







	Thermal Flow Meter			Coriolis Flow Meter	Mass flow controllers	DP Meters
Mass Flow	👍	👍	👍	👍	👍	*** 👍
Air/Gases	👍	👍	👍	-	👍	👍
Steam	-	-	-	-	-	👍
Liquids	-	-	-	👍	-	👍
Model/Series	ATMF80/81/86/87	ATMF82/88	ATMF9000 series	ALCM 00300~200000	AMF and AMFC	Accone
Line Size Compatibility	6.3 ~ 100 mm (1/4" ~ 4")	≥ 50mm (2")	≥ 50mm (2")	15mm~8mm (0.5" ~ 3")	3,6,8(mm) compression fitting	15-3000mm (1/2"~120")
Key Feature	<ul style="list-style-type: none"> Directly measure mass flow of gas Up to four in-dependent switch able flow curves Available with Infrared communicator for remote access of data 	<ul style="list-style-type: none"> Directly measure mass flow of gas Up to four in-dependent switch able flow curves Measure higher velocity than other thermal mass meter - up to 203 m/s 	<ul style="list-style-type: none"> Direct massflow gases insertion and inline Up stream requirements only 3 diameters Insertion up to 600mps Inline up to 20,500NCMH no compeitors (patented) 	<ul style="list-style-type: none"> Directly measure mass flow of liquid Suitable for aggressive and contaminated media Free of dead spots Individual 8-point-calibration report 	<ul style="list-style-type: none"> Directly measure mass flow of gas Single and multi-valves adjustable fast response : <1.5s Command / measuring signal 	<ul style="list-style-type: none"> Dirty gas application Up stream requirements only 3 diameters For liquids, gas & steam Lowest Pressure drop than any DP in the market *** Using SMC Mass Flow Computer
Measurement						
Flow Rate	◆	◆	◆	◆	◆	◆
Total Flow	◆	◆	◆	◆	◆	◆
Temperature	◆	◆	◆	◆	◆	◆
Density	-	-	-	◆	-	-
Flow Element						
Flow Range	0 ~ 2500 NCMH	0 ~ 203 m/s	0 ~ 20500 NCMH inline 0 ~ 600mps insertion	4.5 ~ 1,200,000 kg/hr	5 sccm up to 200 slpm	Based on Re > 8000
Turndown Ratio	Over 100:1	Over 100:1	Over 100:1	Over 100:1	Over 20:1	1:20
Accuracy	±1% of Reading ± 0.2% of Full Scale	±1% of Reading ± 0.2% of Full Scale	±1% of Reading ± 0.2% of Full Scale	±0.15% of Reading 0 ~ +180 °C	±1% of Reading + (0.5% FS)	+/- 0.5% of reading
Process Temperature	0 ~ +200 °C	0 ~ +455 °C	0 ~ +200 °C	High temp up to 350C	5 to +45°C	-196 to 850 C
Operating Pressure	40 bar	40 bar	40 bar	350 bar	10MPa	up to 420 Mpa
Connection	Threaded, Flanged	Threaded, Flanged, Ball Valve	Threaded, Flanged	npt, flanges,diary,tri-clamp	compression fitting	NPT,Flange,Wafer,Butt weld
Flow element wetted materials	316SS as per DIN 1.4571 (AISI 316 Ti)	316SS as per DIN 1.4571 (AISI 316 Ti)	316SS as per DIN 1.4571 (AISI 316 Ti)	SS as per DIN 1.4571 (AISI 316 Ti)		304L/SS, 306L,CPVC,PTFE Brass,A106B,A335-P11,etc
Transmitter						
outputs (standard)	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	0-5 VDC & 4-20 mA, Pulse	Third Part DP transmitter
outputs (optional)	RS232, RS485, Hart, Modbus	RS232, RS485, Hart, Modbus	RS232, RS485, Hart, Modbus	Integral/Remote	Integral/Remote	Resmount DP transmitter
Integral or Remote Mounting	Integral/Remote	Integral/Remote	Integral/Remote	◆(std)	◆(std)	Siemens DP ransmitter
Digital Display Option	◆(std)	◆(std)	◆(std)			ETC....
