EagleBurgmann®
expansion joint solutions

MHI Gas Turbine, A-Style Expansion Joint Replacement Kit

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ID: 20.03.006.09-13.GB.US

Our new expansion joint design is an ideal replacement solution for the installed A-style expansion joints on MHI gas turbines. These fabric joints provide turbine owners longer lasting operation and reliable performance.

With units in operation for over 7 years, our new exhaust expansion joint design has already delivered improved performance and reliability to many MHI/Dong Fang gas turbine owners.

Working closely with Mitsubishi Heavy Industries since 1995, EagleBurgmann has developed solutions that offer the advantage of a relatively easy, and affordable expansion joint replacements on all MHI turbines.

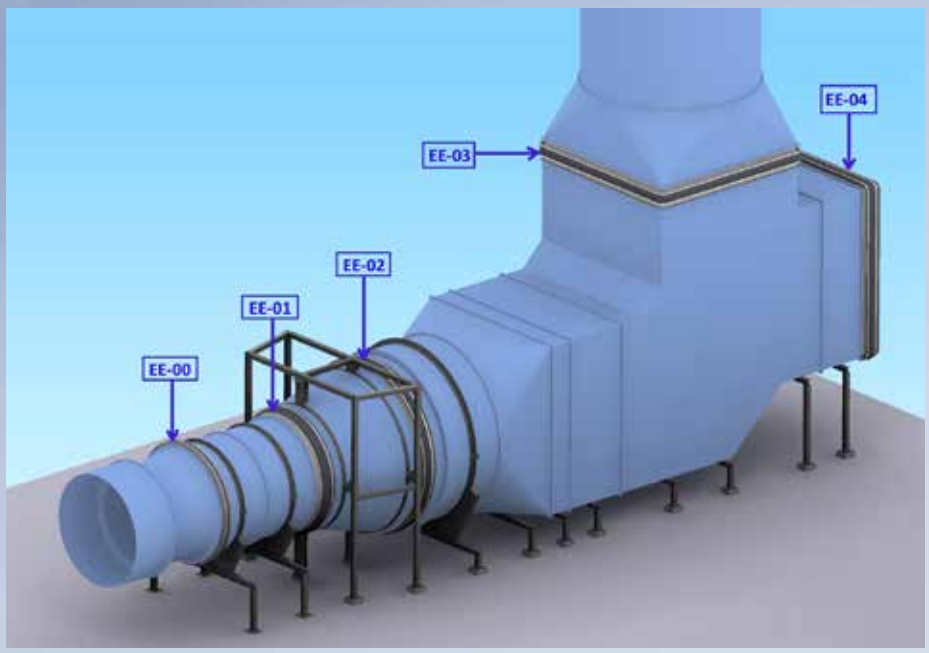
Cross Section model of EE-00 A-Style Expansion Joint

Ideal Solution for Gas Turbines

Within the gas turbine system, the connecting duct is exposed to a combination of thermal stress, turbulence and considerable vibration - an environment uniquely suited for fabric expansion joints. Fabric expansion joints are constructed of flexible fabric materials connected to a steel frame designed to compensate for extreme conditions.

In addition to full frame drop-in units, EagleBurgmann offers turnkey soft part replacements for existing steel frames to provide our customers with significant cost savings.

Developing fabric expansion joint solutions with a significantly longer life cycle and affordable replacement - here for a MHI 701F gas turbine.



Typical exhaust duct layout with expansion joints.

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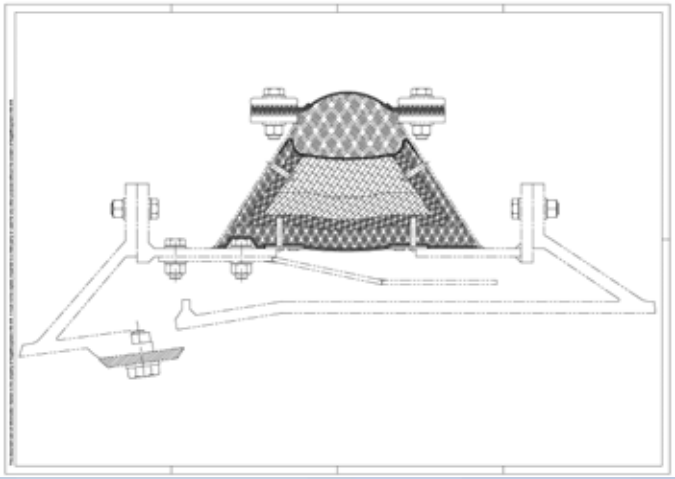
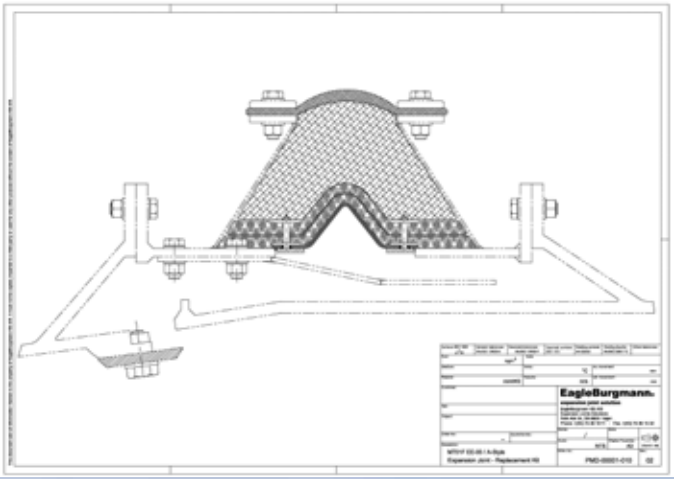


