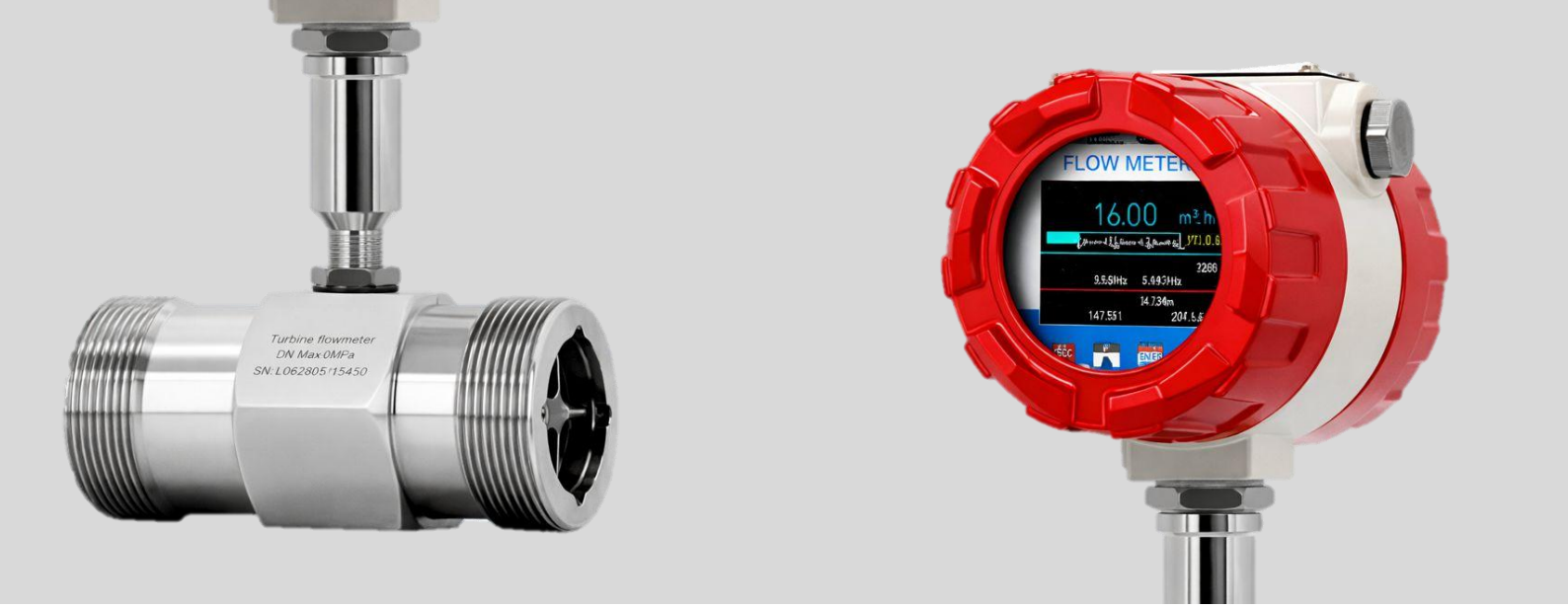


Product Data Sheet

RockFord™ T400 Turbine Flow Meter

R.Accuracy
GOLD SERVICE

T400 turbine flow meter is based on the principle of torque balance and belongs to velocity-type flow measurement instruments. The sensor features a compact structure, high accuracy, good repeatability, fast response, and easy installation and maintenance.

It is widely used in petroleum, chemical industry, metallurgy, papermaking, water supply, and other industries. It is suitable for measuring liquids such as tap water, diesel oil, gasoline, kerosene, and other low-viscosity liquids. The sensor is made of stainless steel 1Cr18Ni9Ti, 2Cr13, and aluminum alloy, providing strong corrosion resistance.

It is suitable for measuring liquids without fibers or solid particles. When equipped with a display instrument with special functions, it can also perform quantitative control and over-limit alarms.

