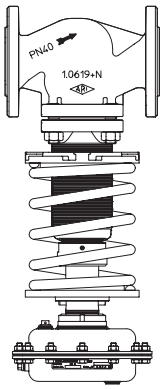
Pressure reducing valve in straightway form
1“ - 4“ / DN 25 - 100



ARI-PREDU®-ANSI
Pressure reducing valve, straight through with diaphragm actuator DMA

- Actuator with rolling diaphragm

Cast steel

Fig. 701 Page 2

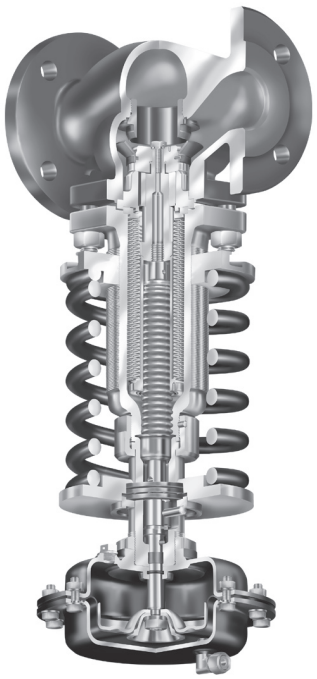


Fig. 701

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
- Tapered seat ring
- Screwed seat ring
- Construction without pillars
- Simple change of spring and actuator

Pressure reducing valve, straight through with diaphragm actuator DMA

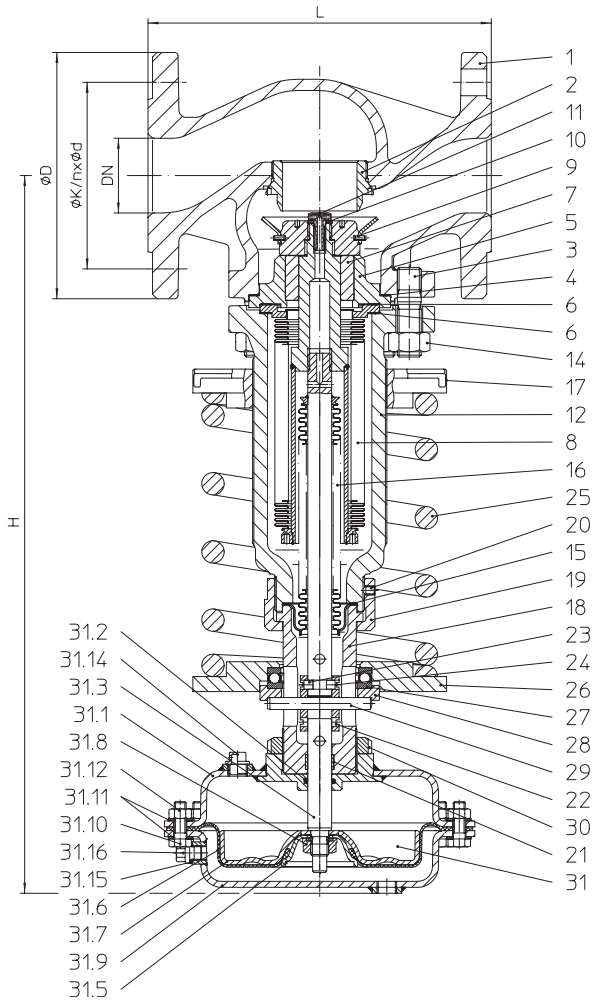


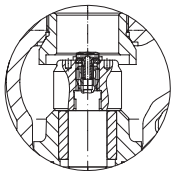
Figure	Nominal pressure	Material	Size
32.701	ANSI150 [1)]	SA216WCB	1" - 4 " / DN25 - 100
35.701	ANSI300	SA216WCB	1" - 4 " / DN25 - 100

Selection of possible applications

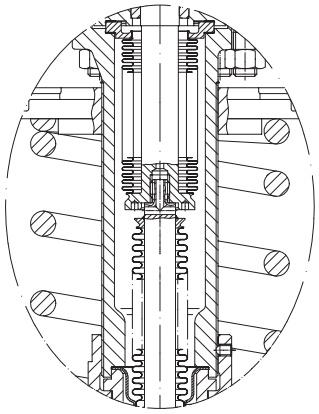
Industrial installations, processing technology, plant manufacturing, etc.
(other applications on request)

