

Excess pressure regulator, straight through
DN 15 - 150

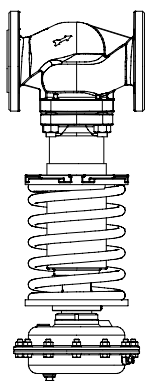
ARI-PREDEX®

Excess pressure regulator, straight through with diaphragm actuator UDA

- Actuator with rolling diaphragm

Grey cast iron
SG iron
Cast steel
Stainless steel

Fig. 705



Page 2

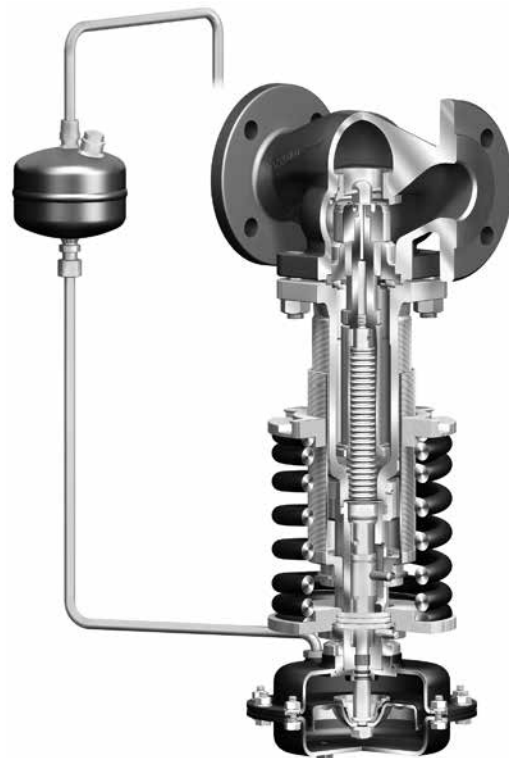
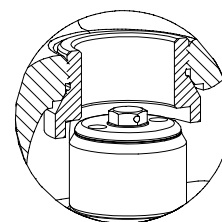
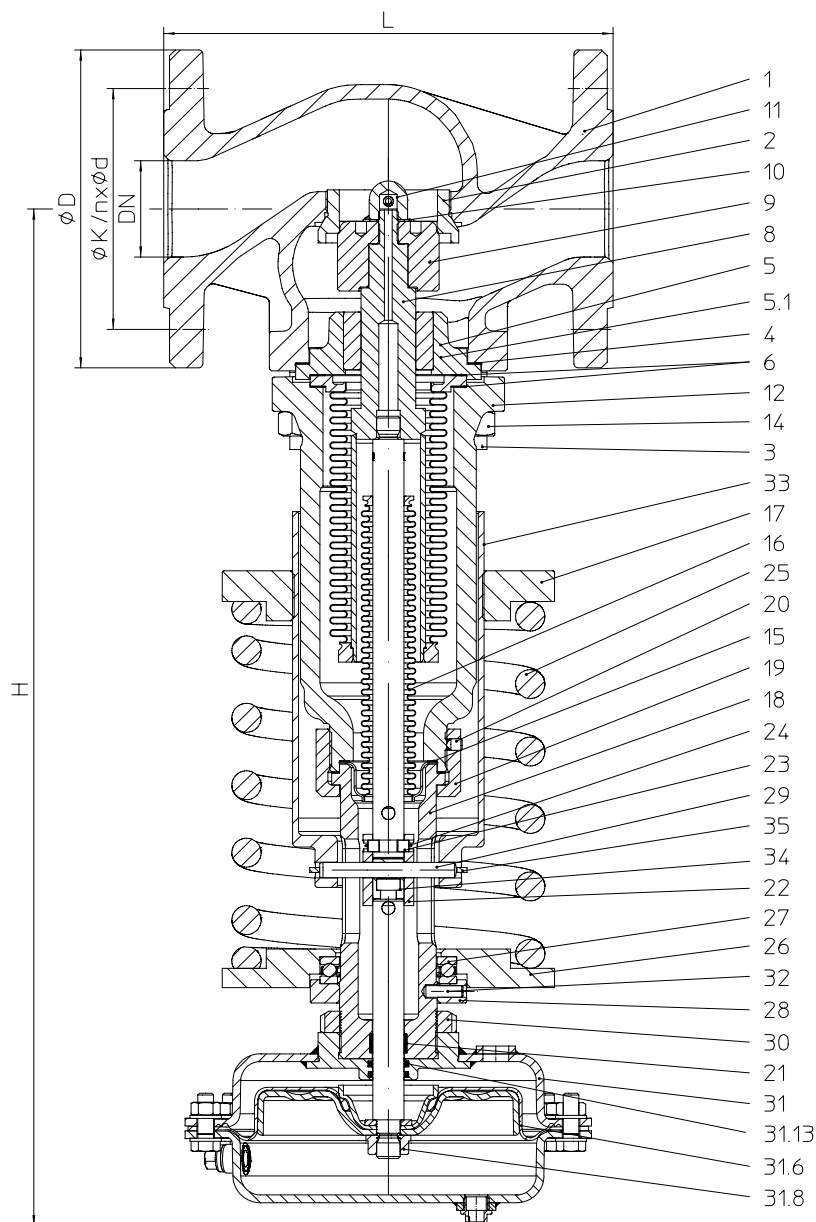