The explosion-proof type (Ex-d IIC T6 Gb) can be used in hazardous environments. The sensor is suitable for media with working temperature below 120°C and kinematic viscosity less than 5×10^{-6} m^2/s. For liquids with viscosity greater than 5×10^{-6} m^2/s, calibration must be carried out before use.

VIEW PRODUCT

APPROVE SERIAL NUMBER

Document ID: 00813-0100-4001, Rev WF

Contents

APPLICATIONS

- **Oil & Gas Industry**
  Measurement of refined petroleum products such as diesel, gasoline, kerosene, and light oils in transfer lines, dosing systems, and fuel distribution networks.
- **Chemical and Petrochemical Processes**
  Flow monitoring of non-corrosive and mildly corrosive chemical liquids in production lines, batching systems, and process control applications.
- **Water Treatment and Utilities**
  Measurement of clean water in water supply systems, filtration units, circulation lines, and cooling water systems.
- **Metallurgy and Manufacturing**
  Monitoring of lubricants, hydraulic oils, and process fluids used in metal processing and industrial machinery.
- **Food and Beverage Industry *(non-hygienic liquids)***
  Measurement of liquid raw materials without fibers or solid particles, such as edible oils and other low-viscosity fluids (sanitary connection options available).
- **Energy and Power Systems**
  Flow measurement of auxiliary liquids in power plants, boiler auxiliary systems, and cooling circuits.

With optional explosion-proof certification, multiple output signals (pulse, 4–20 mA, RS485, HART), and wide pressure and temperature ranges, this flowmeter can be reliably applied in both standard industrial environments and hazardous areas.

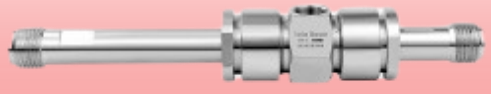
FEATURES

- High measurement accuracy with excellent repeatability
- Wide turndown ratio up to 20:1
- Fast response for dynamic flow measurement
- Integrated color graphic display
- Pulse, 4–20 mA, RS485 and optional HART outputs
- Compact and robust stainless-steel construction
- Threaded, flanged and sanitary clamp connections available
- Wide temperature and pressure range options
- Explosion-proof version available (Exd IIC T6 Gb)
- IP68 protection for industrial environments

Technical Data

Measured Medium	Clean liquids with low viscosity and no strong corrosiveness
External key	With external key
Temperature Display	With temperature display
Nominal Diameter & Connection Method	• Flanged connection: DN15–DN200 • Threaded connection: DN4–DN50 • Clamp (Tri-clamp) connection: DN4–DN100
Accuracy Grade	• ±1%R • ±0.5%R • ±0.2%R (customized)
Repeatability	• ≤0.33% • ≤0.17% • ≤0.07%
Range Ratio	10:1 to 20:1
Calibration Conditions	Calibration device: Standard liquid flow calibration device; static mass liquid flow calibration device Ambient temperature: 20°C Relative humidity: 65%
Medium Temperature	• Standard: −20°C to +80°C • Custom: −20°C to +180°C
Operating Conditions	• Ambient temperature: −20°C to +60°C • Relative humidity: 5%–90% • Atmospheric pressure: 86 kPa–106 kPa
Output Signal	• Pulse signal • 4–20 mA signal
Communication Output	• RS485 communication • HART protocol
Power Supply	+24 VDC
Explosion Protection	Exd IIC T6 Gb
Protection Grade	• IP67 • IP68

Connection Types



Small diameter threaded
(DN4–DN10)

Clamp sensor
(DN15–DN100)

External threaded
(DN15–DN50)

Flanged sensor
(DN15–DN200)

