DuraX®
WEAR PLATE

DuraX®400

General Product Description

The versatile steel that resists wear and abrasion.

DuraX®400 is an abrasion-resistant steel with a nominal hardness of 400 HBW. DuraX®400 is a versatile wear-resistant steel. As a result of its high toughness, good bendability and weldability, this steel can be used in structures with moderate wear.

Mechanical Properties

Hardness HBW , guaranteed	Yield Strength Mpa, typical	Tensile Strength Mpa, typical	Elongation A50 , % , typical
370 - 430	1000	1250	12 (transverse)

Brinell hardness on a milled surface 1 - 2.5 mm below surface, average of three test points.

At least one test specimen per batch and 35 tons, on the same grade, the same Heat No., the same thickness and the same delivery condition .

Tensile testing is performed between 4 - 60 mm.

Impact Properties

Impact Properties Longitudinal test, typical Charpy-V 10x10 mm test specimen	Test temperature °C	Impact energy J
	-20	30

Average of three tests . Single value minimum 70% of specified average. Impact testing is performed between 6 - 60 mm. For thicknesses less than 6 - 11.9 mm , subsize Charpy-V specimens are used.

Chemical Composition (ladle analysis)

Thickness mm	C max	Si max	Mn max	P max	S max	Cr max	Ni max	Mo max	B max	CEV typv.	CET typv.
	%	%	%	%	%	%	%	%	%		
4 - 20	0.18	0.70	1.60	0.0250	0.010	0.80	0.30	0.80	0.0040	0.44	0.30
(20) - (40)	0.20	0.70	1.60	0.0250	0.010	1.00	0.60	1.00	0.0040	0.52	0.34
40 - 60	0.22	0.70	1.60	0.0250	0.010	1.20	0.90	1.20	0.0040	0.61	0.36
(60) - 110*	0.22	0.70	1.60	0.0250	0.010	1.20	1.20	1.20	0.0040	0.65	0.41

* Up to 130 mm available upon request

CEV = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15

CET = C + (Mn + Mo) / 10 + (Cr + Cu) / 20 + Ni / 40

Tolerance

Thickness tolerance

According to EN 10029 Class B, and offer more narrow tolerances upon request

Shape, length, width tolerances

According to EN 10029 .

Flatness Tolerance

According to EN10029 Class-N type-H .

THWAINY INDUSTRIES

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Delivery Condition

Q (Quenched) or Q.T. (Quenched and Tempered)

Surface Properties

According to EN10163-2:2004 Class A Subclass 1 .

Ultrasonic Testing

According to EN10160:2004 Class S1E1 .

Recommendations

The properties of the delivery condition can not be retained after exposure to service or preheating retained after exposure to service or preheating temperatures in excess of 250 ◦C

DuraX®
WEAR PLATE

DuraX®450

General Product Description

The most popular abrasion-resistant steel with excellent structural properties.

DuraX®450 is an abrasion-resistant steel with a nominal hardness of 450 HBW. DuraX®450 combines good bendability and weldability. The products can be used in many different components and structures that are subject to wear. DuraX®450, with an extra 50 Brinell hardness over our 400 grade, provides better dent and abrasion resistance as well as longer wear life, so you can achieve even greater savings.

Mechanical Properties

Hardness HBW , guaranteed	Yield Strength Mpa, typical	Tensile Strength Mpa, typical	Elongation A50 , % , typical
420-490	1150	1450	11 (transverse)

Brinell hardness on a milled surface 1 - 2.5 mm below surface, average of three test points.

At least one test specimen per batch and 35 tons, on the same grade, the same Heat No., the same thickness and the same delivery condition .

Tensile testing is performed between 4 - 60 mm.

Impact Properties

Impact Properties Longitudinal test, typical Charpy-V 10x10 mm test specimen	Test temperature °C	Impact energy J
	-20	30

Average of three tests . Single value minimum 70% of specified average. Impact testing is performed between 6 - 60 mm. For thicknesses less than 6 - 11.9 mm , subsize Charpy-V specimens are used.

Chemical Composition (ladle analysis)

Thickness mm	C max	Si max	Mn max	P max	S max	Cr max	Ni max	Mo max	B max	CEV typv.	CET typv.
	%	%	%	%	%	%	%	%	%		
4 - 20	0.24	0.70	1.60	0.020	0.010	0.80	0.30	0.80	0.0040	0.51	0.36
(20) - 40	0.26	0.80	1.70	0.020	0.010	1.00	0.50	1.00	0.0040	0.59	0.39
(40) - (60)	0.26	0.80	1.70	0.020	0.010	1.20	0.70	1.20	0.0040	0.65	0.41
60 - 80*	0.26	0.80	1.70	0.020	0.010	1.40	1.00	1.20	0.0040	0.71	0.43

* Up to 110 mm available upon request

CEV = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15

CET = C + (Mn + Mo) / 10 + (Cr + Cu) / 20 + Ni / 40

Tolerance

Thickness tolerance

According to EN 10029 Class B, and offer more narrow tolerances upon request

Shape, length, width tolerances

According to EN 10029 .

Flatness Tolerance

According to EN10029 Class-N type-H .

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Delivery Condition

Q (Quenched) or Q.T. (Quenched and Tempered)

Surface Properties

According to EN10163-2:2004 Class A Subclass 1 .

Ultrasonic Testing

According to EN10160:2004 Class S1E1 .

Recommendations

The properties of the delivery condition can not be retained after exposure to service or preheating retained after exposure to service or preheating temperatures in excess of 250 °C

DuraX®
WEAR PLATE

DuraX®500

General Product Description

The versatile steel that resists wear and abrasion.

The bendable, weldable and highly abrasion-resistant steel. DuraX®500 is a bendable and weldable abrasion-resistant steel with a nominal hardness of 500 HBW. Suitable for applications that demand higher wear resistance. DuraX®500 increases payload and service life while maintaining good processability and toughness.

Mechanical Properties

Hardness HBW , guaranteed	Yield Strength Mpa, typical	Tensile Strength Mpa, typical	Elongation A50 , % , typical
455-530	1250	1600	10 (transverse)

Brinell hardness on a milled surface 1 - 2.5 mm below surface, average of three test points.

At least one test specimen per batch and 35 tons, on the same grade, the same Heat No., the same thickness and the same delivery condition .

Tensile testing is performed between 4 - 60 mm.

Impact Properties

Impact Properties Longitudinal test, typical Charpy-V 10x10 mm test specimen	Test temperature °C	Impact energy J
	-20	30

Average of three tests . Single value minimum 70% of specified average. Impact testing is performed between 6 - 60 mm. For thicknesses less than 6 - 11.9 mm , subsize Charpy-V specimens are used.

Chemical Composition (ladle analysis)

Thickness mm	C max	Si max	Mn max	P max	S max	Cr max	Ni max	Mo max	B max	CEV typv.	CET typv.
	%	%	%	%	%	%	%	%	%		
4 - (20)	0.30	0.70	1.60	0.020	0.010	1.00	0.50	0.80	0.0040	0.65	0.43
20 - (40)	0.32	0.70	1.60	0.020	0.010	1.40	0.70	1.00	0.0040	0.66	0.45
40 - 60	0.34	0.70	1.60	0.020	0.010	1.40	1.00	1.20	0.0040	0.68	0.46
(60) - 80*	0.36	0.70	1.60	0.020	0.010	1.60	1.50	1.20	0.0040	0.74	0.48

* Up to 100 mm available upon request

CEV = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15

CET = C + (Mn + Mo) / 10 + (Cr + Cu) / 20 + Ni / 40

Tolerance

Thickness tolerance

According to EN 10029 Class B, and offer more narrow tolerances upon request

Shape, length, width tolerances

According to EN 10029 .

Flatness Tolerance

According to EN10029 Class-N type-H .

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Delivery Condition

Q (Quenched) or Q.T. (Quenched and Tempered)

Surface Properties

According to EN10163-2:2004 Class A Subclass 1 .

Ultrasonic Testing

According to EN10160:2004 Class S1E1 .

Recommendations

The properties of the delivery condition can not be retained after exposure to service or preheating retained after exposure to service or preheating temperatures in excess of 250 ◦C

DuraX®
WEAR PLATE

DuraX®550

General Product Description

The versatile steel that resists wear and abrasion.

The bendable, weldable and highly abrasion-resistant steel. DuraX®550 is a bendable and weldable abrasion-resistant steel with a nominal hardness of 550 HBW. Suitable for applications that demand higher wear resistance. DuraX®550 increases payload and service life while maintaining good processability and toughness.

Mechanical Properties

Hardness HBW , guaranteed	Yield Strength Mpa, typical	Tensile Strength Mpa, typical	Elongation A50 , % , typical
520 - 580	1350	1600	7 (transverse)

Brinell hardness on a milled surface 1 - 2.5 mm below surface, average of three test points.

At least one test specimen per batch and 35 tons, on the same grade, the same Heat No., the same thickness and the same delivery condition .

Tensile testing is performed between 4 - 60 mm.

Impact Properties

Impact Properties Longitudinal test, typical Charpy-V 10x10 mm test specimen	Test temperature °C	Impact energy J
	-20	21

Average of three tests . Single value minimum 70% of specified average. Impact testing is performed between 6 - 60 mm. For thicknesses less than 6 - 11.9 mm , subsize Charpy-V specimens are used.

Chemical Composition (ladle analysis)

Thickness mm	C max	Si max	Mn max	P max	S max	Cr max	Ni max	Mo max	B max	CEV typv.	CET typv.
	%	%	%	%	%	%	%	%	%		
≤ 70	0.38	0.70	1.70	0.015	0.005	1.50	1.50	0.70	0.0060	0.72	n/a

CEV = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15

CET = C + (Mn + Mo) / 10 + (Cr + Cu) / 20 + Ni / 40

Tolerance

Thickness tolerance

According to EN 10029 Class B, and offer more narrow tolerances upon request

Shape, length, width tolerances

According to EN 10029 .

Flatness Tolerance

According to EN10029 Class-N type-H .

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Delivery Condition

Q (Quenched) or Q.T. (Quenched and Tempered)

Surface Properties

According to EN10163-2:2004 Class A Subclass 1 .

Ultrasonic Testing

According to EN10160:2004 Class S1E1 .

Recommendations

The properties of the delivery condition can not be retained after exposure to service or preheating retained after exposure to service or preheating temperatures in excess of 250 ◦C

DuraX®
WEAR PLATE

DuraX®600

General Product Description

The versatile steel that resists wear and abrasion.

The bendable, weldable and highly abrasion-resistant steel. DuraX®600 is a bendable and weldable abrasion-resistant steel with a nominal hardness of 600 HBW. Suitable for applications that demand higher wear resistance. DuraX®600 increases payload and service life while maintaining good processability and toughness.

Mechanical Properties

Hardness HBW , guaranteed	Yield Strength Mpa, typical	Tensile Strength Mpa, typical	Elongation A50 , % , typical
570 - 640	1350	1600	7 (transverse)

Brinell hardness on a milled surface 1 - 2.5 mm below surface, average of three test points.

At least one test specimen per batch and 35 tons, on the same grade, the same Heat No., the same thickness and the same delivery condition .

Tensile testing is performed between 4 - 60 mm.

Impact Properties

Impact Properties Longitudinal test, typical Charpy-V 10x10 mm test specimen	Test temperature °C	Impact energy J
	-20	21

Average of three tests . Single value minimum 70% of specified average. Impact testing is performed between 6 - 60 mm. For thicknesses less than 6 - 11.9 mm , subsize Charpy-V specimens are used.

Chemical Composition (ladle analysis)

Thickness mm	C max	Si max	Mn max	P max	S max	Cr max	Ni max	Mo max	B max	CEV typv.	CET typv.
	%	%	%	%	%	%	%	%	%		
≤ 60	0.45	0.70	1.90	0.015	0.005	1.60	2.00	0.80	0.0060	0.84	n/a

CEV = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15

CET = C + (Mn + Mo) / 10 + (Cr + Cu) / 20 + Ni / 40

Tolerance

Thickness tolerance

According to EN 10029 Class B, and offer more narrow tolerances upon request

Shape, length, width tolerances

According to EN 10029 .

Flatness Tolerance

According to EN10029 Class-N type-H .

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Delivery Condition

Q (Quenched) or Q.T. (Quenched and Tempered)

Surface Properties

According to EN10163-2:2004 Class A Subclass 1 .

Ultrasonic Testing

According to EN10160:2004 Class S1E1 .

Recommendations

The properties of the delivery condition can not be retained after exposure to service or preheating retained after exposure to service or preheating temperatures in excess of 250 ◦C