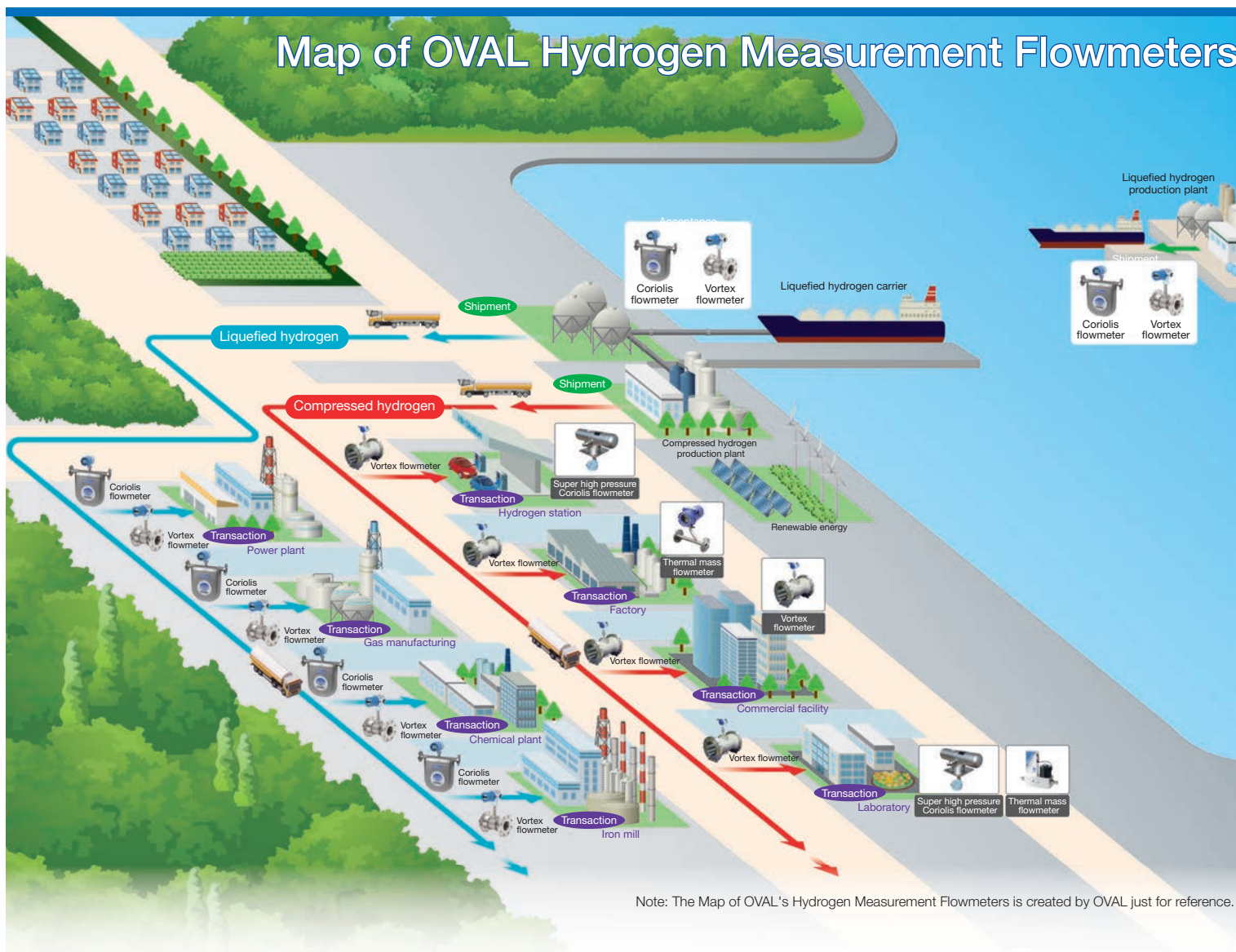




Lineup of Flowmeters for Hydrogen Measurement

Map of OVAL Hydrogen Measurement Flowmeters



Note: The Map of OVAL's Hydrogen Measurement Flowmeters is created by OVAL just for reference.

We contribute to enhancing the quality of life everywhere by creating new value through reliable measurement technology.



Note) The specifications described are standard ones. Flow range, accuracy, etc. may differ depending on the operating conditions.

Thermal Mass Flowmeter MASFLO-OVAL II [MODEL: FHA, FHB]

Actual gas calibration



■ STANDARD SPECIFICATIONS

Model	FHA	FHB
Connecting tube outer diameter	1/8", 1/4", 3/8", 6mm, 12mm, 1/2"	1/8", 1/4", 3/8", 6mm
Accuracy	± 1% of full scale	
Flow range L/min (normal) at Air	0.0001 to 500 (1 : 50)	0.00015 to 70 (1 : 50)
Temperature range	-10 to +70°C	
Maximum operating pressure	39.2MPa	19.6MPa
Construction	Non-explosionproof, for indoor use	

* Flow range shown here is the sum of all sizes.

