

TSURUMI UNIVERSE

SERIES NH 60Hz

SUBMERSIBLE SEWAGE PUMPS

CHANNEL IMPELLER
CUTTER IMPELLER
VORTEX IMPELLER



TSURUMI UNIVERSE

TSURUMI UNIVERSE is a brand of products from TSURUMI, a leading company in the field of submersible pumps for 100 years. It has been developed to further spread TSURUMI products to markets around the world. Based on years of research and achievements, the brand was developed with the aim of enhancing competitiveness, while providing qualities equivalent to conventional models and TSURUMI's original features and functions. Now, after thorough preparation, we are releasing our NH-series pumps under the brand name of **TSURUMI UNIVERSE**.



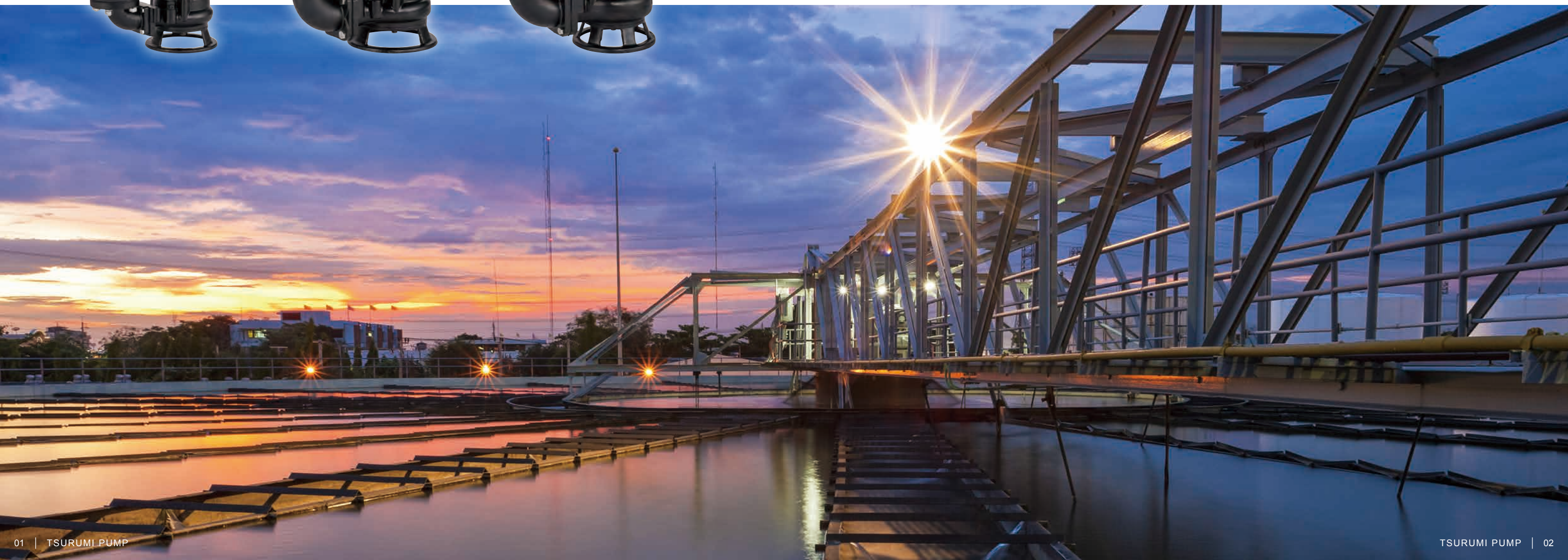
Submersible Sewage Pumps

The NH-series pumps of the TSURUMI UNIVERSE brand are heavy-duty submersible sewage pumps made of cast iron. In addition to the wide range of specifications featuring 50 to 500 mm discharge bore diameters and 0.75 to 75 kW motor output capacities, the NH-series offers a variety of product lineups with three types of impellers: Channel, Cutter and Vortex types. The guide rail fitting device is applicable to all models, enabling easy installation and maintenance.

Equipped with a channel impeller, the NHB and NH-series are Tsurumi's basic type of pumps and provide excellent solids matter passage. The NHC-series features cutter pumps built with a combination of a channel impeller and a specially structured suction cover, in which a tungsten carbide alloy cutting edge is brazed to the impeller vane, thus enabling solid and fibrous matters to be shredded at the suction port while pumping. The NHU-series provides a semi-vortex structure equipped with a vortex impeller, whereby minimizing potential troubles caused by clogging of solid and fibrous matters.

The NH-series pumps are applicable to a wide spectrum of fields, such as raw water transfer in purifying tanks (Johkasou/septic tanks), wastewater treatment facilities, pumping stations and flood prevention equipment, and reservoirs of recreational facilities, as well as drainage of sewage and wastewater. These pumps integrate original technologies Tsurumi has perfected via years of research and achievements, to note our anti-wicking cable, dual inside mechanical seals with silicon carbide face, and Oil Lifter. In addition, with a design that thoroughly considers pump durability and wear resistance, these pumps enable continuous duty for a long period of time.

Tsurumi products feature a highly reliable design that ensures excellent durability and stable quality, contributes to stable operations of facilities, and results in remarkably reduced maintenance costs.



Selection Table

		Sewage Pumps			
		NHB	NHC	NHU	NH
Discharge Bore	mm	50 – 500	50 • 80	50 • 80	50 – 150
Motor Output	kW	0.75 – 75	0.75 – 11	0.75 – 3.7	1.5 – 7.5
Pole		2 • 4 • 6 • 8	2	2	2
Impeller		Channel	Cutter (Channel Impeller with Cutting Edges)	Vortex	Channel
Flange Standard		DIN	JIS	JIS	JIS
Water Jacket		● (4-pole : 55 • 75kW only 6-pole : 45 - 75kW only)	—	—	—
Leakage Sensor		● (11 – 75kW only)	—	—	—
Seal Pressure Relief Ports		● (22 – 75kW only)	● (5.5 – 11kW only)	—	● (5.5 • 7.5kW only)
Back Pull-out Design		● (4-pole : 11 • 15 • 30 • 37 • 45kW 6-pole : 22 • 30 • 37kW 8-pole : 22kW)	—	● (2.2 • 3.7kW only)	—
Guide Rail Fitting System		●	●	●	●
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IMPELLERS

Channel



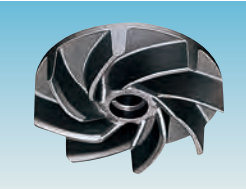
The impeller is shrouded type with one or two vanes. It has a wide channel extending from inlet to exit, which allows the pump to pass the solid matters from inflow to discharge with minimal blockage.

Cutter



The impeller is a semi-open type with two vanes. Two sintered tungsten carbide alloy edges are brazed on two impeller vanes, and they rotate on a saw-tooth suction port of a suction cover. This mechanism allows to cut up the solid and fibrous matters flowed into the impeller to discharge them.

