

Cartridge valves: Mechanical, Solenoid, Electro-proportional

Product Selection Guide

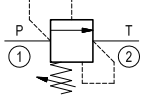
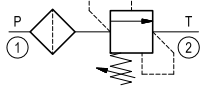
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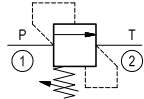
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Mechanical - Relief and Unloading

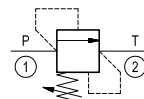
Relief direct acting poppet type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSAN-08A	up to 420 (6000)	3 (0.8)	CA-08A-2N	18318-01	11
	VS-5-CN	460 (6600)	1.5 (0.4)	Special 348	18318-19	7
	VS-5-CF	460 (6600)	1.5 (0.4)	Special 348	18318-20	9

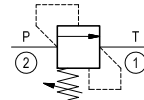
Relief direct acting guided poppet type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSBN-08A	350 (5000)	20 (5)	CA-08A-2N	18318-04	13
	VSBN-10A	350 (5000)	50 (13)	CA-10A-2N	18318-05	17
	VSBN-08F	350 (5000)	20 (5)	Special CA-08F-2N	18318-18	15
	VS-30	350 (5000)	30 (8)	Special 008	18318-23	19
	VS-80	250 (3600)	80 (21)	Special 009	18318-25	23

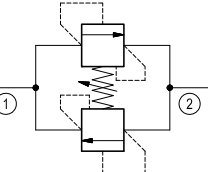
Relief direct acting guided poppet type hardened seat

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VS-30-NCF	420 (6000)	30 (8)	Special 008	18318-24	21

Relief direct acting poppet type differential area

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSDN-08A	350 (5000)	50 (13)	CA-08A-2N	18318-02	27
	VSDN-10A	350 (5000)	120 (32)	CA-10A-2N	18318-03	29
	VSD-350	210 (3000)	350 (93)	Special 004	18318-22	31

Relief bidirectional direct acting poppet type differential area

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSNG-10A	240 (3500)	56 (15)	CA-10A-2N	18318-07	33

Mechanical - Relief and Unloading

Relief direct acting poppet type pressure compensated

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VS-30-CC	350 (5000)	30 (8)	Special 008	18318-26	35

Relief pilot operated spool type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSPN-10A	420 (6000)	3-120 (1-32)	CA-10A-2N	18318-08	37
	VSPN-12A	350 (5000)	5-200 (1.3-53)	CA-12A-2N	18318-09	39
	VSPN-16A	420 (6000)	8-300 (2-79)	CA-16A-2N	18318-10	41

Relief pilot operated poppet type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSPC-10A	350 (5000)	3-80 (1-21)	CA-10A-2N	18318-11	43
	MHDBV-16	420 (6000)	100 (26)	Special	64605	825
	MHDBV-22	420 (6000)	240 (63)	Special	64605	825

Pressure relief and anti-cavitation valve pilot operated

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	MHDBN-16	420 (6000)	100 (26)	Special	64602	833
	MHDBN-22	420 (6000)	240 (63)	Special	64602	833
	MHDBN-32	420 (6000)	400 (106)	Special	64602	833

Relief pilot operated spool type external drain

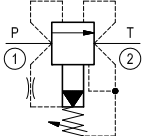
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page	
	VSPY-10A	420 (6000)	3-120 (0.8-32)	CA-10A-3N	18318-12	45	
	VSPY-12A	350 (5000)	5-200 (1.3-53)	CA-12A-3C	18318-13	47	

Relief pilot operated spool type external pilot

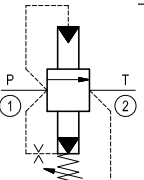
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSPX-12A	350 (5000)	5-200 (1.3-53)	CA-12A-3C	18318-14	49

Mechanical - Relief and Unloading

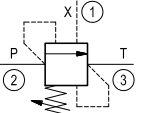
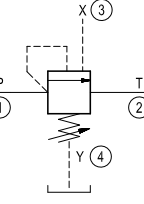
Relief pilot operated spool type pressure compensated

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSP-CC-150	420 (6000)	5-150 (1.3-40)	Special 065	18318-27	51

Relief pilot operated spool type unloading

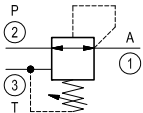
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSKD-10A	420 (6000)	5-80 (1.3-21)	CA-10A-2N	18318-15	53

Priority unloading pilot operated

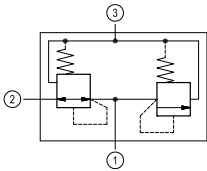
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VMSN-08A	350 (5000)	3 (1)	CA-08A-3N	18318-16	55
	VMSP-78	350 (5000)	5-30 (1.3-8)	Special 308	18318-17	57

Mechanical - Pressure reducing and relieving

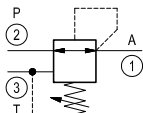
Pressure reducing and relieving direct acting spool type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRPR-08A	350 (5000)	8 (2)	CA-08A-3N	18318-52	63
	VRPR-10A	350 (5000)	30 (8)	CA-10A-3N	18318-53	65
	VRPR-07A	420 (6000)	5 (1.3)	Special CA-07A-3N	18318-59	61

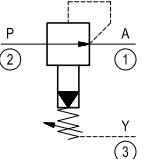
Pressure reducing and relieving direct acting spool damped type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	MHDRDB	315 (4500)	11 (3)	Special	18111-04	845

