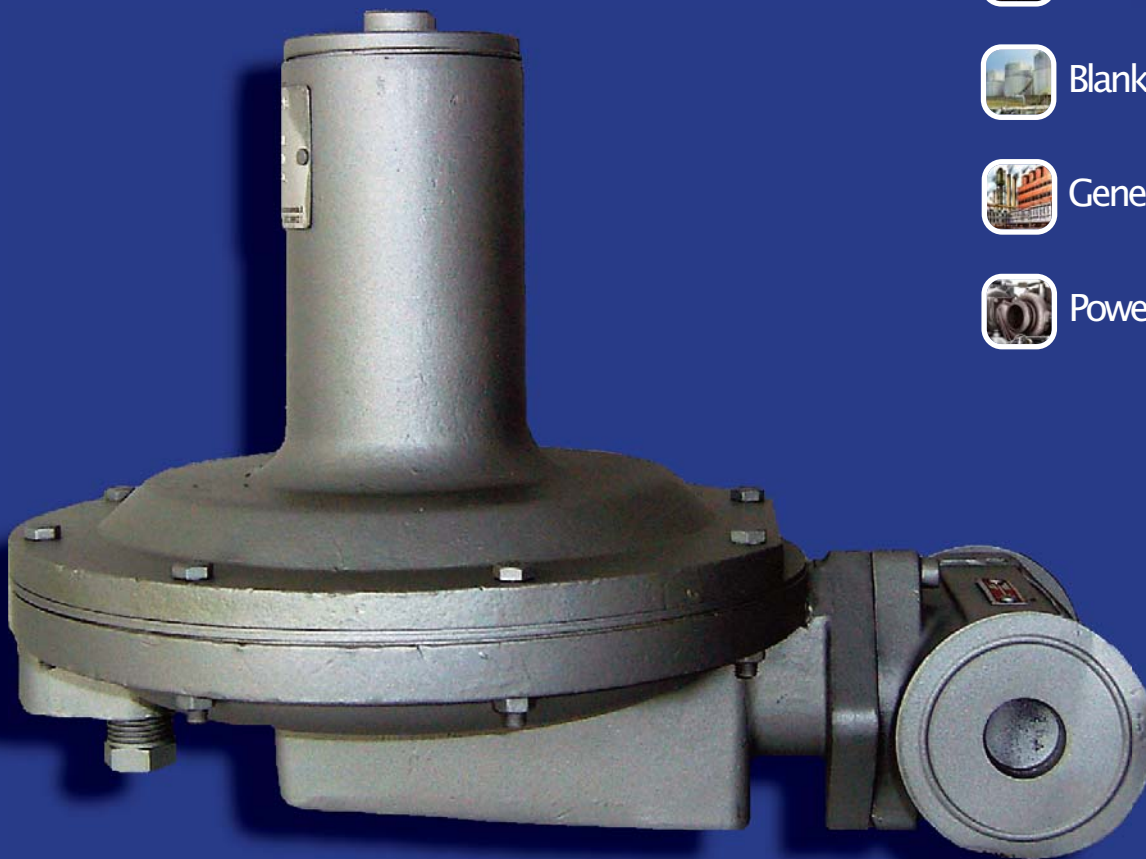


UBB Series

Direct operated pressure reducing / relief valve



Suitable for:



Air & process gases

Markets:



Oil & gas



Blanketing systems



General industry



Power

Valve ID card

Function
Reducing and relief

Seat type
Single

Inlet / Outlet diameters
From ½" up to 1½"

Body material
Carbon steel, Stainless steel

End connections
Threaded (F-NPT or GAS)

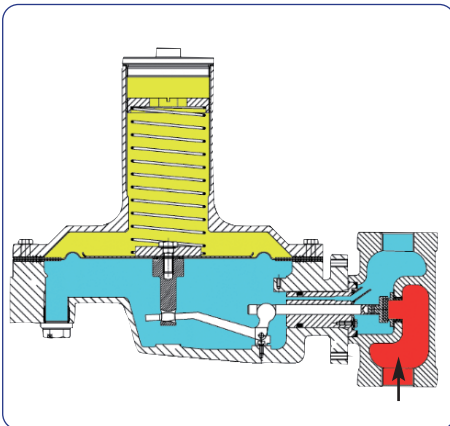
Max rating
ANSI 150

CV
From 0,04 up to 4,95

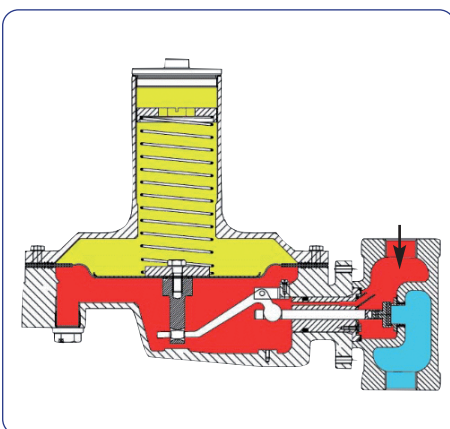
Trim materials
Stainless steel (std.)