Vortex



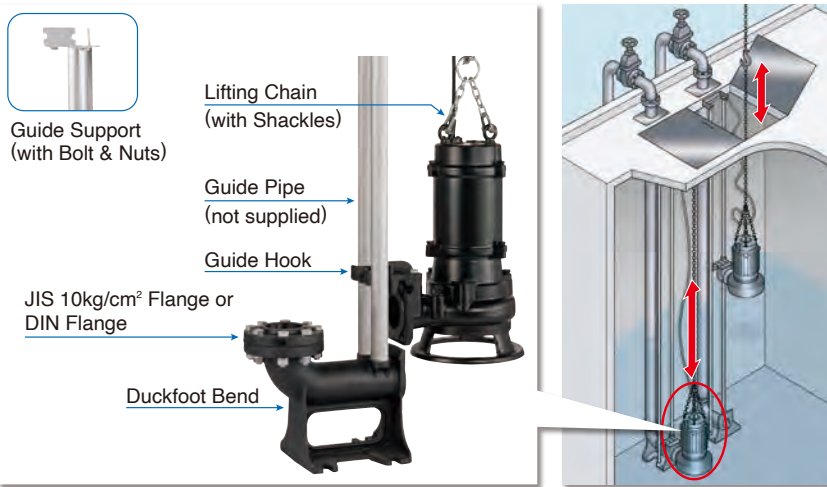
The impeller is a vortex type. The rotation of the impeller produces a whirling, centrifugal action between the impeller and pump casing. Being coupled with a wide pump casing, even large solids and fibrous matters can be pumped out without obstruction.

Guide Rail Fitting System

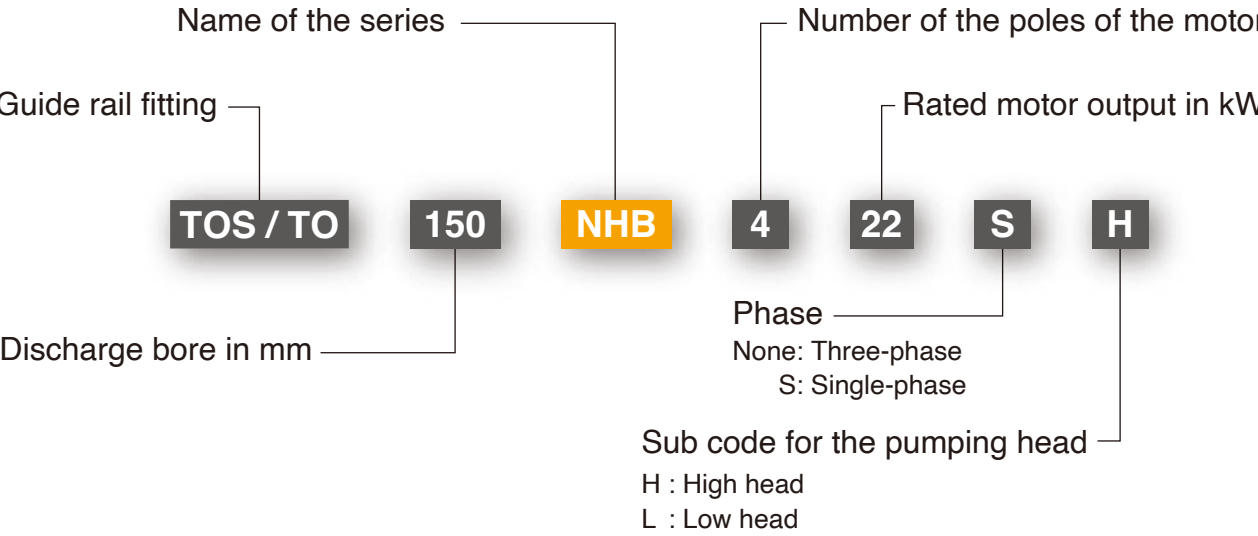
The guide rail fitting system connects the pump to and from the piping easily just by lowering and hoisting the pump, allowing easy maintenance and inspection without the need to enter the sump. The TOS/TO is the guide rail fitting system made of cast iron and is compatible with cast iron pumps.

Accessories

- Duckfoot Bend
- Guide Support
- Guide Hook
- Lifting Chain 5m (with Shackles)
- JIS 10kg/cm² Flange or DIN Flange (TOS set only)



Model Number Designation



Float Switches

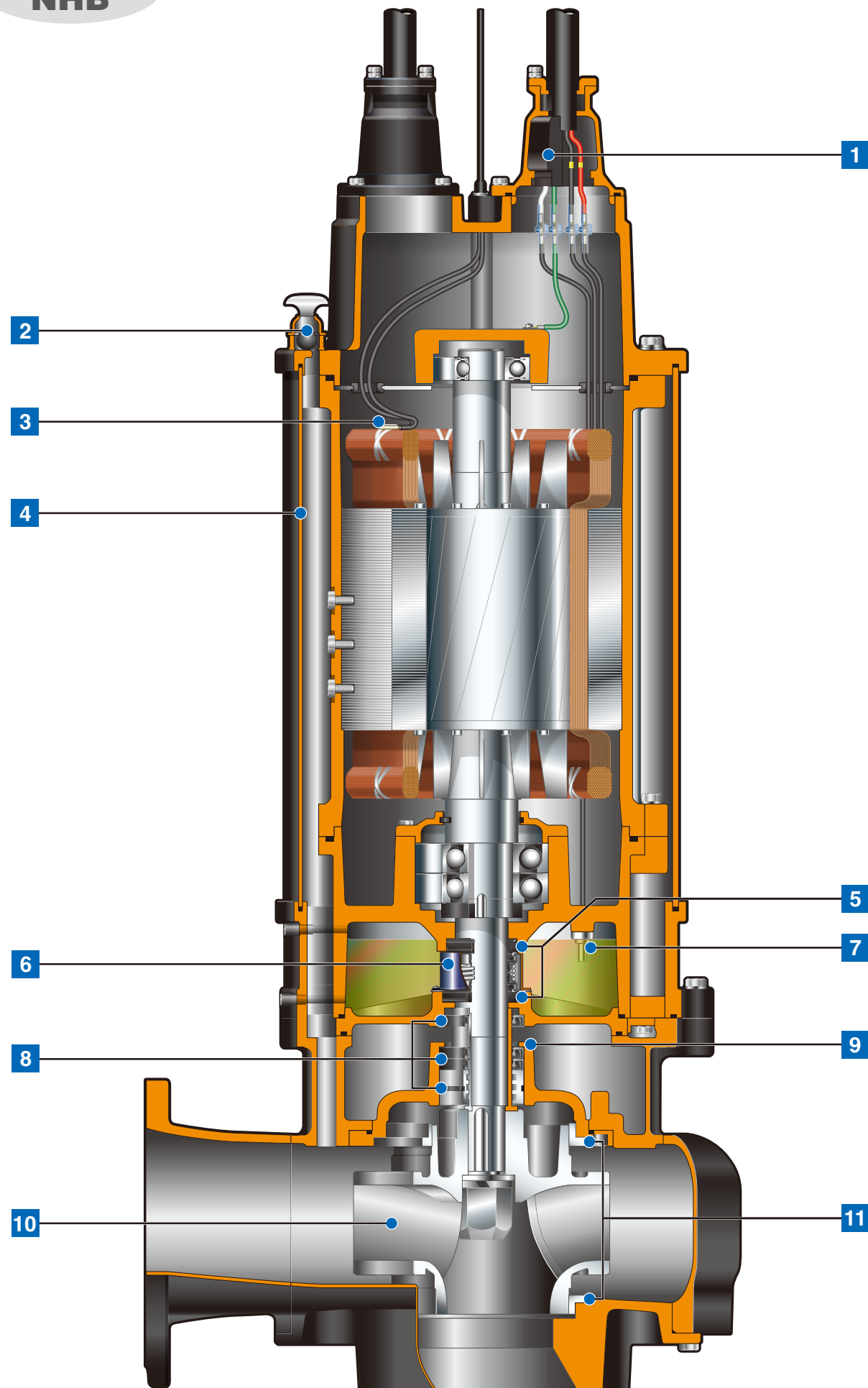
Tsurumi offers different types of float switches (liquid level sensors). A micro-switch is incorporated in all types. For details, refer to the float switches catalog.

