

# PT EBARA INDONESIA

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## WNS SERIES 4" 6" 8" 10"



**SUBMERSIBLE DEEP WELL**  
**STAINLESS STEEL 50Hz**

# Features



**Stainless Steel Construction**  
Designed and built for years of trouble free operation



**Designed and Built**  
To operate in difficult condition



**All Metal Parts**  
Are made of 304 or 316 stainless steel, except for the shafts, which are made of 431, 304, or 316 stainless steel



**Stainless Steel Discharge**  
Head with built-in check valve



**NEMA Standard**  
of bracket mounting



**Flexible Mounting**  
This pump has a vertical mounting option to allow you to save more space.



**High Quality Shaft Bearings**  
Provide low friction and high wear resistance Stop Ring

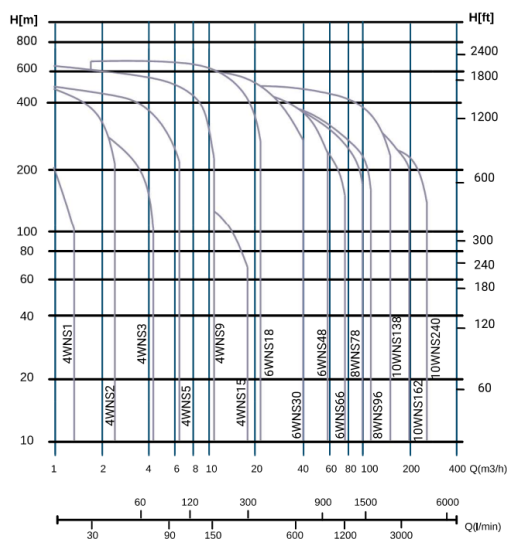


**Stainless Steel Strainer**  
Stainless steel strainer to restrict the entry of sand and other extraneous material

# Application Fields

- Deep well water lifting pump
- Agricultural irrigation and livestock watering
- Municipal and industrial water supply
- Mining applications
- Groundwater lowering
- Fountain

# Performance Range WNS 50 Hz



\*Note: All performance curve beyond this page are valid for 50 Hz and comply to ISO 9906 Annex A

