

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



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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 SE & Co. KGaA, 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.

Other KSB Valve Trademarks

Apart from KSB MIL, the following brand names of KSB constitute the valves portfolio of KSB Group



Gate, Globe & Check Valves

KSB sells its gate, globe and check valves under its own world renowned brand. They are used widely across various segments ranging from Energy, Oil & Gas, Food, Chemicals and other industries. Every single one of our solutions is designed to ensure the quality, reliability and durability of your system and allows you to master new challenges.



Butterfly valves

Under the AMRI brand, KSB sells its butterfly valves. They are used in building services, industry, water engineering and power generation applications. AMRI products include pneumatic, hydraulic and electric valve actuators as well as control systems.



Diaphragm valves

Under the SISTO brand, KSB sells its diaphragm valves. They perform shut-off duties in building services, industrial, water management and power generation applications. Under this brand name, KSB offers special valves for sterile processes including biotech applications.



The power. To win over challenges.

With proven expertise across sectors including thermal, nuclear, fertilizer, oil & gas, petrochemicals and other core industries, KSB 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'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 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

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

Seperator Level Control valve
MIL 71000, 12", 2500# ASME

Soot Blower Pressure Reduction Control valve
MIL 91000, 4", 3100# ASME

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 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.



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

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



Hot High Pressure Separator Level Control valve
MIL 77000, 4"X6", 1500# ASME

Amine Regeneration Control valve
MIL 78000, 6", 1500# ASME

Charge Gas Compressor Antisurge valve
MIL 41000, 20", 150# ASME

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.

Sl.No.	SUBJECT OF INSPECTION	TEM / TAG No.	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 FCR & MIL	MIL-FE/15/003	01 No

TYPE TEST CERTIFICATE

Test Valve Description:
 Tag No.: MIL-FE/15/003
 Model: MIL 43500 Series
 Item: 2" CL 2500 Globe Control Valve with 19.05 mm Stem Diameter with Pneumatically Operated Actuator
 Sl.No.: 164046
 Gland Packing: Graphite - MIL Ecolock FE packing system (Suagraf Premier-James Walker make)
 Valve Body & Bonnet Material: ASTM A352 Gr F347
 Tightness class achieved: AH
 Mechanical cycles witnessed: 1 Endurance class CCI (20000 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: FCR Palakkad (Period: 04.07.2016, 05.07.2016, 06.07.2016, 07.07.2016 & 08.07.2016) & MIL Controls, Thiruvananthapuram (Date: 25th July 2016)

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

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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



Gland leak measurement for Fugitive Emission testing



Horizontal machining centre - Valve body machining in single setting



Automatic hard facing process



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



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.

