FAIRBANKS NIJHUIS™

SUBMERSIBLE SOLIDS HANDLING PUMPS

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FAIRBANKS NIJHUIS™

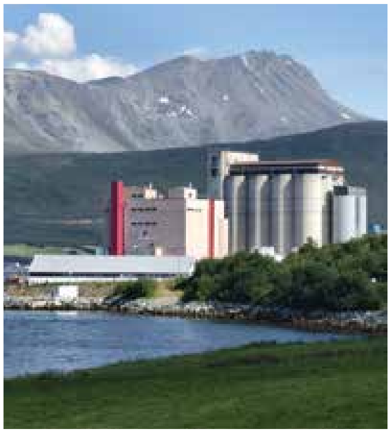
Introduction

In today's modern sewage pumping stations you will see pumps in dry-pit arrangements, but most are comprised of wet wells with Fairbanks Nijhuis submersible solids handling pumps doing their job beneath the surface.

Fairbanks Nijhuis submersible pumps greatly reduce health and safety concerns and feature a small footprint to make their presence much less obvious. This is a major reason why submersible pumps are superseding traditional sewage pumping stations. What's more, with our proven solutions, you can easily convert a traditional pumping station into a modern pumping station simply by installing one of our submersible pumps in the wet well, demolishing the pump house and retiring the dry well or merging it with the wet well.

Because submersible pump motors are sealed and weather is not a concern, no above ground structures other than a small kiosk to contain the electrical switchgear and control systems are required.

With a long history in the manufacture of pumps for municipal applications, Fairbanks Nijhuis offers you proven reliability and unmatched quality in your new or retrofit submersible application. Downtime maintenance due to clogging is virtually eliminated. Construction and installation costs are extremely low. And compared to competing brands, your energy costs will be low as well.

Applications

Submersible solids handling pumps are widely used in sewage and raw water lift stations, and industrial plants where solids handling service is required.

MUNICIPAL

- Raw Sewage Lift Stations
- Grit handling
- Sludge handling and recirculation
- Digester cleaning
- Storm water and flood control
- Water booster stations

INDUSTRIAL

- Sludge and Slurry Handling
- Mining
- General Industrial and Commercial Waste
- Milling
- Dewatering
- Irrigation
- Many more

Specs at a Glance

Fairbanks Nijhuis™ offers three basic submersible solids handling pump configurations.

5430W, 5730W and 2430W Series pumps run continuously when submerged and are secured to the pump floor with suction and discharge hard piped.

5430M, 5730M and 2430M Series pumps are of a pull-up design, allowing inspection and discharge connection automatically when the pump is lowered into place. A special guide rail system ensures proper connections are made.

Fairbanks Nijhuis submersible solids handling pumps cover a broad range of hydraulics with unsurpassed dependability. Driven by the Fairbanks Nijhuis submersible motors -- designed and built in a facility dedicated solely to research, development and testing -- our pumps are unmatched in measures of quality and reliability.

	5430W and 5730W Series 2430W Series	5430M and 5730M Series 2430M Series
Key Features	• Secured to sump floor with suction and discharge hard-piped	• Pull up type allowing inspection • Discharge connection is automatic when pump is lowered into place
Discharge Sizes inches Discharge Sizes mm	2" to 24" 50.8 to 609.8 mm	
Flow Rates GPM Flow Rates m3/h	15 to 27,500 GPM 3.4 - 6,246 m³/h	
Head Ranges feet Head Ranges meters	5 to 300 feet 1.5 to 90 m	

Better By Design

Standard Features

1. Heavy Cast Iron Motor Frame
houses silicon steel laminations of the stator and a reliable die-cast inverter duty rated rotor in a high efficiency motor design.

2. One-Piece Shaft
is made of heavy-duty 416 steel for the highest quality.

3. Two Separate Mechanical Seals
protect the motor from the pumped liquid in this critical area for additional product reliability. The inner seal uses carbon against ceramic faces. Silicon carbide against tungsten carbide faces are used in the outer seal.

