

*Kämmer Valves® – Product Profile*





**Flowserve manufactures a complete line of automatic control valves for special applications. This bulletin briefly describes each product. There is a detailed brochure available for each Kämmer valve series.**

**Please contact us for more Information**

With many years of Experience FLOWSERVE Kämmer is a manufacturer of special application and general service control valves and actuators, which are used extensively in the chemical, petrochemical, power, petroleum, pulp & paper, pharmaceutical, food processing and cryogenic industries.

From its beginnings in 1966, FLOWSERVE Kämmer concentrated its engineering and manufacturing expertise toward producing valves for specific niche markets, instead of offering a very broad and general valve line. Because users look to FLOWSERVE Kämmer for specific answers to tough applications, more than half of all FLOWSERVE Kämmer valves are custom designed. However, because of the versatility and interchangeability they often do not require additional time or cost. FLOWSERVE Kämmer's ability to meet difficult applications has also added a wealth of experience, which has been applied to Kämmer's standard valves. Overall, FLOWSERVE Kämmer valves are designed to handle a wide range of service conditions: pressures from vacuum to 4000 bar and temperatures from -269 °C to 400 °C. Body materials include all common stainless steels, in addition to plastics and exotic alloys.

Flowserve Kämmer is located in Essen, Germany serving Europe, Middle East, Africa, Asia and the Pacific Region. For the Americas, Flowserve has an Sales Office with assembly capabilities in Pittsburgh, PA.

## **FLOWSERVE**

FLOWSERVE is one of the most recognized and preferred global suppliers of fluid motion and control products and services.

FLOWSERVE will use its collective resources and experience to deliver products, services and solutions that help customers exceed their business goals.





## Actuators



FLOWSERVE Kämmer pneumatic actuators are widely known for their versatile diaphragm design, easy installation and simplified maintenance. When compared to other manufacturers' diaphragm actuator designs, Kämmer actuators have much higher thrust capabilities, feature a very compact design and are lighter in weight. They also feature a field reversible design that requires no additional parts.

FLOWSERVE Kämmer actuators feature a multiple spring design for improved safety of the fail-safe mode, and for easily increasing thrust capabilities.

50 Series electric actuator for those applications requiring precise positioning and low maintenance, FLOWSERVE Kämmer offers a rugged and compact electric actuator. Upon loss of power, the actuator is designed to fail in the last position. Kämmer also offers manual handwheels with four sizes that range from 4 to 11 inches in diameter.

## Cryogenic



041000 Series cryogenic valve provides reliable service in cold box applications down to  $-196^{\circ}\text{C}$ . Series 241000 is designed for ultra-low temperatures for Helium liquefaction at 4K.

## High Pressure



High pressure valves with or without bellows seals in different designs up to 60,000psi / PN4000 for super-pressure applications.

## Corrosive



With its new Series 132000, a PFA lined control valve, FLOWSERVE Kämmer can offer a competitive product for all kind of corrosive applications up to 16 bar pressure.



## Sanitary



Sanitary valve Series 191000 is designed to fulfil EHEDG and 3A standards. Various options for food and beverage usage to ultra-clean aseptic requirements. For rugged applications an aseptic bellows version is available.

## Others



Under “Others” we define all customer specific solutions for any kind of application. FLOWSERVE Kämmer is known as “the” manufacturer for special valves and solutions. That’s why we name ourselves the “Solution Provider”

## Low Flow and Micro Flow



FLOWSERVE Kämmer is one of the most recognized manufacturer for low and micro flow valves. A wide variety of options allows the best suitable version for the actual requirement.

## Bellows Seal



To protect personnel and the environment, toxic or aggressive mediums must be processed in a closed system.

To ensure the integrity of such systems Kämmer can supply almost all its valves with bellows seals, depending on the valve series in metal or plastic design, that guarantee zero leakage. Kämmer bellows seals fulfil the requirements of the German "TA-Luft" and ISO 15848-1.

## Severe Service



Severe Service trims can be used in many valves series to reduce noise, cavitation or to protect the trim against corrosion or erosion. The Multi-Z valve series is designed for cavitation elimination in one of the most severe applications – Boiler Feedpump Recirculation. However, the Multi-Z can be used in any application where solids and severe cavitation are prevalent.





