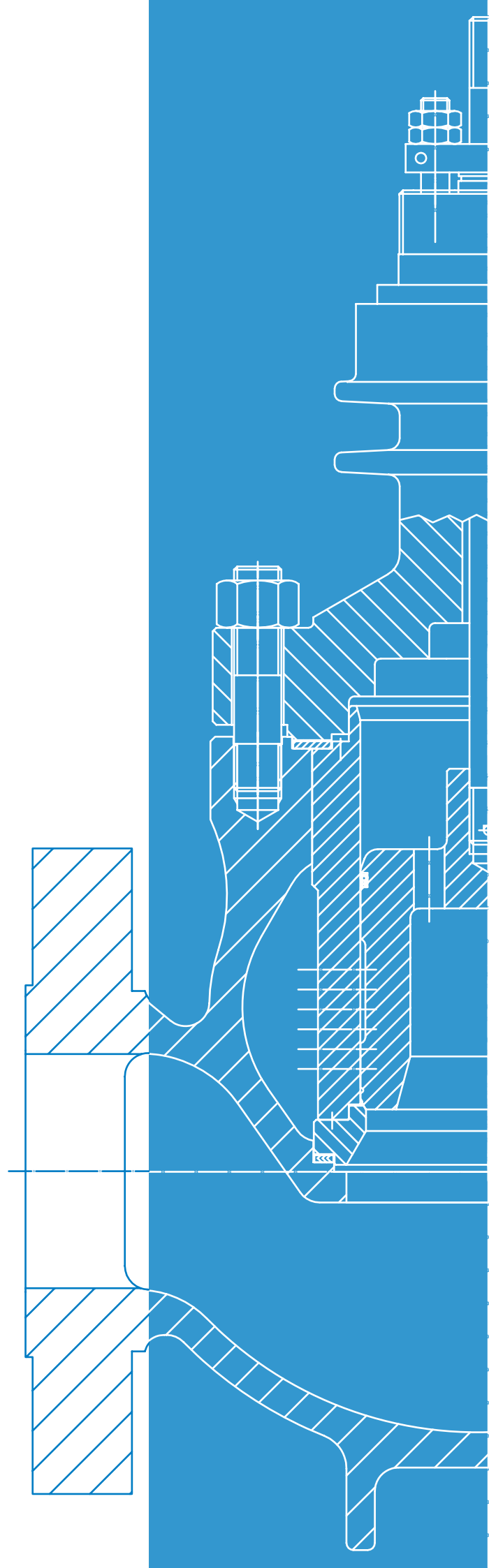




CVB VALVES S.R.L.

## Control Valves

Oil & Gas, Naval , Petrochemical, Water,  
Energy & Power Fields





CVB VALVES S.R.L.

## ABOUT US

**CVB Valves** (hereafter CVB) designs and manufactures engineered and tailor-made valves and equipment; our production range include all type of **Butterfly and Control Valves** for On/Off and Control of flows. It includes Concentric rubber-lined, Double-Offset, Triple Offset Butterfly Valves, and Globe valves both for On-Off and Control duties.

Our company was founded in 1976 in Milan, Italy. We are proud to have over 40 years of experience in designing customised valve solutions for our Customers' challenging and exacting standards combining reliability, efficiency, dedicated solutions with the highest safety standards for the most extreme operating environmental applications. Long and vast track record supplying to **Oil&Gas, Energy, Water, Desalination, Naval industries and Cryogenics service** are testament of our passion and commitment in providing the utmost of Technology, Engineering, Innovation, Quality and Service to our Customers.

With our dedicated manufacturing facilities in Italy, our products are made with high quality materials customized to meet our Customers' needs.

## VISION

CVB's vision is to be a fast, flexible and for reliable global leader in manufacturing and servicing of Special Alloys Triple and Double Offset, Butterfly and Globe Control valves, with customized solutions, of large and special valves, as well as standard ones to suit customers' needs while being a single source supplier, and Ancillaries, Control & Safety Systems.

## DESIGN

With 40 years of field experience, our Tech Dept. are well proven and can meet any challenge of an ever evolving and more demanding industry applications. Combined with the quality of our materials, we can meet our Customer needs, allowing them to exceed their plant operational targets by reducing hazards, increasing safety, and optimizing any plant performance. We can help you to solve your operational challenges.

## MANUFACTURE

Our products are customized to meet our Customer needs and manufactured in Italy/Europe with high quality materials. CVB tailored solutions meet every industrial demanding applications challenge, at the same time helping to increasing plant performance and reduce life-cycle costs.

## SERVICE

Our Customers' Satisfaction is our strategic goal; at CVB we support our Customers with their needs, starting from their budgeting processes through engineering development, state of the art manufacturing, quick delivery, repair service, consultancies, surveys, and reliable after sales support. We are just one call away.

## CONTROL VALVES

CRV Series is the most versatile control valve for general applications ever designed in collaboration with CVB.

CRV Series is a straight body single seat control valve with cage guided balanced plug designed to withstand the most severe process conditions; the flow is mainly controlled by the special drilled cage, which acts as a continuous and full plug guide along the whole valve travel. The special plug design allows improving valve rangeability by reducing minimum controllable flow and plug erosion.

The high pressure recovery factor value compared with conventional contoured plug control valves ensure higher flow rates on compressible fluid service and reduces cavitation risk and effects on liquid service.

All versions have quick change trim with internal spring to extend the quick change design up to maximum working temperature. Together with the standard high capacity trim, low noise trims and double cage trims are available respectively for critical service on compressible fluids (gas and vapor) and for high differential pressures or for cavitating service where higher pressure recovery factor values are required.

Balanced Plug with Pilot execution allows to comply with IEC sealing class V up to 566°C for compressible fluids service. "Flow to close" configuration improves seat ring protection and increases seating force making this solution particularly reliable.

For incompressible fluids service, a special C-ring metallic seal is available to comply with IEC sealing class V without practical temperature limitations. Contoured unbalanced plugs are available on request up to DN 4" for dirty fluids service. Bonnet style, finned and partially extended is specially designed to comply with all working conditions. A special material configuration is available to comply with NACE MR0175 and MR0103 standards.

CRV Series control valves are usually equipped with CVB diaphragm spring return pneumatic actuators SSDA and MSDA series (pneumatic cylinders PC series for DN 16" and over). Electrical or hydraulic actuators are available on request.