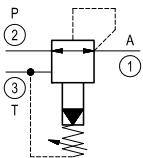
Pressure reducing and relieving direct acting spool damped type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRPR-10A-8	350 (5000)	20 (5)	CA-10A-3N	18318-54	69
	VRPR-07A-S	420 (6000)	5 (1.3)	Special CA-07A-3N	18318-60	67

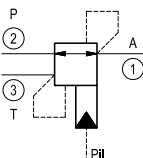
Pressure reducing pilot operated spool type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRPP-10A	350 (5000)	60 (16)	CA-10A-3N	18318-50	71
	VRPP-12A	350 (5000)	100 (26)	CA-12A-3N	18318-51	73

Pressure reducing and relieving pilot operated spool type


Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRPX-10A	350 (5000)	60 (16)	CA-10A-3N	18318-56	75

Pressure reducing and relieving with pilot controlled setting

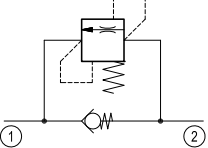
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRPE-10A	350 (5000)	20 (5)	CA-10A-3N	18318-58	77

Mechanical - Check and pilot operated check


Check poppet type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VUCN-08A	420 (6000)	50 (13)	CA-08A-2N	18318-89	85
	VUCN-10A	350 (5000)	80 (21)	CA-10A-2N	18318-90	87
	VUCN-12A	350 (5000)	120 (32)	CA-12A-2N	18318-91	89
	VUCN-16A	350 (5000)	200 (53)	CA-16A-2N	18318-92	91
	VUCN-20A	350 (5000)	360 (95)	CA-20A-2N	18318-93	93
	VUCN-04A	350 (5000)	4 (1)	Special CA-04A-2N	18318-88	81
	VU-N-38	350 (5000)	30 (8)	Special 690	18318-99	83

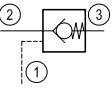
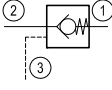
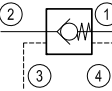
Check poppet type with thermal relief

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VUCN-10A-TR	350 (5000)	80 (21)	CA-10A-2N	18318-94	95
	VUCN-12A-TR	350 (5000)	120 (32)	CA-12A-2N	18318-95	97

Check poppet reverse type

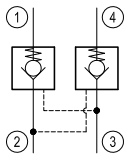
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VURN-08A	420 (6000)	25 (7)	CA-08A-2N	18318-96	99
	VURN-10A	350 (5000)	60 (16)	CA-10A-2N	18318-97	101
	VURN-12A	350 (5000)	90 (24)	CA-12A-2N	18318-98	103

Pilot operated check pilot to open

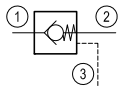
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSOA-08A	350 (5000)	30 (8)	CA-08A-3N	18319-34	119
	VSOA-10A	350 (5000)	40 (11)	CA-10A-3N	18319-35	121
	VSON-08A	350 (5000)	30 (8)	CA-08A-3C	18319-30	105
	VSON-10A	350 (5000)	60 (16)	CA-10A-3C	18319-31	107
	VSON-12A	350 (5000)	120 (32)	CA-12A-3C	18319-32	111
	VSON-16A	350 (5000)	200 (53)	CA-16A-3C	18319-33	115
	VSON-08U	350 (5000)	60 (16)	T-11A	18319-39	109
	VSON-12U	350 (5000)	120 (32)	T-2A	18319-40	113
<p>Vented</p> 	VSON-16U	350 (5000)	240 (63)	T-17A	18319-41	117
	KED	350 (5000)	120 (32)	T-22A	18117-01	853

Mechanical - Check and pilot operated check

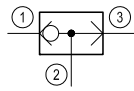
Dual pilot operated check pilot to open

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VSOD-10A	350 (5000)	30 (8)	CA-10A-4N	18319-38	123

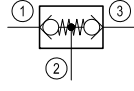
Pilot operated check pilot to close

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VUPC-10A	350 (5000)	70 (18)	CA-10A-3C	18319-36	125
	VUPC-12A	350 (5000)	120 (32)	CA-12A-3C	18319-37	127
	KGD	350 (5000)	160 (42)	T-2A	18117-02	861

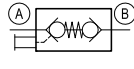
Directional poppet type shuttle

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	SELB-08A	350 (5000)	up to 10 (3)	CA-08A-3N	18319-80	131
	SELC-04A	350 (5000)	up to 4 (1)	Special CA-04A-3Y	18319-82	129
	SELC-08A	350 (5000)	up to 10 (3)	CA-08A-2N	18319-81	133

Directional poppet type shuttle double check

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VUDN-08A	350 (5000)	10 (3)	CA-08A-3N	18319-83	135

Check double lock with mechanical pilot

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VU-DT-D7-CM	350 (5000)	10 (3)	Special 748	18318-87	137

Mechanical - Counterbalance

Standard guided poppet type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSN-08AA	350 (5000)	30 (8)	CA-08A-3C	18320-01	143

Standard guided poppet type counterclockwise adjustment

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSN-08UU-RS	280 (4000)	30 (8)	T-11A	18320-16	145

Standard poppet type differential area

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSN-10A	350 (5000)	60 (16)	CA-10-3C	18320-02	147
	VBSN-12A	350 (5000)	120 (32)	CA-12A-3C	18320-03	151
	VBSN-16A	350 (5000)	200 (53)	CA-16A-3C	18320-04	155
	VBSN-20A	350 (5000)	320 (85)	CA-20A-3C	18320-05	159

