



Our experience, your benefit

EXPANSION JOINT **REFERENCES**



WORLD-CLASS EXPANSION JOINTS

Since 1994 Belman has designed and manufactured metallic expansion joints sized DN15-12.000. Through the years we have successfully supplied clients worldwide within many different industries. Years of experience within design and manufacture of expansion joints combined with advanced engineering and the application of innovative technologies has established Belman as a recognised provider on the global market.

Engineered expansion joints
This brochure illustrates Belman's expertise and its broad range of expansion joint solutions with selected examples.

Latest projects & references are always available on our website: **www.belman.com** and likewise you can stay up to date by subscribing to our newsletter or by following us on LinkedIn.



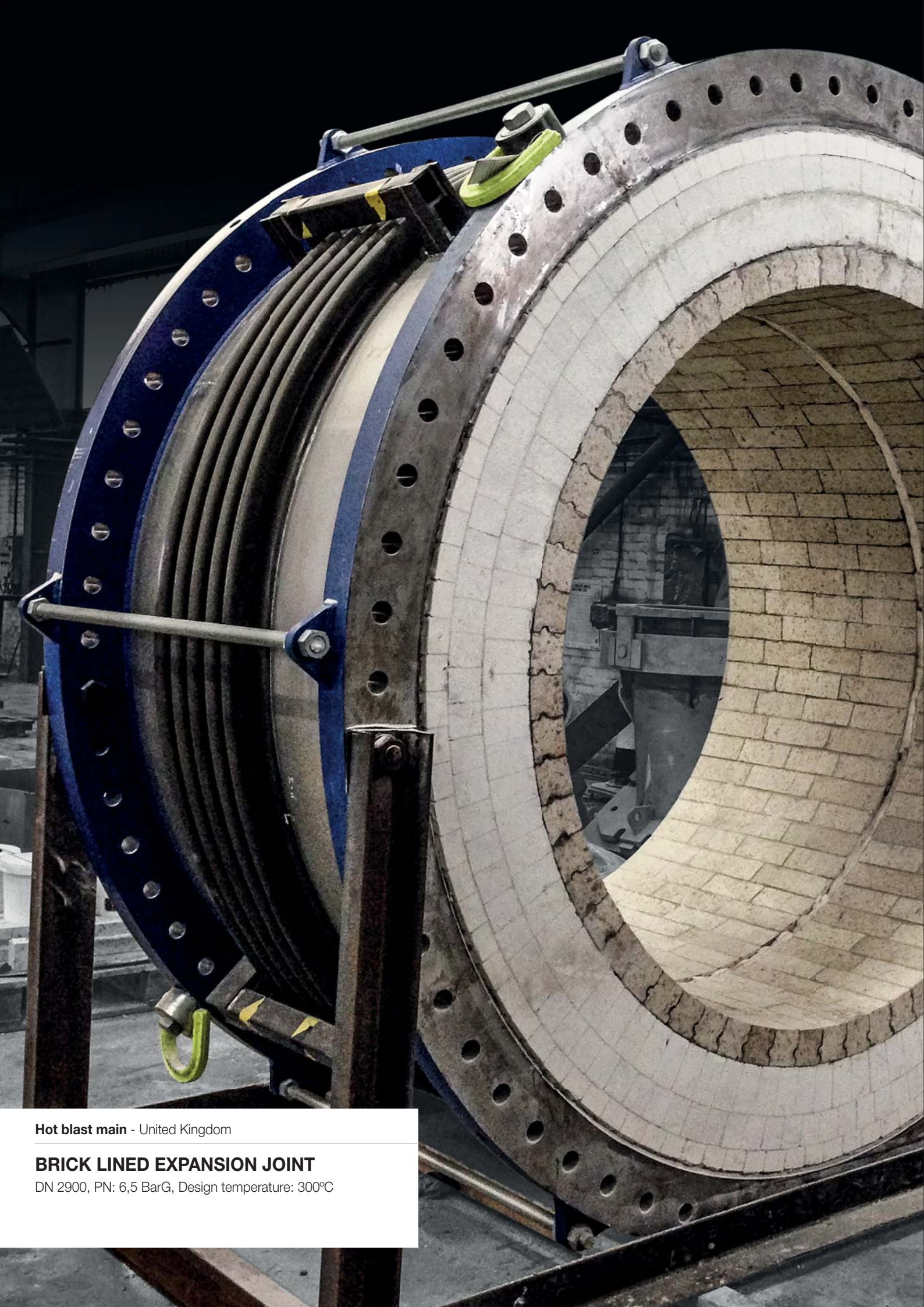
Lateral expansion joints installed at a Bulgarian copper mine



