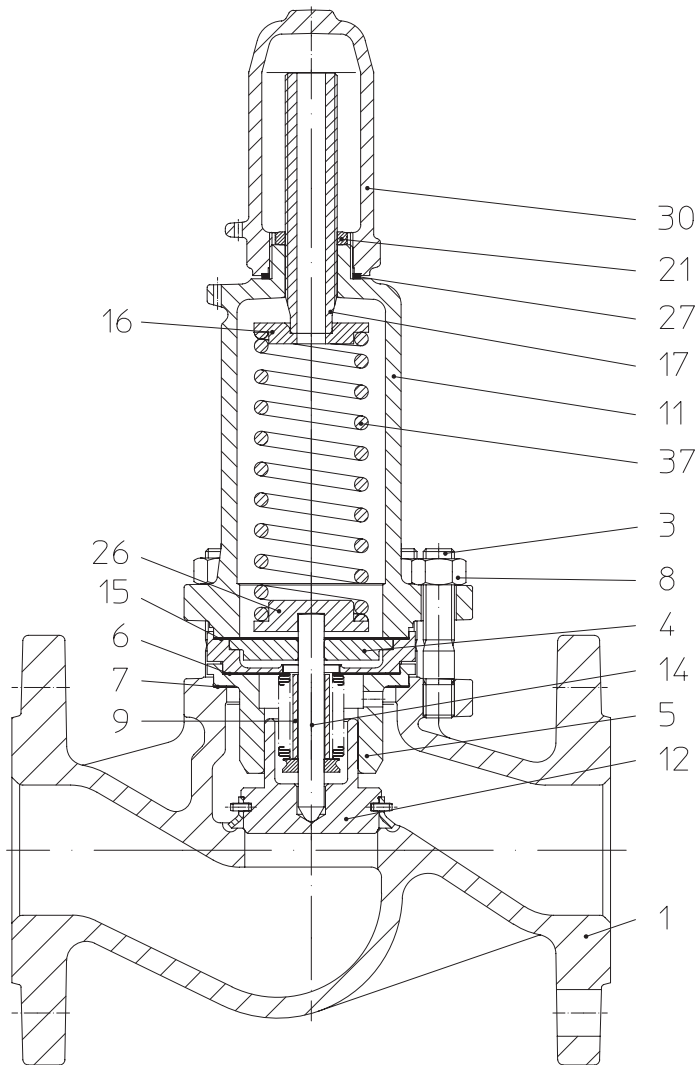


Fig. 753

Fig. 1

4.4 Parts list

Pos	Description	Pos	Description
1	Body	14	Spindle unit
3	Stud	15	Gasket
4	Guide plate	16	Spring plate (top)
5	Guide bush	17	Adjusting screw
6	Gasket	21	Lock nut
7	Gasket	26	Spring plate (bottom)
8	Hex. nut	27	Gasket
9	Travel limiter ring	30	Cap
11	Bonnet	37	Spring
12	Disc unit		

Refer to the data sheet for information about materials with designations and figure numbers.

4.5 Technical data Technical data - remarks

for

- **Principal dimensions**

- **Pressure-temperature-ratings, etc.** refer to datasheet.

Nominal diameter:	DN 15 - DN 100 / 1/2" - 4"
Nominal pressure:	PN 6, PN 10, PN 16, ANSI 150
Body material:	EN-JL1040, EN-JS1049, 1.0619+N, SA 216 WCB, 1.4408
Pressure ranges:	0,5 - 1,5 bar; 1,0 - 3,0 bar; 2,0 - 5,0 bar; 4,0 - 10,0 bar
Temperature:	acc. to Pressure-temperature-classification, refer to data sheet
Disc sealing:	Metal
Spindle sealing:	Stainless steel bellow

