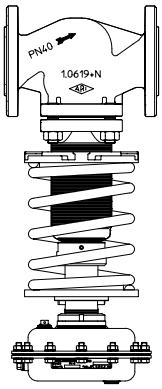
ARI-Pressure reducing valve - direct acting
DN 15 - 100



Page 2

ARI-PREDU®
Pressure reducing valve
Diaphragm actuator DMA 40 - 400
• Actuator with rolling diaphragm

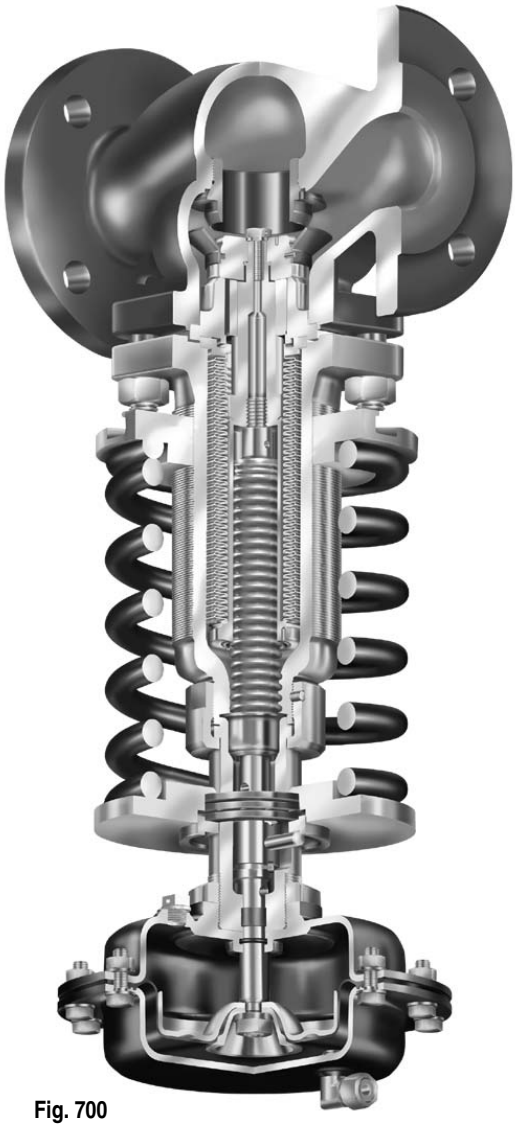


Fig. 700

Features:

- Compact design
- Exact and easy adjustment
- Diameter independent ranges
- 5 exchangeable actuator sizes
- 3 exchangeable spring sizes
- Pressure balanced by stainless steel bellow
- Spindle sealing via stainless steel bellow
- Plug sealing to conical edge of seat
- Screwed seat ring
- Construction without pillars
- Simple change of spring and actuator

