

# InVue® Integrated Flow Controllers NT6510, NT6520

*Precise point-of-use chemical flow control*

Entegris is solving today's flow control challenges using innovative flow control technology. The InVue® Integrated Flow Controllers (IFC) NT6510 and NT6520 are designed for point-of-use chemical blending and dispense. NT6510 is engineered for applications requiring low to medium flow rates, and is the smallest InVue Integrated Flow Controller available, saving valuable space in liquid handling systems. NT6520 is engineered for applications requiring medium to high flow rates.

The following table contrasts the flow range capabilities of each product.

Model	Flow range capability
NT6510	15 mL/min to 1,250 mL/min
NT6520	2.5 L/min to 40 L/min

Both integrated flow controllers use proven and reliable differential pressure flow measurement technology and advanced closed-loop process control. Visual indicators provide diagnostics for preventive maintenance, troubleshooting and alarm conditions, enabling users to integrate more process functionality.

- Integral pressure transducer for additional process information
- Proven superior measurement and control with bubble producing media
- Robust design for stability and long-term reliability
- High accuracy for critical dispense applications
- Fast response for accurate dispense rates
- LED status and discrete alarm output for visual and electronic diagnostics
- Can be installed in any orientation
- Compact footprint for easy field installs with limited space



## Constructed for Compatibility

The InVue Integrated Flow Controllers are designed for use in ultrapure liquid chemical, DI water, and CMP slurry applications. They are also designed for effective control of bubble producing media.

The valve seat and diaphragm are designed to minimize dead volume and fluid shear, reducing the possibility of process contamination. Featuring fluorinated materials for wetted parts, the InVue Integrated Flow Controllers are ideal for protecting chemical integrity. In addition, the chemical resistant nonwetted parts perform well in harsh chemical environments.

## Advanced Technology


The InVue Integrated Flow Controllers utilize dual PTFE valve diaphragms for fluid containment and contamination protection. Leveraging the latest motorized valve and flowmeter technology, encapsulated internal electronics control all aspects of the flow controllers. The units are activated by a setpoint signal (for example, 4 – 20 mA, 0 – 10 VDC) to maintain fluid flow at the desired setpoint.

## APPLICATIONS

The InVue Integrated Flow Controllers combine Entegris' differential pressure based flowmeter and leading-edge control valve technology to create a closed-loop flow controller ideal for:

- Critical dispense applications
- Chemical spiking and blending
- On-demand chemical mixing
- High flow applications such as bulk delivery or tool liquid dispense (NT6520)

## SPECIFICATIONS

<b>Materials of construction</b>	Wetted parts	Body: PTFE Diaphragms: PTFE Sensor interface: CTFE or PFA Primary O-ring: Kalrez® 6375 UP
	Nonwetted parts	Polypropylene, PVDF, Viton®, polyurethane and nylon (in addition to materials listed above)
<b>Operating range options</b>		10–100% of full scale flow
<b>Flow control accuracy</b>		±1% of full scale (calibrated using DI water @ 23°C [73°])
<b>Repeatability</b>		±0.5% of full scale
<b>Pressure measurement</b>		0–414 kPa (0–60 psig)
<b>Pressure accuracy</b>		±1% of full scale
<b>Operating pressure</b>		69–414 kPa (10–60 psig)
<b>Minimum required differential pressure*</b>		10 psi, differential
<b>Output signals</b>		Two 4–20 mA electrically isolated outputs, one for flow and one for pressure
<b>Response time</b>		<3 seconds
<b>Over-pressure limit</b>		690 kPa (100 psig)
<b>Process temperature</b>		10–65°C (50–149°F)
<b>Electrical input</b>		24 VDC (±10%) @ 1.2 amps
<b>Setpoint input signal</b>		4–20 mA, 0-10 VDC, 0-5 VDC
<b>Enclosure</b>		IP64
<b>Weight</b>		NT6510: 1.8 kg (4.0 lbs) approximate NT6520: 2.7 kg (6.0 lbs) approximate
<b>Approvals</b>		

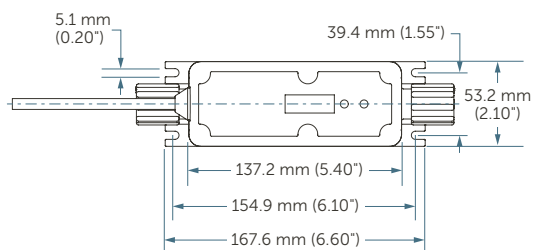
\*Minimum required differential pressure is the minimum inlet to outlet fitting differential pressure required to reach full scale flow and response time specifications.

