





N N

We Built

We Innovate

We Create Solutions



At **Tecnodesgast** we develop and manufacture customized solutions for all types of equipment suffering wear from abrasion, chemical attack, temperature or impact.

We are backed by more than 40 years of experience identifying, diagnosing and resolving all types of wear to equipment in the industrial sector.

We offer our customers the best solutions that use specific techniques and precise materials to better optimize their resources.

Our aim is to meet the unique daily needs of every customer, big or small.

Applications

Transporting bulk products in various industries, like basic materials and materials for industrial sectors, causes significant wear and tear on certain components of the equipment.

These different materials each have specific characteristics which can uniquely impact the industries that work with them. Therefore every business needs a personalized solution.

When wear and tear disrupts processes in the industry, the resulting losses can be more costly than buying new parts or making repairs. This is unacceptable given the competitive nature of today's markets. Therefore, it is crucial to have an effective solution that provides reliable wear protection.



Services



Our approach is to work closely with customers at an early stage, think broadly and boldly, and go beyond traditional solutions for engineering surfaces.

We offer reliable partnerships based on trust, quality and taking total control over every need.

- We monitor wear and tear
- We choose the best solution
- We design parts and coat equipment and pipes
- We build made to measure
- We store all your order information for easy re-order
- We supervise every detail of your installation and verify that parts work optimally

Lining solutions

At Tecnodesgast, we offer you a wide selection of mineral, ceramic and metallic materials, as well as high quality engineering compounds and plastics. This range of options allows us to create highly durable Lining systems that are precisely tailored to your needs.

Piping solutions

Hydraulic and pneumatic hoses, as well as flexible hoses, are often subjected to extremely harsh conditions. When conveying abrasive materials such as ash, sand or grain, pipes experience high levels of stress. Even thick-walled steel or cast iron pipes often show significant wear in a very short period of time.

To ensure a long service life and optimum conveying capacity, it is essential to coat pipes, bends and hoses with wear-resistant materials.

Materials

COMPARATIVE TABLE OF WEAR RESISTANCE

			ABRASION Renoval of particles	IMPACT Cracks and breaks	CHEMICAL Deterioration of microestructure	HEAT °C Reduction of hardness	SLIDING Reduction of wear
	Mild steel	Hardness 100 Vickers (comparative exemple)	1	Medium		180	
	PLASTDES 10®	High molecular density POLYMER	13-14			70	
	POLIDES 86/88/92®	Wear resistant POLY- URETHANE plates	12-15			80	
	HARDES 400®	Plates Cr Mn Mo	4-5			400	
	HARDES 500 [®]	Plates Cr Mo Ni	5-7			400	
	INOXDES 21®	Plates 12-15% Chrome	2-4			400	
	INOXDES 42®	Plates 15-17% Chrome	8-10			500	
(0	INOXDES 55®	BIMETALLIC wear resistant stainless	20-25		Depending on the base materia		Depending on the finish
NE	INOXDES 66®	BIMETALLIC wear resistant stainless	30-40		Depending on the base materia	800	Depending on the finish
PEL	CROMDES 70®	CHROME CARBIDE wear resistant hardfacing plates	25-30			500	
AND F	CROMDES 80®	COMPLEX CARBIDE wear resistant hardfacing plates	30-40			650	
NGS /	CROMDES 85®	COMPLEX CARBIDE wear resistant hardfacing plates	40-50			800	
LINI	CROMDES 95®	COMPLEX CARBIDE wear resistant hardfacing plates	50-60			500	
	TUNGDES 230®	TUNGSTEN CARBIDE wear resistant hardfacing plates	50-60			500	
	BASALDES 72®	Cast Basalt	30-35			500	
	ZIRDES 200 [®]	ZIRCONIUM AND ALUMINA CAST	50-70			1400	
	ALUDES 150 [®]	SINTERED ALUMINA wear resistant CERAMIC	80-100			1000	
	CARBUDES 230®	SILICON CARBIDE wear resistant CERAMIC	120-140			1400	
	TUBOFLEX 150 [®]	FLEXIBLE PIPE of ALUDES 150	70-90			120	

The comparative table of wear resistance should be used for guidance after prior selection of the most suitable type of material for the specific causes of wear: abrasion, impact, temperatures, chemical attack, etc.

