

GUIDELINE

MAINTENANCE & UPGRADE

FOR EPSY CONTROL VALVES





- ✓ SPARE PARTS DEFINITION
- ✓ ACTUATOR / POSITIONER UPGRADE
- **✓** VALVE IMPROVEMENT EPSY → EPSY^{plus}



HISTORY - Product Line Evolution EPSY \rightarrow EPSY^{Plus}

In 2012, GR SUPERVISION completed the acquisition of the Microflow Control Valve EPSY / EPSY^{Plus}, manufactured since the 70's and marketed by successively Schlumberger, Bailey, Sereg Vannes, Valtek and Flowserve, . GR SUPERVISION became the sole manufacturer / seller for EPSY / EPSY^{Plus} range genuine parts.

Designed in the 70's, the EPSY Microflow Control Valve (also known under MJ / CMJ type) proposes a large standard trim range, from Cv 0.005 to 3.5, applicable for a 6 mm plug stroke.

Since 2007, an additional range EPSY^{Plus} is available as standard, the connection characteristics and Cv identical but designed with a 10 mm plug stroke.

The single effect actuators type « KV », initially sold on the EPSY valves and obsolet since the 2000's, have been replacing with columns design actuators, allowing any positioner mounting in accordance with the NAMUR standard (EN 60534-6-1).



Actuator Upgrade on standard cryogenic valve



Actuator Upgrade on standard valve

This guideline, for site users, is designed to assist you in choosing your valve spare parts and associated actuators upgrades.

For any help or advices, please contact GR SUPERVISION:

Manager : Mr Jérôme DAUPHANT jerome.dauphant@gr-supervision.com

Mobil: +33 672 73 97 85

Web: www.gr-supervision.com



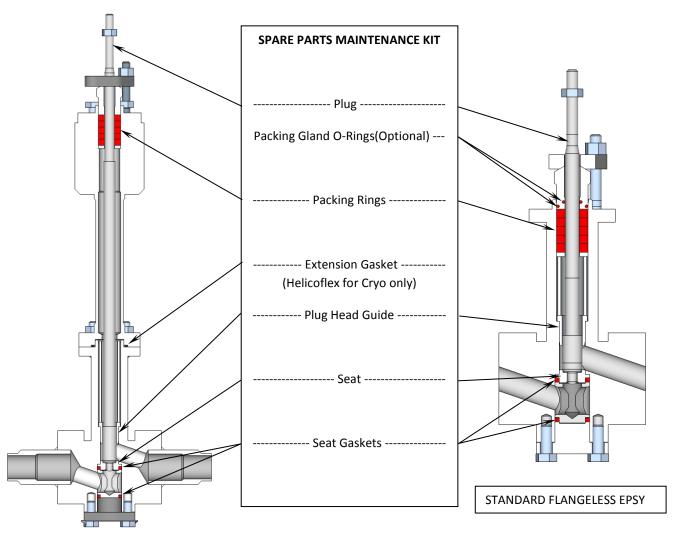
Maintenance Guideline

Before proceeding to the order, the needs must be clearly defined:

- > Trim replacement
- > Actuator Maintenance
- Actuator / Accessories Upgrade
- Combined Valve / Actuator Maintenance

• TRIM REMPLACEMENT :

- Check the Serial Number (SN) stamped on the Valve Firm Plate.
 This information is the main data for component identification
- ➤ Check for overlap the Equipment Trim Number, Law, Cv and Packing type.
- Check and confirm the Valve Stroke (usually EPSY with 6 mm stroke, but could be EPSY^{plus} with 10 mm stroke)
- Refer to « Maintenance Kit Code » table on next page to define the kit code.



CRYOGENIC EPSY WITH BW ENDS



MAIN	NTENANCE K	TT CODE		1	2	3	4	5	6	7	8	9	10	11
WAII	TENANCE II													
1 - Valve type			Standard	S	_									
1 - valve type	Crvo Extensi	on (Helicoflex ga	sket included inkit)	E	1									
2 - Valve Stroke	,.	(··	6mm (EPSY)	_	Α	1								
			10mm (EPSY ^{Plus})		В	1								
3 - Trim Number	TN 1/2	Cv 3.5	Linear			Α								
	TN 1/2A	Cv 3.0	Linear			В								
	TN 1/2A	CV 3.0	Egal %			С								
	TN 1/2B	Cv 2.5	Linear			<u>D</u>								
			Egal % Linear			E F	-							
	TN 3/8	Cv 2.0	Egal %			G	-							
			Linear			Н								
	TN 3/8A	Cv 1.5	Egal %			J								
	TN14/4	6.10	Linear			K								
	TN 1/4	Cv 1.0	Egal %			L	j							
	TN 1/4A	Cv 0.75	Linear			М								
	TN 3/16	Cv 0.50	Linear			N						ĺ		
	TN 3/16A	Cv 0.40	Linear			P							ŀ	
	TN 3/16B TN 1/8	Cv 0.30 Cv 0.25	Linear			Q R								
	TN 1/8A	Cv 0.25	Linear Linear			S	1							
	TN 1/8B	Cv 0.25	Linear											
	TN 1/16	Cv 0.10	Linear			U								
	TN 1/16A	Cv 0.05	Linear			V								
	TN 1/32	Cv 0.03	Linear			W								
	TN 1/64	Cv 0.01	Linear			Х								
	TN 1/64A	Cv 0.005	Linear			Y								
. 51		Spécial	1 1 0 1 660		-	Z								
4 - Plug Material		Sta	ndard - Grade 660 Hastelloy C276			G H								
			Monel K500			M								
			Stellite Gr.6				S							
5 - Seat Material	Standard - Grade 660							G						
			Hastelloy C276					Н						
			Monel K500					М						
			Stellite Gr.6					S						
			PCTFE (Kel-F)					K						
6 - Seat Gasket	Peek					-	-	Р	G					
0 - Seat Gasket	Standard - Graphite die-formed (available BAM) FPM encapsulated FEP								K					
7 - Packing Material	Standard - Braided PTFE									Р				
	Vee PTFE									С				
	Vee PTFE + 15% Graphite									5				
			ed (available BAM)							G				
	Re-inforced braided Tresse PTFE + Kevlar									K				
0. Dealine Confirmation	Braided PTFE 3206-SO (BAM)									S	•			
8 - Packing Configuration	Standard – Single Packing Twin Packing										S			
9 - Plug Head Guide Material	Standard – Grade 660										U	G		
5 Trug fredu Guide Material		Sta	Stellite Gr.6								S			
		Hastelloy C27										Н		
	Bronze											В		
	Kit without Guide (not recommanded)											Z		
10 - Option for O-Rings	Standard – No ring												Z	
		EPDM	(Improved Nitrile)										N	
		EDA	FPM (Viton)										V F	
		FPIV	l encapsulated FEP										Г	
11 - Certification		Standar	l - No Certification		-	-						_	-	 _
11 Communion			Parts for O ₂ Service											X
														В



