INNOVATION. NOT DUPLICATION.[™]



PROTECH[™] ADVANCED WEAR SOLUTIONS

H-E PARTS INTERNATIONAL (H-E PARTS) SPECIALIZES IN PROVIDING WEAR MANAGEMENT SOLUTIONS. OFFERING A FULL RANGE OF PROTECH™ WEAR PROTECTION PRODUCTS, H-E PARTS PROVIDES THE RIGHT MATERIAL OR COMBINATION OF MATERIALS FOR EACH APPLICATION.

H-E Parts offers a full range of ProTech[™] wear protection products for both impact and sliding abrasion applications, enabling the company to offer a tailored solution based on lowest total cost of ownership for our customers' specific applications. Embracing this philosophy, H-E Parts offers a range of additional services to assist customers in condition monitoring, maintenance planning, wear product selection, inventory control, 'as built' drawings, installation, inspections and reporting.

These service offerings are supported by H-E Parts in-house engineering expertise and utilizes state of the art 3D laser scanning equipment and proprietary modelling software such as ChuteVision™ to meet exact customer requirements. This ensures that production is maximized whilst costs are controlled, and maintenance is minimized.

PROTECH[™] PRODUCT RANGE

- Chromium carbide overlay wear plate
- Tungsten carbide overlay plate
- Quenched and tempered (Q&T) plate
- Ceramic liners
- Ceramic cement
- White iron wear bars, blocks and buttons



CHROMIUM CARBIDE

H-E Parts supplies ProTech[™] chromium carbide overlay wear plate to suit all applications and can custom-fabricate to suit our customers' specific requirements. Overlay wear plate is bolted or welded into high wear areas to enhance wear resistance.

The refined microstructure within the wear plate overlay is based on a micro-carbide system, which combines the improved wear resistance and impact resistance of the martensitic and chromium carbide deposits into the one plate.

GRADES

NAME	APPLICATION	MICROSTRUCTURE
PT-60	All purpose	Austenitic chromium carbides
PT-80	Abrasian and Impact resistant	Austenitic chromium carbides
PT-80T	Severe abrasion and impact resistant	Complex chomium carbides

DIMENSIONS

APPROX. WEIGHT PER SQ/M	STANDARD SHEET SIZE (MM)	OVERALL THICKNESS (MM)
94	2800x2100	12
102	2800x2100	13
111	2800x2100	14
126	2800x2100	16
150	2800x2100	19
190	2800x2100	24
228	2800x2100	29
237	2800x2100	32
274	2800x2100	37
340	2800x2100	46
430	2800x2100	58
	APPROX. WEIGHT PER SQ/M 94 102 111 126 150 150 190 228 237 274 340 430	APPROX. WEIGHT PER SQ/MSTANDARD SHEET SIZE (MM)942800x21001022800x21001112800x21001262800x21001502800x21001902800x21002282800x21002372800x21002742800x21003402800x21004302800x2100

TYPICAL APPLICATIONS

- Bin liners (including surge, hopper and reject mill skirt liners)
- Chute and hopper liners
- Deflector liners
- Flop gate liners
- Gyratory crusher main frame liners
- Gyratory crusher shaft protectors
- Impact plates
- Jaw crusher cheek plates
- Pipe work
- Screen plates
- Spools
- Train loading and unloading chute liners
- Transfer chutes
- Trommel screens
- Trough liners
- Vibratory feeder tray liners
- Vibratory screen eccentric shaft protectors

FASTENING METHODS

Studding, welding and countersinking

Other thicknesses are available on request

PROPERTIES

GRADE	CHEMISTRY	HARDNESS	MICROSTRUCTURE	BACKING PLATE
PT-60	0 3.5 to 7.5% C 620 to 700 Refined austenitic	Refined austenitic	AS3678-250	
	24 to 35% Cr	HV50	chromium carbide	
	1.0 to 3% Mn		alloy containing	
	0.7 to 2.0% Si		primary carbides.	
PT-80	Cr-Nb-V-B	-B Complex carbide 5% C containing chrome,	AS3678-250	
	3.5 to 7.5% C			
	28 to 35% Cr		niobium and	
	1.0 to 2.5% Mn	An vanadium		
PT-80T	4,4 to 7.5% C		Complex carbide	AS3678-250
	23 to 35% Cr		containing chrome, niobium and vanadium and Tungsten	
	1.0 to 2.5 Mn			
	0.7 to 2.0% Si			
	2-7% W			

TUNGSTEN CARBIDE

Within the mining industry the demand for greater production and less maintenance is proving to be a driving factor in today's competitive market. One way this need is being met is with a new range of exotic metal overlay plate being supplied by H-E Parts.