4.6 Marking

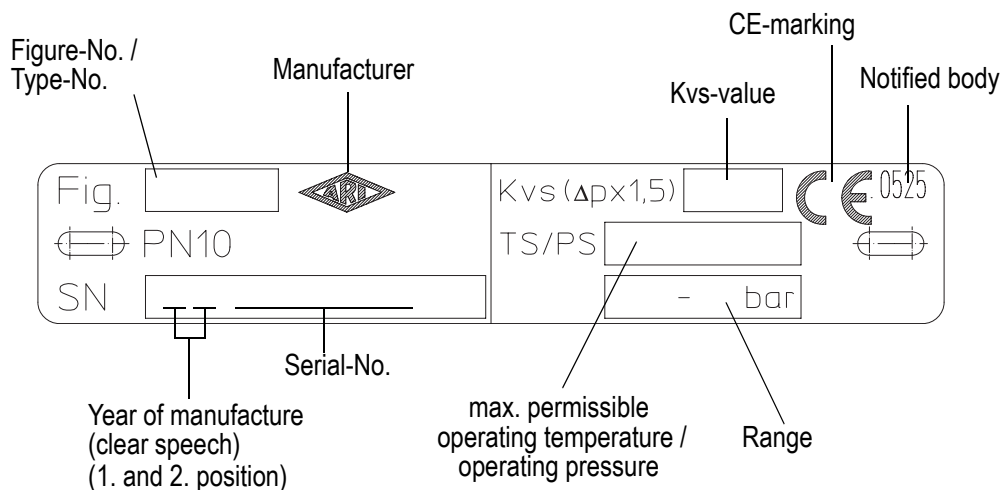


Fig. 2

Address of manufacturer: refer to item 11.0 Warranty / Guarantee

According to the Pressure Equipment Directive table 6, annex II valves without safety function are only allowed to bear the CE-marking DN32 onwards.

5.0 Installation

5.1 General notes on installation

The following points should be taken into account besides the general principles governing installation work:



ATTENTION !

- Remove flange covers if present.
- The interior of valve and pipeline must be free from foreign particles.
- Note installation position with reference to flow, see mark on valve.
- Steam line systems should be designed to prevent water accumulation.
- Lay pipelines so that damaging transverse, bending and torsional forces are avoided.
- Protect valves from dirt during construction work.
- Connection flanges must mate exactly.
- Connecting bolts for pipe flanges should be mounted preferably from the counter flange side (hexagon nuts from the valve side).
At DN15-32: If valves should be mounted directly to valves, the upper flange connecting bolts should be preferably executed with studs and hexagon nuts on both sides.
- Valve mountings such as actuators, handwheels, hoods must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.
- Suitable materials handling and lifting equipment should be used.
See catalog sheet for weights.
- Freezing, sticking or blocking of the surplus valve must be avoided at all costs (e.g. by heating).
- Before adjusting, remove the cap carefully.
Media could emerge which has accumulated (only with broken bellows!)
- **Pressure regulating valves don't have any safety function.**

- Planners / construction companies or operators are responsible for positioning and installing products.
- The valves are designed for application, not influenced from weather.
- For application outside or in adverse environments like corrosion-promoting conditions (sea water, chemical vapours, etc.), special constructions or protective measures are recommended.
- Clean and flush the plant before it is put into operation as dirty media can cause damage to disc and seat.
- Centre gaskets between the flanges.
- The pressure regulating valves shall be installed with upright bonnet.

5.2 Requirements at the place of installation

The place of installation should be easily accessible and provide ample space for maintenance and removing the cap. Stopvalves should be installed before and after the pressure regulating valve to enable maintenance working without draining the piping system. With the installation of a bypass line the system can run on manually. Install manometers to control the up- and downstream pressures.

When isolating the system the cap must stay free.

5.3 Strainer



ATTENTION !

*A strainer should be installed in a suitable position.
The strainer must be cleaned from time to time.*

5.4 Safety valves



ATTENTION !

The system must be protected against excess pressure. The necessary safety valve must be dimensioned so that the max. possible massflow can be blown off by the safety valve.

The set pressure depends on the system part with the lowest pressure burden, and there must be a sufficiently large gap between set pressure and system pressure.