Standard poppet type differential area counterclockwise adjustment

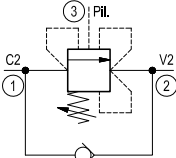
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSN-08U-RS	350 (5000)	60 (16)	T-11A	18320-17	149
	VBSN-12U-RS	350 (5000)	120 (32)	T-2A	18320-18	153
	VBSN-16U-RS	420 (6000)	240 (63)	T-17A	18320-19	157
	VBSN-25U-RS	350 (5000)	480 (127)	T-19A	18320-29	New

Relief compensated guided poppet type

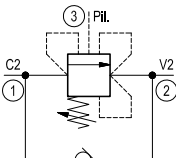
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSP-08AA	350 (5000)	30 (8)	CA-08A-3C	18320-06	161

Mechanical - Counterbalance

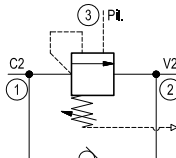
Relief compensated poppet type differential area

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSP-10A	350 (5000)	60 (16)	CA-10A-3C	18320-07	163
	VBSP-12A	350 (5000)	120 (32)	CA-12A-3C	18320-08	167
	VBSP-16A	350 (5000)	200 (53)	CA-16A-3C	18320-09	171
	VBSP-20A	350 (5000)	320 (85)	CA-20A-3C	18320-10	175

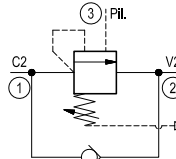
Relief compensated poppet type differential area counterclockwise adjustment

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSP-08U-RS	350 (5000)	60 (16)	T-11A	18320-20	165
	VBSP-12U-RS	350 (5000)	120 (32)	T-2A	18320-21	169
	VBSP-16U-RS	420 (6000)	240 (63)	T-17A	18320-22	173
	VBSP-25U-RS	350 (5000)	480 (127)	T-19A	18320-30	New

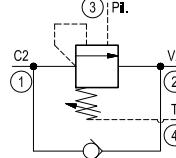
Vented guided poppet type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBST-08AA	350 (5000)	30 (8)	CA-08A-3C	18320-11	177
	VBST-10A	350 (5000)	60 (16)	CA-10A-3C	18320-12	179
	VBST-12A	350 (5000)	120 (32)	CA-12A-3C	18320-13	183
	VBST-16A	350 (5000)	200 (53)	CA-16A-3C	18320-14	187
	VBST-20A	350 (5000)	320 (85)	CA-20A-3C	18320-15	191

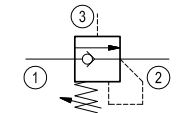
Vented guided poppet type counterclockwise adjustment

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBST-08U-RS	350 (5000)	60 (16)	T-11A	18320-23	181
	VBST-12U-RS	350 (5000)	120 (32)	T-2A	18320-24	185
	VBST-16U-RS	350 (5000)	240 (63)	T-17A	18320-25	189

4 ports vented poppet type external drain counterclockwise adjustment


Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSY-08U-RS	350 (5000)	60 (16)	T-21A	18320-26	193
	VBSY-12U-RS	350 (5000)	120 (32)	T-22A	18320-27	195
	VBSY-16U-RS	350 (5000)	240 (63)	T-23A	18320-28	197

Standard poppet type zero differential area

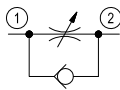
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VBSZ-20A	350 (5000)	320 (85)	CA-20A-3C	18319-99	New

Mechanical - Flow control

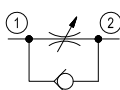
Cartridge restrictors

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	ST-C-06	350 (5000)	40 (11)	CA-08A-2N	18321-26	201
	ST-C-10	350 (5000)	70 (19)	CA-10A-2N	18321-27	203
	ST-C-12	350 (5000)	150 (39)	CA-12A-2N	18321-28	205
	ST-C-16	350 (5000)	150 (39)	CA-16A-2N	18321-29	207


Needle restrictors free reverse flow

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	STVU-08A	350 (5000)	40 (11)	CA-08A-2N	18321-10	209
	STVU-10A	350 (5000)	80 (22)	CA-10A-2N	18321-11	211


Needle restrictors free reverse flow fine adjustment

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	STFU-08A	350 (5000)	40 (11)	CA-08A-2N	18321-09	213

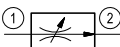
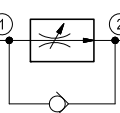
2-way pressure compensated fixed setting

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRFA-08A	up to 210 (3000)	8 (2)	CA-08A-2N	18321-12	215
	VRFA-10A-TF	up to 350 (5000)	19 (5)	CA-10A-2N	18321-13	217
	VRFA-12A-TF	up to 350 (5000)	63 (17)	CA-12A-2N	18321-14	223

2-way pressure compensated partially adjustable

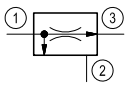
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRFA-10A	up to 350 (5000)	26 (7)	CA-10A-2N	18321-15	219

2-way pressure compensated fully adjustable

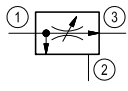
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRFB-10A	up to 350 (5000)	30 (8)	CA-10A-2N	18321-16	221
	VRFE-12A	up to 350 (5000)	50 (13)	CA-12A-2N	18321-30	225