On-site service team installing a Clamshell Bellow in a German steel plant



Pressure balanced expansion joints in a Russian oil refinery



Hot blast main - United Kingdom

BRICK LINED EXPANSION JOINT

DN 2900, PN: 6,5 BarG, Design temperature: 300°C

STEEL PLANTS



Blast furnace piping - Germany

40 TONNE HEAVY WEIGHT

DN 2800, PN: 3,1 BarG, Design temperature: -10/300°C



Blast furnace piping - Belgium

SPECIAL COATING SYSTEM

DN 2800, PN: 0,13 BarG, Design temperature: -20/60°C



Blast furnace uptake - United Kingdom

HINGED EXPANSION JOINTS

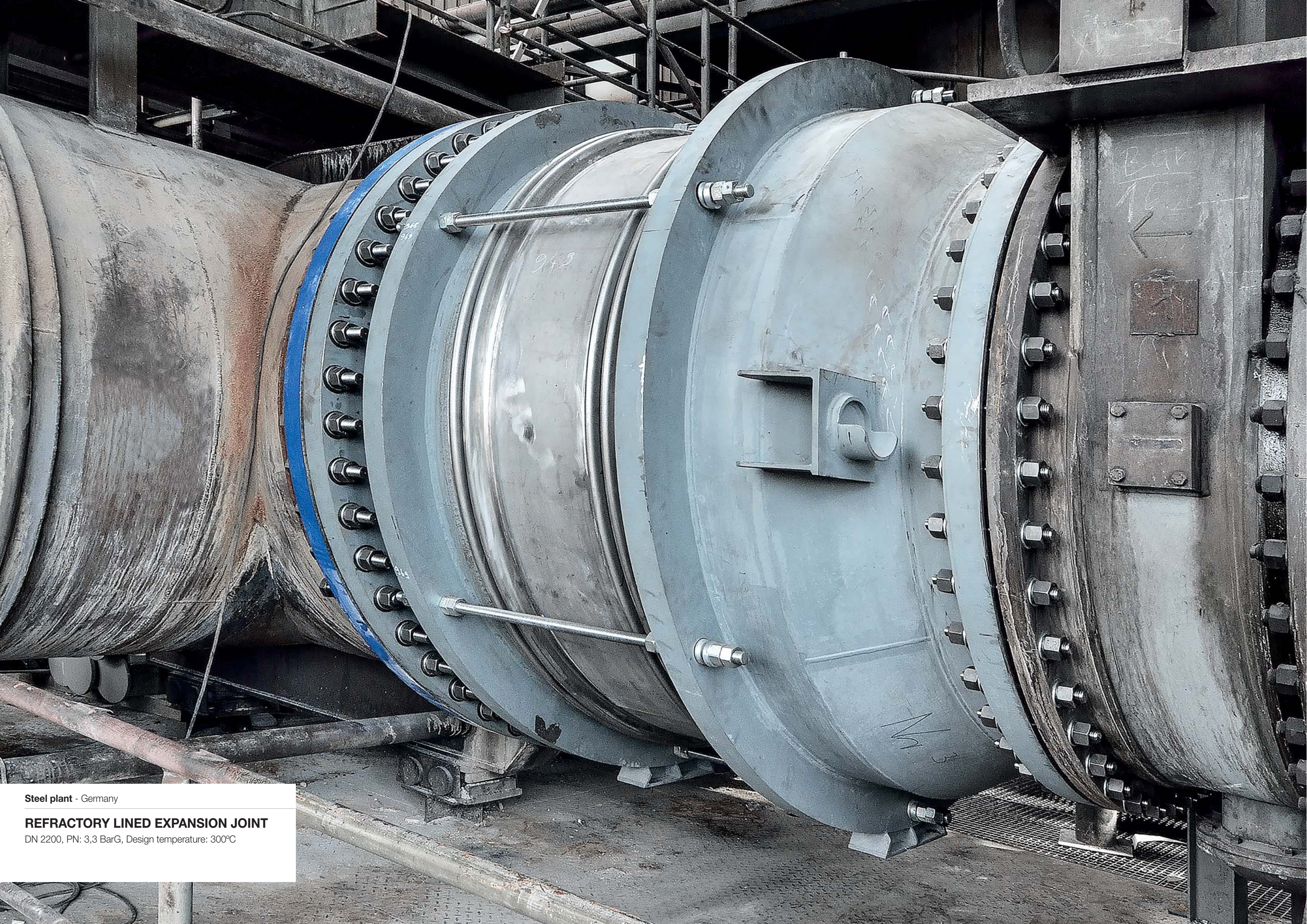
DN 2650, PN: 3 BarG, Design temperature: -10/350°C



Blast furnace piping - Netherlands

EXPANSION JOINT WITH MAN HOLE

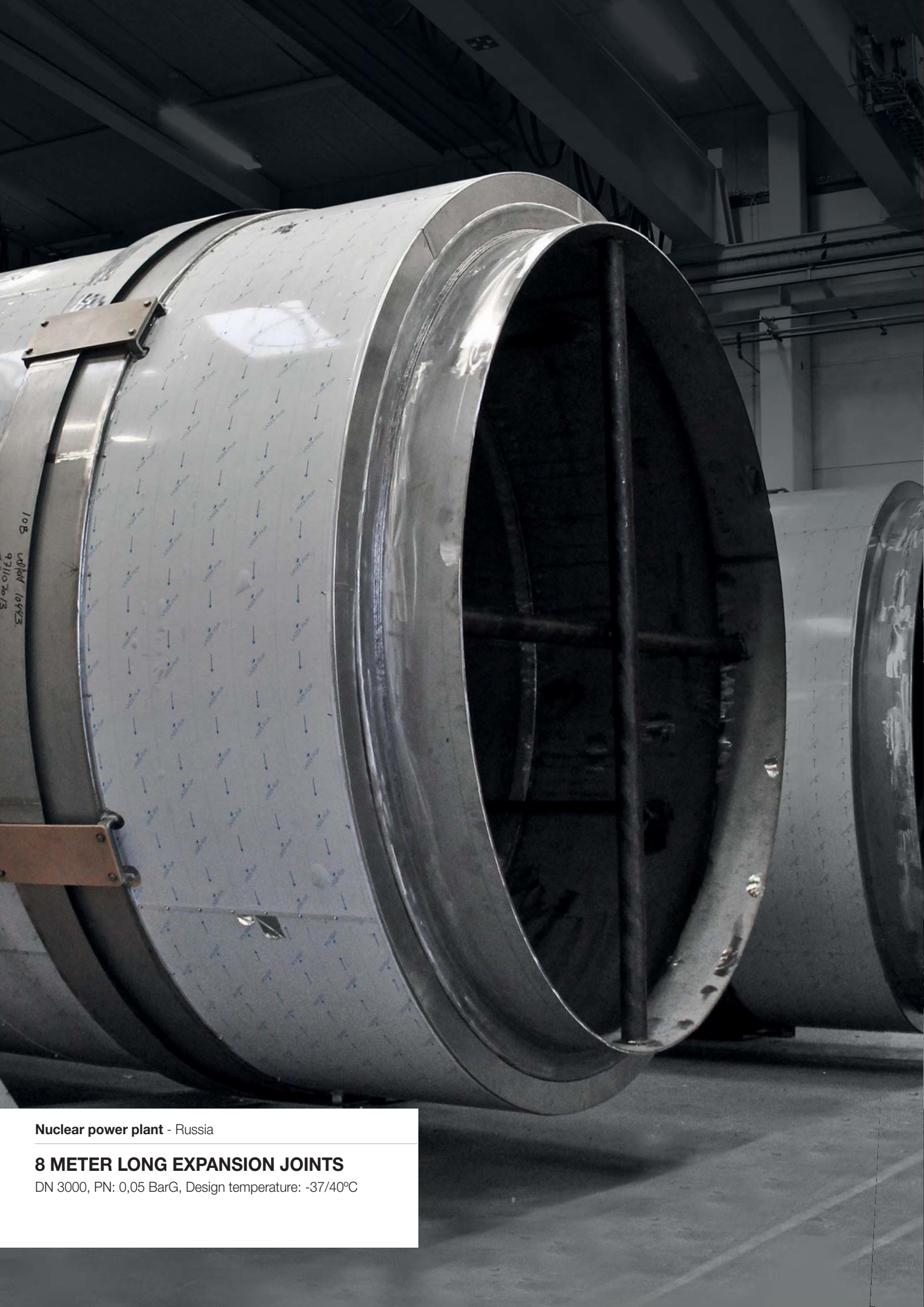
DN 1600, 7,3 meter long, PN: 4,8 BarG,
Design temperature: -10/300°C



