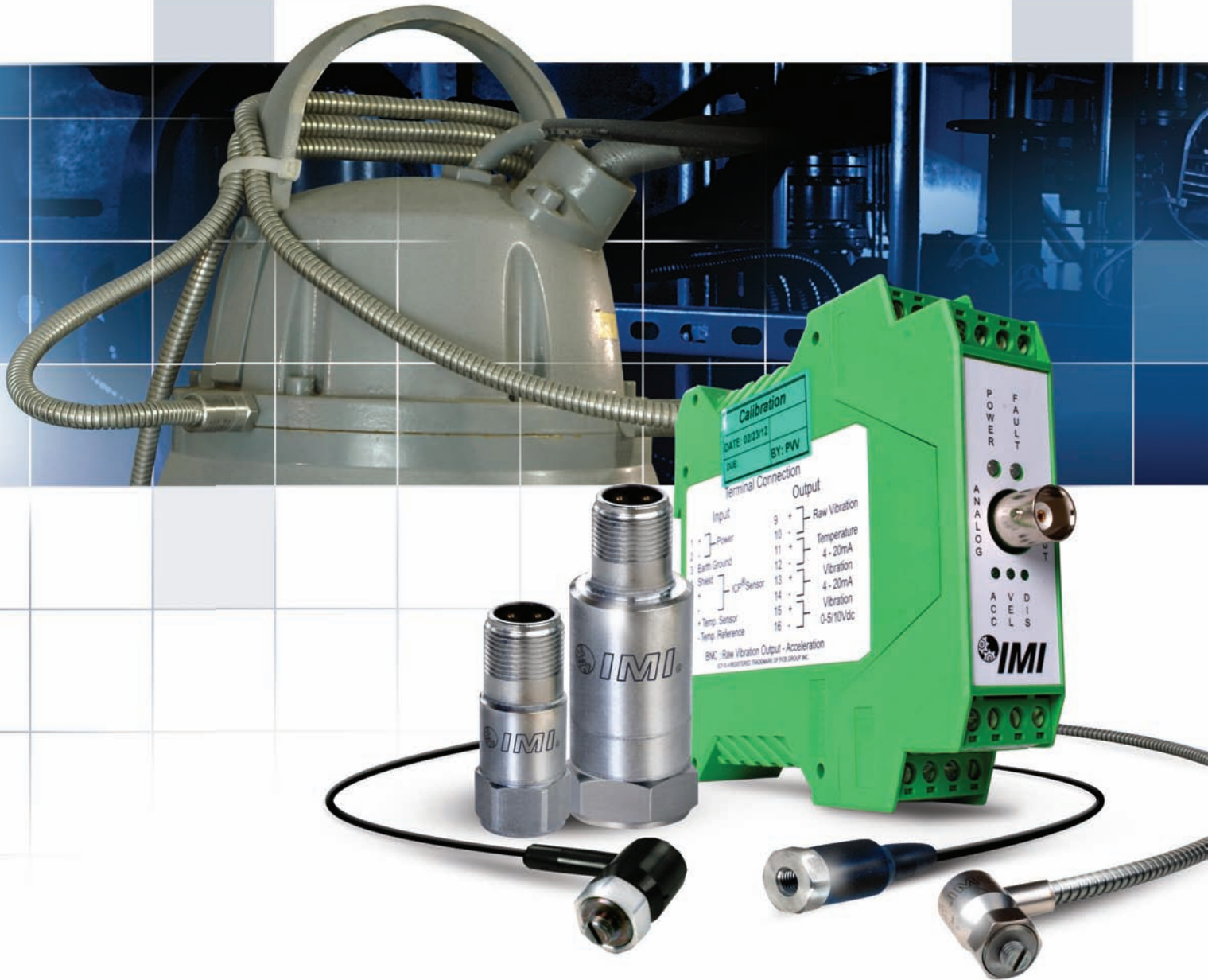




# Pumps & Submersible Pumps

Highlighting Hermetic Sensors for Pump Cavitation, Recirculation & Resonance

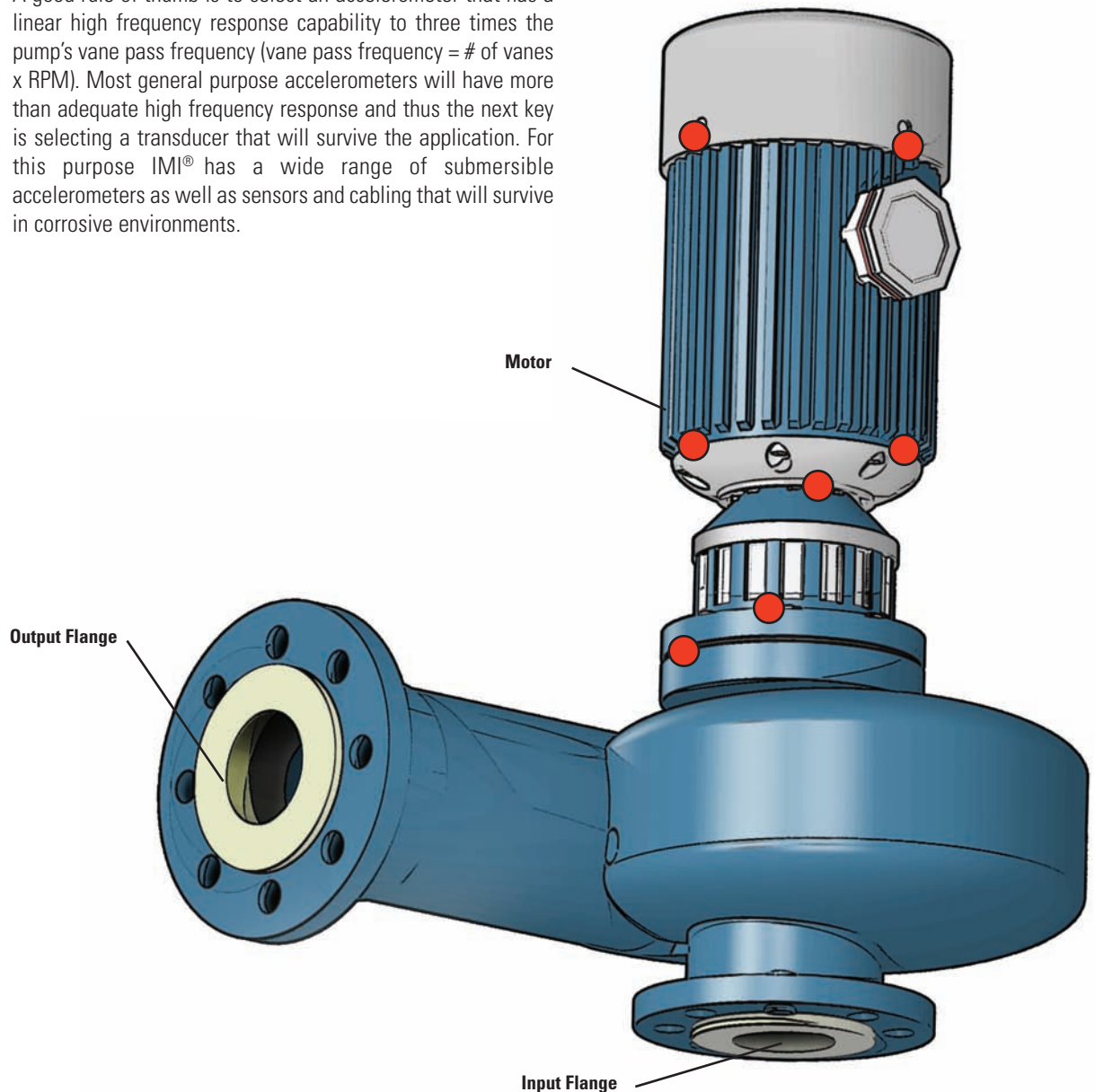


## Predictive Maintenance

# Pumps & Submersible Pumps

There are dozens of different types of pumps and a seemingly endless list of applications but industrial accelerometers can often help the maintenance professional to diagnose sometimes tricky issues with pump operation. Using vibration monitoring in your predictive maintenance program can help identify pump problems such as cavitation, recirculation and resonance.

