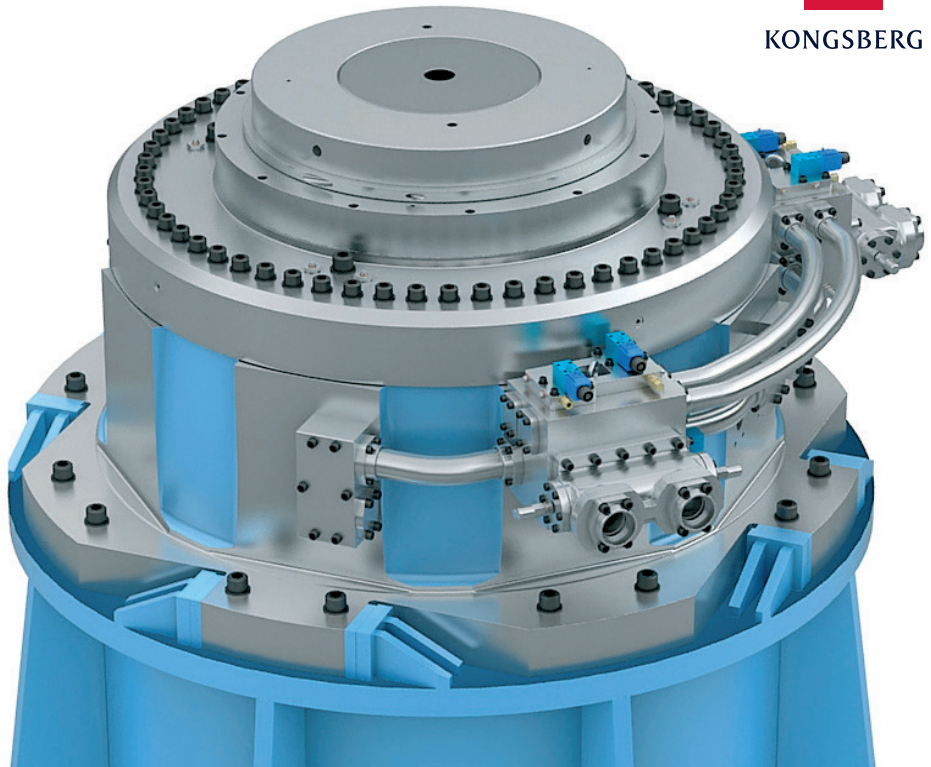


RV / IRV SERIES



KONGSBERG



KONGSBERG STEERING GEAR

RV / IRV series - the compact solution for larger vessels. The proven technology preferred by leading owners since 1952, on more than 25 000 ships

KEY FEATURES

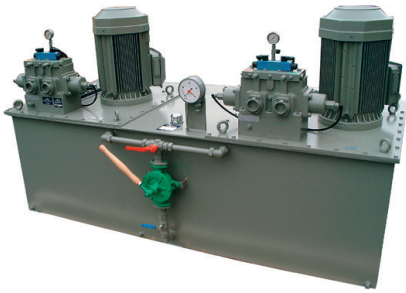
- Torque range 600 - 6000 kNm
- Rudder angles 35 - 70 degrees
- Compliance with IMO regulations
- Available with in-house add-ons:
 - Steering controls
 - CANBUS based alarm system
 - Rudder angle indicating system

Highly reliable power packs

The use of reliable power units is of vital importance for a vessel's safety, and great care has been taken from material selection through construction in order to meet the strictest quality demands. Kongsberg Maritime dual pump power packs are designed with ship safety in mind, and with an eye to simplify the layout. This is achieved by removing the need for expansion tank and for a separate oil storage tank. The pumps are low noise, submerged, fixed displacement screw pumps that provide maximum reliability for an essential ship equipment.

Built-in storage tank

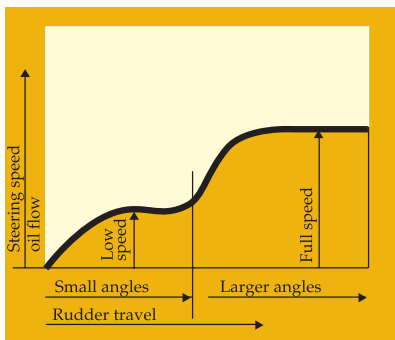
Built-in storage tank is an option that has gained a popular support among most yards and owners. This solution reduces space, saves installation time and costs, and gives a clean layout in the steering gear room.



