FIELD BULLETIN 197

Adaptor corrosion resistance doubled

Improved plating protects no less than 500 hours against red rust.

In the further development of our BSP, JIC and ORFS adaptor product portfolio, Gates has decided to increase the corrosion resistance of its range with a new improved trivalent chrome surface. The new plating standard, which will be implemented as a rolling change, guarantees a minimum protection of 500 hours against red rust under ISO 9227 test conditions, hence protecting your equipment significantly longer than before.

Next to corrosion resistance, as a key driver for longevity, the pressure capabilities of the fluid power components to the system pressure requirements are also elementary. For that reason, Gates is also publishing the adaptor maximum working pressure to meet any of your future design challenges. By choosing your components wisely, based on all application and component details, you will always feel confident using a Gates hydraulic adaptor.

PROTECT YOUR INVESTMENT

Corrosion or metallic oxidation is, unfortunately, an all-too-common result of electrochemical reactions between materials and substances. Especially in environments with high presence of chemicals, fertilizers, rain, mud, high humidity, salts, air pollution, … this process is easily accelerated. Most metals are easily oxidized, leading to less robustness of metal componentry of which off-highway vehicles have plenty. Once corrosion starts, it can easily and quickly spread from one component in the hydraulic circuit to another, e.g., from the adaptor to the port or from the adaptor to the hose coupling.

Next to the environmental and direct cost impact of corrosion, meaning replacing the corroded component, there are several indirect costs involved as well. One of the main indirect costs is machine downtime either during preventive maintenance or machine breakdown. The longer it takes, the higher the downtime cost and the higher the chance a project will have to deal with delays and reputational damage. More concerning, however, is the fact that corrosion can lead to safety concerns with loss of life as a worst-case scenario.

The annual worldwide cost of metallic corrosion is estimated to be over a trillion euro, yet with proper corrosion protection a significant percentage of it can be prevented. Hence, Gates is implementing an adaptor plating standard guaranteeing a minimum protection of 168 hours against white rust corrosion and 500 hours against red rust under ISO 9227 test conditions, which is nearly 350% greater than the SAE J516 144-hour standard (ISO 8434 requests 72 hours as a minimum). Improved plating surfaces equal less downtime, less safety risks and increased product sustainability. All pricing and product numbers remain unchanged as well as REACH/ROHS compliant. Other plating options/materials remain available up on request.

FEEL CONFIDENT UNDER PRESSURE

Each hydraulic circuit within a hydraulic system has its own working pressure requirement, that is defined to support the operating force given application is designed for. Making sure all the system components meet the maximum working pressure capability is a key element for design engineers. Special attention needs to be paid to the weakest link in the circuit (at a specific temperature under normal operation) and the selection of each component should be done thoroughly as it has an implication on the final maximum pressure rating. Overpressure can cause expensive mechanical failures to main aggregates, but also damage the parts that are connecting the different ports (like hose assemblies, tubing, and fittings). Next to mechanical damage, hydraulic failure can also inflict serious physical harm or even cause death. Hence, the importance of the maximum working pressure cannot be overlooked to guarantee safe equipment usage.

Luckily, international standards dictate minimum requirements for performance features, including maximum working pressure capabilities. The adaptor section of “The Gates Fluid Power” catalogue states to always follow the pressure rating of the respective international standard as a minimum (unless otherwise states). Nevertheless, market feedback made us aware that especially for our adaptor portfolio a more explicit working pressure statement was preferred. An overview of the maximum adaptor working pressure overview can be found in the accompanying Excel-list and will be added in the future to a new adaptor catalogue.

Gates SAFE HYDRAULICS EUROPE

Important to bear in mind is that the maximum working pressure of a hose assembly is the lesser rated working pressure of the hose, tube, thread, or adaptor. The maximum rated working pressure of an adaptor with a combination of threads / end styles and sizes, is the maximum working pressure of the least rated end. The recommended maximum working pressure is based on a 4:1 safety factor relative to the connection minimum burst pressure.