



FLY SERIES

CONTROL VALVES



Product Features

Armstrong Delta2 - FLY SERIES is a globe single seat Control Valve with a robust construction designed for a wide range of process applications and easy maintenance.

- Available Size From DN15 To DN200 And From 1/2" To 8".
- Available Pressure Rating DIN from PN10 to PN100.
- Available Pressure Rating Ansi from 150lbs to 600lbs.

Materials

Full range of materials and special alloys are available for valve body and trim including hardening treatment. Special NACE design and material construction for sour service with a compliance declaration in accordance to NACE regulations.

Guiding

Valve guiding is top for standard parabolic plug and is made on plug shaft to guarantee a larger guiding and plug stability for accurate control application.

Trim

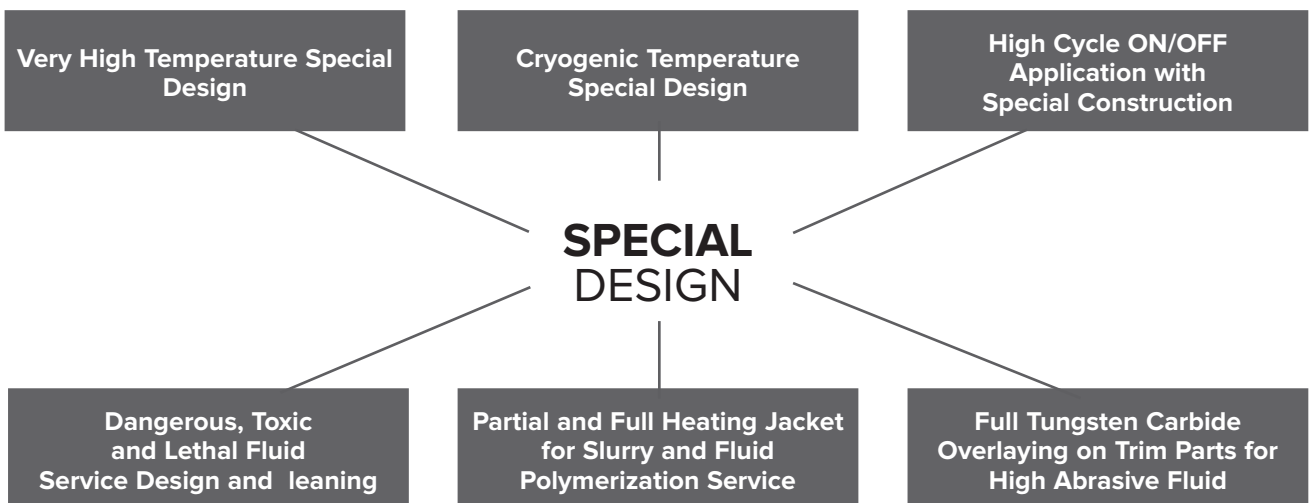
Standard construction includes parabolic plug and threaded replaceable seat.

Packing

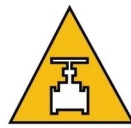
Standard packing offers an internal self-adjusting spring system that provide Low Emissions according to latest environmental regulations. In case of Emission Free request a bellow seal bonnet with different pressure ratings and materials is available.

Severe Service

Single and double stage Low-Noise cage for the most of valve design and trim size is available. Single and double stage Cavitation Control cage for the most of valve design and trim size is available.



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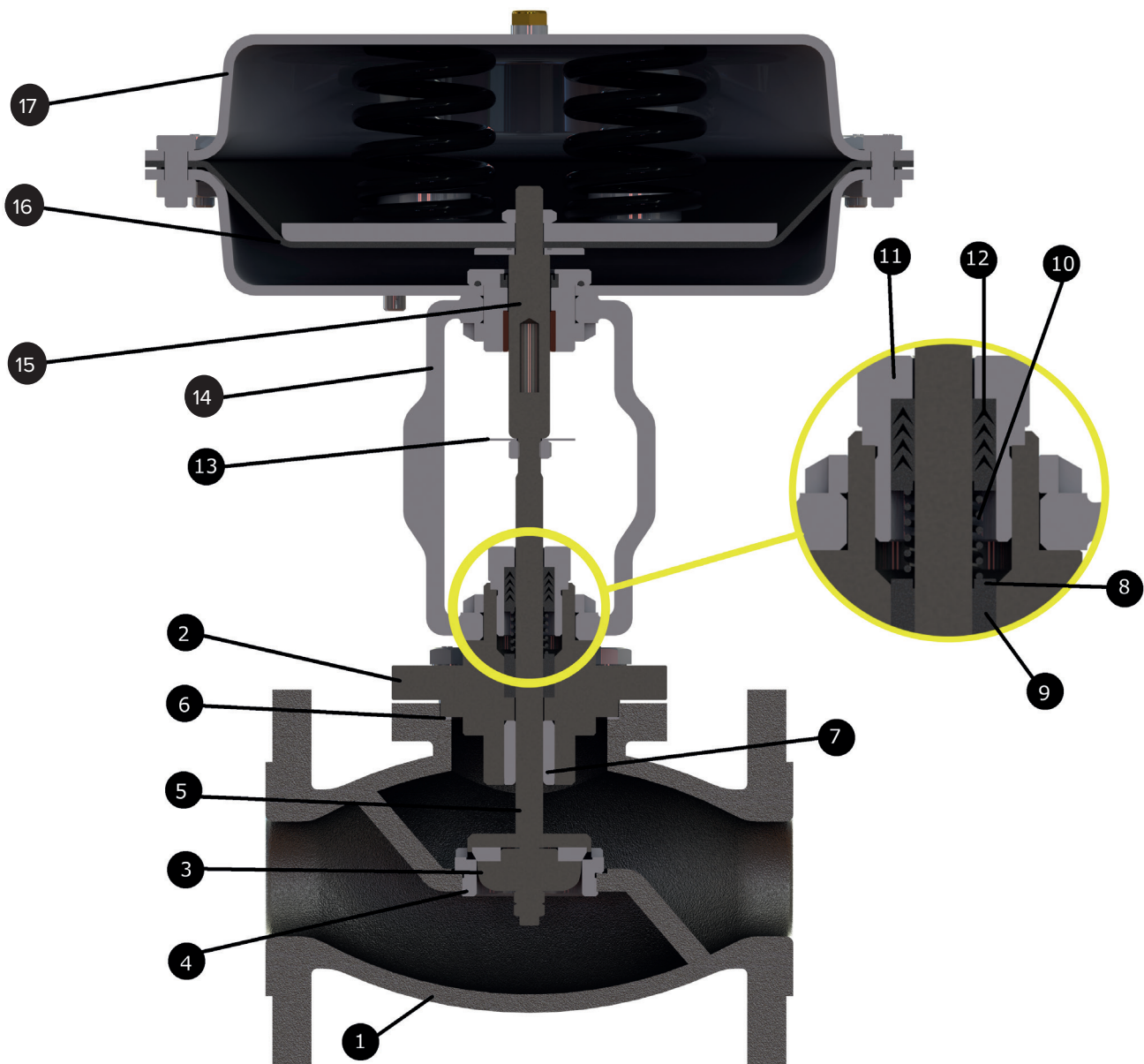