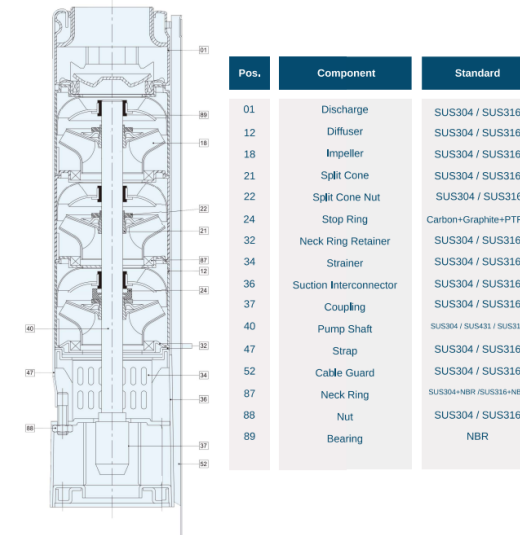
Cable Dimension for 3 x 400 V, 50 Hz

Motor	kW	I <sub>n</sub> (A)	Cos φ 100%	DIMENSION (mm <sup>2</sup> )																	
				1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300		
4"	0.37	1.4	0.64	192	318	506	752														
	0.55	2.2	0.64	222	203	322	479	783													
	0.75	2.3	0.72	104	173	275	409	672													
	1.1	3.4	0.72	70	117	186	277	455	712												
	1.5	4.2	0.75	55	91	145	215	354	556	844											
	2.2	5.5	0.82	38	64	101	151	249	393	599	818										
	3	7.85	0.77	29	47	75	112	185	291	442	601	822									
	4	9.6	0.8	22	37	59	89	146	230	350	477	656	874								
	5.5	13	0.81	16	27	43	65	107	168	256	349	480	641	821	983						
	7.5	18.8	0.78		20	31	46	76	120	183	248	340	452	577	687	804	923				
6"	5.5	13.6	0.77	16	27	44	65	107	168	255	347	475	629	801	953						
	7.5	17.6	0.8	12	20	32	48	80	125	191	260	358	477	610	728	855	984				
	9.2	21.8	0.81		16	26	39	64	100	153	208	287	382	490	586	689	795	935			
	11	24.8	0.83		14	22	33	55	86	132	180	248	332	427	512	604	699	826	942		
	13	30	0.81			19	28	46	73	111	151	208	278	356	426	501	577	680	772		
	15	34	0.82				24	40	64	97	132	182	244	313	375	441	510	601	684		
	18.5	42	0.81				20	33	52	79	108	149	198	254	304	358	412	486	551		
	22	48	0.84					28	44	67	92	127	170	220	264	312	361	428	489		
	26	57	0.84					24	37	57	78	107	144	185	222	263	304	361	412		
	30	66.5	0.83						32	49	67	92	124	159	191	225	261	308	351		
37	85.5	0.79							40	54	74	99	126	150	176	203	238	269			
8"	22	48	0.84					28	44	67	92	127	170	220	264	312	361	428	489		
	26	56.5	0.85					23	37	57	78	107	144	186	223	265	307	365	418		
	30	64	0.85						33	50	68	95	127	164	197	234	271	322	369		
	37	78.5	0.85						27	41	56	77	104	134	161	191	221	263	301		
	45	96.5	0.82							34	47	64	86	110	132	155	180	212	241		
	55	114	0.85								38	53	71	92	111	131	152	181	207		
	63	132	0.83									47	62	80	96	113	131	155	177		
	75	152	0.86										40	53	69	83	98	114	136	156	
	92	186	0.86											43	56	68	80	94	111	128	
	110	224	0.87												47	56	67	78	93	107	

## 4" WNS Series Material Specification

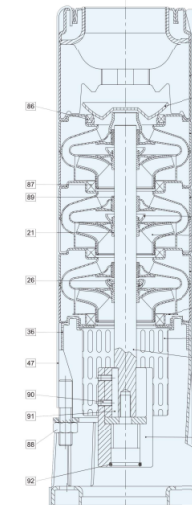
Head Losses on PVC pipe  
Pressure Loss in meters for every 100 meters of horizontal pipe.

Water Volume			Lost pressure for every 100 meters												
			Pipe Diameter size (Inch)												
m <sup>3</sup> /hr	L/Min	L/S	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"	5½"	6"	7"	
0.6	10	0.17	1.80	0.66	0.77	0.09									
0.9	15	0.25	4.00	1.14	0.60	0.18	0.03								
1.2	20	0.33	6.40	2.20	0.90	0.28	0.11								
1.5	25	0.42	10.00	3.50	1.40	0.43	0.17	0.07							
1.8	30	0.50	13.00	4.60	1.90	0.57	0.22	0.09							
2.1	35	0.58	16.00	6.00	2.00	0.70	0.27	0.12							
2.4	40	0.67	22.00	7.50	3.20	0.93	0.35	0.16	0.06						
3	50	0.83	37.00	11.00	4.80	1.40	0.50	0.22	0.09						
3.6	60	1.00	43.00	15.00	6.50	1.90	0.70	0.32	0.13	0.05					
4.2	70	1.17	50.00	18.00	8.00	2.50	0.83	0.38	0.17	0.07					
4.8	80	1.33		25.00	10.50	3.00	1.20	0.50	0.22	0.08					
5.4	90	1.50		30.00	12.00	3.50	1.30	0.57	0.26	0.09	0.05				
6	100	1.67		39.00	16.00	4.60	1.80	0.73	0.30	0.12	0.07				
7.5	125	2.08		50.00	24.00	6.60	2.50	1.10	0.50	0.18	0.10	0.06			
9	150	2.50			33.00	8.60	3.50	1.40	0.63	0.24	0.13	0.08			
10.5	175	2.92			38.00	11.00	4.30	1.80	0.78	0.30	0.18	0.09			
12	200	3.33			50.00	14.00	5.50	2.40	1.00	0.40	0.22	0.12	0.07		
15	250	4.17				21.00	8.00	3.70	1.50	0.57	0.34	0.18	0.11	0.06	
18	300	5.00				28.00	10.50	4.60	1.95	0.77	0.45	0.25	0.13	0.09	
24	400	6.67					19.00	8.00	3.60	1.40	0.78	0.44	0.23	0.15	
30	500	8.33					28.00	11.50	5.00	2.00	1.20	0.63	0.33	0.21	
36	600	10.00					37.00	15.00	6.60	2.60	1.50	0.82	0.45	0.28	
42	700	11.67					47.00	24.00	8.00	3.50	1.90	1.10	0.60	0.40	
48	800	13.33						26.00	11.00	4.50	2.60	1.40	0.81	0.48	
54	900	15.00						33.00	13.50	5.50	3.20	1.70	0.95	0.58	
60	1000	16.67						44.00	16.00	6.70	3.90	2.20	1.20	0.75	
75	1250	20.83							25.00	9.00	5.00	3.00	1.60	0.95	
90	1500	25.00							33.00	13.00	8.00	4.10	2.30	1.40	
105	1750	29.17							44.00	17.50	9.70	5.70	3.20	1.90	
120	2000	33.33								23.00	13.00	7.00	4.00	2.40	
150	2500	41.67								34.00	18.00	10.50	6.00	3.50	
180	3000	50.00								45.00	27.00	14.00	7.60	4.40	
240	4000	66.67									43.00	24.00	13.00	7.50	
300	5000	83.33										33.00	18.00	11.00	