Diaphragms
NBR

Pressure reducing



Pressure relief



- Inlet pressure
- Outlet pressure
- Atmospheric pressure

UBB Series:

The UBB series have the possibility to accomplish two different kind of functions: they can work as spring loaded, direct-operated pressure reducing regulators or relief valves. This valve provides pressure reducing and backpressure control in a wide variety of industrial applications dealing with all kind of process gases (including air). The large diaphragm area provides more accurate control at low pressure settings and the lever design provides very good shut-off tightness. These regulators are available in ½ up to 1½ (DN15 through DN40) inches body sizes. The simple construction makes it a very flexible and price-competitive item, easy to install and to maintain.

General features:

- Flow to open or close design (depending from function)
- Internal pressure sensing
- Resilient single seat
- Elastomeric Diaphragm
- Possibility to turn the body in different position simplifying the installation
- According to lever position the regulator can act as reducing or relief regulator

Index of tables and specifications

- Fluid applications** • see table 1
- Capacities and Cv** • see tables 2 - 5
- Materials of Construction** • see table 6
- Maximum Inlet Pressure** • see table 7
- Temperature Range** • see table 8
- Spring Range** • see table 9
- Body Sizes and End Connections** • see table 10
- Weight** • 13,5 kg (30 lbs)

Tab. [1] - Fluid applications

Gas	Air, inert gas, CO ₂ , CO, hydrocarbons, O ₂ , H ₂ , F, NH ₃ , frigorific gas.
-----	--

Tab. [2] - Cv values for all body sizes in reducing service

NOZZLE	Body size			
	½"	¾"	1"	1½"
1	0,04	0,04	0,04	0,04
2	0,10	0,10	0,10	0,10
3	0,34	0,34	0,34	0,34
4	0,75	0,75	0,75	0,75
5	0,94	0,94	0,94	0,94
6	1,38	1,38	1,38	1,38
7	1,90	1,90	1,90	1,90
8	2,45	2,45	2,45	2,45
9	2,80	2,80	2,80	2,80
10	3,14	3,14	3,14	3,14
11	3,55	3,55	3,55	3,55
12	3,82	3,82	3,82	3,82
13		4,00	4,00	4,00
14		4,50	4,50	4,50
15		4,95	4,90	4,90

 standard nozzles

Tab. [3] - Cv values for all body sizes in relief service

NOZZLE	Body size			
	½"	¾"	1"	1½"
1	0,04	0,04	0,04	0,04
2	0,17	0,17	0,17	0,17
3	0,38	0,38	0,38	0,38
4	0,75	0,75	0,75	0,75
5	0,95	0,95	0,95	0,95
6	1,39	1,39	1,39	1,39
7	1,88	1,88	1,88	1,88
8	2,50	2,50	2,50	2,50
9	2,96	2,96	2,96	2,96
10	3,40	3,40	3,40	3,40
11	3,75	3,75	3,75	3,75
12	3,95	3,95	3,95	3,95
13		4,15	4,15	4,15
14		4,40	4,40	4,40
15		4,86	4,90	4,90

