



# AY Series

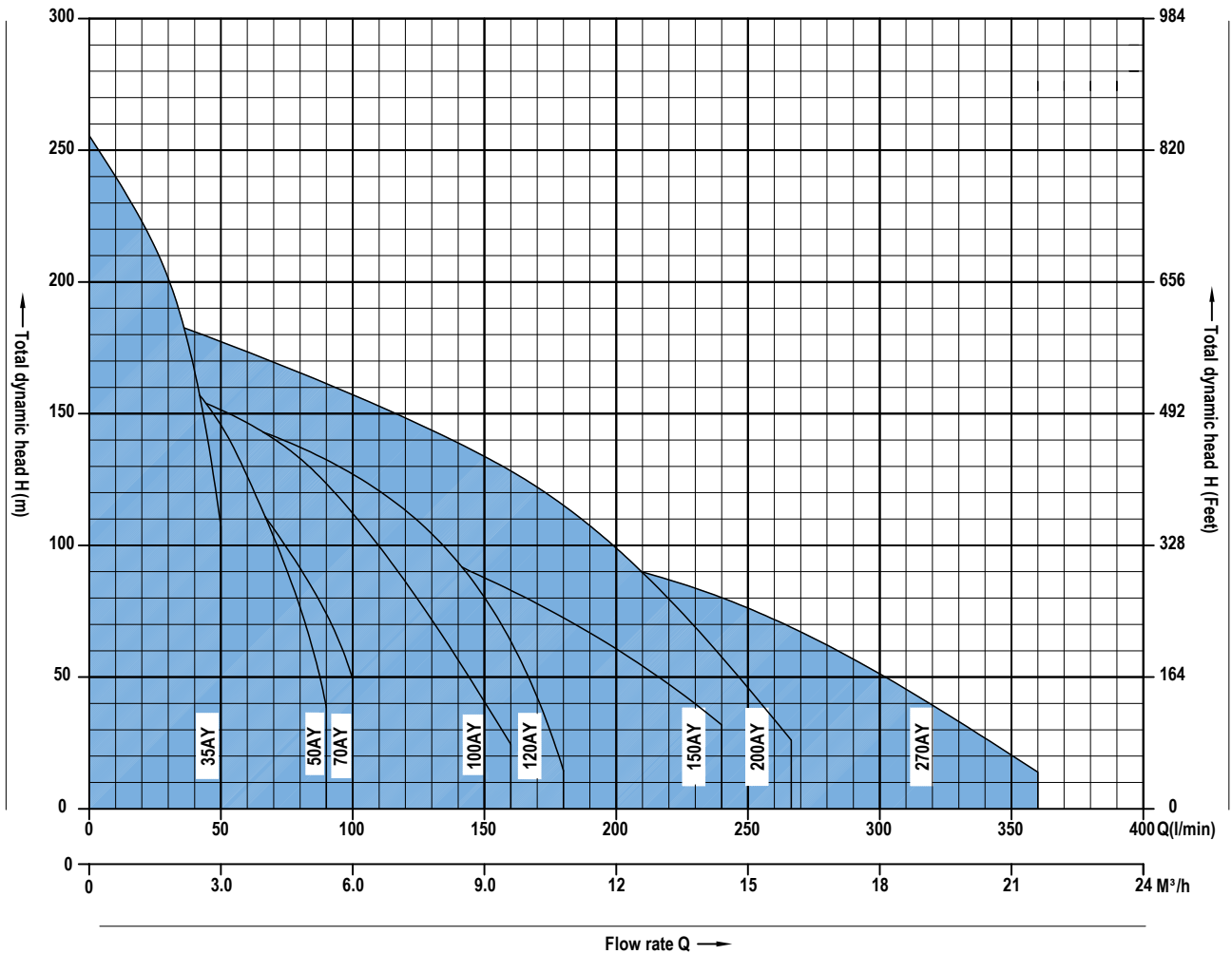
4" Submersible Pump  
4" Oil-Filled Sumersible Motor





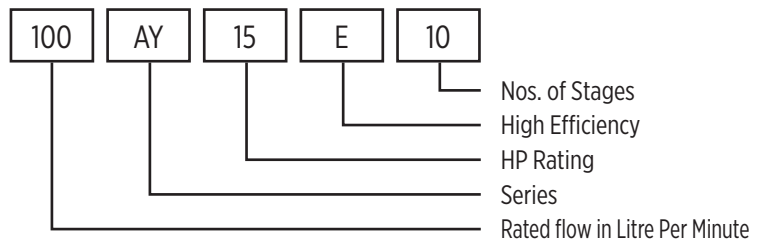
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# FAMILY CURVES 50HZ



## PRODUCT IDENTIFICATION

### 100AY15E10



# 4" SUBMERSIBLE PUMP

The **AquaDuty 4" AY Series** submersible pumps are constructed with high quality material and features floating impeller system. These enable our pumps endure against wear when operating in abrasive and sandy well condition.

