

Controls, Control Valves & Hand Operated Valves for Ammonia Refrigeration

# ONLY INDIAN COMPANY WITH CE & PED CERTIFICATION FOR AMMONIA VALVES & CONTROL VALVES



by Anand Joshi Past President AAR Past President ISHRAE Pune Member EEPC, IGCC, IETE, IDA, RATA.



# **Company Highlights**

- Manik Engineers India is a part of the Manik Group of Industries, which has been manufacturing refrigeration controls since 1978.
- The Manik Group of Industries is involved in various segments such as refrigeration controls, valves, timers for dust collector bag filters, energy saving equipments, heat recovery systems and movies.
- The total group turnover of Manik Group of Industries is US\$ 5.5 million.
- The company has 120 employees.
- Manik Engineers is highly regarded as an outstanding supplier for refrigeration controls in India by OEMs and the Refrigeration Industry.
- Manik Engineers is ISO9001:2015 Certified and all our products are CE/PED approved.



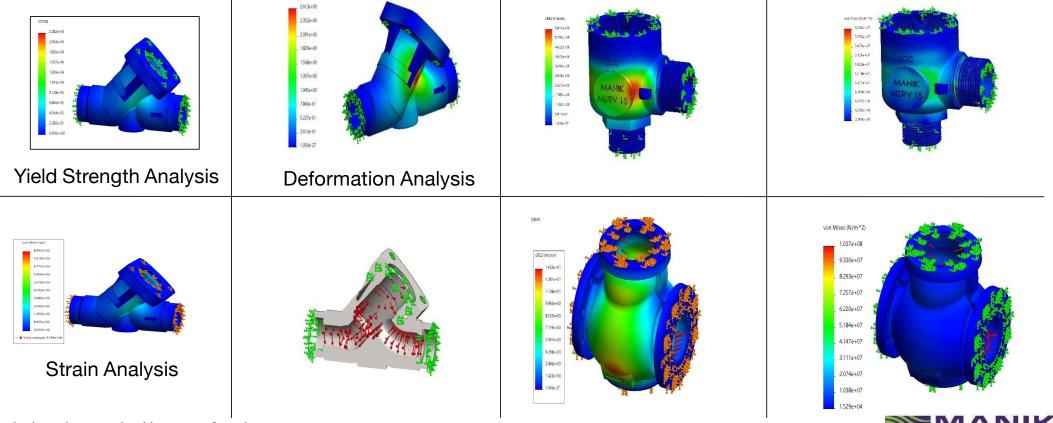
# Manufacturing Setup, Design and Testing capabilities

- The manufacturing setup is located in Pune, India's capital of the refrigeration industry.
- Manufacturing facility covering approximately 16,000 sq. feet of area.
- Manik Engineers has a dedicated R&D center of 3,000 sq. feet with inhouse design facility for quick and safe development.
- World Class Machining capability with 30+ machining centers.
- 100% inspection of all parts is carried out and 100% Testing of all valves is done as part of a strict quality control plan.
- Japanese Manufacturing Methodologies implemented such as 5S(Sort, Set in Order, Shine, Standardize, Sustain) and focus on LEAN manufacturing.
- FIFO (First In, First Out) system followed for material handling.
- CAPAs (Corrective and Preventive Actions) maintained for customer complaints and vendor rejection.
- Quality audits and trainings are conducted in-house and at vendor's end on a regular basis.



# Design, Manufacturing & Testing Capabilities

In-house 3D modeling and pressure/design analysis is done via Solidworks for quick and reliable development.



Analysis points marked in green & red.

# Design, Manufacturing & Testing Capabilities

Specialised Pressure test set-up for up to 200 bars testing with in-house development of customized jigs and fixtures.





## Value added services

### Customer support pre-sales and after- sales service.

- Pre-sales engineering team helps select optimum control solutions for energy-efficient plant performance and cost savings.
- Prompt after-sales service and support provided with dedicated person for customer coordination.
- Dedicated technical team for after-sales service.
- > Training provided to customer team for selection, operation and maintenance of products.
- Training videos are available YouTube channel.

#### **Aftersales service - International**

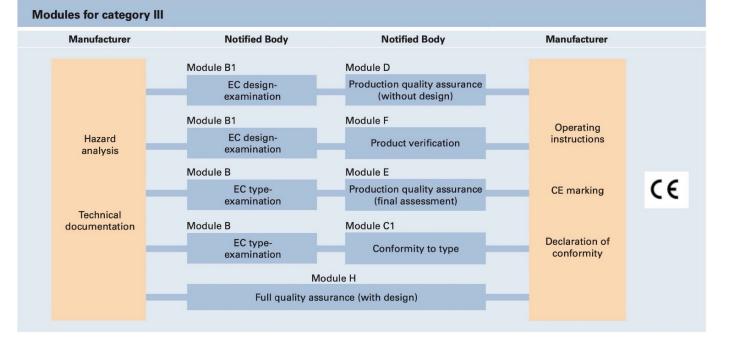
- Manik engineers strives to provide excellent aftersales service to customers, whether they are OEM customers directly served by the company or customers who have purchased products through dealers.
- Our aim is to ensure that our products continue to perform optimally and meet the specific needs of our customers.



