

Pressure regulating valve, spring loaded
DN 25 - 100

ARI-PRESO® - Pressure regulating valve
Straight through with flanges

- Spring loaded
- TA - Luft TÜV-Test-No. 922-9241371

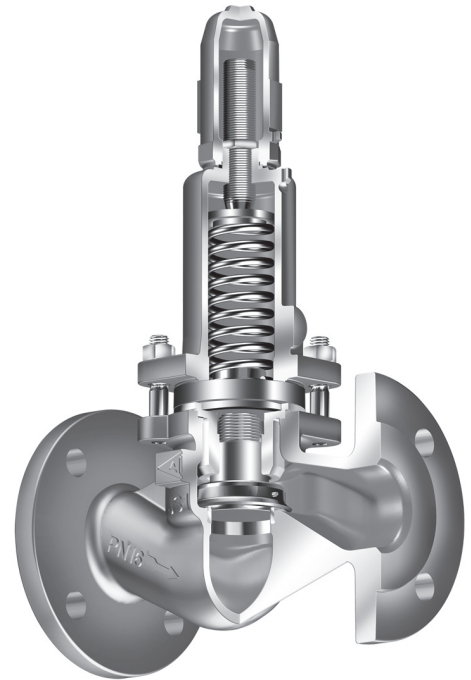
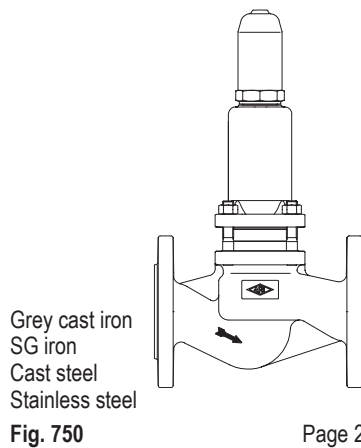


Fig. 750

Features:

- Spring loaded
- Standard bellows seal
- Compact design
- Regulating plug
- Shaft plug guide
- Pressure range:
0,5 - 1,5 bar
1,0 - 3,0 bar
2,0 - 5,0 bar
4,0 - 10,0 bar
- Exact and easy adjustment
- Proportional flow characteristic
- Maintenance-free

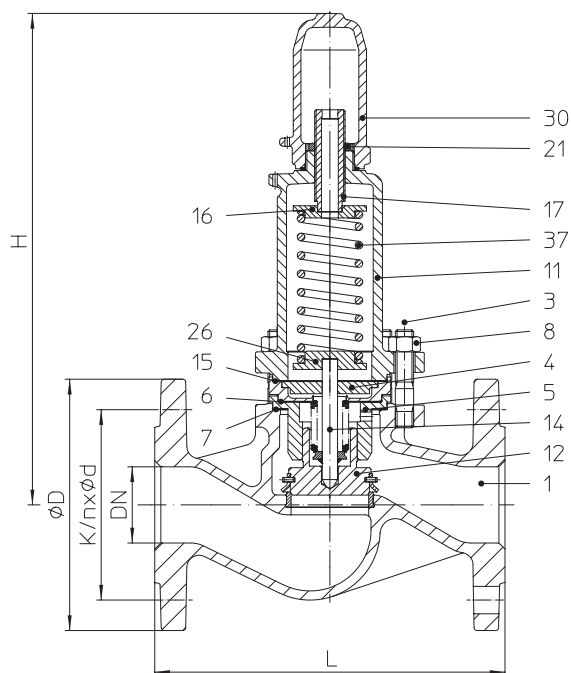
Pressure regulating valve - straight through with flanges - spring loaded (Grey cast iron, SG iron, Cast steel, Stainless steel)


Figure	Nominal pressure	Material	Nominal diameter
12.753	PN 16	EN-JL1040	DN25-100
22.753	PN 16	EN-JS1049	DN25-100
32.753	PN 16	1.0619+N	DN25-100
52.753	PN 16	1.4408	DN25-100

• German TA - Luft TÜV-Test-No. 922-9241371

Selection of possible applications

Industrial installations, processing technology, plant manufacturing, etc.
(other applications on request)

Selection of possible flow media

Liquids, gas and vapours, steam, etc.
(other flow media on request)