Standard Part List

1	Body	7	Stem Guide	13	Stroke Indicator
2	Std Bonnet (1)	8	Anti Extrusion Ring	14	Pillar Yoke
3	Std Plug (2)	9	Graphoil Rings	15	Actuator Stem
4	Seat	10	Packing Spring	16	Diaphragm
5	Stem	11	Packing Gland	17	Actuator
6	Body Gasket	12	V'rings		

(1) Available in standard, High Temp. Extension, Cryogenic, Bellow Seal and eventually with special diaphragm gauge leak-off system for toxic/lethal classified fluid or gases.

(2) Available in soft, metal or hardened version and several materials options as well.

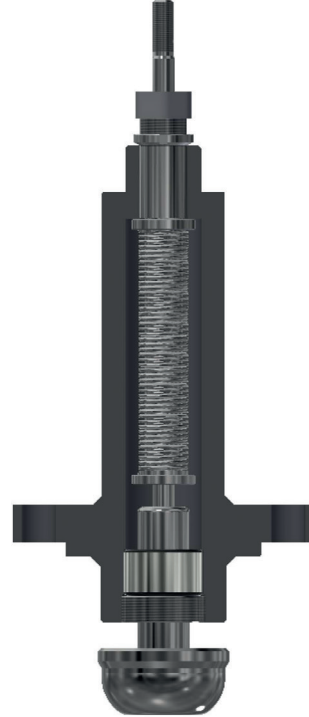


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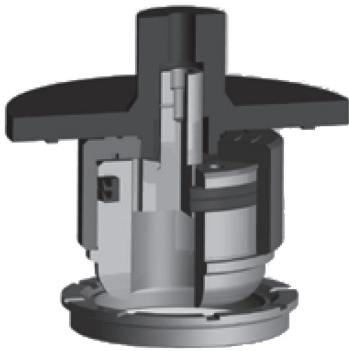
Single Stage Perforated Plug



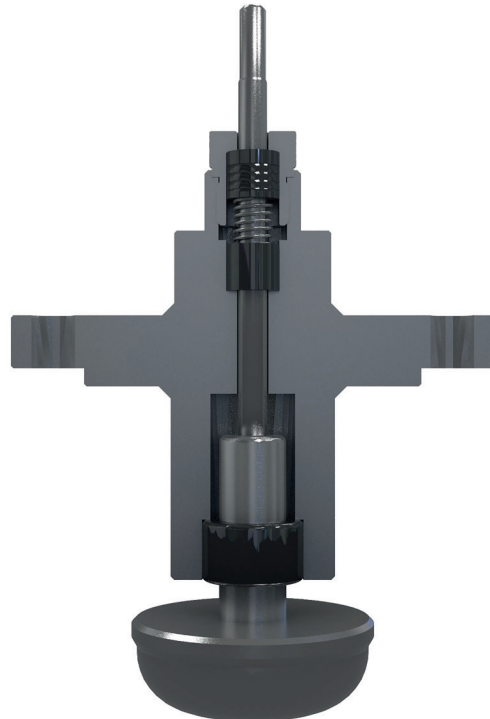
Bellow Seal Bonnet



Standard Balanced Plug



Plug Guide



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Valve Specification



Specifications	EN / DIN	ASME
Valve Body Size	DN 15, 20, 25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250	NPS 1/2, 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3, 4, 5, 6, 8, 10
Pressure Rating	From PN6 to PN100 as per EN1092-1	From CL150 to CL600 as per ASME B16.34
End Connections (See table on page 6 for connections detail)	Flanged raised face per EN1092-1 (Standard) Flanged Ring Joint / Threaded Ends / Welded Ends (Optional)	Flanges raised face per ASME B16.5 (Standard) Flanged Ring Joint / Threaded Ends / Welded Ends (Optional)
Face-to-Face Dimensions	EN558-1 Series 1	ANSI B16.10 and BS 2080 (1)
Shutoff per IEC 60534-4 and ANSI/FCI 70-2	Metal seat - Class IV (standard) Metal seat - Class V (optional) PTFE seat - Class VI (optional) (For 4.8 to 14 mm ports, Class VI shutoff is achieved without PTFE seat)	
Flow Direction	Flow-up (Cavitation Control trim, Flow down)	
Flow Control Characteristics	Modified Equal Percentage, Equal Percentage, Linear and Quick Open	

(1) ANSI / ISA 75.08.01 or ISA S75.03 on request.

