

Metal expansion joints for Shipbuilding & Engines



World of expansion joints

EagleBurgmann KE

is a recognised world leader in the design and manufacture of engineered fabric and metal expansion joints. With more than 50 years in the business, EagleBurgmann KE is one of the most experienced expansion joint providers in the world.

Our excellent reputation is founded on superb quality and an extensive portfolio of fabric and metal expansion joints. We also offer expansion joint consulting & engineering, maintenance and on-site services. Our on-site services include plant inspections, troubleshooting, installation, refurbishment and emergency services.

Expansion joints

are vital components in most industrial plants. They are installed as flexible connections in air and flue gas pipe and duct systems to meet the challenges associated with expansion and vibration caused by temperature, pressure and media comprise.

Our experience and focus

on product development and technology for many diverse applications extend benefits that include:

- Value engineering to decrease operational downtime
- Proprietary design tools & technology that estimate and maximize overall service life
- Turnkey installation and repair services
- Design technologies such as Finite Element Analysis (FEA) and 3D modelling programs

The forming and welding equipment used in the manufacturing of expansion joints incorporate computer aided tooling to produce components faster, at a lower cost and of the highest quality.

As a member of several expansion joint associations EagleBurgmann KE takes an active part in setting the industry standard for expansion joints.

Our metal expansion joints are designed according to EJMA standards and in addition we also design according to ASME and EN latest editions, upon request.

Product Certification & Classification





Solutions for Power Plants

EagleBurgmann KE

has decades of expertise in designing and manufacturing expansion joints for smooth functioning in power plants engines worldwide.

Expansion joints used in power industries are designed according to EJMA latest version or other standards on request. The expansion joints design accommodate our customers flexibility requirements and key design aspects are:

- flexibility requirements (movements)
- high temperature and stress distribution
- spring rate
- bellows frequency response
- build in length

When designing metal expansion joints to be installed in power plants, application challenges are:

- high temperature
- pressure pulses
- Engine vibrations
- high cycle life expectations,
- high temp corrosion resistance of materials

Our prime focus

is to work closely with the customer and provide solutions that cater exactly to thier needs. Our expansion joints are designed for specific engines' operating conditions, depending on before mentioned parameters.

EagleBurgmann KE has the experience and competence to solve your power application expansion joint needs.

Application areas

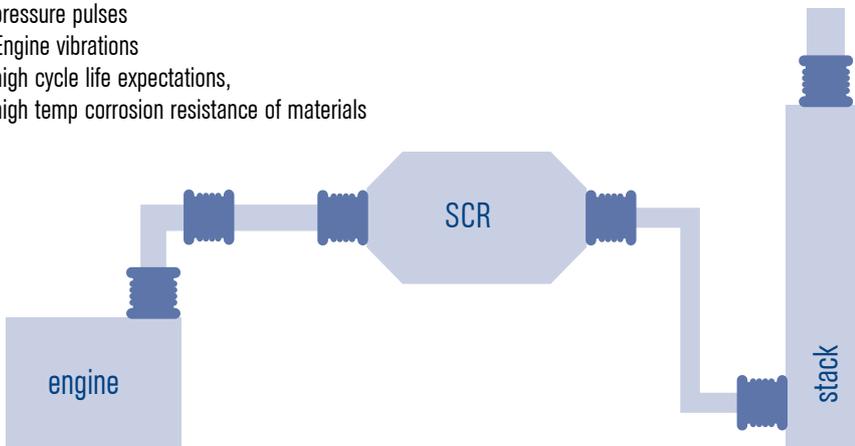
- Turbocharger Exhaust gas Inlet & outlet
- Exhaust reciever and manifold
- Engine Exhaust Line
- Cleaning oil Unit
- Air Inlet Unit

Technical properties

- Absorbs thermal expansion due to high temperature
- Handles engine displacement
- Minimize loads on the turbocharger and other critical components
- Knowledge of material selection for different applications

Customer benefits

- Piping flexibility for optimum plant space optimization
- Reliable, durable & free from leakage
- Economic & innovative designs with FEA capability
- Option for emergency onsite delivery and installation
- Troubleshooting team for customer support
- Profound experience



Exhaust flue gas expansion joint

UM type

High temperature, high pressure and exhaust flue gas media



UM type expansion joints with liner and clamp connection.