Model Types of T400 Turbine Flowmeter

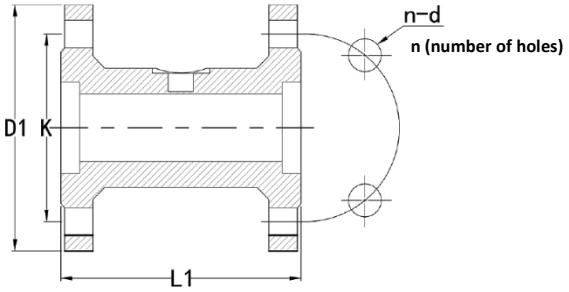
Threaded Connection	Clamp Connection	Flanged Connection
		

Power supply	DC 24V	DC 24V	DC 24V
Output	Pulse 4–20 mA (2-wire)	Pulse RS485	Pulse RS485 4–20 mA
Accuracy	0.5 class 1.0 class	0.5 class	0.5 class 1.0 class

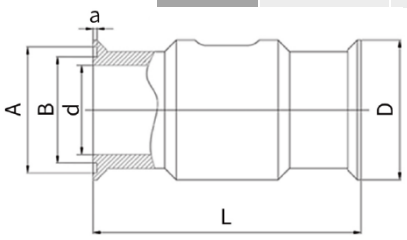
Flow Range & Pressure Rating Table

Nominal Diameter	Flow Range (m^3/h)	Extended Flow (m^3/h)	Flow Range (L/min)	Threaded Pressure (MPa)	Flanged Pressure (MPa)	Clamp Pressure (MPa)
DN4	0.04–0.25	0.04–0.4	0.7–4.2	6.3	/	1.0
DN6	0.1–0.6	0.06–0.6	1.7–10	6.3		1.0
DN10	0.2–1.2	0.15–1.5	3.3–20	6.3		1.0
DN15	0.6–6	0.4–8	10–100	6.3	1.6	1.0
DN20	0.8–8	0.45–9	13.2–133.3	6.3	1.6	1.0
DN25	1–10	0.5–10	16.7–166.7	6.3	1.6	1.0
DN32	1.5–15	0.8–15	25–250	6.3	1.6	1.0
DN40	2–20	1–20	33.3–333.3	6.3	1.6	1.0
DN50	4–40	2–40	66.7–666.7	6.3	1.6	1.0
DN65	7–70	4–70	116.7–1166.7	/	1.6	1.0
DN80	10–100	5–100	166.7–1666.7		1.6	1.0
DN100	20–200	10–200	333.3–3333.3		1.6	1.0
DN125	25–250	13–250	416.7–4166.7		1.6	/
DN150	30–300	15–300	500–5000		1.6	
DN200	80–800	40–800	1333.3–13333.3		1.6	

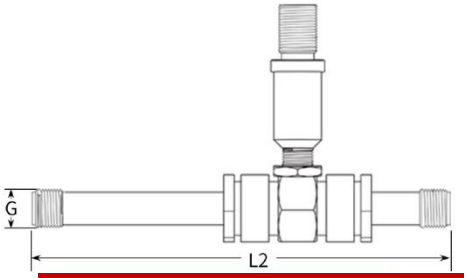
Dimensional Table



a	DN4-DN40	1mm
	DN50-DN80	1.5mm
	DN100	2mm

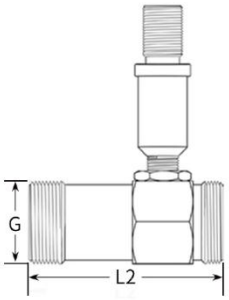


Flange Type (DN15~DN200)



Small thread Type (DN4~DN10)

Sanitary Type (DN4~DN100)



External thread Type (DN15~DN50)

