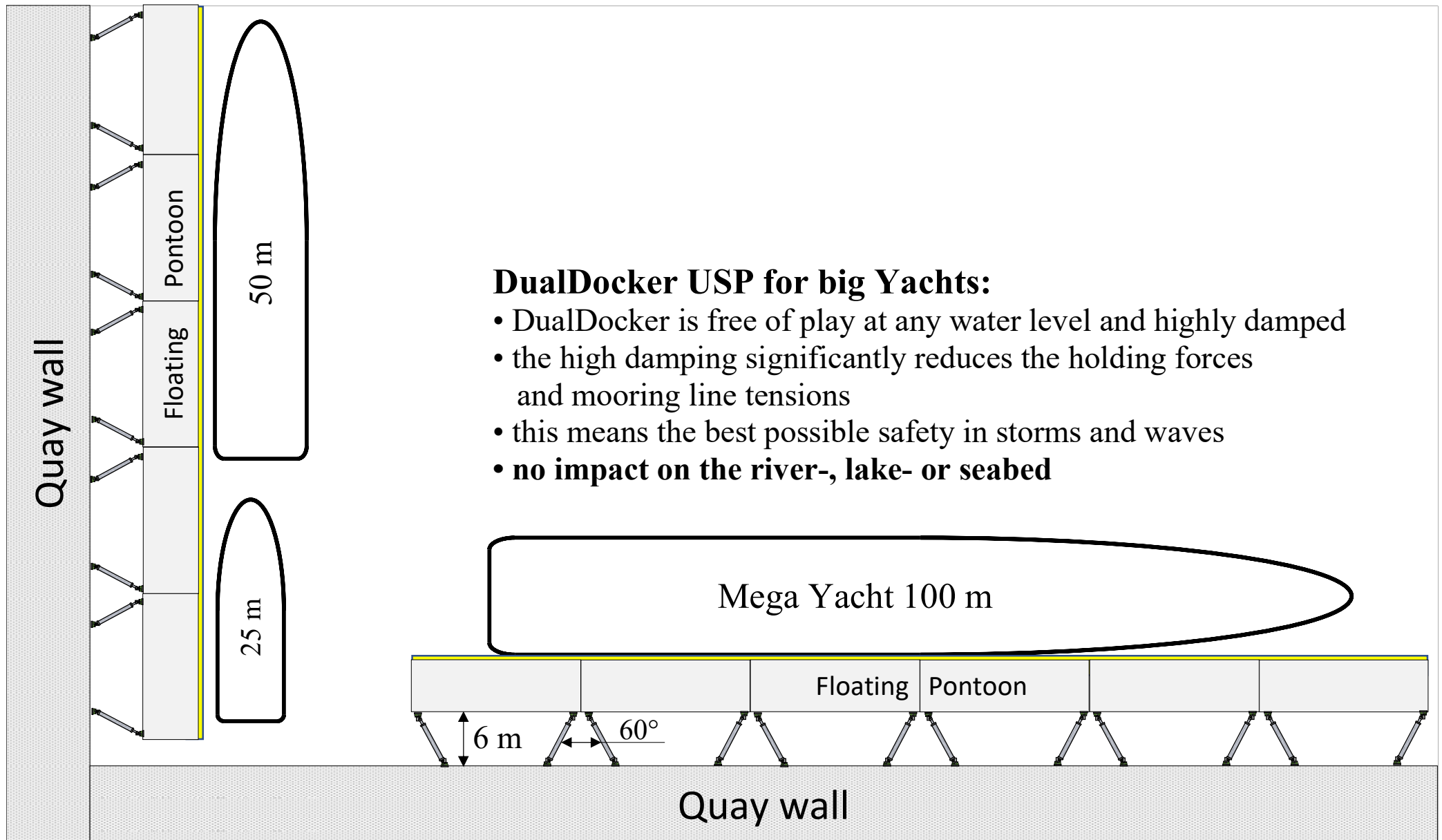
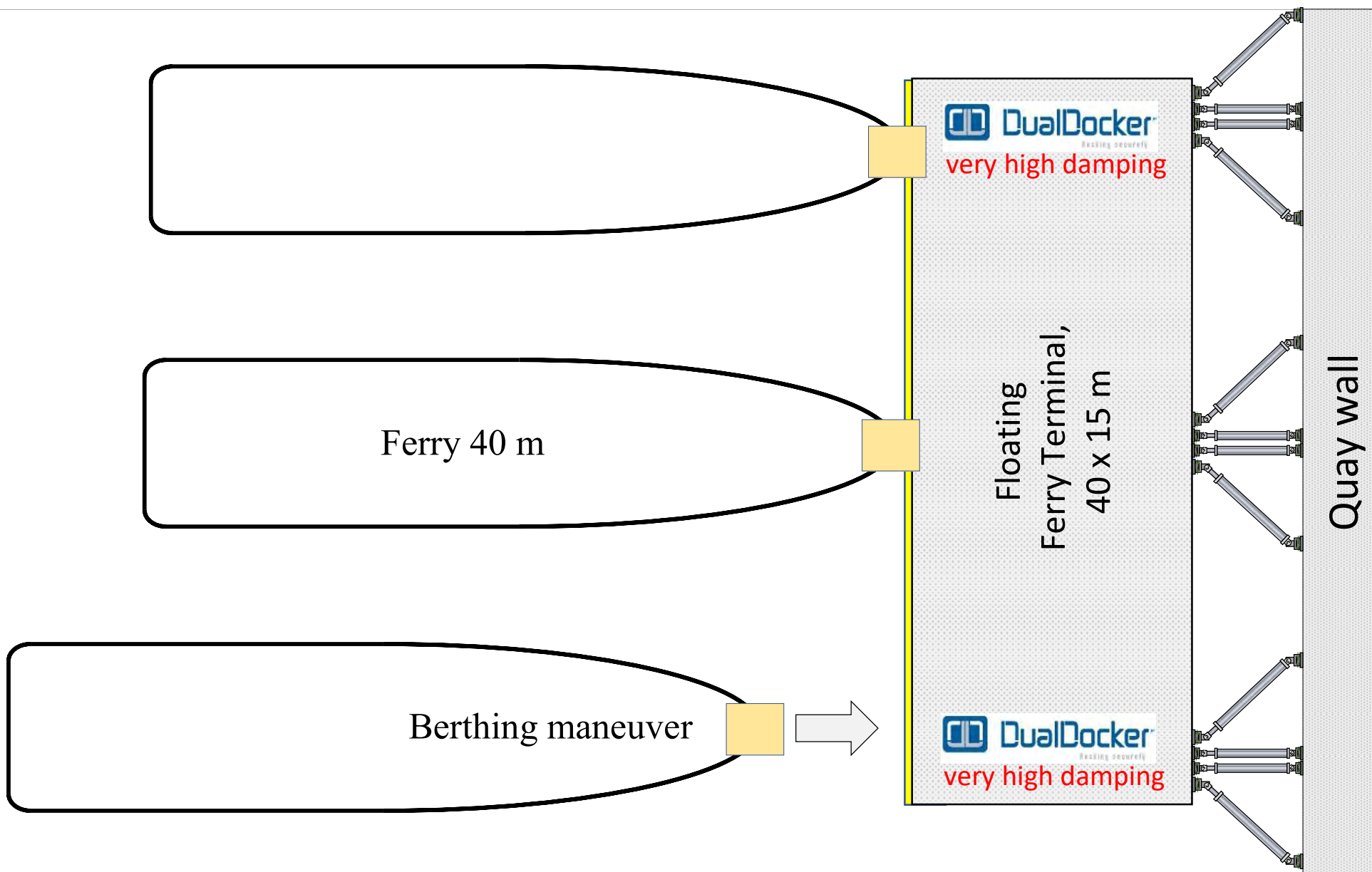




Floating Ferry Terminal

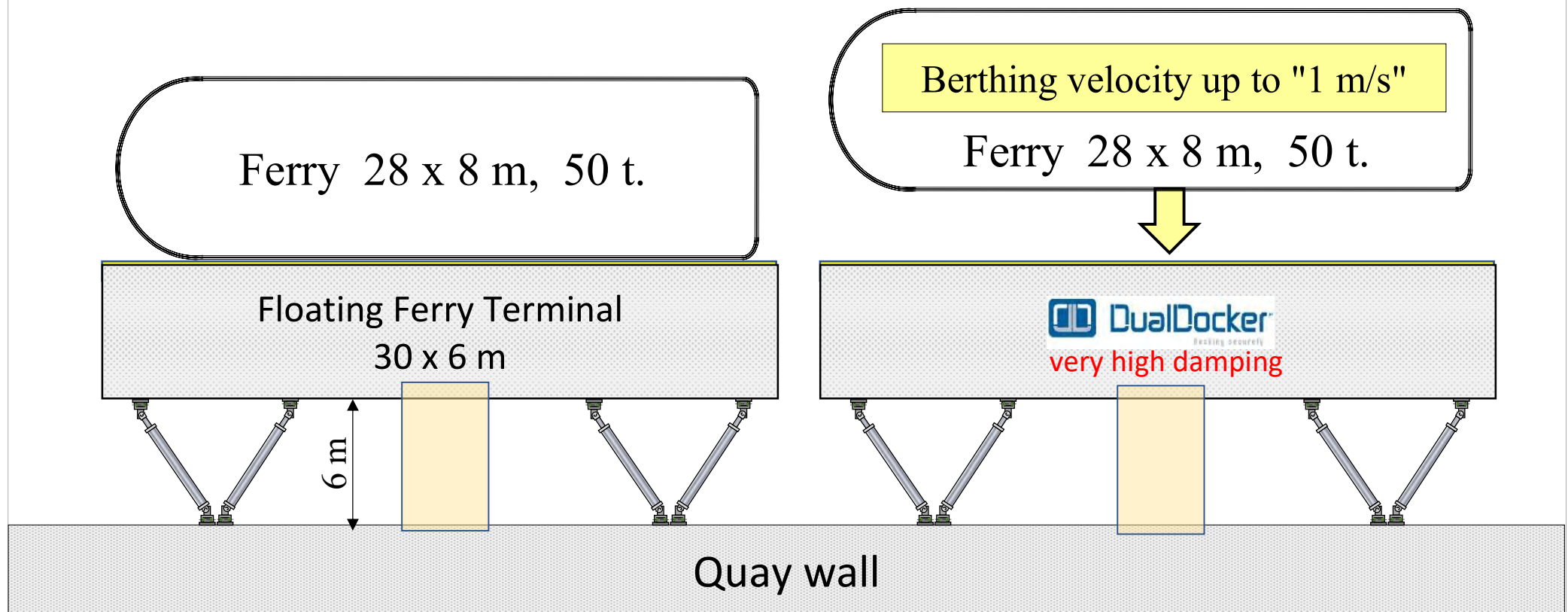
max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
3,0 m	40 m/s	2,5 m/s	1,0 m	No



max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
6,0 m	45 m/s	2,0 m/s	1,0 m	No