Model MT-1 is an economy-type float switch. A teardrop body design with an integrated counterweight, MT-1 float switch is an ideal water level sensor for highly dense scum-filled wastewater. Moreover, equipped with the SPDT switch, it can be used as a water level sensor for filling as well as emptying operations.



Model MC-2 is a heavy-duty type float switch with a shock absorber. Having equipped with a high grade micro switch, the MC-2 assures trouble-free operation in the liquid containing much suspended solids and floating scum. Either of the two contacts, normally-open or normally-close, can be selected as required.





1 Anti-wicking Cable Entry

Prevents water incursion due to capillary action should the cable sheath be damaged or the end of cable submerged. Also prevents moist air from infiltrating the motor housing and condensation from forming inside the housing due to temperature differences between the housing and outside air.

2 Air Release Valve *excluding some models

Fitted on/into the water jacket and/or the pump casing to prevent the air lock. When air flows through the valve, the ball stays at the bottom, but when the pumped water starts to flow, the ball closes the outlet because of its buoyancy.

3 Motor Protector

Circle Thermal Protector (7.5kW and below)

Directly cuts the motor circuit if excessive heat builds up or overcurrent occurs in the motor.

Miniature Thermal Protectors (11kW and above)

React to excessive heat caused by dry-running. The bimetal strip opens to cause the control panel to shut the power supply.

4 Water Jacket (NHB 55kW and above for 4-pole, 45kW and above for 6-pole)

The pump is equipped with a water jacket, around the motor frame. A portion of the pumped liquid is allowed to flow into the water jacket to cool the motor. This design feature permits the unit to operate at low water levels for extended periods of time.

5 Dual Inside Mechanical Seals with Silicon Carbide Faces

Isolated in the oil chamber where a clean, non-corrosive and abrasion-free lubricating environment is maintained. Compared with the water-cooled outside mechanical seal, it reduces the risk of failure caused by dry-heating and adhering matter. The silicon carbide provides 5 times higher corrosion, wear and heat resistance than the tungsten carbide. Rubber parts of the upper and lower fixing rings are made of NBR or FPM (FKM), which provides higher resistance to heat and chemicals.

6 Oil Lifter

Provides lubrication and cooling of the seal faces down to 1/3 of normal oil level, thus maintaining a stable shaft sealing effect and prolonging seal life longer. The Oil Lifter is Tsurumi original design.

7 Leakage Sensor (11kW and above)

Detects flooding into the oil chamber that may occur in a worst case scenario. When flooding is detected, signals are sent to operate the indicator lamps through the external control panel.

8 Oil Seals + Labyrinth Ring (NHB 55kW and above for 4-pole)

Used as a "Dust Seal", a number of oil seals protect the mechanical seal from abrasive particles. The labyrinth ring is equipped to provide a better countermeasure against wear caused by high pressure generated in the casing and improve the maintainability for pumps of 55kW and above for 4-pole.

9 Seal Pressure Relief Ports (NHB 22kW and above, and NH, NHC 5.5kW and above)

Protect the mechanical seal from pump pressure. They also protect the seal face by discharging wear particles.

10 Cast Iron Channel Impeller (NHB and NH)

Cast Iron Cutter Impeller (NHC)

Cast Iron Vortex Impeller (NHU)

Minimizes potential troubles caused by clogging of solids, fibers and other waste material in pumped fluids.

11 Mouth Ring & Wear Ring (NHB 22kW and above, excluding 150NHB422H and 150NHB422)

Prevent wear in the pump casing and suction cover, resulting in reduced maintenance costs.

NHB –Channel Impeller, 50 - 250mm–

The NHB-series is a submersible channel impeller pump designed for handling raw sewage, wastewater and heavy-duty industrial applications, where the pump is subject to complete submersion and requires maximum reliability. A shrouded channel impeller practically prevents internal clogging and enables the pump to efficiently transfer sewage and wastewater containing solid matters. It is available as an extended line-up from 50 to 500mm discharge bores, 0.75 to 75kW.



100NHB45.5



200NHB475



TOS100NHB45.5

Discharge Bore mm	Model		Motor Output kW	Starting Method	Dimensions L x W x H mm		Dry Weight* ² kg		Cable Length m
	Free Standing	Guide Rail Fitting			Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
50	50NHB2.75	TOS50NHB2.75	0.75	D.O.L.	380 x 216 x 432	596 x 216 x 486	27	25	6
80	80NHB21.5	TOS80NHB21.5	1.5	D.O.L.	442 x 242 x 480	629 x 242 x 545	39	36	6
100	100NHB42.2	TOS100NHB42.2	2.2	D.O.L.	596 x 324 x 643	754 x 324 x 658	76	63	6
100	100NHB43.7	TOS100NHB43.7	3.7	D.O.L.	601 x 333 x 717	759 x 333 x 727	86	73	6
100	100NHB43.7H	TOS100NHB43.7H	3.7	D.O.L.	603 x 344 x 693	761 x 344 x 708	88	75	6
100	100NHB45.5	TOS100NHB45.5	5.5	D.O.L.* ¹	689 x 410 x 908	905 x 384 x 906	145	132	6
100	100NHB47.5	TOS100NHB47.5	7.5	D.O.L.* ¹	689 x 410 x 929	905 x 384 x 927	158	145	6
150	150NHB47.5L	TOS150NHB47.5L	7.5	D.O.L.* ¹	858 x 486 x 1085	1065 x 459 x 1030	221	192	6
150	150NHB411	TOS150NHB411	11	Star-Delta	882 x 490 x 1097	1089 x 465 x 1052	243	213	8
150	150NHB415	TOS150NHB415	15	Star-Delta	882 x 490 x 1167	1089 x 465 x 1122	259	234	8
150	150NHB422H	TOS150NHB422H	22	Star-Delta	884 x 492 x 1281	1092 x 470 x 1241	347	317	8
150	150NHB422	TOS150NHB422	22	Star-Delta	884 x 492 x 1282	1092 x 470 x 1241	347	317	8
150	150NHB437	TO150NHB437	37	Star-Delta	1072 x 724 x 1567	1305 x 612 x 1399	547	486	8
150	150NHB455	TO150NHB455	55	Star-Delta	1120 x 726 x 1663	1391 x 686 x 1557	877	838	8
200	200NHB411	TO200NHB411	11	Star-Delta	947 x 485 x 1113	1257 x 458 x 1078	262	257	8
200	200NHB415	TO200NHB415	15	Star-Delta	925 x 472 x 1184	1235 x 440 x 1144	287	282	8
200	200NHB437	TO200NHB437	37	Star-Delta	1191 x 724 x 1590	1432 x 611 x 1477	562	503	8
200	200NHB455	TO200NHB455	55	Star-Delta	1189 x 726 x 1663	1470 x 686 x 1577	912	875	8
200	200NHB475	TO200NHB475	75	Star-Delta	1189 x 726 x 1663	1470 x 686 x 1577	992	955	8
250	250NHB622	TO250NHB622	22	Star-Delta	1314 x 760 x 1654	1587 x 675 x 1593	789	698	8
250	250NHB430	TO250NHB430	30	Star-Delta	1296 x 724 x 1517	1567 x 637 x 1450	551	473	8
250	250NHB437	TO250NHB437	37	Star-Delta	1296 x 724 x 1594	1567 x 637 x 1527	611	533	8
250	250NHB445	TO250NHB445	45	Star-Delta	1314 x 760 x 1556	1581 x 668 x 1497	711	620	8
250	250NHB475	TO250NHB475	75	Star-Delta	1384 x 750 x 1663	1702 x 725 x 1606	1050	995	8

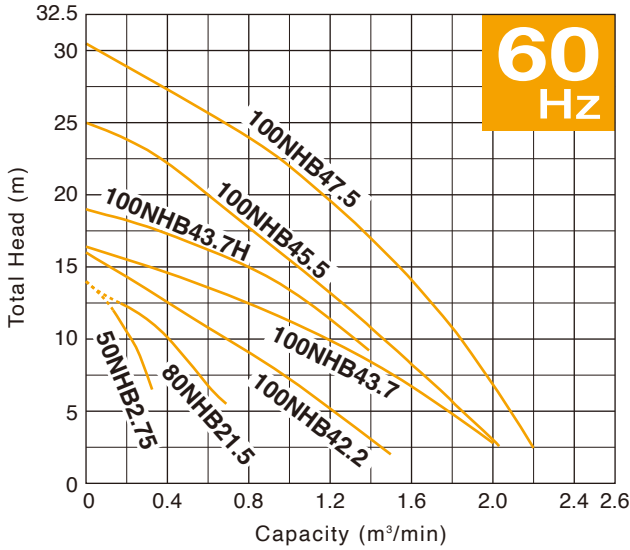
*1 Star-Delta available upon request

*2 All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

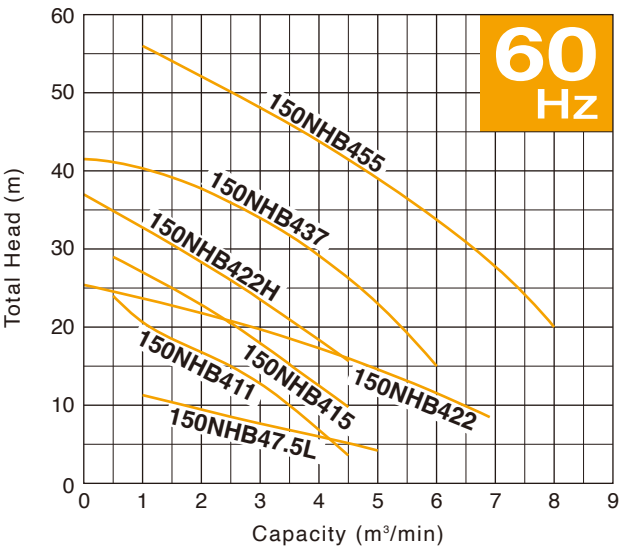
Performance Curves

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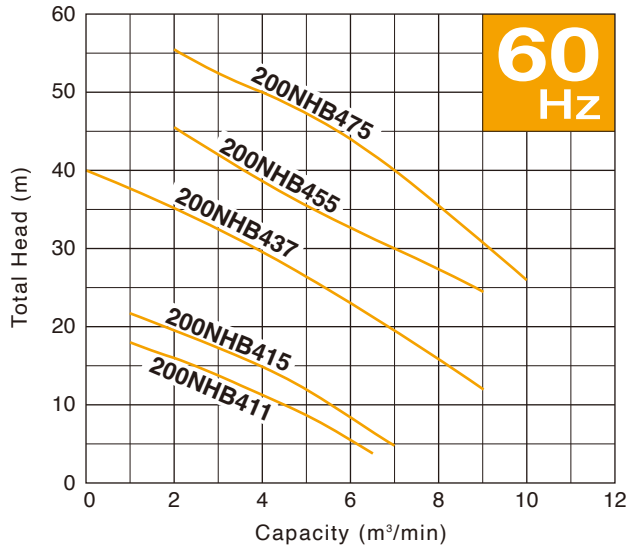
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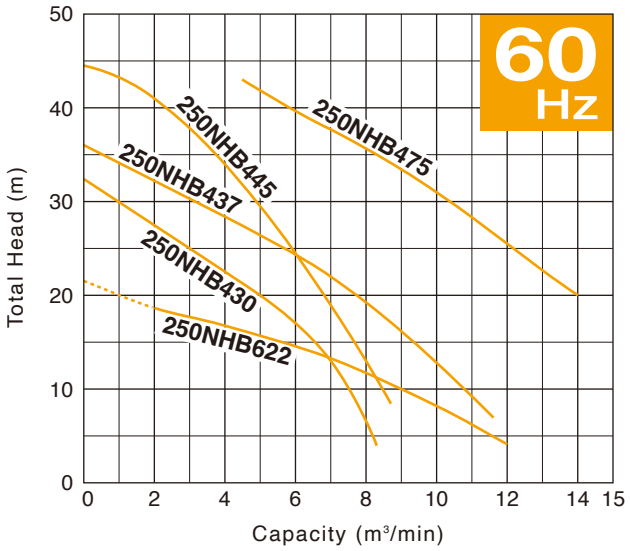
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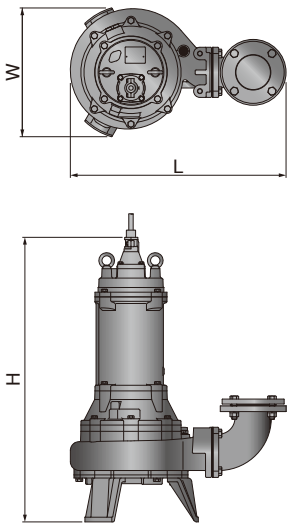


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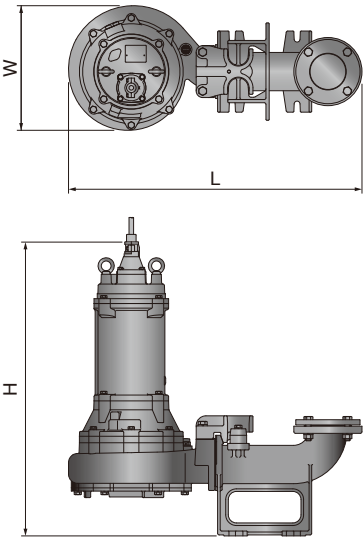


Dimensions

Free Standing



Guide Rail Fitting



NHB –Channel Impeller, 300 - 500mm–

The NHB-series is a submersible channel impeller pump designed for handling raw sewage, wastewater and heavy-duty industrial applications, where the pump is subject to complete submersion and requires maximum reliability. A shrouded channel impeller practically prevents internal clogging and enables the pump to efficiently transfer sewage and wastewater containing solid matters. It is available as an extended line-up from 100 to 500mm discharge bores, 5.5 to 75kW.



300NHB645

Discharge Bore mm	Model		Motor Output kW	Starting Method	Dimensions L x W x H*1 mm		Dry Weight**2 kg		Cable Length m
	Free Standing	Guide Rail Fitting			Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
300	300NHB622	TO300NHB622	22	Star-Delta	1367 x 760 x 1663	1690 x 654 x 1616	818	724	8
300	300NHB630	TO300NHB630	30	Star-Delta	1367 x 760 x 1663	1690 x 654 x 1616	860	766	8
300	300NHB637	TO300NHB637	37	Star-Delta	1367 x 760 x 1663	1690 x 654 x 1616	889	795	8
300	300NHB445	TO300NHB445	45	Star-Delta	1349 x 724 x 1605	1672 x 654 x 1536	775	695	8
300	300NHB645	TO300NHB645	45	Star-Delta	1415 x 830 x 1772	1783 x 654 x 1755	1260	1110	8
300	300NHB655	TO300NHB655	55	Star-Delta	1415 x 830 x 1772	1783 x 654 x 1755	1310	1160	8
350	350NHB822	TO350NHB822	22	Star-Delta	1495 x 790 x 1703	1846 x 731 x 1718	923	832	8
350	350NHB630	TO350NHB630	30	Star-Delta	1495 x 790 x 1703	1846 x 731 x 1718	914	823	8
350	350NHB637	TO350NHB637	37	Star-Delta	1495 x 790 x 1703	1846 x 731 x 1718	941	850	8
400	400NHB645	TO400NHB645	45	Star-Delta	1590 x 792 x 1817	2143 x 792 x 1895	1300	1250	8
400	400NHB655	TO400NHB655	55	Star-Delta	1590 x 792 x 1817	2143 x 792 x 1895	1330	1280	8
400	400NHB675	TO400NHB675	75	Star-Delta	1590 x 784 x 1817	2143 x 784 x 1895	1470	1410	8
500	500NHB675	TO500NHB675	75	Star-Delta	2229 x 1188 x 1926	2815 x 1188 x 2091	1960	1820	8

