

■ ■ ■ HELIFLU™ TCX

**For the Accurate Measurement of
Low to Medium Viscosity Liquids**

Optimize Your Performance



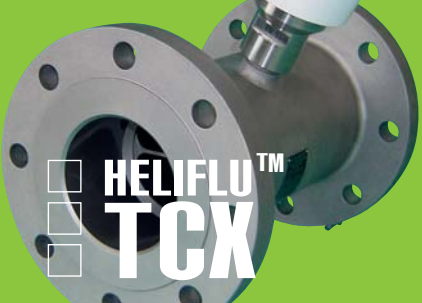
Main Applications

Crude Oil Production
Refinery & Petrochemical Plants
Tank Farm Management
Pipeline Fiscal Metering
Power Industry



FAURE HERMAN
Mastering the Flow

IDEX
LIQUID CONTROLS GROUP



The Most Efficient Technology for Liquid Flow Measurement

The FAURE HERMAN HELIFLU™ TCX turbine flowmeters – with helical blade technology – can accurately measure low to medium viscosity liquids.

- ### Key Technological Features
- High measurement accuracy and stability
 - Low pressure drop
 - Very low sensitivity to density and viscosity variation
 - Low sensitivity to dust, wax and fibers
 - Robust and simple design

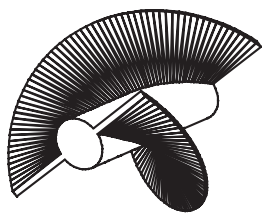


- ### Key Customer Advantages
- Secures revenues collection
 - Low energy consumption
 - Low maintenance costs
 - Total cost of investment
 - Compatibility with a wide range of electronics

The flow around a helical blade is uniform and continuous.
 The hydraulic load applied to the impeller is homogeneous.
 The flow profile is rebuilt correctly due to the appropriate rotor length.

$$\frac{\omega}{V} = \frac{2 \pi}{\text{pitch}}$$

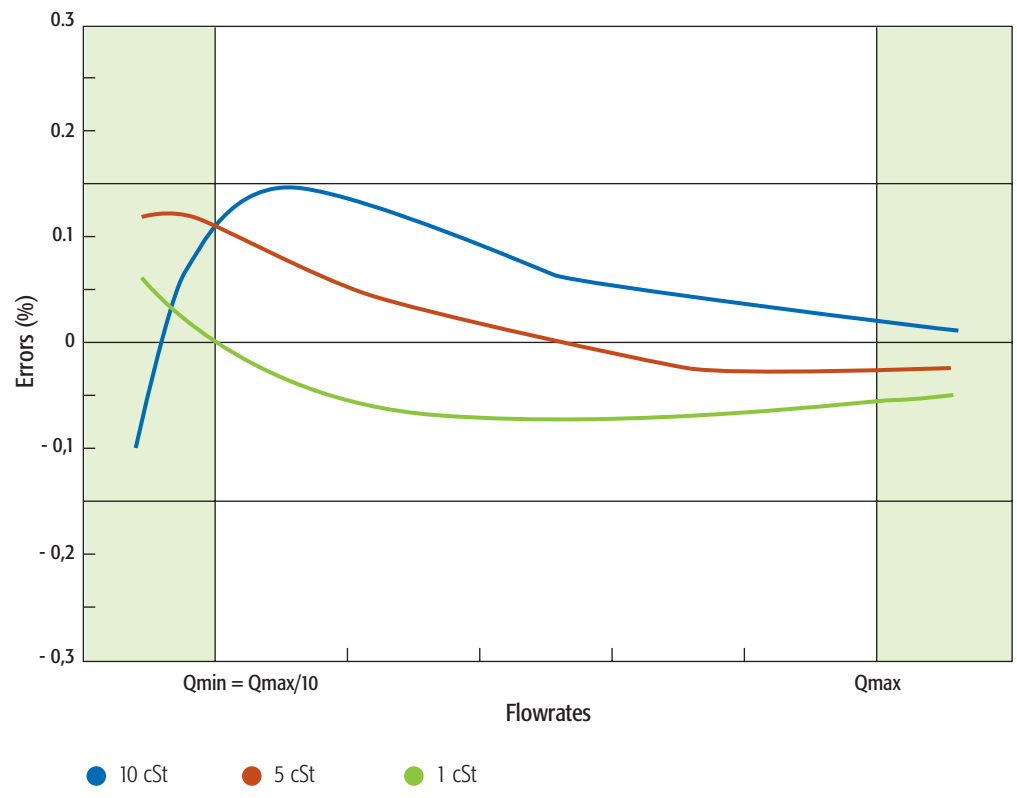
ω = Rotational rotor velocity
 V = Fluid velocity