4. Closed Loop/Self Cooling Motor Design. (250 - 360 Frames)
For applications requiring the motor to run non-submerged, a closed loop/self cooling motor design can be used. An efficient cooling liquid is circulated by an expeller between the inner and outer seals mounted directly to the shaft. Cooling is accomplished by circulating the cooling liquid through a jacket and dissipating heat through an internal heat exchanger.

5. Solids Handling Two Vane And Bladeless Impellers
We offer precision cast two-vane and bladeless impeller designs to meet your specific pumping requirements.

6. Optional Stainless Steel Wearing Rings
are available for both the impeller and casing for the two-vane and bladeless impeller designs.

7. Electric Power And Control Cable Assemblies
are epoxy sealed at the motor's entry point. This prevents cable wicking and keeps moisture from entering the motor housing.

8. Automatic-Resetting Thermostats
are embedded in the motor windings to protect from overheating.

9. Primary Moisture Detectors
detect moisture entering the seal cavity and transmit a signal to a compatible controller. (Controller not included).

10. Secondary Moisture Detection
in closed loop/self cooling design detects moisture entering the motor by utilizing a float switch and sending a signal to a compatible controller. (Controller not included).

11. Motors
are constructed with Class F insulation and rated with a 1.15 service factor and continuous duty at 40°C ambient temperature. The motor enclosure is sealed using O-rings, and has rabbet fittings with extra large overlaps.

12. Centerline And Tangential Volute Discharge
designs are available, both incorporating two-vane or bladeless impellers to enhance solids handling capabilities.

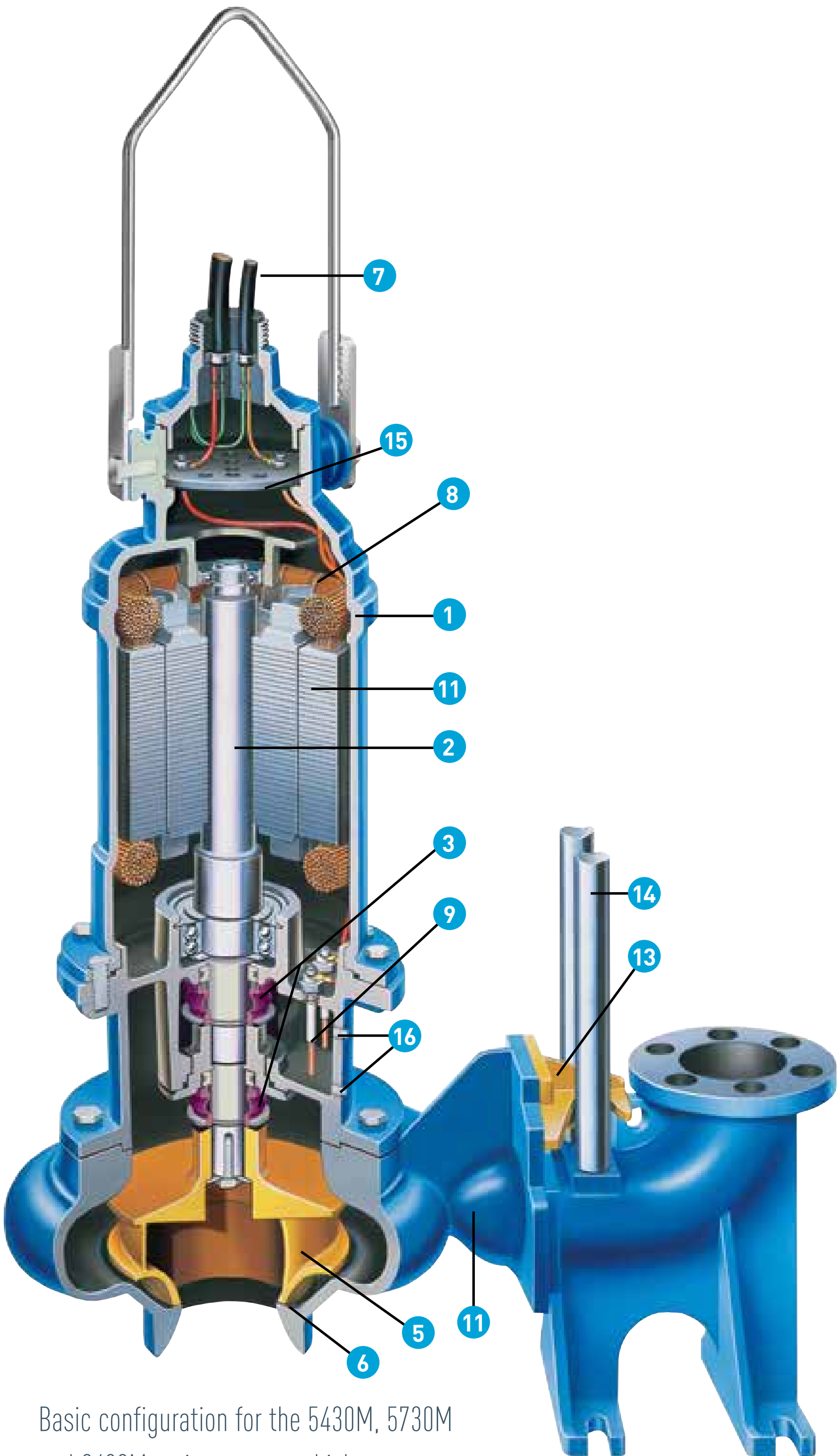
13. Sliding Bracket Assembly
is an integral part of the pumping unit and is constructed for easy installation and removal. When lowered onto the discharge base, the knifing action of the vertical non-sparking metal-to-metal seal provides a self-cleaning, UL Listed and CSA certified design. The separate discharge base-elbow, which is bolted directly to the floor, supports the total weight of the pumping unit and provides vertical discharge.

