




MIC**ONX**

**Ultra High Purity (UHP)
Stainless Steel Solutions for
Semiconductor Process Applications**



MINOX & PARTNERS

High-Performance Solutions for Semiconductor & Data Center

About Minox

Minox is a leading provider of high-quality stainless steel solutions, supporting industries where precision, reliability, and performance are essential. With a strong regional presence and technical expertise, we deliver responsive service and dependable supply across Southeast Asia.

At our core is the Minox MICONX Series—Ultra-High Purity (UHP) components engineered for critical process applications, ensuring clean and consistent gas and chemical delivery. Complemented by trusted flow control and sealing solutions, Minox provides an integrated approach to system performance, helping customers maintain efficiency, safety, and operational excellence in the semiconductor and data center sectors.

STRATEGIC SOLUTIONS & PARTNERSHIPS

To support the complex requirements of high-tech manufacturing, we offer a specialized portfolio of brands that ensure system integrity from source to process tool:

MICONX Purity Series

Ultra-high purity tubes, fittings, and ball valves engineered for critical gas and chemical delivery in semiconductor manufacturing.

MICONX Vacuum Solutions

Vacuum components and valves for high-vacuum environments, delivering reliable, leak-tight system performance.

BMT / Superlok UHP Solutions

Precision UHP valves, regulators, and fittings engineered for safety, reliability and high precision in demanding semiconductor applications.

Otsuka Advanced Materials

High-performance sealing materials and engineering Poticon Filament for semiconductor, plasma, and precision manufacturing environments.

Data Center Cooling

Stainless steel cooling loop solutions for advanced liquid cooling systems, ensuring thermal efficiency and leak integrity.

Garlock & Rubber Fab Sealing

High-performance gaskets, o-rings, and PFA tubing designed for aggressive chemical and high-purity environments.

Key Applications

- Semiconductor fabrication (process gas delivery)
- Data center liquid cooling systems
- Chemical distribution systems (CDS)
- Ultra-pure water (UPW) systems

MICONX series by minox®

MICONX is a series by MINOX dedicated to advancing solutions for the semiconductor industry. In this highly demanding sector, where purity and vacuum integrity are critical, MICONX components undergo rigorous quality control at every stage of production. From careful selection of raw materials to tightly controlled manufacturing processes, strict internal standards ensure consistently high performance and reliable quality.



MICONX EP / BA / AP/ COAXIAL Tubes & Fittings Solutions

MICONX **EP** tubes and fittings feature an electropolished internal surface finish of $\leq 10\mu\text{in}$ ($\leq 0.25\mu\text{m}$) Ra max. To ensure ultra-high purity, EP products undergo stringent high-cleanliness processing, followed by inspection and final packaging in a Class100 (ISO 5) cleanroom environment. Each product is nitrogen purged, double-bagged, capped, and sealed.

MICONX **BA** tubes and fittings feature either a bright annealed (BA) or mechanically polished (MP) internal surface finish of $\leq 20\mu\text{in}$ ($\leq 0.51\mu\text{m}$) Ra max. The product range is suitable for bulk gas transport and general high-purity applications. Standard material is SS316L, with SS304L available as a cost-effective alternative.

MICONX **AP** tubes and fittings are annealed and pickled, with an internal surface finish of $\leq 40\mu\text{in}$ ($\leq 1.0\mu\text{m}$) to $100\mu\text{in}$ ($\leq 2.54\mu\text{m}$) Ra max. They are available in both SS304L and 316L for general clean service application.

Products:

Tube, Elbow, Tee, Reducer, Tube End Cap, Multi-Port Manifold

Size Range:

- Tubes 0.25" (1/4") to 6" according to ASTM A269/A632
- Pipes NPS 8 to NPS 20 according to ASTM A312, Schedule 10
- Pipes 15A to 300A according to JIS G 3459, Schedule 5 & Schedule 10
(others dimension available on request)

MICONX **COAXIAL** tubes and fittings are designed for double-containment systems, providing enhanced safety and leak detection capability, particularly for hazardous or ultra-high purity media.

