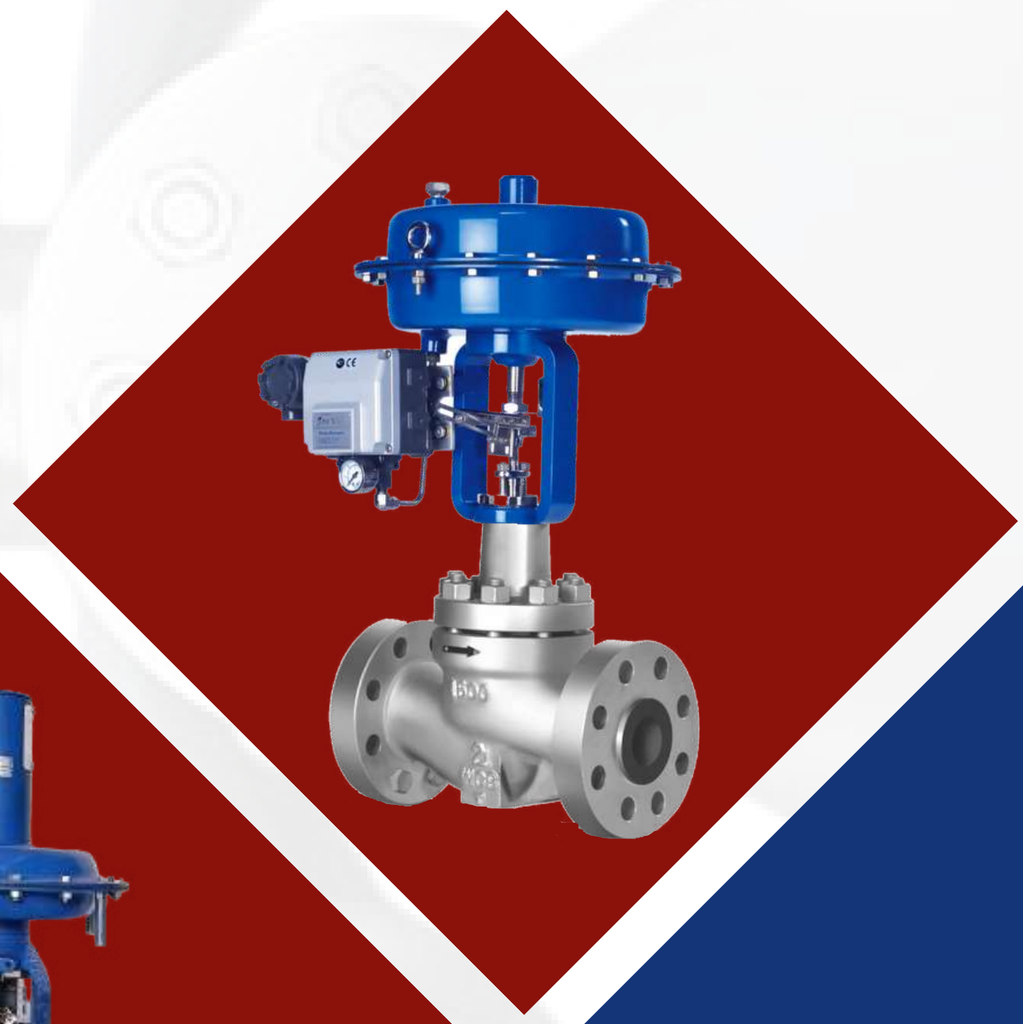
KENT VALVE

CRITICAL PRESSURE & FLOW CONTROL

CONTROL VALVE

NPS 1/2" - 16" (DN15 - DN400), ASME Class 150# - 2500#



AN ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 CERTIFIED COMPANY

www.kentvalve.com

KENT VALVE PROFILE

KENT VALVE is a fast growing valve manufacturing Company. Our wide range of superior quality valves especially designed to control water flow, gas, steam, air, and oil. The perfect blend of deep domain knowledge, technology experience and quality valves have enabled us to become leaders in the valve industry. Our quality team and proficient engineers make sure that we are delivering quality products in market. Our skilled professionals and technology competency, coupled with a reliable manufacturing process allows us to deliver end-to-end flow solutions especially catered to the user's needs and requirements.

KENT VALVE is a professional engineering firm, offering a broad spectrum of technical products and solutions, especially Valves, Instruments, Analyzers and spares to the Oil and Gas, Power Plants, Refineries, Petrochemical, Marine, Pulp & Paper, Water Treatment, District cooling, Solar Power, Irrigation and General Industry sectors, We have a proven track record and a reputation for quality and reliability in the selection of Valves, Instruments and Analyzers. We do Service support and On- time delivery of the world's leading Brand names in Valves, Analyzers and Process Instruments, KENT VALVE holds stock of comprehensive range of world leading brands of Gate, Globe, Check, DBB valves and Ball valves, Control globe valves, Safety Relief Valves, Electric and Pneumatic Actuators, etc.

KENT VALVE is a multinational company with group manufacturing plants at India, The United Kingdom and Italy. Kent has it's headquarter in Millano, Italy. It has sales office in Mumbai, Dubai, Sharjah, Kuwait, Oman, Italy and UK Etc. For meeting the requirements of its customers globally. The plant infrastructure comprises of highly efficient machine shop with a high level of quality aspects. It covers all the business processes like Sales, Design & Development, Procurement, Planning, Manufacturing, Quality, Store, Dispatch, HR and Finance.

PRODUCT RANGE

- Gate, Globe & Check Valves – Bolted Bonnet
- Gate, Globe & Check Valves – Pressure Seal
- Gate, Globe & Check Valves – Forged
- Ball Valves – Floating Top Entry, Trunnion Mounted, Double Block & Bleed
- Butterfly Valves – Concentric, Offset, Double Offset and Triple Offset
- Dual Plate Check Valves
- Single Plate Check Valves
- Control Valves
- Pressure Safety Valves
- Instrumentation Valves – Ball, Needle, Plug, Gate, Globe and Check
- Quick Exhaust & Flow Control Valves
- Knife Edge Gate Valve
- Valve, Actuator & Automation system

MANUFACTURING FACILITIES

CERTIFICATIONS

KENT VALVE

INTEGRATED MANAGEMENT SYSTEM POLICY
(Integration of ISO 9001:2015, ISO 14001:2015, ISO 45001:2018)

Kent valve Pvt. Ltd. is committed to the Integrated Management System that complies with ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 standards. We shall uphold the principles of this policy and promote a positive culture to create safe, healthy and environment-friendly workplace. We shall ensure that people at workplace take responsibility for aspects of Quality, Environment, Occupational Health & Safety over which we have control. We acknowledge the global concern on climate change and hence recognize energy as one of the most important resources used.

We shall continually improve our Integrated Management System to enhance its performance by:

- Enhancing customer satisfaction through manufacturing and delivery of environment friendly, safe & energy efficient products and services of right quality and on right time;
- Selecting and building partnership with external providers of processes, products and services to create the co ownership of goals and exhibiting high level of ethical values;
- Involving employees at all levels and enhancing their competence through training, awareness and skill enhancement to fulfil stakeholders expectations;
- Fulfilling and satisfying the applicable Statutory, Regulatory, Legal requirements and other requirements related to environment, occupational health and safety, energy efficiency, use and consumption;
- Setting Integrated Management System objectives and reviewing them periodically against the target to ensure their achievement by availability of information and necessary resources;
- Protecting environment by prevention of pollution and 'reduction-reuse-recycling' of wastes and ensuring its environment-friendly disposal;
- Identifying, eliminating, isolating and controlling hazards and risks to avoid incidents/ accidents and ill health;
- Encouraging and promoting consultation and participation of those working under the control of organization in all occupational health & safety related activities.

This policy shall be communicated to all employees and made available to interested parties.

Issue no. 02
Issue date: 17 May 2022

(Neyaz Khan)
Director

TÜV NORD

CERTIFICATE

Management system as per
ISO 9001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

KENT VALVE PRIVATE LIMITED
Plot No-B-85/4, Ambernath Additional MIDC,
Anand Nagar, Nr. ASB Company,
Ambernath, Thane - 421 506,
Maharashtra,
India

KENT VALVE

operates a management system in accordance with the requirements of ISO 9001 : 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Design and Manufacture of Industrial Valves, Actuators and Valve Automation Systems.

Certificate Registration No. **44 100 22393731**
Audit Report No. **2.5-10841/2022**

Valid from **25.08.2022**
Valid until **24.08.2025**
Initial certification **25.08.2022**

Certification Body
at TÜV NORD CERT GmbH

Mumbai, **28.11.2023**

TÜV NORD CERT GmbH Am TÜV 1 45307 Essen www.tuev-nord-cert.com

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

DAkkS Deutsche Akkreditierungsstelle D-ZM-12007-01-00

TÜV NORD

CERTIFICATE

Management system as per
ISO 14001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

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IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

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CONTROL GLOBE VALVE (CGV)

Kent Valve manufactures a comprehensive range of Control Globe Valves in sizes 1/2" to 16” (DN 15 to DN 400) in ASME class from 150 to 2500. The valves are offered in combination of size, pressure class, material of construction, end- connection, etc., to suit various applications in process plants, utility lines and HVAC.

Kent Control Globe Valve has a unique design to meet low torque operation and effective sealing to achieve zero leakage through seating area. The valves operation can be manual, pneumatic, electrical as per the client requirements. Kent Valve features long life with minimum maintenance cost.

Kent Control Globe Valve conforms to ASME B16.34 and offer high integrity sealing as per valve type.

PRODUCT RANGE

Piece	End connection	Pressure Rating	SIZE (NPS / DN)													
			1/2 15	3/4 20	1 25	1-1/2 40	2 50	2-1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400
Control Globe valve	Flanged / Butt - Weld	150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		600	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		1500	✓	✓	✓	✓	✓	✓	✓	✓	✓					
		2500	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Forged control Globe Valve	Socket - Weld / Screwed	800	✓	✓	✓	✓	✓									
		1500	✓	✓	✓	✓	✓									
		2500	✓	✓	✓	✓	✓									

***We also offer intermediate size and class as per client requirements.**

DESIGN SPECIFICATION

Parameter		Standard
Design	Control Globe Valve	ASME B16.34
Face to Face		ASME B 16.10
Butt - weld End Details		ASME B 16.25
Pressure – Temperature Rating		ASME B 16.34
Inspection and Testing		API 598 / BS EN 12266 - 1
End Flange Details		ASME B16.5

The valves also comply with applicable BS / ASME specifications :

- Shell wall thickness as per ASME B 16.34.
- RTJ flanges are also offered as optional for Class 600 & above.
- We also provide valve ends (flange, butt-weld, socket weld, threaded end) as per client requirements.

Kent Valves has the distinction of having obtained a number of national and international approvals. Notable among these are:

- ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 certified.
- Specific company approvals from national and international oil majors and EPC contractors.
- Indian Boiler Regulation (IBR) certification for boiler applications can be provided.