A good rule of thumb is to select an accelerometer that has a linear high frequency response capability to three times the pump's vane pass frequency (vane pass frequency = # of vanes x RPM). Most general purpose accelerometers will have more than adequate high frequency response and thus the next key is selecting a transducer that will survive the application. For this purpose IMI® has a wide range of submersible accelerometers as well as sensors and cabling that will survive in corrosive environments.



### ● Suggested Sensor Placement

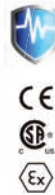


**ICP® Accelerometers - Predictive Maintenance**



**Low Cost ICP® Accelerometer Series 607A**

- Ideal for submersible applications
- Smallest true industrial accelerometer on the market
- Armored integral cable options available



**Low Cost ICP® Accelerometer**

Model 608A11, Model 608A11/020BZ  
 Model 608A11/030BZ, Model 608A11/050BZ  
 Model M608A11, Model M608A11/030BZ

- Ideal for submersible applications
- Small installation footprint
- Stock integral cable lengths of 10 ft, 20 ft, 30 ft and 50 ft

**Tips From Techs**

**Corrosive Applications**

In some cases accelerometers installed on pumps must survive in acidic applications. In these situations it's best to use FEP jacketed cables. Special attention should be given to materials used to make the cable connector. For example, polyurethane cable and a connector that uses a silicone boot will degrade rapidly in most corrosive applications. Connectors made out of ryton or viton are generally recommended for corrosive applications. Please contact an IMI® Applications Engineer for a proper chemical compatibility study.

**Sensors for Corrosive Environments - PdM**



**Low Cost ICP® Accelerometer**

Model 603C01, Model M603C01

- General purpose, hermetically sealed
- IMI's most popular accelerometer
- Small installation footprint
- M12 connector version available