Modulated flow control

The control system modulates the oil flow to the actuator in order to give a soft start and low rudder speed for small rudder movements. The oil flow gradually increases up to full flow, allowing full turning speed on the rudder.

The reduced flow ensures a very precise rudder positioning for small rudder angles, while the full flow provides for full manoeuvring force when needed. In this way the simple and reliable fixed displacement pump is efficiently controlled to provide smooth and accurate steering in line with a variable displacement pump, however, without introducing the complexity of such a pump.



The precise rudder positioning makes Modulated Flow Control ideal in combination with autopilots, as the risk of rudder overshooting is minimised. This again makes course keeping easier, thus contributing to improve a ship's propulsive efficiency.

Starter system

The new starter system with frequency converter interfaced with the emergency switch board, reduces the power and starting current requirements from the emergency generator to a minimum.

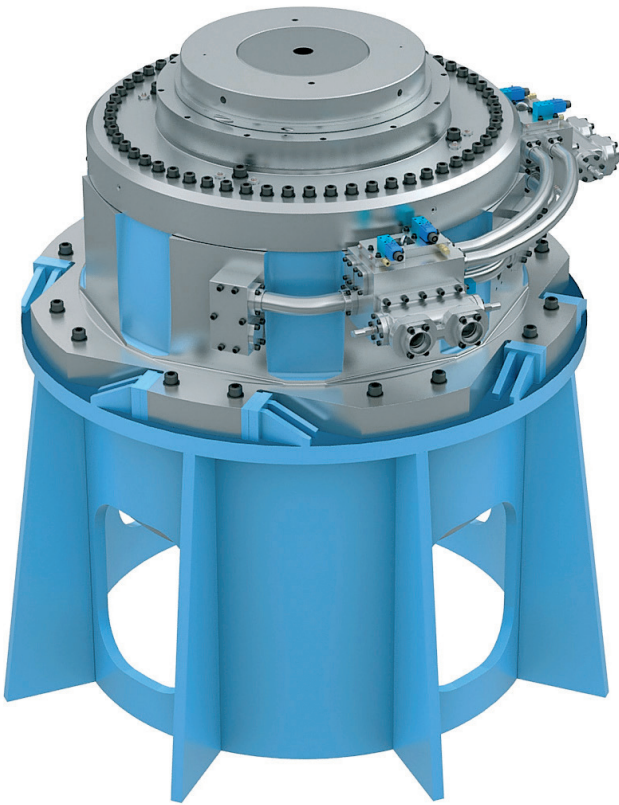
Maintenance and overhaul

By splitting all internal seals and bearings and using an internal 'lifting device', the 4-vane steering gear can be totally overhauled without removing the rudderstock connection.

Fact sheet available for related products

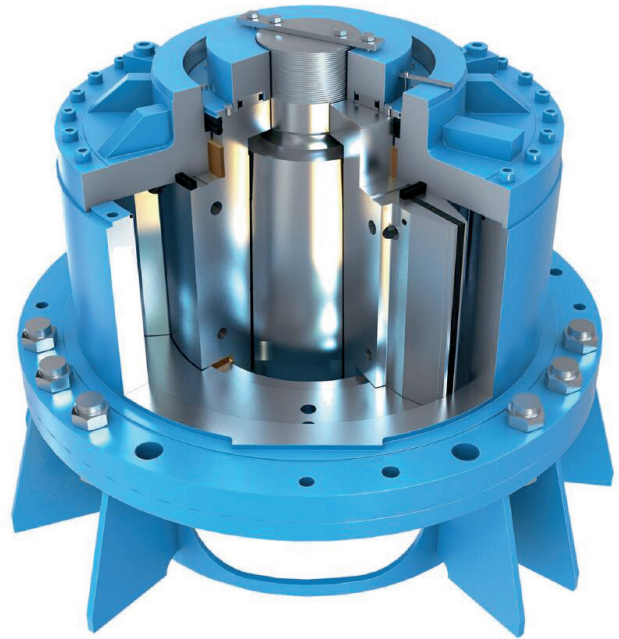
- Alarm system
- Rudder angle indicator system
- Steering control system
- Interface to external equipment