Pipe Diameter	Flange Type					External thread Type		Sanitary Type				
	L1	D1	K	D	n	L2	G	D	A	B	d	L
DN4	/					225	1/2 “	50.5	46	40.5	4	50
DN6						225	1/2 “	50.5	46	40.5	6	50
DN10						345	1/2 “	50.5	46	40.5	10	50
DN15	75	95	65	14	4	75	1 “	50.5	46	40.5	15	100
DN20	85	105	75	14	4	85	1 “	50.5	46	40.5	20	100
DN25	100	115	85	14	4	100	1 1/4 “	50.5	46	40.5	25	100
DN32	140	140	100	18	4	140	1 1/2 “	50.5	46	40.5	32	120
DN40	140	150	110	18	4	140	2 “	64	59	53.5	40	140
DN50	150	165	125	18	4	150	2 1/2 “	78	73.5	68	50	150
DN65	170	185	145	18	4	/		91	86	80.5	65	170
DN80	200	200	160	18	8			106	100.5	94	80	200
DN100	220	220	180	18	8			119	113	106	100	220
DN125	250	250	210	18	8			/				
DN150	300	285	240	22	8							
DN200	360	340	295	22	12							

Pressure Class Selection

Code	Pressure Class
P2	2 MPa
P4	4 MPa
P6	6 MPa

Code	Pressure Class
P8	8 MPa
P10	10 MPa
P12	12 MPa

Code	Pressure Class
P14	14 MPa
P16	16 MPa
OD	order

RockFord T400 Turbine Flow meter

Ordering information

T400 Turbine Flowmeter is designed for precise measurement of clean, low-viscosity liquids in industrial applications.
Based on the velocity measurement principle, it delivers fast response and stable performance.
Its compact stainless-steel construction ensures durability in demanding environments.
The integrated color display provides clear and intuitive real-time flow visualization.

- High accuracy with excellent repeatability
- Fast response to flow variations
- Integrated color graphic display
- Pulse, 4–20 mA and RS485 output options
- Threaded, flanged and sanitary clamp connections
- Compact and robust stainless-steel body
- Explosion-proof option available
- IP65 protection for industrial use

CONFIGURE VIEW PRODUCT

Online product configurator

Many products are configurable online using our product configurator.
Select the Configure button or visit VIEW PRODUCT > Rockford-inc.com/product to start.
With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

The purchaser of the equipment must specify and select the product materials, options, and components.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in Figure 1.

Figure 1: Model Code Example

T400	F-0025-A15-S3-H2-S-N-I-A2-T2-P2-CTF-CMF
1	2

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

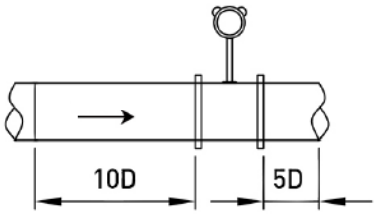
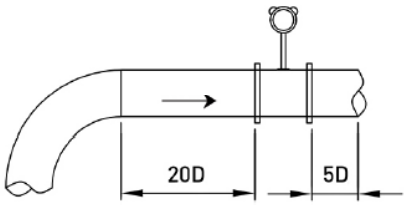
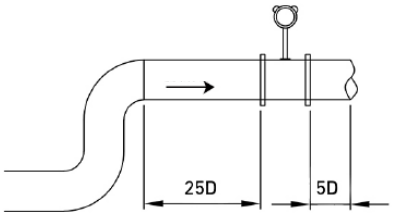
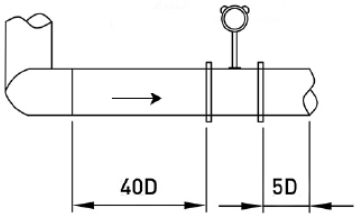
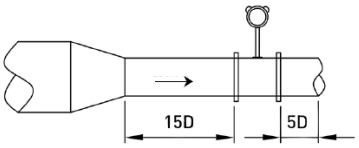
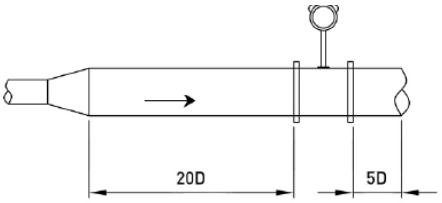
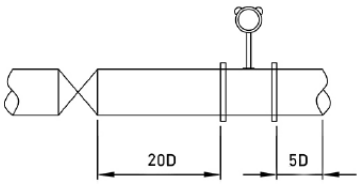
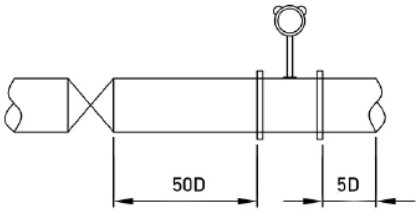
Optimizing lead time

