

Tailor made expansion joints



kompaflex ag


The Kompaflex group

Kompaflex is a Swiss company specialised in the design and production of metallic and fabric expansion joints for critical applications.

Since its creation in 1981, Kompaflex ag has become a key partner among large equipment manufacturers and end users in the development of innovative and unique solutions.

Due to the increasing demand for metallic expansion joints, kompaflex sro [CZ] was founded in 1995. This subsidiary is entirely dependant of the Swiss office.

Kompaflex DMM [SK] is the third unit of the group, born from a joint-venture with kompaflex ag. This subsidiary manufacture a range of fabric expansion joints.

There are in total more than 120 persons contributing to the production of expansion joints, across a combined manufacturing area of 10 acres.



1983	1985	1986	1996	1997
Turbine expansion joints	Pressure balanced expansion joints	Multi-ply rectangular expansion joint with no welding in the corners A WORLD INNOVATION	DN3000 expansion joint for a blast furnace featuring an Incoloy 825 inner layer	DN4500 gas turbine expansion joint
BBC Baden [CH] (now Alstom)	Sulzer [CH]	Sidmar [B] (now ArcelorMittal)	Bremen Steel Works [D] (now ArcelorMittal)	Siemens [D]

30 years of innovation

Kompaflex ag's approach is to provide a reliable and satisfactory customer service.

Our innovative approach and expertise has enabled us to manufacture customised expansion joints, thus meeting our customers' most stringent needs whatever the given pressure, temperature and media.



Multiply rectangular expansion joints with no welding in the corners



10 ACRES
TOTAL PRODUCTION AREA

By designing high precision and high performance products, some has successfully been installed several years ago without the need for replacement or repair.

Kompaflex ag is one of the rare manufacturers to be capable of offering unique designs.



Conical expansion joint on a gas turbine

1998	1998	2000	2009
Multi-ply & rectangular DN 5000x3000mm expansion joints	299 ultra-high vacuum expansion joints for the Wendelstein 7-X project	DN400 expansion joint with 600 Bar pressure resistance for a blast furnace	Rectangular expansion joint made of 3 bellows for large movements for a galvanising line
Alstom Power [D]	Max Planck Institute [D]	Voest Alpine [A]	Andritz Selas [F]

Large diameters

A number of manufacturers offer large scale equipments to increase the production and yields. Kompaflex has understood this constant search for performance by manufacturing diameters up to 12 meter diameter.

Expansion joints with diameter above 6 meter diameter are often best being manufactured directly on site for logistical reasons.



Production of several DN7200 expansion joints directly on a Siemens construction site in Italy

«THANKS TO ITS GREAT FLEXIBILITY FROM THE OFFER TO THE ORDER EXECUTION, KOMPAFLEX HAS DEMONSTRATED ITS CAPABILITY AS A KEY SUPPLIER. DURING A CRITICAL SITUATION, KOMPAFLEX IS ABLE TO MANUFACTURE LARGE MULTI-PLY EXPANSION JOINTS DIRECTLY ON SITE. THIS ENABLES TO REDUCE THE TRANSPORT COSTS.»

M. Nalesso, GEA group

12 METERS

LARGEST DIAMETER EXPANSION
JOINT BY KOMPAFLEX AG

Quick turnarounds

Because production shutdowns are not always scheduled, Kompaflex ag is able to manufacture expansion joints rapidly, thanks to a stockholding of a wide range of materials including exotic alloys and a great production flexibility. Such availability can minimise production losses.

24 HOURS

MANUFACTURING LEADTIME FOR
SOME EXPANSION JOINTS EVEN
MADE OF EXOTIC ALLOYS



DN5000 pressure balanced expansion joint manufactured and delivered on customer's site in less than 4 weeks



DN6000 angular expansion joint for a cooling system

«KOMPAFLEX HAS PROVED TO BE A RELIABLE INTERNATIONAL PARTNER. ITS TECHNICAL KNOWLEDGE, ITS PROMPT OFFERS INCLUDING DETAILED DRAWINGS AS WELL AS ITS COST/PERFORMANCE RATIO GIVE KOMPAFLEX THE STATUS OF A KEY SUPPLIER. TECHNICAL PROJECTS FEATURING LARGE DIMENSIONS HAVE RUNNED SMOOTHLY AND ON SCHEDULE.»

