

Azbil introduction

2015



azbil

Azbil Corporation

Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

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Chiyoda-ku, Tokyo 100-6419 Japan
www.azbil.com/

- Azbil introduction & company profile
- Product divisions
- Product overview
 - Magnetic flow meter (MTG)
 - Magnetic flow meter (MGG)
 - Thermal mass flow meters
 - Pressure transmitter (GTX and PTG)

AZBIL Group

Head Office: Tokyo, Japan

Established: 1906

Net Sales: €1870 Million (FY 2014)

Employees: 10000

A large, bold, red, lowercase sans-serif logo for "azbil".

Abbreviation of Automation Zone Builder

History

- 1906: Azbil is established in Japan
 - Trading company
- 1952: Signed an alliance with Honeywell
 - Move forward from trading to production company
- 2000: Global expansion
- 2001: Azbil Europe NV is established
- 2002: Azbil buys out Honeywell

The azbil group around the world



Japan

Azbil Corporation
Azbil Trading Co., Ltd.
Azbil Yamatake Friendly Co., Ltd.
Azbil Care & Support Co., Ltd.
Azbil SecurityFriday Co., Ltd.
Azbil Kimmon Co., Ltd.
Azbil Kyoto Co., Ltd.
Azbil TA Co., Ltd.
Azbil Taishin Co., Ltd.
Tem-Tech Lab.

Asia-Pacific

- 1 Azbil Korea Co., Ltd.
<http://kr.azbil.com/>
- 2 Azbil Taiwan Co., Ltd.
<http://tw.azbil.com/>
Azbil Kimmon Technology Corporation
- 3 Azbil Vietnam Co., Ltd.
<http://vn.azbil.com/>
- 4 Azbil India Pvt. Ltd.
<http://in.azbil.com/>
- 5 Azbil (Thailand) Co., Ltd.
<http://th.azbil.com/>
Azbil Production(Thailand) Co., Ltd.
- 6 Azbil Philippines Corporation
<http://ph.azbil.com/>
- 7 Azbil Malaysia Sdn. Bhd.
<http://my.azbil.com/>
- 8 Azbil Singapore Pte. Ltd.
<http://sg.azbil.com/>
- 9 PT. Azbil Berca Indonesia
- 10 Azbil Saudi Arabia Ltd.
- 11 Azbil Control Instruments (Dalian) Co., Ltd.
<http://acnp.cn.azbil.com/>
Azbil Information Technology Center (Dalian) Co., Ltd.
<http://acni.cn.azbil.com/>
- 12 Yamatake Environmental Control Technology (Beijing) Co., Ltd.
Beijing YTYH Intelli-Technology Co., Ltd.
Cecep Building Energy Management Co., Ltd.
- 13 Azbil Control Solutions (Shanghai) Co., Ltd.
<http://acn.cn.azbil.com/>
Shanghai Azbil Automation Co., Ltd.
<http://www.yamatake.sh.cn/>
Yamatake Automation Products (Shanghai) Co., Ltd.
<http://www.yas-yamatake.com/>
- 14 Azbil Hong Kong Limited

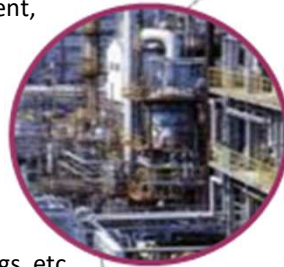
America, Europe, Middle East

- 15 Azbil North America, Inc.
<http://us.azbil.com/>
- 16 Azbil Vortek, LLC.
<http://www.vortekinst.com/>
- 17 Azbil BioVigilant, Inc.
<http://www.biovigilant.com/>
- 18 Azbil Brazil Limited
<http://br.azbil.com/>
- 19 Azbil Europe NV
<http://eu.azbil.com/>
- 20 Azbil Telstar, S.L.

Business divisions

Advanced Automation Business

Ship and Marine, Petrochemical / chemical, water supply and sewerage, oil refining, semiconductor manufacturing equipment, electric power and gas, Iron and steel, pulp and paper, shipping and marine, electrical / electronic components, machine tools, automobiles, pharmaceuticals, foods and beverages, packaging, furnace / oven / boiler manufacturing, and residential and commercial buildings, etc.



Building Automation Business

Offices, manufacturing facilities, research facilities, hospitals, government and institutional buildings, schools, hotels, department stores and shopping centers



Life Automation Business

Measurement / metering equipment such as gas and water meters and measurement and instrumentation systems
Individual residential homes
Elderly nursing care services (preventive care) market
Lifestyle support for the elderly
Lifestyle disease prevention for the middle-aged and elderly



Product divisions

- Sensors & Switches
 - Presence/absence of products, leak detection, level detection, ...



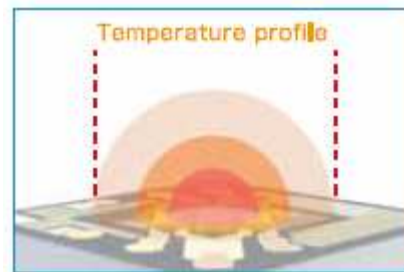
Product divisions

- Single loop controllers and flame safe guard products
 - Furnace control, burner monitoring, flame control in continuous operation, ...

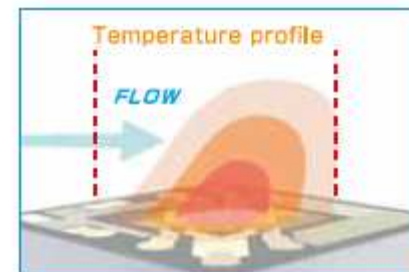


Product divisions

- Thermal mass flowmeters
 - Flow rate monitoring, chip pickup detection, gas mixing control, ...