Drawing of existing design



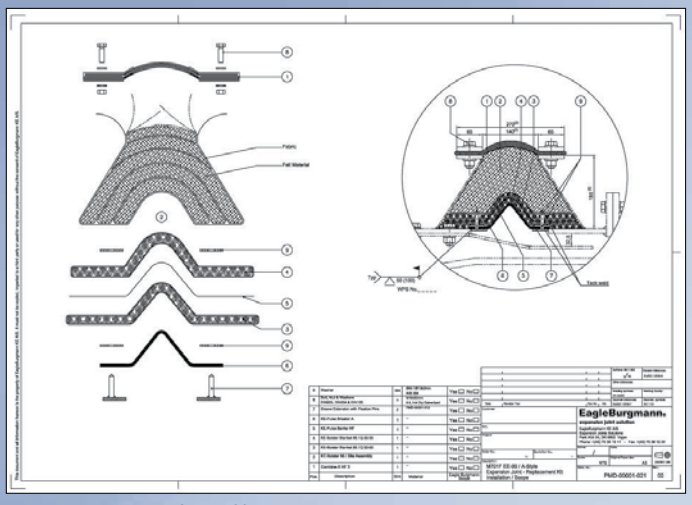
Drawing of new design of M701F, EE-00 A-Style Expansion Joint

Proven Designs & Technology for Gas Turbine Applications

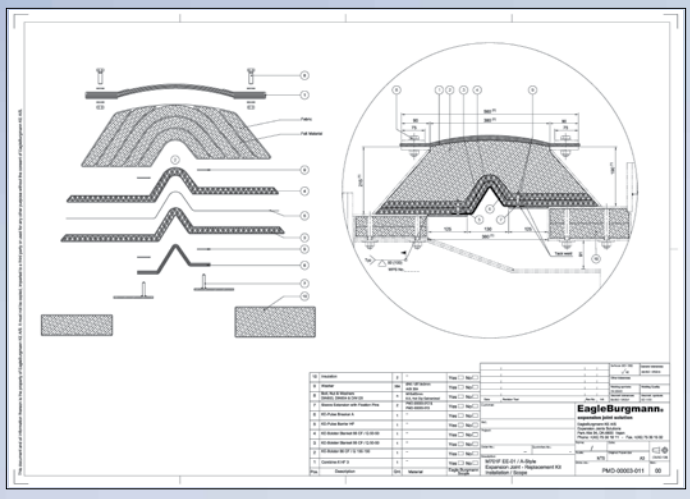
KE fabric expansion joints with round or rectangular frames are installed to compensate for movements, vibrations and misalignments, often in exhaust gas and low pressure in ducting systems.

Gas turbine expansion joints are built using a combination of our high performance materials and steel frames. Integrating high quality insulation, proven frame design and highly durable materials, this line of expansion joints are optimally engineered to withstand thermal shock and compensate for both movement, extensive pressure fluctuations and intense sustained heat.

EagleBurgmann A-style expansion joint replacement kits deliver a long life and a cost-effective replacement solution for MHI turbine exhaust and ductings. This product is designed for EE-00, EE-01 and EE-02 and is availble in 4 different designs.



Installation drawing of M701F, EE-00 A-Style Expansion Joint, Replacement Kit.



Installation drawing of M701F, EE-01 A-Style Expansion Joint, Replacement Kit.

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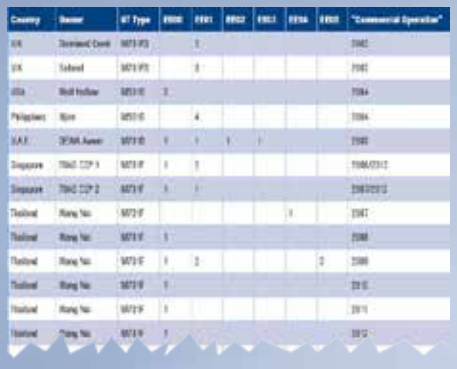
In addition to our extensive experience worldwide, the EagleBurgmann service team have completed several turnkey fabric material replacements on the existing steel frame at large combined cycle power plants in China and Singapore.

