



Pump Division



## ***QMN***

***Solids-Handling,  
Wet-Pit Pump***

## Pump Supplier To The World

*Flowserve is the driving force in the global industrial pump marketplace. No other pump company in the world has the depth or breadth of expertise in the successful application of pre-engineered, engineered and special purpose pumps and systems.*

### Pumping Solutions

Flowserve is providing pumping solutions which permit customers to continuously improve productivity, profitability and pumping system reliability.

### Market Focused Customer Support

Product and industry specialists develop effective proposals and solutions directed toward market and customer preferences. They offer technical advice and assistance throughout each stage of the product life cycle, beginning with the inquiry.



### Dynamic Technologies

Flowserve is without peer in the development and application of pump technology, including:

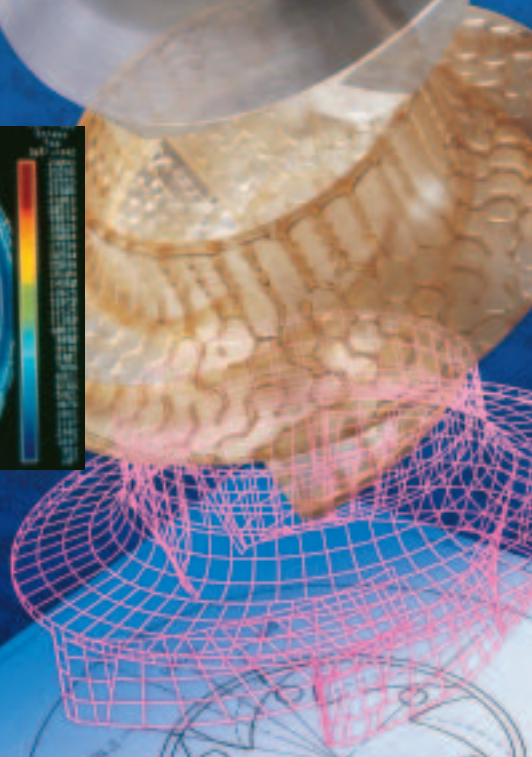
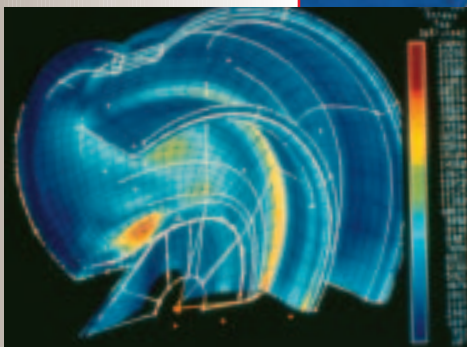
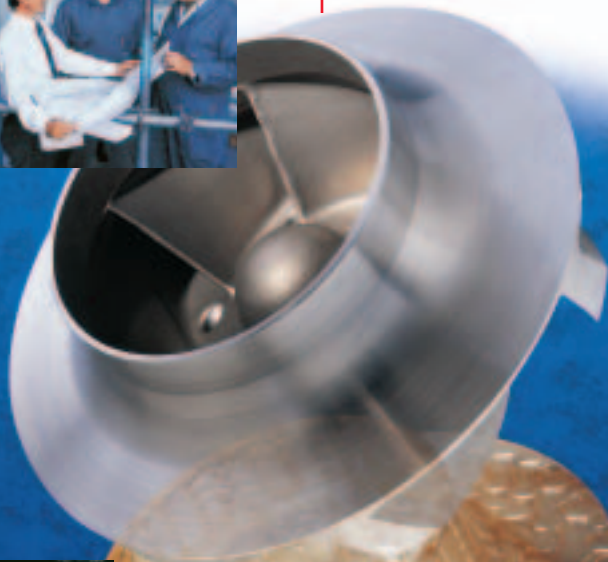
- Hydraulic engineering
- Mechanical design
- Materials science
- Intelligent pumping
- Manufacturing technology

### Broad Product Lines

Flowserve offers a wide range of complementary pump types, from pre-engineered pump types, to highly engineered and special purpose pumps and systems. Pumps are built to recognized global standards and customer specifications.

Pump designs include:

- Single stage process
- Between bearing single stage
- Between bearing multistage
- Vertical
- Submersible motor
- Rotary
- Reciprocating
- Nuclear
- Specialty



**QMN**  
**Solids-Handling,  
Wet-Pit Pump**

**Robust and Reliable**  
Flowserve's QMN is a rugged wet-pit pump designed to pump sewage or for use in other wet-pit services where solids and stringy materials are present.

