



CAT.-2015 / No. 1-1

Mt.H

CONTROL VALVES



Mt.H CONTROL VALVES CO., LTD.



Dear and Valuable Customers!

Mt.H has abundant experience and various achievements of safety relief valves and control valves for protection and safety in industrial plant projects and marine service and Mt.H also has consulted, provided, produced and supplied these valves to our customers with frontier spirit and business philosophy since 1978.

Therefore, we believe that these our efforts have contributed modern industry development and safety of each field including environment for human prosperity. Presently, We have faced with the various demand of industry, plants, environmental conservation, marine services, offshore gas facility, refining, natural gas, Petroleum Drilling and other chemical plants.

Mt.H has foreseen this situation and then set our policy to satisfy the needs of our customers. Mt.H has been developing Its technology in cryogenic safety and control valves field.

Mt.H's cryogenic pilot operated safety valve has been nominated as New Excellent Product for LNG/LPG service by KOREA Government on May 2011.

We believe our cryogenic valves offer sufficient satisfaction to our customers and all needed places with our policy.

- The best technology, product and service provided to customers.
- Offer the most reasonable price.
- Construct faith and cooperation between Mt.H and customers.
- Strong after sales service supports customers.

We can offer you with our best efforts.

Thank You.

E.S. Kang / Chairman

Y.C. Kim / President

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Company History

Mt.H

APR. 1878

The company was established under the name of Halla Automatic Valves.

MAY. 1985

Concluded the license agreement with AKO GmbH in Germany.

OCT. 1988

First shipment of the valves for marine to Japan.

FEB. 1992

Awarded the prize for development by Hyundai Heavy Industries Co., Ltd.

MAR. 1996

Awarded "A-Mark" for Quality Control Prize by Hyundai Heavy Industries Co., Ltd.

JAN. 1997

Type approved by the KR, ABS for the fabrication of valves.

- Main Starting Valves

- Crankcase Relief Valves

OCT. 1997

Awarded for developing by the Prime Minister.

- Crankcase Relief Valve Trap

APR. 1998

Awarded for small and medium business company's day by President.

AUG. 1999

Achieved ISO-9001 certificate.

NOR. 2001

Appointed as the innovative small and medium enterprise the Small and Medium Business Administration.

APR. 2002

Moved the factory from Sinpyong to Nok-San National Industrial Complex. and the company name was changed from "Halla Automatic Valves Co., Ltd." to "Mt.H Control Valves Co., Ltd."

SEP. 2002

Achieved advanced ISO-9001/2000 certificate by Korea Accreditation Board.

DEC. 2005

Established R&D center NO. 20052975

DEC. 2007

Achieved GTT Approval certificate (FRU/N° 07-1167)

DEC. 2008

Registered as Venture Company NO. 20060100999

NOV. 2010

Obtained Excellent Invention Certificate from Korea Invention Promotion Association.

APR. 2011

Achieved New Excellent Product Certificate for Korea Agency for Technology and Standards Ministry of Knowledge Economy (Republic of Korea)

DEC. 2011

Registered in KOGAS as a major supplier for equipment(cryogenic pilot operated safety valves)

NOR. 2012

Export cryogenic pilot operated safety valves to the Middle East

MAR. 2013

Supply cryogenic pilot operated safety valves with vacuum breakers to samcheok LNG terminal.

FEB. 2014

Supply cryogenic pilot operated safety valves with vacuum breakers to samcheok LNG terminal.

