



AM20_{ANSI 600}

Pneumatic & Electric MIXING Valve standard ANSI

The OMC **AM20** Series is a three-way globe-style control valve for applications requiring mixing flow in a process control system. The open flow paths and simple construction provide a reliable and easy-to-maintain valve solution. AM20 series could be manufactured with pneumatic or electric actuators to meet all specific requirements of fluid control (water, steam, thermal oil, gas and other liquids) whether compatible with the material used.



14/68/EU (PED)
14/34/EU (ATEX)



EAC Conformity
CU TR 010 / CU TR 032



Safety Integrity Level
IEC EN 61508 - TÜV



Fugitive emissions
ISO 15848-1

- ◆ From 1" to 4" ANSI 600
- ◆ Top Guided construction to ensure plug stability
- ◆ Designed and engineered for robustness in demanding applications
- ◆ Modular design
- ◆ CEI EN 60534-6-1 Clamp and Yoke Std.
- ◆ Std. self adjusting double packing spring loaded
- ◆ Shutoff capabilities : Class IV (std.) , VI

OPTIONS

Reduced area trim to provide wide capabilities for all sizes

Hardened trims to handle high pressure drop applications

Low noise & anticavitation design cage

Bellows seal to meet zero emissions (ZEB20)

Bonnet for low temperature and for high temperature

Full St.Steel actuator construction

BW / SW / RTJ connections & special on request

Heating jacket



REFERENCE STANDARDS

Quality system management certification	ISO 9001
Design std.	ANSI B16.34
Flange connection	ANSI B16.5
Socket-Welding Ends	ANSI B16.11
Buttwelding Ends	ANSI B16.25
Pressure Rating	ANSI 600
Face to face dimension	ANSI / ISA 75.08.01
Seat tightness Class	ANSI FCI 70.2 - IEC 60534-4
Positioner mounting	CEI EN 60534-6-1
2014/68/EU (PED) Certification	Module B + C2
Mechanical resistance calculation method	UNI EN 12516-2
Hydrostatic pressure test	ANSI B16.34
Pressure / Temperature relationship (steel)	ANSI B16.34
2014/34/EU (ATEX) Conformity	II 2 G Ex h IIC T6...T1 Gb II 2 D Ex h IIIC T6...T1 Db
Non-electrical equipment for explosive atmospheres Basic method and requirements	EN ISO 80079-36
Safety Integrity Level (SIL)	IEC EN 61508
Safety Integrity Level (SIL) Approval	SIL 3 - (C-IS-722133629)
Fugitive emissions Certification	ISO 15848-1
EAC Conformity	CU TR 010 / CU TR 032
NACE	MR0175

STD VALVE BODY CHARACTERISTICS

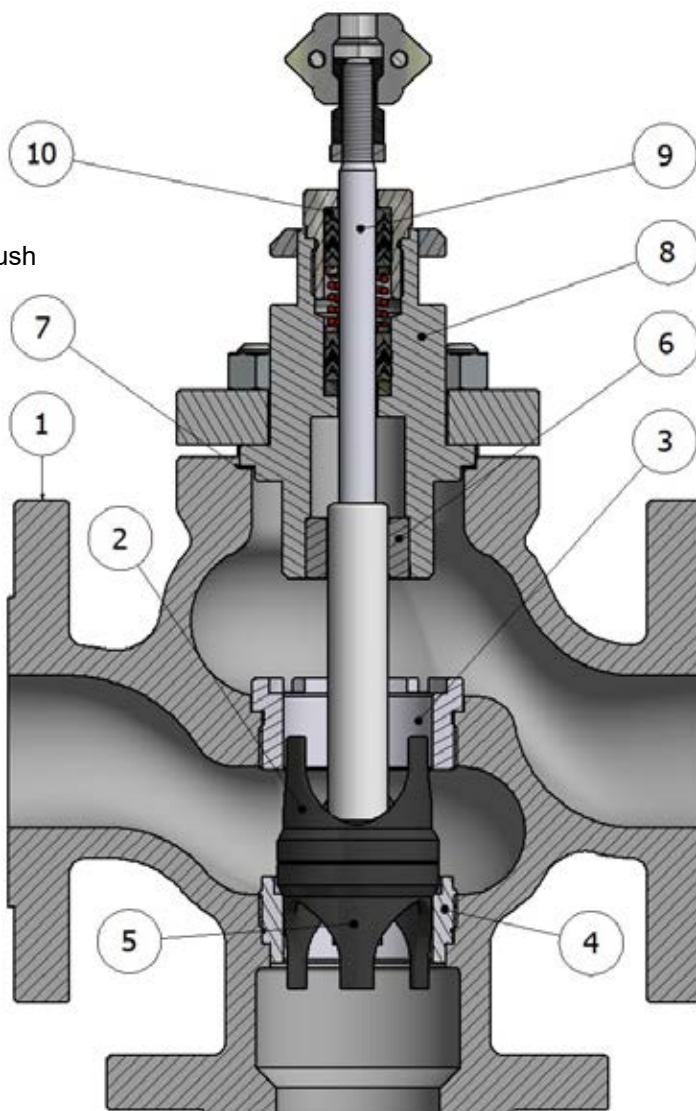
Style	Top entry, globe valve
Sizes	da 1" a 4"
Pressure rating	ANSI 600
Design std.	ANSI B16.34
Flange connection	ANSI B16.5 - Raised Face - Phonography serrated 125-250 AARH
Face to face dimensions	ANSI / ISA 75.08.01

STD BODY & TRIM MATERIALS COMBINATION

VALVE BODY (1)	BONNET	TRIM	STUD	NUTS	BODY GASKET
Carbon steel ASTM A216 WCC	ASTM A105	ASTM A182 F316	A193 B7	A194 H2	Graphite + INOX
Stainless steel ASTM A351 CF8M	ASTM A182 F316	ASTM A182 F316	A193 B8M	A194 8M	Graphite + INOX

