Flow Controller

FLC700 Series

- Precise programmable control of liquid flow rate from 5–50 or 10–100 L/min
- Useable to 60°C, 60 psi
- Integrated axial-flow turbine flowmeter
- Fast, responsive PID controller rotates vane to maintain precise control at selected flow rates
- Actual flow rate is displayed on control readout; analog outputs and dual programmable alarm flows can be linked to external controllers.

FLC	TYPE	-	STYLE	FLUID	-	UNITS	FLOW	-	PIPE	
									04	Rc 3/4 or 3/4 " NPT
									05	Rc 1 or 1" NPT
							MAX			Enter maximum flow rate here – 50 or 100 L/min
						B				L/min
						Z				Specify units required at and of model number
				1						Water
				9						State liquid type at end of model number
			0							Unified construction, as illustrated above
			1							Without integrating cover – for assembly with remote electronics

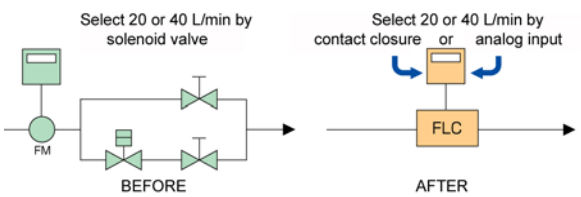
TYPE	Flowmeter	Flow Rate	Pipe Size
705	Integral axial flow turbine	5 ~ 50 L/min	Rc 3/4 or Rc 1 3/4" or 1" FNPT
710		10 ~ 100 L/min	

Example of Model Number

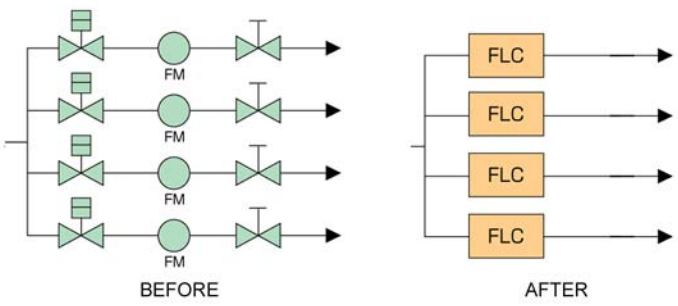
FLC	705	-	0	1	-	B	50	-	04	-	Fluid characteristics if not water

Remote control of flow rate – a signal from your system controller allows precise and repeatable selection of flow rates in challenging cooling situations. Program multiple flows – or shut off the flow completely!

Select multiple flow rates – replace variable flow valves and associated switching valves with a single component.



Achieve consistent flows through parallel paths – changes in downstream restrictions in multiple paths can be easily accommodated by placing a flow controller in each path.

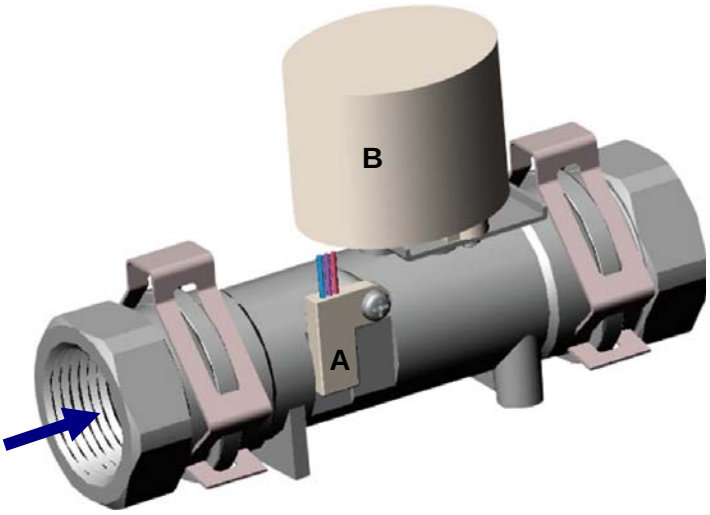


Outstanding flow controllers by TOFCO. **World-class support by Proteus.**

How it works

A helical turbine is spun by the liquid entering the control valve assembly. Its rotational velocity is detected by a Hall Effect sensor, (A) that sends a pulse stream with a frequency proportional to the flow rate to the flow controller (C).