U. Oster, SPX Cooling Systems



DN4300 gas turbine expansion joint

Multi-ply expansion joints

Kompaflex ag masters the production of multi-ply expansion joints. They feature the following advantages:

- Reduced stresses
- a better flexibility
- a compact construction
- a leak control device
- a higher number of cycles
- a lower spring rates
- a higher lifetime

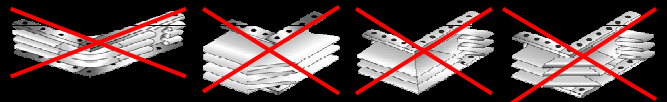


Rectangular expansion joints



ONE WELDING SEAM
ONE WELDING ONLY IS REQUIRED ON OUR
RECTANGULAR EXPANSION JOINTS

When the use of rectangular expansion joints is necessary, every manufacturer follows one of the following 4 corner designs:



Apart from... Kompaflex ag

The highest mechanical stresses are concentrated in the corners and weldings become the weakest links of the whole structure. These 4 corner designs are no exception.

Our expansion joints are manufactured in such a way that no welding appears on the corners, only one appears on the longitudinal side.

This manufacturing technique is still unique

- Easier welding inspection
- No welding seams in the critical corner area
- Higher flexibility / movements of bellows
- Longer life of expansion joint

Materials used

- Austenitic metals
- Carbon metals
- Nickel and special alloys (Titanium, Inconel, Hastelloy, Monel)

Types of weldings achieved

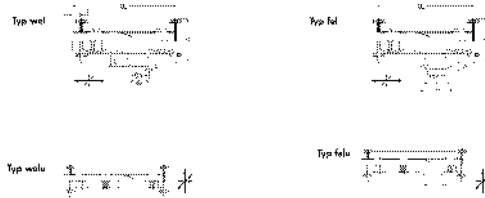
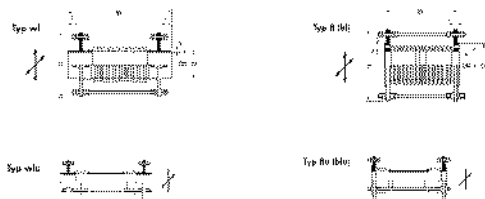
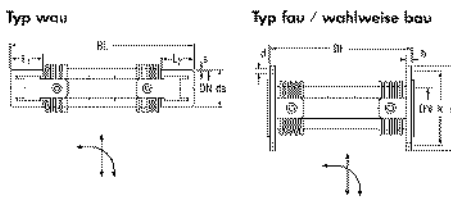
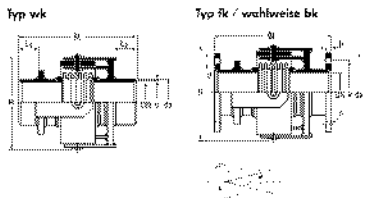
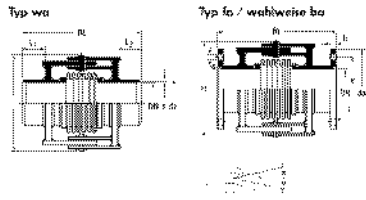
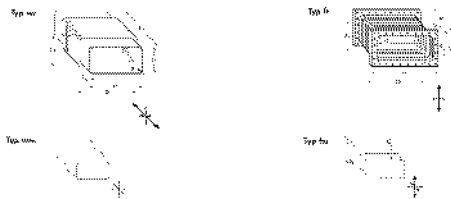
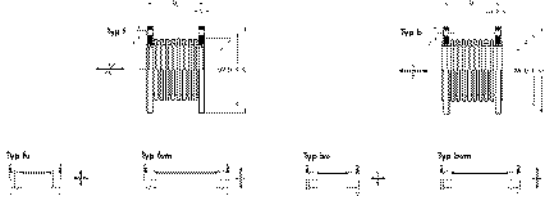
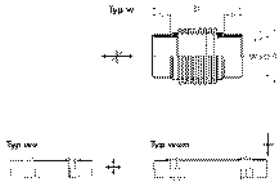
- TIG
- MIG / MAG
- Plasma / Micro Plasma
- Submerged Arc welding (SAW)