• ACTUATOR MAINTENANCE :

Many different kind of Single Effect Diaphragm Actuators have been provided on the valves since the 70's:



Actuator type « KV » (obsolet)
Only diaphragm available
as spare part



Actuator type « 2109 »



Actuator type « P2 »

NEW STANDARD FOR EPSY

Optional Top-Mounted Handwheel



Actuator type « MA3-16 »



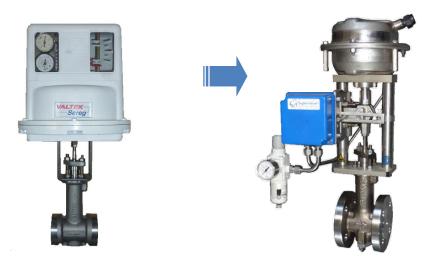
Actuator carbon steel + epoxy painting type « PA35 »

Please contact GR SUPERVISION to get your quote within 48 hours



• « KV » SINGLE EFFECT ACTUATOR UPGRADE :

It is strongly recommended to carry out a replacement of the obsolet « KV » actuator with the new P2 standard.



Spring	Valve Seat	Handwheel	Valve Stroke						
Action	Configuration	Option	EPSY 6mm	EPSY ^{plus} 10mm					
CLOSE (Air to Open)	Hand/Matal	None	P2004-ATO-C6	P2014-ATO-C10					
	Hard/Metal	Top Mounted	P2004-HW-ATO-C6	P2014-HW-ATO-C10					
	Soft	None	P2003-ATO-C6	P2013-ATO-C10					
		Top Mounted	P2003-HW-ATO-C6	P2013-HW-ATO-C10					
OPEN (Ainto	Hard/Metal/Soft	None	P2003-ATC-C6	P2013-ATC-C10					
(Air to Close)		Top Mounted	P2003-HW-ATC-C6	P2013-HW-ATC-C10					

The standard design is Stainless SteelCarbon Steel + Epoxy paint The Carbon Steel + Epoxy paint Design is also available.

IMPORTANT:

CARREFULLY CHECK THE ACTUATOR MOUNTING ON THE VALVE BEFORE ORDERING ACTUATOR.

FOR EPSY/ EPSY^{plus}, THE MOUNTING IS ENSURED BY 4 x M8 BOLTS.

IF DIFFERENT (1 YOKE BOLT M35), THIS MUST BE IDENTIFIED ON YOUR DEMAND.

Please contact GR SUPERVISION to get your quote within 48 hours



• POSITIONERS:

The new P2 standard actuator is designed in accordance with NAMUR, IEC 60534-6

→ Analogic Positioner



SRI986 4-20 mA Input Signal (Ex ia / Ex d) 0.2-1 BOTH KIND ARE AVAILABLE WITH SPLIT RANGE



SRP981 0.2 – 1 bar Input Signal

→ Numeric Positioners

Flowserve - Logix



Logix500si Ex ia



Logix500MD Ex ia Advanced diagnostic



Logix400 Ex d

Foxboro – SRD



SRD991 Ex ia



SRD960 Ex d

Siemens - SIPART



PS2 Ex ia



PS2 Ex d

ABB - TZID



TZID-C Ex ia



TZID-C200 Ex d



EPSY^{plus} – Design improvement

Whole End-Connexions and Cv Values are identical to previous EPSY design.

The plug contour has been modified to comply with a 10 mm stroke, allowing more accurate regulation. In this case, the actuator must also comply with this 10 mm stroke requirement.

If a combined Actuator / Trim maintenance is required, it is strongly recommanded to move to this design. The plug is the unique componant change in the valve itself.

For a complete new valve (new project or rewamping), the EPSY^{plus} will be proposed as installation is done instead of the former.

EPSYPlus EPSY Plug stroke 10 mm Plug stroke 6 mm

Valve Closed

Valve Opened 100% stroke