



**kompaflex ag**  
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**Tailor-made Expansion Joints**



**We perform precision work**







# About kompaflex

## Flexibility is our family tradition

With over 40 years of experience, kompaflex is a recognized specialist in the advanced design and manufacturing of custom-made metallic expansion joints of all sizes, temperatures, pressures and materials. We design and manufacture all types of expansion joints according to the customer needs.

We offer a wide range of diameters, multi-ply bellows starting from small sizes (DN 15) up to very large (DN 12000). Our innovative approach and technical expertise enable us to design and manufacture expansion joints for all applications from ultra-high vacuum to very high pressure, high temperatures, multi-ply rectangular, oval bellows and corrosive media. With an established network of specialists and distributors, we meet the needs of our customers worldwide.



Reto Löhner  
CEO



Jens Löhner  
Head of Research and Development



Ralf Löhner  
Project Manager



### Swiss precision is part of our DNA

#### How did the name "kompaflex" come up?

It was a gut decision by Werner Löhner, the founder of kompaflex. The name came about within a few minutes, derived from the product "expansion joint" and the associated main function "flexibility".

#### How did the company come to be founded – What events were decisive?

Several years passed from the first idea to the founding of the company. Werner Löhner had the vision of offering customers expansion joints which are designed exactly to their needs. He borrowed machines and tinkered in friends' garages until he was able to implement his ideas. His courage, passion for technology and constant reinvention were the key to kompaflex's growth from a one man company to today's kompaflex group.

#### What is kompaflex's greatest strength?

It is the values: Enthusiasm, independence and flexibility. Our customers can count on that we react quickly when the situation requires it, and at the same time, we always deliver the highest quality.

#### What innovations is kompaflex particularly proud of?

For us, innovation is a constant process that never ends. This is also due to our very broad range of tailor-made expansion joints for the most demanding applications in a wide variety of industries. This has resulted in globally unique innovations such as the multi-ply rectangular expansion joint, the multi-ply conical expansion joint or the high-pressure expansion joint.

#### Today it is common to change jobs every three to five years. At kompaflex this does not happen. Why?

Our management style is characterized by independence, enthusiasm and flexibility. Everyone at kompaflex takes responsibility until the completion of the projects. Employees who have become accustomed to the principle of self-responsibility do not want to change to a hierarchical management structure. They also take personal pride in the company and believe in our projects.

#### How does kompaflex work and what are your core values?

In order to be able to react to the most diverse demands of our customers from a wide range of industries, we have to be as flexible as our products.

#### kompaflex focuses on details. What can the founders say about that?

We are very precise by nature, probably as part of our cultural heritage of Swiss precision. If a detail is still technically unclear, we get to the bottom of it. Only when we fully understand and can assess every detail we are satisfied.

#### The aim is not mass production, but individual and customized production. Why?

This is where we can make full use of our strengths. Tailor-made engineering, paired with a flexible production that meets the highest quality standards, result in expansion joints that are precisely tailored to the needs of the customer. You could also say that kompaflex has standardized the non-standard.

#### What are your key concerns at production?

We make no compromises when it comes to quality requirements. Our production is as flexible as our design. Production is also about very high punctuality and, if required, express production.

#### kompaflex constantly develops new innovative projects. What do they have in common?

Our claim to offer the customer an individual technical solution, leads constantly to new innovations, which we can apply for other projects.

#### How to be successful as an entrepreneur?

Success comes to those who are convinced of their projects and products.

#### How are disagreements handled at kompaflex?

We are a team that complements each other in many areas and thus drives the strengths of the company. Everyone brings different perspectives and know-how that are crucial to the success of the projects.

#### Have you ever felt pressured to take on a particular role in the company?

We initiated the succession planning with professional guidance. We had left all options open. That kompaflex would continue to be successfully managed by family members was never the primary goal. Nevertheless, we are very proud to be able to reconcile company and family.

#### How do you see the future of kompaflex?

The goal for the foreseeable future is to maintain our independence as a family-run company. We are convinced that the kompaflex business model and our values will continue to be successful in the future.