**Design Benefits**  
Built and tested in conformance with the Standards of the Hydraulic Institute, QMN non-clog pumps boast these reliable, trouble-free performance benefits:

- Large waterways to minimize possibility of clogging
- The absence of a bearing below the impeller allows unrestricted intake of large solids
- Smallest models pass solids to 76 mm (3 in) spherical; larger models pass 152 mm (6 in) spherical
- Twin volute design with perfect balance of radial reactive forces for smooth performance
- Specially designed impeller for solids-handling service
- Splitter vane to prevent wrapping of sinuous solids around the enclosing tube
- Enclosed lineshaft to protect bearing surfaces from abrasives

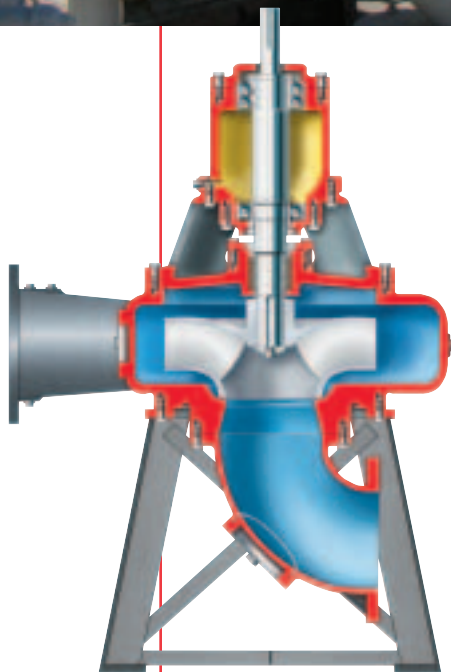
**Typical Application**

- Water resources
- Wet-pit service
  - Mining
  - Pulp & paper
  - Agriculture
  - General industry

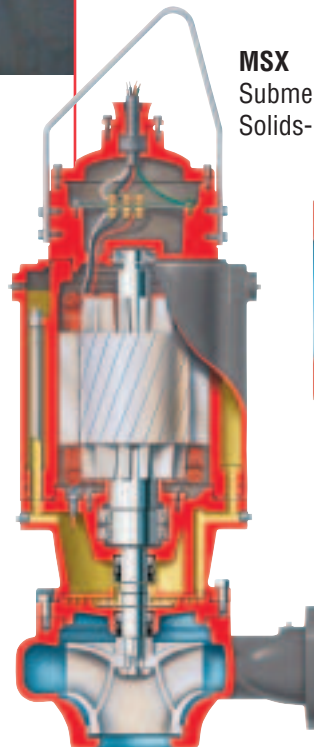
**Complementary Pump Designs**

Flowserve can also provide non-clog solids-handling pumps in these configurations:

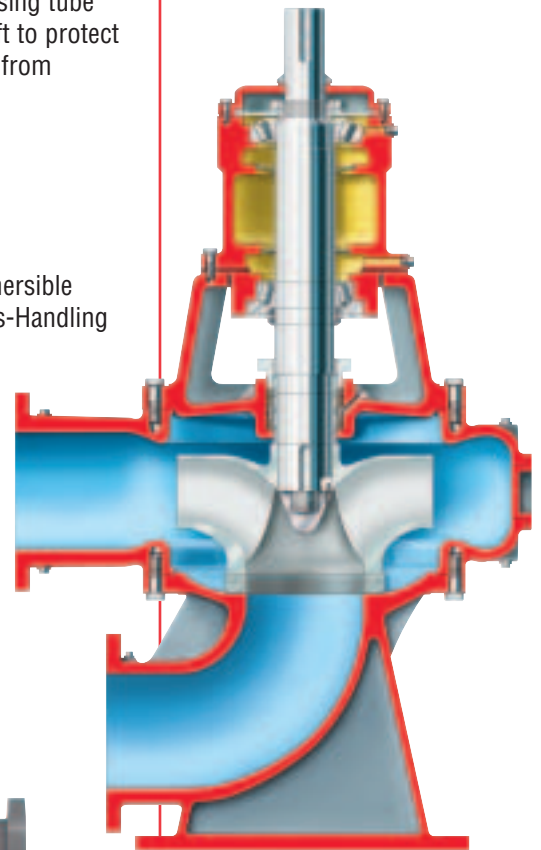
- Vertical dry-pit, side- or bottom-suction
- Horizontal end-suction
- Submersible



