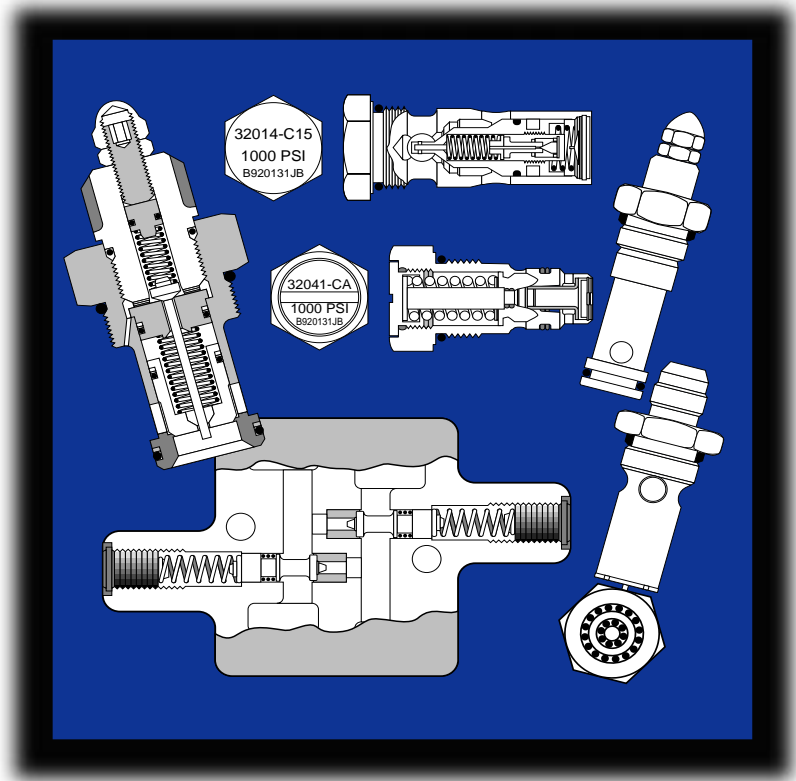


No. 11-510
June 1996

Eaton®
Relief Valves



**Relief Valve Assemblies
Relief Valve Cartridges**

We Manufacture

Solutions

Hydraulics

Specialty Hydraulic Solutions

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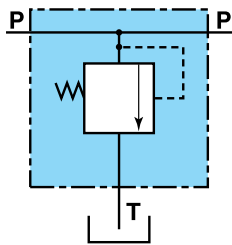
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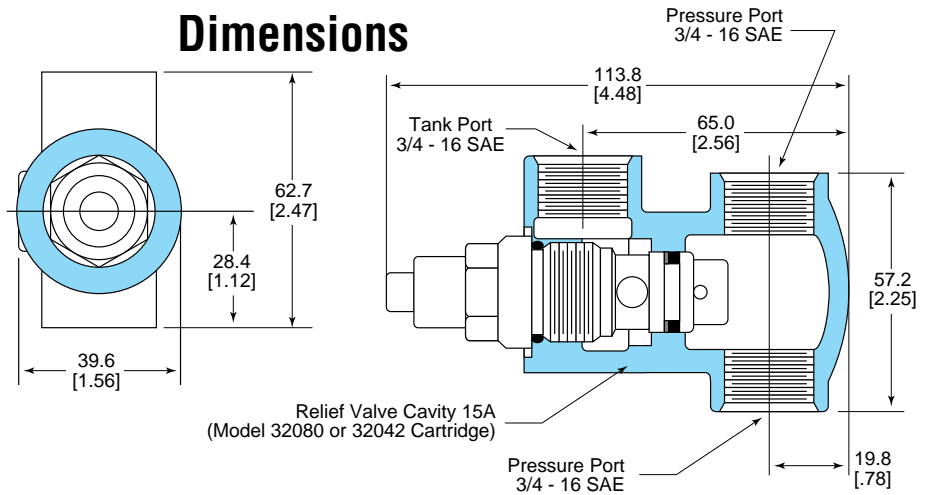
s

Model 32107 In-Line Relief Valve—Direct Acting Cartridge

Schematic



Dimensions



Specifications

Maximum Flow Through	
Relief Valve	57 l/min. [15 GPM]
Relief Valve Setting Range	47–276 bar [675–4000 PSI]
Standard Relief Valve Setting	138 bar [2000 PSI]
Housing Rated Pressure	345 bar [5000 PSI]
Weight	0.7 kg. [1.5 lbs.]
Paint	Primer