Standard Test Pressure

Every individual valves manufactured, is inspected and pressure - tested to API 598 / BS EN12266 requirements, for which test certificates are provided. The test pressure is selected as per material requirement specified in ASME B16.34.

ASME Class	Hydrostatic Test Pressure in kg/cm² (psig)			Pneumatic low pressure closure test pressure in kg/cm² (psig)
	Shell	Back Seat	Seat	
150	30 (428)	22 (314)	22 (314)	7 (100)
300	79 (1125)	58 (825)	58 (814)	7 (100)
600	157 (2225)	115 (1650)	115 (1628)	7 (100)
900	235 (3350)	172 (2450)	172 (2442)	7 (100)
1500	391 (5575)	287 (4076)	287 (4076)	7 (100)
2500	651 (9275)	478 (6800)	478 (6787)	7 (100)

STANDARD MATERIAL OF CONSTRUCTION FOR CONTROL GLOBE VALVE AS CAST

Sl. No.	Description	Carbon Steel				Alloy Steel			SS
		WCB	WCC	LCB	LCC	C5	WC6	WC9	CF8
1	Body	A 216 Gr. WCB	A 216 Gr. WCC	A 352 Gr. LCB	A 352 Gr. LCC	A 217 Gr. C5	A 217 Gr. WC6	A 217 Gr. WC9	A 351 Gr. CF8
2	Bonnet	A 216 Gr. WCB	A 216 Gr. WCC	A 352 Gr. LCB	A 352 Gr. LCC	A 217 Gr. C5	A 217 Gr. WC6	A 217 Gr. WC9	A 351 Gr. CF8
3	Plug	A 216 Gr. WCB +13% Cr.	A 216 Gr. WCC ST6	A 352 Gr. LCB ST6	A 352 Gr. LCC ST6	A 217 Gr. C5 ST6	A 217 Gr. WC6 ST6	A 217 Gr. WC9 ST6	A 351 Gr. CF8 ST6
4	Seat Ring	SS 316 / SS 316 Stellited / Duplex SS							
5	Gasket	SPW 304 + Grafoil Filler							
6	Stem	A 276 T 410							A 276 T 304
7	Back Seat	A 276 T 410							A 276 T 304
8	Gland	A 276 T 410							A 276 T 304
9	Gland Flange	A 105							A 351 Gr. CF8
10	Stud & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 320 Gr. L7 / A 194 Gr. 7	A 320 Gr. L7 / A 194 Gr. 7	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B8 / A 194 Gr. 8
11	Eye bolt & Nut	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 2H	Carbon Steel / A 194 Gr. 8
12	Gland Packing	Die Formed Flexible Grafoil Rings With Braided Top & Bottom Rings							
13	Stem Nut	A 439 Type D2							

Sl. No.	Description	Stainless Steel					Duplex Stainless Steel		
		CF8	CF3	CF3M	CN7M	CF8C	6A	5A	4A
1	Body	A 351 Gr. CF8M	A 351 Gr. CF3	A 351 Gr. CF3M	A 351 Gr. CF7M	A 351 Gr. CF8C	A 995 Gr. 4A	A 995 Gr. 5A	A 995 Gr. 6A
2	Bonnet	A 351 Gr. CF8M	A 351 Gr. CF3	A 351 Gr. CF3M	A 351 Gr. CF7M	A 351 Gr. CF8C	A 995 Gr. 4A	A 995 Gr. 5A	A 995 Gr. 6A
3	Plug	A 351 Gr. CF8M + ST6	A 351 Gr. CF3 + ST6	A 351 Gr. CF3M + ST6	A 351 Gr. CF7M + ST6	A 351 Gr. CF8C + ST6	A 995 Gr. 4A + ST6	A 995 Gr. 5A + ST6	A 995 Gr. 6A + ST6
4	Seat Ring	SS 316 / SS 316 Stellited / Duplex SS							
5	Gasket	SPW 316 + Grafoil Filler							
6	Stem	A 276 T 316	A 276 T 304L	A 276 T 316L	A182 Gr. F20	A182 Gr. F347	A182 Gr. F51	A182 Gr. F53	A182 Gr. F55
7	Back Seat	A 276 T 316	A 276 T 304L	A 276 T 316L	A182 Gr. F20	A182 Gr. F347	A182 Gr. F51	A182 Gr. F53	A182 Gr. F55
8	Gland	A 276 T 316	A 276 T 304L	A 276 T 316L	A182 Gr. F20	A182 Gr. F347	A182 Gr. F51	A182 Gr. F53	A182 Gr. F55
9	Gland Flange	A 351 Gr. CF8							
10	Stud & Nut	A 193 Gr. B8M / A 194 Gr. 8M							
11	Eye bolt & Nut	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M	Carbon Steel / A 194 Gr. 8M
12	Gland Packing	Die Formed Flexible Grafoil Rings With Braided Top & Bottom Rings							
13	Stem Nut	A 439 Type D2							

STANDARD MATERIAL OF CONSTRUCTION FOR CONTROL GLOBE VALVE AS FORGED

Sl. No.	Description	Carbon Steel			Alloy Steel		
		A 105	A 105N	LF 2	F 11	F 22	F 5
1	Body	ASTM A 105	ASTM A 105 N	ASTM A 350 Gr. LF 2	ASTM A 182 Gr. F 11	ASTM A 182 Gr. F 22	ASTM A 182 Gr. F 5
2	Bonnet	ASTM A 105	ASTM A 105 N	ASTM A 350 Gr. LF 2	ASTM A 182 Gr. F 11	ASTM A 182 Gr. F 22	ASTM A 182 Gr. F 5
3	Plug	ASTM A 105	ASTM A 105 N	ASTM A 350 Gr. LF 2	ASTM A 182 Gr. F 11	ASTM A 182 Gr. F 22	ASTM A 182 Gr. F 5
4	Seat Ring	SS 316 / SS 316 Stellited / Duplex SS					
5	Gasket	SPW 304 + GrafoilFiller					
6	Stem	A 276 T 410					
7	Back Seat	A 276 T 410					
8	Gland	A 276 T 410					
9	Gland Flange	A 105					
10	Stud & Nut	A 193 Gr. B7/ A 194 Gr. 2H	A 193 Gr. B7/ A 194 Gr. 2H	A 320 Gr. L7/ A 194 Gr. 7	A 320 Gr. L7/ A 194 Gr. 7	A 193 Gr. B7/ A 194 Gr. 2H	A 193 Gr. B7/ A 194 Gr. 2H
11	Eye bolt and Nut	Carbon Steel / A 194 Gr. 2H					
12	Gland Packing	Die Formed Flexible Grafoil Rings With Braided Grafoil Top & Bottom Rings					
13	Stem Nut	A 439 Type D2					

Sl. No.	Description	Stainless Steel						Duplex Stainless Steel		
		F 304	F 304L	F 316	F 316L	F 347	20	F 51	F 53	F 55
1	Body	ASTM A 182 Gr. F 304	ASTM A 182 Gr. F 304 L	ASTM A 182 Gr. F 316	ASTM A 182 Gr. F 316L	ASTM A 182 Gr. F 347	ASTM A 182 Gr.20	ASTM A 182 Gr. F 51	ASTM A 182 Gr. F 53	ASTM A 182 Gr. F 55
2	Bonnet	ASTM A 182 Gr. F 304	ASTM A 182 Gr. F 304 L	ASTM A 182 Gr. F 316	ASTM A 182 Gr. F 316L	ASTM A 182 Gr. F 347	ASTM A 182 Gr. 20	ASTM A 182 Gr. F 51	ASTM A 182 Gr. F 53	ASTM A 182 Gr. F 55
3	Plug	ASTM A 182 Gr. F 304	ASTM A 182 Gr. F 304 L	ASTM A 182 Gr. F 316	ASTM A 182 Gr. F 316L	ASTM A 182 Gr. F 347	ASTM A 182 Gr. 20	ASTM A 182 Gr. F 51	ASTM A 182 Gr. F 53	ASTM A 182 Gr. F 55
4	Seat Ring	SS 316 / SS 316 Stellited / Duplex SS								
5	Gasket	SPW 304 + Grafoil Filler								
6	Stem	A 276 T 316	A 276 T 304L	A 276 T 316L	A182 Gr. F20	A182 Gr. F347	A182 Gr. F51	A182 Gr. F53	A182 Gr. F55	
7	Back Seat	A 276 T 316	A 276 T 304L	A 276 T 316L	A182 Gr. F20	A182 Gr. F347	A182 Gr. F51	A182 Gr. F53	A182 Gr. F55	
8	Gland	A 276 T 316	A 276 T 304L	A 276 T 316L	A182 Gr. F20	A182 Gr. F347	A182 Gr. F51	A182 Gr. F53	A182 Gr. F55	
9	Gland Flange	A 351 Gr. CF8								
10	Stud & Nut	A 193 Gr. B8M / A 194 Gr. 8M								
11	Eye Bolt & Nut	Carbon Steel / A 194 Gr. 8M								
12	Gland Packing	Die Formed Flexible Grafoil Rings With Braided Top & Bottom Rings								
13	Stem Nut	A 439 Type D2								

FEATURES

1)Heavy duty spring - Ensures valve fails open or closed upon loss of instrument air.
2)Robust Top Guiding - Large diameter plug stem is heavily guided by two widely spaced guides in the bonnet/ packing box.
3)Retained Seat Ring - Clamped-in, self-centering seat ring.

ADVANTAGES

1) High Thrust Fast -Acting Piston Actuators - They offer a smaller and lighter footprint than diaphragm actuators and are ideal for skid-mounted process equipment.

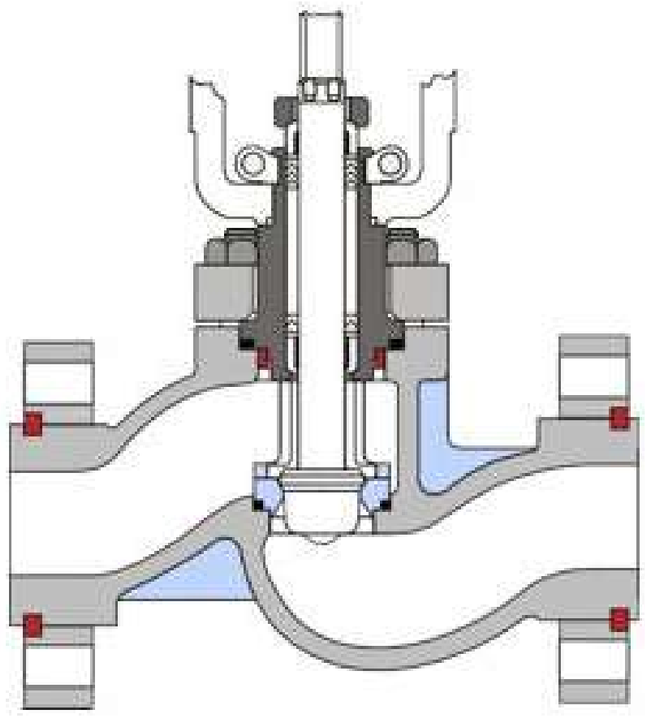
2)Range of Trim Configurations - The valves can be sized to optimally control your specific process parameters, from micro-flows to full capacity trims and everything in between. A full line of anti-cavitation and noise abatement trims are available.