DualDocker USP for Ferrys:

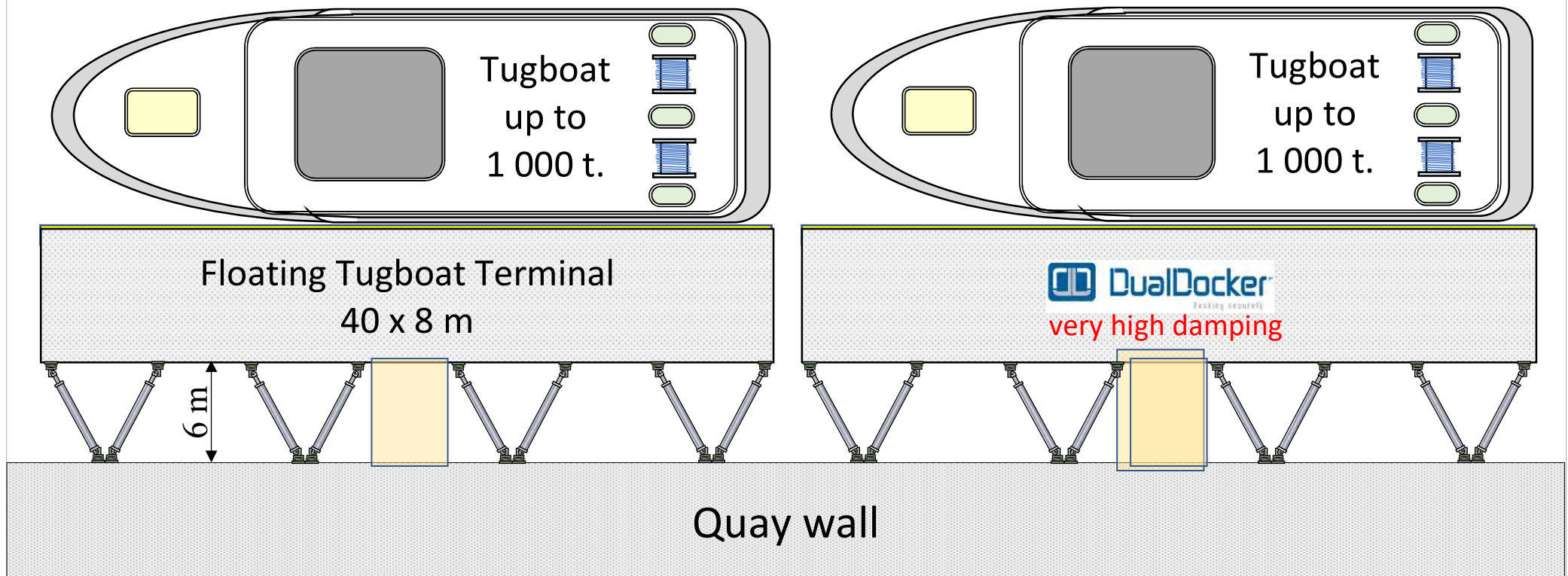
- Berthing velocity of up to 1 m/s is posible.
- The high damping absorbs the kinetic energy during the berthing maneuver.
- The high damping significantly reduces braking forces.
- In floods with high flow velocity and debris, high damping is very important, absorbes the kinetic energy and significantly reduces the holding forces and mooring line tensions.



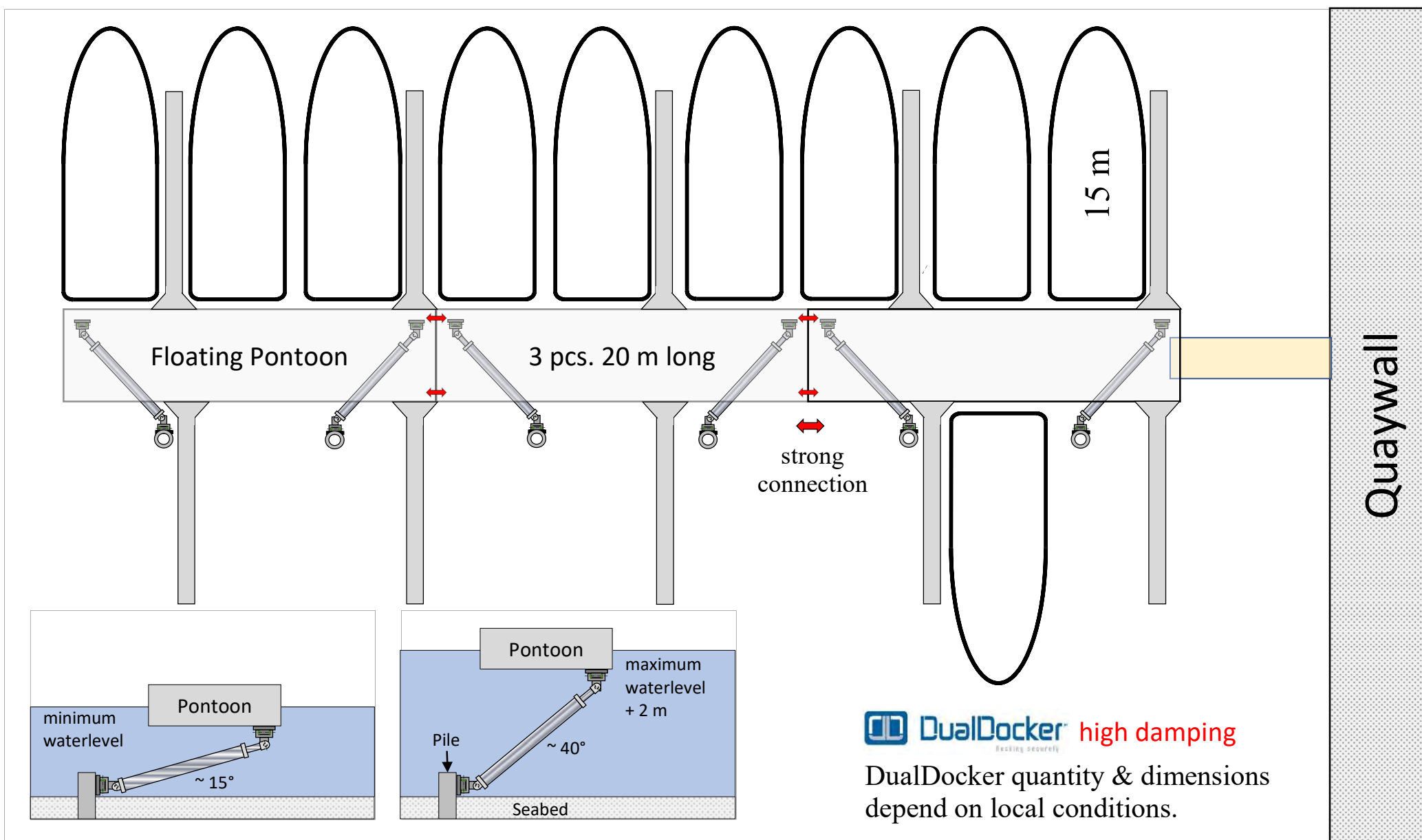
max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
3,0 m	45 m/s	2,0 m/s	1,0 m	No

DualDocker USP for Tugboats:

- The extremely strong and heavy tugboats, with a length of up to 45 m and a weight of up to 1 000 tons, require a correspondingly strong and highly damped terminal.
- The very high damping is essential for the docking maneuver.
- In storms with high waves, a strong and highly damped terminal is very important.
- The terminals can be implemented as "standalone solutions", but they can also be interconnected.



max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
2,0 m	35 m/s	1,5 m/s	0,5 m	Yes