Trim Style	Port Diameters	Trim Style Description
Microflow	From 3 to 6 mm (3)	Low-Flow and Micro-Flow trim (unbalanced) Top Shaft Guided
Standard Parabolic Plug	From 8 to 250 mm (1) (2)	Parabolic Plug with Top shaft Guided
Severe Service Trim (Option)	From 25 to 250 mm (1) (2)	Low-Noise Trima and Cavitation Control Trim with Top and cage Guided
Balance Plug (Option)	From 50 to 250 mm (1)	Parabolic, Low-Noise and Cavitation Control trim with Top Balancing Design

(1) Special high capacity trim are available on request.

(2) Standard rangeability 50:1. Optional higher rangeabilities can be provided.

(3) Standard rangeability for Microflow trim 30:1. Optional higher rangeabilities and special flow coefficient can be designed and supplied.

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EN / DIN Valve DN	EN / DIN PN 10-16					EN / DIN PN 25-40					EN / DIN PN 64-100				
	RF	RTJ	SW	BW	THD	RF	RTJ	SW	BW	THD	RF	RTJ	SW	BW	THD
15															
20															
25															
32															
40															
50															
65															
80															
100															
125															
150															
200															

Standard Facing according to EN 1092-1 Form B1 up to PN40 and Form B2 above.

ASME Valve Size	ANSI 150					ANSI 300					ANSI 600				
	RF	RTJ	SW	BW	THD	RF	RTJ	SW	BW	THD	RF	RTJ	SW	BW	THD
1/2"															
3/4"															
1"															
1-1/4"															
1-1/2"															
2"															
2-1/2"															
3"															
4"															
5"															
6"															
8"															

Standard Facing according to ASME B16.5 Form RF (Ra 125-250 AARH Smooth Finish).

	Available
	Not available

Materials of Construction

	Basic Materials	Nace Materials
Valve Body	Ductile Iron ASTM A395 / Carbon Steel ASTM A216 WCB / Stainless Steel ASTM A351 CF8M / Specials (1)	Carbon Steel ASTM A216 WCB / Stainless Steel ASTM A351 CF8M / Specials (1) (suitable for NACE MR 01.75 or MR 01.03 Service)
Plug	316L SS 316L SS + Partial/Full Alloy 6 Overlaying 316L SS + PTFE/RPTFE Soft Insert 440C SS, 17-4PH SS and other Special Materials (1) with Thermal or Chemical Treatment to meet any customer request	Partial/Full Alloy 6 Overlaying 17-4PH SS and other Special Materials (1) with Thermal or Chemical Treatment to meet any customer request According to NACE Standards
Balancing Seal Rings	Carbon-Filled PTFE Seal V-Rings Reinforced-Graphite Seal rings for high temperatures Spring energized Rings or Steel rings for special application	Carbon-Filled PTFE Seal V-Rings Reinforced-Graphite Seal rings for high temperatures Spring energized Rings or Steel rings for special application
Seat	316L SS 316L SS + Partial/Full Alloy 6 Overlaying 440C SS, 17-4PH SS and other Special Materials (1) with Thermal or Chemical Treatment to meet any customer request	316L SS 316L SS + Partial/Full Alloy 6 Overlaying 17-4PH SS, Nitronic 50 and other Special Materials (1) with Thermal or Chemical Treatment to meet any customer request According to NACE Standards
Stem	316L SS strain hardened 316L SS + Alloy 6 overlaying 440C SS Treated, 17-4PH SS Treated	316L SS strain hardened 316L SS + Alloy 6 overlaying Nitronic 50, 17-4PH SS Treated According to NACE Standards

(1) = Special materials available on request.

	Basic Materials	Nace Materials
Packing Gland	Chrome plated Brass Special version with 316 SS available	
Body/Bonnet Bolting and Nuts	SA193-B7 studs / SA194-2H nuts for Ductile Iron and Carbon Steel constructions.	B7M stud and 2HM nuts for Carbon Steel constructions. According to NACE Standards
	SA193-B8 studs / SA194-8 nuts for Stainless Steel and Alloy Steel constructions	SA193-B8M studs / SA194-8M nuts for Stainless Steel and Alloy Steel constructions. According to NACE Standards
Packing	Internal Fix-loaded RPTFE V-rings + Graphite Ring with 316 SS spring. (1) (2) Internal Live-loaded RPTFE V-rings + Graphite Ring with 316 SS spring. (1) (2) "EURO" packing Internal Fix-loaded RPTFE V-rings + Triple Reinforced Graphite Rings with 316 SS spring. (1) (2) "EURO" packing Internal Live-loaded RPTFE V-rings + Triple Reinforced Graphite Rings with 316 SS spring. (1) (2) Internal Live-loaded Triple Reinforced Graphite Rings with 316 SS spring. (2) Special packing set available on request.	
Bonnet Gasket	Laminated Graphite or Virgin PTFE Spyrometallic SS/graphite or Inconel/graphite Special gaskets set on request.	

(1) = 15% Glass or 25% Graphite PTFE reinforced rings.

(2) = Low Emission packing available on request.