Inner tube : Electropolished finish of $\leq 10\mu\text{in}$ ($\leq 0.25\mu\text{m}$) Ra max

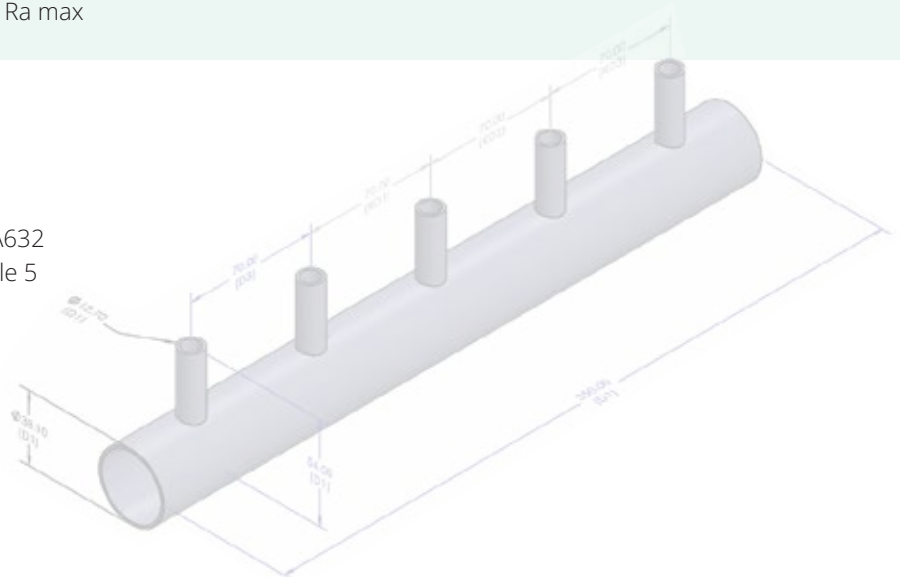
Outer tube : BA or MP finish of $\leq 20\mu\text{in}$ ($\leq 0.51\mu\text{m}$) Ra max

Products:

Tube, Elbow, Tee, Reducer, Sleeve, Terminator

Inner Size Range:

- Tubes 0.25" (1/4") to 2" according to ASTM A269/A632
- Pipes 15A to 32A according to JIS G 3459, Schedule 5



Precision Ball Valves for High-Vacuum & High-Purity Systems

G-SERIES

Ball Valve

The **G-SERIES Ball Valve** with PTFE seats is designed with a full-bore flowpath to deliver reliable performance for vacuum applications, with leak rates up to 1×10^{-7} mbar·L/s helium. The internal surface finish is $Ra \leq 0.6 \mu\text{m}$, and the valve is available with butt weld ends, KF, and ISO connections.

For higher performance requirements, the valve is also available with an ISO mounting configuration and optional TFM 1600 seats with FFKM O-rings, enabling tight sealing performance down to 1×10^{-9} mbar·L/s helium leak rate.

Material:

ASTM A351-CF8M

Pressure Range:

10^{-8} mbar to 68 bar (1000 psi)

Size Range:

0.5" to 4"
KF10 to KF50
ISO63 to ISO100

End Connection:

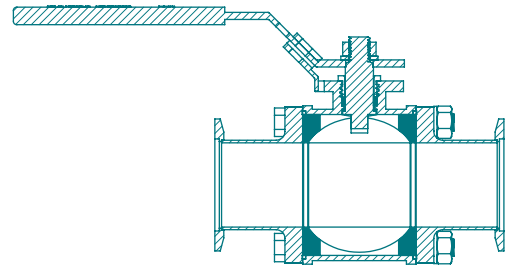
Butt weld
KF, ISO-K, ISO-F

Temperature Range:

PTFE -10°C to 120°C
TFM 1600 -29°C to 230°C

Options:

Coupled with pneumatic or electric actuators,
limit switch and solenoid valves



B-SERIES

Ball Valve

The **B-SERIES Ball Valve** is designed for high-purity process systems requiring exceptional cleanliness in semiconductor and other ultra-clean applications. It features an oil-free cleaned design and a precision-machined internal surface finish of $Ra \leq 0.4 \mu\text{m}$ to minimize particle generation and maintain process integrity. The valve is equipped with high-performance TFM 1600 seats, providing excellent mechanical stability and reliable long-term sealing performance.

Material:

ASTM A351-CF8M

Pressure Range:

Vacuum to 68 bar (1000 psi)

Size Range:

0.375" (3/8") to 4"

End Connection:

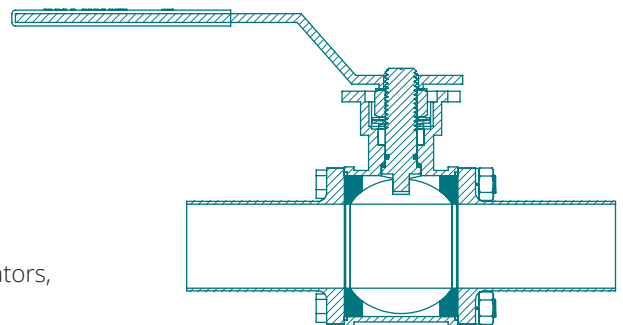
Butt weld
(length extension on request)

Temperature Range:




TFM 1600 -29°C to 230°C

Options:

Coupled with pneumatic or electric actuators,
limit switch and solenoid valves



Quality Assurance & Traceability

-  **Certification** : All products are supplied with EN10204 3.1 Material Test Certificates and comply with RoHS and REACH standards.
-  **Traceability** : Every component is laser-engraved with the Minox brand, material grade, size, and traceable heat number.
-  **Verification** : All batch data and customer purchase records are meticulously tracked in our digital certificate system to ensure 100% material integrity.

MICONX Vacuum Components for High-Vacuum Applications

MICONX **VA3** tubes and butt-end fittings specially use for KF, ISO-K and ISO-F vacuum components.

MICONX **VAC** offers KF, ISO-K and ISO-F vacuum components compliant with ISO 2861 and ISO 1609 standards. The product range includes flanges, fittings, bellows, and hoses, suitable for vacuum applications down to 10^{-8} mbar.



KF Series

KF Series

Standard: ISO 2861

Size: KF10 to KF50

- KF Blank Flange
- KF Bored Flange
- KF Socket Weld Flange
- KF Short & Long Weld Stub
- KF Full Nipple
- KF Elbow
- KF Tee
- KF Cross Tee

- KF Braided Flexible Hose
- KF Flexible Hose

- KF Compression Bellow
- KF Centering Ring, Outer Ring
Overpressure Ring, O-Ring

- KF Single Pin Clamp
- KF Double Pin Clamp
- KF Spring Clamp with ABS Nut
- KF Spring Clamp with Wing Nut
- KF Toggle Clamp with Lock
- KF Nail Clamp
- KF Bulkhead Clamp
- KF Chain Clamp

Material:

- Clamp: Aluminium, SS304
- Flange & Fitting, Hose: SS304 & 316L
- Centering Ring & Support Ring:
Aluminium, SS304, SS316L

Temperature:

- 150°C FKM O-ring (bakeable to 200°C)
- 80°C NBR O-ring
- 300°C FFKM O-ring (upon request)

ISO Series

Standard: ISO 1609

Size: ISO63 to ISO630

- ISO Bolted Blank
- ISO Bolted Flange
- ISO Bolted Flange - Tapped

- ISO Blank Flange
- ISO Bored Flange
- ISO Long Weld Stub
- ISO Full Nipple
- ISO Elbow
- ISO Tee
- ISO Cross Tee

- ISO Braided Flexible Hose
- ISO Flexible Hose

- ISO Rotatable Bolt Ring
- ISO Split Retainer Ring
- ISO Centering Ring
- ISO Outer Ring

