

# NT™ Integrated Flow Controller, Model 6500

*For precision flow control in legacy applications*

## LIQUID FLOW CONTROLLER

Whether it is automation, process control or safety concerns that require accurate flow control of liquid chemicals and CMP slurry, the instrumentation must be clean, accurate and reliable. Using the latest electronic technology and high-purity materials, Entegris has designed a leading-edge liquid flow controller to allow for greater control of your process flow variables.

- PTFE wetted surfaces for high-purity applications
- Nonmetallic components for corrosion resistance
- Integral pressure transducer for additional process information
- One percent (1%) full scale accuracy for critical dispense applications
- Compact footprint for easy field installs with limited space
- Fast response for accurate dispense rates

## CONSTRUCTED FOR COMPATIBILITY

The NT™ Integrated Flow Controller (IFC), model 6500 was developed for use in ultra high-purity liquid chemical instruments and slurry applications.

The instrument's valve seat and diaphragm are designed to minimize dead volume and fluid shear, reducing the possibility of process contamination. Featuring fluoropolymers for wetted parts and inert materials for nonwetted parts, the IFC model 6500 is resistant to harsh chemical environments and external spraydowns.



## ADVANCED TECHNOLOGY


The NT IFC, model 6500 utilizes dual PTFE valve diaphragms for fluid containment and contamination protection. Featuring the latest motorized valve and flowmeter technology, encapsulated internal electronics control all aspects of the flow controller. The unit is activated by a setpoint signal (i.e., 4 – 20 mA, 0 – 10 VDC, 0 – 5 VDC) to maintain fluid flow at the desired setpoint.

## APPLICATIONS

We are solving today's flow control challenges using the NT IFC, model 6500. Combined with our differential pressure based flowmeter and leading-edge control valve technology, the closed-loop flow controller is ideal for:

- Continuous flow control for critical dispense applications
- CMP slurry dispense to replace existing peristaltic pumps
- Batch control for chemical spiking and blending
- On-demand chemical mixing applications

## SPECIFICATIONS

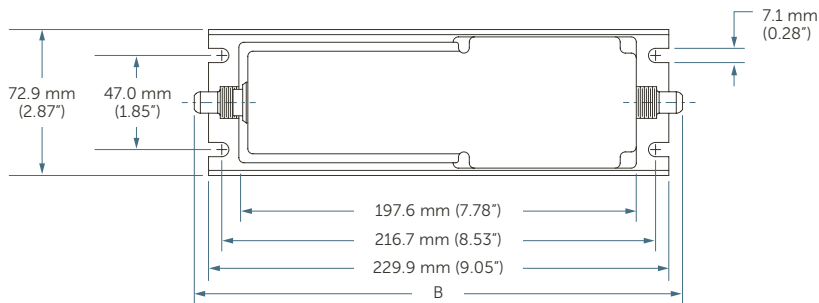
<b>Materials</b>	Wetted parts	Body	PTFE
		Diaphragms	PTFE
		Sensor interface	PFA or CTFE
		Primary O-ring	Kalrez®
	Nonwetted parts	Polypropylene, FEP, PVDF and Viton® (In addition to materials listed above)	
<b>Process temperature</b>	10 – 65°C (50 – 149°F)		
<b>Electrical input</b>	24 VDC (±10%) @ 1 amp		
<b>Electrical output</b>	Two, 4 – 20 mA electrically isolated outputs, one for flow and one for pressure		
<b>Flow measurement</b>	±1% of full scale from 20 – 100% of flow range ±2.5% of full scale from 10 – 20% of flow range (Calibrated using deionized water at 23°C [73°F])		
<b>Repeatability</b>	±0.5% of full scale from 20 – 100% of flow range ±1% of full scale from 10 – 20% of flow range		
<b>Pressure measurement range</b>	0 – 414 kPa (0 – 60 psig)		
<b>Minimum operating pressure (at the inlet)</b>	69 kPa (10 psig)		
<b>Maximum operating pressure</b>	414 kPa (60 psig)		
<b>Over-pressure limit</b>	690 kPa (100 psig)		
<b>Pressure measurement accuracy</b>	±1% of full scale (includes combined effects of linearity, hysteresis, and repeatability)		
<b>Electrical enclosure</b>	IP54		
<b>Reliability</b>	Wetted parts, >3 million cycles		
<b>Response time</b>	<3 seconds from 10 to 95% of full scale flow range		
<b>Setpoint input signal</b>	4 – 20 mA, 0 – 10 VDC, 0 – 5 VDC		
<b>Approvals</b>			

Note: Specifications are subject to change without notice. Please consult the factory for the most current information.

