ADMINISTRATION, MACHINING AND HEAT TREATMENT DEPARTMENT

Via Dalla Chiesa 3
24020 Scanzorosciate (Bergamo)
Italy

FORGING AND HEAT TREATMENT DEPARTMENT

Via Provinciale SNC
24040 Lallio (Bergamo)
Italy

BARS STOREHOUSE

Via Tonale 3E
24061 Albano Sant’Alessandro (Bergamo)
Italy
Company overview
WHERE WE ARE
HOW WE WERE BORN

Mario
Emanuele
Giovanni
Alfredo
We are manufacturers of forged steel fittings and special pieces in ferrous and nonferrous materials since 1962.
Engineering
CAD-3D software
Finite Elements Analysis
Software developed within the company
ASME B.31.1, ASME B.31.3 ASME B.31.4 ASME B.31.8

ASME Boiler and Pressure Vessel Code Section I

ASME Boiler and Pressure Vessel Code Section III Subsection NB

ASME Boiler and Pressure Vessel Code Section VIII division 1 and 2

RCC-M

Pressure Equipment Directive 97/23/EC (PED)

EN 13480, EN 10253

other
PRODUCT: VESSELET - LATERAL 45deg (Diag.53931 DIV 14 REV.0)  Item No.: 140

DIMENSIONAL DATA

- Branch pipe Outside Diameter Db = 609.6 mm
- Branch pipe thickness Tb = 8.35 mm
- Run pipe Outside Diameter Dh = 1008.8 mm
- Run pipe thickness Th = 9.53 mm
- Wall thickness tolerance on pipes = ±13.5%
- Angle between Run and Branch pipe α = 45°
- Vesselet Inside Diameter IDb = 556.3 mm
- Vesselet Outside Diameter ODb = 609.6 mm

DESIGN DATA

- Code: ASME B31.3
- Design Pressure/ Temperature = 19 barg @ -196 °C to 13.8 barg @ 180 °C
- Corrosion allowance c = 0 mm
- Design factor Y = 0.4
- Material spec. for the Vesselet = ASTM A162 F304/F304L
- Material spec. for run pipe = ASTM A312 TP304/304L
- Allowable stress at design temperature for run pipe SEh = 137.86 N/mm²
- Allowable stress at design temperature for Vesselet SEb = 137.86 N/mm²

CALCULATION RESULTS

- Pressure design thickness of run pipe th = \(\frac{(P \times Dh)}{2 \times SEh + FY}\) = 7.31 mm
- Pressure design thickness of the Vesselet tb = \(\frac{(P \times Db)}{2 \times SEb + FY}\) = 4.18 mm
- Diameter of opening d1 = (IDb + 2c) / \(\cos α = 844.1\) mm
- "Half width" of reinforcement zone d2 = d1 = 844.1 mm
- Vesselet thickness in the reinforcement zone Tb = (ODb - (IDb + 2c)) / 2 = 6.35 mm
- Height of reinforcement zone L4 = 2.8 x (Th - c) = 15.9 mm

- Required reinforcement area A1 = 5806.2 mm² (computed from drawing using CAD system)
- Available area for reinforcement A3 = 9260.7 mm² (computed from drawing using CAD system)
SAMPLES OF FINITE ELEMENT ANALYSIS

Cap
Piggable wye
Flanged Tee
Insert megalet
Spherical wye
DESIGN VALIDATION: BURST TEST

Megalet

Nipoflange

Insert Megalet
3 Quality
ASME NCA-3800

ISO 9001:2008

Pressure equipment directive (PED)
AD 2000-Merkblatt W0 / TRD 100
KTA 3201.1 Section 2.4
Type approval for branch fittings
Norsok M-650
(materials F44-F51-F53-F55-B381)

Exxon EMDC List of qualified suppliers
(materials F51-F53-F55)

Creep studies and researches
(materials F91-F92)
Urząd Dozoru Technicznego

NSF 61

Forgings in carbon, C-Mn, alloy, SS and DSS 100 kg

Frame agreement
JQS
RePro
FPAL
NNSA
EAC for Customs Unions
Canada CRN
ISO 17025:2005
M.E.G.A. implements and maintains an Environmental Management System in compliance with ISO 14001, and an HSE Management system according to D. Lgs. 81/2008 (Italian law)
Products
Oil and Gas

Power generation (conventional)

Power generation (nuclear)

Subsea
Global outlook of petroleum and the competitiveness of companies involved are first arguments for continuing quality improvement.
Refinery And Petrochemicals Integrated Development (RAPID) Project

Kaombo ultra-deepwater offshore Block 32

Khazzan Project

Rabab Harweel Integrated Project

Arbi 20/23 Gas wellhead
MAJOR CUSTOMER REFERENCES

- bp
- Eni
- NOPEC
- CNPC
- Petroleum Development Oman
- Qatargas
- Saudi Aramco
- Sonatrach
- Shell
- TOTAL
Conventional power plant technology plays an important role in the energy production
LATEST PROJECT REFERENCES

Suez 650 MW Thermal Power Station

Solapur Super Thermal Power Station

Banharpalli Coal Power Plant

Suratgarh Super Thermal Power Project

Trombay Thermal Power Station
Oil and Gas

Power generation (conventional)

Power generation (nuclear)

Subsea

www.mega-spa.com

Manufacturing products for nuclear power plants requires high quality control standards.
LATEST PROJECT REFERENCES

VC Summer Nuclear Power Station

Vogtle Electric Nuclear Power Station

Flamanville Nuclear Power Station

Tarapur Atomic Power Station

Chinese Nuclear Power Stations (Fuqing, Hongyanhe, Tiashan, Ningde)
M.E.G.A.

Oil and Gas

Power generation (conventional)

Power generation (nuclear)

Subsea
Proven, safe and reliable manufacturing is critical for a subsea environment
Egina Oil Field Development

Martin Linge Development

Shah Deniz Stage 2

Mumbai high north redevelopment phase III

Polarled Pipeline Project
SEAMLESS PIPES AND STRESS JOINTS
SEAMLESS BARRED AND TARGET TEES
Technical documents
Brochures
Catalogs
Run pipes size range

Technical information on Megalets
CONTACTS

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