**Accessories for Corrosive Environments**



**FEP Jacketed Cable with Right Angle Polymer 2-pin MIL-style Connector**  
 055PBXXXBZ

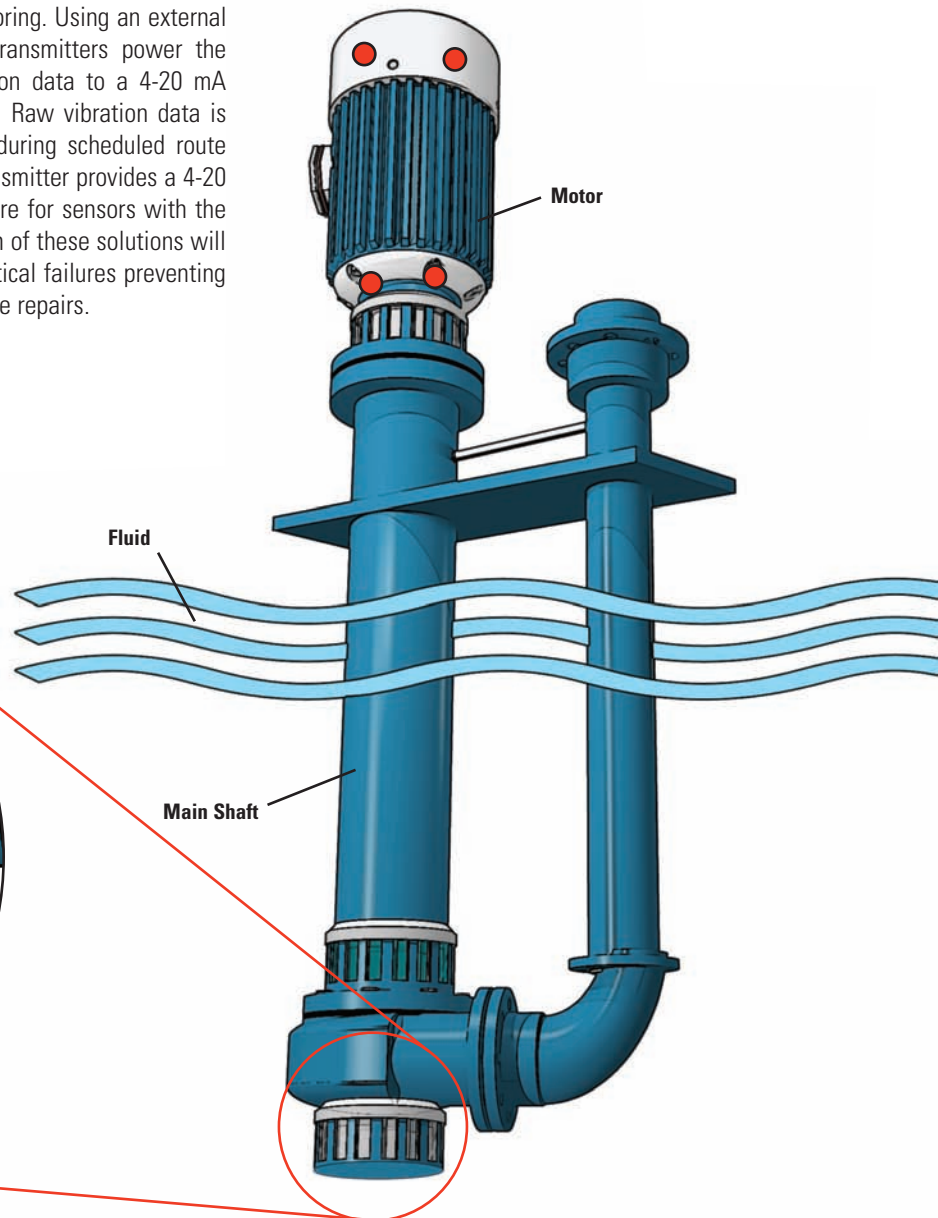
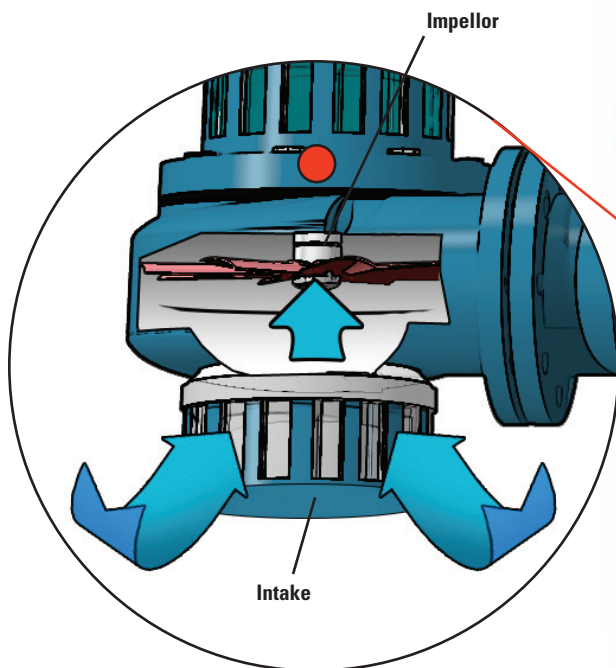
XXX = Denote cable length, 010 = 10 feet (Metric lengths available)