# CONTROL VALVES

## MAIN FEATURES

- Wide range of sizes: from DN 3/4" to DN 24" ;
- Ratings from ANSI 150 up to ANSI 2500 (B10 to B100 for EN ratings);
- Wide operating temperature range (-75 °C to 566 °C, -196°C with optional extended bonnet);
- Quick change design up to maximum allowed working temperature;
- High flow capacity thanks to optimized body shape design;
- High rangeability thanks to CCF plug design;
- Sealing class V IEC 60534-4 extended up to 566 °C for balanced plug with pilot ("flow to close" for compressible fluid applications) or metal C-ring seal for all applications;
- Unbalanced Contoured plug version available up to DN 4" for dirty fluids service;
- Soft seat ring insert, to comply with IEC 60534-4 leakage class VI;
- Finned-partially extended bonnet shape, to comply with all working temperatures

## GENERAL DATA

### Body:

- Type: globe, straight way single port. Angle body version GLA10 is available on request
- Construction: cast
- Materials: wide material selection (from ASME and EN standards) is available, according to material tables. Other materials are available on request.
- Sizes: 3/4" through 24"
- Connections:
  - ANSI, EN flanged
  - BW ANSI B16.25
  - UNI EN 12627 butt welding ends
  - Socket welding up to NPS 2"
- Ratings: according to EN 12516-1 and ASME B16.34 materials
  - PN 10/16/25/40/63/100
  - ANSI 150/300/600 up to DN 24", ANSI 900/1500 (up to DN 12"), ANSI 2500 (up to DN 4")

### Flow Direction:

- Flow over the plug on GLS14 (balanced with pilot). Flow under the plug on GLS11, GLS12 and GLS13.

### Bonnet:

- Type: partially extended, finned. With bellows seal or extension bonnet for low temperature service (< -75 °C) on request
- Constructions: flanged type, cast or forged
- Materials: same as body
- Low Emission certified packings are available on request

### Plug:

- Sizes: full or reduced ports as per Cv table
- Type:
  - Balanced and unbalanced, cage guided: port 1/2" to 24", for GLS13 and GLS14 series
  - Contoured unbalanced: up to DN 4" , for GLS11 and GLS12 series
- Materials: see table of materials

### Flow characteristic

- Linear (also suitable for on-off service)
- Equal percentage

### Seat:

- Mounting: free fitted in the body without screwing or forcing. Centered in the cage granting alignment with the plug, body and seat. Coupling sealed by means of a flat gasket
- Materials: see table of materials

### Cage:

- Constructions: rolled or forged cylinder, drilled or V-ported, tightened between body and bonnet
- Materials: see table of materials

### Stem packings:

- TFK: PTFE aramid fibers reinforced packing up to 250°C – 150 bar
- GRF: Pure flexible graphite packing without practical temperature limitation (max 450 °C in presence of oxidizing fluids)
- TFP: Pure PTFE packing (suitable for oxygen service) up to 200°C – 150 bar

### Special executions supplied as option:

- Double packing with leak off lateral connection Live Loading System with Belleville Springs
  - Low Emission Certified Packings
  - Sand protection
- For further details see CVB relevant technical Bulletin.

### Leakage classes:

- In accordance with IEC 60534-4 leakage classes, up to class VI for both balanced and unbalanced construction up to maximum admissible working temperatures. Special sealing class (HS) for erosive/corrosive fluids applications with higher seating forces is available.



