

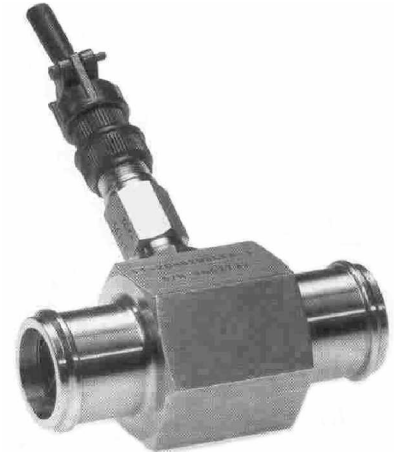
Turbine flow meters for gas and liquid service

Liquid service

Liquid service performance specifications are based on a viscosity of 1.2 mm²/s using ball bearings.

High turndown capability 1: 100
 Repeatability 1: 100
 Withstands pressures up to 400 bar;
 operation to 4000 bar optional
 temperature limits: -260 .. + 600°C

Repeatability	± 0,05% of reading
Linearity	± 0,5% of reading over the normal 10:1 flow range ± 0,25% premium linearity offered on request
Pressure drop	≤ 700 mbar at maximum 10:1 flow rate at 1 mm ² /s
Dynamic response	≤ 10 ms to a Stepp input change of flow rate
Calibration Accuracy	± 0,05% of reading



Accuracy of primary flow calibration standard directly traceable to NIST.

NT- Sizing Liquid Service

Turbine Typ	End-fitting (Zoll)	Meter I.D. (mm)	Normal flow range lit/min		Extended flow range			Frequency Output at Max. flow	K-Faktor Pulse/lit nominal
			Min	Max	TF Pick off	Lit/min			
NT4-8	1/2"	7,6	1	10	yes	0,11	11	2000	12700
NT6-8	1/2"	9,4	2	20	yes	0,2	20	2100	6600
NT8-8	1/2"	10,2	3	30	yes	0,3	30	2000	4200
NT-08	1/2"	11,2	4	40	yes	0,4	40	2000	3200
NT-10	5/8"	12,8	4,7	47	yes	0,57	57	2000	2500
NT-12	3/4"	14,3	7,5	75	yes	0,95	95	1800	1600
NT-16	1"	21,9	19	190	yes	2,3	230	2000	635
NT-20	1 1/4"	25,4	34	340	yes	3,8	380	1950	350
NT-24	1 1/2"	33,4	57	570	yes	6	600	1500	160
NT-32	2"	44,5	83	830	no	9,5	950	1300	92
NT-40	2 1/2"	56,4	150	1500	no	17	1700	1200	48
NT-48	3"	73,0	250	2500	no	28	2800	810	20
NT-64	4"	98,4	470	4700	no	57	5700	625	8
NT-96	6"	152	1100	11000	no	130	13000	1400	7
NT128	8"	203	2100	21000	no	230	23000	1300	4
NT160	10"	254	3200	32000	no	380	38000	1200	2
NT192	12"	305	4500	45000	no	570	57000	1000	1
NT384	24"	610	15000	150000	no	1900	190000	1700	1



AN-external straight threads



NPT-external threads



Hose Barb

Gas service

Gas service performance specifications are based on air at standard conditions 1 bar absolute and 20°C with ball bearings.

repeatability	± 0,1 % of reading
Linearity	± 1 % of full scale over the normal 10:1 flow range ± 0,1 % of reading with linearizing electronics LSV/TLSV500
Pressure drop	≤ 40 mbar at normal 10:1 maximum flow rate
Dynamic response	3 to 5 seconds
Pressure Tap	optional on all gas meters 7/16"-20 UNF
Calibration Accuracy	± 0,3 % of reading

Accuracy of primary flow calibration standard directly traceable to NIST.

