

► Our Technology. Your Success.
Pumps . Valves . Service



Controls . Protects . **Performs**



KSB Group. Experience since 1871.

Two symbols, three letters: pumps, valves and KSB are all closely connected – thematically and visually. Wherever there are fluids to be transported, controlled or shut off, customers globally rely on our expertise and products. The KSB brand promises them competent advice, excellent quality and top reliability. It also guarantees service they can count on, worldwide.

Our technology. Your success. And that's a promise. Welcome to KSB.

We have supplied generations of customers worldwide with pumps, valves, automation products and services. A company with that kind of experience knows that success is a process based on a stream of innovations. A process made possible by a close working alliance between developer and user, between production and practice.

Partners achieve more together. KSB is a loyal partner and a strong one. We do everything possible to ensure that our customers always have access to the ideal product and system solution with

- Over 140 years' experience
- Presence in more than 100 countries
- More than 16,000 employees
- More than 160 service centres worldwide
- Approximately 3,000 service specialists



The power. To Solve

KSB MIL Controls Limited, a subsidiary of KSB Aktiengesellschaft, takes the KSB group's promise of providing right solutions in fluid control to our customers with the same vigor and intent. KSB MIL's control valves adds power and performance necessary for some of the most stringent applications in the most expensive and challenging processes worldwide to ensure successful operation throughout.

KSB MIL Controls Limited (originally established as Masoneilan Valves India Limited) started its operations in India during early 1980's by manufacturing Control valves with the solid foundation of the then world's best technology in Control Valves.

The trailblazer of technology in control valves met its match during 1997, when MIL was taken over by KSB, the worldwide leaders in Pumps, Valves and Service.

A whole new concept: Solutioneering

When customers describe their needs, we listen intently. We engineer solutions taking care of vital aspects and ensures that customers get the final solution at the right price - a process we name as solutioneering. The massive reach of KSB with its presence in more than 100 countries takes us close to wherever you are, providing engineered solutions unmatched.

Solutioneering

Severe Service Valve Solutions



The power. To win over challenges.

With proven expertise across sectors including thermal, nuclear, fertilizer, oil & gas, petrochemicals and other core industries, KSB MIL is equipped to cater to severe conditions prevalent in various process industries and provide novel concepts and customized solutions for tough process control applications in all industry sectors.

Energy Sector

KSB MIL's credentials have proved that its control valves can deliver high performances at both captive power plants and utility power plants including supercritical units from 660 MW to

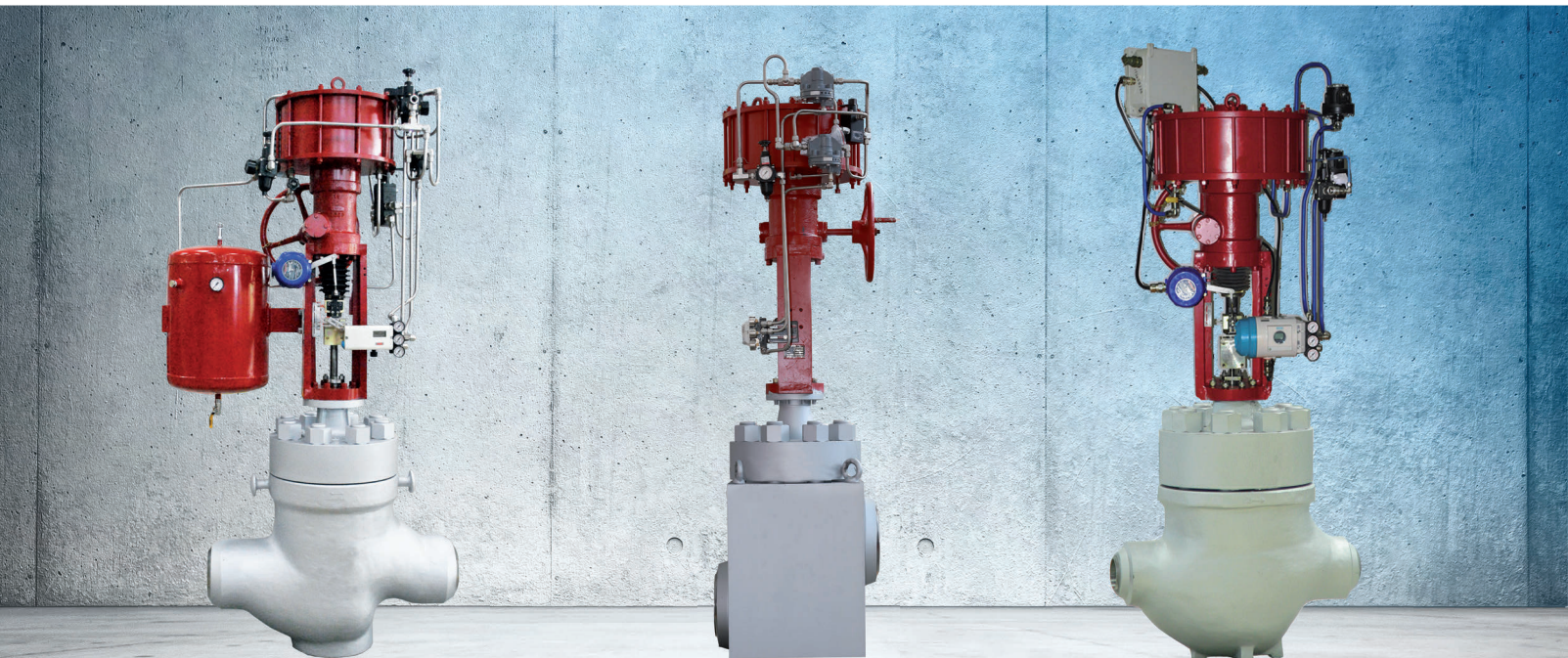
1000 MW. KSB MIL can cater to the most demanding design challenges and applications, including those in nuclear and combined cycle power plants, thereby powering the power generation industry.