 standard nozzles

Tab. [4] - Capacities for DN 15, DN 20, DN 25, DN 40 | Reducing service

Capacities for DN15-DN20-DN25-DN40									
OUTLET PRESSURE RANGE, SPRING CODE	OFFSET FROM SETPOINT	OUTLET PRESSURE SETTING	MAXIMUM INLET PRESSURE barg (PSIG)	CAPACITIES IN Nm ³ /h (SCFH) OF AIR					
				Orifice Size, (mm)					
				1	2	4	8	14	
3,4 to 5,5 mbar (1,4 to 2,2 inches w.c.), 43 12 UBB02	1 mbar (0,4 inches w.c.)	3,4 mbar (1,4 inches w.c.)	0,11 (1,6)	0,265 (9,89)	0,719 (26,85)	5,711 (213,15)	18,655 (696,30)	34,264 (1278,92)	
			0,30 (4,35)	0,508 (18,96)	1,284 (47,92)	9,630 (359,43)	31,457 (1174,15)		
			1,30 (18,85)	1,173 (43,77)	2,931 (109,42)	21,986 (820,63)			
			5,60 (81,22)	3,756 (140,20)	9,390 (350,50)				
	5,5 mbar (2,2 inches w.c.)	10,00 (145)	6,500 (242,60)						
				0,11 (1,6)	0,262 (9,78)	0,711 (26,55)	5,659 (211,24)	18,487 (690,051)	33,957 (1267,44)
				0,30 (4,35)	0,506 (18,89)	1,281 (47,80)	9,604 (358,46)	31,372 (1170,98)	
				1,30 (18,85)	1,172 (43,76)	2,931 (109,42)	21,981 (820,44)		
5,5 to 9,3 mbar (2,2 to 3,7 inches w.c.), 43 12 UBB03	2 mbar (0,8 inches w.c.)	5,5 mbar (2,2 inches w.c.)	0,13 (1,88)	0,292 (10,91)	0,792 (29,56)	6,183 (230,78)	20,198 (753,89)	37,098 (1384,69)	
			0,40 (5,80)	0,597 (22,29)	1,493 (55,71)	11,195 (417,86)	36,570 (1365,00)		
			1,60 (23,2)	1,338 (49,94)	3,345 (124,85)	25,091 (936,53)			
			6,50 (94,27)	4,316 (161,09)	10,790 (402,72)				
	9,3 mbar (3,7 inches w.c.)	10,00 (145)	6,499 (242,58)						
				0,13 (1,88)	0,287 (10,72)	0,779 (29,06)	6,098 (227,61)	19,920 (743,53)	36,588 (1365,66)
				0,40 (5,80)	0,595 (22,21)	1,488 (55,53)	11,157 (416,45)	36,447 (1360,41)	
				1,60 (23,2)	1,338 (49,94)	3,345 (124,85)	25,086 (936,33)		
9,3 to 22 mbar (3,7 to 8,8 inches w.c.), 43 12 UBB05	5 mbar (2 inches w.c.)	9,3 mbar (3,7 inches w.c.)	0,21 (3,05)	0,396 (14,77)	1,053 (39,30)	7,896 (294,73)	25,794 (962,77)	47,377 (1768,36)	
			0,60 (8,70)	0,744 (27,75)	1,859 (69,38)	13,941 (520,35)	45,540 (1699,81)		
			2,60 (37,71)	1,885 (70,35)	4,712 (175,87)	35,338 (1319,02)			
			10,00 (145)	6,498 (242,53)	16,244 (606,33)				
	22 mbar (8,8 inches w.c.)	10,00 (145)	6,494 (242,38)						
				0,21 (3,05)	0,382 (14,26)	1,024 (38,24)	7,683 (286,78)	25,098 (936,80)	46,099 (1720,66)
				0,60 (8,70)	0,739 (27,58)	1,847 (68,94)	13,853 (517,06)	45,252 (1689,05)	
				2,60 (37,71)	1,880 (70,18)	4,700 (175,44)	35,252 (1315,78)		
22 to 34 mbar (8,8 to 13,6 inches w.c.), 43 12 UBB06	8 mbar (3,15 inches w.c.)	22 mbar (8,8 inches w.c.)	0,25 (3,63)	0,432 (16,13)	1,131 (42,20)	8,480 (316,54)	27,703 (1034,02)	50,883 (1899,21)	
			0,80 (11,60)	0,872 (32,55)	2,180 (81,38)	16,352 (610,33)	53,415 (1993,73)		
			3,20 (46,41)	2,255 (84,17)	5,638 (210,43)	42,284 (1578,26)			
			10,00 (145)	6,494 (242,38)	16,234 (605,94)				
	34 mbar (13,6 inches w.c.)	10,00 (145)	6,490 (242,23)						
				0,25 (3,63)	0,420 (15,68)	1,106 (41,28)	8,295 (309,62)	27,097 (1011,41)	49,770 (1857,69)
				0,80 (11,60)	0,869 (32,43)	2,172 (81,07)	16,289 (608,00)	53,211 (1986,11)	
				3,20 (46,41)	2,251 (84,01)	5,627 (210,04)	42,204 (1575,28)		
34 to 62 mbar (13,6 to 25 inches w.c.), 43 12 UBB07	17 mbar (6,8 inches w.c.)	34 mbar (13,6 inches w.c.)	0,30 (4,35)	0,480 (17,93)	1,231 (45,95)	9,233 (344,61)	30,160 (1125,74)	55,396 (2067,68)	
			0,90 (13,05)	0,932 (34,78)	2,330 (86,96)	17,474 (652,21)	57,080 (2130,54)		
			3,70 (53,66)	2,563 (95,66)	6,407 (239,14)	48,052 (1793,56)			
			10,00 (145)	6,490 (242,23)	16,224 (605,58)				
	62 mbar (25 inches w.c.)	10,00 (145)	6,481 (241,89)						
				0,30 (4,35)	0,453 (16,92)	1,177 (43,95)	8,831 (329,63)	28,849 (1076,78)	52,987 (1977,77)
				0,90 (13,05)	0,925 (34,52)	2,312 (86,30)	17,341 (647,26)	56,647 (2114,38)	
				3,70 (53,66)	2,553 (95,29)	6,382 (238,23)	47,868 (1786,69)		
10,00 (145)	6,481 (241,89)	16,202 (604,73)							

