

# Contrast between Foam Filled Fender & Pneumatic Fender



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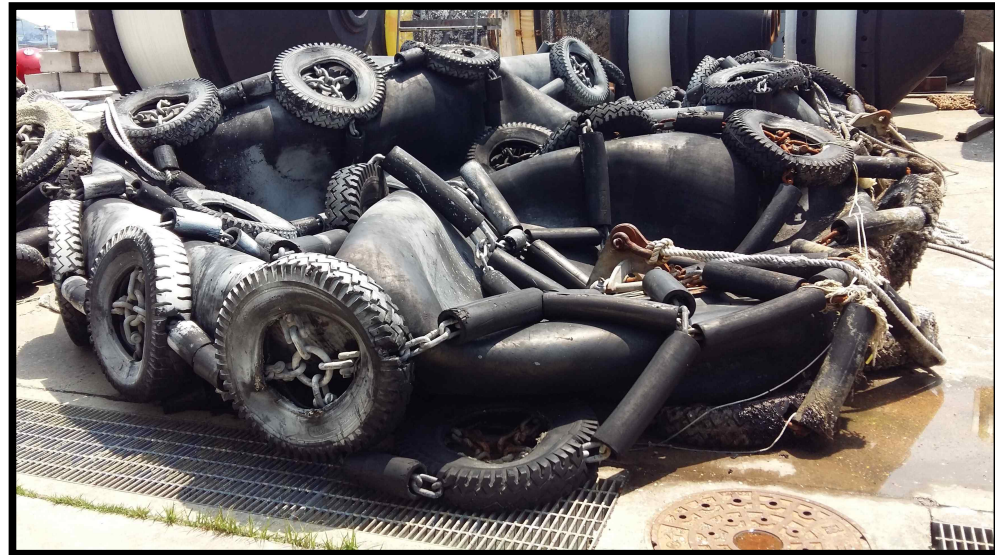
# 1. Summary

In case of using Pneumatic(Air) Fender as a Floating Fender, Skin of Fender is damaged by Berthing Energy and other external forces. Damage causes loss of Fender's function and extreme risk bearing, Therefore it is necessary to take counter measures to Damage by contrast between Foam Filled Fender and Pneumatic Fender.

## 2. Problems of Pneumatic(Air) Fender

- 1) As air charging method, if air is out of fender by damage, lose fender's function. (critical problem)
- 2) installing tire-net as protection causes damage of the skin coating of a ship by coloration.
- 3) limitations to support with rubber body when the fender get tension with end of each flange direction. (In case of Foam Filled Fender, support with Through Chain or Steel)

4) Check inner pressure periodically due to leak of air.



### 3. Contrast between FFF and Pneumatic(Air) Fender

	Foam Filled Fender	Pneumatic Fender
Production size	<ul style="list-style-type: none"> <li>· Possible to make various sizes comply with berthing condition</li> </ul>	<ul style="list-style-type: none"> <li>· Need mould to make each fender size</li> </ul>
Production constitution	<ul style="list-style-type: none"> <li>· Inside-Foam (Closed Cell)</li> <li>· Outside-Fiber reinforced Polyurea</li> <li>※ Needless Tire Chain net</li> </ul>	<ul style="list-style-type: none"> <li>· Inside-Air (0.3~0.8kg/cm<sup>2</sup>)</li> <li>· Outside-Fiber reinforced rubber</li> <li>※ Install Tire Chain net</li> </ul>
Advantage	<ul style="list-style-type: none"> <li>· Excellent durability from structure of Polyurea</li> <li>· No malfunction when skin damage</li> <li>· No coloration on skin of ship</li> <li>· Good moving</li> </ul>	<ul style="list-style-type: none"> <li>· Lightweight relatively</li> <li>· Good moving</li> </ul>
Dis-advantage	<ul style="list-style-type: none"> <li>· High priced relatively (Advantage economically in a long term)</li> </ul>	<ul style="list-style-type: none"> <li>· Completely loss function of fender when the air is leaked</li> <li>· coloration on skin of ship</li> <li>· Weak durability</li> </ul>

## 4. Application Foam Filled Fender

- 1) Prefer Foam Filled Fender for reduction of risk bearing to damage(the functional impairment) of Pneumatic(Air) Fender
- 2) Early Applies Foam Filled Fender in overseas for alternative of Pneumatic(Air) Fender's disadvantage
- 3) Although the purchase of foam filled fender is a high price, it is economic benefit in durability for the long run

## ※ Performance of Foam Filled Fender & Pneumatic air Fender

Fender Size (example)	Fender Type	Performance (Standard)		
		E.A. (ton.m)	R.F. (ton)	E/R
2,500 X 5,500	Pneumatic air Fender	96.2	206	0.47
	<b>Foam Filled Fender</b>	<b>122</b>	<b>181</b>	<b>0.67</b>
3,300 X 6,500	Pneumatic air Fender	185	307	0.6
	<b>Foam Filled Fender</b>	<b>247</b>	<b>278</b>	<b>0.89</b>

※ The higher the E / R value, the better the performance.