A wide range of materials is available in stock for immediate production start

Standard expansion joints

PN 2.5 DN 50 - DN 7000

PN 64 DN 50 - DN 600

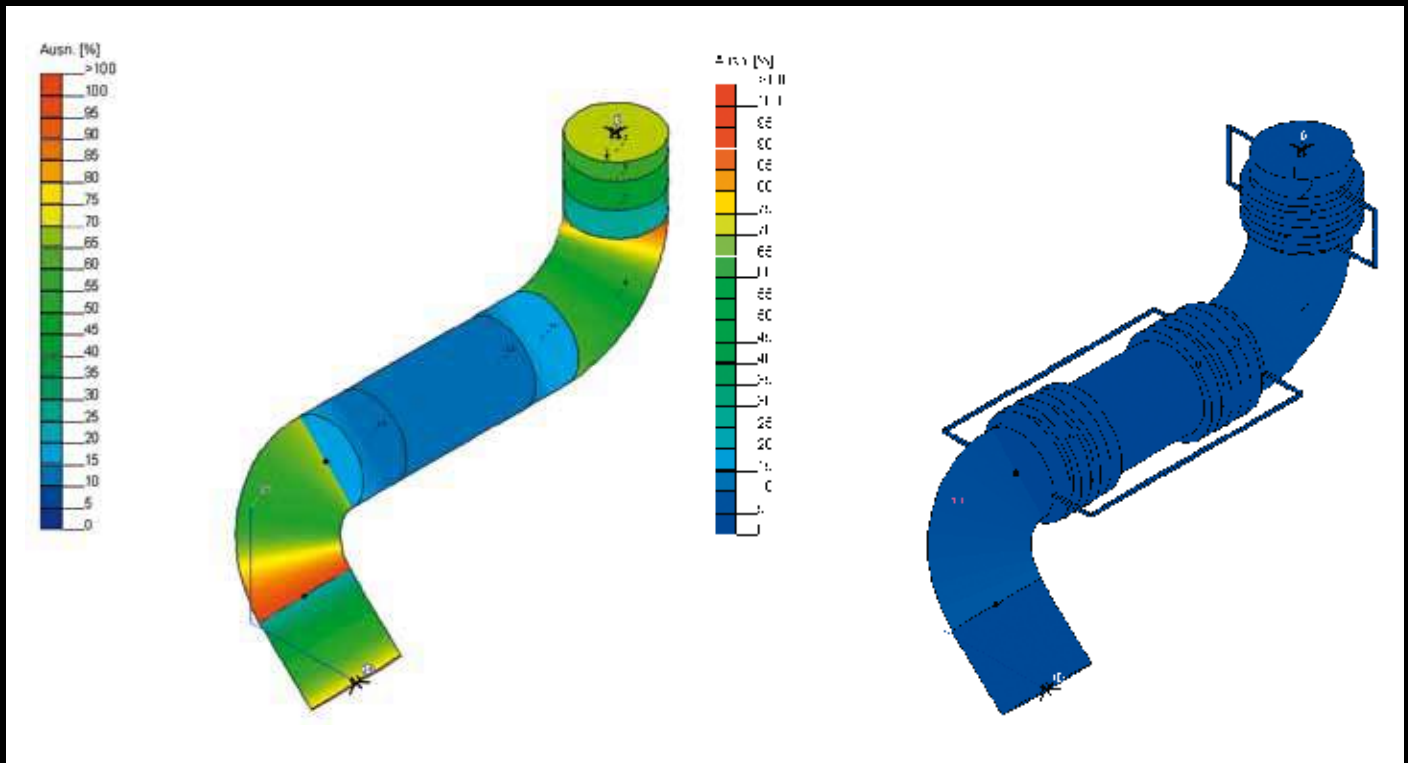
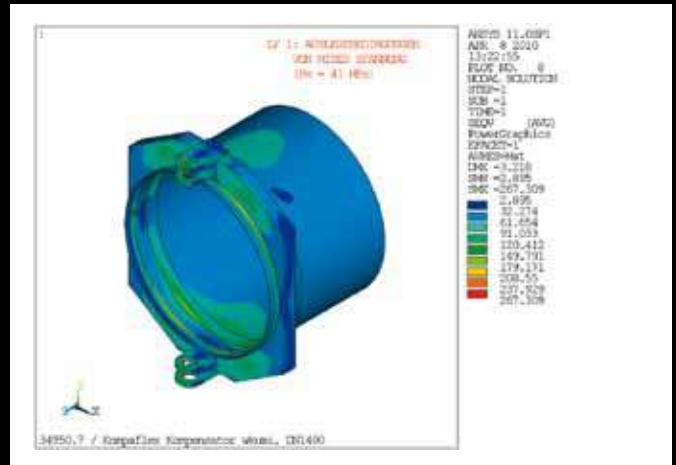


Engineering service

Our Engineering Department works closely with customers and guide them to every step of projects.