No gas flow



When gas is flowing

Product divisions



- Industrial Automation products
 - Sugar plants, refineries, marine applications, ...



Product divisions

- Gas chromatograph & Calorific value measurement

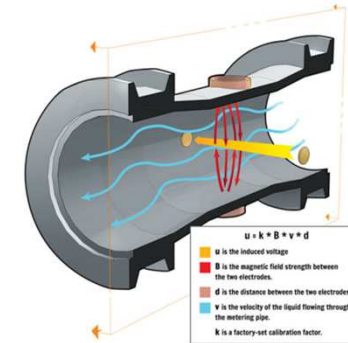


Magnetic flowmeters

Magnetic flowmeters

- History & facts

- More than 300,000 units installed over the past 30 years
- Highest market share in the world for 2-wire flowmeter



1973 MagneW
Model NNM/NNX



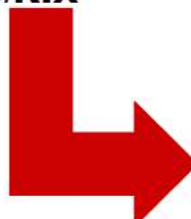
1985 MagneW™
Model KID/KIX



1995 MagneW™ Flex/PLUS
Model MGG10C/11D/F
Model MGG14C/18D/F



2007 MagneW™ PLUS+
Model MGG10C/11D/F
Model MGG14C/18D/F



1992 MagneW™ 2-wired
Model SMT



2002 MagneW™ 2-wired
Model MTG

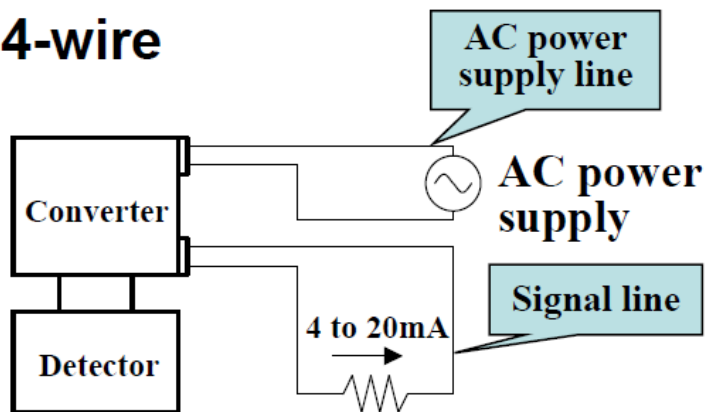


Magnetic flowmeter (MTG)

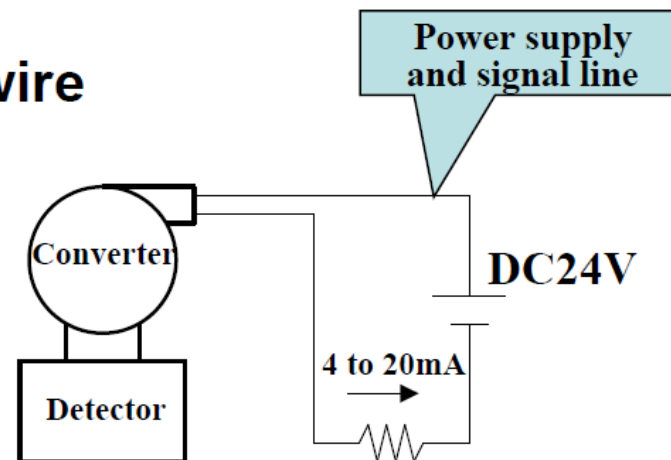
- **Two wire magnetic flowmeter**
- Output
 - 4 to 20 mA, pulse, contact, HART communication
- 0.5% accuracy of flow rate
- Until 200mm diameter
- Wafer and flange connection



4-wire

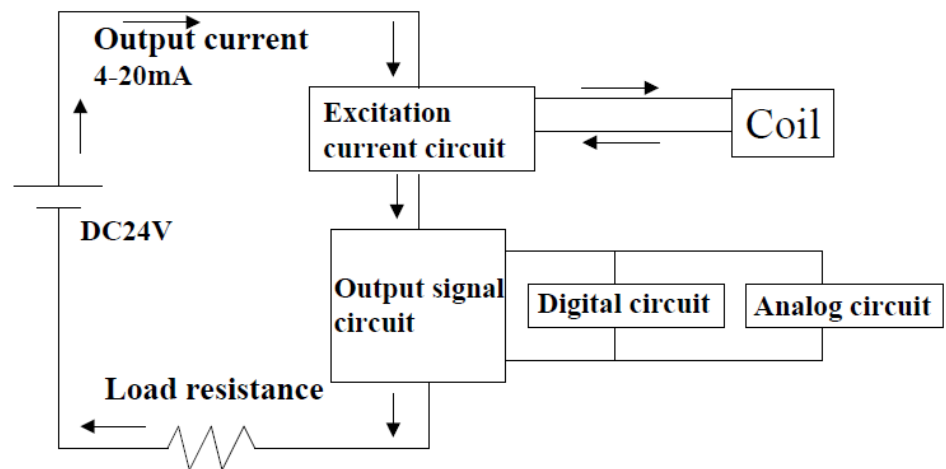
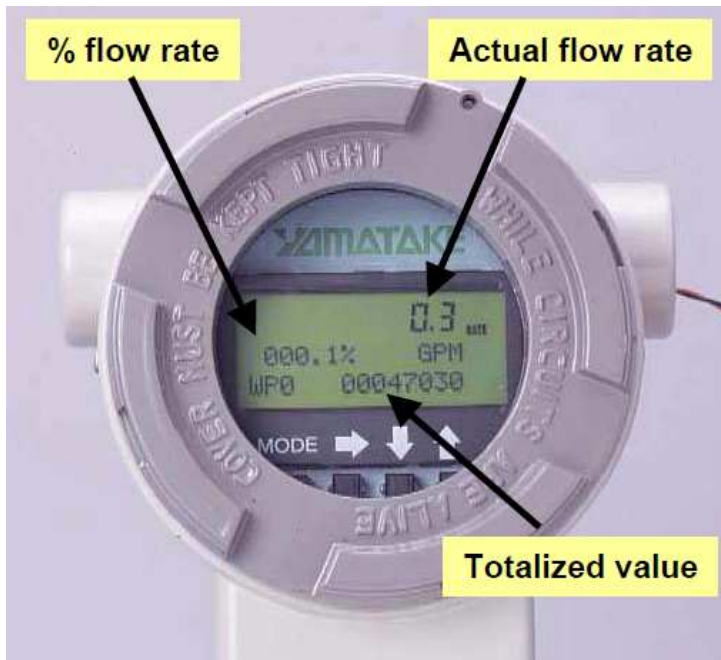