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

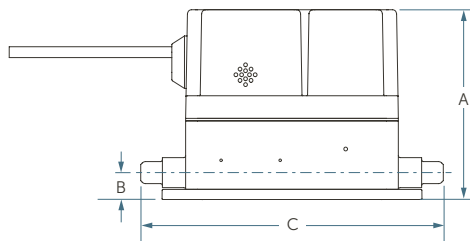
# NT6510

## DIMENSIONS

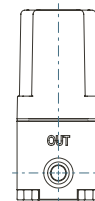
Top View



Side View



End View



### DIMENSIONS

Inlet/outlet port connection	A	B	C
1/4" Flaretek tube fitting	118.1 mm (4.65")	17.0 mm (0.67")	187.5 mm (7.38")
3/8" Flaretek tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	191.0 mm (7.52")
1/2" Flaretek tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	195.1 mm (7.68")
1/4" PrimeLock tube fitting	118.1 mm (4.65")	17.0 mm (0.67")	177.8 mm (7.00")
3/8" PrimeLock tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	177.8 mm (7.00")
1/2" PrimeLock tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	182.4 mm (7.18")
1/4" Super 300 Type Pillar tube fitting	118.1 mm (4.65")	17.0 mm (0.67")	159.3 mm (6.27")
3/8" Super 300 Type Pillar tube fitting	119.6 mm (4.71")	17.0 mm (0.67")	167.1 mm (6.58")

The following fitting size and flow range combinations are available:

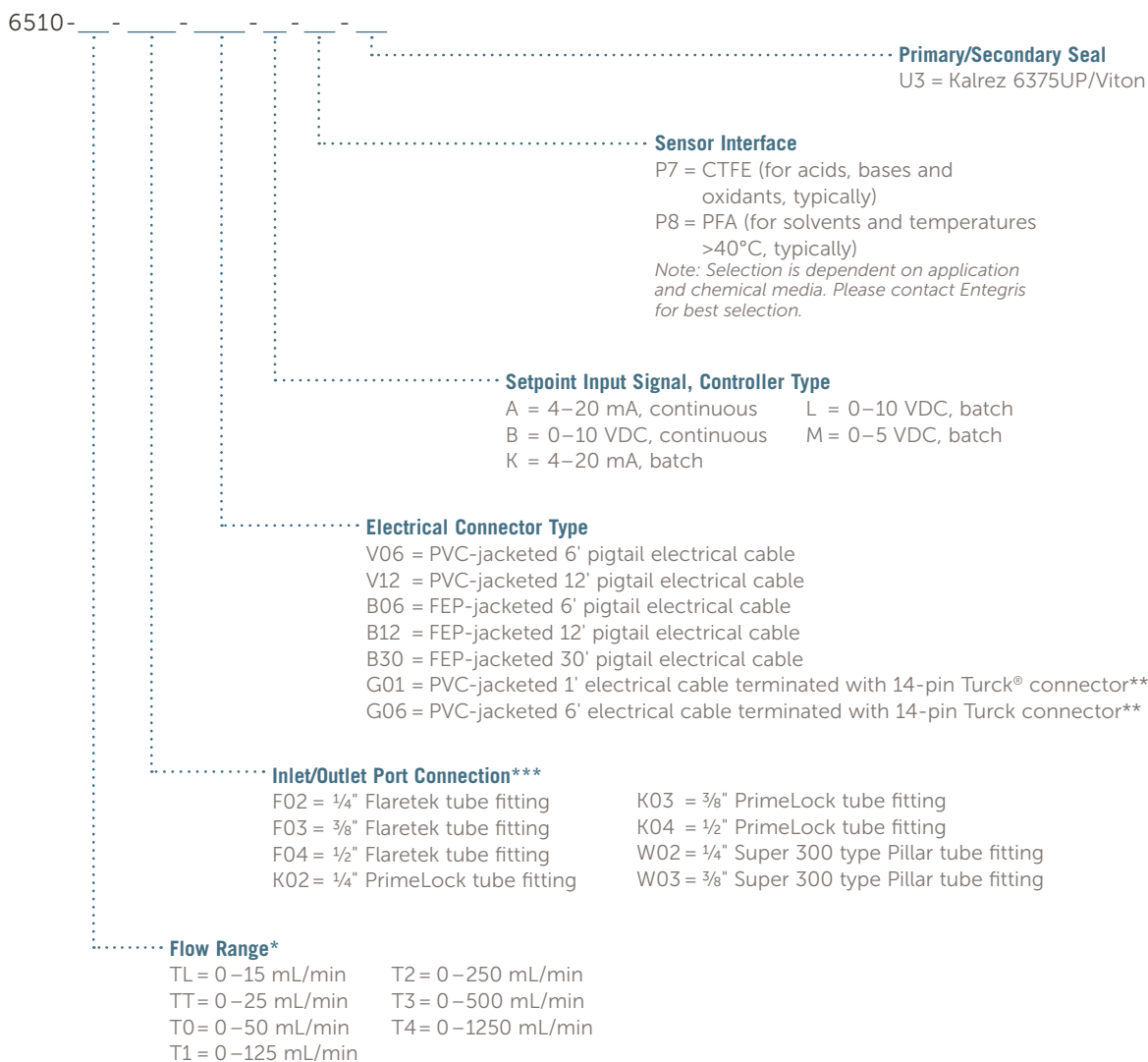
Fitting size	FLOW RANGE (ML/MIN)						
	TL 0-15	TT 0-25	TO 0-50	T1 0-125	T2 0-250	T3 0-500	T4 0-1250
1/4"	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3/8"	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1/2"	—	—	—	—	—	Yes*	Yes*

