

This page is mainly introduced the Q235 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of Q235, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Structure Steel Q235

Q235 Standard Number:

ITEM	Standard Number	Descriptions
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Q235 Chemical composition (mass fraction) (wt.%)

Chemical			Min.(%)				Max.(%)		
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
0.14~0.22	≤0.30	0.30~0.65	≤0.045	≤0.050	≤0.30	≤0.30			
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other
		≤0.30							

Mechanics performance

The yield point σ_s /MPa (no less) than in steel different thickness or diameter/mm | ≤ 16:235

The yield point σ_s /MPa (no less) than in steel different thickness or diameter/mm | > 16 ~ 40:225

The yield point σ_s /MPa (no less) than in steel different thickness or diameter/mm | > 40 to 60:215

The yield point σ_s /MPa (no less) than in steel different thickness or diameter/mm | > 60 ~ 100:205

The yield point σ_s /MPa (no less) than in steel different thickness or diameter/mm | > 100 ~ 150:195

The yield point σ_s /MPa (no less) than in steel different thickness or diameter/mm | > 150:185

Cold bending property

Sample direction: vertical

180 ° of cold bending test $b = 2a$ different thickness or in steel diameter/mm | than 60: $d = a$

180 ° of cold bending test $b = 2a$ different thickness or in steel diameter/mm | > 60 ~ 100: $d = 2a$

180 ° of cold bending test $b = 2a$ different thickness or in steel diameter/mm | > 100 ~ 200: $d = 2.5a$

Performance characteristics and applications

Good strength and cold, heat pressure processing performance and welding is a bit poor performance.

Widely used in the manufacture of sheet, steel bar, steel structure with all kinds of steel, building structure, Bridges, engine, mechanical parts, carburizing or carbon nitrogen permeability parts, components, support, force not big pole, connecting rod, pin, shaft, screw, nut, rings, etc

GB/T 700-1988 standard and GB 700-1979 standard steel grade comparison

GB/T 700-1988 standard:

Regardless of rank, the chemical composition and mechanical properties (σ_s , σ_b , the delta and the cold bending) are to be guaranteed

Rolling plate and rod of products, the mechanical properties of the guarantee condition, can according to product characteristics and application requirements, in the standard separately

GB 700-1979 standard

A1 the mechanical properties of the steel guarantee (σ_s , σ_b , the delta and the cold bending), B1 steel guarantee the chemical composition of the same with Q195

A1 steel cold bending test is additional guarantee conditions

1 no special steel of steel

Q235 Physical Properties		
Tensile strength	115-234	σ_b /MPa
Yield Strength	23	$\sigma_{0.2} \geq$ /MPa
Elongation	65	$\delta_5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	$Akv \geq$ /J
HBS	123-321	-
HRC	30	-

Q235 Mechanical Properties		
Tensile strength	231-231	σ_b /MPa
Yield Strength	154	$\sigma_{0.2} \geq$ /MPa
Elongation	56	$\delta_5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	$Akv \geq$ /J
HBS	235-268	-
HRC	30	-

Q235 Heat Treatment Regime				
Annealing	Quenching	Tempering	Normalizing	Q & T
√	√	√	√	√

Q235 Range of products				
Product type	Products	Dimension	Processes	Deliver Status
Plates / Sheets	Plates / Sheets	0.08-200mm(T)*W*L	Forging, hot rolling and	Annealed, Solution and

			cold rolling	Aging, Q+T, ACID-WASHED, Shot Blasting
Steel Bar	Round Bar, Flat Bar, Square Bar	Φ8-1200mm*L	Forging, hot rolling and cold rolling, Cast	Black, Rough Turning, Shot Blasting,
Coil / Strip	Steel Coil /Steel Strip	0.03-16.0x1200mm	Cold-Rolled & Hot-Rolled	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Pipes / Tubes	Seamless Pipes/Tubes, Welded Pipes/Tubes	OD:6-219mm x WT:0.5-20.0mm	Hot extrusion, Cold Drawn, Welded	Annealed, Solution and Aging, Q+T, ACID-WASHED

We can produce Structure Steel the specifications follows: