

**YUKEN**

**IN-LINE CHECK VALVES**  
**CIT-02 / 03 / 06 / 10 (1/4, 3/8, 3/4, 1-1/4)**  
**RIGHT ANGLE CHECK VALVES**  
**CRT / CRG-03 / 06 / 10 (3/8, 3/4, 1-1/4)**

**DIRECTIONAL CONTROLS**

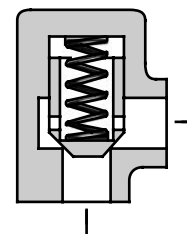
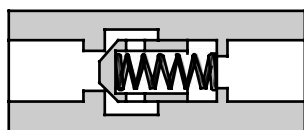
**Up to 25 MPa (3630 PSI), 1300 L/m in (343 U.S.GPM)**

These valves allow free flow in one direction and prevent flow in the reverse direction. Cracking pressure specified is the pressure required to open the valve and allow free flow.

In-Line Check Valves and Right Angle Check Valves are available.

■ In-Line Check Valves....Page 2

■ Right Angle Check Valves....Page 4



Graphic Symbol



Graphic Symbol



■ Hydraulic Fluids

● Fluid Types

Any type of hydraulic fluids listed in the table below can be used.

Petroleum base oils	Use fluids equivalent to ISO VG 32 or VG 46.
Synthetic fluids	Use phosphate ester or polyol ester fluid. When phosphate ester fluid is used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.
Water containing fluids	Use water-glycol fluid.

Note: For use with hydraulic fluids other than those listed above, please consult your Yuken representatives in advance.

● Recommended Viscosity and Oil Temperatures

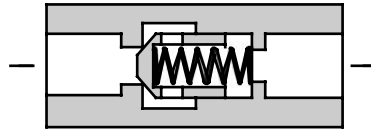
Viscosity ranging between 15 - 400 mm<sup>2</sup>/s (77 - 1800 SSU).

Oil temperatures between -15/+70°C (5 - 158°F).

Use hydraulic fluids which satisfy the recommended viscosity and oil temperatures given above.

● Control of Contamination

Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorten the life of the valves. Please maintain the degree of contamination within NAS 1638-Grade 12. Use 25 μm or finer line filter.



### Specifications

Model Numbers	Rated Flow * L/m in (U.S.GPM)	Max. Operating Pres. MPa (PSI)	Cracking Pres. MPa (PSI)	Approx. Mass kg (lbs.)
CIT-02-*/-50/5080/5090	16 (4.23)	25 (3630)	0.04 (6) 0.35 (50) 0.5 (70)	0.1 (.22)
CIT-03-*/-50/5080/5090	30 (7.93)			0.3 (.66)
CIT-06-*/-50/5080/5090	85 (22.5)			0.8 (1.8)
CIT-10-*/-50/5080/5090	230 (60.8)			2.3 (5.1)

★ Rated flow is the approximate flow rate, when there is a free flow pressure drop of maximum 0.3 MPa (44 PSI), the fluid has a specific gravity of 0.85 and a kinematic viscosity of 20 mm<sup>2</sup>/s (98 SSU), and the cracking pressure is 0.04 MPa (6 PSI).

### Model Number Designation

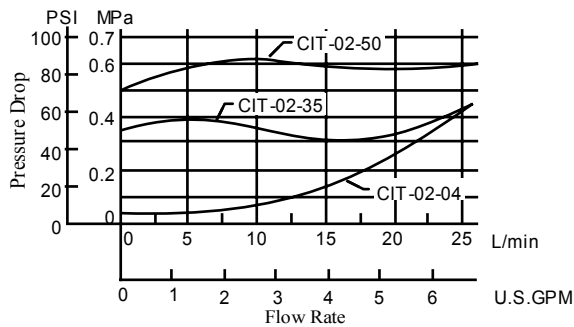
CI	T	-03	-04	-50	*
Series Number	Type of Connection	Valve Size	Cracking Pressure MPa (PSI)	Design Number	Design Standards
<b>CI:</b> In-Line Check Valve	<b>T:</b> Threaded Connection	<b>02</b>	<b>04:</b> 0.04 (6) <b>35:</b> 0.35 (50) <b>50:</b> 0.5 (70)	<b>50</b>	<b>None:</b> Japanese Std. "JIS" <b>80:</b> European Design Std. <b>90:</b> N. American Design Std.
		<b>03</b>		<b>50</b>	
		<b>06</b>		<b>50</b>	
		<b>10</b>		<b>50</b>	

Note: For In-Line Check Valves, standard type (for petroleum base oils) can be used phosphate ester type fluid.