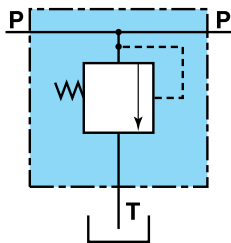
Ordering Information

Relief Valve Assy. w/Adjustable Relief	
Valve preset to 138 bar [2000 PSI]	..... 32107-BAY
Relief Valve preset to 138 bar [2000 PSI]	..... 32080-LA
Housing Only Part No.	..... 32107-10

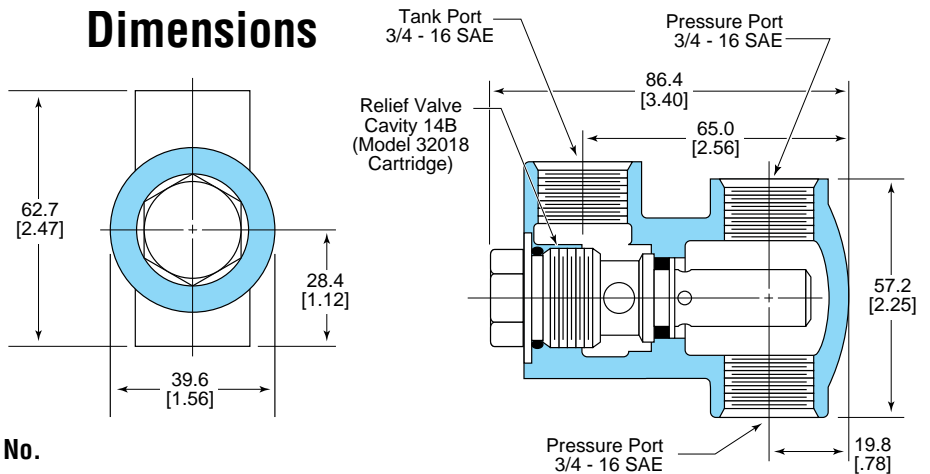
Other 32107-xxx assemblies available, using either adjustable 32080 cartridges or fixed setting 32042 cartridges. See page 6.

Model 32107 In-Line Relief Valve—Pilot Operated Cartridge

Schematic



Dimensions



Ordering Information

l/min. [GPM]	Bar [PSI]	Model No.
57 [15]	103 [1500]	..... 32107-GAG
57 [15]	121 [1750]	..... 32107-GAJ
61 [16]	138 [2000]	..... 32107-GAL
61 [16]	155 [2250]	..... 32107-GAN
64 [17]	172 [2500]	..... 32107-GAQ
64 [17]	190 [2750]	..... 32107-GAS
68 [18]	207 [3000]	..... 32107-GAU
68 [18]	224 [3250]	..... 32107-GAV
72 [19]	241 [3500]	..... 32107-GAW

