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ROTAMAC RMDD
High Pressure Multi-Stage Pumps [BB4]

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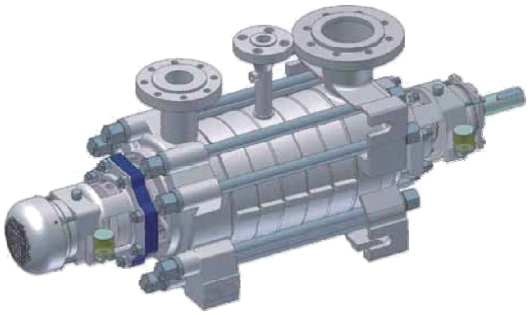
INTRODUCTION

This data booklet deals with RMDD series, single casing, radially split, multistage, between bearings centrifugal pumps.



The RMDD is family of high pressure pumps is designed as per BB4 type. These pumps are also called ring-section pumps, segmental-ring pumps or tie-rod pumps, making it ideal for wide applications in high pressure boiler feed water, high pressure mine drainage, high pressure in water treatment plant.

The discharge casing is a structure prudently designed and carefully selected material for high temperature and high pressure services. Particularly the balance chamber is of a unique construction achieved with year's long experience. The tests are secured at shaft centre for freedom from thermal effects.

Suction and discharge nozzles are designed in Top-Top configuration as standard.
Suction nozzles are available in DIN or ASME flanges as applicable depending upon maximum working pressure. Inter stage tapping can be provided to accommodate LP & HP flow.

The impeller are of closed type, finished overall that a maximum hydraulic efficiency can be obtained. They are perfectly balanced, both dynamically and statically. The impellers are all located in one direction, with thrust balanced by drum or disc.

Shaft stiff design resulting in higher critical speed than running speed and small shaft deflection. Areas subject to wear are protected.

APPLICATIONS

The RMDD pump is primarily designed for power applications, such as: boiler feed services; Nitrogen Oxides (NOx) abatement, fuel injection in combined-cycle power plants.

STANDARDISED

■ Pump designed and manufactured as per BB4 structure.
■ Balanced impeller according to ISO1940 grade G6.3, ensures smooth operation. (G2.5 as option)
■ Full compliance with ISO9908 / ISO5199 shaft run-out and ISO10816-7 vibration requirement.
■ Performance test of pumps based on ISO9906 and ANSI/HI14.6 grade 2B

ADVANTAGES

■ Easy inspection and maintenance of bearings and mechanical seal.
■ Hydraulically balanced impeller for minimum bearing loads, low vibration levels and excellent smooth running characteristics.
■ Multistage pump with ring section diffuser casing design to meet high pressure applications and also available in design with centerline support to meet high temperature especially in BFW applications.
■ First stage impeller with double suction can be provided in selected RMDD models to improve NPSHR performance.
■ High reliability, safe, trouble-free operation, less failure and reduce life cycle cost.

WORKING CONDITION

■ Liquid pumping temperature up to +180 °C, pre-warming not required
■ Maximum permissible pressure: up to 180 bar
■ Flow rate: up to 800 m3/h
■ TDH: up to 1600 m
■ Speed: 2900 rpm for frequency 50 Hz, 3500 rpm for frequency 60 Hz