Enclosure Protection/Ratings	NEMA 4,Class 1, Div 1, Groups B, C, & D	NEMA 4,Class 1, Div 1, Groups B, C, & D	NEMA 4,Class 1, Div 1, Groups B, C, & D	IP 65-68 NEMA 4,,	NEMA 4,	
Power Supply	115 VAC, 230 VAC, 24 VDC	115 VAC, 230 VAC, 24 VDC	115 VAC, 230 VAC, 24 VDC	24 VDC, 15%	24 VDC, 15%	
Agency Approvals	II 2GD EExd IIC T2 or T3 or T4 EExd IIC T2 or T3 or T4	II 2GD EExd IIC T2 or T3 or T4 EExd IIC T2 or T3 or T4	II 2GD EExd IIC T2 or T3 or T4 EExd IIC T2 or T3 or T4	II 2GD EExd IIC T2 or T3 or T4 EExd IIC T2 or T3 or T4	eqv IEC60079-1:1990 EExd IIC T2 or T3 or T4	II 2 G EEx ia IIC T4, BVS 03 ATEX E 205
Industries & Applications	Biogas (waste water) Exotic gases (semiconductor) Chemical processing gases Pharmaceutical gases Natural gas/Fuel gases Refinery gases Automotive industries Compressed air	Biogas (waste water) combustion Controls Chemical processing gases Stack gases Natural gas/Fuel gases Refinery gases Automotive industries Compressed air	High flow gases combustion Controls Chemical processing gases Limited straight runs Natural gas/Fuel gases Refinery gases Automotive industries Compressed air	Automotive Fuel consumption Hydraulics Petrochemicals Polyurethane Food industry Pharmaceutical Industries Custody Transfer liquids	Semi-conductor gas Flow controller Very low flows cc clean room applications	Dirty gas application Wet gas application Liquids Saturated steam Superheated steam No straight run applications Low pressure drop

						
	Magnetic Meters	Ultrasonic Meters	PD Meter	Turbine Flow Meter	Variable Area Flow Meter	Vortex Flow meters
Mass Flow	-	-	-	-	-	
Air/Gases	-	-		👍	👍	👍
Steam	-	-	-	-	👍	👍
Liquids	👍	👍	👍	👍	👍	👍
Model/Series	ALMAG	ALSONIC	ALBRPD,ALGPD & ALHPD	ALTM	ALVAMT	ALVTX
Line Size Compatibility	6 ~ 2000 mm (1/4" ~ 80")	1/2" ~ 240"(15 ~ 6000 mm)	6 ~ 400 mm (1/4-16")	15 ~ 250 mm (1/2" ~ 10")	6 ~ 200 mm (1/4" ~ 8")	0.5" ~ 24"(15 ~ 700 mm)
Key Feature	<ul style="list-style-type: none"> For conductive liquids many type of liners Larger sizes up to 2000mm Both AC or DC available NIST certificate 	<ul style="list-style-type: none"> Portable, fixed, spool psc DSP technology can measure < 30% particles Excellent for BTU and energy measurement Clamp or insertion sensors NIST certificate 	<ul style="list-style-type: none"> High pressure flows Easy to clean Reverse flows Low operating noise Constant K-factor Low pressure drop NIST certificate 	<ul style="list-style-type: none"> Easily cleaned Temperature range from -273 up to +350°C Fast response time Low flows designed with sapphire bearings Pressures up to 4000 barg 	<ul style="list-style-type: none"> Pressure drop 0.07 ~ 0.7barg for gas & steam application Ni-MH Battery(3 years) Consistent overall length Heating jacket design NIST certificate 	<ul style="list-style-type: none"> Ideal for steam application Simplified setup and diagnostic functions. 4-20 mA and pulse outputs; user selectable. NIST certificate
Measurement						
Flow Rate	◆	◆	◆	◆	◆	◆
Total Flow	◆	◆	◆	◆	◆	◆
Temperature	-	BTU, temp available	-	-	-	-
Density	-	-	-	-	-	-
Flow Element						
Flow Range	0.01 ~ +/- 12 m/s.	0.01 ~ +/- 32 m/s.	0.005 ~ 1000 LPM(GPD&HPD) 55 ~ 27,000 LPM (BRPD) ±0.25% (GPD,HPD) ±0.1% (BRPD) 5 ~ 1,000,000 cSt 0 ~ +250 °C	0.03 ~ 500 LPM	Liquids 0.01 ~ 3,333 LPM Gases 0.03 ~ 4000 M3/Hr 20:01	Steam - 6.4 to 267,000 Kg/Hr Gas - 3 to 180,000 M3/Hr Liquid - 6 to 5900 LPM
Turndown Ratio					+/- 1% of reading	liquid +/- 0.7% Rdg
Accuracy	± 0.2% ,± 0.5% Reading	±0.5% of reading		±0.15%	15m ~ 20 mm - < 30 CP	gas/steam+/- 1.0% Rdg
Viscosity				0 ~ 60 cSt	-80 ~ +200 °C (Standard)	wafer, flange or insertion
Process Temperature	180 °C	-20 ~ +50 °C		-275 ~ +350 °C	40 bar	-20 ~ +350 Dec. C(Optional)
Operating Pressure	350 Bar	No need to monitor pressure	1600 Bar(HPD), 64 Bar (BRPD)	4000 bar	JIS , DIN and ANSI available	64 Kg/cm2(Max.)