Start-up Feedwater Control valve
MIL 91000, 14", 3000# ASME for 660MW
Supercritical Thermal Power Station, Bihar, India

Severe service applications catered	Coal fired Supercritical (upto 1000 MW)	Coal fired Subcritical (upto 600 MW)	Combined Cycle (upto 1000 MW)	Nuclear (upto 700 MW)
Start-up Feed Control	■	■	■	■
BFP Min. Flow Control	■	■	■	■
Seperator Level Control Valve	■	N.A	N.A	N.A
Boiler Circulation Control	■	N.A	N.A	N.A
Soot Blower Pressure Reduction	■	■	N.A	N.A
SH/RH Spray	■	■	■	■
Aux. PRDS Package	■	■	■	■
HP Turbine / Boiler Drain	■	■	■	■
Heater Drain & Condensate System	■	■	■	■
HP / LP Bypass	■+	■+	■+	■++

+ Through alliance partner ++ Alternatively uses Atmospheric Steam Discharge / Condenser Steam Dump valves
N.A: Not applicable for the sector



BFP Min. Recirculation Control valve
MIL 91000, 12", 3200# ASME for 800MW
Supercritical Thermal Power Station,
Telangana

Seperator Level Control valve
MIL 71000, 12", 2500# ASME for 660MW
Supercritical Thermal Power Station,
Madhyapradesh

Soot Blower Pressure Reduction Control valve
MIL 91000, 4", 3100# ASME for 800MW
Supercritical Thermal Power Station,
Andhra Pradesh

