

VORTEX FLOW METER

MODEL AVFM-100

VORTEX SHEDDING · NO MOVING PARTS · GAS / LIQUID / VAPOR



FIG. 01 — AVFM-100, INTEGRAL CONFIGURATION (DN 80 SHOWN) STAINLESS STEEL BODY · PIEZOELECTRIC SENSING

SIZE RANGE	ACCURACY	MEDIUM	OUTPUT	POWER
DN 25 – DN 200	±1% – ±1.5% of reading	Gas · Liquid · Vapor	4–20 mA · RS 485 · Pulse	24 V DC

01 INTRODUCTION

The Arrowmech AVFM-100 is a vortex-shedding flow meter for gas, liquid and vapor service. A shedder bar in the flow stream generates alternating vortices whose frequency is linearly proportional to flow velocity; a piezoelectric sensor detects the vortex signal without any moving parts. One meter covers multiple media across a wide range of temperature and pressure conditions, with a robust stainless steel body and low pressure drop.

02 FEATURES

- **High accuracy & repeatability** — Up to $\pm 1\%$ – $\pm 1.5\%$ of reading with excellent long-term stability.
- **No moving parts** — Maintenance-free operation; ideal for dirty or corrosive fluids.
- **Multi-fluid measurement** — Liquids, gases and steam — one meter, multiple media.
- **Wide operating range** — Handles a broad range of temperature and pressure conditions.
- **Robust body construction** — Stainless steel body with high mechanical strength and corrosion resistance.
- **Digital display, multiple outputs** — 4–20 mA, Pulse & RS 485 for seamless integration.
- **Low pressure drop** — Optimised design minimises energy loss during measurement.

03 TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
Line size	DN 25 to DN 200 (25 – 200 mm)
Accuracy	$\pm 1\%$ – $\pm 1.5\%$ of reading
Ambient temperature	–20 °C to 55 °C
Process temperature	–40 °C to +330 °C
Nominal pressure	16 kg/cm ² (standard) · 40 kg/cm ² (optional)
Connection	Flange
Medium	Gas, Liquid, Vapor
Sensing	Piezoelectric — vibrating acceleration 0.2 g
Turndown (range degree)	1:6 – 1:30
Output	4–20 mA · RS 485 · Pulse · HART (optional)
Power supply	24 V DC (standard) · 230 V AC (optional)
Protection class	IP 65

04 MEASURING PRINCIPLE

When a fluid flows past a bluff body (shedder bar), vortices are shed alternately from either side of the bar — the Kármán vortex street. The shedding frequency is directly proportional to flow velocity and independent of fluid density, conductivity or viscosity within the operating range. The piezoelectric element converts the pressure fluctuation of each vortex into an electrical pulse, which the transmitter converts to flow rate and totalised flow.

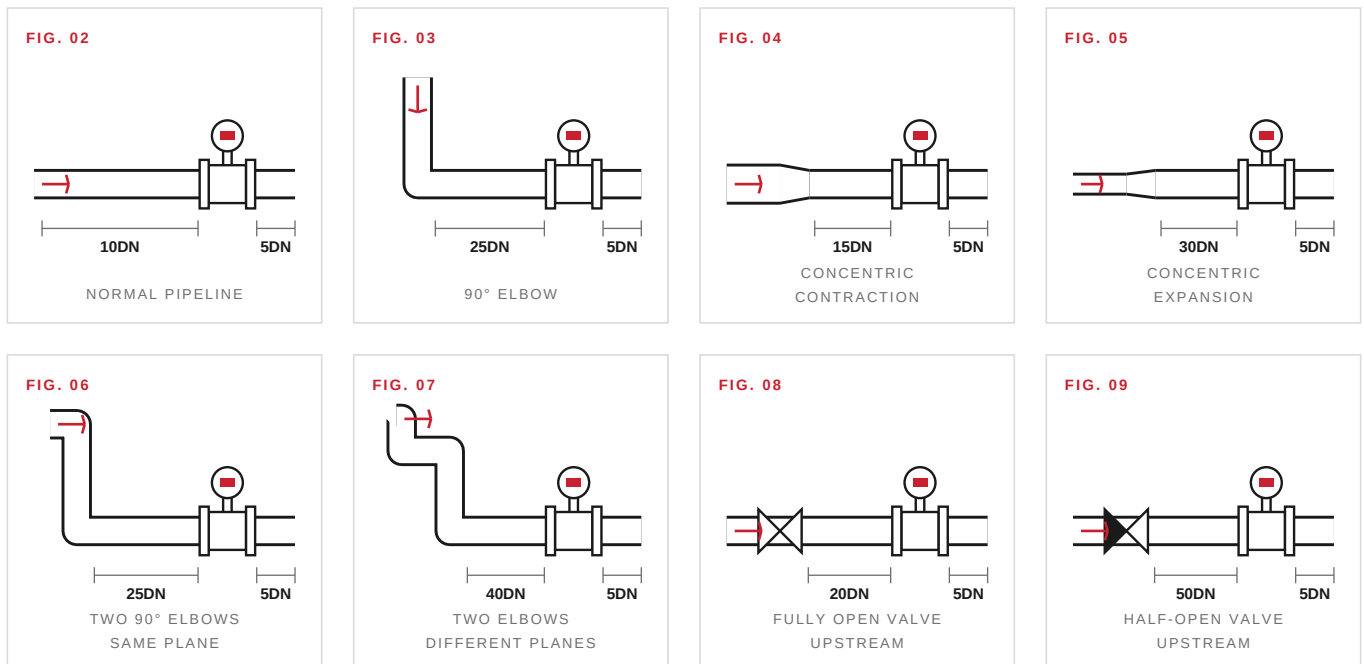
05 FLOW RATE CHART (m³/h)