FORM OF WORKING CONDITIONS

We provide advice with no obligations

		Department
Address		City
Telephone		Eax
E-Mail		Website
Description of equipme	nt	Part drawing
Product that wears		
Product working		Product flow Tm/ł
Wear caused by	AbrasionCorrosion	□Bridge Formation □Others
Material jumming		□Yes □No □ Adhesions □ Freezing adhesions
brasion Impact		
Density Edges	_g/m³ Velocity_ Moisture corrosior □15° □30°	m/s Impact distance n □Yes □No Particle size: maxmm minm □45° □60° □90°
leat		
leat Working temperature Installation Load Chemical	e max°C □Continuous	min°C Static Load 🛛 Yes 🗋 N ☐ Discontinuous Thermal Shocks 🗋 Yes 🗋 N
leat Working temperature Installation Load Chemical (products):	e max°C □ Continuous %	min°C Static LoadYesN Discontinuous Thermal ShocksYesN ;%



Sender



PLASTDES 10®

HIGH MOLECULAR DENSITY POLYMER

Product with high abrasion and impact resistance and excellent sliding properties.

TECHNICAL DATA

Hardness	Density gr/cm³	Coefficient of friction
100 Shore A	1,2	0,08-0,10

SUPPLY OF PLATES

Thickness (mm)	Size (mm)
6, 8, 10, 12, 15, 20, 25	3000x1200

TYPES





PLASTDES 10®































POLIDES 86/88/92®

POLYURETHANE PLATES

Product with properties of high resistance to abrasion and impact and excellent slipperiness.

Anti-wear polyurethane is effective when WEAR, IMPACT, ENVIRONMENT, CAKING AND ABRASION combine with water, as well as with the application of light weight on the structure of a machine or element.



TECHNICAL DATA

HARDNESS	Density g/cm³	ABRASION DIN 53516	FRICTION COEFFICIENT	COLOURS	Thickness (mm)	Size (mm)
86 shore A	1,20	18 mm ³	0,25 in dry	Red	2, 3, 4,	3000x500
88 shore A	1,20	22 mm ³	22 mm ³ 0,25 Green		5, 6, 8, 10 . 12. 15.	2000x1000
92 shore A	1,20	31 mm ³	0,19 in dry	Black	20, 25, 30	3000x1200

TYPES



POLIDES 86/88/92®































HARDES 400/500®

WEAR RESISTANT STEEL PLATES

Steel with anti-wear alloy and thermo-mechanical hardness in the core, withstands temperatures up to 400°C and processing up to 900°C. Can be used in crushers, blades, mixers, vibratory feeders...



TECHNICAL DATA

HARDNESS VICKERS	RESISTANCE	Analysis (averaged)						
(averaged)	TO TRACTION	С	Cr	Mn	Мо	Ni		
HARDES 400® 340-410	1200 N/mm ²	0,22	1,40	1,50	0,24	0,15		
HARDES 500® 440-520	1500 N/mm²	0,25	1,60	1,40	0,20	0,7		

TYPES AND SUPPLY

PRODUCTS	THICKNESSES (mm)	SIZE (mm)	
HARDES 400® 340-410	5, 6, 8, 10 to 60	2000 × 1000 3000 × 2000 6000 × 1500 6000 × 2000 6000 × 2500	
HARDES 500 [®] 440-520	5 to 60	6000 x 2000	







HARDES 400/500®





























INOXDES 21/42/55/66®

WEAR RESISTANT STEEL PLATES

BI-METALLIC WEAR RESISTANT STAINLESS STEEL

In cases of wear from moisture and high slipperiness, wear-resistant stainless steel is the ultimate alternative. The hardness of "Inoxdes-424" is almost 3 times higher than that of conventional stainless steel, and the hardness of "Inoxdes-660" is 10 times higher.



TECHNICAL DATA

FOR WEAR RESISTANT STEEL PLATES, INOXDES 21[®], INOXDES 42[®]

PRODUCTS	HARDNESS (medium)	DENSITY	ANALYSIS (averaged)	
INOXDES 21®	180 Vickers	7,85 g/cm ²	Carbide 0,07 %	Chrome 12 %
INOXDES 42 [®]	420 Vickers	7,85 g/cm²	Carbide 0,07 %	Chrome 15 %

FOR BI-METALLIC WEAR RESISTANT STAINLESS STEEL, INOXDES 55[®], INOXDES 66[®]

PRODUCTS	HARDNESS (medium)	DENSITY	TEMPERATURE
INOXDES 55 [®]	526-600 Vickers 50-55 HRC Chromium Boron Carbides 1200 - 1600 HV _{0,4}	7,85 g/cm²	500 °C
INOXDES 66®	600-660 Vickers 55-58 HRC Chromium Boron Carbides 1600 - 2400 HV _{0,4}	7,85 g/cm²	800 °C