2-wire



Magnetic flowmeter (MTG)

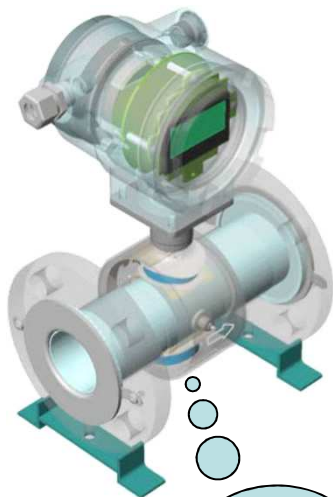
- Features
 - 2 wires
 - Durable, long-life detector
 - Easy operational converter
 - Reliable accuracy and stable output



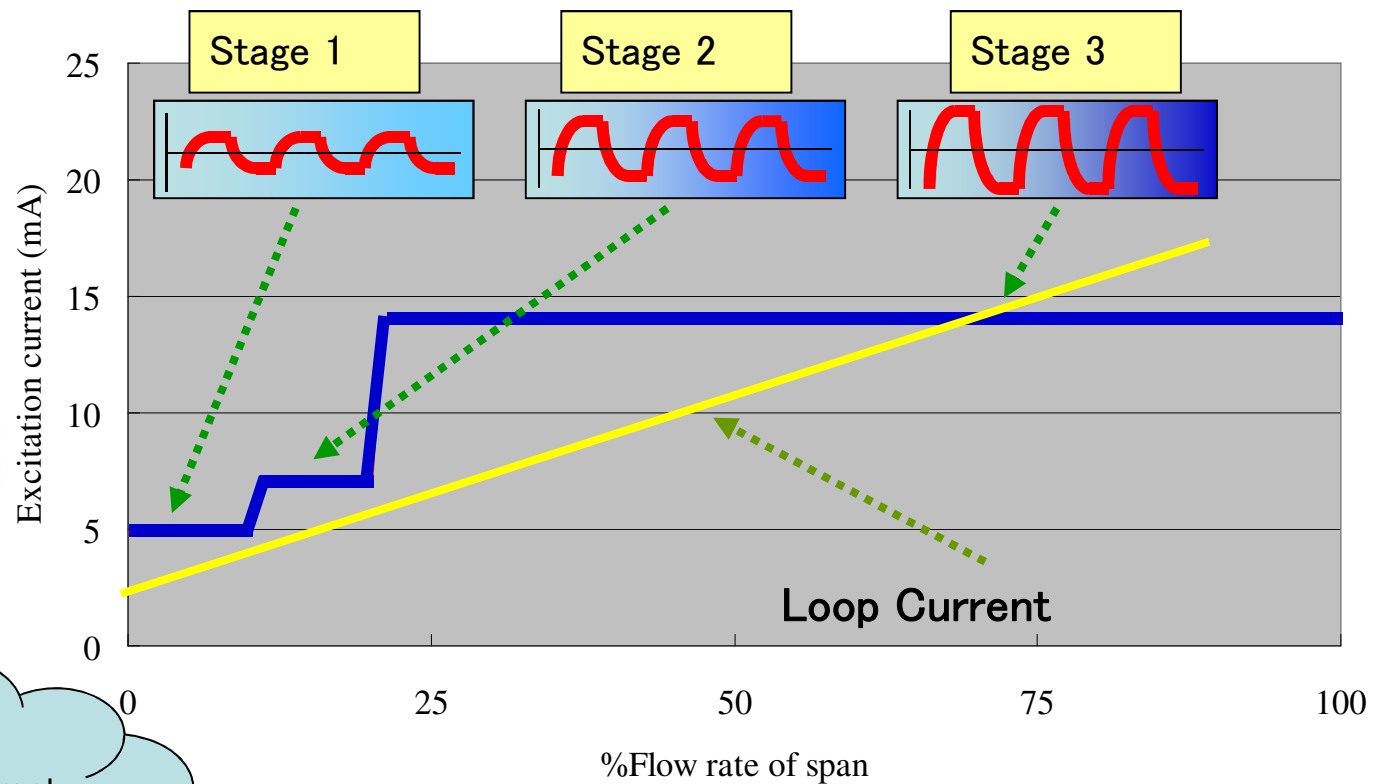
Magnetic flowmeter (MTG)