MATERIAL AND CONSTRUCTION

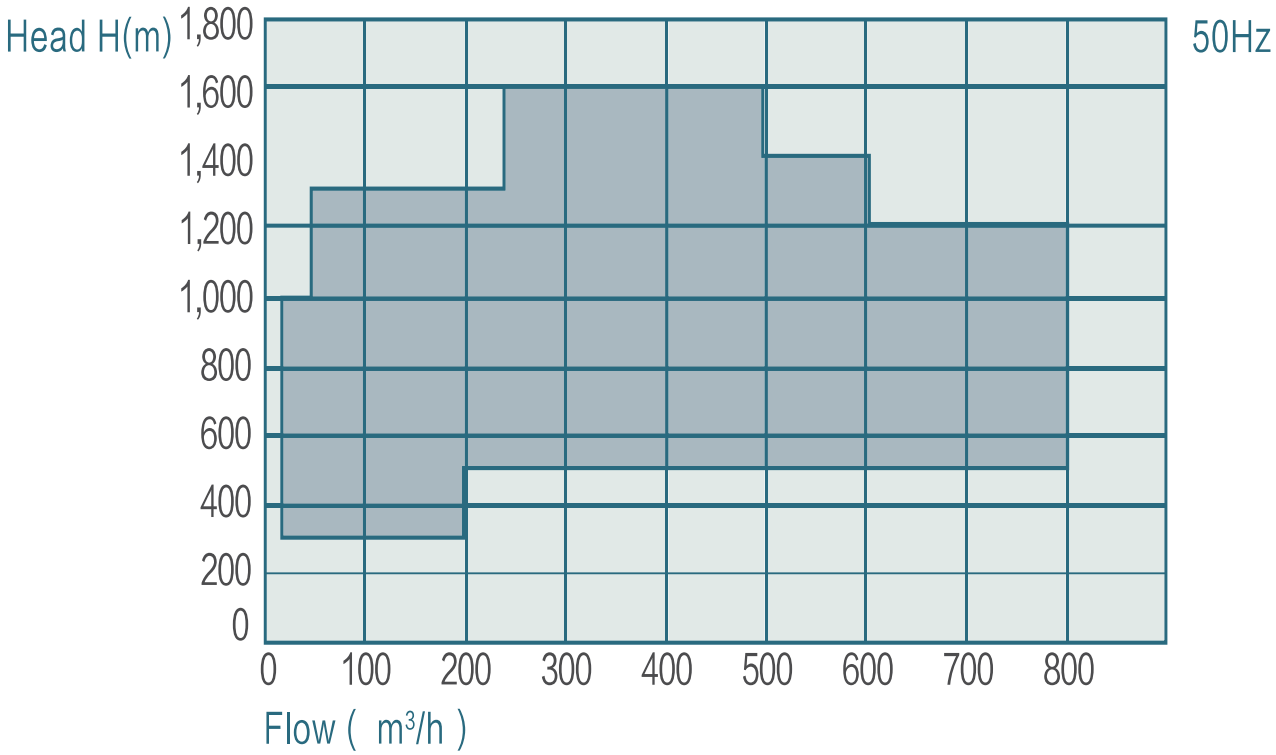
■ Suction and discharge casing : carbon steel, chrome steel, duplex stainless steel
■ Impeller: carbon steel, chrome steel, duplex stainless steel
■ Shaft : chrome steel, duplex stainless steel
■ Balancing system : chrome steel, duplex stainless steel
■ Lubrication: oil

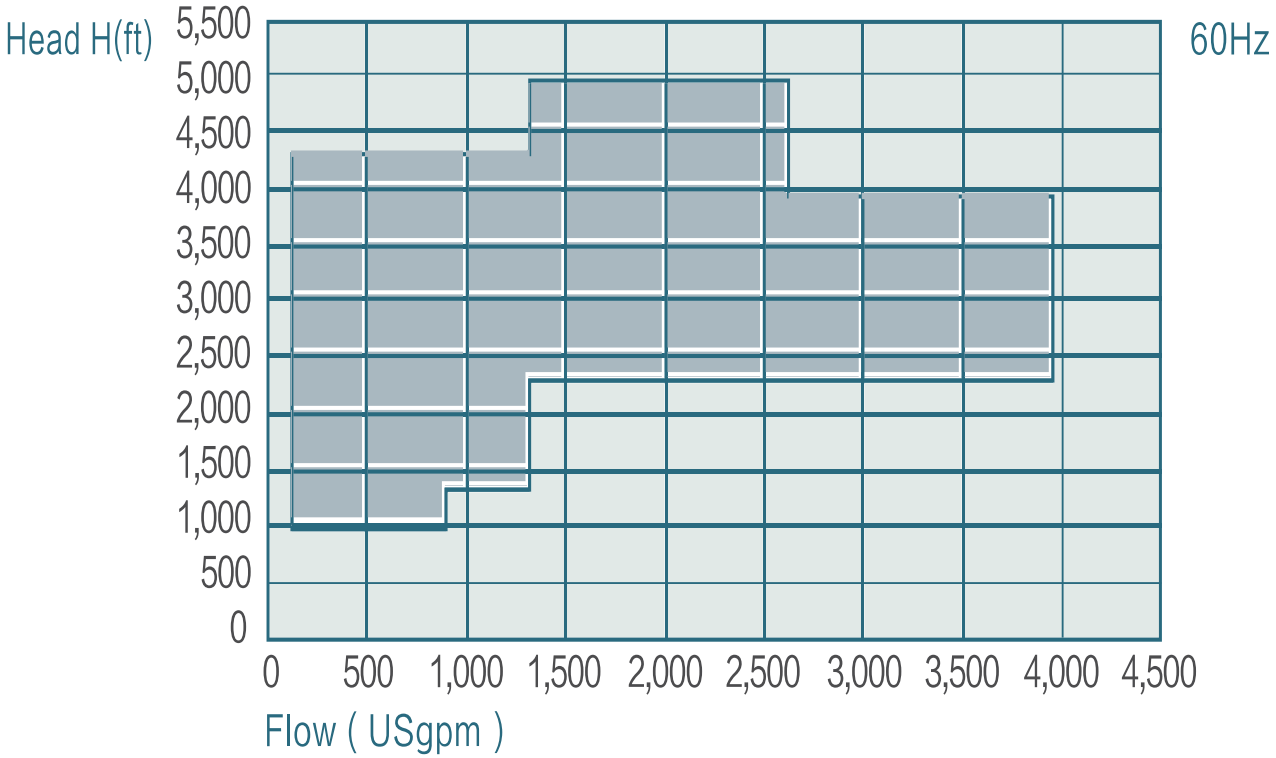
The pump is driven by a standard IEC foot mount motor. The power is transmitted through a direct, non-spacer or spacer coupling.