Multi-Spring Diaphragm Actuator Materials				
Actuator Housing	Carbon Steel (Standard)	Stainless Steel - rough finish	Stainless Steel - satinated finish	Stainless Steel - polished finish
Yoke Type	Cast Iron (Standard)	Low Temperature Carbon Steel	Carbon Steel Pillar Yoke	Stainless Steel Pillar Yoke
Diaphragm	Reinforced NBR (Standard)		Reinforced Silicon or FKM as Special on request	
Bolting	Carbon Steel B7/2H (Standard)	Stainless Steel B8/8	Carbon Steel NACE B7M/2HM	Stainless Steel NACE B8M/8M
Exhaust Screw Cap	Synterized Brass (Standard)		Stainless Steel	
Coating	Epoxy powder RAL 5000 (Standard)	Surface preparation with sandblasting and Inorganic zinc primer		Several Corrosion resistant coatings

(1) = Special materials available on request

Multi-Spring Piston Actuator Materials				
Actuator Housing	Carbon Steel (Standard)		Stainless Steel - rough finish	
Yoke Type	Carbon Steel Pillar Yoke		Stainless Steel Pillar Yoke	
Piston Seal Rings	Reinforced NBR (Standard)		Energized Fluoro-silicon or FKM as Special on request	
Bolting	Carbon Steel B7/2H (Standard)	Stainless Steel B8/8	Carbon Steel NACE B7M/2HM	Stainless Steel NACE B8M/8M
Exhaust Screw Cap	Synterized Brass (Standard)		Stainless Steel	
Coating	Epoxy powder RAL 5000 (Standard)	Surface preparation with sandblasting and Inorganic zinc primer		Several Corrosion resistant coatings

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Armstrong® Pressure and Temperature Ratings

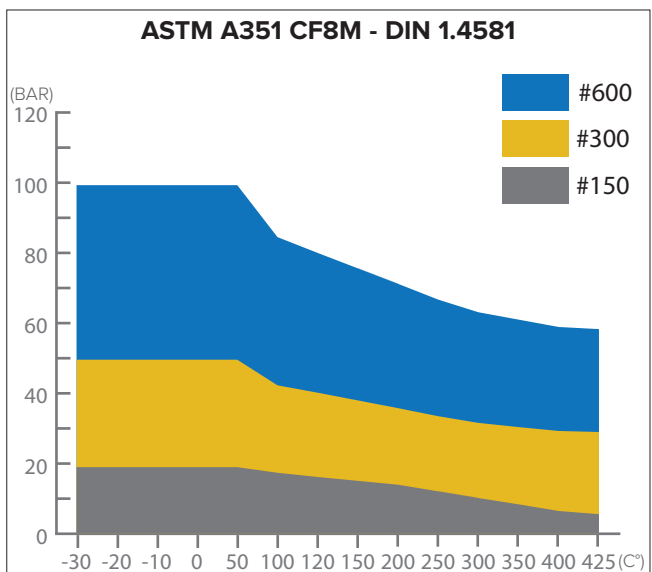
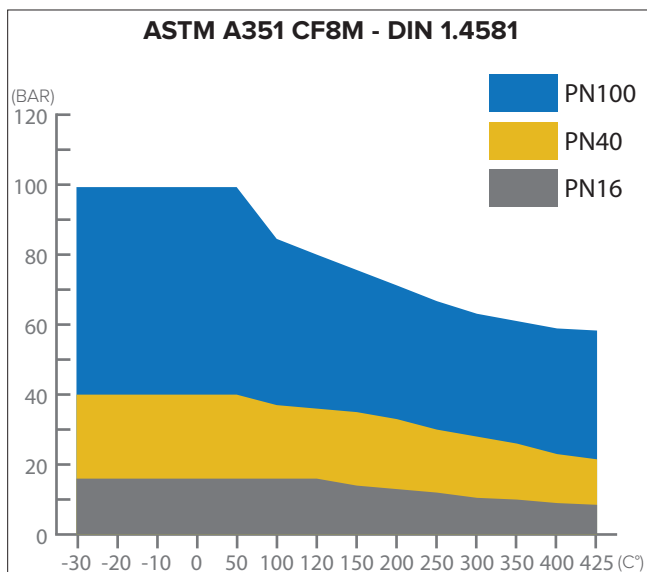
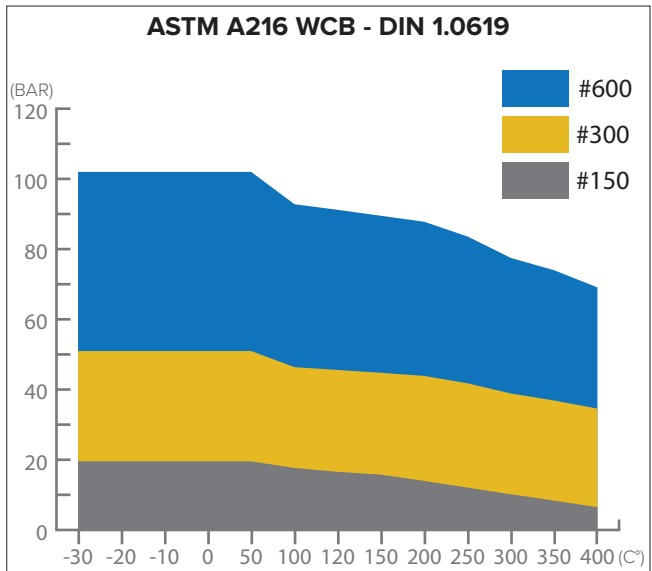
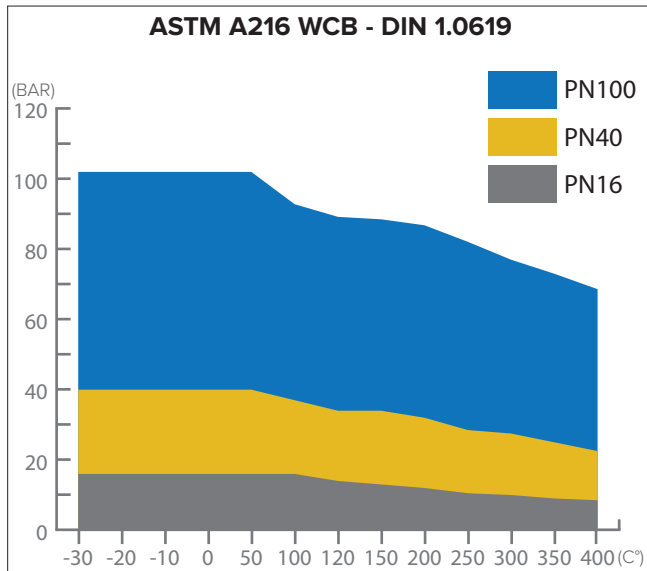
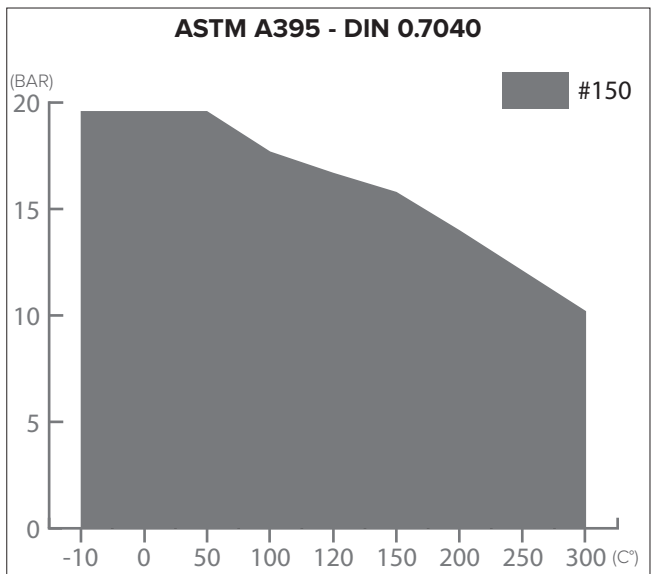
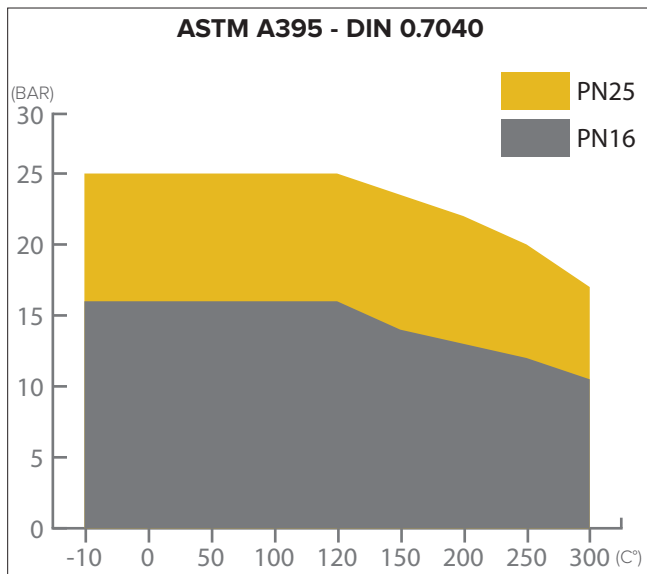