- Triple stage excitation
 - 3 stages in accordance with flow rate

Azbil PATENT

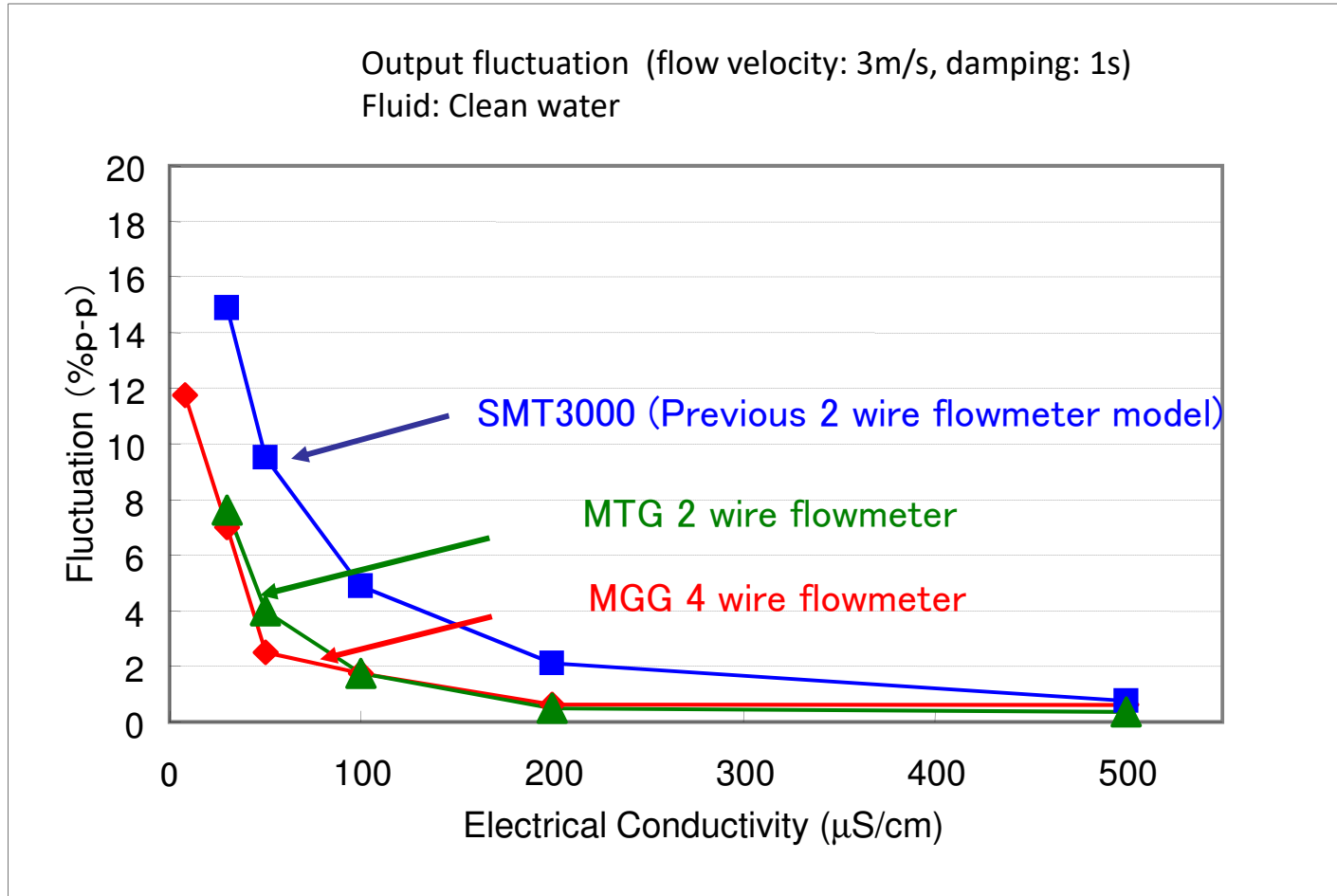


Monitors excitation current to the coils.



Magnetic flowmeter (MTG)

- Stable output



Magnetic flowmeter (MTG)