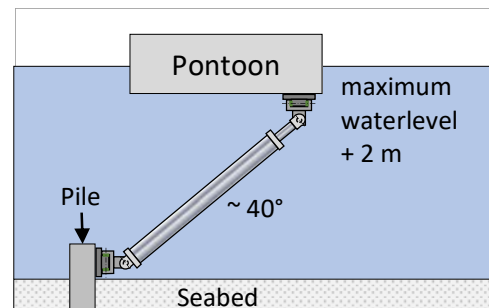
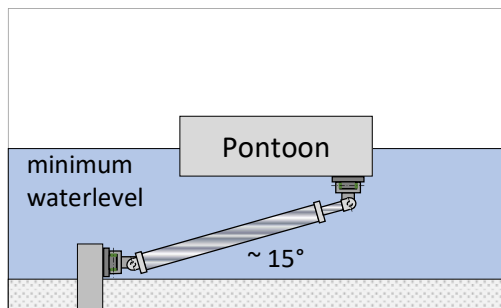
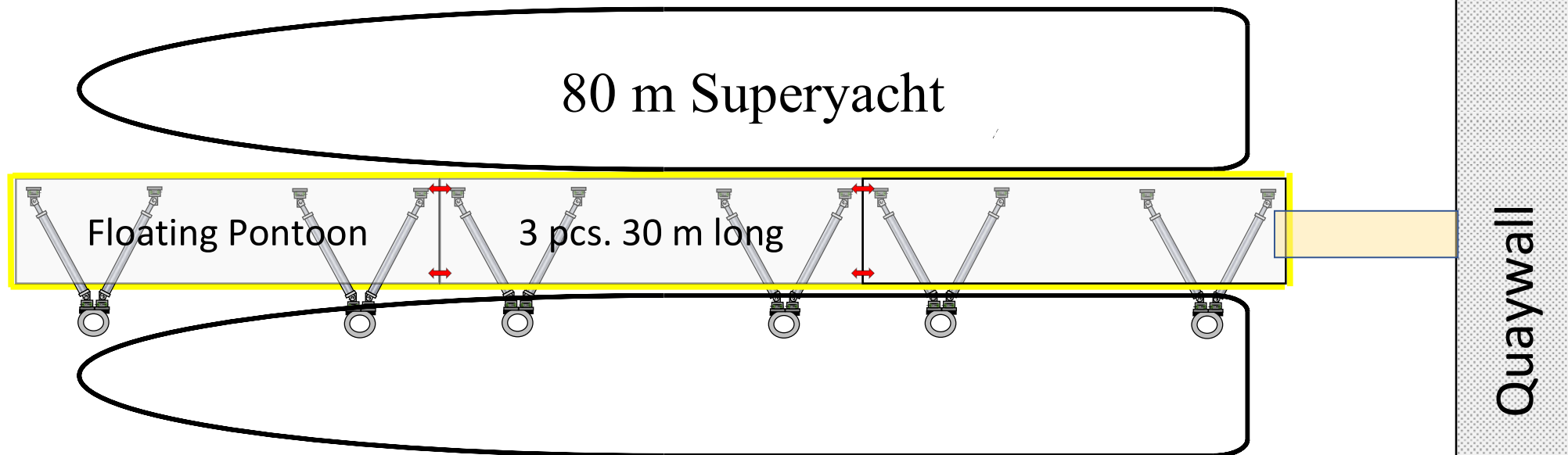
DualDocker high damping
Docking securely

DualDocker quantity & dimensions
depend on local conditions.

max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
2,0 m	35 m/s	1,5 m/s	0,5 m	Yes

DualDocker USP for big Yachts:

- DualDocker is free of play at any water level and highly damped
- this means incredibly calm location in wind & waves and the best possible safety in storms

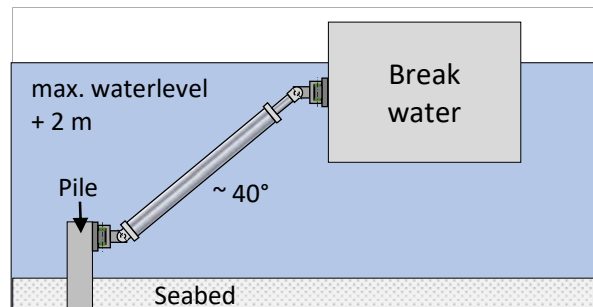
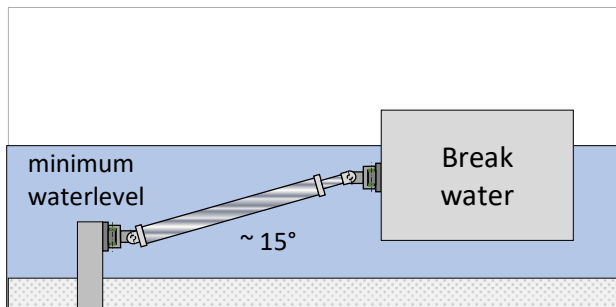
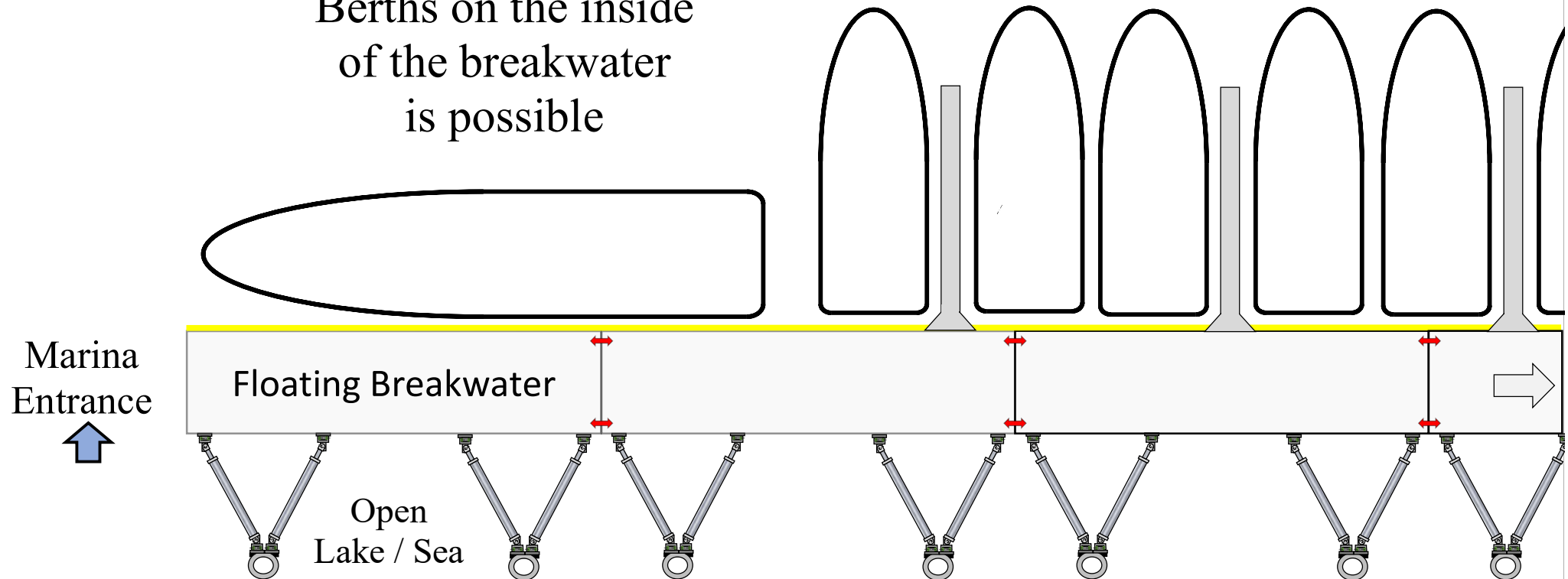


The construction length of the DualDocker's depends on the maximum water level difference.

DualDocker quantity & dimensions depend on local conditions.

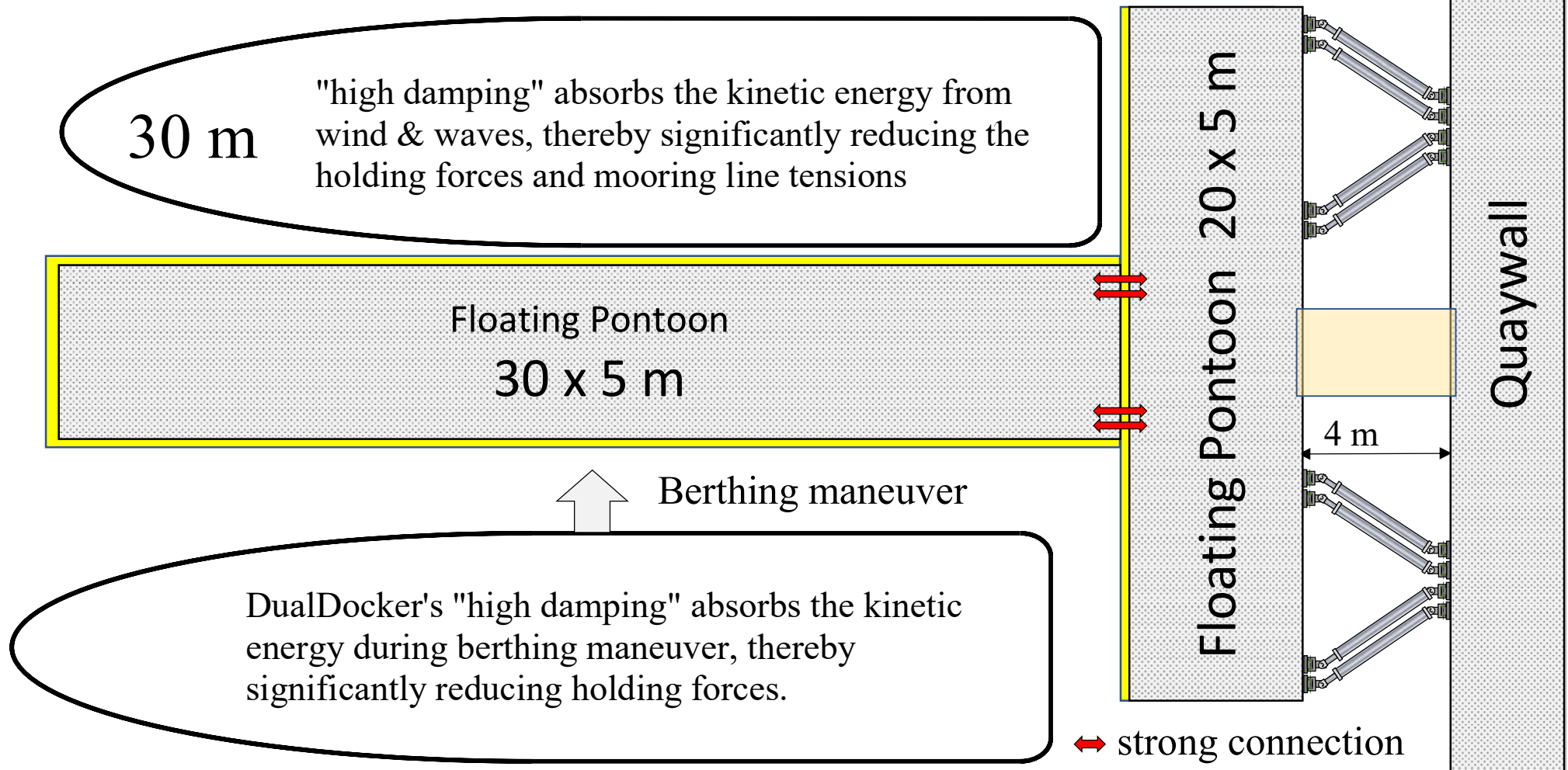
max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
2,0 m	35 m/s	1,5 m/s	0,5 m	Yes

Berths on the inside
of the breakwater
is possible



- no impact on the river-, lake- or seabed !!

