



 CIRCOR

HOUTTUIN™



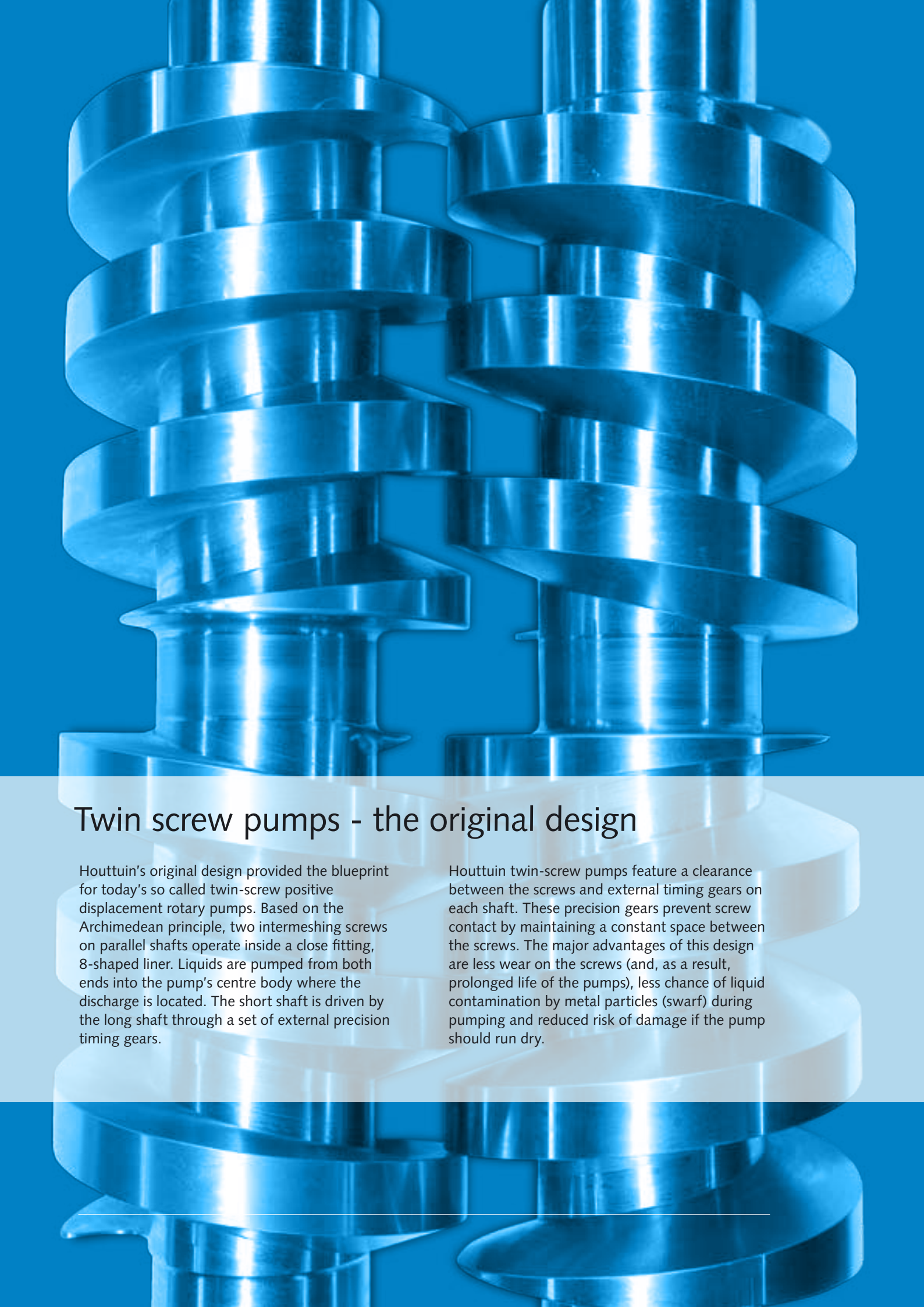
Holland - a legacy in pumping

Pumping and pump manufacture have long been an integral part of the history of Holland. Throughout the centuries the Dutch have designed and applied all kinds of pumping devices for the purpose of making land out of water. In fact, over half of Holland's land surface has been wrestled from its lakes, marshlands and former *Zuiderzee*.