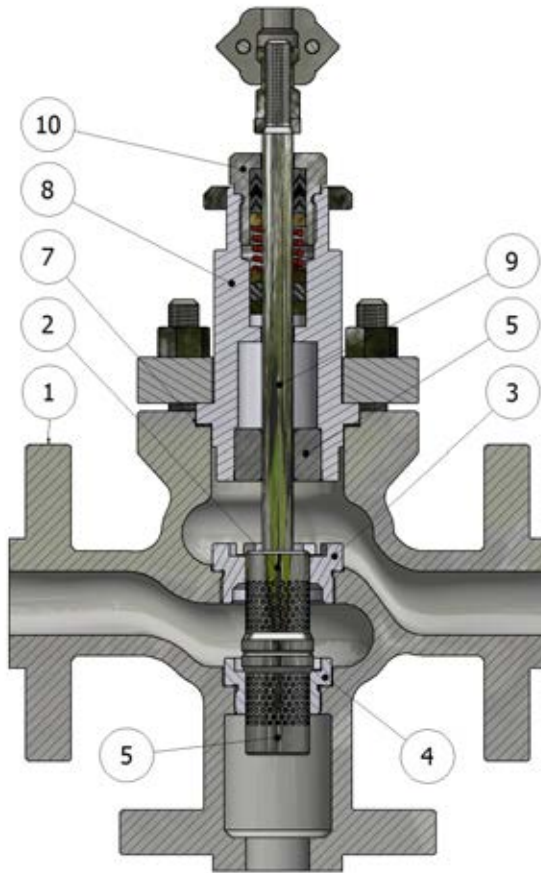
CONSTRUCTION EXAMPLES

1. Valve body
2. Upper plug
3. Upper seat ring
4. Lower seat ring
5. Lower plug
6. Top Guide sliding bush
7. Body gasket
8. Bonnet
9. Stem
10. Stuffing box



STANDARD VALVE

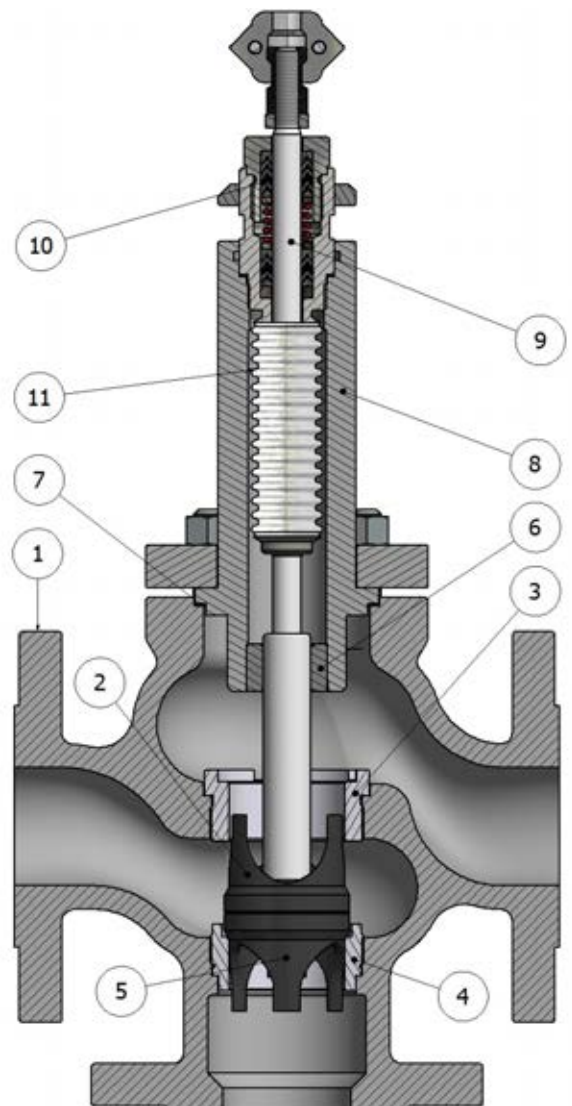
CONSTRUCTION EXAMPLES



VALVE WITH CAGE PLUGS

1. Valve body
2. Upper plug
3. Upper seat ring
4. Lower seat ring
5. Lower plug
6. Top Guide sliding bush
7. Body gasket
8. Bonnet
9. Stem
10. Stuffing box
11. Bellows

1. Valve body
2. Cage upper plug
3. Upper seat ring
4. Lower seat ring
5. Cage lower plug
6. Top Guide sliding bush
7. Body gasket
8. Bonnet
9. Stem
10. Stuffing box



VALVE WITH BELLOWS

WORKING PRESSURE BY CLASS STD MATERIALS (ASME B16.34)

OPERATING TEMPERATURE		ASTM A105 (-20.2° + 797°F)	ASTM A216 WCC (-20.2° + 797°F)	A351 CF8M / A182 F316 (-423.4° + 1500°F)
°F	°C	bar	bar	bar
100,4	... ÷ 38	102.1	103.4	99.3
122	50	100.2	103.4	95.5
212	100	93.2	103.0	81.7
302	150	90.2	100.3	74.0
392	200	87.6	97.2	69.0
482	250	83.9	92.7	65.0
572	300	79.6	85.7	61.8
617	325	77.4	82.6	60.4
662	350	75.1	80.0	59.3
707	375	72.7	75.7	58.1
752	400	69.4	69.4	56.9
797	425	57.5	57.5	56.0
842	450	—	—	54.8
887	475	—	—	53.9
932	500	—	—	53.0
1000	538	—	—	48.9
1022	550	—	—	47.1
1067	575	—	—	41.7
1112	600	—	—	33.8
1157	625	—	—	27.6
1202	650	—	—	22.5
1247	675	—	—	18.7
1292	700	—	—	16.1
1337	725	—	—	13.5
1382	750	—	—	11.6
1427	775	—	—	9.0
1472	800	—	—	7.0
1500	816	—	—	5.9