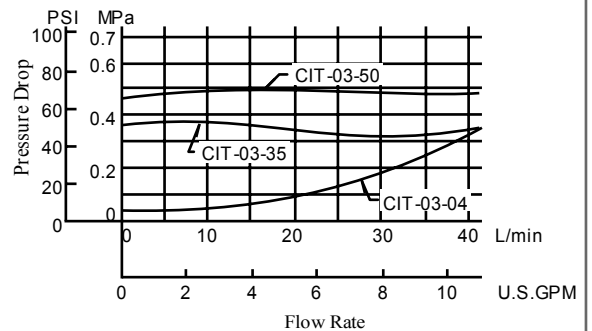
### Pressure Drop

Hydraulic Fluid: Viscosity 30 mm<sup>2</sup>/s (141 SSU), Specific Gravity 0.850

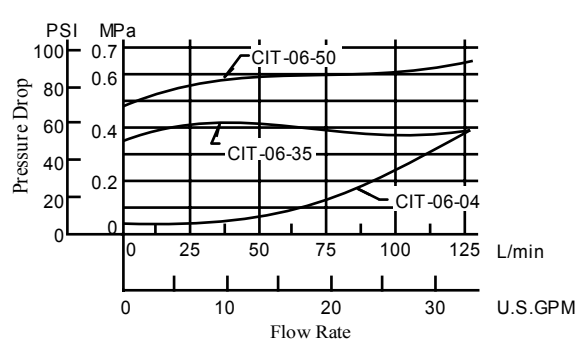
#### ● CIT-02



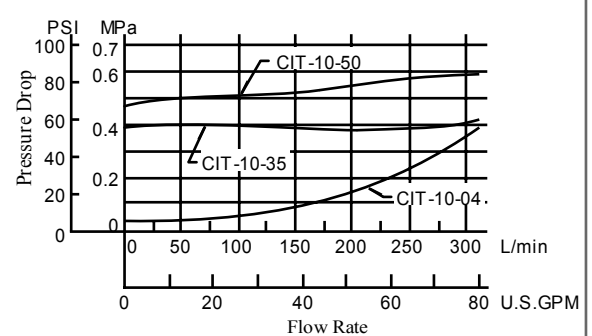
#### ● CIT-03



#### ● CIT-06

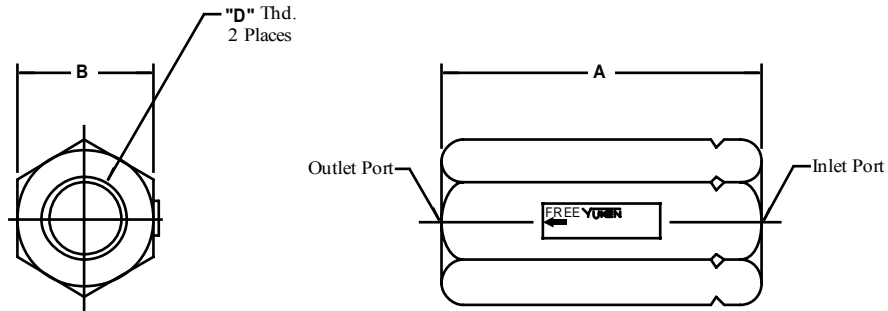


#### ● CIT-10

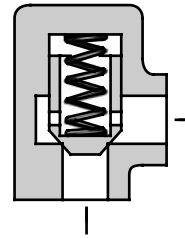


CIT-02-\* -50/5080/5090  
 CIT-03-\* -50/5080/5090  
 CIT-06-\* -50/5080/5090  
 CIT-10-\* -50/5080/5090

DIMENSIONS IN  
MILLIMETRES (INCHES)



