



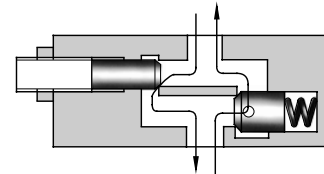
THROTTLE MODULES
TC1G-01 / 03 (1 / 8 , 3 / 8)
THROTTLE AND CHECK MODULES
TC2G-01 / 03 (1 / 8 , 3 / 8)
Gasket Mounting

FLOW CONTROLS

Specifications / Model Number Designation

Up to 25 MPa (3630 PSI), 80 L/min (21.1 U.S.GPM)

Used as pilot choke valves for solenoid controlled pilot operated directional valves and pilot operated directional valves.



Graphic Symbols

Valve Size	Throttle Modules		Throttle and Check Modules	
	Standard Type	With Check	Standard (Metre-out) Type	Metre-in Type
01	 P A B T TC1G-01	 P A B T TC1G-01-C	 P A B T TC2G-01	 P A B T TC2G-01-A
03	 P A B T TC1G-03	 P A B T TC1G-03-C	 P A B T TC2G-03	 P A B T TC2G-03-A

Specifications

Model Numbers	Nominal Flow L/min (U.S.GPM)	Max Operating Pressure MPa (PSI)	Approx. Mass kg (lbs.)
TC1G-01-40/4090	30 (7.9)	25 (3630)	0.6 (1.3)
TC2G-01-40/4090			0.65 (1.4)
TC1G-03-*40/4090	80 (21.1)		1.6 (3.5)
TC2G-03-*40/4090			1.8 (4.0)

Model Number Designation

F-	TC1	G	-03	-C	-40	*
Special Seals	Series Number	Type of Mounting	Valve Size	Valve Type	Design Number	Design Standards
F-: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	TC1: Throttle Module	G: Gasket Mounting	01	None: Std. Type	40	None: Japanese Std. "JIS" and European Design Std. 90: N. American Design Std.
	TC2: Throttle and Check Module			None: Std. (Metre-Out) Type		
	TC1: Throttle Module	G: Gasket Mounting	03	None: Std. Type C: With Check Valve	40	
	TC2: Throttle and Check Module			None: Std. (Metre-Out) Type A: Metre-in Type		



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 mm²/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.

Attachment

Mounting Bolts

If mounting bolts are necessary, order suitable ones selected from the table below. If mounting bolts from other companies are used, their strength must be 8.8 or up ISO standards.

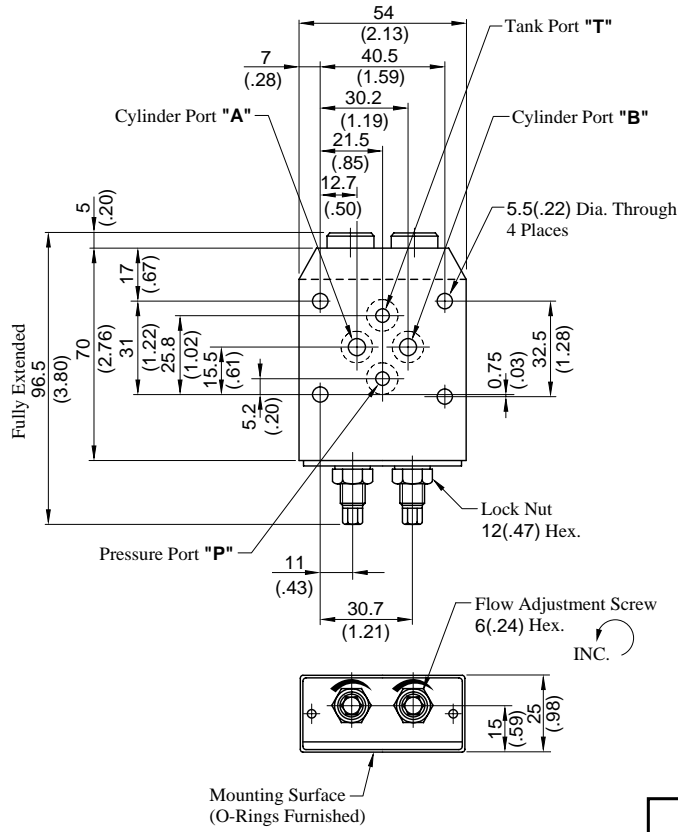
Solenoid Operated Directional Valve	Valve Model Numbers	Socket Head Cap Screw		Qty.
		Japanese Std. "JIS" & European Design Std.	N. American Design Std.	
	TC*G-01	M5 × 70 Lg.	No. 10-24 UNC × 2-3/4 Lg.	4
	TC*G-03	M6 × 70 Lg.	1/4-20 UNC × 2-3/4 Lg.	4
	TC*G-01	M5 × 95 Lg.	No. 10-24 UNC × 3-3/4 Lg.	4
	TC*G-03	M6 × 100 Lg.	1/4-20 UNC × 4 Lg.	4