The baseplate is fabricated from steel, drill and tap bases, secure pump and motor to base, made more rigid and pre-alignment before delivery.

Selection Charts

Curves on this page are for guidance only.
Refer to the performance curves on each model.





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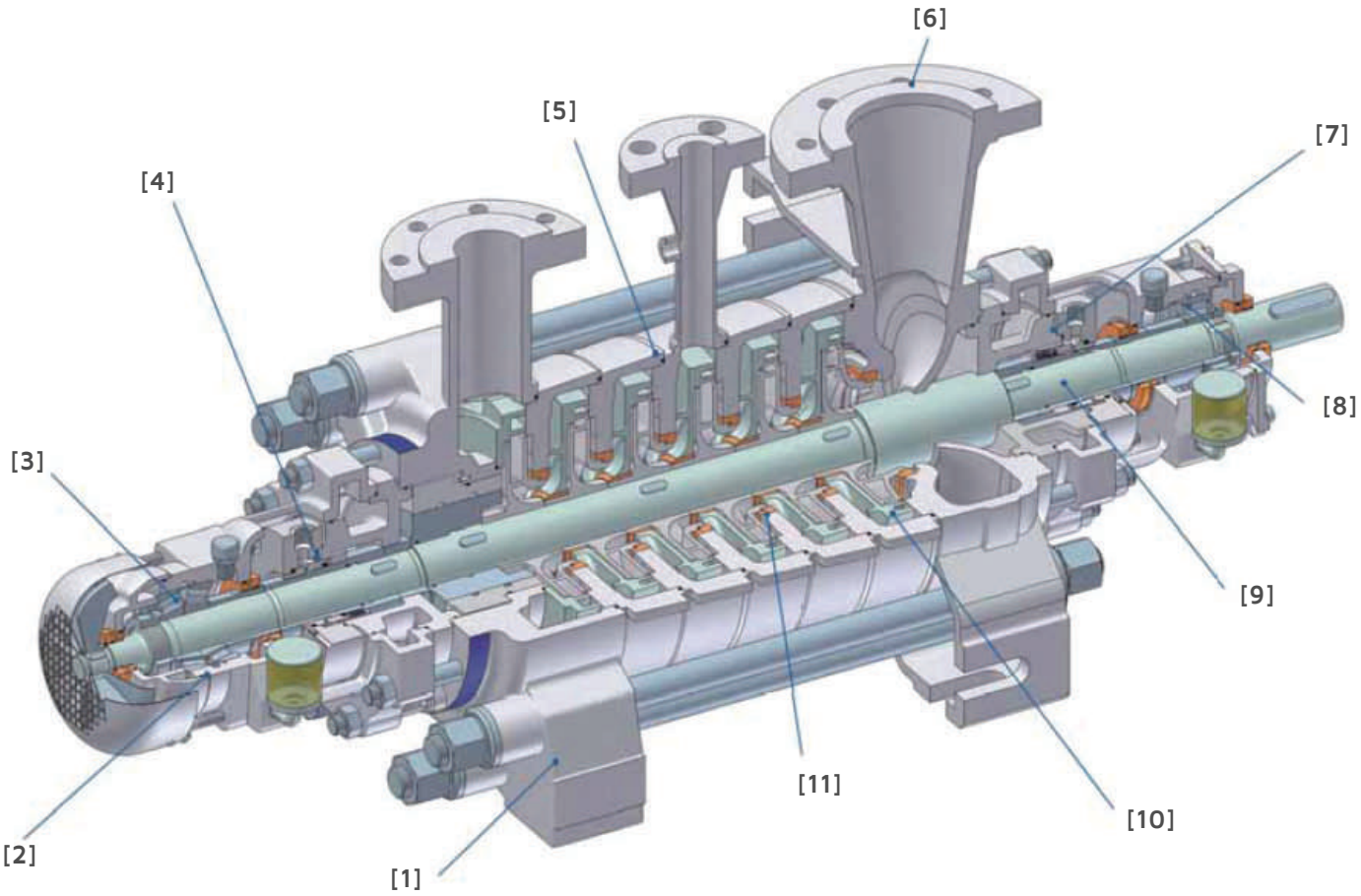
FEATURES AND BENEFITS