## Project Valves

Our core competencies lie in low flow applications and difficult laminar flows, in mastering complex technologies and in our profound knowledge when engineering valves and creating working solutions. All these resources, bundled together with state-of-the-art manufacturing procedures, qualify us as your prime ally in partnership. Acquired expertise and our ability to understand your applications and recognise your problems provide us with a unique opportunity to work with you and optimise your process systems.

### Engineered products for...



*...heavy duty valves in severe service applications*



*...liquefied natural gas production*



*...high pressure valves in low density Polyethylene production*










*...industrial gas transportation*







*...tank outlet and injection valves*





# Actuators

Design	Diaphragm	Diaphragm	Diaphragm
Product			
Type	KP-Series 1	KP-Series 2	KP-Series 3
Action	Linear	Linear	Linear
Material	Aluminium, powder coated	Stainless Steel	Carbon Steel
Air Supply max.	4.5 bar	6 bar	6 bar
Number of sizes	2	4	2
Diaphragm / Piston area cm <sup>2</sup>	25 , 80	120 , 300, 600 , 1200	1700 , 3200
Force kN	1.6 max.	34 max.	100 max.
Stroke or Angle mm	10	10 to 60	20 to 80
Temperature Range °C	-40 to +80	-40 to +80	-40 to +80
Handwheel (option)	No	Top mounted	Top mounted
Accessories		Travel stop Top mounted limit switches	Travel stop
Remarks	Very compact actuator especially developed for the Flowserve Kämmer Low Flow valve series.	Complete stainless steel actuator designed for corrosive atmospheres in different locations. Based on the yoke rod design, flexible usage for almost all valve series with linear movements. Also available for the direct mounted Flowserve positioner series Logix 500si.	Heavy duty actuator for high thrust requirements for large valves.





Diaphragm	Electric	Manual	Manual
			
KA-Series 4	Series 5	Handwheel	Handwheel Top
Linear	Linear	Linear	Linear
Aluminium, powder coated	Aluminium, powder coated	Aluminium, powder coated	Aluminium, powder coated
4.5 bar	N/A	N/A	N/A
4	4	4	4
80 , 200 , 500 , 1000	–	ø 80, 100, 160, 250 mm	ø 80, 100, 160, 250 mm
20 max.			
10 to 40	10 - 40	10 - 40	10 - 40
-40 to +80	-20 to +60	N/A	N/A
Top mounted	Integral	N/A	N/A
Integral Positioner IP Integral Positioner PP Integral air reducer Travel stop Top mounted limit switches	Limit switches Analog feedback Integral positioner		Accessory to pneumatic actuators only.
Integral analog positioner option highly modular with various accessory options such as air reducer, direct mounted solenoid valves and different IP transducer options. Field reversible	IP54 Various power supply options (24VDC to 230VAC)	Non rising handwheel for all types of Flowserve Kämmer Valves	For actuator series - KP Series 2 - KA Series 4 Non rising handwheel