Fig. 705

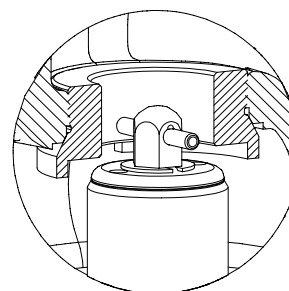
Features:

- Compact design
- Construction without pillars
- Exact and easy adjustment
- Diameter independent ranges
- Simple change of spring and actuator
- 5 exchangeable actuator sizes
- 3 exchangeable spring sizes
- Pressure balanced by stainless steel bellows
- Spindle sealing via stainless steel bellows
- Tapered seat ring
- Screwed seat ring
- Kvs-values reduceable
- Flow divider for noise reduction (optional)
- Plug with PTFE soft sealing (optional)

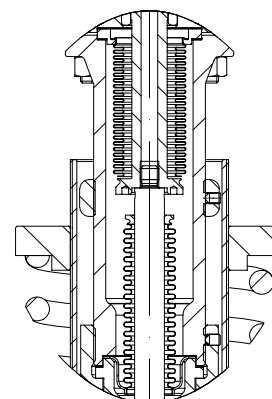
Excess pressure regulator, straight through with diaphragm actuator UDA



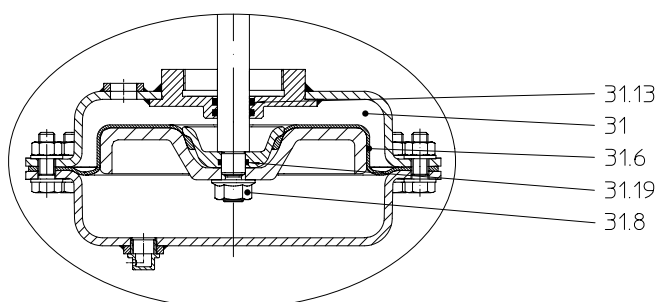
Plug DN 15 - 32



Plug DN 40 - 150



Bellows seal DN 15 - 40



Stainless steel - Actuator

Figure	Nominal pressure	Material	Nominal diameter	Inlet pressure ranges	Actuator
12.705	PN16	EN-JL1040	DN15-150	0,2 - 16 barg	UDA 400 UDA 250 UDA 160 UDA 80 UDA 40
22.705	PN16	EN-JS1049	DN15-150		
23.705	PN25	EN-JS1049	DN15-150		
34.705	PN25	1.0619+N	DN15-150		
35.705	PN40	1.0619+N	DN15-150		
62.705	PN16	1.4581	DN15-150		
65.705	PN40	1.4581	DN15-150		

Technical data for the actuator refer to page 6.