If necessary the upstream pressure (P1) and the pressure downstream of the surplus valve (P2) should be equipped with a safety valve.

6.0 Putting the valve into operation



ATTENTION !

- *Before putting the valve into operation, check material, pressure, temperature and direction of flow.*
- *Regional safety instructions must be adhered to.*
- *Residues in piping and valves (dirt, weld beads, etc.) inevitably lead to leakage.*
- *Touching the valve when it is operating at high (> 50°C) or low (< 0°C) media temperatures can cause injury.*

Affix warning notice or protective insulation as appropriate!

- *Pressure regulating valves don't have any safety function.*
- *Always make sure that the pressure regulating valve cannot freeze or become clogged or blocked (e.g. through heating)*

Before putting a new plant into operation or restarting a plant after repairs or modification, always make sure that:

- *All works has been completed!*
- *The valve is in the correct position for its function.*
- *Safety devices have been attached.*

Start-up then takes place as follows:

- Carefully open stop valves upstream and downstream of surplus valve.
- Dismantle cap (see point 6.1.1).
- Adjust tensioning screw (see point 6.1.2) until the desired differential pressure ΔP is reached.

e.g. Setting at 2 bar

Back pressure 0.5 bar $\Delta P = 1.5 \text{ bar}$

The surplus valve generally removes the required amount of flow, with a corresponding pressure increase by way of the set pressure.

The statement of Kv value on the type identification plate corresponds to $\Delta P + 50\%$ pressure increase.