# CONTROL VALVES

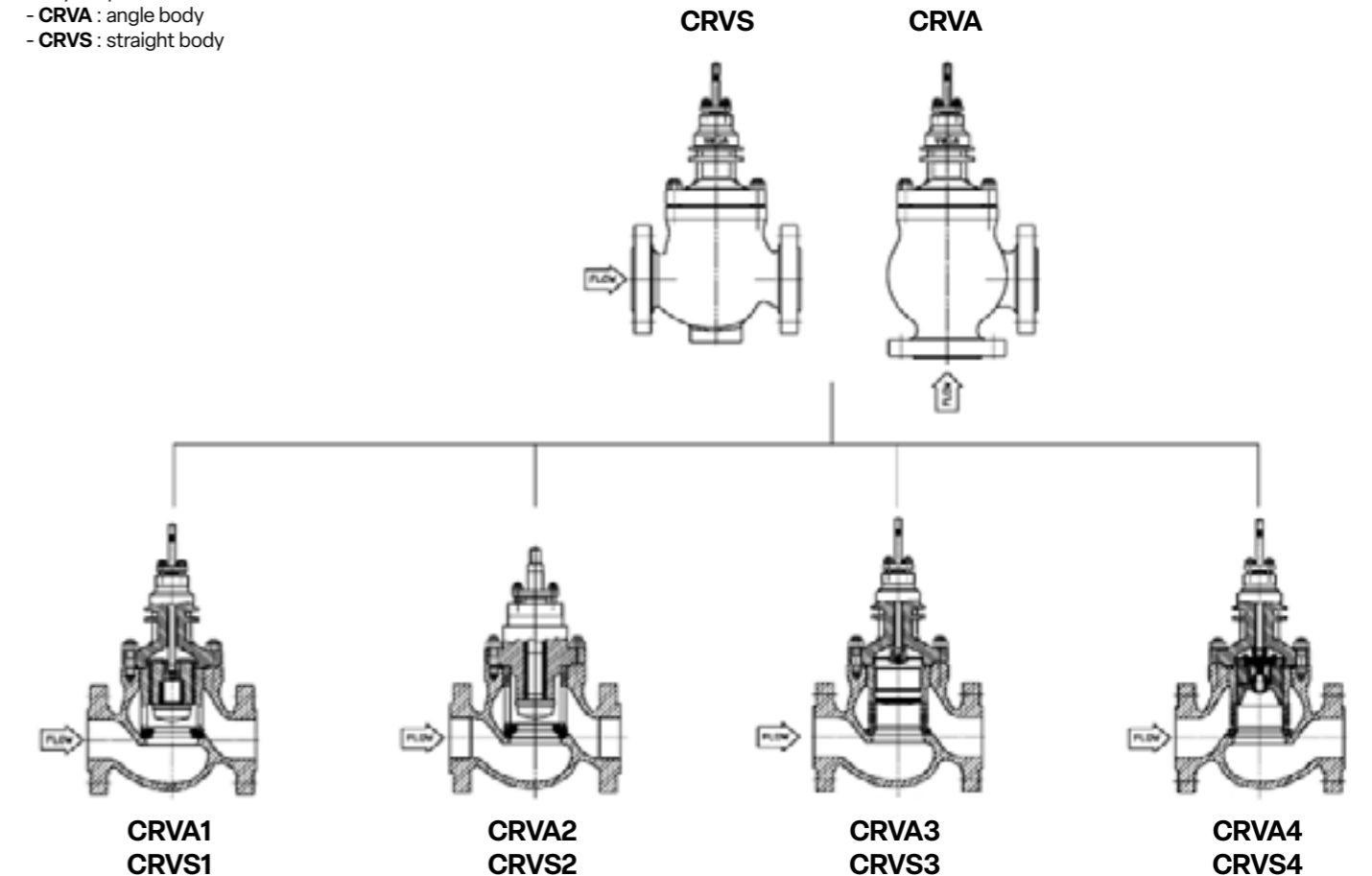
## Basic Ratings

### Availability

Rating		Availability													
ANSI	150	300	600	900	1500	2500	ANSI	150	300	600	900	1500	2500		
PN	10/16	15/40	63/100				PN	10/16	15/40	63/100					
DN	.	.	.	.	.	.	DN	.	.	.	.	.	.		
3/4"	.	.	.	.	.	.	8"	.	.	.	.	.	.		
1"	.	.	.	.	.	.	10"	.	.	.	.	.	.		
1.1/2"	.	.	.	.	.	.	12"	.	.	.	.	.	(1)		
2"	.	.	.	.	.	.	14"	.	.	.	.	.	(1)		
3"	.	.	.	.	.	.	16"	.	.	.	.	.	(1)		
4"	.	.	.	.	.	.	20"	.	.	.	.	.	(1)		
6"	.	.	.	.	.	(1)	24"	.	.	.	.	.	(1)		

### Legenda:

- C-###** → Trim type:
- 1 : contoured plug
  - 2 : contoured internal plug stem guided
  - 3 : cage guided plug
  - 4 : cage balanced with pilot plug
- Body shape:
- CRVA : angle body
  - CRVS : straight body

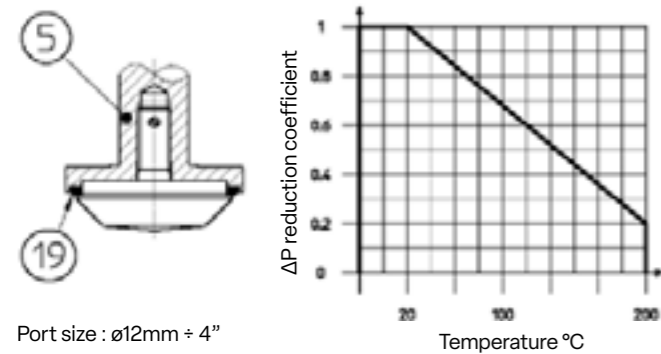


# CONTROL VALVE CONTOURED PLUG (CRVS1)

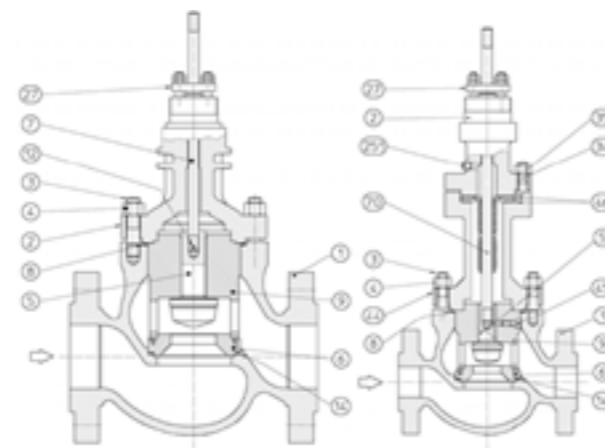
## Materials of construction

Temp. Rang		Carbon and CrMo Steels			Stainless Steels		NACE	
		-29 ÷ + 427°C	-29 ÷ + 566°C	-29 ÷ + 566°C	-196 ÷ + 343°C	-196 ÷ + 343°C	-29 ÷ + 427°C	-196 ÷ + 343°C
Item	Description							
1	BODY	SA 216 WCC EN GP 240GH	SA 217 WC9 EN G17CrMo9-10	SA 217 C12A	SA 351 CF8M EN GX5CrNiMo19-11-2	SA 351 CF3M EN GX2CrNiMo19-11-2	SA 216 WCC HRC22 max	SA 351 CF8M HRC22 max
2	BONNET	SA 216 WCC	SA 217 WC9	SA 217	SA 351 CF8M	SA 351 CF3M	SA 216 WCC HRC22 max	SA 351 CF8M HRC22 max
		SA 105	A 182 F22 cl.3	SA 182 F91	SA 479 316	SA 479 316L	SA 105 HRC22 max	SA 479 316 HRC22 max
3	BODY STUD	SA 193 B7	SA 193 B16	SA 479 XM-19	SA 479 XM-19	SA 193 B7	SA 193 B7	SA 479 XM-19
			SA 479 XM-19					
4	NUT	SA 194 gr.4	SA 194 gr.8		SA 194 gr.8	SA 194 gr.4	SA 194 gr.4	SA 194 gr.8
					SA 194 gr.4			
5	PLUG	A 479 316	-	-	A 479 316	A 479 316L	A 479 316 22HRC	-
		A 182 F6NM Nitrided			A 479 316 + Stellite gr. 6	A 479 316L + HVD1	A 182 F6NM HRC 22 max nitrided	-
		A 479 316 + Stellite gr.6	-	-			A 479 316 22HRC + Stellite	
6	SEAT	A 479 316	-	-	A 479 316	A 479 316L	A 479 316 22HRC	-
		AISI 400 series hardened					A 182 F6NM HRC22 max nitrided	-
		A 479 316 + Stellite	-		A 479 316 + Stellite gr.	479 316L + HVD1	A 479 316 22HRC + Stellite	
		A 182 F6NM + Stellite						
7	STEM	A 479 316	A 479 XM-19		A 479 316	A479 316L	A 479 316 HRC22 max	
8 - 14	GASKET	AISI 321 + GRAPHITE						
9	GUIDE	A 182 F6NM Nitrided			A 479 316L Cr plated		A 182 F6NM HRC22 max Nitrided	A 479 316 HRC22 max Cr plated
19	INSERT	PTFE						
12	PIN	A 479 304			479 316L		A 479 304 HRC 22 max	
27	PACKING	TFK - aramid fibres reinforced PTFE rings						
		GRF - Pure flexible graphite rings						
		TFP - Pure PTFE rings						
36	BELLOW	AISI 316L						
37	EXTENSION	A 479 316	A 479 XM-19		A 479 316	A 479 316L	A 479 316 HRC22 max	
44	BELLOW CHAMBER	SA 105	SA 182 F22	SA 182 F91	SA 479 316	SA 479 316L	SA 105 HRC22 max	SA 479 316 HRC22 max
45	ANTIROT.SCR	AISI 316L						
46	GASKET	AISI 321 + GRAPHITE						
215	PLUG	AISI 316L						