Model Numbers	mm (Inches)		"D" Thd.
	A	B	
CIT-02-* -50	58 (2.28)	19 (.75)	Rc 1/4
CIT-02-* -5080	65 (2.56)	22 (.87)	1/4 BSP.F
CIT-02-* -5090	58 (2.28)	19 (.75)	1/4 NPT
CIT-03-* -50	76 (2.99)	27 (1.06)	Rc 3/8
CIT-03-* -5080	83 (3.27)		3/8 BSP.F
CIT-03-* -5090	76 (2.99)		3/8 NPT
CIT-06-* -50	95 (3.74)	41 (1.61)	Rc 3/4
CIT-06-* -5080	102 (4.02)		3/4 BSP.F
CIT-06-* -5090	95 (3.74)		3/4 NPT
CIT-10-* -50	133 (5.24)	60 (2.36)	Rc 1-1/4
CIT-10-* -5080			1-1/4 BSP.F
CIT-10-* -5090			1-1/4 NPT



### Specifications

Model Numbers		Rated Flow * L/min (U.S.GPM)	Max. Operating Pres. MPa (PSI)	Cracking Pres. MPa (PSI)	Approx. Mass kg (lbs.)
Threaded Connection	CRT-03-* -50/5080/5090	40 (10.6)	25 (3630)	0.04 (6)	0.9 (2.0)
	CRT-06-* -50/5080/5090	125 (33)		0.35 (50)	1.7 (3.7)
	CRT-10-* -50/5080/5090	250 (66)		0.5 (70)	5.6 (12.3)
Sub-plate Mounting	CRG-03-* -50/5090	40 (10.6)	25 (3630)	0.04 (6)	1.7 (3.7)
	CRG-06-* -50/5090	125 (33)		0.35 (50)	2.9 (6.4)
	CRG-10-* -50/5090	250 (66)		0.5 (70)	5.5 (12.1)

\* Rated flow is the approximate flow rate, when there is a free flow pressure drop of maximum 0.3 MPa (44 PSI), the fluid has a specific gravity of 0.85 and a kinematic viscosity of 20 mm<sup>2</sup>/s (98 SSU), and the cracking pressure is 0.04 MPa (6 PSI).

### Model Number Designation

F-	CR	T	-03	-04	-50	*
Special Seals	Series Number	Type of Connection	Valve Size	Cracking Pressure MPa (PSI)	Design Number	Design Standards
<b>F:</b> Special seals for phosphate ester type fluids (Om it if not required)	<b>CR:</b> Right Angle Check Valve	<b>T:</b> Threaded Connection	<b>03</b>	<b>04:</b> 0.04 (6)	<b>50</b>	<b>None:</b> Japanese Std. "JIS" <b>80:</b> European Design Std. <b>90:</b> N. American Design Std.
			<b>06</b>	<b>35:</b> 0.35 (50)	<b>50</b>	
			<b>10</b>	<b>50:</b> 0.5 (70)	<b>50</b>	
		<b>G:</b> Sub-plate Mounting	<b>03</b>	<b>04:</b> 0.04 (6)	<b>50</b>	<b>None:</b> Japanese Std. "JIS" & European Design Std. <b>90:</b> N. American Design Std.
			<b>06</b>	<b>35:</b> 0.35 (50)	<b>50</b>	
			<b>10</b>	<b>50:</b> 0.5 (70)	<b>50</b>	

### Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N.American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
CRG-03	CRGM-03-50	Rc 3/8	CRGM-03-5080	3/8 BSP.F	CRGM-03-5090	3/8 NPT	1.6 (3.5)
	CRGM-03X-50	Rc 1/2	CRGM-03X-5080	1/2 BSP.F	CRGM-03X-5090	1/2 NPT	1.6 (3.5)
CRG-06	CRGM-06-50	Rc 3/4	CRGM-06-5080	3/4 BSP.F	CRGM-06-5090	3/4 NPT	2.4 (5.3)
	CRGM-06X-50	Rc 1	CRGM-06X-5080	1 BSP.F	CRGM-06X-5090	1 NPT	3.0 (6.6)
CRG-10	CRGM-10-50	Rc 1-1/4	CRGM-10-5080	1-1/4 BSP.F	CRGM-10-5090	1-1/4 NPT	4.8 (10.6)
	CRGM-10X-50	Rc 1-1/2	CRGM-10X-5080	1-1/2 BSP.F	CRGM-10X-5090	1-1/2 NPT	5.7 (12.6)

\* Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

### Yuken can offer flanged connection valves described below.

For details, contact us.