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Body & Bonnet Material	Bonnet Style	Packing	Body Gasket	Trim Style	Temperature Unit °C	
					Min	Max
DIN 0.7040 ASTM A395 (GJS400-18) Ductile Iron	Standard	RPTFE or Graphite	Graphite laminate or PTFE	Metal & Soft (All Severe Service Trim)	-10	210
	HT Extension	Graphite	Graphite laminated	Metal (All Severe Service Trim)	-10	300
	Bellow Seal	RPTFE	Graphite laminate or PTFE	Metal & Soft (All Severe Service Trim)	-10	210
		Graphite	Graphite laminated	Metal (All Severe Service Trim)	-10	300
DIN 1.0619 ASTM A216 WCB Carbon Steel	Standard	RPTFE or Graphite	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-29	210
	HT Extension	Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-29	427
	Bellow Seal	RPTFE	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-29	210
		Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-29	427
DIN 1.4581 ASTM A351 CF8M Stainless Steel	Standard	RPTFE or Graphite	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-60	210
	HT Extension	Graphite	Graphite laminate or PTFE (Spyrometallic)	Metal (All Severe Service Trim)	-60	600+
	Cryo Design	RPTFE or Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-196	210
	Bellow Seal	RPTFE	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-60	210
Graphite		Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-60	600+	
DIN 1.6220 ASTM A352 LCB Low Temp Alloy Steel	Standard	RPTFE or Graphite	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-46	210
	HT Extension	Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-46	250
	Bellow Seal	RPTFE	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-46	210
		Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-46	250
DIN 1.5419 ASTM A217 WC6 High Temp Alloy Steel	Standard	RPTFE or Graphite	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-29	210
	HT Extension	Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-29	538+
	Bellow Seal	RPTFE	Graphite laminate or PTFE (Spyrometallic)	Metal & Soft (All Severe Service Trim)	-29	210
		Graphite	Graphite laminate (Spyrometallic)	Metal (All Severe Service Trim)	-29	538+

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Pressure and Temperature Curves