	Cryogenic		High Pressure	
Design	Linear Angle	Linear Angle	Linear Globe Plug Head Guided	Linear Angle Plug Head Guided
Product				
Type	<b>041000</b>	<b>241000</b>	<b>035000</b>	<b>011000</b>
Size Range	1" to 8" DN 25 to DN 200	1/8" to 6" DN 4 to DN 150	1/2" to 6" DN 15 to DN 150	IG NW 3 to 16
Pressure Rating	Class 150 to 600 PN 10 to PN 63	Class 150 to 600 PN 10 to PN 63	Class 150 to 2500 PN 40 to PN 400	ND 325 to ND 700
End Connections	Butt weld	Butt weld	Flanged Butt Weld Special connections	Flanged (IG Standard)
Body Materials	Aluminium Special alloys	Stainless Steel	Carbon Steel Stainless Steel Special alloys	Stainless Steel Special alloys (Hastelloy)
Temperature Range (°C)	Down to -196	Down to -269	-196 to 650	-30 to 400
Shut Off Class	IV to VI	IV to VI	IV to VI	IV to VI
Cv Range	0.12 to 740	0.0012 to 470	0.012 to 400	0.000063 to 2.9
Fugitive Emissions (optional)	TA-Luft certified ISO 15848 - part 1 / Class A-C	TA-Luft certified ISO 15848 - part 1 / Class A-C	TA-Luft certified ISO 15848 - part 1 / Class A-C	TA-Luft certified ISO 15848 - part 1 / Class A-C
Main Features	<ul style="list-style-type: none"> <li>• Top entry up to DN 100 (4")</li> <li>• Bolted stainless steel low temperature extension</li> <li>• Cold Box installations</li> <li>• Air separation plants</li> </ul>	<ul style="list-style-type: none"> <li>• Top entry</li> <li>• Integral seat</li> <li>• Flexible plug for better tightness</li> <li>• Liquid Helium services</li> </ul>	<ul style="list-style-type: none"> <li>• Compact and lightweight</li> <li>• Wide variety of alloy materials</li> </ul>	<ul style="list-style-type: none"> <li>• Split body design</li> </ul>
Options	<ul style="list-style-type: none"> <li>• Bellows seal</li> <li>• Pressure balanced design</li> <li>• Larger sizes available</li> </ul>	<ul style="list-style-type: none"> <li>• Bellows seal</li> <li>• Thermalisation ring</li> <li>• Soft seat</li> <li>• Cover plate for vacuum sealing</li> </ul>	<ul style="list-style-type: none"> <li>• Angle body, 3-way valve</li> <li>• Bellows seal</li> <li>• Low temperature extension</li> <li>• Steam jacket</li> <li>• Severe service trims</li> <li>• API Standards available</li> </ul>	<ul style="list-style-type: none"> <li>• Multistage trim design</li> <li>• Bellows seal, trim kit material (tungsten carbide, ceramic, other), outlet bushing,</li> <li>• Soft seat</li> <li>• Different inlet / outlet sizes</li> <li>• DIN/ANSI flange</li> <li>• Threaded connection</li> <li>• Three Way Valve</li> </ul>



		Corrosive	Sanitary
Linear Angle Plug Head Guided	Linear Angle Plug Head Guided	Linear Globe Lined Body	Linear Angle
			
011000	015000	132000	191000
¼"	IG NW 16 to 45	½" to 4" DN 15 to DN 100	0.38" to 4" DN 10 to 100
60000 psi PN 4000	ND 325 to ND 700	Class 150 PN 16	Class 150 PN 10 to PN 25
Special high pressure threaded connections (Hofer, Autoclave) Clamps (Grayloc, Cajon, Haage)	Flanged (IG Standard)	Flanged	Flanged Weld Ends Screwed Ends Tri Clamps
Stainless Steel Special alloys	Stainless Steel Special alloys (Hastelloy)	Lined ductile iron 0.7043 (PFA, PFA antistatic)	Stainless Steel (1.4404)
-30 to 400	-30 to 400	-10 to 200	-25 to 130
IV to VI	IV to VI	IV to VI	IV
0.000063 to 2.9	0.12 to 46	0.012 to 210	0.012 to 190
	TA-Luft certified ISO 15848 - part 1 / Class A-C	TA-Luft certified ISO 15848 - part 1 / Class B-C	-
	<ul style="list-style-type: none"> <li>• Split body design</li> </ul>	<ul style="list-style-type: none"> <li>• High flow rate</li> <li>• Screwed in seat</li> <li>• Modular design</li> <li>• Bellows seal</li> <li>• T-Grooves for liner</li> </ul>	<ul style="list-style-type: none"> <li>• 3A approved</li> <li>• EHEDG approved</li> <li>• Pressure class up to PN25 (191400 version)</li> </ul>
<ul style="list-style-type: none"> <li>• Trim kit material (tungsten carbide, ceramic, other)</li> <li>• Soft seat</li> </ul>	<ul style="list-style-type: none"> <li>• Multistage trim design</li> <li>• Bellows seal, trim kit material (tungsten carbide, ceramic, other), outlet bushing</li> <li>• Soft seat</li> <li>• Different inlet / outlet sizes</li> <li>• DIN/ANSI flange</li> <li>• Threaded connection</li> <li>• Three Way Valve</li> </ul>	<ul style="list-style-type: none"> <li>• Different materials for plug and seat (HC, Tantalum) for low Cv</li> </ul>	<ul style="list-style-type: none"> <li>• Different surface finish 0.4 µm to 0.6 µm</li> <li>• Bellows option (191300)</li> <li>• Standard (191400)</li> <li>• Aseptic version (191700/191800)</li> </ul>