The hardness of Inox-304 and Inox-316 steel is 160 Vickers

SUPPLY

PRODUCTS	ТНІС	CKNESSES (r	mm)	SIZE (mm)
INOXDES - 21		1.5, 2, 2.5, 3		2000x1000 3000x1500
INOXDES - 42	6, 8, 10,	12, 15, 20, 25,	30 Y 40	2000x1500
INOXDES - 55 INOXDES - 66 BIMETALIC STEEL	BASE PLATE 3 4 5 6 8 10 15 20 25	Deposited surface 3 3 4 4 4 4 4 4 4 4 4 4	TOTAL 6 7 8 10 12 14 19 24 29	2900 X 1800 2900 X 1350 1900 X 850 (deposited surface) Base plate INOX-304 INOX-310 INOX-316



INOXDES 21/42/55/66®































CROMDES 70/80/85/95® TUNGDES 230®

BI-METALLIC SHEETS

High abrasion and impact resistant steel. Its resistance is 3 to 15 times higher than that of 400 HB steel, even at high temperatures.



BASE				DEP	OSIT	ION			
Thicknesses	2	3	4	5	6	7	8	10	12
2									
3									
4									
5									
6									
7									
8									
9									
10									
12									

DIMENSIONS				
BASE PLATE	DEPOSITION AREA			
2000 X 1000 mm	1900 X 850 mm			
2000 X 1500 mm	1900 X 1350 mm			
2000 X 1500 mm	1900 X 1400 mm			
2500 X 1250 mm	2400 X 1150 mm			
3000 X 1500 mm	2900 X 1350 mm			
3000 X 1500 mm	2900 X 1400 mm			
3000 X 2000 mm	2900 X 1800 mm			

TECHNICAL DATA

	HARDNESS		TEV (5		
PRODUCTS	VICKERS	HRC	APPLICATION		
CROMDES 70 [®] Chromium carbide	700-800 Chrome Carbide 1200-1600 HV _{0,4}	* 60-64	** 500 °C	*** Cr-Mn-Ni	Crusher rolls Coal crusher cones * Impact and sliding
CROMDES 80° Chromium niobium carbides	746-832 Chrome and Niobium carbide 1900-2400 HV _{0,4}	* 62-65	** 650 °C	*** Cr-Si-Nb-B	Fan blades Excavator scoops * High abrasion
CROMDES 85 [®] Chromium, molybde- num and niobium	772-832 Chrome.Molybdenum and Niobium 1900-2400 HV ₀₄	* 63-65	** 2° 008	*** Cr-Mo-Nb- V-W	Slag conveyer screws Hot sinterbreaker * High abrasion and tempera- ture
CROMDES 95® Chromium carbide, niobium, vanadium and boron	832-950 *** Chrome-Niobiubium-Va- nadium and Boron 1900-2400 HV _{0,4}	* 65-69	** 500 °C	*** Cr-Nb-V-B	Fan blades Mining industry * Very high abrasion
TUNGDES 230 [®] Tungsten carbide and boron	577-697 Tungsten carbide and Boron 2300 HV _{0,4}	* 54-60	** 600 °C	*** 60% WSC-Ni	TMB front, Hammer mill and Dregging machines * Highest abrasion resistance and impact
* Hardness dependin	g on the number of lave	rs ** Con	sult in each case	*** Nickel-free c	hemical composition



CROMDES 70/80/85/95® TUNGDES 230®











































BASALDES 72®

FUSED CAST BASALT

Created from selected natural basalt melted at 1300°C which is subsequently recrystallised, giving it high resistance to abrasion, chemical attack and improved sliding.

Standard	TILES	TILES with holes				
DIMENSIONS (mm)	THICKNESS (mm)	DIMENSIONS (mm)	THICKNESS (mm)			
200 x 100 200 x 200 250 x 250 300 x 300	22, 30, 40, 50	200 × 100 200 × 200 250 × 250	30			



Hexagon	Ial IILES
立	ø 200 inscribed
王	Thickness 30 mm

On request: Radial Tiles and Industrial Floor Tiles with different patterns with anti-slip surface.