DN			15	20	25	32	40	50	65	80	100	125	150
Kvs-value													
Kvs-value	standard	(m³/h)	3,2	5	8	12,5	20	32	50	80	125	190	280
	reduced	(m³/h)	0,1 / 0,4 / 1 / 2,5	0,1 / 0,4 / 1 / 2,5 / 4	0,1 / 0,4 / 1 / 2,5 / 4 / 6,3	--	--	--	--	--	--	--	--
Seat-ø		(mm)	18	22	25	32	40	50	65	80	100	125	150
Travel		(mm)	4	5	6	8	8	10	11	13	16	19	22
Max. differential pressure drop		(bar)	16	16	16	16	16	16	16	16	16	16	16
Shutt off class			Leakage class I acc. to DIN EN 1349 or DIN EN 60534-4 (≤ 0,05% from Kvs-value)										

Face-to-face dimension FTF series 1 according to DIN EN 558												
L	(mm)	130	150	160	180	200	230	290	310	350	400	480

Flanges acc. to DIN EN 1092-1/-2								Flange holes / -thickness tolerances acc. to DIN 2533/2544/2545					
ØD	PN16	(mm)	95	105	115	140	150	165	185	200	220	250	285
	PN25 / 40	(mm)	95	105	115	140	150	165	185	200	235	270	300
ØK	PN16	(mm)	65	75	85	100	110	125	145	160	180	210	240
	PN25 / 40	(mm)	65	75	85	100	110	125	145	160	190	220	250
n x Ød	PN16	(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	8 x 18	8 x 22
	PN25 / 40	(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	8 x 26	8 x 26

Dimensions													
H	UDA 400	(mm)	545	545	550	550	590	590	595	635	660	700	740
	UDA 250	(mm)	505	505	510	510	550	550	555	595	635	660	700
	UDA 160	(mm)	485	485	490	490	530	530	535	580	600	640	680
	UDA 80	(mm)	485	485	490	490	530	530	535	580	600	640	680
	UDA 40	(mm)	485	485	490	490	530	530	535	580	600	640	680

Weights													
12.705 / 22./23.705 / 34./35.705 62./65.705	with UDA 400	(kg)	28	29	30	32	37	43	50	73	91	131	164
	with UDA 250	(kg)	23	24	25	27	32	38	45	68	88	129	162
	with UDA 160	(kg)	21	22	23	25	30	36	43	66	86	127	160
	with UDA 80	(kg)	20	21	22	24	29	35	42	65	85	126	159
	with UDA 40	(kg)	19	20	21	23	28	34	41	64	84	125	158

Inlet pressure-ranges												
	(barg)		0,2 - 0,6	0,5 - 1,2	0,8 - 2,5	2 - 5	4,5 - 10	8 - 16				
P-Actuator UDA	(cm²)		UDA 400	UDA 250	UDA 160	UDA 80	UDA 40					
PN-max. (P-Actuator)	(barg)		1,6	2,5	6	10	20					
Spring end-No.			04	04	07	07	07	10				

DN	15	20	25	32	40	50	65	80	100	125	150
----	----	----	----	----	----	----	----	----	-----	-----	-----

Proportional ranges (Combination: actuator with valve in ± bar)														
P-Actuator (cm ²)	UDA 400	Inlet pressure range (barg)	0,2 - 0,6	0,05	0,05	0,05	0,06	0,08	0,10	0,12	0,14	0,17	0,18	0,23
	UDA 250		0,5 - 1,2	0,06	0,07	0,09	0,11	0,12	0,15	0,16	0,20	0,25	0,25	0,45
	UDA 160		0,8 - 2,5	0,15	0,20	0,25	0,35	0,35	0,40	0,55	0,50	0,65	0,65	0,85
	UDA 80		2,0 - 5,0	0,30	0,30	0,45	0,55	0,50	0,65	0,75	0,85	1,05	1,50	1,65
	UDA 40		4,5 - 10,0	0,35	0,50	0,70	0,75	0,80	1,05	1,25	1,60	1,70	2,25	2,50
	UDA 40		8,0 - 16,0	0,50	0,65	1,05	1,15	1,20	1,50	1,60	1,80	1,90	3,30	3,50

Excess pressure regulators are proportional regulators with permanent control deviation depending from the construction.

The actual control deviation depends on the valve load.

(Kv-value / Kvs-value-max) x Proportional range = Actual control deviation

The values shown are preliminary values and may vary by the real plant.