**MF**  
Dry-Pit Solids-Handling



**MSX**  
Submersible  
Solids-Handling



**MN**  
Dry-Pit Solids-Handling

**QMN**  
**Solids-Handling,**  
**Wet-Pit Pump**

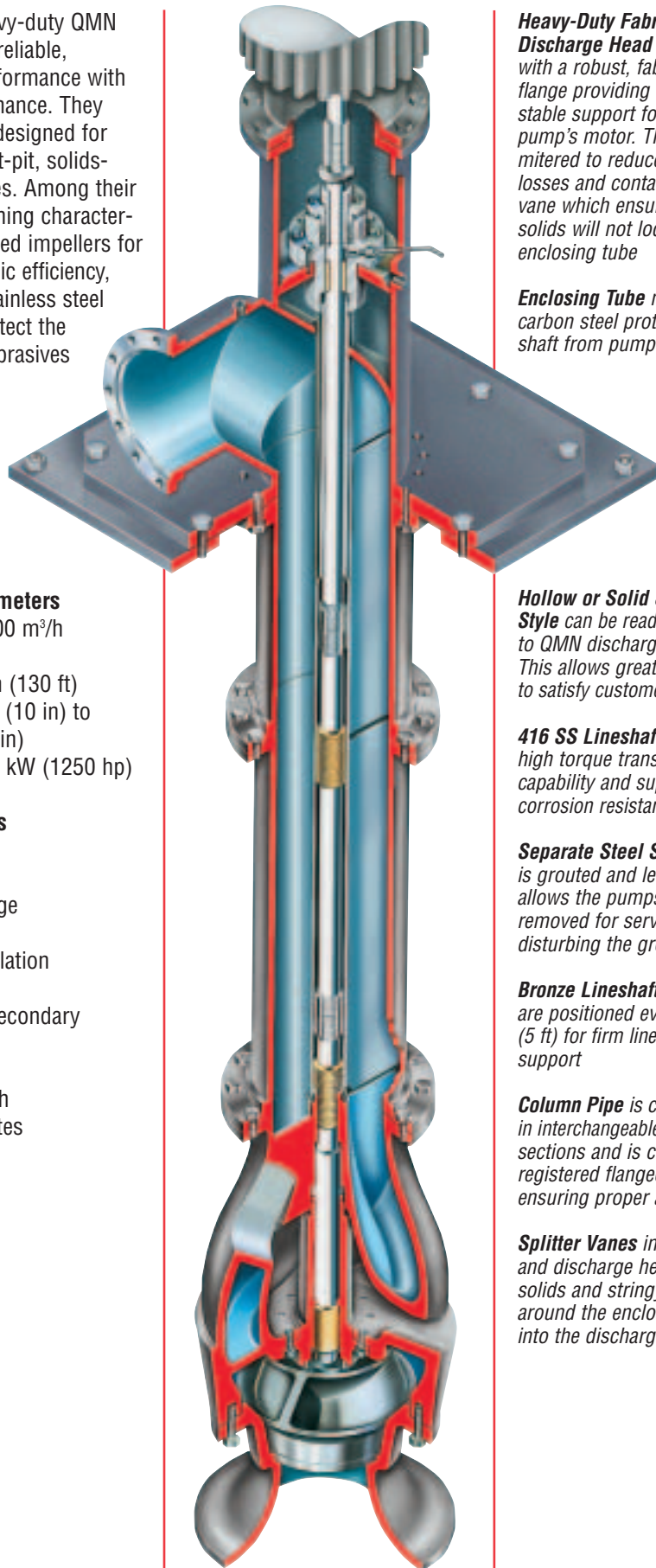
Flowserve's heavy-duty QMN pumps provide reliable, trouble-free performance with minimal maintenance. They are specifically designed for the rigors of wet-pit, solids-handling services. Among their more distinguishing characteristics are enclosed impellers for superior hydraulic efficiency, and enclosed stainless steel lineshafts to protect the bearings from abrasives and corrosion.

