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Press Release

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High-Temperature Pumps in Refinery Processes: Reliable, Safe and Economical

In petrochemical production, specifically in the cracking processes, the central building blocks of a refinery, the basic products for the production of fuels, colors and plastics, pharmaceuticals, detergents, and many other products are produced.

Highly demanding characteristics are required of the pumps used in such applications. Not only must they be able to handle high pressures, but they must also be able to do so under high media temperatures, and all this with a maximum degree of reliability and availability.

Residual oil, for example, which is accrued after the distillation of heavy oil, bitumen or even normal crude oil, is compressed to around 150 - 250 bar for further processing and fed into the hydrogenation reactor at up to 450°C with the addition of pure hydrogen. In order to avoid extremely critical operating conditions, it is therefore of vital importance to exclude a failure of the feed pumps. Usually, redundant solutions are used for this purpose by means of stand-by capacity for the pumps. In addition, each pump used is monitored in its operation by adapted instrumentation in order to detect possible faults at an early stage and to be able to react accordingly without a hazardous situation occurring.

Failure must also be counteracted with regard to the pump design. The pumping medium oil can initially be described as non-problematic and easy to handle, but residual oil can contain a lot of aggressive and corrosive components. The most important of these are sulfur, especially at high temperatures, and hydrogen sulfide. At moderate temperatures, sulfur still has positive properties with regard to lubricity between the plunger and the packing seal. At high temperatures, however, the behavior changes in a negative way up to a strongly corrosive effect. In this case, sulfur attacks the metallic materials that are in contact with the pumped medium. The challenge is to select and use high-quality alloys to prevent corrosion. High operating temperatures always also mean that the components expand under the effect of heat. Taking these circumstances into account in the design and ensuring that pumps continue to function properly even when heated up requires a wealth of experience and special know-how!

For decades, URACA pumps have proven themselves in the processes of refineries around the globe. Even new refineries rely on URACA high-pressure plunger pumps, especially for pumping hot oils and wash water. The highly sensitive processes require pumps that perform exactly what is demanded of them at all times and permanently. It is exactly at this point that the question of the economic efficiency of high pressure pumps arises. The high quality and reliability of URACA pumps have a very positive effect, especially after many years of operation - both in economic and ecological terms. Very long running times, lower energy requirements due to high efficiencies and low service costs due to long maintenance intervals result in a calculable advantage for the operator, which is noticeable through a large savings potential with favorable life cycle costs.

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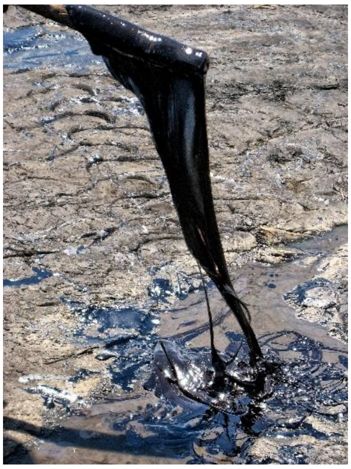

Photo: URACA
File: Asphaltsee_Trinidad_0478.jpg
Caption: Viscous natural asphalt, Trinidad

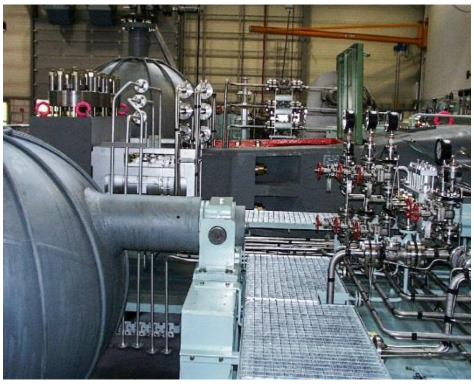

Photo: URACA
KD827_260.jpg
Caption: High pressure pump KD827 for hot oil

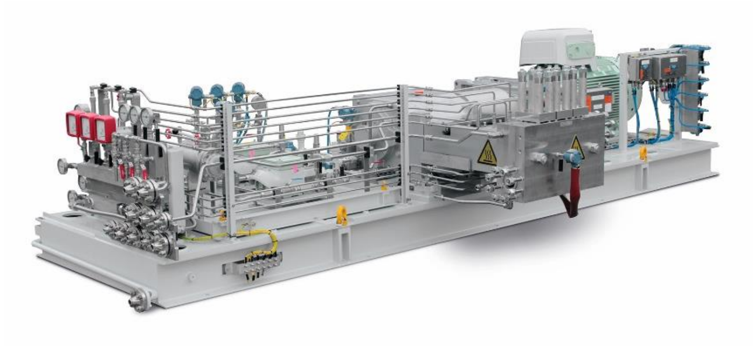

Photo: URACA
File: P3-70E_1147_frei.JPG
Caption: High pressure pump unit P3-70E for hot oil

URACA GmbH & Co. KG

URACA is one of the leading manufacturers of high pressure plunger pumps and high pressure cleaning systems. The privately owned company was founded in 1893 and has approx. 320 employees including 20 apprentices. The annual turnover amounts to approx. 60 million Euro whereby the export share is more than 60 per cent. The company's main activity is the design and production of high pressure plunger pumps and units for operating pressures up to 3000 bar / 43500 psi and driving powers up to 2600 kW / 3500 HP as well as complete cleaning systems. For further information, please visit our website: www.uraca.com.