Connection	PTFE, FEP, Polyurethane, Neoprene	Clam-On sensors	threads, flanges, etc...	BASF flanges,(ANSI and DIN), tri-clamp,ermeto threads, NPT		JIS , DIN and ANSI available
Wetted materials	Liner - 316 SS, Has and B/C, Ti, Ta, Platinum	No wetted material needed	bore for SAE flanges 1 1/4 SS per DIN 1.4305/AISI 303 1.4571/AISI 316 Ti	Body: 1.4305, (316 Ti) Wheel: 1.4122,(1.4460)		Stainless Steel 304 Stainless Steel 316
Transmitter						
outputs (standard)	4-20 mA & Scale pulse	4-20 mA or 0-20 mA	8-30 VDC & 4-20 mA, Pulse	8-30 VDC & 4-20 mA, Pulse	4-20 mA and Scale pulse	4-20 mA (2 wire)
outputs (optional)	Hart, Modbus, RS485	Pulse RS485, RS-232	RS485/232, MODBUS		Key pad for setup	RS485, HART, MODBUS
Integral or Remote Mounting	Integral/Remote	Integral/Remote	Integral/Remote	Integral/Remote	Integral	Integral/Remote
Digital Display Option	◆	◆	◆	◆	◆	◆
Enclosure Protection/Ratings	IP65 / IP67 / IP68 / Ex proof	IP65 / IP67	IP 65, aluminum AlMgSiPb	IP 65, aluminum AlMgSiPb	IP 65 aluminum	IP 65 aluminum
Power Supply	24VDC, 90-260 VAC	90 ~ 260Vac 50/60 Hz	14-30 VDC	14-30 VDC	11 ~ 36VDC(2 wire 4-20 mA)	11 ~ 36 VDC(2 wire 4-20 mA)
Agency Approvals	CE	CE	CE II 2 G EEx ia IIC T4, BVS 03 ATEX E 205	CE II 2 G EEx ia IIC T4, BVS 03 ATEX E 205	Ex ia IIC T5 Ex d IIB T6	CE CE Explosion Proof, Exd IIB T4 Intrinsically Safe, Exib IIC T4
Industries and Applications	Liquid Slurries Water & Wastewater Corrosive Liquids Chemical Processing Cellulose/cosmetics Food & Beverage Cement, lime Pharmaceuticals Fertilizer	Portable flow monitoring Food and beverage Water and wastewater Refined and Crude oils Bi-directional flow Ultra pure fluid Alcohol / acid Oil Derivatives Batch control	Polyurethane & polymers Isocyanate Sealing materials Petrochemical products Fats Light,heavy or crude oils Glues, Paints Abrasive fluids Coating wax	Fuel oil Solvents Di water Pharmaceuticals Liquefied gas Food Industry Automotive Refineries High pressure (4000 barg)	Leak Detection Pump Seal Automotive Sampling Systems Analyzers Refrigeration Blanketing Systems Temperature Controls Water Filtration	Dirty gas application Wet gas application Liquids Saturated steam Superheated steam