- ISO Single Wall Clamp
- ISO Double Wall Clamp
- ISO Double Claw Clamp

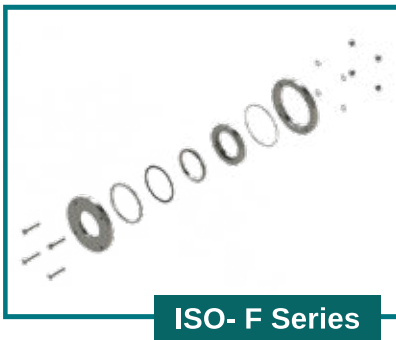
- ISO Braided Flexible Hose
- ISO Flexible Hose
- ISO Compression Bellow

Material:

- Clamp: Aluminium, SS304
- Flange, Fitting, Hose: SS304 & 316L
- Centering Ring & Support Ring:
Aluminium, SS304, SS316L

Temperature:

- 150°C FKM O-ring (bakeable to 200°C)
- 80°C NBR O-ring
- 300°C FFKM O-ring (upon request)



ISO- F Series



ISO- K Series

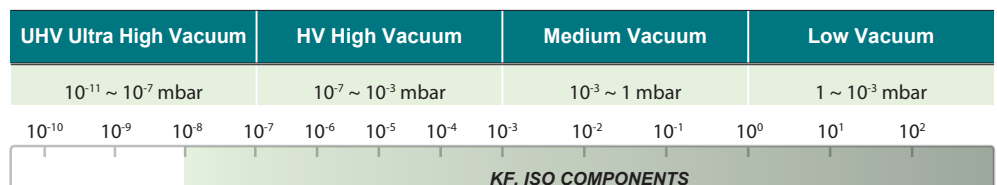
Pressure Rating :

10^{-7} mbar - Aluminium

10^{-8} mbar - Stainless steel

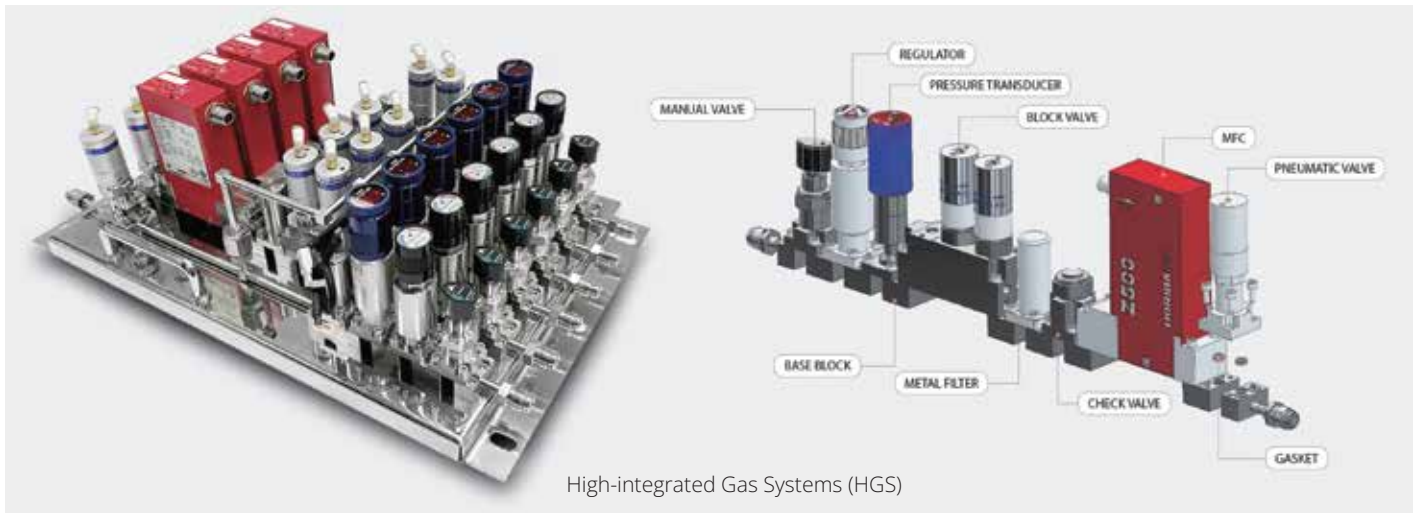
7×10^3 mbar - Stainless steel
with overpressure ring

Leak Rate : **10^{-9} mbar·l/s**



Ultra High Purity Series

BMT Ultra High Purity (UHP) Products are manufactured through strictly controlled production processes maintaining high-quality, reliability and durability. With the capabilities of meeting the stringent customer requirements. BMT is an official supplier of **Samsung Electronics, Sk Hynix, and LG Display** for UHP fittings and valves.