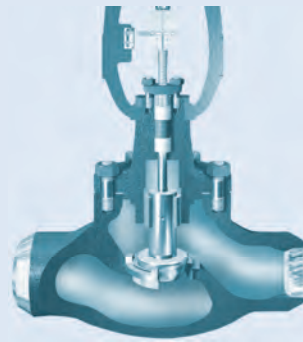
Control Valves



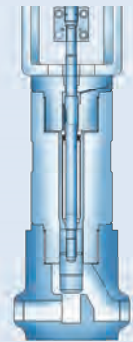
MIL 10000



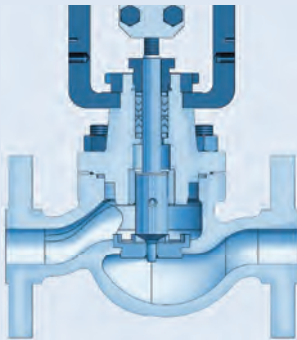
MIL 21R



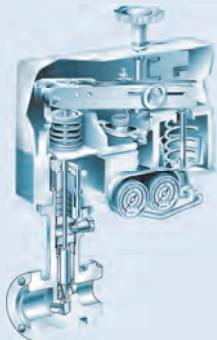
MIL 21000



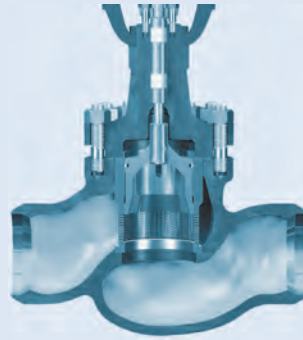
MIL 22000



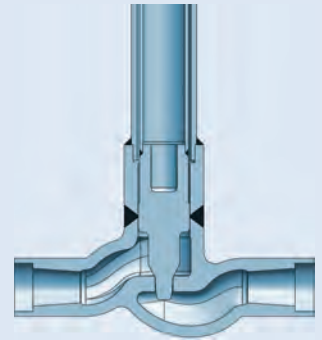
MIL 27000



MIL 29000



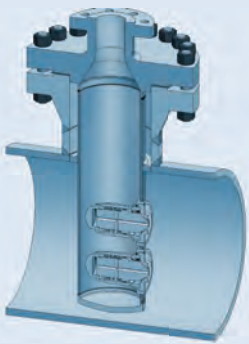
MIL 41000



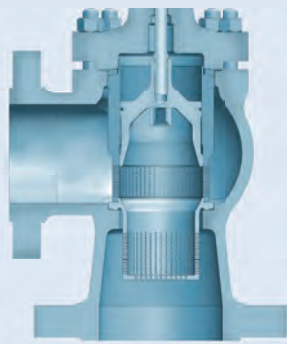
MIL 50000

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

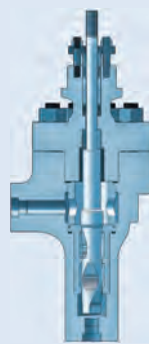
Valves are available with Ecolock low emission gland sealing sets or Bellows sealed glands. Other sizes / ratings are available on request.



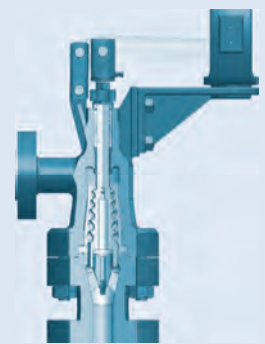
MIL 63000



MIL 71000



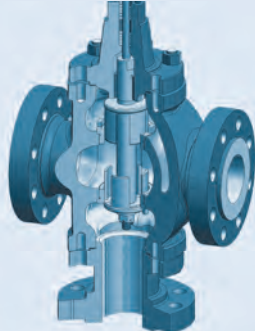
MIL 76000



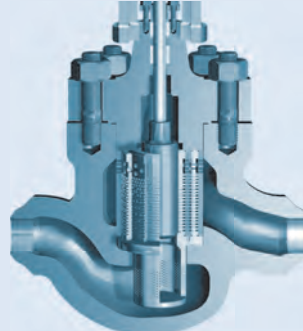
MIL 77000



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

Pump Protection devices

Boiler Feed Pump Recirculation Valve

For Boiler Feed Pump discharge pressures exceeding 150 - 180 bar control valves are used.

Product Highlights:

Size & Rating	8" - 12", upto 3400# ASME
Function Mode	Modulating
Design Pressure	550 bar
Max. Inlet Pressure	500 bar
Pressure Drop	490 bar
Body material	ASTM A 217 GrWC9



Automatic Recirculation Valve

A multifunctional valve whose primary function is to ensure that a pre-determined minimum flow through the centrifugal pump at all times.

Product Highlights:

Size & Rating	1" - 8", upto 1500# ASME
Max. Inlet Pressure	250 bar
Temperature	260°C
Body material	ASTM A105, ASTM A 182Gr.F11, ASTM A182 Gr. F22



Rotary Valves

We also offer the following types of Rotary Control / On-Off valves

- Butterfly valves - Concentric / Double / Triple Offset
- Eccentric Rotary Plug valves
- Segmented V-Notch Ball valves



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.



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 19th July 2013 regarding the approval of M/s. MIL Controls Limited for control valves. It lists product descriptions such as 'Accessories for Control Valves' and 'Control Valves All Types'.
- NTPC Limited:** A document from the National Thermal Power Corporation, India, dated 25-07-2014, addressed to 'TO WHOM IT MAY CONCERN'.
- Hindustan Petroleum Corporation Limited:** A registration and pre-qualification form for M/s. MIL Controls Limited, dated 07 Nov 2018.
- Petroleum Development Oman L.L.C.:** A certificate of registration for product valves, issued on 10/05/2013.
- Larsen & Toubro Limited:** A document from the Indian engineering giant, dated 26th Nov '14.
- Takreer:** A document from the Abu Dhabi-based oil refiner, dated 07 Nov 2018.
- Approval Letters:** Numerous other letters from various industry players, including SABIC, Borouge, and Alstom, all endorsing MIL Controls Limited.

Re-engineering / Retrofitting / Revamp

Review on the valve performance and site feedback help us to up grade the design feature which in turn improve valve performance. With the product range of control valves ranging from 0.5" to 36" size and various actuators, KSB MIL is equipped to provide engineered solutions for retrofitting and revamp activities. For customers who are concerned about imported spare parts coming at exuberant prices, we can evaluate joint reverse engineering process

Commissioning kits and Soft goods

During line flushing activities special design control valve trim needs to be removed from the valve to avoid damage & entrapment of foreign material. Valve is then re-assembled with new gasket and gland packing. Prior to commissioning, physical inspection and stroke check is carried out at site. Flushing is used as sound piping practice to avoid damage to control valve internals. Our service team provides extensive support during the pre-commissioning / commissioning phase.

Annual maintenance and O&M shut down contracts

Big thanks to our loyal customer base and confidence on us, KSB MIL is executing annual maintenance jobs at all leading companies in public and private sectors. Mobilizing the team is carried out through our dealer network and job is supervised by our experienced Service leads.