Instructions

Flow adjustment

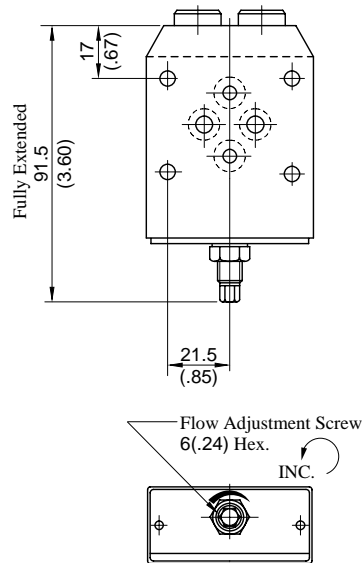
Slacken the lock nut and turn the flow adjustment screw clockwise caused the flow rate to decrease
After adjustment, be sure to tighten the lock nut.

TC2G-01-40/4090



**DIMENSIONS IN
MILLIMETRES (INCHES)**

TC1G-01-40/4090



Note: For other dimensions, see the figures shown TC2G-01.

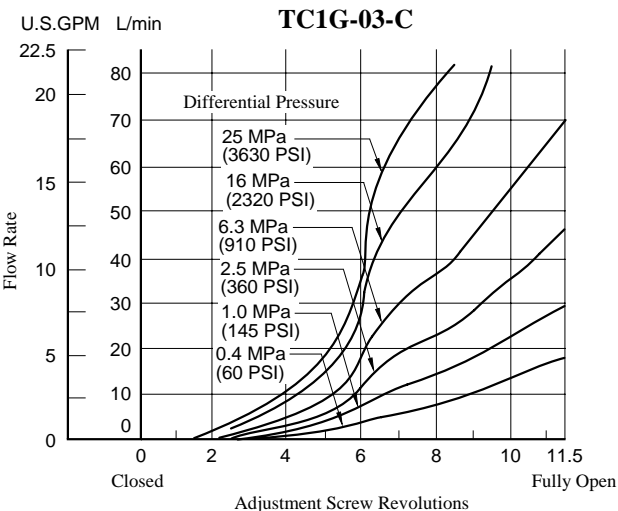
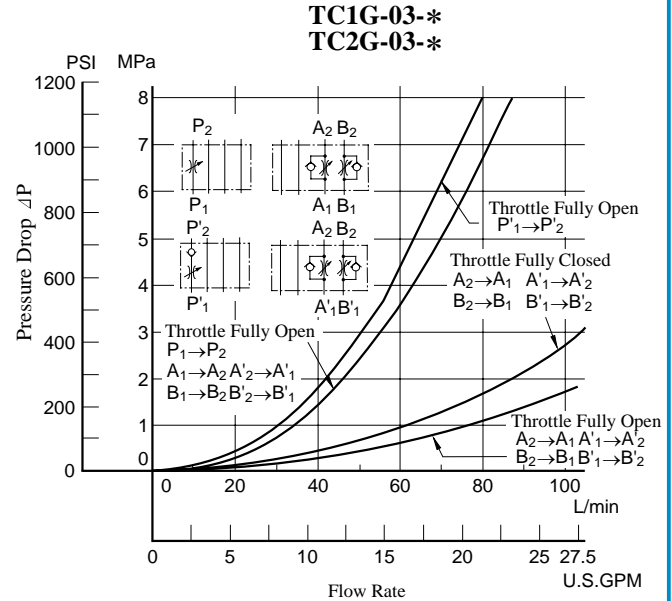
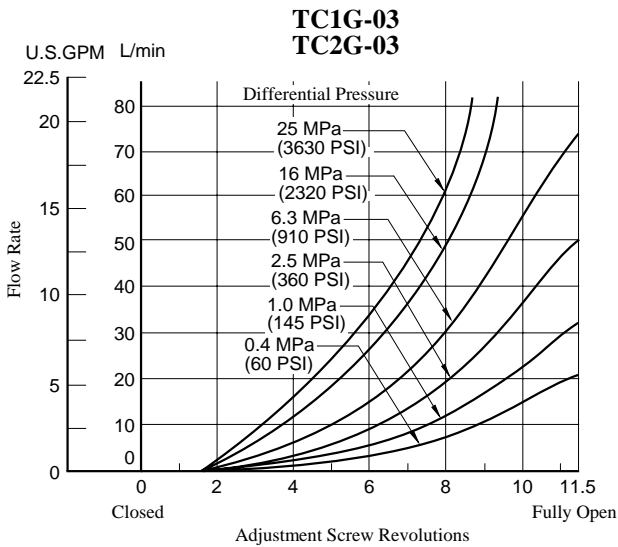
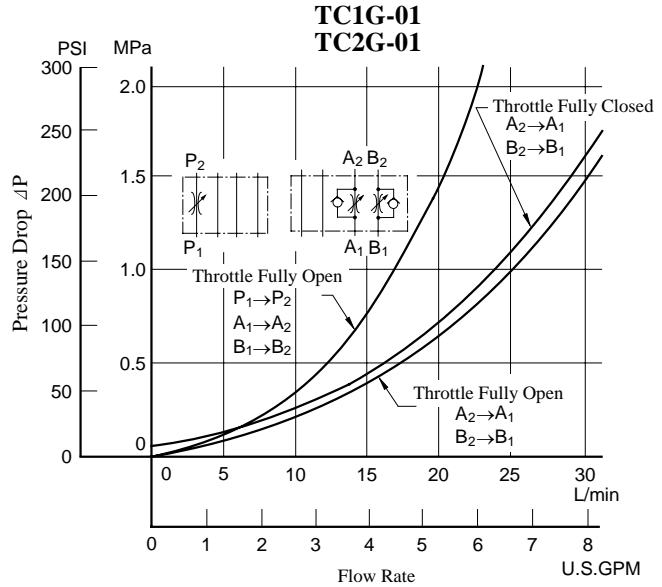
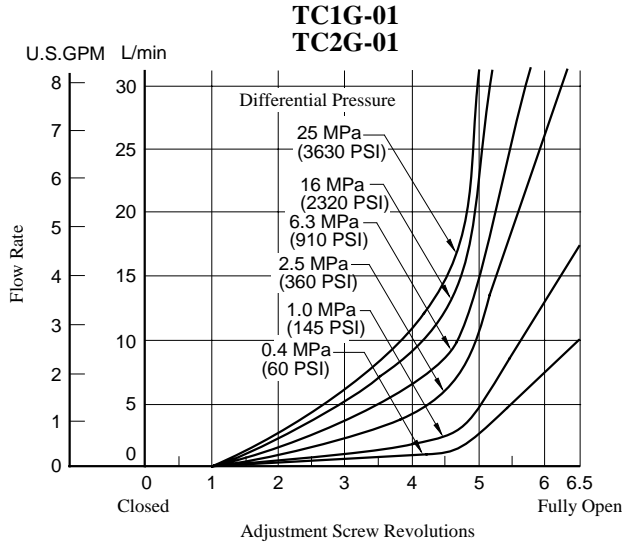
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Performance Characteristics

