

**VE111-4140 through VE445-4630**

**Compact Electronic on-off or modulating three wire floating Zone Control Valves Two Way, Three Way and Four Port, in spring return or fail-in-last position**

**COMPACT GEAR MOTOR CONTROL VALVES - WATER & L.P. STEAM**

**ME4000 SERIES POWER CUBES -Floating, on-off, Fail-safe or Fail-in-last Position**

**DESCRIPTION** - These 2, 3 and 4 port control valves use tri-state, floating actuators in either spring-return version (ME 4630), or non-spring return versions (ME 4140/41).

They are available for the control of hot or chilled water, glycol (50%), and low pressure steam.

**SPECIFICATIONS - Valves 2-way, 3-way or 4-port.**

All valve bodies are spring loaded stem up. The spring returns the valve to stem up when power is lost in spring-return actuators.

Valves V111 and V130 (straight) and V160 (angle) are union globe with female NPT inlets and male union outlets. Valves V245 and V325 have soldered connections all ports.

Valves V240, V320 and V445 have union connections on all ports. Couplings available sweat, NPT or BSPT.

All valves have replaceable elements for ease of maintenance. Stem, packing, seat and spring are replaced as a package without removing the valves from the line, be they 2-way 3-way, or 4-port models.



and zero adjustment span period whereupon the on-board microprocessor retains the information received from an LED pickup and uses the information to accurately track the controller's (by others) floating (tri-state) output signal.

An auxiliary 1 - 5VDC output is available, transmitting 0-100% of span for remote indication or control.

An insulating collar keeps valve body heat away from the actuator, and the IP51 case keeps water intrusion to a minimum. Ambient temperature rating is from 5°C (40°F) to 40°C (105°F) non condensing. Power supply voltage is 24VAC 50/60 Hz all models.

The actuator base motors are of brushless, hysteresis type rated for continuous stall, and electronically controlled to reduce voltage in the holding sequence to reduce heat.

On loss of power, the actuator springs to its fail-safe position.

VALVES	V111	V240	V132	V245	V160	V320	V325	V445
Body Type	2-way straight Single Union	2-way straight Two Unions	2-way straight Balanced P/F	2-way solder	2-way angle Single Union	3-way Diverting All Ports Unions	3-way Diverting All Ports Solder	3-way, 4-port
Body Material	Brass	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Brass
Stem	Brass-Nickel Pl.	Stainless	Stainless	Stainless	Stainless	Stainless	Stainless	Brass-Nickel Pl.
Class	125#	250#	200#	250#	200#	250#	250#	250#
Max. Temp	110°C/230°F	138°C/280°F	138°C/280°F	138°C/280°F	138°C/280°F	100°C/212°F	100°C/212°F	100°C/212°F
Service	Water Only	Water and 15 PSIG (1bar) Steam			Water Only	Water Only	Water Only	
EPDM Disc	All Spartan zone valves 2,3-way or 4 port are equipped with 1 piece screw-in cartridge for one-step replacement of disc, return spring, stem and packing							
Stainless Spring								
EPDM Packing								

ACTUATOR	ME-4140	ME-4630
Action	Floating	Floating
Fail Position	Last	Up
Watts	0.5W	6W
Force	25#	25#
Feedback	N/A	1-5VDC
Depth "D"	62mm (2.4)	66mm (2.6)

**SPECIFICATIONS - ME4140 / 4141 Syn Cube Actuators non-spring return.** These actuators are available for floating (or tri-state) applications. An insulating collar keeps valve body heat away from the actuator.

Ambient temperature rating is from 5°C (40°F) to 50°C (122°F) non condensing. Power supply voltage is 24VAC 50/60 Hz all models.

The actuator base motors are of reversible, brushless, synchronous type capable of continuous stall but also torque-switch protected to reduce noise and extend gear life. At end-of-travel, the motor is de-energized by the torque switch.

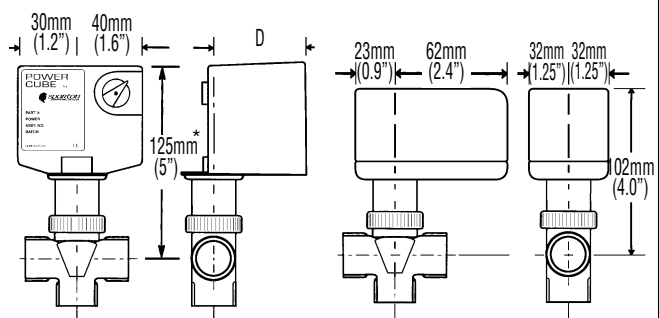
ME4140 is used for single unit connection per output point.