3) Exceptional Shut - off Standard - ANSI Class - V metal to metal shut-off in the process is achieved with a unique plug and seat ring design, available in a soft-seated configuration.

4) Precise Control - The broad range of control is achieved through a top - guided, unbalanced, single- piece plug with flow characterization built in to the geometry of the plug head.

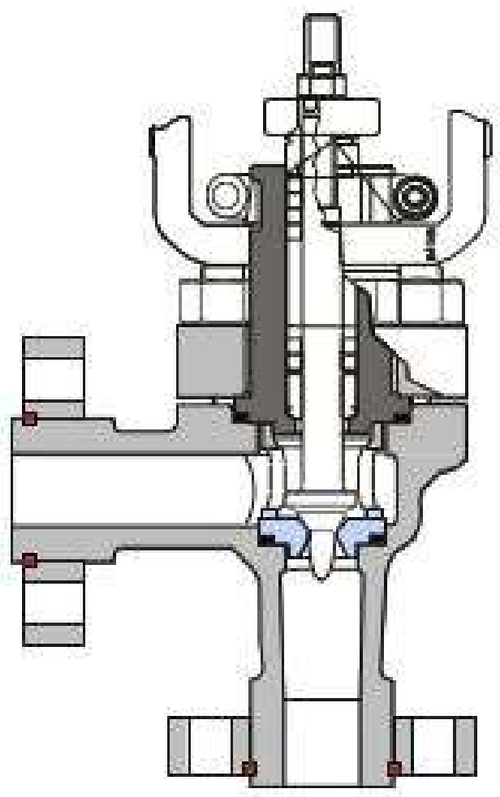
5) Maintainability - The top entry design facilitates maintenance even though the valve has a much longer MTBS Cycle than competing diaphragm actuated valves.

GLOBE-STYLE BODY CONFIGURATION



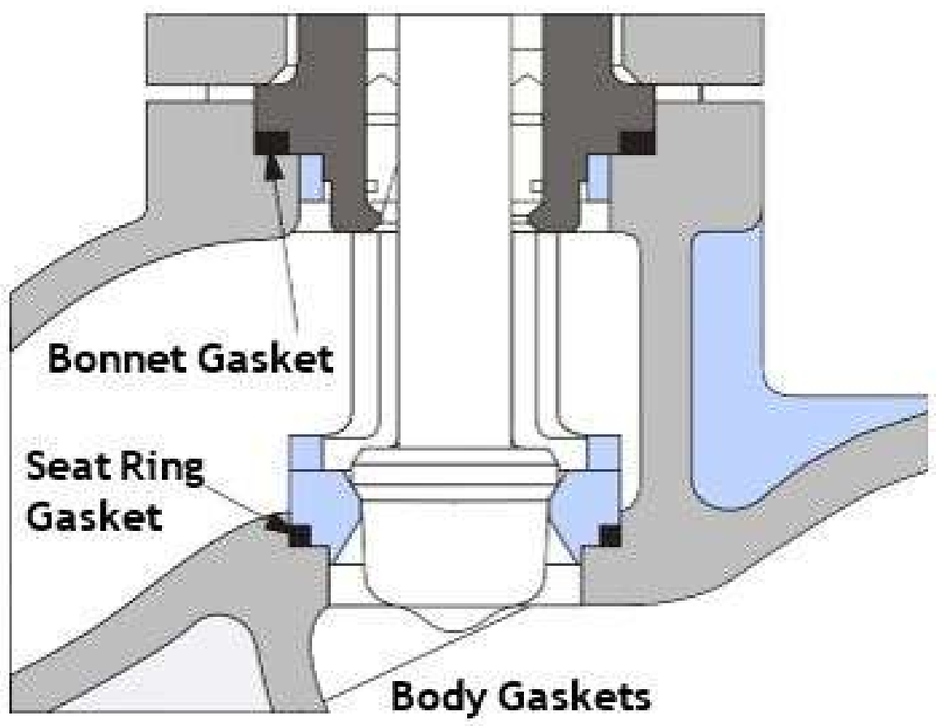
Smooth, streamlined, constant area internal passages with no pockets, permitting high capacity with minimum turbulence, is what Globe-style bodies feature. Manufactured in expensive stainless or alloy steel, they are designed with nearly constant wall thickness, providing lower weight and cost.

THREE-WAY BODY CONFIGURATION



Three-way bodies are used for either combining or diverting flow services. Owing to KENT's excellent design and high interchangeability, even a standard Globe valve converts easily to three-way service with the addition of a three-way adopter, upper seating, two gaskets, a three-way plug, and longer bonnet flange studs. With all other valve parts remaining the same, the angle-style globe is completely interchangeable with the two-way globe style except the body and the 1 ½ inch seat ring.

BODY GASKET



The Globe is uniquely designed with the bonnet and seat ring gaskets fully protected. Since the bonnet sits metal-to-metal in the body, the bonnet gasket compression is determined by the depth of the gasket step on the bonnet, which is machined to provide the required gasket compression.

When the bonnet is fully installed, force is transmitted through the seat retainer to secure the seat ring in its position. The body, seat retainer, and seat ring are all machined to close tolerances to provide the proper gasket compression. Unlike the bonnet, the seat ring does not sit in the body, allowing the small clearance to compensate for manufacturing tolerances and thermal expansion.

Gasket	Type	Gasket Material	Maximum Gasket Temp. F / C	Minimum Gasket Temp. F / C
Standard Gaskets	Flat	Teflon (TFE)	350 / 177	-200 / -130
	Spiral Wound	304 S.S.	750 / 400	-20 / -30
	Spiral Wound	316 S.S.	1000 / 538	-20 / -30
Alternate Gaskets	Flat	Teflon (FEP)	400 / 204	-320 / -196
	Flat	Grafoil**	1500** / 816**	-320 / -196
	Spiral Wound	316 S.S. / Grafoil**	1500** / 816**	-320 / -196

*Lower temperature available upon request.
**Limited to 800 F / 427 C for oxidizing service.

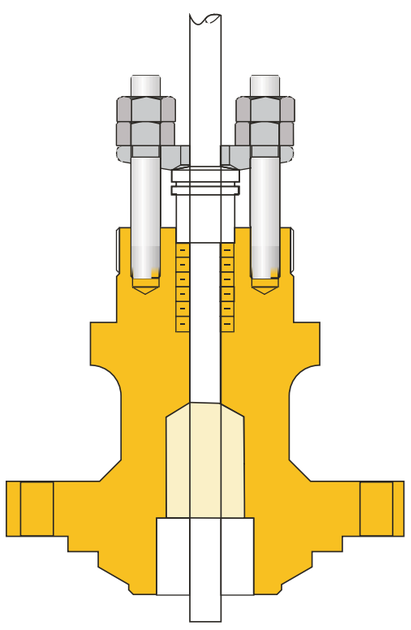
CONSTRUCTION OF BONNET

Bonnets are manufactured from the same material as the Body. Kent bonnet sutilize a bolted flange type stuffing box construction. The packing box design is such that all types of packing are interchangeable. Figures shows various type of Bonnet available.

BONNET TYPES

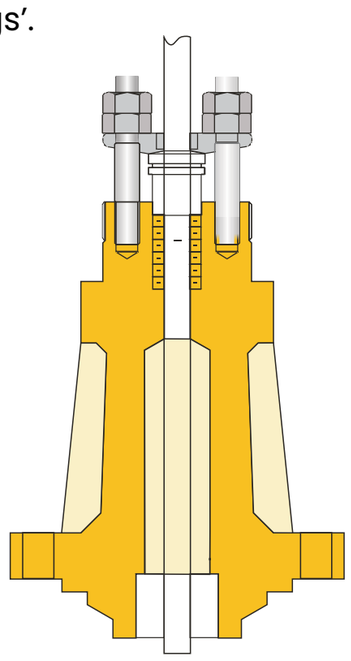
1. Standard Bonnet

The Standard bonnet enables the forming of a deep packing box together with a long guide housing, thereby providing a robust and vibration resistant assembly. Up to 250° C, Teflon rings are the standard packing.



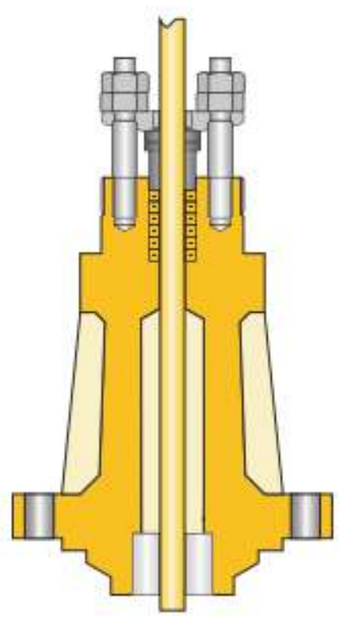
2. Extended Finned Bonnet

Extended finned Bonnets are used for high temperature service applications ranging from (+230°C to +1000° C). These bonnets are provided with 'Graphite gland packings'.



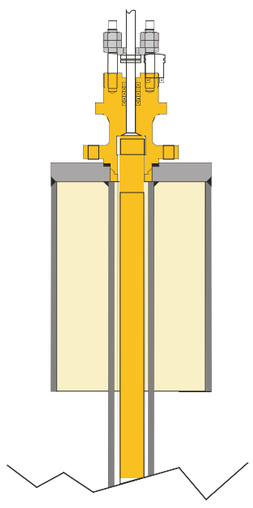
3. Extended Plain Bonnet

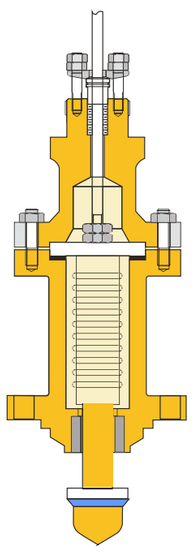
Extended plain bonnets are used for service temperature (-100°C to 0°C).



4. Cryogenic Bonnet

This permits stagnated moderate temperature gas to form within the bonnet. This then protects the packing from the extremes of temperature produced by the line fluid. Normally constructed in stainless steel, it operates at -196°C.