Diaphragm Valves



Check Valves



Bellows Valves



Regulators



Clean Ball Valves



Weld & Metal Seal Fittings



Gas Filters

SUPERLOK® Instrument Series

Engineered for excellence in precision fittings and valves for critical industrial applications. Built on proven double ferrule compression technology, SUPERLOK products are designed to deliver consistent, leak-tight performance under demanding pressure, and thermal cycling conditions.

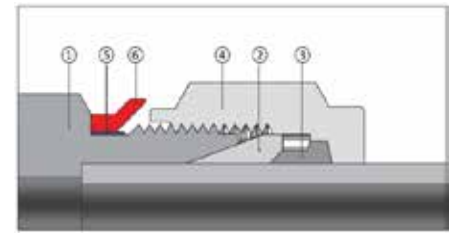


PERFECT CONNECTION can be **SEEN, HEARD, FELT** with the **SAFEST** fitting in the market!!

i-Fitting® ensure a safe, quick, and precise connection every time. The "Check Ring", which functions as a built-in gap gauge, separates as a fitting is tightened to the exact point of perfect compression.

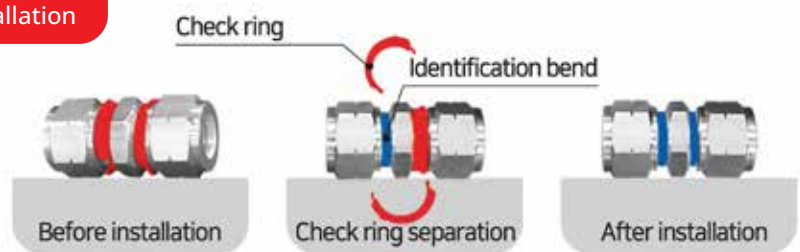
This quality control and safety features indicate that a fitting has been tightened properly and is not easily confused with other fittings on a job that have not been tightened.

Structure



- ① Body
- ② Front Ferrule
- ③ Back Ferrule
- ④ Nut
- ⑤ Identification Bend
- ⑥ Check Ring

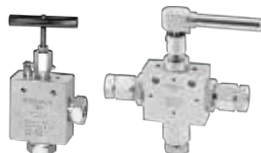
Installation



INSTRUMENT VALVES



INSTRUMENT BALL VALVES



HIGH PRESSURE VALVES



NEEDLE VALVES



CHECK VALVES

TUBE FITTINGS



SUPERLOK TUBE FITTINGS
(Compression Type)



BITE TYPE TUBE FITTINGS
(STD: JIS B2351)



BITE TYPE FITTINGS
(STD: DIN 2353)



37° FLARED TUBE FITTINGS
(STD: SAE J514)



PIPE FITTINGS
(STD: ASME B1.20.1, SAE AS71051,
ISO 228/1, JIS B0202, ISO 7/1, JIS B0203)



O-RING FACE SEAL FITTINGS
(O-ring Face to Face Design)



HIGH PRESSURE FITTINGS
(Coned & Threaded Connection Design)



SPECIAL FITTINGS
(i-fittings & Pre-forming Fittings)

Otsuka

O-Rings - Topwiz® by Otsuka

Topwiz® O-Rings by Otsuka are high-performance sealing components designed for excellent chemical resistance, durability, and reliable performance in demanding and high-purity applications.



Topwiz®: High-Performance FFKM Parts Sealing Solutions for Semiconductor & LCD Manufacturing

Topwiz® perfluoroelastomer parts are engineered for extreme environments where high cleanliness and resistance to corrosive chemistry are critical.