Model No.	Rated Flow L/m in (U.S.GPM)	Max. Operating Pressure MPa (PSI)
CRF-10-* -50*	300 (79.3)	25 (3630)
CRF-16-* -50*	600 (159)	
CRF-24-* -50*	1300 (343)	

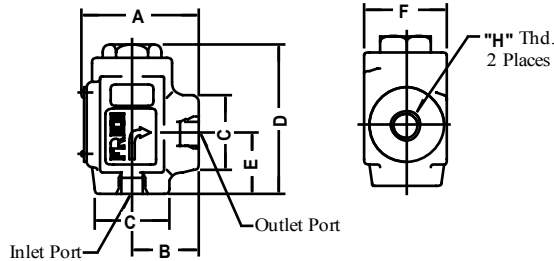
### Mounting Bolts

Socket head cap screws in the table below are included.

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Standard "JIS" European Design Standard	N.American Design Standard	
CRG-03	M10 × 45 Lg.	3/8-16 UNC × 1-3/4 Lg.	4
CRG-06	M10 × 50 Lg.	3/8-16 UNC × 2 Lg.	4
CRG-10	M10 × 55 Lg.	3/8-16 UNC × 2-1/4 Lg.	6

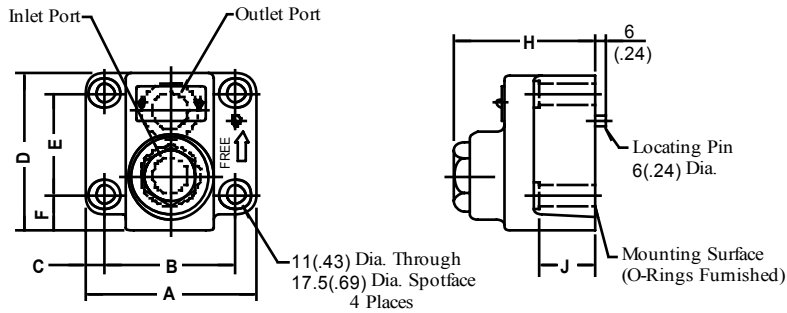
CRT-03-\* -50/5080/5090  
 CRT-06-\* -50/5080/5090  
 CRT-10-\* -50/5080/5090

DIMENSIONS IN  
MILLIMETRES (INCHES)



Model Numbers	Dimensions mm (Inches)						"H" Thd.
	A	B	C	D	E	F	
CRT-03-* -50							Rc 3/8
CRT-03-* -5080	62 (2.44)	36 (1.42)	38 (1.50) Dia	80.5 (3.17)	33 (1.30)	44 (1.73)	3/8 BSP.F
CRT-03-* -5090							3/8 NPT
CRT-06-* -50							Rc 3/4
CRT-06-* -5080	74 (2.91)	45 (1.77)	54 (2.13) Dia.	104.5 (4.11)	49 (1.93)	54 (2.13)	3/4 BSP.F
CRT-06-* -5090							3/4 NPT
CRT-10-* -50							Rc 1-1/4
CRT-10-* -5080	107 (4.21)	65 (2.56)	80 (3.15) SQ.	130 (5.12)	65 (2.56)	80 (3.15)	1-1/4 BSP.F
CRT-10-* -5090							1-1/4 NPT