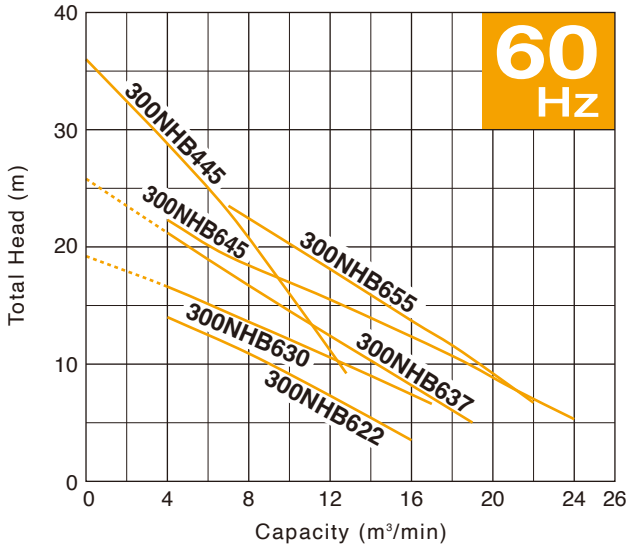
*1 Refer to page 8 for dimension symbol positions.

*2 All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

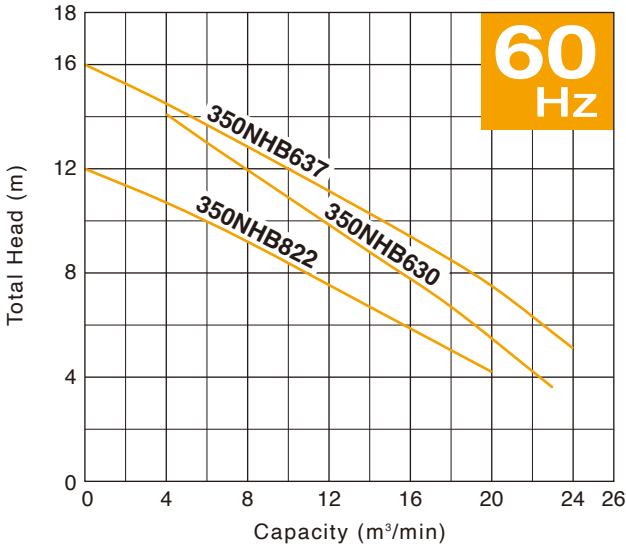
Performance Curves

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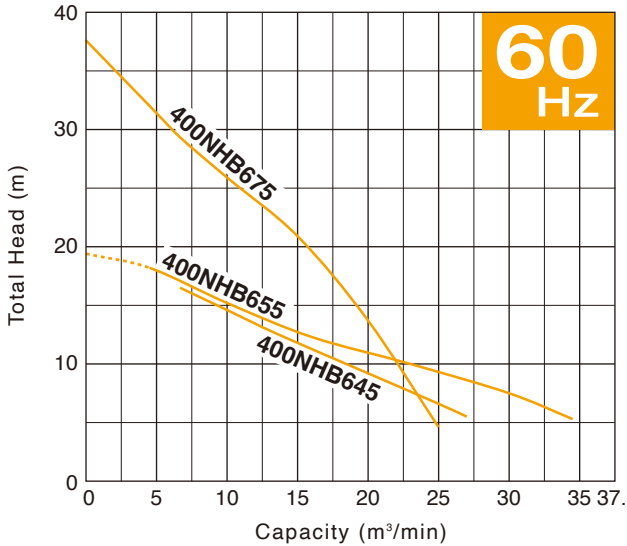
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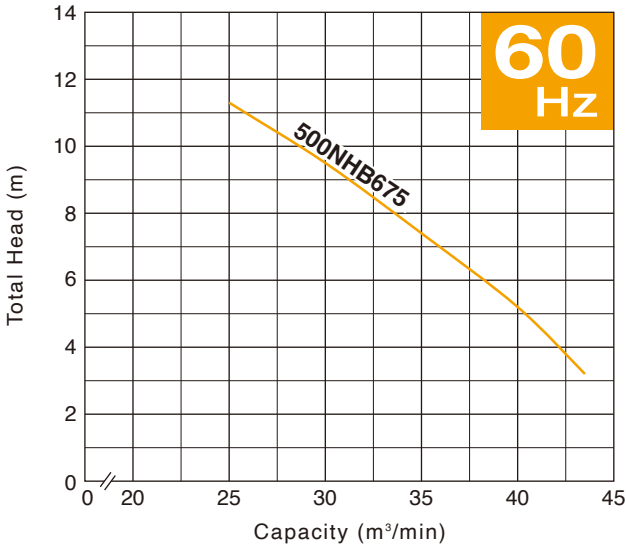
< 350mm >



< 400mm >



< 500mm >



NHC –Cutter Impeller, 2-pole–

The NHC-series is a submersible cutter pump designed for handling raw sewage, wastewater, and heavy-duty industrial applications, where the pump is subject to clogging from oversize material. Two tungsten carbide alloy edges blazed on the impeller vane on the serrated suction cover. This mechanism cuts incoming fibrous material into pieces, permitting smooth passage of fibrous material.



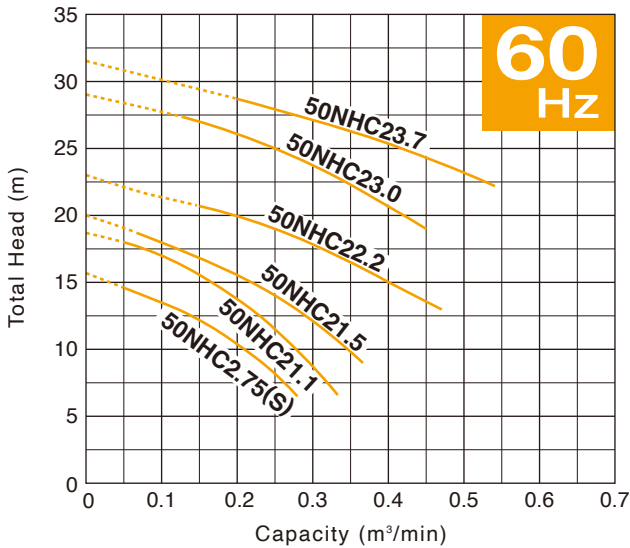
Discharge Bore mm	Model		Motor Output kW	Starting Method	Dimensions L x W x H*1 mm		Dry Weight**2 kg		Cable Length m
	Free Standing	Guide Rail Fitting			Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
50	50NHC2.75S	TOS50NHC2.75S	0.75	Capacitor Start + Capacitor Run	380 x 216 x 486	596 x 216 x 558	28	26	6
50	50NHC2.75	TOS50NHC2.75	0.75	D.O.L.	380 x 216 x 414	596 x 216 x 486	26	23	6
50	50NHC21.1	TOS50NHC21.1	1.1	D.O.L.	380 x 216 x 414	596 x 216 x 486	26	23	6
50	50NHC21.5	TOS50NHC21.5	1.5	D.O.L.	451 x 238 x 468	633 x 238 x 534	41	37	6
50	50NHC22.2	TOS50NHC22.2	2.2	D.O.L.	454 x 238 x 510	637 x 238 x 569	44	39	6
50	50NHC23.0	TOS50NHC23.0	3.0	D.O.L.	469 x 256 x 540	652 x 256 x 597	51	47	6
50	50NHC23.7	TOS50NHC23.7	3.7	D.O.L.	513 x 278 x 557	695 x 278 x 611	56	52	6
80	80NHC22.2	TOS80NHC22.2	2.2	D.O.L.	517 x 259 x 577	691 x 259 x 604	55	48	6
80	80NHC23.0	TOS80NHC23.0	3.0	D.O.L.	515 x 272 x 585	688 x 272 x 627	55	48	6
80	80NHC23.7	TOS80NHC23.7	3.7	D.O.L.	517 x 259 x 610	691 x 259 x 637	67	60	6
80	80NHC25.5	TOS80NHC25.5	5.5	D.O.L.	615 x 346 x 879	788 x 320 x 877	115	102	6
80	80NHC27.5	TOS80NHC27.5	7.5	D.O.L.	615 x 346 x 879	788 x 320 x 877	128	115	6
80	80NHC211	TOS80NHC211	11	Star-Delta	615 x 346 x 927	788 x 320 x 925	154	141	8