FAURE HERMAN

Excellent Measurement Accuracy

▶ Typical TCX 50-70-0.15 (2") Calibration Curves



A Meter Suitable for a Wide Range of Applications



The HELIFLU™ TCX product line covers a wide range of applications and is suitable for process and fiscal metering applications (with an accuracy range from +/- 0.15% to +/-0.50% and a viscosity range from 0.2 to 75 cSt).

Meter Selection

The TCX range codification is determined on 2 fields to be filled in, size (x-y) and accuracy (ozz), such as:
TCX x-y - ozz

Flowmeter Diameter / Maximum Flowrate:

European Designation	Diameter (mm)/ Max. flowrate (m ³ /h)	USA Designation	Diameter (in.) Max. flowrate (GPM)
TCX 25-10-0zz	25/10	TCX 1-44-0zz	1"/44
TCX 32-20-0zz	32/20	TCX 1,25-88-0zz	1 1/4"/88
TCX 40-40-0zz	40/40	TCX 1,5-175-0zz	1 1/2"/175
TCX 50-70-0zz	50/70	TCX 2-310-0zz	2"/310
TCX 80-110-0zz	80/110	TCX 3-480-0zz	3"/480
TCX 80-150-0zz	80/150	TCX 3-660-0zz	3"/660
TCX 100-200-0zz	100/200	TCX 4-880-0zz	4"/880
TCX 100-300-0zz	100/300	TCX 4-1320-0zz	4"/1320
TCX 150-400-0zz	150/400	TCX 6-1770-0zz	6"/1770
TCX 150-600-0zz	150/600	TCX 6-2640-0zz	6"/2640
TCX 200-800-0zz	200/800	TCX 8-3520-0zz	8"/3520
TCX 200-1000-0zz	200/1000	TCX 8-4400-0zz	8"/4400
TCX 250-1200-0zz	250/1200	TCX 10-5290-0zz	10"/5290
TCX 250-2000-0zz	250/2000	TCX 10-8800-0zz	10"/8800
TCX 300-2400-0zz	300/2400	TCX 12-10560-0zz	12"/10560
TCX 300-3000-0zz	300/3000	TCX 12-13200-0zz	12"/13200

Accuracy Classes (%):

	TCX x-y-015	TCX x-y-025	TCX x-y-050
Accuracy	+/-0.15%	+/-0.25%	+/-0.50%
Max. turndown ratio	10:1	10:1	10:1

* The actual turndown ratio depends on the meter size and viscosity, refer to FAURE HERMAN representatives to get additional information.

Meter size (in.)	1"	1 1/4"	1 1/2"	2"	3"	4"	6"	8"	10"	12"
Max. fluid viscosity (cSt)	10	10	10	10	20	30	45	55	65	75

* The turndown ratio is given for one specific viscosity.