Mechanical - Flow control

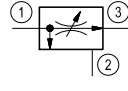
3-way pressure compensated fixed setting

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRFC-10A-TF	up to 350 (5000)	19 (5)	CA-10A-3N	18321-18	227
	VRFC-12A-TF	up to 350 (5000)	63 (17)	CA-12A-3N	18321-19	233

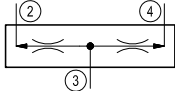
3-way pressure compensated partially adjustable

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRFC-10A	up to 350 (5000)	60 (16)	CA-10A-3N	18321-17	229

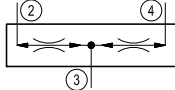
3-way pressure compensated fully adjustable

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VRFD-10A	up to 350 (5000)	60 (16)	CA-10A-3N	18321-20	231
	VRFD-12A	up to 350 (5000)	120 (32)	CA-12A-3N	18321-21	235

Flow divider

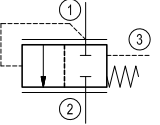
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	DSDN-10A	up to 350 (5000)	54 (14)	CA-10A-4N	18321-22	237
	DSDN-16A	up to 350 (5000)	165 (44)	CA-16A-4N	18321-23	239

Flow divider and combiner

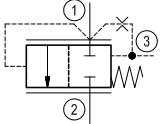
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	DRFN-10A	up to 350 (5000)	54 (14)	CA-10A-4N	18321-24	241
	DRFN-16A	up to 350 (5000)	165 (44)	CA-16A-4N	18321-25	243

Mechanical - Logic elements and compensator

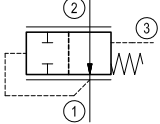
Flow and pressure control with external pilot

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VLST-10A	350 (5000)	60 (16)	CA-10A-3C	18321-60	249
	VLST-12A	350 (5000)	120 (32)	CA-12A-3C	18321-61	251
	VLST-16A	350 (5000)	up to 200 (53)	CA-16A-3C	18321-62	253
	VLST-20A	350 (5000)	up to 360 (95)	CA-20A-3C	18321-63	255

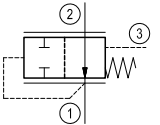
Flow and pressure control with internal pilot

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VLSP-10A	350 (5000)	60 (16)	CA-10A-3C	18321-64	257
	VLSP-12A	350 (5000)	120 (32)	CA-12A-3C	18321-65	259
	VLSP-16A	350 (5000)	200 (53)	CA-16A-3C	18321-66	261
	VLSP-20A	350 (5000)	360 (95)	CA-20A-3C	18321-67	263

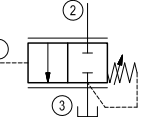
Flow control with external pilot

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VLSC-10A	350 (5000)	30 (8)	CA-10A-3C	18321-68	265
	VLSC-16A	350 (5000)	120 (32)	CA-16A-3C	18321-69	269
	VLSC-20A	350 (5000)	240 (63)	CA-20A-3C	18321-70	271

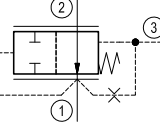
Flow control with external pilot damped type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VLSC-10A-8-TF	350 (5000)	25 (7)	CA-10A-3C	18321-71	267

2-way Logic element with pressure shut-off function

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	MH2DAD	420 (6000)	2.5 (0.7)	Special	64586	875

Pressure control with internal pilot

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VLSR-10A	350 (5000)	40 (11)	CA-10A-3C	18321-72	273
	VLSR-12A	350 (5000)	60 (16)	CA-12A-3C	18321-73	275
	VLSR-16A	350 (5000)	120 (32)	CA-16A-3C	18321-74	277
	VLSR-20A	350 (5000)	230 (61)	CA-20A-3C	18321-75	279

Mechanical - Directional direct acting

Spool type direct acting external pilot internal drain

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VDSA-10A-6	350 (5000)	30 (8)	CA-10A-3N	18320-73	313
	VDSA-10A	350 (5000)	50 (13)	CA-10A-3N	18320-83	315
	VDSA-16A	350 (5000)	160 (43)	CA-16A-3N	18320-92	317
	VDSB-10A-6	350 (5000)	30 (8)	CA-10A-3N	18320-74	319
	VDSB-10A	350 (5000)	50 (13)	CA-10A-3N	18320-84	321
	VDSB-16A	350 (5000)	160 (43)	CA-16A-3N	18320-93	New
	VDSH-10A	350 (5000)	40 (11)	CA-10A-4N	18320-75	337
	VDSH-16A	350 (5000)	160 (43)	CA16A-4N	18320-85	339
	VDSK-10A	350 (5000)	40 (11)	CA-10A-4N	18320-76	341
	VDSK-16A	350 (5000)	160 (43)	CA16A-4N	18320-86	343

Spool type direct acting internal pilot external drain

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VDSR-10A-6	350 (5000)	12 (3)	CA-10A-3N	18320-82	323

Spool type direct acting external pilot external drain

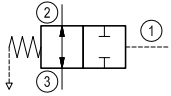
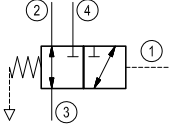
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VDSE-10A-6	350 (5000)	20 (5)	CA-10A-4N	18320-88	325