As good as new

The refurbishment job shall ensure extension of the life period and trouble free operation of the valve and hence maximizing the benefits with the existing valve. With support from site, we carry out the service maintenance of other make valves also.

The power. To serve.

With a strong foothold of experience which spans over three decades in the industry, our installed base spreads across the globe and is supported in aftersales by the extensive service network of KSB SupremeServ.

KSB SupremeServ

The services rendered by our team are comprehensive and includes the Installation support, Commissioning activities, Annual maintenance, Shut down maintenance. Leveraging on the technical expertise gained in providing solutions for various challenging severe service applications, KSB MIL also

supports customers by extending the expertise to Retrofit and Re-engineering of existing trouble making valves. We support you to maintain your control valves in robust condition, thereby maximizing the plant availability at justified costs, ensuring that 'every penny spent on us is worth'.



Desk support & service call alerts

Information on the basic functioning of our products, assistance for normal trouble shooting and other technical/commercial enquiry is available round the clock. VALVE ASSIST – A hotline number is provided on the actuator where customers/end users can SMS the valve serial no. and KSB MIL shall provide technical assistance over the call. The sticker with hotline number is placed on all the valves dispatched from the factory.



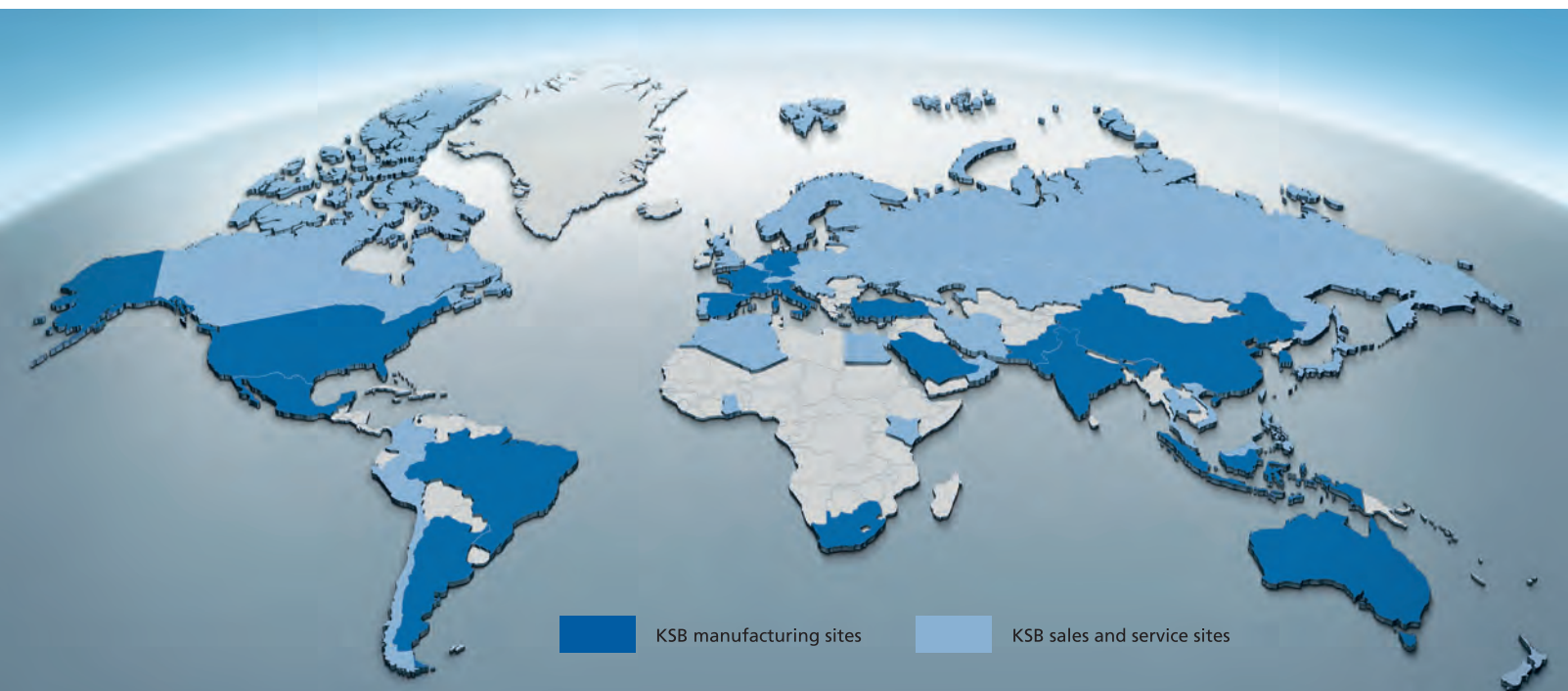


Reaching out to where you are

We reach 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.





Technology that **makes its mark.**

Your local KSB representative:



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