Parts

Pos.	Description	Fig. 12.753	Fig. 22.753	Fig. 32.753	Fig. 52.753
1	Body	EN-JL1040, EN-GJL-250	EN-JS1049, EN-GJS-400-18U-LT	GP240GH+N, 1.0619+N	GX5CrNiMo19-11-2, 1.4408
1.2	Seat	X20Cr13+QZ, 1.4021+QT			GX5CrNiMo19-11-2, 1.4408
3	Studs	25CrMo4, 1.7218			A4-70
4	Stem guide	X20Cr13+QZ, 1.4021+QT			
5	Guide housing	X20Cr13+QZ, 1.4021+QT			
6	Gasket *	Pure graphite (CrNi laminated with graphite)			
7	Gasket *	Pure graphite (CrNi laminated with graphite)			
8	Hexagon nut	C35E, 1.1181			A4
11	Bonnet	EN-JL1040, EN-GJL-250	EN-JS1049, EN-GJS-400-18U-LT	GX5CrNiMo19-11-2, 1.4408	
12	Plug unit *	X20Cr13+QZ, 1.4021+QT			X6CrNiMoTi17-12-2, 1.4571
14	Stem unit *	X6CrNiMoTi17-12-2, 1.4571			
15	Gasket *	Pure graphite (CrNi laminated with graphite)			
16	Spring plate (top)	S235JR, 1.0037			X6CrNiMoTi17-12-2, 1.4571
17	Adjusting screw	X20Cr13+QZ, 1.4021+QT			
21	Lock nut	11SMn30+C, 1.0715+C			
26	Spring plate (bottom)	S235JR, 1.0037			X6CrNiMoTi17-12-2, 1.4571
30	Cap, gastight	EN-JS1049, EN-GJS-400-18U-LT			GX5CrNiMo19-11-2, 1.4408
37	Spring *	FDSiCr			

* Spare part

Information / restriction of technical rules need to be observed!

Operating instructions can be ordered by phone +49 (0)5207 / 994-0 or fax +49 (0)5207 / 994-158 or -159.

ARI-Valves of EN-JL1040 are not allowed to be operated in systems acc. to TRD 110.

A production allowance acc. to TRB 801 No. 45 exists (acc. to TRB 801 No. 45 EN-JL1040 is not allowed.)

The engineer, designing a system or a plant, is responsible for the selection of the correct valve.

Dimensions

	DN	25	32	40	50	65	80	100
L	(mm)	160	180	200	230	290	310	350
H	(mm)	290	300	325	330	400	440	500
Kvs-value	(m ³ /h)	3	5	10	20	22	29	45
Seat-Ø	(mm)	27	31	41	51	66	81	101
Travel	(mm)	2,5	2,5	4	5,5	7	8	10
Leakage rate		Shut off class IV acc. to DIN EN 1349 (≤ 0,01% from the nominal flow)						

Face-to-face dimension FTF series 1 according to DIN EN 558-1

Weights

Nominal diameter	(mm)	25	32	40	50	65	80	100
12./22./32./52.753	(kg)	6,6	7,7	10,4	12,9	20,2	28,9	43,7

Application

The pressure regulating valve PRESO is a spring loaded differential pressure-control valve. The main applications are:

- Pump protection: PRESO inserted parallel to the pump, this secures a minimum flow.
- Application in bypass lines from users, e.g. heat exchanger in thermal oil systems to sustain a minimum flow.
- Parallel to piping systems to avoid to higher differential pressures.
- Pressure maintaining valve to avoid the flashing in condensate systems.

Sizing
Necessary data

Medium: BP Transcal N
 Temperature: 230 °C
 Flow Q: 25 m³/h
 Set pressure p_{10} : 2,5 bar(g)
 Opening pressure p_1 : 3,1 bar(g)
 Back pressure p_2 : 0,5 bar(g)

1. Differential set pressure

(small leakage, for selection see pressure ranges pt. 4)

$$\Delta p_0 = p_{10} - p_2 = 2,0 \text{ bar}$$

2. Differential opening pressure

(needed full flow, sizing see pt. 3)

$$\Delta p = p_1 - p_2 = 2,6 \text{ bar}$$

$\Delta p / \Delta p_0 = 1,3$ (complies to 30% differential pressure raise)