UM type expansion joint with liner and flange ends.



UM type expansion joints installed at a flue gas exhaust system at a power plant.

Solutions for Diesel and Gas Engines

EagleBurgmann KE

offers expansion joint solutions for the entire engine process - from the engine charge air line through the engine cylinder head outlet to the silencer. We have successfully supplied these types of metal expansion joints to leading engine manufacturers internationally.

Our solutions

In addition to supplying metal expansion joints, EagleBurgmann KE also provides our customers with, for example:

- Pipes
- Counter flanges
- Gaskets
- Insulation
- Protection covers (inside/outside)
- Internal linings

Add-on services

- Site inspection & on-site installation
- Approvals
- Certificates

Exhaust gas systems

EagleBurgmann KE offers design of complete exhaust manifolds for engines including bellows, connections, flanges, insulation and covers. The complete manifold is lifted onto the engine in one piece for easy assembly. Characteristics for exhaust gas systems in ships are:

- High temperatures
- Vibrations
- Pressure pulsations
- Pressure thrust

Application areas

- Turbocharger inlet/outlets
- Exhaust receivers
- Turbocharger by-pass
- Exhaust manifolds
- Engine exhaust lines
- SCR and scrubbers systems
- Fuel and lubrication systems
- Generator sets exhaust lines

Technical properties

- Long life
- High temperature resistant
- Provides leakage free system
- Reduces flow induced vibrations
- Low spring rate

Customer benefits

- Innovative & customized solutions
- 3D smart design with FEA capability
- Lean manufacturing to reduce costs
- Provide flexibility, handle vibrations & pressure impulses
- Durability
- High quality
- On time delivery
- Design of complex connections, piping and adjacent sections
- Pressure loss calculation



UM type with flange ends for flue gas exhaust applications where vibrations are present and pressure impulses occur.



UM type expansion joints with pipe ends and flanges for 4 stroke engine.



UM type expansion joints installed on an engine system.

Solutions for Shipbuilding and LNG Carriers

EagleBurgmann KE

has been providing expansion joints for wide variety of industries including the shipping & LNG carriers. LNG carriers are used to transport liquified natural gas all around the world.

Our expansion joints have proven to be very effective in handling thermal expansion, vibrations and perform as desired in the most severe climatic conditions. These carriers transport gas at temperatures from -196 °C and of pressure up to 50 bar.

Application areas

- Safety relief valves for LNG carriers
- Pipes on the shipping deck
- Gas & liquid pipes

Technical properties

- Provides high flexibility at cryogenic temperatures.
- Proven designs, through destructive burst and cycle life testing
- Handles severe climatic conditions
- Long life

Customer benefits

- Innovative & customized solutions
- 3D smart design with FEA capability
- Lean manufacturing to reduce costs
- Provide flexibility
- Durability
- High quality
- On time delivery
- Pressure loss calculation



AX type joint for LNG transportation.

