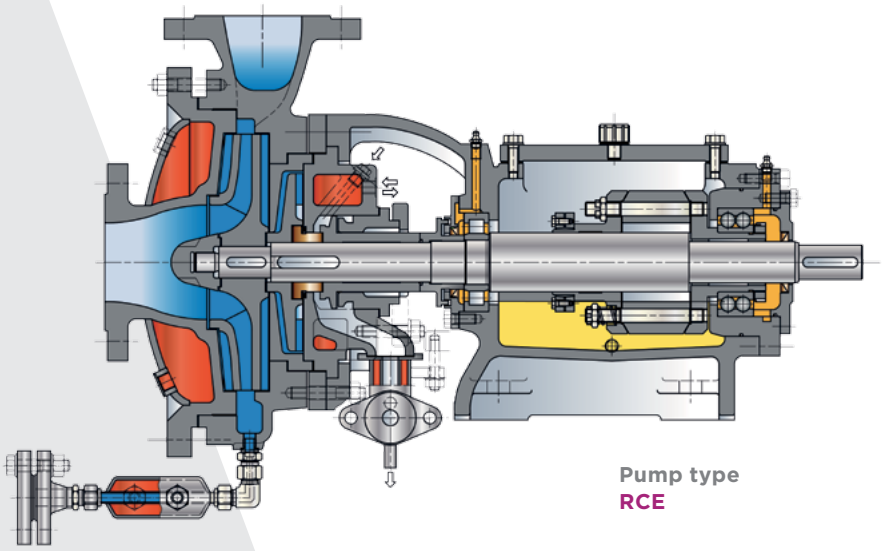
Aliaxis
UTILITIES & INDUSTRY

The Rheinhütte Pumpen product range historically originated from applications in the chemical industry. Highly corrosive media requires the use of various materials of construction such as metallic alloys, exotic materials, plastics and ceramics.

The RCE was specially developed for various critical applications, such as sulphur, corrosive fluids and dirty fluid handling. It offers engineered pump solutions for various fields where heavy duty pumps are required.

There are few differences between pumps per API 610/ISO 13709 and the RCE pumps used in the chemical industry. API 610 was issued by the American Petroleum Institute to meet the specific requirements of the petroleum and petrochemical industry such as high system pressures at elevated temperatures while handling corrosive fluids and suitable sealing systems are not a serious criterion.

The RCE is a proven, reliable horizontal heavy duty pump and has been in harsh service and environments for more than 40 years. Its design is perfectly adapted as an economical sulphur pump solution for high temperatures, where the sulphur



Pump type
RCE

RHEINHÜTTE PUMPEN

CHEMICAL CENTRIFUGAL PUMP MADE FROM METAL **TYPE RCE**

HORIZONTAL PUMPS FOR SULPHUR APPLICATIONS

THE RIGHT SOLUTION. FOR ANY FLUID.

API 610 11th edition / ISO 13709:2009

Chapter	Designation	Comments
		6 Basic designs
6.1.14	Sound pressure and sound power level are per octave band	This special sound measurement is not an applicable requirement from a technical point of view. As standard, Rheinhütte Pumpen certificate noise level of total pump unit. The company confirms maximum 85 dBA (in 1m distance) per unit.
6.1.18	Jackets with cleanout	Due to application design, heating jackets are not equipped with clean out holes or drains, which are not applicable for steam jacket heating design.
6.1.25	Back Pull Out	Due to crystallisation processes during disassembly, this criterion is technically not suitable for horizontal sulphur pump applications.
6.1.29	Bolting and threads	According to manufacturer knowledge, internal fasteners and bolting are sized according to DIN/ISO standards only, depending on design requirements.
6.3.3 a), 6.3.5 b), 6.4.2 and 6.5	Pressure casing / Nozzle loads / Nozzle connections and External nozzle forces and moments	Double nozzle loads for the RCE are manufactured to loads acc. ISO 5199. Pressure casing rating up to and exceeding, 40 bar is available on certain pump sizes. In Sulphur service, the RCE pumps are mainly used for transport purposes, where these higher pressures are not normally encountered. Therefore, pressure casing rating of 16 bar is sufficient for most of these applications. Higher ratings are available on request. Pump flange bolt holes can be drilled according to ANSI. All other flange connections (i.e. Steam supply/discharge) can be equipped with ANSI flanges on request. All allowable nozzle forces and moments are in accordance to ISO 5199.
6.7	Wear rings and running clearances	RCE is not designed using wear rings. The minimum running clearances are always wider than the clearances shown in Table 6.
6.8	Mechanical shaft seals	Rheinhütte Pumpen provides API sealing systems for sulphur as one type of sealing available, other sealing systems are available for the RCE as well. Seal chamber dimensions of RCE-type are adapted to these systems (smaller dimensions).
6.9.4.3	Rotor balancing	Balancing is limited to the impeller only. Complete rotor balancing is technically not a suitable criterion for relevant speed range of RCE in sulphur application. Shafts are produced in one single machining. Rheinhütte Pumpen will provide a run out certificate of the shaft (TIR) if required.
6.10.1.2 ff	Bearing and Bearing housing	Bearing housing design according to manufacturer standard. Ball bearing lifetimes are calculated with at least 20.000 h life-time for the complete allowable operating range (Qmin / Qmax) at maximum radial and axial loads.
6.11	Lubrication	RCE pumps with hydrodynamic sealing only available with grease lubricated bearings. If mechanical seal will be used, oil lubrication with "constant level oiler" is available.
6.12	Materials	Pump materials are not compliance with Table H.1. Rheinhütte Pumpen materials in accordance to DIN / ISO with similar or higher standard than API.
6.12.1/ 6.12.2	NACE MR0103	NACE MR0175 (also MR0103) not applicable for horizontal pumps in liquid sulphur applications (no "wet" H_2S service).
		7 Accessories
7.3	Baseplates	RCE baseplate according manufacturer's standard sole plate (casted or welded) with lifting lugs and earthing connection. Rheinhütte Pumpen offers base plates with flanges including heating connections at edge of the base plate. The sizes are designed in accordance with pump requirements.
7.3.21	Nozzle load test	Nozzle load test is not recommended as technical criterion, see 6.3.3 a)
		8 Inspection, testing and preparation for shipment*
8.3.4.3	NPSH test	NPSH test for horizontal pump type RCE with hydrodynamic seal is technically not applicable. NPSH test only for RCE-execution with mechanical seal can be provided.

* FRIATEC AG-Division Rheinhütte Pumpen has internal procedures for inspection and testing which can be provided. Performance test is normally done in accordance to ISO 9906 grade 2B.

Aliaxis
UTILITIES & INDUSTRY

FRIATEC Aktiengesellschaft
Division Rheinhütte Pumpen
Rheingaustraße 96-98 - 65203 Wiesbaden
Tel.: +49 611 604-0 · Fax: +49 611 604-328
info@rheinhuette.de
www.rheinhuette.de

FRIATEC

RHEINHÜTTE PUMPEN