DualDocker quantity & dimensions depend on local conditions.

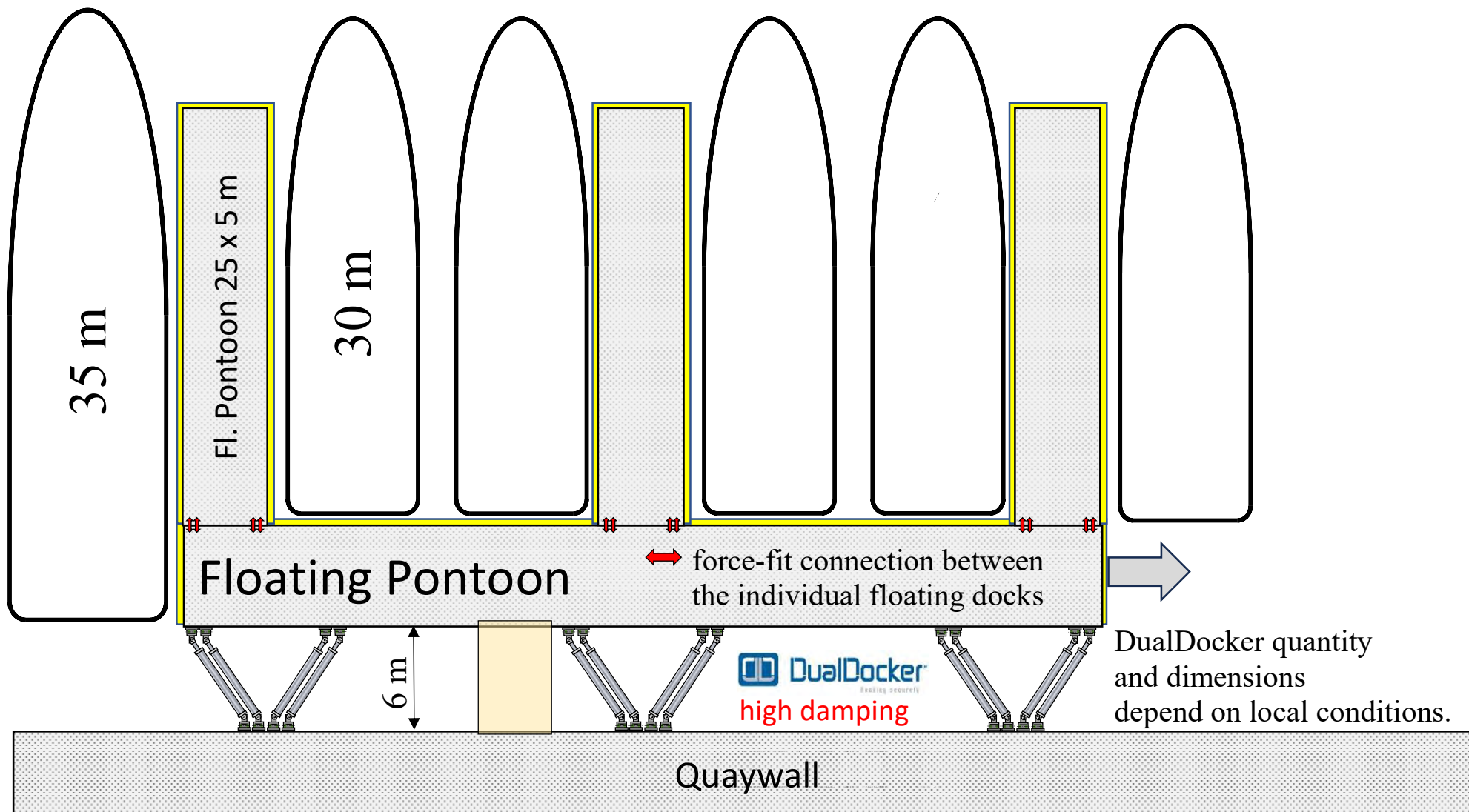


Multi "T-Pontoon"

max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
3,0 m	35 m/s	1,5 m/s	0,5 m	Yes

Important: 3 m water level difference

Mooring only to the quay wall. **No impact on the lake- or seabed !**

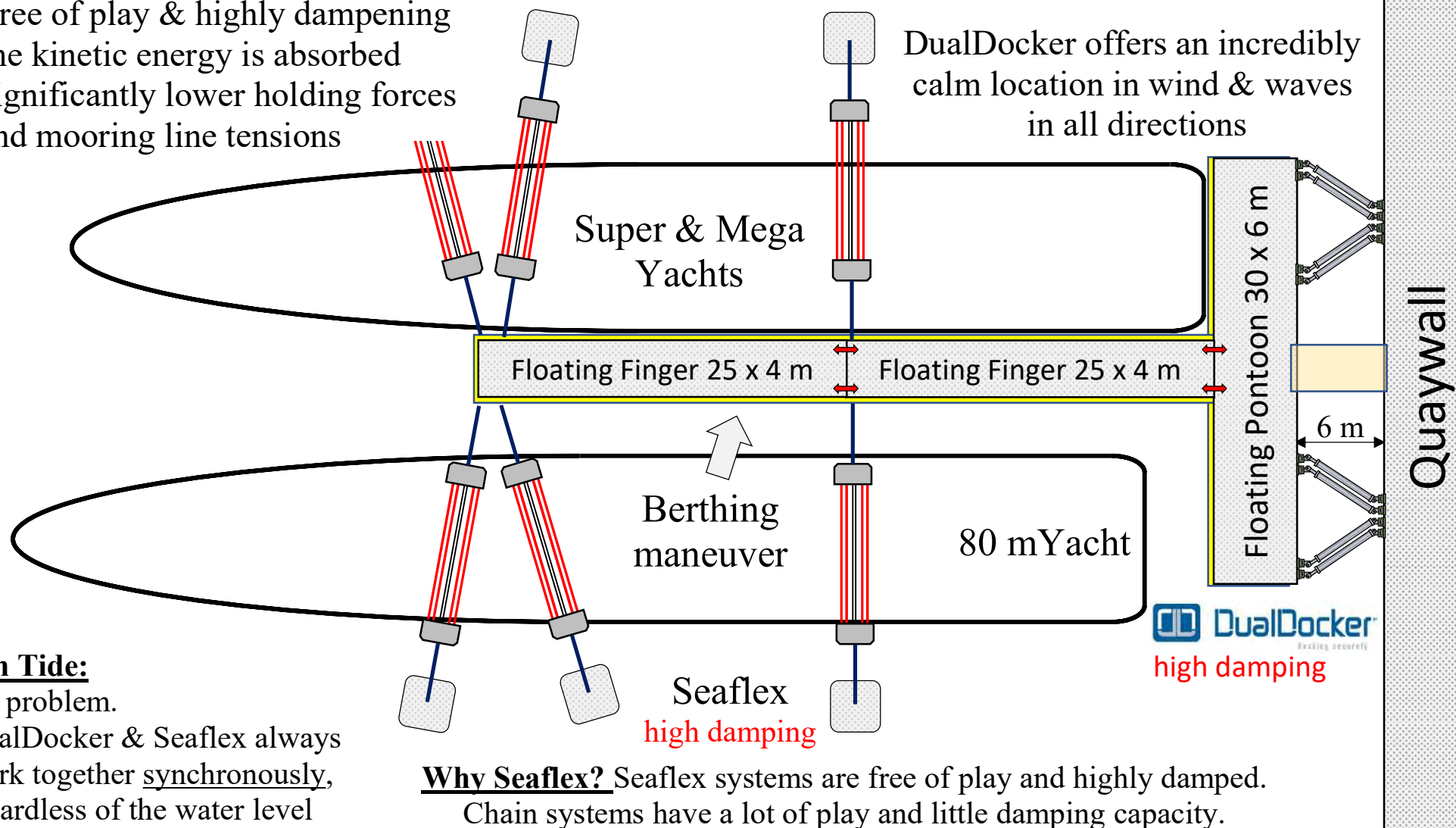


max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
3,0 m	30 m/s	1,0 m/s	0,5 m	Yes

DualDocker & Seaflex:

- Free of play & highly dampening
- the kinetic energy is absorbed
- significantly lower holding forces and mooring line tensions

DualDocker offers an incredibly calm location in wind & waves in all directions



6 m Tide:

No problem.
DualDocker & Seaflex always work together synchronously, regardless of the water level

Why Seaflex? Seaflex systems are free of play and highly damped. Chain systems have a lot of play and little damping capacity.

max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
6,0 m	30 m/s	1,0 m/s	0,5 m	Yes

Option 1:

force-fit connection between the individual floating docks

Advantages:

- the connected parallel floating pontoons on the DualDocker's form a compact and highly damped strong unit.
- The motto is:
"Together we are very strong".