ME4141 is used for multi-unit connection per output point.

On loss of power the actuator remains in its last position.

**SPECIFICATIONS - ME4630 Power Cube Actuators spring return type.** These actuators are available for floating (tri-state) application.

On initial "power-up" the actuator runs through a self-test



\* 160mm (6 1/4") on sizes 32mm and 40mm (1 1/4 and 1 1/2)

# VE111-4140 through VE445-4630

## Compact Electric three wire floating Zone Control Valves Two Way, Three Way and Four Port, in spring return or fail-in-last-position

### NON-SPRING RETURN VALVES with ME4140 and ME4141 Actuators

Valve Assembly Part #	USCv	KVs	Size	Description	Actuator Part #	Valve Part #	Replac'mt element	Max Δ psi/ bar	
<b>2 way 125# Straightway Union Globe:</b>									
VE111-414X-F-1.5	1.5	1.3	1/2"	Straight union 125# Globe valve with fail last position 3 state act.	ME4140/41	V111	AV111-1.5	45/ 3	
VE111-414X-F-2.5	2.5	2.2	3/4"		ME4140/41	V111	AV111-2.5	30/ 2	
<b>2 way 200# Straightway Union Globe Balanced Body</b>									
VE132-414X-F-4.0	4.0	3.4	1/2"	Straight FxP 200# globe valve with fail last position 3 state actuator.	ME4140/41	V132	AV132-4.0	60/ 4	
VE132-414X-F-6.1	6.1	5.3	3/4"		ME4140/41	V132	AV132-6.1	60/ 4	
VE132-414X-F-6.4	6.4	5.4	1"		ME4140/41	V132	AV132-6.4	60/ 4	
VE132-414X-F-12.7	12.7	10.9	1 1/4"		ME4140/41	V132	AV132-12.7	60/ 4	
<b>2 way 250# Straightway Union Globe Both Ends</b>									
VE240-B00.25-414X	0.25	0.22		Straight Double Unions 250# globe valve with fail last position 3 state actuator. Unions Available 1/2", 3/4", 1" in NPT, BSPT, Solder.	ME4140/41	V240	B00.25	60/ 4	
VE240-B00.50-414X	0.50	0.43			ME4140/41	V240	B00.50	60/ 4	
VE240-EP1.0-414X	1.00	0.86			ME4140/41	V240	EP1.0	45/ 3	
VE240-EP1.5-414X	1.50	1.29			ME4140/41	V240	EP1.5	45/ 3	
VE240-EP2.0-414X	2.00	1.72			ME4140/41	V240	EP2.0	45/ 3	
VE240-EP2.5-414X	2.50	2.15			ME4140/41	V240	EP2.5	45/ 3	
VE240-EP3.5-414X	3.50	3.01			ME4140/41	V240	EP3.5	45/ 3	
<b>2 way 200# Straightway with Solder Ends:</b>									
VE245-B00.25-414X	0.25	0.22	7/8"		Straight Solder Body 7/8" 250# globe valve with fail last position 3 state actuator. For 3/8" use insert AV6312	ME4140/41	V245	B00.25	60/ 4
VE245-B00.50-414X	0.50	0.43	7/8"			ME4140/41	V245	B00.50	60/ 4
VE245-EP1.0-414X	1.00	0.86	7/8"	ME4140/41		V245	EP1.0	45/ 3	
VE245-EP1.5-414X	1.50	1.29	7/8"	ME4140/41		V245	EP1.5	45/ 3	
VE245-EP2.0-414X	2.00	1.72	7/8"	ME4140/41		V245	EP2.0	45/ 3	
VE245-EP2.5-414X	2.50	2.15	7/8"	ME4140/41		V245	EP2.5	45/ 3	
VE245-EP3.5-414X	3.50	3.01	7/8"	ME4140/41		V245	EP3.5	45/ 3	
<b>2 way 200# Angle Union Globe:</b>									
VE160-414X-F-1.9	1.9	1.6	1/2"	Angle union 200# globe valve with fail last position 3 state actuator.		ME4140/41	V160	AV130-1.9	40/ 2.7
VE160-414X-F-3.0	3.0	2.6	3/4"			ME4140/41	V160	AV130-3.0	30/ 2
VE160-414X-F-6.3	6.3	5.4	1"		ME4140/41	V160	AV130-6.3	15/ 1	
VE162-414X-F-12.7	12.7	10.9	1 1/4"		ME4140/41	V162	AV132-12.7	60/ 4	
<b>3 way 250# diverting with Unions all three ports:</b>									
VE320-EPD1.0-414X	1.0	0.86		3 way union diverting valve with fail last position 3 state actuator. Unions available 1/2", 3/4", 1" in NPT, BSPT, Solder	ME4140/41	V320	EPD1.0	45/ 3	
VE320-EPD2.0-414X	2.0	1.72			ME4140/41	V320	EPD2.0	45/ 3	
VE320-EPD3.5-414X	3.5	3.01			ME4140/41	V320	EPD3.5	45/ 3	
VE345-414X-F-5.5	5.5	4.7			ME4140/41	V345	AV345-5.5	15/ 1	
<b>3 way 250# diverting with Solder Body:</b>									
VE325-EPD1.0-414X	1.0	0.86	7/8"	3 way solder diverting valve with fail last position 3 state actuator.	ME4140/41	V325	EPD1.0	45/ 3	
VE325-EPD2.0-414X	2.0	1.72	7/8"		ME4140/41	V325	EPD2.0	45/ 3	
VE325-EPD3.5-414X	3.5	3.01	7/8"		ME4140/41	V325	EPD3.5	45/ 3	
<b>4 way 250# diverting/ mixing with Unions all four ports:</b>									
VE445-414X-F-2.3	2.3	2.0	1/2"	4 way union diverting with fail last position 3 state actuator.	ME4140/41	V445	AV345-2.3	45/ 3	
VE445-414X-F-3.7	3.7	3.2	3/4"		ME4140/41	V445	AV345-3.7	30/ 2	