Tungsten carbide plate, one of the highest wear resistant materials produced in the world today, brings with it a host of advantages over standard chromium type plates with increased performance when it comes to sliding abrasion. H-E Parts customers have found that in the correct application they have achieved as much as 20 times more life over more traditional overlay plate.

Each plate is customized to ensure fit, form and function.

GRADES

PT-1200T

DIMENSIONS

All tungsten carbide liners from H-E Parts are customized to suit exact individual size specifications up to 14mm tungsten overlay.

PROPERTIES

Modified Tungsten

FASTENING METHODS

Studding and welding

TYPICAL APPLICATIONS

Tungsten carbide liners are suitable for sliding wear applications where there is no impact such as:

- Feed chutes
- Deflectors / impact plates (for fines only)
- Skirt liners
- Pipe work





Q&T

H-E Parts supplies ProTech[™] quenched and tempered (Q&T) wear plate; a superior choice in abrasion resistant steels.

H-E Parts ProTech[™] Q&T steels are known for high quality, good flatness and good surface finish. Although ProTech[™] Q&T plate is 3-4 times harder than ordinary high strength structural plate, its excellent weldability and machinability properties make the material remarkably easy to work with.

ProTech[™] Q&T steels boosts plant performance and maximize the uptime of tools and machines.

GRADES

PT-4500Q, PT-500Q, PT-600Q

DIMENSIONS

CPADE	STANDARD SHEET SIZE	THICKNESS
GRADE	(MM)	(MM)
PT-450QT	8000x2500	3-80
	8000x3100	3-80
PT-500QT	8000x2500	4-65
	8000x3100	4-65
PT-600QT	4000x2000	8-51

Other dimensions are available on request

PROPERTIES

Chemical composition

GRADE	С	SI	MN	Р	CR	NI
	MAX %					
PT-450QT	0.26	0.70	1.60	0.020	1.40	1.0
PT-500QT	0.30	0.70	1.60	0.020	1.50	1.5
PT-600QT	0.47	0.70	1.00	0.015	1.20	2.5

Mechanical properties

GRADE	THICKNESS (MM)	HARDNESS HBW MIN - MAX	TYPICAL YIELD STRENGTH MPA, NOT GUARANTEED
PT-450QT	3-80	425-475	1100-1300
PT-500QT	4-32	470-530	1250
	(32)-80	450-540	1250
PT-600QT	8-51	570-640	1250

TYPICAL APPLICATIONS

- Conveyors
- Crushers
- Mainframe liners
- Mixers
- Barges
- Measuring bin and skip liners
- Hoppers and feeder tables
- Side liner plates at the discharge site
- Buffer bin walls
- Rail road car bottoms and side walls
- Hoppers and feeders
- Transfer chutes
- Dump pocket lining



FASTENING METHODS

Drilling, countersinking, welding and studding





CERAMIC

H-E Parts can supply a full range of ProTech[™] ceramic wear liners and ceramic cement to suit site-specific applications with engineering, manufacturing and installation provided by H-E Parts dedicated service division.

Ceramic solutions are becoming more common in hard rock applications where they have been proven to provide increased productivity, enhanced wear characteristics, improved flow efficiency, noise reduction and a lower total cost of ownership.

Ceramic liners offer an alternative solution to weld overlay and Q&T wear plates and other lining materials, particularly in highly abrasive applications.

In addition, H-E Parts can offer complex ceramics in the form of PT-82C, which offers up to 50% increased impact and abrasion resistance over standard 92% alumina ceramic liners.



GRADES

PT-92S, PT-95S, PT-82C, PT-Sic

DIMENSIONS

LENGTH	WIDTH	WEIGHT	AVAILABLE THICKNESS
(MM)	(MM)	(KG)	(MM)
300	150	11.5	37mm overall (25mm Cera
300	200	14	63mm overall (50mm Cera
300	300	23	77mm overall (65mm Cerai
400	300	31	90mm overall (78mm Cerai
450	300	34.5	112mm overall (100mm Ce
450	400	46	

The ProTech™ range of ceramic liners are available with abrasion resistance (AR) bar.

*weight based on 63mm thick liners

ProTech[™] rubber ceramic composite liners are comprised of alumina ceramic tiles, molded in a high tensile strength natural rubber matrix, and mounted on 6mm steel backing plates. All materials are manufactured in accordance with our quality standards. H-E Parts can also cut and chamfer the liners to customer requirements with our purpose built cutting facility based in Western Australia. Australia.

