



# Special Steel Plates

## Product overview

ThyssenKrupp Christon



ThyssenKrupp

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## Product overview

### Our programs:

- Wear resistant special steels (XAR, HB, ...)
- Pressure vessel steels according to EN10028-2 and EN10028-3
- Steels according to ASTM/ASME
- Armour steels (SECURE)
- Manganese steels
- Weather resistant steels (CORTEN)
- Quenched and tempered high-strength steels (S690QL, N-A-XTRA 70, ...)
- General structural steels (Quarto)
- Cold formable steels (S700MC, ...)
- Heat treatable steels (C45, 42CrMo4, ...)
- Case hardening steels (C15, 16MnCr5, 20MnCr5, ...)
- Offshore special grades (API 5L X70, ...) on request
- Ship-building grades on request
- Others on request

### Extra services:

All additional services and tests possible at simple request:

- Flame, plasma and laser cutting, fix formats on request
- Shotblasting SA2.5
- Ultrasonic testing
- Recertification
- All required mechanical testing



## Alloying elements and their effect on the characteristics of steels

Alloying element	Mechanical characteristics															
	Hardness	Tensile strength	Limit of elasticity	Elongation	Constriction	Notch impact value	Elasticity	Hot hardness	Speed of cooling	Carbide formation	Wear resistance	Forgeability	Machinability	Formation of hammer scale	Ability of nitriding	Corrosion resistance
Silicon	↑	↑	↑↑	↓	~	↓	↑↑↑	↑	↓	↓	↓↓↓	↓	↓	↓	↑	—
Manganese in pearlitic steel	↑	↑	↑	~	~	~	↑	~	↓	~	↓↓	↑	↓	~	~	—
Manganese in austenitic steel	↓↓↓	↑	↓	↑↑↑	~	—	—	—	↓↓	—	—	↓↓↓	↓↓↓	↓↓	—	—
Chromium	↑↑	↑↑	↑↑	↓	↓	↓	↑	↑	↓↓↓	↑↑	↑	↓	—	↓↓↓	↑↑	↑↑↑
Nickel in pearlitic steel	↑	↑	↑	~	~	~	—	↑	↓↓	—	↓↓	↓	↓	↓	—	—
Nickel in austenitic steel	↓↓	↑	↓	↑↑↑	↑↑	↑↑↑	—	↑↑↑	↓↓	—	↑	↓↓↓	↓↓↓	↓↓	—	↑↑
Aluminium	—	—	—	—	↓	↓	—	—	—	—	↑	↓↓	—	↓↓	↑↑↑	—
Tungsten	↑	↑	↑	↓	↓	~	—	↑↑↑	↓↓	↑↑	↑↑↑	↓↓	↓	↓↓	↑	—
Vanadium	↑	↑	↑	~	~	↑	↑	↑↑	↓↓	↑↑↑↑	↑↑	↑	—	↓	↑	↑
Cobalt	↑	↑	↑	↓	↓	↓	—	↑↑	↑↑	—	↑↑↑	↓	~	↓	—	—
Molybdenum	↑	↑	↑	↓	↓	↑	—	↑↑	↓↓	↑↑↑	↑↑	↓	↓	↑↑	↑↑	—
Copper	↑	↑	↑↑	~	~	~	—	↑	—	—	—	↓↓↓	~	~	—	↑
Sulphur	↑	↑	—	↓	↓	↓	—	—	—	—	—	↓↓↓	↑↑↑	—	—	↓
Phosphorus	↑	↑	↑	↓	↓	↓↓↓	—	—	—	—	—	↓	↑↑	—	—	—

↑ = Increase or rising • ↓ = Reduction or decrease • ~ = Comparable to • — = Unknown effect • ↑↑ = (More arrows) higher influence

## Wear resistant special steels

ThyssenKrupp  
high hard **XAR®**

Designation	Material N°	Hardness	Plate thickness
XAR 300	1.8704	270-340 HB	4-80 mm
XAR 400	1.8714	360-440 HB	3-120 mm
XAR 450	1.8722	410-490 HB	3-120 mm
XAR 500	1.8734	450-530 HB	4-80 mm

## Pressure vessel steels according to EN 10028-2

Designation according to DIN	Material N°	Plate thickness
P265GH	1.0425	3-300 mm
P295GH	1.0481	5-120 mm
P355GH	1.0473	6-200 mm
16Mo3	1.5415	3-160 mm
13CrMo4-5	1.7335	3-160 mm
10CrMo9-10	1.7380	4-120 mm

## Pressure vessel steels according to EN 10028-3

Designation according to DIN	Material N°	Plate thickness
P275NH	1.0487	5-130 mm
P275NL1	1.0488	5-130 mm
P275NL2	1.1104	5-130 mm
P355N	1.0562	5-200 mm
P355NH	1.0565	5-200 mm
P355NL1	1.0566	5-200 mm
P355NL2	1.1106	3-220 mm
P460NH	1.8935	4-200 mm
P460NL1	1.8915	4-200 mm
P460NL2	1.8918	4-200 mm

## Steels according to ASTM/ASME

Grade	Plate thickness
A/SA516GR60	3-300 mm
A/SA516GR70	5-200 mm
A/SA387GR11CL2	6-60 mm
A/SA387GR12CL2	5-120 mm
A/SA387GR22CL2	4-120 mm
A/SA283GRC	3-120 mm
A/SA285GRC	3-120 mm
A/SA387GR5CL2	5-80 mm

## Armour steels

ThyssenKrupp  
high protect **SECURE**

Designation	Plate thickness
SECURE 400	3-150 mm
SECURE 500	3-150 mm

## Manganese steels

Designation	Material N°	Plate thickness
X120Mn12	1.3401	1,5-50 mm



## Weather resistant steels

ThyssenKrupp  
high resist **COR-TEN®**

Designation	Material N°	Plate thickness
CORTEN A	1.8962	1-12 mm
CORTEN B	1.8963	3-50 mm
S355J0WP	1.8945	3-50 mm
S355J2WP	1.8946	3-50 mm

## Quenched and tempered high-strength steels

ThyssenKrupp  
high strength **N-A-XTRA®** ThyssenKrupp  
high strength **XABO®**





Designation	Material N°	Plate thickness
N-A-XTRA 70	1.8988	5-180 mm
N-A-XTRA M70	1.8928	3-200 mm
S690Q, QL, QL1	1.8928	3-200 mm
S890QL 	1.8983	4-120 mm
S960QL 	1.8933	4-100 mm

## General structural steels (Quarto)

Designation	Material N°	Plate thickness
S235JR	1.0038	4-300 mm
S355J2	1.0570	4-300 mm

## Cold formable steels

ThyssenKrupp  
high strength **PAS**

Designation	Material N°	Plate thickness
S700MC 	1.8974	3-10 mm
S500MC 	1.0984	3-10 mm
S460MC 	1.0982	3-10 mm
S420MC 	1.0980	3-15 mm

## Heat treatable steels

Designation	Material N°	Plate thickness
C45	1.0503	1-160 mm
C60	1.0601	1-160 mm
C75W	1.1750	1.5-50 mm
25CrMo4	1.7218	2-120 mm
42CrMo4	1.7225	2-200 mm

## Case hardening steels

Designation	Material N°	Plate thickness
C15	1.0401	2-100 mm
16MnCr5	1.7131	2-200 mm
20MnCr5	1.7147	2-200 mm

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GB • Info 2.3.1. • 1.2005 • LB