MATERIALS AVAILABLE ON REQUEST

Carbon steel	A352 LC2; A352 LC3; A352 LCC; A352 LCB
Alloy Carbon Steel	A217 WC6; A217 WC9
Austenitic Stainless Steel	A351 CF3; A351 CF8; A351 CF10; A351 CF3M; A351 CF8M; A351 CF10M
Ferritic Austenitic Stainless Steel (DUPLEX / SUPERDUPLEX)	A995 CD3MWCuN; A995 A6; A351 CK3MCuN; A351 CE8MC; A351 CD3MN; A351 CD4MCuN
Nickel Alloy Stainless Steel	A494 M35-1 (MONEL); A494 M35-2 (MONEL); A494 N-12MV (HASTELLOY B); A494 CW-12MW (HASTELLOY C)
TIES ROAD & NUTS	In according to the body material

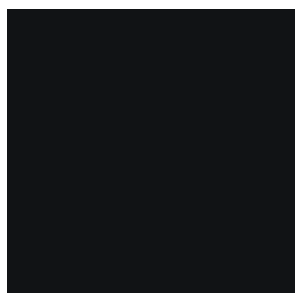
RIVESTIMENTI PROTETTIVI STANDARD VALVOLA

TEMPERATURA DEL FLUIDO	CORPO VALVOLA	BONNET
from -20° to 302°F from -29° to 150°C	<ul style="list-style-type: none"> • Bicomponent anticorrosive acrylic primer at high resistance • Finish with bicomponent aliphatic acrylic enamel RAL 7021 opaque 	Electrolytic zinc coatings Fe/Zn 8 c1A UNI ISO 4520
from 302° to 482°F from 150° to 250°C	<ul style="list-style-type: none"> • Siliconic primer • Finish with siliconic enamel RAL 9005 	Electrolytic zinc coatings Fe/Zn 8 c1A UNI ISO 4520
from 482° to 752°F from 250° to 400°C	<ul style="list-style-type: none"> • Heat resistant siliconic primer • Finish with siliconic enamel RAL 9006 	

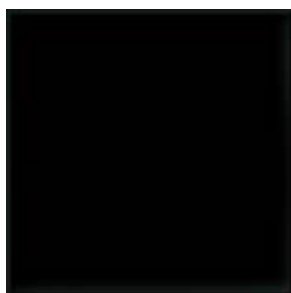
PNEUMATIC ACTUATOR STANDARD PROTECTIVE COATING

CASING AND YOKE

Polyester electrostatic epoxy powder coating - RAL 7032



RAL 7021



RAL 9005



RAL 9006



RAL 7032

Colors and shades shown in the figure are indicative

PROTECTIVE COATING ON REQUEST

Customer specification colors

Painting for sea environment




Painting in according to ISO 12944

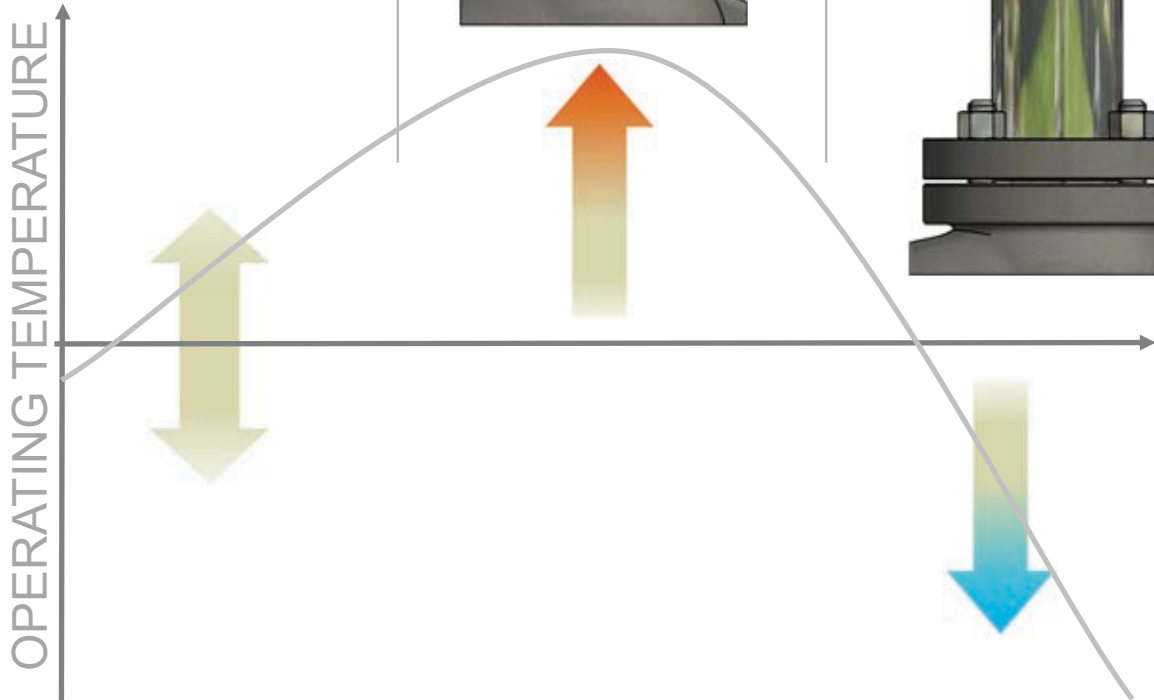
Painting in according to NORSOK M-501

NACE - FROSIO painting

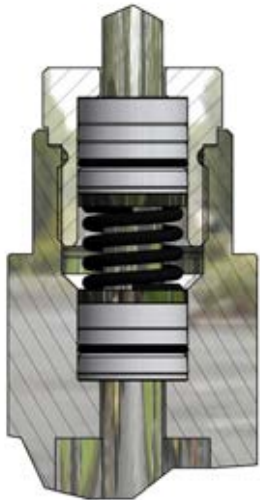

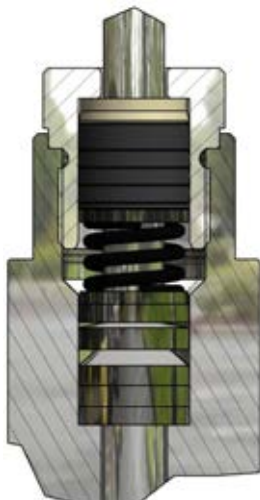
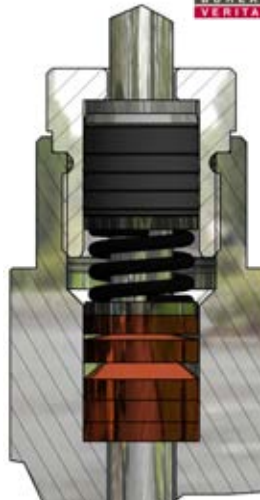


BONNET TYPES

STANDARD	FINNED	EXTENDED
<p>The standard bonnet is cast or forged from the same or equivalent grade of material as the valve body. It is suitable for applications with temperatures between</p> <p>23°F to 428°F (-5°C to +220°C)</p> 	<p>The finned bonnet is cast or forged from the same or equivalent grade of material as the valve body.</p> <p>Engineered for high temperature applications the fins dissipate heat and protect valve stem packing from extreme process temperatures up to 392°F (+200°C)</p> <p>23°F ÷ 1112°F (-5°C ÷ 600°C)</p> 	<p>The extended bonnet is cast or forged from the same or equivalent grade of material as the valve body.</p> <p>To protect the stem packing the extended bonnet traps some process fluid. This provides a thermal buffer between the packing and the low temperature process fluid.</p> <p>Engineered for low temperatures, the extension length is manufactured to suit the applications where minimum temperature medium is below 23°F (-5°C).</p> <p>-320°F ÷ 428°F (-196°C ÷ 220°C)</p> 



PACKING TYPES

LP200	SP200	HP300	ECOPACK 1
<p>It consists of a series of energized V ring pack in Virgin PTFE and FKM, especially used with Oxygen and Cryogenic applications.</p> <p>Self-adjusting and maintenance free.</p>	<p>It consists of a series of energized V ring pack in PTFE base & FKM 75 Shore. Suitable for low & medium temperature application.</p> <p>Self-adjusting and maintenance free.</p>	<p>Directly in contact with the medium it consists of a series of energized V ring pack in Graphite and PTFE. Especially used for high temperature applications.</p> <p>Self-adjusting and maintenance free.</p>	<p>Made of a series of energized V ring pack in Graphite/PTFE. ISO 15848-1 Certified for Low emission fugitive test.</p> <p>Self-adjusting and maintenance free.</p>
			

PACKING / BONNET TEMPERATURE CORRELATION

	LP200	SP200	HP300	ECOPACK 1
CRYOGENIC BONNET	-320 ÷ 356°F -196÷ 180°C	///	///	-320 ÷ 356°F -196 ÷ 180°C
EXTENDED BONNET	-130 ÷ 356°F -90 ÷ 180°C	-130 ÷ 428°F -90 ÷ 220°C	///	-130 ÷ 428°F -90 ÷ 220°C
STANDARD BONNET	23 ÷ 356°F -5 ÷ 180°C	23 ÷ 428°F -5 ÷ 220°C	///	23 ÷ 428°F -5 ÷ 220°C
FINNED BONNET	///	23÷500°F -5÷260°C	23 ÷ 752°F -5 ÷ 400°C	23 ÷ 752°F -5 ÷ 400°C
EXTENDED FINNED BONNET	///	///	23 ÷ 1112F -5 ÷ 600°C	///
EXTENDED BONNET FOR BELLOWS	///	-130 ÷ 500°F -90 ÷ 260°C	23 ÷ 752°F -5 ÷ 400°C	-130 ÷ 752°F -90 ÷ 400°C
EXTRA EXTENDED BONNET FOR BELLOWS	-320 ÷ 356°F -196÷ 180°C	///	23 ÷ 1112F -5 ÷ 600°C	///

ZEB20 BELLOWS FOR DANGEROUS FLUID

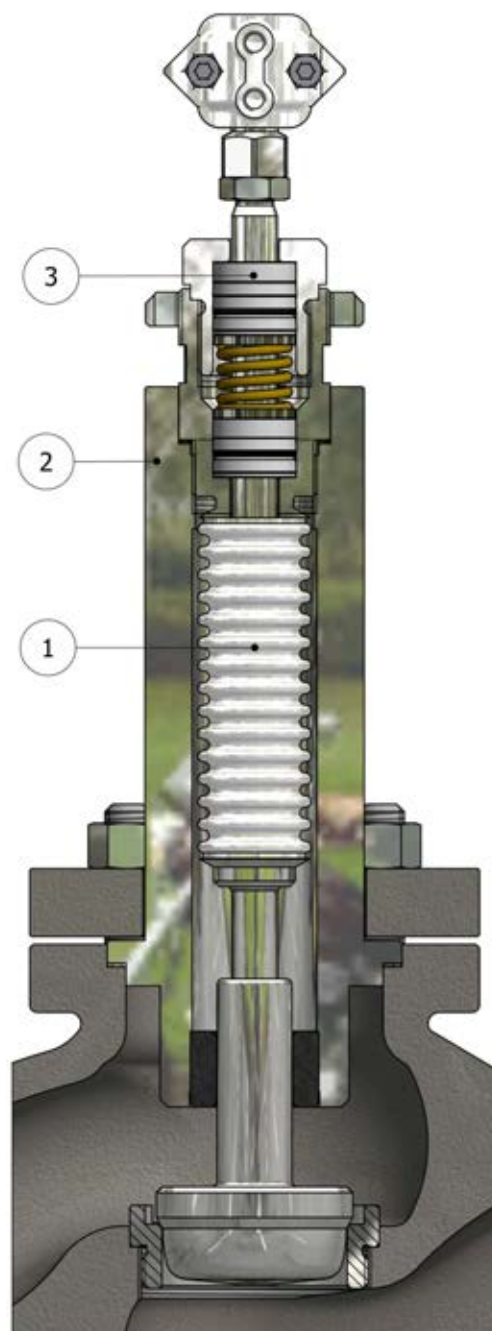
ZEB20 is specifically designed for industrial applications where the possible leakage of process fluid from the packing can cause environmental or personal damage and in extreme cases be hazardous to health.