Fig. 700 **with a diaphragm actuator**

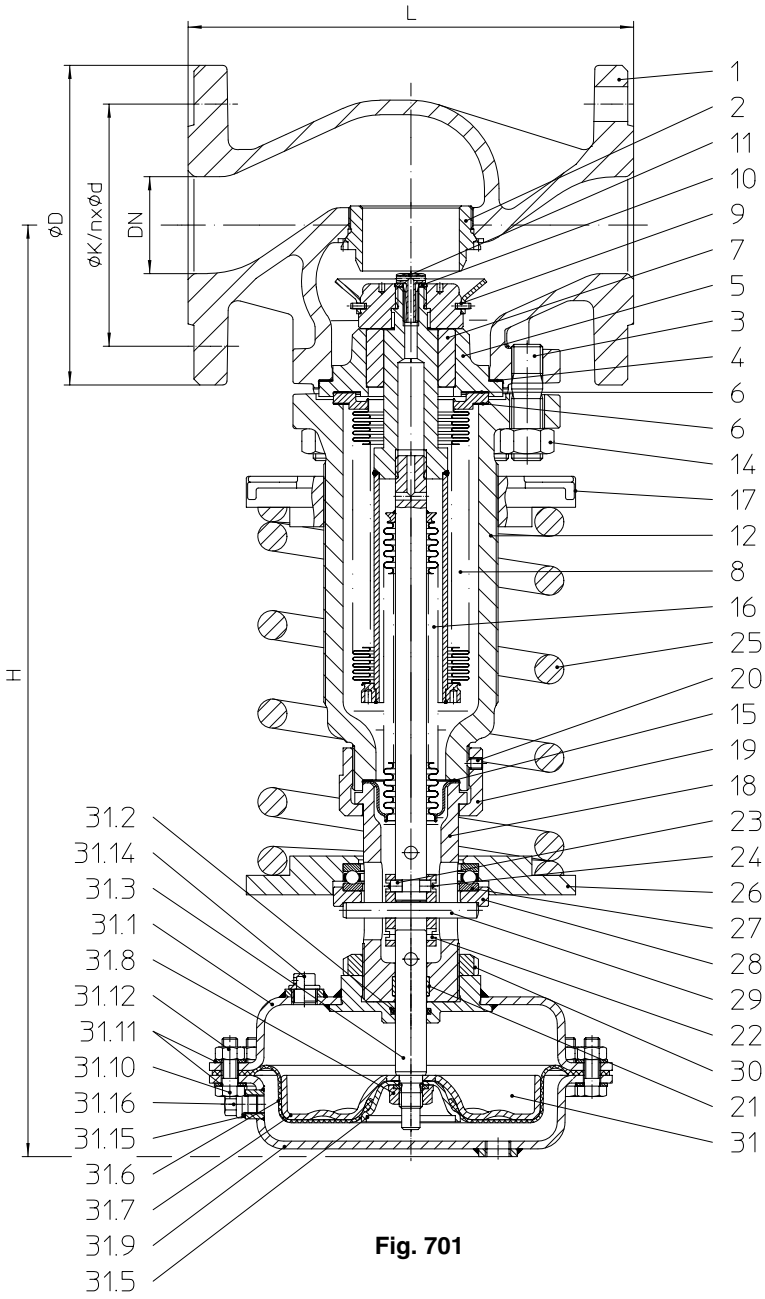
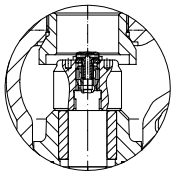
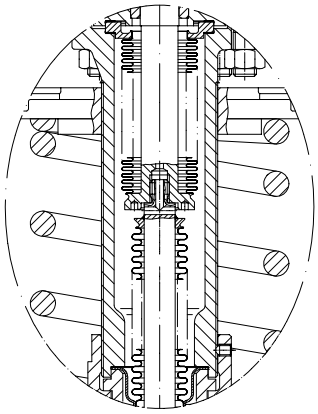


Fig. 701



Disc DN 15 - 32



Bellow DN 15 - 40

Dimensions and weights

DN		15	20	25	32	40	50	65	80	100
H	DMA 40	435	435	440	440	480	480	485	530	550
	DMA 80	435	435	440	440	480	480	485	530	550
	DMA 160	440	440	440	440	480	480	490	530	550
	DMA 250	455	455	460	460	500	500	505	545	585
	DMA 400	495	495	500	500	540	540	545	585	610
L		130	150	160	180	200	230	290	310	350
Weights (kg)	DMA 40	17	18	19	21	26	32	39	61	79
	DMA 80	18	19	20	22	27	33	40	62	80
	DMA 160	19	20	21	23	28	34	41	63	81
	DMA 250	21	22	23	25	30	36	43	65	83
	DMA 400	26	27	28	30	35	41	48	70	85