62 to 98 mbar (25 to 39 inches w.c.), 43 12 UBB08	26 mbar (10,24 inches w.c.)	62 mbar (25 inches w.c.)	0,50 (7,25)	0,647 (24,16)	1,618 (60,41)	12,139 (453,08)	39,652 (1480,04)	72,831 (2718,45)	
			1,50 (21,76)	1,278 (47,69)	3,194 (119,23)	23,958 (894,23)	78,262 (2921,16)		
			6,30 (91,37)	4,172 (155,74)	10,431 (389,34)	78,233 (2920,07)			
			10,00 (145)	6,481 (241,89)	16,202 (604,73)				
		98 mbar (39 inches w.c.)	0,50 (7,25)	0,628 (23,45)	1,571 (58,63)	11,782 (439,75)	38,486 (1436,51)	70,689 (2638,49)	
			1,50 (21,76)	1,273 (47,53)	3,184 (118,83)	23,877 (891,21)	77,998 (2911,29)		
	6,30 (91,37)		4,160 (155,29)	10,401 (388,22)	78,006 (2911,63)				
	10,00 (145)		6,469 (241,45)	16,172 (603,63)					
	98 to 190 mbar (1,4 to 2,8 psig), 43 12 UBB09	50 mbar (0,73 psig)	98 mbar (1,4 psig)	0,80 (11,60)	0,849 (31,69)	2,123 (79,23)	15,921 (594,26)	52,008 (1941,23)	95,525 (3565,52)
				2,50 (36,26)	1,813 (67,68)	4,533 (169,19)	33,996 (1268,91)	111,053 (4145,11)	
				10,00 (145)	6,469 (241,45)	16,172 (603,63)	121,291 (4527,24)		
			190 mbar (2,8 psig)	0,80 (11,60)	0,815 (30,42)	2,037 (76,04)	15,280 (570,32)	49,913 (1863,02)	91,677 (3421,88)
2,50 (36,26)				1,811 (67,59)	4,527 (168,96)	33,951 (1267,23)	110,906 (4139,62)		
10,00 (145)				6,439 (240,33)	16,097 (600,82)	120,726 (4506,16)			
190 to 300 mbar (2,8 to 4,4 psig), 43 12 UBB10		77mbar (1,12 psig)	190 mbar (2.8 psig)	0,80 (11,60)	0,815 (30,42)	2,037 (76,04)	15,280 (570,32)	49,913 (1863,02)	91,677 (3421,88)
				2,70 (39,16)	1,916 (71,53)	4,791 (178,82)	35,931 (1341,15)	117,375 (4381,08)	
				10,00 (145)	6,439 (240,33)	16,097 (600,82)	120,726 (4506,16)		
			300 mbar (4,4 psig)	0,80 (11,60)	0,763 (28,48)	1,908 (71,21)	14,308 (534,05)	46,740 (1744,57)	85,848 (3204,32)
				2,70 (39,16)	1,913 (71,39)	4,781 (178,47)	35,861 (1338,53)	117,146 (4372,53)	
				10,00 (145)	6,403 (238,98)	16,006 (597,44)	120,047 (4480,81)		
	300 to 610 mbar (4,4 to 8,8 psig), 43 12 UBB12	180mbar (2,7 psig)	300 mbar (4,4 psig)	1,60 (23,2)	1,300 (48,50)	3,248 (121,24)	24,362 (909,32)	79,582 (2970,43)	146,171 (5455,90)
				5,00 (72,52)	3,281 (122,46)	8,202 (306,15)	61,516 (2296,1)	200,951 (7500,59)	
				10,00 (145)	6,403 (238,98)	16,006 (597,44)	120,047 (4480,81)		
			610 mbar (8,8 psig)	1,60 (23,2)	1,217 (45,44)	3,044 (113,60)	22,827 (852,02)	74,567 (2783,26)	136,96 (5112,10)
				5,00 (72,52)	3,171 (118,35)	7,927 (295,88)	59,452 (2219,09)	194,211 (7249,02)	
				10,00 (145)	6,300 (235,13)	15,748 (587,82)	118,113 (4408,62)		

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Tab. [5] - Capacities for DN 15, DN 20, DN 25, DN 40 | Relief service