### NORMALLY OPEN SPRING RETURN VALVES with ME4630 Actuator

Valve Assembly Part #	USCv	KVs	Size	Description	Actuator Part #	Valve Part #	Replac'mt element	Max Δ psi/ bar	
<b>2 way 125# Straightway Union Globe:</b>									
VE111-4630-F-1.5	1.5	1.3	1/2"	Straight union 125# Globe valve with normally open 3 state act.	ME4630	V111	AV111-1.5	45/ 3	
VE111-4630-F-2.5	2.5	2.2	3/4"		ME4630	V111	AV111-2.5	30/ 2	
<b>2 way 200# Straightway Union Globe Balanced Body</b>									
VE132-4630-F-4.0	4.0	3.4	1/2"	Straight FxP 200# globe valve with normally open 3 state actuator.	ME4630	V132	AV132-4.0	60/ 4	
VE132-4630-F-6.1	6.1	5.3	3/4"		ME4630	V132	AV132-6.1	60/ 4	
VE132-4630-F-6.4	6.4	5.5	1"		ME4630	V132	AV132-6.4	60/ 4	
VE132-4630-F-12.7	12.7	10.9	1 1/4"		ME4630	V132	AV132-12.7	60/ 4	
<b>2 way 250# Straightway Union Globe Both Ends</b>									
VE240-B00.25-4630	0.25	0.22		Straight Double Unions 250# globe valve with normally open 3 state actuator. Unions Available 1/2", 3/4", 1" in NPT, BSPT, Solder.	ME4630	V240	B00.25	60/ 4	
VE240-B00.50-4630	0.50	0.43			ME4630	V240	B00.50	60/ 4	
VE240-EP1.0-4630	1.00	0.86			ME4630	V240	EP1.0	45/ 3	
VE240-EP1.5-4630	1.50	1.29			ME4630	V240	EP1.5	45/ 3	
VE240-EP2.0-4630	2.00	1.72			ME4630	V240	EP2.0	45/ 3	
VE240-EP2.5-4630	2.50	2.15			ME4630	V240	EP2.5	45/ 3	
VE240-EP3.5-4630	3.50	3.01			ME4630	V240	EP3.5	45/ 3	
<b>2 way 200# Straightway with Solder Ends:</b>									
VE245-B00.25-4630	0.25	0.22	7/8"		Straight Solder Body 7/8" 250# globe valve with normally open 3 state actuator. For 3/8" use insert AV6312	ME4630	V245	B00.25	60/ 4
VE245-B00.50-4630	0.50	0.43	7/8"			ME4630	V245	B00.50	60/ 4
VE245-EP1.0-4630	1.00	0.86	7/8"	ME4630		V245	EP1.0	45/ 3	
VE245-EP1.5-4630	1.50	1.29	7/8"	ME4630		V245	EP1.5	45/ 3	
VE245-EP2.0-4630	2.00	1.72	7/8"	ME4630		V245	EP2.0	45/ 3	
VE245-EP2.5-4630	2.50	2.15	7/8"	ME4630		V245	EP2.5	45/ 3	
VE245-EP3.5-4630	3.50	3.01	7/8"	ME4630		V245	EP3.5	45/ 3	
<b>2 way 200# Angle Union Globe:</b>									
VE160-4630-F-1.9	1.9	1.6	1/2"	Angle union 200# globe valve with normally open 3 state actuator.		ME4630	V160	AV130-1.9	40/ 2.7
VE160-4630-F-3.0	3.0	2.6	3/4"			ME4630	V160	AV130-3.0	30/ 2
VE160-4630-F-6.3	6.3	5.4	1"		ME4630	V160	AV130-6.3	15/ 1	
VE162-4630-F-12.7	12.7	10.9	1 1/4"		ME4630	V162	AV132-12.7	60/ 4	
<b>3 way 250# diverting with Unions all three ports:</b>									
VE320-EPD1.0-4630	1.0	0.86		3 way union diverting valve with normally open 3 state actuator. Unions available 1/2", 3/4", 1" in NPT, BSPT, Solder	ME4630	V320	EPD1.0	45/ 3	
VE320-EPD2.0-4630	2.0	1.72			ME4630	V320	EPD2.0	45/ 3	
VE320-EPD3.5-4630	3.5	3.01			ME4630	V320	EPD3.5	45/ 3	
VE345-4630-F-5.5	5.5	4.7			ME4630	V345	AV345-5.5	15/ 1	
<b>3 way 250# diverting with Solder Body:</b>									
VE325-EPD1.0-4630	1.0	0.86	7/8"	3 way solder diverting valve with normally open 3 state actuator.	ME4630	V325	EPD1.0	45/ 3	
VE325-EPD2.0-4630	2.0	1.72	7/8"		ME4630	V325	EPD2.0	45/ 3	
VE325-EPD3.5-4630	3.5	3.01	7/8"		ME4630	V325	EPD3.5	45/ 3	
<b>4 way 250# diverting/ mixing with Unions all four ports:</b>									
VE445-4630-F-2.3	2.3	2.0	1/2"	4 way union with normally open 3 state actuator.	ME4630	V445	AV445-2.3	45/ 3	
VE445-4630-F-3.7	3.7	3.2	3/4"		ME4630	V445	AV445-3.7	30/ 2	

