

A large, dark silhouette of a mining excavator is centered in the background. The excavator's arm and bucket are visible, extending from the left side towards the center. The overall scene is dark, with the excavator's form standing out against a slightly lighter, dark grey background.

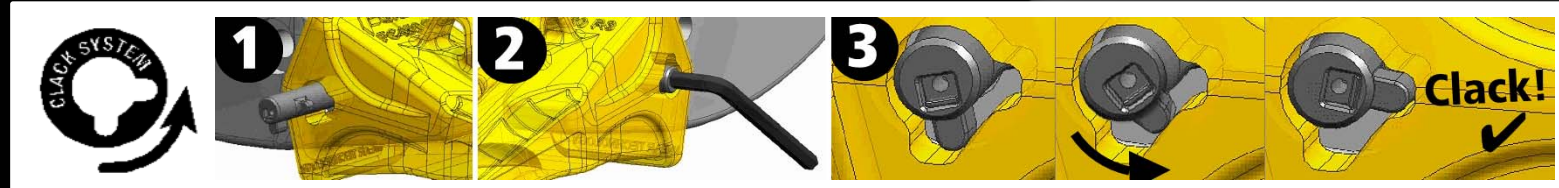
BYG

MINING PRODUCTS

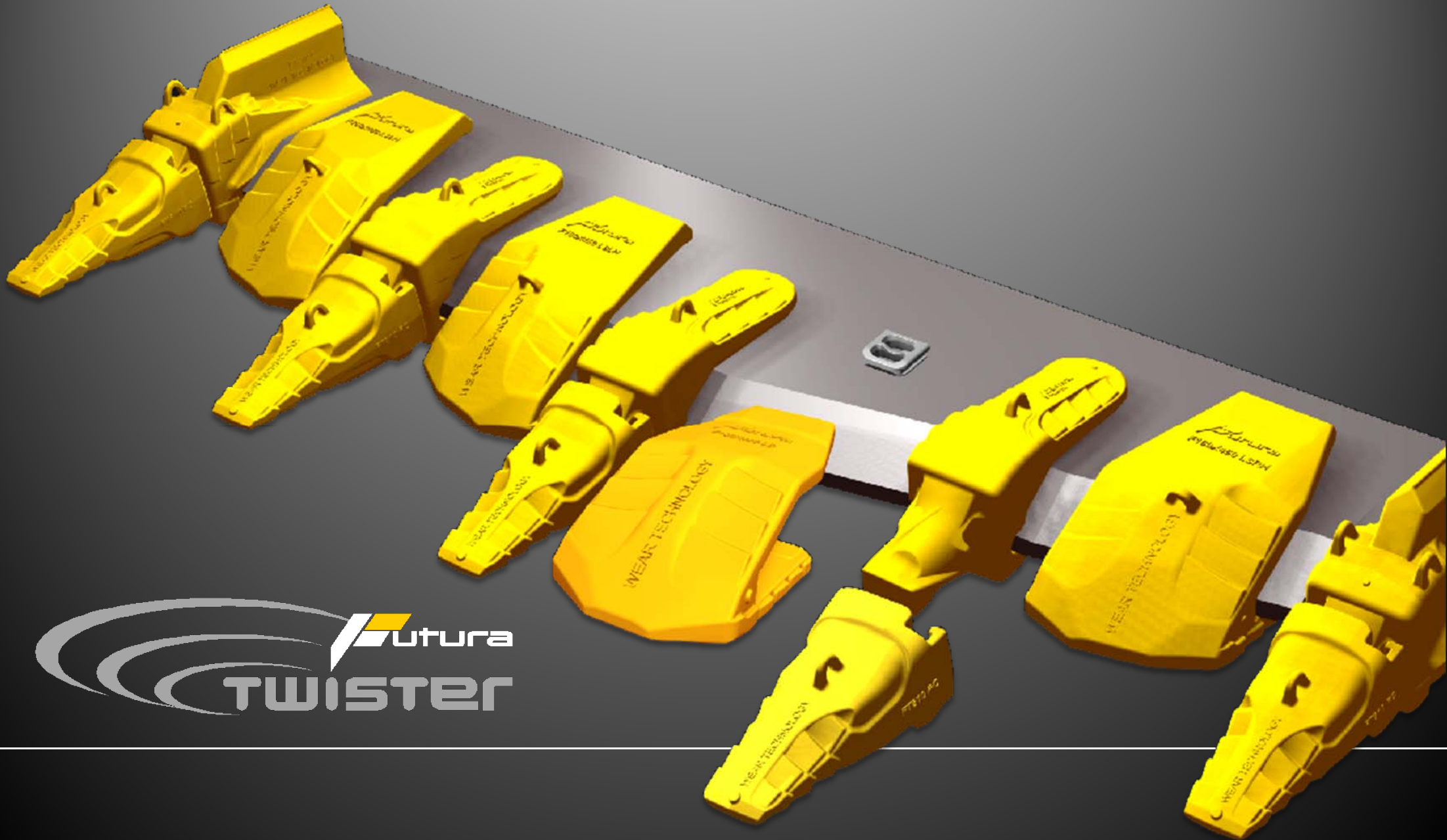
FUTURA HAMMERLES Side pin teeth & adapters up to 120 TON Machines

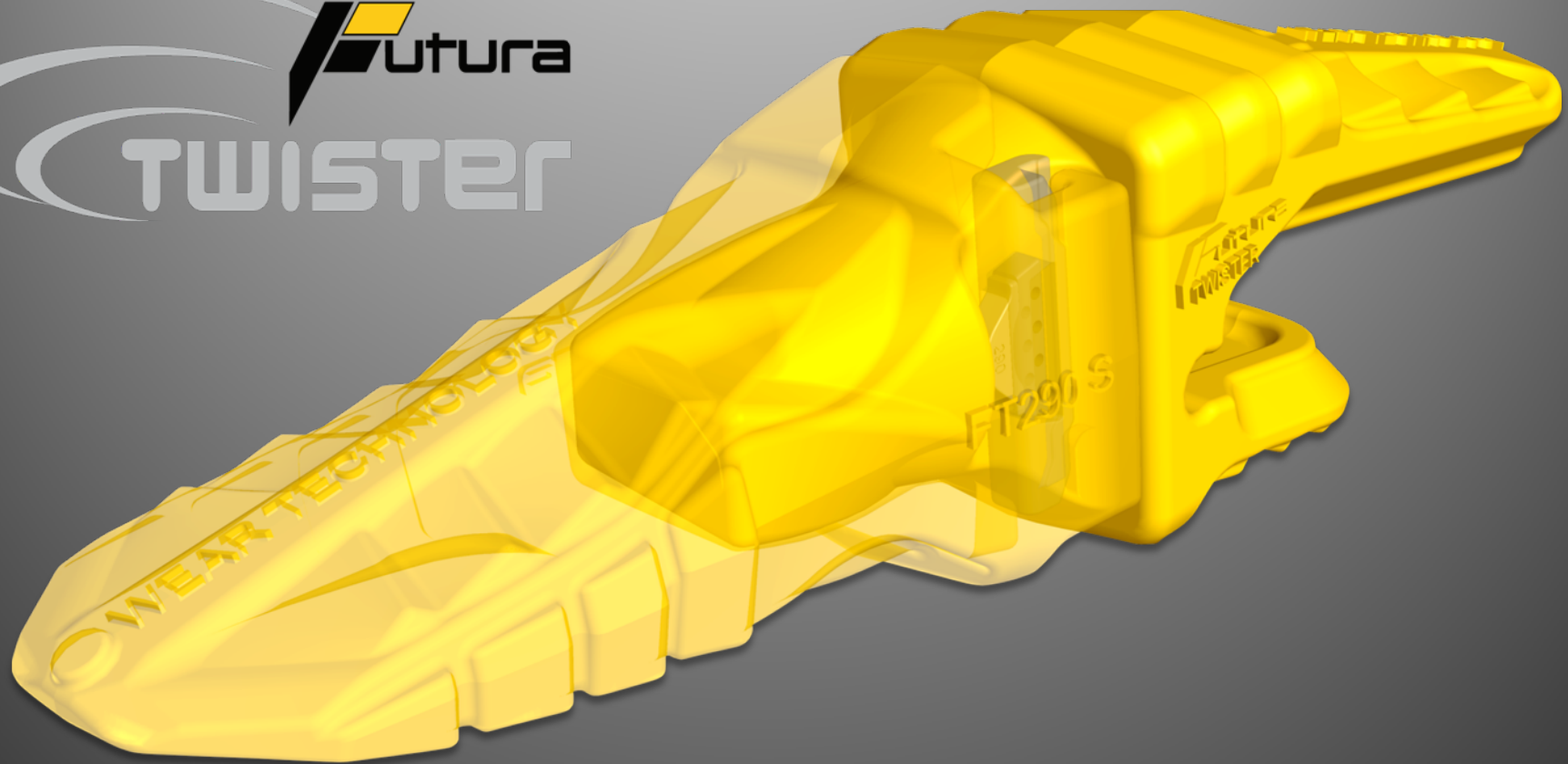


Direct replacement
hammerless
solutions



FUTURA TWISTER. Mining teeth & adapters up to **250 TON** Machines








FUTURA TWISTER parts are suitable to be used with your current HELIX style teeth and adapters ✓



Futura Twister Sizes and Uses

	130	170	190	230	290	330	390	430	510	590	610	690	710	810
TWISTER Sizes	Light Construction			Construction				Heavy Construction			Mining			

	130	170	190	230	290	330	390	430	510	590	610	690	710	810
 Standard	5,9	8,7	11,5	16,7	25,0	33,8	46,9	63,6	81,2	103,7	144,1	248,4	345,1	
HD	4,5	6,8	8,9	12,9	19,5	25,0	33,4	46,9	63,6	81,2	103,7	136,4	211,3	
 ST/HD	4,4	7,1	10,0	15,7	21,7	29,4	39,9	53,3	67,4	88,8	119,9	188,0	270,5	402,2
Extra HD	3,4	5,4	7,6	12,0	16,3	22,1	30,2	39,9	53,3	67,4	88,8	129,9	188,0	275,2
 ST/HD									62,2	82,9	110,0	161,1	218,5	334,5
Extra HD									48,6	62,2	82,9	120,4	161,1	231,9
only with TWISTER Pin														

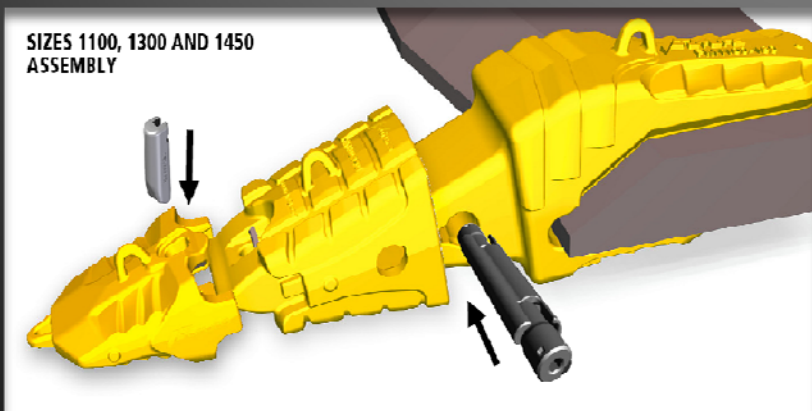


Other manufacturer's names, descriptions, pictures and part numbers are used for reference purposes only.