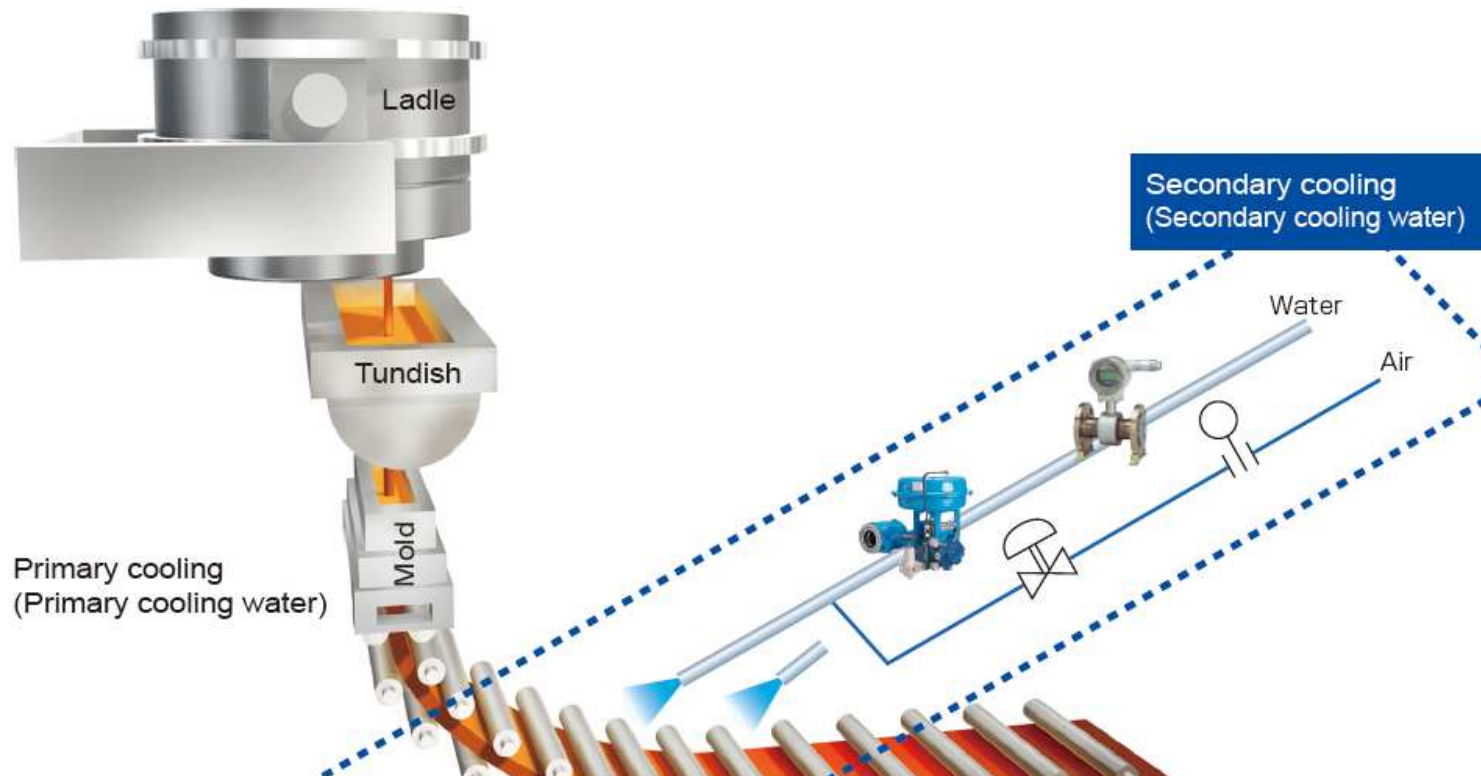
Specification

Type	Integral / Remote
Loop power	15.6 to 42V DC
Structure	IEC IP67, NEMA 4X
Output	4 to 20 mA DC, Pulse, Contact, DE
Communication	DE / HART®
Accuracy	± 0.5% of rate
Diameter	2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 150, 200 mm (0.1, 0.2, 3/8, 0.5, 1, 1.5, 2, 2.5, 3, 4, 6, 8 inches)
Approvals	FM/CSA Explosion-proof (Integral type only) FM/CSA nonincendive (Integral and remote type) ATEX Type N, NEPSI Type n
Pipe connections	Flange/Wafer ANSI 150/300 JIS 10/20/30K, DIN PN 10/16/25
Lining	PFA
Fluid temp.	-20 to +130°C (-4 to +266°F)
Fluid pressure	-0.098 to 2.94 MPa (-14.2 to 426 psi)
Ambient temp.	-20 to +60°C (-4 to +140°F)
Ambient humidity	10 to 90% RH



Magnetic flow meter (MTG)

Overview of continuous casting equipment



Issues

- There is a need to continue stable casting with a controlled flow rate of cooling water, even if there are large variations in flow rate due to different types of steel.
- There is a need to minimize costs by reducing energy consumption and expenses for instrumentation.

Proposed solution

- Control the flow rate of secondary cooling water by using an electromagnetic flowmeter with excellent stability and wide range ability.
- Minimize cost for wiring by the loop powered electromagnetic flowmeter MagneW Two-wire PLUS⁺.

Magnetic flowmeter (MGG)

- **Four wire magnetic flowmeter**
- **Output**
 - 4 to 20 mA, pulse, contact, HART communication
- 0.35% / 0.5% accuracy of flow rate
- Until 1100mm diameter
- Wafer and flange connection



Magnetic flowmeter (MGG)

- Converter

Type	Integral / Remote
Power supply	90 to 250 VAC 24V DC
Structure	IEC IP66 / NEMA 4X
Outputs	4 to 20 mA DC/DE/Pulse/Contact outputs
Inputs	Contact inputs (2 max.)
Display	Backlit LCD
Data setting	Infrared ray touch sensor
Accuracy	0.35% of rate / 0.5% of rate
Power consumption	10 W
Housing	Aluminum alloy
Ambient temperature	-25 to + 60°C (-13 to +140°F)
Ambient humidity	5 to 100% RH
Mounting	Integral/ Wall/ 2-inch pipe mounting
Weight	3.1 kg (7.0 lb)
Electrical conductivity	3 μ S/cm or over
Functions	Empty pipe detection, Data setting protection, Communication, etc.



Magnetic flowmeter (MGG)