# Categorization for CE/PED as per European Directive



Pressure equipment certification. Your key to market access in Europe.



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# **CE/PED** Certification, Module H, PS55 Bar

EURO

CERT

**ASSURANCE FOR** 

ACCORDING TO

PRESSURE EQUIPMENT

**EUROPEAN DIRECTIVE** 

2014/68/EU (MODULE H)

STOP VALVES (STOP/REGULATING/STOP-CHECK/FILTER) & PRESSURE

Each pressure equipment should be accompanied with manufacturer's declaratio Each pressure equipment and use accompanies with manufacture solution and the of conformity and instructions of use. The manufacturer must keep the notified body informed of any intended updating of the quality assurance system. The manufacturer must affit the CE Marking and Eurocert's Identification No. to each item of pressure equipment as displayed below:

C € 1128

This is to certify that Eurocert S.A. has assessed the quality assurance system of the above-mentioned manufacturer with satisfactory results.

EUROPEAN PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU, ANNEX III (MODULE H)

DESIGN, PRODUCTION, FINAL INSPECTION AND TESTING OF PRESSURE EQUIPMENT

**CERTIFICATE OF FULL QUALITY** 

Certificate No. 10.07.12055

Date of Issue 17/08/2023

Valid From 17/08/2023

Applicant/ Manufacturer (Name & Address) PUNE – 411009, MAHARASHTRA, INDIA.

REGULATING VALVES

Annex to this certificate

PEMH.10.07.12055AR

The Certificate is valid until 16/08/2024

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Scope of Certification

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Subject to satisfactory

annual surveillance





## **Quality Certifications**

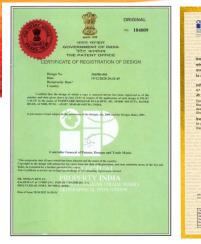
Approval



**ISO** Certificate

#### **PED** Certificate

**Electronics CE** Certificate





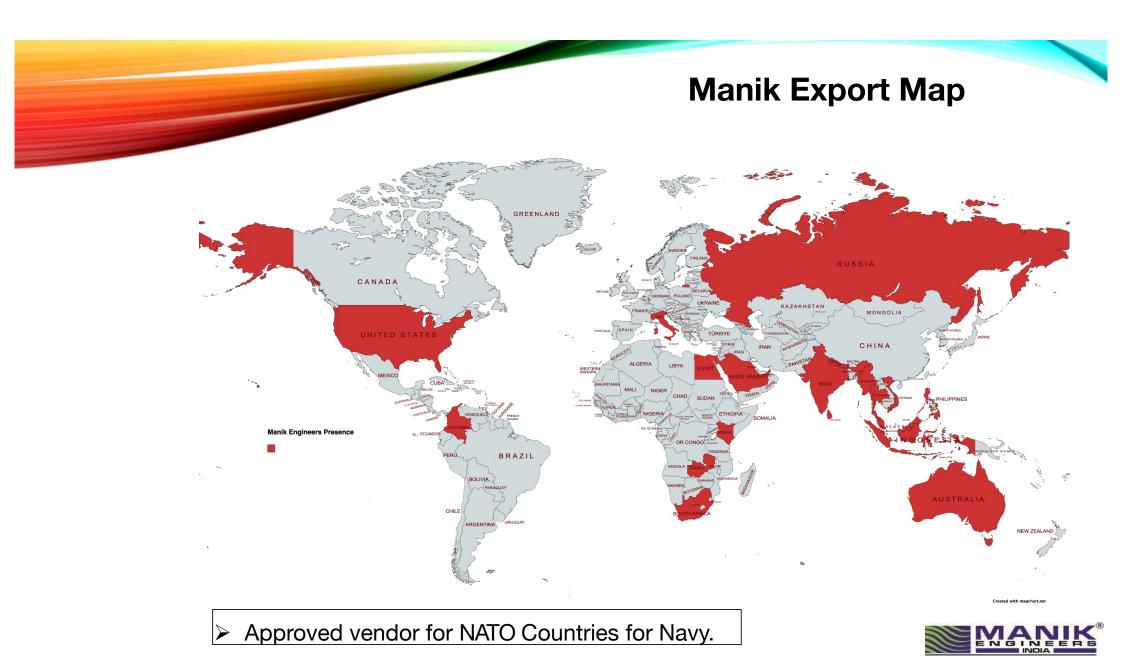
EUIPO

# Indian and European Design (IP) **Registration Certificates**

- MHP Series Valves (Steel and Stainless-Steel)
  - Stop Valves
  - **Regulating Valves**
  - Filter Valves
  - Stop Check and Check Valves
- MRASV Series Solenoid Valves .
- SA Series Solenoid Valves •
- MS Series Solenoid Valves ٠
- TA series Filters .
- MGLG Liquid Level Gauges •
- MFR Pressure/Temperature Regulators ٠
- MPR Series Pilot Valves •
- MGV8 Series Service Valves .