## Seal insert for leakage Class VI



## CRVS1

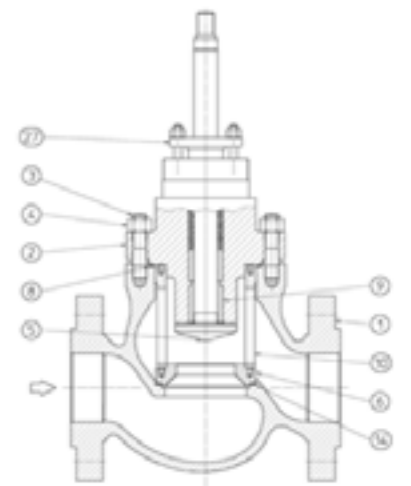


# CONTROL VALVE CONTOURED INTEGRAL PLUG STEM GUIDED (CRVS2)

## Materials of construction

Temp. Rang		Carbon Steels		Stainless Steels		NACE	
		-29 ÷ + 427°C	-196 ÷ + 343°C	-196 ÷ + 343°C	-29 ÷ + 427°C	-196 ÷ + 343°C	
Item	Description						
1	BODY	SA 216 WCC EN GP240 GH	SA 351 CF8M EG GX2CrNiMo19-11-2	SA 351 CF3M EG GX2CrNiMo19-11-2	SA 316 WCC HRC22 max	SA 351 CF8M HRC22 max	
2	BONNET	SA 105	SA 479 316	SA 479 316L	SA 105 22HRC max	SA 479 316 22HRC max	
3	BODY STUD	SA 197 B7	-196<T<-29: SA 479 XM19 -29<T<343: SA 193 B7		SA 193 B7	SA 479 XM19	
4	NUT	SA 194 gr.4	-196<T<-29: SA 194 gr. -29<T<343: SA 194 gr.4		SA 194 gr.4	SA 194 gr.8	
5	PLUG & STEM	A 479 316	SA 479 316	A 479 316L	A 479 316 22HRC max		
		A 479 316 + Stellite gr.6	A 479 316 + Stellite gr.6	A 479 316L + HVD1 HVD1	A 479 316 22HRC max + Stellite gr.6		
6	SEAT	A 497 316	A 497 316	A 479 316L	A 479 316 22HRC max		
		A 479 316 + Stellite gr.6	A 479 316 + Stellite gr.	A 479 316L + HVD1 HVD1	A 479 316 22HRC max + Stellite gr.6		
8 - 14	GASKET	AISI 321 + GRAPHITE		HASTELLOY C276 HVD1 annealed	S21800		
9	GUIDE BUSHING	S21800	S21800		S21800		
10	CAGE	A A 105	A 479 316L		A 105 HRC22 max	A 479 316L HRC22 max	
27	PACKING	TFK - aramid fibres reinforced PTFE					
		GRF - Pure flexible graphite					
		TFP - Pure PTFE					

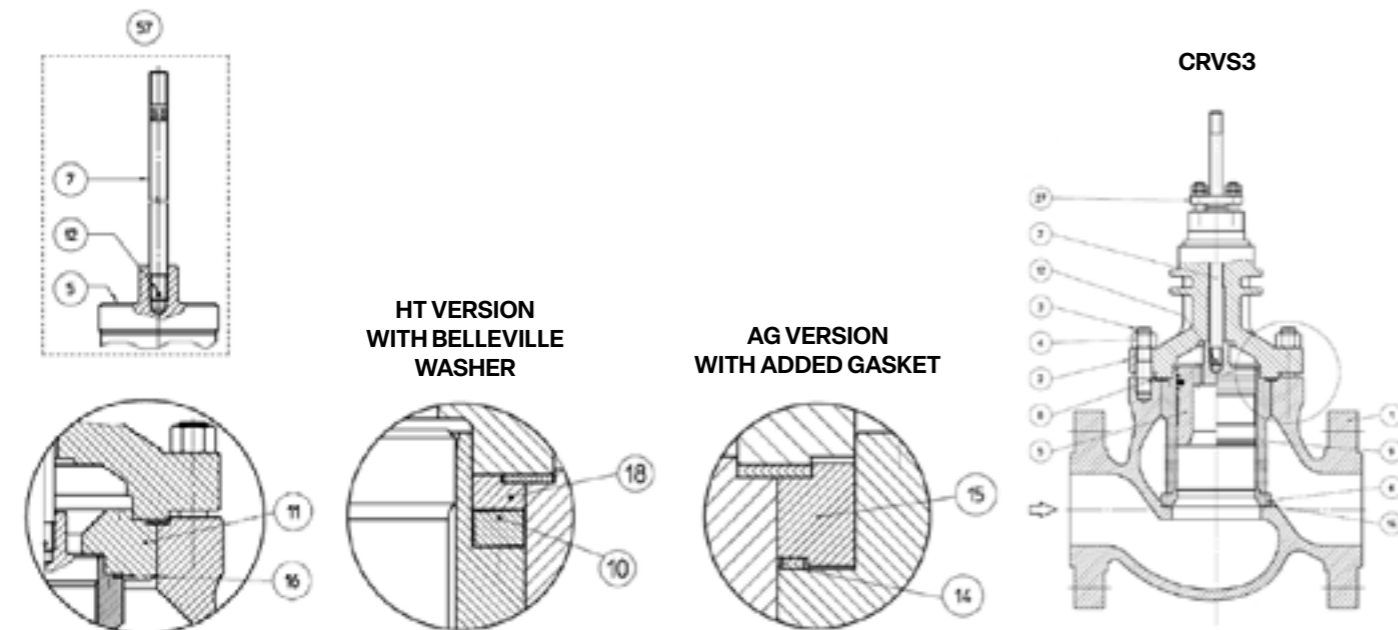
## CRVS2



# CONTROL VALVE CAGE GUIDED PLUG (CRVS3)

## Materials of construction

Temp. Rang	Carbon and CrMo Steels			Stainless Steels		NACE	
	-29 ÷ + 427°C	-29 ÷ + 566°C	-29 ÷ + 566°C	-196 ÷ + 343°C	-196 ÷ + 343°C	-29 ÷ + 427°C	-196 ÷ + 343°C
Item	Description						
1	BODY	SA 216 WCC EN GP 240GH	SA 217 WC9 EN G17CrMo9-10	SA 217 C12A	SA 351 CF8M EN GX5CrNiMo19-11-2	SA 351 CF3M EN GXCrNiMo19-11-2	SA 216 WCC HRC22 max SA 351 CF8M HRC22 max
2	BONNET	SA 216 WCC SA 105	SA 217 WC9 SA 182 F22 cl.3	SA 217 C12A SA 182 F91	SA 351 CF8M SA 479 316	SA 351 CF3M SA 479 316L	SA 216 WCC HRC22 max SA 105 HRC22 max SA 479 316 HRC22 max
3	BODY STUD	SA 193 B7	SA 193 B16 SA 479 XM-19	SA 479 XM-19	SA 479 XM-19 SA 193 B7		SA 193 B7 SA 193 B7
4	NUT	SA 194 gr.4	SA 194 gr.8	SA 194 gr.8	SA 194 gr.8 SA 194 gr.4		SA 194 gr.4 SA 194 gr.8
5	PLUG	A 182 F6NM Nitrided			A 479 316 A 479 316L A 479 316 + Stellite gr.6	479 316L A 479 316L + HVDI	A 182 F6NM HRC22 max Nitrided A 479 316 HRC22 max + Stellite gr.6
6	SEAT	AISI 400 series hardened For DN<3": A 479 316 + Stellite gr.6 For DN>3": A 182 F6NM + Stellite gr.6	-	A 479 316 A 479 316L A 479 316 + Stellite gr.6	A 479 316L A 479 316L + HVDI	DN<3": A 479 316 HRC22 max + Stellite gr.6 DN<3": A 182 F6NM HRC22 max + Stellite gr.6	A 479 316 HRC22 max A 479 316 HRC22 max + Stellite gr.6
7	STEM	A 479 316	A 479 XM-19	A 479 316	A 479 316L	A 479 316 HRC22 max	
8 - 14 - 16	GASKET	AISI 321 + GRAPHITE					
9	CAGE	351 CA6NM Nitrided		A 479 316 Cr plated	A 479 316L Cr plated	A 182 CA6NM HRC22 max Nitrided	A 479 316 HRC22 max Cr plated
10	DISC SPRING	INCONEL 718 Hardened					
11	ADAPTER	A 105	A 182 F22	A 479 316L		A 105 HRC22 max	A 479 316L HRC22 max
12	PIN	A 479 304				A 479 304 HRC22 max	
13	SPACER RING	A 479 316L				A 479 316L HRC22 max	
15	SPACER	A 105	A 182 F22	A 182 F316L		A 105 HRC22 max	A 479 316L HRC22 max
18							
27	PACKING	TFK - aramid fibres reinforced PTFE GRF - Pure flexible graphite TFP - Pure PTFE					



# CONTROL VALVE CAGE GUIDED PLUG (CRVS3)

\* See Seals Insert at page 10

## Seat Leakage Availability and Balancing Seal Inserts \*

	Sealing config. code	Description	Temp. range	Port Size	Max leakage class
<b>Metallic seat</b>	N	Non balanced	as for mat.class	1/2" + 6"	V
	D	Energized carbon graphite rings	-29 + +566°C	1 1/2" + 24"	IV
	E	Bronze loaded PTFE ring energized with O-ring	-29 + +180°C	1 1/2" + 24"	IV S1
	C	Carbon graphite ring energ. wt flexible graphite + back seal	-29 + +566°C	2" + 24"	IV S1
	R	Metallic C-ring balanced plug	-29 + +566°C	1/2" + 24"	V
<b>Soft seat</b>	S	Graphite loaded pressure energized PTFE ring	-29 + +200°C	1 1/2" + 24"	V
	P	Soft Seat, non balanced plug	-20 + +200°C	1/2" + 6"	VI
	U	Soft Seat, balanced plug (Graph. loaded pressure energ. PTFE ring)	-20 + +200°C	1 1/2" + 24"	VI

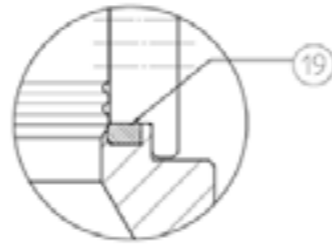
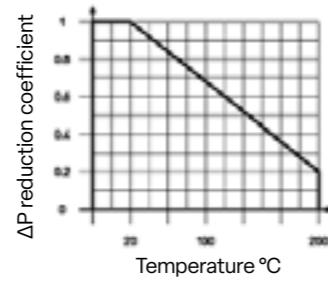
Insertcode	D	E	C	R	S	P
19	INSERT	-	-	-	-	PTFE
32	SEAL RING	-	-	-	Graph. loaded PTFE	-
46	ENERGIZER	A 182 F6NM Hard.	-	-	-	-
47	SEAL RING	Carbon Graphite	-	Carbon Graphite	-	-
48	BACK SEAL	-	-	Flexible Graphite	-	-
49	ROD SEAL	A 182 F6NM Hard.	-	A 182 F6NM Hard.	A 182 F6NM Hard.	-
51	O-RING	-	Flouroelastomer	-	-	-
52	SEAL RING	-	Bronze loaded PTFE	-	-	-
110	SEAL RING	-	-	-	INCONEL X 750 silver plated	-
112	SCREW	-	-	-	A 479 316	-
114	WASHER	-	-	-	A 479 304	-

# CONTROL VALVE CAGE GUIDED PLUG (CRVS3)

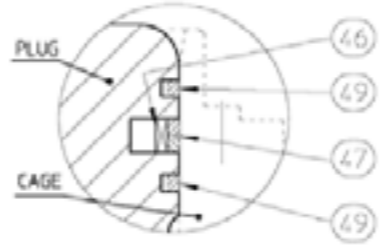
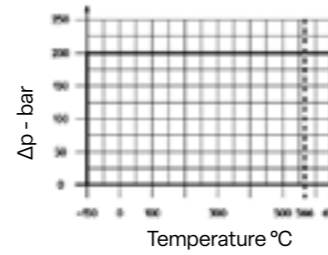
\* See Seat Leakage Availability and Balancing Seals Insert at page 9

## Seal Inserts \*

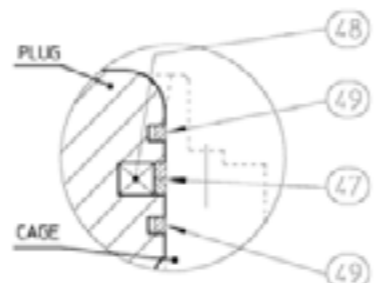
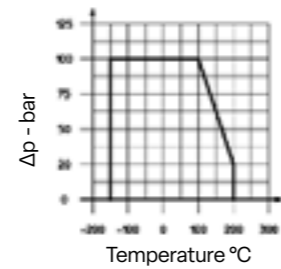
<b>Soft Seat Insert</b>	
Used for code	P and U
Sealing Class	VI



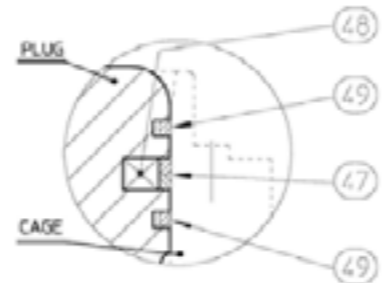
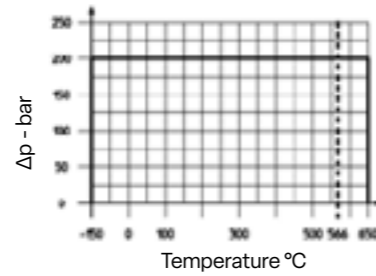
<b>Energized Carbon Graphite Rings</b>	
Used for code	D
Max Sealing Class	IV



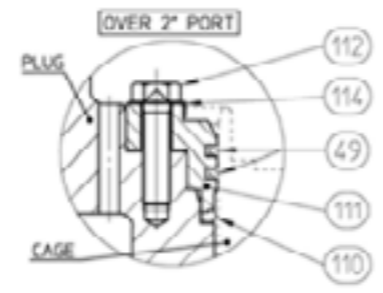
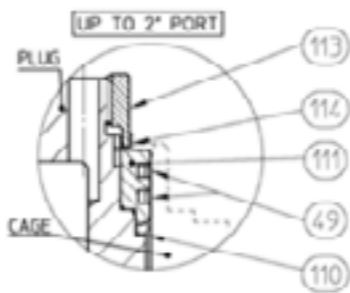
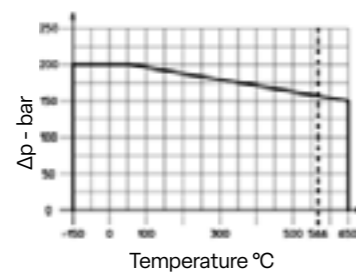
<b>Bronzed PTFE Ring</b>	
Used for code	E
Max Sealing Class	IV S1



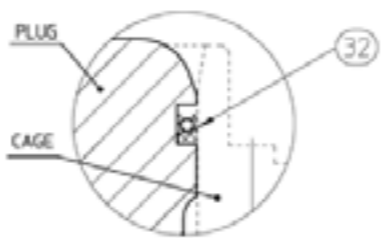
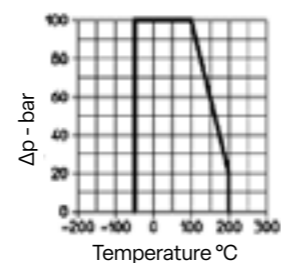
<b>Carbon Graphite Rings and Back Seal</b>	
Used for code	C
Max Sealing Class	IV S1



<b>Metallic C-ring</b>	
Used for code	C
Max Sealing Class	IV S1



<b>Pressure Energized PTFE Ring</b>	
Used for code	S and U
Max Sealing Class	VI

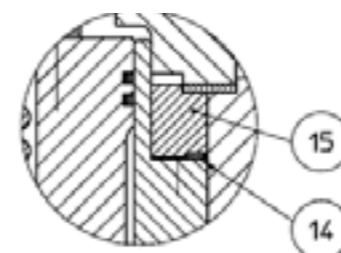


# CONTROL VALVE CAGE BALANCED WITH PILOT PLUG (CRVS4)

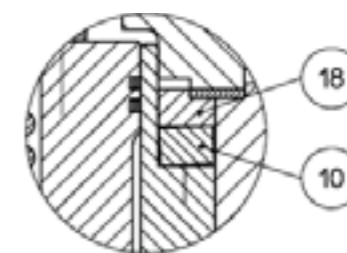
## Materials of construction

Temp. Rang	Carbon & CrMo Steels			Stainless Steels		
	-29 + + 427°C	-29 + + 566°C	-29 + + 566°C	-196 + + 343°C	-196 + + 343°C	
<b>1</b>	<b>BODY</b>	SA 216 WCC EN GF240GH	SA 217 WC9 GT7CrMo9-10	SA 217 C12A	SA 351 CF8M EN GX2 CrNiMo19-11-2	SA 351 CF3M EN GX2 CrNiMo19-11-2
<b>2</b>	<b>BONNET</b>	SA 216 WCC SA 105	SA 217 WC9 SA 182 F22	SA 182 F91	SA 351 CF8M SA 479 316	SA 351 CF3M SA 479 316L
<b>3</b>	<b>BODY STUD</b>	SA 193 B7	SA 193 B16 SA 479 XM-19	SA 479 XM-19	SA 479 XM-19 SA 193 B7	
<b>4</b>	<b>NUT</b>	SA 194 gr.4	SA 194 gr.8		SA 194 gr.8 SA 194 gr.4	
<b>5</b>	<b>PLUG</b>	A 182 F6NM Nitrided			A 479 316 + Stellite gr.6	A 479 316 + Stellite gr.6
<b>6</b>	<b>SEAT</b>	AISI 400 series hardened			A 479 316	A 479 316L
		-	DN<4\"/>			
<b>7</b>	<b>STEM</b>	A 479 316	A 479 316 A 479 XM-19	A 479 XM-19	A 479 316	A 479 316L
<b>8 - 14</b>	<b>GASKET</b>	AISI 321 + GRAPHITE				
<b>9</b>	<b>CAGE</b>	A 351 CAENM Nitride			A 479 316L Cr plated	
<b>10</b>	<b>DISC SPRING</b>	INCONEL 719 Hardened				
<b>12</b>	<b>PIN</b>	A 479 304				
<b>18</b>	<b>SPACER</b>	A 105	A 182 F22	A 182 F91	A 479 316L	
<b>27</b>	<b>PACKING</b>	TFK - aramid fibres reinforced PTFE GRF - Pure flexible graphite TFP - Pure PTFE				
<b>28</b>	<b>SCREW</b>	A 479 304				
<b>29</b>	<b>WASHER</b>	SA 479 304 Annealed				
<b>30</b>	<b>FLANGE</b>	A 182 F6NM Hardened			A 479 316	A 479 316L
<b>31</b>	<b>PILOT</b>	A 182 F6NM + Nitrided			A 479 316 L + Stellite gr.6	
<b>32</b>	<b>SPRIG</b>	INCONEL X750 TTT				
<b>49</b>	<b>PACKING</b>	A 182 F6NM Hardened			A 479 316L	

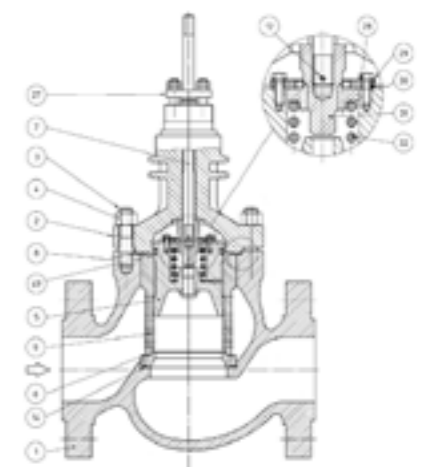
**AG VERSION WITH ADDED GASKET**



**HT VERSION WITH BELLEVILLE WASHER**



**CRVS4**



## General Description<sup>1</sup>

### Dimension A

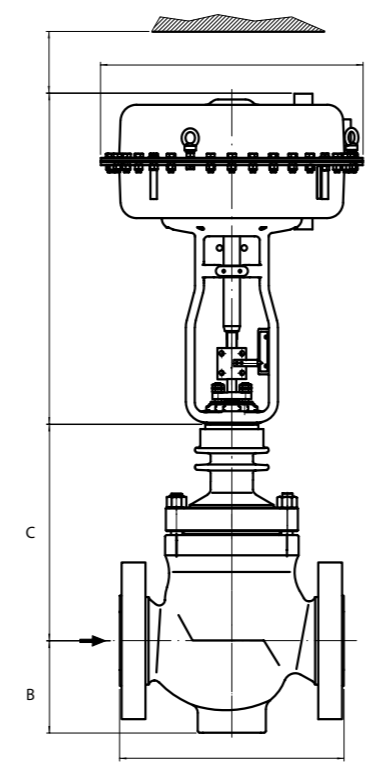
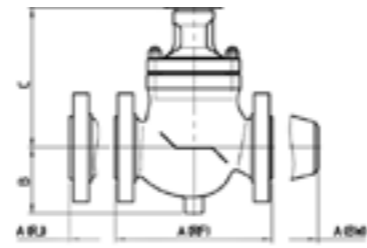
DN	FLANGED & BW																		SW & SCREWED	
	ANSI 150			ANSI 300			ANSI 600			ANSI 900			ANSI 1500			ANSI 2500			300	600
	RF	RJ	BW	RF	RJ	BW	RF	RJ	BW	RF	RJ	BW	RF	RJ	BW	RF	RJ	BW		
3/4"	184	-	206	194	207	206	206	206	206	273	273	279	273	273	279	318	318	318	-	-
1"	184	197	210	197	210	210	210	210	210	273	273	279	273	273	279	318	318	318	-	-
1.1/2"	222	235	251	235	248	251	251	251	251	333	333	330	333	333	330	381	384	359	251	251
2"	254	267	286	267	283	286	286	289	286	375	378	375	375	378	375	413	416	400	286	286
3"	298	311	337	317	333	337	337	340	337	441	444	460	460	463	460	660	666	498		
4"	352	365	394	368	384	394	394	397	394	511	524	530	530	533	530	737	747	575		
6"	451	464	508	473	489	508	508	511	508	714	717	768	768	774	768					
8"	543	556	610	568	584	610	610	613	610	781	784	832	838	848	832					
10"	673	686	752	708	724	752	752	755	752	864	867	991	991	1001	991					
12"	737	750	819	775	791	819	819	822	819	1016	1019	1130	1130	1146	1130					
14"	889	902	1029	927	943	1029	972	975	1029											
16"	1016	1029	1108	1057	1073	1108	1108	1111	1108											
20"	1278	1291	1429	1329	1333	1420	1400	1413	1460											
24"	1680	1693	1680	1724	1746	1724	1800	1809	1800											

### Dimension B

DN	ANSI					
	150	300	600	900	1500	2500
3/4"	70	70	70	85	85	90
1"	70	70	70	85	85	90
1.1/2"	100	100	100	110	110	120
2"	122	122	122	135	135	150
3"	150	150	150	170	170	180
4"	160	160	160	200	200	220
6"	290	100	205	210	222	
8"	200	200	220	220	230	
10"	258	258	265	310	335	
12"	290	290	300	330	370	
14"	350	360	380			
16"	370	380	410			
20"	490	500	520			
24"	550	560	570			

### Dimension C

DN	ANSI					
	150	300	600	900	1500	2500
3/4"	188	188	188	218	218	238
1"	188	188	188	218	218	238
1.1/2"	250	250	250	280	280	320
2"	290	290	290	310	310	340
3"	330	330	330	340	340	370
4"	380	380	380	400	400	430
6"	430	430	430	460	460	
8"	480	480	480	520	520	
10"	620	620	620	670	670	
12"	710	710	710	760	760	
14"	780	780	780			
16"	910	910	910			
20"	1060	1060	1060			
24"	1330	1330	1330			



## General Description<sup>2</sup>

### SDA Diaphragm Series

Type	D		E	Φ F	S
	Direct	Reverse			
265	400	460	430	265	300
325	412	494	150	325	300
400	511	662	200	400	360
482	584	750	250	482	365
631	754	954	300	631	455

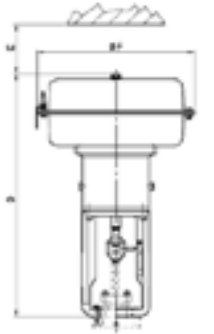
### MSDA Diaphragm Series

640 Type		D		E	Φ F	S
		Direct	Reverse			
Stroke ≤120 mm	standard	985	1022	350	640	-
	with side handwheel	1211	1248	350	640	365
	with H.M.O.	1385	1422	350	640	905
Stroke >120 mm	standard	1370	1407	450	640	-
	with side handwheel	1686	1723	450	640	365
	with H.M.O.	1870	1907	450	640	905