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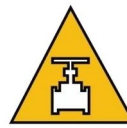
KV (CV)	Seat Diameter mm (inch)	Stroke mm (inch)	Nominal Diameter											
			15 1/2"	20 3/4"	25 1"	32 1.1/4"	40 1.1/2"	50 2"	65 2.1/2"	80 3"	100 4"	125 5"	150 6"	200 8"
≤ 0.05 (≤ 0.059) (1)	3 (1/8)	16 (5/8)												
0.13 (0.15)	6 (1/4)	16 (5/8)												
0.26 (0.3)	6 (1/4)	16 (5/8)												
0.43 (0.5)	6 (1/4)	16 (5/8)												
0.65 (0.75)	6 (1/4)	16 (5/8)												
0.9 (1.0)	6 (1/4)	16 (5/8)												
1.1 (1.3)	9 (1/3)	16 (5/8)												
1.3 (1.5)	10 (2/5)	16 (5/8)												
1.7 (2.0)	12 (1/2)	16 (5/8)												
2.0 (2.3)	12 (1/2)	16 (5/8)												
2.6 (3.0)	12 (1/2)	16 (5/8)												
3.8 (4.5)	15 (3/5)	16 (5/8)												
5.4 (6.3)	19 (3/4)	16 (5/8)												
9.5 (11)	25 (1.0)	16 (5/8)												
15.4 (18)	32 (1.1/4)	19 (3/4)												
26 (30)	40 (1.1/2)	19 (3/4)												
40 (46.6)	50 (2.0)	19 (3/4)												
62.4 (72.7)	64 (2.1/2)	25 (1.0)												
90 (105)	76 (3.0)	25 (1.0)												
137 (160)	100 (4.0)	28 (1.1/9)												
230 (267)	126 (5.0)	45 (1.7/9)												
316 (368)	151 (6.0)	50 (2.0)												
555 (647)	201 (8.0)	50 (2.0)												

	Available	KV = flowrate in m ³ /h with 1 bar of differential Pressure
	Standard	CV = flowrate in USGPM with 1 psi of differential Pressure

Options:

- Special High Flow Coefficient available on request.
- Partial Hard Facing available starting from Seat Diameter 10mm and higher.
- Full Hard Facing through Overlaying or Treatments available for all Port Size.
- Special Soft Seating for Port Size < 10mm available on request.

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Pneumatic Actuators Specifications CHRYSSAFIDIS

Actuator type	Ambient Temperature Limits with Standard Materials	Ambient Temperature Limits with Special Materials	Rating	Maximum Allowable Stem Thrust (1)			
				Stem size 12 mm	Stem size 16 mm	Stem size 20 mm	Stem size 24 mm
S.200	-20°C to +70°C	-40°C to +70°C or -20°C to +100°C	PN6	10.8 KN (Max port 32mm)	18.4 KN (Max port 32mm)		
S.275	-20°C to +70°C	-50°C to +70°C or -20°C to +120°C	PN6	10.8 KN (Max port 50mm)	18.4 KN (Max port 50mm)	31.2 KN (Max port 50mm)	
S.335	-20°C to +70°C	-50°C to +70°C or -20°C to +120°C	PN6	10.8 KN (Max port 80mm)	18.4 KN (Max port 100mm)	31.2 KN (Max port 100mm)	44.8 KN (Max port 100mm)
S.430	-20°C to +70°C	-50°C to +70°C or -20°C to +120°C	PN6	10.8 KN (Max port 80mm)	18.4 KN (Max port 100mm)	31.2 KN (Max port 100mm)	44.8 KN (Max port 100mm)
S.430s	-20°C to +70°C	-50°C to +70°C or -20°C to +120°C	PN6		18.4 KN (Max port 200mm)	31.2 KN (Max port 200mm)	44.8 KN (Max port 200mm)
S.500	-20°C to +70°C	-50°C to +70°C or -20°C to +120°C	PN6		18.4 KN (Max port 200mm)	31.2 KN (Max port 300mm)	44.8 KN (Max port 300mm)
P.250	-30°C to +80°C	-50°C to +80°C or -30°C to +150°C	PN16			31.2 KN (Max port 300mm)	44.8 KN (Max port 300mm)
P.390	-30°C to +80°C	-50°C to +80°C or -30°C to +150°C	PN16			31.2 KN (Max port 300mm)	44.8 KN (Max port 300mm)

(1) = Data calculated with standard construction and 316L SS Stem material.

Special Materials will be considered where the application requires.

Notes:

Minimum Air supply pressure necessary depends on spring range case by case.

Delta 2 suggests to consider minimum 0.2 Bar of over-pressure as safety factor to ensure the full stroke of the valve.

Top Handwheel and fixed or adjustable stroke limit stop devices are available for all actuators size. Heavy Duty Side Handwheel available on request.

Pressure Drop Table According to ANSI FCI 70.2 Class IV
 Flow to Open - Metal to Metal - Air to Open - Unbalanced Trim

Type	Eff. Area cm ² (in ²)	Spring Range Barg (PSIG)	Valve Nominal Size														
			15	20	25	32	40	50	65	80	100	125	150	200			
S.200	130 (20)	0.2 - 1.0 (3 - 15)	12	10	9	3											
		0.4 - 2.0 (6 - 30)	24	20	16	4											
		0.7 - 3.0 (10 - 45)	37	29	21	8											
		1.0 - 4.0 (15 - 60)	50	38	26	12											
S.275	300 (47)	0.2 - 1.0 (3 - 15)	28	25	16	8	6	4									
		0.4 - 1.2 (6 - 18)	39	36	21	13	9	5									
		0.4 - 2.0 (6 - 30)	52	47	25	16	12	6									
		0.7 - 3.0 (10 - 45)	78	72	52	29	20	11									
		1.0 - 4.0 (15 - 60)	101	101	76	42	28	16									
S.335	470 (73)	0.2 - 1.0 (3 - 15)	58	58	49	19	16	10	4	3	1						
		0.4 - 1.2 (6 - 18)	79	76	61	29	21	13	5	3	1						
		0.4 - 2.0 (6 - 30)	101	101	82	38	26	18	6	4	2						
		0.7 - 3.0 (10 - 45)	101	101	91	54	32	22	8	6	4						
		1.0 - 4.0 (15 - 60)	101	101	101	66	39	26	11	9	6						
S.430	740 (115)	0.2 - 1.0 (3 - 15)	91	89	57	48	37	26	8	5	4	1					
		0.4 - 1.2 (6 - 18)	101	101	78	56	43	34	11	7	5	1					
		0.4 - 2.0 (6 - 30)	101	101	101	63	48	37	15	9	6	2					
		0.7 - 3.0 (10 - 45)	101	101	101	81	58	44	19	13	8	2					
		1.0 - 4.0 (15 - 60)	101	101	101	91	68	52	27	18	12	4					

