# Metallic
# **expansion joints**


DE KOM TE
- BENELUX -

# Applications

Oil

Steel

Power plants

Chemical

Shipbuilding

Engineering

Pharmaceuticals

And many more...

# High quality metallic expansion joints
## made in Europe

We develop and produce high quality stainless steel expansion joints, and our primary focus is developing solutions for the specific needs of all our customers. A number of machines have been specially developed for this purpose, to enable us to generate better technical solutions. A high level of quality goes hand in hand with competitive prices, short delivery time and first class service. All made in Europe, as you have come to expect from us.

Production has been moved to a new location, which enables a greater capacity and unlimited production possibilities. This allows us to explore new developments and improvements.

We can produce single and multiple layer bellows from DN 25 up to DN 5000. In all kinds of stainless steel and with all sorts of connections.

# Content



# **Production** process

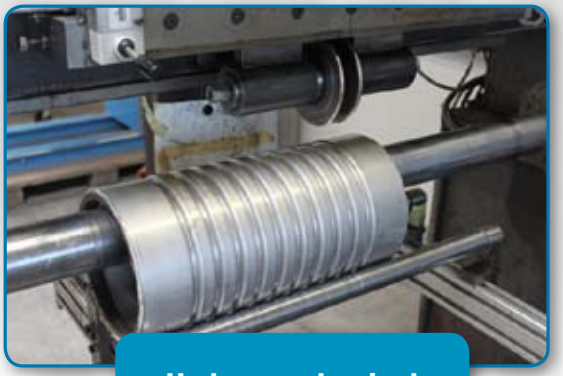
## Longitudinal welding of the bellows

Cutting to size

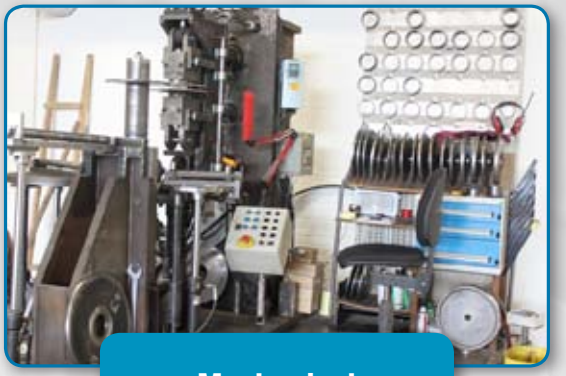
Fully-automatic TIG-welding

Semi-manufactured product

## Forming the bellows



Hydro-mechanical



Mechanical

## Assembling

**Finished round bellow**

**Finished rectangular bellow**

## TIG-welding

# Our values


## Expansion joint

1

**Expansion joint**

We receive your inquiry. If a certain point is not clear, we will ask for your feedback.

## Analysis on site-measurement

2

**Analysis on site-measurement**

We analyze the working conditions. If necessary/possible we will make an onsite visite to get a clearer picture.

## Product development

3

**Product development**

In accordance with the given parameters, we determine which material is the best solution for you.

## Engineering - Calculations

4

**Engineering - Calculations**

Calculations are made according EJMA, AD Merk-blätter and PED. On demand, we even engineer the complete concept.

## Construction proposal

5

**Construction proposal**

You will receive our quotation within a very short delay, including a detailed drawing. It will be the best technical solution and design.

## Production

6

**Production**

All our expansion joints are produced in Europe to ensure an excellent quality.

## Product quality control

7

**Product quality control**

We are ISO certified. Quality is monitored throughout each step of production.

## Mounting - Supervision

8

**Mounting - supervision**

We have a specialized and VCA-certified installation team to do the job on site - anywhere in the world.

## Commissioning

9

**Commissioning**

We can provide pressure and leakage tests and even make a final checkup on site.

## Product training

10

**Product training**

We can offer a product training and we are present at the most important fairs in Europe.

## Technical service

11

**Technical service**

Our service team is “at your service” 24/7 and always assures a correct and quick intervention.