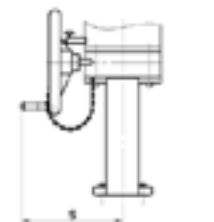
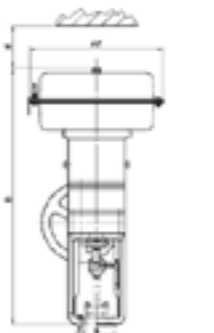
### PC Cylinder Series

565	1767	2107	450	565	-
with side handwheel	2245	2585	450	730	350
730	1841	2130	450	640	-
with side handwheel	2319	2670	450	730	350

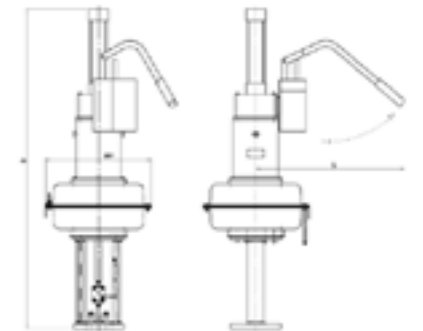
### 640 Series Diaphragm Actuator



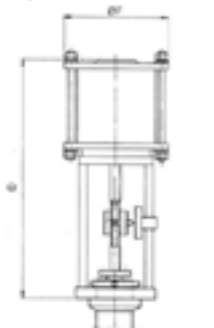
### 640 Handwheel front & sideview



### 640 Actuator with Hydraulic Manual Operator (H.M.O.) with damping function



### PC series Pneumatic Cylinder Actuator



# DIAPHRAGM ACTUATOR

<sup>3</sup>All the masses are in kg

<sup>4</sup>See Actuators Bulletin  
SDA - MSDA - PC at page 13

## Masses <sup>3</sup>

### Pneumatic Actuators <sup>4</sup>

SERIES	TYPE	DIRECT	REVERSE	HANDWHEEL (to be added)	
				SIDE	TOP
SSDA	265	15	16	+10	+6
SSDA	325	16	19	+10	+6
SSDA	400	29	39	+19	+15
SSDA	482	48	63	+19	+15
SSDA	631	98	130	+13	-
MSDA	640	stroke ≤ 120mm	185	215	+40 both for handwheel and HMO
		stroke > 120mm	220	250	+60 both for handwheel and HMO
PC	565	540		650	
PC	630	1016		1156	

### CRV Valves

DN	FLANGED						BW				
	ANSI 150	ANSI 300	ANSI 600	ANSI 900	ANSI 1500	ANSI 2500	ANSI 300	ANSI 600	ANSI 900	ANSI 1500	ANSI 2500
3/4"	16	22	22	30	30	38	21	15	28	28	31
1"	16	22	22	30	30	38	21	15	28	28	31
1.1/2"	41	43	46	60	60	54	41	43	55	55	44
2"	49	60	63	102	102	143	57	60	93	93	129
3"	74	94	100	180	180	340	88	94	170	164	311
4"	119	120	135	260	260	500	111	121	243	236	457
6"	198	250	300	420	560	on request	256	273	384	507	on request
8"	310	345	432	680	980		322	392	620	897	
10"	470	576	789	1200	1700		543	726	1120	1562	
12"	677	805	789	1580	2250		760	719	1468	2021	
14"	960	1240	1650	on request	on request	1182	1572	on request	on request		
16"	1416	1700	2100			1628	1987				
20"	2256	3300	3900			3265	3728				
24"	2916	4100	5000			4056	4780				

### OPTIONS

- Cleaning for Oxygen Service
- Reducers
- Electric or hydraulic actuators
- Special materials
- Body drain connections
- Special tools

### SPECIAL TOOLS (provided as options)

- blow out
- blow through/flushing
- pressure testing kit
- acid washing kit
- special trim for blowing

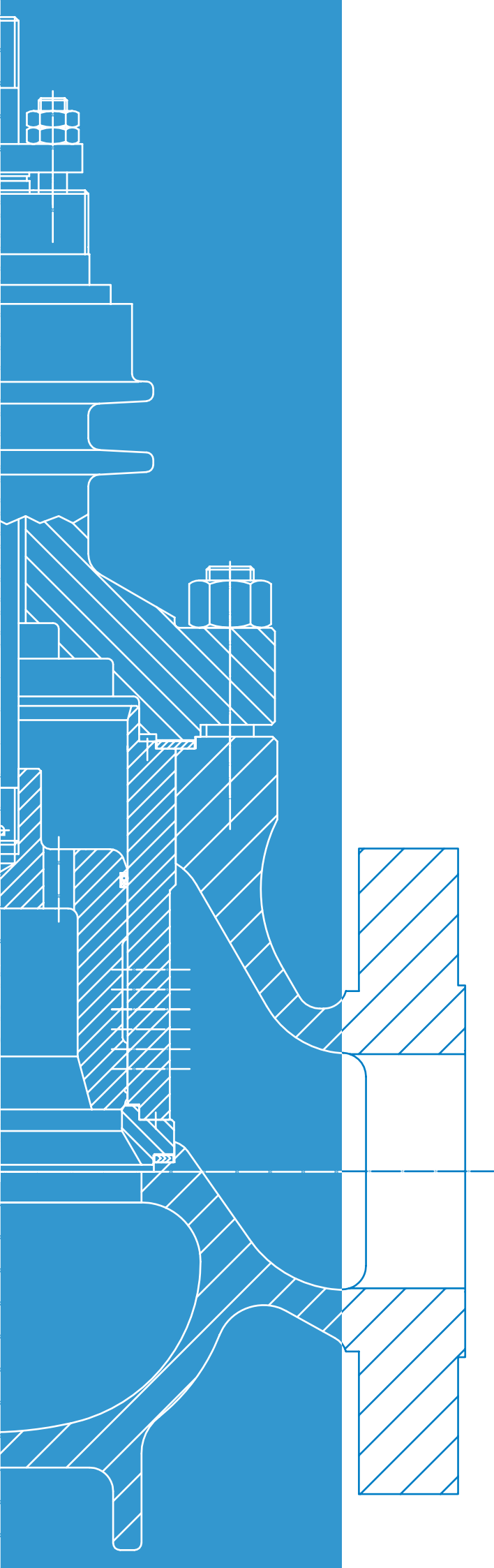
### SUGGESTED SPACE PARTS

Components suggested as spare parts for commissioning and start-up :

- body gaskets
- packing
- soft balancing inserts (PTFE / Graphite)

Two years suggested spare parts :

- plug
- seat
- stem
- metallic balancing inserts
- electrical accessories (2% per type)



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