Spool type direct acting external pilot external vent

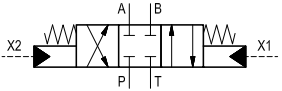
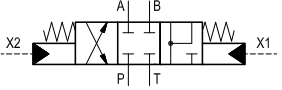
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VDSC-10A	350 (5000)	50 (13)	CA-10A-3N	18320-77	327
	VDSC-12A	350 (5000)	120 (32)	CA-12A-3N	18320-91	329
	VDSC-16A	350 (5000)	160 (43)	CA-16A-3N	18320-78	331

Mechanical - Directional direct acting

Spool type direct acting external pilot external vent

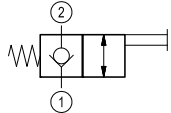
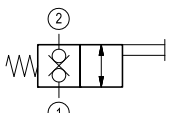
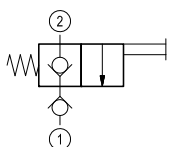
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VDS-10A	350 (5000)	50 (13)	CA-10A-3N	18320-79	333
	VDS-16A	350 (5000)	160 (43)	CA-16A-3N	18320-80	335
	VDSJ-10A	350 (5000)	50 (13)	CA-10A-4N	18320-87	345
	VDSJ-16A	350 (5000)	160 (43)	CA-16A-4N	18320-81	347

Spool type 4-way

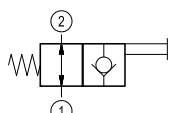
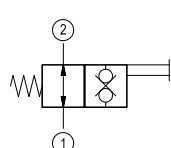
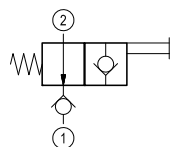
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VDSP-20B	350 (5000)	200 (53)	Special CA-20B-6C	18320-89	349
	VDSP-20B-R	350 (5000)	200 (53)	Special CA-20B-6C	18320-90	351

Mechanical - Directional manual pilot operated

Manual operated poppet 2-way normally closed

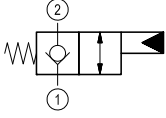
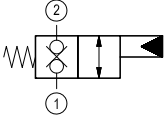
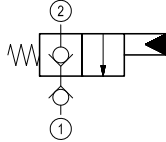
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VMI-8A-2A-06-NC	350 (5000)	40 (11)	CA-08A-2N	18326-01	355
	VMI-8A-2A-09-NC	350 (5000)	70 (19)	Special 017-E	18326-05	363
	VMI-8A-2A-12-NC	350 (5000)	150 (39)	Special 021-E	18326-07	367
	VMI-8A-2A-06-NC	350 (5000)	40 (11)	CA-08A-2N	18326-01	355
	VMI-8A-2A-09-NC	350 (5000)	70 (19)	Special 017-E	18326-05	363
	VMI-8A-2A-12-NC	350 (5000)	150 (39)	Special 021-E	18326-07	367
	VMI-8A-2A-06-NC-VU	350 (5000)	40 (11)	Special 019-E	18326-02	359
	VMI-8A-2A-09-NC-VU	350 (5000)	70 (19)	Special 017-E	18326-05	363
	VMI-8A-2A-12-NC-VU	350 (5000)	150 (39)	Special 021-E	18326-07	367

Manual operated poppet 2-way normally open

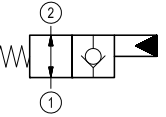
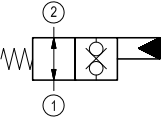
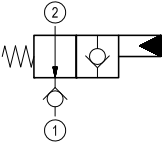
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VMI-8A-2A-06-NA	350 (5000)	40 (11)	CA-8A-2N	18326-03	371
	VMI-8A-2A-09-NA	350 (5000)	70 (19)	Special 017-E	18326-06	379
	VMI-8A-2A-12-NA	350 (5000)	150 (39)	Special 021-E	18326-08	383
	VMI-8A-2A-06-NA	350 (5000)	40 (11)	CA-8A-2N	18326-03	371
	VMI-8A-2A-09-NA	350 (5000)	70 (19)	Special 017-E	18326-06	379
	VMI-8A-2A-12-NA	350 (5000)	150 (39)	Special 021-E	18326-08	383
	VMI-8A-2A-06-NA-VU	350 (5000)	40 (11)	Special 019-E	18326-04	375
	VMI-8A-2A-09-NA-VU	350 (5000)	70 (19)	Special 017-E	18326-06	379
	VMI-8A-2A-12-NA-VU	350 (5000)	150 (39)	Special 021-E	18326-08	383

Mechanical - Directional hydraulic pilot operated

Hydraulic operated poppet 2-way normally closed

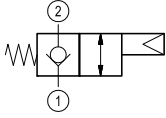
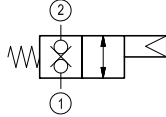
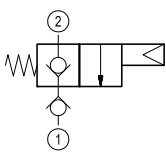
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VOI-8A-2A-06-NC	350 (5000)	40 (11)	CA-08A-2N	18326-40	389
	VOI-8A-2A-09-NC	350 (5000)	70 (19)	Special 017-E	18326-44	397
	VOI-8A-2A-12-NC	350 (5000)	150 (39)	Special 021-E	18326-46	401
	VOI-8A-2A-06-NC	350 (5000)	40 (11)	CA-08A-2N	18326-40	389
	VOI-8A-2A-09-NC	350 (5000)	70 (19)	Special 017-E	18326-44	397
	VOI-8A-2A-12-NC	350 (5000)	150 (39)	Special 021-E	18326-46	401
	VOI-8A-2A-06-NC-VU	350 (5000)	40 (11)	Special 019-E	18326-41	393
	VOI-8A-2A-09-NC-VU	350 (5000)	70 (19)	Special 017-E	18326-44	397
	VOI-8A-2A-12-NC-VU	350 (5000)	150 (39)	Special 021-E	18326-46	401