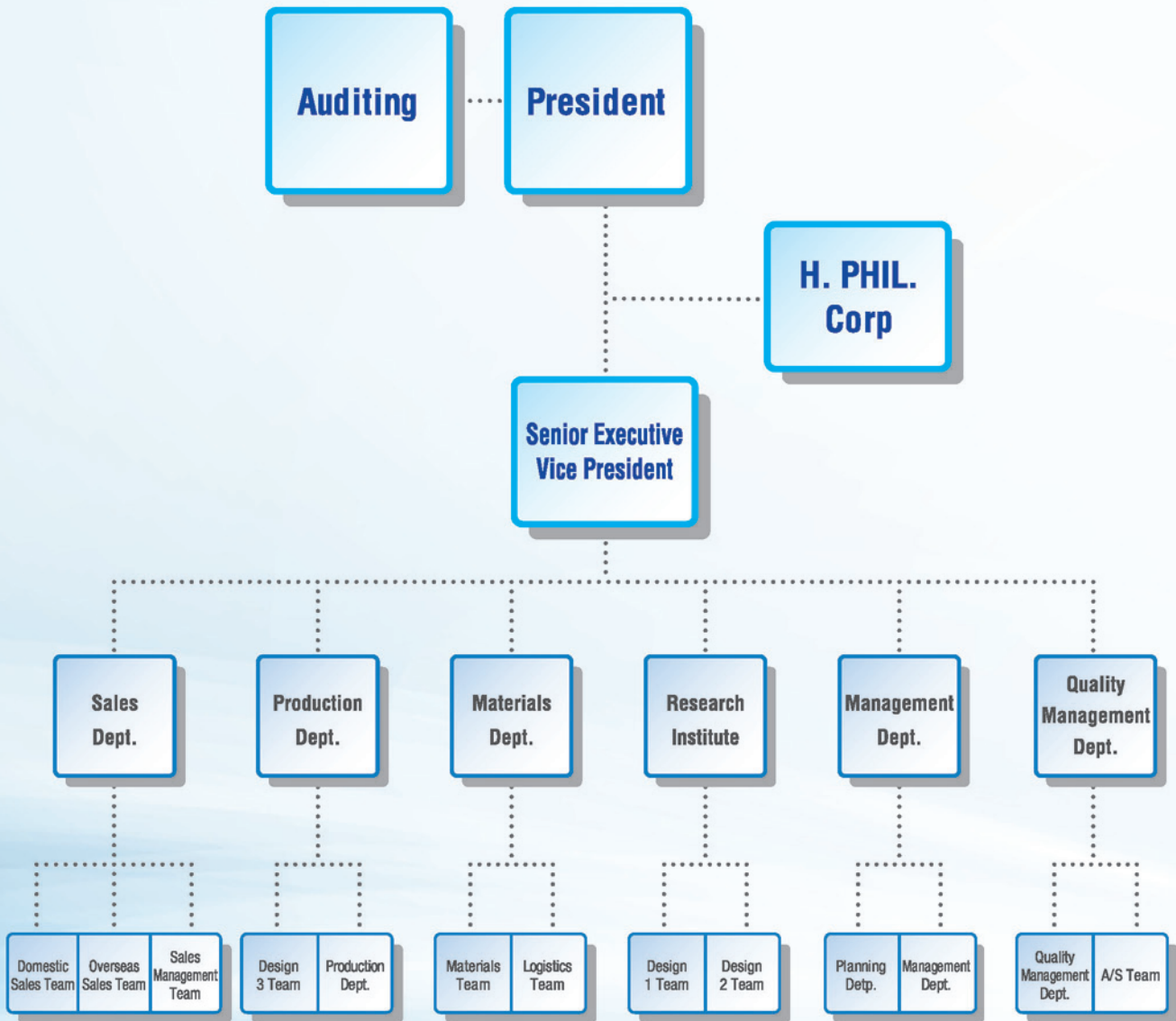
JUN. 2014

Processing of ASME [SAFETY VALVES (CONVENTIONAL & PILOT)] / Cert Test period (2014.10.14~10.17)