Housing Only Part No. 32107-GA

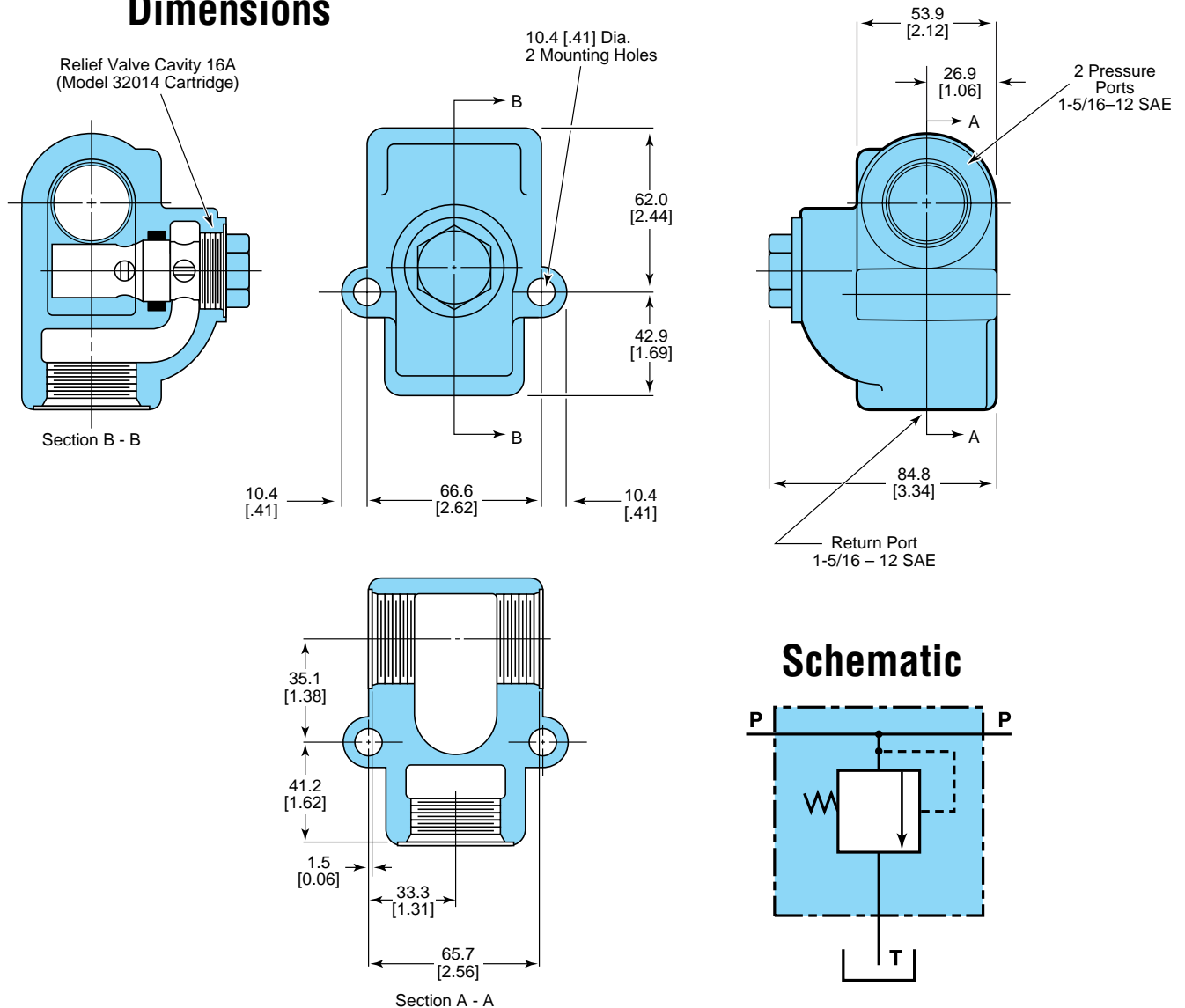
Specifications

Maximum Flow Through	
Relief Valve	75.7 l/min. [20 GPM]
Relief Valve Setting Range	103–241 bar [1500–3500 PSI]
Housing Rated Pressure	345 bar [5000 PSI]
Weight	0.7 kg. [1.5 lbs.]
Paint	Primer

See page 5 for 32018 relief cartridge information.

Model 32112 In-Line Relief Valve

Dimensions



Specifications

Maximum Flow Through	
Relief Valve	132.5 l/min. [35 GPM]
Relief Valve Setting Range	69–241 bar [1000–3500 PSI]
Housing Rated Pressure	345 bar [5000 PSI]
Weight	2.3 kg. [5.0 lbs.]
Paint	Primer

See page 4 for 32014 relief cartridge information.

Ordering Information

l/min. [GPM]	Bar [PSI]	Model No.
114 [30]	104 [1500]	32112-GAG
114 [30]	121 [1750]	32112-GAJ
117 [31]	138 [2000]	32112-GAL
121 [32]	155 [2250]	32212-GAN
125 [33]	172 [2500]	32112-GAQ
129 [34]	190 [2750]	32112-GAS
133 [35]	207 [3000]	32112-GAU
133 [35]	224 [3250]	32112-GAV
136 [36]	241 [3500]	32112-GAW

Housing Only Part No. 32112-GA

Relief Valves and Plugs

Model 32014 System Relief Valve—For Cavity 16A Factory Set—Non Adjustable

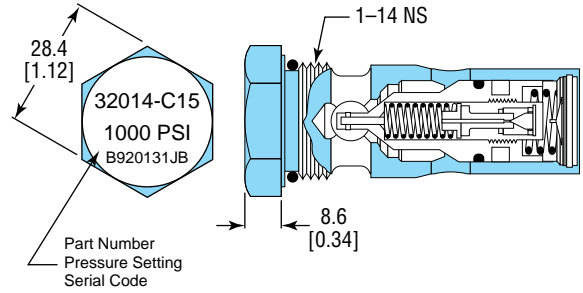
Application

Used as a system relief valve to:

- Regulate maximum working pressure in hydraulic system
- Act as a safety device to protect hydraulic system or machine structure.

Fits Cavity 16A in the following valves:

- 32112 in-line relief assemblies
- 33100 stack valve system relief cavities
- 34673 monoblock valve system relief cavities



Specifications

Pilot operated design offers low differential pressure between “crack” and “full flow.”
820 ml/min. maximum leakage at 90% of setting.

