



**EUROPE'S LARGEST RUBBER AND POLYURETHANE  
FENDER MANUFACTURER**



**BENCROS S.R.O.**  
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# Plastic-UHMWPE Fender Pads

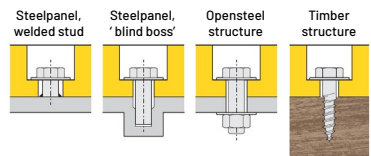
Bencros UHMW PE facings protect fender panels from impact and reduce friction against vessel hulls. They are also used as shields on V fenders and in composite fender systems.

With a low friction surface and beveled edges, they prevent snagging and abrasion. UHMW PE is ideal for impact protection even in areas without fenders. It does not rot, split, or degrade from UV or ozone exposure and is fully recyclable at the end of its service life.



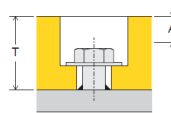
## FIXINGS

Fixings should match the underlying structure. Steel panels require welded studs or, ideally, 'blind boss' fixings for extra strength. We recommend oversize for bolting through open steel structures. Please ask Bencros about steel grades and finishes.



## WEAR ALLOWANCE

Increasing the thickness (T) of a UHMW-PE facing provides more wear allowance (A), extending its working life, protecting the fender or substrate for longer and reducing routine maintenance.



T	A
30	5
40	10
50	15
70	25
100	40

## FRICTION

UHMW-PE friction coefficient ( $\mu$ ) varies according to the contact pressure and opposing contact surface. Typical coefficients are provided for guidance (Source: BS6349-4: 2014)

MATERIAL	$\mu$ AGAINST STEEL
UHMW-PE	0.15-0.2
HD-PE	0.3
NYLON	0.2
RUBBER	0.6-0.7
TIMBER	0.4
STEEL	0.5

## PROPERTIES

The properties for Virgin (FQ1000) and regenerated grades are provided for reference. Virgin materials are available in black and other colours (red, white, blue etc). Regenerated grades offer a good compromise between price and longevity.

PROPERTY	STANDARD	UNIT	VIRGIN GRADE	REGENERATED GRADE
DENSITY	ISO 1183-1	g/cm <sup>3</sup>	0.93-0.94	0.94-0.96
MOLECULAR WEIGHT	Viscosimetric Method	g/mol	~5,000,000	3,000,000-6,000,000
FRICTION COEFFICIENT	ISO 8295	-	0.15-0.20	0.15-0.20
TENSILE STRENGTH	ISO 527	N/mm <sup>2</sup>	≥17	≥17
BREAKING STRENGTH	ISO 527	N/mm <sup>2</sup>	>40	>30
ELONGATION AT BREAK	ISO 527	%	≥50	≥50
BALL HARDNESS	ISO 1239-1	N/mm <sup>2</sup>	38	38
SHORE HARDNESS	ISO 868	Shore D	61-63	64-66
IMPACT STRENGTH (V)	ISO 11542-2	mJ/mm <sup>2</sup>	≥180 (coloured)	≥70
ABRASION RESISTANCE	ISO 15527	-	100	130-150
TEMPERATURE RANGE	-	°C	-200 to +80	-100 to +80
MELTING POINT	ISO 3146-C	°C	133-136	133-136
LINEAR EXPANSION	DIN 53752	K <sup>-1</sup>	~2×10 <sup>-4</sup>	~2×10 <sup>-4</sup>

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