## Follow-up 24H service

12

**Follow-up**

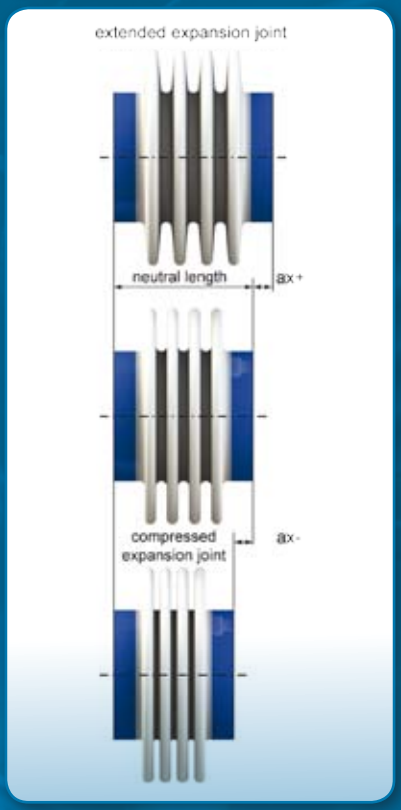
Our aftersales department is responsible for the follow up of each case and will gladly be of service if a problem should occur.

# Types of **movements**

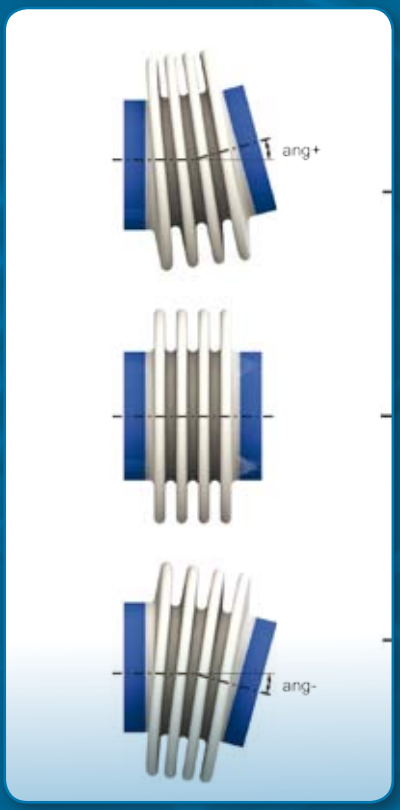
Metal expansion joints are indispensable elements for pipeline technology. They are used to compensate changes in length which arise from temperature differences. In addition, they are able to absorb vibrations from pumps, motors, compressors or turbines.

Axial, lateral or angular movements can be compensated depending on the specific situation. We are willing to advise you on the best type of bellows.