Ordering Information

Order No.	32014-C15	32014-E15	32014-G15	32014-J15	32014-L15	32014-N15	32014-Q15	32014-S15	32014-U15	32014-V15	32014-W15
Bar [PSI]	69 [1000]	86 [1250]	103 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	224 [3250]	241 [3500]
Max. Operating l/min. [GPM]	106 [28]	110 [29]	114 [30]	114 [30]	117 [31]	121 [32]	125 [33]	129 [34]	133 [35]	133 [35]	136 [36]

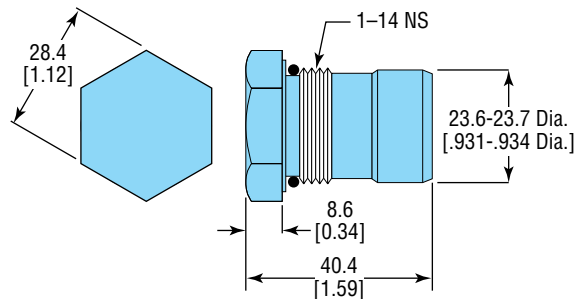
Other 32014-xx settings available between 69 and 276 Bar [1000 and 4000 PSI]. See page 11 for full range of setting codes.

Model 15480-97 Plug—For Cavity 16A

Application

Plug may be required in system relief cavity when:

- An in-line or remote mounted system relief is used between pump and valve
- Pump is equipped with a relief, or relief is in another valve
- Capability for field installation of relief cartridge is required.



Relief Valves and Plugs

Model 32018 System Relief Valve—For Cavity 14B Factory Set—Non Adjustable

Application

Used as a system relief to:

- Regulate maximum working pressure in hydraulic system
- Act as a safety device to protect hydraulic system or machine structure.

Fits Cavity 14B in the following valves:

- 32107 in-line relief assemblies
- 30540 monoblock valve system relief cavities
- 30572 monoblock valve system relief cavities

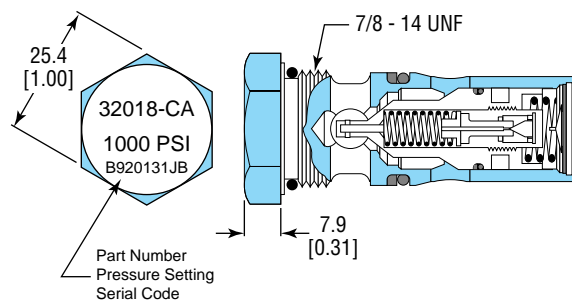
Specifications

Pilot operated design offers low differential pressure between “crack” and “full flow.”
820 ml/min. maximum leakage at 90% of setting.

Ordering Information

Order No.	32018-CA	32018-EA	32018-GA	32018-JA	32018-LA	32018-NA	32018-QA	32018-SA	32018-UA	32018-VA	32018-WA
Bar [PSI]	69 [1000]	86 [1250]	103 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]	224 [3250]	241 [3500]
Max. Operating l/min. [GPM]	53 [14]	53 [14]	57 [15]	57 [15]	61 [16]	61 [16]	64 [17]	64 [17]	68 [18]	68 [18]	72 [19]

Other 32018-xx settings available between 69 and 241 Bar [1000 and 3500 PSI]. See page 11 for full range of setting codes.

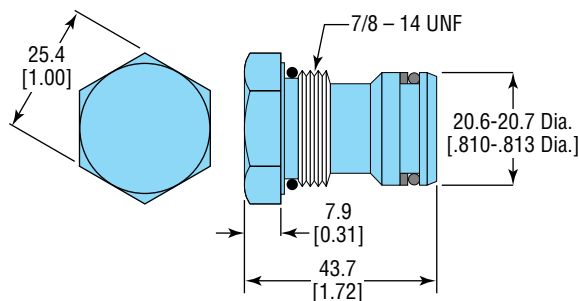


Model 15655-10 Plug

Application

Plug may be required in system relief cavity when:

- An in-line or remote mounted system relief is used between pump and valve
- Pump is equipped with a relief, or relief is in another valve
- Capability for field installation of relief cartridge is required.



Relief Valves and Plugs

Model 32042 Relief Valve—For Cavity 15A

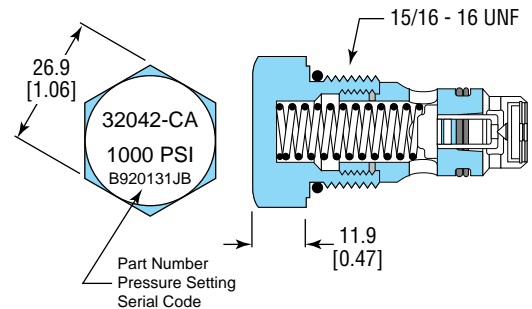
Factory Set—Non Adjustable

Application

- Used to protect the hydraulic circuit or machine from external shock forces when the valve spool is in the neutral position.
- Circuit relief valves, when set lower than the system relief valve, are also used to limit the working pressure to a particular circuit. In this application the circuit relief valve must have the flow capacity to handle the total pump flow.