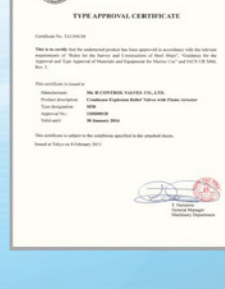
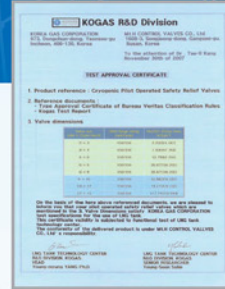
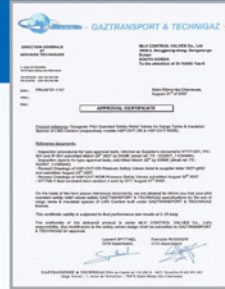
JUL. 2014

Extension of NEP Cert. for cryogenic pilot operated safety valves(Ministry of Knowledge economy)

ORGANIZATION



CERTIFICATES



I . Cryogenic Safety Valves, Control Valves & Vacuum Breakers



Pilot Operated Safety Relief Valves

Model	HSP-OVT (SP00C)
Application Fluid	Liquefied GAS / LNG / LPG / LEG / LN2 / LO2 / LAr
Working Pressure	0.15~7 Psi / 0.01~0.5kg/cm ² / 0.001~0.05Mpa
Working Temperature	-196°C ~ 50°C
End Connection	ANSI & JIS
Size	2" x 3", 3" x 4", 4" x 6", 6" x 6", 6" x 8", 8" x 10", 10" x 12", 12" x 16", 14" x 18"
Material(Body/Disc)	A351 CF8M, B26 356-T6 / Stainless Steel
Procedure and Test Bases on international standard	ANSI Rule for Fitting, Valve Flanged API Rule seat tightness of pressure ASME Rule for installation and operation



Conventional Safety Relief Valves

Model	HSF-FCA (SC00C)
Application Fluid	Liquefied GAS / LNG / LPG / LEG / LN2 / LO2 / LAr
Working Pressure	1~10kg/cm ² , 1~135kg/cm ²
Working Temperature	-196°C ~ 50°C
End Connection	ANSI & JIS
Size	3/4" x 1", 1" x 2", 1-1/2" x 2", 1-1/2" x 2-1/2", 1-1/2" x 3", 2" x 3", 3" x 4", 4" x 6"
Material(Body/Disc)	Stainless Steel
Procedure and Test Bases on international standard	ANSI Rule for Fitting, Valve Flanged API Rule seat tightness of pressure ASME Rule for installation and operation



2-Way Cryogenic Control Valves

Model	HND-FGC (CC11C)
Application Fluid	Liquefied GAS / LNG / LPG / LEG / LN2 / LO2 / LAr
Working Pressure	1~11kg/cm ² , 1~320kg/cm ²
Working Temperature	-196°C ~ 125°C
End Connection	Flange : ANSI & JIS / Welding : B.W
Size	1/2" ~ 6"
Material(Body/Disc)	A351 CF8M / Stainless Steel
Procedure and Test Bases on international standard	ANSI Rule for Fitting, Valve Flanged API Rule seat tightness of pressure ASME Rule for installation and operation



Vacuum Breakers

Model	HVB-DW (VB00C)
Application Fluid	Air (Vapor)
Working Pressure	-2.2 ~ 6.6mbarg
Working Temperature	-196°C ~ 149°C
End Connection	ANSI & JIS
Size	4", 6", 8", 12"
Material(Body/Disc)	B26 356-T6 / Stainless Steel
Procedure and Test Bases on international standard	ANSI Rule for Fitting, Valve Flanged API Rule for venting device API standard 2000 API 527