14. Guide Rails
built into our pull-up submersible pumps provide an exact fitting of the pump and discharge piping when the pump is raised or lowered into the sump. Eliminating the need to enter the wet well, guide rails make an automatic connection of the pump and discharge piping when lowered into place.

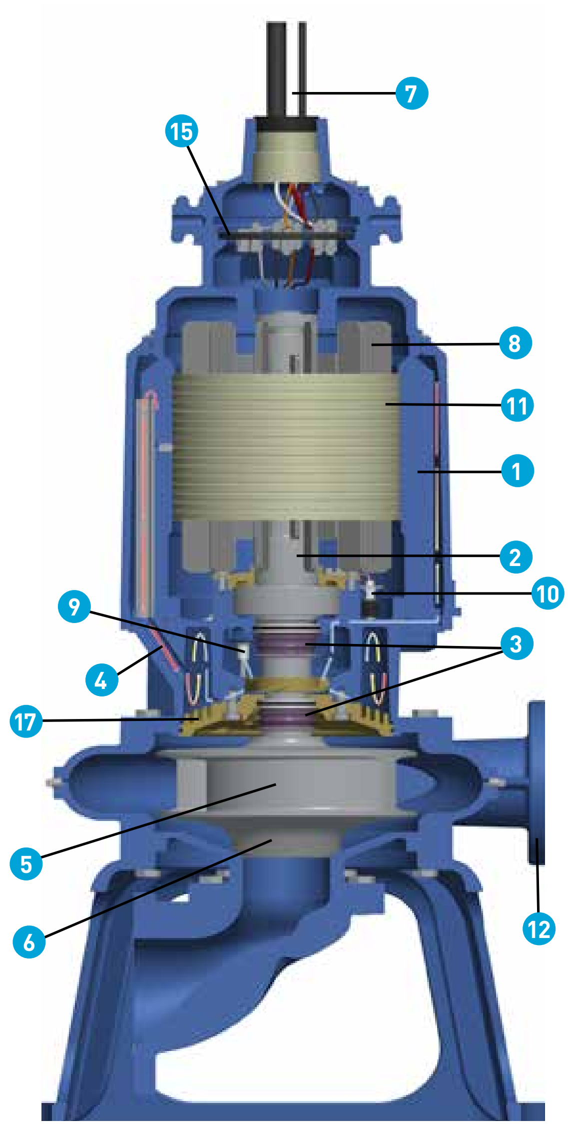
15. Power And Control Cable Terminal Board
ensures positive wire connections and provides additional seal between the hostile environment and motor windings.

