General Catalogue

COMPANY PROFILE

Loquen operates in the sale and rental of handling accessories, load testing, mooring and fender systems, ensuring that your operations remain active and safe. With a central office in Shanghai, controlling all product manufacturing to always maintain the highest level of quality, an operational base in Brazil, responsible for serving all of Latin America, with one of the largest inventories in the region and with the corporate office in Rotterdam, responsible for service throughout Europe and Africa and through its local distributors in several countries, thus ensuring that the entire world has access to high-quality products and the efficiency that only Loquen offers.

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FENDER SYSTEMS

07



Fender Buoyancy

- **Fender Buoyancy**
  Loquen® Buoyancy Fenders – Pneumatic 50/80 Foam-Type Fender Hippo Donut-Type FendersSubmarine Pneumatic Buoyancy Fenders Light Grey Naval Fender.

Certified to ISO 17357-1:2014, our fenders ensure superior impact absorption, high durability, and reliable performance—even under the most demanding conditions.

Fenders

We bring significant marine and operational expertise to all our fender clients, working closely with them to ensure the best fit and best product value tailored to their specific fender needs. The Fendercare Marine business was built on our ability to deliver best-in-class fender solutions to our clients. We are not merely a trading house aiming to sell fenders with a margin—we are also, through our Ship-to-Ship (STS) transfer division, the world's largest genuine operator of the Loquen® range of pneumatic fenders.

These fenders are ideal for short-term port calls or occasional berthing, temporary use during construction or maintenance work, offshore cargo transfers, flotation aids, support vessel operations, or dual berthing requirements. Additional fenders are also available for naval specifications.

Our full lifecycle support package includes not only the prompt and efficient sale of new fenders but also rental, purchase agreements, and repair and refurbishment services. With highly trained personnel at each location across our global network, we can receive damaged
fenders for on-site repair or travel directly to your site to carry out maintenance and refurbishment on both pneumatic and foam-type fenders.

In addition to Loquen® flotation fenders, we now also offer our range of Hippo foam fenders, as well as a wide selection of UHMW panel systems and vessel fender solutions.

Our complete portfolio of fender solutions includes:

- **Loquen® pneumatic and hydropneumatic fenders**
- **Hippo foam and Hippo donut-type fenders**
- **Multipurpose fenders for dockside and ship-side installation**
- **Hippo fender systems for vessels**
- **UHMW panel systems**
- **Custom-engineered fendering solutions**

We encourage you not to see us merely as a fender supplier—but as a dependable resource you can rely on for guidance and optimal fender solutions.

Fenders

Loquen® Buoyancy Fenders – Pneumatic 50/80

ISO 17357 is firmly established within the marine industry as the international standard for the manufacturing, testing, and performance of pneumatic rubber fenders.

Over the years, Fendercare Marine has found that while some manufacturers claim full compliance with ISO 17357, it can be demonstrated that, in certain cases, irregularities exist where the supplied fenders, in fact, do not meet the standard in one or more key criteria:

- **Incomplete material testing**
- **Improperly conducted or failed hydrostatic pressure testing**
- **Inaccurate angular assessment and durability testing**
- **Incorrect use of reinforcing materials**
- **Rubber specifications that do not meet ISO 17357 requirements**
- **Expired or missing certification documentation**

Fenders

Loquen® can demonstrate compliance with PIANC 2002 guidelines for pneumatic fenders. More information is available upon request

Advantages

Safe under overload conditions
The reaction force of a pneumatic fender does not increase sharply under excessive compression. As a result, these fenders perform exceptionally well under such conditions, effectively protecting both vessels and berth structures.

No performance degradation or variation
Since pneumatic fenders rely on the compressive elasticity of air, they do not suffer from performance deterioration, even under extremely low temperatures—down to -50°C

Safety and reliabilit
Loquen® pneumatic rubber fenders are constructed with multiple layers of reinforced tire cord, making them highly resistant to pressure and tearing. Larger sizes (2.5m
diameter and above) are equipped with a safety valve to prevent accidents in case of over-compression.