- MLS39 Level Switch (Steel and Stainless-Steel)
- MDMV Dead Man's Valve
- MSGP2E Automatic Air Purger
- MDRV Defrost Relief Valve
- Ammonia sampler
- **MSRV** Series Safety Valves
- SH Series Safety Valves
- MDM Series Dual Manifolds
- FKD40A+41A Screw Compressor Controller
- SVRF/SMO Series Compressor
- Loading/Unloading Valves





# **Additional Advantages of Manik Engineers**

- Manik manufactures a unique range of products
  - MHP SS Stainless (SS304) stop valves (angle/straight), stop check valves , hand regulating valves, filters (strainers)
  - MGV-8 Service valves in Stainless steel SS304
  - > MLS39-SS-LI float switches in stainless steel with inbuilt ON-OFF indication
  - Multipoint Automatic Air Purger. (Upto 16 different points/locations).Steel & Stainless-steel Construction
  - > Ammonia Dehydrator : Steel & Stainless-steel Construction
  - Ammonia Sampler kit
  - > Automatic Flow Regulating Valves with in built Non return valve (FRVA)
  - Inline Check valves with Manual Bypass
  - Safety Valve Indicators
  - Custom-made Automation Panels
  - Ammonia Sensors & Multi-point Ammonia Leak Detection System
  - Wide range of Unloader solenoid Valves
  - Solenoid valves, level controller, Pt-100 sensor, pressure sensors etc for Flame proof (Class IIA/IIB) application



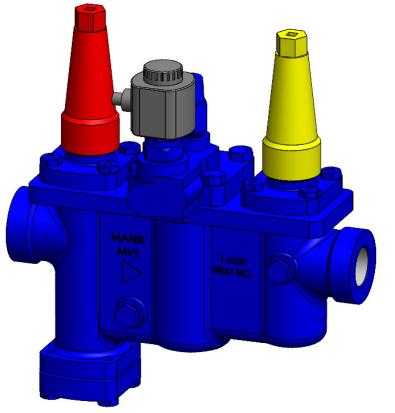
# **VAST PRODUCT RANGE**

Manik Engineers has successfully developed around 200 different types of controls and valves for the refrigeration industry over the past 45 years. Some of our top products are highlighted in this presentation.



# Multi-Function Valve Station MVS15-32





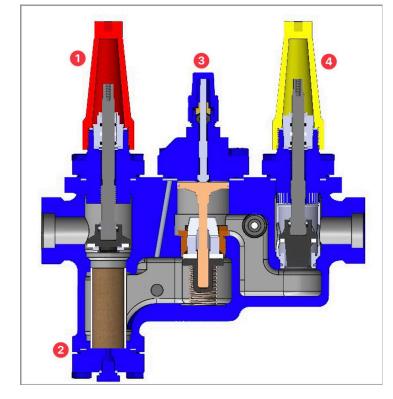






# Multi-Function Valve Station MVS15-32

**Typical Applications** 



Sr. No.	Position 1 & 2 – Fixed	Position 3 – Options	Position 4 - Options
1.	Stop Valve & Filter Valve	Solenoid Valve	Stop Valve
2.		Pressure Regulator	Expansion Valve
3.		Pressure Regulator with Electirc Shut- OFF	Regulating Valve
4.		Dual Pressure Regulator	Stop Check Valve
5.		Differential Regulator	Check Valve
6.		Reseating Relief Regulator	
7.		Outlet Pressure Regulator	



# **Modulating level controls**



Low Side Float Valve(LSFV) modulates liquid level in the Receiver when used with ALMV type expansion valve.