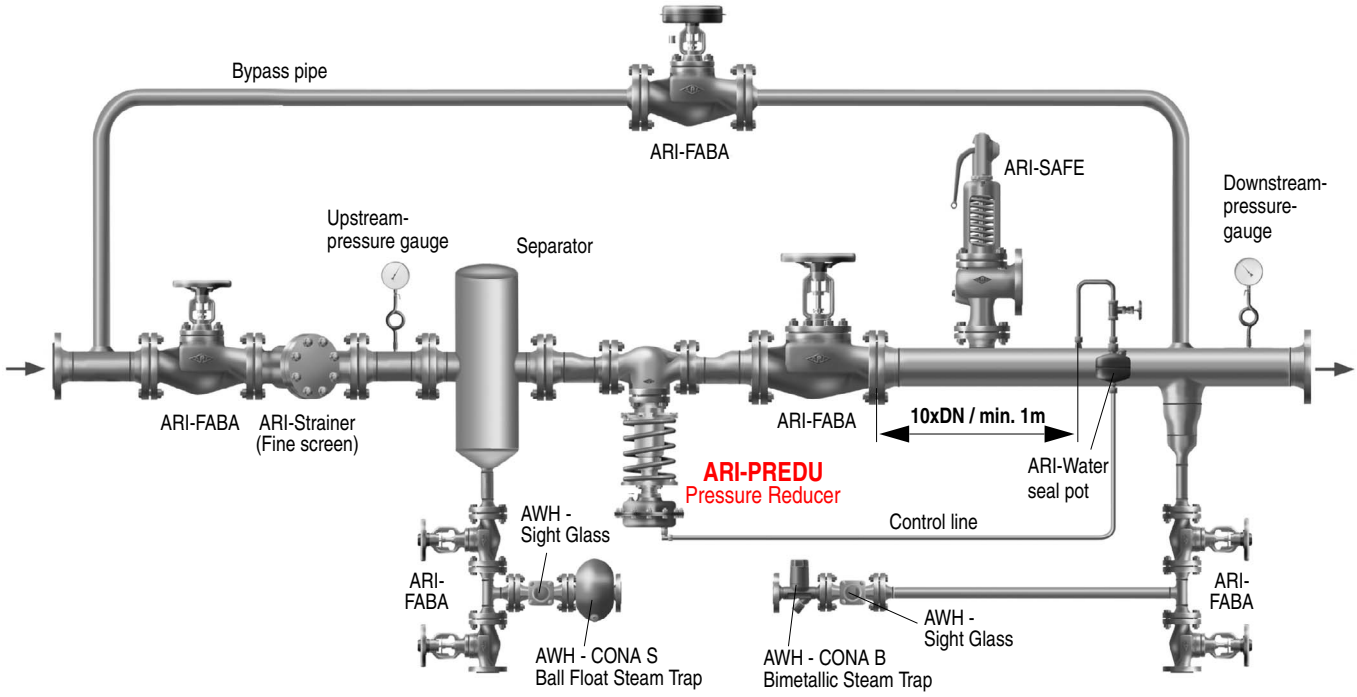
Other dimensions see page 5

Description

The pressure reducing valve is a direct acting proportional regulator, self operated; which regulates a high upstream pressure to a smaller downstream pressure. The downstream pressure is regulated, this means the valve closes when the downstream pressure rises.

Operating fields are to regulate steam, neutral gases, vapours and liquids. With steam and liquids, having temperatures higher than the allowable working temperatures (see page 6) a water seal pot must be installed in the control line (to protect actuator diaphragm).

Installation in the control line can be seen in the system drawing:



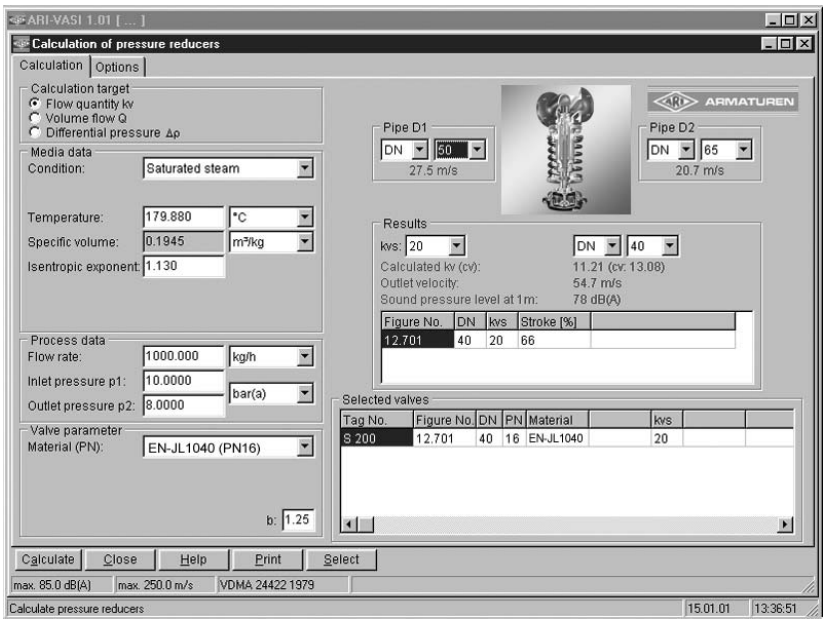
Sizing

For the calculation you have the program „ARI-VASI®“ (Program part „Pressure reducing valves“). After giving in the process data, the Fig.-No. and size is recommended out of the integrated data bank. The diameter of the piping in front and behind of the pressure reducing valve can also be calculated with the max. allowable flow velocities with „ARI-VASI®“.

The necessary downstream pressure gives the needed pressure range. Because the regulation tolerance at the end of the range is smaller, the smaller range must be used, in case of a range overlapping.
For example: Downstream pressure 2,4 bar(g), choose actuator range 0,8 - 2,5 bar(g), although 2-5 bar(g) could be used.

The safety valve used to secure the downstream pressure must have an adequate distance between set pressure and downstream pressure. The max. possible capacity of the pressure reducing valve is used to select the safety valve at it's set pressure. The max. possible capacity has to be calculated with p_1 (= max. possible upstream pressure), p_2 (= set pressure of the safety valve) and the Kvs-value of the pressure reducing valve with „ARI-VASI®“. With this found capacity you can, with „ARI-VASI®“ (Program part: Safety valves), select the safety valve, and with the pressure reducing valves and other valves, administer them under a project.

Important:
If not secured that the bypass valve has a larger capacity than the pressure reducing valve, or that it can be open parallel, then the extra capacity must be considered for the safety valve sizing.



Pos.	Description	Material- DIN- No.		
		PN 16 - 12.701	PN 16 - 22.701 PN 25 - 23.701	PN 25 - 34.701 PN 40 - 35.701
1	Body	EN-JL1040, EN-GJL-250	EN-JS1049, EN-GJS-400-18U-LT	GP240GH+N, 1.0619+N
2	Screwed seat ring	X20Cr13+QT, 1.4021+QT		
3	Stud	25CrMo4, 1.7218		
4	Gasket	CrNi laminated both sides with pure graphite		
5	Bushing housing	EN-JS1049, EN-GJS-400-18U-LT / EN-JM1130, EN-GJMB-350-10		
6	Gasket	CrNi laminated both sides with pure graphite		
7	Guide bushing	X20Cr13+QT, 1.4021+QT		
8	Balanced-bellow-unit	X6CrNiMoTi17-12-2, 1.4571		
9	Disc unit	X20Cr13+QT, 1.4021+QT		
10	Washer	A4		
11	Hexagon screw	A4-70		
12	Bonnet Fig. 700 closed	EN-JS1049, EN-GJS-400-18U-LT		
14	Hexagon nut	C35E, 1.1181		
15	Gasket	CrNi laminated both sides with pure graphite		
16	Sealing-bellow-unit	X6CrNiMoTi17-12-2, 1.4571		
17	Adjusting plate	EN-JS1049, EN-GJS-400-18U-LT		
18	Head	EN-JS1030, EN-GJS-400-15		
19	Screw joint	11SMnPb30+C, 1.0718+C		
20	Thread pin	45 H - A2G		
21	Guide bushing	PTFE-25%C		
22	Guide coupling	X20Cr13+QT, 1.4021+QT		
23	Cylindrical balls	102Cr6, 1.2067		
24	Securing wire	X12CrNi17-7, 1.4310		
25	Spring	51CrV4, 1.8159		
26	Spring plate	S235JR, 1.0037		
27	Axial bearing	102Cr6, 1.2067		
28	Pressure plate	11SMnPb30+C, 1.0718+C		
29	Parallel pin	St		
30	Lock nut	5.8 - A2G		
31	Pneumatic Actuator DMA			
31.1	Diaphragm housing	DD13+QT, 1.0335+QT / EN-JS1049, EN-GJS-400-18U-LT		
31.2	O-Ring	NBR / EPDM		
31.3	Spindle DMA	X6CrNiMoTi17-12-2, 1.4571		
31.5	Diaphragm flange	11SMnPb30+C, 1.0718+C / DD13+QT, 1.0335+QT		
31.6	Rolling diaphragm	NBR / EPDM		
31.7	Diaphragm plate	DD13+QT, 1.0335+QT / 11SMnPb30+C, 1.0718+C		
31.8	Collar nut	8-A4G		
31.9	Diaphragm lid	DD13+QT, 1.0335+QT / EN-JS1049, EN-GJS-400-18U-LT		
31.10	Hexagon screw	8.8-A4G		
31.11	Washer	St-A4G		
31.12	Hexagon nut	8-A4G		
31.14	Vent plug	Polyäthylen (nature)		
31.15	Sealing ring	Al		
31.16	Plug	A4		