Industry Sector

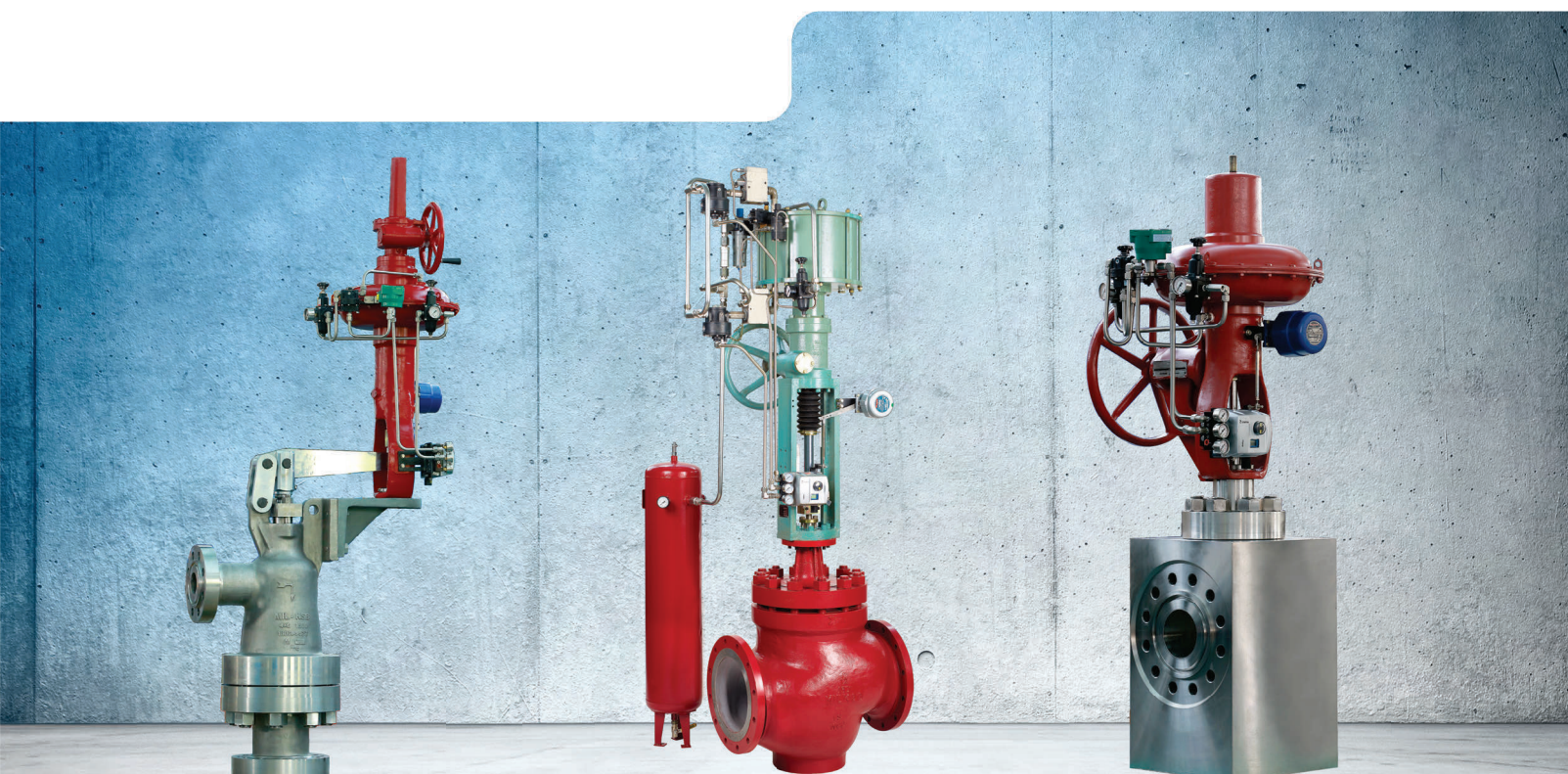
Control valves have become key components in offshore and onshore oil & gas industry, both upstream and downstream where applications are demanding due to the high pressure and adverse corrosive conditions experienced on production platforms and refineries. The indelible imprint of KSB MIL quality

has made its mark in the Indian fertilizer industry as well, with Ammonia, Urea let down valves and Low noise valves for steam applications that are being used at renowned facilities. We have the distinction of being associated with the supply of Cryogenic control valves including Bellows sealed & Vacuum jacketed valves for LNG terminals and Cryogenic test facilities.

Severe service applications catered	Oil & Gas (upstream)	Refinery	LNG/Petrochemical/ Chemical/ Fertilizer	Oil / Refinery Products (transportation)
Hydrocarbon service	■	■	■	■
Hydrogen service	■	■	■	N.A
Antisurge Control	■	■	■	N.A
Hot / Cold HP Separator Letdown	■	■	N.A	N.A
Cryogenic service	N.A	■	■	N.A
Water / Steam / Gas Injection	■	N.A	N.A	N.A
Amine / Carbamate Letdown	N.A	■	■	N.A
HP Ammonia Letdown	N.A	N.A	■	N.A
Urea Service	N.A	N.A	■	N.A
High Pressure CO ₂	N.A	N.A	■	N.A
HP Pump Recirculation	■	■	■	■
Micro Flow	■	■	■	N.A
HP Steam Vent	■	■	■	N.A



MIL 41000 Series, 20", 600# ASME valve with Electro-hydraulic actuator supplied to Refinery Pipeline Augmentation Project