Hydraulic Fluid: Viscosity 35 mm²/s (164 SSU) , Specific Gravity 0.850

Metred Flow vs. Adjustment Revolutions

Pressure Drop



- For any other viscosity, multiply the factors in the table below.

Viscosity	mm ² /s	15	20	30	40	50	60	70	80	90	100
	SSU		77	98	141	186	232	278	324	371	417
Factor		0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

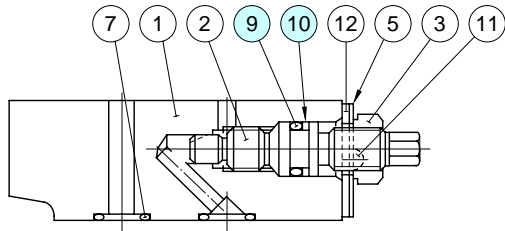
- For any other specific gravity (G'), the pressure drop ($\Delta P'$) may be obtained from the formula below.
 $\Delta P' = \Delta P (G'/0.850)$



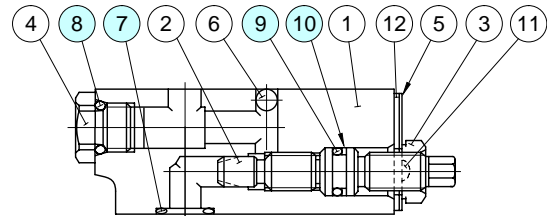
TC1G-01-40/4090
TC1G-03-*-40/4090

⚠ CAUTION

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



TC1G-01



TC1G-03

● List of Seals

Item	Name of Parts	Part Numbers		Qty.
		TC1G-01	TC1G-03	
7	O-Ring	SO-NB-P9	SO-NB-A014	5 *
8	O-Ring	—	SO-NB-P10	1
9	O-Ring	SO-NA-P7	SO-NA-P9	1
10	Back Up Ring	SO-BB-P7	SO-BB-P9	1

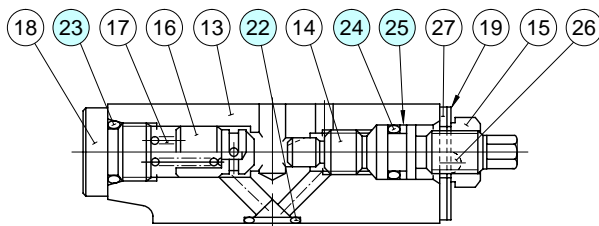
★ With TC1G-01, 4 O-Rings, Item ⑦, are used.

Note: When ordering the seals, please specify the seal kit number from the table right

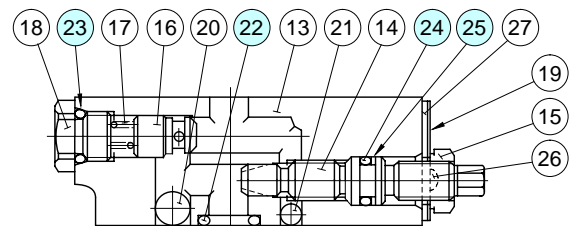
● List of Seal Kits

Model Numbers	Seal Kit Numbers
TC1G-01	KS-TC1G-01-40
TC1G-03	KS-TC1G-03-40
TC1G-03-C	

TC2G-01-40/4090
TC2G-03-*-40/4090



TC2G-01



TC2G-03

● List of Seals

Item	Name of Parts	Part Numbers		Qty.
		TC2G-01	TC2G-03	
22	O-Ring	SO-NB-P9	SO-NB-A014	5 *
23	O-Ring	SO-NB-P10	SO-NB-P10	2
24	O-Ring	SO-NA-P7	SO-NA-P9	2
25	Back Up Ring	SO-BB-P7	SO-BB-P9	2

★ With TC2G-01, 4 O-Rings, Item ②, are used.