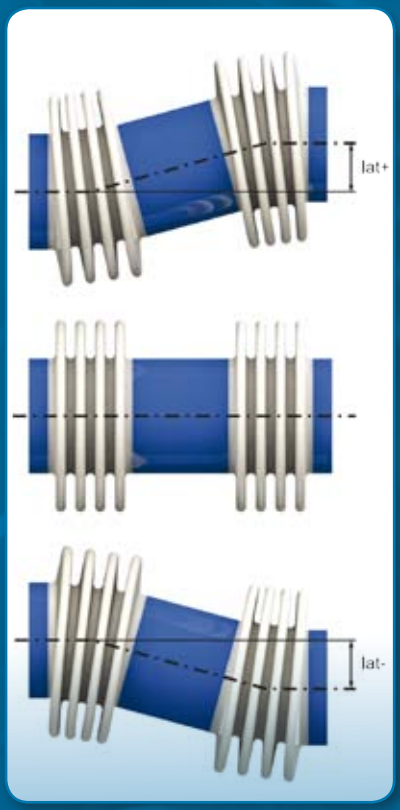
## Axial movement




## Angular movement

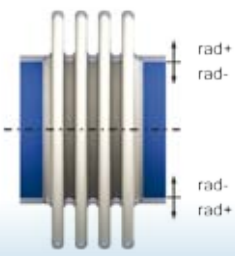


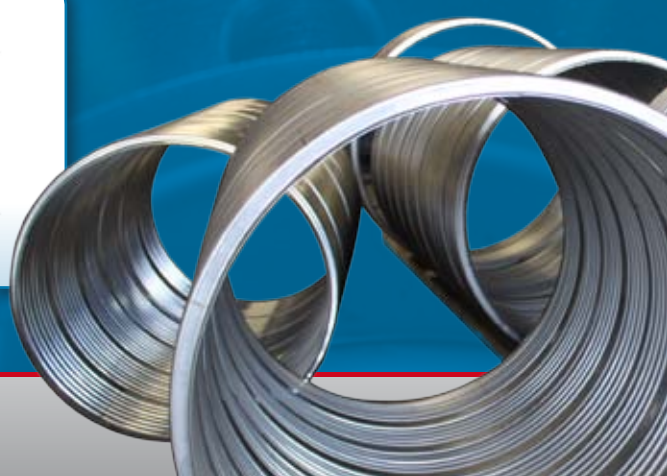

## Lateral movement



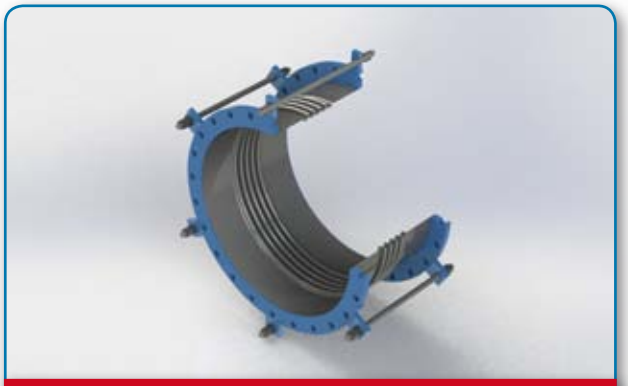

## Radial expansion

Radial expansion of pipes and expansion joints is system inherent and not a movement that can be compensated.



# **Fabrication** possibilities



**Round** | Multilayer

- DN 25 up to DN 5000
- Can be manufactured with single ply or multiply bellow.

**Rectangular** | Bellow with round corners

- Can be manufactured with single ply or multiply bellow - with or without welding in corner.

**Rectangular** | Bellow with miter corners

- Can be manufactured with single ply bellow with welding in corner.

**Rectangular** | Bellow with double miter corners

- Can be manufactured with single ply bellow with welding in corner.

**All can be provided with:**

- Inner sleeve
- Tie rods
- Welding ends
- Floating flange
- Fixed flange
- Articulations
- Leak detection
- Hinged

# Types of metallic expansion joints

## Axial expansion joints

- These expansion joints can absorb movements in the length of a pipe - axial movements.

## Lateral or universal expansion joints

- Suited for horizontal and vertical movement.
- Made of 2 bellows jointed by an intermediate pipe.
- The movement depends on the number of convolutions and on the length of the intermediate tube.
- Mostly used to absorb large lateral movements.

## Hinge-Cardan expansion joints

- Suited for angular movements only. Small axial movements can be made possible by using special designed hinges.

## Pressure balanced expansion joints

- Suited for movements in all directions.
- Using special designed hinges and double articulated supports.

DeKomTe Benelux offers you different types of axial, lateral, angular, cardan expansion joints.