II. Control Valves



< Cylinder Positioner Type >

< Pneumatic Actuator Type >

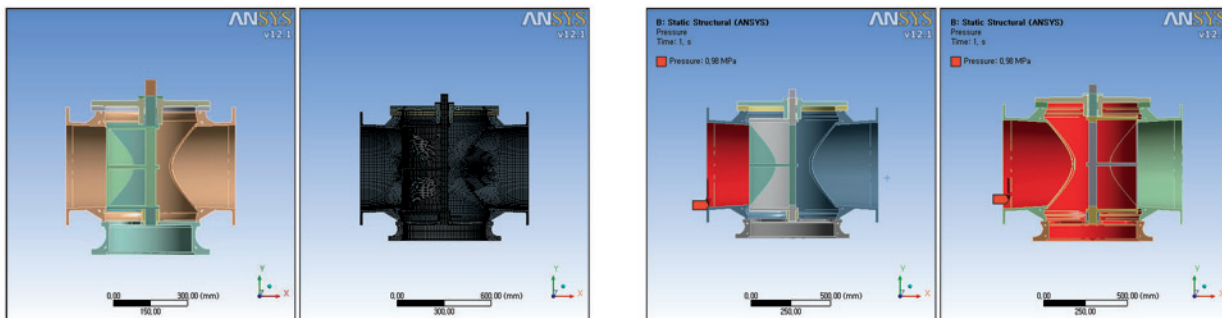
< Electric Motor Type >

3-Way Rotary Valves With Steel Plate Body Patent No. 0544325

Model	PRC (Steel Plate Body) (R023W)
Application Fluid	Liquid
Working Pressure	1~11kg/cm ²
Working Temperature	Max.80℃
End Connection	ANSI & JIS
Size	100A ~ 550A
Material(Body/Disc)	C,S / Stainless Steel

※ The other material can be adopted as option.

3D-Modeling Rotary Valve With Steel Plate Body (Structure-analysis)



3D-Modeling

FEA(Finite Element Analysis)

Close Position

Open Position

II. Control Valves



< Pneumatic Diaphragm Type With Steel Plate Body >

2-Way Globe Control Valves With Steel Plate Body Patent No. 0544325

Model	PND (Steel Plate Body) (CC11W)
Application Fluid	Liquid, Air, Gas
Working Pressure	1~30kg/cm ²
Working Temperature	Max, 220°C
End Connection	ANSI & JIS
Size	100A ~ 450A
Material(Body/Disc)	C,S, S,S / Stainless Steel

※ The other material can be adopted as option.

Advantage of Steel Plate Body Valves



Casting Body



Steel Plate Body



Casting Body



Steel Plate Body

1. Much lighter than Casting body by 10~20%.
2. Good Quality for Painting.
3. Excellent Strength against Crack & body Leakage.
4. Easy maintenance by Welding.
5. Less sticking rate during operation.
6. Shorter delivery time.
7. Constancy of Flow capacity per size.
8. All code can be applicable.
9. Flexibility of Design.

II. Control Valves



< Pneumatic Diaphragm Type >

< Electric Motor Type > < Pneumatic Diaphragm Type > < Electric Motor Type >

2/3-Way Globe Control Valves

Model	HND (CC11C)
Application Fluid	Steam, Air, Liquid, Gas,
Working Pressure	1~20kg/cm ²
Working Temperature	Max.220℃
End Connection	ANSI & JIS
Size	15A ~ 150A
Material(Body/Disc)	Cast Steel/Iron, Bronze, S.S / Stainless Steel



< Cylinder Piston Type >

2/3-Way Globe Control Valves

Model	HCC / HCO (CG23C)
Application Fluid	Liquid
Working Pressure	1~11kg/cm ² , ~ 320kg/cm ²
Working Temperature	Max.80℃
End Connection	Flange : ANSI & JIS / Welding : B,W
Size	15A ~ 150A
Material(Body/Disc)	Cast Steel/Iron, Bronze, S.S, Forging / Stainless Steel

III . Safety Relief Valves



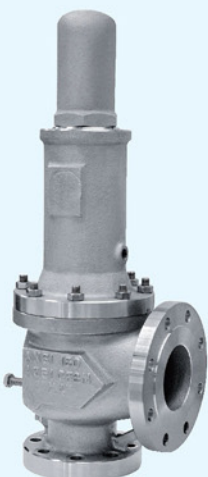
Safety Relief Valves (Full Bore Type)