Pump construction is a little different depending on size



RMDD HIGH PRESSURE STAGE CASING PUMPS

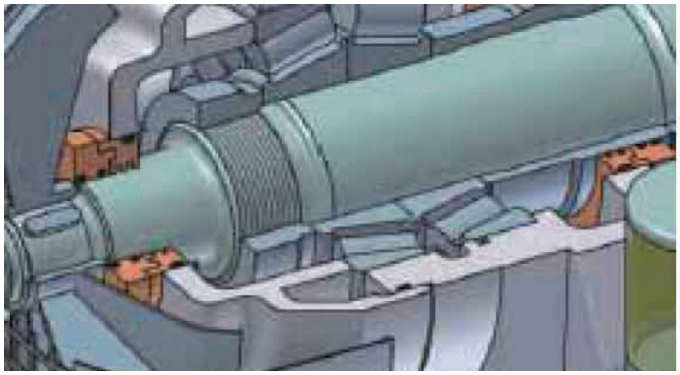
[1] Casing Support	: Foot or shaft centerline mounted for large sizes and high temperatures
[2] Bearing Housing	: With automatic lubrication using constant level oiler. Fan cooling available.
[3] Thrust Bearing	: Balance drum or balance disc and axial thrust bearing designed for long life under extreme operating conditions.
[4] Shaft Seal	: Single or double mechanical seal. Cooled or un-cooled design.
[5] O-rings	: Casing sealing by confined O-rings, therefore unaffected by rapid temperature variations and high pressures.
[6] Branch Size	: Large suction branches optimize inlet flow. Reduce noise levels through low branch velocities. Allow higher forces and moments.
[7] Seal Housing	: Can be cooled or un-cooled design. Easy access to cooling chamber, clearly arranged connections, intensive, uniform cooling.
[8] Radial Bearing	: Oil lubricated antifriction bearings is standard. Sleeve bearing also available.
[9] Shaft	: Stiff design resulting in higher critical speed than running speed and small shaft deflection. Areas subject to wear are protected.
[10] Impeller	: Several hydraulic sets per pump size guarantee high efficiencies and low operating costs over a wide operating range. Low net positive suction head required (NPSHR) first stage; double suction first stage can be provided for selected sizes.
[11] Wearing	: Maintain high efficiency during pump life. Low maintenance cost, high availability and short downtimes.

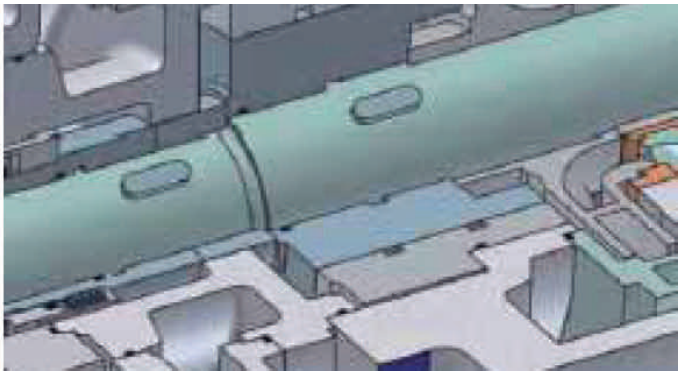
High-pressure pump designed to your spec

RMDD series high-pressure stage casing pumps have a modular design. This allows us to find the most efficient solution to meet customer requirements, typically for feed water pumps and condensate extraction pumps in gas-fired combined-cycle power plants, among other applications. Both investment cost and life cycle costs are taken into consideration when designing the optimal pump, and an optimized hydraulic design guarantees maximum efficiency.

