

## Gearboxes designed to meet maximum demands

### Gearing

The gearing is dimensioned and designed for maximum safety and minimum noise and vibration. These design targets are achieved through optimum fine tuning of the macro and micro gearing geometry.

### Casing

The design of the casing and foundation has a considerable influence on the load-carrying characteristics of the gearing and bearings. The casings are therefore torsionally stiff structures with strong internal ribs. The thrust bearing is located on the engine side.

### Bearings

High-quality gearboxes require bearings of special properties. RENK therefore pays close attention to the selection of safe and amply dimensioned bearings that ensure high performance and an extraordinarily long service life. Thick-walled radial and axial bearings with circular thrust pads made for trouble-free operation and durability.

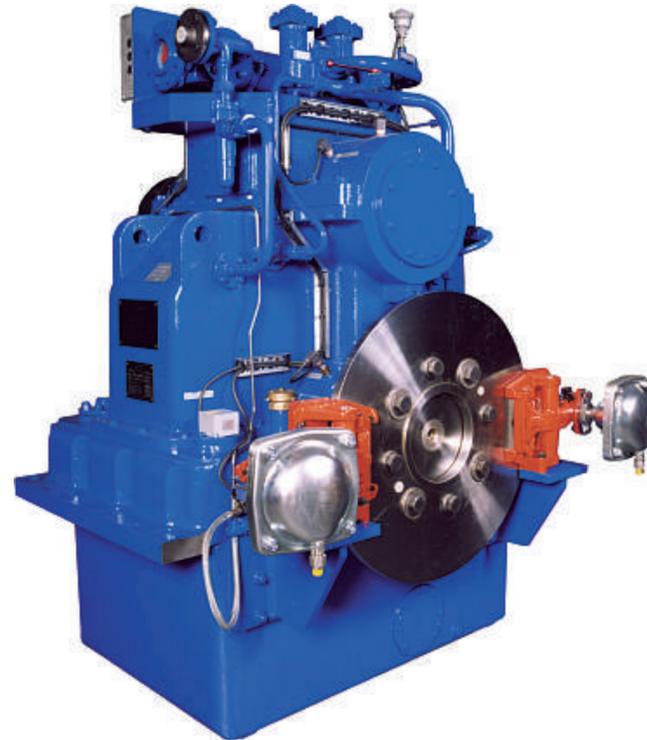
The following aspects are of particular benefit: Maintenance of the thrust bearing is possible without draining the oil and disassembling the gearbox housing. Astern and ahead pads of the thrust bearing are identical, a fact that simplifies replacement to a considerable extent.

### Specification RSV / RSH :

- Single-stage design, driven by diesel engine or electric motor via flexible coupling.
- Main shafts supported on plain bearings
- PTO shaft on standard roller bearings, optionally on plain bearings
- Integrated thrust bearing with circular thrust pads, located on main engine side.
- Attached and ready piped lube oil pumps: one electrically / one mechanically driven.
- Instrumentation according to the rules and regulations of the relevant classification society for unattended operation.
- Housing of grey cast iron with strong internal ribs for maximum casing stiffness.
- Case-hardened helical gearing with high-addendum toothing
- Auxiliary equipment, such as pumps, coolers, filters, control & monitoring systems, etc. ready piped and wired to the terminal box mounted on the gearbox.
- Spare parts according to classification society requirements.

### Optional Accessories:

- Turning device for turning the propeller shaft.
- Multiple-Disc Clutches for PTO/PTH operation.
- attached shaft brakes
- wheel set for CPP pumps



RSV 630 with shaft brake

## Specification / Accessories

### Power Take-Off

PTOs for driving shaft generators or pumps are available in two different systems:

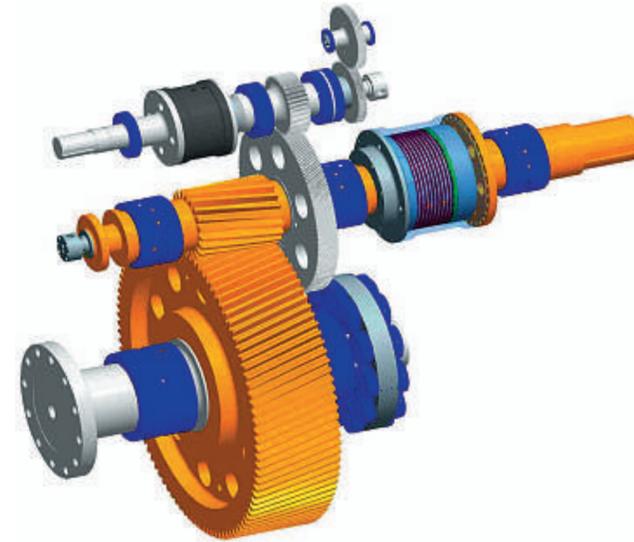
### Secondary PTO (SPTO):

- Simultaneous operation of shaft generator and propeller

### Primary PTO (PPTO):

- Independent shaft generator operation without propeller.