NT sizing gas service

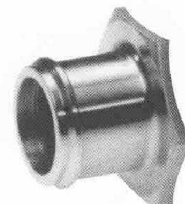
Turbine Typ	End-fitting (Zoll)	Meter I.D. (mm)	Normal flow range m³/h		Extended flow range m³/h			Frequency Output at Max. flow	K-Faktor Pulse/lit nominal
			Min	Max	TF Pick off	Min	Max		
NT2-8	1/2"	7,6	0,17	1,7	yes	0,15	2,1	1550	3300 k
NT4-8	1/2"	7,6	0,42	4,2	yes	0,34	5,1	2000	1600 k
NT6-8	1/2"	9,4	0,85	8,5	yes	0,42	8,5	2000	850 k
NT8-8	1/2"	10,2	1,3	13	yes	0,68	14	2000	560 k
NT-08	1/2"	11,2	1,7	17	yes	0,85	17	2000	420 k
NT-10	5/8"	12,8	2,1	21	yes	1,0	25	2000	340 k
NT-12	3/4"	14,3	3,4	34	yes	1,7	42	2000	210 k
NT-16	1"	21,9	8,5	85	yes	2,5	100	2000	85000
NT-20	1 1/4"	25,4	15	150	yes	4,2	170	1950	46000
NT-24	1 1/2"	33,4	25	250	yes	6,8	270	1500	21000
NT-32	2"	44,5	37	370	yes	8,5	425	1300	12000
NT-40	2 1/2"	56,4	68	680	yes	15	760	1200	6400
NT-48	3"	73,0	110	1100	no	25	1300	8100	2600
NT-64	4"	98,4	210	2100	no	50	2550	625	1100
NT-96	6"	152	510	5100	no	120	6000	470	330
NT128	8"	203	930	9300	no	205	10000	325	120
NT160	10"	254	1450	14500	no	340	17000	240	60
NT192	12"	305	2000	20000	no	510	25500	170	30



AN-external straight threads



NPT-external threads



Hose Barb

Specifications applicable to both liquid and gas flow meters.

Operation

A volumetric device that measures the flow of both liquid and gases, the turbine flow meters design is based on a freely suspended turbine rotor which is rotated by the flow of fluid through the meter body. An external pickoff senses the passing of each rotor blade, generating a frequency output. The frequency is directly proportional to the velocity of the fluid, and since the flow passage is fixed, the turbine's rotational speed is a true representation of the volumetric rate of fluid flowing through the flow meter.

Standard Material of construction

Housing	1.4401
Rotor	1.4104
Ball Bearing	1.4125

Other materials of construction optional (see model number chart)

Filtration Recommendations

Ball Bearings	0,01 mm to NT -32
	0,10 mm from NT -40
Journal Bearings	0,10 mm from NT 4-8

Temperature limits for Bearing Type

Ball Bearings	-270...+150 °C
Ceramic journal Bearings	-75...+425 °C
Tungsten carbide journal bearings	-75...+650 °C
Graphite journal bearings	-75...+290 °C

Note: Journal bearings are for liquid service only.

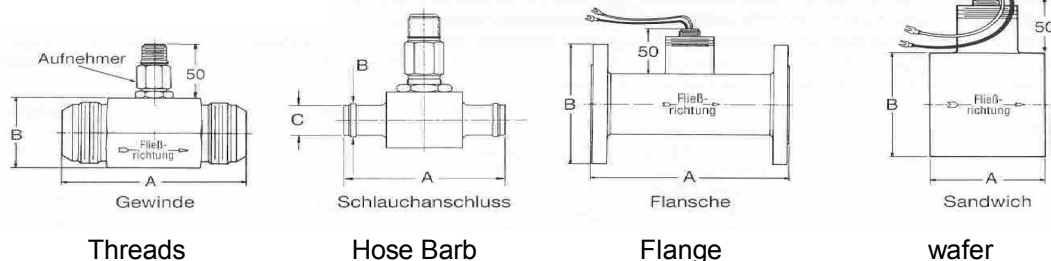
Temperature limits for Pickoff Type

Magnetic	-260...+230 °C
High temp. Magnetic	-30...+400 °C
Modulated Carrier	-185...+200 °C
High Temp. Carrier	-30...+400 °C
High Temp. (RF)	0...+400 °C

Operating Pressure Range

Defined by end connection	ration up to 400 bar standard.
Threads to NT-12	500 bar
Hose Barb	35 bar
Flansches up to	PN 400
Special high pressure are available up to 4000 bar.	

Dimension:



Turbine Type	Threads		Hose Barb			DIN-Flansch						Sandwich		
	A	B	A	B	C	DN	PN 16		PN40		PN100		A	B
NT_8	62	25	62	14,8	12,7	15	127	95	127	95	127	105	48	35
NT-10	69	35	69	17,8	15,9	20	140	105	140	105	140	105	49	43
NT-12	83	35	83	21,0	19,1	20	140	105	140	105	140	140	49	43
NT-16	90	41	90	28,5	25,4	25	140	115	140	115	140	140	64	51
NT-20	103	48	103	34,8	31,8	32	152	140	152	140	152	155	64	64
NT-24	117	57	117	41,8	38,1	40	152	150	152	150	152	170	64	73
NT-32	154	70	154	55,0	50,8	50	165	165	165	165	165	195	76	92
NT-40			164	67,6	63,5	65	178	185	178	185	178	220	102	105
NT-48			244	80,4	76,2	80	254	200	254	200	254	230	108	127
NT-64						100	305	220	305	235	305	265	127	157
NT-96						150	356	285	356	300	356	355	155	216