Thanks to the use of the latest softwares, a number of services can be performed aiming at achieving the optimal life of piping systems and expansion joints.

- 🌊 Piping and auxiliary equipments layout and space saving achievement
- 🌊 Selection of best suitable materials according to given applications
- 🌊 3D modelling and piping behaviour analyses
- 🌊 Efficiencies in movements and number of cycles
- 🌊 Finite Element analyses



Example of a stress free piping with the use of braced expansion joints.

Kompaflex ag has collaborated with the software developer Sigma.

The Rohr 2 software aims at designing piping systems and fully integrates the expansion joints of kompaflex. Its use is simplified thanks to the automatic calculations of parameters. It also enables users to select the most suitable expansion joint for a given application.



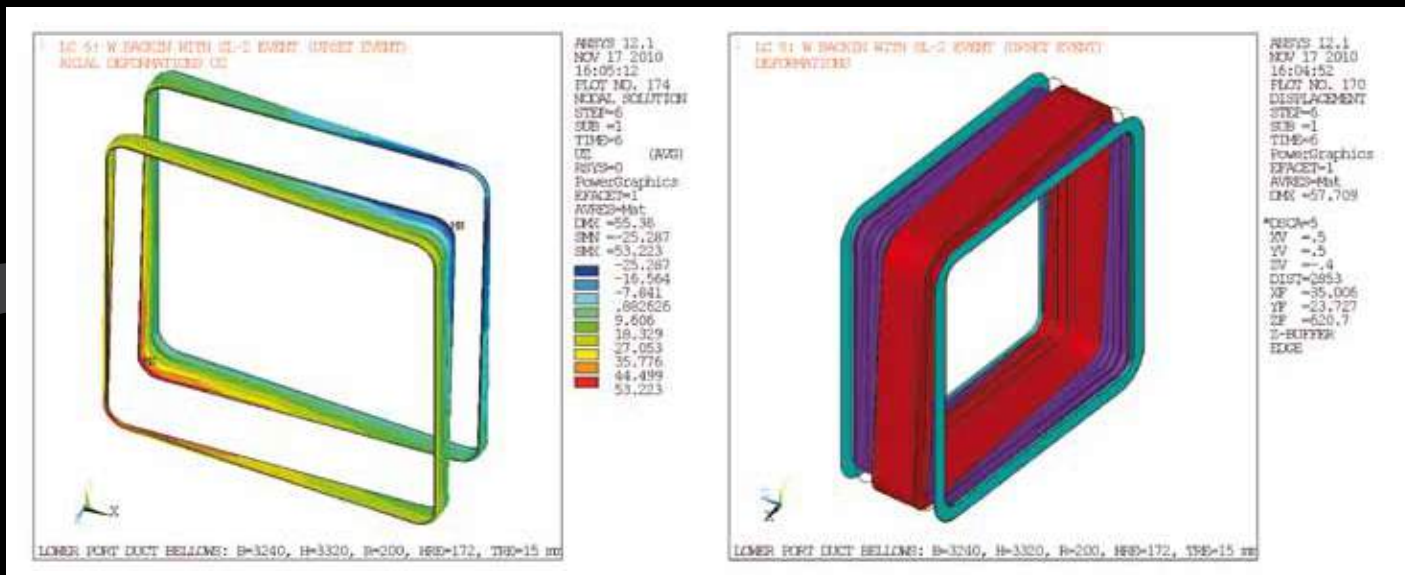


Pressure balanced expansion joint with an Inconel 625 inner layer for a furnace

We are very often working on large scale projects and designing unique systems, such as the ITER project.

The Cryostat is made of 89 ports which give access to the inner core. Some of these ports are as big as 4 x 3 meter.

