

## GENERAL

**ALIATURBINE** The ATF3500 series is a liquid turbine flowmeter, as fluid flows through turbine rotor and drives it to rotate, the rotating rotor periodically cuts magnetic field line to generate electric pulse signal, which can be transmitted to output and transferred to the meter to display flow rate or totalizer. It features in high accuracy, good repeatability, simple structure, low pressure loss, convenient maintenance, etc. It is ideal to measure the volume of low-viscosity liquids in closed pipes, such as tap and demineralised water, fuels, liquefied gases, light fuel oil, solvents, pharmaceutical fluids, food, etc.

## FEATURES

- Designed for a wide range of liquid applications
- High measuring accuracy, regardless of the mounting position
- 4-20 mA with HART signal and pulse outputs, user selectable
- Abrasion-resistant tungsten carbide rotor shaft and bearings
- Superior materials of construction for high performance in aggressive environments
- Easily cleaned and designed to flushed particulates through the turbine with the medium
- For variable use thanks to different pick-up sensors as well as a variety of connections and sizes

## STANDARD SPECIFICATION

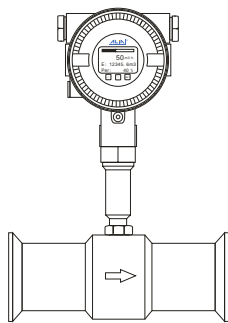
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| <ul style="list-style-type: none"> <li>● Size : 6, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 125, 150, 200 mm</li> <li>● Measuring Medium : Liquid</li> <li>● Max. Viscosity : 1-60 cSt</li> <li>● Measuring Range : 0.07-800 m<sup>3</sup>/hr</li> <li>● Accuracy : +/-1.0% of reading (Standard)<br/>: +/-0.5% of reading (Optional)</li> <li>● Repeatability : +/-0.2% of reading</li> <li>● Pressure Drop : Max. 290 mbar at 100% Measuring range<br/>(Density 1 g/cm<sup>3</sup>, Viscosity 1 cp)</li> <li>● Unit : m<sup>3</sup>/d, m<sup>3</sup>/hr, m<sup>3</sup>/m, m<sup>3</sup>/s, l/hr, l/m, l/s, t/d, t/hr<br/>t/m, kg/d, kg/hr, kg/m, kg/s, g/hr, g/m, g/s<br/>USG/m, UKG/m, bbl/d, lb/hr...</li> <li>● Material <ul style="list-style-type: none"> <li>Body : S.S. 304 / S.S. 316</li> <li>Bearing : Tungsten nickel alloy</li> <li>Rotor : S.S. 420 / S.S. 2205</li> <li>Housing : Aluminum Alloy <ul style="list-style-type: none"> <li>: PA66 (Angular Connector)</li> </ul> </li> </ul> </li> <li>● Process Connection : Flange (DN6 - DN200)<br/>: Thread (DN6 - DN50)<br/>: Tri-Clamp (DN15 - DN80)</li> <li>● Max. Pressure : Flange: 63 kgf/cm<sup>2</sup><br/>: Thread: 63 kgf/cm<sup>2</sup><br/>: Tri-Clamp: 10 kgf/cm<sup>2</sup></li> </ul> | <ul style="list-style-type: none"> <li>● Local Display : 2 or 3 lines LCD<br/>: 6 Digit flowrate<br/>: 8 Digit totalizer</li> <li>● Operation Temperature : -20~120 °C (Without Display: -20~70°C)</li> <li>● Ambient Temperature : -20~60 °C</li> <li>● Current Output : 4-20 mA (2-Wire)<br/>Load : Rohm=(VDC-18) * 50</li> <li>● Pulse Output : Scaled Pulse / Unscaled Pulse<br/>Load : 1000-5000 Ω</li> <li>● Communication : HART (Compatible)<br/>: RS485 (MODBUS Protocol)</li> <li>● Data Storage : Operation parameter and totalizer figures are stored by EEPROM (&gt;10 years)</li> <li>● Cable Entry : Standard: M20 Option: 1/2" NPTF<br/>: Angular Connector DIN EN 175301-803 A</li> <li>● Angular Connector <ul style="list-style-type: none"> <li>Ingress Protection : IP65</li> <li>Wire Cross-section : Max. 1.5 mm<sup>2</sup></li> <li>Cable Diameter : 6-8 mm</li> </ul> </li> <li>● Power Supply : 18-32 VDC / 18-26 VDC (without display)<br/>: Ni-MH Battery (3 years working hours)</li> <li>● Protection Class : IP65 (Angular Connector)<br/>: IP67 (Aluminum Alloy Housing)<br/>: Explosion Proof, Ex d IIC T6</li> </ul> |
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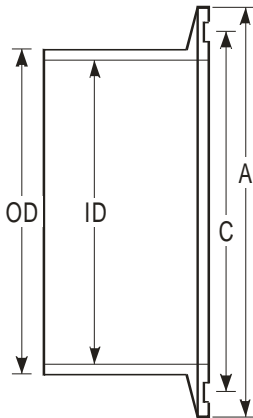
**FLOW RANGE**