Pos.	Component	Standard
01	Discharge	SUS304 / SUS316
12	Diffuser	SUS304 / SUS316
18	Impeller	SUS304 / SUS316
21	Split Cone	SUS304 / SUS316
22	Split Cone Nut	SUS304 / SUS316
24	Stop Ring	Carbon+Graphite+PTFE
32	Neck Ring Retainer	SUS304 / SUS316
34	Strainer	SUS304 / SUS316
36	Suction Interconnector	SUS304 / SUS316
37	Coupling	SUS304 / SUS316
40	Pump Shaft	SUS304 / SUS431 / SUS316
47	Strap	SUS304 / SUS316
52	Cable Guard	SUS304 / SUS316
87	Neck Ring	SUS304+NBR / SUS316+NBR
88	Nut	SUS304 / SUS316
89	Bearing	NBR

## 6" WNS Series Material Specification



Pos.	Component	Standard
01	Discharge	SUS304 / SUS316
04	Valve Cone	SUS304 / SUS316
11	Top Diffuser	SUS304 / SUS316
12	Diffuser	SUS304 / SUS316
18	Impeller	SUS304 / SUS316
19	Ring of Impeller	SUS304 / SUS316
21	Split Cone	SUS304 / SUS316
22	Split Cone Nut	SUS304 / SUS316
26	Spacing Washer For Stop Ring	Carbon+Graphite+PTFE
32	Neck Ring Retainer	SUS304 / SUS316
34	Strainer	SUS304 / SUS316
36	Suction Interconnector	SUS304 / SUS316
37	Pump Shaft	SUS431 / SUS316
44	Coupling	SUS431 / SUS316
47	Strap	SUS304 / SUS316
52	Cable Guard	SUS304 / SUS316
86	Valve Seat	SUS304+NBR / SUS316+NBR
87	Neck Ring	SUS304+NBR / SUS316+NBR
88	Nut	SUS304 / SUS316
89	Bearing	NBR
90	Screw	SUS304 / SUS316
91	Key	SUS304 / SUS316
92	O-ring	NBR



## 4" Motors



**ZBH4N** For Clear Water  
**ZBH4NH** For Spring Water

- **Connector Lead Wire**  
Power supply Lead Wire and connector section are combined together with rubber mold for high durability water resistance.