Hydraulic operated poppet 2-way normally open

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VOI-8A-2A-06-NA	350 (5000)	40 (11)	CA-08A-2N	18326-42	405
	VOI-8A-2A-09-NA	350 (5000)	70 (19)	Special 017-E	18326-45	413
	VOI-8A-2A-12-NA	350 (5000)	150 (39)	Special 021-E	18326-47	417
	VOI-8A-2A-06-NA	350 (5000)	40 (11)	CA-08A-2N	18326-42	405
	VOI-8A-2A-09-NA	350 (5000)	70 (19)	Special 017-E	18326-45	413
	VOI-8A-2A-12-NA	350 (5000)	150 (39)	Special 021-E	18326-47	417
	VOI-8A-2A-06-NA-VU	350 (5000)	40 (11)	Special 019-E	18326-43	409
	VOI-8A-2A-09-NA-VU	350 (5000)	70 (19)	Special 017-E	18326-45	413
	VOI-8A-2A-12-NA-VU	350 (5000)	150 (39)	Special 021-E	18326-47	417

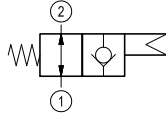
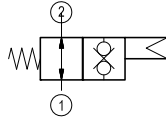
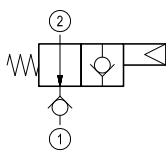
Mechanical - Directional pneumatic pilot operated

Pneumatic operated poppet 2-way normally closed

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VPI-8A-2A-06-NC	350 (5000)	40 (11)	CA-8A-2N	18326-70	423
	VPI-8A-2A-09-NC	350 (5000)	70 (19)	Special 017-E	18326-74	431
	VPI-8A-2A-12-NC	350 (5000)	150 (39)	Special 021-E	18326-76	435
	VPI-8A-2A-06-NC	350 (5000)	40 (11)	CA-8A-2N	18326-70	423
	VPI-8A-2A-09-NC	350 (5000)	70 (19)	Special 017-E	18326-74	431
	VPI-8A-2A-12-NC	350 (5000)	150 (39)	Special 021-E	18326-76	435
	VPI-8A-2A-06-NC-VU	350 (5000)	40 (11)	Special 019-E	18326-71	427
	VPI-8A-2A-09-NC-VU	350 (5000)	70 (19)	Special 017-E	18326-74	431
	VPI-8A-2A-12-NC-VU	350 (5000)	150 (39)	Special 021-E	18326-76	435

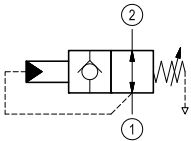
Mechanical - Directional pneumatic pilot operated

Pneumatic operated poppet 2-way normally open

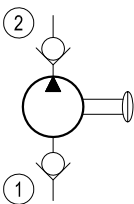
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VPI-8A-2A-06-NA	350 (5000)	40 (11)	CA-8A-2N	18326-72	439
	VPI-8A-2A-09-NA	350 (5000)	70 (19)	Special 017-E	18326-75	447
	VPI-8A-2A-12-NA	350 (5000)	150 (39)	Special 021-E	18326-77	451
	VPI-8A-2A-06-NA	350 (5000)	40 (11)	CA-8A-2N	18326-72	439
	VPI-8A-2A-09-NA	350 (5000)	70 (19)	Special 017-E	18326-75	447
	VPI-8A-2A-12-NA	350 (5000)	150 (39)	Special 021-E	18326-77	451
	VPI-8A-2A-06-NA-VU	350 (5000)	40 (11)	Special 019-E	18326-73	443
	VPI-8A-2A-09-NA-VU	350 (5000)	70 (19)	Special 017-E	18326-75	447
	VPI-8A-2A-12-NA-VU	350 (5000)	150 (39)	Special 021-E	18326-78	455

Mechanical - Accessories

Automatic shut-off pilot to close

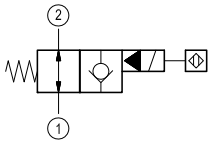
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	VEM-5-C-N	350 (5000)	1 (0.26)	Special 348	18320-70	461

Hand pump

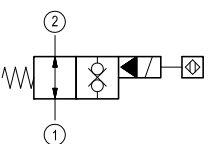
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Data Sheet	Page
	PM-06	210 (3000)	1 (0.06)	CA-08A-2N	18321-95	463

Solenoid - On-off pilot operated

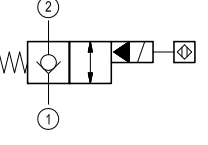
Pilot operated poppet 2-way normally open proximity sensor

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEI-8A-2A-06-NA-S-M-NSS	350 (5000)	up to 40 (11)	CA-08A-2N	S8	18325-07	691
	VEI-8A-2A-09-NA-S-M-NSS	350 (5000)	up to 70 (18)	CA-10A-2N	S8	18325-08	695
	VEI-8A-2A-09-NA-S-M-NSS	350 (5000)	up to 70 (18)	CA-10A-2N	S8	18325-09	699
	VEI-8A-2A-12-NA-S-M-NSS	350 (5000)	up to 40 (11)	CA-10A-2N	S8	18325-10	703