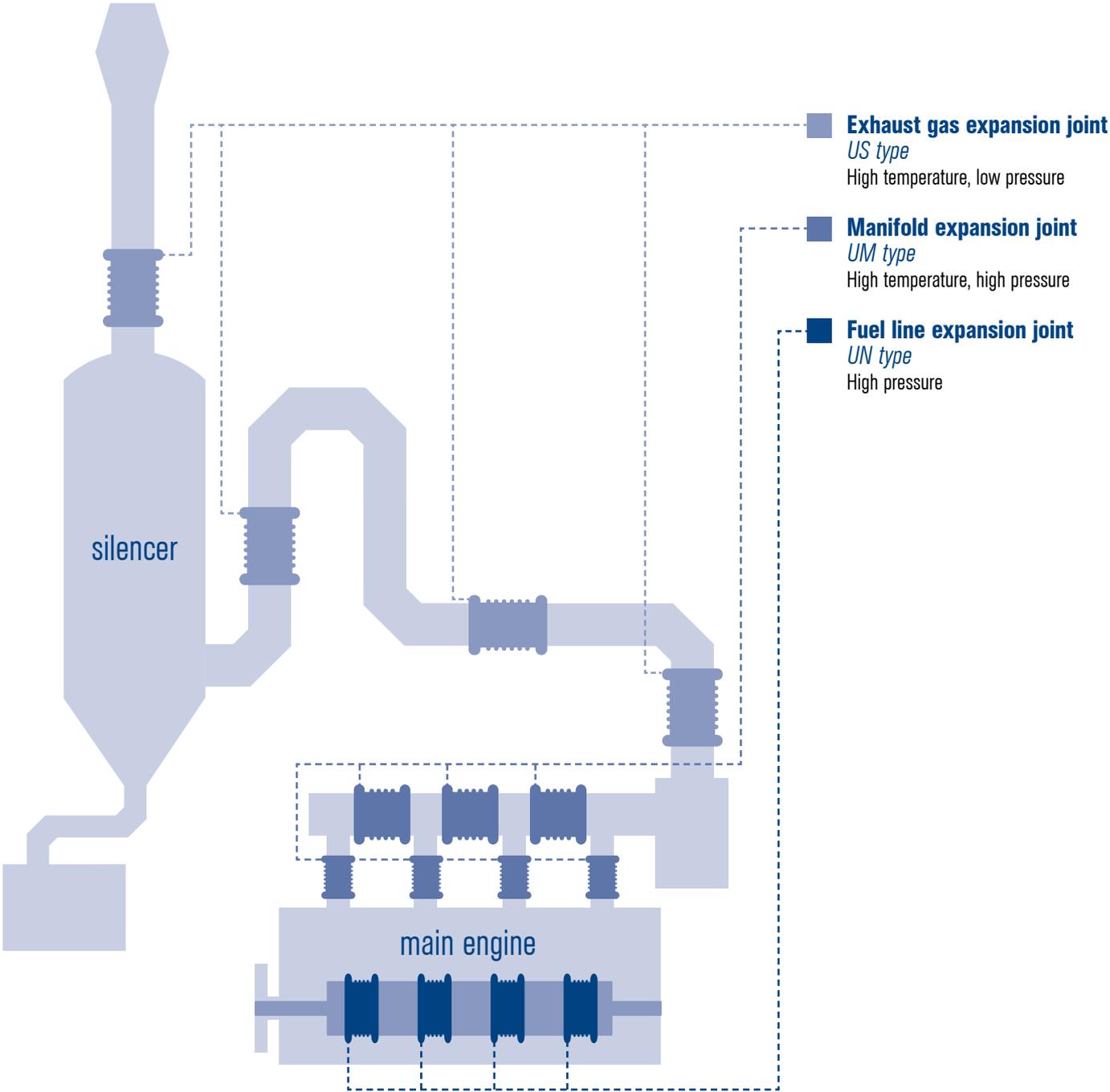


UN type expansion joint for installation on fuel transportation pipeline with special chamber construction.



Metal expansion joints installed in transportation pipelines on a LNG carrier.

General Overview of Ship & Engine Exhaust System



Metal expansion joints for shipbuilding and engines



Product Types

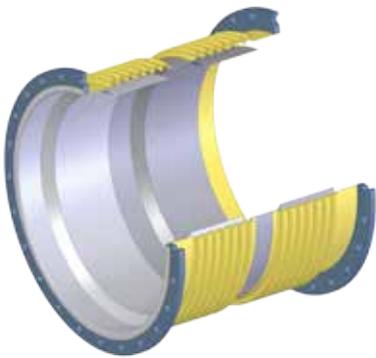
Exhaust line expansion joints

Product type:
US

Application:
Installed in the flue gas/exhaust systems where the vibrations are small and where compensation of large axial or lateral movements or a combination is needed.