### ZBH4N Operating Parameters

Maximum water depth: 100m  
Minimum allowable velocity of cooling water: 0.063m/s  
Liquid characteristics : Clean water (PH 5.8 to 8.6) Temperature: 0 to 40°C

### ZBH4N Type: Submersible Canned Motor for Deep Well

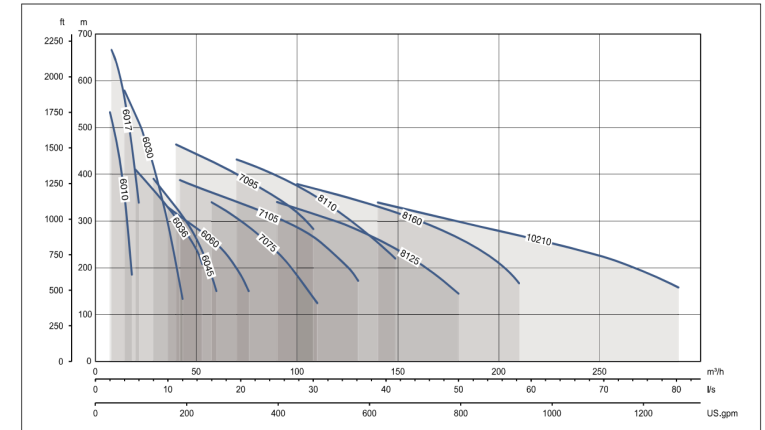
This motor is intended to be used with a directly connected submersible pump for deep well. Considering its usage environments, our own technology backed up with long term experience in designing and manufacturing of the submersible motor has been fully reflected in the areas of configuration and parts structure.

- **Welding encapsulated structure**  
Stator room where stator coil exists is in welding encapsulated structure (canned state) so that the stator coil can be completely isolated from the exterior.
- **Enclosure liquid**  
The motor is filled up with propylene glycol water solution. Lubrication for radial bearing and thrust bearing. Protection of parts within the motor from the rust. Distribution of heat inside the motor and prevention of local heat generation. Propylene glycol is also used as a food additive which proves it to be safe liquid.
- **Shaft seal**  
The oil seal is used at shaft seal section in order to avoid replacing enclosure liquid with outside water. Also, the sand Slinger is used to avoid entry of sand into the motor.
- **Stainless steel for liquid**  
Surface Stainless steel is used as liquid surface material for high corrosion resistance.

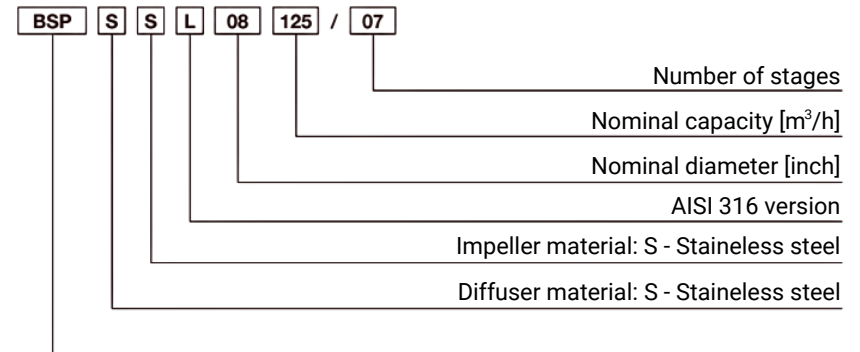
### ZBH4NH Operating Parameters

Maximum water depth: 100m  
Minimum allowable velocity of cooling water: 0.063m/s  
Liquid characteristics : Spring Water Temperature: 0 to 90°C

## Pump Performance Range



## Type Key





## Submersible Motor 50Hz



EBARA Submersible Motors, which are wound with PE2+PA insulated wires.

### General Features

- High quality PE2+PA winding wires
- CCW direction of rotation . Our motors can be operated horizontally
- Availability to be operated by Soft-Starter • Flange with NEMA standards
- Water coolant system
- Stainless steel shaft . Our rewindable motors provides long service life
- High efficiency provides operation cost savings
- Variable operation revolutions by frequency convertor over 30Hz
- Customized production option
- Optional high corrosion resistive materials (AISI 304/AISI 316/Duplex/Bronze)
- Standard voltage 380/460V - 50/60Hz (Allowable voltage tolerance %10)

### Main Features

- Corrosion Resistant Construction
- Enhanced Cooling Properties

## 6" Motors



### ZBH6U Submersible Canned Motor for Deep Well

Water cooled motors with encapsulated resin filled stator.  
Coupling dimensions and flange according to NEMA standard.