Thermal Mass Flowmeter MASFLO-OVAL II Explosionproof model [MODEL: FHC, FHD]

Actual gas calibration



■ STANDARD SPECIFICATIONS

Model	FHC	FHD
Connecting tube outer diameter	1/8", 1/4", 3/8", 3/4", 6mm, 12mm, 1/2"	1/8", 1/4", 3/8", 6mm, 12mm, 1/2"
Accuracy	± 1% of full scale	
Flow range L/min (normal) at Air	0.0001 to 500 (1 : 50)	0.0001 to 100 (1 : 50)
Temperature range	-10 to +50°C	
Maximum operating pressure	39.2MPa	
Construction	TIIS, KCs	

* Flow range shown here is the sum of all sizes.

Thermal Mass Flowmeter Mass Flowmeter for Gas Service (In-line type) [MODEL: 504FTB]

Actual gas calibration



■ STANDARD SPECIFICATIONS

Nominal size	10, 15, 20, 25, 40, 50, 65, 80, 100mm
Connection	JIS10KRF, ASME150, 300RF
Accuracy	± 2% of full scale or ± 2% of reading (Calibrated by actual flow)
Flow range	0.03 to 467m ³ /h (normal)
Temperature range	-40 to +125°C (Explosionproof -40 to +110°C)
Maximum operating pressure	Less than 1MPa
Explosionproof configuration	Basic explosionproof: CSA, ATEX, IECE x Flameproof : TIIS, CSA, ATEX, IECE x

* Flow range shown here is the sum of all sizes.

* The maximum flow rate for fluids other than hydrogen and helium is 1560m³/h (normal).

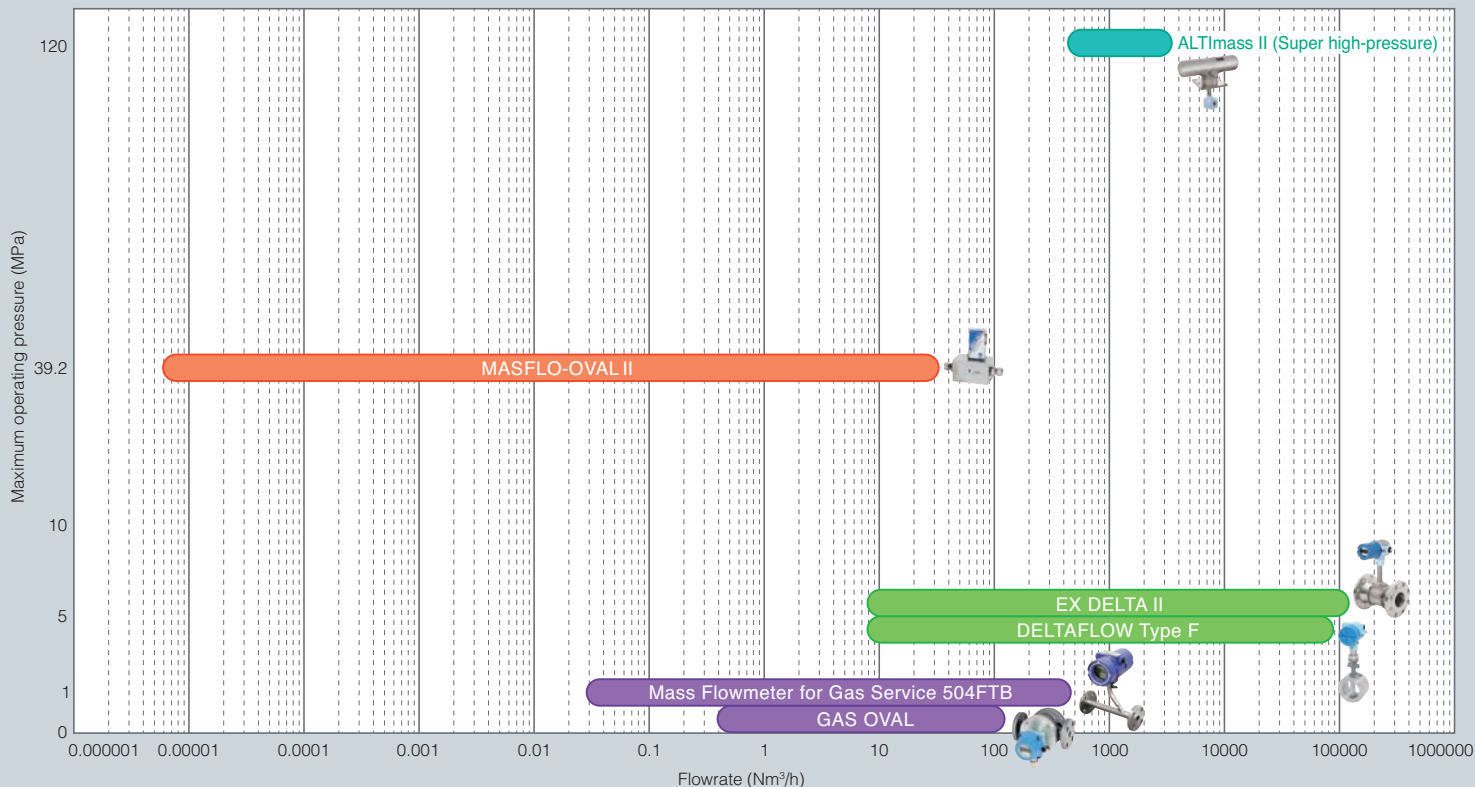
Coriolis flowmeter ALTimass II (Super high-pressure) [MODEL: CA004]