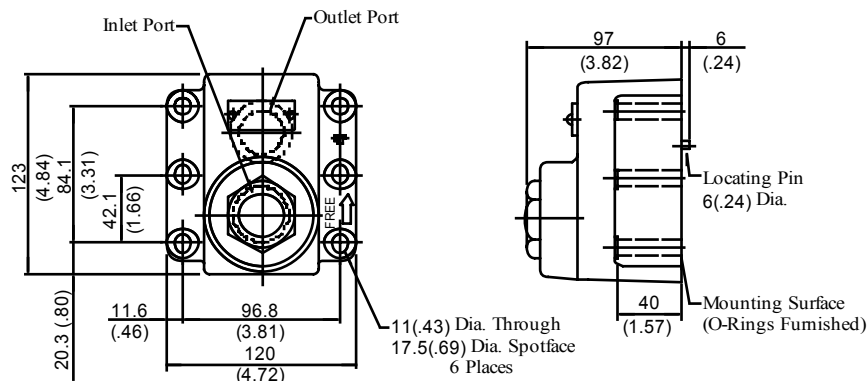
CRG-03-\* -50/5090  
 CRG-06-\* -50/5090



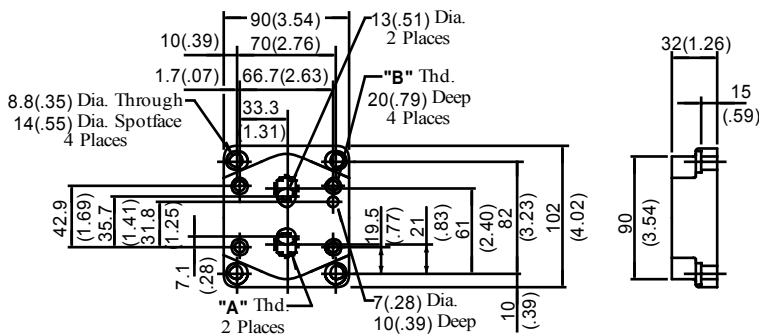
Model Numbers	Dimensions mm (Inches)								Mounting Surface
	A	B	C	D	E	F	H	J	
CRG-03	90 (3.54)	66.7 (2.63)	11.7 (.46)	72 (2.83)	42.9 (1.69)	17.5 (.69)	72.5 (2.85)	30 (1.18)	ISO 5781-AG-06-2-A
CRG-06	102 (4.02)	79.4 (3.13)	11.3 (.44)	93 (3.66)	60.3 (2.37)	21.4 (.84)	84.5 (3.33)	35 (1.38)	ISO 5781-AH-08-2-A

CRG-10-\* -50/5090

Mounting surface: ISO 5781-AJ-10-2-A



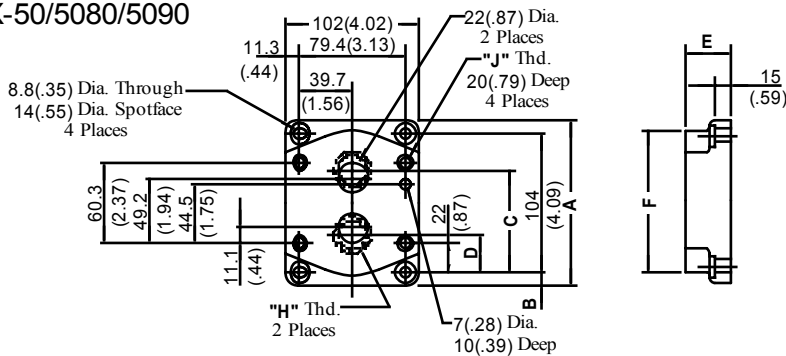
CRGM-03-50/5080/5090  
CRGM-03X-50/5080/5090



Sub-plate Model Numbers	Thread Size	
	"A" Thd.	"B" Thd.
CRGM-03-50	Rc 3/8	M10
CRGM-03-5080	3/8 BSP.F	
CRGM-03-5090	3/8 NPT	3/8-16 UNC
CRGM-03X-50	Rc 1/2	M10
CRGM-03X-5080	1/2 BSP.F	
CRGM-03X-5090	1/2 NPT	3/8-16 UNC

