Flow Meter Selection Guide

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LIQUIDS

	Clean Liquid	Dirty Liquid	Abrasive / Slurry	Corrosive	High Pressure	Density, Concentration	Cryogenic	High Temp	Mass Flow	Low Flow Rates <0.1m³/hr (0.44gpm)	Low Conductivity
Coriolis Flow Meter	■	■	○	○	■	■	■	■	■	■	■
Magnetic Flow Meter (4-wire)	■	■	■	■	○			○	○	○	
Capacitance Magnetic Flow Meter	■	■	■	■	○			○	○		■
Vortex Flow Meter	■	○		○	■		■	■	○		■
Variable Area Flow Meter	■	○		■	○		■	■	○	■	■
Differential Pressure (DP) Flow	■	○	○	○	■		○	○	■	■	■

■ Designed for this service ○ Applicable for this service under certain conditions - consult manufacturer

GAS & STEAM

	Clean Gas	Dirty Gas	Corrosive	Low Pressure	Saturated Steam	Superheated Steam	Cryogenic	High Temp	Mass Flow	Low Flow Rates
Coriolis Flow Meter	■	○	○	○		■	■	■	■	■
Vortex Flow Meter	■	○	○	■	■	■	■	■	■	
Variable Area Flow Meter	■	○	○	■			■	■	○	■
Differential Pressure (DP) Flow	■	○	○	■	■	■	○	○	○	■

■ Designed for this service ○ Applicable for this service under certain conditions - consult manufacturer

	Coriolis Mass Flow Meter	Magnetic Flow Meter (4-Wire)	Capacitance Magnetic Flow Meter	Vortex Flow Meter	Variable Area Flow Meter	Differential Pressure (DP) Flow
Yokogawa Family	**ROTAMASS TI**	**ADMAG TI**	**ADMAG TI**	**YEWFLO**	**ROTAMETER**	**DPharp**
						
Recommended Model	ROTAMASS Total Insight *Nano, Prime, Supreme, Intense, Hygienic, Giga*	ADMAG Total Insight AXG / AXW	CA Series	VY Series	RAMC / RAKD	DPharp EJA / DPharp EJX
Typical Applications	· Liquid · Gases · Superheated steam · Concentration measurements · NOC/Water cut acc. API	· Conductive fluids (above 1µS/cm) · Slurries · Corrosive fluids · Water/Wastewater	· Ultra-low (0.01µS/cm) conductive fluids · Abrasive slurries · Corrosive fluids · Coating fluids	· Liquid · Gases · Saturated steam · Superheated steam	· Liquid · Gas · Steam	· Liquid · Gas · Steam
Line Sizes	6mm - 250mm (1/4" to 10")	2.5mm - 1800mm (0.1"-72")	25mm - 200mm (1"-8")	15mm - 400mm (0.5"-16")	6mm - 150mm (1/4" to 6")	15mm-3000mm (1/2" to 120")
Max Pressure	Up to 69 Mpa (10,000 psi)	Up to 9.92 Mpa (1440 PSIG)	Up to 4 Mpa (580 PSIG)	Up to 43 MPa (6250 psi) (ANSI Class 1500)	Up to 16 Mpa (2320 psi)	Up to 32 Mpa (4500 psi)
Temperature Limits	-200 to 350°C (-328 to 662°F)	-40C to180°C (-40 F to 356°F)	-10C to 120°C (14F to 248°F)	-196 to 450°C (-320 to 842°F)	-196 to 370°C (- 320 to 698°F)	Transmitter: -40 to 120°C (40 to 248°F) Primary Element: -196 to 870°C (-320 to 1600°F)
Flow Range	Up to 1,100 t/h (2,425,086 lb/hr)	Up to 91,608 m3/h (403,341 gpm)	Up to 1,131 m3/h (4,979 gpm)	Up to 10 m/s (33 ft/s) liquid Up to 80 m/s (262 ft/s) gas	0.0001 m3/h - 130 m3/h (0.0003gpm to 572gpm)	Dependent on Primary Element
Accuracy	Liquids - Up to ±0.1% of rate Gases - Up to ±0.35% of rate	±0.15% of rate high accuracy ±0.30% of rate standard	±0.5% of rate	Liquids - Up to ±0.75% of rate Gases - UP to ±1% of rate	Up to ±1.6% of rate	Up to ±1% of rate
Rangeability	Up to 170:1	100:1	20:1	Up to 33:1	10:1	Up to 15:1 with single DP transmitter
Process Connections	Threaded, Flanged, Sanitary, Autoclave	Threaded, Flanged, Wafer, Sanitary	Wafer	Flanged, Wafer	Threaded, Flanged, Wafer, Sanitary	Flanged, Threaded, Sanitary, Wafer, Orifice
Communication	Analog, Pulse, HART, FOUNDATION™ Fieldbus, MODBUS, PROFIBUS PA, Profinet APL	Analog, Pulse, HART, FOUNDATION™ Fieldbus, PROFIBUS PA, MODBUS, EtherNet/IP	Analog, Pulse, HART	Analog, Pulse, HART, FOUNDATION™ Fieldbus, MODBUS	Visual display, Analog, Pulse, HART, PROFIBUS PA, FOUNDATION™ Fieldbus	Analog, HART, FOUNDATION™ Fieldbus, PROFIBUS PA, MODBUS, Pulse
Total Insight (TI) Concept – Advance Diagnostics	Available	Available	Available	Available	Not Available	Available
Advantages of the Technology	Direct mass, multi-variable, and density measurements; unaffected by process condition changes; handles entrained gases; no straight run requirements; not affected by misaligned pipe/transient vibrations	Full bore; no pressure loss; no moving parts; bi-directional; linear accuracy; flow not affected by changes in: pressure, viscosity, density, high noise conditions, temperature; large variety of materials for chemical compatibility	Full bore; no pressure loss; no moving parts; bi-directional; linear accuracy; no wetted electrodes; ultra-low (0.01 µS/cm) conductivity, for Difficult Applications (Abrasive slurries, Coating fluids)	No moving parts; minimal pressure drop; suitable for a large variety of fluids; high pressure ratings; noise reduction with SSP (Spectral Signal Processing); Calculates volume, mass and energy flow rates using temperature / pressure / density from the built-in temperature sensor or current input	No power supply needed; low pressure loss; all stainless steel design; reasonable price; robust, dependable, and universal; low-cost monitoring; RAGK, RAGL, RAGN, and other glass Rotameters available	Can be paired with many different primary elements to meet requirements of application; generally lower cost; compensated/mass flow with multi-variable transmitter Note : Example of EJX910 shown with Veris Pitot Tube above
Restrictions and Cautions	Pressure loss	Conductive fluids only; not recommended for entrained gas; susceptible to coating	Application suitability dependent on conductivity; Conductive fluids only; not recommended for entrained gas	Limited by Reynolds number with increased viscosity; no solid suspension; no entrained gas	Vertical installation (from bottom to top); not for high viscous fluids	Primary element largely dictates performance and price; limited rangeability; complex installation/integration
Hazardous Area	Y	Y	Y	Y	Y	Y
Marine	Y	Y	N	Y	N	Y
Sanitary	Y	Y	N	N	Y	Y
Safety	Y	Y	N	Y	Y	Y

*This information is to be used for reference only. For detailed specifications and application suitability please reference the general specifications and/or contact manufacturer.

*Note: Specifications above are based on standard product offering. Different materials may vary specifications.