**Operating Parameters**

- Flows to 17 000 m<sup>3</sup>/h (75 000 gpm)
- Heads to 40 m (130 ft)
- Sizes 250 mm (10 in) to 1200 mm (48 in)
- Drivers to 950 kW (1250 hp)

**Typical Services**

- Raw sewage
- Plant influent
- Activated sludge
- Sludge mixing
- Sludge recirculation
- River intake
- Primary and secondary effluent
- Trickling filter
- Filter backwash
- Industrial wastes
- Mixed liquors
- Dewatering



**Heavy-Duty Fabricated Discharge Head** is designed with a robust, fabricated flange providing rigid and stable support for the pump's motor. The head is mitered to reduce friction losses and contains a splitter vane which ensures that solids will not lodge on the enclosing tube

**Enclosing Tube** made of carbon steel protects line-shaft from pumped liquid

**Hollow or Solid Shaft Motor Style** can be readily mounted to QMN discharge heads. This allows greater flexibility to satisfy customer preference

**416 SS Lineshafts** provide high torque transmission capability and superior corrosion resistance

**Separate Steel Soleplate** is grouted and leveled. This allows the pumps to be removed for service without disturbing the grout

**Bronze Lineshaft Bearings** are positioned every 1.5 m (5 ft) for firm lineshaft support

**Column Pipe** is constructed in interchangeable 3 m (10 ft) sections and is connected by registered flanged joints, ensuring proper alignment

**Splitter Vanes** in the column and discharge head guide solids and stringy material around the enclosing tube into the discharge head

**Lower Bearings Cartridge design** (patent pending) allows replacement of the bottom bowl bearing without disassembling the entire pump

**Suction Bell Guide Vanes** provide straight, non-vortexing, flow into impeller eye

**Lineshaft Driven Impeller** places all electrical components above flood levels, simplifying maintenance and increasing personnel safety

**Symmetrical Bowl** with its twin volute design provides complete balance of radial reactive forces. Balanced hydraulic forces reduce bearing load and increase maintenance intervals

**Clipper Seal and Restriction Bushing** extend bearing life. The bushing limits the size of particles entering the flushing chamber, while the clipper seal acts as a check valve, prohibiting particles from entering the enclosing tube and shaft areas

**Key, Contoured Washer and Cap Screw** provide positive impeller retention

**Enclosed Non-Clog Impeller** provides mixed flow. It is designed with a minimum number of vanes for maximum capability to pass solids

**Standard Suction Bell Wear Rings** and optional impeller wear rings enable renewal of clearances and the maintenance of hydraulic efficiency

**Stuffing Box** is one piece with integral lineshaft bearing and connection for the shaft enclosing tube

**Shaft Sealing Options** include soft packing or a variety of mechanical seal types and mountings

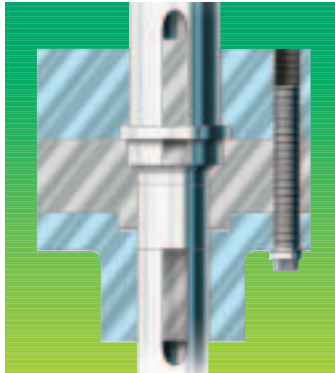


*Technical Data  
and Options*

**Above or Below Floor Discharge**



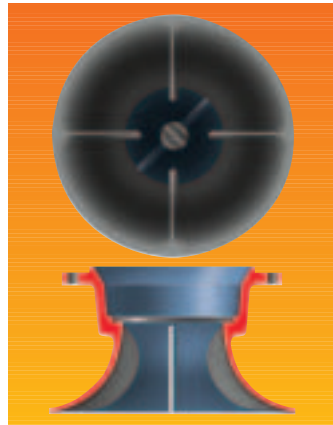
**Flanged Adjustable Coupling  
for Solid Shaft Motors**



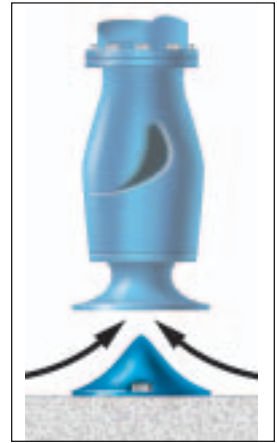
**Materials of Construction**

Stationary Parts	
Pump Head	Steel
Bowl	Cast Iron
Suction Bell	Cast Iron
Bearings	Bronze
Column	Steel
Gland	Bronze
Packing Box	Cast Iron
Wear Ring	Stainless Steel
Rotating Parts	
Impeller	Cast Iron
Lineshaft	Stainless Steel
Wear Ring	Stainless Steel