■ STANDARD SPECIFICATIONS

Connection	9/16 1-1/8UNF male or female screw	
Material	Wetted parts	TPXM-19
	Case	SUS304
Accuracy	Less than 9.6 Kg/h : ±0.0125% of the maximum normal flowrate 9.6 Kg/h or more : ±0.5% of the displayed rate	
Flow range	0 to 300kg/h	
Temperature range	-40 to +130°C	
Maximum operating pressure	120MPa	
Explosionproof configuration	TIIS	

OVAL Hydrogen Flowmeters



Positive Displacement flowmeter

GAS OVAL

[MODEL: GAL]



STANDARD SPECIFICATIONS

Nominal size	15, 20, 25, 40mm
Connection	JIS10K FF
Material	Body Aluminum (Anodized)
	Rotor Special resin
Accuracy	±1% of reading or ±1% of full scale
Flow range	0.075 to 20m³/h
Temperature range	-10 to +60°C (Explosionproof model: -10 to +50°C)
Maximum operating pressure	0.97MPa
Construction	TIIS, NEPSI, ATEX

* Flow range shown here is the sum of all sizes.

Vortex flowmeter

EX DELTA II

[MODEL: VXW, VXF]



STANDARD SPECIFICATIONS

Nominal size	Wafer: 10 to 150mm (8 types), Flange: 15 to 300mm (10 types)
Connection	JIS 10, 16, 20, 30K, ASME/JPI 150, 300, 600, DIN PN 10, 16, 25, 40
Material	SCS14A or SUS316
Accuracy	±1% of reading or ±1% of full scale
Flow range	Liquid: Maximum 2510m³/h Gas: Maximum 15000m³/h Saturated steam: Maximum 520t/h
Temperature range	Ambient temperature type: -30 to +120°C Standard type: -30 to +300°C High temperature type: -30 to +460°C Cryogenic type: -269 to +120°C
Maximum operating pressure	5MPa *Depends on process connection rating
Explosionproof configuration	TIIS, ATEX, NEPSI, KOSHA, CSA, TAIWAN

* Flow range shown here is the sum of all sizes.

Vortex flowmeter

OVAL VORTEX FLOWMETER

[MODEL: VF Series]



STANDARD SPECIFICATIONS

Nominal size	Wafer: 20, 25, 32, 40, 50, 80, 100, 150mm Flange: 200, 250, 300, 350, 400, 450, 500mm
Connection	JIS 10, 20, 30K, ASME/JPI 150, 300, 600
Material	SCS13A or SUS304
Accuracy	±1% of reading or ±1% of full scale
Flow range	Maximum 19000m³/h
Temperature range	-20 to +130°C (For SUS304)
Maximum operating pressure	5MPa (400mm to 1.89MPa) *Depends on process connection rating
Explosionproof configuration	TIIS

* Flow range shown here is the sum of all sizes.

