

Product Information

June 2016

E Series Manifolds by AS-Schneider exceed the temperature limits in DIN EN 61518:

Leak-free flange connections even at higher temperatures

Nordheim (Germany) – June 27, 2016 – Direct mount manifolds for pressure and differential pressure transmitters are normally protected against excess warming from hot process media through correspondingly long impulse lines. Nevertheless, many users have requested that the manifolds and their flange connection to the transmitter also easily withstand higher temperatures. The E Series Manifolds by AS-Schneider are available upon request with seal rings made of graphite. Thus they can be readily used up to 550 degrees Celsius – significantly more than required by the standards.

The international standard EN 61518 / IEC 61518 describes the flange connection between the manifolds and the pressure transmitters. Here, the temperature limits of these connections are described, among other things: This is 80 degrees Celsius for PTFE seal rings and 120 degrees Celsius for graphite seal rings. The temperature limit of 120 degrees Celsius refers to the limits which are applicable for the transmitter. The limit for the flange connection itself can be rated higher according to the piping standards.

"There are many users who require significantly higher temperature limits than 120 degrees Celsius for their manifolds", describes Markus Häffner, Head of Design & Development at the industrial valve manufacturer AS-Schneider.

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Although during normal operation, the manifolds are not exposed to such temperatures, there was a possibility of such a situation during, for example, a system fault. "Several customers thus want to be optimally prepared," Häffner says.

AS-Schneider supplies the E Series Manifolds with either PTFE or graphite seal rings. The former are clearly at a disadvantage when used at high temperatures, explains Häffner: PTFE becomes very soft at high temperatures causing the pressure of the process medium to press the plastic into the existing cavities. In addition, PTFE has a much higher thermal expansion coefficient than steel. This results in the seal ring being expanded more than the housing causing it to flow into the existing gaps. "If the connection cools down again, the extruded PTFE no longer bounces back leading to a loss in tension of the seal ring and thus a risk of leakage.

With graphite, it is different: The graphite seal ring does not show any appreciable deformation even with extreme temperatures thus providing for a durable, leak-free flange connection. AS-Schneider was able to demonstrate the reliability of the material in extensive trials in the laboratory. "The graphite is not extruded even at 350 degrees Celsius. The flange connection was just as stable after the test as before it." The maximum possible operating temperature is even higher. E Series Manifolds with graphite packing can be used up to 550 degrees Celsius. It is the responsibility of the user, however, to ensure compatibility between the selected seal ring material, the bolts and the process requirements, such as pressure, temperature, and chemical compatibility. Thus a maximum safety and trouble-free plant operation can be achieved.

Scope: 3,200 characters including spaces

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Captions:



Picture 1: Direct mount manifolds for pressure and differential pressure transmitter equipped with flange connections according to DIN EN 61518 / IEC 61518.

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Picture 2: Manifolds with PTFE seal rings are clearly at a disadvantage when used at high temperatures: The plastic becomes very soft at high temperatures causing the pressure of the process medium to press it into the available cavities.

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Picture 3: With graphite, it is different: The graphite seal ring does not show any appreciable deformation even with extreme temperatures thus providing a durable, leak-free flange connection. As in PTFE seal ring, graphite shows an intentional flow behaviour which results from the mechanical clamping of the two flange halves during mounting. Compared to the PTFE seal ring, however, the graphite exhibits no further significant deformation even under extreme temperatures, thus providing a long-term, leak-free flange connection.

Pictures by: Armaturenfabrik Franz Schneider GmbH + Co. KG

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About the author

Markus Häffner, born in Heilbronn in 1967, studied Mechanical Engineering at the University of Heilbronn. After working for 5 years in a storage system company, he changed firms and began working for AS-Schneider in 1998. At AS-Schneider, he initially worked as a design and development engineer and in 2001 he took over the management of this department. He is a member of several DIN standards committees such as "Industrial valves – "Basic standards" and "Mechanical pressure and temperature measurement devices".



About AS-Schneider

The family-run company, AS-Schneider, was founded in 1875 and with over 350 employees, is one of the leading manufacturers of Instrumentation Valves and Manifolds worldwide. In the market segment for Large-Bore Diesel Engine Valves such as those used in marine propulsion and the generation of electricity, AS-Schneider is even the world market leader. With our own subsidiaries in Romania, Singapore, Dubai (UAE) and Houston (USA) and professional partners in more than 20 countries worldwide, we are located everywhere our customers need us.

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