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

acc. to DIN EN 1092-2			-60°C to <-10°C*	-10°C to 120°C	150°C	200°C	250°C	300°C	350°C
EN-JL1040	PN16	(bar)	--	16	14,4	12,8	11,2	9,6	--
EN-JS1049	PN16	(bar)	on request	16	15,5	14,7	13,9	12,8	11,2
EN-JS1049	PN25	(bar)	on request	25	24,3	23	21,8	20	17,5

acc. to manufacturers standard			-60°C to <-10°C*	-10°C to 120°C	150°C	200°C	250°C	300°C	350°C
1.0619+N	PN25	(bar)	18,7	25	23,9	22	20	17,2	16
1.0619+N	PN40	(bar)	30	40	38,1	35	32	28	25,7

acc. to DIN EN 1092-1			-60°C to <-10°C*	-10°C to 120°C	150°C	200°C	250°C	300°C	350°C
1.4581	PN16	(bar)	8	16	15,6	14,9	14,1	13,3	12,8
1.4581	PN40	(bar)	20	40	39,2	37,3	35,4	33,3	32,1

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

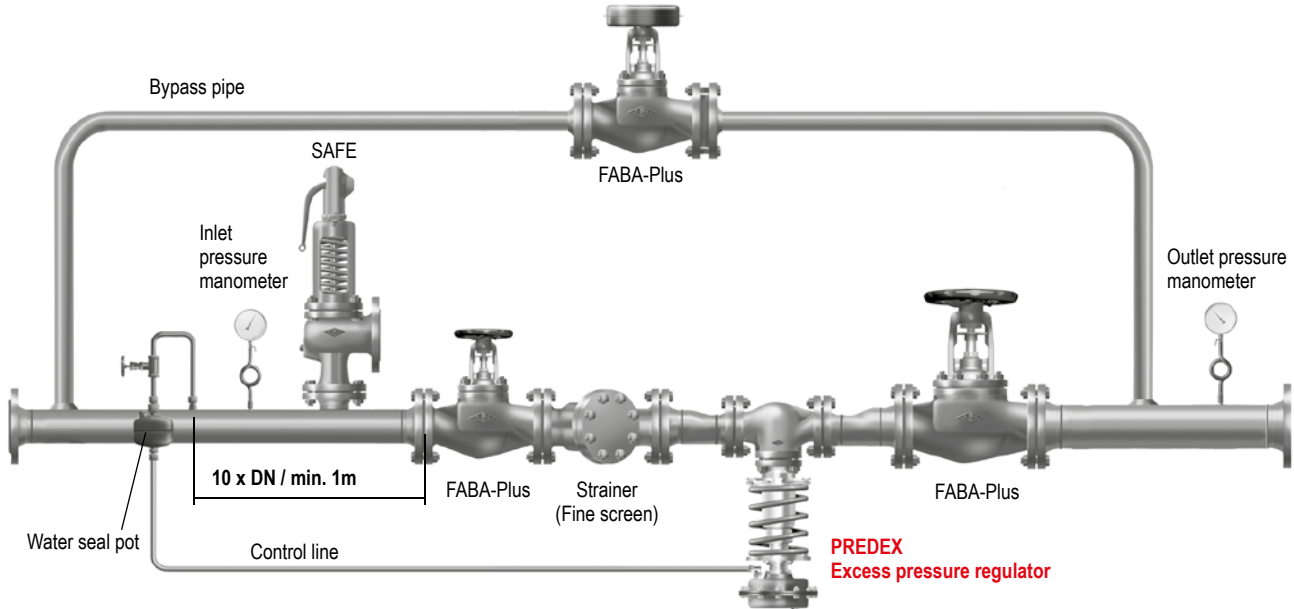
Application

The excess pressure regulator is a self operated, direct acting proportional regulator, which regulates the upstream pressure.

The upstream pressure (p1) is regulated, this means, the valve opens when the upstream pressure rises over an adjusted set point. If the upstream pressure decreases under the adjusted set point, the valve closes automatically. Because of the stainless steel bellows, the downstream pressure (p2) has no influence.