16. Inspection/Drain Plug
on the mechanical seal chamber is standard on all units.

17. Heat Exchanger With Drain Plug
is standard on 250 - 360 frames with closed loop/self cooling.



Basic configuration for the 5430M, 5730M and 2430M series pumps, which are designed to be pulled out of the well for inspection and automatic reattachment.



Basic configuration for 5430W, 5730W and 2430W series pumps which are bolted to the sump floor and run continuously

Solids Handling Performance

Two Vane Impellers

Two Vane Impellers feature large passageways, blunt well-founded leading vanes, and a thick hydrofoil shape to prevent long stringy material from wrapping around the leading edge.

This design channels fluid away from the impeller vanes into the circular flow area of the impeller passageways and casing, enabling solids to pass with low turbulence and low radial and bending shaft forces. The result is quiet operations, less abrasive wear on bearings and mechanical seals, increased shaft life and reduced maintenance and downtime costs.

Bladeless Impellers

Bladeless Impellers are used primarily in sewage lift stations and treatment plants where sewage flows are relatively low, the bladeless impeller will handle 10-25% more solids, long stringy materials and trash than a two vane impeller.

System Accessories

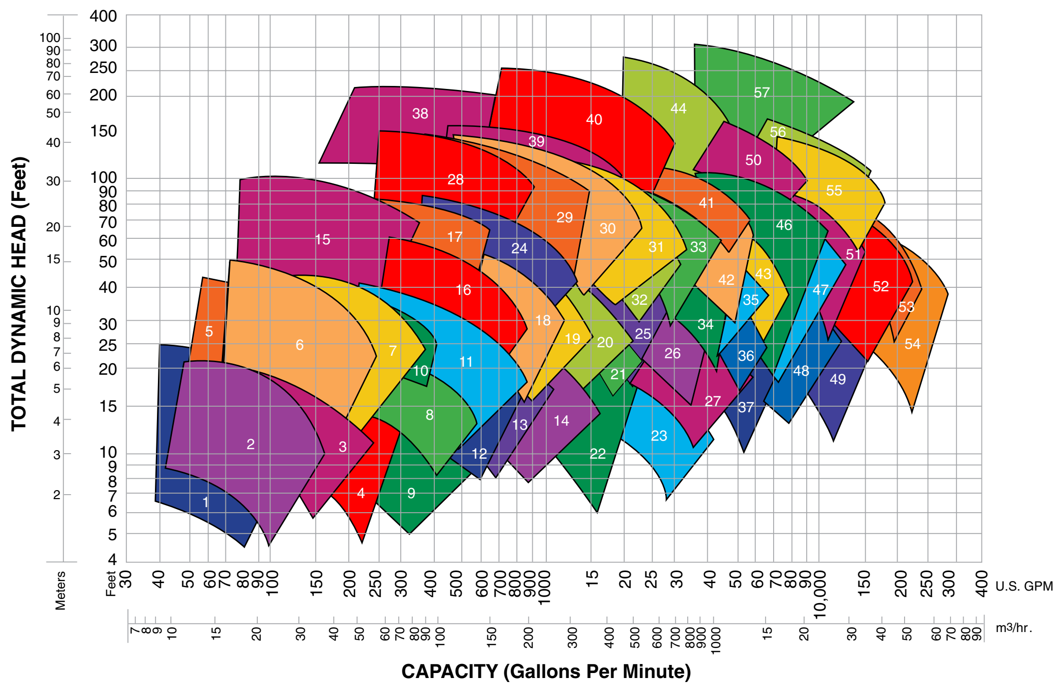
Fairbanks Nijhuis™ has the experience and knowledge to handle all of your submersible solids handling pump applications. Installation accessories include:

- Control systems complete with level controls
- Starters
- Circuit breakers
- A variety of sump access cover designs
- Guide rail systems
- Discharge piping

Five-Year Warranty

We back our submersible units with a pro-rated five-year warranty. The careful design of our submersible solids handling pumps allows for easy disassembly and service. Parts and service are available through the Fairbanks Nijhuis factory, as well as authorized distributors and repair centers.