Hammerless system up to **350 - 800 TON** Machines



Machine weight		
up to 325 Tn	size	
BOF 139,1 Tn	950	
up to 400 Tn	size	
BOF 171,1 Tn	1100	
up to 500 Tn	size	
BOF 252,6 Tn	1300	
up to 800 Tn	size	
BOF 342,2 Tn	1450	





Helix system

BYG
Classic

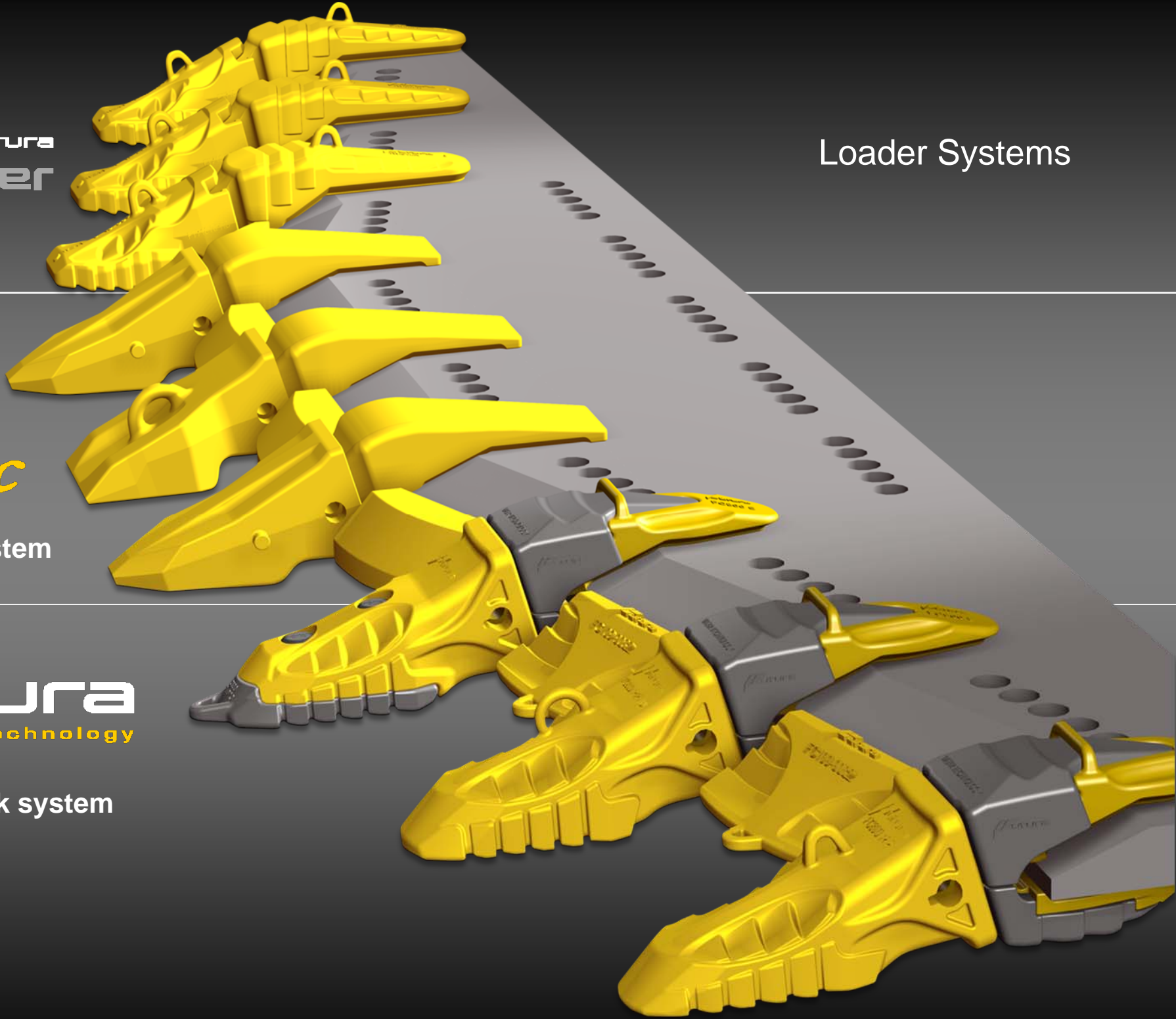
DRP side pin system



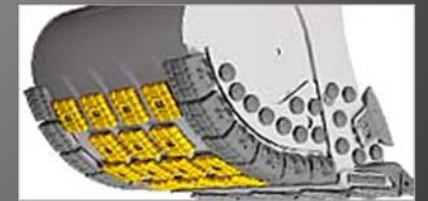
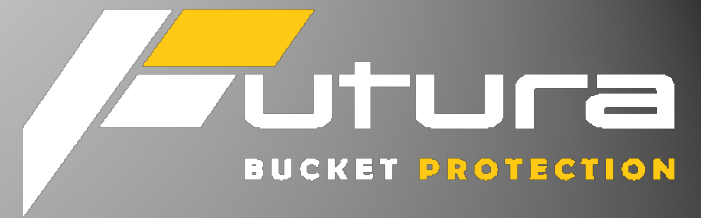
Hammerless Clack system



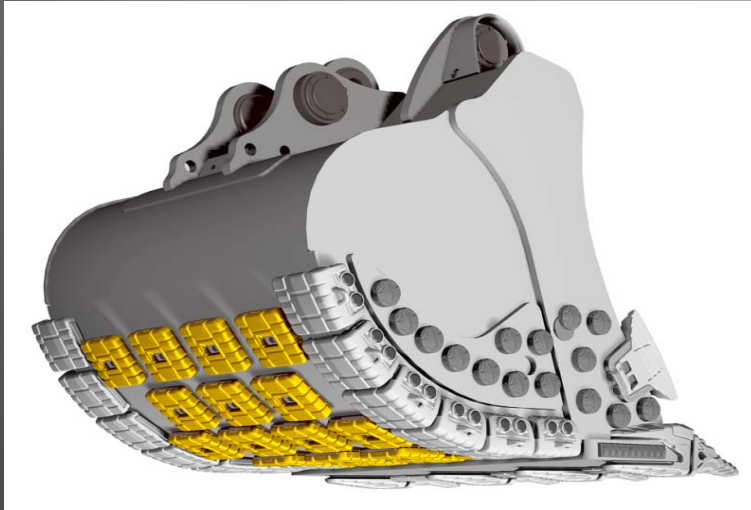
Loader Systems



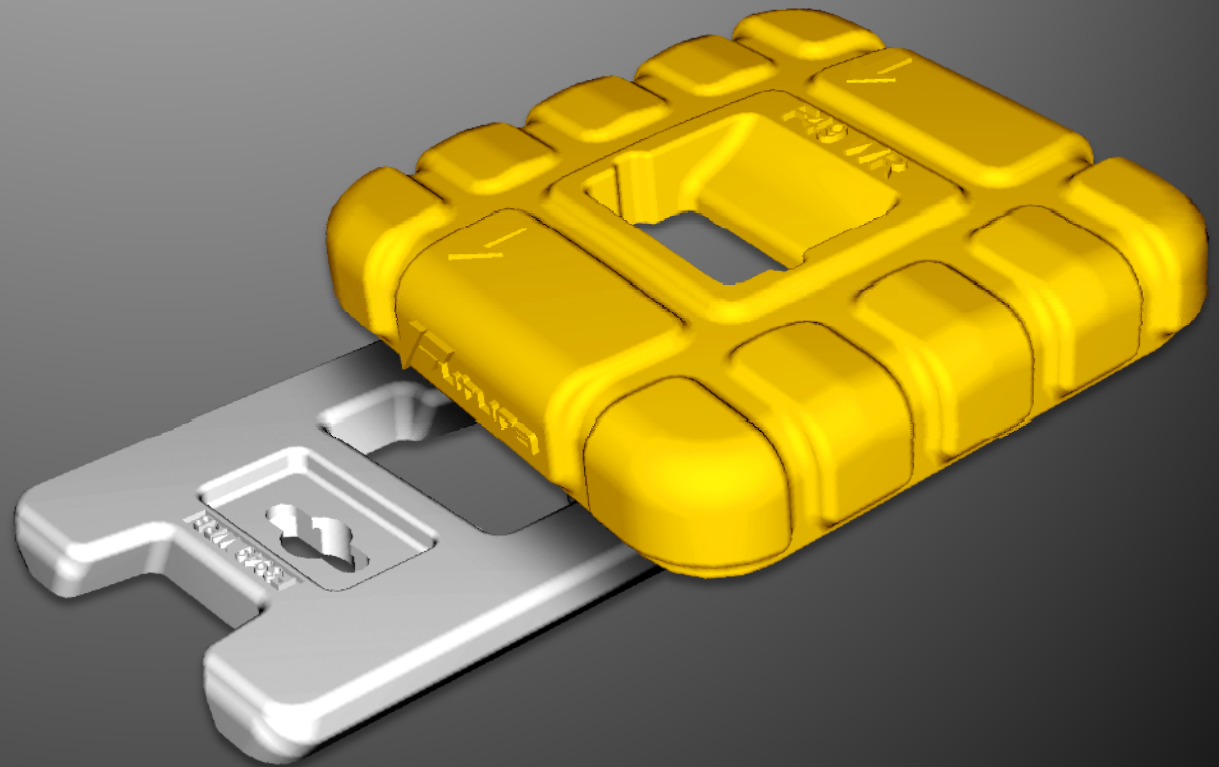
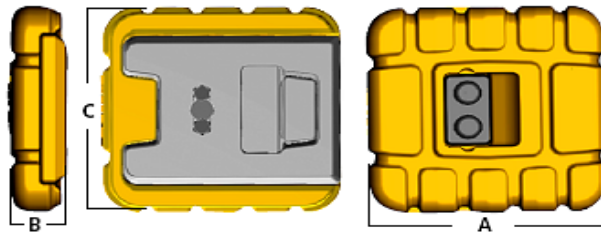
Futura Bucket Protection



Wear runners: mechanically attached 500HB



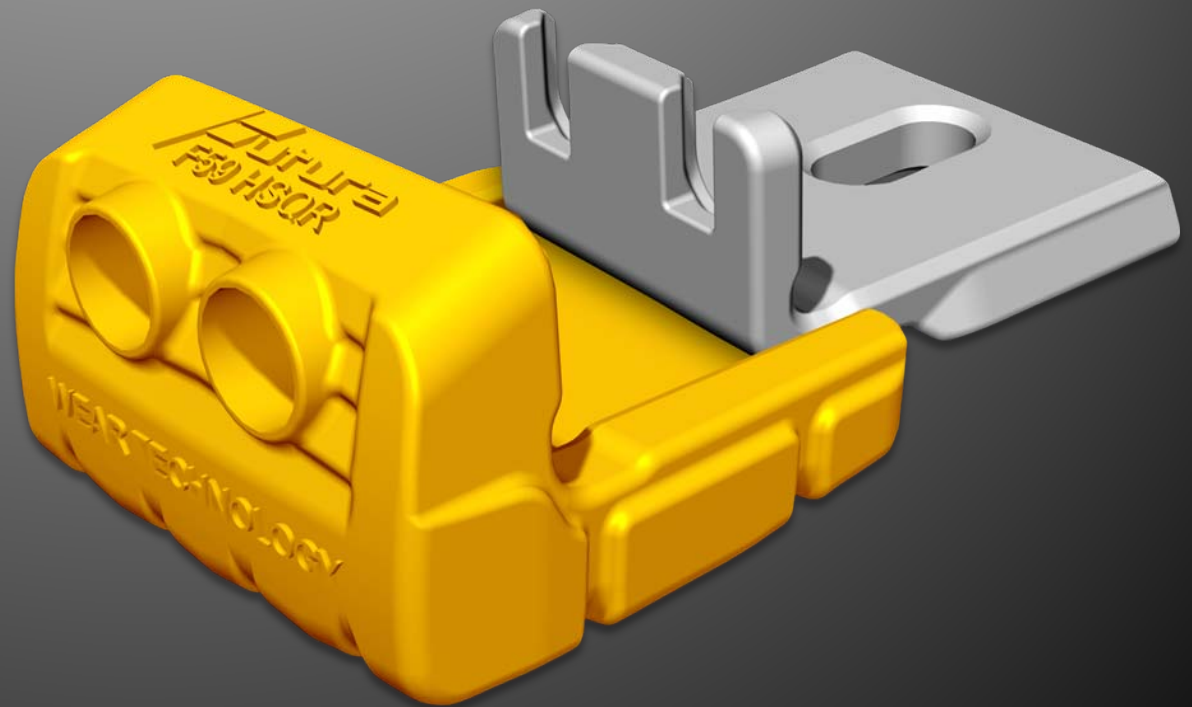
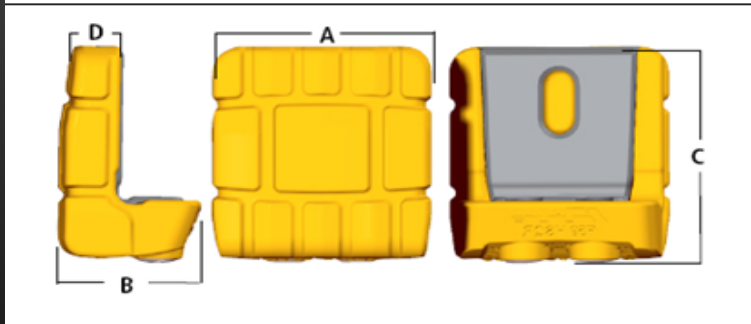
Inches				Part#	OEM
A	B	C	Lb		
10,1	2,3	10,1	50,4	F59 WR	KLR01MB
10,1	3,1	10,1	68,9	F79 WR	KLR02MB B10X10WR275