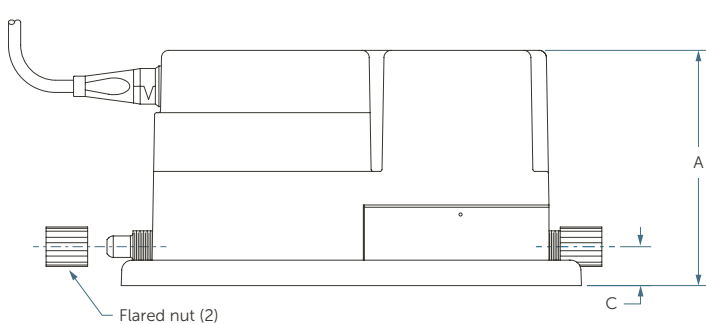
## DIMENSIONS

Inlet/outlet port connection	Dimensions		
	A	B	C
¼" Flaretek®	123.4 mm (4.86")	244.1 mm (9.61")	19.6 mm (0.77")
⅜" Flaretek	123.4 mm (4.86")	247.7 mm (9.75")	19.6 mm (0.77")
½" Flaretek	127.0 mm (5.00")	251.7 mm (9.91")	21.6 mm (0.85")
¾" Flaretek	134.9 mm (5.31")	257.8 mm (10.15")	25.7 mm (1.01")

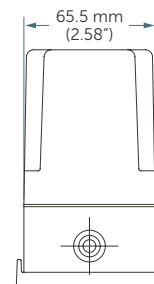
Top View



Side View



End View



The flow controller is available in the following fitting size and flow range combinations:

Fitting size (fitting code)	T0	T1	T2	T3	T4	T5	T6	T7	T8	T9
¼" (F02)	Yes	Yes	Yes	Yes	Yes	—	—	—	—	—
⅜" (F03)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—
½" (F04)	—	—	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—
¾" (F06)	—	—	—	—	—	—	—	Yes	Yes	Yes

## ORDERING INFORMATION

NT Integrated Flow Controller, Model 6500: part number

6500- - - - -U3

..... **Primary/secondary seal**

U3 = Kalrez 6375 UP/Viton

..... **Sensor interface**

P7 = CTFE (for acid, bases and oxidants, typically)

P8 = PFA (for solvents and temperatures >40°C [104°F], typically)\*

..... **Setpoint input signal, controller type**

A = 4–20 mA, continuous

B = 0–10 VDC, continuous

K = 4–20 mA, batch

L = 0–10 VDC, batch

M = 0–5 VDC, batch

..... **Electrical connector type**

B12 = FEP-jacketed 12' pigtail electrical cable

D00 = Polypropylene connector (cable not included)

D12 = Polypropylene connector and 12' PVC cable

D30 = Polypropylene connector and 30' PVC cable

..... **Inlet/outlet port connection**

F02 = 1/4" Flaretek tube fitting

F03 = 3/8" Flaretek tube fitting

F04 = 1/2" Flaretek tube fitting

F06 = 3/4" Flaretek tube fitting

..... **Flow range\*\***

T0 = 0–50 mL/min      T5 = 0–2.5 L/min

T1 = 0–125 mL/min    T6 = 0–5 L/min

T2 = 0–250 mL/min    T7 = 0–10 L/min

T3 = 0–500 mL/min    T8 = 0–20 L/min

T4 = 0–1250 mL/min   T9 = 0–40 L/min

\* Selection is dependent on application and chemical media. Please contact Entegris for best selection.

\*\* Flow ranges are scaled to zero flow, measurement is from 10 to 100% of full scale flow range.

Product specified with a flared tube connection is packaged with two PVDF nuts. For alternative nut materials, or custom configurations and specifications, please contact the factory. (Note: Specifications are subject to change without notice. Please consult the factory for the most current information.)

## FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you.

Visit [entegris.com](http://entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

## TERMS AND CONDITIONS OF SALE

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, visit [entegris.com](http://entegris.com) and select the [Terms & Conditions](#) link in the footer.



### Corporate Headquarters

129 Concord Road  
Billerica, MA 01821  
USA

### Customer Service

Tel +1 952 556 4181  
Fax +1 952 556 8022  
Toll Free 800 394 4083

Entegris®, the Entegris Rings Design®, and other product names are trademarks of Entegris, Inc. as listed on [entegris.com/trademarks](http://entegris.com/trademarks). All third-party product names, logos, and company names are trademarks or registered trademarks of their respective owners. Use of them does not imply any affiliation, sponsorship, or endorsement by the trademark owner.

©2004–2021 Entegris, Inc. | All rights reserved. | Printed in the USA | 3963-1867ENT-0821