INLET PRESSURE RANGE, SPRING CODE	OFFSET FROM SETPOINT	INLET PRESSURE SETTING	CAPACITIES IN Nm ³ /h (SCFH) OF AIR				
			Orifice Size, (mm)				
			1	2	4	8	14
3,4 to 5,5 mbar (1,4 to 2,2 inches w.c.), 43 12 UBB02	1 mbar (0,4 inches w.c.)	3,4 mbar (1,4 inches w.c.)	0,031 (1,14)	0,161 (6,01)	0,843 (31,48)	3,124 (116,59)	5,718 (213,41)
		5,5 mbar (2,2 inches w.c.)	0,042 (1,56)	0,216 (8,06)	1,116 (41,66)	4,100 (153,02)	7,479 (279,17)
5,5 to 9,3 mbar (2,2 to 3,7 inches w.c.), 43 12 UBB03	2 mbar (0,8 inches w.c.)	5,5 mbar (2,2 inches w.c.)	0,042 (1,56)	0,216 (8,06)	1,116 (41,66)	4,100 (153,02)	7,479 (279,17)
		9,3 mbar (3,7 inches w.c.)	0,058 (2,18)	0,297 (11,07)	1,513 (56,48)	5,513 (205,77)	9,844 (367,45)
9,3 to 22 mbar (3,7 to 8,8 inches w.c.), 43 12 UBB05	5 mbar (2 inches w.c.)	9,3 mbar (3,7 inches w.c.)	0,058 (2,18)	0,297 (11,07)	1,513 (56,48)	5,513 (205,77)	9,844 (367,45)
		22 mbar (8,8 inches w.c.)	0,100 (3,73)	0,496 (18,53)	2,487 (92,83)	8,606 (321,22)	15,147 (565,35)
22 to 34 mbar (8,8 to 13,6 inches w.c.), 43 12 UBB06	8 mbar (3,15 inches w.c.)	22 mbar (8,8 inches w.c.)	0,100 (3,73)	0,496 (18,53)	2,487 (92,83)	8,606 (321,22)	15,147 (565,35)
		34 mbar (13,6 inches w.c.)	0,131 (4,88)	0,643 (24,01)	3,197 (119,33)	10,703 (399,48)	18,837 (703,09)
34 to 62 mbar (13,6 to 25 inches w.c.), 43 12 UBB07	17 mbar (6,8 inches w.c.)	34 mbar (13,6 inches w.c.)	0,131 (4,88)	0,643 (24,01)	3,197 (119,33)	10,703 (399,48)	18,837 (703,09)
		62 mbar (25 inches w.c.)	0,189 (7,06)	0,920 (34,34)	4,340 (161,99)	14,467 (539,97)	25,461 (950,35)
62 to 98 mbar (25 to 39 inches w.c.), 43 12 UBB08	26 mbar (10,24 inches w.c.)	62 mbar (25 inches w.c.)	0,189 (7,06)	0,920 (34,34)	4,340 (161,99)	14,467 (539,97)	25,461(950,35)
		98 mbar (39 inches w.c.)	0,251 (9,37)	1,211 (45,21)	5,464 (203,96)	18,214 (679,86)	32,057 (1196,55)
98 to 190 mbar (1,4 to 2,8 psig), 43 12 UBB09	50mbar (0,73 psig)	98 mbar (1,4 psig)	0,251 (9,37)	1,211 (45,21)	5,464 (203,96)	18,214 (679,86)	32,057 (1196,55)
		190 mbar (2.8 psig)	0,380 (14,19)	1,733 (64,67)	7,644 (285,31)	25,479 (951,03)	44,844 (1673,81)
190 to 300 mbar (2,8 to 4,4 psig), 43 12 UBB10	77mbar (1,12 psig)	190 mbar (2.8 psig)	0,380 (14,19)	1,733 (64,67)	7,644 (285,31)	25,479 (951,03)	44,844 (1673,81)
		300 mbar (4,4 psig)	0,511 (19,07)	2.192 (81,82)	9,671 (360,99)	32,238 (1203,30)	56,739 (2117,81)

Tab. [6] - Material combination

* Standard construction

** Special construction

Body		
	Carbon steel (AS2) *	316 SS (IS1) **
	-18°C ≤ T ≤ 90°C	-18°C ≤ T ≤ 90°C
	(-0,4°F ≤ T ≤ 194°F)	(-0,4°F ≤ T ≤ 194°F)
Body	ASME SA-216 WCC	ASME SA-351 CF8M
Studs	CLASS 8.8 EN 20898 - 1	A4-70
Trim		
Seat	ASTM A-479 316	ASTM A-479 316
Piston stem	ASTM A-479 316	ASTM A-479 316
Piston gasket	NBR	NBR
Guide bushing	DELFIN	DELFIN
Actuator		
Spring casing	ASME SA-216 WCC	ASME SA-216 WCC
Actuator lower casing	ASME SA-216 WCC	ASME SA-351 CF8M
Spring	ASTM A-401	ASTM A-401
Diaphragm	See Tab. [8]	