The starred offerings (★) represent the most common options and should be selected for the fastest delivery. The non-starred offerings are subject to additional delivery lead time.

Required model components

Model	Suffix Codes	Description				
T400	.....	Turbine Flow Meter				
Connection Type	-S	Small diameter threaded Type (DN4 – DN10)				★
	-E	External thread Type (DN15 – DN50)				★
	-C	Tri-Clamp Type (DN15 – DN100)				★
	-F	Flange Type (DN15 – DN200)				★
Pipe Diameter	-xxxx	0004: DN4 0006: DN6, 1/8” 0010: DN10, 3/8” 0015: DN15, 1/2" 0020: DN20, 3/4"	0025: DN25, 1” 0032: DN32, 1 1/4” 0040: DN40, 1 1/2” 0050: DN50, 2” 0065: DN65, 2 1/2”	0080: DN80, 3” 0100: DN100, 4” 0125: DN125, 5” 0150: DN150, 6” 0200: DN200, 8”		★
Process Connection	-NA	NON-Flange Connection Type				★
	-Pxx	P10: PN10	P16: PN16	P25: PN25	P40: PN40	★
	-Axx	A15: ANSI 150#	A30: ANSI 300#	A60: ANSI 600#		★
	-Jxx	J10: JIS 10K	J20: JIS 20K	J40: JIS 40K		★
	-ON	On request				★
Tube Material	-S1	PE				★
	-S2	S.S. 304 Flange				★
	-S3	S.S. 316 Flange				★
Rotor Material	-H1	2Cr13				★
	-H2	Duplex stainless steel				★
	-H3	Tantalum				★
	-H4	Titanium				★
	-H5	CD 4 MCU				★
	-H6	Hastelloy C				★
	-H7	Monel				★
Range Type	-W	Extended range				★
	-S	Standard range				★
Pressure Rating	-N	Normal pressure (threaded default 6.3 MPa; flanged default 1.6 MPa)				★
	-Pxx	High pressure (custom order) P01 = 4 MPa, P02 = 6.3 MPa, P03 = 10 MPa, P04 = 16 MPa, P05 = 25 MPa, P06 = 32 MPa, P07 = 42 MPa				★
Signal output -	-P	Pulse				★
	-I	4–20 mA				★
	-M	RS485 (not selected for Tri-Clamp Type)				★
Accuracy	-A1	± 0.2 %				★
	-A2	± 0.5 %				★
	-A3	± 1.0 %				★
	-A4	± 1.5 %				★
Temperature Rating	-T1	Temp. (-20 ... +80 °C)				★
	-T2	Temp. (-20 ... +120 °C)				★
	-T3	Temp. (-20 ... +180 °C)				★
Protection Grade	-P1	IP 67				★
	-P2	IP 68				★
	-P3	IP 68 Explosion-proof (Exd IIC T6 Gb)				★
5-Point calibration	- CTF	5-Point calibration				
Material traceability certification	- CMF	Material traceability certification				

Installation

Sensor upstream pipeline type	Front and rear straight pipe length	Sensor upstream pipeline type	Front and rear straight pipe length
General pipeline		A 90° bend	
Two 90° bends on the same plane		Two 90° bends on different planes	
Concentric shrink tube		Concentric expansion	
Fully open valve		Half open valve	

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.
Subject to change without prior notice

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