Company founded  
on 10 September  
1981 by  
Werner Löhner

**1981**

**1983**

Production of expansion joints for steam turbines  
Development and delivery of the first multi-ply, oval and rectangular expansion joints without welding seams in the corner area

ISO 9001  
Certification

**1988**

**1992**

Acquisition of office and production property in Steinebrunn, Switzerland

Foundation of  
komplex s.r.o.,  
Czech Republic

Delivery of the  
first gas turbine  
expansion joint  
for Siemens

**1995**

**1996**

Delivery of the first  
large expansion joint

Production of over 40  
FCC expansion joints  
for a European  
refinery

**1999**

**2003**

254 ultra-high  
vacuum expansion  
joints fabricated in  
circular, oval and  
rectangular shapes for  
the Wendelstein 7-X  
fusion reactor

New office and  
production  
building for  
kompaflex  
s.r.o., Czech  
Republic

**2007**

**2008**

Construction of  
a new  
production hall  
in Steinebrunn,  
Switzerland

ASME U-Stamp  
certification

**2011**

**2012**

Express delivery of  
DN 5000  
pressure-balanced  
expansion joint for a  
European thermal  
plant

Extension of  
test room for  
ultra-high  
vacuum (UHV)  
tests

**2018**

**2019**

Delivery of two  
angular FCC  
expansion joints for  
the USA

Delivery of a double gimbal FCC  
expansion joint for Valero UK

Werner Löhner resigns from  
the management board and  
board of directors and hands  
over the company to his sons  
Reto, Jens and Ralf Löhner

**2020**

...  
**2021**

40th company  
anniversary

**40**  
YEARS





# kompaflex production sites

## Materials:

- ✓ Over 30 different qualities of carbon steel
- ✓ Over 30 different qualities of stainless steel
- ✓ Including High Nickel, Alloys, Inconel, Hastelloy

An extensive material stock enables the immediate start of production

## Welding competencies:

- ✓ TIG welding
- ✓ MIG / MAG welding
- ✓ Plasma / Micro plasma welding
- ✓ Submerge Arc welding (SAW)

## Machinery:

- ✓ In-house developed bellows forming machine
- ✓ CNC bellows forming machines
- ✓ Roll forming / bending and cutting machines
- ✓ Welding machines (automated and manual)
- ✓ Shell turning rolls, up to 40 tons capacity
- ✓ Various welding equipment / longitudinal seam benches and welding arm (camera monitored)
- ✓ Extensive equipment and test facilities for non-destructive and destructive testing

**Highly reliable expansion joints**



**kompaflex ag / Headquarters**  
**Site:** Steinebrunn, Switzerland  
 Engineering, Production, Test competence center  
**Established:** 1981



**kompaflex s.r.o**  
**Site:** Pacov, Czech Republic  
 Fully equipped production for entire range  
**Established:** 1995



# Industries we serve



**Vacuum / Science /  
Research**

**Nuclear / Fusion**

**Petrochemical /  
Oil and Gas**

**Heating & Cooling  
Technology**



**Power Generation**

**Steel**

**Chemical and  
Pharmaceutical**

**Marine**

**kompaflex specializes  
in the most demanding  
applications**



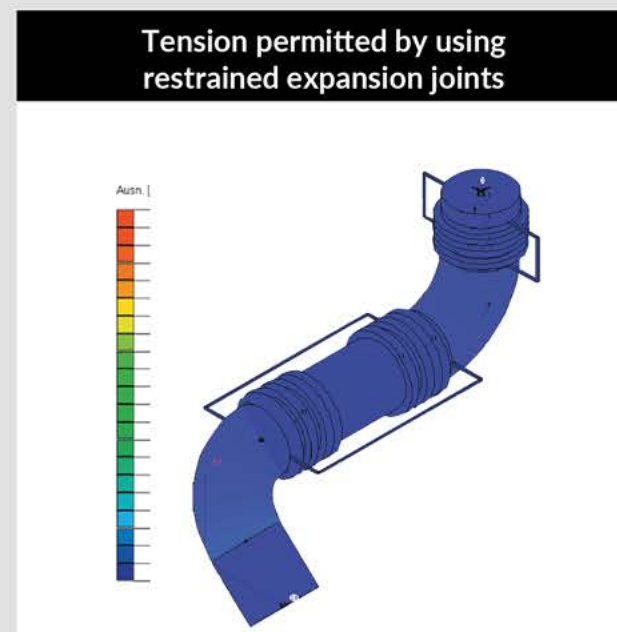
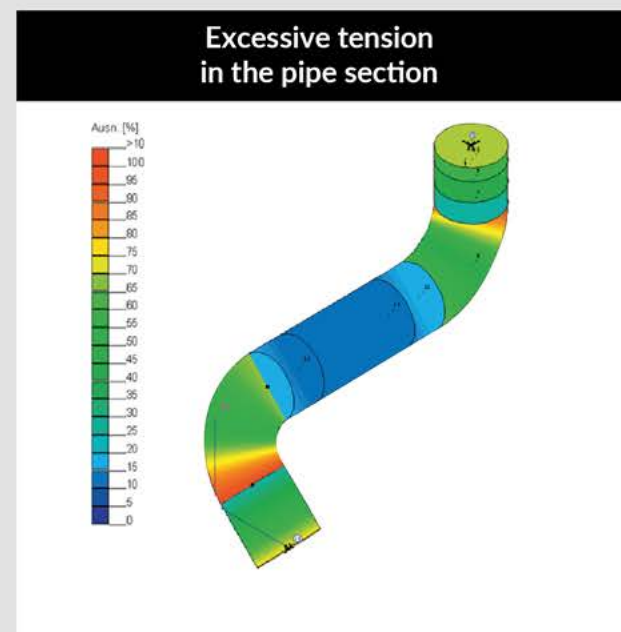