Fits Cavity 15A in the following valves:

- 32107 in-line relief assemblies
- 33100 stack valve system relief cavities



Specifications

- This extremely low leakage relief valve can be used in circuits where leakage control is extremely critical. 6 ml/min maximum leakage at 90% of setting. 57 l/min [15 GPM] rated flow up to 190 Bar [2750 PSI], 30 l/min [8 GPM] rated flow at higher pressures.

Ordering Information

Order No.	32042-CA	32042-EA	32042-GA	32042-JA	32042-LA	32042-NA	32042-QA
Bar [PSI]	69 [1000]	86 [1250]	103 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]
Max. Operating l/min. [GPM]	53 [14]	53 [14]	53 [14]	57 [15]	57 [15]	57 [15]	61 [16]

Order No.	32042-SA	32042-UA	32042-VA	32042-WA	32042-YA	32042-ZA
Bar [PSI]	190 [2750]	207 [3000]	224 [3250]	241 [3500]	259 [3750]	276 [4000]
Max. Operating l/min. [GPM]	61 [16]	30 [8]	30 [8]	30 [8]	34 [9]	34 [9]

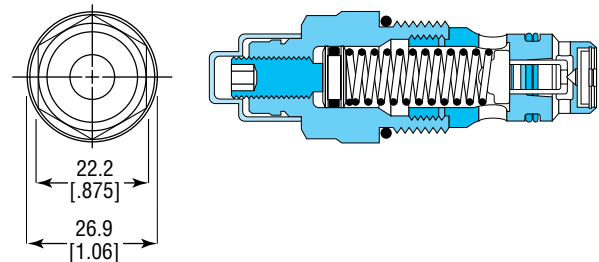
Other 32042-xx settings available between 69 and 276 Bar [1000 and 4000 PSI]. See page 11 for full range of setting codes.

Model 32080 Relief Valve—For Cavity 15A

Factory Set—Adjustable

Application and Specifications

- Application and specification information is identical to 32042 cartridge, except maximum leakage of 50 ml/min at 90% of setting.



Ordering Information

Order No.	32080-CA	32080-EA	32080-GA	32080-JA	32080-LA	32080-NA	32080-QA	32080-SA
Bar [PSI]	69 [1000]	86 [1250]	103 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]	190 [2750]
Max. Operating l/min. [GPM]	53 [14]	53 [14]	53 [14]	57 [15]	57 [15]	57 [15]	61 [16]	61 [16]

Other 32080-xx settings available between 69 and 198 Bar [1000 and 2875 PSI]. See page 11 for full range of setting codes.

Optional spring and pressure adjustment ranges are:

Range, Bar [PSI]	Spring
47-62 [675-900]	32039-20
64-103 [925-1500]	32039-10
105-129 [1525-1875]	32039-11
131-164 [1900-2375]	32039-7
166-198 [2400-2875]	32054-5

Relief Valves and Plugs

Model 32041 Relief Valve—For Cavity 15A

Factory Set—Non Adjustable

Application

- Used to protect the hydraulic circuit or machine from external shock forces when the valve spool is in the neutral position.
- Circuit relief valves, when set lower than the system relief valve, are also used to limit the working pressure to a particular circuit. In this application the circuit relief valve must have the flow capacity to handle the total pump flow.
- Usable also as a system relief to regulate working pressure.

Fits Cavity 15A in the following valve:

- 33100 stack valve circuit relief cavities

Specifications

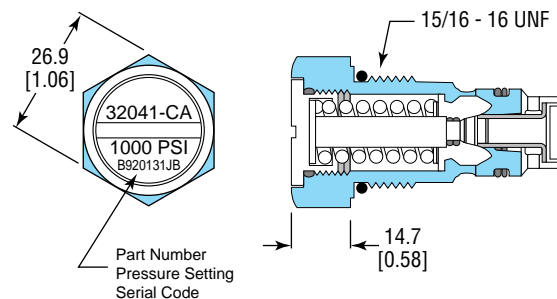
- This low leakage relief valve can be used in circuits where leakage control is critical. 16 ml/min maximum leakage at 90% of setting. 117 l/min [30 GPM] rated flow.