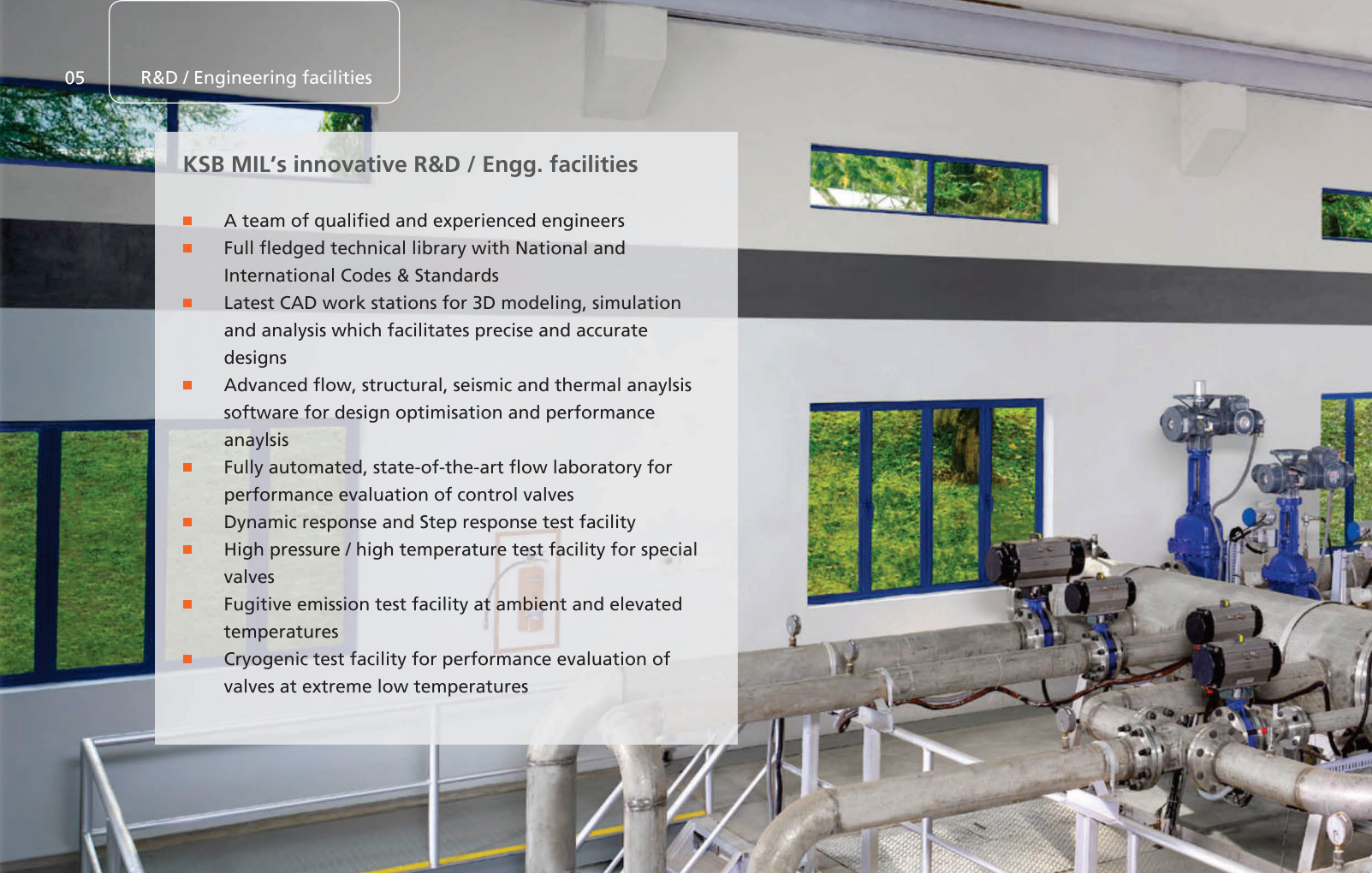
Hot High Pressure Separator Level Control valve MIL 77000, 4"X6", 1500# ASME for Refinery complex, Uttar Pradesh

Charge Gas Compressor Antisurge valve MIL 41000, 12", 300# ASME for Petrochemical complex, Haryana

Amine Regeneration Control valve MIL 78000, 6", 1500# ASME for Refinery complex, Uttar Pradesh

KSB MIL's innovative R&D / Engg. facilities

- A team of qualified and experienced engineers
- Full fledged technical library with National and International Codes & Standards
- Latest CAD work stations for 3D modeling, simulation and analysis which facilitates precise and accurate designs
- Advanced flow, structural, seismic and thermal analysis software for design optimisation and performance analysis
- Fully automated, state-of-the-art flow laboratory for performance evaluation of control valves
- Dynamic response and Step response test facility
- High pressure / high temperature test facility for special valves
- Fugitive emission test facility at ambient and elevated temperatures
- Cryogenic test facility for performance evaluation of valves at extreme low temperatures



Flow lab

The power. To innovate.

KSB MIL is among the technology leaders in the manufacturing of control valves focused on developing optimum solutions using state-of-the-art R&D Centre. Our R&D Centre is the first of its kind, which is approved by Department of Scientific and Industrial Research (DSIR), Govt. of India.

When advanced technology gets efficiently implemented by a team of expert engineering minds with the added assistance of software tools, it culminates in the production of some of the best future-ready products.

KSB MIL uses advanced 3D modelling and Computational Fluid Dynamics (CFD) analysis software to optimize and technically validate the major design parameters of control valves. We are amongst the elite league of Control valve manufacturers whose valves have qualified fugitive emission test as per ISO 15848-1 Class A standards including ASME class 2500# for Graphite and PTFE.