From the beginning of the industrial revolution the Dutch were quick to utilize their specific know-how in a wide range of industries and in doing so became leading experts in the field of pump manufacture.

New needs - new deeds

During the first twenty years of its existence, Houttuin used the principle of its founder's patented, symmetric screw design for all its products. This design sufficed to cover all industrial and maritime applications that existed at that time. With the advent of new liquids and substances, industrial pumping needs became increasingly complex. New pumping designs - including asymmetric screw designs - were needed to meet these changing requirements.



Twin screw pumps - the original design

Houttuin's original design provided the blueprint for today's so called twin-screw positive displacement rotary pumps. Based on the Archimedean principle, two intermeshing screws on parallel shafts operate inside a close fitting, 8-shaped liner. Liquids are pumped from both ends into the pump's centre body where the discharge is located. The short shaft is driven by the long shaft through a set of external precision timing gears.

Houttuin twin-screw pumps feature a clearance between the screws and external timing gears on each shaft. These precision gears prevent screw contact by maintaining a constant space between the screws. The major advantages of this design are less wear on the screws (and, as a result, prolonged life of the pumps), less chance of liquid contamination by metal particles (swarf) during pumping and reduced risk of damage if the pump should run dry.



High quality and continuous research

Houttuin's high quality products, whether standard or specially engineered, have proved to be the solution for a stable and reliable performance in industries in which problems as diverse as high discharge and low section pressures, viscosity, corrosive liquids etc. need to be solved. This is illustrated by the fact that many of Houttuin's pumps are still in service after 20, 30 and even 40 years. In order to maintain its leading edge in this field, Houttuin invests heavily in research and development.

All products are designed, produced and tested in the Houttuin manufacturing plant. Continuous research, computerized design and engineering and extensive product testing regularly open new fields of application of the Houttuin screw pumps. Furthermore, Houttuin is able to meet all widely accepted standards such as DIN, ANSI, API and ISO. The ISO 9001 certification is further proof of Houttuin's commitment to excellence.



High tech design

Houttuin has evolved into a sophisticated organization. At Houttuin, all pump designing is computerized using the most advanced computer techniques and the latest CAD/CAE software. The major advantages lie not only in the reduction of error, but also in the added flexibility which enables Houttuin to develop tailor-made solutions, geared to the needs of each individual customer, with short lead times.