*1 Refer to page 8 for dimension symbol positions.
*2 All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

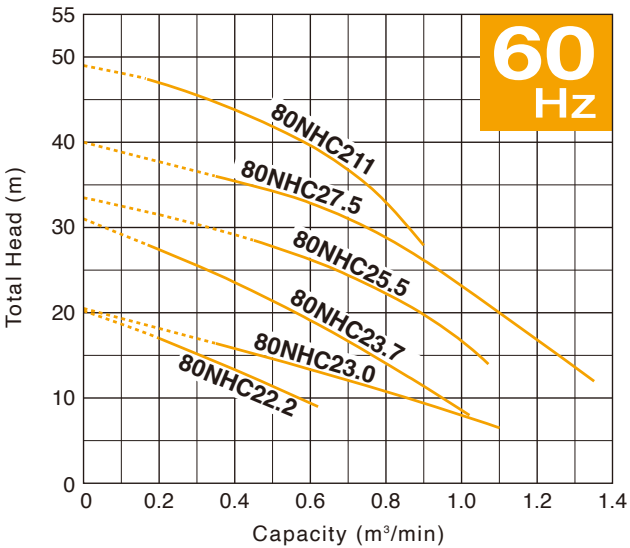
Performance Curves

It is not recommended to operate the unit continuously along the dashed curve.

< 50mm >



< 80mm >



Cutting Mechanism: Impeller & Suction Cover

Two sintered tungsten carbide alloy edges are brazed onto the impeller vane, and they rotate on the serrated part of the suction cover. Incoming fibrous materials are cut up by this mechanism, and this prevents clogging in the pump discharge pipes or valves.



Cutter Pump Operation



NHU –Vortex Impeller, 2-pole–

The NHU-series is a heavy-duty submersible pump equipped with a vortex impeller for pumping sewage and wastewater. The semi-vortex design provides a solids passage that is 70% or more* of the discharge bore, thus reducing troubles caused by the clogging of fibrous solids to a minimum. Rotation of the impeller produces vortex flow in the pump casing, which allows those solid matters to be pumped out with minimum contact to the impeller.

* excluding model 80NHU21.5



Discharge Bore mm	Model		Motor Output kW	Starting Method	Solids Passage mm	Dimensions L x W x H* ¹ mm		Dry Weight* ² kg		Cable Length m
	Free Standing	Guide Rail Fitting				Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
50	50NHU2.75	TOS50NHU2.75	0.75	D.O.L.	35	364 x 168 x 430	580 x 168 x 518	23	21	6
50	50NHU21.5	TOS50NHU21.5	1.5	D.O.L.	35	406 x 202 x 466	622 x 202 x 549	31	30	6
80	80NHU21.5	TOS80NHU21.5	1.5	D.O.L.	46	420 x 202 x 489	607 x 202 x 577	36	33	6
80	80NHU22.2	TOS80NHU22.2	2.2	D.O.L.	56	502 x 234 x 539	641 x 234 x 624	50	42	6
80	80NHU23.7	TOS80NHU23.7	3.7	D.O.L.	56	502 x 234 x 572	641 x 234 x 657	58	50	6

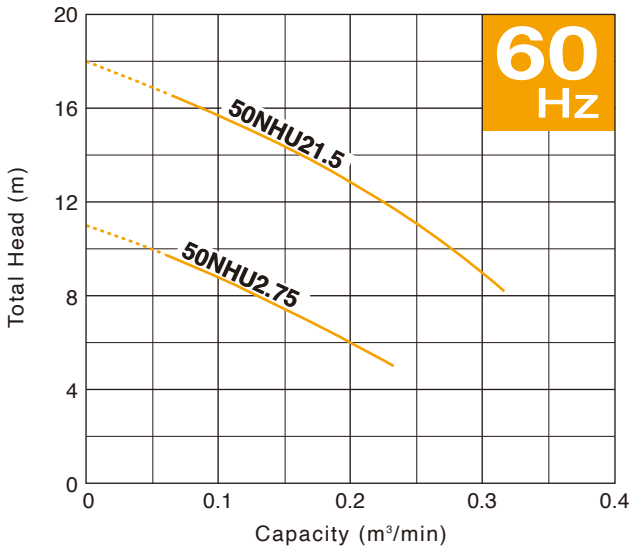
*¹ Refer to page 8 for dimension symbol positions.

*² All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

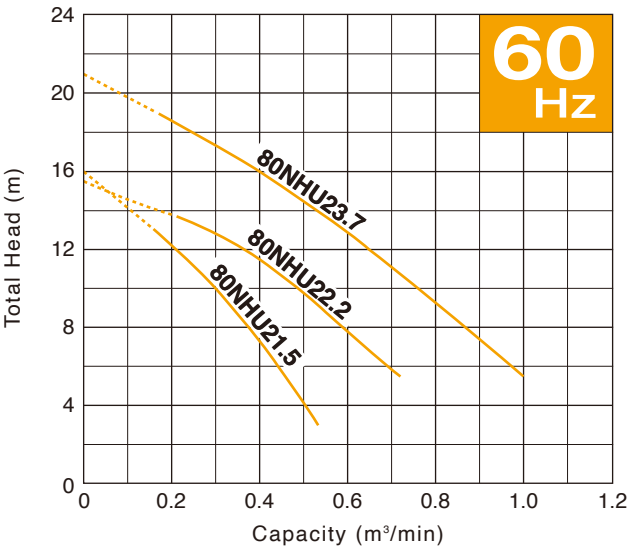
Performance Curves

It is not recommended to operate the unit continuously along the dashed curve.

< 50mm >



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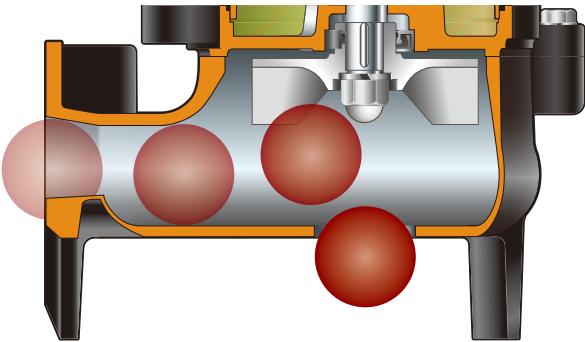


Semi-vortex Structure for Passing Solids (Vortex Impeller)

– Solids upwards of 70%* of discharge bore passed through the pump –

As the NHU-series pump’s impeller rotates, centrifugal forces create a vortex between the impeller and pump casing, causing fluid to flow through the pump. The wide casing and semi-vortex structure combine to minimize trouble due to clogging of solids and fibrous material.