Core Capabilities

- Superior Resistance: Protects against Oxygen, Fluorine, and harsh plasma environments.
- High Purity: Low metal content ensures high cleanliness for sensitive semiconductor processes.
- Thermal Stability: Reliable performance across temperatures from -20°C to 315°C.
- Broad Application: Optimized for CVD, PVD, Etching, and Cleaning devices.

Quick Selection Guide

Grade	K19	K83	K315	K320	H170	H180	H185	H750
Appearance								
Features	<ul style="list-style-type: none"> • Plasma resistance • Low metal content • High purity • Amine resistance (<i>only for K320</i>) 				<ul style="list-style-type: none"> • Heat resistance • Plasma resistance • Low metal content • High purity • Resistance to water vapour (<i>only for H185</i>) 			
Hardness (IRHD-M)	60	74	70	74	72	64	68	78
Tb (MPa)	13	17	16	17	15	17	20	14
Eb (%)	199	180	196	184	199	159	148	196
Modulus @100%	2.8	6.1	6.5	6.1	3.6	7.0	11.6	7.0
Service Temp.	-5°C to 250°C	-5°C to 270°C	-5°C to 270°C	-5°C to 270°C	-10°C to 290°C	-10°C to 315°C	-10°C to 315°C	-10°C to 300°C
CS 70h @ 200°C	18	22	17	24	15	-	-	-
CS70h @ 300°C	-	-	-	-	-	25	26	21

Otsuka

3D POTICON FILAMENT

3Dポチコン

3D POTICON filament offers a versatile alternative to traditional manufacturing, particularly for small-lot productions and custom assembly jigs. Its superior material properties allow for rigorous durability testing at the prototype phase, while its 3D-printable nature helps manufacturers minimize capital expenditure on molds and optimize delivery schedules.



What is POTICON?

POTassium

Titanate

Compound

POTICON is a high-performance composite material that combines the excellent properties of potassium titanate fiber "TISMO" with the properties of various thermoplastic resins.

POTICON PELLET



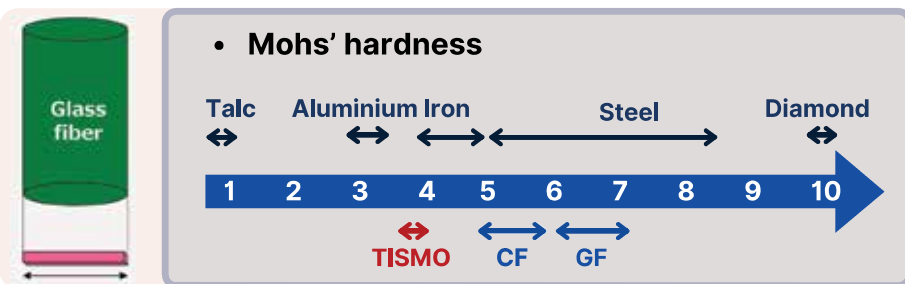
Otsuka Chemical's potassium titanate fiber > TISMO

SPECIFICATION	PROPERTY
Appearance	White Powder
Average Diameter (μm)	0.3 - 0.6
Average Length (μm)	10 - 20
Specific Gravity	3.4 - 3.5
Mohs' Hardness	4
Melting Point (°C)	1300 - 1350

TISMO



• Difference between "TISMO" and other reinforcing fiber.



TISMO (10 - 20 μm) Mohs' hardness is 4", which is softer than glass fiber and carbon fiber.

Features of 3D POTICON FILAMENT

- **Micro-reinforcing property** > Fully microscopic reinforcement effect.
- **Non-abrasive & lubricative property** > Aluminium, brass, free cutting steel are not scraped.
- **Good modeling accuracy** > Excellent dimensional accuracy and dimensional stability.
- **Extreme surface smoothness** > Enabling immediate use of modelling and minimize post processing.

Application

Decelerator



Robot Joints & Planetary Gear



Self-Propelled Robot & Cycloid Gear



View Full Brochure of 3D Poticon by Otsuka





The Complete Solution for Data Center Liquid Cooling

Minox provides stainless steel components, valves, and smooth flexible hoses engineered for reliable, efficient liquid cooling. With excellent corrosion resistance, clean flow, and long-term durability, our solutions ensure stable thermal performance for modern data center infrastructure.