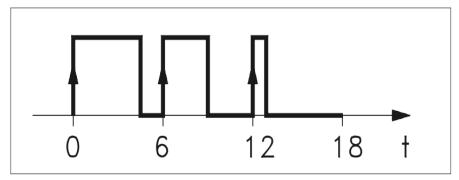
## **Electronic expansion valve MEEV**



MEEV-20

#### FUNCTION :

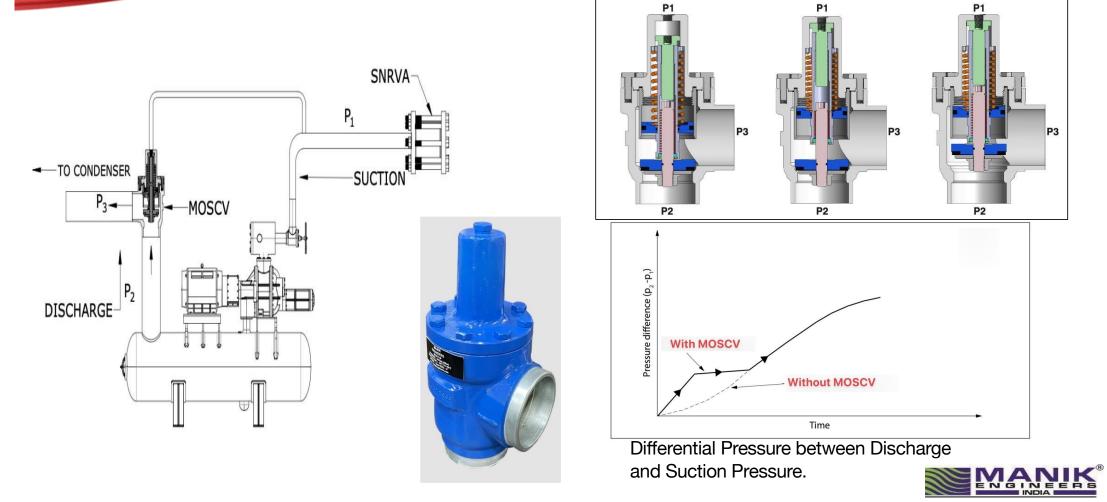
The valve capacity is regulated by means of pulse-width modulation. Within a period of six seconds a voltage signal from the controller will be transmitted to and removed from the valve coil. This makes the valve open and close for the flow of refrigerant.

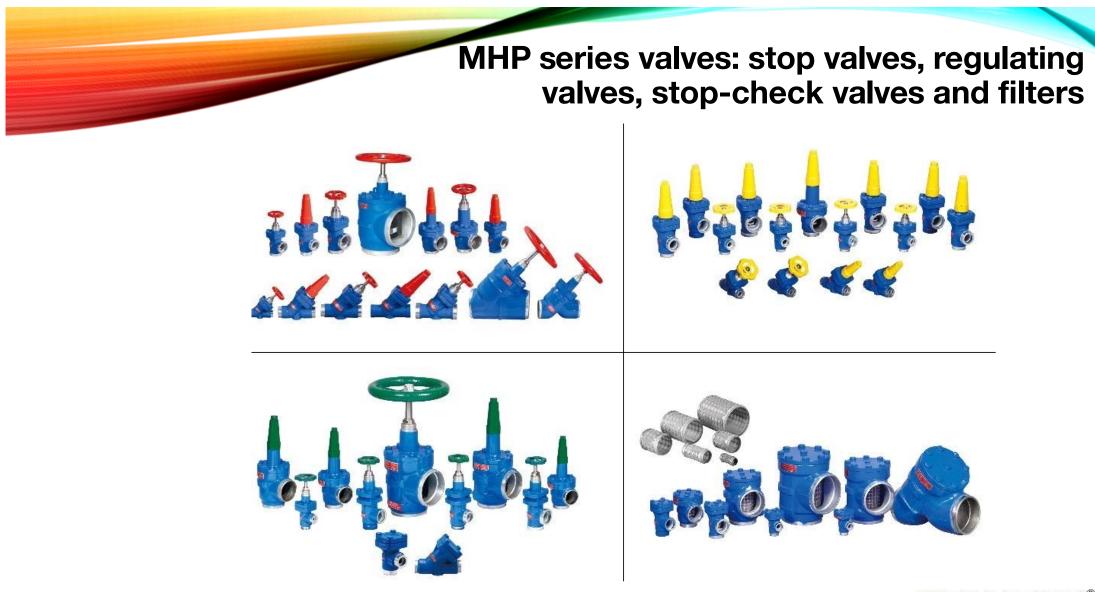




# **Compressor Oil Pressure Control Valve**

MOSCV







# **Steel High Pressure Valves - MHP series**

#### **Salient Features**

- ➤ MHP Steel range 10NB to 300NB.
- Regulating valves range is upto 100 NB
- Stop Check valves / Check valves range is upto 125NB
- Max. Working Pressure 55 bar
- Test Pressure 80 bar
- LCC A352 Cast Steel Body
- With updated Superior Graphite packing design.
- Premium quality at competitive prices.
- Available in Butt Weld (DIN & ANSI) and Socket Weld Connections as per International Standards.





# **MHP-SS Stainless-Steel Series**

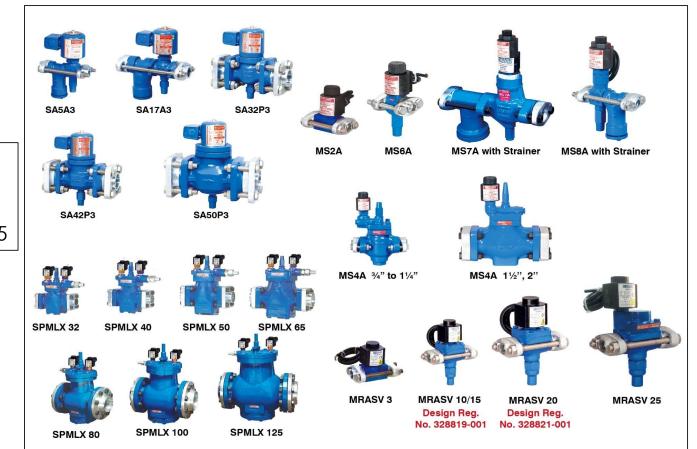
## Highlights:

- > Maximum Working Pressure: 80Bar.
- ≻ Test Pressure: 120Bar
- $\succ$  Wide Range available from DN10 to DN200.
- ➤ Vast Temperature Range: -60 to +150°C / -76 to 302°F
- > Special Low Temperature Cast Steel Grade: CF8. (CF8M also available on request)
- > Mirror Finished Stainless Steel Internals for superior quality.
- Special Leakproof Packing Gland Design.
- $\succ$  Available with Back seating for online servicing.
- > Cast Stainless Steel Handwheels available for MHP-SS series.
- Available in Butt Weld (DIN & ANSI) and Socket Weld Connections as per International Standards.