Pilot operated poppet 2-way normally open double lock proximity sensor

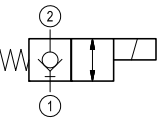
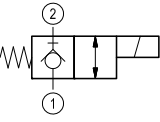
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEI-8A-2T-09-NA-S-M-NSS	350 (5000)	up to 70 (18)	Special 017-E	S8	18325-15	707

Pilot operated poppet 2-way normally closed proximity sensor

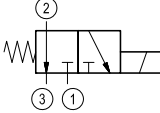
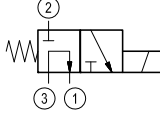
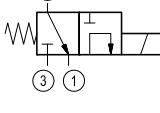
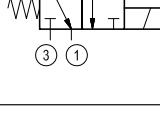
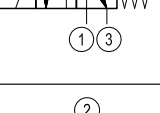
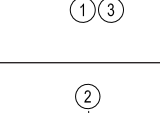

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEI-8A-2A-06-NC-S-M	350 (5000)	up to 40 (11)	CA-08A-2N	S8	18325-03	New

Solenoid - On-off direct acting

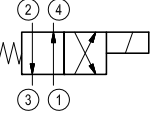
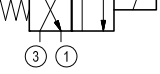
Direct acting 2-way poppet type normally closed

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VED-8I-NC	350 (5000)	1.5 (0.4)	CA-08A-2N	S8	18324-06	713
	VED-8I-NC	350 (5000)	1.5 (0.4)	CA-08A-2N	S8	18324-06	713

Solenoid - On-off direct acting**Direct acting 3-way 2-position spool type**

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEDS-08A-32	315 (4500)	20 (5)	CA-08A-3N	S8	18324-50	737
	VED-10A-32	210 (3000)	20 (6)	CA-10A-3N	S7	18324-58	Web
	VEDS-12A-32	315 (4500)	60 (16)	CA-12A-3N	R5	18324-56	761
	VEDS-08A-32	315 (4500)	20 (5)	CA-08A-3N	S8	18324-50	737
	VED-10A-32	210 (3000)	20 (6)	CA-10A-3N	S7	18324-58	Web
	VEDS-08A-32	315 (4500)	20 (5)	CA-08A-3N	S8	18324-50	737
	VED-10A-32	210 (3000)	20 (6)	CA-10A-3N	S7	18324-58	Web
	VEDS-08A-32	315 (4500)	20 (5)	CA-08A-3N	S8	18324-50	737
	VED-10A-32	210 (3000)	20 (6)	CA-10A-3N	S7	18324-58	Web
	KKDER1-C	350 (5000)	60 (16)	T-11A	12/24 22W	18136-04	939
	KKDER8-C	350 (5000)	30 (12)	T-9A	12/24 22W	18136-09	919
	KKDER1-U	350 (5000)	60 (16)	T-11A	12/24 22W	18136-04	939
	KKDER8-U	350 (5000)	30 (12)	T-9A	12/24 22W	18136-09	919
	KKDER1-G	350 (5000)	60 (16)	T-11A	12/24 22W	18136-04	939
	KKDER8-G	350 (5000)	30 (12)	T-9A	12/24 22W	18136-09	919

Direct acting 4-way 2-position spool type

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEDS-08A-42	315 (4500)	20 (5)	CA-08A-4N	S8	18324-51	741
	VED-10A-42	210 (3000)	20 (5)	CA-10A-4N	S7	18324-59	Web
	VEDS-08A-42	315 (4500)	20 (5)	CA-08A-4N	S8	18324-51	741

Solenoid - On-off direct acting

Direct acting 4-way 2-position spool type

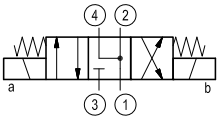
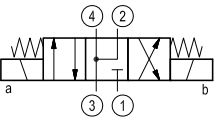
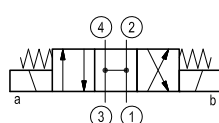
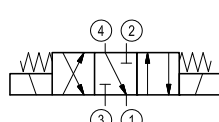
	VED-10A-42	210 (3000)	20 (5)	CA-10A-4N	S7	18324-59	Web
	VEDS-08A-42	315 (4500)	20 (5)	CA-08A-4N	S8	18324-51	741
	VED-10A-42	210 (3000)	20 (5)	CA-10A-4N	S7	18324-59	Web
	VEDS-08A-42	315 (4500)	20 (5)	CA-08A-4N	S8	18324-51	741
	VEDS-08A-42	315 (4500)	20 (5)	CA-08A-4N	S8	18324-51	741
	VEDS-08A-42	315 (4500)	20 (5)	CA-08A-4N	S8	18324-51	741
	VED-10A-42	210 (3000)	20 (5)	CA-10A-4N	S7	18324-59	Web
	KKDER1-D	350 (5000)	40 (11)	T-31A	12/24	18136-05	949
	KKDER1-E	350 (5000)	40 (11)	T-31A	12/24	18136-05	949
	KKDER1-F	350 (5000)	40 (11)	T-31A	12/24	18136-05	949