TUV INDIA PVT. LTD.,
Classic Towers, Office No: IIA, 2nd Floor,
1547, Trichy Road Coimbatore- 641 018.

INSPECTION CERTIFICATE NO.: 811320225/400-MIL-CONTROL-CBE/KC/01 **DATE:** 26.07.2016

PROJECT : TPI Witness for FE Test at Fluid Control Research Institute, Palakkad (FCRI)
PLACE OF ISSUE : COIMBATORE
CLIENT : MIL Controls Limited, Thrissur, Kerala
PURCHASE ORDER NO. : E-Mail Date Ref: 30 June 2016 (MIL to TUV India)

Sl.No.	SUBJECT OF INSPECTION	TEM / TAG Nr	QTY
1	Third Party Witness of Fugitive Emission Test on MIL Control Valve (2"CL2500 Globe Control Valve with 19.05 mm stem diameter) as per ISO 15848-1 – 2015 at FCRI & MIL.	MIL-FE/15/003	01 No

TYPE TEST CERTIFICATE

Test Valve Description:
 Tag No.: MIL-FE/15/003.
 Model: MIL 41000 Series
 Item: 2"CL 2500 Globe Control Valve with 19.05 mm Stem Diameter with Pneumatically Operated Actuator
 SI.No.: 134046
 Gland Packing: Graphite - MIL Ecolock FE packing system (Supagraf Premier - James Walker make).
 Valve Body & Bonnet Material: ASTM A182 Gr F347
 Tightness class achieved: AH
 Mechanical cycles witnessed: Endurance class CC1 (20,000 cycles)
 Pressure at Room temperature: 415.0 bar
 Pressure at 400 deg C: 285.0 bar

Reference documents used for inspection:
 ISO 15848-1 – 2015
Place of inspection & date or period:
 Place: FCRI Palakkad (Period: 04.07.2016, 05.07.2016, 06.07.2016, 07.07.2016 & 08.07.2016) & MIL Controls, Thrissur (Date: 25th July 2016)

FE Type test certificate as per ISO 15848-1 Class A including ASME 2500# for PTFE and Graphite

TELEGRAM : SCHOHQHCH
 SWIFT TEL : 20602018, 20602023
 (EPBAX) : 20602024, 20602133
 20605687, 20602144
 20602134, 20602122
 WWW : 20602029, 20529745
 Website : http://www.tuv-india.com

भारत सरकार
 विज्ञान और उद्योग विभाग
 भारतीय औद्योगिक अनुसंधान विभाग
 वैज्ञानिकी शक्ति एवं नवोद्योग विभाग
 नई दिल्ली - 110 016

GOVERNMENT OF INDIA
 MINISTRY OF SCIENCE AND TECHNOLOGY
 Department of Scientific and Industrial Research
 Technology Bhawan, New Mehrauli Road,
 New Delhi - 110 016

F. No. TUV-IND/3488/2015

To
 M/s. MIL Controls Ltd.,
 Meladour, Annamanada,
 Thrissur - 680 741
 Kerala

Subject: RENEWAL OF RECOGNITION OF IN-HOUSE R&D UNITS)

Dear Sirs,

This has reference to your application for renewal of recognition of your In-House R&D unit(s) beyond 31-03-2015 by the Department of Scientific and Industrial Research.

2. This is to inform you that it has been decided to accord renewal of recognition to the In-House R&D unit(s) of your firm at **Meladour, Annamanada Thrissur (Kerala)** upto 31.03.2018 Terms and conditions pertaining to this recognition are given overleaf.

3. Kindly acknowledge the receipt of this letter.

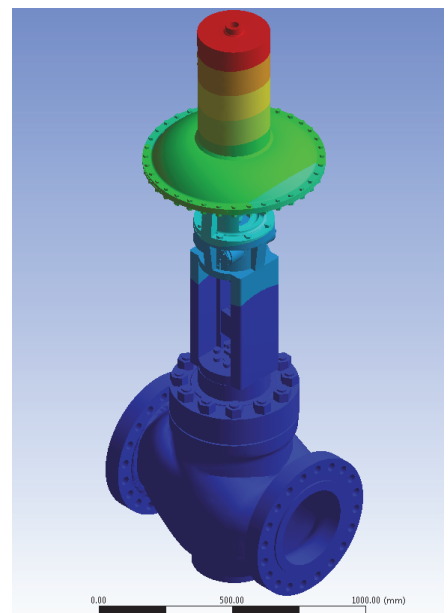
Yours faithfully,

 (K.V.S.P. Rao)
 Scientist - 'G'

Approval from DSIR, Govt. of India for R&D Centre



Cryogenic testing of valves with liquid Nitrogen at -196°C



Vibration analysis for seismic qualification

The power. To create

A plant design driven to meet Customer's expectations / Lead time.
Solutions tailor made for you which are cost effective.