e.g. ΔP at setting x 1.5 $\Delta P + 50\% = 2.25 \text{ bar } \Delta P$

6.1 Setting instructions

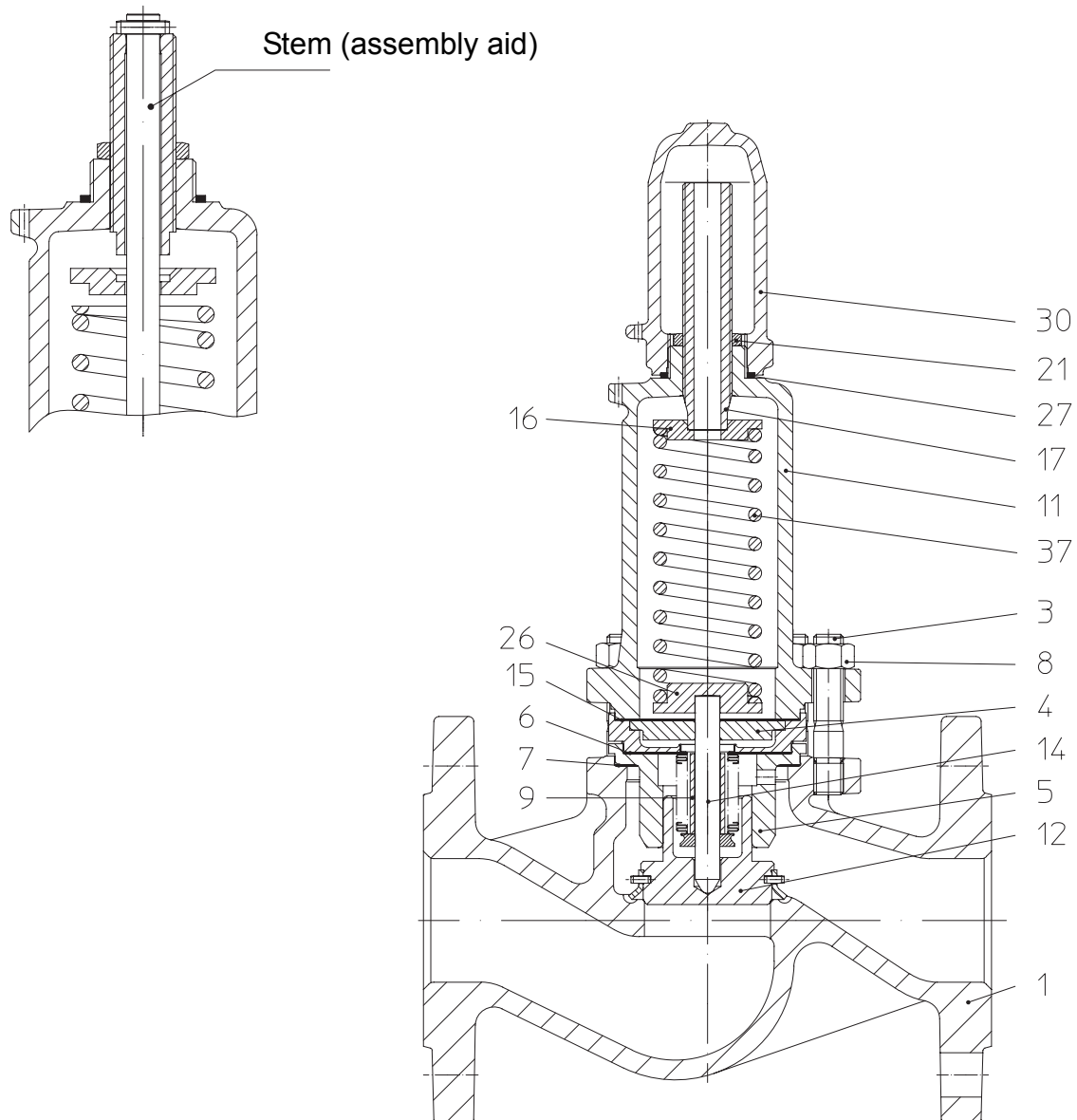


Fig. 3

6.1.1 Removing the cap



ATTENTION !

By alterations, media could emerge out of the adjusting screw (only with broken bellow)!

- Unscrew cap (pos. 30), pay attention for media emerging from the valve.

6.1.2 Changing the pressure range “without” spring change

- Check the spring range.
- Loosen lock nut (pos. 21).
- Turn adjusting screw (pos. 17) clockwise to increase and anticlockwise to reduce the pressure range (alterations only by flowing media).
- Secure spring setting by tightening lock nut (pos. 21).
- Assemble cap.

6.1.3 Changing the pressure range “with” spring change



ATTENTION !

Before dismantling, the system must be made pressureless! (refer to point 10.0)

- Loosen locknut (pos. 21), turn adjusting screw (pos. 17) anticlockwise to reduce the spring (pos. 37) force.
- Unscrew nuts (pos. 8) at flange connection and remove bonnet (pos. 11).



ATTENTION !

At relatively high pressures the nuts (pos. 8) on the two longer stud bolts (pos. 3) must be removed last and simultaneously!

- Remove upper spring plate (pos. 16) and spring (pos. 37).
- Replace new spring (pos. 37) and upper spring plate (pos. 16).
- Change gaskets.
- Mount bonnet (pos. 11) with the help of a rod (refer to Fig. 3), the upper spring plate (pos. 16) and spring (pos. 37) is centered to the adjusting screw (pos. 17). Then reset the pressure range with flowing media, refer to spring range (refer to point 6.0 Putting the valve into operation).
- Secure spring setting by tightening lock nut (pos. 21).
- Assemble cap.



ATTENTION !

- Torques must be observed:

M10	16 - 25 Nm
M12	30 - 40 Nm
M16	70 - 90 Nm

7.0 Care and maintenance

Maintenance and maintenance-intervals have to be defined by the operator according to the requirements.

- Leakage caused through damage to disc and seat must be repaired through us or an authorised work shop.
- Our setting instructions (point 6.0) must be strictly adhered to when alterations to setting or spring changes are made.

8.0 Troubleshooting

In the event of malfunction or faulty operating performance check that the installation and adjustment work has been carried out and completed in accordance with these Operating Instructions.




ATTENTION !

It is essential that the safety regulations are observed when identifying faults.

