

Q235A Included in 3 standards (China)

Standards

GB/T 3091	Welded steel pipe for low pressure liquid delivery
GB/T 3524	Hot-rolled carbon and low alloy structural steel strips
GB/T 700	Carbon Structural Steels

Chemical composition

C < 0.22	Si < 0.35	Mn < 1.4	P < 0.045
S < 0.05	Cr < 0.3	Ni < 0.3	Cu < 0.3
N < 0.008	As < 0.08	Fe Rest	

It's allowed to exceed N content up to 0.014% in finished products. On exceeding N for every 0.001% max P content reduces by 0.005%.

F - unkilld steel

Z - killed steel

TZ - special killed steel

By agreement: Cu > 0.35

Properties

By GB/T 700-2006

For section of thickness >100mm is allowed to reduce the lower limit of strength up to 20N/mm²

Thickness: < 16 mm ;

Yield Strength: > 235 MPa

Tensile Strength: 370 - 500 MPa

Elongation: > 26 %

Thickness: 16 - 40 mm ;

Yield Strength: > 225 MPa

Tensile Strength: 370 - 500 MPa

Elongation: > 26 %

Thickness: 40 - 60 mm ;

Yield Strength: > 215 MPa

Tensile Strength: 370 - 500 MPa

Elongation: > 25 %

Thickness: 60 - 100 mm ;

Yield Strength: > 215 MPa

Tensile Strength: 370 - 500 MPa

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Elongation: > 24 %

Thickness: 100 - 150 mm ;

Yield Strength: > 195 MPa

Tensile Strength: 370 - 500 MPa

Elongation: > 22 %

Thickness: 150 - 200 mm ;

Yield Strength: > 185 MPa

Tensile Strength: 370 - 500 MPa

Elongation: > 21 %

Cold-bend test

Longitudinal test pieces

Thickness: < 60 mm ;

Return Bend: d=a

Thickness: 60 - 100 mm ;

Return Bend: d=2a

Transverse test pieces

Thickness: < 60 mm ;

Return Bend: d=1.5a

Thickness: 60 - 100 mm ;

Return Bend: d=2.5a

By GB/T 3524

Yield Strength: > 235 MPa

Tensile Strength: 375 - 500 MPa

Elongation: > 26 %

Return Bend: d=a

By GB/T 3091

Wall thickness: < 16 mm ;

Yield Strength: > 235 MPa

Tensile Strength: > 370 MPa

Wall thickness: > 16 mm ;

Yield Strength: > 225 MPa

Tensile Strength: > 370 MPa

Elongation

Outside diameter: < 168.3 mm ;

Elongation: > 15 %

Outside diameter: > 168.3 mm ;

Elongation: > 20 %