Temperature range: Up to 800 °C
(1,472 °F)

Pressure range: Up to 2,5 bar (36.2 psi)



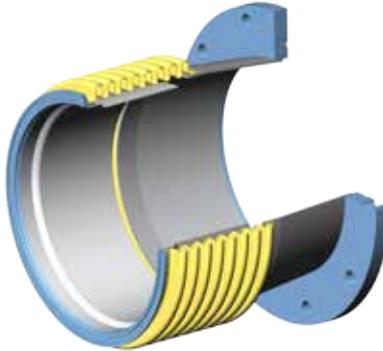
Manifold expansion joints

Product type:
UM

Application:
Installed on the engines before the turbocharger where high temperature, vibrations and pressure pulsation occur.

Temperature range: Up to 800 °C
(1,472 °F)

Pressure range: Up to 12 bar (174 psi)



Fuel line expansion joints

Product type:
UN

Application:
Installed in the engine fuel line. Since the fluid is combustible, the expansion joint is double chambered in order to provide space for leak detection device & also for protection of the bellows.

Temperature range: Up to 700 °C
(1,292 °F)

Pressure range: Up to 50 bar (725 psi)



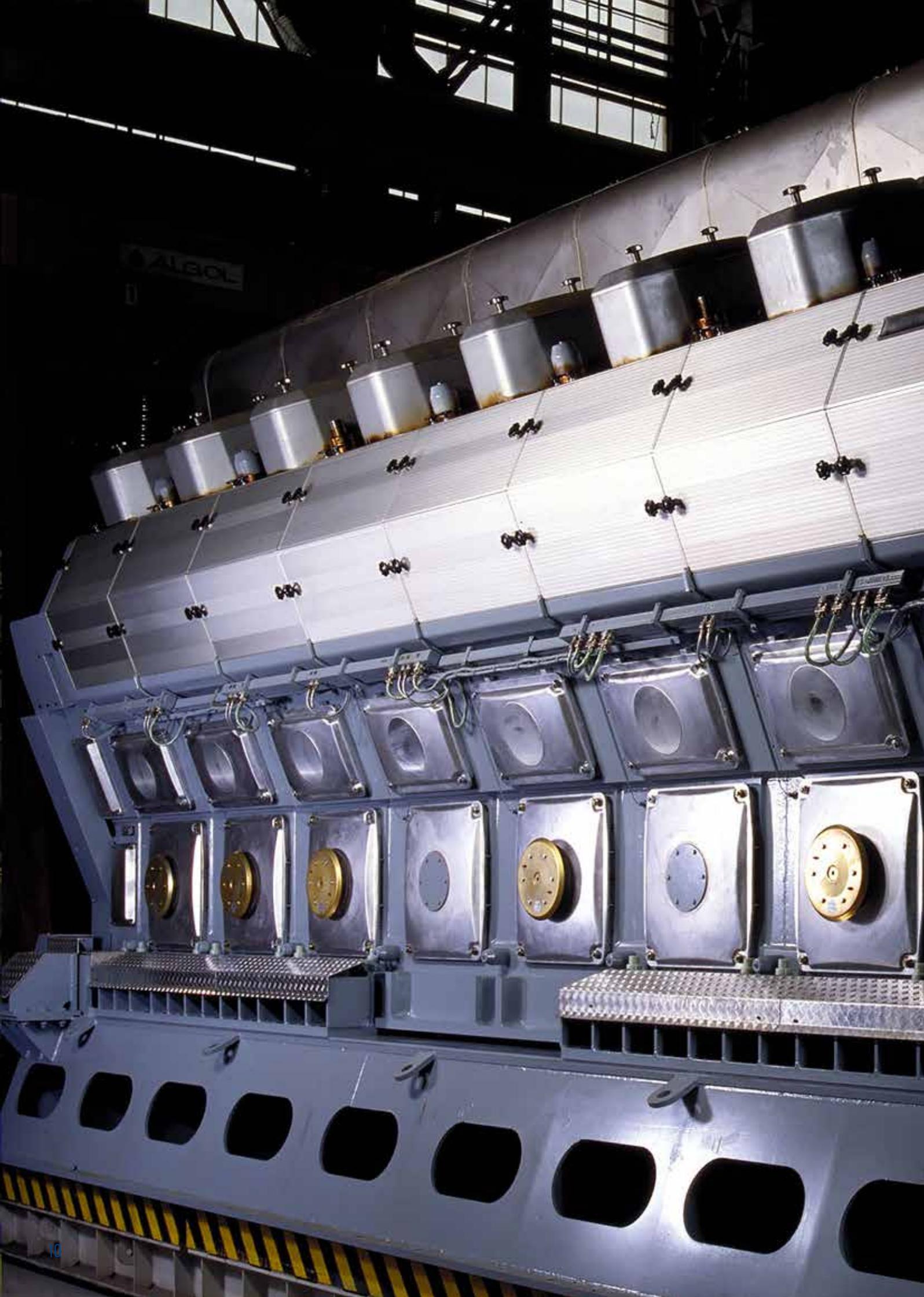
US type installed on a flue gas pipeline at a power plant.