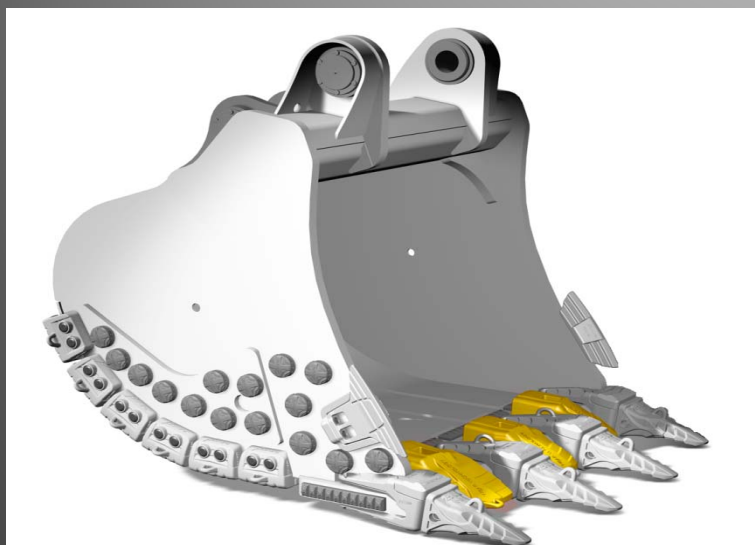
Heel shrouds: mechanically attached 500HB



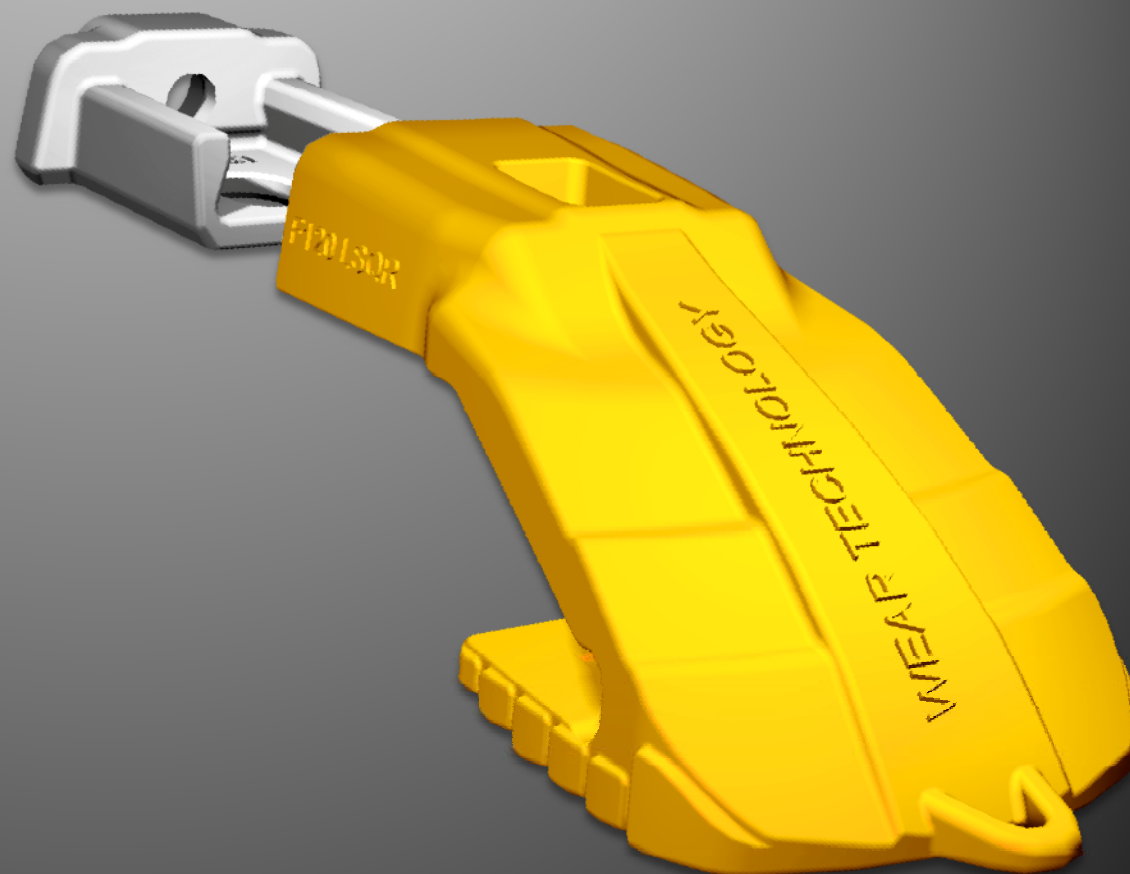
Inches						
A	B	C	D	Lb	Part#	OEM
10,0	9,2	12,9	3,5	141,8	F89 HSQR	ES6697-5 ES6697-5HX



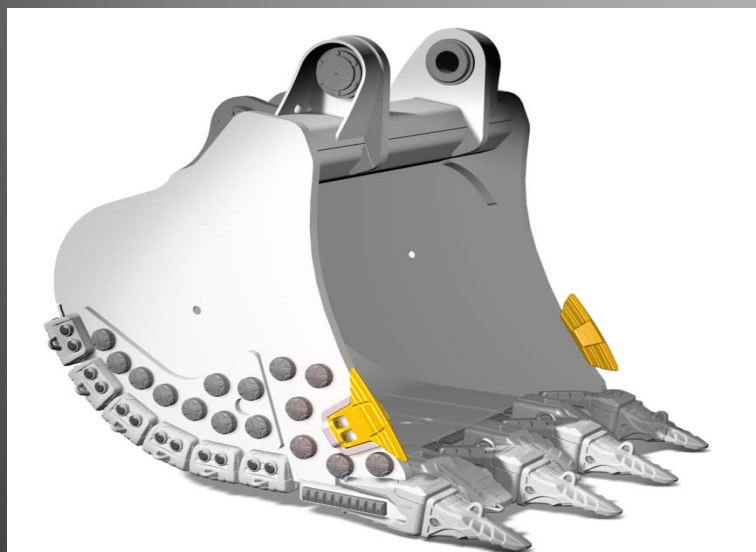
Lip shrouds: mechanically attached 500HB




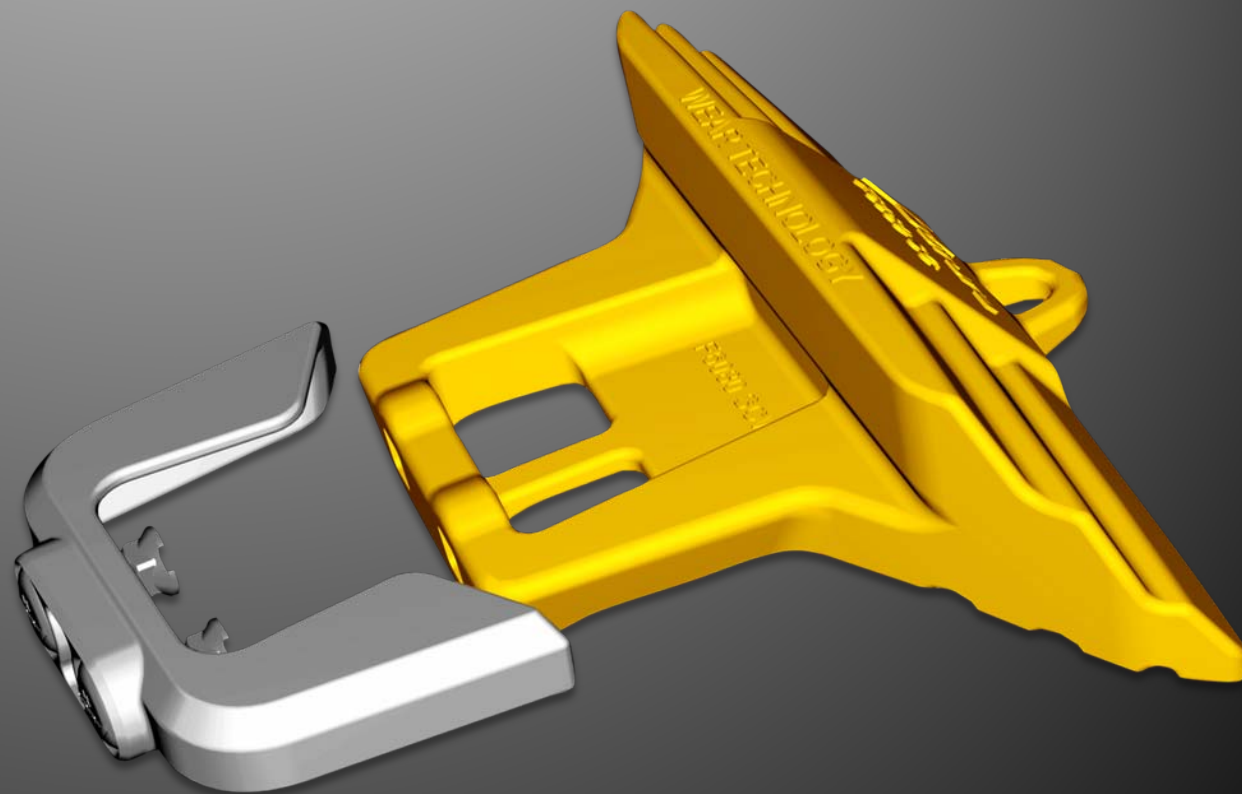
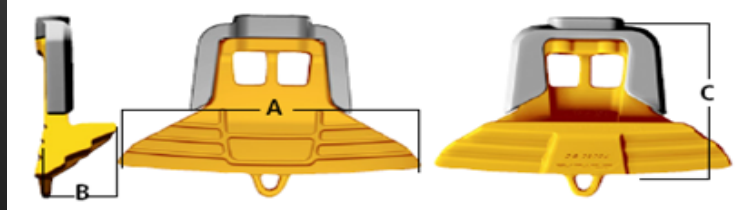
inches		C	α	Lb	Part#		Size
A	B						
9,9	3,0	16,7	23°	90	F70 LSQR	2,75 2,95	600
		16,8		95	F70 LSQR RH		
11,2	3,6	18,5	35°	153	F90 LSQR	3,1 3,9	700
		18,7		160	F90 LSQR RH		
12,9	4,1	21,0	30°	229	F100 LSQR	3,9	800
		21,9		229	F100 LSQR RH		
12,9	4,8	21,0	30°	216	F120 LSQR	4,7	
		21,9		225	F120 LSQR RH		
		21,9		225	F120 LSQR LH		