TECHNICAL DATA

HARDNESS	DENSITY	ABRASION	THERMAL	THERMAL	WORKING
(average)	gr/cm ³	RESISTANCE	CONDUCTIVITY	EXPANSION	TEMPERATURE
720 Vickers	2,90	3-4 cm³ / 50 cm² (max.) (DIN 52108)	1,1-1,7 W/m.K	9 x 10 ⁻⁶ K ⁻¹ 2-400 °C	Normal: 400 °C (max:600°C without sudden changes)

ANALYSIS (average)

Al_2O_2	Zr O ₂	SI O ₂	Fe ₂ O ₂ & Fe O	Ca O	۸	/lg O	K ₂ O	N	a ₂ O	
Ca O		43-55%	9-14%	10-12%	8-12%		3-5%	3.	-5%	2-3%
PIPES				POSSIBLE	ANC	GLES				
INTERNA	L _	rana 25nana ta	(10,00,00	Radius	750	1000	1500	2000	2500	3000
DIAMETER	RS F	10111 2511111 10	61011111		90°	90°	60°	45°	45°	30°
				Angles	60°	60°	45°	30°	30°	15°
					45°	45°	30°	15°	15°	

FLANGES TO ADAPT THE INSTALLATION



Conversion flange Interior blind machined flange. Diameter to fit existing flange.



Intermediate Flange Flange with holes for screwing the ceramic pipe and with screw. Blind holes for screwing into the

installation to the existing flange.

BASALDES 72®











































ZIRDES 200®

FUSED ALUMINA

Material produced by melting suitable raw materials. The end product is a three-phase system consisting of glassphase corundum. The end result has excellent properties, especially hardness, high temperature resistance and chemical corrosion resistance.



ANALYSIS (average)

15°

Standard	TILES	TILES with	holes	Hexagonal TILEs
DIMENSIONS (mm)	THICKNESS (mm)	DIMENSIONS (mm)	THICKNESS (mm)	a 200 inscribed
200 x 100 200 x 200 250 x 250 300 x 300	22, 30, 40, 50	200 x 100 200 x 200 250 x 250	30	Thickness 30 mm

On request: Radial Tiles and Industrial Floor Tiles with different patterns with anti-slip surface.

Due to their extreme hardness, the cast parts are used in conditions of extremely high abrasive stress, such as pneumatic conveying of fly ash, silica sand, limestone, biomass, etc. Particularly exposed locations: angles and molded parts of pipes (reduction, T, Y), with regard to a longer service life in separator linings, chutes, redlers, mixers, cyclones, etc.

HARDNESS (average)	DENSITY gr/cm³	ABRASION RESISTANCE	THERMAL CONDUCTIVITY	THERMAL EXPANSION	WC TEMP	WORKING TEMPERATURE		Zr O ₂	SI O ₂
2000 Vickers	3,5	0.75-1 cm ³ / 50 cm ² (max.) (DIN 52108)	4.4 W/m.K	8 x 10 ⁻⁶ K ⁻¹ 0-400 °C	Norma (r	Normal: 1400 °C (max:)		32%	16%
PIPES			POS		LES				
INTERNA	L	From 25mm to 610m	Radi	us 750	1000	1500	2000	2500	3000
DIAMETER	DIAMETERS			90°	90°	60°	45°	45°	30°
			Angl	e 60°	60°	45°	30°	30°	15°

FLANGES TO ADAPT THE INSTALLATION

45°

30°

15°



Conversion flange Interior blind machined flange. Diameter to fit existing flange.



TECHNICAL DATA

Intermediate Flange

Flange with holes for screwing the ceramic pipe and with screw. Blind holes for screwing into the installation to the existing flange.

ZIRDES 200®









































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ALUDES 150®

92% SINTERED ALUMINA

Product with high resistance to abrasion, it can be used for: Grinding balls, tiles with thicknesses from 1.5 mm upwards. Shaped parts and pipes. Sintered alumina is a versatile, long-lasting product, which can be applied with adhesives or welding, depending on the working conditions.



TECHNICAL DATA



Thickness		STAN	idard f	PLAIN TH	LES size	emm		Thickness	TILES WITH HOLE size mm					
6 mm	100x25	100x50	100x75	100x100	50x251	50x501	50x100	13 mm	100x50	100x75	150x50	150x100		
13 mm	100x25	100x50	100x75	100x100	50x251	50x501	50x100	25 mm	100×50	100-75	150×50	150v100		
25 mm	100x25	100x50	100x75	100x100	50x251	50×501	50x100		100x30	100273	130X30	150×100		
50 mm		100x50	100x75	100x100	50x251	50×501	50x100	50 mm	100x50	100x75	150x50	150x100		

PIPES and possible curvature



PIPES

INTERNAL From 40 to 250mm

*Diameters from 300 with tile



POSSIBLE ANGLES									
Radius	750	1000	1500	2000	2500	3000			
	90°	90°	60°	45°	45°	30°			
Angles	60°	60°	45°	30°	30°	15°			
	45°	45°	30°	15°	15°				

ALUDES 150®











































CARBUDES 230®

SINTERED SILICON CARBIDE

Key properties include hardness up to 2300 Vickers, resistance to chemical attack and high resistance to frictional wear.