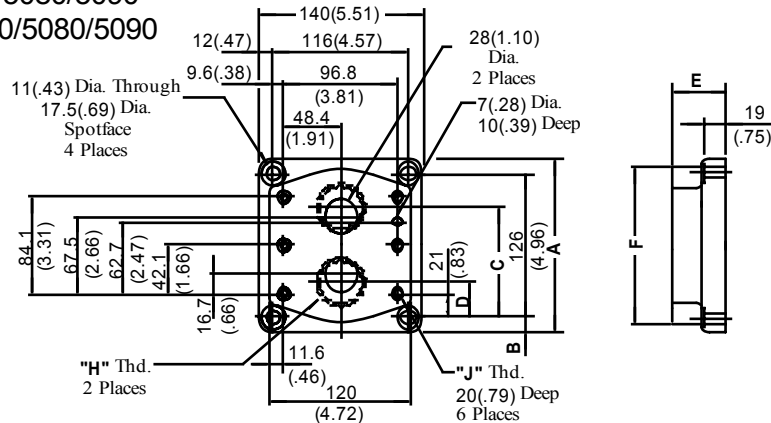
DIMENSIONS IN MILLIMETRES (INCHES)

CRGM-06-50/5080/5090  
CRGM-06X-50/5080/5090



Sub-plate Model Numbers	Dimensions mm (Inches)						Thread Size			
	A	B	C	D	E	F	"H" Thd.	"J" Thd.		
CRGM-06-50	124	10	77	27	36	110	Rc 3/4	M10		
CRGM-06-5080	4.88	.39	3.03	1.06	1.42	4.33	3/4 BSP.F			
CRGM-06-5090							3/4 NPT	3/8-16 UNC		
CRGM-06X-50	136	16	82.3 (3.24)	22 (.87)	45	130	Rc 1	M10		
CRGM-06X-5080	5.35		.63	80 (3.15)			24 (.94)		1.77	1 BSP.F
CRGM-06X-5090				82.3 (3.24)			22 (.87)		5.12	1 NPT

CRGM-10-50/5080/5090  
CRGM-10X-50/5080/5090

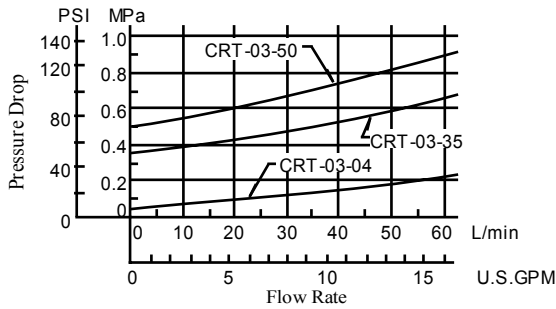


Sub-plate Model Numbers	Dimensions mm (Inches)						Thread Size						
	A	B	C	D	E	F	"H" Thd.	"J" Thd.					
CRGM-10-50	150	12	96	30	45	135	Rc 1-1/4	M10					
CRGM-10-5080	5.91	.47	3.78	1.18	1.77	5.31	1-1/4 BSP.F						
CRGM-10-5090							1-1/4 NPT	3/8-16 UNC					
CRGM-10X-50	177	25.5	104	22	50	167	Rc 1-1/2	M10					
CRGM-10X-5080	6.97						1.00		4.09	.87	1.97	6.57	1-1/2 BSP.F
CRGM-10X-5090													1-1/2 NPT