Nominal size in	Flowrange (m ³ /h)		Flowrange (Bbl/h)		Flowrange (GPM)		Meter length		Meter weight 150# ANSI		Straightener length (mm)	Straightener length (in.)
	Q min	Q max	Q min	Q max	Q min	Q max	mm	in.	kg	lbs	5D / 7D / API	5D / 7D / API
1"	1	10	6.3	63	4.4	44	140	5.5	6	13	160 / 175/-	6.3/6.9/-
1 1/4"	2	20	12.6	126	8.8	88	152	6	7	16	187/224/-	7.4/8.8/-
1 1/2"	4	40	25.2	252	17.5	175	152	6	8	18	221/267/-	8.7/10.5/-
2"	7	70	44	440	31	310	165	6.5	10	22	267/350/-	10.5/13.8/-
3"	11	110	69	690	48	480	235	9.25	20	44	362/560/-	14.3/22.1/-
3"	15	150	95	950	66	660	235	10	20	44	362/560/-	14.3/22.1/-
4"	20	200	126	1260	88	880	305	12	31	68	400/700/1016	15.8/27.6/40
4"	30	300	189	1890	132	1320	305	12	31	68	400/700/1016	15.8/27.6/40
6"	40	400	252	2520	177	1770	356	14	61	134	600/1110/1524	23.6/43.3/60
6"	60	600	377	3770	264	2640	356	14	61	134	600/1110/1524	23.6/43.3/60
8"	80	800	503	5030	352	3520	406	16	70	155	750/1400/2032	29.5/55.1/80
8"	100	1000	629	6290	440	4400	406	16	70	155	750/1400/2032	29.5/55.1/80
10"	120	1200	755	7550	529	5290	508	20	120	265	1000/1800/2540	39.4/70.9/100
10"	200	2000	1258	12580	880	8800	508	20	120	265	1000/1800/2540	39.4/70.9/100
12"	240	2400	1510	15100	1056	10560	610	24	175	385	1200/2100/3048	47.2/82.7/120
12"	300	3000	1887	18870	1320	13200	610	24	175	385	1200/2100/3048	47.2/82.7/120

Installation Conditions

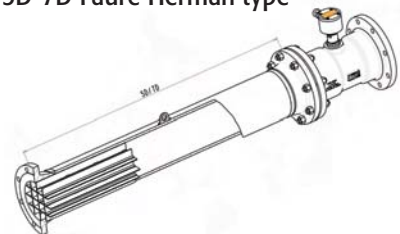
The TCX can be installed horizontally or vertically (with ascending flow).

The upstream section should have a minimum of 10 pipe diameters or straight pipe and equipped with a flow conditioner. A minimum of 5 pipe diameters downstream the meter is recommended.

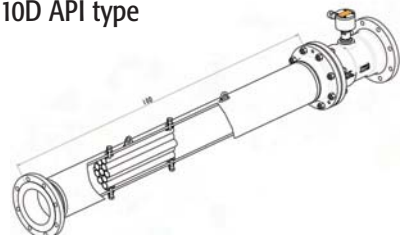
To protect the meter and ensure the long-term reliability of measurement, a strainer should be installed upstream of the flow conditioning section.

In case of possible gas injection, it is highly recommended to add an air eliminator or a purge device downstream of the strainer.

5D-7D Faure Herman type



10D API type



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Specifications



Environment		
Maximum temperature ranges	Ambient	Fluid
Turbine + Pick-up	-20°C to +60°C (-4°F to + 140°F)	-50°C to +180°C/+350°C (-58°F to + 356°F/662°F)
Turbine + Pick-up + Totalizer	-20°C to +60°C (-4°F to + 140°F)	-50°C to +180°C (-58°F to +356°F)
Turbine + Pick-up + Preamp.	-50°C to +70°C (-58°F to + 158°F)	-50°C to +180°C/+300°C (-58°F to + 356°F/572°F)
EMC	EN 61000	
Safety		
Ex ia version (with coil &/or preamp)	Compatible with installation in Zones 1 & 2 Group II G	
Ex d version (with coil &/or preamp)	Compatible with installation in Zones 1 & 2 Group II G	
Mechanical		
Meter size	DN25 to DN300 (1" to 12")	
Meter lengths	Refer to table	
Pressure range	Standard ANSI 150, 300, 600, 900	
Meter body materials and flange material	DN25 - DN50 : Stainless steel 316 DN80 - DN300 : Carbon steel or stainless steel 316 Other materials upon request	
Rotor material	Aluminium or titanium	
Performances		
Max. flow rate	1 - 10 to 300 - 3 000 m ³ /h from DN 25 to DN 300 (6.3 - 63 to 1887 - 18870 Bbl/h from 1" to 12")	
Accuracy	± 0.15 % to ± 0.50 %	
Repeatability	± 0.02 %	
Viscosity range	From 0.2 to 75 cSt (refer to table)	
Detection Devices		
Pick-up coil	1 or 2	
Pick-up coil + preamplifier	Available	
Pick-up coil with remote preamplifier	Available	
Pick-up coil + Preamp. + Pulse multiplier	Available	
Local Converter	Available	
Approvals		
ATEX	94/09/EC compliant	
PED	97/23/EC compliant	
EMC	2004/108/EC compliant	



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