Model	HSF (SC00C)
Application Fluid	Air, Gas, Liquid, Steam
Working Pressure	1~33kg/cm ²
Working Temperature	Max.220℃
End Connection	JIS & ANSI
Size	15A×25A, 20A×25A, 25A×40A, 25A×50A, 40A×50A, 40A×65A, 50A×80A, 65A×100A, 80A×100A, 80A×125A, 100A×150A, 125A×200A, 150A×200A, 200A×250A, 250A×300A
Material(Body/Disc)	Cast Steel/Iron, Bronze / Stainless Steel



Pilot Operated Safety Relief Valves (Snap And Modulating Action)

Model	SP32
Application Fluid	Air, Gas, Liquid, Steam
Working Pressure	1~400kg/cm ²
Working Temperature	Max.260℃
End Connection	ANSI
Size	1" X 2" ~ 20" X 24"
Material(Body/Disc)	Stainless Steel



Conventional Safety Relief Valves

Model	HSF-FCA (SC00C)
Application Fluid	Liquefied GAS / LNG / LPG / LEG / LN2 / LO2 / LAr
Working Pressure	1~10kg/cm ² , 1~135kg/cm ²
Working Temperature	-196℃ ~ 50℃
End Connection	ANSI & JIS
Size	3/4" x 1", 1" x 2", 1-1/2" x 2", 1-1/2" x 2-1/2", 1-1/2" x 3", 2" x 3", 3" x 4", 4" x 6"
Material(Body/Disc)	Stainless Steel
Procedure and Test Bases on international standard	ANSI Rule for Fitting, Valve Flanged API Rule seat tightness of pressure ASME Rule for installation and operation

IV. Temperature Control Valves



2-Way Temperature Control Valves

Model	HTC (TE18C)
Application Fluid	Steam, Hot Water, Thermal Oil
Working Pressure	1~16kg/cm ²
Working Temperature	Max.200°C
End Connection	ANSI & JIS
Size	15A, 20A, 25A
Material(Body/Disc)	Cast Steel/Iron, Bronze / Stainless Steel



2-Way Temperature Control Valves

Model	HEP / HEPN (TE18C)
Application Fluid	Steam, Hot Water, Thermal Oil
Working Pressure	1~16kg/cm ²
Working Temperature	Max.200°C
End Connection	ANSI & JIS
Size	32A ~ 100A
Material(Body/Disc)	Cast Steel/Iron, Bronze / Stainless Steel



Heat Sensor

Model	HHS (HE18)	
Range	Capillary Tube Length(m)	Material (Body / Pocket)
20 ~ 60°C	3m (standard), Max. 10m (Option)	: BS / BS
50 ~ 90°C		
70 ~ 110°C		
80 ~ 120°C		



3-Way Temperature Control Valves (Wax. Thermostat Type)

Model	HTR (TE19C)
Application Fluid	Liquid
Working Pressure	1~11kg/cm ²
Working Temperature	Max.100°C
End Connection	ANSI & JIS & DIN
Size	40A ~ 80A, 100A ~ 200A (Steel Plate Body)
Material(Body/Disc)	Cast Iron, C,S / Stainless Steel, Brass



Wax Thermostat

Model	TE (TH96)
Temperature Range	20~30°C, 27~41°C, 31~42°C, 35~43°C, 38~47°C, 40~50°C, 43~55°C, 51~60°C, 54~63°C, 57~66°C, 63~72°C, 66~74°C, 68~78°C, 71~80°C, 74~83°C, 77~85°C, 80~88°C, 85~94°C

V. Pressure Regulating & Reducing Valves



Pressure Regulating Valves

Model	HPP (PR12C)
Application Fluid	Liquid, Air, Gas, Oil
Working Pressure	1~16kg/cm ² (Adjust Range : 0.5~9kg/cm ²)
Working Temperature	Max,150°C
End Connection	ANSI & JIS
Size	15A ~ 100A
Material(Body/Disc)	Cast Steel/Iron, Bronze / Stainless Steel



