



EQT PLATE

400 / 450 / 500

Quenched & Tempered Grain Refined Wear Resistant Steel Plate



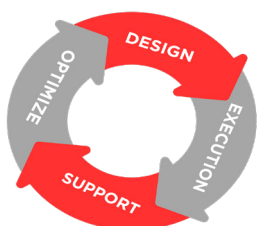
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Experts in repair and maintenance at your SERVICE
Pioneering Industrial Sustainability

Performance Mindset With CASTOLIN EUTECTIC

Critical industrial equipment is subject to extreme wear, with planned and unplanned shutdowns increasing your maintenance and operational costs. Areas that are difficult to access, such as those at a high elevation, pose an even greater risk to employee safety and your bottom line. In this type of environment, superior wear-resistant materials are vital to covering wear-prone areas and serve as a way for companies to improve performance and reduce costs.

As a strong global player in wear management and performance, CASTOLIN EUTECTIC is committed to delivering “the optimum solution” to improve your operational and maintenance KPIs, such as:



Your bottom-line matters to us!

- Mean time between failures (MTBF)
- Maintenance man-hours (MMH)
- Mean downtime (MDT)
- Cost per ton mined (CPTM)

Our wear experts are dedicated to helping you realize the lowest cost-per-ton possible using our wear management solutions. From mobile and fixed equipment to complete backfill piping systems, our global teams offer field and benchmark performance testing and mine-specific baseline analysis to determine your total cost of ownership. Schedule a service call with one of our industry specialists today!

For over 100 years, Castolin Eutectic has been at the forefront of supplying the market with value-added surface protection products and solutions.

Castolin Eutectic strives to improve the existing life cycle of plant assets to provide the optimum operational performance against the effects of high-wear abrasion, high-impact, gouging, and other wear-related maintenance failures.



Improved Operational Efficiency



Minimized unplanned shutdown



Efficient Maintenance Strategy

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Global Presence & Local Outreach

Our UAE service centers provide a local presence, though our expertise spans the globe With international teams that pool resources to solve difficult industrial wear problems in a cost-effective way.

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Mining



Power



Steel



Cement



Agricultural



Pulp & Paper



Oil & Refinery



Heavy Machinery



Castolin Eutectic wear management specialists have technically advanced solutions that redefine equipment life cycles across service centers, regardless of the wear mechanism



1538 Employees



10 Supply Centers



20 Service Centers



31 Market Centers

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EQT 400 PLATE

1 Description and Applications

EQT 400 is a martensitic abrasion resistant steel, with an average hardness of 400 HBW. The steel offers very high resistance to abrasive wear and impact granting a longer service life. The combination of very good cold forming properties and excellent weldability makes EQT 400 an optimal choice for most wear applications.

EQT 400 is mainly recommended for the following applications:

- On road tipper and dumper bodies
- Cement drum mixer barrels,
- Refuse haulers, scrap containers
- Buckets, knives
- Feeders, skips, screw conveyors
- Mining and earthmoving machinery

2 Technical characteristics

Chemical Composition

Chemical Analysis (Heat analysis)								
C	Si	Mn	P	S	Cr(*)	Ni(*)	Mo(*)	B
≤ 0,21	≤ 0,70	≤1,60	≤ 0,025	≤ 0,010	≤ 0,50	≤ 0,25	≤ 0,25	≤ 0,005

(*) Depending on thickness, these elements are used to achieve full hardening.

Carbon Equivalent, Typical Values, %		
Plate thickness	CEV ¹	CET ²
8 - 20 mm	0,47	0,33

*The steel is fully Quenched & Tempered and grain refined.

Mechanical Properties

Yield strength (MPa)	Tensile strength- Transverse-(MPa)	Elongation(%)
1200	1400	10



Hardness @ Room temp	Charpy- V Notch impact test
HBW=380-410	30J(longitudinal at - 40°C)

*typical values

Testing

Brinell hardness test, HBW according to EN ISO 6506.1 is performed 1 . 2mm below the plate surface

Tolerances and surface properties

(EQT 400 meets the tolerances in shape, length, width, thickness and flatness (Class N or S . (according to EN 10029. Surface properties according to EN 10163-2 (Class A, Subclass 1

*Upon request can be delivered with thickness tolerances much closer than specified in EN 10029,



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EQT 450 PLATE

1 Description and Applications

EQT 450 is a martensitic abrasion resistant steel, with an average hardness of 450 HBW. The steel offers very high resistance to abrasive wear and impact granting a longer service life. The combination of very good cold forming properties and excellent weldability makes EQT 450 an optimal choice for most wear applications.

EQT 450 is mainly recommended for the following applications:

- On road tipper and dumper bodies
- Cement drum mixer barrels,
- Refuse haulers, scrap containers
- Buckets, knives
- Feeders, skips, screw conveyors
- Mining and earthmoving machinery



2 Technical characteristics

Chemical Composition

Chemical Analysis(Heat analysis%)								
C	Si	Mn	P	S	Cr(*)	Ni(*)	Mo(*)	B
≤ 0,21	≤ 0,70	≤1,60	≤ 0,025	≤ 0,010	≤ 0,50	≤ 0,25	≤ 0,25	≤ 0,005

(*) Depending on thickness, these elements are used to achieve full hardening.