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Pneumatic Actuators Pressure Drop Table

Pressure Drop Table According to ANSI FCI 70.2 Class IV
 Flow to Open - Metal to Metal - Air to Open - Unbalanced Trim

Type	Eff. Area cm ² (in ²)	Spring Range Barg (PSIG)	Valve Nominal Size											
			15	20	25	32	40	50	65	80	100	125	150	200
S.430s	740 (115)	0.4 - 1.4 (6 - 20)						52	13	8	4	2		
		0.8 - 2.0 (12 - 30)						68	21	14	10	5	3	1
		1.0 - 4.0 (15 - 60)						50	23	17	12	7	5	2
		1.2 - 2.7 (18 - 40)						54	25	20	14	8	6	3
S.500	1250 (195)	0.4 - 1.4 (6 - 20)							26	12	9	5	2	1
		0.8 - 2.0 (12 - 30)							36	21	18	11	5	3
		1.0 - 4.0 (15 - 60)							41	24	20	14	10	5
		1.2 - 2.7 (18 - 40)							45	28	24	17	13	7
P.250	490 (76)	1.5 - 2.3 (22 - 34)									7	5	3	2
		2.2 - 3.4 (44 - 68)									10	7	5	3
		3.0 - 4.6 (44 - 68)									14	9	6	4
P.390	120 (186)	1.8 - 2.8 (28 - 42)									28	18	12	7
		2.5 - 3.8 (38 - 56)									39	25	18	10
		3.1 - 4.9 (46 - 72)									49	32	22	13

Notes:

Values indicated in the above tables are calculated and tested with valve standard construction.
 Pressure Drop shall be always verified with Delta 2 factory.
 Maximum shutoff pressure indicated is limited to 101 Barg to cover PN100/600# at Full Rating.
 For "Air to Close" Pressure Drops Consult Factory.



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Pressure Drop Table According to ANSI FCI 70.2 Class IV
Flow to Open - Soft Seat - Air to Open - Unbalanced Trim

Type	Eff. Area cm ² (in ²)	Spring Range Barg (PSIG)	Valve Nominal Size												
			15	20	25	32	40	50	65	80	100	125	150	200	
S.200	130 (20)	0.2 - 1.0 (3 - 15)	14	12	11	4									
		0.4 - 2.0 (6 - 30)	26	22	18	5									
		0.7 - 3.0 (10 - 45)	39	31	23	9									
		1.0 - 4.0 (15 - 60)	52	40	28	13									
S.275	300 (47)	0.2 - 1.0 (3 - 15)	31	27	18	11	8	6							
		0.4 - 1.2 (6 - 18)	43	39	23	16	11	7							
		0.4 - 2.0 (6 - 30)	56	50	27	19	14	8							
		0.7 - 3.0 (10 - 45)	82	75	54	32	22	13							
		1.0 - 4.0 (15 - 60)	101	101	78	45	30	18							
S.335	470 (73)	0.2 - 1.0 (3 - 15)	62	62	53	19	16	10	4	3	1				
		0.4 - 1.2 (6 - 18)	83	80	65	32	24	15	7	4	2				
		0.4 - 2.0 (6 - 30)	101	101	82	38	26	18	8	6	3				
		0.7 - 3.0 (10 - 45)	101	101	95	58	35	25	10	8	5				
		1.0 - 4.0 (15 - 60)	101	101	101	70	42	29	13	11	7				
S.430	740 (115)	0.2 - 1.0 (3 - 15)	96	95	62	52	41	29	11	7	6	2			
		0.4 - 1.2 (6 - 18)	101	101	82	60	43	34	14	9	7	2			
		0.4 - 2.0 (6 - 30)	101	101	101	67	53	40	18	11	8	3			
		0.7 - 3.0 (10 - 45)	101	101	101	85	63	47	22	15	10	3			
		1.0 - 4.0 (15 - 60)	101	101	101	95	73	55	30	20	14	5			

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Pneumatic Actuators Pressure Drop Table

Pressure Drop Table According to ANSI FCI 70.2 Class IV
 Flow to Open - Soft Seat - Air to Open - Unbalanced Trim

Type	Eff. Area cm ² (in ²)	Spring Range Barg (PSIG)	Valve Nominal Size												
			15	20	25	32	40	50	65	80	100	125	150	200	
S.430s	740 (115)	0.4 - 1.4 (6 - 20)						55	16	10	6	3			
		0.8 - 2.0 (12 - 30))						72	24	16	12	6	4	2	
		1.0 - 4.0 (15 - 60)						54	26	19	14	8	6	3	
		1.2 - 2.7 (18 - 40)						59	30	24	18	10	8	4	
S.500	1250 (195)	0.4 - 1.4 (6 - 20)							30	16	12	7	3	2	
		0.8 - 2.0 (12 - 30)							40	25	21	13	6	4	
		1.0 - 4.0 (15 - 60)							45	28	23	16	11	6	
		1.2 - 2.7 (18 - 40)							49	32	27	19	14	8	
P.250	490 (76)	1.5 - 2.3 (22 - 34)										9	7	4	3
		2.2 - 3.4 (44 - 68)										12	9	6	4
		3.0 - 4.6 (44 - 68)										16	11	7	5
P.390	120 (186)	1.8 - 2.8 (28 - 42)										32	21	14	9
		2.5 - 3.8 (38 - 56)										43	28	20	12
		3.1 - 4.9 (46 - 72)										53	35	24	15

Zero Leakage Bubble Tight shutoff can be engineered and manufactured

Notes:

Values indicated in the above tables are calculated and tested with valve standard construction.