Operating fields are to regulate fluids of the group II acc. to Pressure Equipment Directive 2014/68/EU, e.g. 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:

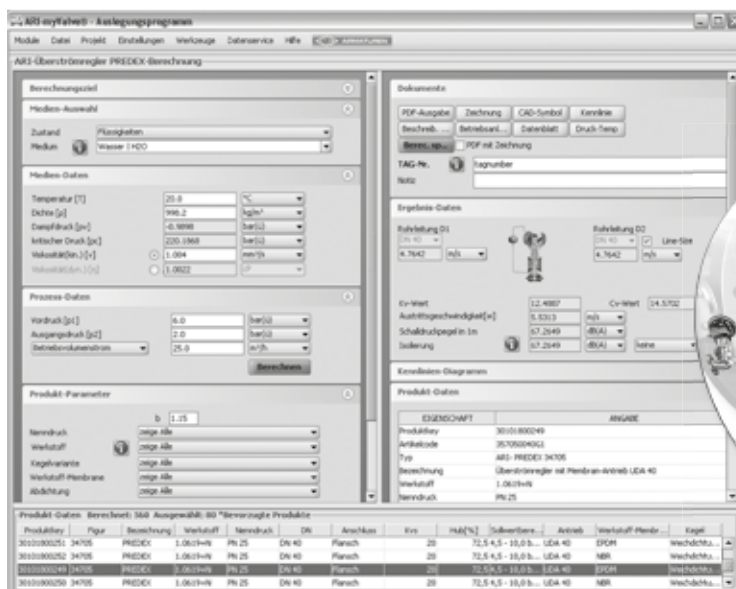


Sizing

For the calculation you have the program myValve (Program part PREDEX - Excess pressure regulator). 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 Excess pressure regulator can also be calculated with the max. allowable flow velocities with myValve.

The necessary upstream 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: upstream 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 upstream pressure must have an adequate distance between set pressure and upstream pressure. The valve sizing must be done with the full capacity of the supplying generator (steam generator, compressor, pump, etc.) while the excess pressure regulator is closed. With this found capacity you can, with myValve (Program part: Safety valves), select the safety valve, and with the excess pressure regulator and other valves, administer them under a project.



Parts						
Pos.	Sp.p.	Description	Fig. 12.705	Fig. 22.705 Fig. 23.705	Fig. 34.705 Fig. 35.705	Fig. 62.705 Fig. 65.705
1		Body	EN-JL1040, EN-GJL-250	EN-JS1049, EN-GJS-400-18U-LT	GP240GH+N, 1.0619+N	GX5CrNiMoNb19-11-2, 1.4581
2	x	Screw seat ring	X20Cr13+QT, 1.4021+QT			X6CrNiMoTi17-12-2, 1.4571
3		Stud	25CrMo4, 1.7218 -A2B			A4-70
4	x	Gasket	Pure graphite (CrNi laminated with graphite)			
5		Bush housing	EN-JS1049, EN-GJS-400-18U-LT / X20Cr13+QT, 1.4021+QT			X6CrNiMoTi17-12-2, 1.4571
5.1		Guide bush	X20Cr13+QT, 1.4021+QT			X6CrNiMoTi17-12-2, 1.4571
6	x	Gasket	Pure graphite (CrNi laminated with graphite)			
8	x	Balanced-bellow-unit	X6CrNiMoTi17-12-2, 1.4571 / X5CrNi18-10, 1.4301 / X20Cr13+QT, 1.4021+QT			X6CrNiMoTi17-12-2, 1.4571
9	x	Plug	X20Cr13+QT, 1.4021+QT (hardened)			X6CrNiMoTi17-12-2, 1.4571 (hardened)
10		Washer	A2			A4
11		Hexagon screw	< DN40: A4-70			
11		Head	≥ DN40: X6CrNiTi18-10, 1.4541 / X20Cr13+QT, 1.4021+QT			≤DN50: X6CrNiTi18-10, 1.4541 >DN50: X6CrNiTi18-10, 1.4541 / X6CrNiMoTi17-12-2, 1.4571
12		Hood, geschlossen	EN-JS1049, EN-GJS-400-18U-LT			GX5CrNiMoNb19-11-2, 1.4581
14		Hexagon nut	C35E, 1.1181 -A2B			A4-70
15	x	Gasket	Pure graphite (CrNi laminated with graphite)			
16	x	Sealing-bellow-unit	X6CrNiMoTi17-12-2, 1.4571 / X5CrNi18-10, 1.4301 / X20Cr13+QT, 1.4021+QT			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	11SMn30+C, 1.0715+C			
20		Thread pin	45H - A2B			
21		Guide bush	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	x	Spring	51CrV4, 1.8159			
26		Spring plate	S235JR, 1.0037			
27		Axial bearing	102Cr6, 1.2067			
28		Pressure plate	11SMn30+C, 1.0715+C			
29		Parallel pin	St			
30		Slotted nut	5.8 - A2B			
31	x	P-Actuator	DMA 40-80: EN-GJS-400-18U-LT, EN-JS1049 DMA 160-400: DD13+QZ, 1.0335+QT			X6CrNiMoTi17-12-2, 1.4571
31.6	x	Rolling diaphragm	NBR / EPDM			
31.8	x	Collar nut with sealing ring	8-A2B			--
31.8	x	Hexagon nut with flanges	--			A4
31.13	x	Rod seal	Polyurethan			
31.19	x	O-Ring	--			NBR / EPDM
32		Thread pin	45H-A2B			
33		Set value bonnet	GX5CrNiMo19-11-2, 1.4408			
34		Adapter	X20Cr13+QT, 1.4021+QT			
35		Securing wire	X39CrMo17-1+QT, 1.4122+QT			
	↳ Spare parts					