The ZEB20 is manufactured by welding a bellows to the plug stem and valve bonnet. This removes potential leakage paths, while allowing full movement of the stem. The design provides total isolation of the fluid from the outside environment.

The ZEB20 also includes secondary stem seals as a safety function. These only operate in the unlikely event that a bellows ruptures. The secondary seals will provide reduced risk.

The standard of the bellows material is AISI 316L but, it is also available in in other materials, including Inconel, Monel, Hastelloy, etc...

For safety critical applications the ZEB20 can be fitted with a test connection to allow the addition of feedback devices that monitor the integrity of the bellows



Fugitive emissions

ISO 15848-1

ZEB20 MATERIALS COMBINATION

POS.	DESCRIPTION	STD MATERIALS	ON REQUEST	TEMPERATURE
1	Bellows	AISI 316L	Inconel, Monel, Hastelloy, or other materials	-320 ÷ 1112°F -196°C ÷ 600°C
2	Bonnet	Equal or equivalent to the material of the body valve	Other materials	-320 ÷ 1112°F -196°C ÷ 600°C
3	Packing	See packing type chapter		

TRIMS CHARACTERISTICS

	STANDARD	ON REQUEST
CONTROL CHARACTERISTICS	Linear (PL)	
PORT	Full port	Reduced port
SEAL	Metal seat tightness Class IV	Saline nitriding (QPQ) seat/plug Class IV



FLOW RATE COEFFICIENTS SEAT BORE DIAMETER AND PLUG STROKE

CV	Kv	Seat bore diameter	Std plug stroke	Valve size								
		mm	mm	1/2"	3/4"	1"	1"½	2"	2"½	3"	4"	
4.5	3.8	15	20	■	□	□	□	□	—	—	—	
6	5.1	20		—	■	□	□	□	□	—	—	—
11	9.4	25		—	—	■	□	□	□	□	□	—
18	15.4	30		—	—	—	□	□	□	□	□	□
27	22.2	38		—	—	—	■	□	□	□	□	□
47	40.1	49		—	—	—	—	■	□	□	□	□
73	63.4	64	30	—	—	—	—	—	■	□	□	
105	89.7	76		—	—	—	—	—	—	—	■	□
160	136.7	96		—	—	—	—	—	—	—	—	■
— not available				■ standard				□ on request				

AP SERIES PNEUMATIC ACTUATORS - SPECIFICATIONS

AP series pneumatic actuators are multi diaphragm actuators. They are Available with four (4) different sizes of internal diaphragms. They are extremely compact and they can guarantee a perfect linearity to satisfy the control needs of the valves at different working pressures. They are equipped with an industry standard yoke (CEI EN 60534-6-1), which ensures accessories can be fitted quickly and easily. A full range E/P positioners, solenoid valves, limit switch boxes and feedback devices are available as option. As you standard a mechanical travel indicator and index scale are included as standard on all actuators.

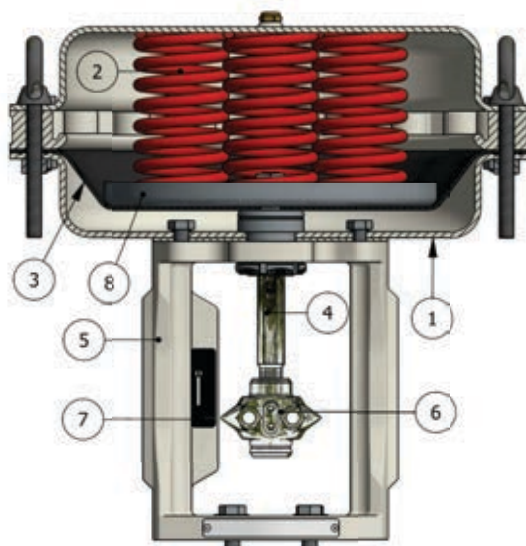
TECHNICAL DATA

TYPE	Diaphragm type - multispring
CONTROL SIGNAL	Direct Action (Air to close - valve normally open) 3÷15psi ; 6÷18psi; 6÷30psi; 15÷60psi Reverse (Air to open - valve normally closed) 3÷15psi ; 6÷18psi; 6÷30psi; 15÷60psi
MAX AIR SUPPLY PRESSURE	50 psi (3,5bar) for signals 3÷15psi ; 6÷18psi; 6÷30psi; 87 psi (6 bar) for signal 15÷60 psi
PNEUMATIC CONNECTION	1/4" NPF-F

MATERIALI

	STANDARD	ON REQUEST
YOKE	ASTM A216 WCB (T.amb $\geq -29^{\circ}\text{C}$)	Stainless steel ASTM A351 CF8 (T.amb $\geq -268^{\circ}\text{C}$)
HOUSING	Steel 1.0332 / 1.0335 (T.amb $\geq -50^{\circ}\text{C}$)	Stainless steel AISI 304 (T.amb $\geq -268^{\circ}\text{C}$)
BOLTS AND NUTS	A193 B7 - A194 2H (T.amb $\geq -30^{\circ}\text{C}$)	A193 8M - A194 8M (T.amb $\geq -268^{\circ}\text{C}$)
DIAPHRAGM	NBR (T.amb $-35\div 90^{\circ}\text{C}$)	EPDM (T.amb $-50\div 120^{\circ}\text{C}$) PVMQ (T.amb $-60\div 90^{\circ}\text{C}$)
SPLINDE	ASTM 182 F304	//
VALVE CLAMP CONNECTION	ASTM A 351 CF8	//
SPRING	EN 10270-1 SH painted (T.amb $\geq -30^{\circ}\text{C}$)	EN 10270-3 1.4310 (AISI 301) EN 10270-3 1.4401 (AISI 316) (T.amb $\geq -268^{\circ}\text{C}$)
INTERNAL PARTS	Zinc plated Steel 1.0332 / 1.0335 (T.amb $\geq -50^{\circ}\text{C}$)	Stainless steel AISI 304