**Contact us for more information:**
+32 (0)59 51 07 55 or info@dekomte.be

# **Materials** for bellows & connections

| Steel | | | Max. Temp. | Strength | Application | | | | |
|---|---|---|---|---|---|---|---|---|---|
| DIN | EN 10 025-2 | Material number | °C | N/mm² | Pipe | Flange | (Rolled) Plate | One layer | Multi-layer |
| W1.0038 | S235JRG2 | St 37-2 | 300 | 360-510 | x | x | x | x | |
| W1.0330 | DC01 | DC01 | 300 | 270-410 | x | | x | x | |
| W1.0345 | P235GH | HI | 300 | 490-630 | x | x | x | x | |
| W1.0425 | P265GH | HII | 450 | 410-530 | | x | x | x | |
| W1.0460 | P250GH | C22.8 | 480 | 650-880 | | x | | | |
| W1.0481 | P295GH | 17Mn4 | 500 | 460-580 | | x | x | x | |
| W1.0553 | S355J2 | St 52-3 | 300 | 490-630 | | x | x | x | |
| W1.5415 | 16Mo3 | 15Mo3 | 550 | 440-590 | | x | x | x | |
| W1.7335 | 13 CrMo4-5 | 13CrMo4 4 | 570 | 380-550 | | x | x | x | |
| W1.7380 | 10 CrMo9-10 | 10CrMo9 10 | 600 | 480-630 | | x | x | x | |
| W1.4301 | AISI304 | X5CrNi18 10 | 550 | 540-750 | x | x | x | x | |
| W1.4306 | AISI304L | X2CrNi19 11 | 550 | 520-670 | | x | x | x | |
| W1.4401 | AISI316 | X5CrNiMo17 12 2 | 550 | 530-680 | x | x | x | x | x |
| W1.4404 | AISI316L | X2CrNiMo17 12 2 | 550 | 530-680 | | x | x | x | x |
| W1.4512 | AISI409 | X2CrTi12 | 550 | 380-560 | | x | x | x | |
| W 1.4539 | AISI904L UranusB6 | X1 NiCrMoCu 25 20 5 | 800 | 500-750 | | x | x | x | |
| W1.4541 | AISI321 | X6CrNiTi18 10 | 550 | 520-720 | x | x | x | x | x |
| W1.4571 | AISI316Ti | X6CrNiMoTi17 12 2 | 550 | 540-690 | | x | x | x | x |
| W1.4828 | AISI309 | X15 CrNiSi 20 12 | 1000 | 500-750 | | x | x | x | x |
| W1.4841 | AISI314(310) | X15 VrNi Si 25 21 | 1100 | 500-700 | | x | x | x | x |
| W1.4876 | Incoloy 800H | X 10 NiCrAlTi 3220 | 900 | 450-680 | | x | x | x | x |
| W1.4878 | AISI321H | X10CrNiTi1810 | 800 | 510-710 | | x | x | x | x |
| W2.4856 | Inconel 625 | NiCr 22 Mo 9 Nb | 600 | 760 | | x | x | x | x |
| W2.4858 | Inconel 825 | NiCr 22 Mo | 450 | 550 | | x | x | x | x |
| W2.4610 | Hastelloy C4 | NiMo 16Cr 16 Ti | 400 | 780 | | x | x | x | x |
| W2.4610 | Hastelloy C276 | NiMo 16Cr 15 W | 400 | 690 | | x | x | x | x |
| W1.4893 | 253Ma | | 1150 | 650-850 | x | x | x | x | x |
| W3.7025 | Titanium | | 250 | 460-615 | x | | x | | x |
| W3.3535 | AlMg3 | | 300 | 190-240 | | | x | | x |
| | Corten B | | 600 | 470-630 | | | x | | |
| | Creusabro 4800 | | 450 | 900 | | | x | | |
| | Dillidur 400 V | | 400 | 1200 | | | x | | |
| W1.4462 | Duplex | X2 CrNiMo 22 5 3 | 280 | 620 | | | x | | |
| W1.8722 | XAR 450 | Thyssen | 370 | 1400 | | | x | | |

# Quality control & testing

Our high quality expansion joints are manufactured according to the highest quality standards. Every single step in our production is monitored by our Quality Department, to ensure a perfect product at the end.

Our quality procedures provide traceability in every production phase. All our welders are approved and accredited to DIN EN 287-1 / DIN EN 1418. DeKomTe produces its metal expansion joints in accordance to the Pressure Equipment Directive after customers' requirements. They are also made in accordance with EJMA and AD Merkblätter.

## Non-Destructive

- Radiographic Examination
- Liquid Penetrant Examination
- Ultrasonic Examination
- Magnetic Particle Examination
- Hydraulic Pressure Test
- PMI (Positive Material Identification)
- Chemical and Mechanical Analysis of materials used

## Destructive

- Fatigue Life Testing
- Squirm Testing
- Meridional Yield Rupture Testing
- Burst Testing

Other tests on demand.

All of these controls and tests are carried out in line with the procedures and guidelines approved by the Quality Control Department which certifies such tests. These tests can be carried out, monitored and/or certified by independent companies or classification societies such as the following: TÜV, Lloyd's Register of Shipping, Bureau Veritas, Det Norske Veritas, ABS Industrial Verification, etc.

- All tests are carried out on demand, according to specifications of the customer.
- A detailed certificate will be provided after the tests have been accomplished.
- Inspection authorities, such as TÜV, can be consulted.

Pressure test carried out in our workshop.