* excluding model 80NHU21.5



NH –Channel Impeller, 2-pole–

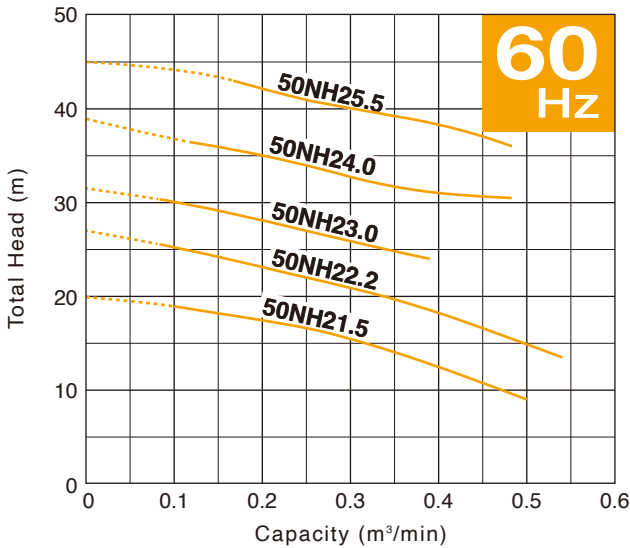
The NH-series is a cast iron made, submersible sewage pump utilizing 2-pole motor. This impeller is a shrouded two-channel impeller. Each channel is designed to have a larger area and it enables the pump to be suitable for pumping wastewater containing a certain size of solids. The pumps are available in six motor sizes ranging from 1.5 to 7.5kW and available in either High Head or High Volume Type.



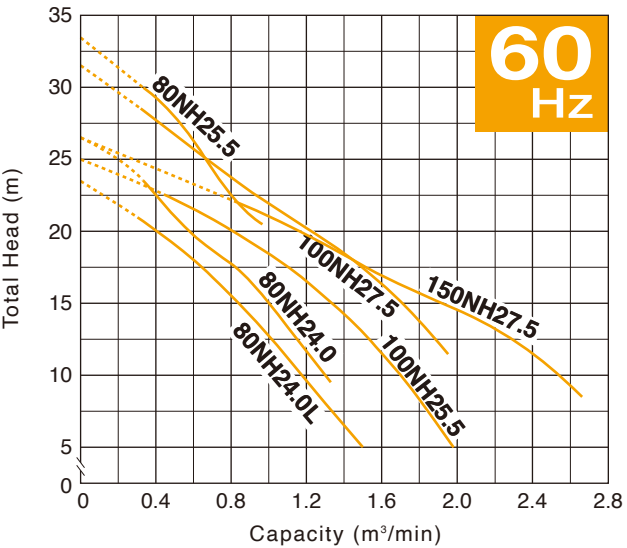
Performance Curves

It is not recommended to operate the unit continuously along the dashed curve.

< High Head Type >



< High Volume Type >



Discharge Bore mm	Model		Motor Output kW	Starting Method	Dimensions L x W x H*1 mm		Dry Weight**2 kg		Cable Length m
	Free Standing	Guide Rail Fitting			Free Standing	Guide Rail Fitting	Free Standing	Guide Rail Fitting	
50	50NH21.5	TOS50NH21.5	1.5	D.O.L.	451 x 240 x 471	633 x 240 x 532	40	36	6
50	50NH22.2	TOS50NH22.2	2.2	D.O.L.	454 x 242 x 510	637 x 242 x 568	44	40	6
50	50NH23.0	TOS50NH23.0	3.0	D.O.L.	474 x 266 x 540	657 x 266 x 597	51	47	6
50	50NH24.0	TOS50NH24.0	4.0	D.O.L.	513 x 286 x 554	696 x 286 x 610	59	54	6
50	50NH25.5	TOS50NH25.5	5.5	D.O.L.	535 x 310 x 798	718 x 310 x 841	88	83	6
80	80NH24.0	TOS80NH24.0	4.0	D.O.L.	544 x 290 x 570	718 x 290 x 635	67	59	6
80	80NH24.0L	TOS80NH24.0L	4.0	D.O.L.	500 x 248 x 577	674 x 248 x 639	62	54	6
80	80NH25.5	TOS80NH25.5	5.5	D.O.L.	544 x 300 x 819	738 x 300 x 871	96	88	6
100	100NH25.5	TOS100NH25.5	5.5	D.O.L.	585 x 288 x 835	804 x 288 x 910	107	97	6
100	100NH27.5	TOS100NH27.5	7.5	D.O.L.	622 x 310 x 832	841 x 310 x 905	117	107	6
150	150NH27.5	TOS150NH27.5	7.5	D.O.L.	749 x 334 x 849	943 x 334 x 975	149	123	6

*1 Refer to page 8 for dimension symbol positions.

*2 All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend



Specifications 60Hz

		NHB										NHB										
		50NHB 2.75	80NHB 21.5	100NHB 42.2	100NHB 43.7	100NHB 43.7H	100NHB 45.5	100NHB 47.5	150NHB 47.5L	150NHB 411		150NHB415	150NHB422H	150NHB422	150NHB437	150NHB455	200NHB411	200NHB415	200NHB437	200NHB455	200NHB475	
PUMP	Discharge Bore mm	50	80	100					150			150					200					
	Discharge Connection	Threaded Oval Flange*2		Threaded JIS 10kg/cm² Flange			DIN PN6 Flange (come with Threaded Companion Flange)					DIN PN6 Flange (come with Threaded Companion Flange)					DIN PN6 Flange					
	Impeller	Shrouded Two-channel		Semi-open Single-channel		Semi-open Two-channel	Shrouded Single-channel		Shrouded Two-channel	Shrouded Single-channel		Shrouded Single-channel		Shrouded Two-channel								
		Radial Gap		Axial Gap			Radial Gap		Axial Gap			Axial Gap			Radial Gap		Axial Gap		Radial Gap			
		Gray Cast Iron										Gray Cast Iron										
	Suction Cover	Ductile Cast Iron		Gray Cast Iron								Gray Cast Iron										
	Mouth Ring & Wear Ring	—										—			Gray Cast Iron		—		Gray Cast Iron			
	Oil Seal	Nitrile Butadiene Rubber										Nitrile Butadiene Rubber										
	Labyrinth Ring	—										—				304 Stainless Steel	—			304 Stainless Steel		
	Casing	Gray Cast Iron										Gray Cast Iron										
	Shaft Seal	Dual Inside Mechanical Seals (with Oil Lifter)										Dual Inside Mechanical Seals (with Oil Lifter)										
		Silicon Carbide										Silicon Carbide										
Shaft Sleeve	—										—			410 Stainless Steel		—		410 Stainless Steel				
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor										Continuous-duty Rated, Dry-type Induction Motor										
	Output kW	0.75	1.5	2.2	3.7		5.5	7.5		11		15	22		37	55	11	15	37	55	75	
	Phase	Three										Three										
	Pole	2			4							4										
	Speed (S.S.) min ⁻¹	3600			1800							1800										
	Insulation	H										H										
	Starting Method	D.O.L.					D.O.L.*3			Star-Delta		Star-Delta										
	Motor Protector (built-in)	CTP								MTP		MTP										
	Leakage Sensor (built-in)	—								Electrode		Electrode										
	Lubricant ml	500	940	1300	1200		4200	4600		5200		5100	4600		9100	9600	5200	5100	9100	9600		
		Turbine Oil (ISO VG32)										Turbine Oil (ISO VG32)										
	Frame	Gray Cast Iron										Gray Cast Iron										
	Outer Cover	—										—				Rolled Steel	—			Rolled Steel		
	Shaft	420 Stainless Steel										420 Stainless Steel										
Power Cable m	6							8			8											
	Chloroprene Rubber										Chloroprene Rubber*4	CPE				Chloroprene Rubber	Chloroprene Rubber*4	CPE				
Dry Weight*1	Free Standing kg	27	39	76	86	88	145	158	221	243		259	347		547	877	262	287	562	912	992	
	Guide Rail Fitting kg	24	36	63	73	73	132	145	192	213		234	317		486	838	257	282	503	875	955	

*1 All weights excluding cable

Weights of guide rail fitting excluding duckfoot bend

*2 Discharge connection for guide rail fitting is a threaded JIS 10kg/cm² flange.