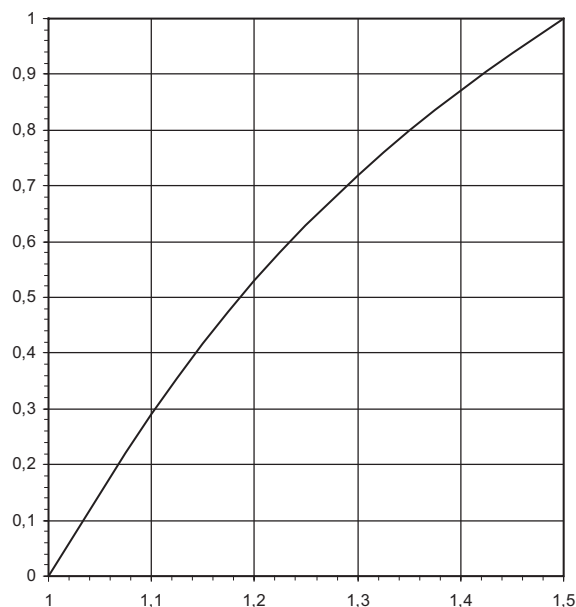
3. Sizing

ARI-VASI program part „Check valves“ with
 $p_1 = 4,1 \text{ bar(a)}$,
 $p_2 = 1,5 \text{ bar(a)}$,
 $Q = 25 \text{ m}^3/\text{h}$
 result $K_v = 13,29$

Diagram by $\Delta p / \Delta p_0 = 1,3$
result correction factor = 0,72

$$K_{vs} = k_v / 0,72 = 18,5$$

Chosen out of catalogue table:
DN50 with $K_{vs} = 20$


4. Selection of pressure range

The differential set pressure Δp_0 (here 2,0 bar) gives the pressure range. Please observe the max. permissible back pressure p_2 (refer below). If two pressure ranges are possible, you should choose the lower range. In this case 1 - 3 bar is better than 2 - 5 bar.

DN		25	32	40	50	65	80	100
Pressure range Δp_0	Set point Δp_0	max. permissible back pressure p_2						
(bar)	(bar)	(bar)						
0,5 - 1,5	0,5	6,9	6,4	6,6	9,5	4,9	6,7	5,9
	1	5,4	4,4	4,7	6,5	3,3	4,9	4,2
	1,5	3,9	2,4	2,7	3,5	1,7	3,1	2,5
1 - 3	1	10,6	11,2	9,9	14	7	7,7	6,8
	2	7,6	7,2	6	10,4	3,8	4,2	3,5
	3	4,6	3,2	2	6,8	0,5	0,6	0,1
2 - 5	2	12	12	12	12	11,3	10,8	10,2
	3	9,3	9,2	8,4	9,8	8,1	7,2	6,8
	4	6,6	6,5	4,9	7,7	4,8	3,7	3,5
4 - 10	5	3,9	3,7	1,3	5,5	1,6	0,1	0,1
	4	8	8	8	8	8	8	8
	6	5,7	5,7	5,7	5,7	5,7	5,7	5,7
	8	3,3	3,3	3,3	3,3	3,3	3,3	3,3
	10	1	1	1	1	1	1	1

Δp_0 = Differential pressure (Set pressure p_{10} – Back pressure p_2)

Standard-flange dimensions

Flanges acc. to DIN EN 1092-1/-2 (Flangeholes / -thickness tol. acc. To DIN 2533/2544/2545)

DN		(mm)	25	32	40	50	65	80	100
PN16	ØD	(mm)	115	140	150	165	185	200	220
PN16	ØK	(mm)	85	100	110	125	145	160	180
PN16	n x Ød	(mm)	4x14	4x18	4x18	4x18	4x18	8x18	8x18

Pressure-temperature-ratings acc. to DIN EN 1092-2

Material	PN		-60°C to <-10°C *	-10°C to 120°C	150°C	200°C	250°C	300°C	350°C
EN-JL1040	16	bar	--	16	14,4	12,8	11,2	9,6	--
EN-JS1049	16	bar	on request	16	15,5	14,7	13,9	12,8	11,2

Pressure-temperature-ratings acc. to DIN EN 1092-1

Material	PN		-60°C to <-10°C *	-10°C to 50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
1.0619+N	16	bar	12	16	14,9	13,9	12,4	11,4	10,3	9,6	9,2	8,9
1.4408	16	bar	16	16	14,9	13,5	12,4	11,7	11	10,7	10,2	--

Intermediate values for max. permissible operational pressures can be determined by linear interpolation of the given temperature / pressure chart.

* Studs and nuts made of A4-70 (at temperatures below -10°C)

Please indicate when ordering

- Figure-No.
- Nominal diameter
- Nominal pressure
- Body material
- Plug design
- Kvs-value
- Pressure range
- Special design / accessories

Example:

Figure 22.753; Nominal diameter DN50; Nominal pressure PN16; Body material EN-JS1049; metal seat; Kvs 20; Pressure range 1 - 3 bar.

Dimensions in mm
Weights in kg
Pressures in barg (gauge)
1 bar $\hat{=}$ 10⁵ Pa $\hat{=}$ 0,1 MPa
Kvs in m³/h



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