Direct acting 4-way 3-position spool type

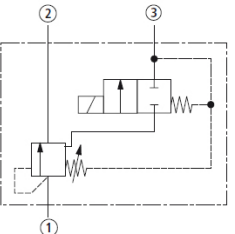
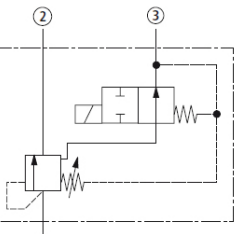
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEDS-08A-43	315 (4500)	20 (5)	CA-08A-4N	S8	18324-52	745
	VED-10A-43	210 (3000)	20 (6)	CA-10A-4N	S7	18324-60	Web
	VEDS-08A-43	315 (4500)	20 (5)	CA-08A-4N	S8	18324-52	745
	VED-10A-43	210 (3000)	20 (6)	CA-10A-4N	S7	18324-60	Web

Solenoid - On-off direct acting

Direct acting 4-way 3-position spool type

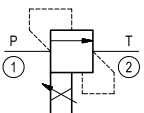
	VEDS-08A-43	315 (4500)	20 (5)	CA-08A-4N	S8	18324-52	745
	VED-10A-43	210 (3000)	20 (6)	CA-10A-4N	S7	18324-60	Web
	VEDS-08A-43	315 (4500)	20 (5)	CA-08A-4N	S8	18324-52	745
	VEDS-08A-43	315 (4500)	20 (5)	CA-08A-4N	S8	18324-52	745
	VED-10A-43	210 (3000)	20 (6)	CA-10A-4N	S7	18324-60	Web
	VEDS-08A-43	315 (4500)	20 (5)	CA-08A-4N	S8	18324-52	745

Pressure Relief valve Pilot Operated with Solenoid Actuation

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	MHDBW 22	420 (6000)	400 (106)	Special	12/24	64608	959
	MHDBW 22	420 (6000)	400 (106)	Special	12/24	64608	959

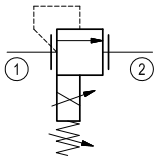
Solenoid - Electro-proportional

Electro-proportional relief direct acting

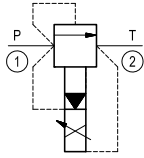
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEP-5B-2S-D	350 (5000)	5 (1.3)	CA-08A-2N	S5	18323-65	771
	KBPS.8A	420 (6000)	3 (0.8)	T-8A	12/24	18139-04	971

Solenoid - Electro-proportional

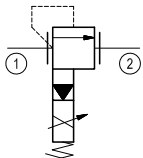
Electro-proportional relief direct acting falling characteristic curve

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	KBPS.8B	420 (6000)	3 (0.8)	T-8A	12/24	18139-05	983

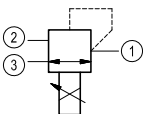
Electro-proportional relief pilot operated

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEP-5B-2S-10A-P	350 (5000)	up to 120 (32)	CA-10A-2N	S5	18323-66	775
	VEP-5B-2S-P	350 (5000)	up to 150 (40)	Special 065	S5	18323-67	779
	KBVS.3A	350 (5000)	200 (53)	Special	12/24	18139-08	995

Electro-proportional relief pilot operated falling characteristic curve

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	KBVS.3B	350 (5000)	200 (53)	Special	12/24	18139-07	1005

Electro-proportional direct acting pressure reducing

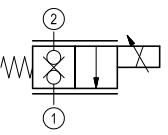
Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEP-5A-3R-06	210 (3000)	10 (3)	CA-10A-3N	S5	18323-60	783
	MHDRE 02 K	30 (450)	2.5 (0.7)	Special	12/24	64658	1035
	MHDRE 04 K	30 (450)	6 (1.6)	Special	12/24	64666	1045
	MHDRE 06 K	30 (450)	40 (11)	Special	12/24	64655	1053
	FTDRE 2K	100 (1450)	2 (0.5)	Special	12/24	58032	1063
	FTDRE 4K	210 (3000)	5 (1.3)	Special	12/24	58038	1067

Solenoid - Electro-proportional

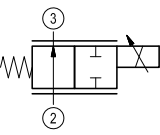
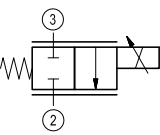
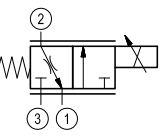
Electro-proportional pilot operated pressure reducing

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEP-5A-2R-06-P	210 (3000)	up to 60 (16)	CA-10A-3N	S5	18323-61	787

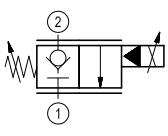
Electro-proportional 2-way double lock normally closed

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEP-5A-2T-06-NC	210 (3000)	up to 20 (5)	CA-08A-2N	S5	18323-68	791

Electro-proportional flow regulator not compensated

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEP-5A-2Q-09 NA	210 (3000)	up to 40 (11)	CA-10A-3N	S5	18323-64	803
	VEP-5A-2Q-09 NA	210 (3000)	up to 40 (11)	CA-10A-3N	S5	18323-63	795
	VEP-5A-2Q-14	210 (3000)	up to 60 (16)	CA-12A-3N	S5	18323-62	799
	VEP-5A-2Q-09 NA	210 (3000)	up to 40 (11)	CA-10A-3N	S5	18323-63	795
	VEP-5A-2Q-14	210 (3000)	up to 60 (16)	CA-12A-3N	S5	18323-62	799

Electro-proportional poppet type flow regulator not compensated

Symbol	Type	Max. Pressure bar (psi)	Max. Flow l/min. (gpm)	Cavity	Coil	Data Sheet	Page
	VEPN-12A	210 (3000)	up to 60 (16)	CA-12A-2N	R7	18323-69	807