The controller circuit compares the measured flow rate with the selected control flow rate. Depending on whether the measured flow rate is greater or lesser than the selected control flow rate, a geared DC stepper motor (B) is pulsed to rotate a vane, which decrease or increase the area of the outlet of the control valve until the target flow rate is achieved.



Flexible control capability - choose from 3 flow control modes

1. **Parameter Mode** – select the target flow rate through the contoller's key panel.
2. **External Mode** – the target flow rate is selected from an external 4–20 mA, 0–5 or 1–5 VDC source.
3. **Preset Mode** – up to 4 user-selected flow rates are selectable by contact closure across 3 rear panel connections.

Controller key panel shown actual size

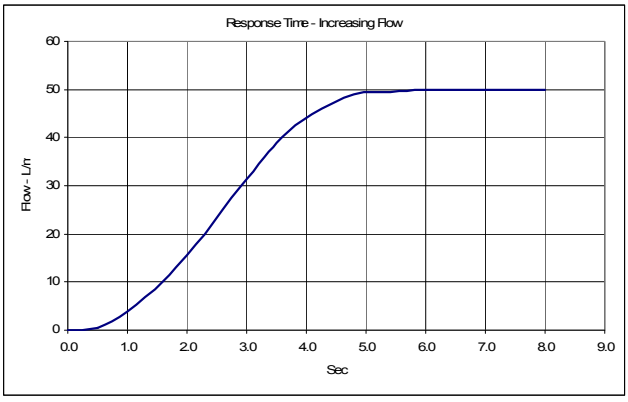
Valve can be fully closed – or used with an external shut off valve

Selecting or programming a flow rate of 0 L/min causes the valve to become fully closed in 2 -3 seconds.

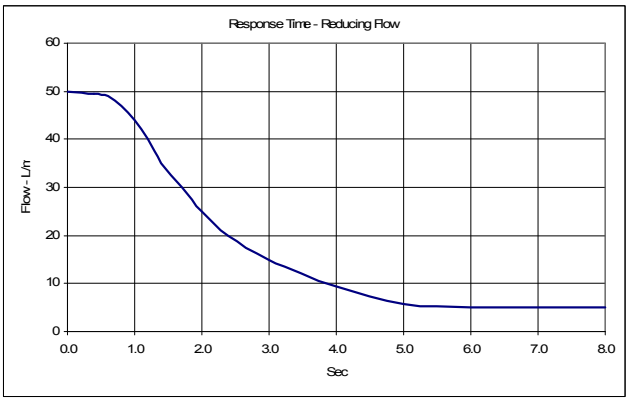
The flow controller should be used with a separate shut off valve if faster or frequent shut off is required. The flow controller can be programmed to retain the previous vane position to quickly restore the controlled flow with minimal movement.

'Dead Zone' adjustment further extends valve life

Proper selection of this parameter prevents the valve from 'hunting' and achieves the desired control precision with minimum vane movement.