High-Quality Stainless Steel Valves, Tubes, Fittings and Components



Stainless Steel Tubes & Fittings

Stainless steel tubes and fittings engineered for smooth flow, reliable connections, and efficient system performance.



Stainless Steel Valves

Sanitary valves regulate coolant movement precisely, ensuring optimal temperatures and system efficiency, making them ideal for reliable and clean environments.



Stainless Steel Unions

Stainless steel unions provide secure, leak-proof connections between components.



Flexible Hoses

Flexible hoses are easy to install and customizable in connection type and length for seamless equipment integration.



Filters & Strainers

Filtration solutions with screen gaskets and filter housings using stainless steel and mesh technologies, ensuring contaminant removal down to 1 µm for optimal system performance.

Filter Types & Mesh Options



Angle Filter



Inline Filter



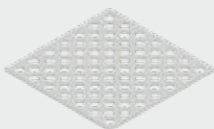
Double Connection Filter



Screen Gasket



Sock Screen



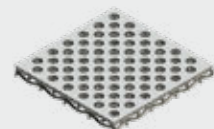
Perforated Plate



Wire Mesh



Wedge Screen



Sintered Wire Mesh

Garlock® Rubber Fab

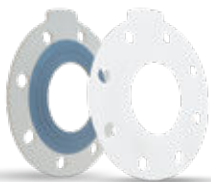
Specialty Process Sealing Solutions

Garlock and Rubber Fab sealing solutions are engineered to meet the demanding requirements of high-purity and process-critical industries. Designed for reliability, chemical resistance, and long service life, these components play a vital role in ensuring system integrity, leak prevention, and operational safety.



GYLON® High-Performance PTFE Material

Garlock's proprietary GYLON® minimizes creep and cold flow, delivering reliable sealing, superior leak prevention, and reduced maintenance for long-term performance and cost efficiency.



STRESS SAVER® 3522 & STRESS SAVER® 370

Designed for ultrapure water (UPW) systems, the STRESS SAVER® 3522 and STRESS SAVER® 370 feature molded-in stress concentrators that reduce contact surface area, minimizing contamination and ensuring reliable sealing performance.



Gaskets and O-Rings

Rubber Fab offers high-quality sanitary gaskets and o-rings with excellent chemical resistance to water, DI water, glycol mixtures, and dielectric fluids—ensuring reliable performance across diverse applications.

Material: EPDM, FKM, PTFE, Tuf-Steel®, Tuf-Flex®, GYLON BIO-PRO®



PFA Tube

Rubber Fab PFA tubing is produced from high-performance resins for applications requiring extreme chemical resistance combined with high-temperature exposure. The temperature range is -300°F to 500°F.

TUF-STEEL®



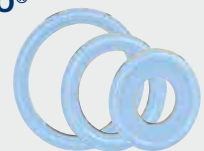
- Temperature range of -350°F to 550°F
- Excellent expansion/contraction stability
- Tuf-Steel® is composed of a unique proprietary blend of PTFE and 316L Stainless Steel

TUF-FLEX®



- Designed to meet critical requirements in the pharmaceutical field.
- Does not impart taste or odor
- Tuf-Flex® gasket's contact surface is PTFE unitized to an EPDM rubber inner core.