Refineries

Chemical industry

Offshore

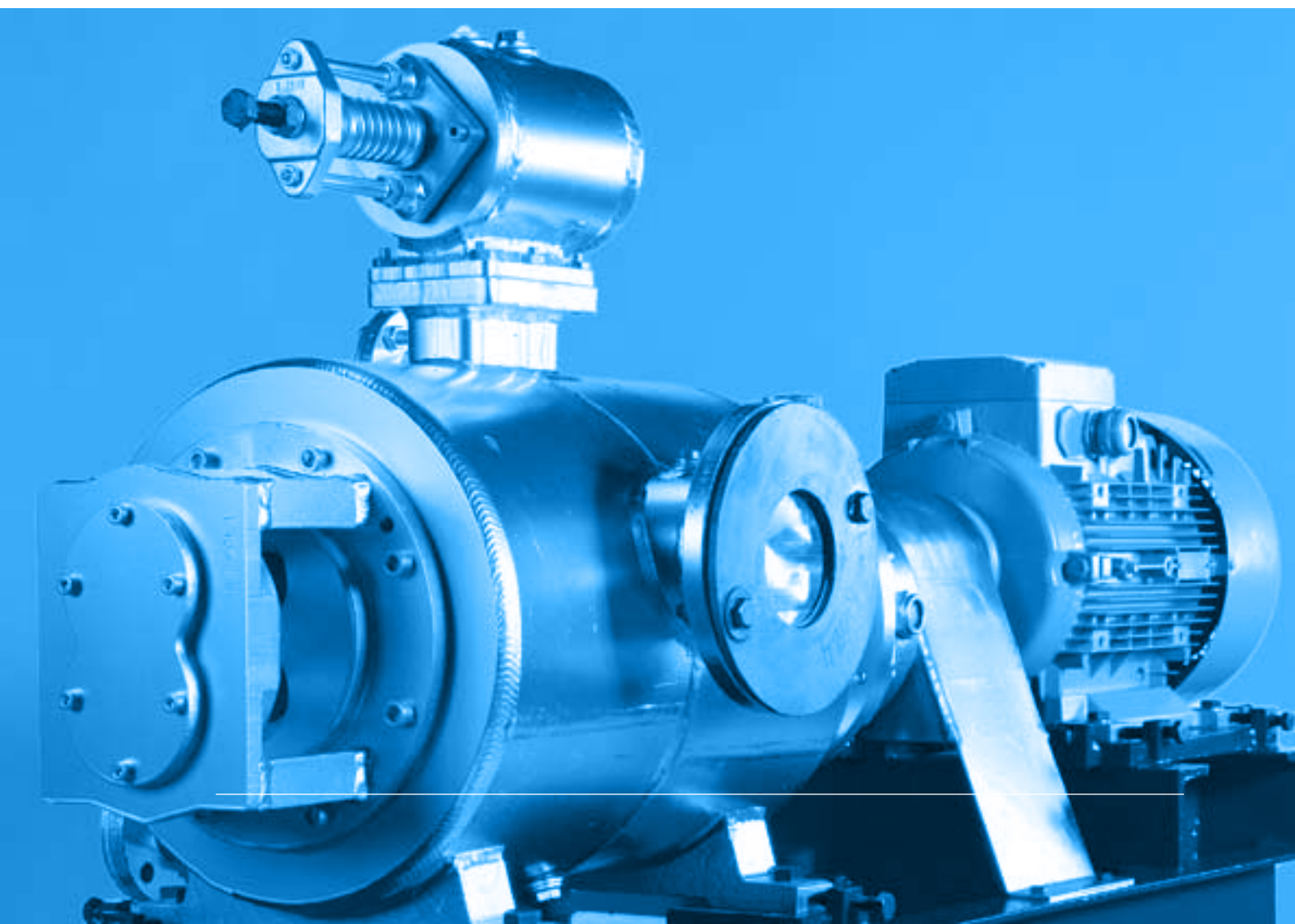
Petrochemical industry

Power plants

Shipping industry

Food processing industry

General industry





International orientation a lead to diversification

Throughout the years, the company has been able to expand and strengthen its foreign markets significantly.

Western and Eastern Europe, USA, Taiwan, Korea, India, Kuwait, Egypt, Indonesia, Singapore, are all established export areas for Houttuin's products.

The company's twin-geared screw pump has become standard equipment for almost all branches of industry, ranging from the shipping and offshore industry to the oil, chemical, petrochemical, food processing and other industries.





Product range: standard, modified or tailor-made

Houttuin twin-geared screw pumps are manufactured in small standard series or tailor-made.

The standard pumps are divided into four product groups.

- 100 series: Horizontal single entry twin-screw pumps for low range pressures (max. 10 bar) and limited capacities of aggressive chemical liquids.
- 200 series: Horizontal and vertical double entry twin-screw pumps, covering a flow range up to 2500 m³/h at a maximum pressure of 25 bar.

- 211/215 series: Vertical double entry twin-screw pumps for lubricating (generally maritime) purposes in limited space.
- Engineered series 200/300: Horizontal twin-screw pumps, each pump being a one-off piece or part of a small series, designed and constructed according to customer specifications on, for instance, high and low viscosities, large capacities and high pressures (up to 80 bar).

In addition to standard pumps, the company specializes in tailor-made solutions which meet the specific demands of each branch of industry.