4 - Vane technology

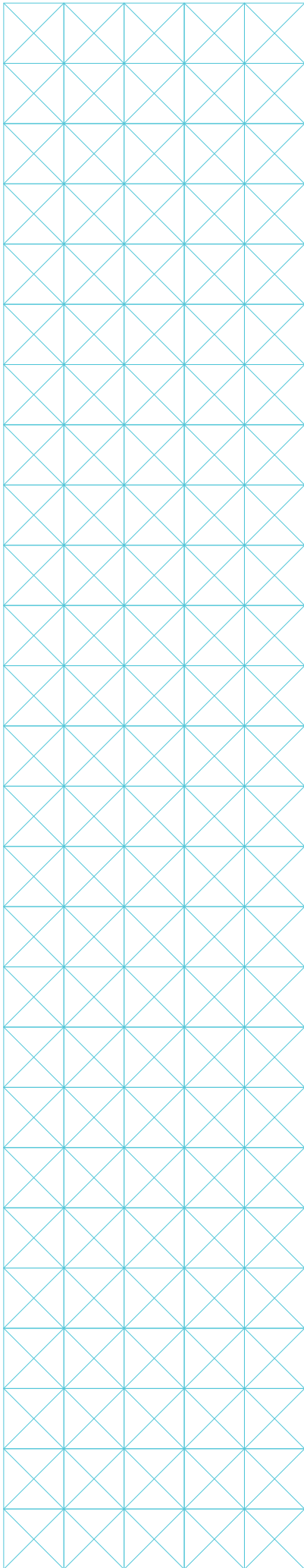
Illustration showing installation by stoppers and standard stud bolts



2 & 3 - Vane technology

Illustration showing installation by reamer bolts

SG TYPE	MAX. STOCK DIA (MM)	MAX. WORKING PRESSURE	MAX. WORKING TORQUE (KNM)	MAX. RUDDER ANGLE	WEIGHT APPROX (KG)	MAX. RADIAL LOAD (KN)	MAX. AXIAL LOAD (KN)
RV 700-2	410	80	604	71.5	5000	1800	700
RV 850-3	420	80	797	46.5	3700	1400	500
RV 900-2	450	80	796	71.5	6000	1800	700
RV 1050-3	450	80	940	46.5	5000	1800	700
RV 1100-2	510	80	949	71.5	8000	3000	1250
RV 1350-3	495	80	1229	46.5	6000	1800	700
RV 1400-2	500	80	1321	71.5	8100	1800	700
RV 1650-3	550	80	1499	46.5	8000	3000	1250
RV 1700-2	560	80	1551	71.5	11000	3000	1250
RV 2050-2*	580	80	1864	71.5	12000	3000	1250
RV 2300-4*	580	170	2300	36.5	10000	700	1050
RV 2600-3	620	80	2401	46.5	11500	3000	1250
RV 2700-2*	650	80	2488	71.5	15000	3000	1250
RV 3050-3	660	80	2870	46.5	12000	3000	1250
RV 3500-4*	670	170	3500	36.5	14000	900	1200
RV 4000-3	700	80	3807	46.5	15000	3000	1250
RV 3050-2*	700	80	2796	71.5	20000	3000	1800
RV 4200-2*	730	80	3916	71.5	24000	3000	1800
RV 5000-4*	750	170	5000	36.5	20000	1100	1750
RV 6000-4*	800	170	6000	36.5	23000	1250	2000



Installation

- Low weight, typically 50% less than RAM-type
- Installation with reamer bolts or stoppers
- Few components:
 - Integrated storage tank
 - Integrated rudder carrier
 - No expansion tank
 - No external grease pump required

Safety

- -Safety first through simple and reliable system
- No external moving parts
- Automatic lock valve
- No external oil leakages
- Double hydraulic sealing system on IMO type steering gear

Operation

- Modulated flow control valve ensures:
 - Smooth rudder movements
 - Rudder positioning better than proportional valves
 - Low noise level (80-85 dB A)
 - Polymer sealing ensure superior tightness of <math>< 1^\circ/\text{min}</math>.

Maintenance

- No external lubrication required, internal bearings are lubricated by the hydraulic oil
- Seals and bearings interchangeable without loosening the rudderstock connection
- Short lead time on spare parts
- World wide service
- Low maintenance cost due to simplicity of the system



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