1. Casing
2. Spring
3. Diaphragm
4. Splinde
5. Integral yoke
6. Valve clamp connection
7. Stroke indicator
8. Diaphragm plate



MAXIMUM ADMISSIBLE PRESSURE DROPS IN bar

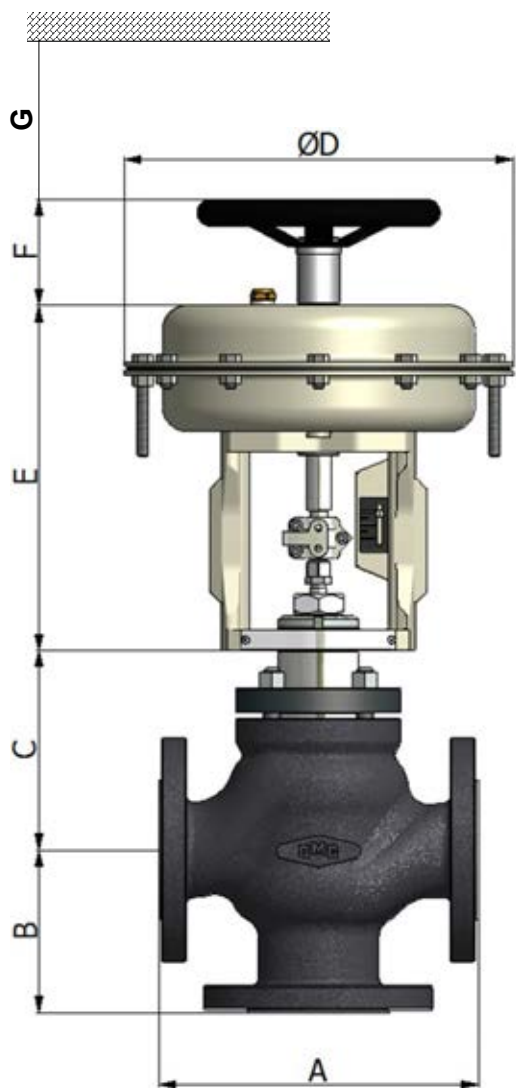
ACTUATOR	kN	SIGNAL (psi)	CV4.5		CV 6		CV 11		CV 18		CV 27		CV 47		CV 73		CV 105		CV 160	
			cl IV	cl VI	cl IV	cl VI	cl IV	cl VI	cl IV	cl VI	cl IV	cl VI	cl IV	cl VI	cl IV	cl VI	cl IV	cl VI	cl IV	cl VI
AP23	0.3	3÷15	14	18	14	18	9	12	5	8	3	4	2	3						
	0.4	6÷18	16	22	16	22	11	17	7	10	4	5	3	4						
	0.6	6÷30	22	28	22	28	16	25	10	15	6	8	4	6						
	1.5	15÷60	45	60	45	60	35	56	27	33	15	17	8	12						
AP28	0.6	3÷15	27	30	27	30	17	26	8	15	6	9	4	6						
	1.0	6÷18	38	40	38	40	21	30	13	19	10	12	5	8						
	1.2	6÷30	50	55	50	55	26	47	23	26	12	16	7	12						
	2.4	15÷60	80	90	80	90	48	75	40	56	25	38	17	23						
AP34 / AP35	1.2	3÷15	60	65	60	65	50	55	20	23	12	18	10	16	4	4	2	3	1	1
	1.5	6÷18	80	85	80	85	60	65	30	35	15	18	12	15	6	7	4	5	2	3
	1.9	6÷30	99	99	99	99	80	85	40	45	20	25	14	16	7	8	5	6	3	3
	3.5	15÷60							62	65	36	45	25	29	11	13	8	11	6	6
AP43 / AP44	2.8	3÷15									35	40	24	26	7	8	6	6	4	4
	3.3	6÷18									40	45	26	28	9	10	8	8	5	5
	3.8	6÷30									40	45	26	28	12	12	10	10	6	6
	7.6	15÷60									65	85	40	70	28	37	22	27	15	17
AP47	7.6	15÷60																		
AP45	7.6	15÷60									65	85	40	70	28	37	22	27	15	17

ANSI FCI 70.2 - IEC 60534-4

the pressure drop values must be used with in the body rating limit

DIMENSIONS

SIZE	A inches (mm)	B inches (mm)	C inches (mm)			G inches (mm)
			Bonnet standard	Bonnet with bel-lows	Finned / Extended bonnet	
1"	8.27 (210)	4.13 (105.0)	5,43 (138)	9,33 (237)	7,17 (182)	4 (100)
1" ½	9.88 (251)	4.94 (125.5)	5,43 (138)	9,29 (236)	7,68 (195)	4 (100)
2"	11.26 (286)	5.63 (143.0)	5,79 (147)	9,65 (245)	8,03 (204)	4 (100)
3"	13.27 (337)	6.63 (168.5)	7,52 (191)	12,20 (310)	10,39 (264)	4 (100)
4"	15.51 (394)	7.76 (197.0)	7,17 (182)	12,01 (305)	12,13 (308)	4 (100)