Selection of possible flow media

Steam, neutral gases, vapours and liquids, etc.
(other flow media on request)



Plug 1" / DN25



Bellows seal 1" - 1/2" / DN 25 - 40

Dimensions and weights

Size			1"	1 1/2"	2"	3"	4"
L	ANSI150 [1)]	(inch)	7,75	9,25	10,5	12,5	14,5
	ANSI300	(inch)	7,75	9,25	10,5	12,5	14,5
H	DMA 40	(inch)	17,32	18,9	18,9	20,87	21,65
	DMA 80	(inch)	17,32	18,9	18,9	20,87	21,65
	DMA 160	(inch)	17,32	18,9	18,9	20,87	21,65
	DMA 250	(inch)	18,11	19,69	19,69	21,46	23,03
	DMA 400	(inch)	19,69	21,26	21,26	23,03	24,02
Weights	DMA 40	(lbs)	41,9	57,3	70,5	134,5	174,2
	DMA 80	(lbs)	44,1	59,5	72,8	136,7	176,4
	DMA 160	(lbs)	46,3	61,7	75	138,9	178,6
	DMA 250	(lbs)	50,7	66,1	79,4	143,3	183
	DMA 400	(lbs)	61,7	77,2	90,4	154,3	187,4
Cv-Werte		(gal/min)	9,4	23,4	37,4	93,6	146,3
Seat-ø		(inch)	0,98	1,57	1,94	3,15	3,94
Max. differential pressure drop		(psi)	362	362	362	290	290

Nominal diameter			25	40	50	80	100
L	ANSI150 [1)]	(mm)	197	235	267	318	368
	ANSI300	(mm)	197	235	267	318	368
H	DMA 40	(mm)	440	480	480	530	550
	DMA 80	(mm)	440	480	480	530	550
	DMA 160	(mm)	440	480	480	530	550
	DMA 250	(mm)	460	500	500	545	585
	DMA 400	(mm)	500	540	540	585	610
Weights	DMA 40	(kg)	19	26	32	61	79
	DMA 80	(kg)	20	27	33	62	80
	DMA 160	(kg)	21	28	34	63	81
	DMA 250	(kg)	23	30	36	65	83
	DMA 400	(kg)	28	35	41	70	85
Kvs-value		(m^3/h)	8	20	32	80	125
Seat-ø		(mm)	25	40	50	80	100
Max. differential pressure drop		(bar)	25	25	25	20	20

Standard-flange dimensions refer to page 5.

Face-to-face dimension acc. to ANSI B16.10

[1)] Face-to-face dimension acc. to ANSI300

Downstream-pressure ranges	(psi gauge)	3 - 9	7 - 18	12 - 36	29 - 73	65 - 145	116 - 232
Actuator DMA	(cm^2)	400	250	160	80	40	
	($inch^2$)	62	38,8	24,8	12,4	6,2	
Actuator PN-max.	(psi-g)	23,2	36,3	87,0	145,0	362,5	
Spring end-No.		04	04	07	07	07	10

Downstream-pressure ranges	(bar-ü)	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-ü)	1,6	2,5	6	10	20	
Spring end-No.		04	04	07	07	07	10

