

# Wire discs replace steel discs

The tough and corrosive sea environment makes it obvious to replace steel discs with discs made of plastic. By doing this, Vink Plast has shown how materials used in the offshore sector can be substituted.

Back in 1998 plastic manufacturer Vink Plast won a large assignment from a Norwegian customer that manufactures drilling rigs for the North Sea. The challenge Vink was facing was to come up with an alternative material for a range of steel wire discs on a derrick. Among the aims was a desire to minimise corrosion of wire discs, avoid lubrication, reduce rotation weight to protect wires, electrical/hydraulic cables and tubes in the system and, finally, to reduce the number of shutdowns to achieve a better total economy.

Vink sorted out the customer's problem and chose a disc of steel with some segments of Nylantron GSM. These segments were mounted all the way around the disc. In this way the customer was provided with a solution that met the requirements and that was markedly lighter than discs made purely of steel, and the solution also had the following obvious advantages:

- The longevity of the wire was extended
- 40-60 % weight reduction – less rotation weight that needs to be accelerated on its way up and down plus less weight that has to be lifted

- No corrosion of wire disc
- Delivery of specially manufactured discs or of standard dimension discs
- Shorter delivery times than is the case with specially manufactured steel wire discs
- Can be delivered with Veritas certification and FEM analysis

Vink's customer was so satisfied with their new wire discs that not only are they still in operation, but 2 new disc suspensions for completely new drilling rigs have been manufactured as well.

Sub-project manager of the project Substitution of Materials Offshore Bente Nedergaard Christensen from Plast Center Danmark is involved in Offshore Energy. She says:

"Generally, many opportunities exist for substituting other materials with plastic in the offshore sector in that, despite continual maintenance, corrosion occurs again and again in the tough sea environment both when it comes to the interior and the exterior of a rig."

This is why it is obvious, for instance, to manufacture cable drums, wire discs, bearings, wear and protection sheets and



*Cable drums, wire discs and bearings can advantageously be manufactured of plastic composites instead of steel. This is evident when one looks at what Vink Plast has done.*

much more out of plastic. This is also an advantage when it comes to manufacturing and weight. Finally, one might mention mechanical applications. In this case there are, for instance, several static applications that could obviously be made of plastic.

Vink Plast is one of the world's largest networks of suppliers of plastic for the construction, ventilation and energy sectors.