

## Internal Cartridge Types - Field replaceable & interchangeable

All Spartan valve body assemblies are service/maintenance free with interchangeable internals (in the form of a replaceable cartridge) for specific applications with variations of equal percentage parabolic or linear characterized globe plungers. CV (KV) values can be changed without having to remove the valve from the line simply by changing the cartridge.

The internals are equipped with 1½ million cycles (3 million repositions), packings with burnished mirror finish stainless steel stems and micro machined accurate parabolic characterized plugs.



### EP TYPE CARTRIDGE (for 2 way valve body)



Used for hot and chilled water, 50% ethylene or propylene glycol.

Select from available CV's 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, Can be installed in all 2 way ½" valve bodies

Select from available CV's 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.5 Can be installed in all 2 way ¾" valve bodies



### EV TYPE CARTRIDGE (for 2 way valve body)



Used for low pressure up to 15PSI steam applications recognizable by nickel plated cap.

Select from available CV's 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, Can be installed in all 2 way ½" valve bodies

Select from available CV's 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.5 Can be installed in all 2 way ¾" valve bodies

Select from available CV's 6.4, 9.0

Can be installed in 2 way 1" valve bodies



### BC TYPE CARTRIDGE (for 2 way valve body)



Cage type cartridge used for low CV values.

Used for hot and chilled water, 50% ethylene or propylene glycol.

Select from available CV's 0.15, 0.25, 0.50

Can be installed in all 2 way ½" valve bodies



For ½" & ¾" valve bodies

### EB TYPE CARTRIDGE (for 2 way valve body)



Balanced cartridge used for high close-off pressure applications (up to 100 psi) for hot and chilled water, 50% ethylene or propylene glycol.

For 2 way ½" valve bodies select from CV's 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5

For 2 way ¾" valve bodies select from CV's 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.5



For 1" valve bodies

For 2 way 1" valve bodies select from CV's CV's 6.0, 6.4, 8.0, 9.0

◆ The EB cartridge is recommended for use on certain spring return actuators. See note on page 5.



### ED TYPE CARTRIDGE (for 3 way valve body)



Used for 3 way diverting V320, V323, V325 valve bodies for hot and chilled water, 50% ethylene or propylene glycol.

Select from available CV's 1.0, 2.0, 3.0

Can be installed in 3 way ½" and ¾" valve bodies



### EX TYPE CARTRIDGE (for 3 way valve body)



Used for 3 way mixing V321 valve bodies for hot and chilled water, 50% ethylene or propylene glycol.

Select from available CV's 2.0, 3.0

Can be installed in 3 way ½" and ¾" valve bodies

## Internal Cartridge Specifications - each CV/KV is stamped on the face of the cartridge

Replaceable Cartridge Type	EP Type	EV Type	BC Type	EB Type	ED Type	EX Type
Valve seat	Integral bronze	Integral bronze	Bronze - replaceable	Integral bronze	Integral bronze	Integral bronze
Valve disc/plunger	EPDM / brass	Hi-temperature EPDM	Brass cage	EPDM / brass	EPDM / brass	EPDM / brass
Valve spring	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Valve stem	Burnished 303 Stainless Steel	(same as EP Type)	(same as EP Type)	(same as EP Type)	(same as EP Type)	(same as EP Type)
Packing	Double EPDM	Hi-temperature Double EPDM	Double EPDM	Double EPDM	Double EPDM	Double EPDM
Stroke	4mm	4mm	4mm	4mm	4mm	4mm
Tight close off	100 %	100 %	0.1% of Cv	100%	100%	100%
Steam rated	N / A	15 psi. (250°F / 120°C)	N / A	N / A	N / A	N / A
Water rated	(250°F / 120°C)	N / A	(250°F / 120°C)	(250°F / 120°C)	(250°F / 120°C)	(250°F / 120°C)
Glycol rated	To 50%	N / A	To 50%	To 50%	To 50%	To 50%
Cv Equal % - 4mm lift	0.5,1.0,1.5,2.0,2.5,3.0	0.5,1.0,1.5,2.0,2.5,3.0	0.15,0.25,0.50	0.5,1.0,1.5,2.0,2.5,3.0,6.0,8.0	N/A	N/A
Rangeability	100:1	100:1	100:1	100:1	-	-
Cv Linear - 4mm lift	2.2,3.5,4.5	2.2,3.5,4.5,6.4,9.0	N/A	2.2,3.5,4.5,6.4,9.0	1.0,2.0,3.0 Bottom port CV 2.0	2.0,3.0

1027-1-1