Pressure Reducing Valves

Model	HRB (RE11C)
Application Fluid	Liquid, Air, Gas, Oil
Working Pressure	1~16kg/cm ² (Adjust Range : 0.5~9kg/cm ²)
Working Temperature	Max,150°C
End Connection	ANSI & JIS
Size	15A ~ 100A
Material(Body/Disc)	Cast Steel/Iron, Bronze / Stainless Steel



Pressure Reducing Valves (For High Pressure)

Model	HRB (RE11C)
Application Fluid	Air
Working Pressure	0.5~35kg/cm ² (Adjust Range : 1~11kg/cm ²)
Working Temperature	Max,150°C
End Connection	ANSI & JIS
Size	15A ~ 40A
Material(Body/Disc)	Cast Steel / Stainless Steel



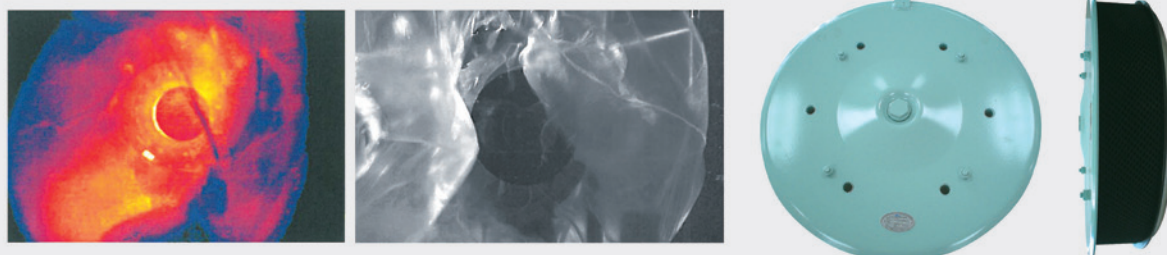
15A~100A

125A~150A

Pressure Reducing Valves (For Steam)

Model	HRP (RE13C, CRPPS)
Application Fluid	Steam
Working Pressure	1~11kg/cm ² (Adjust Range : 0.5~8kg/cm ²)
Working Temperature	Max,220°C
End Connection	ANSI & JIS
Size	15A ~ 150A
Material(Body/Disc)	Cast Steel, Bronze / Stainless Steel

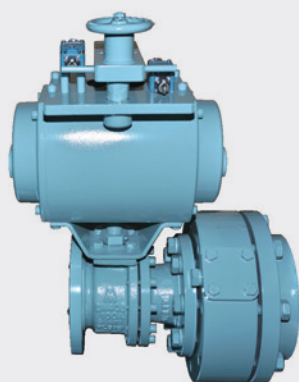
VI. Crankcase Relief Valves



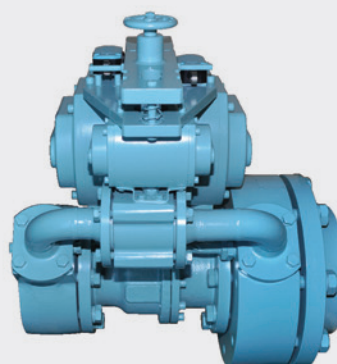
Crankcase Relief Valves (For Diesel Engine)

Model	M30 (CR51W)
Application Fluid	Gas, Oil
Working Temperature	Max,80°C
Open Pressure	0,05bar / 0,05~0,1bar
Size	735, 645, 565, 480, 420, 345, 320, 266, 224, 204, 173, 162, 150, 122, 98
Flame Arrest Construction	98 ~ 266 : Single Type / 320 ~ 735 : Double Type
International Rule and QC Being applied	SOLAS : Chapter II-2 Reg. 2,2,6,1 Protection of high Temperature surfaces CLASS : IACS UR M66 Type Testing Procedure for Crankcase Explosion Relief Valves MAN B & W : Quality Control 0742839-2 Rev,3 date 2009,07,24

