WE CONTROL WHAT MATTERS

Control valve solutions for the gas industry

RAMÉN

Industrial Control Valves and Regulators

Ramén Valves

Control Made in Sweden

About Ramén valves

Ramén Ball Sector Valve Type KS, designed and manufactured in Sweden was introduced in 1967 and since then thousands of valves have been installed in multiple industries such as pulp and paper, mining, chemical, gas, marine and offshore, water and wastewater treatment. The design and construction technique of Ramén KS series are based on long and diversified practice in harsh applications and environments. Ramén KS has proved to be advantageous for tight shut off and for throttling control of gases, liquids and slurries at moderate pressure and temperature conditions.

Control valves for the gas industry

The gas industry is inherently associated with sensitive and challenging operating conditions. Any equipment malfunction or downtime imposes high risk to the plant operation resulting in hefty cost, safety and environmental impacts. Thus, reliable and high resolution controllability and optimized operability play vital roles.

To meet strict rules and regulations of the gas industry, Ramén offers Ball Sector Valve KS series in a wide range of sizes and materials. Our control valves have been successfully tested throughout the years to gaurantee safe and long-life operation in multiple gas applications.

Features and benefits

- Compact, robust and low-weight design
- High control accuracy and rangeability (300:1)
- Minimum maintenance, increased life cycle and reduced cost
- Easy automation with small actuators due to low torque operation
- Extreme tightness along with highly emission-sealed actuators to meet various process and safety requirements
- Available in flanged or wafertype design with maximum adaption for installation in new and existing plants
- Corrosion resistant construction thanks to careful material selection for the body and innervalves

We handle

Hydrocarbon Gases
Natural gas and heavier cuts C2+

Industrial Gases
Oxygen, ammonia, hydrogen, Carbon dioxide, Chlorine

Off-Spec Gases
Corrosive and dirty associate gas, flare gases, sour gas and heavier hydrocarbons (C2+)

Gases and vapours
Instrument and compressed air, Nitrogen and steam, corrosive vapors

Cryogenic
LNG

Controlability simpler, wider and less cost

Quarter turn movement gives simpler and less expensive control possibilities. The trunnion design with the significant elliptical to circular opening enables 300:1 rangeability and gives a chance for process designers to avoid higher required quantities of valves, providing an accurate wide range and affordable control.

Reliability solid design for minimum operating cost

Compact design with protected stem gives an excellent maintenance free choice for users in heavy industries. Rigid designed valve made of high quality materials guarantees a long life time, high performance valve with optimized life cycle cost. The unique Ball Sector design enables a constant seat support and seat protection in open position. With tight shut off and self draining construction it creates a safe operation for all types of isolating and control applications.

Flexibility simply fit

Ramén Ball Sector valves can easily be fitted with an electrical, pneumatic, hydraulic or hybrid actuator. Valves can be simply ordered in wide range of materials like rubber lined cast iron, stainless steel, Duplex, super Duplex, SMO, Hastelloy and titanium. The Ball Sector Valves can be delivered in wafer and flanged design according to ANSI, DIN/EN, ISO, API, JIS or other standards. Standard connection for Ramén KS 25-250 is wafer type which makes it an easy fit on new and existing plants, saving extra material and cost. The KS 300 comes with flanges.

Ramén Ball Sector valves are made of high quality and certified materials based on the client requirements like EN, ISO material certifications. Ball Sector valves can be fitted with noise reduction trims, to comply with customers' noise limit criteria. Ramén KS valves have been granted Pressure Equipment Directive (PED) category II module D1 certification and can also be certified by different third party/classification societies if required.