Steel plant - Germany

REFRACTORY LINED EXPANSION JOINT

DN 2200, PN: 3,3 BarG, Design temperature: 300°C



Nuclear power plant - Russia

8 METER LONG EXPANSION JOINTS

DN 3000, PN: 0,05 BarG, Design temperature: -37/40°C

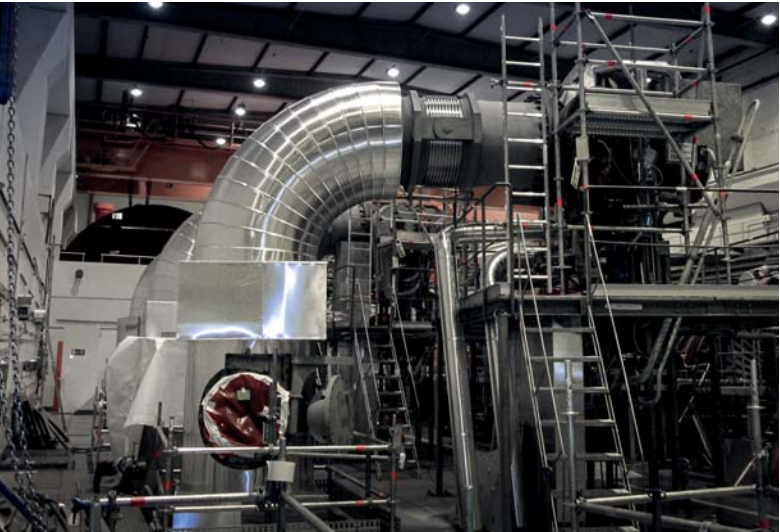
NUCLEAR POWER PLANTS



Nuclear power plant - Belgium

DOUBLE BELLOW EXPANSION JOINTS

DN 350, PN: 1 BarG, Design temperature: 550°C



Nuclear power plant - Sweden

CROSSOVER STEAM PIPING BELLOWS

DN 1000, PN: -1/12 BarG, Design temperature: 286°C



Nuclear power plant - Sweden

SMALL EXPANSION JOINTS

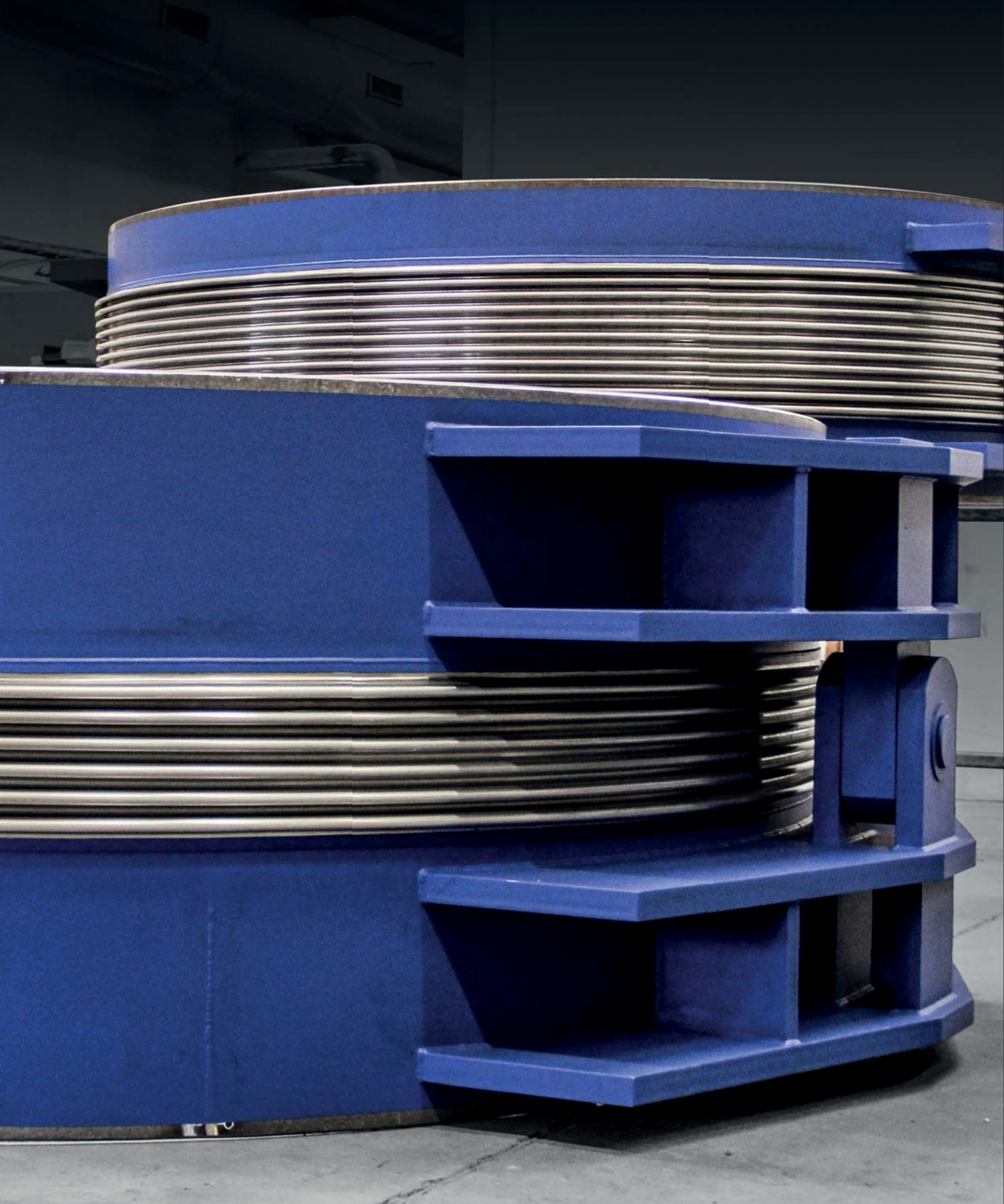
DN 40, PN: -11/11 BarG, Design temperature: 200°C