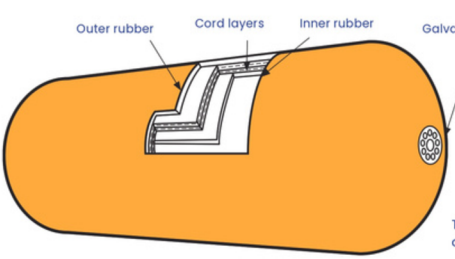
Construction

The body of the fender is composed of an inner rubber layer, multiple layers of reinforced synthetic tire cord, and an outer rubber layer. All layers are vulcanized together and tested via hydrostatic pressure testing.

The outer rubber layer is engineered to withstand heavy-duty use, including abrasion from harsh weather conditions, while protecting the inner cord and rubber layers.

The synthetic tire cord layers are arranged at optimal angles to distribute pressure and load evenly. The inner rubber compound is designed to be completely airtight, using material similar to that of a car tire's inner lining.

To ensure maximum strength and safety, the shell of a hydropneumatic fender is thicker than that of a standard pneumatic fende



Typical cross-section of fender wall

Fenders

Propriedades do Exterior e Interior de Material de Borracha				
Test Item		Inspection Methods	Outer Rubber	Inner Rubber
Before Aging	Tensile Strength	ISO 37:1994	18 MPa or more	10 Mpa or more
	Elongation	ISO 37:1994	400% or more	400% or more
	Hardness	ISO 7619:1997	60±10 (Type A Hardness – Rigid Durometer)	50±10 (Type A Hardness – Rigid Durometer)
After Aging Method Test Conditions (ISO188:1998) 70±1°C x 96 hrs	Test Conditions	ISO 37:1994	Not less than 80% of original property value	Not less than 80% of original property value
	Elongation	ISO 37:1994	Not less than 80% of original property value	Not less than 80% of original property value
	Hardness	ISO 7619:1997	Shall not exceed the original property value by more than 8	Shall not exceed the original property value by more than 8
Breaking Strength		ISO 34-1:1994	400N/cm or more	Not required
Compression Tes		ISO 815:1991	30% (70% recovery after 72 hrs)	Not required
Outer Rubber		ISO 1431-1:1989	No cracks after elongation of 20% and exposure to 50pphm at 40°C	Not required

Images for illustrative purposes only.

Simple and Low Installation Costs

The weight of the fender is supported by the water it floats in. Therefore, the fenders can be simply moored using ropes or chains at a minimal cost. They can be easily removed and relocated when not in use and transferred to other alternative mooring points when required.

Chains and Tire Nets

In the vast majority of cases, the chain and tire net will be equipped to a pneumatic fender to protect the body from damage caused by sharp objects or by absorbing pure load during mooring. The better the net, the more protection it will offer.

From our experience using these fenders ourselves, we have developed a high and unique protection system with a net that provides more protection to the fender's body than any other net available on the market today – potentially extending the fender's lifespan.

Fenders

We have the broadest experience possible in the variety of protective net needs and offer a range that meets all requirements:

- **Lightweight nets that meet ship crane and davit limitations.**
- **Heavy-duty nets to handle harsh sea conditions and high shock loads.**
- **Double nets to provide options for impasse.**
- **Tire nets without markings for naval marine and cruise ship applications.**
- **Cable nets for excessive lightweight applications.**
- **Stainless steel nets for non-magnetic requirements**

All Loquen nets are designed with ease of maintenance in mind. The net is constructed in sections, making it easy and cost-effective to repair if a specific area of the net sustains damage.

Identification

Each fender has the following markings:

- **Identification requirements**
- **International standard number and year of application**
- **Size (diameter and width)**
- **Initial internal pressure**
- **Manufacturing date**
- **Manufacturer's name**
- **Individual serial number**
- **Layer reinforcement type**
- **RFID marking system**

The Radio Frequency Identification (RFID) is now equipped on all Loquen® fenders. The marking is embedded in both ends of the fender, allowing easy reading regardless of the positioning. This RFID marking was introduced to allow you to identify the fender individually, even if the visible marking becomes hard to read. It will also assist in record-keeping and inventory management over the long term.

Loquen is able to provide RFID-readable marking as an optional extra. This reading can be accessed on all RFID markings installed on fenders manufactured to these specifications

Loquen also maintains a database of all Loquen® fenders sold worldwide, which can help return lost or stolen fenders to their rightful owners.