Parts

Pos.	Description	Fig. 32.701 Fig. 35.701
1	Body	SA216WCB
2	Screwed seat ring *	AISI 420
3	Stud	SA193B7
4	Gasket *	Pure graphite (CrNi laminated with graphite)
5	Bush housing	SA395
6	Gasket *	Pure graphite (CrNi laminated with graphite)
7	Guide bush	AISI 420
8	Balanced-bellow-unit *	SA240Gr.316Ti
9	Disc unit *	AISI 420
10	Washer	SA479Gr.316Ti
11	Hexagon screw	SA479Gr.316Ti
12	Bonnet Fig. 700 closed	SA395
14	Hexagon nut	SA1942H
15	Gasket *	Pure graphite (CrNi laminated with graphite)
16	Sealing-bellow-unit *	SA240Gr.316Ti
17	Adjusting plate	SA395
18	Head	SA395
19	Screw joint	AISI 1213
20	Thread pin	Steel / galvanised
21	Guide bush	PTFE-25%C
22	Guide coupling	AISI420
23	Cylindrical balls	AISI 52100
24	Securing wire	AISI 301
25	Spring *	AISI 6150
26	Spring plate	AISI 1015
27	Axial bearing	AISI 52100
28	Pressure plate	AISI 1213
29	Parallel pin	Steel
30	Lock nut	Steel / galvanised
31	Pneumatic Actuator DMA *	
31.1	Diaphragm housing	AISI1008 / SA395
31.2	O-ring	NBR / EPDM
31.3	Spindle DMA	SA479Gr.316Ti
31.5	Diaphragm flange	AISI1213 / SA395
31.6	Rolling diaphragm *	NBR / EPDM
31.7	Diaphragm plate	AISI1008 / SA395
31.8	Collar nut *	Steel
31.9	Diaphragm hood	AISI1008 / SA395
31.10	Hexagon screw	Steel / galvanised
31.11	Washer	Steel / galvanised
31.12	Hexagon nut	Steel / galvanised
31.14	Vent plug	Polyäthylen (nature)
31.15	Sealing ring	Aluminium
31.16	Plug	SA479Gr.316Ti
* Spare parts		

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.

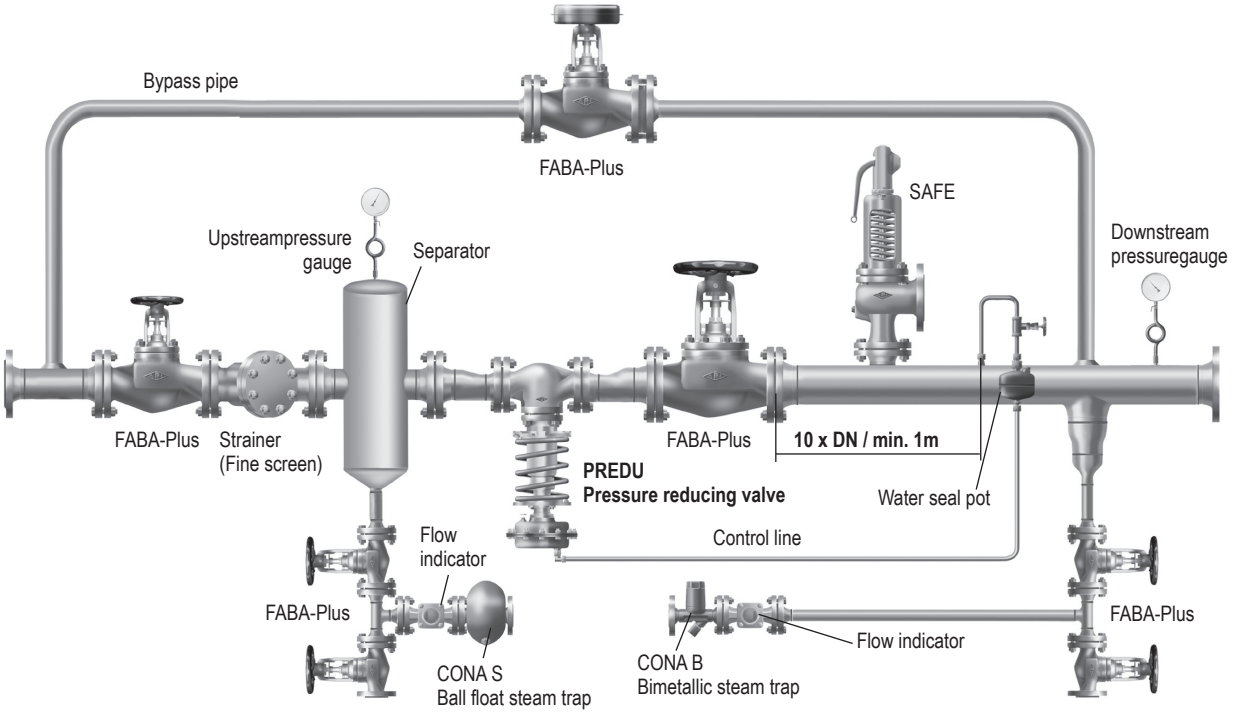
The engineer, designing a system or a plant, is responsible for the selection of the correct valve.