Manufacturing expertise and unbeaten technology - all under one roof

KSB MIL's manufacturing infrastructure is fully geared to meet the challenges of the global process industry with a well established manufacturing set up and a qualified and skilled work force. KSB MIL has two well equipped plants with total plant built-up area of more than 10,000 sq.m for manufacturing control valves tailored to suit customer requirements. With handling capacity of 16MT, the second manufacturing plant produces

large size and special control valves for Supercritical Thermal power plants and large petrochemical/refinery units.

Our world class manufacturing facility include high precision CNC machining centres, state-of-the-art assembly & testing equipments and a sophisticated quality control centre, all approved by major clients across industry verticals.



Interior view of the large valve manufacturing plant



Interior view of the standard valve manufacturing plant



Exterior view of large valve manufacturing plant of KSB MIL, Kerala, India



CNC Machining bay



Exterior view of the standard valve manufacturing plant



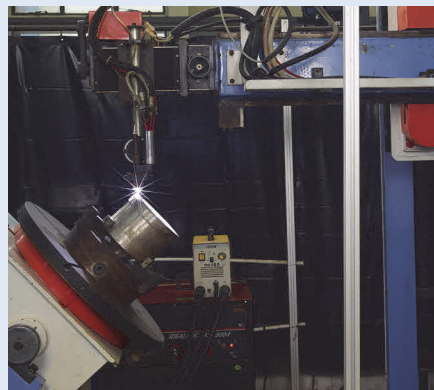
Fully automated valve test bench



Vacuum Heat Treatment facility



Plasma Nitriding Furnace



Automatic hard facing process



Horizontal machining centre - Valve body machining in single setting



A 32 inch size valve being tested on the High pressure test bench



Gland leak measurement for Fugitive Emission testing



Positive Material Identification of special alloys



Verification of geometrical tolerances and 3D profile using Coordinate Measurement Machine

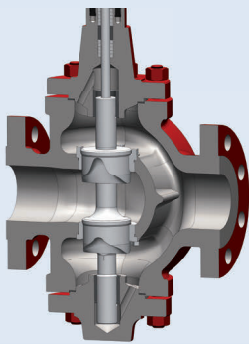


Load and deflection testing of Actuator springs

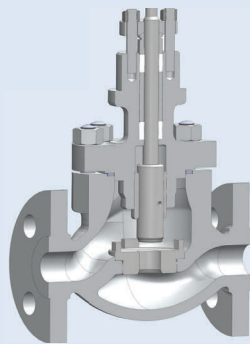
The power. To control.

KSB MIL offers a diverse range of products for all core sectors in the process industry. From feed water to chemicals, from petroleum to heavy water, from cryogenic fluids to corrosive fluids and toxic materials, KSB MIL provides products with customized design features and material to meet the specific requirement of the industry.

