

## Safety and installation instruction for Ramén Ball Sector Valve type KS / KSP

### **WARNING!**

**Risk for serious injury when valve with actuator is bench tested. Avoid handling the valve with hands or fingers inside the valve! Be very careful when handling a valve which has been in abrasive service. Worn valve can have sharp edges on ball sector and seat.**

### **Function**

Ramén Ball Sector Valves type KS and KSP are developed and used for controlling gases, fluids, pulp suspensions and slurry. Through its construction the valve can also be used as a bidirectional shut-off valve. Valve can be supplied in different material combinations depending on type of media and service, see table page 4. Valve can be used for temperatures from  $-40^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$  ( $+250^{\circ}\text{C}$ ). The exact temperature range is depending on pressure, media and sealing material. Contact your valve supplier if any uncertainty. See page 5 for tables with pressure and temperature limits.

### **Function**

Ramén Ball Sector Valve is made from a half ball, a ball sector, which is journal led in a valve body via two shafts. 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  $90^{\circ}$  from fully open to fully close. Some smaller valve sizes have a more reduced orifice and operation angle as follows; DN40/32 ( $70^{\circ}$ ), DN40/25 ( $60^{\circ}$ ), DN25/15 ( $65^{\circ}$ ), DN25/5 ( $60^{\circ}$ ), DN25/A-K ( $72^{\circ}$ ).

### **ATTENTION!**

**Operating angle is max  $90^{\circ}$  and shall not be exceeded as it may cause damage to the seat ring. If done so by mistake, the pressure on the seat ring must be reduced! This is done by loosen the screws (item 11) on seat holding ring (item 2). Restore the ball sector to the right position. Retighten the screws on the seat holding ring.**

### **Valve acceptance inspection**

Make sure that the valve has not been damaged during transport and that it is complying to your order. Valve body is marked with type, pressure class PN, size DN, flow arrow, material code and, where appropriate, CE-label with category and module according to PED.

(1/6)

## Storing

Valve shall be stored in a clean and dry area preventing corrosion and fouling. It shall be operated to fully open position. Protection plates shall not be removed until the valve shall be mounted.

## Installation

**This product shall only be inspected, installed and used by a person who has relevant training or experience. If any questions or hesitation, contact your valve supplier or Ramén Trading AB.**

If the valve shall be equipped with actuator this shall be done before installation in the pipe line. Separate instruction is supplied on request. Before installation of the valve, check that the valve data is in conformity with actual type of service with reference to media, pressure and temperature.

**If the valve shall be used as shut-off valve against atmosphere at the end of the pipe, where possible leakage can cause person injury or property damage, there are special limits for max working pressure and, if necessary, demands on blocking the actuator. Contact your valve supplier.**

Piping shall be thoroughly cleaned. Check that the pipe flanges are parallel and that the piping system can not be subject to uncontrolled forces caused by pressure peaks, or pipe forces caused by variations in temperature.

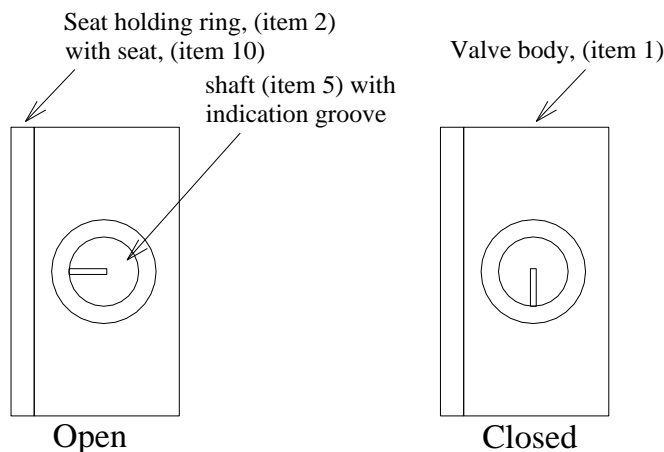
### **IMPORTANT!**

**Install the valve in such position that injury on person, or damage on property, is avoided in case of leakage from sealing or flange joints. Also, make sure that, in case of leakage, inflammable media do not come in contact with electrical components or hot surfaces which can cause fire or damage on property.**

The valve shall be operated into fully open position after installation and the pipe system be properly flushed before put into service.

## Valve position indication

The actual position of the ball sector can be defined on the lower shaft end, opposite to the actuator:



## Flow direction

The valve's performance is equal regardless of flow direction. Although it is recommended that the valve is mounted according to the flow direction arrow.

## Start-up

The valve shall be operated and controlled that closing- and opening functions are correct before start-up. Check that the valve operates within its max- and min-positions. Limit-switches, positioner, feed-back signal and torque switches shall be checked for correct function.

Start-up shall be done gradually and under careful attention. If water hammer, leakage, cavitation or noise occurs in the system they have to be eliminated before they cause any harm.