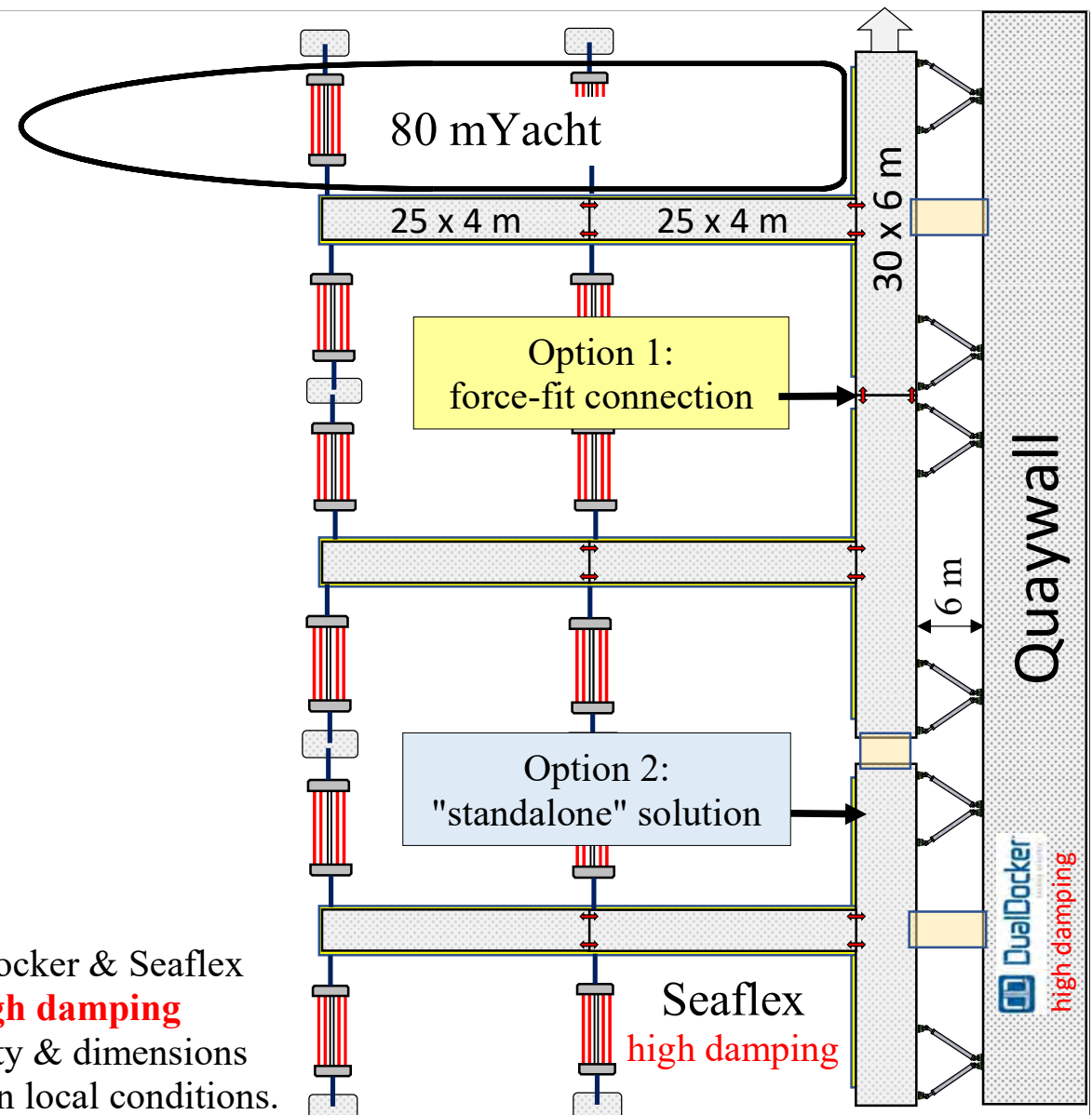
Option 2:

"standalone" solution

Advantages:

- DualDocker and Seaflex have different damping characteristics.
- Synchronous coordination of the two characteristic curves works best with the standalone solution.

DualDocker & Seaflex
high damping
quantity & dimensions
depend on local conditions.

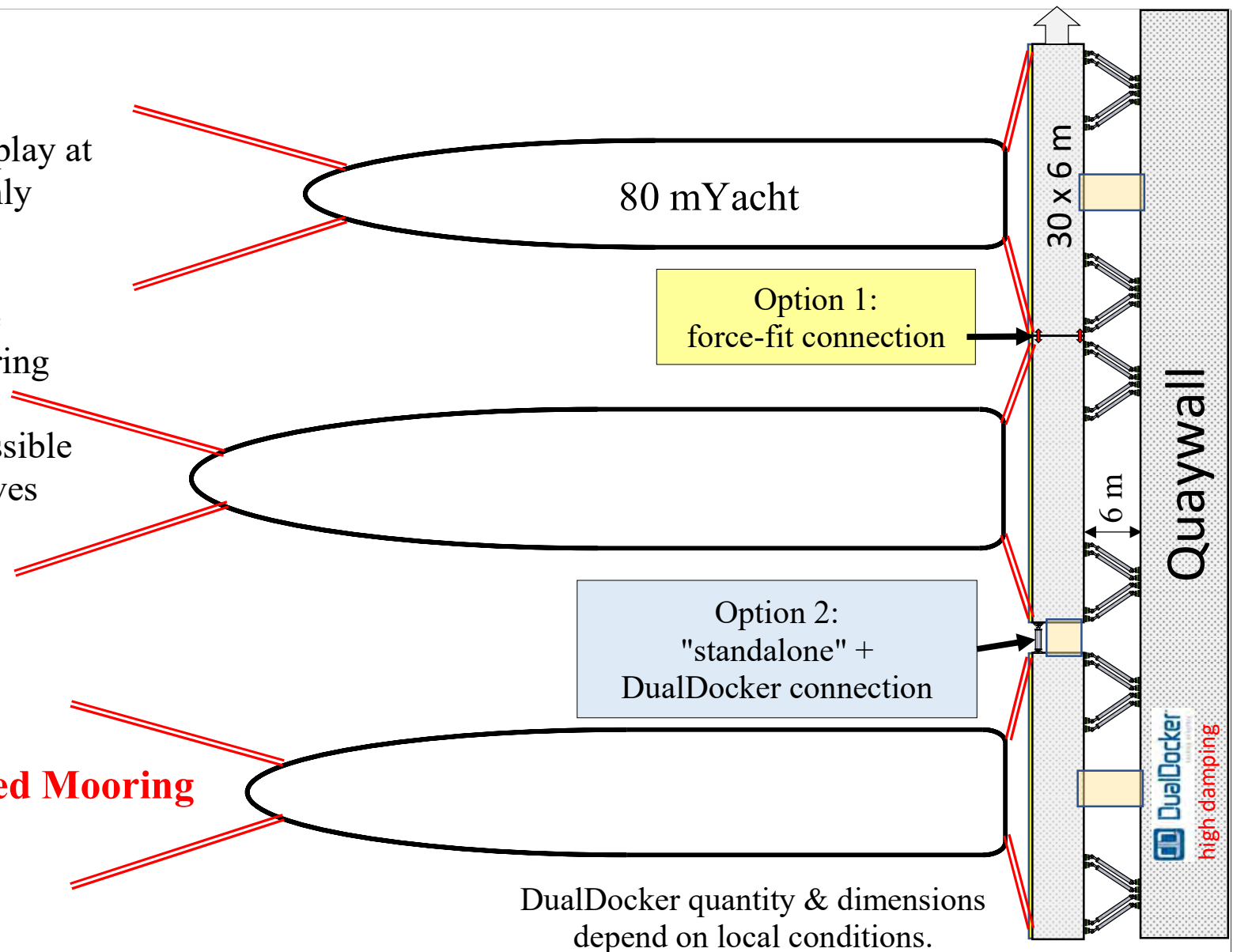


max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
3,0 m	20 m/s	1,0 m/s	0,5 m	Yes

USP for big Yachts:

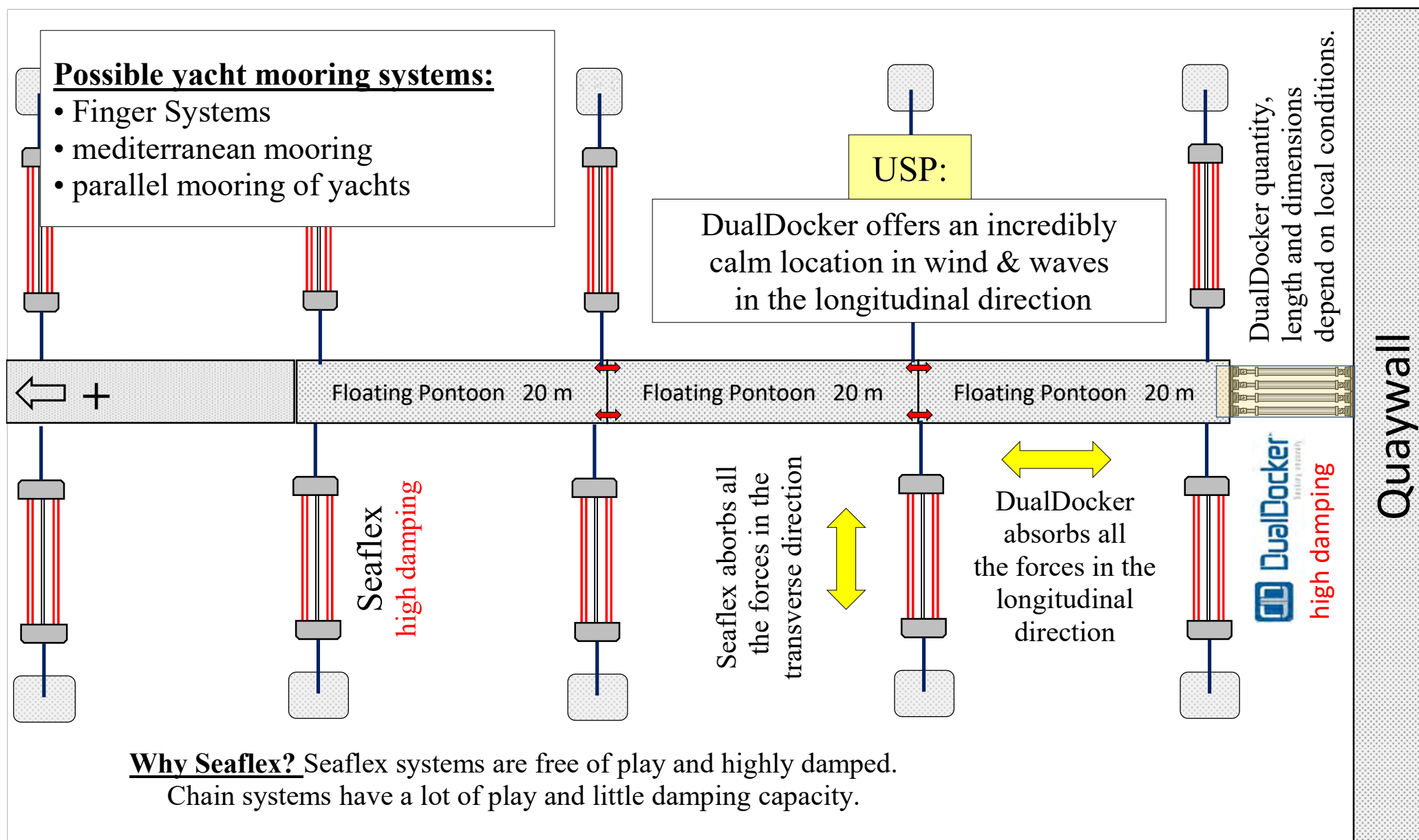
- DualDocker is free of play at any water level and highly damped
- the very high damping significantly reduces the holding forces and mooring line tensions
- this means the best possible safety in storms and waves

Med Mooring



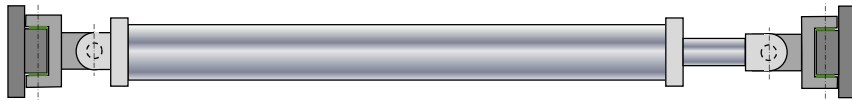
90° floating Pontoon

max. Tide:	max. Wind:	max. Current:	sign. Wave:	Break water:
3,0 m	40 m/s	1,5 m/s	0,7 m	No



Standard DualDocker:

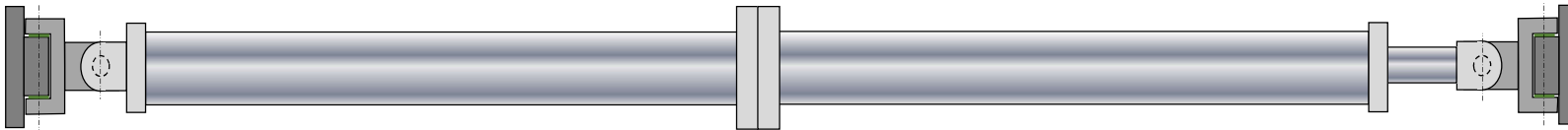
- high damping up to ± 600 mm



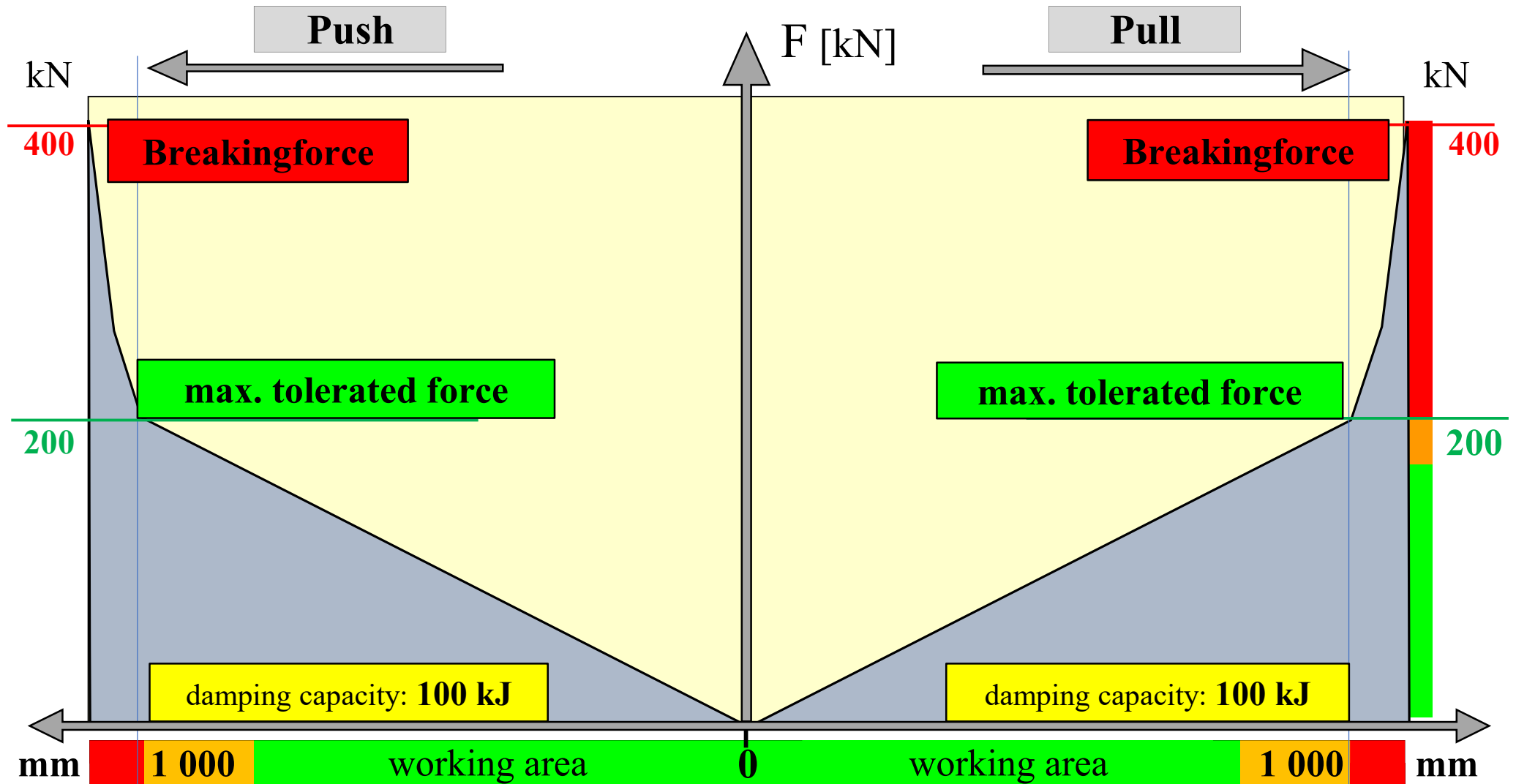
NEW !!!

DualDocker with "ultra high" damping:

- ultra high damping up to $\pm 1\,000$ mm
- significant reduction of braking forces at high dynamic forces
- Braking force = kinetic energy divided by braking distance

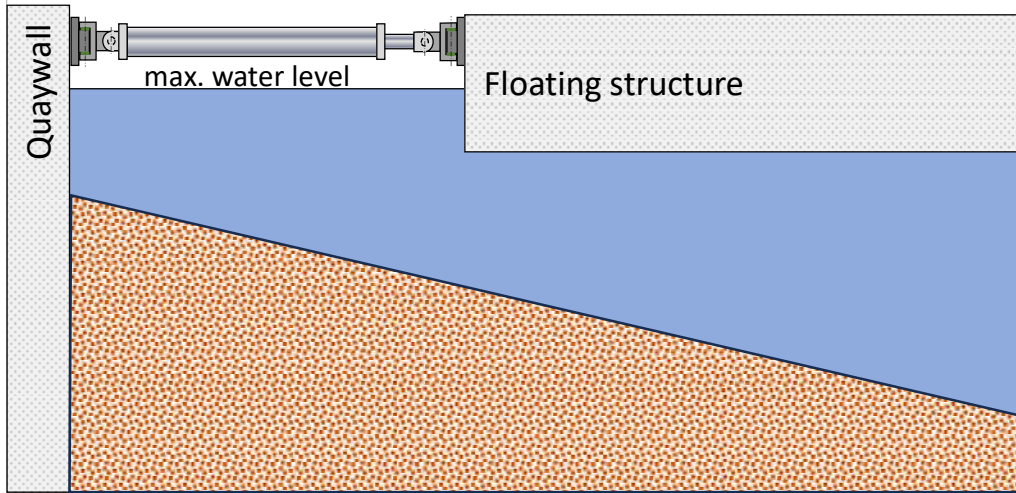


Pull & push: Load displacement diagram (force-distance)