5. Bellow Sealed Bonnet

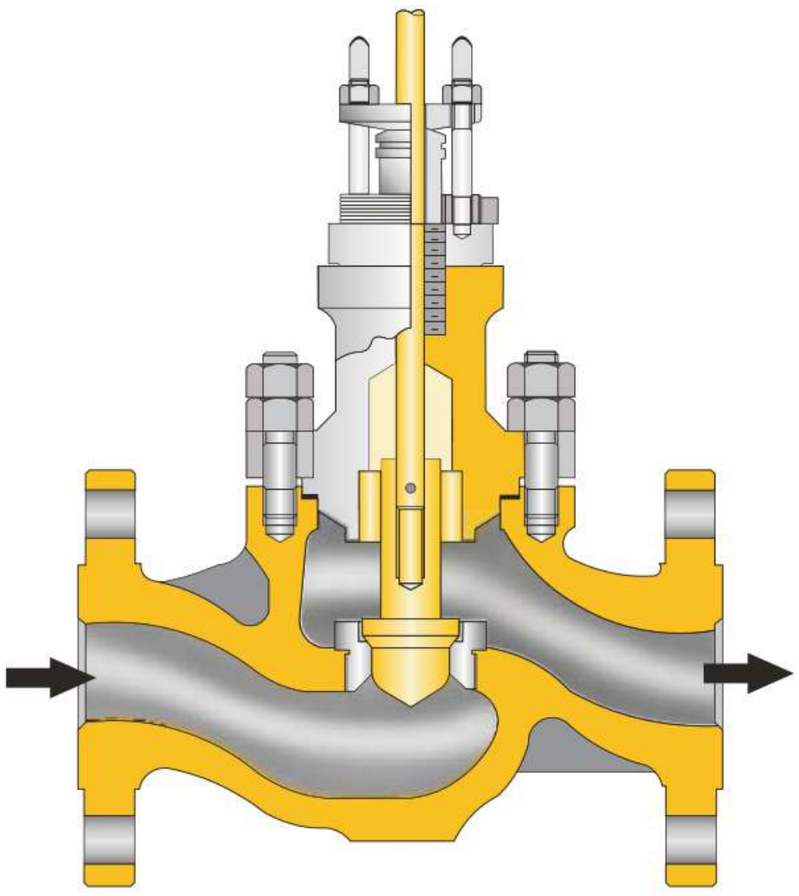
It provides for a positive metallic gland seal within the rated pressure and temperature of the bellows material selected and used for hazardous or lethal service. An auxiliary packing box in the upper bonnet serves as a back-up seal in the unlikely event of a bellows failure.

HARDENED / HARD FACED TRIMS

The trims are hardened / hard faced to protect the parts like seat ring, plug, guide bush or cages against the effect of erosion, abrasion and cavitation and to minimize galling between mating parts at high temperatures. Erosion of valve trim is caused by various factor v is. the fluid is gas or liquid, entrained solid particles in it, high flowing velocity and its temperature. The degree of erosion of metal parts caused by flowing media is a function of pressure differential. Kent provides hardened/ hard faced trims through various methods like heat treatment of metals, stellite deposition on metals and hard coating on metals.

VARIOUS TRIM OPTIONS

Top GuidedTrims-[Unbalanced]

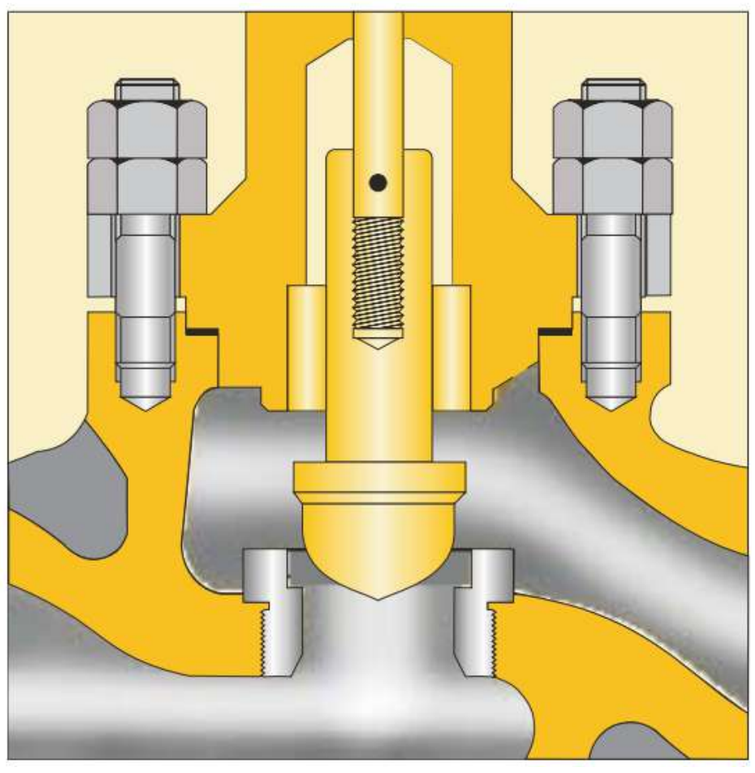


CONTOUR

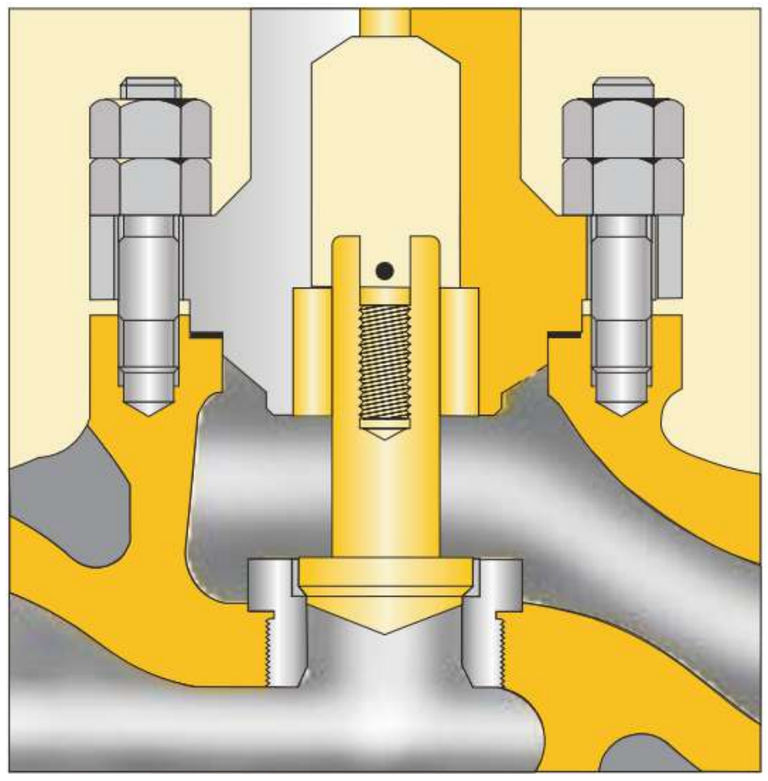
The Contour Top Guided trims are the most preferred choice for variety of control applications due to their simple construction. Heavy top guide bush provides maximum support to impart complete stability. The plug shank is guided the lowest portion of the bonnet minimizing the effect of side thrust on the valve plug eliminating trim vibration.

DISC (ON-OFF)

For Quick Opening applications the disc trims are used. These trims are similar to contoured trims except they are flat instead of contour parabolic shape.



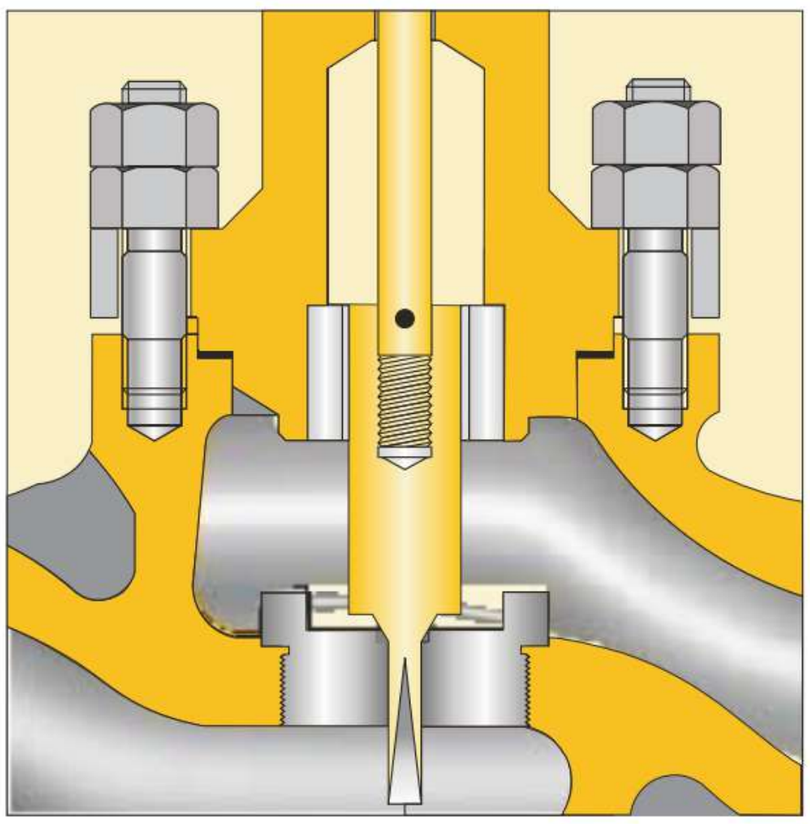
Metal to Metal Seating Leakage Class IV and V



Metal to Metal Seating Leakage Class IV and V

MICRO

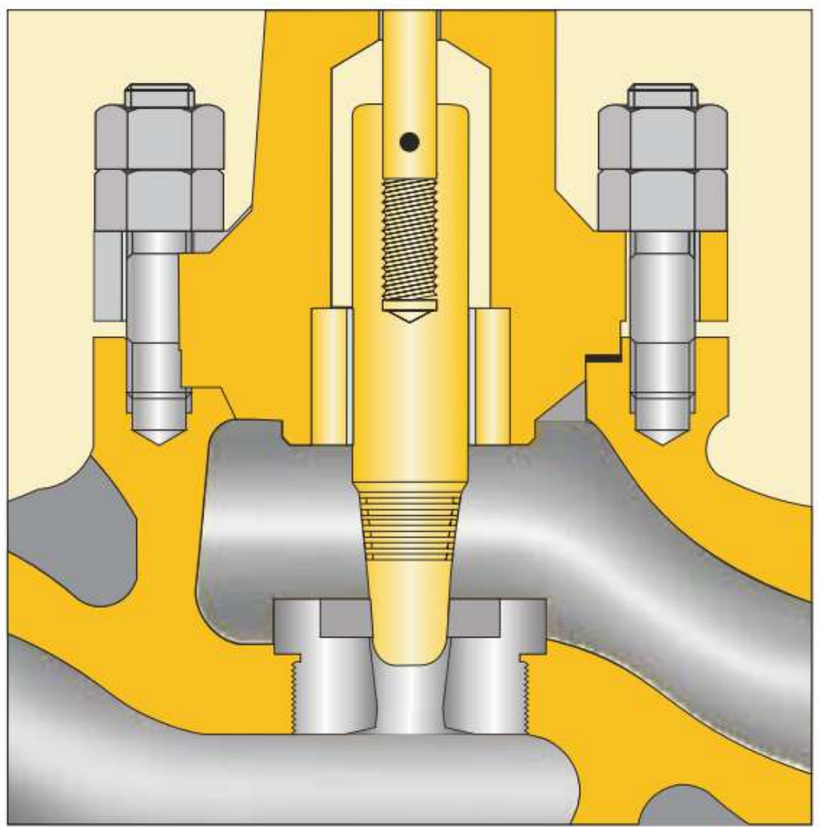
This trim has very high rangeability, designed to precise control of minute flow rates. In addition to top guide the plug nose is precisely guided in the seat bore for through out valve travel to avoid breakage of the nose. The trims are designated in alphabets A to M depending on Cv values but the actual seat bore remains Diameter 4mm.