Fabric material replacement for an expansion joint on a MHI 701F gas turbine exhaust at a Combined Cycle Power Plant in Singapore.

EagleBurgmann A-style fabric expansion joint replacement kit packed and ready for shipment.



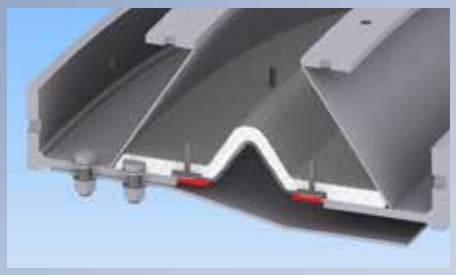
Fragment of extensive reference list for our turnkey A-style expansion joint replacements.

Step by step replacement of an A-style expansion joint on M701F

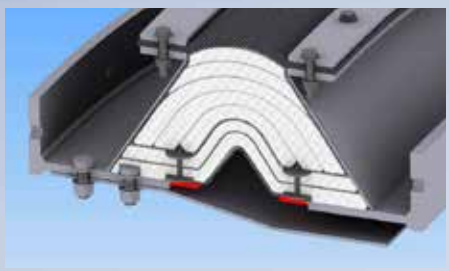
Shown here is a step by step turnkey A-style fabric expansion joint replacement on a MHI 701F gas turbine exhaust.

1. Removal of A-style expansion joint including external and internal insulation, wire mesh, back-up flanges and pre-bolster.

2. Welding of sleeve extension at site.



3. Fitting of KE-Pulse Barrier.



5. Replacement of M701F gasturbine exhaust expansion joint completed.

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Certificate of Appreciation

Mitsubishi Heavy Industries' Takasago Machinery Works would like to express its heartfelt thanks to EagleBurgmann KE A/S for contributing, through the supply of GT Exhaust Expansion joints over many years, to the growth of our gas turbine business. We hereby present this certificate in recognition of EagleBurgmann KE A/S's exemplary dedication and commitment.

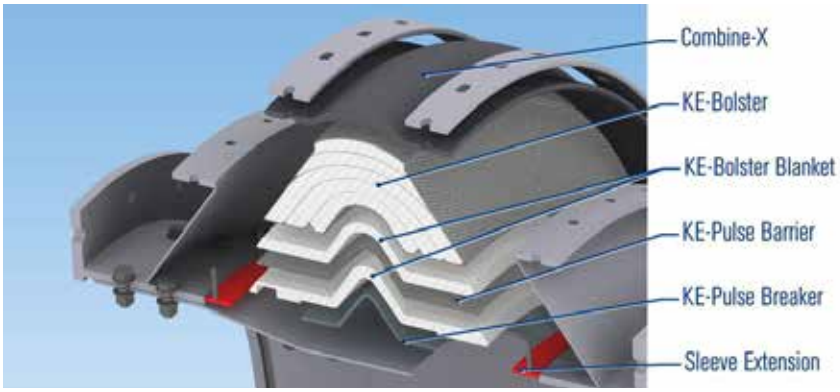
Presented this day, 13th September 2011

K. Ando
Kenji Ando
General Manager, Takasago Machinery Works
Mitsubishi Heavy Industries Ltd

EagleBurgmann is a proud certified supplier to Mitsubishi Heavy Industries, Ltd. (MHI) and won Certificate of Appreciation by MHI in 201 1 as a result of excellent design, machining, VA proposal including cost down and performance of KE Fabric Expansion Joints for gas turbines worldwide during more than 20 years.

EagleBurgmann offers designs for many different gas turbines:

- M501D5
- M501DA
- M501F
- M501F/A
- M501F3
- M501G
- M501J
- M501SDA
- M701D
- M701DA
- M701F
- M701F/A
- M701F1
- M701F2
- M701F3
- M701F4
- M701F5
- M701G
- M701G2
- M701SDA
- MF111
- M251



Function and features of layers

Our new A-style design for EE-00, EE-01 and EE-02 offers unique features such as pulse breakers and pulse barriers that accomodate pressure fluctions and turbulence in gas turbine exhaust systems.

Combine-X

- The expansion joint provides gas tightness at high temperatures
- Gas barrier based on HF technology/No risk of fire

KE-Bolster

- Supports the expansion joint against pulsation
- CF technology provides the ultimate per-formance under hightemperature, high vibrations and severe pressure fluctuations

KE-Bolster Blanket

- Provides excellent and even temperature reduction
- CF technology combined with quilting (Q) provides maximum life time

KE-Pulse Barrier

- Reduces the pressure pulse on insulating materials

KE-Pulse Breaker

- Reduces the pressure pulse on insulating materials
- Limits flow of hot gases

Sleeve Extension

- Minimizes the gap affected by pressure fluctuations
- Increase the support to the KE-Pulse Breaker
- Limits flow of hot gases

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