NDE Bearing Arrangement with Balance Drum

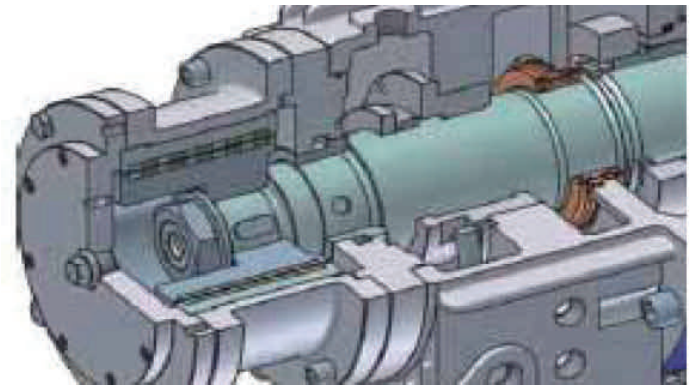
The balance drum device carries the major proportion of the hydraulic thrust. The drum diameters are chosen to minimize the thrust at normal operating point. The residual and additional thrust loads occurring above/below the normal operating point are carried by the thrust bearing, typically a taper roller bearing.

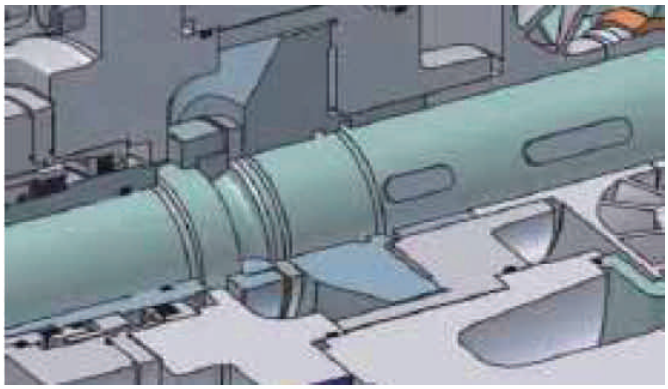




NDE Bearing Arrangement with Balance Disc

With the balance disc the axial force is completely compensated, therefore no axial thrust bearing is required. The disc designs are optimized for each hydraulic and size. For operation with frequent start and stops, the installation of a lift-off device is available as an option.





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- Standardized End Suction Pumps EN733/DIN24255, ISO2858/ISO5199 ASME B73.1, API610
- Split Casing Double Suction Pumps
- Solid Handling Pumps Slurry/Vortex/Semi-open/Open/Non clog
- High Pressure Multi-Stage Pumps
- Self-Priming Pumps
- Submersible Pumps
- Close Coupled Pumps
- Vertical Multi-Stage / Immersible Pumps
- Vertical Sump Pumps
- Vertical Turbine Pumps
- Mixed / Axial Flow Pumps
- Liquid Ring Vacuum Pumps
- Chemical Process Plastic Pumps
- Fire Fighting Pump Packages (NFPA20)
- Booster Pump Packages
- Trailer Mounted Pumps

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ROTAMAC can help relieve the stresses and reduce the life cycle costs associated with the most important aspects of plant operation.

Dedicated to delivering the highest quality support, ROTAMAC services and solutions integrates hydraulic, mechanical and materials engineering knowledge with creative solutions to improve equipment reliability and system performance, reduce energy consumption and improve the safety and environmental impact of operations.

Pump Services and Repair

Installation

Commissioning

Laser alignment

Inspection

Overhaul

Testing

Capabilities Overview

Design
- Equipment Selection and Optimization
- Material Selection
- System Design
- System Optimization

Start-up
- Equipment Installation
- Laser Alignment
- Commissioning and Running test
- Operator Training
- On-site Project Supervision
- On-site Troubleshooting

Operation and Maintenance
- Equipment Inspection
- Repair & Overhaul
- Advanced Diagnostics
- Service Maintenance Contracts

Product information is subject to change; consult factory for details.