ACTUATOR						
TYPE	Ø D mm	E mm	F mm		THRUST AREA cm ²	THRUST VOLUME liter
			(DIR.)	(REV.)		
AP23	9.05 (230)	9.64 (245)	5.3 (135)	3.4 (85)	31.46 (203)	~ 1.8
AP28	10.82 (275)	9.96 (253)			47.12 (304)	~ 3
AP34 AP35	13.46 (342)	10.86 (276)	7.3 (185)	3.4 (85)	73.62 (475)	~ 5.7
AP43 AP44	16.93 (430)	11.93 (303)	11.8 (300)	5.9 (150)	115.32 (744)	~ 11.5
AP45		15.47 (393)				

PNEUMATIC PISTON SERIES OP

The OP series pneumatic actuators are used especially for multi-spring piston valves with ON-OFF function. Available in 2 sizes, are extremely compact. Equipped with mechanical stroke indicator, the integral yoke meets Std CEI EN60534-6-1 to direct mounting accessories such as, switches, etc ...

TECHNICAL DATA

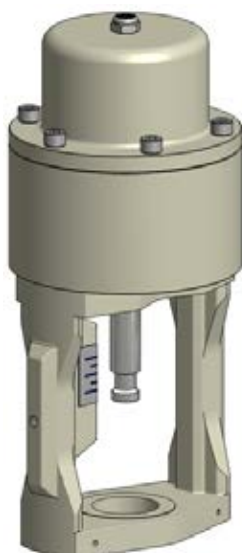
TYPE	Piston type - multispring
CONTROL SIGNAL	from 90 psi (6 bar) to 145 psi (10 bar)
MAX AIR SUPPLY PRESSURE	145 psi (10 bar)
PNEUMATIC CONNECTION	1/4" NPT-F
AMBIENT TEMPERATURE	-4÷160°F (-20÷70°C)

MATERIALS

	STANDARD	ON REQUEST
CASING	Painted Aluminium	//
YOKE	Painted Carbon steel	Electropolished Stainless Steel
BOLTS AND NUTS	A193 B7 - A194 2H	Other materials
PISTON	NBR	//
SPLINDE	ASTM 182 F304	//
VALVE CLAMP CONNECTION	ASTM A 351 CF8	//
SPRING	EN 10270-1SH painted	Stainless steel
INTERNAL PARTS	Zinc plated carbon steel	Stainless steel

PROTECTIVE COATING

STANDARD	Finish powder coat polyester RAL 7032
ON REQUEST	Painting for see environment Customer specification



ACCESSORIES

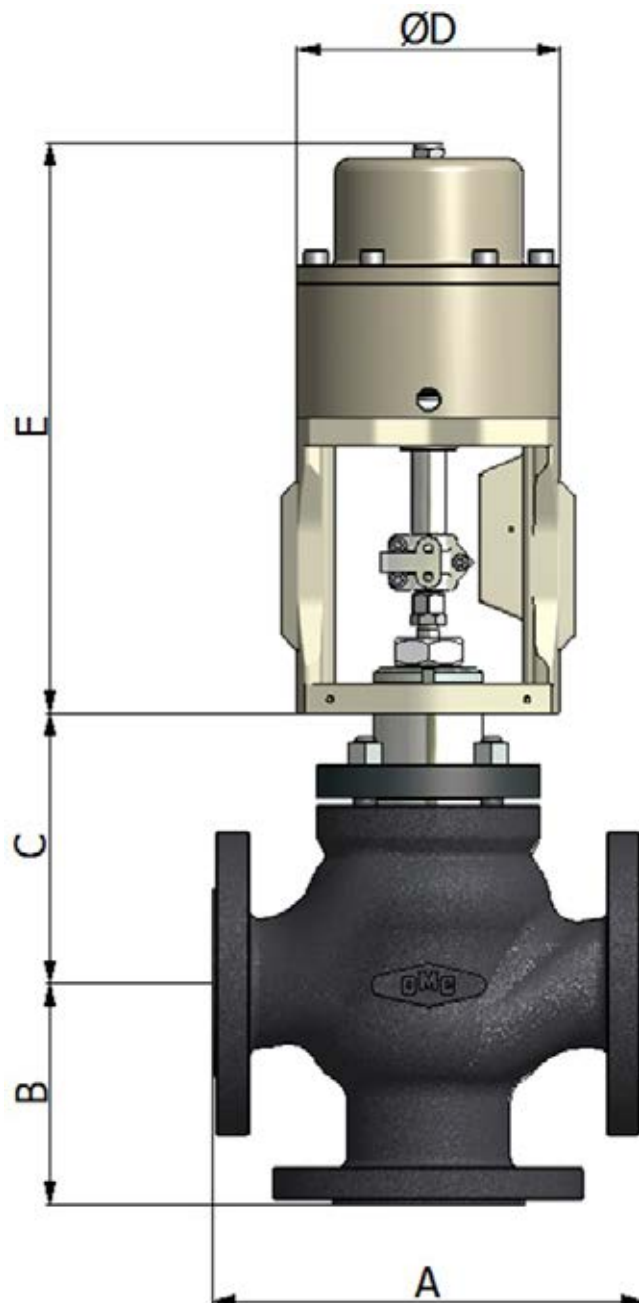
- ◆ Alarm contacts
- ◆ Air filter regulator
- ◆ Solenoid valves
- ◆ Lock-Up pneumatic device

MAXIMUM ADMISSIBLE PRESSURE DROPS IN bar

ACTUA-TOR	CV 4,5	CV 6	CV 11	CV 18	CV 27	CV 47	CV 73	CV 105	CV 160
OP10	12	12	12	12	12	12			
OP16							12	8	3

DIMENSIONS

SIZE	A inches (mm)	B inches (mm)	C inches (mm)			G inches (mm)
			Bonnet standard	Bonnet with bel-lows	Finned / Extended bonnet	
1"	8.27 (210)	4.13 (105.0)	5,43 (138)	9,33 (237)	7,17 (182)	4 (100)
1" ½	9.88 (251)	4.94 (125.5)	5,43 (138)	9,29 (236)	7,68 (195)	4 (100)
2"	11.26 (286)	5.63 (143.0)	5,79 (147)	9,65 (245)	8,03 (204)	4 (100)
3"	13.27 (337)	6.63 (168.5)	7,52 (191)	12,20 (310)	10,39 (264)	4 (100)
4"	15.51 (394)	7.76 (197.0)	7,17 (182)	12,01 (305)	12,13 (308)	4 (100)