Information / restriction of technical rules need to be observed!

Operating and installation instructions can be downloaded at www.ari-armaturen.com.

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

A production permission acc. to TRB 801 No. 45 is available (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.

Resistance and fitness must be verified (or contact the manufacturer for information).

Diaphragm-Actuator UDA 40 - UDA 400

- Rolling diaphragm
- Connection through a central thread
- Spindle connection with a fast coupling
- Delivered with a flow restrictor and screw joint

Material (Diaphragm):

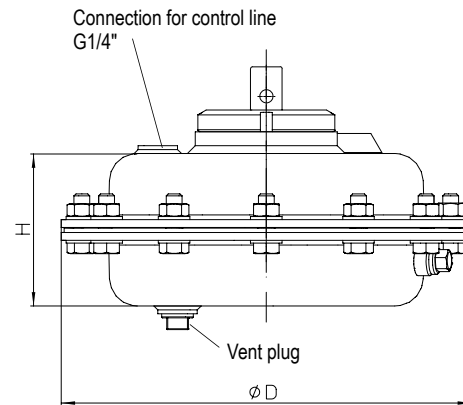
EPDM -40°C to +110°C

NBR -40°C to +100°C

Selection of possible applications:

- Neutral gases, Vapours and liquids
(only fluids of group II acc. to Pressure Equipment Directive 2014/68/EU)

Pneumatic Actuator		UDA 400	UDA 250	UDA 160	UDA 80	UDA 40
ØD	(mm)	300	250	210	170	140
H	(mm)	135	90	80	75	75
Weight	(kg)	13,4	8,1	5,1	3,7	2,9



Water seal pot

(for media temperatures higher than the allowed diaphragm temperature)

- Delivered with a funnel

Material:

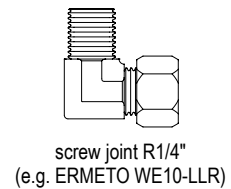
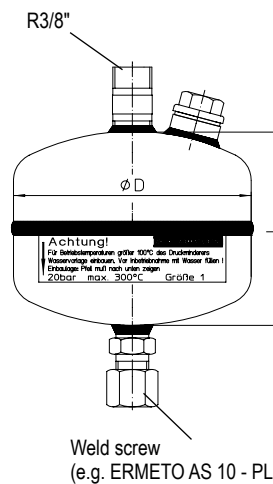
Standard design: P265 GH, 1.0425

Stainless steel design: X6CrNiMoTi17-12-2, 1.4571

Selection of possible applications:

- Steam
- Hot water
- Neutral liquids

P-Actuator		UDA 400	UDA 250	UDA 160	UDA 80	UDA 40
Size		2			1	
ØD	(mm)	140			102	
L	(mm)	110			83	
V	(dm³)	1,2			0,6	



Flow divider for noise reduction



Plug with PTFE soft sealing
(max. 200°C, only for standard Kvs-values)

Please indicate when ordering:

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

Example:

Figure 35.705, Nominal diameter DN100, Nominal pressure PN40, Body material 1.0619+N, metal seat, Kvs 125, 0,8 - 2,5 bar, ARI-UDA 160 with NBR-Membrane, Water seal pot size 1.