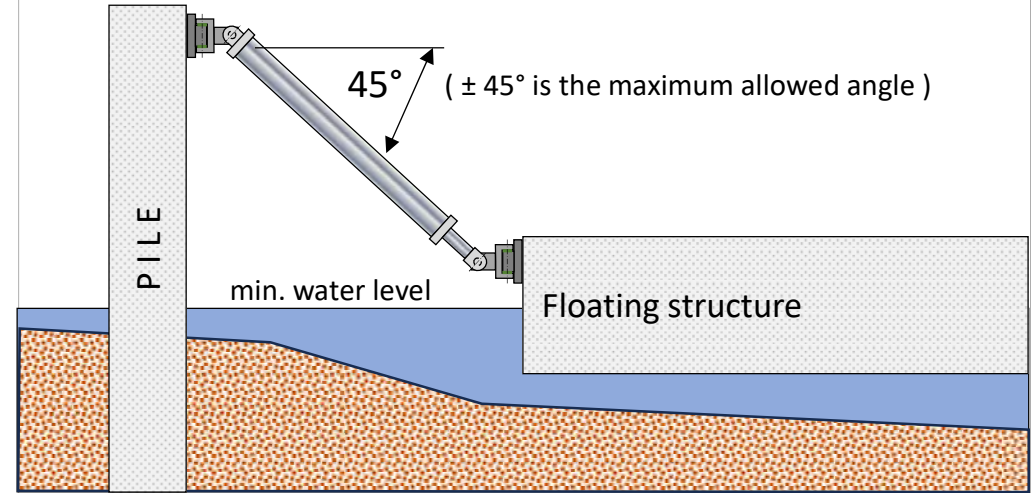


Attachment Types - 1

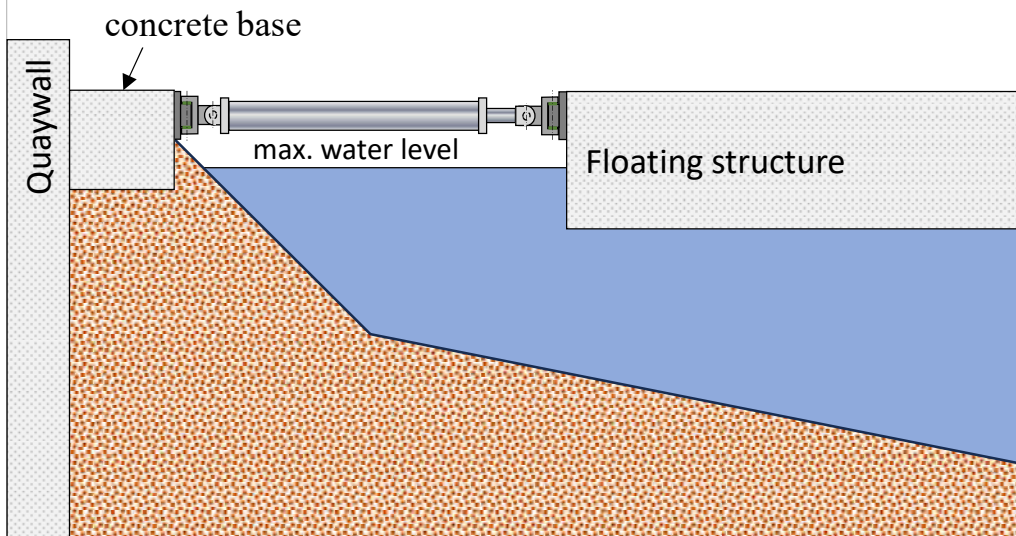
Type of attachment: " Quay wall " DualDocker always "over" waterline



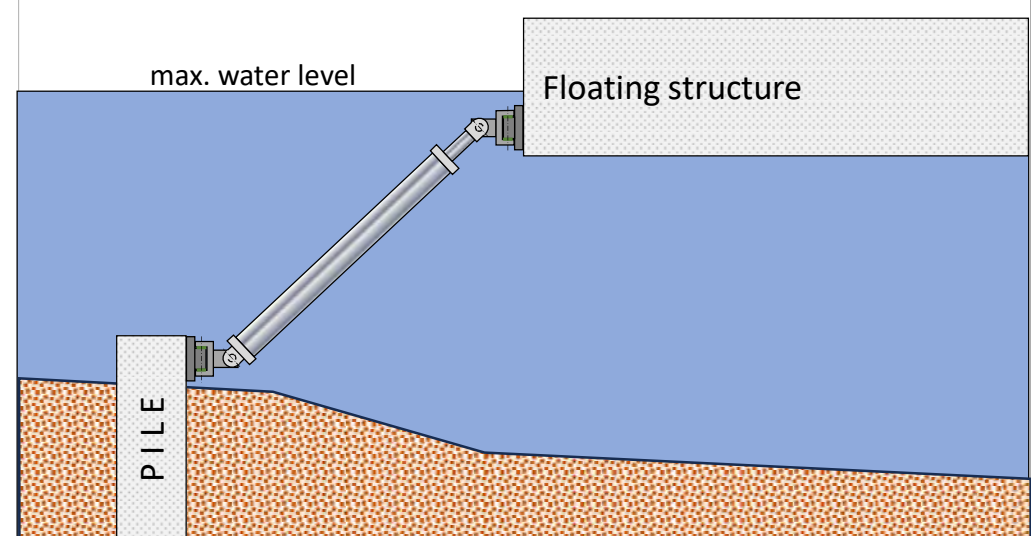
Type of attachment: " P i l e s " DualDocker always "over" waterline



Attachment: " Concrete Base " DualDocker always "over" waterline

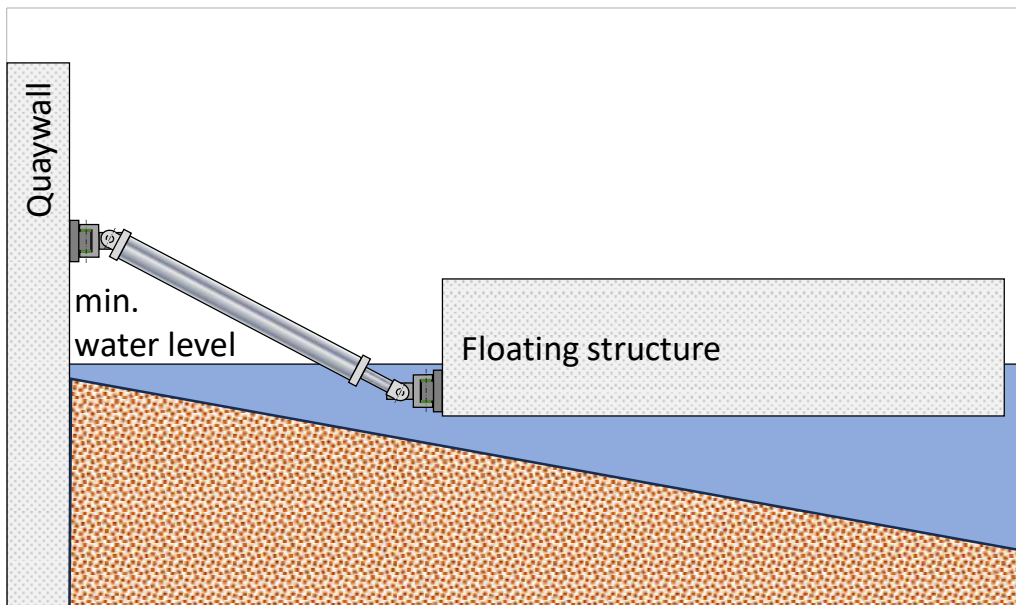
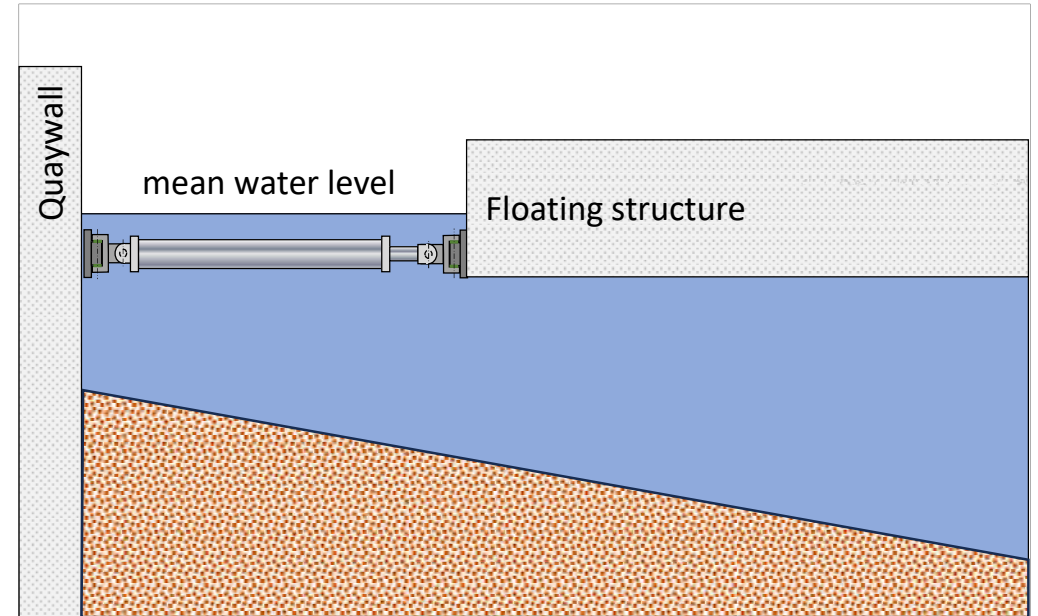
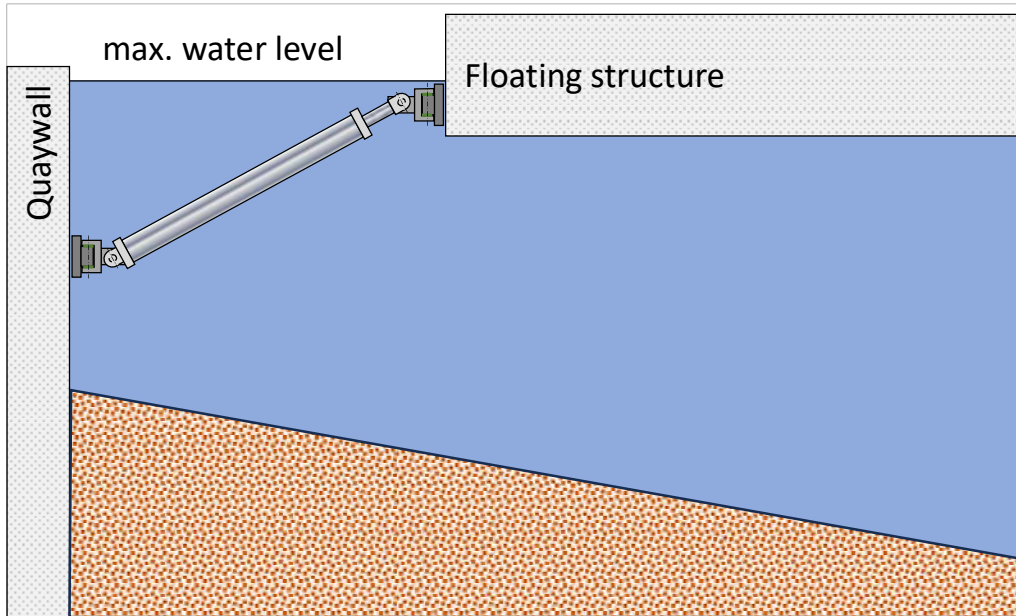


