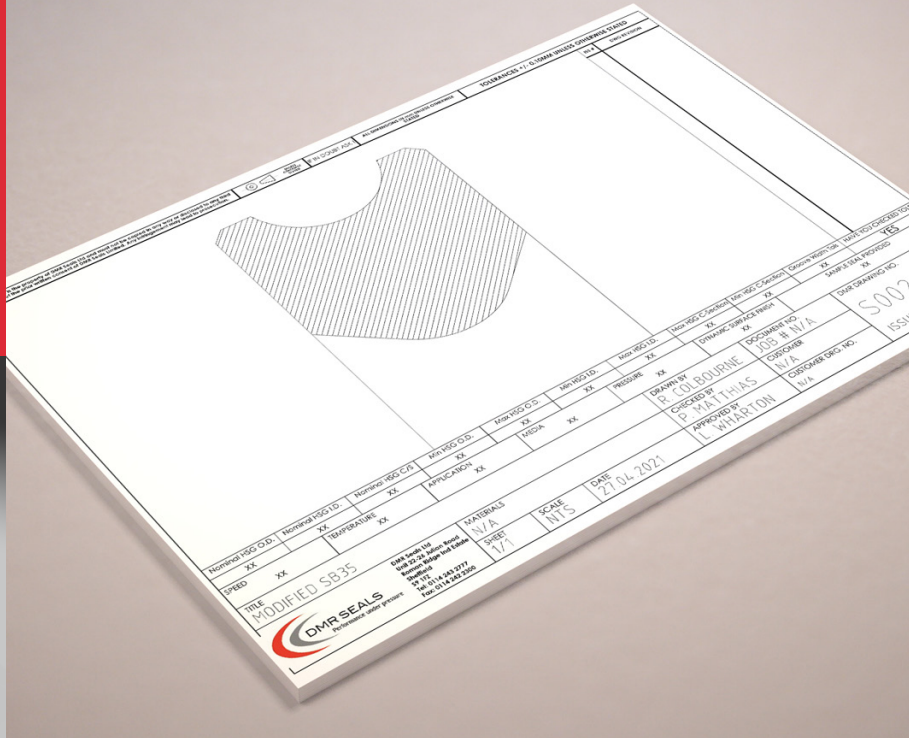


CASE STUDY

SEALS FOR PROTECTION SLEEVE



APPLICATION

We were approached by a client in Aberdeen; an engineering firm that was renowned for solving difficult problems. They had a project to manufacture a sleeve to seal a 20" pipe for a high-profile customer. The high-profile customer had attempted to solve this problem in the past but with no success and therefore had approached our client for help.

THE CHALLENGE

The pipes to be sealed would be not be machined in any way and as well as having a very rough surface, may also have remnants of paint and other contaminants on the surface. On top of this, the end of the pipe would have no lead-in chamfer, meaning that fitting the sleeve with the seals in would be difficult, if not impossible.

Also, the exact diameter of the pipe may fluctuate slightly, meaning that the sleeve would need to be manufactured with enough clearance to negate this problem. This would mean there would be a larger than acceptable extrusion gap to seal. Worst case scenario, we would be sealing 100bar (1450psi).

Added to this, the client needed a very quick turn-around of only a week. We would have to design the seal, order the material, manufacture, and deliver the seals in five working days.

SOLUTION

A solution was discussed with the client and it was agreed that it would be easier to seal the outside of the pipe due to the lack of lead-in chamfer. This meant that the lead-in chamfer could be designed into the sleeve which would then fit over the outside of the pipe, rather than inside the pipe.

The media to be sealed was Drilling Fluid so our HNBR-B85, a Peroxide cured Hydrogenated-Acrylonitrile-Butadiene-Rubber material was selected due to its resistance to most of the chemicals found in the different grades of this fluid.

As the surface to be sealed was not machined and had a very poor surface finish, it was decided that a seal with a large cross-section and good compression was selected. The team at DMR decided on a modified SB35 profile with a large cross-section and a much deeper groove on the outside diameter to enable the seal to compress easily and therefore seal against the imperfect surface of the pipe.

OUTCOME

The seals were designed, the material arrived on time and the seals were manufactured and despatched within the timescale. They were fitted and tested by the client and the sleeve was despatched to their high-profile client.

ACHIEVEMENT

By working together, the various departments, External Sales Team, Design Engineers, Purchasing and Production managed to execute this problem perfectly, showing what great teamwork can achieve.