	Description	Applications	Fixation	Dimensions	Fysical and chemical properties
WEAR RESISTANT PLATES	**Wearplates VATHARD** By an unique open arc bulk welding process an extremely hard complex chromium carbide deposit is welded to a mild steel base plate. After hardfacing the wearplate is formed by plasma cutting according to drawing. The visible cracking which is limited to the hard surface layer is a characteristic of this type of product. This hardplate is recognised throughout industry as the one which produces the hardest wearing plate currently available.	Chutes, liner plates, deflectorplates, bunkers, hoppers, crushers, feeder throughs, fan linings, screens, cyclones, pulverizers, tubes, dredger suction mouths, excavators, bucket teeth, dredgepump parts, blast furnace bells, palm oil expeller screws, etc. Hardplate Stainless has been specifically developed for situations where excessive wear and severe corrosion are major problems.	Wearplates can be fixed as follows : • by bolts in plasma burned holes • by welded studs and nuts • by welding on the metallic structure Vathard hardplate is used as self-supporting in the metallic structure. Vathard plates are formed according to your drawings.	Vathard standard sheets: 3.400 x 1.400 mm Standard thicknesses : base plate + hardfacing 2 + 2 mm 3 + 2 mm 5 + 3 mm 6 + 4 mm 8 + 5 mm 8 + 7 mm 10 + 5 mm 10 + 7 mm 10 + 10 mm 12 + 5 mm 12 + 8 mm 15 + 5 mm 15 + 10 mm	Composition : complex chrome carbide Hardness : 62 HRc High temperature grade: typical hardness: 20° C 62 HRc 550° C 54 HRc 650° C 50 HRc Base plate mild steel or stainless Aspect : hardfaced layer with cracks. Machinability: only by grinding
ALUMINA	**Al_2O_3 ceramics Keravat** Sintered alumina products are developed specifically to combat erosion caused by the impact of solid particles. It can be manufactured by a variety of process routes including iso-pressing, dry pressing, die casting, extrusion and slipcasting. The slipcasting process allows production of large complex shapes without the need for expensive and normally prohibitive tooling cost.	Chutes, bunkers, electrofilters, mixers, screws, classifiers, cyclones, fan linings, pneumatic and hydraulic conveying, pulverised fuel pipes, fan casings, skip cars, scraper blades, ash liners, hoppers, trifurcation sections. Pipes and bends have been developed to combat wear caused during pneumatic conveying of erosive materials in pipelines.	By mortar as brickwork. By a flexible, heat resistant adhesive for permanent bonding of surfaces subject to impact, vibration or deflexion up to temperatures till 180° C. By special adhesives up to 250° C. At higher temperatures mechanical fixation is required by means of tongue and groove formed tiles, book end tiles, bolts and nuts.	Tiles with following dimensions: 20 x 10 x 6 mm 20 x 15 x 6 mm 20 x 5 x 10 mm 20 x 10 x 10 mm 20 x 15 x 10 mm 20 x 20 x 10 mm 50 x 50 x 3 mm 100 x 100 x 10 mm 150 x 80 x 6 mm 150 x 100 x 4 mm 150 x 100 x 20 mm L - Tiles Pipes and bends with nominal bore from 25 mm to 300 mm	Fired density (kg/m^3) : 3.800 Grain size (µ) : 4 - 5 Flexural strenght (MPa) : 350 Open porisity : 0 Thermal conductivity : 14 - 25 W/mK Chemically inert

	Description	Applications	Fixation	Dimensions	Fysical and chemical properties
CAST BASALT	**Cast basalt** Cast basalt is a mineral product from vulcanic origin. The high density basalt rocks are crushed to a certain particle size and fused in a furnace at hgh temperature. The molten basalt is cast into metallic or sandmoulds and for tubes in centrifugal moulds. A well controlled cooling is required to obtain the superior qualities of our cast basalt as wear resistance and compressive strength. The surfaces are generally smooth in order to prevent sticking. Our cast basalt is wellknown for his chemical inertness and lack of porosity.	Tubes and bends for pneumatic and hydraulic conveying, classifiers, cyclones, mixers, crushers, bunkers, hoppers, chutes, chain conveyors, etc.	The cast basalt tiles are fixed by a special mortar. For superior impact resistant bonding we recommend our 2 components flexible epoxy resin binder.	*standard dimensions tubes with nominal bore of 120 to 500 mm length : 500 mm thickness: 20 to 30 mm *hexagonal tiles: 200 x 200 x 20 mm x 6 mm thickness 250 x 250 x 30 mm thickness Square and rectangular tiles 200 x 100 x 25 mm 250 x 125 x 30 mm 200 x 200 x 25 mm 250 x 250 x 30 mm 250 x 125 x 25 mm 200 x 100 x 40 mm 250 x 250 x 25 mm 200 x 200 x 40 mm 200 x 100 x 30 mm 250 x 125 x 40 mm 200 x 200 x 30 mm 250 x 250 x 40 mm	Colour: black Fired density (kg/m³) Hardness (R45N) : 2.850 Fracture toughness as measured by wedge indentation (MPa m½) : 2.0 Compressive strength : 550 N/mm Flexural strength (MPa) : 40 Coefficient of thermal expansion (per K) 8.0 x 10^{-6}

POLYESTER POLYMERS	**Polyester polymers** For low lube and lube-free long life bushes. Specially formulated polyester polymers have been used successfully as a most suitable material for bushes. It combines a load-bearing capacity greater than that of white metal with selflubricating properties better than those of nylon, while giving up to 10 times longer service life than phosphor-bronze.	Bogie-Trunion-pivot bushes and thrust washers, kingpins, idler wheel bushes, crane wheel bearings, guide shoes, guide locks, wear strips, wear guides, etc.		Rods : nominal bore from 20 tot 150 mm Tubes : diam. : 60 to 320 mm length 360 mm Bearings : diam. : 40 to 130 mm leng h : 400 mm Plates : thickness : from 3 to 50 mm 1000 x 200 mm 500 x 400 mm Discs : thickness: 3 - 6 - 10- 12 - 15 mm Ø300 mm thickness: 3 . 6 . 10 . 12 mm Ø 500 mm	Density : 1.38 Melting point : 260° C Standard temperature applications : 100° C Tensile strength at yield : 65 MPa Tensile strenght at break : 62 MPa Elongation at break : 26 % Flexural strength : 120 MPa Coefficient of linear thermal expansion 6 mm/mm x K x 10^{-6} Hardness (Shore D) : 84

VATHARD WEAR RESISTANT PLATES

ALUMINA