Nuclear power plant - Sweden

WITH MAN HOLE ON TOP

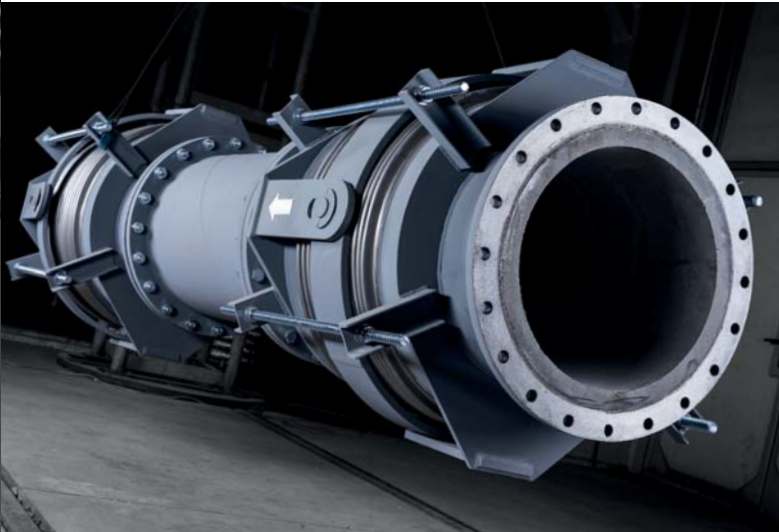
DN 1000, PN: -1/10 BarG, Design temperature: 180°C



Green energy power plant - United Kingdom

DN 2800 + DN 2500 EXPANSION JOINTS
PN: -1/0,49 BarG, Design temperature: 120°C

POWER PLANTS



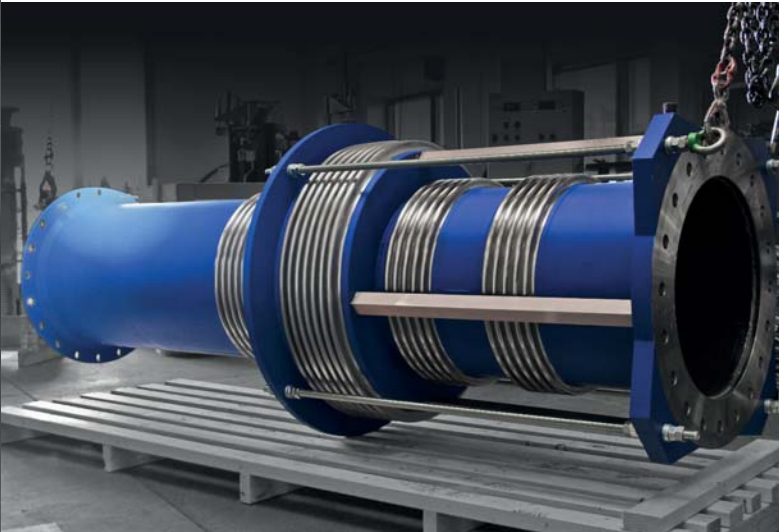
Coal fired power plant - Poland

41 SETS OF COAL DUST EXPANSION JOINTS
DN 600, PN: 0,05 BarG, Design temperature: 140°C



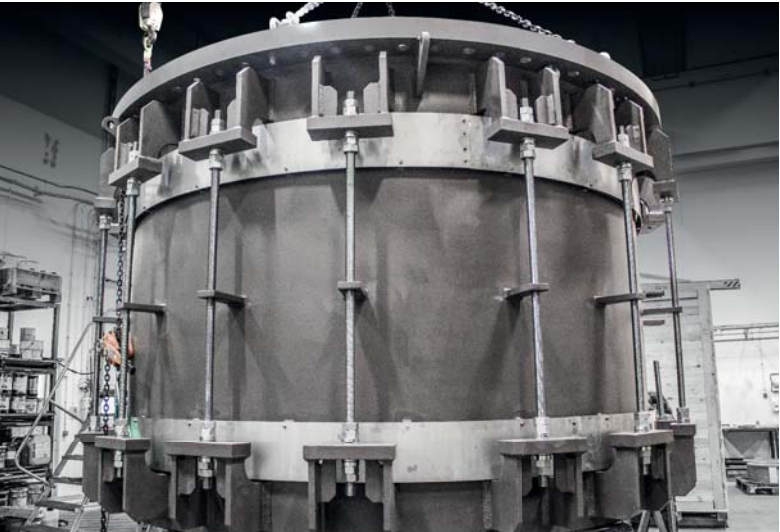
Biomass plant - Austria

SPACE-SAVING EXPANSION JOINT
DN 800, PN: -0,85/1,6 BarG, Design temperature: 400°C



Biomass plant - Croatia

PRESSURE BALANCED EXPANSION JOINT
DN 600, PN: -1/3 BarG, Design temperature: -10/250°C