## Process Monitoring & Protection

# Pumps & Submersible Pumps

Pump failure can lead to costly unexpected shutdowns and expensive damage to plant processes and equipment. IMI's low cost current output (mA) transmitters offer continuous protection to critical equipment and provide maintenance professionals information between scheduled walk-around data collection. IMI's 4-20 mA loop powered transmitters provide an easy and low cost continuous monitoring solution and are directly compatible with PLC, DCS, SCADA and PI systems. External DIN rail transmitters are an excellent solution for customers interested in both Predictive Maintenance and Continuous Monitoring. Using an external ICP<sup>®</sup> accelerometer, the DIN rail transmitters power the sensor and convert the raw vibration data to a 4-20 mA signal proportional to RMS or Peak. Raw vibration data is available from the BNC connector during scheduled route data collection. Additionally, the transmitter provides a 4-20 mA signal proportional to temperature for sensors with the TO (Temperature Output) option. Both of these solutions will provide you 24/7 protection from critical failures preventing unscheduled downtime and expensive repairs.



 **Suggested Sensor Placement**



**4-20 mA Sensors - Process Monitoring & Protection**



**4-20 mA Output Transmitter**

Series 640

- Multiple ranges available
- Peak or RMS, acceleration or velocity
- Intrinsically safe / explosion proof versions available
- Temperature output and raw vibration output options available
- 24 volt Loop Powered

**ICP® DIN Rail Transmitters - Process Monitoring & Protection**



**DIN Rail Enclosure**

Model 682A00



**Vibration Transmitter**

Model 682B03

- Outputs 4-20 mA signal proportional to acceleration, velocity, or displacement
- ICP® accelerometer input
- Analog vibration output via front BNC



**Low Cost ICP® Accelerometer**

Series 607A



**Low Cost ICP® Accelerometer**

- Model 608A11,
- Model 608A11/020BZ
- Model 608A11/030BZ,
- Model 608A11/050BZ
- Model M608A11,
- Model M608A11/030BZ



**Bearing Fault Detector PLUS**

Model 649A03

- Combination 4-20 mA Sensor PLUS vibration transmitter
- USB Programmable: Fine tune transmitter to your specific machine parameters
- Various output options: Integrates with your PLC system
- Output specifically tuned for sensing early faults/failures in rolling element bearings



# Pump & Submersible Pumps Accessories

## Mounting Hardware



### Sensor Mounting Pad

Model 080A93: Ø0.75"  
Model 080A118: Ø1.0"



### 1.25" Spot Face Tool

Model 080A128

## Cables & Connectors



### Polyurethane Cabling with Right Angle MIL-Style Connector

052BQXXBZ



### Polyurethane Cabling with MIL-Style Connector

052BRXXBZ

XXX = Denote cable length, 010 = 10 feet (Metric lengths available)

## Enclosures



### BNC Termination Enclosure

Model 691A51/04



### BNC Termination Enclosure

Model 691A50/12



### BNC Switch Box

Model 691B42

## Product Spotlight



### Model 608A11 Easy-Mount Method

Easy installation of sensors with a long integral cable

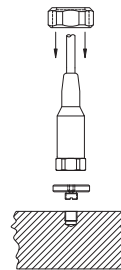
- Permits mounting and dismounting without twisting sensor and integral cable
- Speeds sensor dismount for routine sensitivity verification or system troubleshooting