Houttuin's service and repair around the clock

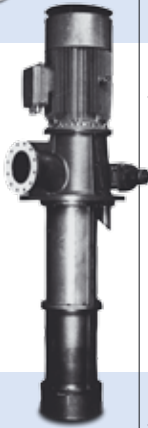
Problem solving

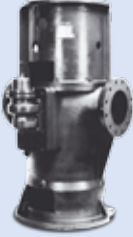
Houttuin has used its expertise to solve pumping problems as diverse as:

- the processing of high-grade synthetic pulp fibre in an airtight environment without changing the structure of the emulsion;
- removing abrasive toxic waste from surface water with a light, transportable pump;
- pumping chocolate emulsion in the food processing industry.

The facility of Houttuin B.V. consists of a Manufacturing Department for new pumps and a Service Department.

Houttuin's Service Department offers around the clock service (24 hours a day, 7 days a week) and takes care of preventative and periodic pump maintenance. It carries out all repairs any customer anywhere in the world may require. This service takes also care of damage assessment, on-site installation and commissioning activities.

Pump model & type	Fluid properties	Applications	Special features	Design & main arrangement	Performance data (max/range)
136.20 	Non-lubricating, low viscosity, corrosive, slightly abrasive.	Contaminated fluids, sludge, fat and soap, paint and lacquer. Food and beverage industry.	Pump casing easy to clean. Quenching of mechanical seal possible.	Self-priming, single entry, twin-screw pump with external bearings; for horizontal foot mounting. <i>Shaft sealing:</i> mechanical seals.	Q 20 m ³ /h ΔP 10 bar V 0.6 to 1500 cSt t 120°C
211.10 	Lubricating, low viscosity.	Lub oil, fuel oil and hydraulic oil systems. Fuel oil service. Pumping air entrained lub oils. Generally in maritime applications in which space is limited.	High suction capability due to good sealing of the inter-meshing screw profiles. High service life by anti-friction bearing of the shafts.	Self-priming, double entry, twin-screw pump with internal, product lubricated, bearings; for vertical pedestal mounting. <i>Shaft sealing:</i> mechanical seals.	Q 600 m ³ /h ΔP 16 bar V 20 to 760 cSt t 80°C
211.40 	Non-lubricating, low viscosity, corrosive, slightly abrasive.	Fresh-, sea- and polluted waters, fuel oils, light products. As bilge-, ballast- or general service pump.	Not sensitive to impurities because screw-shafts have no metal contact between each other and the cylinder bore.	Self-priming, double entry, twin-screw pump with external bearings, in short construction, for vertical pedestal mounting. Separate casing insert. <i>Shaft sealing:</i> mechanical seals.	Q 1100 m ³ /h ΔP 16 bar V 0.6 to 1500 cSt t 100°C
215.10 	Lubricating, low viscosity.	Lub oil, fuel oil and hydraulic oil systems. Fuel oil service. Pumping air entrained lub oils. Generally in maritime applications in which space is limited.	High suction capability due to good sealing of the inter-meshing screw profiles. High service life by anti-friction bearing of the shafts. Because of the positive suction specially for lub oil systems.	Submersible self-priming, double entry, twin-screw pump with internal, product lubricated, bearings; for deck mounting. <i>Shaft sealing:</i> mechanical seals.	Q 600 m ³ /h ΔP 10 bar V 20 to 760 cSt t 80°C
216.10 	Lubricating, low viscosity.	Lub oil, fuel oil and hydraulic oil systems. Fuel oil service. Pumping air entrained lub oils.	High suction capability due to good sealing of the inter-meshing screw profiles. High service life by anti-friction bearing of the shafts.	Self-priming, double entry, twin-screw pump with internal, product lubricated, bearings; for horizontal foot mounting. <i>Shaft sealing:</i> mechanical seals.	Q 1100 m ³ /h ΔP 16 bar V 20 to 760 cSt t 80°C
216.40 	Non-lubricating, low viscosity, corrosive, slightly abrasive.	Fresh-, sea- and polluted waters, fuel oils, light products. As bilge-, ballast- or general service pump.	Not sensitive to impurities because screw-shafts have no metal contact between each other and the cylinder bore.	Self-priming, double entry, twin-screw pump with external bearings, in short construction, for horizontal foot mounting. Separate casing insert. <i>Shaft sealing:</i> mechanical seals.	Q 1100 m ³ /h ΔP 16 bar V 0.6 to 1500 cSt t 100°C