Size		Standard Flow Range	Wide Flow Range	Size		Standard Flow Range	Wide Flow Range
mm	Inch			mm	Inch		
DN6	1/4"	0.1-0.6 m <sup>3</sup> /hr	0.07-0.6 m <sup>3</sup> /hr	DN50	2"	4-40 m <sup>3</sup> /hr	2.6-40 m <sup>3</sup> /hr
DN10	3/8"	0.2-1.2 m <sup>3</sup> /hr	0.13-1.2 m <sup>3</sup> /hr	DN65	2-1/2"	7-70 m <sup>3</sup> /hr	4.6-70 m <sup>3</sup> /hr
DN15	1/2"	0.6-6 m <sup>3</sup> /hr	0.4-6 m <sup>3</sup> /hr	DN80	3"	10-100 m <sup>3</sup> /hr	6.5-100 m <sup>3</sup> /hr
DN20	3/4"	0.7-7 m <sup>3</sup> /hr	0.5-7 m <sup>3</sup> /hr	DN100	4"	20-200 m <sup>3</sup> /hr	13-200 m <sup>3</sup> /hr
DN25	1"	1-10 m <sup>3</sup> /hr	0.7-10 m <sup>3</sup> /hr	DN125	5"	25-250 m <sup>3</sup> /hr	17-250 m <sup>3</sup> /hr
DN32	1-1/4"	1.5-15 m <sup>3</sup> /hr	1-15 m <sup>3</sup> /hr	DN150	6"	30-300 m <sup>3</sup> /hr	20-300 m <sup>3</sup> /hr
DN40	1-1/2"	2-20 m <sup>3</sup> /hr	1.3-20 m <sup>3</sup> /hr	DN200	8"	80-800 m <sup>3</sup> /hr	52-800 m <sup>3</sup> /hr

**TRI-CLAMP SPECIFICATIONS**



DN15-DN80



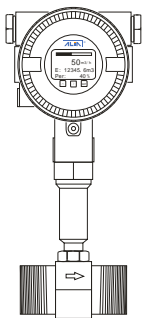
Unit: mm

HAB									
Pipe Size	ID	OD	A	C	1"	1-1/2"	2"	2-1/2"	3"
					25	40	50	65	80
	22.1	34.8	50.4	43.6		34.8	47.5	60.2	72.9
	25.4	38.1	50.4	43.6		38.1	50.8	63.5	76.2
	50.4	50.4	50.4	43.6		50.4	64.0	77.4	91.0
	43.6	43.6	43.6	43.6		43.6	56.3	70.6	83.3

HDB (DIN 32676)								
Pipe Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
	15	20	25	32	40	50	65	80
ID	16.0	20.0	26.0	32.0	38.0	50.0	66.0	81.0
OD	20.0	24.0	30.0	36.0	42.0	54.0	70.0	85.0
A	34.0	34.0	50.5	50.5	50.5	64.0	91.0	106
C	27.5	27.5	43.5	43.5	43.5	56.5	83.5	97.0

HKB (ISO 2852)								
Pipe Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
	15	20	25	32	40	50	65	80
ID	17.2	21.3	22.6	31.3	35.6	48.6	60.3	72.9
OD	21.2	25.3	25.6	34.3	38.6	51.6	64.1	76.7
A	34.0	34.0	50.5	50.5	50.5	64.0	77.5	91.0
C	27.5	27.5	43.5	43.5	43.5	56.5	70.5	83.5

**THREAD SPECIFICATIONS**



DN6-DN50

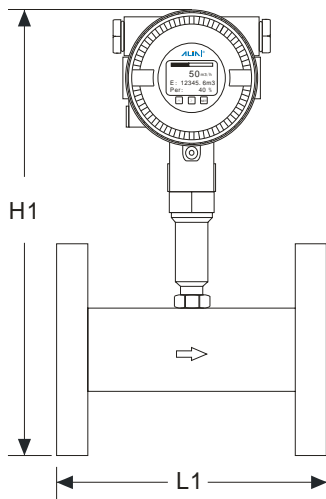
Size	Connection
DN6	1/4" 1/2" BSPP
DN10	3/8" 1/2" BSPP
DN15	1/2" 3/4" BSPP
DN20	3/4" 1" BSPP
DN25	1" 1-1/4" BSPP
DN32	1-1/4" 1-1/2" BSPP
DN40	1-1/2" 2" BSPP
DN50	2" 2-1/2" BSPP