VII. Main Starting Valves



Without Slow-Turning Device



With Slow-Turning Device

Main Starting Valves (For Diesel Engine)

Model	HMS (MS55C) / HMD (MS56C)	
Application Fluid	Compressed Air	
Working Pressure	Max, 33kg/cm ²	
Working Temperature	Max, 80°C	
End Connection	DIN PN 40	
Size	DN65, DN100, DN150, DN200	
Material	Actuator	Body / Trim : Cast Steel / Stainless Steel
	Ball Valve	Body / Trim : Cast Steel / Stainless Steel

VIII. Pneumatic Components & P.I.D Controllers



Pneumatic Controllers

Model	CON-T100 (CN91)	CON-P200 (CN91)
Mode	PI, PID	PI
Range	0 ~ 70°C (PID)	0 ~ 10bar
	50 ~ 120°C (PID)	0 ~ 16bar
	50 ~ 150°C (PI)	0 ~ 25bar
Sensor Tube length(M)	5, 7, 10	
Supply Air Pressure	1.2 ~ 1.4bar	
Output Air Pressure	0.2 ~ 1.0bar	



Electric Pneumatic Controllers

Model	TTM-T100EP (CN92)
Mode	P, PI, PID
Power Supply	AC 100 ~ 240V, 50/60Hz
Air supply	1.7bar (25psi)
Power Consumption	10VA Below
Sensor Input	RTD (PT100Ω)
Control Output	0.2 ~ 1.2Bar
Application Temp. & Humidity Range	0 ~ 50°C, 20~90% RH
Correction Temp. & Humidity Range	25 ~ 70°C, 5~95% RH



Electric Controllers

Model	TTM-T100E (CN93)
Mode	P, PI, PID
Power Supply	AC 100 ~ 240V, 50/60Hz
Power Consumption	10VA Below
Sensor Input	RTD (PT100Ω)
Control Output	4 ~ 20mA Current Output
Application Temp. & Humidity Range	0 ~ 50°C, 20~90% RH
Correction Temp. & Humidity Range	25 ~ 70°C, 5~95% RH

IX. Test Facilities



ASME PSV TEST LAB

ASME PSV TEST LAB



Hydraulic Test



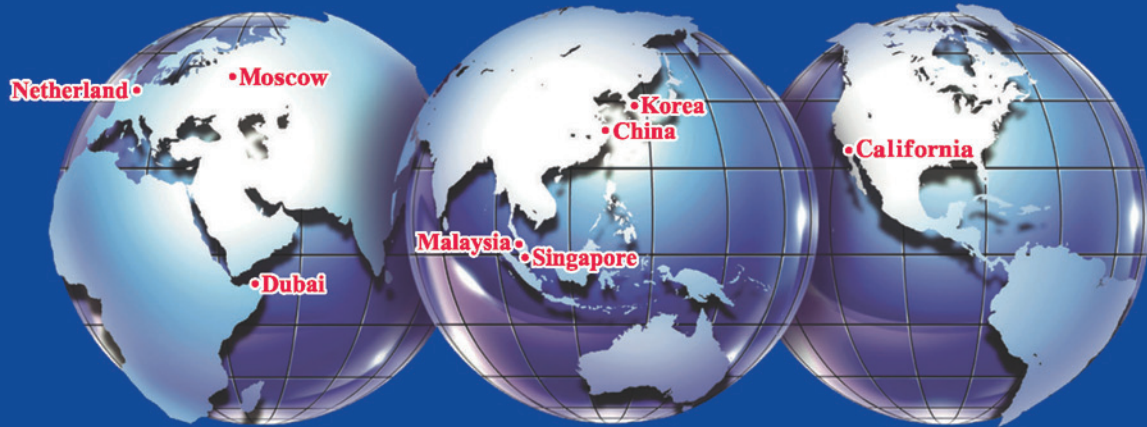
Cryogenic Test



Steam Test



SERVICE NETWORK



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Korea Branch

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