CCGT plant - Bangladesh

DN 3400 TIED EXPANSION JOINT
PN: -1/1 BarG, Design temperature: 204°C



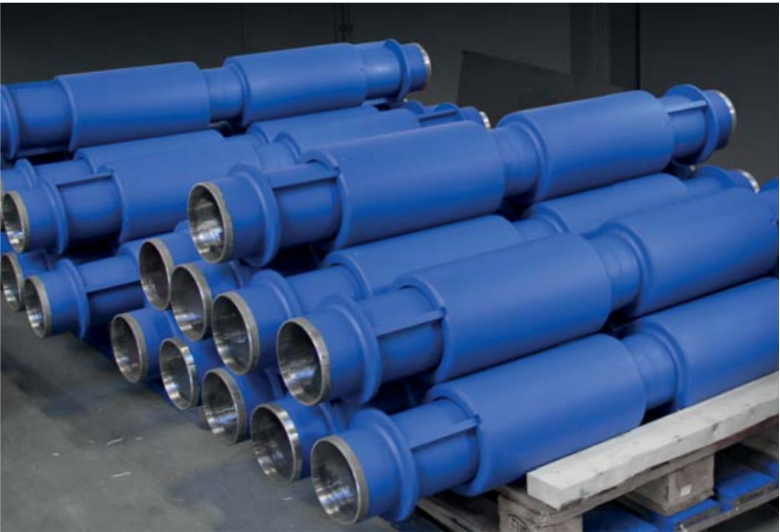
District heating piping system - Poland

LARGE AXIAL MOVEMENT
DN 1000, PN: 16 BarG, Design temperature: 150°C



District heating pipeline - Korea

INSTALLED IN CONCRETE SHAFT
DN 400-1300, PN: 7,5 BarG, Design temperature: 260°C



District heating pipeline - Eastern Europe

DOUBLE EXPANSION JOINTS
DN 150, PN: 16 BarG, Design temperature: 150°C



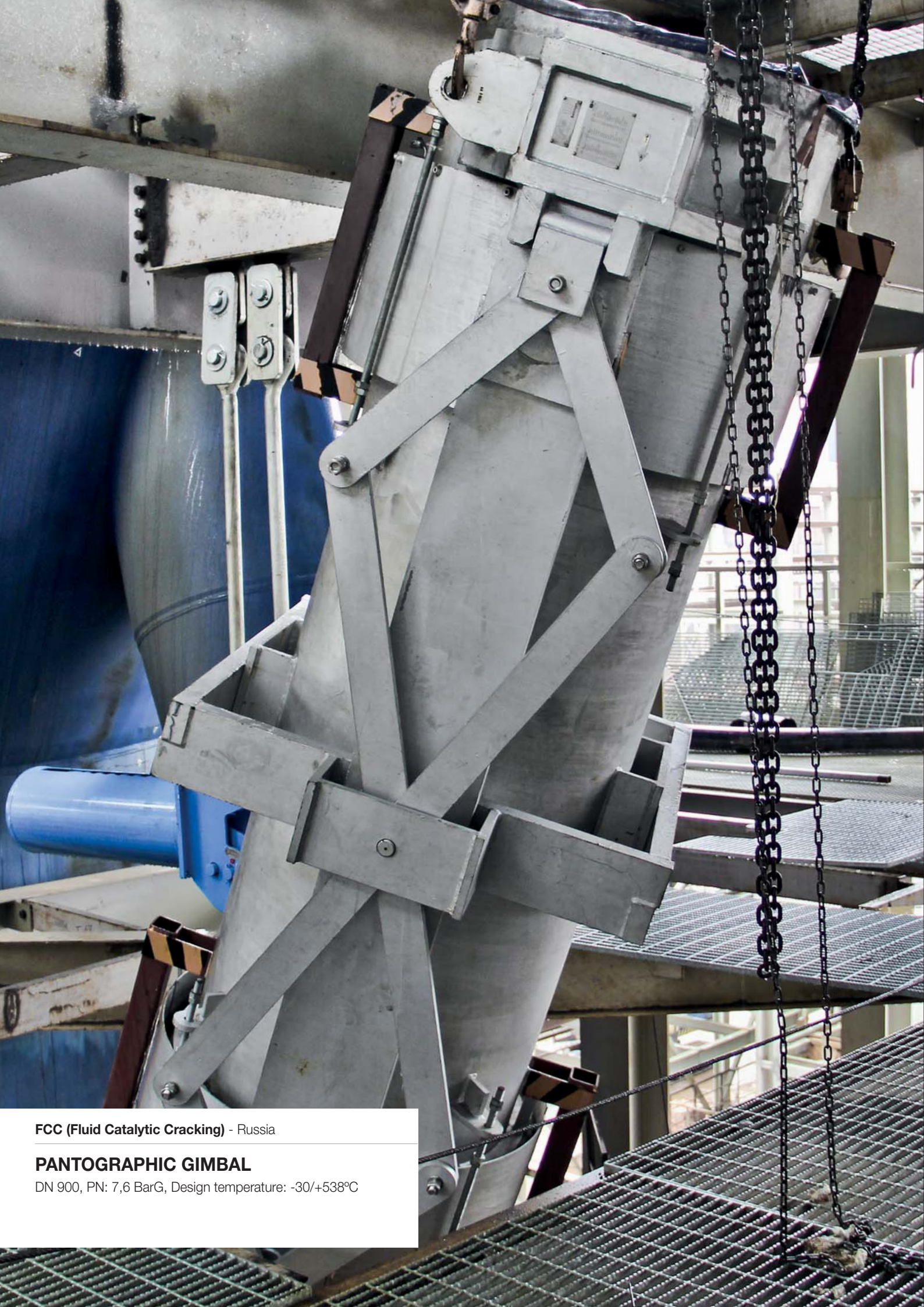
District heating piping system - Serbia

GIMBAL EXPANSION JOINTS
DN 500, PN: 22,5 BarG, Design temperature: 180°C



District heating piping system - Germany