**How to specify non-spring-return floating control valve (fail-in-last-position) actuators**

Supply zone control valves of globe type construction complete with electronic microprocessor controlled actuators having dial type position indicators and knurled thumbnut quick-disconnect actuators.

The actuators shall be capable of micro accurate positioning action with IP51 protection against water ingress, capable of operating in ambient temperatures from 40°F (5°C) to 122°F (50°C), the complete assembly responding to a 3 wire floating or raise/lower signal input signal. On loss of power the valve shall remain in its last position. The base motor shall be of reversible, synchronous, brushless action, capable of continuous stall plus torque switch protected for best motor and gear box life expectancy. Drive time in either direction shall be 72 seconds end to end at 50 Hz and 60 seconds at 60Hz.

**How to specify spring-return floating control valve actuators**

Supply zone control valves of globe type construction complete with electronic microprocessor controlled actuators and knurled thumbnut quick-disconnect actuators.

The actuators shall be capable of micro accurate positioning action through LED solid state pickup, the complete assembly responding to a floating or raise/lower input signal. On loss of power the valve shall spring to its normally open position. The base motor shall be of brushless, reversible, hysteresis action, capable of continuous stall plus time-out protected for cooler operation and best gear box life expectancy. Drive time in either direction shall be electronically adjusted to 72 seconds at 50 Hz and 60 seconds at 60Hz. However, the gearmotor assembly shall return to its normal or spring return position within 10 seconds of AC power failure. The gear box and valve linkage shall be with IP51 protection against water ingress, capable of operating in ambient temperatures from 40°F (5°C) to 105°F (40°C).

**How to specify control valve bodies for floating actuators**

A full range of linear or equal percentage valve internals shall be available enabling correct selection for the duties required. These one-piece internals shall be complete with stem, packing, plug and characterizing rings allowing for complete in-line overhaul of the valve body easily, in situ.

On types V240; V245; V320; V325, V420 and V425 valves, the USCv (Kvs) shall be inter-changeable on-site without changing the valve body, to allow for inconsistencies in site conditions on/after commissioning.

**How to specify complete valve assemblies**

The entire valve and actuator assembly shall be as manufactured by Spartan Peripheral Devices