\*Flaretek and PrimeLock only.

Please consult Entegris custom flow range requirements.

## ORDERING INFORMATION

InVue Integrated Flow Controller NT6510: part number



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

\*\*For electrical connector types G01 and G06, a 14-pin mating cable is required for installation. See "Electrical Mating Cables for InVue Flow Controller NT6510–Accessory" chart below for ordering information.

\*\*\*For other options not shown here, please contact Entegris.

Product specified with a flared tube connection is packaged with two PVDF nuts. For custom configurations and specifications, please contact Entegris.

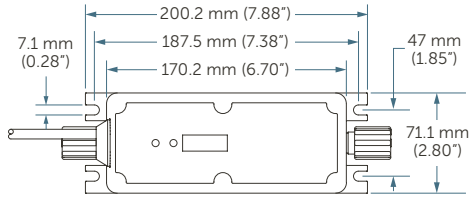
### Electrical Mating Cables for InVue Flow Controller NT6510 – Accessory

Part number	Description	Quantity
14G02	14-pin mating Turck connector with 2-meter (6.5') PVC-jacketed cable	1
14G05	14-pin mating Turck connector with 5-meter (16.4') PVC-jacketed cable	1
14G10	14-pin mating Turck connector with 10-meter (32.8') PVC-jacketed cable	1

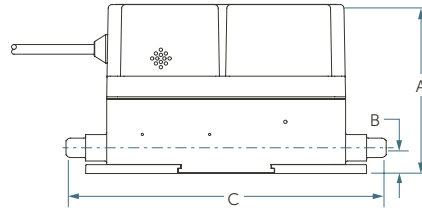
# NT6520

## DIMENSIONS

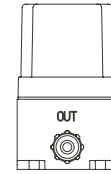
Top View



Side View



End View



### DIMENSIONS

Inlet/outlet port connection	A	B	C
3/8" Flaretek tube fitting	117.3 mm (4.62")	15.7 mm (0.62")	224.0 mm (8.82")
1/2" Flaretek tube fitting	120.9 mm (4.76")	18.3 mm (0.72")	228.0 mm (8.98")
3/4" Flaretek tube fitting	129.0 mm (5.08")	23.6 mm (0.93")	234.2 mm (9.22")
1/2" PrimeLock tube fitting	120.9 mm (4.76")	18.3 mm (0.72")	215.4 mm (8.48")
3/4" PrimeLock tube fitting	129.0 mm (5.08")	23.6 mm (0.93")	229.1 mm (9.02")
3/8" Super 300 Type Pillar tube fitting	117.3 mm (4.62")	15.7 mm (0.62")	200.2 mm (7.88")
1/2" Super 300 Type Pillar tube fitting	120.9 mm (4.76")	18.3 mm (0.72")	205.2 mm (8.08")
3/4" Super 300 Type Pillar tube fitting	129.0 mm (5.08")	23.6 mm (0.93")	214.1 mm (8.43")

The following fitting size and flow range combinations are available:

Fitting size	FLOW RANGE (L/MIN)				
	T5 0–2.5	T6 0–5	T7 0–10	T8 0–20	T9 0–40
3/8"	Yes*	Yes*	—	—	—
1/2"	Yes**	Yes**	Yes	—	—
3/4"	—	—	—	Yes	Yes

\*Flaretek and Pillar only.