EXTERNALLY PRESSURISED
DN 600, PN: 25 BarG, Design temperature: 160°C



FCC (Fluid Catalytic Cracking) - Russia

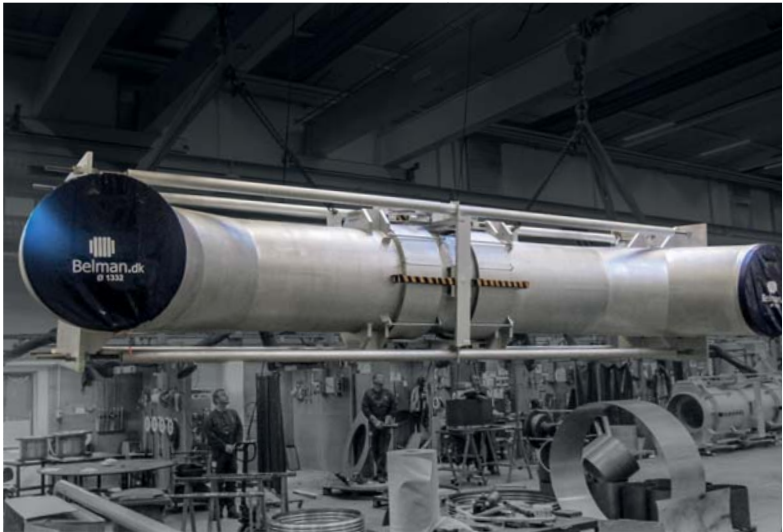
PANTOGRAPHIC GIMBAL
DN 900, PN: 7,6 BarG, Design temperature: -30/+538°C

FLUID CATALYTIC CRACKING



FCC (Fluid Catalytic Cracking) - CIS

DELIVERY TIME REDUCED TO 12 WEEKS
DN 1100, PN: 3,92 BarG, Design temperature: 552°C



FCC (Fluid Catalytic Cracking) - Russia

10,4 METER LONG EXPANSION JOINT
DN 1332, PN: 3,87 BarG, Design temperature: -30/538°C



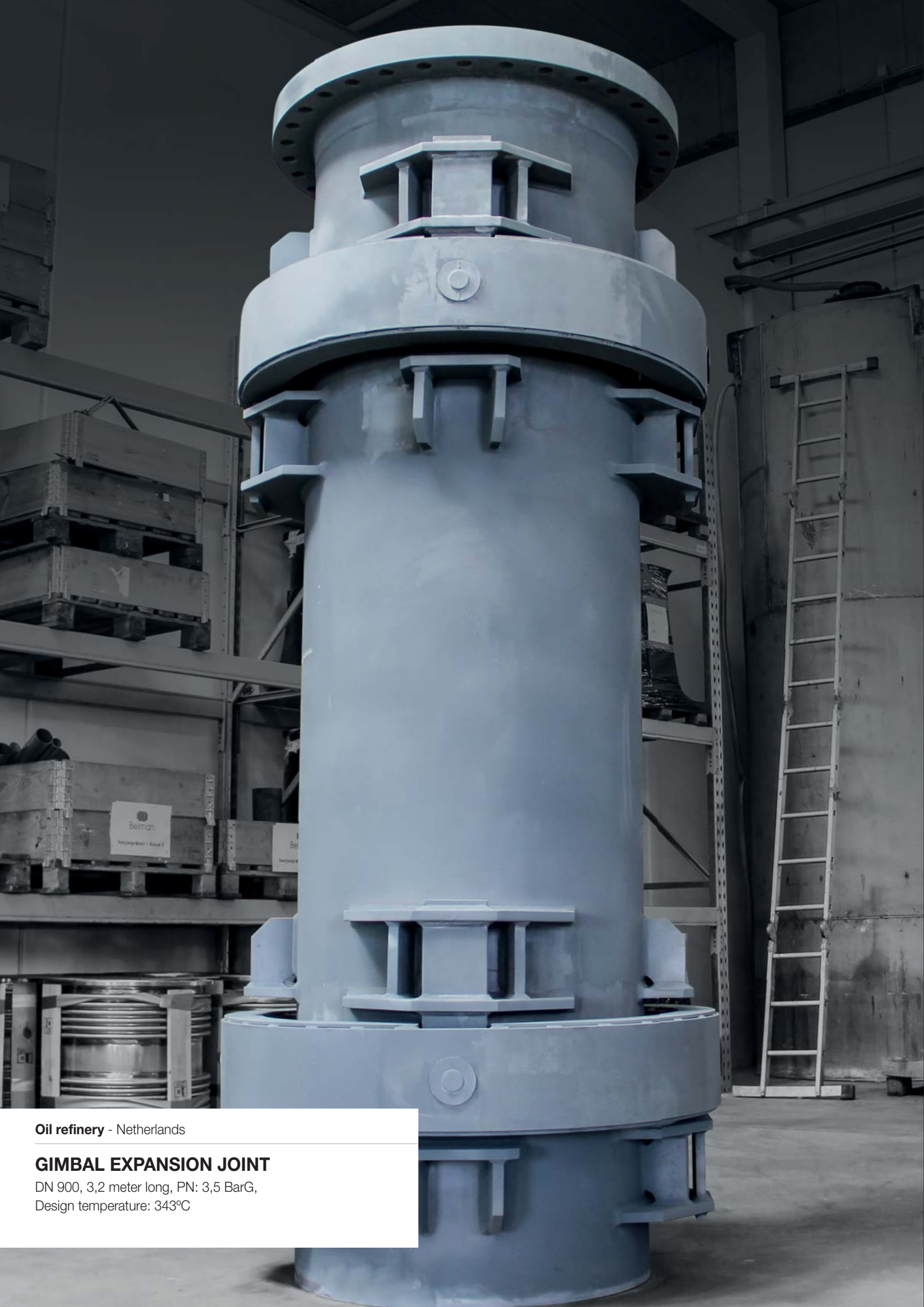
FCC (Fluid Catalytic Cracking) - CIS

8,1 METER LONG EXPANSION JOINT
DN 1100, PN: 3,92 BarG, Design temperature: -40/552°C