Certification

Each fender is supplied with a certificate detailing the following:

- **Rubber material and metal accessories**
- **Satisfactory test results**
- **Compression test record**
- **Size and weight**
- **Serial number record and RFID marking number**

Fenders

Technical Execution Table
Standard Presumed Threads 50 (Metric)

Tamanho Nominal de Diâmetro x Comprimento	Pressão Interna Inicial	Energia Garantida de Absorção (GEA) E	Força de Reação na GEA R	Pressão do Casco na GEA P	Válvula de Fixação de Segurança e Pressão	Teste de Pressão	Peso Aproximado do Corpo da Defensa	Peso Neto Aproximado	Peso to Tipo do Sling (Tipo)
mm x mm	kPa	kNm	kN	kPa	kPa	kPa	kg	kg	kg
500 x 1000	50	6	64	132	-	200	22	160	32
700 x 1500	50	17	137	135	-	200	45	185	55
1000 x 1500	50	32	182	122	-	200	73	250	98
1000 x 2000	50	45	257	132	-	200	88	385	113
1200 x 2000	50	63	297	126	-	200	131	430	156
1350 x 2500	50	102	427	130	-	200	200	675	240
1500 x 3000	50	153	579	132	-	200	250	795	290
1700 x 3000	50	191	639	128	-	200	290	830	330
2000 x 3500	50	308	875	128	-	200	405	1165	465
2000 x 4500	50	418	1188	137	-	200	480	1700	540
2500 x 4000	50	663	1381	137	175	250	902	1745	1080
2500 x 5500	50	943	2019	148	175	250	1090	2765	1320
3300 x 4500	50	1175	1884	130	175	250	1460	2650	1840
3300 x 6500	50	1814	3015	146	175	250	1870	3840	2250
3300 x 10600	50	3067	5257	158	175	250	2560	6755	3060
4500 x 9000	50	4752	5747	146	175	250	3940	7365	-
4500 x 12000	50	6473	7984	154	175	250	4790	9875	-

Images for illustrative purposes only.

Notes:
1. The figures in the table comply with the requirements of ISO 1735
2. The weight of the defender body and the net may vary by ±10%. The net weights are based on Loquen's standard design.
3. Special sizes are available upon request.

Fenders

Technical Execution Table
Standard Presumed Threads 80 (Metric)

Tamanho Nominal de Diâmetro x Comprimento	Pressão Interna Inicial	Energia Garantida de Absorção (GEA)	Força de Reação na GEA	Pressão do Casco na GEA	Válvula de Fixação de Segurança e Pressão	Teste de Pressão	Peso Aproximado do Corpo da Defensa	Peso Neto Aproximado	Peso to Tipo do Sling (Tipo II)
		E	R	p					
mm x mm	kPa	kNm	kN	kPa	kPa	kPa	kg	kg	kg
500 x 1000	80	8	85	174	-	250	24	160	34
700 x 1500	80	24	180	177	-	250	47	185	57
1000 x 1500	80	45	239	160	-	250	76	250	101
1000 x 2000	80	63	338	174	-	250	92	385	117
1200 x 2000	80	88	390	166	-	250	135	430	160
1350 x 2500	80	142	561	170	-	250	205	675	245
1500 x 3000	80	214	761	174	-	250	277	795	317
1700 x 3000	80	267	840	168	-	250	316	830	356
2000 x 3500	80	430	1150	168	-	250	413	1165	473
2000 x 4500	80	584	1560	179	-	250	488	1700	548
2500 x 4000	80	925	1815	180	230	300	1010	1745	1190
2500 x 5500	80	1317	2653	195	230	300	1230	2765	1460
3300 x 4500	80	1640	2476	171	230	300	1720	2650	2090
3300 x 6500	80	2532	3961	191	230	300	2200	3840	2570
3300 x 10600	80	4281	6907	208	230	300	3030	6755	3520
4500 x 9000	80	6633	7551	192	230	300	4380	7365	-
4500 x 12000	80	9037	10490	202	230	300	5330	9875	-

Images for illustrative purposes only.