The Primary PTO solution requires 1 Multiple-Disc Clutch.



RSVL 1000 wheel set with SPTO and single stage PTH operation

### Power Take-In (PTI)

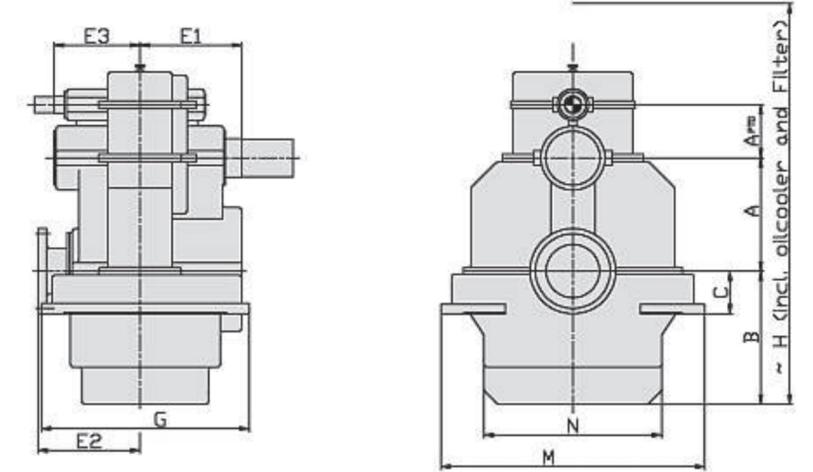
### Power Take-Home (PTH)

Dual-use electrical systems Generator / Motor are suited for two different operating modes:

- **PTI:** Power for propulsion (Booster)
- **PTH:** Auxiliary propulsion for emergency operation (Prime Mover out of operation)

Power Take-Home systems usually require 2 Multiple-Disc Clutches

## Main Dimensions



RSV Size	RSV C-Version	PTO Position	Shaft Position			Casing						Thrust [kN]	approx Weight [t]	
			E1	E2	E3	B	C	G	H	H C-Version	M			N
500	560	315	500	450	360	600	180	690	2100	2160	1230	960	245	2,5
560	630	315	530	500	380	670	200	770	2250	2320	1360	1060	302	3,5
630	670	335	580	560	450	750	225	850	2400	2440	1510	1200	366	4,7
670	710	335	630	600	460	800	250	900	2650	2690	1590	1130	472	5,6
710	750	355	650	630	490	850	250	950	2750	2790	1700	1220	472	6,4
750	800	375	670	670	500	900	280	1020	2850	2900	1780	1280	592	7,3
800	850	400	700	700	550	950	280	1070	3000	3050	1910	1380	592	8,8
850	900	425	780	750	570	1000	315	1140	3150	3200	1990	1440	774	10,5
900	950	450	800	800	610	1060	315	1200	3250	3300	2110	1530	774	12,5
950	1000	450	850	850	650	1120	355	1270	3350	3400	2220	1620	979	14,5
1000	1060	475	900	900	680	1180	355	1370	3800	3860	2320	1700	979	17,0
1060	1120	500	950	950	710	1250	400	1940	3950	4010	2460	1660	1068	20,6
1120	1180	530	1020	1000	760	1320	400	2030	3400	3460	2560	1720	1209	23,8
1180	1250	530	1050	1000	790	1360	450	2100	3500	3570	2720	1850	1209	26,8
1250	1320	560	1100	1050	820	1400	450	2190	3650	3720	2880	1990	1319	31,2
1320	1400	560	1180	1120	880	1450	500	2330	3750	3830	3020	2100	1530	37,2
1400		600	1240	1180	900	1500	500	2440	3950		3180	2230	1669	44,0

H (incl. oilcooler and Filter)

## Product Support

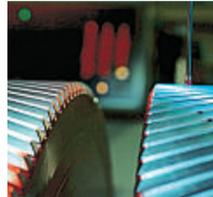


Our after-sales service team will arrange for and coordinate all necessary measures to ensure competent assistance and remedial action without any loss of time.