DN		15	20	25	32	40	50	65	80	100
kvs-value	(m^3/h)	**3,2**	**5**	**8**	**12,5**	**20**	**32**	**50**	**80**	**125**
Seat-∅	(mm)	18	22	25	32	40	50	65	80	100
max. allowed differential pressure	(bar)	40		25				20		

Pressure-temperature-ratings

Observe regulations

acc. to DIN EN 1092-2			Temperature					
Figure	**Material**	**PN**	**-10°C up to 120°C**	**150°C**	**200°C**	**250°C**	**300°C**	**350°C**
12.701	**EN-JL1040**	**16**	16 bar	14,4 bar	12,8 bar	11,2 bar	9,6 bar	--
22.701	**EN-JS1049**	**16**	16 bar	15,5 bar	14,7 bar	13,9 bar	12,8 bar	11,2 bar
23.701	**EN-JS1049**	**25**	25 bar	24,3 bar	23 bar	21,8 bar	20 bar	17,5 bar

acc. to DIN EN 1092-1			Temperature						
Figure	**Material**	**PN**	**-10°C up to 120°C**	**100°C**	**150°C**	**200°C**	**250°C**	**300°C**	**350°C**
34.701	**1.0619+N**	**25**	25 bar	23,3 bar	21,7 bar	19,4 bar	17,8 bar	16,1 bar	15 bar
35.701	**1.0619+N**	**40**	40 bar	37,3 bar	34,7 bar	30,2 bar	28,4 bar	25,8 bar	24 bar

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

ARI-Valves of cast iron are not allowed in systems acc. to TRD 108 and TRD 110.

A production allowance acc. to TRB 801 No. 45 exists. (acc. to TRB 801 No. 45 cast iron is not allowed.)

Downstream-pressure ranges	(bar-g)	0,2 - 0,6	0,5 - 1,2	0,8 - 2,5	2 - 5	4,5 - 10	8 - 16
Actuator DMA	(cm^2)	**400**	**250**	**160**	**80**	**40**	
Actuator PN-max.	**(bar-g)**	**1,6**	**2,5**	**6**	**10**	**20**	
Spring end-No.		04	04	07	07	07	10

Flange dimensions

Flanges acc. to DIN EN 1092-1 / -2 (Flangeholes/-thickness tolerances acc. to DIN)

DN			15	20	25	32	40	50	65	80	100
PN 16	**∅ D**	(mm)	95	105	115	140	150	165	185	200	220
	∅ K	(mm)	65	75	85	100	110	125	145	160	180
	n x ∅ d1	(mm)	4 x 14	4 x 14	4 x 14	4 x 18	4 x 18	4 x 18	4 x 18	8 x 18	8 x 18
PN 25	**∅ D**	(mm)	95	105	115	140	150	165	185	200	235
	∅ K	(mm)	65	75	85	100	110	125	145	160	190
	n x ∅ d1	(mm)	4 x 14	4 x 14	4 x 14	4 x 18	4 x 18	4 x 18	8 x 18	8 x 18	8 x 22
PN 40	**∅ D**	(mm)	95	105	115	140	150	165	185	200	235
	∅ K	(mm)	65	75	85	100	110	125	145	160	190
	n x ∅ d1	(mm)	4 x 14	4 x 14	4 x 14	4 x 18	4 x 18	4 x 18	8 x 18	8 x 18	8 x 22