## Dismounting from pipeline

Before the valve is dismantled from the pipe, all wiring in form of power supply and control signals as well as supply air has to be disconnected.

If the valve is equipped with spring closing/opening actuator thoroughly check that the valve has taken its fully closed or opened position.

### **Attention!**

**Check that the pipe is depressurized and drained. Great caution must be taken when there is a risk for toxic or corrosive media is captured in the valve!**

## Maintenance and repair

Separate maintenance instructions are available on request. They are describing disassembly, reassembly and auxiliary tools.

## Valve material codes

The valve body has a material code stamped in per following table.

Material code for type KS/KSP					
Code number	1	1A	1B	1C	1E
<b>Body (Item 1)</b>	SS2343 (CF8M)	SS2343 (CF8M)	SS2343 (CF8M)	SS2343 (CF8M)	SS2343 (CF8M)
<b>Shafts (Item 5+6)</b>	SS2324 (AISI 329)	SS2324 (AISI 329)	SS2324 (AISI 329)	SS2324 (AISI 329)	SS2324 (AISI 329)
<b>Ball Sector (Item 3)</b>	SS2343 (CF8M)	SS2343 (CF8M) + Hard chrome	SS2343(CF8M) + Hard chrome	SS2343(CF8M) + Hard chrome	SS2343(CF8M) + Hard chrome
<b>Seat holding ring (Item 2)</b>	SS2343 (AISI 316/316L)	SS2343 (AISI 316/316L)	SS2343 (AISI 316/316L)	SS2343 (AISI 316/316L) + Hard chrome	SS2343 (AISI 316/316L) + Hard chrome
<b>Seat ring (Item 10)</b>	Carbon/graphite filled PTFE	Carbon/graphite filled PTFE	SS2343 (AISI 316/316L) + Stellite	SS2343 (AISI 316/316L) + Stellite	SS2343 (AISI 316/316L) + Stellite deep execution
<b>Shaft bearing (item 9)</b>	Standard= modified TFE (LR) Special= SST/PTFE compound (MP)				
<b>Shaft sealing type KS o-ring (Item 13+14)</b>	Viton	Viton	Viton	Viton	Viton
<b>Shaft sealing type KSP, stuffing box (Item 13)</b>	PTFE	PTFE	PTFE	PTFE	PTFE
<b>Seat back-up o-ring (Item 15)</b>	Viton	Viton	Viton	Viton	Viton
<b>Seat back-up spring &amp; seal ring (Item 15A+15B)</b>	SS2324/PTFE (AISI329/PTFE)	SS2324/PTFE (AISI329/PTFE)	SS2324/PTFE (AISI329/PTFE)	SS2324/PTFE (AISI329/PTFE)	SS2324/PTFE (AISI329/PTFE)
<b>Sealing between inlet cover ring and body (Item 16)</b>	Viton	Viton	Viton	Viton	Viton

<b>Valves supplied with other o-ring material than Viton has material code suffix:</b>	(E)=EPDM, (P)= EPDM Peroxide (KKT/KTT)= Kalrez/Vitoflon (S)=Silicoflon (AF)=Aflas (X)= Other quality
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## Pressure and temperature limits

Temperature related max working pressure in bar for material SS-2343 (CF8M):

PN	-40°C	+20°C	+50°C	+75°C	+100°C	+150°C	+200°C	+250°C
<b>PN10</b>	10	10	9	8,5	8	7,5	7	7
<b>PN16</b>	16	16	14,5	13,5	13	12	11,5	11
<b>PN25</b>	25	25	23	21,5	20,5	19	18	17,5
<b>PN40</b>	40	40	37	35	33	31	29	28

Temperature limits for seat- and sealing material.

Material	O-ring seals (Type KS)					Seat ring (Type KS / KSP)		Shaft Sealing (type KSP)
	Viton	Viton GLT	EPDM	Kalrez	Vitoflon	PTFE carbon/graphite filled	Stellited SST	PTFE braid
<b>Min temperature</b>	-10°C	-40°C	-20°C	-10°C	-10°C	-40°C	-40°C	-40°C
<b>Max temperature</b>	+170°C	+170°C	+120°C (+140°C)	+200°C (+250°C) <sup>1)</sup>	+200°C	+170°C	+200°C (+250°C) <sup>1)</sup>	+250°C

1) with shaft bearing material MP (option)

Temperature limits for shaft bearing material:

<b>Material</b>	<b>Standard (type LR)</b>	<b>Option (type MP)</b>
<b>Min temperature</b>	-40 <sup>0</sup> C	-40 <sup>0</sup> C
<b>Max temperature</b>	+200 <sup>0</sup> C	+250 <sup>0</sup> C

### **Attention!**

**The temperature limits for sealing material varies depending on which type of media and pressure it will be exposed to. Contact the manufacturer of sealing material or your valve supplier in all cases of hesitation.**