

TURBO PULSE TURBINE FLOWMETERS

FLAMEC Turbopulse Turbine Flowmeters measure flows of low viscosity liquids from 3 to 7000 litres/hr in a range of sizes from ½" to 20" (12-500mm). TP series flowmeters have an axial rotor and flow guides & need to be installed in straight sections of pipe either horizontal or vertical so that the flow is conditioned. TP series flowmeters can be purchased with Exd & Intrinsically Safe (I.S) approvals for use in hazardous areas. Applications include the distribution of fuels, alcohols, solvents, metering of chemicals, insecticides, water & light hydraulic oils.

Features / Benefits

- High accuracy & repeatability, direct reading flowmeter
- Low cost of ownership, wide flow range
- Rugged & compact design
- Certified Exd & I.S hazardous area versions
- Integral 4-20mA output option
- ± 0.15% linearity option (TP100 and above)

Integral Instruments

FLAMEC TP series meter options include integral LCD totalisers, flow rate totalisers & batch controllers. These instruments provide monitoring & control outputs including 4~20mA, scaled pulse, alarms & batch control:

- FBT LCD 5 digit reset, 8 digit cumulative totaliser.
 - RT12 LCD 6 digit reset, cumulative totaliser & flow rate. Analogue and pulse outputs
 - RT40 LCD 6 digit reset, cumulative totaliser & flow rate. Backlit Display.
 - EB LCD 6 digit 2 stage batcher & cumulative totaliser.
- (Instruments also available for remote mounting and with I.S. approvals)



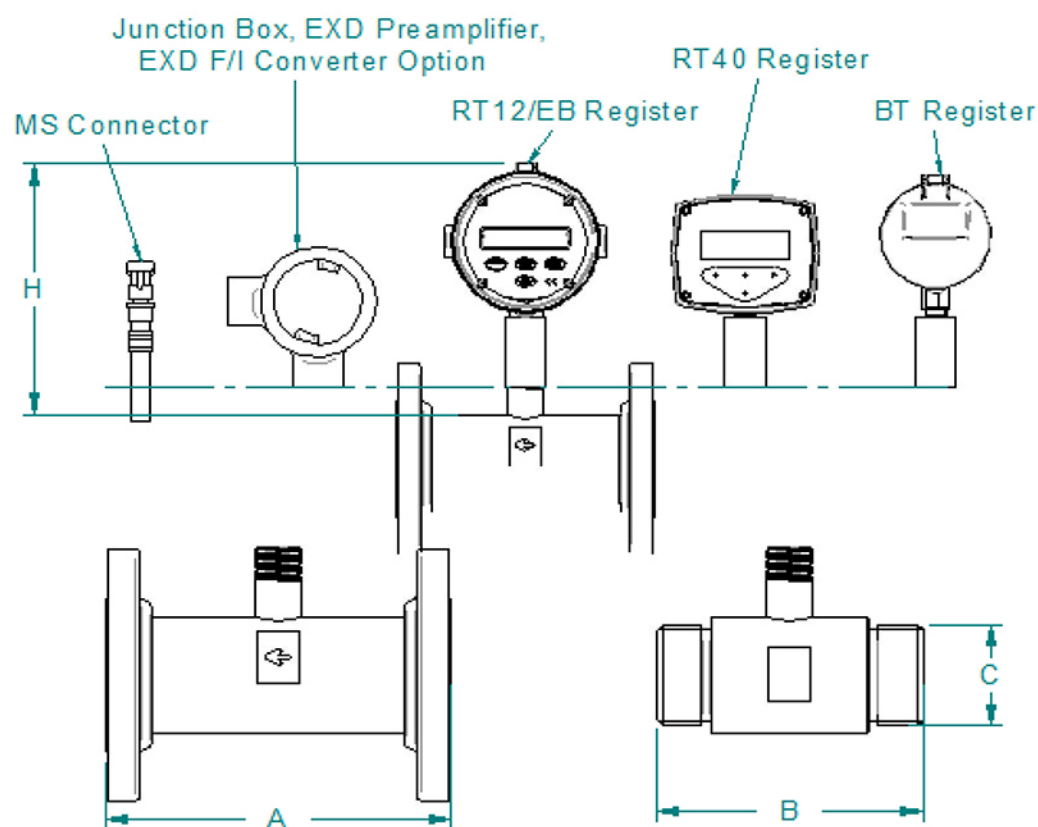
Specifications

Model prefix :	TP-Turbopulse
Nominal size (inches)	12 ~ 500mm (1/2" ~ 20")
**Accuracy @ 3cp	± 0.5% of reading (accuracy is ± 0.2% of reading with optional RT12 with non-linearity correction)
Temperature range	-40°C ~ +200°C (-40°F ~ +400°F), refer factory for lower temperature
Maximum Viscosity	10 Cst
Maximum pressure	(Threaded meters) bar (PSI)
316 Stainless steel	250 (3625)
Electrical - (see also optional output - Turbopulse pick-off types)	
Standard output	Pick-off Coil
Optional outputs	4~20mA scaled pulse, quadrature pulse, flow alarms or two stage batch control
Physical	
Protection class	IP66/67 (NEMA4X), optional Exd IIB T4/T6, integral ancillaries can be supplied I.S. (intrinsically safe)
Overall dimensions	Refer over page