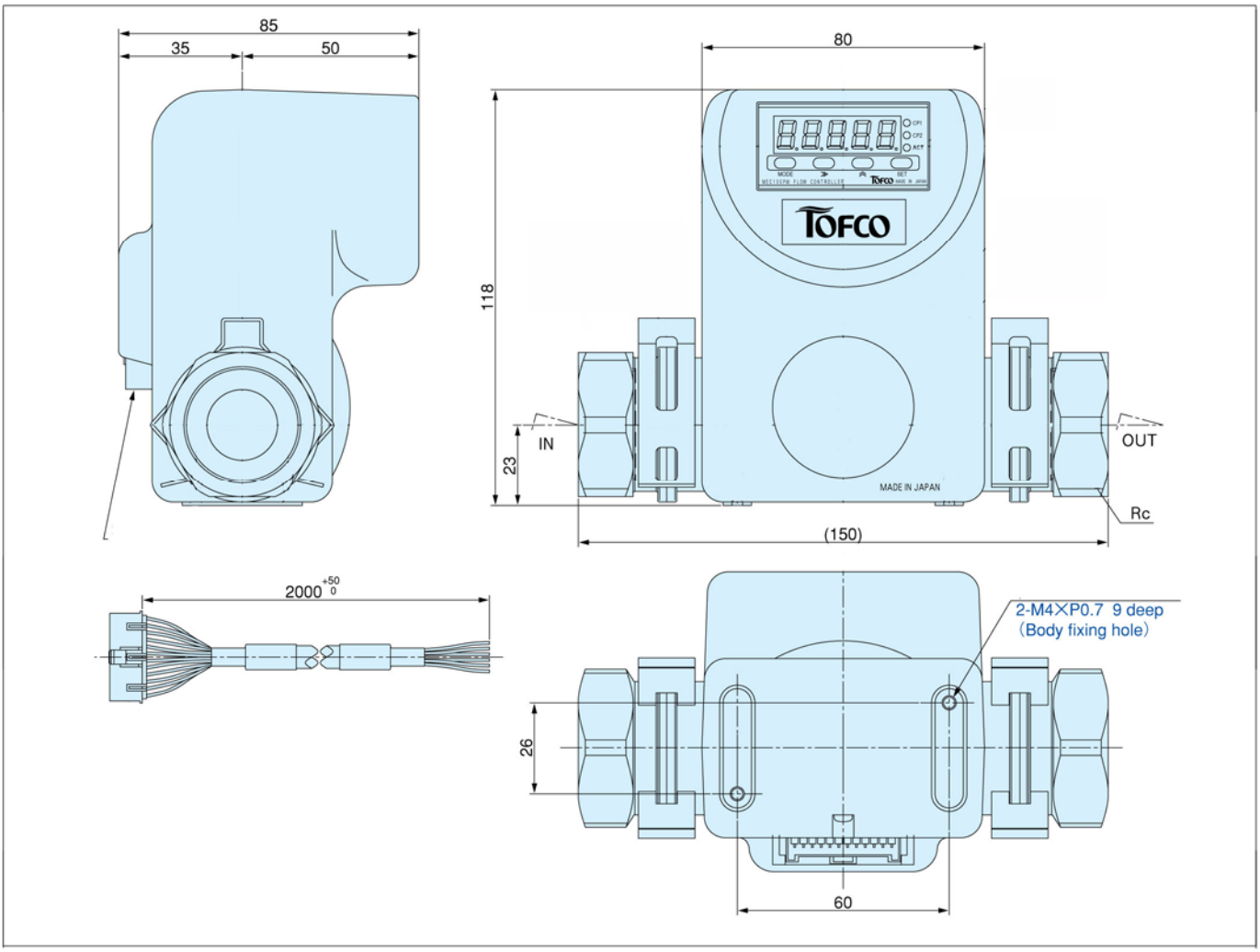
Time from valve fully closed to fully open



Time from valve fully open to lowest controlled flow

Technical Details

Model Number	FLC705	FLC710
Flow control range	5 ~ 50 L/min	10 ~ 100 L/min
Liquids	Water, ethylene glycol/water and similar liquids	
Flow Accuracy	± 5% of Full Scale	
Control pressure range	30 ~ 60 psi (0.2 ~ 0.4 MPa)	
Withstand pressure	70 psi (0.5 MPa)	
Required ΔP	30 psi (0.2MPa)	
Liquid temperature range	0 ~ 60°C	
Withstand temperature	80°C	
Ambient temperature	0 ~ 50°C non-condensing, and free from freezing	
Input Signals	**Pulse input**: from internal flowmeter	
	External Analog Input. Control mode is user-selected from the controller 4–20 mA with input impedance 800Ω 0–5 or 1–5 VDC with input impedance of 1M Ω	
	Preset Inputs Up to 4 user-programmed flow rates can be selected by contact closure between 3 rear panel connections.	
Output Signals	**Analog output**. Mode is user-selected from the controller 4–20 mA Max. load resistance 300Ω 0–5 or 1–5 VDC Load resistance > 1M Ω	
	Alarm output Relay output at two user selected flow rates can be user programmed as upper/lower, upper/upper or lower/lower limits. Maximum 0.1A at 35 VDC	
Fully Closed function	Valve is fully closed when a value of 0 L/min is entered or provided by the external controller.	
Display	Indicates either instantaneous or programmed flow rate.	
Power Supply	24 VDC ± 10%	
Power Consumption	Max consumption 450mA . ~ 100 mA in idle mode	
Cable lengths	2m	
Weight	~ 3 lbs 1.7 Kg	



Information in this document was correct at the time of printing; however, specifications are subject to change as continuous improvement processes establish new capabilities.

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