Metal to Metal Seating Leakage Class IV, V and VI

CASCADE

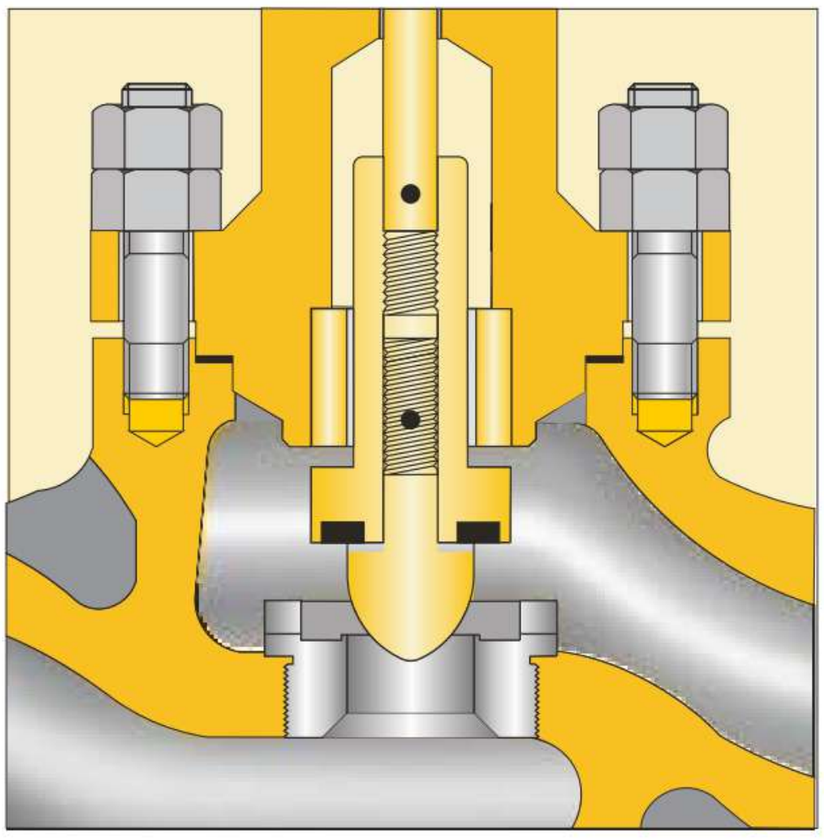
Most suitable trim option where large pressure drop, cavitation during throttling is experienced which may cause erosion of trim, vibration and noise. As illustrated in the figure, the large pressure drop is divided in to many stages by means of the grooves made in the plug, which minimises the cavitation.



Metal to Metal Seating Leakage Class IV and V

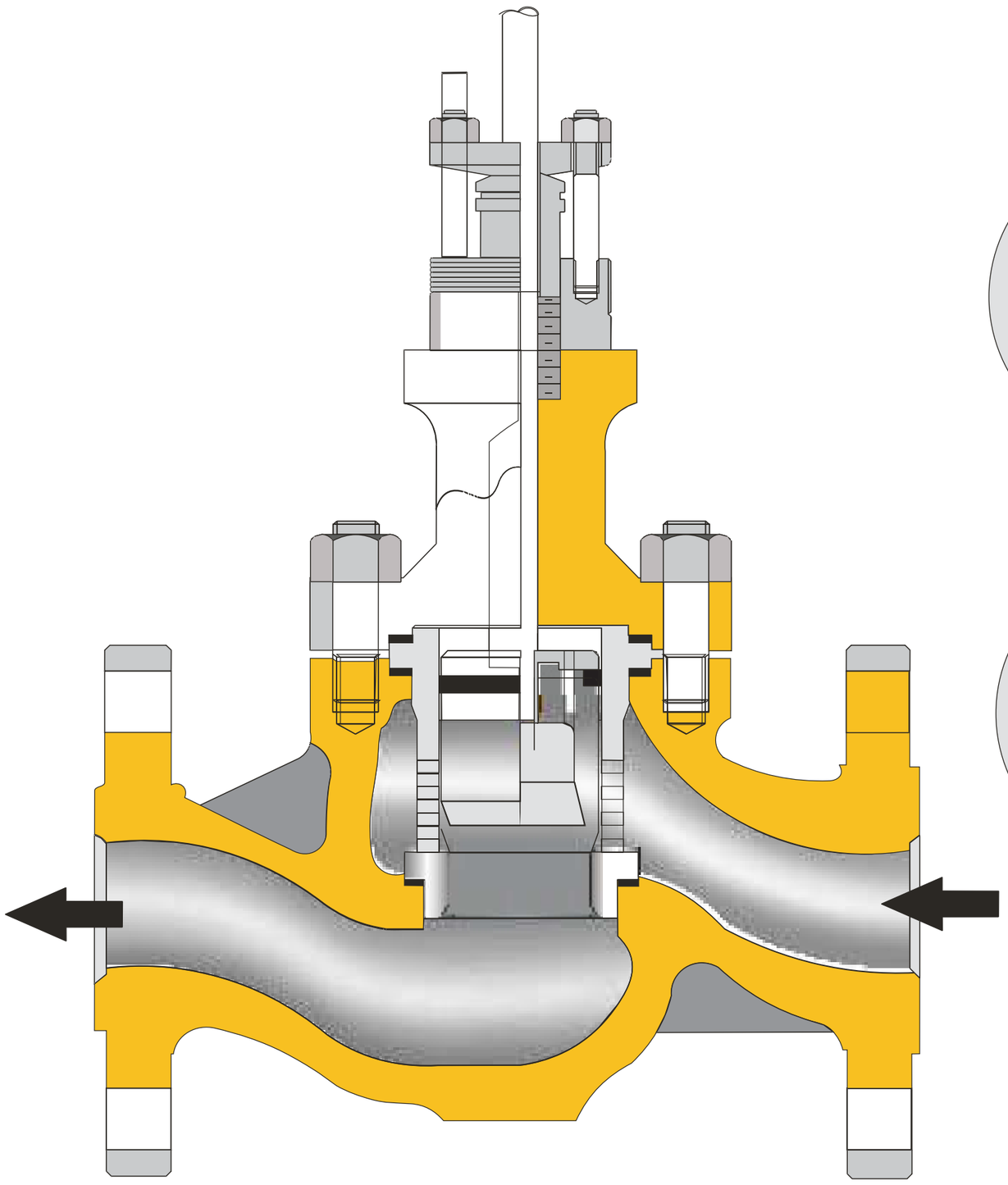
TRIM WITH SOFT FACING

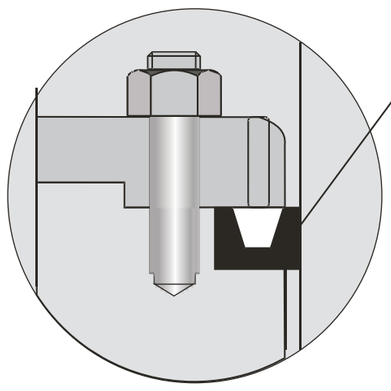
The contour / disc type trims with P.T.F.E. or glass filled P.T.F.E. soft facing are utilized for tight shutoff (Class VI per FCI 70-2) application where control valve has to perform equally as a controlling and a shut-off valve. The P.T.F.E. soft facing is sandwiched between the plug and shank, and easily replaceable.



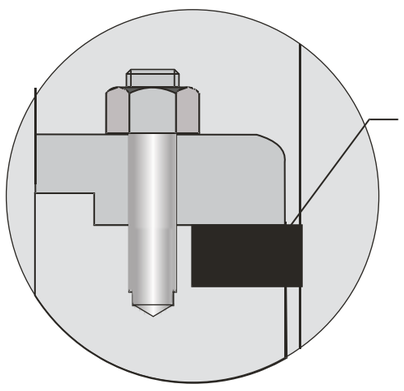
Metal to Soft Facing Leakage Class VI

MULTI HOLE CAGE GUIDED PRESSURE BALANCE / UNBALANCED TRIMS





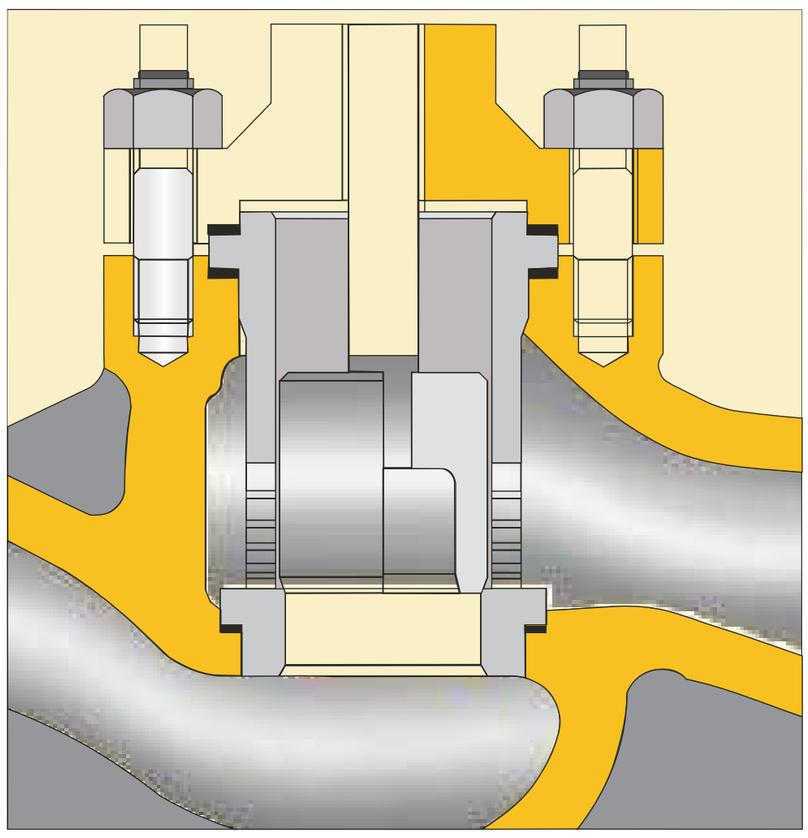
'U'SealRing
Max. Temp. +2000C
Leakage
Class III and IV