Type of attachment: " P i l e s " DualDocker always "under" waterline



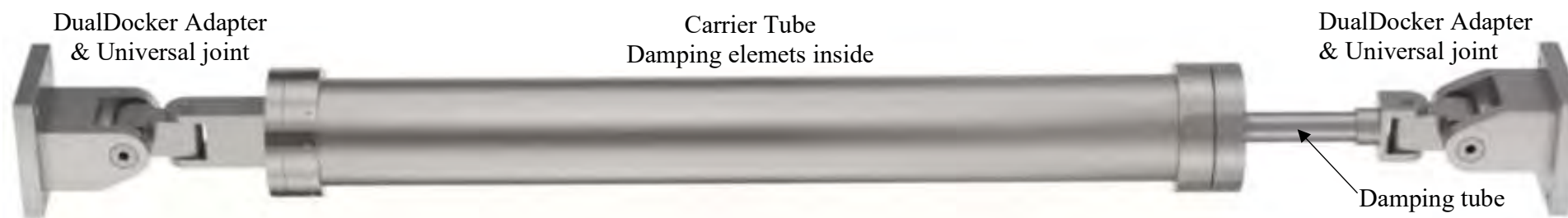
Attachment Types - 2

Interaction: above waterline & underwater



In case of interaction between DualDocker above the waterline and underwater, we strongly recommend the **"high-quality hard-anodizing"** coating.

- the completely DualDocker must be „hard anodized (insight & oversight) and double-sealed“.
- Layer thickness 50 µm
- All contact points are carefully and completely sealed for optimal protection against saltwater.



DualDocker Models: 20 kN, 50 kN, 100 kN, 150 kN, 200 kN, 250 kN

Length: 1 - 8 m; Extensions are available

DualDocker Technology: DualDocker systems are highly damped and free of play (regardless of the water level)

- **Comfort:** Incredibly calm location in 'wind & waves'
- **Reduction of holding forces:** the high damping absorbs the kinetic energy, reducing holding forces by up to 80%!
- **Safety in heavy storms:** This enormous reduction in holding forces means the best possible safety in storms and high waves.
- **Seismic safety:** Studies have confirmed that DualDocker offers maximum safety in earthquakes (due to the high damping and freedom from play).
- **Safety in icy conditions:** Ice pressure and drifting ice cause extremely high static and, above all, dynamic forces.
Ultra highly damped DualDockers absorb the kinetic energy and thus reduce the holding forces to a minimum.
- **Fully mechanical:** no energy source needed (no hydraulics, no oil, no gas, no pneumatics !)
- **Environmentally friendly:** No interference with the underwater world
- **Maintenance-free:** We recommend "cleaning & inspection" as required

Material overview: All materials are saltwater and UV resistant

Type of material	Specification	DualDocker warranty	Expected lifetime	Wear & tear	Material fatigue
Alu-alloy anodised	6060 / T66 & 6082 / T6	2 years	10 years + (*)	low risk	very low risk
Damping elements	Polyurethane	2 years	15 years + (*)	very low risk	low risk
Slide guides	synthetic material	2 years	10 years + (**)	low risk	very low risk
Bolts etc	stainless steel 1.4571	2 years	15 years + (*)	very low risk	very low risk

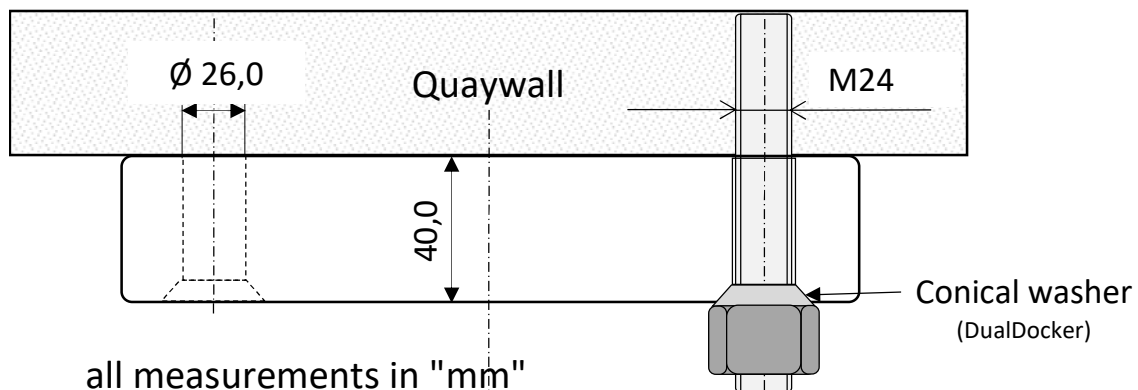
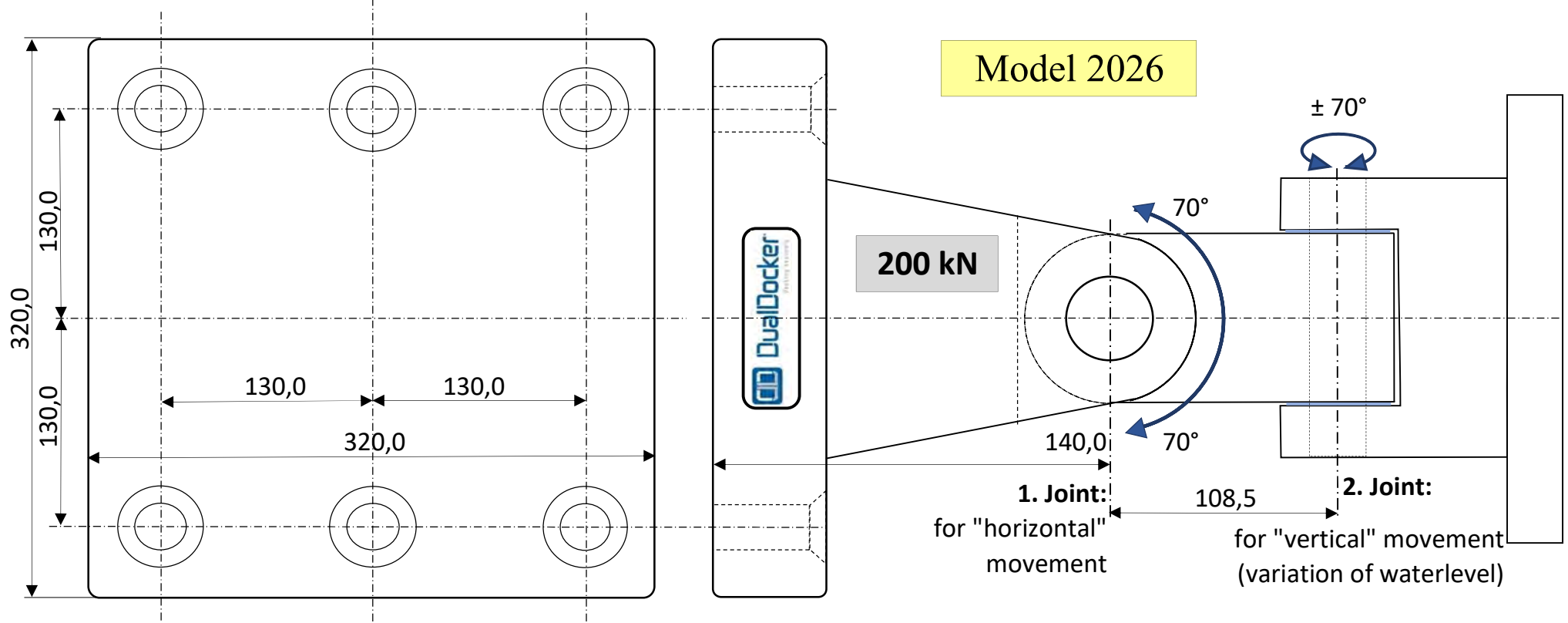
Remarks (*): Depending on local conditions. Requirement: No surface damages; regular maintenance

Remarks (**): Slide guides are subject to 'wear and tear': Life time depends on local conditions and level of strain.

Installation Info:

Install DualDocker either above or below waterline if possible. Do not install the DualDocker's in the area of the waterline.

Changing conditions "saltwater - UV" is critical and can attack the surface. For such applications, we strongly recommend a "high-quality hard-anodized" coating.



Forces transmitted via DualDocker adapter into the pier/quay/pontoon:

Model - 2021	tolerated forces:	breaking forces:
Pull forces :	200 kN	400 kN
Push forces :	200 kN	400 kN
Side forces :	200 kN	400 kN