## Low Flow and Micro Flow

Design	Linear Globe Split Body	Linear Globe Plug Head Guided	Linear Globe Barstock	Linear Globe Plug Head Guided
<b>Product</b>				
<b>Type</b>	<b>020000</b>	<b>030000</b>	<b>080000</b>	<b>185000</b>
<b>Size Range</b>	½" DN 15	½" DN 15	¼" DN 6	½" DN 15
<b>Pressure Rating</b>	Class 150 to 2500 PN 40 to PN 400	Class 150 to 300 PN 10 to 40	Class 2500 PN 400	Class 150 to 2500 PN 40 to PN 400
<b>End Connections</b>	Flanged 1/2" to 1" Flanged DN 15 to DN 25 Screwed ends 1/2"	Flanged 1/2" to 1" Flanged DN 15 to DN 25 Screwed ends 1/2" Special flanges	Screwed 1/4" Special screwed end connections	Flanged 1/2" to 1" Flanged DN 15 to DN 25 Screwed ends 1/2"
<b>Body Materials</b>	Stainless Steel	Stainless Steel	Stainless Steel Special Alloys	Stainless Steel Carbon Steel Special Alloys
<b>Temperature Range (°C)</b>	-200 to 400	-30 to 250	-30 to 250	-200 to 400
<b>Shut Off Class</b>	IV to VI	IV to VI	IV to V	IV to VI
<b>Cv Range</b>	0.000063 to 2.9	0.0012 to 2.9	0.000063 to 0.29	0.000063 to 2.9
<b>Fugitive Emissions (optional)</b>	TA-Luft certified ISO 15848 - part 1 / Class A-C	TA-Luft certified ISO 15848 - part 1 / Class A-C	TA-Luft certified ISO 15848 - part 1 / Class A-B	TA-Luft certified ISO 15848 - part 1 / Class A-C
<b>Main Features</b>	<ul style="list-style-type: none"> <li>• Split body design</li> </ul>		<ul style="list-style-type: none"> <li>• Compact valve</li> <li>• Laboratory application</li> </ul>	<ul style="list-style-type: none"> <li>• Compact valve</li> <li>• Laboratory application</li> </ul>
<b>Options</b>	<ul style="list-style-type: none"> <li>• Angle valve</li> <li>• 3-way</li> <li>• Cryogenic extension</li> <li>• High temperature extension</li> <li>• Bellows seal</li> <li>• Soft seat</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to maintain</li> <li>• High temperature extension</li> <li>• Bellows seal</li> <li>• Soft seat</li> </ul>	<ul style="list-style-type: none"> <li>• Angle valve</li> <li>• High temperature extension</li> <li>• Bellows seal</li> </ul>	<ul style="list-style-type: none"> <li>• Angle valve</li> <li>• 3-way</li> <li>• Cryogenic extension</li> <li>• High temperature extension</li> <li>• Bellows seal</li> <li>• Soft seat</li> </ul>

