



API 685 - sealless technology

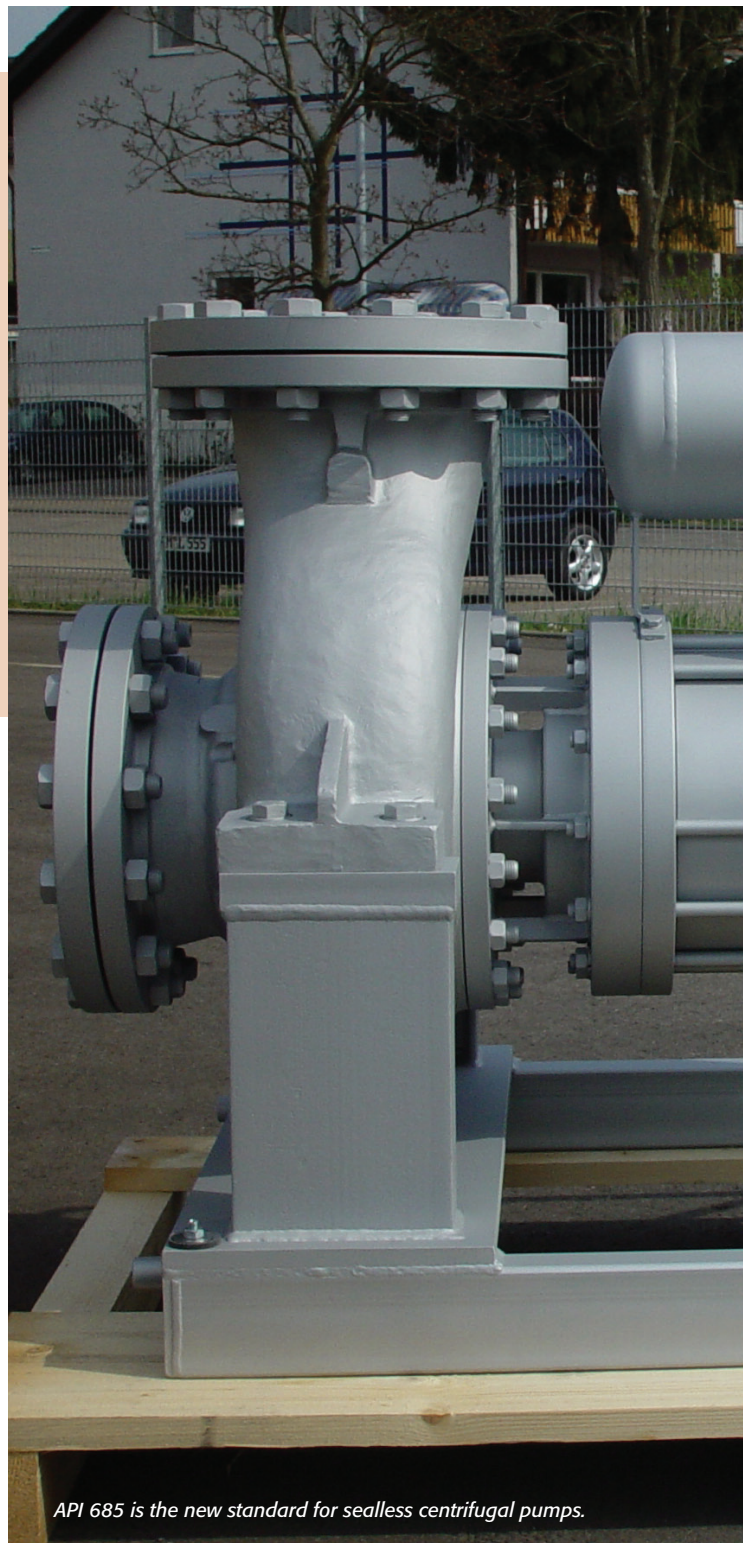
By Dieter Lau, Product Manager, HERMETIC-Pumpen GmbH.

For the first time an API standard is now available relating to the use of sealless pump technologies (canned motor pumps). While sealless technology has been well accepted in chemical process applications, it has not been readily adopted in the API market. The lack of an API specification certainly has been a contributing factor to this lack of acceptance. The API market tends to wait for a technology to be fully proven and commercialised prior to considering adoption of the product. However, the API industry is fully committed to utilizing the best technology available to protect plant personnel and the environment. With the new API 685 line of canned motor pumps, HERMETIC is able to supply a reliable product line for the API market.

API 685 is the new standard for sealless centrifugal pumps. The application of the API 685 norm is mandatory in all cases where certain operating parameters such as discharge pressure, suction pressure, temperature, revolution and differential head exceed stipulated threshold values in refineries, petrochemical plants and the gas industry. In addition to this, the system operator himself can also explicitly demand the use of API 685 machines.

The constructive design of sealless, single-stage centrifugal pumps is specified for the petro-industry in the new API norm. Besides the basic design including accessories, the norm also includes specific requirements for canned motor pumps. These particularly concern the constructive set-up of the pumps incl. the sealless drive. The losses of drive which occur include their implications for the performance are specified as well as any monitoring instruments. In addition to this, the API norm includes material recommendations according to ASTM, including testing and acceptance requirements for typical applications.

Meeting this need, HERMETIC's comprehensive canned motor pump series was extended to the new CNP type series, which fully complies with API 685 (first edition). This type series consists of a single-stage pump hydraulic according to API 610 - 9th edition, which is combined with the reliable canned motor technology



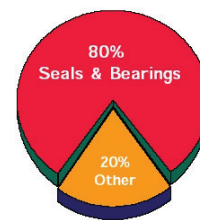
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in petrochemicals, oil & gas



Why do Pumps Fail?



80% of pump failures can be attributed to seals and bearings

according to API 685 (1st edition). Centerline pump installation with flanged draining are also part of the standard design as the obligatory flanges execution according to ANSI 300 lbs - RF. The complete type series is set-up according to the module principle.

CASE HISTORIES IN EUROPEAN REFINERIES

In close collaboration with a customer, canned motor pumps acc. to API 685 were installed in a European petroleum refinery for handling heavy naphtha in a hydrotreating process. In this process, HERMETIC canned motor pumps with an external heat exchanger were selected for a design temperature of more than 300°C. The convincing advantage for the customer was the absence of any mechanical seal and associated leakage problems at this temperature, which contributes favourably towards reduced maintenance and service costs on this difficult service.

Meeting the requirement for "zero-sulphur" motor gasoline (10ppm) production in the European Union, another customer will be installing canned motor pumps to handle caustic solvent in the MEROX process. In this process, sulphur-containing mercaptans are removed by using a combination of washing in caustic solution, cobalt-based liquid catalysts and oxygen injection. As this process contains caustic as well as noxious odour liquids, canned motor pumps were preferred. ●