

Bencros fenders use high quality Natural Rubber (NR) and Styrene Butadiene Rubber (SBR) blends for their strength and durability in marine environments.

Compounds meet or exceed international requirements including PIANC, EAU-E62 and ASTM D2000.

The material properties list common test standards and methods. Tests are conducted on laboratory made specimens under controlled conditions.

Alternative test methods and special compounds in EPDM and Polyurethane are also available. Please ask Bencros for details.

Property	Test Standard	Conditions	Requirements
Tensile strength	ISO 37/BS 903-A2(S1)	Original	≥ 16.0 MPa (≥ 2321 psi)
	ASTM D412 Die C	After 96h @ 70°C	≥ 12.8 MPa (≥ 1856 psi)
Elongation at break	ISO 37/B S903-A2(S1)	Original	≥ 350%
	ASTM D412 Die C	After 96h @ 70°C	≥ 280%
Hardness	ISO 7619-1/BS 903-A57	Original	≤ 78° Shore A
	ASTM D2240	After 96h @ 70°C	≤ original +6° Shore A
Compression set	ISO 815-1/BS 903-A6	22h @ 70°C	≤ 30%
	ASTM D395 Method B		
Tear resistance	ISO 34-1/BS 903-A3 Method C	Crescent type	≥ 60 kN/m (≤ 400 lbf/in)
	ASTM D624 Die B		
Ozone resistance	ISO 1431-1/BS 903-A43	50pphm @ 20% strain, after 100h @ 40°C	No cracks
	ASTM D1149		
Seawater resistance	ISO 1817	28 days @ 95°C (±2°C)	Hardness: ≤ ±10° Shore A
	ASTM D471		Volume: ≤ +10/-5%
Abrasion resistance	ISO 4649 Method A	-	≤ 120mm ³
	ASTM D5963 Method A		
	BS 903-A9 Method A	1000 revolutions	≤ 0.5 cm ³
Bond strength: rubber to steel	ISO 813/BS 903-A21	-	≥ 7 N/mm (≥ 40 lbf/in)
	ASTM D429 Method B		
Dynamic fatigue†	ASTM D430 Method B	15,000 cycles	Grade 0-2

†Dynamic Fatigue testing is a chargeable optional extra. Gradings are:

Grade 0: No cracking has occurred

Grade 1: ≤10 pin pricks under 0.5mm long visible to the naked eye

Grade 2: > 10 pin pricks under 0.5mm long visible to the naked eye

Bencros NR-SBR rubber compounds can be commonly requested on many North American projects. Typical compound examples include:

ASTM D2000 Callout	Hardness	Comments
3BA 720 A14 B13 C12 EA14	70 Shore A	NR/SBR compound with 2000psi tensile and 300% elongation
3BA 620 A14 B13 C12 EA14	60 Shore A	NR/SBR compound with 2000psi tensile and 300% elongation
3BA 720 A14 B13 C12 EA14 F17	70 Shore A	As above, -40°C (-40°F) low temperature, non-brittle test for cold climates
3BA 620 A14 B13 C12 EA14 F17	60 Shore A	As above, -40°C (-40°F) low temperature, non-brittle test for cold climates