Graphite Ri

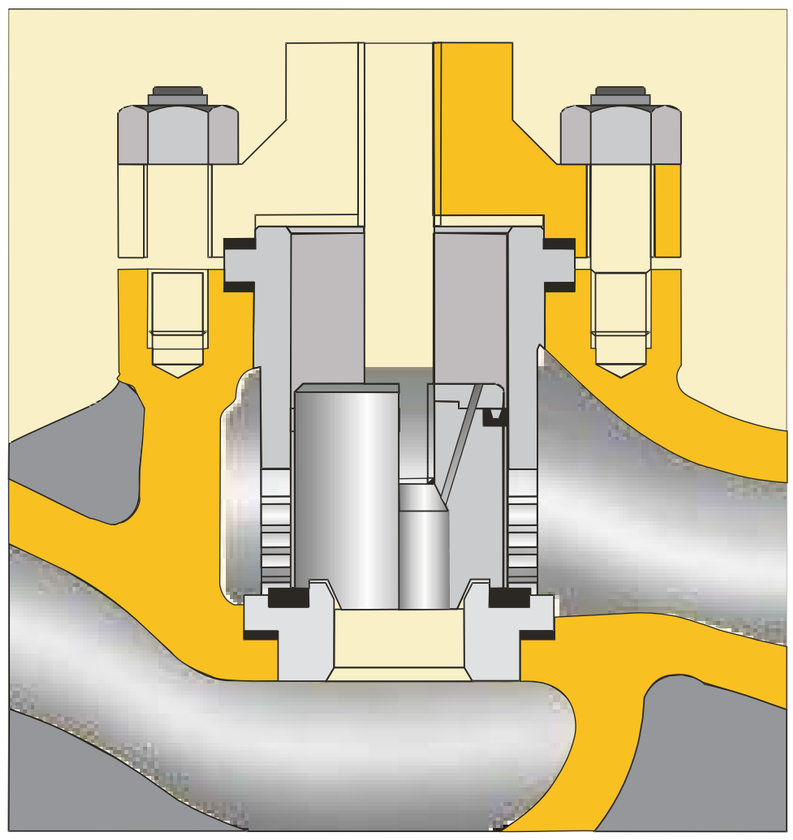
Max.Temp.+6000C
Leakage
ClassIIIandIV

Multi Hole Cage Guide Unbalance



Metal to Metal Seating Leakage
Class IV and V

Multi Hole Cage Guide Pressure Balance



Metal to Metal Soft Facing Leakage
Class VI

MULTI SPRING DIAPHRAGM ACTUATORS & ITS FUNCTION

The control valve actuators are diaphragm actuators with pre- compressed multispring construction. They are compact, comparatively with less number of parts, easy to maintain, quickly reversible. The actuators are suitable for regulating and on-off applications. Various models are available covering small to larger thrust requirements. The increasing air pressure supply moves the diaphragm and actuator stem opposing the spring force, while with decreasing air pressure supply the spring force moves the diaphragm in the opposite direction and back to normal position. To get various loading capacities the number of springs are altered. The actuator can be mounted on the shoulder of control valve bonnet with the help of locking ring. The connection between valve stem and actuator stem can be achieved with the help of stem connector made out of two halves. The travel indicator is coupled with the stem connector which matches with travel scale indicating the position of inner valve stem.

SPECIFICATIONS

Max. Diaphragm Pressure	:	3.5 bar
Actuator Travel	:	18, 28, 38, 58, 78 and 108 mm
Diaphragm	:	Nitrile with Nylon insert / EPDM with Nylon insert (On Request)
Operating Temp. Range	:	- 40 to +80 0C Nitrile Elastomers
Connections	:	1/4" NPT (F) 3/8"NPT(F)
Permissible Linearity and Hysterisis	:	±5% of Signal Pressure Range

FEATURES

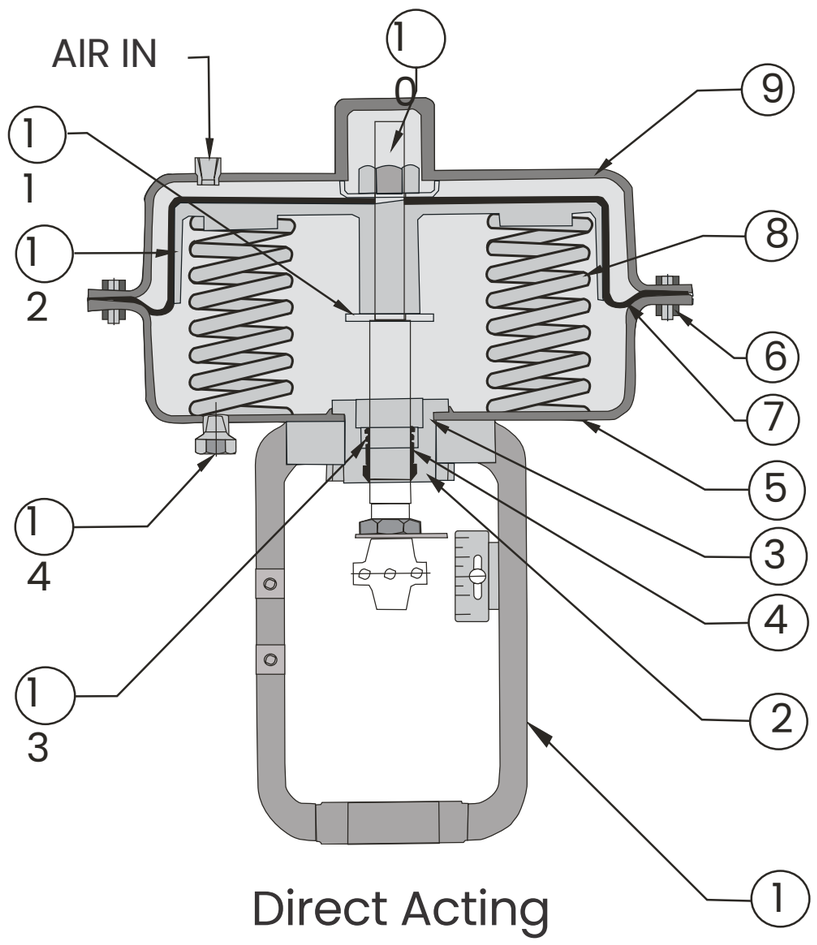
Utility : Applicable for regulating and on-off functions.
High Power : Variety of models provide choice for low and high thrust requirements
Construction : Due to multi spring arrangement the actuators are lightweight and compact.
Reversible : The actuators are field reversible without demanding addition or deletion of parts.
Long service life : Rigid construction and durable components provide a long lasting service life.
Accessories Mounting : Variety of accessories like Valve Positioner, Air Filter Regulator, Air Lock Relay, Volume Booster, Limit / Proximity Switches, Solenoid Valves, Position Feedback Transmitter, Quick Exhaust Valves, I/P Converter, etc. can be mounted easily.
Minimum maintenance : The actuators accessories like Valve Positioner, Air are virtually maintenance free.
Accuracy : Rolling diaphragm construction provides constant effective area through out the stroke.
Manual Operators : The actuators are also available duly incorporated with Hand Wheel arrangements as Top Mounted or Side Mounted configurations.

DIRECT ACTING ACTUATORS

The actuator stem moves downward with increasing diaphragm pressure. When this pressure is reduced the opposing spring force moves the actuator stem upward. On air failure the actuator stem is pulled to extreme upward position by spring force.

This actuator is suitable for action :

Air Fail to Open : Valve Plug push upto open the valve through spring.



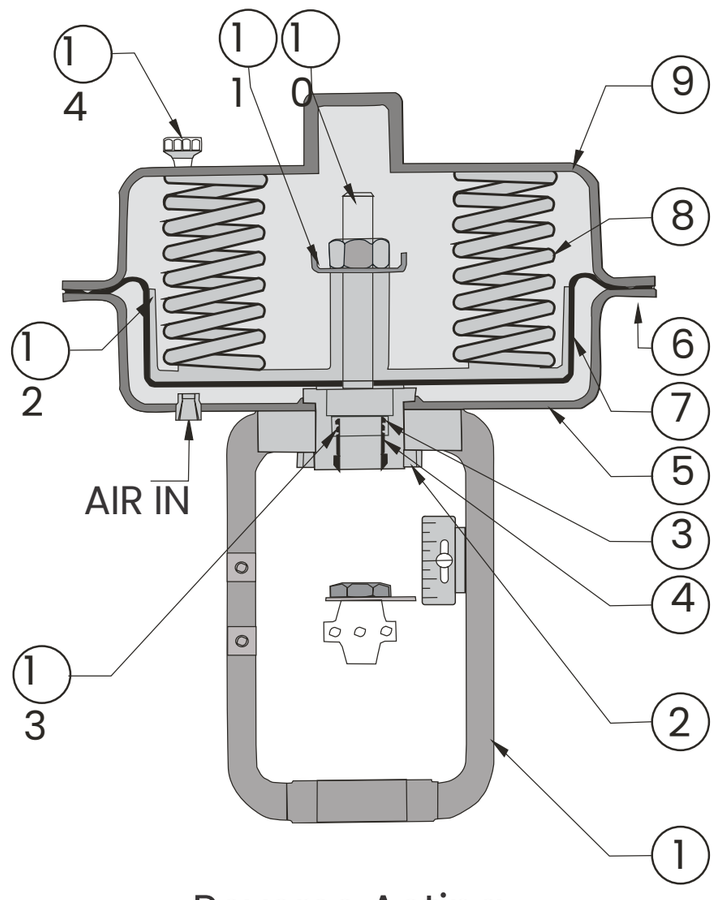
Direct Acting

REVERSE ACTING ACTUATORS

The actuator stem moves upward with increasing diaphragm pressure. When this pressure is reduced the opposing spring force moves the actuator stem downward. On air failure the actuator stem is pushed to extreme downward position by spring force.

This actuator is suitable for action :

Air Fail to Close: Valve Plug push down to close the valve through spring.



Reverse Acting

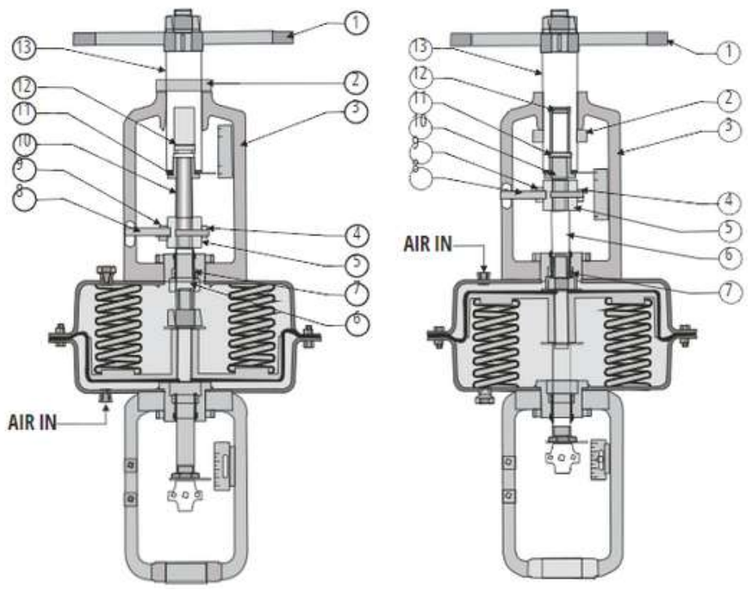
MATERIAL OF CONSTRUCTION BASIC ACTUATOR

Sr.No.	Part Name	MOC
1	Yoke	Cast Iron
2	Locking Ring	Carbon Steel
3	Seal Box	Aluminium
4	Guide Bush	Teflon Coated Steel Bush
5	Lower Casing	Steel (C.R.C. Sheet)
6	Casing Nuts Bolts	Carbon Steel + Cadmium Plated
7	Actuator Diaphragm	Nitrile With Fabric Insert
8	Actuator Springs	Chrome Vanadium Spring Steel
9	Upper Casing	Steel (C.R.C. Sheet)
10	Actuator Stem	SS 410 + Chrome Plated
11	TravelStopper	Carbon Steel + Cadmium Plated
12	Diaphragm Plate	Aluminium / S.G. Iron
13	‘O’ Seal Ring (stem To Seal Box)	Nitrile
14	Exhaust Nipple	Carbon Steel

TOP MOUNTED HANDWHEEL (TMH)

Top Mounted Handwheel (TMH) is capable of providing operating force in both upward and downward directions and is a continuously connected handwheel. In this arrangement there is nothing to engage or disengage.