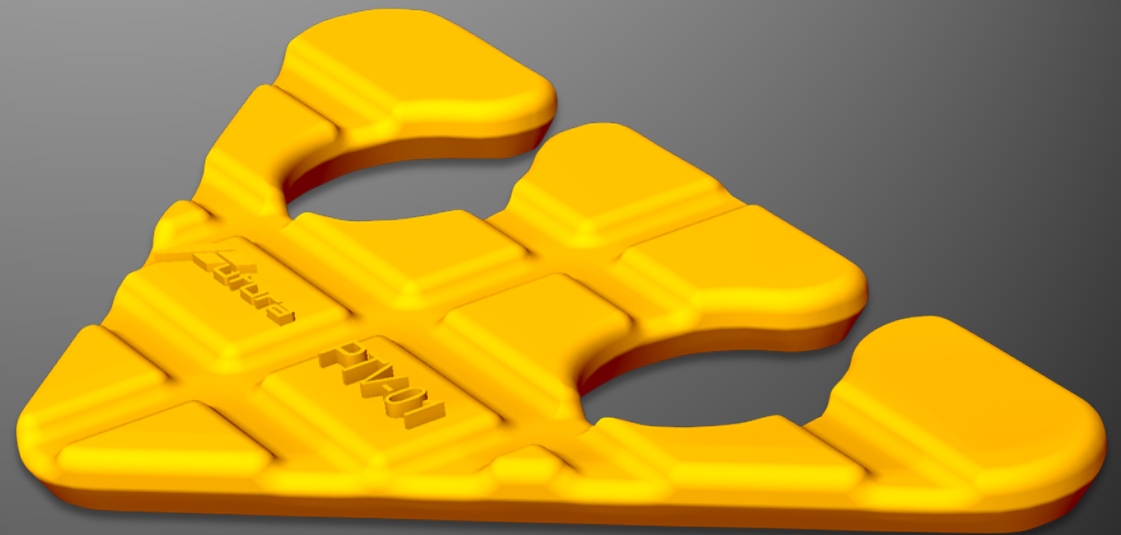
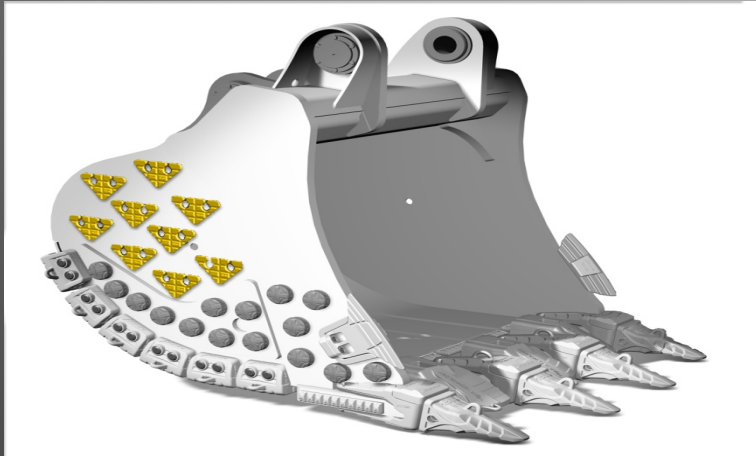
Side cutters: mechanically attached 500HB



Inches				Part#		Cross Ref
A	B	C	Lb			
19,0	4,2	12,4	61,3	F3050 SC	1,18-1,96	TAW38X440 TAW40X440 TAW50X505
23,7	5,9	14,7	129,4	F6080 SC	2,36-3,14	TBW75X545 TBW75X655

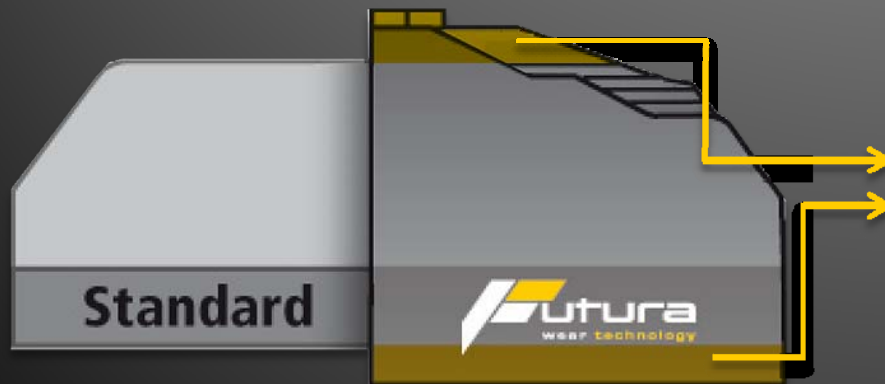


Wear pads: weld-on protection pads



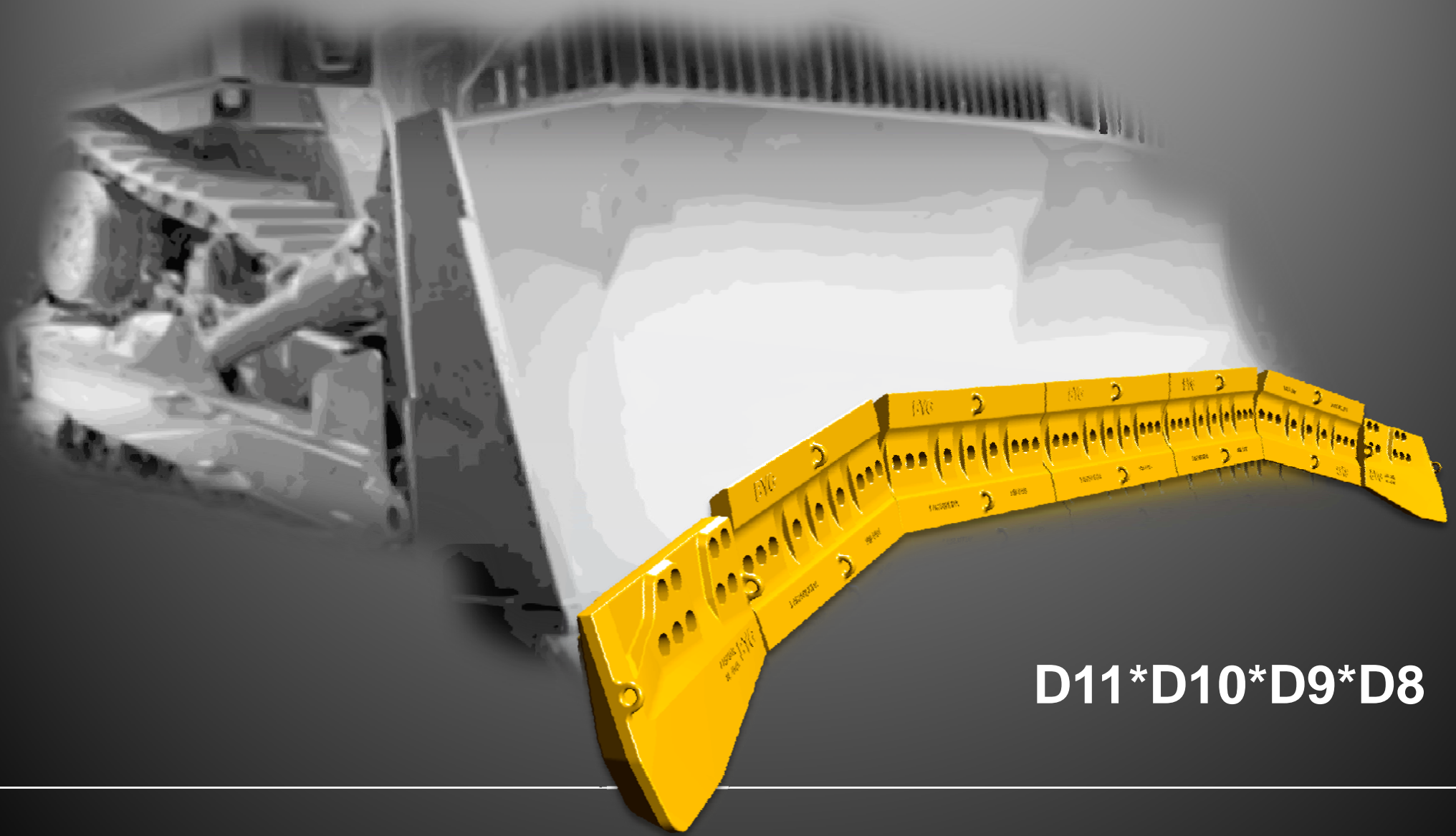
Extended wear life of the surface
where placed

Wear buttons & Chocky bars 700HB

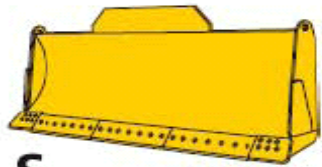


FUTURA chocky bars & wear buttons
are manufactured with **20% more wear
material**

Cast edges and end bits



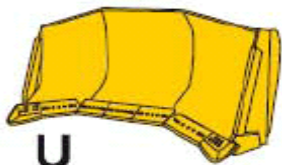
D11*D10*D9*D8



S

STRAIGHT

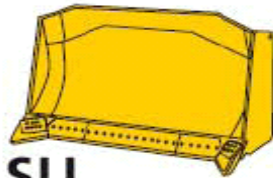
A good dozer blade knife for most dozer applications. Available for most machines.



U

UNIVERSAL

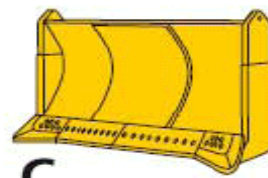
Straight blade with heavy loads over long distances. Available for larger models.



SU

SEMI-U

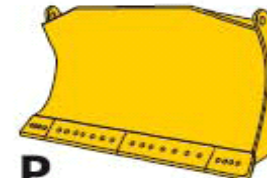
A small straight dozer blade with end bits, to provide better load carrying medium to large machine.



C

CUSHION

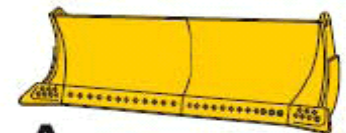
Relatively narrow blade. Wears a brace to push other equipment as scrapers.



P

POWER bucket and tilt angle (dump)

A versatile blade. Available for D6 and smaller machines.



A

ANGLE

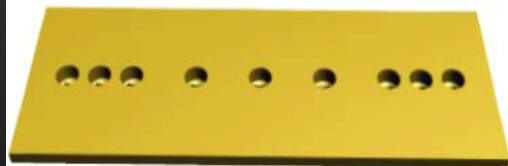
An economical blade for light and medium designed for the D8 and smaller machines, which require an ability to push to the side.

Dozer types

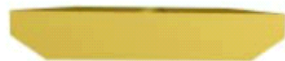
STD

General Use

IMP HC Blades for general use available in different thicknesses to suite the work being done.



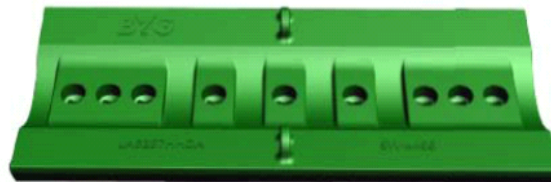
Standard Profile



Esco Style

Esco Style Blades

For use in high abrasion and / or high impact. They Are notably reinforce, providing greater resistance to breakage.



Profile type Cast Esco



UT FD

Utility

UT are for normal conditions to abrasive. They have a low initial cost. FD serve for grading and finishing system. Earthmoving works. For lightly abrasive materials.



