

Information regarding the requirements of the Pressure Equipment Directive 2014/68/EU.

Dovre Sertifisering AS GUIDELINE

GL-DSE-2020-008 Acceptance of using TR2000 and ASME under PED 2014/68/EU
Duplex 22 Cr

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1. Materials included in this document

Standard	Grade	Form
ASTM A182	F51	Forgings
ASTM A240	S31803	Plates
ASTM A790	S31803	Pipes
ASTM A815	S31803-S; -W; -WX	Pipe fittings
ASTM A928	S31803 Class 1, 3 or 5	Pipes

2. Properties for allowable stress

Allowable stresses within the applicable temperature range are defined in ASME B31.3 for each material grade (Table A-1). This is done due to the fact that not all product forms are covered for UNS S31803 by the ASME B31.3 standard. Allowable stresses for UNS S31803 materials according to table A-1 in ASME B31.3 are found acceptable.

Elevated strength properties as defined by ASME II Part D indicate identical stresses, Whilst EN10028-5, EN10222-5 and EN10215-5 define approximately the same Yield values independent on product form.

3. Temperature and toughness

Piping classes DX, DX-K and SDX are impact tested to -46°C , but the allowable design temperature is -51°C . This deviation is found acceptable since EN13480-2 annex B indicates curves with the opening for a slight difference in design temperature and impact test temperature.

Minimum criteria for the impact testing to Charpy-V are specified for all materials. The only exception for this is the materials defined in DF106.

For some materials the toughness requirements can be neglected for forged plugs. This is based on the conditions below. Due to the small thickness and low stresses for these products brittle fracture is not an issue and is supported by the history of safe use.

1. Stresses to be considered in forged plugs are low compared to the maximum allowable stresses.
2. Small dimensions, i.e. 0,5 to 1 inch (12,7 to 25,4mm), thus meaning small wall thickness.
3. Forged plugs are delivered with EN10204 2.2 test reports, the application is not for main pressure bearing parts.

4. Welding and NDT

The weldability is sufficient however the allowable S and P contents are higher than in harmonised standards. This is covered by the requirements for 3rd party control.

Welding procedures and operators

Directive 2014/68/EU §3.1.2 requires that for equipment in Category II, III and IV the operating procedures and operators are qualified by a recognised third-party organisation within the European Community or a Notified Body. Dovre Sertifisering AS has Notified Body number 2654.

NDT personnel

Directive 2014/68/EU §3.1.3 requires that NDT personnel is qualified. For pressure equipment in categories III and IV, the personnel shall be approved by a third-party organisation recognised by a Member State pursuant to article 20.

5. Ductility

The Directive 2014/68/EU §7.5 requires a steel sufficiently ductile. Elongation after rupture is no less than 14 % at a temperature not higher than the lowest scheduled operating temperature.

All the specified materials have minimum ductility exceeding 14% thus, fulfilling the Directive 2014/68/EU ductility requirements.

6. Forming

Plate and pipe material have sufficient formability as defined in ASME B31.3. Other cold bending requirements are found in Norsok L-001.

Cold forming is mentioned in EN13480-4 these requirements must be satisfied.

7. Documentation and marking

The inspection documentation in accordance with EN 10204:2004 is specified in the MDS. All MDS's require marking of the material ensuring full traceability to the melt.

The requirements in the Directive 2014/68/EU are found fulfilled.

8. Abbreviations

C	Carbon
S	Sulphur
P	Phosphorous
CE	Carbon Equivalent
NDT	Non-Destructive Testing
MDS	Material Data sheet