## **Solenoid valves**



- > SA Series DN 15 to 50
- MRASV Series DN3 to 40
- $\succ$  MS Series DN2 to 50
- ➢ MTSV/SPLMX Series DN 32 to 125

## **Level Controls**

- Liquid Level
  Controllers Type
  39FI & LC101A.
- Liquid Level Switch
  Type MLS39 &
  MLS39-HLI
- Glass Level Gauges
  Type MGLG
- Liquid Level Eye
  Type MLE





# Pressure Regulating Valves and Pilot valves.

MPR-LP

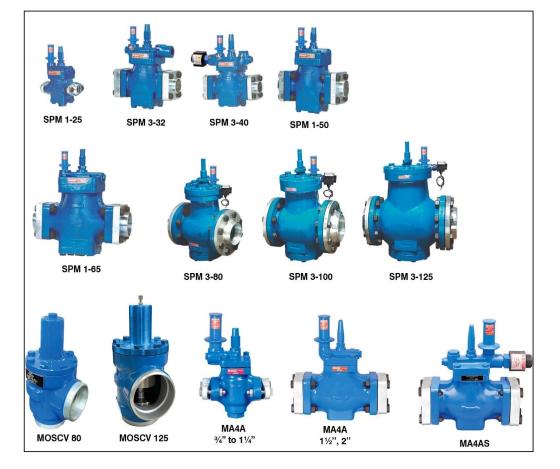
MPR-DPH

MPR-HP

MPR-OL

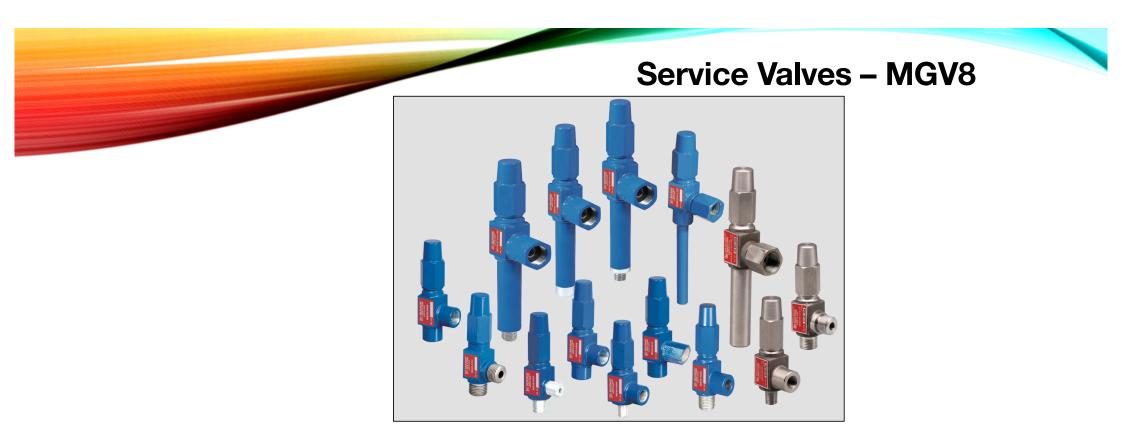
MPR-DPL

- MFR/SPM Series DN 5 to 125
- MA4A Series DN20 to 50
- MOSCV DN 65 to 200
- Pilot Valves





MPR-OH



- Manik Service Valves are used for Isolation of Pressure/Temperature Gauges, Transmitters on Pressure Vessels and Inline Pipes.
- > Available in vast range of inlet/outlet connections.
- Robust design with back seating.
- Also available in weldable type and stainless-steel type that is highly resistant to corrosion.





## **ACCESSORIES:**









#### Connection Size Reducer

Weld Adaptor



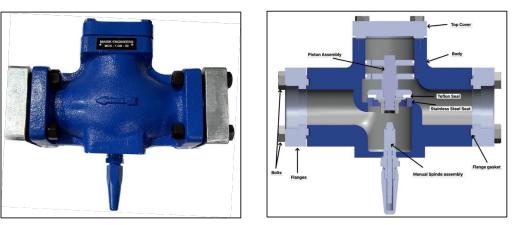
# **Inline Check Valves**

#### SNRVA Series



- Available in sizes DN15 to 125
- Temperature of media- -50°C to 140°C
- Maximum working pressure 40 bar
- Teflon Seat and special dampening design for longer life.

