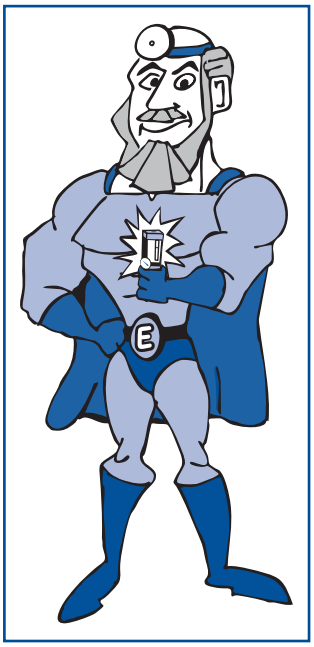
SMARTFLOW® Dr. Eddy® Turbulent Flow Indicators with FCI Technology

Dr. Eddy diagnoses flow condition.

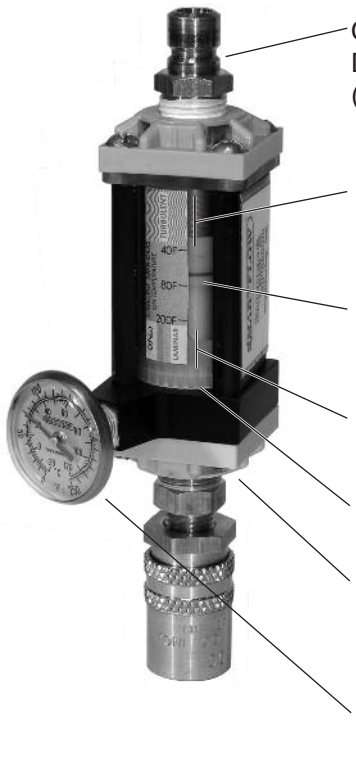


Using Fluid Characteristic Indication (FCI) technology, Dr. Eddy displays the condition of the water as it relates to cooling efficiency: laminar flow, transitional flow, or turbulent flow.

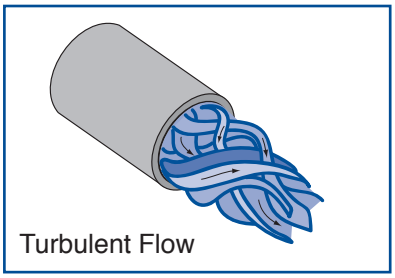
Dr. Eddy has four scales built into the meter: three scales for FCI and one scale for flow rate. FCI Scales are selectable and correspond to cooling line port size: 1/4", 3/8", or 1/2". Flow rate scale can be referenced quickly for additional functionality.

The flow scale displays flow rate in gallons or liters per minute depending on the model. A dual scale temperature gauge is standard on all models for process comparison to the FCI Scales.

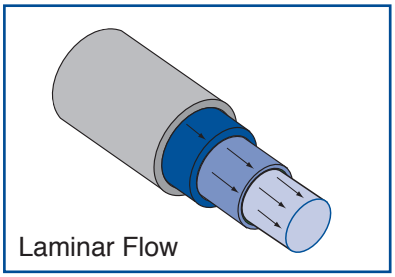
Dr. Eddy applies the science of heat transfer, diagnosing the condition of cooling water lines at a glance. Cooling water capacity can be conserved plant-wide by using the minimum amount of flow that will produce turbulence on all presses. It may be possible to delay costly water system upgrades by optimizing the flow effectivity.



U.S. Patent No. 7,549,348



Turbulent Flow



Laminar Flow

Turbulent Flow Basics

Turbulent water flow is much more efficient at removing heat in a cooling system than water flowing under laminar conditions. Once turbulent flow is achieved, increasing the flow rate does not significantly improve the cooling rate of the system.

In molding applications, many mold operators try to maximize the flow of water through their cooling systems to ensure turbulent flow. Doing so increases energy costs for pumping more water than necessary through the system. This practice may also limit the amount of cooling water available for cooling additional molds on the same cooling system circuit.

By insuring turbulent flow using FCI Technology, less water can be used in the molding process, saving precious resources.

Try our on-line Turbulent Flow Calculator:

www.SMARTFLOW-USA.com/turbulent-flow-rate-calculator

Turbulent Flow Facts

Flow is likely to be turbulent for Reynolds numbers above 4000.
Reynolds Number (Re) is a dimensionless quantity used to predict fluid flow patterns.
Re = (Velocity x Diameter) ÷ Kinematic Viscosity
Kinematic Viscosity of water at 20°C (68°F) = 1cSt.
Geometry and roughness inside flow passages will affect Turbulent Flow.

Want to know more about Turbulent Flow? Take our Scientific Cooling℠ Class! Call for information.

SMARTFLOW® Dr. Eddy® Turbulent Flow Indicators with FCI Technology

Model Number

FC3 - B - E

Brass Ends

Inlet Size	
1/4"NPT(F)	**FC2**
1/4"BSPP(F)	**FC2B**
3/8"NPT(F)	**FC3**
3/8"BSPP(F)	**FC3B**

Nylon Ends

Inlet Size	
1/4"NPT(F)	**FCP2**
1/4"BSPP(F)	**FCP2B**
3/8"NPT(F)	**FCP3**
3/8"BSPP(F)	**FCP3B**

Scale Units

E	English (Temp in °F and Flow in GPM)
M	Metric (Temp in °C and Flow in LPM)

Accessories

B	Thermometer (standard)
E	Thermometer with quick-connect socket and plug

10% glycol scale is available. Contact the factory for details

The addition of glycol to cooling water can have a dramatic effect on Turbulent Flow, increasing the flow rate needed to achieve optimum cooling efficiency.

Wetted Parts and Materials

End Caps	Brass or Glass-Filled Nylon
Body	Polysulfone
Indicator Ring	Silicone Rubber
Piston	Acetal
Spring	Stainless Steel
O-Rings	EPDM
Cap Screws	Stainless Steel
Gauge Block	Brass
Optional Quick-Connect Fittings	Brass

Specifications

Flow Range	0.25 - 2 gpm 1 - 8 lpm
Flow Accuracy	±10% full scale
Operating Temperature max.	210°F (99°C)
Operating Pressure max.	100 psi (6.9 bar)
Dial Thermometer	0° to 250°F (-20° to 120°C) ±2% accuracy (full scale)