Tab. [7] - Maximum Operating Inlet Pressures for reducing service

ORIFICE SIZE	MAXIMUM OPERATING INLET PRESSURE, barg (PSIG)			
	With 0,0034 to 0,0055 bar (0,049 to 0,080 Psig) Outlet Pressure Setting	With 0,0055 to 0,0093 bar (0,080 to 0,135 Psig) Outlet Pressure Setting	With 0,0093 to 0,0220 bar (0,135 to 0,319 Psig) Outlet Pressure Setting	With 0,0220 to 0,0340 bar (0,319 to 0,493 Psig) Outlet Pressure Setting
1	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)
2	5,60 (81,2)	6,50 (94,3)	10,00 (145,0)	10,00 (145,0)
4	1,30 (18,9)	1,60 (23,2)	2,60 (37,7)	3,20 (46,4)
8	0,30 (4,4)	0,40 (5,8)	0,60 (8,7)	0,80 (11,6)
14	0,11 (1,6)	0,13 (1,9)	0,21 (3,1)	0,25 (3,6)

ORIFICE SIZE	MAXIMUM OPERATING INLET PRESSURE, barg (PSIG)				
	With 0,034 to 0,062 bar (0,493 to 0,899 Psig) Outlet Pressure Setting	With 0,062 to 0,098 bar (0,899 to 1,421 Psig) Outlet Pressure Setting	With 0,098 to 0,190 bar (1,421 to 2,756 Psig) Outlet Pressure Setting	With 0,190 to 0,300 bar (2,756 to 4,351 Psig) Outlet Pressure Setting	With 0,300 to 0,610 bar (4,351 to 8,847 Psig) Outlet Pressure Setting
1	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)
2	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)
4	3,70 (53,7)	6,30 (91,4)	10,00 (145,0)	10,00 (145,0)	10,00 (145,0)
8	0,90 (13,1)	1,50 (21,8)	2,50 (36,3)	2,70 (39,2)	5,00 (72,5)
14	0,30 (4,4)	0,50 (7,3)	0,80 (11,6)	0,80 (11,6)	1,60 (23,2)

Tab. [8] - Temperature range for Disc elastomer and Diaphragms

NBR	-18 to 90°C (-0,4 to 194°F)
-----	-----------------------------

Tab. [9] - Spring range

Spring	Spring Ranges
UBB02	3,4 to 5,5 mbar (1,4 to 2,2 inches w.c.)
UBB03	5,5 to 9,3 mbar (2,2 to 3,7 inches w.c.)
UBB05	9,3 to 22,0 mbar (3,7 to 8,8 inches w.c.)
UBB06	22,0 to 34,0 mbar (8,8 to 13,6 inches w.c.)
UBB07	34,0 to 62,0 mbar (13,6 to 25,0 inches w.c.)
UBB08	62,0 to 98,0 mbar (25,0 to 39,0 inches w.c.)
UBB09	0,098 to 0,190 bar (1,4 to 2,8 psig)
UBB10	0,190 to 0,300 bar (2,8 to 4,4 psig)
UBB12	0,300 to 0,610 bar (4,4 to 8,8 psig)