#### MCK-1 Series

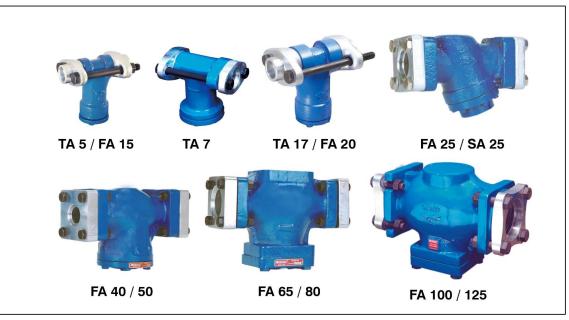


- Available in sizes DN20 to 50.
- Temperature of media- -50°C to 140°C
- Maximum working pressure 40 bar
- Teflon Seat with Self Closing Piston Assembly
- Manual Bypass facility.



# **Strainers/Filters**

FA/TA Series



- Available in sizes DN15 to 125
- Temperature of media- -50°C to140°C
- Maximum working pressure 28 bar
- Filter Insert Stainless Steel weave,
- Mesh sizes 150, 250 and 500 (microns).



# **Liquid Level Gauges - MGLG**



Reflex Type



Frost Free Type

Stainless Steel Version

- Manik Glass Level Gauges are available in Reflex and Non-Frost types.
- SS bolts used to avoid rusting and failure over time.
- Supplied with Isolation Valves.
- Available from 150mm to 2200mm Centre to Centre Distance.
- Imported Silicon Borate Glasses used for premium quality.

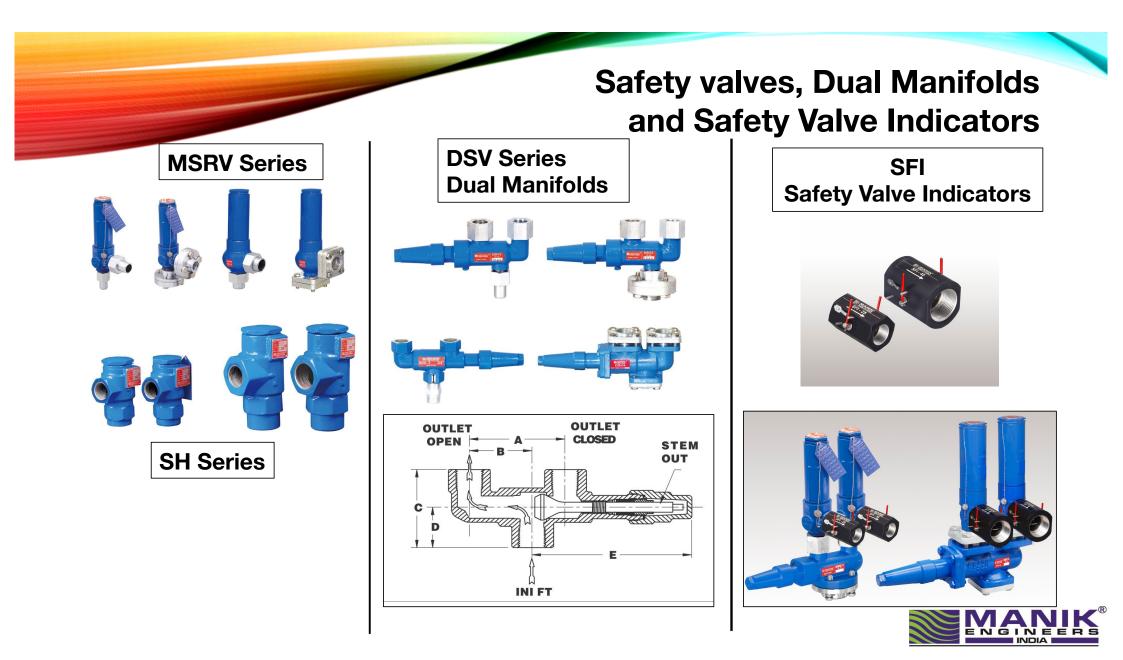


## Manik Liquid Eye



- Manik Liquid Eye is used to check ammonia level in pressure vessels or for line pipelines.
- Stainless Steel SS316 body.
- ➢ Imported Silicon Borate Glass.
- > Available in 2 types Direct Welded and Inline Welded.
- > Available for Line sizes from 1/2" to 2 1/2".