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# Technical Questionnaire
## Metallic expansion joints

* Required field

| | | |
|---|---|---|
| Customer: ..... | Contact person: ..... | Department: ..... |
| Tel: ..... | Fax: ..... | E-mail: ..... |
| Project: ..... | Item / TAG number: ..... | Quantity: ..... |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bellow type** | ☐ Single layer | | ☐ Multi layer | | Material: ..... (See page 11) | | |
| **Expansion joint type** | ☐ Axial | ☐ Universal | ☐ Lateral | ☐ Angular | ☐ Cardan | ☐ Others | |

| | | | | |
|---|---|---|---|---|
| **Size** | Outside duct<br>circular (rectangular)* | ..... mm (x ..... mm) | Installation length | ..... mm |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Connections** | Material inlet flange* ..... (See page 11) | | | Material outlet flange* ..... (See page 11) | | |
| | Type inlet flange | ☐ Weld end | Pipe size: ..... mm (x ..... mm) | Wall thickness: ..... mm | | |
| | | ☐ Fixed Flange | ☐ Swivel flange | ☐ DIN/EN ..... | ☐ ANSI/ASME ..... | ☐ Others |
| | | ☐ Special | N° holes: ..... x Ø holes: .....<br>on pitch: ..... mm (x ..... mm) | Thickness: ..... mm | | |
| | Type outlet flange | ☐ Weld end | Pipe size: ..... mm (x ..... mm) | Wall thickness: ..... mm | | |
| | | ☐ Fixed Flange | ☐ Swivel flange | ☐ DIN/EN: ..... | ☐ ANSI/ASME: ..... | ☐ Others |
| | | ☐ Special | N° holes: ..... x Ø holes: .....<br>on pitch: ..... mm (x ..... mm) | Thickness: ..... mm | | |

| | | | | | |
|---|---|---|---|---|---|
| **Medium** | ☐ Air | ☐ Flue gas | ☐ Liquid | ☐ Gas | ☐ Others |
| | Dust | ☐ Yes | ☐ No | Dust content: ..... $mg/m^3$ | |
| | Flow plate | ☐ Yes | ☐ No | Material: ..... (See page 11) | |
| | Flow Velocity ..... m/s | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Pressure** | Design pressure Ps* ..... bar | | Operating pressure P ..... bar | | Test pressure Pt ..... bar |

| | | | | | |
|---|---|---|---|---|---|
| **Temperature** | Design<br>temperature Ts* ..... °C | | Operating<br>temperature T ..... °C | | Max. temperature<br>short term Tmax ..... °C |

| | | | | | |
|---|---|---|---|---|---|
| **Movements** | Axial compression -x* ..... mm | | Axial extension +x* ..... mm | | Min. cycles ..... |
| | Lateral movement y* ..... mm | | Lateral movement z* ..... mm | | |
| | Angular* ..... ° | | Vibrations ..... Hz | | Amplitude ..... mm |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Preset** | ☐ No | ☐ 50 % preset | Tie-rods | ☐ Yes<br>for installation | ☐ Yes<br>for reaction forces | ☐ No |

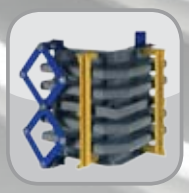
| | | | | |
|---|---|---|---|---|
| **Testing & documents** | Standard | ☐ Drawing | ☐ Material certicate EN10204 3.1B | ☐ Tightness test 0,5 bar |
| | Supplement | ☐ X-ray | ☐ Hydraulic pressure test Pt | ☐ Liquid penetrant |
| | | ☐ PED Class: ..... | ☐ Others: ..... (See list page 12) | |

# References

The responsibility that we take as a manufacturer goes far beyond the delivery of expansion joints. It is our interest to work together with our customers as partners and to practice exchange of experience. These technical co-operations were and will remain an important part in the technical development of our company for the benefit of an efficient and economical operational availability.

FABRIC
EXPANSION JOINTS

FIRE-PROOF
EXPANSION JOINTS



ONE-LAYER METALLIC
EXPANSION JOINTS

MULTI-LAYER METALLIC
EXPANSION JOINTS

RUBBER
EXPANSION JOINTS

PTFE
EXPANSION JOINTS

STAINLESS STEEL
FLEXIBLE HOSES

RUBBER
FLEXIBLE HOSES

CARBON AND STAINLESS
STEEL STRUCTURES

ENGINEERING &
CALCULATIONS

# Contact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