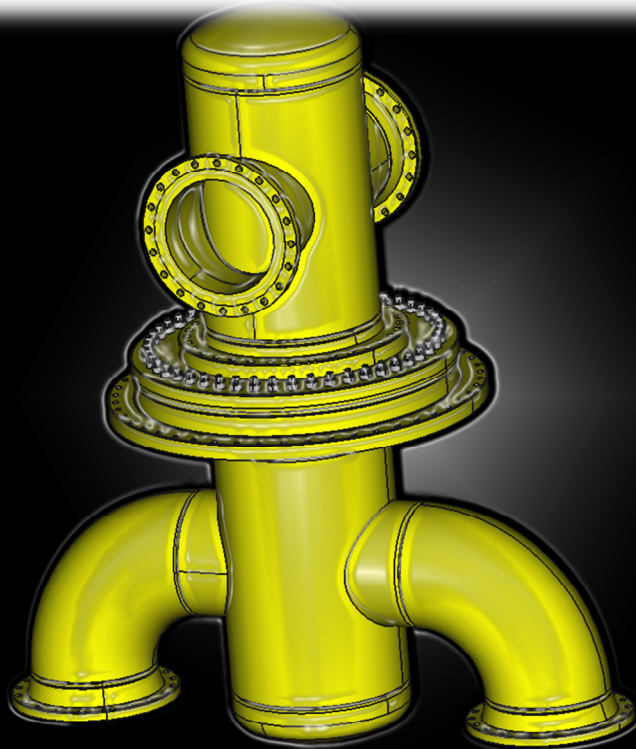
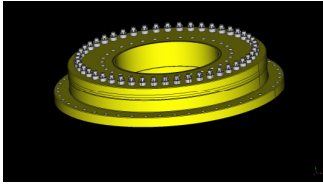


*INTRODUCING THE 34" SWIVEL FROM CALM IMR*



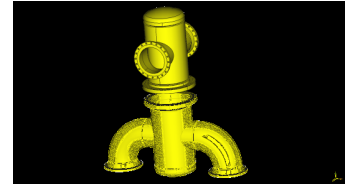
The CALM IMR 34" swivel has been developed in order to offer a cost effective fluid swivel solution for the CALM buoy (and potentially the FSO) market.



@ qualified fabricator

On the CAPEX front, the CALM IMR 34" swivel design:

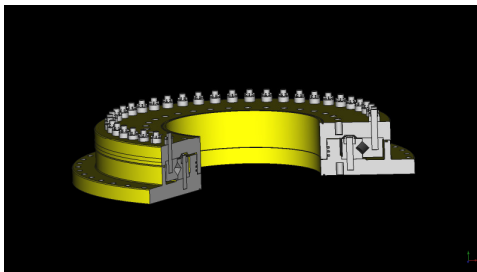
- enables the clients to fabricate the piping components part of the swivel with the ship yards they already have contracted for other work,
- uses standard components (as far as practical).



@ ship yard if desired

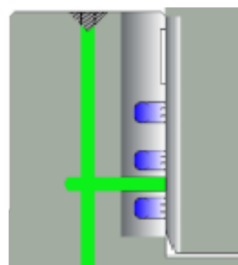
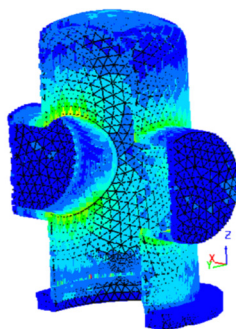
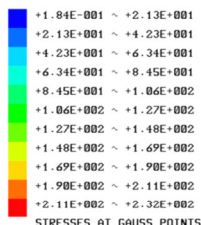
On the OPEX front, the CALM IMR 34" swivel design:

- adopts a seal design which is widely used in other industries - this helps to drive down the cost of this important component to a reasonable level while taking advantage of the specialists research and development (note: in a swivel, the seal is the component which is most at risk of being damaged –it is usually considered to be a consumable).
- enables the installation of the SKF System 24 canisters which removes the need to manually lubricate on a weekly basis the swivel's cross roller bearing (this system dispenses lubricant in a continuous manner).
- has a sealing arrangement that enables a straightforward inspection of the seal running surface and enables an easy change out of seals which can be accomplished by the terminals' crews without having to mobilize external teams.

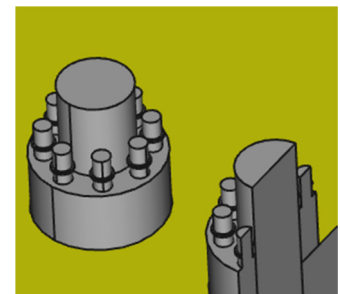


On the technical front, the CALM IMR 34" swivel design:

- has been developed for a pressure/temperature range of 0°C (19.6 bar) to 80°C (18.3 bar)
- offers a sealing arrangement comprising 3 dynamic seals in series which provides the option for the client to include an Oil Pressurization System if needed,
- includes a specifically designed robust cross roller bearing (the axial and radial loads generated by some of the piping combinations prevent this component to be a generic/standard one).
- includes tensioning nuts which enable the disassembly/reassembly of the swivel without the need to mobilize heavy/cumbersome hydraulic tensioners or torque wrenches.

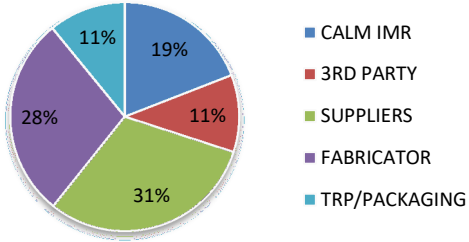


Sealing Arrangement



Tensioning nut

Typical project management information:

Delivery time:	6 months from acknowledged order
Cost distribution for the swivel only:	<p><b>COST DISTRIBUTION</b></p>  <ul style="list-style-type: none"> <li>■ CALM IMR</li> <li>■ 3RD PARTY</li> <li>■ SUPPLIERS</li> <li>■ FABRICATOR</li> <li>■ TRP/PACKAGING</li> </ul>
Cost (order of magnitude) – this excludes the piping part:	215 k€
Cost (order of magnitude) for the 2x24" piping components:	80 k€

For additional information do not hesitate:  
to contact [sales@calm-imr.com](mailto:sales@calm-imr.com), or,  
to visit the CALM IMR AB [website: http://calm-imr.com](http://calm-imr.com)