### ZBH6U MOTOR TECHNICAL FEATURES

Motor casing and shaft made of stainless steel  
High resistance coated cast iron upper and lower bracket.  
Water lubricated Kingsbury type thrust bearings  
Standard mechanical seal Sic-SiC type Sand slinger protection  
Pressure equalizing diaphragm  
Insulation class F; Protection Class IP68  
Removable cable connector 4M long  
Starting methods for motors are available in D.O.L. and star-delta.

### OPERATING LIMITS

**Maximum voltage fluctuation admissible vs Normal rated voltage :** +10% -10%  
**Maximum water temperature:**  
**ZBH6U (For Clean Water):** Lower than 35°C  
**ZBH0UH(For Spring Water):** Lower than 90°C  
0.15m/s of water flow speed  
**Maximum motor starting per hour :** 20 times for D.O.L. type.  
**Maximum immersion depth :** 300m  
**Standard mounting position :** Vertical

### VERSIONS

Power range from 3.7 kW to 45 kW  
**Nominal voltage:** 380-415V @50 Hz, 220/460V @60 Hz  
**Maximum axial thrust :**  
7,840 N (3.7 kW to 11 kW), 15,550 N (3.7 kW to 22 kW) 22,250 N (30 kW to 45 kW)

# MS4 Series

## 4"Rewindable Oil Filled Submersible Motor



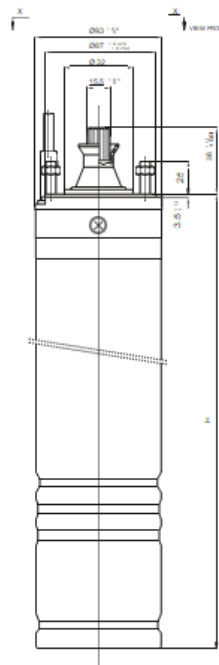
### Technical Features

- Rewindable.
- Upper bracket: Nickel plated cast iron. SS304 cover sheet / Brass / SS316 available.
- Motor case: SS 304.
- Motor shaft: SS 304.
- Shaft extentionand coupling: NEMA Standard.
- High quality radial and thrust ball bearings.
- Winding: enameledcopper - Class F insulation.
- Degree of protection IP68/Class B insulation .
- Max temp. 35° with water cooling flow min. 0.08 m/s.
- Max depht immersion: 150 m.
- Nos. of start per hour: max 30 at regular intervals.
- Over-dimensioned sand slinger.
- Mechanical seal: graphite/ceramic. SiC/SiCor SiC/Al mechanicalseal available as option.
- Coolant: dielectric non toxic high quality lubricant.
- Motor cable length: 1,75 to 4 m accordingto motor size (3 wires plus ground).
- Voltage variation:+/-10%.
- Single phase motor availablein both version CSCR & PSC.
- Suitable for horizontal operation.

### Motor Range Versions

- Single Phase: 0.37kW (0.5hp) to 4kW (5.5hp), 220-230V / 50Hz (or 60 Hz).
- Three Phase: 0.37kW (0.5hp) to 7.5kW (10hp), 380-415V / 50Hz – 460V / 60Hz.
- Axial thrust: - 1500 N from 0.37kW to 2.2kW
  - 2500 N from 2.2kW to 5.5kW
  - 5000 N from 2.2kW to 5.5kW
  - 7500 N from 2.2kW to 7.5kW.

\*Other voltage and frequencies available upon request.