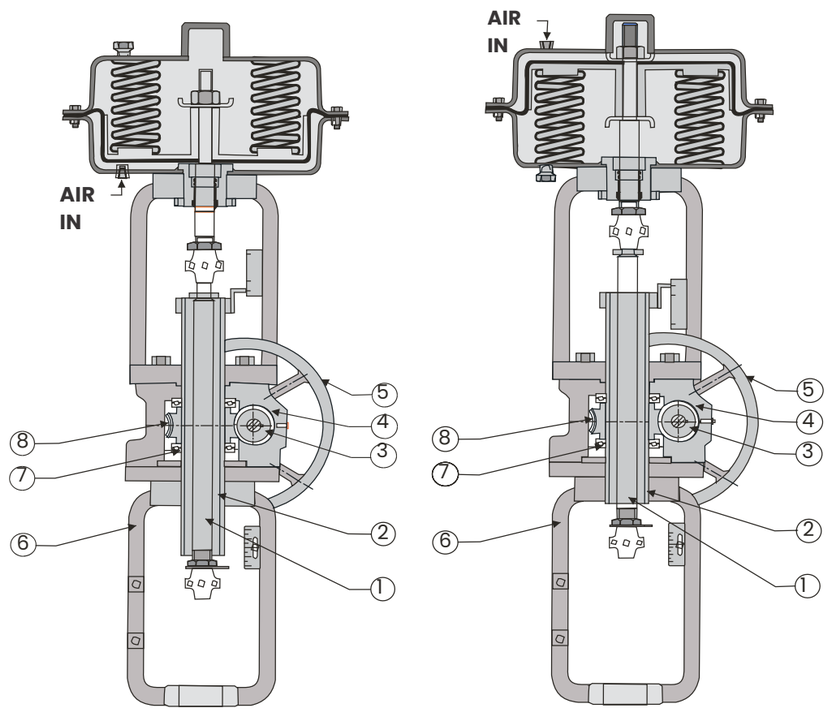
It can be used to operate the control valve throughout its stroke, or as a travel stop, limiting the amount of closing or opening of the valve. The actuator is operable with pneumatic air when the handwheel is set in 'NEUTRAL' position. A lock nut is provided to lock the position of the handwheel. The handwheel yoke is provided with a stroke indicator which shows the position of the handwheel mechanism. In addition to it an usual stroke indicator is fixed to the actuator yoke showing valve stem position.



Reverse Acting Direct Acting

SIDE MOUNTED HANDWHEEL (SMH)

Side Mounted Handwheel (SMH) arrangement conveniently located on the actuator yoke. The mechanical advantage of worm gear arrangement reduces the operating torque, i.e., the valve can be operated through worm gear box. The side mounted handwheel assembly may be fitted on actuator as original equipment or can be added to the actuator later-on at site, if need arises, without modification or alteration of existing components.



Reverse Acting Direct Acting

Material of Construction Top Mounted Handwheel (TMH)

Sr.No.	Part Name	MOC
1	Handwheel	Cast Iron
2	TMH Yoke Lock Nut	Carbon Steel
3	TMH Yoke	Cast Iron
4	TMH Stem Connector Allen Bolt	Carbon Steel
5	TMH Stem Connector	Carbon Steel SS
6	Extension Rod For Actuator Stem	410 + Hard Chrome Plated
7	'O' Seal Ring (Stem To Seal Box)	Nitrile / Viton
8	Stop Peg	Carbon Steel
9	Stop Peg Hex Nut	Carbon Steel SS
10	TMH Stem	410 + Hard
11	TMH Screw Nut	Carbon Steel
12	Thrust Washer	Gun Metal
13	TMH Screw	Carbon Steel

Material of Construction Side Mounted Handwheel (SMH)

Sr.No.	Part Name	MOC
1	SMH Stem	Carbon Steel+ Cadmium Plated
2	Hollow Screw	Carbon Steel+ Cadmium Plated
3	Worm	Carbon Steel
4	SMH Body Cum Housing	Cast Iron
5	Handwheel	Cast Iron
6	SMH Yoke	Cast Iron
7	Thrust Bearing	Bearing Steel
8	Worm Gear	SS410

CV VALUES

CV Values for Contoured Trim

Valve size		CV	
Inch	mm	US	GPM
1/2" 3/4" 1"	15 20 25	1	
		1.2	
		1.8	
		2.8	
		4	
		5	
		7.2	
		11.7	
1 1/2	40	27	
		19	
		12	
2	50	45	
		27	
		19	
2 1/2	65	72	
		45	
		27	
3	80	100	
		72	
		45	
4	100	180	
		100	
		72	
6	150	360	
		270	
		180	
8	200	576	
		360	
		270	
10	250	900	
		576	
		360	
12	300	1215	
		900	
		2115	
14	350	1620	
		1215	
		2700	

CV Values for Microspline Trim

Valve size		CV	
Inch	mm	US	GPM
1/2" 3/4" 1"	15 20 25	0.003	
		0.005	
		0.0075	
		0.01	
		0.02	
		0.03	
		0.05	
		0.075	
		0.1	
		0.15	
		0.2	
		0.3	
		0.4	
		0.5	
		0.75	

NOTE :
1)The above mentioned trim sizes are designated sizes only. Actual seat bore for all above sizes is 4mm.

2)For Trim size (M 6 to M 13) only linear flow characteristics are available.

3)Reduced trim are also available in various combination.

NOTE :
1)Cv Values for on-off flow characteristic will generally be 10 to 20% higher.

2) For Linear flow characteristic, if essential, above mentioned Cv values can be given higher by 10%.

3)Reduced trims are available in various combinations.

CV VALUES

CV Values for Ported cage guided pressure balance & Unbalance

Valve size		CV	
Inch	mm	US	GPM
1"	25	11	
		9	
		5	
1 1/2	40	25	
		18	
		13	
2	50	41	
		27	
		18	
2 1/2	65	65	
		45	
		27	
3	80	90	
		72	
		45	
4	100	162	
		90	
		72	
6	150	325	
		270	
		180	
8	200	522	
		360	
		270	
10	250	820	
		576	
		350	
12	300	1080	
		900	
		576	
14	350	1458	
		1215	
		900	
16	400	1900	
		1620	
		1215	

CV Values for Multi hole cage guided pressure balance & Unbalance

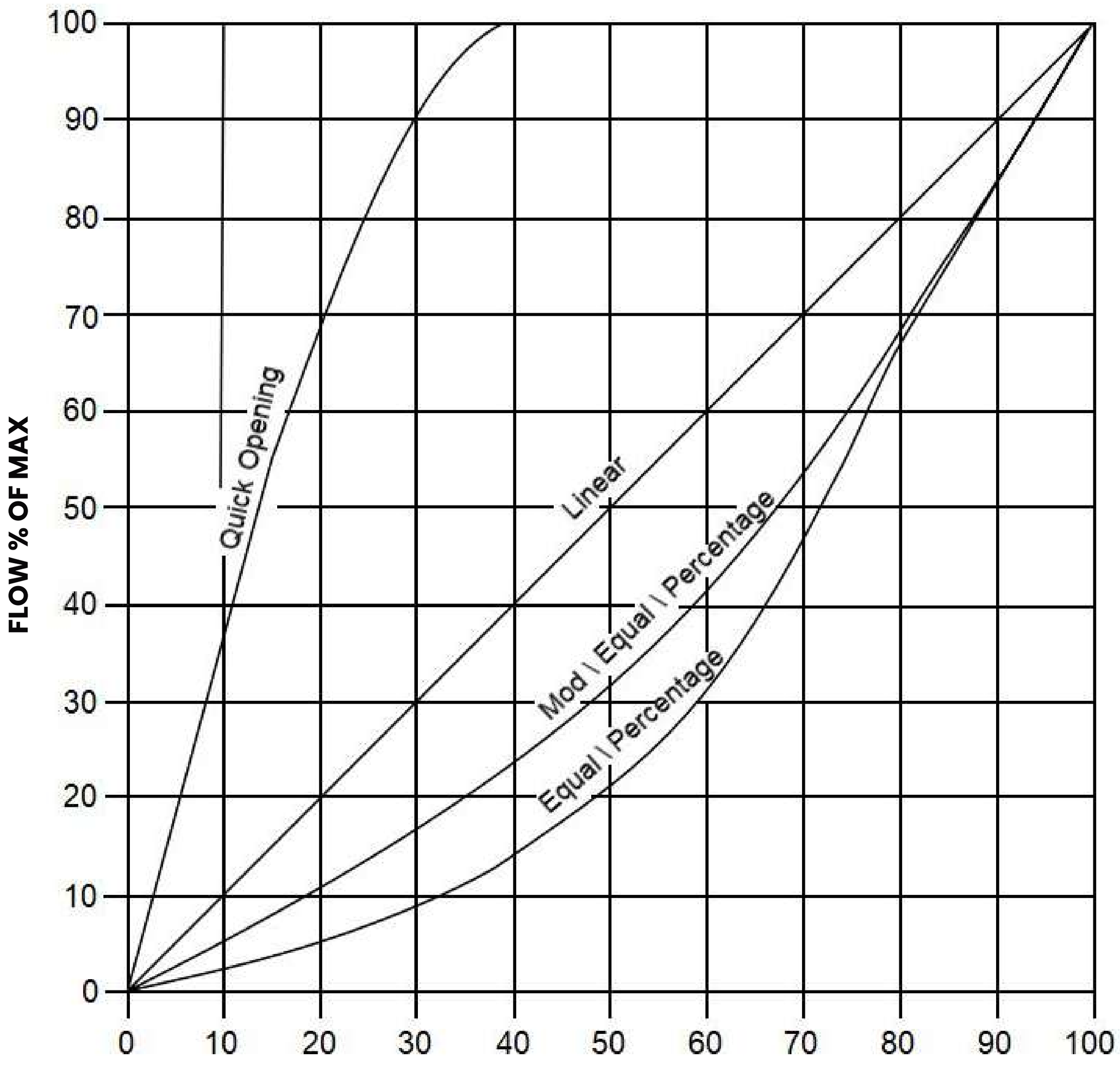
Valve size		CV	
Inch	mm	US	GPM
1"	25	10	
		7	
		4	
1 1/2	40	22	
		16	
		10	
2	50	36	
		22	
		16	
2 1/2	65	58	
		36	
		22	
3	80	81	
		58	
		36	
4	100	160	
		81	
		58	
6	150	288	
		216	
		145	
8	200	460	
		288	
		216	
10	250	720	
		460	
		288	
12	300	990	
		800	
		460	
14	350	1400	
		990	
		800	
16	400	1950	
		1400	
		990	

NOTE :

1) Cv Values for on-off flow characteristic will generally be 10 to 20% higher.