# Standard expansion joints

In addition to customized expansion joint solutions, kompaflex offers an extensive variety of standard expansion joints. Expansion joints ranging from a diameter of 15 millimeters up to 12000 millimeters according to common standards. Different connection types can be combined. Our standard expansion joints are fully integrated in the pipe stress analysis software ROHR 2. Therefore, suitable kompaflex standard expansion joints can be selected directly during the piping design.

| Designed in accordance with associated design codes:            |                          |
|-----------------------------------------------------------------|--------------------------|
| ASME VIII Div.1<br>ASME VIII Div.2                              | ASME B31.1<br>ASME B31.3 |
| EJMA                                                            | DIN EN 13445             |
| DIN EN 14917<br>(kompaflex is board member of expert committee) | DIN EN 13480             |
| AD 2000                                                         | Customer Specifications  |

Example of a stress-free piping with the used braced expansion joints:



Axial expansion joint type **swiss-w** version shown with welding ends



Universal expansion joint type **swiss-fum** or with loose flanges type **swiss-bum**



Rectangular expansion joint type **swiss-wrum**



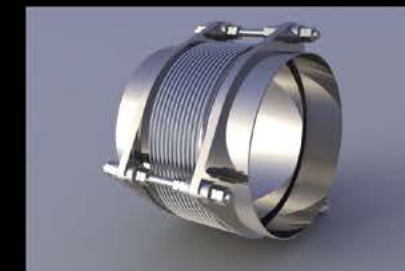
Hinge expansion joint type **swiss-wa** (left)  
type **swiss-fa** (right)



Gimbal expansion joint type **swiss-flk**



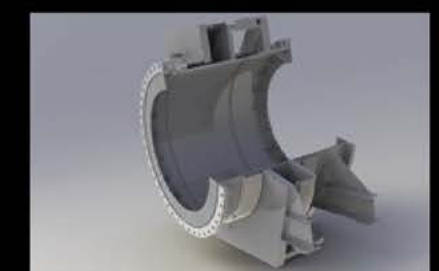
Double hinge expansion joint type **swiss-wzum**



Lateral expansion joint type **swiss-wl**



Corner relief, pressure balanced expansion joint type **swiss-welum**



Pressure balanced expansion joint type **swiss-fdl**



# Tailor-made expansion joints

## Multi-ply bellows

kompaflex has perfected the design and manufacture of multiply expansion joints which offer the following advantages:

- ✓ Reduced stresses
- ✓ Higher flexibility
- ✓ More compact design
- ✓ Leak control device
- ✓ Higher number of cycles
- ✓ Lower spring rates
- ✓ Lower reaction force
- ✓ Higher lifetime



## Multi-ply rectangular bellows

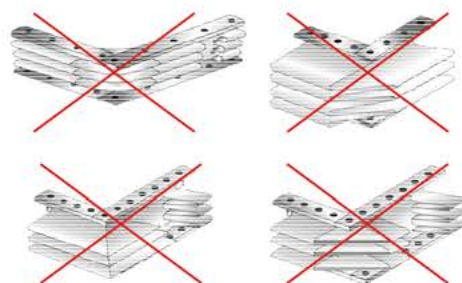
kompaflex is the inventor of multi-ply expansion joints in all shapes such as rectangular and oval with only one weld seam in the non-critical longitudinal area. This unique manufacturing process features the following advantages:

- ✓ No welding seams in the critical corner area
- ✓ Lower spring rates of bellows
- ✓ Higher movements of bellows
- ✓ Easier welding inspection
- ✓ Longer life of expansion joint



## World innovation: Multi-ply rectangular bellows

### kompaflex solution



One weld seam in the longitudinal area

## Successful with technical innovation

Our approach and technical expertise enable us to produce tailor-made expansion joints that meet all customer needs in terms of technical requirements such as movements, pressure, temperature and medium.