FCC (Fluid Catalytic Cracking) - Russia

REFRACTORY LINED EXPANSION JOINTS
DN 900, PN: 3,92 BarG, Design temperature: -30/538°C



Oil refinery - Netherlands

GIMBAL EXPANSION JOINT

DN 900, 3,2 meter long, PN: 3,5 BarG,
Design temperature: 343°C



Oil platform - Norway

SPECIAL TRANSPORT BARS

DN 500, PN: 0,05 BarG, Design temperature: -4/450°C



Oil refinery - Netherlands

5 METER LONG PANTOGRAPHIC GIMBAL

DN 500, PN: 0,5 BarG, Design temperature: 120°C



Oil platform - Caspian sea

MADE ENTIRELY FROM 254 SMO

DN 200, PN: 6 BarG, Design temperature: -30/60°C



Crude oil storage tank farm - Arabian Gulf

254 SMO TIED EXPANSION JOINTS

DN 300, PN: 19,3 BarG, Design temperature: 50°C



Oil Refinery - Flexible connection between manifold and tank - Netherlands

TANK FARM BELLOWS

DN 200 & DN 400, PN: 15,5 BarG,
Design temperature: -10/150°C



LNG/LPG CARRIERS



For ductwork on LNG Carrier - Germany

COMPLETE STAINLESS STEEL
DN 400 - DN 600, PN: 2 BarG, Design temperature: -165/+50°C



FLNG - Australia

DUPLEX & SUPERDUPLEX EXPANSION JOINTS
DN 100 + DN 200, PN: 0,5 BarG, Design temperature: -10/150°C



Outlet valve on LPG Carrier - Korea

DOUBLE BELLOW EXPANSION JOINT
DN 250, PN: 5 BarG, Design temperature: -50/+50°C

Outlet valve on LPG Carrier - Korea

TYPE APPROVED EXPANSION JOINTS
DN 250, PN: 5 BarG, Design temperature: -50/+50°C



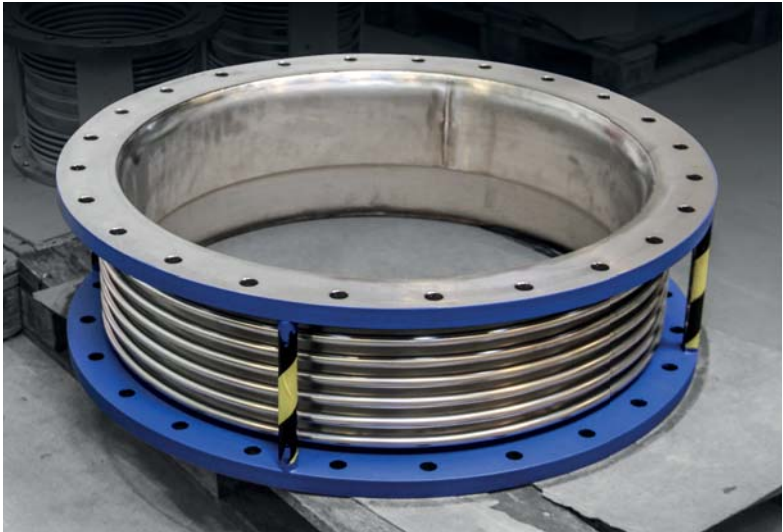
Exhaust on train - China

COMPLETE STAINLESS STEEL
DN 125, PN: 4,5 BarG, Design temperature: 662°C



Cruise ship - The Caribbean

ALLOY 59 BELLOWS
DN 150, PN: 0,2 BarG, Design temperature: 400°C



Container ship - Cyprys

EXPANSION JOINT WITH INNER SLEEVE
DN 800, PN: 2,5 BarG, Design temperature: 450°C



Scrubber on ship - Denmark

254 SMO BELLOWS
DN 800, PN: 0,5 BarG, Design temperature: 550°C



Ship exhaust - Italy

EXHAUST EXPANSION JOINTS
DN 500, PN: 13,2 BarG, Design temperature: -10/41°C



Nickel & palladium smelting plant - Russia

INLINE PRESSURE BALANCED

DN 800, PN: 6 BarG, Design temperature: -20/+270°C

CHEMICAL PLANTS



Polymer & derivative producer - Germany

DOUBLE EXPANSION JOINT

DN 800, PN: 0,06 BarG, Design temperature: 100°C



Methanol plant - Saudi Arabia

TIED EXPANSION JOINT

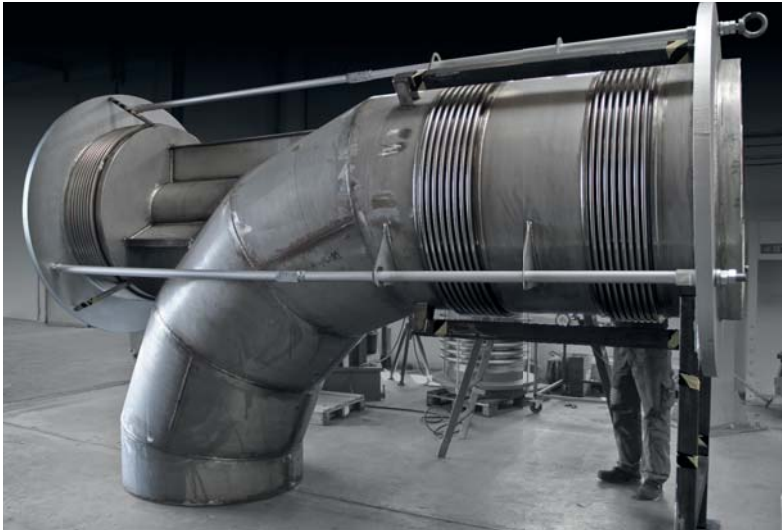
DN 700, PN: 0,8 BarG, Design temperature: 550°C