Application

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 a water seal pot must be installed in the control line (to protect actuator diaphragm).(refer to page 6).

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



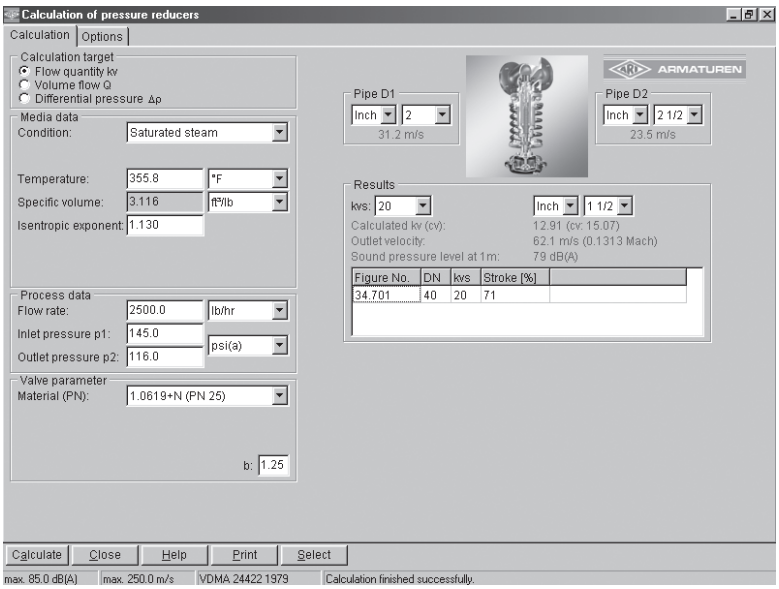
Sizing

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 36 psig / 2,4 bar(g), choose actuator range 12 - 36 psig / 0,8 - 2,5 bar(g), although 29 - 73 psig / 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 p1 (= max. possible upstream pressure), p2 (= 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.



Standard-flange dimensions

Flanges acc. to ANSI B16.5

Size		(inch)	1“	1 1/2“	2“	3“	4“
ANSI150	ØD	(inch)	4,25	5	6	7,5	9
ANSI150	ØK	(inch)	3,1	3,88	4,75	6	7,5
ANSI150	n x Ød	(n x inch)	4 x 0,62	4 x 0,62	4 x 0,75	4 x 0,75	8 x 0,75
ANSI300	ØD	(inch)	4,88	6,12	6,5	8,25	10
ANSI300	ØK	(inch)	3,5	4,5	5	6,62	7,88
ANSI300	n x Ød	(n x inch)	4 x 0,75	4 x 0,88	8 x 0,75	8 x 0,88	8 x 0,88
Nominal diameter		**(mm)**	**25**	**40**	**50**	**80**	**100**
ANSI150	ØD	(mm)	108	127	153	191	229
ANSI150	ØK	(mm)	79	98	121	152	191
ANSI150	n x Ød	(n x mm)	4 x 16	4 x 16	4 x 19	4 x 19	8 x 19
ANSI300	ØD	(mm)	124	155	165	210	254
ANSI300	ØK	(mm)	89	114	127	168	200
ANSI300	n x Ød	(n x mm)	4 x 19	4 x 22	8 x 19	8 x 22	8 x 22

Pressure-temperature-ratings acc. to ANSI B16.5

Material			-20°F to 100°F	200°F	300°F	400°F	500°F	600°F	650°F
SA216WCB	ANSI150	(psi)	285	260	230	200	170	140	125
			-29°C to 38°C	**93°C**	**149°C**	**204°C**	**260°C**	**315°C**	**343°C**
	ANSI150	(bar)	19,6	17,9	15,8	13,8	11,7	9,6	8,6

Pressure-temperature-ratings acc. to manufacturers standard

Material			-14°F to 100°F	200°F	300°F	400°F	500°F	600°F	650°F
SA216WCB (restricted pressure)	ANSI300	(psi)	580	580	554	505	452	396	377
			-10°C to 38°C	**93°C**	**149°C**	**204°C**	**260°C**	**315°C**	**343°C**
	ANSI300	(bar)	40	40	38,2	34,8	31,2	27,3	26

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

Please indicate when ordering

- Figure-No.
- Nominal diameter
- Nominal pressure
- Body material
- Disc version
- Cv- / Kvs-value
- Pressure range
- Actuator
- Special design / accessories

Example:

Figure 35.701, Size 2“ / DN150, Nominal pressure ANSI300 / PN40, Body material SA216 WCB, metal seat, Cv 146 / Kvs 125, 0,8 - 2,5 bar, ARI-DMA 160 with NBR-diaphragm;, Water seal pot Gr. 1.