Pump model & type	Fluid properties	Applications	Special features	Design & main arrangement	Performance data (max/range)
231.50 	Non-lubricating, low & medium viscosity, corrosive, abrasive	In shipbuilding and industry: as cargo- or transferpump; also for 'warm' products.	Not sensitive to impurities because screw-shafts have no metal contact between each other and the cilinder bore. Available with various sealing arrangements.	Self-priming, double entry, twin-screw pump with external bearings, in long construction, for horizontal foot mounting. Separate casing insert. <i>Shaft sealing</i> : stuffing box or mechanical seals.	Q 1100 m ³ /h ΔP 16 bar V 0.6 to 5000 cSt t 140°C
236.40 	Non-lubricating, low & medium viscosity, corrosive; abrasive	In shipbuilding and industry: as cargo- or transferpump; also for 'warm' products.	Not sensitive to impurities because screw-shafts have no metal contact between each other and the cilinder bore. Available with various sealing arrangements.	Self-priming, double entry, twin-screw pump with external bearings, in long construction, for horizontal foot mounting. Separate casing insert. <i>Shaft sealing</i> : stuffing box or mechanical seals.	Q 1100 m ³ /h ΔP 16 bar V 0.6 to 5000 cSt t 140°C
249.40 	Non-lubricating, low & medium viscosity, corrosive, abrasive	In shipbuilding and industry: as cargo- or transferpump; for fuel oils and light products, also for 'hot' products.	High suction capability due to well shaped inlet. Not sensitive to impurities because screw-shafts have no metal contact between each other and the cilinder bore. Available with various sealing arrangements.	Self-priming, double entry, twin-screw pump with external bearings, in long construction, for horizontal foot mounting. <i>Shaft sealing</i> : mechanical seals.	Q 2500 m ³ /h ΔP 16 bar V 0.6 to 5000 cSt t 140°C
200 series Standard 	Lubricating & non-lubricating, low & high viscosity, corrosive, abrasive	In chemical, petrochemical and off-shore industry. As process or transfer-pump; also for 'hot' products.	High range of applications: available in various materials, for max. corrosion and wear resistance, and sealing arrangements.	Self-priming, double entry, twin-screw pump with external bearings, in long construction, for horizontal or vertical mounting. Separate casing insert. <i>Shaft sealing</i> : stuffing box, single or double mechanical seals.	Q 2500 m ³ /h ΔP 25 bar V 0.6 to 100.000 cSt t 400°C
200/300 series Engineered 	Lubricating & non-lubricating, low & high viscosity, corrosive, abrasive	In chemical, petrochemical and off-shore industry. As process or transfer-pump; also for 'hot' products.	High range of applications: available in various materials, for max. corrosion and wear resistance, and sealing arrangements. 'High' pressure due to solid and compact construction.	Self-priming, double entry, twin-screw pump with external bearings, in short construction, for horizontal or vertical mounting. Separate casing insert. <i>Shaft sealing</i> : single or double mechanical seals.	Q 2500 m ³ /h ΔP 80 bar V 0.6 to 100.000 cSt t 400°C

Q Capacity
ΔP Pressure

V Viscosity range
t Temperature of pumped liquid

Under the wings of CIRCOR

Since its establishment in 1929, Houttuin B.V. has been a healthy, solid, worldwide operating company. This successful, originally private company, belongs to the CIRCOR since 1998, one of the leading pump manufacturers in the world. The financial support of CIRCOR and the constant

exchange of know-how between the works, business units, associated companies and sales offices in the CIRCOR (not only in technical respect, but also in the field of marketing, services and sales), guarantees a solid base for the future for Houttuin, as well as for the other business units.



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