Ordering Information

Order No.	32041-CA	32041-EA	32041-GA	32041-JA	32041-LA	32041-NA	32041-QA
Bar [PSI]	69 [1000]	86 [1250]	103 [1500]	121 [1750]	138 [2000]	155 [2250]	172 [2500]
Max. Operating l/min. [GPM]	117 [30]	117 [30]	117 [30]	117 [30]	117 [30]	117 [30]	117 [30]

Order No.	32041-SA	32041-UA	32041-VA	32041-WA	32041-YA	32041-ZA
Bar [PSI]	190 [2750]	207 [3000]	224 [3250]	241 [3500]	259 [3750]	276 [4000]
Max. Operating l/min. [GPM]	117 [30]	117 [30]	117 [30]	117 [30]	117 [30]	117 [30]

Other 32041-xx settings available between 69 and 276 Bar [1000 and 4000 PSI]. See page 11 for full range of setting codes.

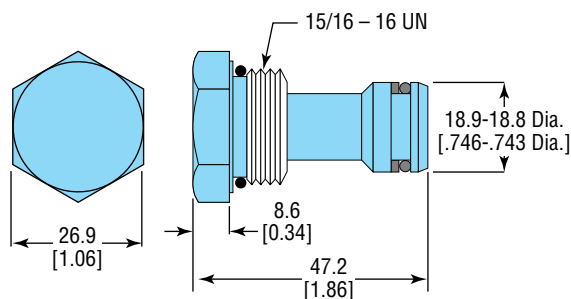


Model 33100-301 Plug—For Cavity 15A

Application

Plug may be required in system relief cavity when:

- An in-line or remote mounted system relief is used between pump and valve
- Pump is equipped with a relief, or relief is in another valve
- Capability for field installation of relief cartridge is required.



Relief Valves and Plugs

Model 603-1025/1065 System Relief Valve— For Cavity 12A

Factory Set—Non Adjustable—External Return

Application

System relief valves are required to:

- Regulate maximum working pressure in hydraulic system
- Act as a safety device to protect hydraulic system or machine structure.

Fits Cavity 12A in the following valve:

- VFA priority flow dividers
- F1217 priority flow dividers

Specifications

- Pilot operated design. 100 ml/min maximum leakage at 17 Bar [250 PSI] below setting pressure. 61 l/min [6 GPM] rated flow.
- Weight 2.2 kg [1 lb]

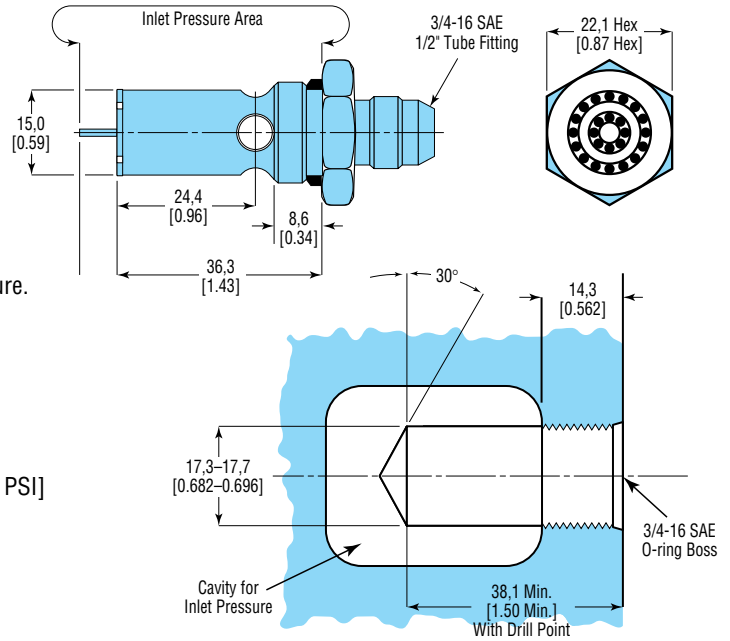
Ordering Information

Order No.	603-1025-002-AL	603-1025-002-CA	603-1025-002-EA	603-1025-002-GA	603-1025-002-JA	603-1025-002-LA
Bar [PSI]	34.5 [500]	69 [1000]	86 [1250]	103 [1500]	121 [1750]	138 [2000]
Max. Operating l/min. [GPM]	61 [16]	61 [16]	61 [16]	61 [16]	61 [16]	61 [16]

Order No.	603-1065-002-NA	603-1065-002-QA	603-1065-002-SA	603-1065-002-UA
Bar [PSI]	155 [2250]	172 [2500]	190 [2750]	207 [3000]
Max. Operating l/min. [GPM]	61 [16]	61 [16]	61 [16]	61 [16]

Other 603-1025-002-xx and 603-1065-002-xx settings available. See page 11 for full range of setting codes.