If malfunctions cannot be eliminated with the help of the following table

“**9.0 troubleshooting table**”, the supplier or manufacturer should be consulted.

9.0 Troubleshooting table



ATTENTION !
- read point 10.0 and 11.0 prior to dismantling and repair work!
- read point 6.0 before restarting the plant !

Fault	Possible cause	Corrective measures
No flow	Flange covers not removed	Remove flange covers
Little flow	Dirt sieve clogged	Clean / replace sieve
	Piping system clogged	Check piping system
Pressure regulating valve does not respond, no flow	Pressure range too high	Reset (point 6.0) or replace the pressure regulating valve
	Stainless steel bellow defective	Replace pressure regulating valve
	Medium viscous or sticky	Use heating jacket
	The valves and piping must be protected against freezing and solidifying media	Use heating jacket !
	Valve installed against flow direction	Turn the valve into flow direction
Pressure regulating valve seat leaking	Pressure regulating valve fluttering	Refer to separate point "Fluttering"
	Medium contaminated; foreign body between seat and disc	Replace pressure regulating valve
Flange broken	Damage during transport	Replace pressure regulating valve
	Flange bolts not evenly tightened	Replace pressure regulating valve
	Transfer of unacceptable forces, e.g. bending or torsional forces	Install free of tension
Pressure regulating valve constantly open	Spring corroded by medium and broken	Replace pressure regulating valve
	Spindle guide corroded	
Fluttering	Pressure regulating valve capacity too high	Install smaller pressure regulating valve
Capacity too low	Pressure regulating valve not applied unsuitable for plant conditions	Select and install suitable pressure regulating valve

10.0 Dismantling the valve or the top part



ATTENTION !

The following points must be observed:

- *Pressureless pipe system.*
- *Medium must be cool.*
- *Plant must be drained.*
- *Purge piping systems in case of caustic, inflammable, aggressive or toxic media.*

11.0 Warranty / Guarantee

The extent and period of warranty cover are specified in the "Standard Terms and Conditions of Albert Richter GmbH & Co. KG" valid at the time of delivery or, by way of departure, in the contract of sale itself.

We guarantee freedom of faults in compliance with state-of-the-art technology and the confirmed application.

No warranty claims can be made for any damage caused as the result of incorrect handling or disregard of operating and installation instructions, datasheets and relevant regulations.

This warranty also does not cover any damage which occurs during operation under conditions deviating from those laid down by specifications or other agreements.

Justified complaints will be eliminated by repair carried out by us or by a specialist appointed by us.

No claims will be accepted beyond the scope of this warranty. The right to replacement delivery is excluded.

The warranty shall not cover maintenance work, installation of external parts, design modifications or natural wear.

Any damage incurred during transport should not be reported to us but *rather* to the competent cargo-handling depot, the railway company or carrier company immediately or else claims for replacements from these companies will be invalidated.



Technology for the Future.

GERMAN QUALITY VALVES

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12.0 EC declaration of conformity

**ARI-Armaturen Albert Richter GmbH & Co. KG,
Mergelheide 56-60, 33756 Schloß Holte-Stukenbrock**

EC declaration of conformity

as defined by
the Pressure Equipment Directive 97/23/EC and

Herewith we declare,

that according to the above mentioned Pressure Equipment Directive (PED) the below listed products comply and have been approved according to table 6, annex II, Module H through Lloyd's Register Quality Assurance GmbH (BS-No. 0525), Am Sandtorkai 41, D-20457 Hamburg.

Certificate-No: 50003/1

Pressure regulating valve PRESO® Type 753

Applied standards:

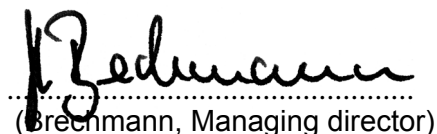
DIN 3230

DIN 3840

AD 2000 leaflet A4

- Cast iron with spheroidal graphite
- Cast steel
- Forged steel

Schloß Holte-Stukenbrock, 11.01.2010


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(Brechmann, Managing director)