Sulfuric acid plant - Netherlands

HINGED & GIMBAL EXPANSION JOINTS

DN 300-1500, PN: 0,04-0,5 BarG, Design temperature: 120-480°C



Fertilizer plant - Turkey

CORNER RELIEF EXPANSION JOINT

DN 1200, PN: -0,05 BarG, Design temperature: 260°C



Pulp & paper plant - Indonesia

DN 4100 EXPANSION JOINT
PN: -0,08/0,08 BarG, Design temperature: 200°C

OTHER APPLICATIONS



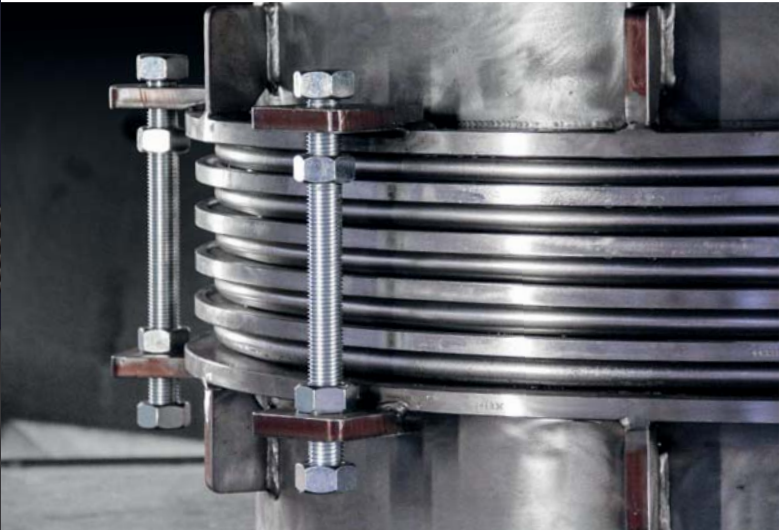
Pressure vessel - United Kingdom

TESTED AT 251 BARG
DN 100, PN: 145 BarG, Design temperature: 300°C



Pipe work in TV tower - Russia

VARIOUS EXPANSION JOINTS
DN 65-150, PN: 2 BarG, Design temperature: 20-40°C



Heat exchanger - Poland

RING REINFORCED EXPANSION JOINT
DN 800, PN: 45,5 BarG, Design temperature: -29/270°C



Sewer system in tunnel - United Kingdom

INCONEL 625 BELLOWS
DN 100-1000, PN: 25 BarG, Design temperature: -7/24°C



ON-SITE SERVICES



Steel plant - United Kingdom

INSTALLATION OF CLAMSHELL BELLOWS

Installation of DN 1000 Incoloy 825 clamshell bellows.



Oil refinery - Russia

SUPERVISION OF THE INSTALLATION

Guiding the plant team on the installation of pressure balanced units.



Steel plant - South Africa

INCOLOY CLAMSHELL BELLOWS

DN 4200, PN: 4,12 BarG, Design temperature: 250°C



Power plant - Denmark

REPLACEMENT OF EXPANSION JOINTS

Removal and installation of DN 800 expansion joints.



Steel plant - Germany

INSTALLATION OF CLAMSHELL BELLOW

Emergency repair of DN 1400 - Completed in 3,5 days.



Steel plant - Russia

TIED BLAST FURNACE EXPANSION JOINTS

DN 3000, PN: 4,5 BarG, Design temperature: -10/250°C

REFERENCES



ENERGY
(INCL. NUCLEAR AND
DISTRICT HEATING)

Vattenfall · Ørsted (Dong Energy) ·
Rosatom · EDF · Mosenergo ·
Vattenfall · RWE · E.ON · Enel ·
RWE Npower · Drax · STEAG ·
Termo Petroleo · Hofor · Tauron ·
PakGen · Inter RAO · ENGIE
Electrabel · Fortum · Ceylon
Electricity Board · Irkutsk Energo ·
Novosibirsk Energo · AEP Enegy
Services · Fernwärme Wien · BHEL



OIL & GAS

Total Fina Elf · BP · Gunvor Petro-
leum (Prev. Kuwait Petroleum
Europoort B.v (Q8)) · Shell · Statoil ·
Eni · Rosneft · TOR · Murco Petro-
leum Limited · Lukoil · Preem ·
Saudi Aramco · MOL · Chevron ·
Total · Tatneft · PKN Orlen · Total
(Maersk Oil) · Qapco · OMV · Linde
Ag · Ceylon Petroluem · Eneq



CHEMICAL PLANTS

PhosAgro · Sasol · Air Liquide ·
Cabot Corporation · Dow ·
Schenectady Europe · Unilever ·
Johnson Formox · Solvay · OCI ·
Aurubis · IBN Sina · Metafrax ·
Xstrata · SASA · ICL · SABIC



ENGINEERING / EPC

ABB · Alstom · Siemens · Primetals
(Siemens VAI) · Aker Solutions ·
Doosan Škoda Power · Metso ·
Mapna Group · Wood (Amec Foster
Wheeler) · ZEP · Zorlu Enerji ·
Paul Wurth · ThyssenKrupp Uhde
High Pressure Technologies ·
BWSC · Technip · Areva · Flour ·
Technicas Ruindas · Mitsubishi
Kakoki Kaisha · Rambøll



EXHAUST

MAN Diesel & Turbo · DFDS ·
Dresser-Rand · Drydocks World ·
Wärtsilä Oil & Gas Solutions ·
Hyundai Heavy Industries · MSC ·
Peter Brotherhood · Kawasaki ·
Samsung Heavy Industries ·
Mærsk · Royal Caribbean Cruise
Lines



STEEL PLANTS

ThyssenKrupp · SSI (CORUS) ·
TATA · ArcelorMittal · Severstal ·
Salzgitter · SSAB · NLMK Group ·
Normickel



OTHER
APPLICATIONS

Cummins · Valmet · Andritz ·
International Silencers · Norcem
Power Machines · Caterpillar ·
Raumaster · Lee Tunnel · Arla ·
Weinberger · Bronswerk · Cementa



ON-SITE SERVICES

Shell · BP · SABIC · Nyrstar · Saudi
Iron & Steel Company · Ineos ·
Rosneft · TOR · SSI (Corus) ·
ThyssenKrupp · Hofor · E.On ·
ArcelorMittal · Uniper

Our experience, your benefit



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