Dimensions



Relief Valves and Plugs

Model 603-1019 System Relief Valve—For Cavity 16B

Factory Set—Adjustable

Application

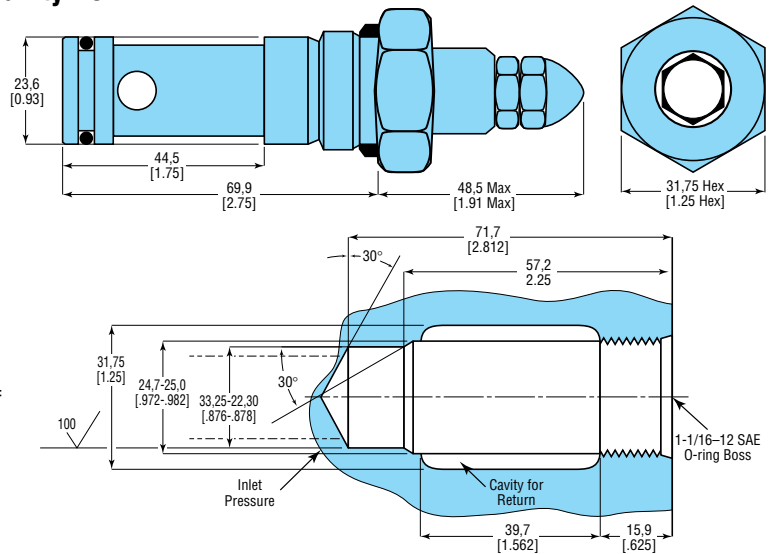
System relief valves are required to:

- Regulate maximum working pressure in hydraulic system
- Act as a safety device to protect hydraulic system or machine structure.

Fits Cavity 16B shown at right:

Specifications

- Pilot operated design. 400 ml/min maximum leakage at 85% of setting. 190 l/min [50 GPM] rated flow.



Ordering Information

Order No.	603-1019-003-AL	603-1019-003-CA	603-1019-003-EA	603-1019-003-GA	603-1019-003-JA
Bar [PSI]	34.5 [500]	69 [1000]	86 [1250]	103 [1500]	121 [1750]
Max. Operating l/min. [GPM]	192 [50]	192 [50]	192 [50]	192 [50]	192 [50]

Order No.	603-1019-003-LA	603-1019-003-NA	603-1019-003-QA	603-1019-003-SA	603-1019-003-UA
Bar [PSI]	138 [2000]	155 [2250]	172 [2500]	190 [2750]	207 [3000]
Max. Operating l/min. [GPM]	192 [50]	192 [50]	192 [50]	192 [50]	192 [50]

Other 603-1019-003-xx settings available. See page 11 for full range of setting codes.

In-Line Crossover Relief-Adjustable

Application

Crossover relief valves are used in a closed loop or open loop motor circuit, in which it is desired to relieve flow to the opposite motor port to prevent cavitation.

Specifications

Rated Flow 76 l/min [20 GPM]

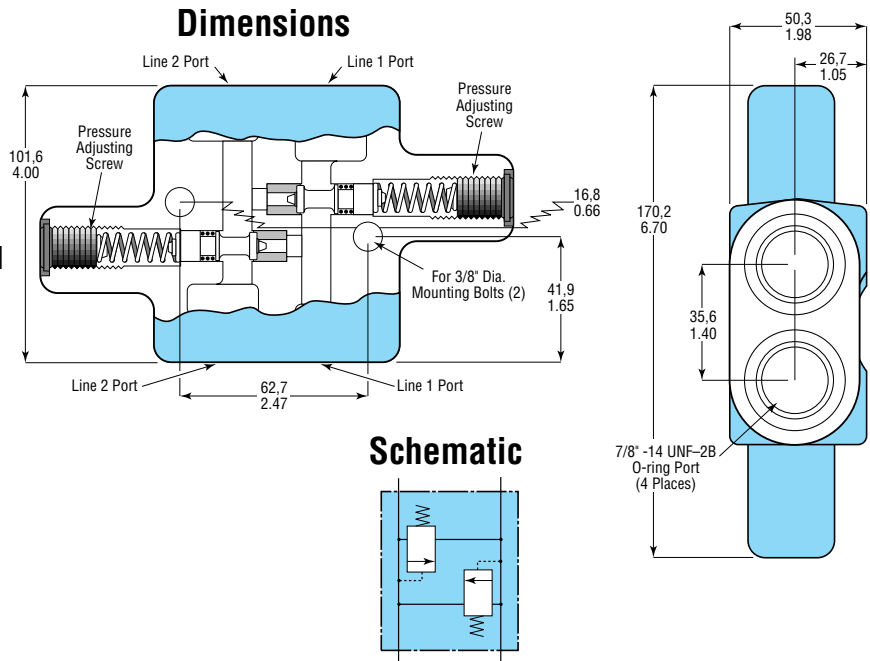
Maximum Combined Pump and Load Generated Flow 152 l/min [40 GPM]

Relief Valve Setting Range 34.5-207 bar [500-3000 PSI]

Weight 13.2 Kg [6.0 lbs.]