Pressure Drop shall be always verified with Delta 2 factory.

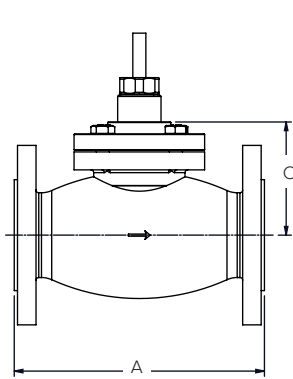
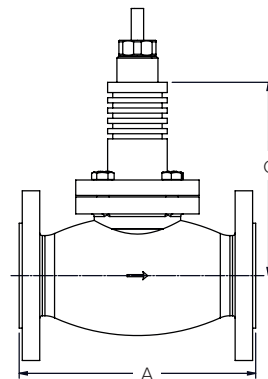
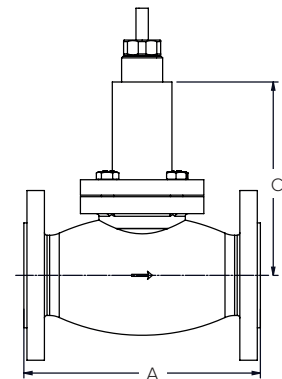
Maximum shutoff pressure indicated is limited to 101 Barg to cover PN100/600#at Full Rating.

For “Air to Close” Pressure Drops Consult Factory.



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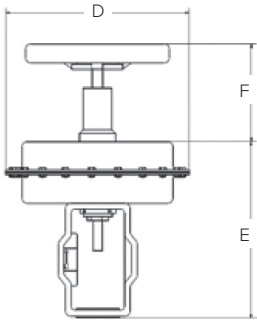

Standard Bonnet

High Temperature Bonnet

Bellow Seal or Cryogenic Bonnet

Valve DN (inch)	A = Face to Face length (mm)					C = Bonnet Height (mm)				
	DIN PN10 to PN40	DIN PN64 to PN100	ANSI 150	ANSI 300	ANSI 600	Std Bonnet	High Temp	Bellow Seal	Cryo Design	Special Leak Off
15 (1/2")	130	210	108	152.5	165	80	165	225	580	305
20 (3/4")	150	230	118	178	190.5	80	165	225	580	305
25 (1")	160	230	127	203	216	85	155	220	585	300
32 (1-1/4")	180	260	180(*)	180(*)	260(*)	85	160	225	590	310
40 (1-1/2")	200	260	165	229	241.5	105	180	235	605	320
50 (2")	230	300	203	267	292	110	185	240	610	325
65 (2-1/2")	290	340	290(*)	290(*)	340(*)	160	240	260	660	360
80 (3")	310	380	241	318	356	170	250	270	670	370
100 (4")	350	430	292	356	432	185	275	285	690	385
125 (5")	400	500	400(*)	400(*)	500(*)	230	335	415	730	515
150 (6")	480	550	406	444	559	250	370	450	750	570
200 (8")	600	650	495	559	660	280	410	490	780	610

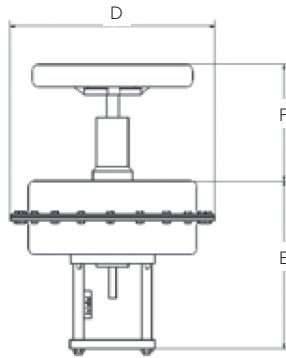
(*) = Available valve size with DIN Face to Face length.

- 1) DIN PN10 to PN40 Face to Face length according to EN 558-1 serie 1, DIN 3202 F1.
- 2) DIN PN64 to PN100 Face to Face length according to EN 558-1 serie 2, DIN 3202 F2.
- 3) ANSI 150 , 300 , 600 Face to Face length according to ANSI B16.10. (ANSI/ISA 75.08.01 on request).
- 4) Cryogenic design bonnet according to BS 6364.
- 5) Special Leak Off Design for Toxic and Lethal service.

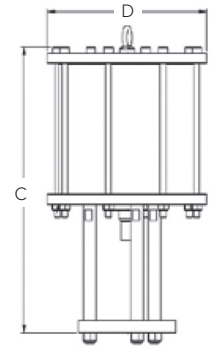
Actuators Dimensions



**Diaphragm Actuator
Cast Yoke**



**Diaphragm Actuator
Pillar Yoke**



**Piston Actuator
Pillar Yoke**

Actuator Type	D = Actuator Diameter (mm)	E = Actuator Height		F = Top Handwheel Maximum Height with Reverse Action (mm)	F = Top Handwheel Maximum Height with Cast Yoke Direct Action (mm)
		Cast Yoke Direct Action (mm)	Pillar Yoke (mm)		
S.200	205	235	285	120	150
S.275	280	265	315	120	150
S.335	340	275	325	150	180
S.430	435	355	405	150	180
S.430s	435	380	465	200	240
S.500	510	390	430	200	240
P.250	310	-	557	300	350
P.390	450	-	557	300	350

- 1) ED = Envelope Diameter is the minimum horizontal space necessary for valve maintenance.
- 2) EH = Envelope Height is the minimum vertical space necessary for valve maintenance.

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