Others	Severe Service		Bellows
Tank Bottom Valve	Linear Angle	Trims	Bellows
			
051000	Multi-Z	Severe Service Trims	
<p>½" to 6" DN 15 to DN 150</p>	<p>1" to 6" DN 25 to DN 150</p>	<p><b>Trims for Noise Reduction and Cavitation Reduction</b></p> <ul style="list-style-type: none"> <li>• <b>Type I – SoundControl</b></li> </ul>	<p><b>Standard:</b></p>
<p>Class 150 to 300 PN 10 to PN 40</p>	<p>Up to Class 2500 Up to PN 400</p>	<p>For noise reduction only. It combines a standard parabolic plug with a 1 to 3 stage silencer as a non guided cage around the plug. Re-trofitable for applicable valve series.</p>	<p>The bellows seal is housed within the bellows extension. The Flowserve Kämmer design includes a rugged hydro-formed bellows seal with the backup packing seal located well above the bellows. For maximum protection, Kämmer offers bellows with up to five walls with wall thickness from 0.1 to 0.15 mm (for greater wall flexibility) for pressures up to 320 bar. A leak detection port is optional. Standard materials are SS and HC. Special materials are available upon request.</p>
<p>Flanged</p>	<p>Flanged Weld Ends</p>	<ul style="list-style-type: none"> <li>• <b>Type II – StreamControl</b></li> </ul>	<p>Using bellows seals in media with crystallising properties can lead to damage due to deposits in the convolutions. A submerged bellows seal is purposely situated directly within the flow path. This design provides a continuous purging of the seal convolutions to prevent a build-up of deposits. A similar design is used for sanitary valves (CIP / SIP)</p>
<p>Stainless Steel Special alloys</p>	<p>Carbon Steel Stainless Steel</p>	<p>Similar to Type I – SoundControl but with a Multihole plug instead of a parabolic version. The Multihole plug alone can be used for medium noise reduction for gases and as cavitation reduction for liquids. StreamControl with silencer cages are only for gases with improved noise attenuation.</p>	<p><b>Specials (submerged):</b></p>
<p>-30 to 250</p>	<p>-100 to 650</p>	<ul style="list-style-type: none"> <li>• <b>Type III – CageControl</b></li> </ul>	
<p>IV to VI</p>	<p>IV to VI</p>	<p>Heavy duty version for Noise and Cavitation reduction. The solid cage is the guiding for the plug. The plug can be either as a parabolic type or as a multihole type depending on the application. Can be used in any version for gases and liquids.</p>	
<p>4.7 to 650</p>	<p>0.5 - 102</p>	<p><b>Suitable for following Valve Series:</b></p>	<p><b>Series:</b> Virtually all FLOWSERVE Kämmer valves can be equipped with a bellows seal.</p>
<p>TA-Luft certified ISO 15848 - part 1 / Class A-C</p>	<p>TA-Luft certified ISO 15848 - part 1 / Class A-C</p>	<p>Type I – SoundControl 035000, 041000</p>	
<ul style="list-style-type: none"> <li>• Seal welded standard construction</li> <li>• Seat ring designed to fit tank outlet dimensions</li> <li>• Compact and lightweight</li> <li>• Different outlet angle</li> </ul>	<p>Dirty Service Trim (Solids up to 10.5 mm) Designed for the service condition Cavitation Elimination</p>	<p>Type II – StreamControl 011000, 020000, 030000, 035000, 185000, 191000</p> <p>Type III – CageControl 035000, 041000</p>	
<ul style="list-style-type: none"> <li>• Bellows seal</li> <li>• Extending / retracting plug</li> <li>• PTFE soft seat / hardened trim</li> <li>• Steam jacket</li> <li>• Purge connection</li> <li>• PT 100 inside the trim</li> </ul>	<ul style="list-style-type: none"> <li>• Pressure Balancing</li> <li>• Soft Seat</li> <li>• Custom trim shape</li> <li>• Piston and Diaphragm Actuator</li> <li>• Design changes according to Customers requirements</li> <li>• Block Design (without welding)</li> </ul>	<p><b>Applications:</b></p> <p>Type I – SoundControl Noise (Gases)</p> <p>Type II – StreamControl Noise (Gases) &amp; Cavitation (Liquids)</p> <p>Type III – CageControl Noise (Gases) &amp; Cavitation (Liquids)</p>	<p><b>Applications:</b></p> <p>For applications with toxic, explosive or fugitive media.</p>





Your Contact:



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## Worldwide Regional Headquarters

### Flowserve Corporation

Flow Control  
1350 N. Mt. Springs Parkway  
Springville, UT 84663  
USA  
Phone: +1 801 489 8611  
Fax: +1 801 489 3719

### Flowserve (Austria) GmbH

Control Valves - Villach Operation  
Kasernengasse 6  
9500 Villach  
Austria  
Phone: +43 (0)4242 41181 0  
Fax: +43 (0)4242 41181 50

### Flowserve India Controls Pvt. Ltd

Plot # 4, 1A, E.P.I.P, Whitefield  
Bangalore Kamataka  
India 560 066  
Phone: +91 80 284 10 289  
Fax: +91 80 284 10 286

### Kämmer Products

Europe, Middle East, Africa, Asia, Pacific

### Flowserve Essen GmbH

Manderscheidstr. 19  
45141 Essen  
Germany  
Phone: +49 (0)201 8919 5  
Fax: +49 (0)201 8919 662

### Kämmer Products

Americas

### Flowserve (FCD)

**Kämmer Valves INC.**  
1300 Parkway View Drive  
Pittsburgh, Pa 15205  
USA  
Tel.: +1 412 787 8803  
Fax: +1 412 787 1944