Kompaflex ag has designed all the rectangular multiply expansion joints of the Cryostat ports with the back-up of FEA analysis and replicating its thermal and seismic movements.



Development and modelling of expansion joints for the ITER Cryostat

Quality is our trademark

MANUFACTURING STANDARDS AND CERTIFICATIONS

Kompaflex ag manufactures its expansion joints according to the most stringent international standards.

- Pressure Equipment Directive 97/23/EC (PED) Modul H/H1
- AD-2000 Merkblatt HP 0 and EN ISO 3834-2
- CODAP
- EJMA
- GOST-R / Rostechznador
- ASME U stamp
- ISO 9001:2008



Traceability and documentation ensure the high quality of production. Kompaflex ag can provide necessary documents to the most complex projects including for nuclear applications.

Documents provided with every project

- Expansion joint technical drawing
- Technical description
- Expansion joint Installation instruction

Documents provided on request

- Test certificates
- 3.1 / 3.2 certificates
- Welding qualifications
- Inspection plan

The quality assurance system has always been an important part of Kompaflex ag since the ISO9001 certification has been obtained in 1988.

A parameterized 3-D CAD enables us to optimise expansion joints according to the given customer specifications. Short production leadtimes and precise dimensions are obtained through the Computer Assisted Manufacturing (CAM).



Helium leak test

TESTS AND INSPECTIONS

Different types of tests can be performed to meet the industries' stringest sealing needs, such as those in the vacuum or nuclear sectors.

- 🌊 hydraulic test pressure
- 🌊 Colored dye penetrant
- 🌊 Helium leak test to 10-11 mbar l/s
- 🌊 Air and Nekal sealing test
- 🌊 X-rays
- 🌊 Ultrasonic

Destructive tests are also optional in our production site in Switzerland.

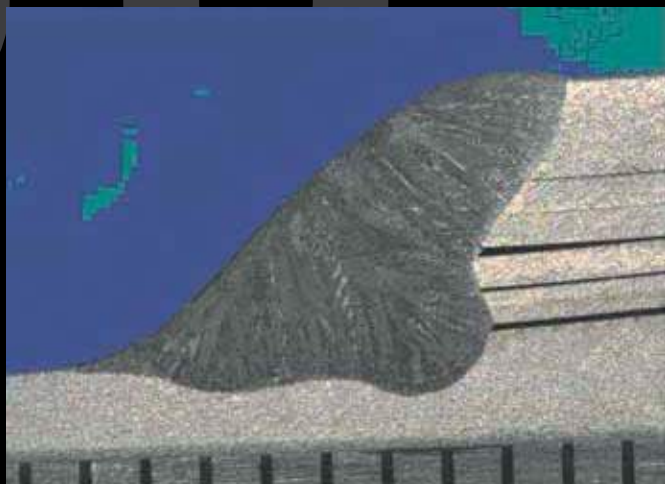


Integral test in vacuum chamber

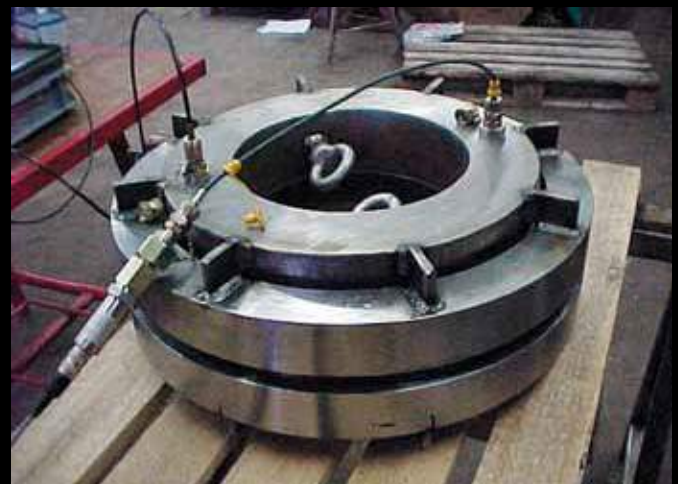


Mechanical fatigue test

10-11 MBAR L/S
 HELIUM LEAK TEST RATE ACHIEVABLE FOR
 ULTRA-HIGH VACUUM APPLICATIONS



Picture of polished cut image of a welding seam



720 bar test pressure

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