FLOW RANGES - TP Turbopulse

size	model	litres/hr (GPH)
½"	TP010	100~1100 (0.44~4.4)
¾"	TP012	220~2200 (0.97~9.7)
¾"	TP015	400~4000 (1.77~17.7)
¾"	TP020	800~8000 (3.5~35.2)
		m3/hr (GPM)
1"	TP025	1.6~16 (7~70)
1½"	TP040	3.4~34 (15~150)
2"	TP050	6.8~68 (30~300)
3"	TP080	13~135 (60~600)
4"	TP100	27~270 (120~1200)
6"	TP150	55~550 (240~2400)
8"	TP200	110~1100 (480~4800)
10"	TP250	190~1900 (840~8400)
12"	TP300	270~2700 (1200~12000)
16"	TP400	400~4000 (1800~18000)
20"	TP500	700~7000 (3000~30000)

Overall Dimensions



FLANGED METERS AVAILABLE
WITH A.N.S.I. OR DIN FLANGES.
SEE APPLICABLE STANDARD
FOR FLANGE DIMENSIONS

FLANGED METERS

Model No.	A (mm)
TP-010	127
TP-012	127
TP-015	127
TP-020	140
TP-025	152
TP-040	178
TP-050	197
TP-080	254
TP-100	356
TP-150	368
TP-200	457
TP-250	457
TP-300	457
TP-400	610
TP-500	610

Option Fitted	H (mm)
RT12/EB Register	210
RT40 Register	185
BT Register	190
EX Junction Box	150
MS Connector	118
MS Connector with Pre-Amp	138

THREADED METERS

Model No.	B (mm)	C
TP-010	64	1/2" BSP or NPT
TP-012	64	3/4" BSP or NPT
TP-015	64	3/4" BSP or NPT
TP-020	83	3/4" BSP or NPT
TP-025	89	1" BSP or NPT
TP-040	115	1 1/2" BSP or NPT
TP-050	133	2" BSP or NPT

Overall Dimensions



				Pulse output relative to flow (nominal values)			
				m3/hr	USgal/min	millivolts	frequency (Hz)
TP010	1/2"	(DN15)	0.11 - 1.1	0.5 ~ 5	100~1000	4000	15140
TP012	3/4"	(DN20)	0.22 - 2.2	0.9 ~ 9	110~1100	1700	6435
TP015	3/4"	(DN20)	0.4 - 4	1.8 ~ 18	130~1300	1100	4160
TP020	3/4"	(DN20)	0.8 - 8	3.6 ~ 36	100~1000	400	1500
TP025	1"	(DN25)	1.6 - 16	7 ~ 70	90~900	180	680
TP040	1 1/2"	(DN40)	3.4 - 34	15 ~ 150	65~650	60	230
TP050	2"	(DN50)	6.8 - 68	30 ~ 300	50~500	24	90
TP080	3"	(DN80)	13.5 - 135	60 ~ 600	65~650	15	57
TP100	4"	(DN100)	27 - 270	120 ~ 1200	60~600	6.6	25
TP150	6"	(DN150)	55 - 550	240 ~ 2400	40~400	2.3	8.7
TP200+	8~20"	(DN200 to DN500)	- consult factory for pricing				

Body Material

S 316 stainless steel - 250 bar (3500 psi) max.

Process Connections

- 1 BSPP male threaded (TP050 & Smaller)
- 2 NPT male threaded (TP050 & Smaller)
- 3 * Tri-clamp ferrules (316SS) (Not available for TP010)
- 4 ANSI-150 RF flanges
- 5 ANSI-300 RF flanges
- 6 PN10 DIN flanges
- 7 PN16 DIN flanges
- 8 PN25 DIN flanges
- 9 Customer nominated connections (covered under SB option below)

* tri-clamp ferrules are 1/2" larger than the meter size

Process Connection Material

- T** threaded stainless steel as per body material
- C** carbon steel flanges (available with TP080 and above only)
- S** 316 stainless steel Flanges

No. of Pick-offs

- 1 one
- 2 two x 90 degree electrically offset (with TP100 & above only)

Pick-off Style

- 1 MS (military style) connector
- 2 FL (flying leads) (required for Integral options)

Pick-off Type

- 1 standard (120°C [250°F] max.)
- 2 hermetically sealed or high temp (200°C [400°F] max.)
- 3 ATEX approved intrinsically safe (120°C [250°F] max.) (Ex-ia)
- 4 preamplified (65°C [150°F] max.) (MS Connection only)

Linearity

- 1 +/-0.5% (standard)
- 2 +/-0.15% (custody transfer available for TP100 & over)

Integral Options

- JB** junction box
- Ex** Exd aluminum junction box ANZEX
- FI** F/I loop powered 4-20mA analog output
- B2** BT11 dual totaliser with output - 20°C (250°F) max.
- B3** I.S. intrinsically safe BT11 including output [2]
- R0** RT12 rate totaliser with all outputs [2] (Alloy housing)
- R2** RT12 rate totaliser with all outputs [2]
- R3** I.S. intrinsically safe RT12 with all outputs [2]
- R4** RT40 large LCD flow rate totaliser - 20°C (250°F) max.
- EB** EB10 Ecobatch dc batch controller - 20°C (250°F) max.
- SB** Specific build requirement (see price list cover sheet)

with scaleable pulse output

IECEX & ATEX approved

scaled pulse, alarms & 4~20mA

scaled pulse, alarms & 4~20mA

IECEX & ATEX approved

scaled pulse + backlighting

Model No. Example

TP025 S 1 T 1 - 2 1 1 R2