IMP HC

Utility

IMP HC End bits are used for moving earth and normal materials.



GD

General Service

For general use. They are used for earthmoving works. Diverse material. Edge of reinforced penetration.



EWL

Extra Wear Life

High production leveling. Debris removal. Ripping of land. For abrasive conditions.

5 main options for DRP Caterpillar corners

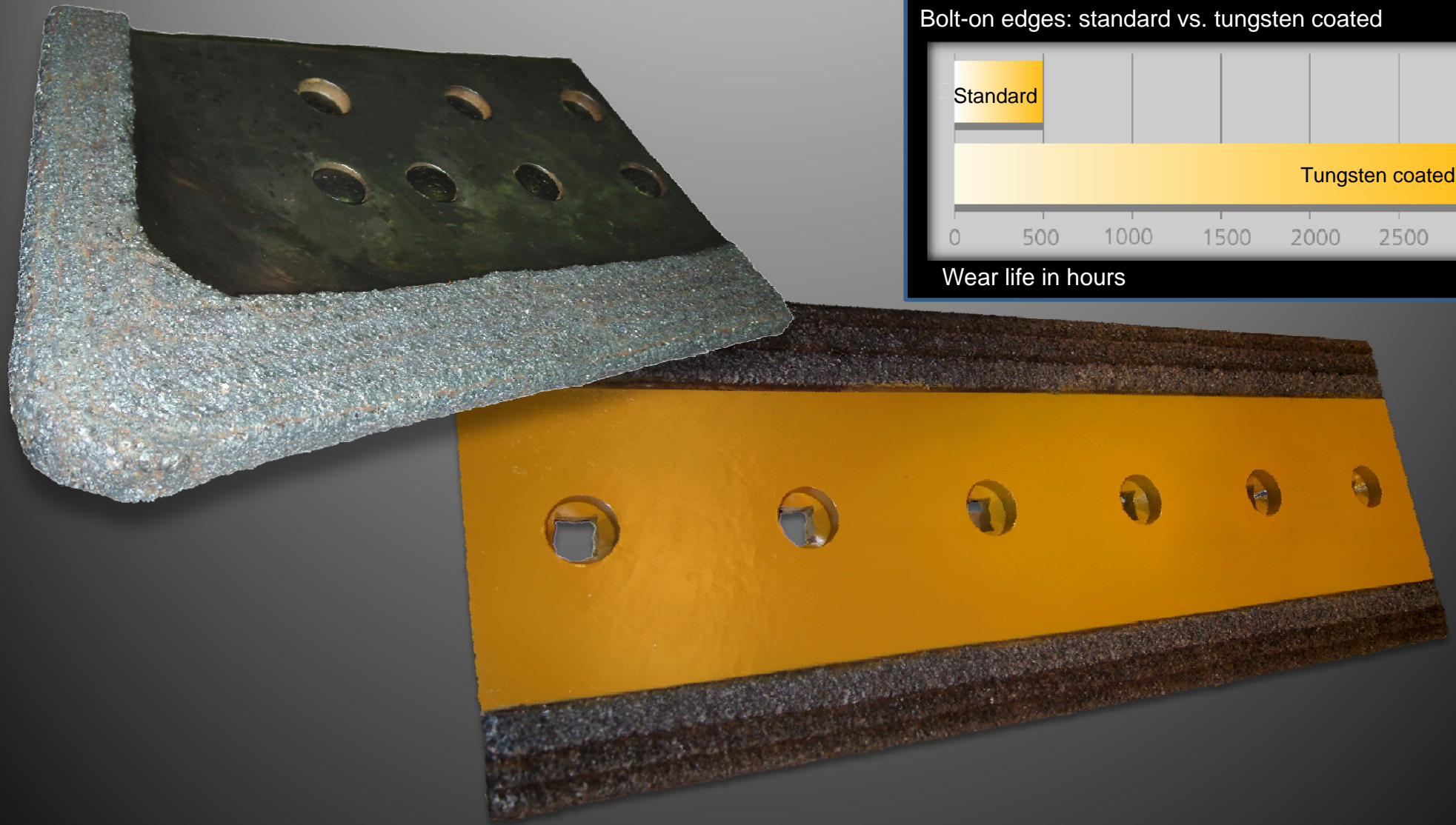


*Esco © Style

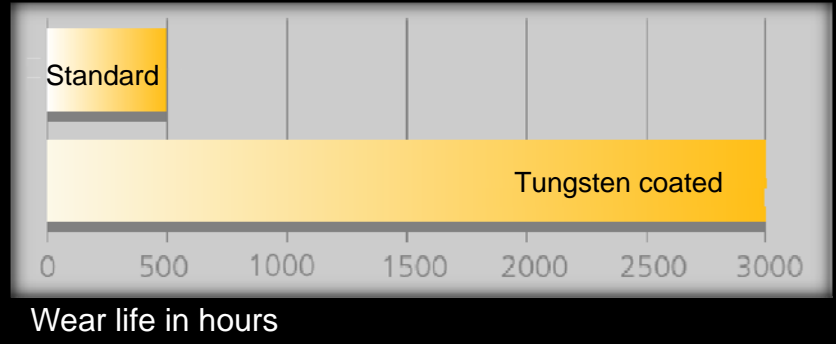
For use in high abrasion and / or high impact.

They Are notably reinforced in its perimeter and with a reinforcing rib to the tip providing greater resistance to breakage.

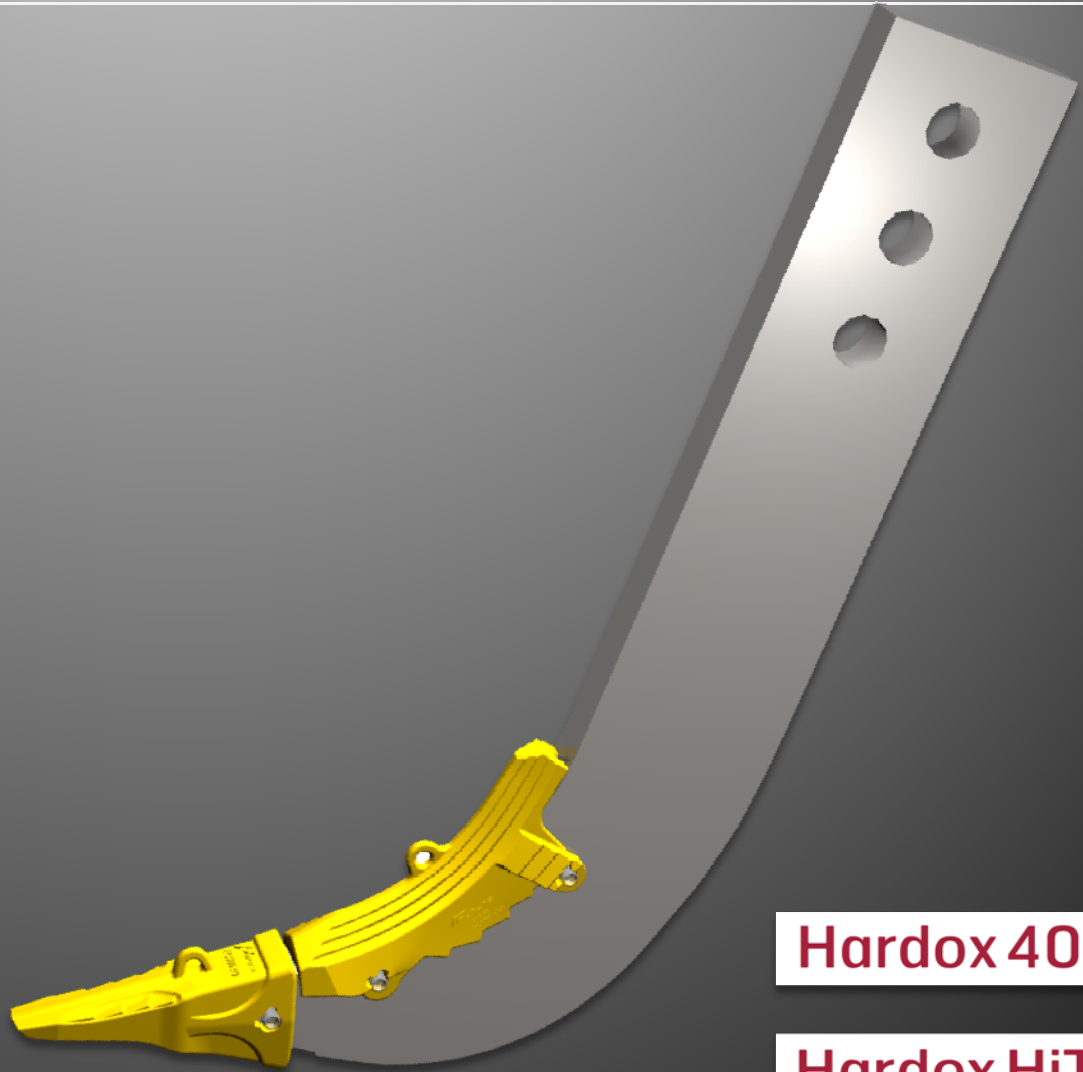
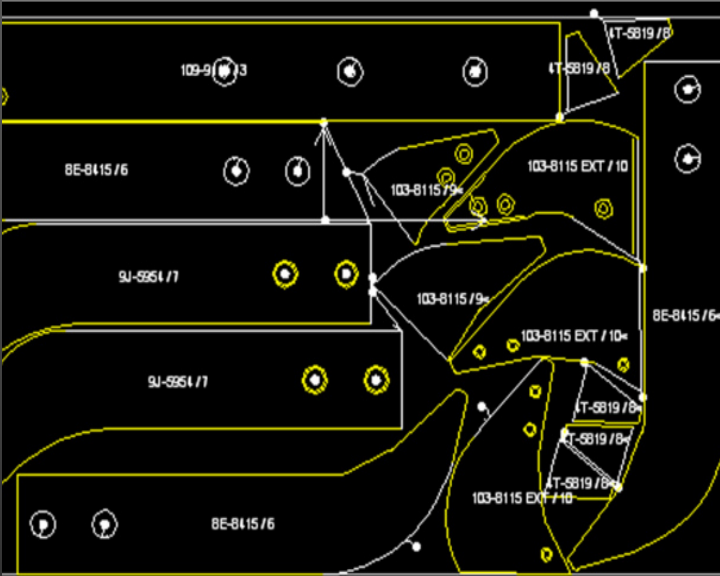
Tungsten coated products