**Suction Bell Guide Vanes**



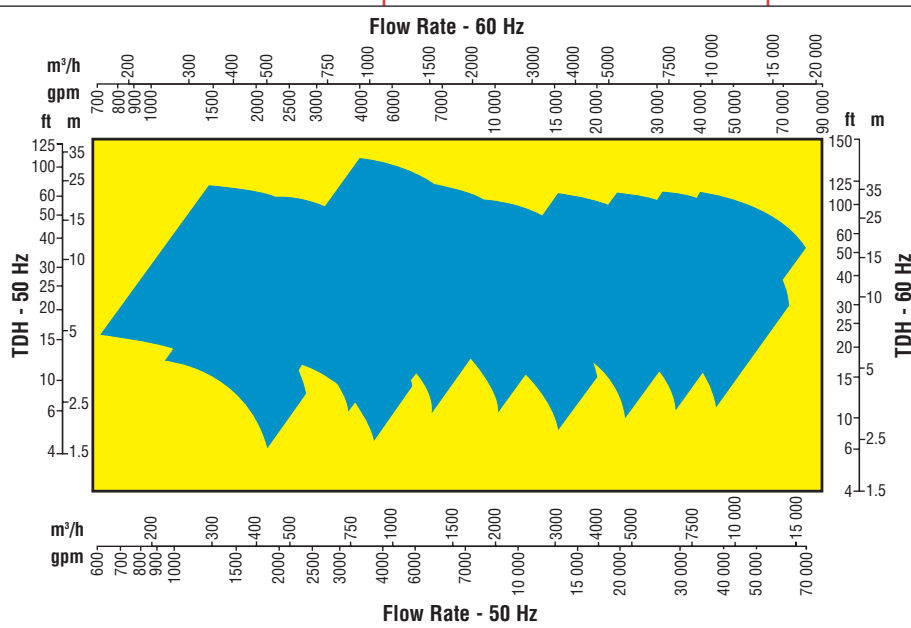
**Vortex Suppressor**



**Clipper Seal and  
Restriction Bushing**



**QMN Range Chart**

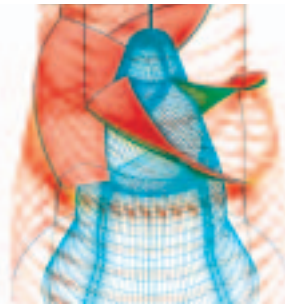


**Global Service and Technical Support**

**Advanced Technologies**

Few if any pump companies can match Flowserve's capabilities in hydraulic and mechanical design or in materials engineering. These capabilities include:

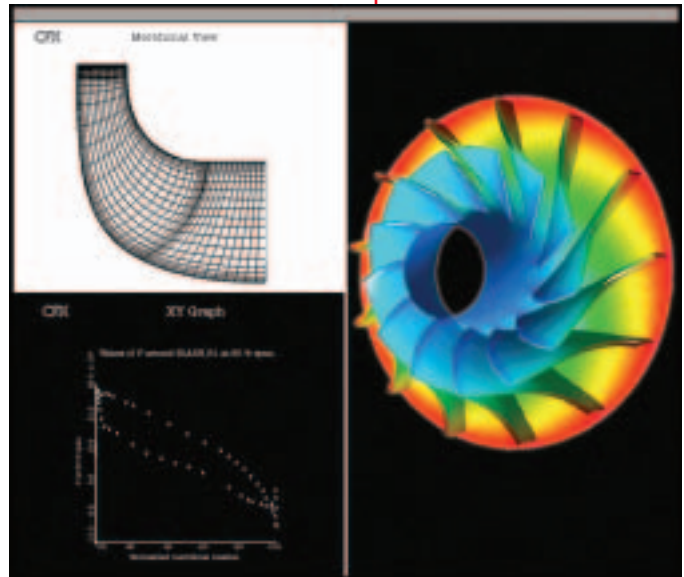
- Computational fluid dynamics
- Flow visualization
- Cavitation studies
- Efficiency optimization
- Finite element analysis
- Rapid prototyping
- Captive high nickel alloy and light reactive alloy foundries
- Non-metallic materials processing and manufacturing



**Service and Repair Group**

Flowserve's Service and Repair Group is dedicated to maximizing equipment performance and reliability-centered maintenance programs. Pump related services include:

- Startup and commissioning
- Diagnostics and prognostics
- Routine and repair maintenance
- ANSI and ISO power end exchange program
- Re-rates, upgrades and retrofits
- Spare parts inventory and management programs
- Training



**Pump Improvement Engineering Services**

Flowserve is committed to helping customers obtain the best possible return on their pump equipment investment. Engineering assistance and technological solutions for pumping problems are readily available.

These services include:

- Field performance testing
- Vibration analysis
- Design analysis and root-cause problem solving
- Material improvements
- Pump and system audit
- Advanced technology solutions
- PumpTrac™ remote pump monitoring and diagnostic services
- Instruction manual updates
- Training courses

**Flowserve... Supporting Our Customers  
With The World's Leading  
Pump Brands**



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**Pump Division**

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