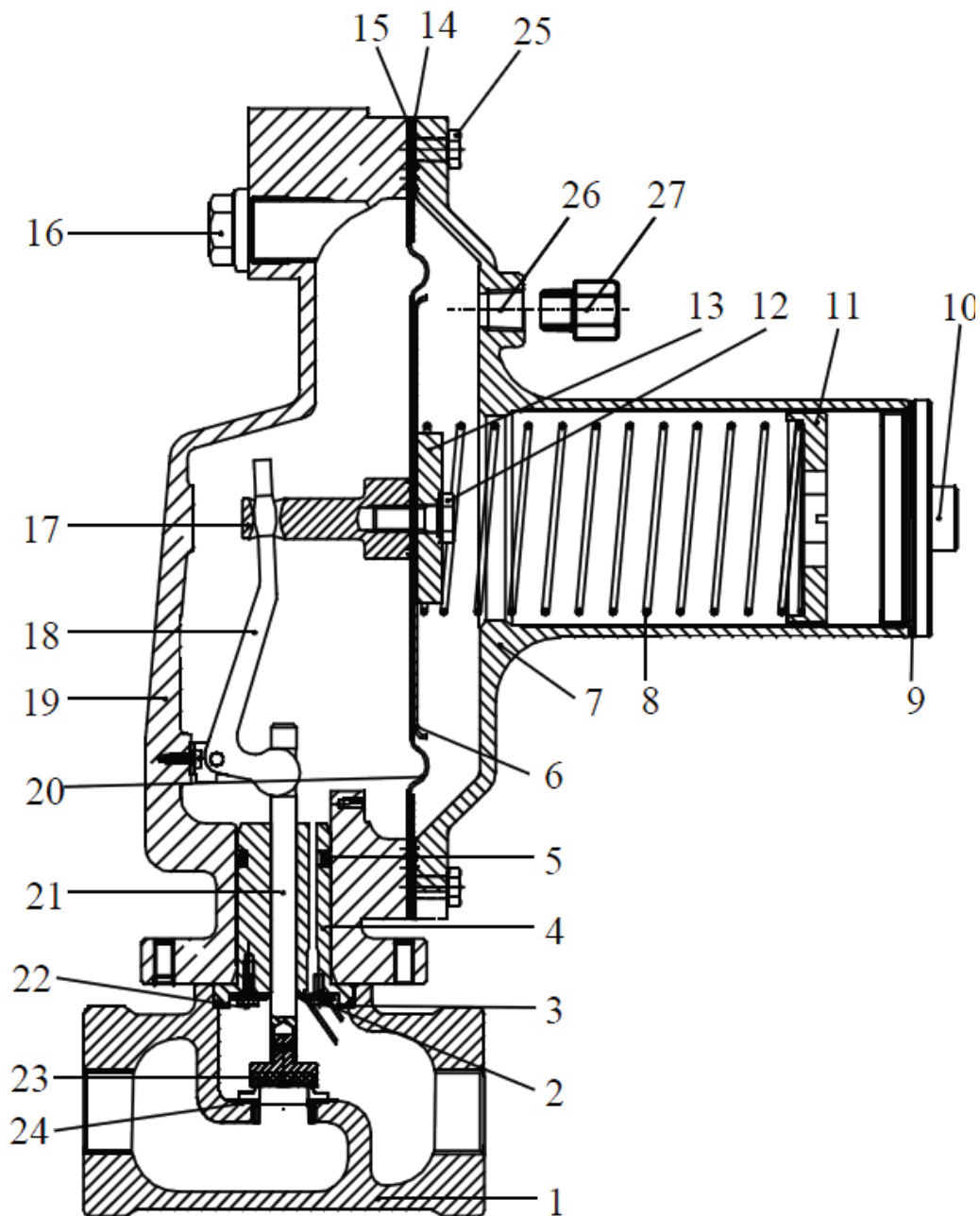
■ UB REGULATORS

Parts list:

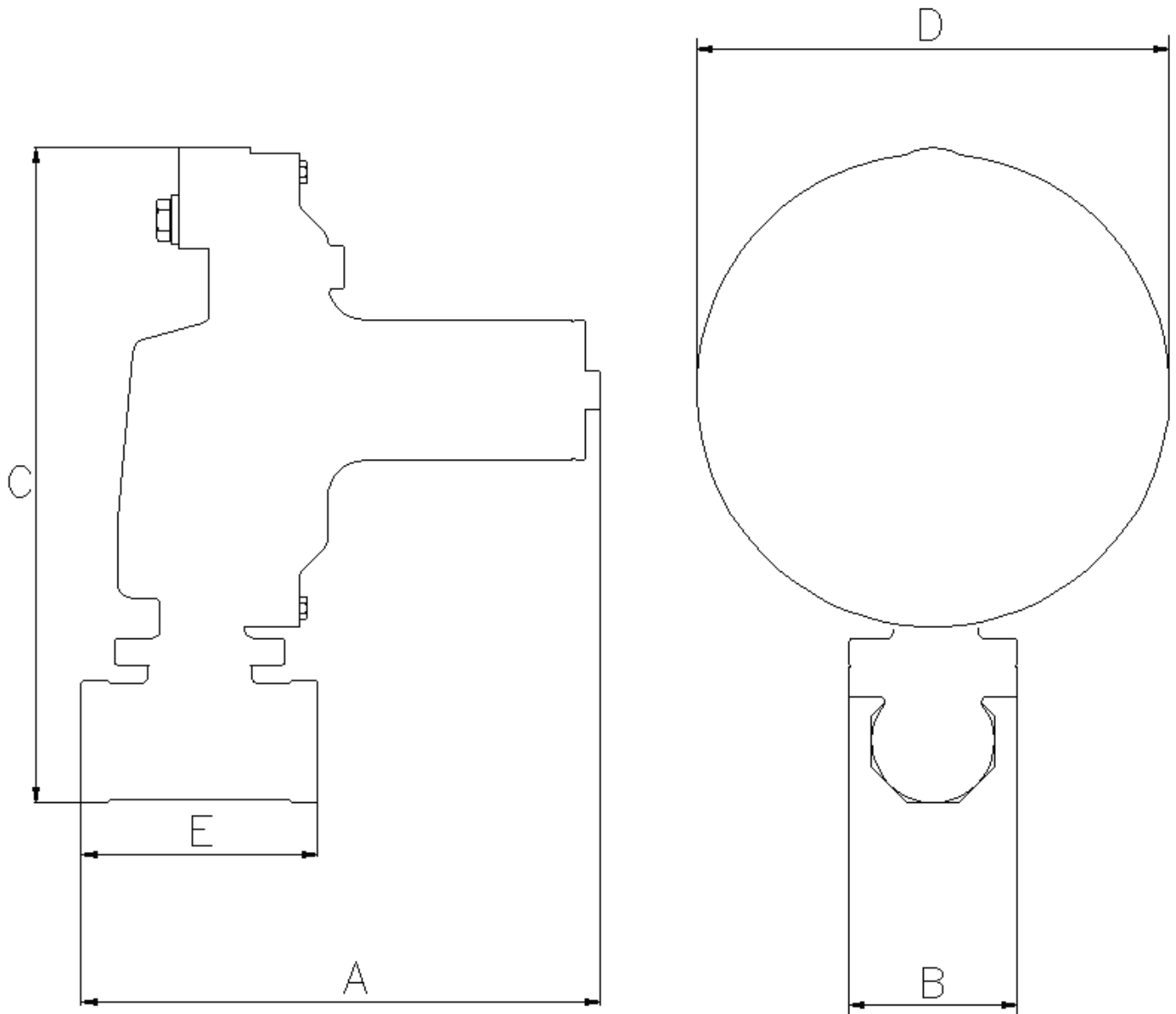
- 1 - Body
- 2 - Screw
- 3 - Pressure sensing (*)
- 4 - Stem guide
- 5 - O'ring
- 6 - Diaphragm plate (upper)(*)
- 7 - Spring case
- 8 - Spring
- 9 - Gasket
- 10 - Spring case cap
- 11 - Adjusting screw ring
- 12 - Screw
- 13 - Spring button (lower)
- 14 - Gasket (*)
- 15 - Diaphragm ring (*)
- 16 - Screw
- 17 - Stem-diaphragm connection
- 18 - Lever
- 19 - Actuator diaphragm case
- 20 - Diaphragm (*)
- 21 - Stem
- 22 - Gasket
- 23 - Plug
- 24 - Seat
- 25 - Screw
- 26 - Hole vent
- 27 - Plug vent

(*) Recommended spare parts

UBB section drawing



UBB dimensional drawing



Tab. [10] - Body size and face to face dimensions

Size (DN)	Threaded				
	NPT-F BSP-F				
	A	B	C	D	E
½" (DN15)	305 mm (12")	89 mm (3½")	345,5 mm (13½")	250 mm (10")	122 mm (5")
¾" (DN20)					
1" (DN25)					
1½" (DN40)					

About Carraro

Carraro Srl is a private independent company, operative since 1924 in the field of industrial valves. The firm produces and commercializes worldwide a broad range of industrial pressure regulators, desuperheaters and safety valves for fluids such as steam, process gases and liquids.

The flexible organization of Carraro allows a great customization of the products and the production of "taylor made" constructions. Most of the Carraro's product range can be realized also in "exotic" materials such as e.g. duplex, superduplex, monel, hastelloy, aluminum bronze and others. Supported by a global network of sales offices, representatives and distributors, Carraro offers a wide range of solutions for the Oil&Gas, the Power industry and all other diversified industrial applications.

Carraro: product range

UB Regulators: direct-operated pressure regulators with compact design

Maxomatic Series: multifunction pilot-operated regulators for liquids

MM-BPM series: direct-operated, spring pressure regulators

AT series: direct-operated temperature regulators

M51 series: direct-operated, weight and lever pressure regulators

CS series: safety valves for vapours, gas, liquids

CSV series: safety valves for steam and gases

VRE series: electrically operated control valves

MCP - ACP series: pneumatically operated control valves

AIRMATIC series: electropneumatic safety valves

DSH series: desuperheaters

Approvals and certifications

UNI EN ISO 9001: 2008	✓
UNI EN ISO 14001: 2004	✓
97 / 23 / CE (PED)	✓
94 / 09 / CE (ATEX)	✓
RINA	✓
GOST R+RTN	✓
CRN Canada	✓

Cooperations with notified bodies

LLOYD's REGISTER	✓
ABS	✓
BV	✓
DNV	✓

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