Notes:
1. The figures in the table comply with the requirements of ISO 17357
2. The weight of the defender body and the net may vary by ±10%. The net weights are based on Loquen's standard design.
3. Special sizes are available upon request.

Fenders

Pneumatic Floating Submarine Fenders

To provide complete surface and subsurface protection, pneumatic floating submarine fenders are deployed vertically. They are stabilized with water ballast and feature a counterweight attached to the base. The weight, shape, and deployment method of the counterweight can be customized to suit each specific application.

Global Deployment

Loquen® submarine fenders have been supplied worldwide, including to:

- **Australia**
- **Brazil**
- **Canada**
- **Greece**
- **Japan**
- **United Kingdom**
- **United States**

Introduced in 1984, these fenders are now extensively used by vessels globally.

Key Advantages

- **Cost-effective alternative to deep-water catamarans**
- **Easy to reposition, offering mooring flexibility**
- **Simple to transport, enabling emergency mooring setups**
- **Minimal maintenance required**
- **Resistant to extreme weather conditions**

Specifications

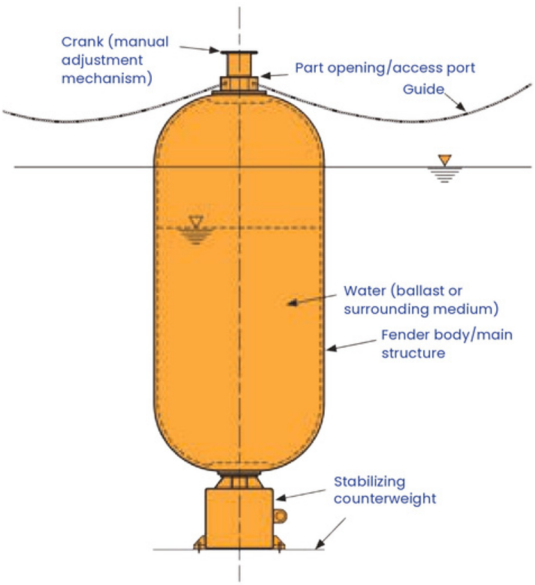
Available in standard sizes and pressure ratings, Loquen submarine fenders accommodate all submarine designs—from small conventional models to the largest nuclear submarines in service today.

- **Adjustable counterweight systems**
- **Tailored dimensions for specialized vessels**
- **Pressure variants for different depths**

Contruction	
Dimensions (Diameter × Length)	**Inflation/operational pressure (typically in kPa or bar)**
2000mm x 6000mm	0.5kgf/cm2
2500mm x 5500mm	0.5kgf/cm2
2500mm x 9100mm	0.5kgf/cm2
3300mm x 6500mm	0.5kgf/cm2
3300mm x 10600mm	0.5kgf/cm2
4500mm x 9000mm	0.8kgf/cm2

Images for illustrative purposes only.

Fenders

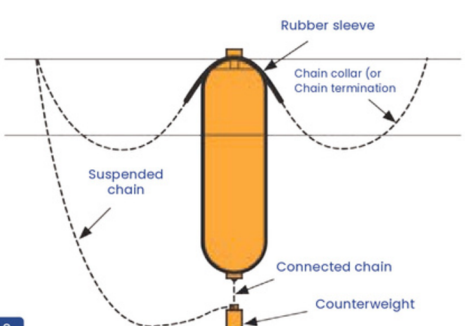


Submarine fenders are designed to provide higher burst strength than standard surface fenders, with minimum burst pressures of

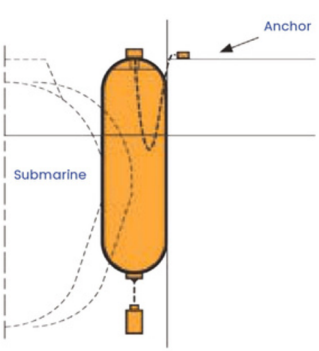
- **Diameter ≤2000mm = 4.9kgf/cm**
- **Diameter ≥2500mm = 5.7kgf/cm²**

For easier loading/unloading, a manhole opening is located at each fender end. Additionally, submarine fenders include a safety valve to release excess pressure during compression events

Installation Components



Related Elements



Loquen

loquen.com
comercial@loquen.com
+55 (22) 99823-5565