Performance Data



Shown below is performance data for the various pump configurations available in our Submersible Solids Handling pump line up.

Submersible Solids Handling Pumps				
Number	Model	Inches	Meters	RPM
1.	5432W	2"	50.8 mm	870
2.	5431W	2"	50.8 mm	1180
3.	5431MW	3"	76.2 mm	1180
4.	5432MW	3"	76.2 mm	870
5.	5432W	2"	50.8 mm	1180
6.	5431W	2"	50.8 mm	1170
7.	5431MW	3"	76.2 mm	1770
8.	5431MW	4"	101.6 mm	1180
9.	5432MW	4"	101.6 mm	870
10.	5432MW	3"	76.2 mm	1180
11.	5432MW	4"	101.6 mm	1180
12.	5433MW	4"	101.6 mm	870
13.	5433MW	5"	127 mm	870
14.	5433MW	6"	152.4 mm	870
15.	5432W	2"	50.8 mm	1770
16.	5431MW	4"	101.6 mm	1770
17.	5432MW	3"	76.2 mm	1770
18.	5433MW	4"	101.6 mm	1180
19.	5433MW	5"	127 mm	1180
20.	5433MW	6"	152.4 mm	1180
21.	5434MW	6"	152.4 mm	870
22.	5434MW	8"	203.2 mm	705
23.	5731MW	12"	304.8 mm	705
24.	5432MW	4"	101.6 mm	1770
25.	5434MW	8"	203.2 mm	870
26.	5435MW	10"	254 mm	585
27.	5731MW	12"	304.8 mm	880
28.	5433MW	3"	76.2 mm	1770
29.	5433MW	4"	101.6 mm	1770

Submersible Solids Handling Pumps				
Number	Model	Inches	Meters	RPM
30.	5433MW	5"	127 mm	1770
31.	5433MW	6"	152.4 mm	1770
32.	5434MW	6"	152.4 mm	1180
33.	5433MW	8"	203.2 mm	1180
34.	5435MW	10"	254 mm	705
35.	5731MW	14"	355.6 mm	870
36.	5731MW	14"	355.6 mm	705
37.	5731MW	16"	406.4 mm	705
38.	5435MW	4"	101.6 mm	1770
39.	5434MW	4"	101.6 mm	1770
40.	5436MW	5"	127 mm	1770
41.	5435MW	8"	203.2 mm	1180
42.	5435MW	10"	254 mm	880
43.	2434MW	12"	304.8 mm	880
44.	5436MW	6"	152.4 mm	1770
45.	5436MW	8"	203.2 mm	1180
46.	5731MW	14"	355.6 mm	1180
47.	5731MW	16"	406.4 mm	880
48.	5731MW	18"	457.2 mm	585
49.	5731MW	20"	508 mm	585
50.	5733MW	14"	355.6 mm	880
51.	5731MW	18"	457.2 mm	705
52.	5731MW	20"	508 mm	705
53.	2434MW	20"	508 mm	585
54.	5731MW	24"	609.6 mm	585
55.	2434MW	16"	406.4 mm	880
56.	5732MW	14"	355.6 mm	705
57.	5733MW	14"	355.6 mm	1180

THE COMMITMENT OF FAIRBANKS NIJHUIS™

Our distinctive products, market leadership, excellent customer service, and longevity in the industry are all a result of the quality and dedication of our personnel. Our pumps are machined, built, and tested by highly skilled shop personnel. Working as a team, our people continually explore new ways to better serve our customers. Product quality, dependability, and innovation are all part of the Fairbanks Nijhuis commitment to excellence.

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3601 FAIRBANKS AVENUE, KANSAS CITY, KANSAS 66106 www.FairbanksNijhuis.com