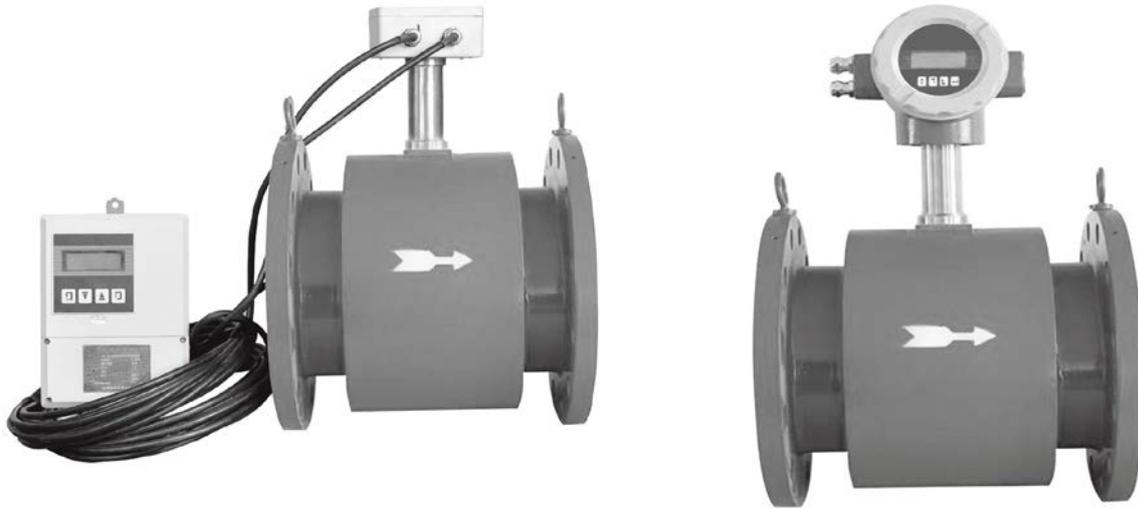




Electromagnetic Flow Meter



DESCRIPTION OF PRODUCT

A Electromagnetic flow meter is an induction instrument based upon Faraday's law of electromagnetic induction.

Electromagnetic flow meters are widely used in the chemical, environmental protection, metallurgy, pharmaceutical, paper & pulp and water industries.

Besides measuring flow of general conductive liquids electromagnetic flow meters can measure the flow of liquids with solids and high-viscosity fluids. The liquids can be salty, acid or alkali.

CLASSIFICATION OF PRODUCTS

HHD Series smart electromagnetic flow meters consist of a sensor and smart signal transducer.

It can be classified into two types

1. Integral type and
2. Remote type.

Integral electromagnetic flow meters have the transducer and sensor directly assembled as a whole. It is usually used where the environmental condition is good.

Remote type electromagnetic flow meters have the Sensor connected to the transmitter via a interconnecting cable. The sensor is installed in line with the pipe and the transducer is installed in a more suitable environment. Typical applications are in underground wells, high temperature and places where people cannot easily reach the sensor.

PERFORMANCES & FEATURES

1. Simple construction, no moving parts and long operational life.
2. No obstructions in the flow, no pressure loss or fluid clogging.
3. No mechanical inertia, quick response and good stability.
4. Measuring accuracy not influenced by physical parameters such as temperature, viscosity, density and pressure.



AGE Technologies

5. Employ Teflon or rubber linings and choice of electrode material such as Hastelloy C, Hastelloy B, 316L, Titanium for different mediums.
6. EEPROM memory for safe and reliable protection of memory.
7. Integral type flow meters and remote type flow meters.
8. LCD back light display

TECHNICAL DATA

Diameter	DN25~DN2600
Electrode Material	316L(stainless steel), HC, HB, Ti, Ta
Type of Fluid	Fluid Liquid with conductive ratio more than 5 $\mu\text{s}/\text{cm}$
Measuring Range	0.1~10m/s (extendable to 15m/s)
Upper Limit of Span	0.5~10m/s. 1~5m/s recommended
Output Signals	4~20mADC, load \leq 750ohm, 0~3kHz, 5V with source and changeable width. RS485 interface
Accuracy	0.3%, 0.5%, 1.0%
Operation Pressure	1.0MPa, 1.6MPa, 4.0MPa, 16MPa (special)
Fluid Temperature	-20C~80C, 80C~130C, 130C~180C
Ambient Temperature	Sensor -40C~80C. Transducer -15C~50C
Ambient Humidity	\leq 85%RH (at 20C)
Cable Outlet Size	M20 \times 1.5
Power Supply	220VAC \pm 10%, 50Hz \pm 1Hz, 24VDC \pm 10%
Power Consumption	\leq 8W
Protection Ratings	Integral type: IP65. Remote type: sensor IP68,transducer IP65
Materials of Liner	PTFE, soft rubber, hard rubber, PFA etc
Connection of Flange	National Standard GB9119-88(DIN2051,BS4504)
Earthing Materials	316L (stainless steel), HC, Ti, Ta, Cu