The new generation of ceramics, sintered silicon carbide is the optimal choice for excellence.





TECHNICAL DATA

HARDNESS	Density	Thermal	Thermal expansion	Working
average	g/cm³	Conductivity		temperature
2300	3.15	115 W/m.K	4.2x10 ⁻⁶ K-1	1400°C
Vickers		(20 a 600°C)	(20 a 600°C)	maximum

FORMS OF SUPPLY

Custom-made parts, pipes, impellers, ducts, mechanical seals, diffusers, hydrocyclones, etc.

CHEMICAL RESISTANCE

Hydro ric A H (cono	ochlo- Acid Cl :.36%)	Zinc ric Zi (conc	chlo- de Cl :.60%)	Nitric HN (conc	: Acid 10 ₃ :.65%)	Amn um N H (cond	noni- litrate Cl ::50%)	Sulp Ac H ₂ S (cond	huric cid 50 ₄ ::50%)	Sulp Ac H ₂ S (cond	huric cid 50 ₄ c.98%)	Phos Ac H ₃ F (cond	ohoric cid PO ₄ c.85%)	Hydro ic A F (conc	ofluor- Acid IF ::40%)	Sod hydro Na (conc	ium oxide OH :.30%)	Potas hydro KC (conc	ssium oxide DH :.20%)	Sod chlc Na (cold sa solu	ium pride aCl turated tion)	Potas Chlc Ki (cold sa solu	ssium oride Cl turated tion)
CARB	UDES	CARB	UDES	CARB	UDES	CARB	UDES	CARB	UDES	CARB	UDES	CARE	UDES	CARE	UDES	CARB	UDES	CARB	UDES	CARB	UDES	CARB	UDES
20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
+	+	+	+	+	+	+	+	+	+	+	+	+	+	(+)	+	+	+	(+)	+	+	+	+	+





CARBUDES 230®































Pipe

TUBOFLEX 150®

FLEXIBLE PIPING

Sintered Alumina lined flexible hoses — ALUDES 150 — are ideal for highly aggressive usage where conventional rubber hose connections, expansion joints or bellows require frequent replacement. Ceramic lined hoses can also be used to isolate mechanical vibration or to connect non-stationary equipment. They are widely used in cement plants, foundries, coal dust and slurry supply systems and for corrosion resistance. They are also used for sand suction, harbor and river dredging, concrete pump vehicles, etc.

TECHNICAL DATA

- 1. Size range DN25 to DN600 custom lengths up to 20 m.
- 2. Maximum operating pressure 10 bar.
- 3. Maximum operating temperature 120 °C.

CHARACTERISTICS

- 1. Impact resistant: virtually impossible to destroy the ceramic segments..
- 2. Flexible: the minimum bending radius is approximately 10/12 times the inner diameter of the hose.
- 3. Corrosion resistant.
- 4. Wide variety of end connections.
- 5. Continuous length up to 10/20 m.

WORKING CONDITIONS

Tailor-made parts.

Tiles, hammers, brushes.

For applications in mills, micronisers, separators, etc.

eparators, etc. Reduce the NOISE



TUBOFLEX 150®



Pipe

















ALUPLAST 93 R/M®

SINTERED ALUMINA ADHESIVE PASTE

Adhesive paste containing 70% ALUDES 150 particles. The best alternative for non-standard forms of equipment lining or those which require repair.



ΜΙΧ



Adhesive paste

Hardening agent

8h after application

USAGE

		Thickness	5 mm
ALUPLAST 93R®	A+B I0 kg	Surface	1 m ² approximately
ALUPLAST 93M®		Thickness	15 mm
	A+B 25 Kg	Surface	1 m ² approximately





ALUPLAST 93 R/M®

















Tecnodesgast has been helping its clients operate sustainably for over 40 years.

With wear protection solutions, we prevent our customers' production from experiencing premature downtime. Lining and protecting plants and pipelines allow them to be reused instead of producing them anew. This saves significant CO2 emissions and protects the environment.



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