**➤ DIMENSIONS**

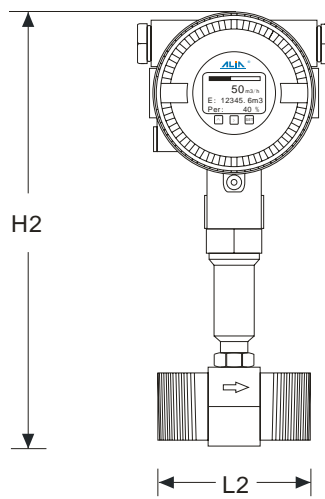
Unit: mm

Size		H1	H2	H3	H4	H5	L1	L2	L2-1	L3
6	1/4"	257	232		215	190	230		228 <sup>(1)</sup>	
10	3/8"	259	232		215	190	350		350 <sup>(1)</sup>	
15	1/2"	262	232	244	215	200	75	75		75
20	3/4"	268	233	247	225	200	85	85		85
25	1"	276	243	249	230	210	100	100		100
32	1-1/4"	284	250	253	245	215	140	140		140
40	1-1/2"	293	257	263	255	225	140	140		140
50	2"	310	273	275	270	240	150	150		150
65	2-1/2"	331		289	285		180			180
80	3"	344		304	300		200			200
100	4"	374			320		220		220	
125	5"	399			345		250		250	
150	6"	424			380		300		300	
200	8"	481			430		360		360	

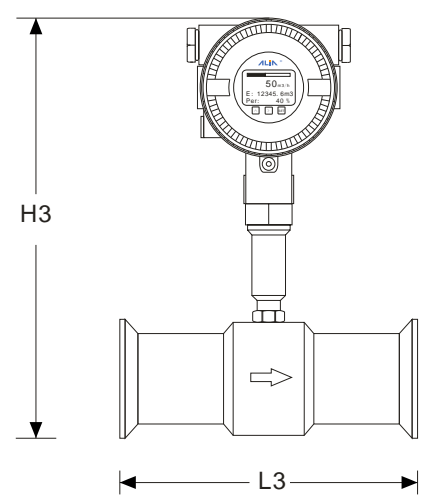
1) Note: L2-1 of DN6, DN10 include upstream and downstream straight tube.



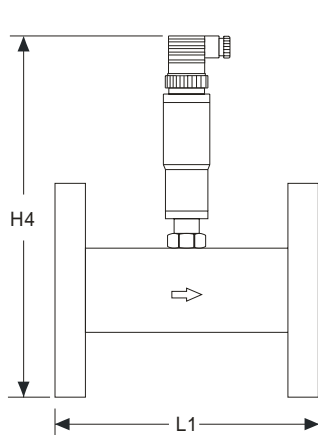
Flange Type



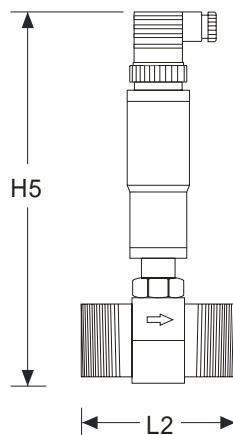
Thread Type



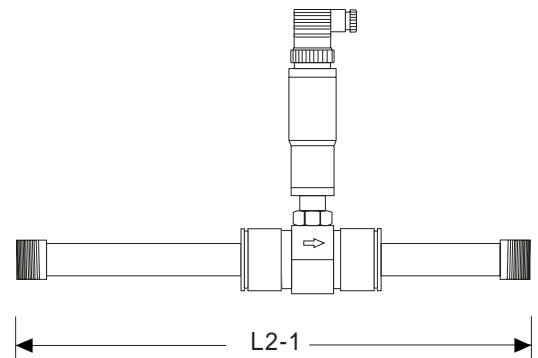
Tri-Clamp Type



Flange Type



Thread Type



DN6 / DN10 with straight tube

**MODEL SELECTION GUIDE**

ATF3500 Series												
Example: ATF3500-F050-4AD-EX-A/PT												
ATF3500-	X	XXX	-X	X	X	-XX	-X	Description				
Connection	F								Flange Type (DN6-DN200)			
	C								Tri-Clamp Type (DN15-DN80)			
	T								Thread Type (DN6-DN50)			
Size	006-200									006-200 mm (1/4"-8")		
Tube Material			-4								S.S. 304	
			-6								S.S. 316	
Process Connection			1								PN10	
			2								PN16	
			3								PN25	
			4								PN40	
			A								ANSI 150 #	
			B								ANSI 300 #	
			C								ANSI 600 #	
			J								JIS 10K	
			K								JIS 20K	
			L								JIS 40K	
			O								Tri-Clamps, HKB (ISO2852)	
			P								Tri-Clamps, HDB (DIN 32676)	
			Q								Tri-Clamps, HAB	
		T								Thread Type (See Page 2: Thread Specifications)		
Function			A								Unscaled Pulse Output (3-Wire) (Angular Connector)	
			B								4-20 mA Output (2-Wire) (Angular Connector)	
			C								Display + 4-20 mA / Scaled Pulse Output	
			D								Display + Scaled Pulse + RS485 Communication	
			E								Display + 4-20 mA / Scaled Pulse + HART Communication	
			F								Battery Power (Only Display)	
Protection Class			-NN								IP65 (Only Function: A, B) or IP67 (Only Function: C, D, E, F)	
			EX								Explosion Proof, Ex d IIC T6 (Only Function: C, D, E, F)	
Option			-N								None	
			-A								Accuracy +/-0.5% of reading	
			-D								Rotor Material: S.S. 2205	
			-WR								Wide Flow Range (See Page 2: Flow Range)	
			-PT								Cable Entry 1/2" NPTF (Only Function: C, D, E, F)	