
RENK-MAAG

Synchronous Clutch Coupling type MS

...your compact engine translator!
Synchronous Clutch Couplings type MS engage automatically when the driver overruns the driven machine (synchronous speed) and also disengage again automatically if the driver falls below the speed of the driven machine or torque becomes negative. This can happen at any speed within the machine’s speed range. All parts are hydrodynamically lubricated, so the clutch is wear-free. With the integrated flexible gear coupling, bearings and plant length can be saved. The RENK-MAAG MS Clutch Couplings understand everything in the range of 0.5 to well over 200 MW!

RENK-MAAG Synchronous Clutch Couplings are used in a wide range of applications

**Marine applications**
- Combined propulsion systems such as CODOG, COGOG, CODAG, COGAG, CODAD, etc.
- Efficiency booster drives for diesel engine propulsion systems

**Power generation**
- Peaking power plant
  - Synchronous condensing
  - Power discharge
- Combined Cycle Power Plants (CCPP)
- Combined Heat and Power (CHP) plants
- Compressed Air Energy Storage (CAES)

**Energy recovery, combined cycle technologies, cogeneration and others**
- Connecting expander turbines to main drives in petrochemical plants or steel manufacturing (blast furnaces)
- Blower drives in power stations for use during starting sequence
- Starting device for gas turbines
- Automatic turning gears

**Synchronous Clutch Coupling type MS consists of two main elements**
- Synchronizing mechanism: automatic engagement/disengagement
- Gear coupling (flexible): compensation of axial, radial and angular displacement
Design versions

Flange mounted
- Standard solution
- Easy assembly due to bolted connection
- Also available as semi-rigid version

Shrink-fitted hubs with spacer
- Hydraulically fitted conical hubs
  - Shaft end with hydraulic connection
    for more convenient assembly
- Cylindrical hubs with fitted key and safety nut
  - Also convenient for assembly (slight heating)
- Cylindrical hub without fitted key
  - Stronger thermal shrink fit (more heating)
  - More demanding assembly

Quill-shaft mounted
- Space-saving solution
- Standard application in marine arrangements
- Used in all kinds of applications:
  industry, power generation and energy recovery.

Train arrangements – most compact and efficient train possible!

In-line solution with and without flexible coupling
- Very compact shaft train
- No separate flexible coupling (gear coupling integrated in MS)
- 2 bearings less means higher efficiency

Quill-shaft arrangement with and without flexible coupling
- Very compact shaft train
- No separate flexible coupling (gear coupling integrated in MS)
- 1 bearing less means higher efficiency
- MS fully integrated in gearbox casing

Summary

More than 50 years of experience within RENK-MAAG! Over 800 Synchronous Clutch Couplings sold!

- Automatic engagement/disengagement
- Engaging at any synchronous speed
- Flexible with integrated gear coupling
- Compact, long-lived and wear-free
- Retrofittable into existing plants
- Suitable for high torque and high speed
- Wide range of application
- Tailored for customer requirements
Product portfolio

RENK-MAAG provides new products, services, inspections, repairs and spare parts (incl. complete couplings) for all types of MAAG/RENK-MAAG couplings.

**Gear couplings**

**Non-shiftable**

Various types used as flexible couplings.

*RENK-MAAG supplies services and spare parts for all MAAG couplings. RENK Rheine specializes in non-shiftable gear couplings.*

**Shiftable**

**Synchronous Clutch Coupling**

- **Engaging automatically**
  - Flexible with integrated gear coupling
  - Engaging at any synchronous speed
  - Disengaging at any speed with negative torque
  - Various additional features
  - Small drag when disengaged
  - E.g. Combined Cycle Power Plants (CCPP)

- **Add. features**

**Basic design**

**Coupling size**

**M S** - 39 - O

E.g. 390 mm pitch diameter of gear coupling, quill-shaft arrangement

**H S** - 88 - E

E.g. 880 mm pitch diameter of gear coupling, encaised

**Z D** - 50 - H

E.g. 500 mm pitch diameter of gear coupling, hydraulically activated

- **Additional features**

**Basic design**

**Coupling size**

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- **Additional features**

**Additional features**

- **A** For starter drives
- **E** Encased
- **F** Isolating device (pawl free)
- **H** Hydraulically activated
- **L** Lever activated (manually)
- **N** Engagement at low speed
- **Q** Quill-shaft arrangement
- **R** Locking mechanism
- **T** For turning gears

More features on request!
## MSX standard (flange mounted)

<table>
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<tr>
<th>Size</th>
<th>( P/n^* ) [kW/rpm]</th>
<th>( T^* ) [kNm]</th>
<th>( n \text{ max.} ) [rpm]</th>
<th>( A \text{ min} ) [mm]</th>
<th>( B ) [mm]</th>
<th>( C ) [mm]</th>
<th>( D ) [mm]</th>
<th>( E \text{ max} ) [mm]</th>
<th>( F ) [mm]</th>
<th>( G ) [mm]</th>
<th>( H ) [mm]</th>
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<td>2.8</td>
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* \( max \text{ continuous} \)