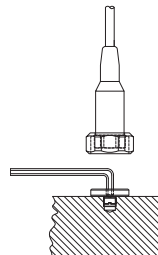
**Mounting Stud**  
Model 080A162



**Floating Hex Nut**  
Model 080A165

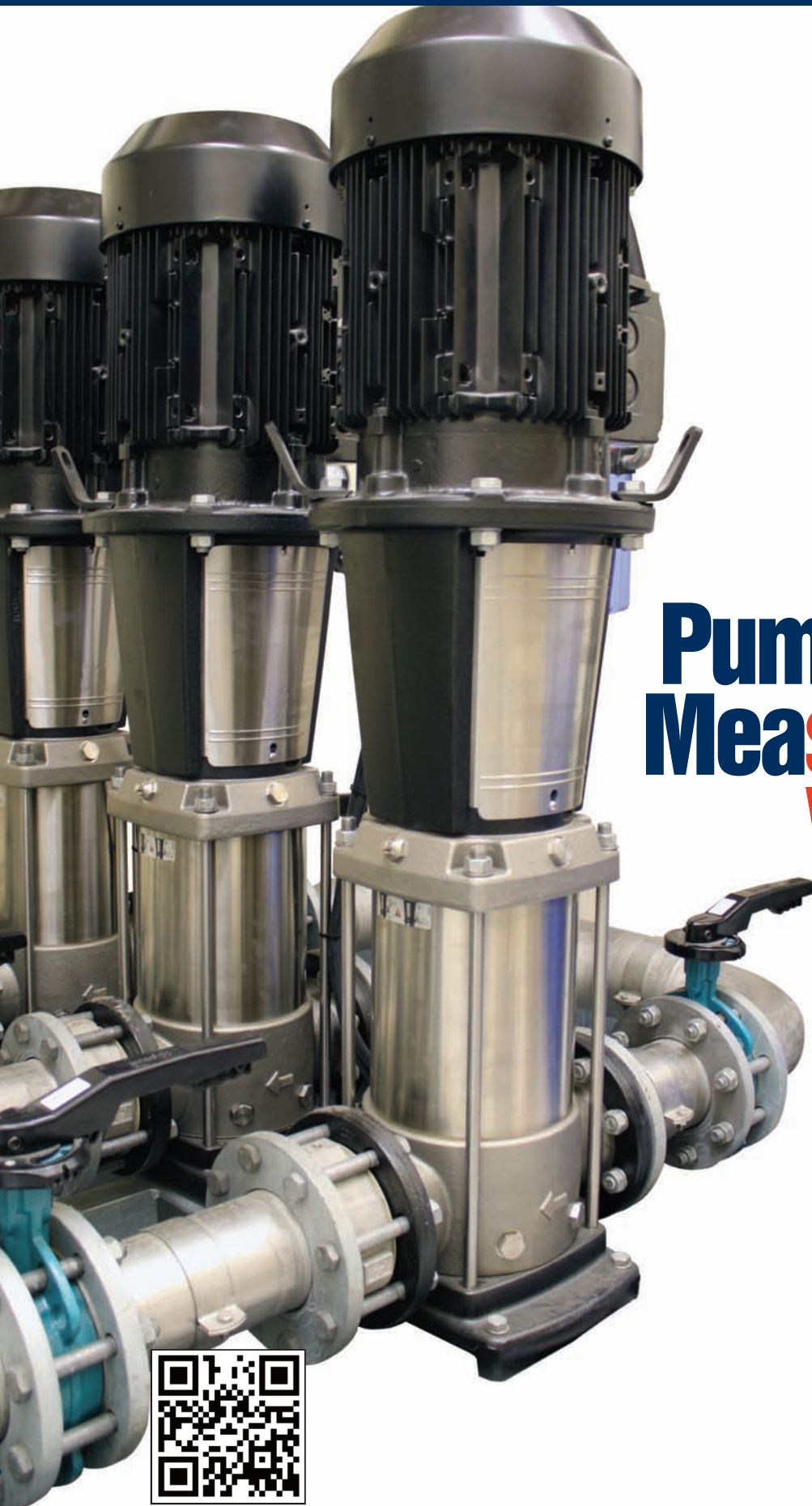


Mounting hole is prepared into machine surface to accept sensor's mounting stud. Sensor integral cable is threaded through the floating hex nut.



Mounting stud is tightened to recommended torque with appropriately sized hex Allen key.





# Pump Vibration Measurements?

**We Do!** <sup>TM</sup> **We do it all** - sensors to measure vibration, acoustics, force, pressure, load, strain, shock and torque - Sure we do!





Corporate Headquarters - Depew, NY



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- Gearboxes
- Wind Turbine Condition Monitoring
- Oil & Gas Wells and Pipelines
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