Note: When ordering the seals, please specify the seal kit number from the table right

● List of Seal Kits

Model Numbers	Seal Kit Numbers
TC2G-01	KS-TC2G-01-40
TC2G-03	KS-TC2G-03-40
TC2G-03-A	

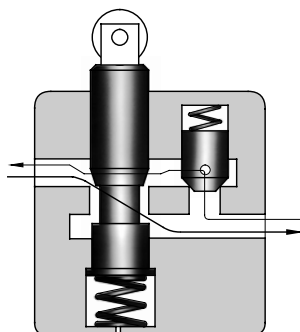


DECELERATION VALVES
ZT / ZG-03 / 06 / 10 (3/8, 3/4, 1-1/4)
DECELERATION AND CHECK VALVES
ZCT / ZCG-03 / 06 / 10 (3/8, 3/4, 1-1/4)
Threaded Connections / Sub-plate Mounting
Specifications / Model Number Designation

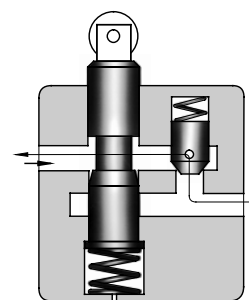
**FLOW
CONTROLS**

Up to 21 MPa (3050 PSI), 200 L/min (52.8 U.S.GPM)

These valves are available either with or without an integral check valve which allows free reverse flow. Flow rate through the valve is regulated by the movement of the spool, which is operated by a cam. When the spool is depressed, the flow is decreased in Normally Open type valves and increased in Normally Closed type valves. Their principal use is to control the speed of actuators in machine tools and similar applications.



Normally Open Type



Normally Closed Type

Specifications

Model Numbers		Max. Flow L/min (U.S.GPM)	Max. Operating Pressure MPa (PSI)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting			Z*T	Z*G
ZT/ZCT-03-*-*-22/2280/2290	ZG/ZCG-03-*-*-22/2290	30 (7.9)	21 (3050)	4.3 (9.5)	4.3 (9.5)
ZT/ZCT-06-*-*-22/2280/2290	ZG/ZCG-06-*-*-22/2290	80 (21.1)		8.7 (19.2)	8.7 (19.2)
ZT/ZCT-10-*-*-22/2280/2290	ZG/ZCG-10-*-*-22/2290	200 (52.8)		17 (37.5)	17 (37.5)

Model Number Designation

F-	ZC	T	-03	-T	-C	-22	*	
Special Seals	Series Number	Type of Mounting	Valve Size	With Adjustable Needle Valve for By-Pass Line	Spool Type	Design Number	Design Standards	
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	Z: Deceleration Valve	T: Threaded Connection	03	T: With Adjustable Needle Valve (Omit if not required)	None: Normally Open Type	22	None: Japanese Std. "JIS" 80: European Design Std. 90: N. American Design Std.	
			06			22		
			10			22		
		G: Sub-plate Mounting	03			None: Normally Closed Type	22	None: Japanese Std. "JIS" & European Design Std. 90: N. American Design Std.
			06				22	
			10				22	
	ZC: Deceleration and Check Valve	T: Threaded Connection	03	T: With Adjustable Needle Valve (Omit if not required)	None: Normally Open Type	22	None: Japanese Std. "JIS" 80: European Design Std. 90: N. American Design Std.	
			06			22		
			10			22		
		G: Sub-plate Mounting	03			None: Normally Closed Type	22	None: Japanese Std. "JIS" & European Design Std. 90: N. American Design Std.
			06				22	
			10				22	

Graphic Symbols