2) For Linear flow characteristic, if essential, above mentioned Cv values can be given higher by 10%.

INHERENT FLOW CHARACTERISTIC CURVES

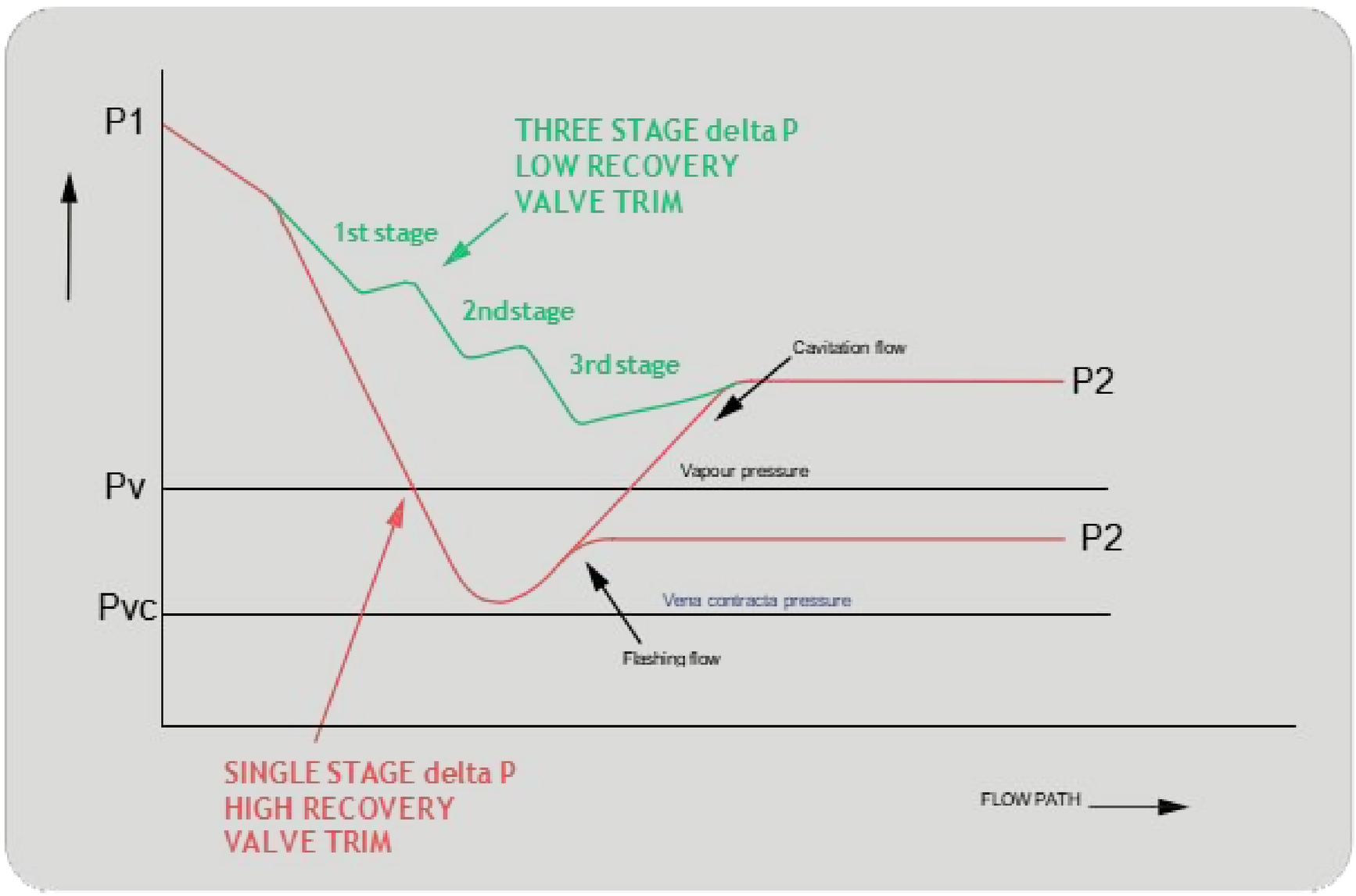


Defination:

Linear : Flow is directly proportional to valve lift.
Equal% : Flow changes by constant percentage of its instantaneous value for each unit of valve lift.
Quick Opening : Flow increases rapidly reaching near to its maximum at a low lift.
Modified Equal% : Characteristic is in between linear and equal percentage characteristic. It provides fine throttling at low flow capacity and approximately linear characteristic at higher capacity.

NOISE AND CAVITATION CONTROL

As fluid passes through a restriction (normally the trim in a valve), a pressure reduction and subsequent velocity increase take place. Immediately after the restriction, the point of lowest pressure and highest velocity is called the "vena contracta". After which, a pressure recovery takes place together with a reduction in fluid velocity. The amount of fluid recovered has a great influence on the valve trim design.



Explanation of Cavitation control using Multistage low recovery trim

For liquids, if the pressure at the vena contract a goes below the liquid's vapour pressure, bubbles are formed. If the subsequent pressure recovery to P2 (downstream pressure) exceeds the fluid's vapour pressure, the vapour bubble will collapse or implode. This is called "cavitation". This can occur within the valve or in the downstream pipework. The energy dissipated can cause extensive damage to valves and pipe work. If the pressure recovery stays below the fluid's vapour pressure, then "flashing" occurs. As shown in the diagram above, multi-stage pressure let down ("Anti-cavitation") valve trim designs allow the required pressure drop across the valve to be achieved in a number of stages.

The velocity of the fluid through the valve has a major influence on the erosive effect of the fluid on the valve body and trim. Hence, the control of fluid velocity and the appropriate selection of materials are critical to the valve's performance and service life. Higher fluid velocities, particularly in gas service, can generate noise in the valve and pipe work. Thus, velocity control is a major factor in containing noise emissions within acceptable limits (normally < 85 dBA).

Kent valve trim designs, engineered for specific applications, may include a combination of :

- Multi-stage pressure reduction stages.
- Tortuous paths- as the fluid changes direction, energy is dissipated.
- Flow impingement of one flow path onto another also causes energy loss.

Through our World Class Engineering intelligence, Kent can provide a trim solution having considered the process control conditions and the preferred flow direction, as well as initial and life cycle costs.

ORDERING INFORMATION

A	B	C	D	E	F	G
CGV	04	006	RT	16	08	HO

A

VALVE TYPE MODEL CODE

CONTROL GLOBE VALVE	CGV

B

SIZE

1/2"	0H
3/4"	3F
1"	01
1 1/4"	1F
1 1/2"	1H
2"	02
2 1/2"	2H
3"	03
4"	04
5"	05
6"	06
8"	08
10"	10
12"	12
14"	14
16"	16

C

PRESSURE CLASS

CLASS	FORGED	CAST
150	001	001
300	003	003
600	006	006
800	008	-
900	-	009
1500	015	015
2500	025	025

D

END CONNECTION 1/2" to 2"

NPT	FR
BSP	BP
SWE	SE

END CONNECTION CODE

FLANGE RF	FR
FLANGE FF	FF
RING TYPE JOINT	RT
BWE	BW
BWE SHORT	BS

E

BODY MATERIAL ASTM

FORGED		CAST	
A 105	01	A 216 Gr. WCB	16
A 350 Gr. LF2	02	A 216 Gr. WCC	17
A 182 Gr. F11	03	A 352 Gr. LCC	18
A 182 Gr. F22	04	A 352 Gr. LCB	19
A 182 GR. F5	05	A 217 GR. WC6	20
A 182 GR. F304	06	A 217 GR. WC9	21
A 182 GR. F316	07	A 217 GR. C5	22
A 182 GR. F304L	08	A 351 GR. CF3	23
A 182 GR. F316L	09	A 351 GR. CF8	24
A 182 GR. F347	10	A 351 GR. CF3M	25
A 182 GR. F51	11	A 351 GR. CF8M	26
A 182 GR. F53	12	A 351 GR. CF8C	27
A 182 GR. F55	13	A 351 GR. CN7M	28
-	-	A 890 GR. 5A	29

F

TRIM MATERIAL

TRIM NO.	SEAT	PLUG	STEM /BUSH
01	13 % Cr	13 % Cr	13 % Cr
02	SS304	SS304	SS316
05	HF*	HF*	13 % Cr
08	HF*	13 % Cr	13 % Cr
09	MONEL	MONEL	MONEL
10	SS316	SS316	SS316
12	HF*	SS316	SS316
16	HF*	HF*	SS316

* HF : Hard-faced with Stellite #6 (Co-Cr-W alloy) or equivalent.
Trim 8 valves can also be offered for NACE service on request.
Trim 12 valves comply with NACE MR 01 75 for hardness and heat treatment requirements of wetted components.

G

OPERATOR

HANDWHEEL OPERATE	HO
PNEUMATIC ACTUATOR	PA
HYDRAULIC ACTUATOR	HA
ELECTRIC ACTUATOR	EA

SPECIAL REQUIREMENT

LOCKING ARRANGEMENT	LA
EXTENDED BONNET	EB
CRYOGENIC VALVE	CR
EXTENDED STEM	ES
IBR CERTIFICATE	IB
FULL STEM JACKET	FJ
PARTIAL STEM JACKET	PJ

Note :- Other Combination if required, please ask.

OFFICE AND FACTORY

KENT VALVE

CRITICAL PRESSURE & FLOW CONTROL

UK
Kent Valve Ltd.
Unit b4; Greeba Road; Southmoor Park, Wythenshawe;
Greater Manchester, England Post Code – M23 9XS
United Kingdom
Email Id : Sales.uk@Kentvalve.com

UAE
Kent Valve FZE
Plot No.1H-08B,PO Box 51722
Hamriyah Free Zone, Phase 1, Sharjah,
United Arab Emirates
Email Id : Sales.uae@Kentvalve.com

ITALY
Kent Valve SRL
Autocontrol Europe SRL Via Vittorio Veneto,
23 Cap 20010 Bernate Ticino Milano,
Italy
Email Id : Sales.europe@Kentvalve.com

INDIA
Kent Valve Pvt. Ltd.
Plot No-B-85/4, Ambernath Additional MIDC,
Anand Nagar, Nr. ASB Company, Ambernath, Thane,
Maharashtra, India - 421506.
Email Id : Sales.india@Kentvalve.com