



Economic
and safe

General

This manual deals with the expansions joints used for pipeline construction and for plant and apparatus engineering. The expansion joints are designed for 1000 stress cycles in line with the standard mode of operation of thermal plants, which corresponds to 20 years operation if the plant is started up and shut down once a week. Other designs are also possible.

The HYDRA expansion joints described here – which form part of our wide manufacturing range of flexible metal elements – cover all the most important needs of industrial applications:

Nominal diameters DN 15 - 3000
Nominal pressures PN 1 – 63

Larger expansion joints up to 12 m in diameter, and designed for higher pressures, can be supplied on request.

The standard expansion joints are of different construction types, such as axial, angular and lateral expansion joints, and are listed separately according to type series; in addition to the construction type, the type series also specifies such features as the connection type and any particularities of the design.

The individual type series are classified according to the nominal pressure rating, the nominal diameter and the movement value.

The design of the standard expansion joints, of which variant can be supplied on request is defined initially in relation to the connections and materials:

Connections:

Weld ends according to ISO
Flanges according to DIN 2501

Materials:

According to the table below, temperature-related.



① **Axial/Universal expansion joints for low pressure (exhaust gas)**

- with flanges
- with weld ends

Series:

ABG/AFG

UBG/UGF

ARG/URN

Nominal diameters:

DN50 – DN3000

Pressure rating:

PN1

Special features, main applications:

Non-anchored expansion joints as inexpensive solutions for exhaust-gas lines, with small adjusting force rates and large movement absorption.

② **Axial/Universal expansion joints**

- with flanges
- with weld ends

Series:

ABN/AFN

UBN/UFN

ARN/URN

Nominal diameters:

DN50 – DN2000

Pressure ratings:

PN2.5 – PN40

Special features, main applications:

Non-anchored expansion joints for pipelines and plant engineering, with small adjusting force rates and large movement absorption.

③ **Angular expansion joints as single/gimbal hinge versions**

- with swivel flanges
- with plain fixed flanges

Series:

WBN/WBK

WFN/WFK

Nominal diameters:

DN50 – DN800

Pressure ratings:

PN6 – PN25

Special features, main applications:

Large bending angle, short length, for use in chemical plants.

④ **Angular expansion joints as single/gimbal hinge versions**

- with weld ends

Series:

WRN/WRK

Nominal diameters:

DN50 – DN800

Pressure ratings:

PN2.5 – PN63

Special features, main applications:

Large bending angle, short length, for use in pipelines and plant engineering.

⑤ **Lateral expansion joints for movement in all planes (circular plane)**

- with lap-joint flanges
- with plain fixed flanges

Series:

LBR

LFR

Nominal diameters:

DN50 – DN500

Pressure ratings:

PN6 – PN25

Special features, main applications:

Can move in all directions in a circular plane, for use in pipelines and plant engineering, as connection to machinery.

⑥ **Lateral expansion joints for movement in all planes**

- with weld ends

Series:

LRN

LRR/LRK

Nominal diameters:

DN50 – DN2000

Pressure ratings:

PN6 – PN63

Special features, main applications:

Compact design, small adjusting force rates, for use in pipelines and plant engineering.

⑦ **Noise-isolated expansion joints**

- with ties rods and lap-joint flanges

Series:

LBS

Nominal diameters:

DN50 – DN400

Pressure ratings:

PN6 – PN25

Special features, main applications:

Noise-isolated design for use with vibrating plant, pumps.