PROPERTIES

Technical Specifications

	PT-92S	PT-95S	PT-82C	PT-SIC
Ceramic Wear Material	92% Alumina	95% Alumina	Zirconia Toughened Alumina	Silicon Carbide
Density	3.65	3.8	4.2	3.0
Porosity	<0.1	<0.1	<0.1	<0.1
Vickers Hardness	>1000	>1200	>1300	>1700
Rubber	Natural	Natural	Natural	Natural
Shore A Hardness	60 +/-5	60 +/-5	60 +/-5	60 +/-5
Elongation	400%	400%	400%	400%
Resilience	65%	65%	65%	65%

FASTENING METHODS

Studding

	(MM)
;	37mm overall (25mm Ceramic Tile)
	63mm overall (50mm Ceramic Tile)
	77mm overall (65mm Ceramic Tile)
	90mm overall (78mm Ceramic Tile)
	112mm overall (100mm Ceramic Tile)

TYPICAL APPLICATIONS

ProTech[™] ceramic liners are designed for maximum resistance to abrasion in iron ore and other hard rock applications, particularly within bulk material handling equipment including:

Deflectors / impact plates Chutes Bins / hoppers Skirt liners Stackers Reclaimers

BARS, BLOCKS AND BUTTONS

H-E Parts offers ProTech[™] wear bars, chocky blocks and wear buttons in over 4,500 shapes and sizes that can be cut or bent to exact specifications.

These products are a combination of high-chromium moly white iron metallurgically bonded to a mild steel backing plate. With a minimum hardness of 700 Brinell (63Rc) the white iron casting provides maximum abrasion resistance. The mild steel backing plate is easily welded with minimal preparation and acts as a cushion for the white iron - making it capable of handling impact and abrasion in even the most extreme applications.

DIMENSIONS WEAR BARS

LENGTH (MM)	WIDTH (MM)	THICKNESS (MM)	WEIGHT (KG)	WEAR / BACKING
115	50	50	2.3	38 on 12
128	50	50	2.6	40 on 10
150	50	50	2.9	40 on 10
150	75	50	4.4	40 on 10
150	75	60	5.3	50 on 10
150	75	75	6.6	60 on 15
190	50	50	3.7	40 on 10
200	75	75	9	60 on 15
200	25	25	1.0	15 on 10
210	50	50	4.1	38 on 12
230	50	50	4.5	38 on 12
250	75	75	11	60 on 15
300	25	25	1.5	15 on 10
300	50	50	5.9	40 on 10
300	100	100	23.5	80 on 20
300	150	100	35	80 on 20
432	50	50	8.5	38 on 12
600	50	50	11.8	38 on 12

FASTENING METHODS

Welding, studding, countersinking when cast in (special item)

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- Chute liners / rock box bars
- Feeder deck plates
- Grizzly screens
- Shredder / grinder tips
- Cane knife edges
- Adapters wear caps
- Dredging industry

CHOCKY BARS (NOTCHED)

240	25	23	0.9	15 on 8
240	40	23	1.5	15 on 8
240	50	23	1.9	15 on 8
240	65	23	2.5	18 on 8
240	90	29	3.9	21 on 8
240	100	23	3.9	15 on 8
240	130	23	5.1	15 on 8

WEAR BUTTONS

60	30	0.7	20 on 10
75	30	1.0	20 on 10
90	30	1.5	20 on 10
115	32	2.6	20 on 12
150	41	5.7	25 on 16

Other sizes (and un-notched bars) are available on request.

PROPERTIES

White iron: Modified AS2027 15/3 Cr Mo

Hardness: 700 BHN min 63 RC min (primary carbides up to 1500HV)







LIP LINERS

LENGTH (MM)	WIDTH (MM)	THICKNESS (MM)	MATERIAL GRADE	WEIGHT (KG)
312	191	178	NiHard 4	29
452	191	178	NiHard4	41
BLOCKS				
224	150	100	NiHard 4/	23
			White Iron	
300	150	100	NiHard 4/	32
			White Iron	
LINER				
302	100	32	Nihard 4	8
302	150	32	Nihard 4	11
302	200	32	Nihard 4	15
302	302	32	Nihard 4	23
454	302	32	Nihard 4	34





H-E PARTS, GLOBAL LOCATIONS, FOR GLOBAL SOLUTIONS.



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