GYLON BIO-PRO®

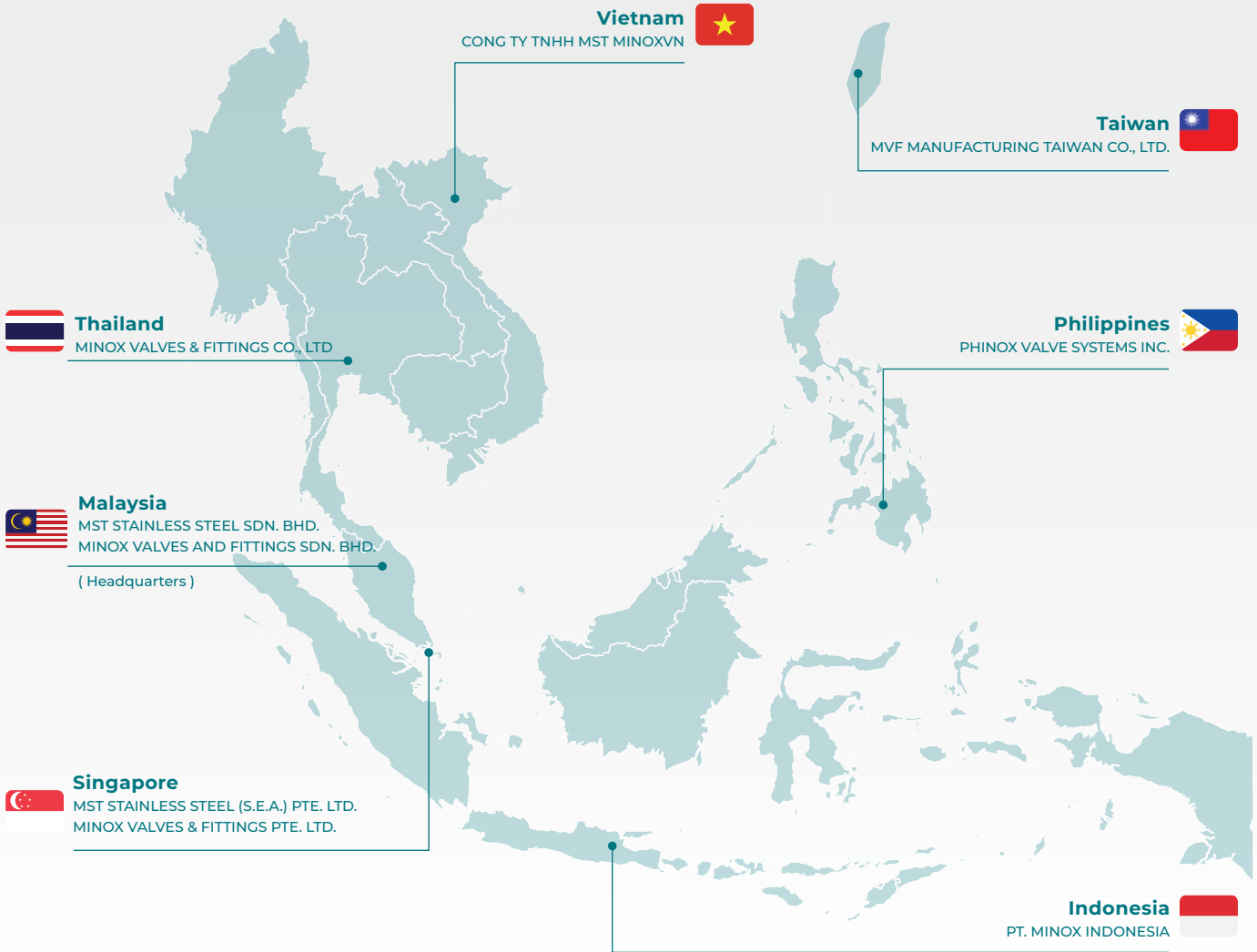


- No extrusion and cold flow
- Temperature range of -346°F to 500°F
- High resistance to most chemicals & temperature cycles
- Ensuring contamination-free operation

minox[®]

Minox is a leading provider of high-quality stainless steel solutions, trusted across the Food & Beverage, Pharmaceutical, and Semiconductor industries. Guided by our commitment, **"Quality Crafted, Industry Trusted"** we deliver products that meet the highest standards of performance, reliability, and compliance.

With a strong regional presence and extensive inventory, Minox operates across seven (7) countries, supported by eleven (11) strategically located warehouses in Malaysia, Singapore, Indonesia, and Thailand. Our reach is further strengthened by dedicated representatives in Vietnam, the Philippines and Taiwan, enabling responsive support and efficient delivery throughout Asia.



Contact us
info_mas@minox.biz