*3 Star-Delta available upon request

*4 For the 200V class, the power cable material is CPE.

Specifications 60Hz

			NHB									NHB											
			250NHB 622	250NHB 430	250NHB 437	250NHB 445	250NHB 475	300NHB 622	300NHB 630	300NHB 637		300NHB 445		300NHB 645	300NHB 655	350NHB 822	350NHB 630	350NHB 637	400NHB 645	400NHB 655	400NHB 675	500NHB 675	
PUMP	Discharge Bore	mm	250				300					300		350			400			500			
	Discharge Connection		DIN PN6 Flange									DIN PN6 Flange					DIN PN10 Flange						
	Impeller	Shrouded Two-channel									Shrouded Two-channel												
		Radial Gap									Radial Gap												
		Gray Cast Iron									Gray Cast Iron												
	Suction Cover		Gray Cast Iron									Gray Cast Iron											
	Mouth Ring & Wear Ring		Gray Cast Iron									Gray Cast Iron											
	Oil Seal		Nitrile Butadiene Rubber									Nitrile Butadiene Rubber											
	Labyrinth Ring		—			304 Stainless Steel	—				—												
	Casing		Gray Cast Iron									Gray Cast Iron											
	Shaft Seal	Dual Inside Mechanical Seals (with Oil Lifter)									Dual Inside Mechanical Seals (with Oil Lifter)												
		Silicon Carbide									Silicon Carbide												
Shaft Sleeve		410 Stainless Steel									410 Stainless Steel												
MOTOR	Type		Continuous-duty Rated, Dry-type Induction Motor									Continuous-duty Rated, Dry-type Induction Motor											
	Output	kW	22	30	37	45	75	22	30	37	45		45	55	22	30	37	45	55	75			
	Phase		Three									Three											
	Pole		6	4			6			4		6		8	6								
	Speed (S.S.)	min ⁻¹	1200	1800			1200			1800		1200		900	1200								
	Insulation		H									H											
	Starting Method		Star-Delta									Star-Delta											
	Motor Protector (built-in)		MTP									MTP											
	Leakage Sensor (built-in)		Electrode									Electrode											
	Lubricant	ml	9100	8600	9100		9600	9100				9100	14000	9100			14000						
		Turbine Oil (ISO VG32)									Turbine Oil (ISO VG32)												
	Frame		Gray Cast Iron									Gray Cast Iron											
	Outer Cover		—			Rolled Steel	—				Rolled Steel		—			Rolled Steel							
	Shaft		420 Stainless Steel									420 Stainless Steel											
	Power Cable	m	8									8											
CPE									CPE														
Dry Weight*			Free Standing	kg	789	551	611	711	1050	818	860	889	775		1260	1310	923	914	941	1300	1330	1470	1960
			Guide Rail Fitting	kg	698	473	533	620	995	724	766	795	695		1110	1160	832	823	850	1250	1280	1410	1820

* All weights excluding cable
Weights of guide rail fitting excluding duckfoot bend

Specifications 60Hz

			NHC														NHU					NH											
			50NHC 2.75S	50NHC 2.75	50NHC 21.1	50NHC 21.5	50NHC 22.2	50NHC 23.0	50NHC 23.7	80NHC 22.2	80NHC 23.0	80NHC 23.7	80NHC 25.5	80NHC 27.5	80NHC 211			50NHU2.75	50NHU21.5	80NHU21.5	80NHU22.2	80NHU23.7	50NH21.5	50NH22.2	50NH23.0	50NH24.0	50NH25.5	80NH24.0 80NH24.0L	80NH25.5	100NH25.5	100NH27.5	150NH27.5	
PUMP	Discharge Bore	mm	50							80							50		80			50					80		100		150		
	Discharge Connection		Threaded Oval Flange *2		Threaded JIS 10kg/cm² Flange												Threaded Oval Flange *2			Threaded JIS 10kg/cm² Flange													
	Impeller		(Semi-open Two-channel Impeller with Two Cutting Edges) Cutter												Vortex				Shrouded Two-channel														
			Gray Cast Iron with Tungsten Carbide Alloy												Gray Cast Iron										Radial Gap								
	Suction Cover		Ductile Cast Iron												Gray Cast Iron			—		Gray Cast Iron													
	Oil Seal		Nitrile Butadiene Rubber												Nitrile Butadiene Rubber																		
	Casing		Gray Cast Iron												Gray Cast Iron																		
	Shaft Seal		Dual Inside Mechanical Seals (with Oil Lifter)												Dual Inside Mechanical Seals (with Oil Lifter)																		
			Silicon Carbide												Silicon Carbide																		
	Shaft Sleeve		—								410 Stainless Steel		—			—																	
MOTOR	Type		Continuous-duty Rated, Dry-type Induction Motor												Continuous-duty Rated, Dry-type Induction Motor																		
	Output	kW	0.75		1.1	1.5	2.2	3.0	3.7	2.2	3.0	3.7	5.5	7.5	11		0.75	1.5		2.2	3.7	1.5	2.2	3.0	4.0	5.5	4.0	5.5		7.5			
	Phase		Single	Three												Three																	
	Pole		2												2																		
	Speed (S.S.)	min ⁻¹	3600												3600																		
	Insulation		F	H												H																	
	Starting Method		Capacitor Start + Capacitor Run	D.O.L.										Star-Delta			D.O.L.																
	Motor Protector (built-in)		CTP										MTP			CTP																	
	Leakage Sensor (built-in)		—										Electrode			—																	
	Lubricant	ml	500			940	1160	1100	1300	1160	1100	1300	2140	2000			500	940		1160	1300	940	1160	1100	1300	2140	1300	2140		2000			
			Turbine Oil (ISO VG32)												Turbine Oil (ISO VG32)																		
	Frame		Gray Cast Iron												Gray Cast Iron																		
	Shaft		420 Stainless Steel												420 Stainless Steel																		
	Power Cable	m	6											8			6																
			Chloroprene Rubber												Chloroprene Rubber																		
Dry Weight *1			Free Standing	kg	28	26		41	44	51	56	55		67	115	128	154		23	31	36	50	58	40	44	51	59	88	67 62	96	107	117	149
			Guide Rail Fitting	kg	26	23		37	39	47	52	48		60	102	115	141		21	30	33	42	50	36	40	47	54	83	59 54	88	97	107	123

^{*1} All weights excluding cable

^{*2} Discharge connection for guide rail fitting is a threaded JIS 10kg/cm² flange.

Weights of guide rail fitting excluding duckfoot bend



We reserve the right to change the specifications and designs without prior notice. The OO series and model OO are indicated with our series/model codes in this catalog.

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