Please indicate when ordering:

1. Figure-No.
2. Nominal diameter (DN)
3. Nominal pressure (PN)
4. Body material
5. Disc version
6. Kvs-value
7. Pressure range
8. Actuator size
9. Special design

Dimensions in mm
Weights in kg
1 bar ≙ 10^5 Pa ≙ 0,1 MPa
Kvs in m^3/h
1Kvs ≙ 0,85 Cv

Example:

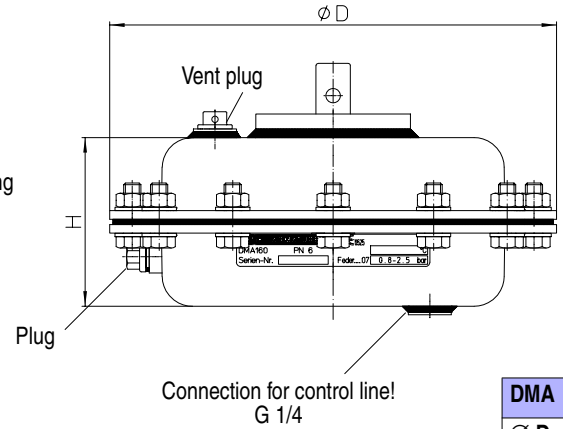
Figure 35.701; nominal diameter DN 100; nominal pressure PN 40; body material 1.0619+N; metal seal; Kvs 125; 0,8 - 2,5 bar; ARI-DMA 160 with NBR-diaphragm; water seal pot size. 1

Information / Restrictions of technical rules to be observed!

Operating instructions can be ordered on request by phone (+49 52 07) 994-0 or fax (+49 52 07) 994-158 or 159.

Diaphragm-Actuator
DMA 40 - DMA 400

- Rolling diaphragm
- Connection through a central thread
- Spindle connection with a fast coupling
- Delivered with a flow restrictor and 90°-elbow

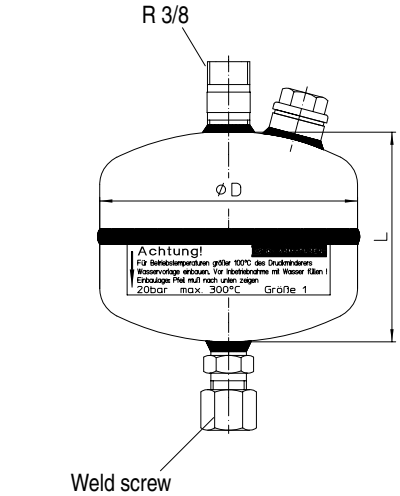


Diaphragm material:
EPDM -40°C up to +130°C
NBR -40°C up to +100°C

Applications:
- Neutral gases, Vapours and liquids

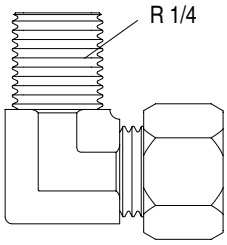
DMA	40	80	160	250	400
⌀ D	140	170	210	250	300
H	75	75	80	90	135

Water seal pot
(for media temperatures higher than the allowed diaphragm temperature)
- Delivered with a funnel

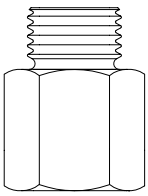


Applications:
- Steam
- Hot water
- Neutral liquids

for actuator	Size	⌀ D (mm)	L (mm)	V (dm^3)
DMA 40 - 160	1	102	83	0,6
DMA 250 - 400	2	140	110	1,2



90°-elbow
(e.g. ERMETO WE10-LLR)



Flow restrictor
G 1/4 / G 1/4