Bolt-on edges: standard vs. tungsten coated



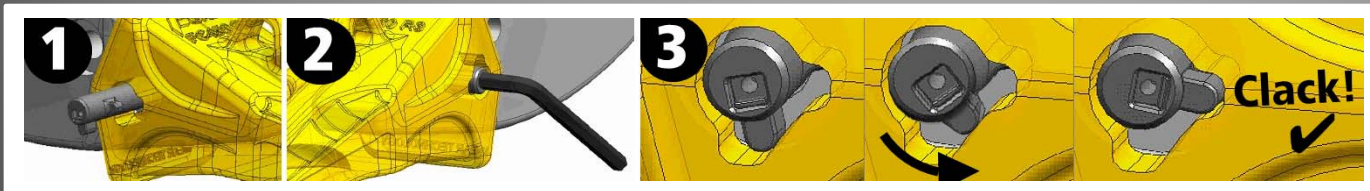
One-piece fabricated ripper shanks



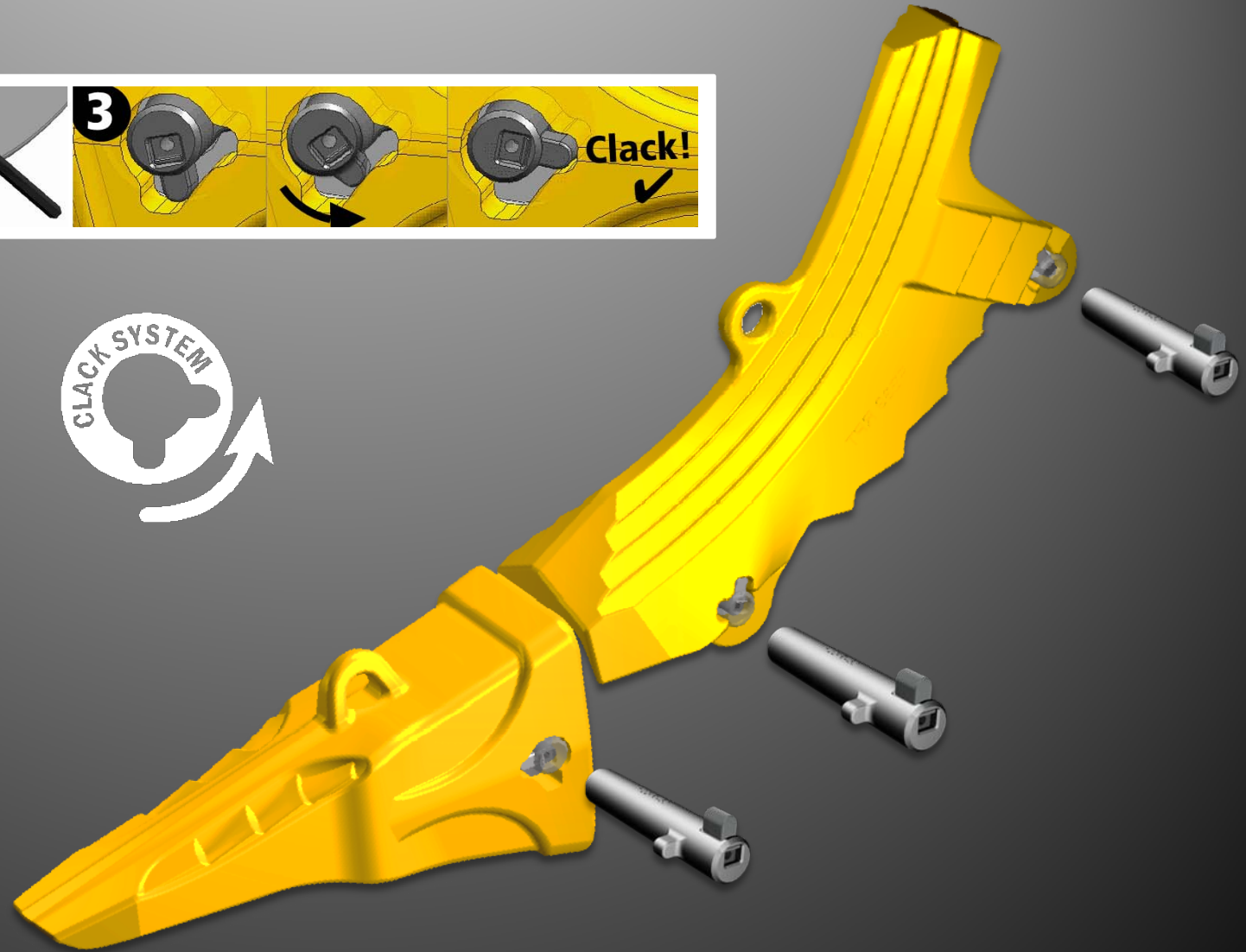
Hardox 400

Hardox HiTuf

Hammerless Ripper solutions



DRP Caterpillar
side pin hammerless
solutions



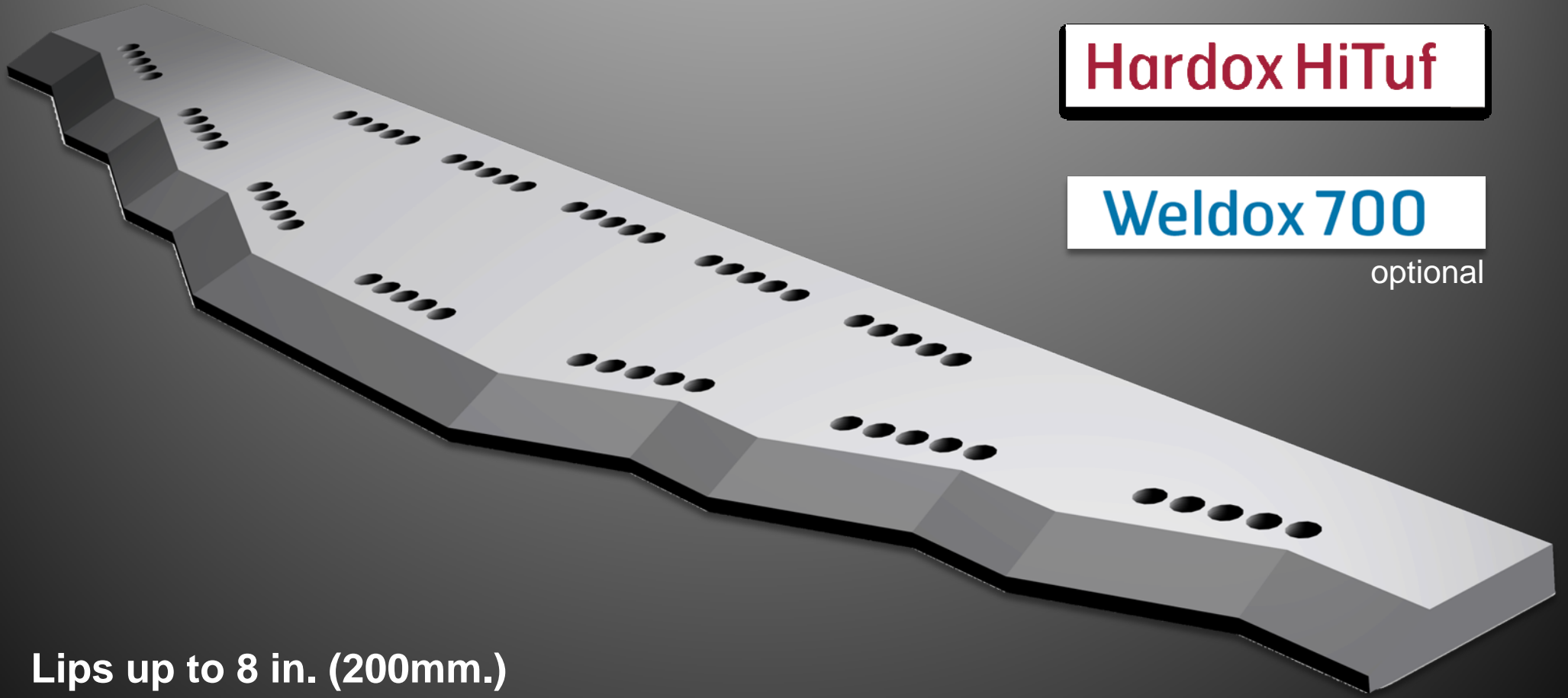
Fabricated steel lips for excavators and loaders

HARDOX[®] 450

Hardox HiTuf

Weldox 700

optional



Lips up to 8 in. (200mm.)

Wear Plates



BHARD360 Data Sheet

BHARD360 is an abrasion resistant steel plate with an average hardness of 360HBW.

Applications
Intended for applications where elevated resistance to wear is required together with good workability, weldability and bending.
Examples of applications are: earth moving and loading machines, conveying plants, buckets, cutting edges, tracks, waste elimination and recycling plants.

Dimensions
Range of applications: Available plate thickness: 10 mm - 50 mm
The dimensions, weight and allowable variation of the steel plate accord with GB/T709.
Profile, flatness specification:
Thickness (mm) Flatness in 1m, (mm)
≤ 15 ±12
15-20 ±12
≥ 20 ±5
Surface properties: According to GB3274-88.

Chemical composition										
C	Si	Mn	P	S	Cr	Mo	Ni	B	Al	Ti
0.20	1.00	1.70	0.015	0.010	1.00	0.60	0.80	0.004	0.060	0.030

Chemical composition (mass%) of steel plate should accord with the correlation items in GB/T222, delivery conditions: Quenched and tempered.

Typical values for the carbon equivalent

Plate thickness (mm)	≤ 25	25 - 40	40 - 50
CEV	0.40	0.52	0.58
CET	0.30	0.35	0.37

Hardness

Thickness mm.	Hardness HB2.5/187.5
10-30	360-480
>30-50	360-430

Mechanical properties

Thickness mm.	90° Cold bending	Charpy-V impact test (longitudinal, average value, J)	Grade	
			Temperature °C	Impact energy J
10-30	d=3a	A	A	-20
			B	Room temperature
			C	0
>30-50	d=3a	E	D	-20
			D	0
			E	-20

Thickness mm.	Yield strength	Tensile strength	Elongation
20 mm	950	1100	≥ 9%

BHARD400 Data Sheet

BHARD400 is an abrasion resistant steel plate with an average hardness of 400HBW.

Applications
Intended for applications where elevated resistance to wear is required together with good workability, weldability and bending.
Examples of applications are: earth moving and loading machines, conveying plants, buckets, cutting edges, tracks, waste elimination and recycling plants.

Dimensions
Range of applications: Available plate thickness: 10 mm - 50 mm
The dimensions, weight and allowable variation of the steel plate accord with GB/T709.
Profile, flatness specification:
Thickness (mm) Flatness in 1m, (mm)
≤ 15 ±12
15-20 ±12
≥ 20 ±5
Surface properties: According to GB3274-88.

Chemical composition										
C	Si	Mn	P	S	Cr	Mo	Ni	B	Al	Ti
0.24	1.00	1.90	0.015	0.010	1.00	0.60	0.80	0.004	0.060	0.040

Chemical composition (mass%) of steel plate should accord with the correlation items in GB/T222, delivery conditions: Quenched and tempered.

Typical values for the carbon equivalent

Plate thickness (mm)	≤ 25	25 - 30	30 - 50	>50 - 75	>75 - 100
CEV	0.37	0.44	0.54	0.64	0.72
CET	0.27	0.30	0.33	0.36	0.38

Hardness

Thickness mm.	Hardness HB2.5/187.5
10-30	370-470
>30-60	360-460
>60	360-450

Mechanical properties

Thickness mm.	90° Cold bending	Charpy-V impact test (longitudinal, average value, J)	Grade	
			Temperature °C	Impact energy J
10-30	d=3a	A	A	-20
			B	Room temperature
			C	0
>30-60	d=3a	E	D	-20
			D	0
			E	-40

Thickness mm.	Yield strength	Tensile strength	Elongation
20 mm	1000	1275	12%

BHARD450 Data Sheet

BHARD450 is an abrasion resistant steel plate with an average hardness of 450HBW.

Applications
Intended for applications where elevated resistance to wear is required together with good workability, weldability and bending.
Examples of applications are: earth moving and loading machines, conveying plants, buckets, cutting edges, tracks, waste elimination and recycling plants.

Dimensions
Range of applications: Available plate thickness: 10 mm - 50 mm
The dimensions, weight and allowable variation of the steel plate accord with GB/T709.
Profile, flatness specification:
Thickness (mm) Flatness in 1m, (mm)
≤ 15 ±12
15-20 ±12
≥ 20 ±5
Surface properties: According to GB3274-88.

Chemical composition										
C	Si	Mn	P	S	Cr	Mo	Ni	B	Al	Ti
0.30	0.60	1.90	0.015	0.010	1.20	0.60	0.80	0.004	0.050	0.030

Chemical composition (mass%) of steel plate should accord with the correlation items in GB/T222, delivery conditions: Quenched and tempered.