### FCC and special expansion joints



kompaflex-customized FCC expansion joints provide our customers with the latest technologies. FCC expansion joints are exposed to some of the most challenging conditions of any industry.

### High vacuum and nuclear



kompaflex is highly experienced in the production of expansion joints for ultra-high vacuum systems. Our expansion joints are widely used in renowned research institutes and facilities such as accelerators and fusion reactors worldwide.

### High pressure



We have developed high pressure expansion joints in various sizes and successfully tested them up to 720 bar g pressure. Thanks to the unique combination of multi-ply bellows and reinforcement rings a very high stability under pressure can be achieved.

### Large diameters



kompaflex offers expansion joints up to a diameter of 12000 mm. Expansion joints with a diameter larger than 6000 mm can be completely manufactured on site for logistical reasons.

### High temperature



Expansion joints made of Inconel 625 with permanent leakage control. Fully refractory lined to withstand design specification T<sub>Gas</sub> = 1200° C (2192° F) and P<sub>Design</sub> = 2.4 bar g (34.81 psi).

### Corrosive media



kompaflex offers multi-ply expansion joints with the inner layer made of corrosive-resistant high-nickel alloys such as Inconel or Hastelloy. The remaining plies of the bellows, with no contact to the medium can be formed from normal stainless steel.



# Manufacturing and quality control



**Quality is our trademark**

## In-house Non-Destructive Testing

- ✓ **RT-D**  
Digital Radiography (X-ray)
- ✓ **UT**  
Ultrasonic Testing
- ✓ **PT**  
Penetrant Testing
- ✓ **MT**  
Magnetic Particle Inspection
- ✓ **LT**  
Bubble Leak Testing  
Helium Leak Testing  
Hydrostatic Pressure Testing  
Pneumatic Pressure Testing
- ✓ **PMI**  
Positive Material Identification
- ✓ **VT**  
Visual Testing
- ✓ **Further**  
Spring Rate Testing  
Pressure Thrust Force Testing

## Destructive Testing

- ✓ Mechanical Fatigue and Life Cycle Testing
- ✓ Squirm Testing
- ✓ Burst Testing
- ✓ Movement test outside geometrical limits

## Standards

- ✓ ISO 3834-2
- ✓ ISO 9001
- ✓ DIN EN 13445
- ✓ DIN EN 13480
- ✓ DIN EN 14917
- ✓ AD2000
- ✓ European Pressure Equipment Directive (PED) 2014/68/EU
- ✓ PED Module H/H1 certified
- ✓ ASME U Stamp holder
- ✓ ASME VIII Div. 1
- ✓ ASME VIII Div. 2
- ✓ ASME B31.1
- ✓ ASME B31.3
- ✓ EJMA

### Cryogenic shock test



### Helium leakage test



### Life cycle & spring rate test

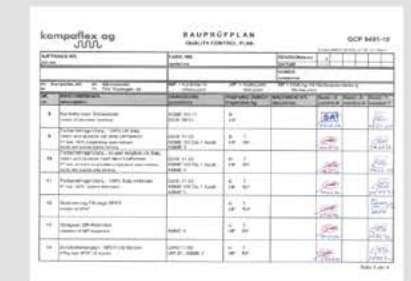




## A decorative horizontal wavy line composed of five segments in black, grey, teal, teal, and purple. Each segment contains a circular icon: a person at a computer, a gear with a wrench, a clock, a truck, and a document with a checkmark.

## Documentation

Proof of product quality in written form for the final documentation, has become an important part of the product. Depending on the relevant authorities and the clients' specifications, the included documentation covers all necessary quality certifications, for example, proof of all tests carried out, material certificates and personnel qualifications. Final documentations of expansion joints that are subject to the pressure equipment directive are checked by notified bodies.







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**kompaflex ag**  
A stylized logo graphic consisting of three wavy, horizontal lines in a teal color, positioned below the company name.