UM type expansion joints installed on an engine.



UN type, special chamber type expansion joints for installation in fuel lines.





Experience that counts

EagleBurgmann KE

has always endeavored to anticipate the requirements for major manufacturers and users of the Ship and Engine building industry worldwide, matching the advance of the industry every step to the way and constantly developing new types of expansion joints specifically suited to the needs of modern Engine builders.

EagleBurgmann KE is, and has always been, an important pioneer in expansion joint technology and continues to research new and innovative products and services to provide our partners within the industry with the best possible solutions.

Over the years

this has resulted in close, valuable and productive partnerships with some of the most important Ship and Engine builders in the world – relationships of which we are extremely proud.

Our portfolio includes

Wärtsilä

GE Energy

Deutz

MAN Diesel

MTU

STX

Doosan

Caterpillar Energy Solutions

Algeria · Angola · **Argentina** · **Australia** · **Austria** · Bahrain · Bangladesh · Belarus · **Belgium** · Botswana · **Brazil** · Bulgaria · Cameroon · **Canada** · **Chile** · **China** · **Colombia** · Congo · Cyprus · **Czech Republic** · **Denmark** · **Ecuador** · Egypt · Estonia · Finland · **France** · Gabon · **Germany** · Ghana · **Great Britain** · Greece · **Hungary** · **India** · **Indonesia** · Iraq · Ireland · Israel · **Italy** · Ivory Coast · **Japan** · Jordan · Kazakhstan · Kenya · **Korea** · Kuwait · Latvia · Lebanon · Libya · Lithuania · Madagascar · **Malaysia** · Mauritius · **Mexico** · Morocco · Myanmar · Namibia · **Netherlands** · **New Zealand** · Nigeria · **Norway** · Oman · Pakistan · Paraguay · Peru · **Philippines** · **Poland** · Qatar · Romania · **Russia** · **Saudi Arabia** · Serbia · **Singapore** · Slovak Republic · Slovenia · **South Africa** · **Spain** · Sudan · **Sweden** · **Switzerland** · **Taiwan** · **Thailand** · Trinidad and Tobago · Tunisia · **Turkey** · Ukraine · **United Arab Emirates** · Uruguay · **USA** · **Venezuela** · **Vietnam** · Yemen · Zambia · Zimbabwe · www.eagleburgmann.com/world



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EagleBurgmann Expansion Joint Solutions is a leading global organization in the development of expansion joint technology; working to meet the challenges of today's ever-changing environmental, quality and productivity demands. Our flexible products are installed in thousands of plants, refineries and on equipment worldwide where reliability and safety are key factors for operating success. Everyday more than 6000 EagleBurgmann employees contribute their ideas, solutions and commitment to ensure our customers worldwide can rely on our products and services.

For more information – visit eagleburgmann-ej.com

eagleburgmann-ej.com

info@dk.eagleburgmann.com