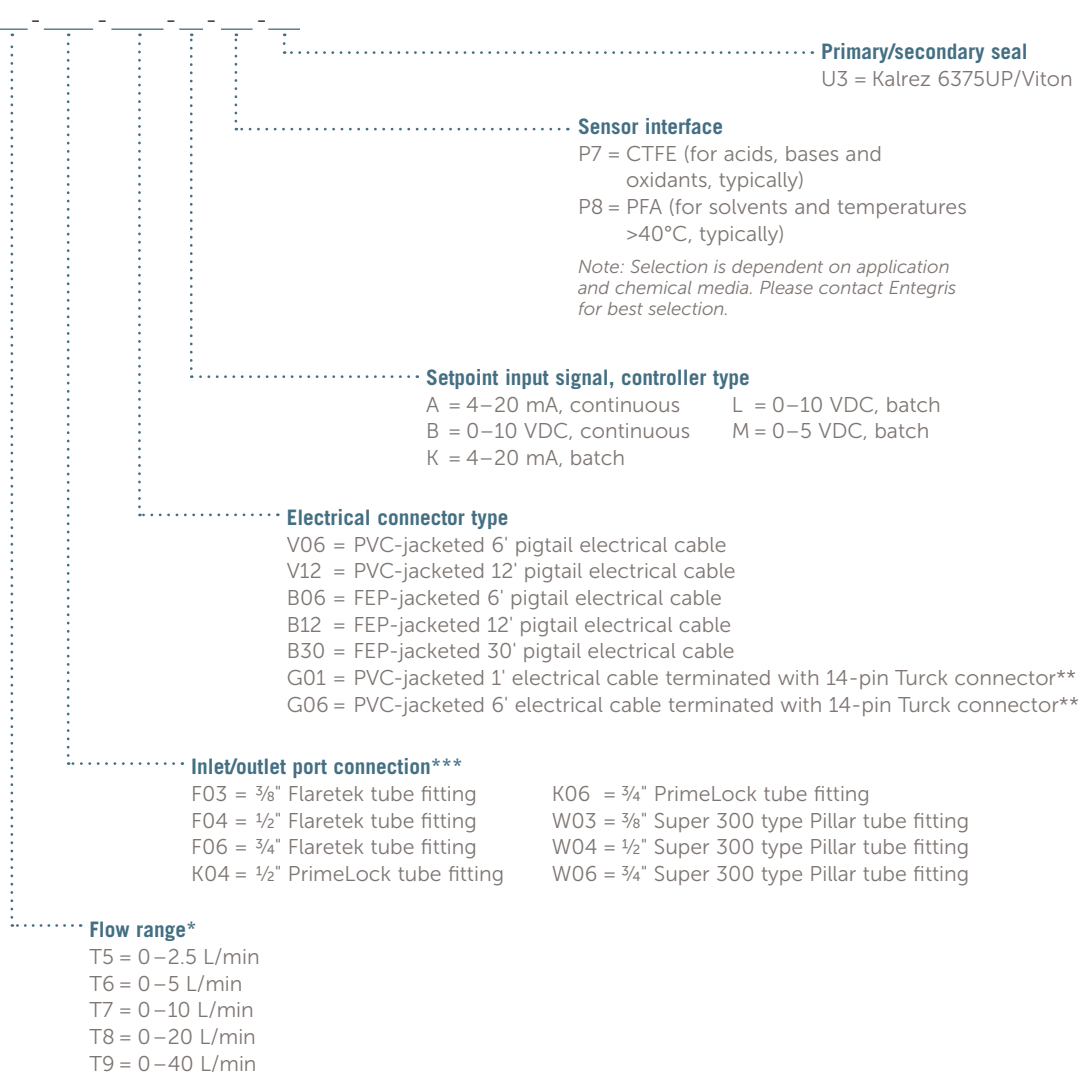
\*\*Flaretek and PrimeLock only.

Please consult Entegris custom flow range requirements.

## ORDERING INFORMATION

InVue Integrated Flow Controller NT6520: part number

6520-



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

\*\*For electrical connector types G01 and G06, a 14-pin mating cable is required for installation. See "Electrical Mating Cables for InVue Flow Controller NT6520 – Accessory" chart below for ordering information.

\*\*\*For other options not shown here, please contact Entegris.

Product specified with a flared tube connection is packaged with two PVDF nuts. For custom configurations and specifications, please contact Entegris.

### Electrical Mating Cables for InVue Flow Controller NT6520 – Accessory

Part Number	Description	Quantity
14G02	14-pin mating Turck connector with 2-meter (6.5') PVC-jacketed cable	1
14G05	14-pin mating Turck connector with 5-meter (16.4') PVC-jacketed cable	1
14G10	14-pin mating Turck connector with 10-meter (32.8') PVC-jacketed cable	1

#### FOR MORE INFORMATION

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