Dimensions in inch / mm
Weights in lbs / kg
Pressures in barg (gauge)
1 bar ≙ 10^5 Pa ≙ 0,1 MPa
Cv in gal/min
Kvs in m^3/h

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

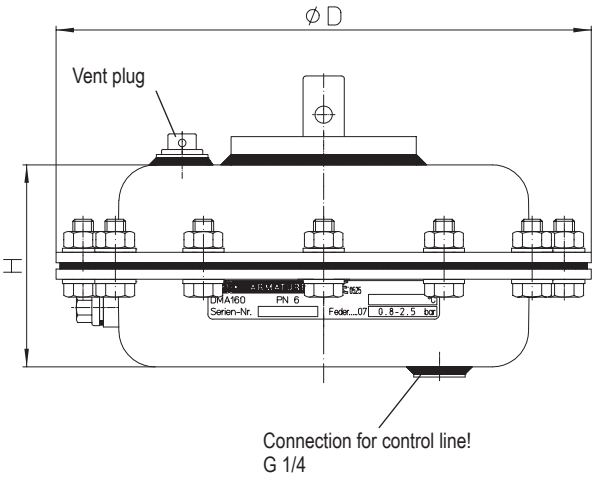
Material (Diaphragm):

EPDM -40°F to 266°F / -40°C to +130°C

NBR -40°F to 212°F / -40°C to +100°C

Selection of possible applications:

- Neutral gases, Vapours and liquids



Actuator		DMA 40	DMA 80	DMA 160	DMA 250	DMA 400
ØD	(inch)	5,5	6,7	8,3	9,8	11,8
H	(inch)	2,9	2,9	3,2	3,5	5,3

Actuator		DMA 40	DMA 80	DMA 160	DMA 250	DMA 400
ØD	(mm)	140	170	210	250	300
H	(mm)	75	75	80	90	135

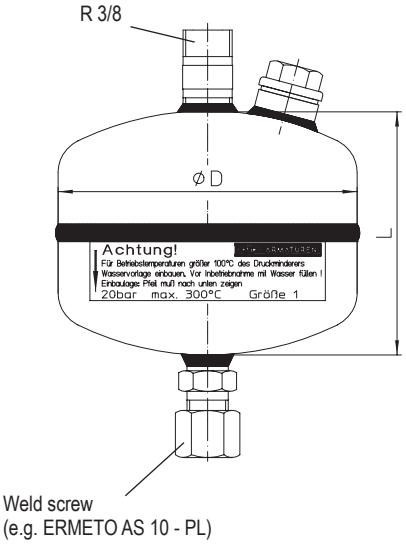
Water seal pot

(for media temperatures higher than the allowed diaphragm temperature)

- Delivered with a funnel

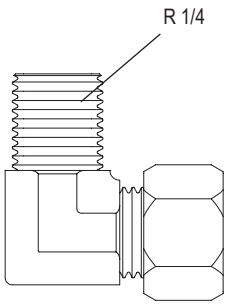
Selection of possible applications:

- Steam
- Hot water
- Neutral liquids



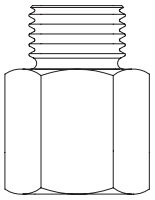
Actuator		DMA 40	DMA 80	DMA 160	DMA 250	DMA 400
Size		1			2	
ØD	(inch)	4			5,5	
L	(inch)	3,3			4,3	
V	($inch^3$)	36,6			73,2	

Actuator		DMA 40	DMA 80	DMA 160	DMA 250	DMA 400
Size		1			2	
ØD	(mm)	102			140	
L	(mm)	83			110	
V	(dm^3)	0,6			1,2	



90°-elbow

(e.g. ERMETO WE10-LLR)



Flow restrictor

G 1/4 / G 1/4

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