We maintain the most advanced test and inspection facilities:

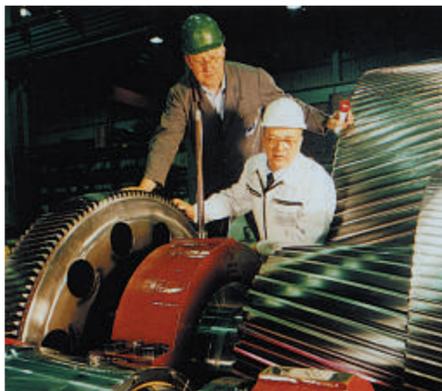
- 3D gear teeth measurement
- 3D coordinate measuring machine
- Crack testing, surface testing and ultrasonic testing
- Endoscope for internal inspection

Upon completion of the analysis, you will receive a study report containing suggestions and recommendations on how to proceed.



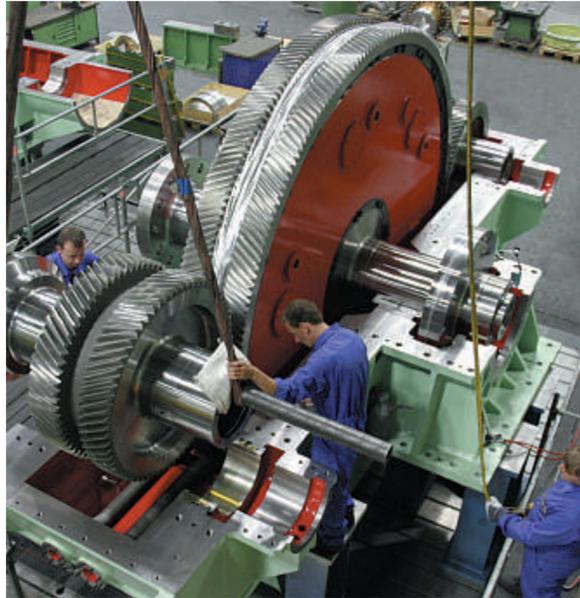
Gearing Measurement

Our highly qualified team of experts will be supporting you once the ordered gearbox or coupling has left our factory. The service team can be contacted at any time to assist you with any questions or problems you may have. Additionally, our after-sales service department is backed by a group of experienced field engineers. We continuously provide the members of these teams with support in order to ensure that complex queries are resolved fast and accurately.

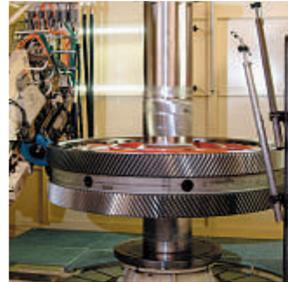


Inspection of a Marine Gear Box

## Further Products of our Programme RENK Double Marine Gearboxes for Ro-Pax-Ferries



NDSQL 4700



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RENK - a member of the MAN Group



## Concepts – Types – Sizes



All gearboxes are designed and manufactured to the following criteria:

- Customer specification
- Classification rules and regulations
- Internal RENK standards

RENK's internal standards cover the design and dimensioning of the major gearbox components, such as gearing, bearings, thrust bearings and multiple-disc clutches. They reflect the experience gained in the course of a long tradition of gearbox manufacturing.

RENK's internal standards are in conformance with the rules and regulations of the classification societies. Moreover, they are valuable supplementary documents and partly even exceed classification requirements.

These standards therefore guarantee optimum performance, reliability and longevity.



### Gearbox Concepts for Propulsion Systems

The gearbox is one of the key components of the propulsion system and designed to perform a large variety of functions, such as

- Reduction of the main engine speed to the optimum propeller speed
- Power take-off (PTO) or power take-in (PTI) for or from auxiliary drives.

The extensive experience RENK has gained over the past several decades in the design and manufacture of thousands of marine gearboxes constitutes a solid basis for the development of optimum solutions which fully meet the customers' requirements. This experience guarantees maximum reliability and a long service life for one of the most essential components of a ship's propulsion system.



### Innovative Power Transmission

# Single Marine Gear Units

## Type RSV/RSH

1500 to 22000 kW

### Type and Size Designations of RENK Single Marine Gearboxes

- R** RENK
- S** Single Marine Gearbox
- V** Vertical Offset
- H** Horizontal Offset
- L** Multiple-Disc Clutch
- C** Compact Version

#### Example 1:

## RSV 1060 C

- RENK**
- Single Marine Gearbox**
- Vertical Offset**
- 1060 mm Shaft Offset**
- Compact Version**

#### Example 2:

## RSHL 900

- RENK**
- Single Marine Gearbox**
- Horizontal Offset**
- L Multiple-Disc Clutch**
- 900 mm Shaft Offset**

#### Standard Shaft Offset in mm:

500	560	630	670	710
750	800	850	900	950
1000	1060	1120	1180	1250
1320	1400			

#### Power Range: 1500 kW to 22000 kW