Ordering Information

Order 603-2004-001-xx, where -xx is the pressure setting code, from the chart on page 11.



Relief Valve Cartridge Setting Code

Use this chart to find the two-digit suffix that corresponds to the nominal pressure required.
Settings in bold print are preferred standard settings.

Suffix	bar	PSI	Suffix	bar	PSI	Suffix	bar	PSI	Suffix	bar	PSI
AA	17	250	GA	104	1500	SA	190	2750	ZA	276	4000
AB	19	275	GB	105	1525	SB	191	2775	ZB	279	4050
AC	21	300	GC	107	1550	SC	193	2800	ZC	283	4100
AD	23	325	GD	109	1575	SD	195	2825	ZD	286	4150
AE	24	350	GE	111	1600	SE	197	2850	ZE	290	4200
AF	26	375	HA	112	1625	TA	198	2875	ZF	293	4250
AG	28	400	HB	114	1650	TB	200	2900	ZG	297	4300
AH	29	425	HC	116	1675	TC	202	2925	ZH	300	4350
AJ	31	450	HD	117	1700	TD	204	2950	ZJ	304	4400
AK	33	475	HE	119	1725	TE	205	2975	ZK	307	4450
AL	35	500	JA	121	1750	UA	207	3000	ZL	311	4500
AM	36	525	JB	123	1775	UB	209	3025	ZM	314	4550
AN	38	550	JC	124	1800	UC	211	3050	ZN	317	4600
AP	40	575	JD	126	1825	UD	212	3075	ZP	321	4650
AQ	42	600	JE	128	1850	UE	214	3100	ZQ	324	4700
AR	43	625	KA	129	1875	UF	216	3125	ZR	328	4750
AS	45	650	KB	131	1900	UG	217	3150	ZS	331	4800
AT	47	675	KC	133	1925	UH	219	3175	ZT	335	4850
AU	48	700	KD	135	1950	UJ	221	3200	ZU	338	4900
AV	50	725	KE	136	1975	UK	223	3225	ZV	342	4950
BA	52	750	LA	138	2000	VA	224	3250	IA	345	5000
BB	54	775	LB	140	2025	VB	226	3275	IB	348	5050
BC	55	800	LC	142	2050	VC	228	3300	IC	352	5100
BD	57	825	LD	143	2075	VD	229	3325	ID	355	5150
BE	59	850	LE	145	2100	VE	231	3350	IE	359	5200
BF	60	875	MA	147	2125	VF	233	3375	IF	362	5250
BG	62	900	MB	148	2150	VG	235	3400	IG	366	5300
BH	64	925	MC	150	2175	VH	236	3425	IH	369	5350
BJ	66	950	MD	152	2200	VJ	238	3450	IJ	372	5400
BK	67	975	ME	154	2225	VK	240	3475	IK	376	5450
CA	69	1000	NA	155	2250	WA	242	3500	IL	379	5500
CB	71	1025	NB	157	2275	WB	243	3525	IM	383	5550
CC	72	1050	NC	159	2300	WC	245	3550	IN	386	5600
CD	74	1075	ND	160	2325	WD	247	3575	IP	390	5650
CE	76	1100	NE	162	2350	WE	248	3600	IQ	393	5700
DA	78	1125	PA	164	2375	WF	250	3625	IR	397	5750
DB	79	1150	PB	166	2400	WG	252	3650	IS	400	5800
DC	81	1175	PC	167	2425	WH	254	3675	IT	403	5850
DD	83	1200	PD	169	2450	WJ	255	3700	IU	407	5900
DE	85	1225	PE	171	2475	WK	257	3725	IV	410	5950
EA	86	1250	QA	172	2500	YA	259	3750	IW	414	6000
EB	88	1275	QB	174	2525	YB	260	3775			
EC	90	1300	QC	176	2550	YC	262	3800			
ED	91	1325	QD	178	2575	YD	264	3825			
EE	93	1350	QE	179	2600	YE	266	3850			
FA	95	1375	RA	181	2625	YF	267	3875			
FB	97	1400	RB	183	2650	YG	269	3900			
FC	98	1425	RC	185	2675	YH	271	3925			
FD	100	1450	RD	186	2700	YJ	272	3950			
FE	102	1475	RE	188	2725	YK	274	3975			

XA through XZ—Special



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