DN (mm)	LIQUID Flow range (m ³ /h)	GAS Flow range (m ³ /h)
DN 25	1.2 ~ 16	8 ~ 55
DN 32	1.8 ~ 20	10 ~ 120
DN 40	2 ~ 40	27 ~ 250
DN 50	3 ~ 60	35 ~ 380
DN 65	4 ~ 85	60 ~ 640
DN 80	6.5 ~ 130	86 ~ 1100
DN 100	15 ~ 220	133 ~ 1700
DN 125	20 ~ 350	150 ~ 2000
DN 150	30 ~ 450	347 ~ 4000
DN 200	45 ~ 800	560 ~ 8000

06 MOUNTING NOTES — LIQUID SERVICE

- Install where the pipe always runs full — rising lines or low sections of the pipeline are preferred for liquids.
- Avoid the highest point of a pipeline and free-discharge outlets, where gas bubbles collect and the pipe may run partially full.
- Keep control valves downstream of the meter wherever possible; observe the straight-run lengths in FIG. 02 – 09 below.
- Support the pipe near the meter and avoid strong external vibration sources.

07 INSTALLATION GUIDELINES — STRAIGHT RUN REQUIREMENTS



DOWNSTREAM REQUIREMENT: 5DN IN ALL CASES · DN = NOMINAL PIPE DIAMETER

KEEP THROTTLING AND CONTROL VALVES DOWNSTREAM OF THE METER WHEREVER POSSIBLE.

08 CONFIGURATION



FIG. 10 — AVFM-100, INTEGRAL CONFIGURATION (DN 80 SHOWN)
Transmitter mounted directly on the meter body.

The AVFM-100 is supplied in integral configuration: the transmitter is mounted directly on the meter body via the sensor stem. The flexible armoured conduit carries the piezoelectric sensor connection. Body and shedder bar material, temperature rating and compensation are selected through the ordering code below.

GAS

LIQUID

VAPOR / STEAM

09 ORDERING CODE

EXAMPLE — FLOW METER CODE:

AVFM-100 - I - PD - 050 - B1 - T1 - C1 - O1

TRANSMITTER TYPE		
I	Integral	(s)

POWER SUPPLY		
PD	24 V DC	(s)
PA	230 V AC	

LINE SIZE	
025	25 (1")
032	32 (1.25")
040	40 (1.5")
050	50 (2")
065	65 (2.5")
080	80 (3")
100	100 (4")
125	125 (5")
150	150 (6")
200	200 (8")

BODY & SHEDDER BAR		
B1	SS 304	(s)
B2	SS 316L	
B3	Hastelloy C	
B4	Titanium	

TEMPERATURE OPTION	
T1	Up to 150 °C
T2	Up to 250 °C
T3	Up to 330 °C

COMPENSATION	
C1	Without compensation (volumetric flow)
C2	With temperature + pressure compensation (mass flow)

OUTPUT	
01	4–20 mA · RS 485 · Pulse (s)
02	4–20 mA with HART

(s) = STANDARD SELECTION · TEMPERATURE OPTION AND COMPENSATION ARE SPECIFIED PER ORDER