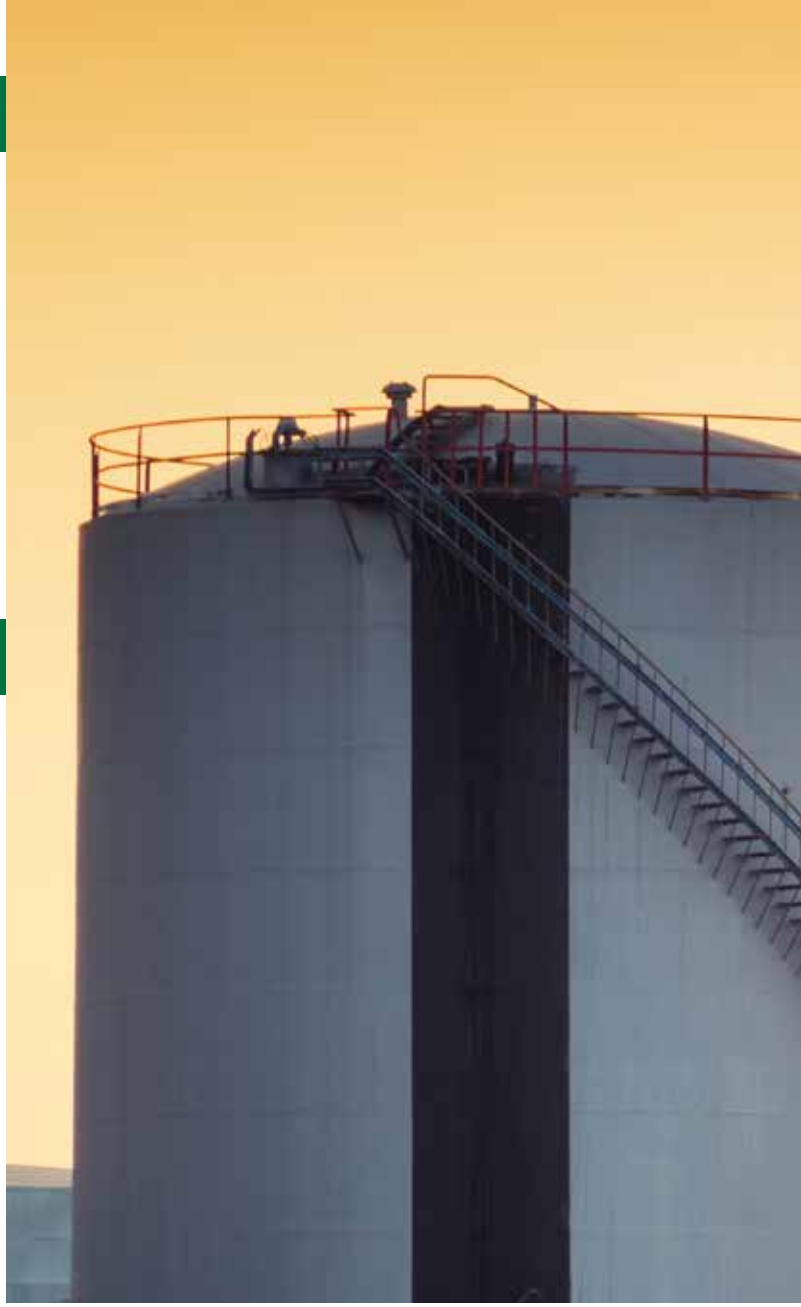
Sustainability intelligent design, environmentally friendly

Ramén KS valves presents a creative design to minimize the required material of construction, reducing the environmental impact. Low maintenance valve with minimum requirement for spare parts leaves an evironmentally friendly solution through the plant life cycle. Ball sector valves provide higher C_v (K_{vs}) value and rangeability compared to other valve types which can substantially reduce the size and number of valves, saving cost and material at the same time.

Construction principle

Ramén Ball Sector Valve is made from a ball sector which via two shafts is journal led in the valve body. One part of the ball sector sphere is used for shut-off. The other part of the sphere has a hole with a diameter, which is about 80% of the nominal valve size.

The ball sector is turned through 90° on operation from open to fully closed. The shape of the valve opening (flow area) is thereby changing from fully circular to elliptical. The circular opening reduces the risk of plugging and is less subject to wear in throttling position than the more slot-like flow in certain other types of control valves.