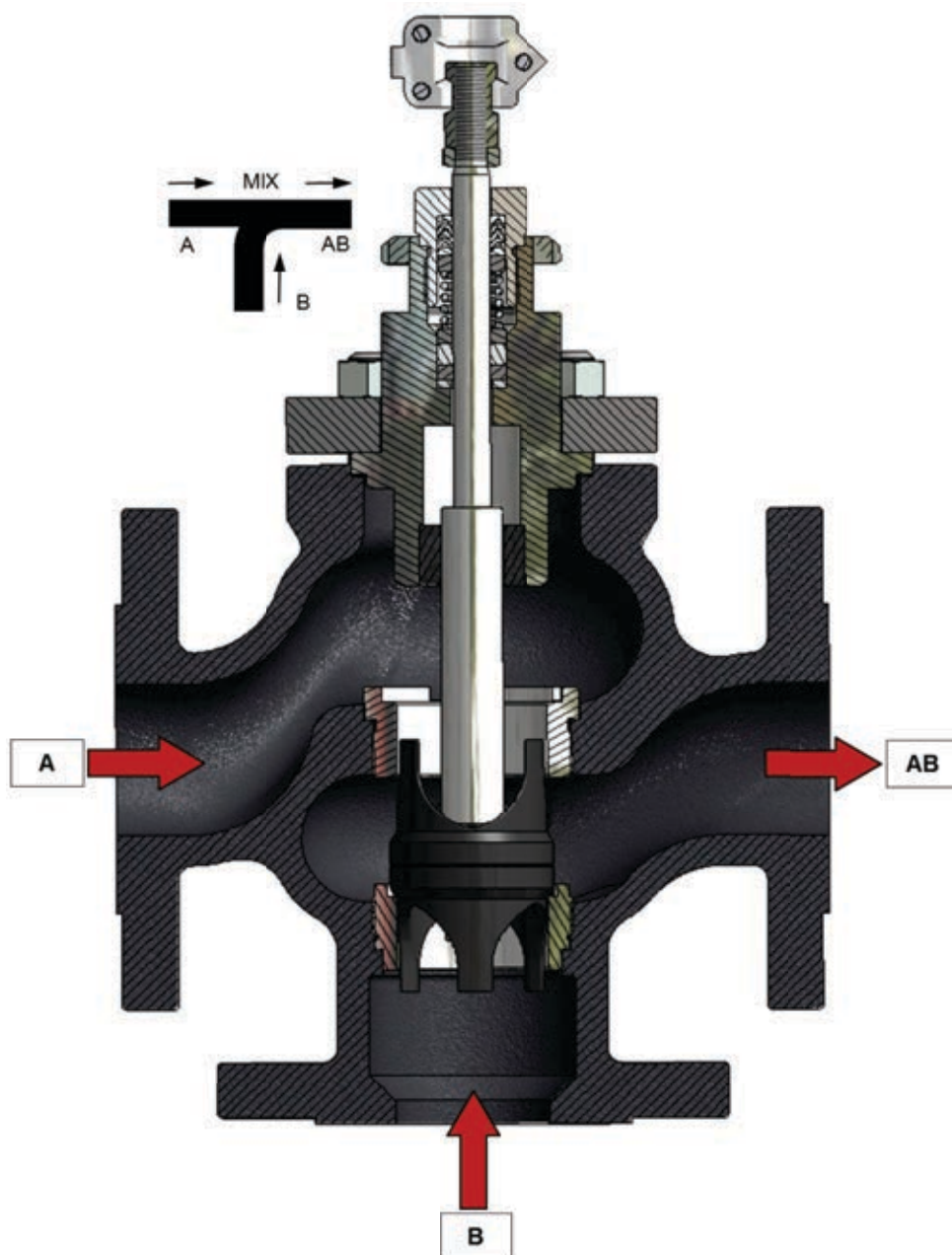
ACTUATOR				
TYPE	Ø D inches (mm)	E inches (mm)		
		½ - 1" ½	2"	3" - 4"
OP10	9.05 (230)	10.51 (267)	11.50 (292)	//
OP16	10.82 (275)	//	//	13.19 (335)

ELECTRIC ACTUATOR

The OMC control valves can be supplied with electric actuators of the best manufacturers to meet the most varied demands in the industrial processes.



MIXING VALVE CONNECTIONS



AVAILABLE ENDS CONNECTIONS



RAISED FACE



RING JOINT FACE



MALE FACE



FEMALE FACE



FLAT FACE



BUTT-WELDING



SOCKET-WELDING



GROOVE FACE

VALVE BODY WEIGHT (Kg)

SIZE	Standard	Finned / Extended	With bellows
1"	13	13	14
1" 1/2	22	24	24
2"	28	30	30
3"	56	60	61
4"	95	100	99

PNEUMATIC ACTUATOR WEIGHT (Kg)

TYPE	SIGNAL	ACTUATOR	HAND WHEEL
AP23	3÷15 / 6÷18 / 6÷30 / 15÷60	8	1
AP28	3÷15 / 6÷18 / 6÷30	9	
	15÷60	10	
AP34 / AP35	3÷15 / 6÷18 / 6÷30	15	2
	15÷60	17	
AP43 / AP44	3÷15 / 6÷18 / 6÷30	27	3
	15÷60	32	7
AP45	15÷60	38	7
OP10	ON-OFF	8	//
OP16	ON-OFF	13	//



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