Hydrogen Gas Calibration Equipment

OVAL H_2 Lab



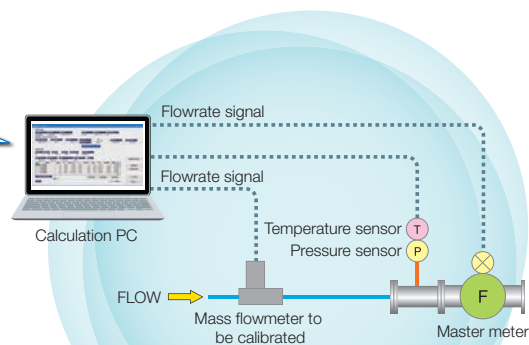
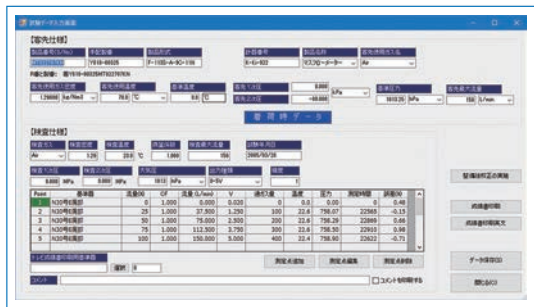
- Contributes to improving the quality of highly reliable hydrogen flowmeters
- Compatible with OVAL products as well as other manufacturers' equipment

[Calibration and Measurement Capabilities]

Calibration Capacity: Max. 650m³/h (normal)
Max. Calibrated Pressure: Max. 0.97MPa

Actual flow calibration of mass flowmeters with hydrogen

Mass flowmeters are generally calibrated with air and corrected with conversion factors, but we can also calibrate with actual liquid you are using, including hydrogen.



Calibration is performed using a comparison method (master meter method).

JCSS accredited calibration of three types of flowmeters: gas flowmeter, oil flowmeter and water flowmeter

OVAL is the only JCSS registered operator with three types of registration for calibration of gas flow rate, oil flowrate and water flow rate.

In addition to conventional "kerosene" and "gasoline," a new liquid type, "heavy oil," has been added to the registration for calibration of oil flowmeters with the calibration range of 3-1,800 m³/h. (1,800 m³/h is the highest in Japan)



Calibration and Measuring Capacity						
Type		Calibration range		Expanded uncertainty (approx. 95% confidence level)	Instruments to be calibrated	
Gas flowmeters	Critical flow venturi nozzles	Humid air	Min 30kPa(abs) to Max 110kPa(abs)	Min 5m ³ /h to Max 200m ³ /h	0.33%	① Critical nozzle ② Positive Displacement Flowmeter ③ Vortex flowmeter ④ Turbine flowmeter ⑤ Other, approved in long term stability
	Flowmeters		Min 95kPa(abs) to Max 110kPa(abs)	Min 5m ³ /h to Max 1000m ³ /h		
Liquid flowmeters	Kerosene	Flowmeters	Min 3m ³ /h to less than 30m ³ /h (Min 2.4t/h to less than 23.8t/h)	0.10% (0.10%)	① Positive Displacement Flowmeter ② Turbine flowmeter ③ Vortex flowmeter ④ Coriolis flowmeter ⑤ Other, approved in long term stability	
			Min 30m ³ /h to Max 300m ³ /h (Min 23.8t/h to Max 238t/h)	0.09% (0.09%)		
			Above 300m ³ /h to Max 530m ³ /h (Above 238t/h to Max 418t/h)	0.11% (0.11%)		
	Gasoline	Flowmeters	Above 530m ³ /h to Max 1800m ³ /h (Above 418t/h to Max 1422t/h)	0.12% (0.12%)		
			Min 3m ³ /h to less than 30m ³ /h (Min 2.2t/h to less than 22.3t/h)	0.15% (0.15%)		
			Min 30m ³ /h to Max 600m ³ /h (Min 22.3t/h to Max 444t/h)	0.12% (0.12%)		
Heavy oil	Flowmeters	Min 3m ³ /h to Max 80m ³ /h (Min 2.7t/h to Max 71.6t/h)	0.11% (0.11%)			
		Above 80m ³ /h to Max 600m ³ /h (Above 71.6t/h to Max 537t/h)	0.13% (0.13%)			
		Above 600m ³ /h to Max 1800m ³ /h (Above 537t/h to Max 1611t/h)	0.15% (0.15%)			
Water flowmeters	Flowmeters	Min 0.3m ³ /h to Max 120m ³ /h (Min 0.3t/h to less than 120t/h)	0.26% (0.26%)	① Coriolis flowmeter ② Positive Displacement Flowmeter		

* Values in parentheses indicate those when the mass flow rate is calculated by the representative density.

- Please contact us for explosionproof specifications applicable to hydrogen.
- The specification as of March, 2026 is stated in this catalog. Specifications and design are subject to change without notice.
- The copyright of this catalog belongs to OVAL Corporation. Transcribing, copying and reprinting the whole or any part of this catalog without our permission are prohibited.



OVAL Corporation

3-10-8 Kamiochiai, Shinjuku-ku, Tokyo 161-8508
Phone: +81 3-3360-5121 FAX: +81 3-3365-8605

<https://www.oval.co.jp/english>