## **Enclosure :**

- IP 65 Stand Alone Installations
- Panel Mounting Enclosure
- Panel with External Hooter

## **Standard Unit Features**

- Site adjustable three Level Alarm for each channel Contamination, Second "Early Warning & Alarm
- LED Indication for Each Channel Contamination.
- Warning and Alarm Status
- Single point and multi-point Alarm Units
- Operates on 230VAC, 50Hz,
- In-built Alarm Hooter (60 DB)
- Relay out put for external Hooter and emergencyexhaust
- Optional RS485

## **Additional Features on PLC Unit**

- > 7" TFT Colour touch screen graphic display
- Set point and relay output for individual channel.
- SMS alert on 5 phone numbers
- LAN/ RS485 Modbusprotocol for PLC/SCADA interface



# Types of Leak Detection System

# **Types of Sensors: Selecting Sensor**

## **Sensor Life**

The semiconductor sensor will typically last much longer than an electrochemical or a catalytic sensor. Another advantage is that it costs less to replace. The electrochemical sensor have less life as compared to Semiconductor sensor and sensor replacement cost is high.

## **Operating temperature**

- 25 to 50° C Semiconductor Sensors.
- 50 to 50°C for Electrochemical Sensors with heater.

## Response to gases in nearby spectrum

The semiconductor sensor are more susceptible to gases in spectrum near to ammonia like chlorine, sulphur, hydrochloric solutions, sulphur dioxides, ethylene etc.

The electrochemical sensors responds only to ammonia and doesn't react to other gases.



## Semiconductor Electrochemical



# **Types of Sensors: Selecting Sensor Typical Applications**



Semiconductor Electrochemical



**AST-SV** 

Vent Line Sensor

## **Semiconductor Sensors**

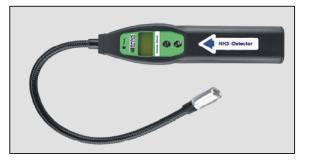
- Ice Plants
- Cold Storages (temperature above) -25°C)
- Machine Rooms where possibility  $\triangleright$ other gases in air doesn't exist.

## **Electrochemical Sensors**

- Seafood processing plants
- Dairies
- Meat processing plants
- Chemical
- **Dyestuff Pharmaceutical**
- Freezing plants  $\geq$
- Cold Storages (temperature below -25°C)
- Paint manufacturing
- Special Sensor for Vent Line installations.



# **Safety Controls**





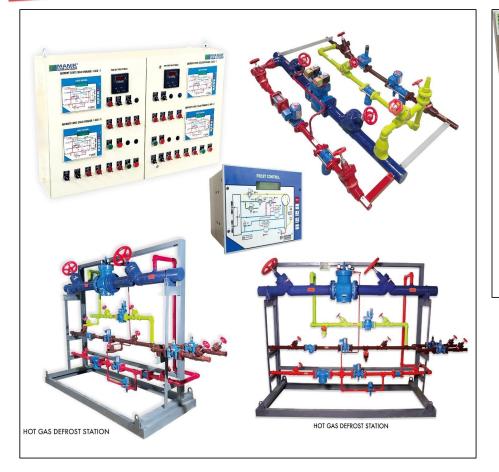




- Handheld Ammonia
  Leak Detector
- Emergency Pressure Control System
- Dead Man's Valve
- ➢ Man Trap Alarm.



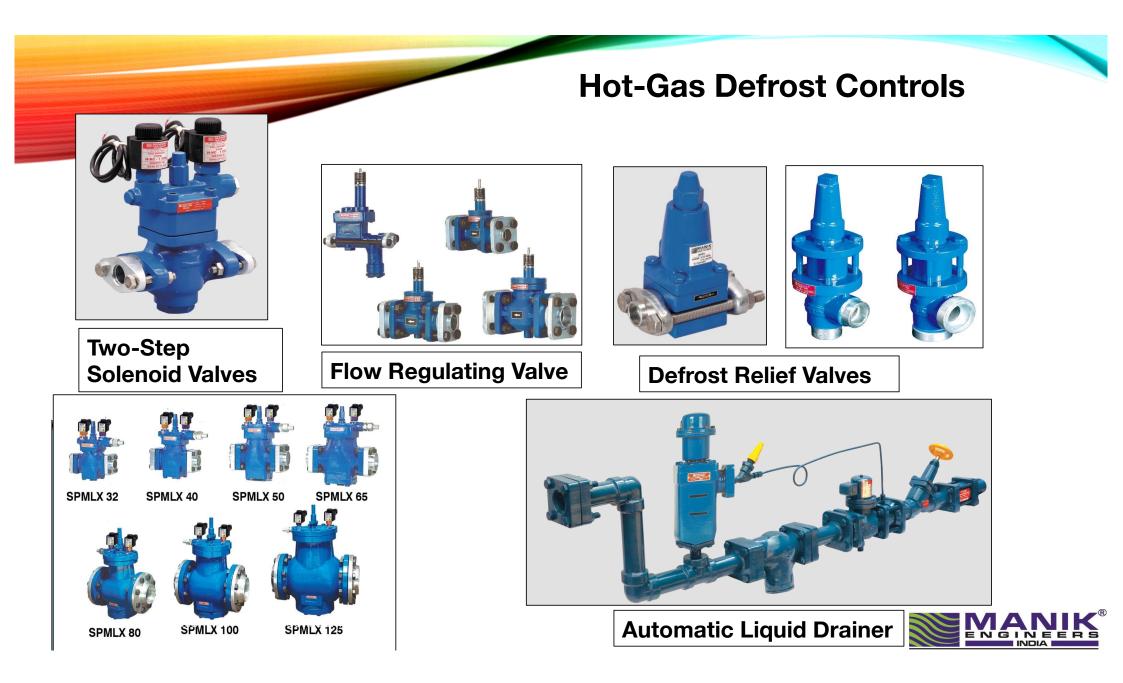
#### **Hot-Gas Defrost Controls**





- Hot-Gas Drefrost Controller
- Hot-Gas Defrost Station
  - Two-step Gas Powered Solenoid Valve
  - Two-step Hot Gas Solenoid Valve.
  - Flow Regulation Valve
  - Defrost Relief Valve
  - Liquid Drainer