● Detector

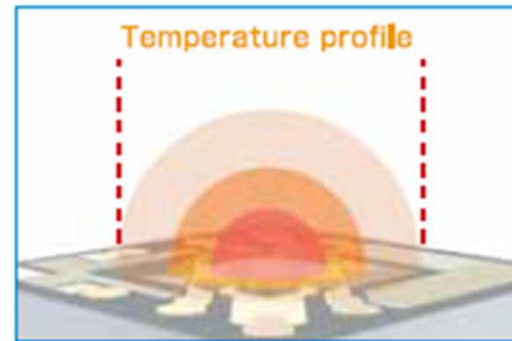
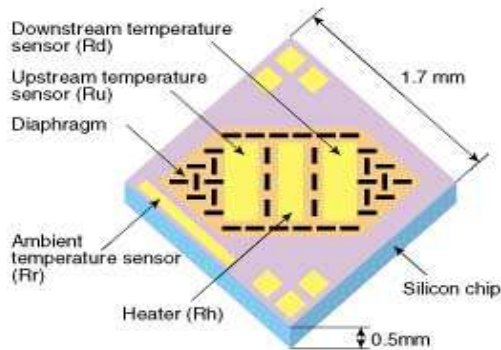
Diameter	2.5, 5, 10, 15, 25, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000, 1100 mm (0.1, 0.2, 3/8, 1/2, 1, 1 1/2, 2, 2 1/2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 24, 28, 32, 36, 40, 44 inches)
Type	Integral / Remote
Structure	IEC IP67 or IP68
Approvals	FM/CSA Nonincendive, FM/CSA/TIIS Flameproof
Pipe connections	Flange / Wafer (JIS10/20/30K), ANSI 150/300, JPI 150/300, DIN PN10/16/25/40, JIS G 3443-2) Union joint / Hose / ISO clamp / Tri-clamp
Face-to-face dimensions	ISO standard dimensions, Azbil corporation standard dimensions, Adjustable dimensions, flexible sizes
Electrode	SUS316L, Hastelloy C, Titanium, Zirconium, Tantalum, Platinum-Iridium, others
Grounding ring	SUS316, Hastelloy C, Titanium, Zirconium, Tantalum, Platinum, others
Lining	PFA, ETFE, Polyurethane rubber, Chloroprene rubber, Ceramic
Housing	
Stainless Steel	2.5 to 200 mm (0.1 to 8 inches)
Carbon Steel	250 to 1100 mm (10 to 44 inches)
Weight	
10 mm Diameter	Wafer type: 2.6 kg (5.7 lb) Flange ANSI150 type: 5.0 kg (11.0 lb)
50 mm Diameter	Wafer type: 3.4 kg (7.5 lb) Flange ANSI150 type: 8.5 kg (18.7 lb)
100 mm Diameter	Wafer type: 6.7 kg (14.8 lb) Flange ANSI150 type: 18.4 kg (40.6 lb)
Fluid temperature	
Remote	-40 to +160°C (-40 to +320°F)
Integral	-40 to +120°C (-40 to +248°F)
Ambient temperature	
Remote	-30 to +80°C (-22 to +176°F)
Integr	-25 to +60°C (-13 to +140°F)
Ambient humidity	5 to 100% RH



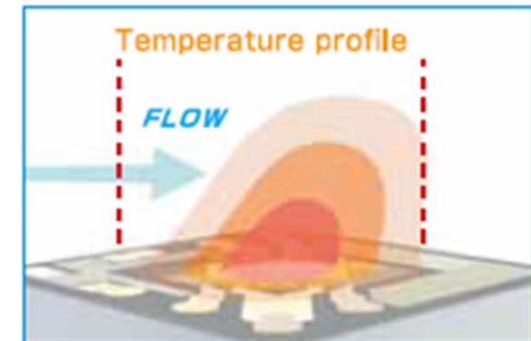
Thermal mass flowmeters

Thermal mass flowmeters

- Thermal measurement system

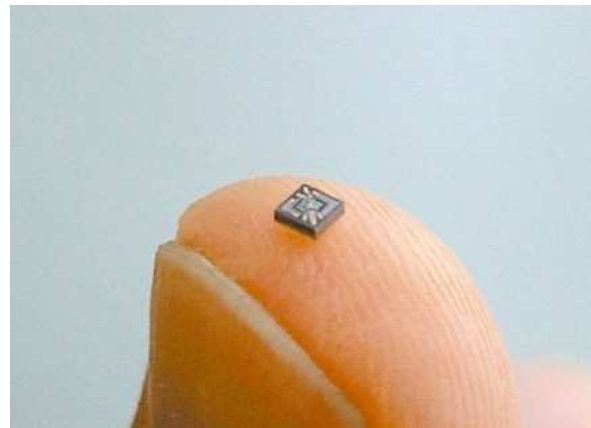


No gas flow



When gas is flowing

- Our sensor is in direct contact with the gas.










● Main parameters

- Units
 - Standard (0° C and 1 atm, SL/min)
 - Normal (20° C and 1 atm, NL/min)
- Type of gas
- Meter or controller
- Flow range
- Accuracy
- Response time
- Pressure drop



Thermal mass flowmeters



Model	Product	Features	Accuracy	Pipe size	Flow range	Air	N2	Ar	O2	CO2	13A	Propane	Butane	H2	He	Acetylen	NH3
Compressed Air/ Nitrogen Mass flow Meter MCF		Low cost Aluminium body Compressor energy monitor	3%FS	1/4"~2"	0~200 NL/min ~ 0~12000 NL/min	○	○										
Mass Flow Meter CMS		Wide range ability High Accuracy Multi function	3%RD	1/4"~1/2"	0~0.5 SL/min ~ 0~2000 SL/min	○	○	○	○	○	○	○	○	○	○	○	○
Air Mass Flow Sensor MCS100		Ultra wuick response (5ms) Ultra compact and light	5%FS	1/8"	0~0.5 SL/min -0.5~0.5 SL/min 0~3 SL/min -3~3 SL/min	○	○	○									
Air Mass Flow Sensor MCS200		Ultra quick response (5ms) Ultra compact and light	3%FS 5%FS	Manifold	0~0.5 SL/min 0~1 SL/min 0~3 SL/min -0.5~0.5 SL/min -6L~6 SL/min	○	○	○									
Mass flow Controller MQV		Quick response (500ms) High Accuracy Digital control Multi-function	1%FS	1/4"~1/2"	0~20 SmL/min ~ 0~500 SL/min	○	○	○	○	○	○	○	○	○	○	○	○
Panel Mount Mass flow Controller MPC		Panel mount Worldwide's smallest Worldwide's lightest	2%FS	1/8"	0~0.5 SL/min ~ 0~20 SL/min	○	○	○		○							
Gas Flow Monitor CMG		Low pressure loss High reliability Fuel/Air ratio monitoring	4%RD	1/2"~2"	0~4 Nm ³ /h ~ 0~150 Nm ³ /h	○	○				○	○	○				

Pressure transmitters

Pressure transmitter (GTX)



- Pressure transmitter
 - Differential
 - Gauge
 - Absolute

- Differential pressure transmitter
 - Output
 - 4 to 20mA DC
 - 0.04% F.S. accuracy
 - 0,1 kPa to 14 MPa measuring span
 - 42 MPa max working pressure
 - 0.1% of URL for 10 years
 - Response time within 100ms



Pressure transmitter (GTX)



Measuring span / Setting range / Working pressure range

Model	Measuring Span	Measuring range	Working Pressure Range
GTX 15D	0.1 to 2 kPa {10 to 200 mmH ₂ O}	-1 to 1 kPa {-100 to 100 mmH ₂ O}	-70 to 210 kPa {-0.7 to 2.1 kgf/cm ² }
GTX 30D	0.5 to 100 kPa {50 to 10160 mmH ₂ O}	-100 to 100 kPa {-10160 to 10160 mmH ₂ O}	2.0 kPa abs to 3.5 MPa {15 mmHg abs to 35 kgf/cm ² } *1
GTX 31D	0.5 to 100 kPa {50 to 10160 mmH ₂ O}	-100 to 100 kPa {-10160 to 10160 mmH ₂ O}	2.0 kPa abs to 21 MPa {15 mmHg abs to 210 kgf/cm ² } *1, *2 (For vacuum pressure, see Figure 1, 2)
GTX 32D	0.5 to 100 kPa {50 to 10160 mmH ₂ O}	-100 to 100 kPa {-10160 to 10160 mmH ₂ O}	2.0 kPa abs to 42 MPa {15mmHg abs to 420 kgf/cm ² } *3 (For vacuum pressure, see Figure 1, 2)
GTX 40D	35 to 700 kPa {0.35 to 7 kgf/cm ² }	-100 to 700 kPa {-1 to 7kgf/cm ² }	2.0 kPa abs to 3.5 MPa {15 mmHg abs to 35 kgf/cm ² } *1
GTX 41D	35 to 700 kPa {0.35 to 7 kgf/cm ² }	-100 to 700 kPa {-1 to 7kgf/cm ² }	2.0 kPa abs to 21 MPa {15 mmHg abs to 210 kgf/cm ² } *1, *2 (For vacuum pressure, see Figure 1, 2)
GTX 42D	35 to 700 kPa {0.35 to 7 kgf/cm ² }	-100 to 700 kPa {-1 to 7kgf/cm ² }	2.0 kPa abs to 42 MPa {15mmHg abs to 420 kgf/cm ² } *3 (For vacuum pressure, see Figure 1, 2)
GTX 71D	0.25 to 14 MPa {2.5 to 140kgf/cm ² }	-0.1 to 14 MPa {-1 to 140 kgf/cm ² }	2.0 kPa abs to 20 MPa {15 mmHg abs to 210 kgf/cm ² } *1, *2 (For vacuum pressure, see Figure 1, 2)
GTX 72D	0.25 to 14 MPa {2.5 to 140 kgf/cm ² }	-0.1 to 14 MPa {-1 to 140 kgf/cm ² }	2.0 kPa abs to 42 MPa {15mmHg abs to 420 kgf/cm ² } *3 (For vacuum pressure, see Figure 1, 2)



Pressure transmitter (GTX)

azbil

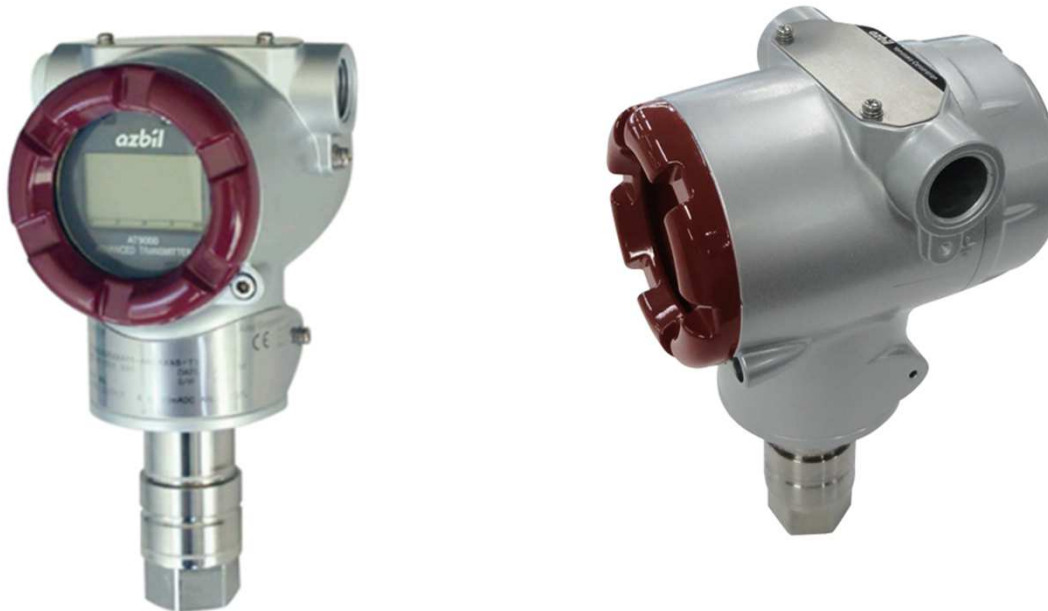
- Gauge pressure transmitter in-line
- Accuracy: +/- 0.04% F.S
- Wetted parts material: 316SS (Has-C)
- Process connection: 1/2 NPT Male/ Female, Rc3/8
- Range: 0-3500 kPaG, 0-14 MPaG
- Communication protocol: HART
- Long term stability: +/- 0.1% per 10 years
- Approvals:
 - FM Ex/ia/ Non-incentive, ATEX Ex/ia, KOSHA Ex, NEPSI Ex/ia
 - SIL2
- Other functions as same as GTX