Carbon Equivalent, Typical Values, %		
Plate thickness	CEV ¹	CET ²
8 - 20 mm	0,47	0,33

¹The steel is fully Quenched & Tempered and grain refined.

Mechanical Properties

Yield strength (MPa)	Tensile strength Transverse-(MPa)	Elongation(%)
1200	1400	10



Hardness @ Room temp	Charpy- V Notch impact test
HBW=420-480	30J(longitudinal at - 40°C)

*typical values

Testing

Brinell hardness test, HBW according to EN ISO 6506-1, is performed 1 - 2 mm below the plate surface once per heat and 40 tonnes

Tolerances and surface properties

EQT 450 meets the tolerances in shape, length, width, thickness and flatness (Class N or (S) according to EN 10029. Surface properties according to EN 10163-2 (Class A, Subclass 1

*Upon request can be delivered with thickness tolerances much closer than specified in EN 10029,



EQT 500 PLATE

Description and Applications

EQT 500 is a martensitic abrasion resistant steels, with an average hardness of 500 HBW. Its very high resistance to abrasive wear and impact makes it ideal where long service life is required. With the combination of superior hardness and strength, EQT 500 an optimal choice for the recycling and mining industry.

EQT 500 is mainly recommended for the following applications:

- Screeners & Chutes
- Crushing and pulverizing equipment
- Conveyors belts Skirt
- Grapples
- Scrap presses

Technical characteristics

Hardness guarantee

Hardness
HBW=470-530



Brinell hardness test, HBW according to EN ISO 6506-1, is performed 1 - 2 mm below the plate surface once per heat and 40 tonnes.

Other Mechanical Properties (typical values)

Charpy-V notch Yield Strength impact test	Tensile Strength - Transverse - (MPa)	Elongation A5 %
130 J 1500 (longitudinal at -40°C)	1700	8

Chemical composition The steel is grain refined.

Chemical Analysis (Heat analysis %)								
C	Si	Mn	P	S	Cr	Ni	Mo	B
0,30	0,80	1,60	0,025	0,01	1,00	1,00	0.50	0,005

Carbon equivalent, typical values, %		
Plate thickness	CEV(1)	CET(2)
4 - 20 mm	0,57	0.40
20,01 - 40 mm	0,61	0.43

Dimensions

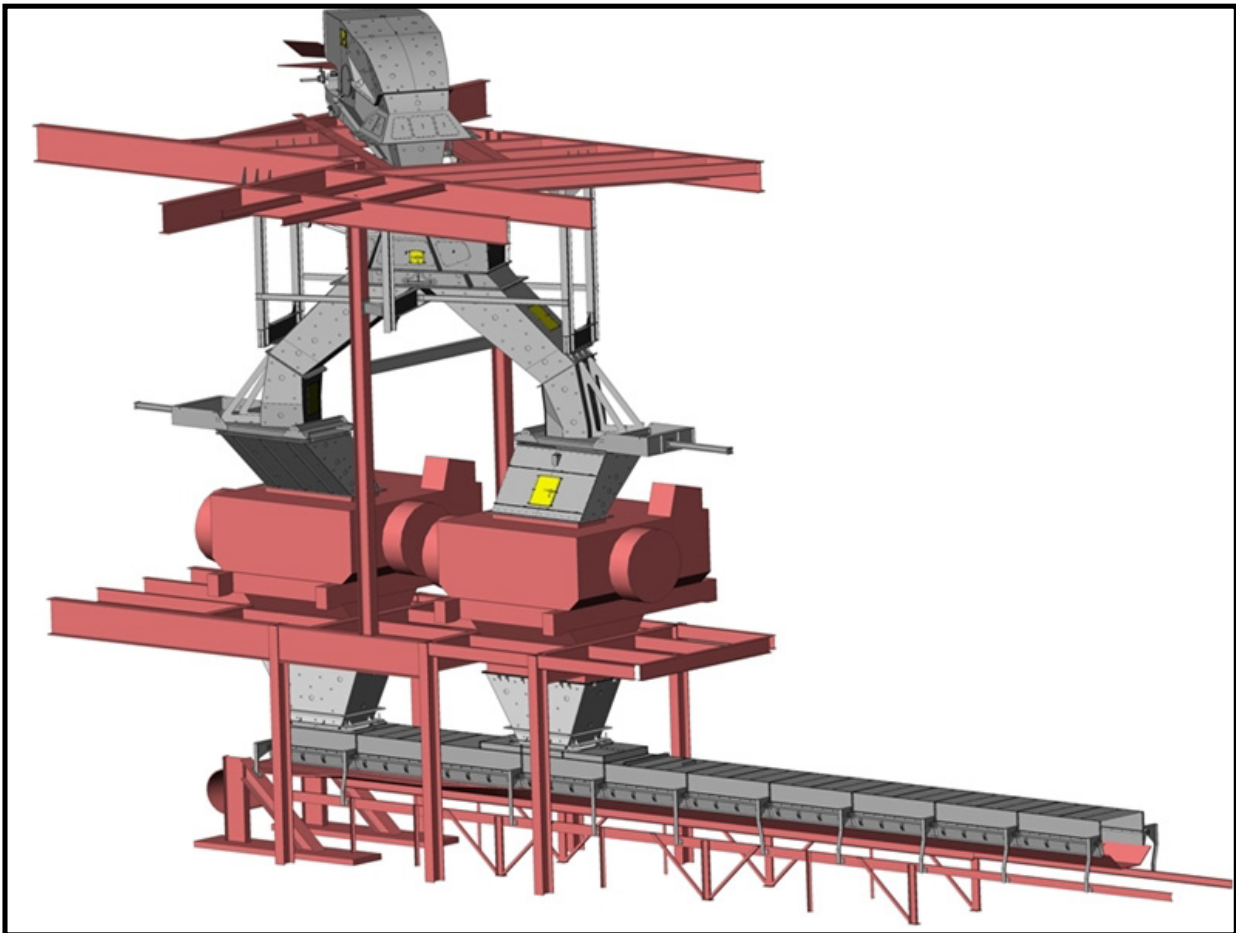
EQT 500 at present is supplied in the following range:

- thickness: 4 - 40 mm ($\frac{1}{4}$ " – $1\frac{1}{2}$ ")
- width: 1500 - 3100 mm (60" – 122")

For more information, please check our website or contact your local CASTOLIN EUTECTIC representative.

Flatness, tolerances & surface properties

EQT 500 is delivered with a unique combination of excellent flatness, tight thickness tolerances and superior surface finish.





Dimensions

EQT 400 450 & 500 at present is supplied in the following range
Thickness: 4 - 200 mm
Width: 1500 - 2500 mm
Length: 3000 – 12000 mm

Castolin Eutectic will continue to broaden its range from 3 to 40 mm. For more information, please check our website or contact your local representative.

Heat treatment

EQT 400 450 & 500 receives its properties by quenching and when applicable by subsequent tempering. The properties of the delivery condition cannot be retained after exposure at service or preheating temperatures above 250C.

EQT 400 450 & 500 is not intended for any further heat treatment.

General processing recommendations

To obtain optimal work shop productivity when processing EQT 400 450 & 500 it is of most importance to use the recommended procedures and tools given below.

Thermal cutting

Flame cutting can be performed without the need for preheating in thicknesses up to 40 mm. In plasma cutting no preheating is required.

Machining

EQT 400 450 & 500 offers good machinability with HSS and HSS-Co alloyed drills. The feed rate and cutting speed have to be adjusted to the high hardness of the material.

Face milling, counter boring and countersinking are best performed using tools with replaceable cemented carbide inserts.

Cold forming

EQT 400 450 & 500 is very well suited for cold forming operations.

The minimum recommended R/t ratio when bending of EQT 400 450 & 500 is given in the table below:

Thickness (mm)	Transverse to rolling (R/t)	Longitudinal to rolling (R/t)	Width (W/t)
8 - 20	4	5	12

R = Recommended punch radius (mm), t = Plate thickness (mm) , W – Die opening width (mm)
(bending angle $\leq 90^\circ$)

Due to the homogeneous properties of EQT 400 450 & 500 variations in springback is kept at a low level. Grinding of flame cut or a sheared edge in the bending area is recommended to further prevent cracking during bending.

Welding

EQT 400 450 & 500 has a very good weldability, granted by the low carbon equivalent of the steel. It can be welded using any of the conventional welding methods, both as manual or automatic.

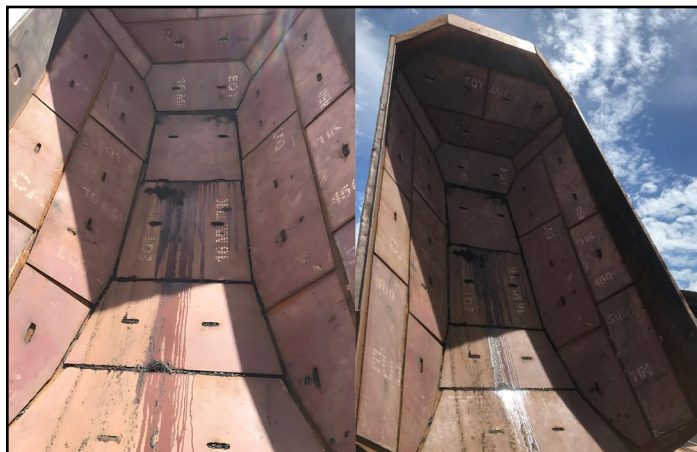
If welding using a heat input of 1.7 kJ/mm, preheating is not required in single plate thickness up to 20 mm. The interpass temperature used should not exceed 225° C.

Soft weld consumables, giving low hydrogen weld deposits (≤ 5 ml/100g), are recommended. The consumable strength should be as soft as the design and wear mode allows.

In general, the welding recommendation of EQT 400 450 & 500 should be in the accordance to EN-1011.

For more information regarding welding, cold forming and machining, please consult the respective manuals with technical recommendations on

www.castolin.com



***“We help mechanical parts to perform
beyond their limits”***



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