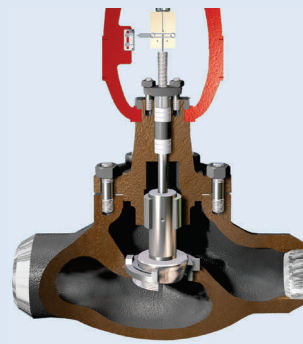
Control Valves



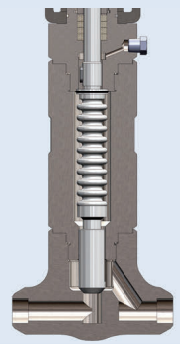
MIL 10000



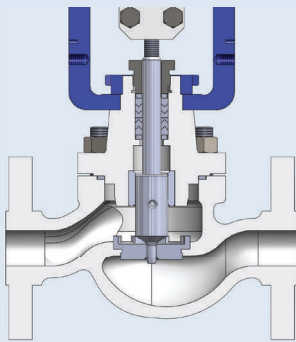
MIL 21R



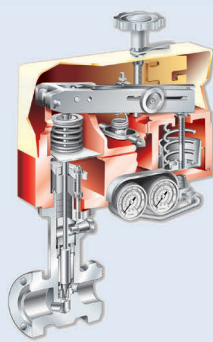
MIL 21000



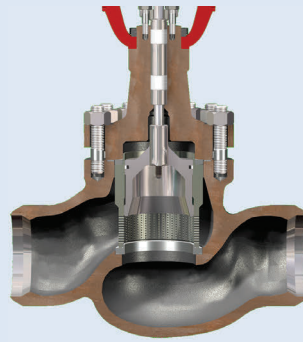
MIL 22000



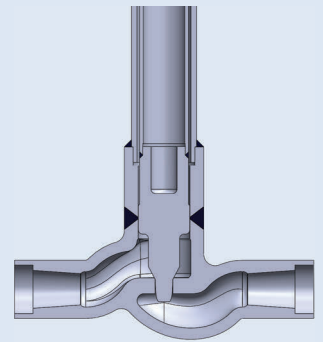
MIL 27000



MIL 29000



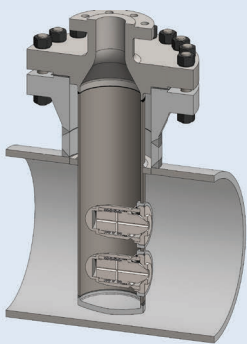
MIL 41000



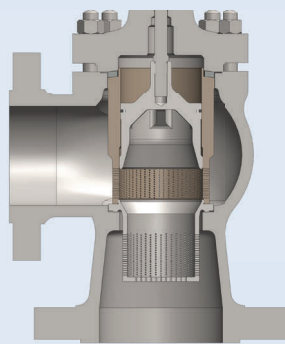
MIL 50000

Product	Description	Standard Size (inch)	Ratings (ASME Class)	Seat Leakage (as per FCI 70.2)	
				Standard	Optional
MIL 10000	Double Ported Top & Bottom Guided Control Valves	3/4 - 16	150# - 1500#	II	III / VI
MIL 10R - 21R	Direct Operated Pressure Regulators	1 - 4	150# - 600#	II / IV	
MIL 21000	Single Seated Heavy Top Guided Globe Control Valves	1/2 - 10	150# - 2500#	IV	V / VI
MIL 22000	Bellows Sealed Valves for Critical Service	1/4 - 4	150# - 2500#	<1X10 ⁻⁵ mbar lt/sec across seat	
MIL 27000	Compact Globe Control Valves	1/2 - 2	150# - 300#	IV	V / VI
MIL 29000	Micropak Micro flow Control Valves	1/2 - 1	150# - 1500#	IV	V
MIL 41000	Single Seated Heavy Duty Cage Guided Globe Control Valves	1/2 - 36	150# - 4500#	III / IV	V
MIL 50000	Cryogenic Valves	1/2 - 4	150# - 2500#	IV	V / VI

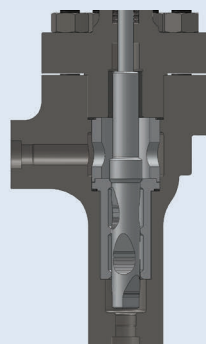
Valves are available with Ecolock low emission gland sealing sets or Bellows sealed glands. Other sizes / ratings are available on request.



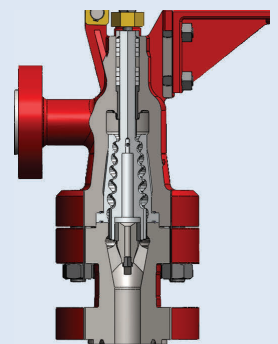
MIL 63000



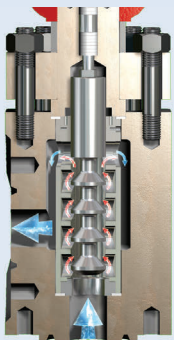
MIL 71000



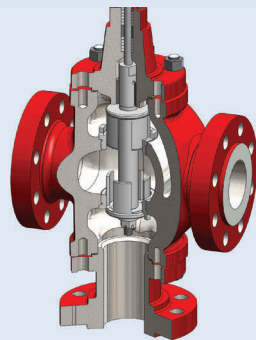
MIL 76000



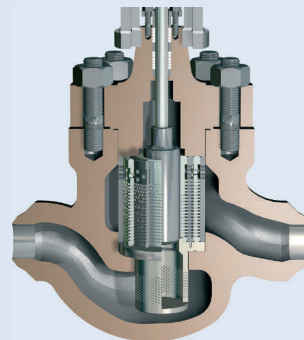
MIL 77000



MIL 78000



MIL 81000



MIL 91000



Bellows sealed Bonnet

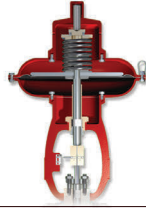
Product	Description	Standard Size (in inches)	Ratings (ASME Class)	Seat Leakage (as per FCI 70.2)	
				Standard	Optional
MIL 63000	Desuperheaters				
MIL 70000	Single Seated Heavy Top Guided Angle Control Valves	1/2 - 10	150# - 2500#	IV	V / VI
MIL 71000	Single Seated Heavy Duty Cage Guided Angle Control Valves	1/2 - 36	150# - 4500#	III / IV	V
MIL 76000	High Pressure Letdown Control Valves	1 - 2	150# - 2500#	IV	V
MIL 77000	Multi-stage Labyrinth Lo-dB Control Valve	2 - 8	600# - 2500#	IV	V
MIL 78000	Multi-Stage Anti-cav/Low Noise control valves	1/2 - 6	300# - 2500#	IV & V	VI
MIL 81000	Three Way Combining and Diverting Control Valves	3/4 - 12	150# - 2500#	IV	VI
MIL 91000	Multi-Stage Multi-Path Axial Flow Control Valves	3/4 - 20	150# - 4500#	V	VI