Typical values for the carbon equivalent

Plate thickness (mm)	≤ 25	25 - 45	45 - 60
CEV	0.48	0.56	0.62
CET	0.33	0.37	0.39

Hardness

Thickness mm.	Hardness HB2.5/187.5
10-30	430-490
>30-60	420-480

Mechanical properties

Thickness mm.	90° Cold bending	Charpy-V impact test (longitudinal, average value, J)	Grade	
			Temperature °C	Impact energy J
10-30	d=3a	A	A	-20
			B	Room temperature
			C	0
>30-60	d=3a	E	D	-20
			D	0
			E	-40

Thickness mm.	Yield strength	Tensile strength	Elongation
20 mm	1200	1450	11%

BHARD500 Data Sheet

BHARD500 is an abrasion resistant steel plate with an average hardness of 500HBW.

Applications
Intended for applications where elevated resistance to wear is required.
Examples of applications are: earth moving and loading machines, conveying plants, buckets, cutting edges, tracks, waste elimination and recycling plants.

Dimensions
Range of applications: Available plate thickness: 10 mm - 50 mm
The dimensions, weight and allowable variation of the steel plate accord with GB/T709.
Profile, flatness specification:
Thickness (mm) Flatness in 1m, (mm)
≤ 15 ±15
15-20 ±12
≥ 20 ±9
Surface properties: According to GB3274-88.

Chemical composition										
C	Si	Mn	P	S	Cr	Mo	Ni	B	Al	Ti
0.36	0.70	1.60	0.015	0.010	1.20	1.00	1.20	0.004	0.060	0.050

Chemical composition (mass%) of steel plate should accord with the correlation items in GB/T222, delivery conditions: Quenched and tempered.

Typical values for the carbon equivalent

Plate thickness (mm)	≤ 25	25 - 50
CEV	0.66	0.60
CET	0.38	0.39

Hardness

Thickness mm.	Hardness HB2.5/187.5
10-30	470-540
>30-50	470-540

Mechanical properties

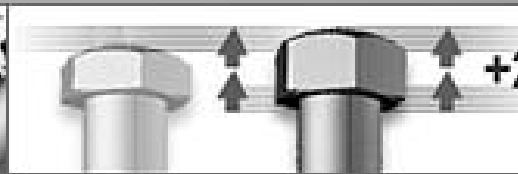
Thickness mm.	90° Cold bending	Charpy-V impact test (longitudinal, average value, J)	Grade	
			Temperature °C	Impact energy J
10-30	d=3a	A	A	-20
			B	Room temperature
			C	0
>30-50	d=3a	E	D	-20
			D	0
			E	-40

Thickness mm.	Yield strength	Tensile strength	Elongation
20 mm	1300	1600	6%

Fasteners Quality 12.9



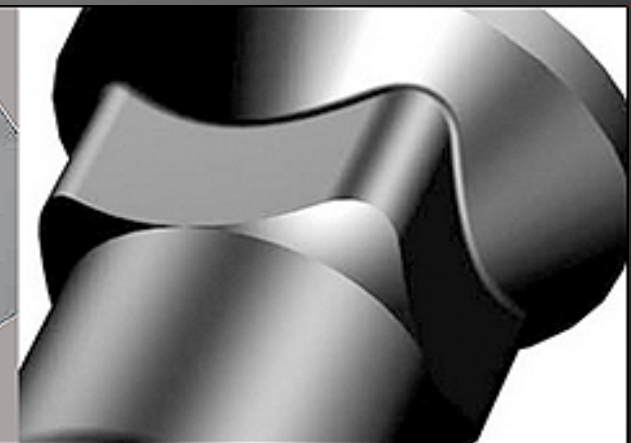
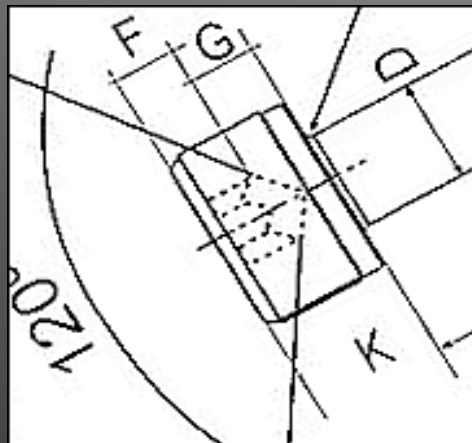
560	180	12.9
510	170	12.9
310	150	12.9
210	130	12.9
170	110	12.9
130	90	12.9
100	70	12.9



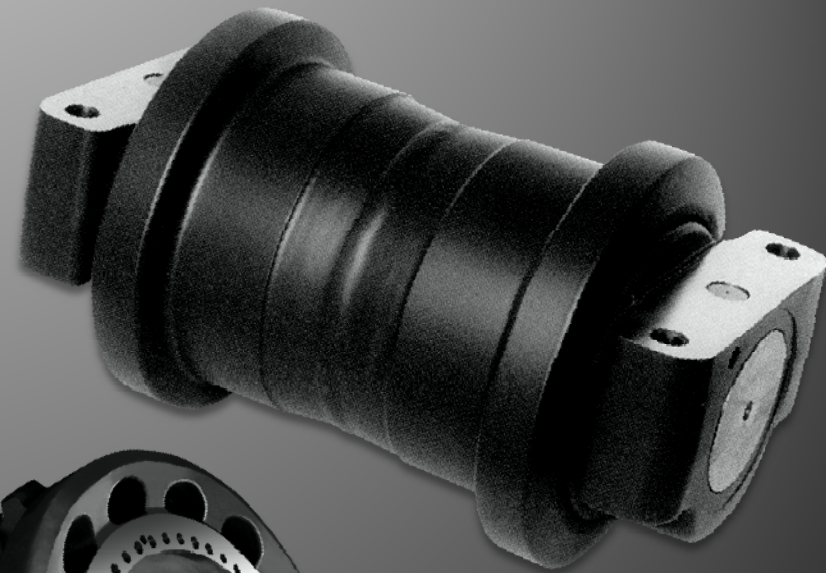
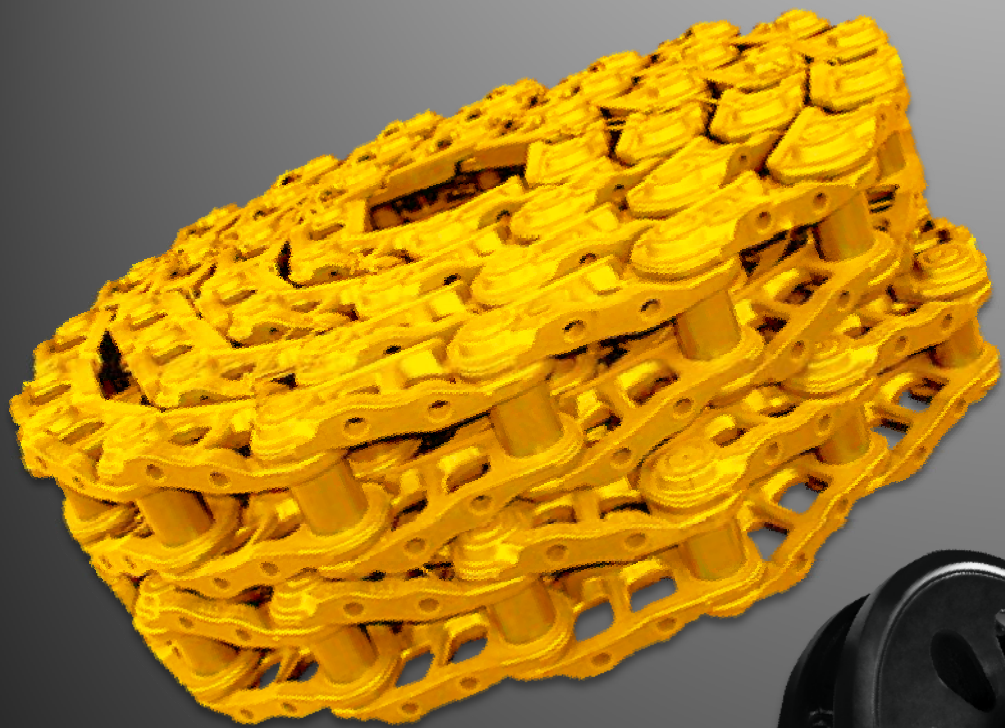
BYG
12.9