Throttling control characteristics

It is important to observe the difference between inherent valve flow characteristic at constant pressure drop and installed valve flow characteristic at varying pressure drop. The left hand diagram below (Fig. 1) presents the inherent flow characteristic of Ramén KS for air and water when pressure drop is constant. It is near to equal percentage. Shown also for comparison is the characteristic of a linear valve.

The right hand diagram (Fig. 2) presents the installed characteristic for the same valves when installed in a control loop where the valve pressure drop increases when the valve is closing. An equal percentage characteristic becomes more like linear. A linear characteristic becomes more like quick opening. The more the pressure drop is changing for a certain change of flow, the more the installed characteristic is altered. The comparison shows that the installed flow characteristic of Ramén KS is very suitable for the majority of all control valve installations with its equal percentage characteristics.

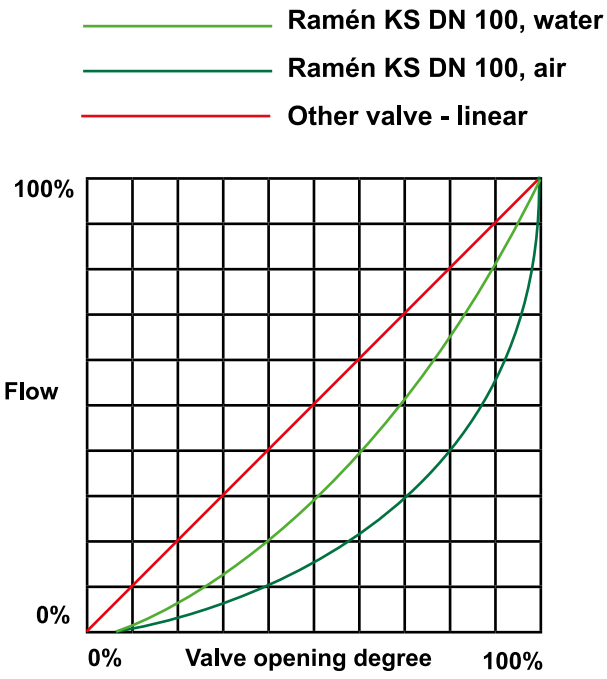


Fig. 1 Inherent flow characteristic at constant pressure drop

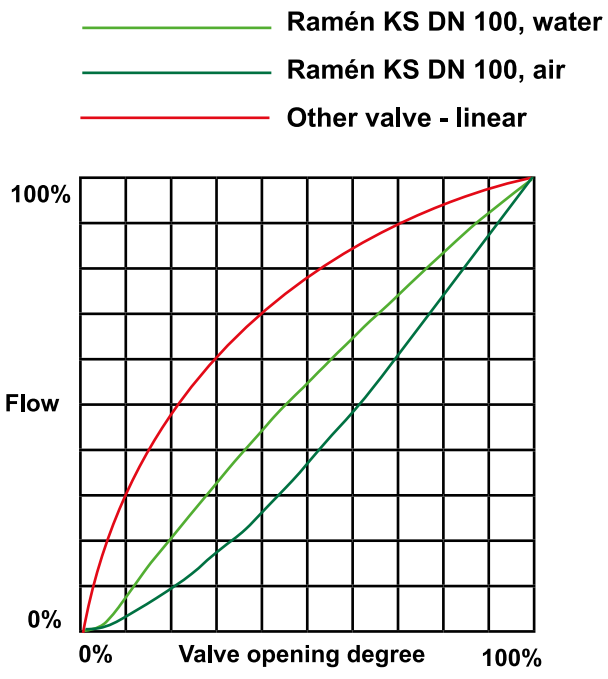


Fig. 2 Example of installed flow characteristic with increasing pressure drop on closing valve