Actuators

MIL 37-38

Pneumatic Spring Diaphragm Actuators

Sizes : 11, 13, 15, 18 & 24
 Travel: < 4"
 Supply Pressure: 20 to 65 psig



MIL 67-68

Piston Cylinder Actuators

Sizes: 6, 8, 12, 16, 20 & 24
 Travel: < 12"
 Supply Pressure: 60 psig to 100 psig



Electrical & Electro Hydraulic Actuators

Our Control valves can be fitted with internationally reputed makes of Electrical and Electro Hydraulic Actuators



Accessories

Smart Positioners

We offer Profibus or Hart or Foundation Fieldbus based smart positioners mounted on our control valves fully compatible with all major Distributed Control Systems (DCS)



MIL 7400

Pneumatic Positioner

MIL 7400 Pneumatic Positioners employ a force balance system to ensure that the position of the valve plug is directly proportional to the controller output pressure, regardless of packing box friction, diaphragm actuator hysteresis or off-balance forces on the valve plug.



MIL 8013

Electro Pneumatic Positioner

MIL 8013 Electro pneumatic Positioners provide precise and reliable valve positioning and superior dynamic response, by directly comparing valve stem position with controller DC output signal, providing dynamic response and positioning accuracy not obtainable with transducer and pneumatic positioner combination.



MIL 496

Rotary Limit Switches

MIL 496 Rotary Limit Switches (with SPDT / DPDT Microswitches or Proximity sensors) are used for electrically indicating one or two predetermined positions in the stroke of a control valve. They may be connected to audible alarms or signal lights for warning of valve or system malfunction or used to actuate solenoids, relays and other electrical devices.



MIL 400L

Electronic Position Transmitter

MIL 400L Electronic Position Transmitters are capable of transmitting angular movements as well as linear movements of control valves (with proper linkages) as 4-20 mA output signal. To ensure high accuracy levels, MIL 400L designs operates on LVDT- Linear Variable Differential Transformer - principle.



The power. To speak for our customers.

We think for them, we stand for them, we act for them. It's all about understanding them. KSB MIL's strength lies in the loyalty of its strong customer base. The mutual growth in our partnerships had humble beginnings, which grew beyond a mere deal and today stands for some great work together.

Approvals from major players in Industry / Energy sector

The collage features several key documents:

- KNPC Vendors & Contractors Evaluation Committee:** A letter dated 24th November 2013 regarding vendor approval for K.N.P.C. Refinery, listing products like rotary control valves and pneumatic actuators.
- ADCO Pre-qualification Certificate:** Issued to MIL Controls Limited for pneumatic actuators and control valves, with a registration number of 12341.
- Petroleum Development Oman L.L.C. Certificate:** A registration certificate for MIL Controls Limited, valid until 23rd November 2018.
- Larsen & Toubro Limited:** A letter dated 20th Nov '14 regarding a bid for a project in Kerala, India.
- NTPC Limited:** A letter dated 02.04.2016 regarding a bid for a project in Kerala, India.
- Takreer:** A letter dated 01 Nov 2010 regarding a bid for a project in Abu Dhabi.
- Borouge:** A letter dated 01 Nov 2010 regarding a bid for a project in Abu Dhabi.
- SABIC:** A letter dated 01 Nov 2010 regarding a bid for a project in Saudi Arabia.
- Alstom:** A letter dated 01 Nov 2010 regarding a bid for a project in Saudi Arabia.

The power. To serve.

KSB MIL reaches out to the customers across the globe through the widespread KSB network. Our manufacturing sites, sales and a proficient after-sales team with prompt assistance from the service centres has been oiling the alliances for a smooth operation. Markets are close, requirements are time bound and opportunities are immense. But in order to tap all these we need to act at the right time, in the right way with the right patronage. KSB MIL is here, close to you, to speak your mind.



Quality

Expertise

Reliability

KSB Values





Technology that **makes its mark.**

Your local KSB representative:

┌

└

┌

└



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(formerly MIL Controls Limited)
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Thrissur Dist., Kerala, India
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Email : sales.mil@ksb.com, Web : www.ksb-mil.com

You can also visit us at:
www.ksb.com/socialmedia