BYG
12.9

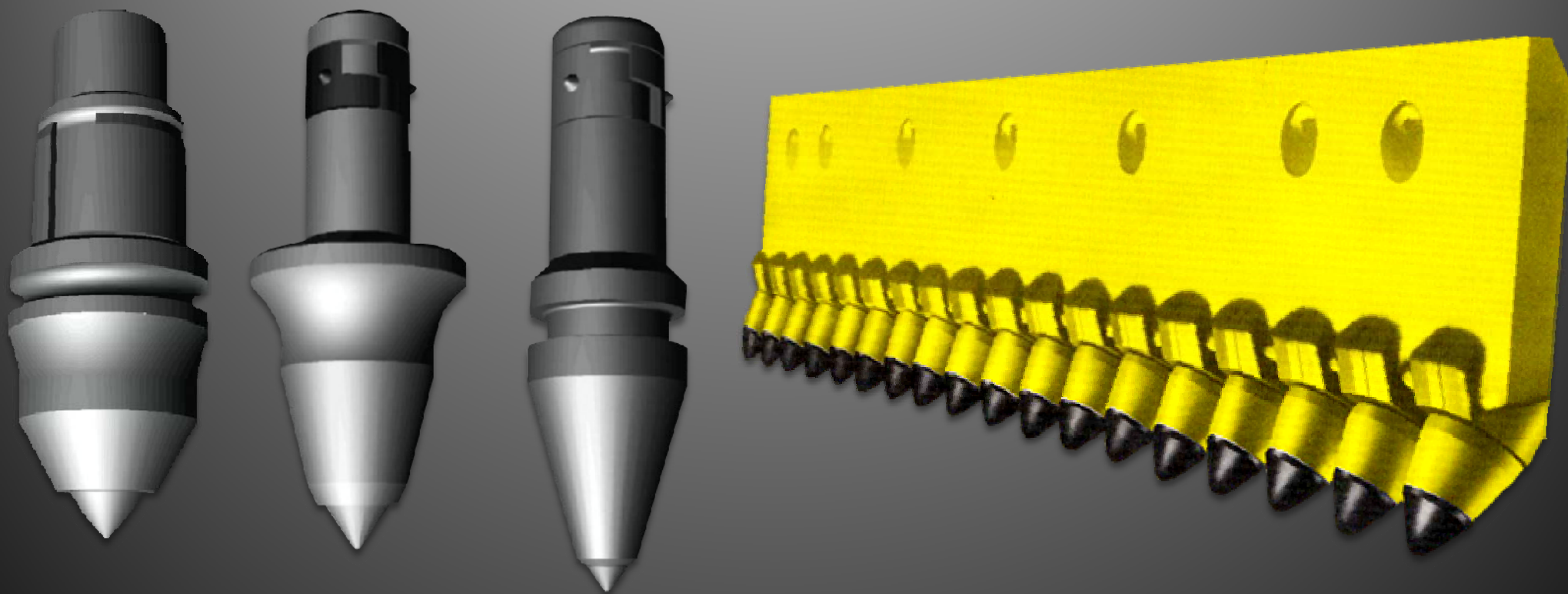
12.9
35-38 Rockwell
113/124 Kg. mm²



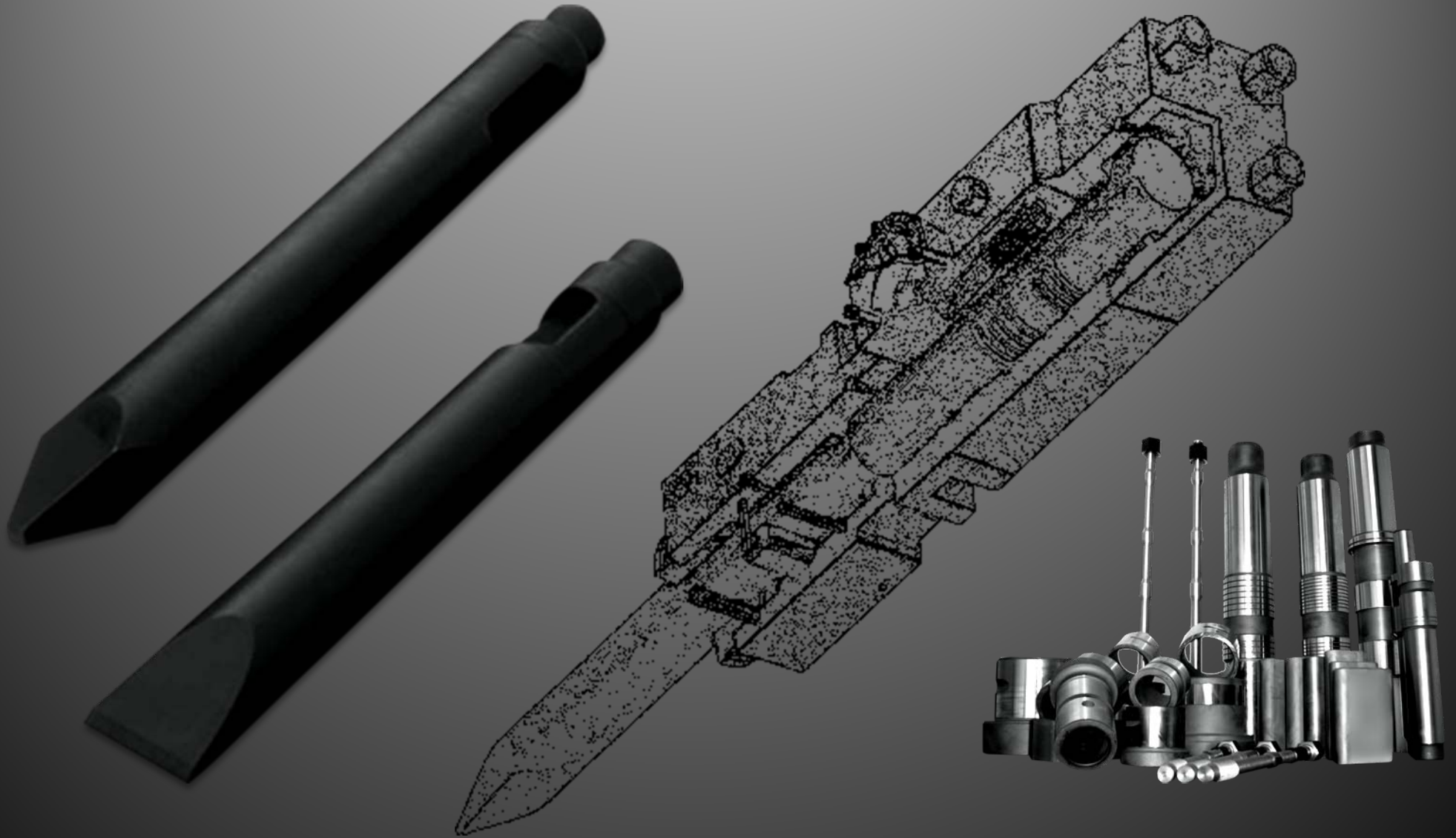
Special mining undercarriage



Special mining cutting tools



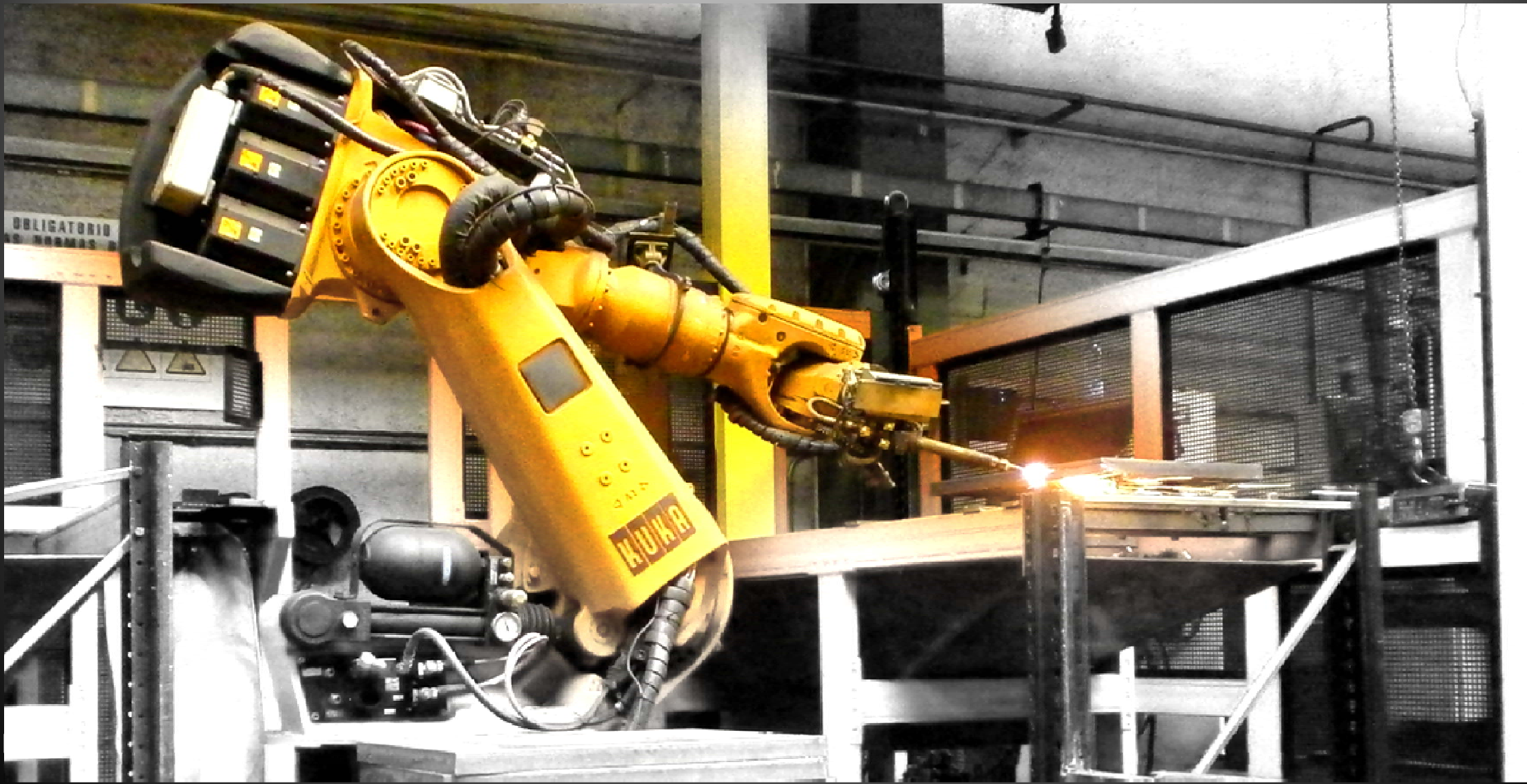
Parts and tools for hydraulic breaker



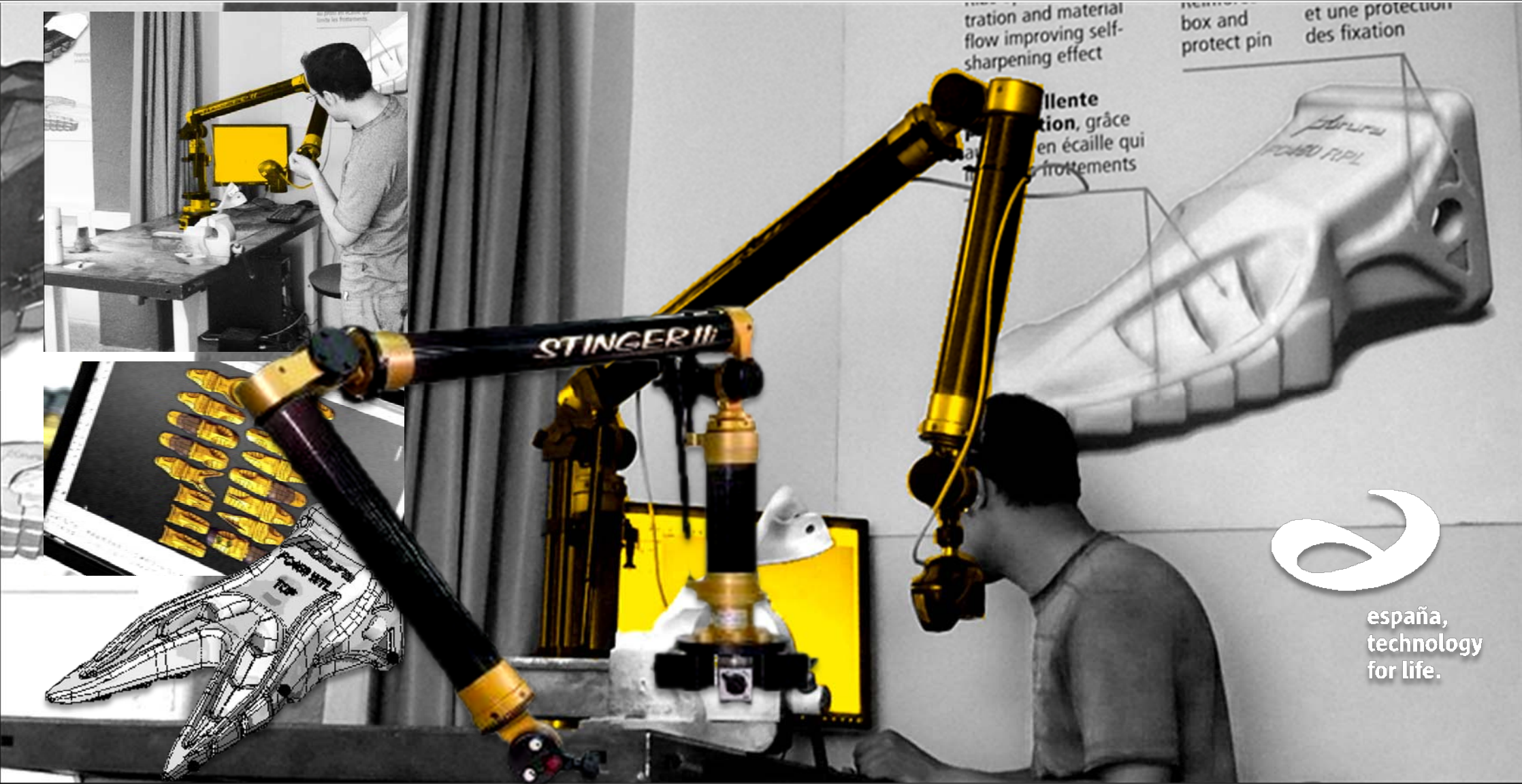
Value Added Services



Special Made to Measure Manufacturing



R&D: In House Engineering Department



ISO Certified Company



CERTIFICATE

Number

EC-5448/10

EC-5448/10

LGAI Technological Center, S.A.
certifies that the Quality Management System of the
organization:

BYG, S.A.

EI Pla 45 - Poligono El Pla
E-08750 MOLINS DE REY, Barcelona

For the following activities:

- Design, marketing and distribution of parts for original equipment manufacturers of earth moving and mining machinery.

is in accordance with the requirements of the standard
ISO 9001:2008



This certificate is valid until May 21, 2013
Barcelona del Vallés, May 21, 2010



ACCREDITED BY IATF

BYG



www.byg.com