Test Couplings for Function Testing in Hydraulic Applications

In the world of hoses and couplings, test couplings can pull a lot of weight. They can be used for many different applications, and can also be used temporarily or permanently, despite "test" being in their name. These test couplings can be made in a variety of materials and add to workers' safety while out in the field.

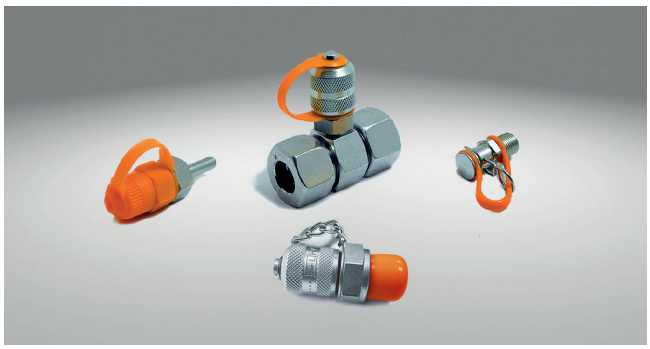
By Timo Weber, General Manager at R+L Hydraulics

Precise manufacturing for accurate measurement results: 100% testing with laser monitoring and function testing.

One very important aspect when testing the functions of a system in mobile and fixed position hydraulics is pressure control. The test couplings are indispensable not only for testing and monitoring the pressure in a hydraulic system but also for lubrication, bleeding air and sampling oil. The wide range of possible uses for test couplings includes construction machinery, agricultural machinery and rail vehicles as well as mechanical engineering, automotive, naval, energy and environmental technology.

Dynamic Applications

Test couplings are suitable for original equipping of hydraulic systems and for retrofitting. During initial testing, the test couplings can be used to determine whether the hydraulic system is being operated according to the intended specifications and parameters, such as the required operating pressures. In systems that exist already, they are used for maintenance, troubleshooting and repair. They offer service personnel and end users of hydraulic applications a simple, safe option for monitoring system pressure, venting the hydraulic system, analysing the degree of contamination and taking representative fluid samples. If the test couplings are equipped with an integrated non-return valve, work can be carried out under pressures as high as 630 bar without having to shut the system down.



Selection of various test coupling models from R+L Hydraulics.

Test couplings are typically mounted in front of the actuators in a hydraulic system. For example, they can be mounted directly in the oil-transporting pipelines or on control blocks, which regulate the flow of oil between pumps and actuators and/or between hydraulically driven components and consumers in a system. A gauge or manometer, and optionally a micro hose equipped with corresponding fittings, are needed in addition to the coupling to test the pressure. Screwing the fittings and/or manometers on causes the internal valve in the test coupling to open, so that a fluid stream in the direction of the gauge/manometer is guaranteed and the operating pressure prevailing at this point is displayed.

Variety of Materials

Test couplings are available in a range of materials, for example stainless steels, zinc, or nickel. They are compatible with all hydraulic and mineral oils and can be adapted for other media upon request. The seals are available in various

Example of use in a hydraulic system with test coupling.

designs to satisfy the widest possible range of requirements and prevent oil leaks. Seals made of nitrile-butadiene rubber (NBR) are notable for their resistance to mineral oils and are suitable for use in a temperature range from -30°C to 125°C. Seals made from the fluoropolymer elastomer Viton are highly resistant to thermal and chemical loads and are usable from -25°C to 230°C. To match the respective application, test couplings can be configured with various threads and in a variety of models. For example, they can be fitted with standpipes, female swivels, pipe fittings, as bulkhead test couplings for pipe fittings or as check-valve couplings.

Test couplings are ideal for use in any mobile or fixed position hydraulic system. Any malfunctions can be detected and evaluated by means of a diagnostic test procedure using test couplings, thus avoiding expensive repairs. At the same time, test couplings contribute significantly to the increase of quality and performance of a hydraulic system, which will ultimately extend the system's lifespan.

ABOUT THE AUTHOR

Timo Weber began his career in the lighting industry, where he was Area Sales Manager for the U.K. He completed his master's degree in economics in England and after ten years in the lighting industry, he wanted to get to know new industries and technologies. In 2015, he had the opportunity to become Sales Director of R+L Hydraulics in Werdohl, Germany. Since 2018 he has been the General Manager and has been responsible for the operational and strategic business of R+L Hydraulics.