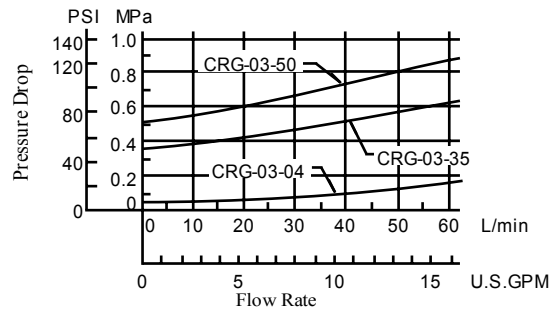
#### Pressure Drop

Hydraulic Fluid: Viscosity 30 mm<sup>2</sup>/s (141 SSU), Specific Gravity 0.850

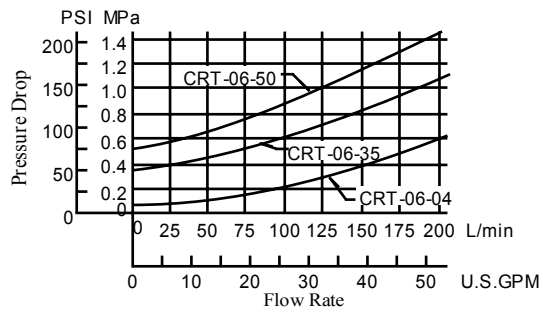
##### CRT-03



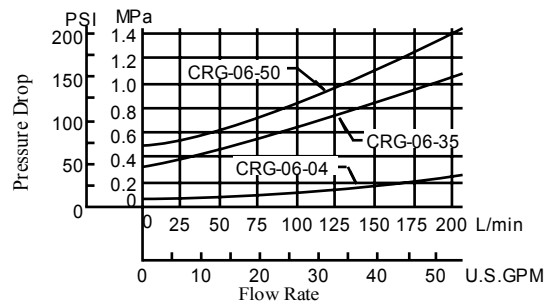
##### CRG-03



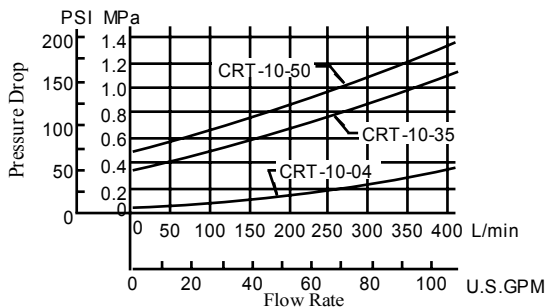
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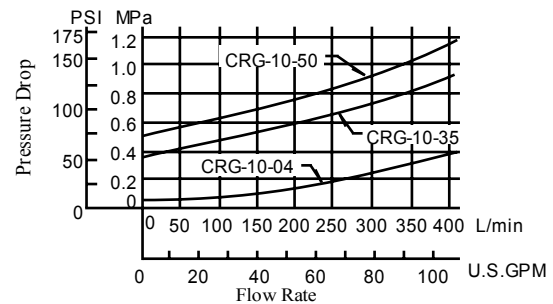
##### CRG-06



##### CRT-10

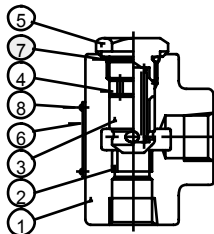


##### CRG-10

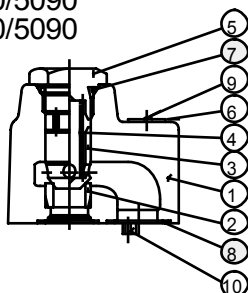


#### Spare Parts List

CRT-03-50/5080/5090  
CRT-06-50/5080/5090  
CRT-10-50/5080/5090



CRG-03-50/5090  
CRG-06-50/5090  
CRG-10-50/5090



#### CAUTION

When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

##### List of Seals & Seal Kits

Item	Name of Parts	Part Numbers			Qty.
		CRT-03	CRT-06	CRT-10	
7	O-Ring	SO-NB-P21	SO-NB-P24	SO-NB-P32	1
★	Seal Kit	KS-CRT-03-50	KS-CRT-06-50	KS-CRT-10-50	—

★ When ordering the O-Rings, please specify the seal kit number from the table above.

##### List of Seals & Seal Kits

Item	Name of Parts	Part Numbers			Qty.
		CRG-03	CRG-06	CRG-10	
7	O-Ring	SO-NB-P21	SO-NB-P24	SO-NB-P32	1
8	O-Ring	SO-NB-P18	SO-NB-P28	SO-NB-P32	2
★	Seal Kit	KS-CRG-03-50	KS-CRG-06-50	KS-CRG-10-50	—

★ When ordering the O-Rings, please specify the seal kit number from the table above.