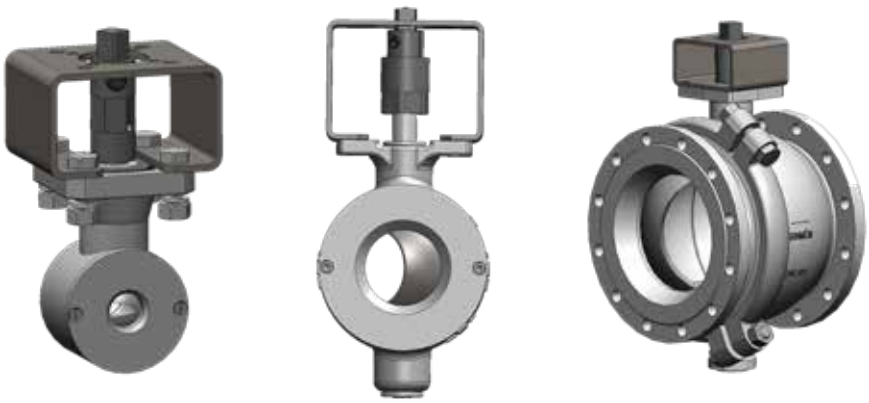
Valve data

DN		25	40	50	80	100	150	200	250	300
K_{vs} [m^3/h]		0,025-21	34-64	94	255	390	810	1365	2220	3840
C_v [gpm]		0,03-25	40-75	110	300	460	950	1600	2600	4500
Actuator torque [Nm]	Recommended	20-50	30-90	30-90	80-200	80-200	160-400	160-400	250-600	700-1200
	Max.	100	100	100	200	200	400	400	700	2000

Technical specifications

Design		Flangeless, wafertype (size DN 300 flanged)	
Nominal sizes		DN 25 - DN 300	1"-12"
Material	Body	EN 1.4409	AISI 316L
	Shafts	EN 1.4460	AISI 329
	Ball Sector	EN 1.4409+Cr*	AISI 316L+Cr*
	O-rings	Viton®	
	Bearing	Rulon®	
Nominal pressure	DN 25 - DN 50	PN 40 (for flange PN 10/40 and ANSI 150/300/600)	
	DN 80 - DN 100	PN 25 (for flange PN 10/25 and ANSI 150/300)	
	DN 150 - DN 250	PN 16 (for flange PN 10/16 and ANSI 150)	
	DN 300	PN 16 (Flanged PN 16 or ANSI 150)	
Operating temperature		- 40° C to +250° C	- 40° F to +482° F
Leakage class according to EN60534-4		Soft seat: VI Metal seat: IV	
Characteristic		Equal percentage	
Rangeability		300:1	
Seat		Soft seat: PTFE (Carbon/graphite reinforced) Metal seat: Stellite	
Options	O-rings	EPDM, Nitril, Kalrez®, Viton GLT, EPDM 90	
	Alloy steels	254 SMO, Hastelloy, Duplex, Super Duplex, Titanium grade 5	
	Seat	White PTFE, PEEK, FDA Approved	

** Hard chromed ball sector*



Ramén KS DN 25/80/300, 3D animations

Industrial automation requires accurate and repetitive control with highest turn down ratio. Ramén supplies different types of automation to meet these criteria's from well-known global brands. All automation solutions supplied by Ramén are thoroughly tested with our valve technology to meet the most demanding requirements.

Automation options

- Pneumatic actuator SR (Spring Return) or DA (Double Acting)
- Digital/Electro pneumatic/Pneumatic positioner
- Electrical actuator
- Hydraulic actuator

Pneumatic actuators, double acting or fail safe spring return with digital or pneumatic positioner for robust easy operations. Positioners offer options for feedback signal, HART, ATEX, Industrial bus systems like Profibus, FF etc.

Electrical actuators with integrated positioner for simple installation in any power system. Can be supplied with different options feedback signal, HART, ATEX, Industrial bus systems like Profibus, FF etc.

Electrical actuators with stepper motor for high end solutions to solve the most demanding applications where accuracy, repeatability and rangeability is essential.

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