Pressure transmitter (GTX)

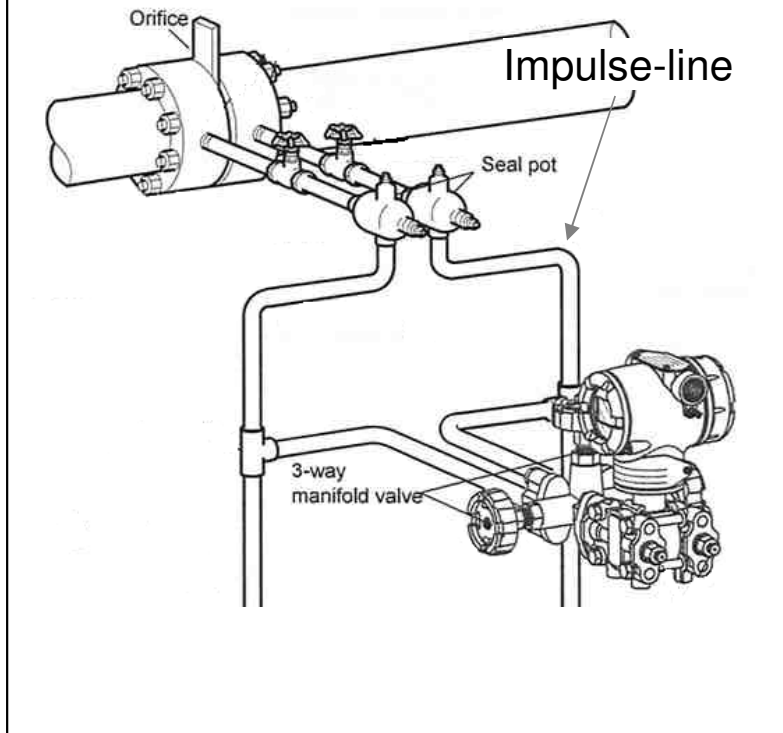


Model	Measuring Span	Measuring range	Overload Resistance value
GTX 60G	2.54 to 508 psi (17.5 to 3500 kPa)	-14.5 to 508 psi (-100 to 3500 kPa)	761 psi (5250 kPa)
GTX 71G	101 to 2030 psi (0.7 to 14 MPa)	-14.5 to 2030 psi (-0.1 to 14 MPa)	3045 psi (21 MPa)

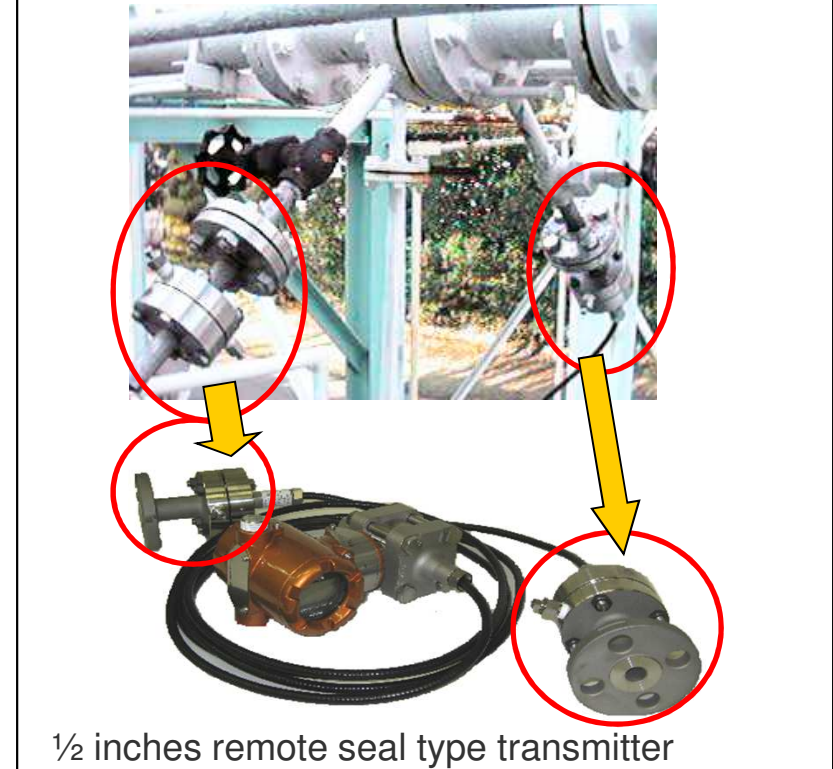


Pressure transmitter (GTX)

Instrumentation with Impulse line



Impulse-line less instrumentation



- It enable to remove the Impulse-line with 1/2 inches remote seal type transmitter .
 - GTX solve the problem with Impulse-line like clogging, corrosion ...etc.
- ➡** You can significantly reduce the cost of field maintenance work!

Pressure transmitter (PTG)

- Gauge pressure transmitter in-line
- Accuracy: +/- 0.2% F.S, +/- 0.5% FS
- Wetted parts material: SUS316SS
- Process connection: Screw, Flush, Clamp, Flange
- Range: 2-100 kPa, 1-10 MPa
- Communication protocol: SFN, HART
- Approvals:
 - NEMA 3 and 4X, IP67, KOSHA Ex, ATEX Ex, NEPSI Ex



*Model PTG7_G
(Screw type)*

*Model PTG7_B
(Flush diaphragm type)*

*Model PTG7_F
(Flange type)*

*Model PTG7_S
(Ferrule clamp type)*

Thank you for your attention



azbil

Azbil Corporation

Yamatake Corporation changed its name to Azbil Corporation on April 1, 2012.

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Questions?