Type	kW	Hp	Axial Thrust	H (mm)	Cable				Weight (kg)
					Length	Sez mm2	A mm	B mm	
ITOL 4 M 050	0.37	0.5	1500 N	325	1.75	1.5	5.6	18.8	7
ITOL 4 M 075	0.55	0.75	1500 N	325	1.75	1.5	5.6	18.8	7.6
ITOL 4 M 100	0.75	1	1500 N	350	1.75	1.5	5.6	18.8	8.7
ITOL 4 M 150	1.1	1.5	1500 N	385	1.75	1.5	5.6	18.8	10.3
ITOL 4 M 200	1.5	2	1500 N	420	1.75	1.5	5.6	18.8	12
ITOL 4 M 300	2.2	3	1500 N	470	2.5	1.5	5.6	18.8	14.2
ITOL 4 M 300	2.2	3	4400 N	520	2.5	1.5	5.6	18.8	15.5
ITOL 4 T 050	0.37	0.5	1500 N	325	1.75	1.5	5.6	18.8	6.5
ITOL 4 T 075	0.55	0.75	1500 N	325	1.75	1.5	5.6	18.8	7
ITOL 4 T 100	0.75	1	1500 N	325	1.75	1.5	5.6	18.8	7.6
ITOL 4 T 150	1.1	1.5	1500 N	350	1.75	1.5	5.6	18.8	8.7
ITOL 4 T 200	1.5	2	1500 N	385	1.75	1.5	5.6	18.8	10.4
ITOL 4 T 300	2.2	3	1500 N	420	2.5	1.5	5.6	18.8	12
ITOL 4 T 300	2.2	3	5000 N	383	2.5	1.5	5.6	18.8	11.2
ITOL 4 T 400	3	4	5000 N	418	2.5	1.5	5.6	18.8	13.1
ITOL 4 T 550	4	5.5	5000 N	468	2.5	1.5	5.6	18.8	15.6
ITOL 4 T 750	5.5	7.5	5000 N	538	3	1.5	5.6	18.8	18.9
ITOL 4 T 1000	7.5	10	4400 N	810	4	2.0	6.0	19.5	27

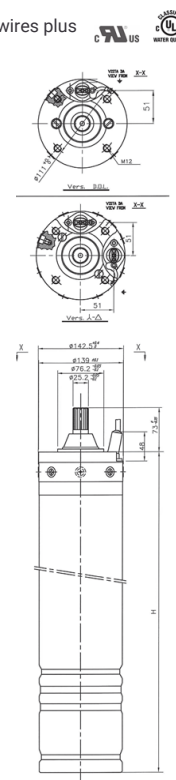
# MS6 Series

## 6"Rewindable Oil Filled Submersible Motor



### Technical Features

- Rewindable.
- Upper bracket:Nickel plated cast iron. SS316 available.
- Motor case: SS 304.
- Motor shaft: SS 304.
- Shaft extentionand coupling: NEMA standard.
- High quality radial and thrust ball bearings.
- Winding: enameledcopper - Class F insulation.
- Degree of protection IP68/ClassB insulation.
- Max temp. 35° with water coolingflow min. 0.16 m/s.
- Max depth immersion: 150 m.
- Nos. of start per hour: max 30 at regular intervals.
- Over-dimensioned sand slinger.
- Mechanical seal: graphite/ceramic. SiC/SiCor SiC/Al mechanicalseal available as option.
- Coolant: dielectric non toxic high quality lubricant.
- Motor cable length: 2,8 to 4 m accordingto motor size (3 wires plus ground).
- Voltage variation:+/-10%.
- Starting method: D.O.L / Star-Delta.
- CSCR single phase motor available.
- Suitable for horizontal operation.



Type	kW	Hp	Axial Thrust	H (mm)	Cable			Weight (kg)
					Sez mm2	A mm	B mm	
ITOL 6 T 0550	4	5.5	10,000 N	540	4	6.5	20.5	32
ITOL 6 T 0750	5.5	7.5	10,000 N	570				33
ITOL 6 T 1000	7.5	10	10,000 N	600				36
ITOL 6 T 1250	9.2	12.5	10,000 N	600				36
ITOL 6 T 1500	11	15	10,000 N	700				42
ITOL 6 T 1750	12.8	17.5	10,000 N	700	6	7	23.5	50
ITOL 6 T 2000	15	20	10,000 N	760				48
ITOL 6 T 2500	18.5	25	10,000 N	825				65
ITOL 6 T 3000	22	30	10,000 N	887	8	8	27.5	70.5
ITOL 6 T 4000	30	40	20,000 N	1030				90
ITOL 6 T 5000	37	50	20,000 N	1030				101