PRODUCT SELECTION

1. Model Selection

Sheet 2

Code	Nominal Diameter	Flow Range (m ³ /h)	Code	Nominal Diameter	Flow Range (m ³ /h)
HHD-15	DN15	0.32~6.36	HHD-450	DN450	286.31~5722.65
HHD-20	DN20	0.57~11.30	HHD-500	DN500	353.25~7065.00
HHD-25	DN25	0.88~17.66	HHD-600	DN600	508.68~10173.60
HHD-32	DN32	1.45~28.94	HHD-700	DN700	692.37~13847.40
HHD-40	DN40	2.26~45.22	HHD-800	DN800	904.32~18086.40
HHD-50	DN50	3.53~70.65	HHD-900	DN900	1144.53~22890.60
HHD-65	DN65	5.97~119.40	HHD-1000	DN1000	1413.00~28260.00
HHD-80	DN80	9.04~180.86	HHD-1200	DN1200	2034.72~40694.40
HHD-100	DN100	14.13~282.60	HHD-1400	DN1400	2769.48~55389.60
HHD-125	DN125	22.08~441.56	HHD-1600	DN1600	3617.28~72345.60
HHD-150	DN150	31.79~635.85	HHD-1800	DN1800	4578.12~91562.40
HHD-200	DN200	56.52~1130.40	HHD-2000	DN2000	5652.00~113040.00
HHD-250	DN250	88.31~1766.25	HHD-2200	DN2200	6838.92~136778.40
HHD-300	DN300	127.17~2543.40	HHD-2400	DN2400	8138.88~162777.60
HHD-350	DN350	173.09~3461.85	HHD-2600	DN2600	9551.88~191037.60
HHD-400	DN400	226.08~4521.60			

Code	Electrode Material
K1	SS 316L
K2	Hastelloy B
K3	Hastelloy C
K4	Titanium
K5	Tantalum
K6	Pt/Indium Alloy
K7	Stainless Steel Painting Tungsten Carbide

Code	Material of liner
C1	PTFE(F4)
C2	FEP(F46)
C3	Fs
C4	Neoprene
C5	Polyurethane Rubber
C6	Hard Rubber
C7	PFA

Code	Function
E1	Class 0,3
E2	Class 0,5
E3	Class 1,0
F1	4~20mADC,loads750Ω
F2	0~3kHz,5V active,changeable pulse,high-terminal and effective frequency output
F3	RS 485 interface (Modbus)
F4	HART
T1	Normal Temperature
T2	High Temperature
T3	Ultra Temperature
P1	1,0MPa
P2	1,6MPa
P3	4,0MPa
P4	16MPa
P0	Special pressure
D1	220VAC±10%;50Hz±1Hz
D2	24VDC±10%
D3	Battery Operated
J1	Integral Type
J2	Remote Type
J3	Explosion-proof Integral Structure
EN	English

HHD-50 K1 F2 E2F1T1P1D2J1



Material of Liner	Main Functions	Max Fluid Temperature		Application
		Integral	Remote	
Teflon(PTFE)	<p>1. Most steady plastic of chemical livingenergy; resist boiling hydrochloric acid, sulfuric acid, nitric acid, nitro- hydrochloric acid, thick alkali and all kinds of organic solvent; ireresist chlorine trifluoride, chlorine trifluoride of high temperature, liquid fluorine of high rate, liquid fluorine, corrosion of ozone</p> <p>2.Performance of resisting abrasion not as good as polyurethane rubber</p> <p>3.Capability of resisting sub atmosphericpressure not as good as polychlorobutadiene rubber</p>	120°C	150°C (require special order)	<p>1. Thick acid, alkali, etc. with strong corrosion</p> <p>2. Sanitary mediums</p>
F46			Same above	
Fs	Upper limit of suitable temperature lower than teflon, as well as cost		80°C	
Polychlorobutadiene rubber	<p>1.Excellent elasticity, high strength of pulling apart, good performance of resisting abrasion</p> <p>2.Resist corrosion of generally low- density acid, alkali and salt; not resist corrosion of oxidized matters</p>	70°C	80°C 120°C (require special order)	Water, sewage, mud and pulp with weak abrasion
Polyurethane rubber	<p>1.Strong performance of resisting abrasion</p> <p>2. Poor performance of resisting corrosion</p>		80°C	Neutral pulp, coal and mud with strong abrasion



3. Selection of Materials of Electrodes

Sheet 4

Materials of electrodes	Performance of resisting erosion and abrasion
Stainless steel 0Cr18Ni12Mo2Ti	Apply to industrial water, domestic water, polluted water, etc. with weak erosion, applied in petroleum chemical industry, steel and iron, etc. and fields in government and environmental protection
Hastelloy B	Good performance of resisting erosion to hydrochloric acid of all degrees of density below the boiling point; resisting sulfuric acid, phosphoric acid, hydrofluoric acid, organic acid, etc. non-chlorine acid, alkali, erosion of non-oxidized salty fluid
Hastelloy C	Resisting non-oxidized acid, such as nitric acid, nitration mixture, or the erosion of the mixture of chromic acid and sulfuric acid; resisting oxidized salt such as Fe ⁺⁺⁺ , Cu ⁺⁺ or the erosion of other oxidizers, such as the erosion of higher than normal temperature hypochlorite liquor and the sea water
Titanium	Resisting erosion of sea water, all kinds of chloride and hypochlorite, oxidized acids (including Fuming sulfuric acid), organic acid, alkali; not resisting the erosion of purer reducing acids (such as sulfuric acid, hydrochloric acid); if oxidizer exists in acids (such as nitric acid, Fe ⁺⁺⁺ , Cu ⁺⁺) the erosion will reduce greatly.
Tantalum	Good performance of resisting erosion, similar to glass; Besides hydrofluoric acid, fuming nitric acid, alkali, nearly can resist erosion of all chemical mediums (including boiling hydrochloric acid, nitric acid and below 150°C sulfuric acid). Not resisting erosion in alkali.
Pt/ Iridium Alloy	Can nearly resist all chemical matters, not fit for aqua regia and ammonium salt
Stainless Steel Painting Tungsten Carbide	Fit for mediums without erosion and strong attrition
<p>Remarks: Due to multiple types the erosion is subject to complex factors such as temperature, density, flow rate etc., this sheet is only for reference. Users should make decision according to practical conditions, if necessary make experiment of resisting erosion of to-be-chosen materials, such as the experiment of hanging pieces</p>	