## Energy Saving Products

## AUTOMATIC AIR PURGER FOR REFRIGERATION PLANTS TYPE MSGP-2E TYPE MSGP-2E-SS AMMONIA PURIFIER / DEHYDRATOR TYPE WDO-MHP / WDO-MHP-SS

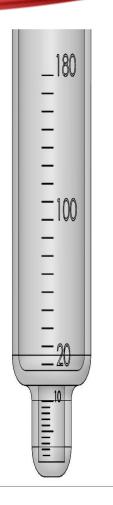


## Air Purger and Ammonia Dehydrator











Ammonia sampler Case

## **Ammonia Sampler Kit**

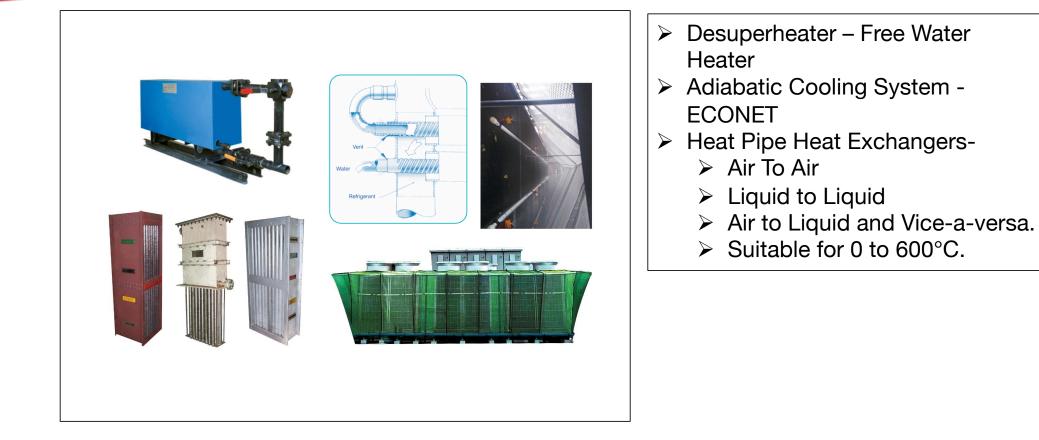








#### **Energy Saving Products**





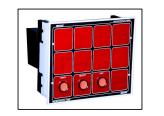
## Flameproof Controls





#### **Electronic Controls**

Compressor Controls



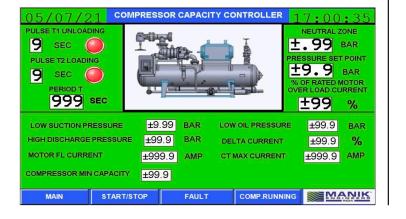






#### PLC Based Compressor Control Panels













Multipoint	
Scanner	
Controller	
with RS485	
Modbus,	



#### Web-Based Monitoring Solutions

www.manikengineers.com

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### Temperature /%RH /Pressure Sensors & Transmitters



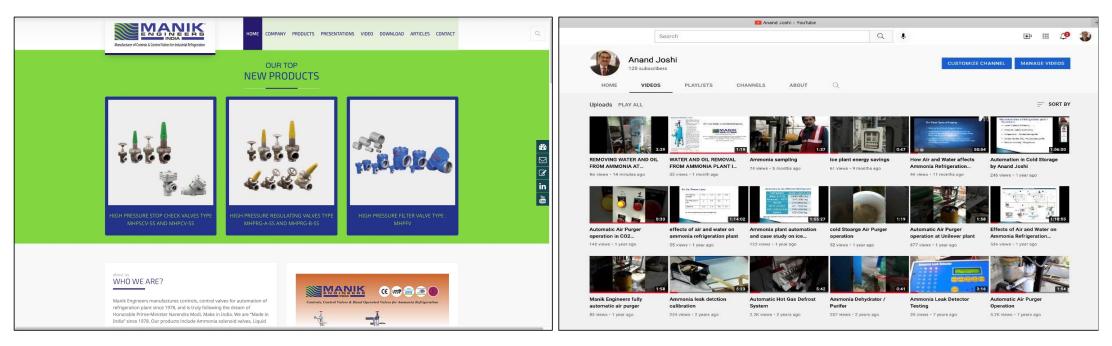


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# **Thank You!!**