## Feature

- ✓ Excellent resistance against corrosion with fully stainless steel casing; and cast stainless steel pump discharge outlet and bracket.
- ✓ Greater tolerance against sand through sophisticated hydraulic design and the use of engineered thermoplastic material for impeller that has superior wear resistance properties.
- ✓ Cost effective solution through optimized hydraulic design to enhance overall pumping efficiency to reduce energy consumption.
- ✓ Protection against water hammering with built-in check valve.

## Specification

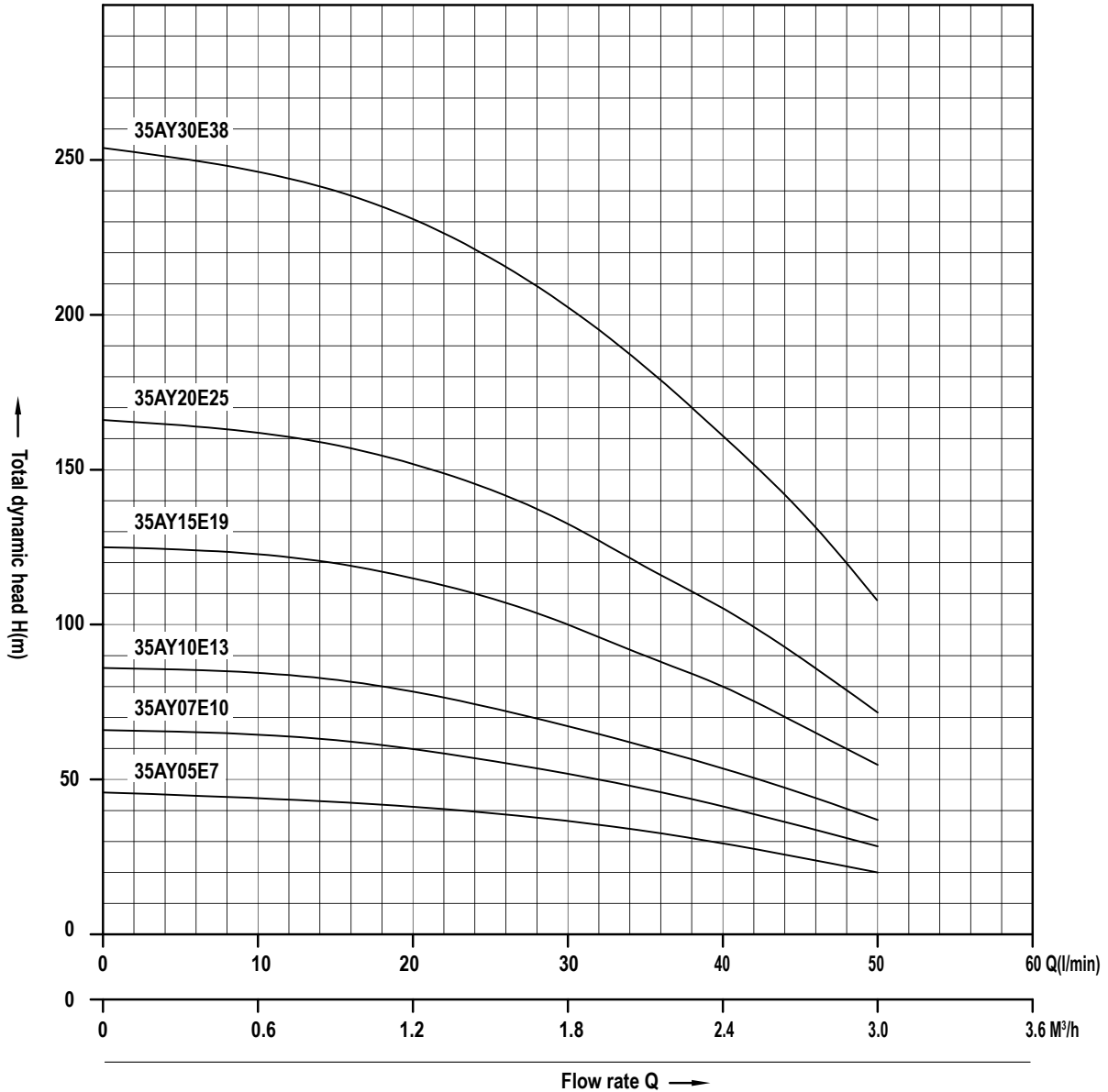
- ✓ Flow: up to 24m<sup>3</sup>/hr, Head up to 250m at 50Hz
- ✓ Outlet Size: 1.5" for 35, 50, 70 AY and 2" for 100, 120, 150, 200 & 270 AY
- ✓ Maximum allowable amount of sand: 400 g/m<sup>3</sup>
- ✓ Maximum Pump diameter: 97mm
- ✓ NEMA standard dimensions
- ✓ Pump can work continuous-ly in vertical or horizontal positions (requires our con-sultation to confirm horizontal applications type)

## Application

- ✓ Municipal Water Works
- ✓ Residential and agriculture
- ✓ Water supply from tank, reservoir & well.
- ✓ Irrigation for various purposes, sprinkler systems
- ✓ Residential and agriculture
- ✓ Domestic water supply
- ✓ General Industries

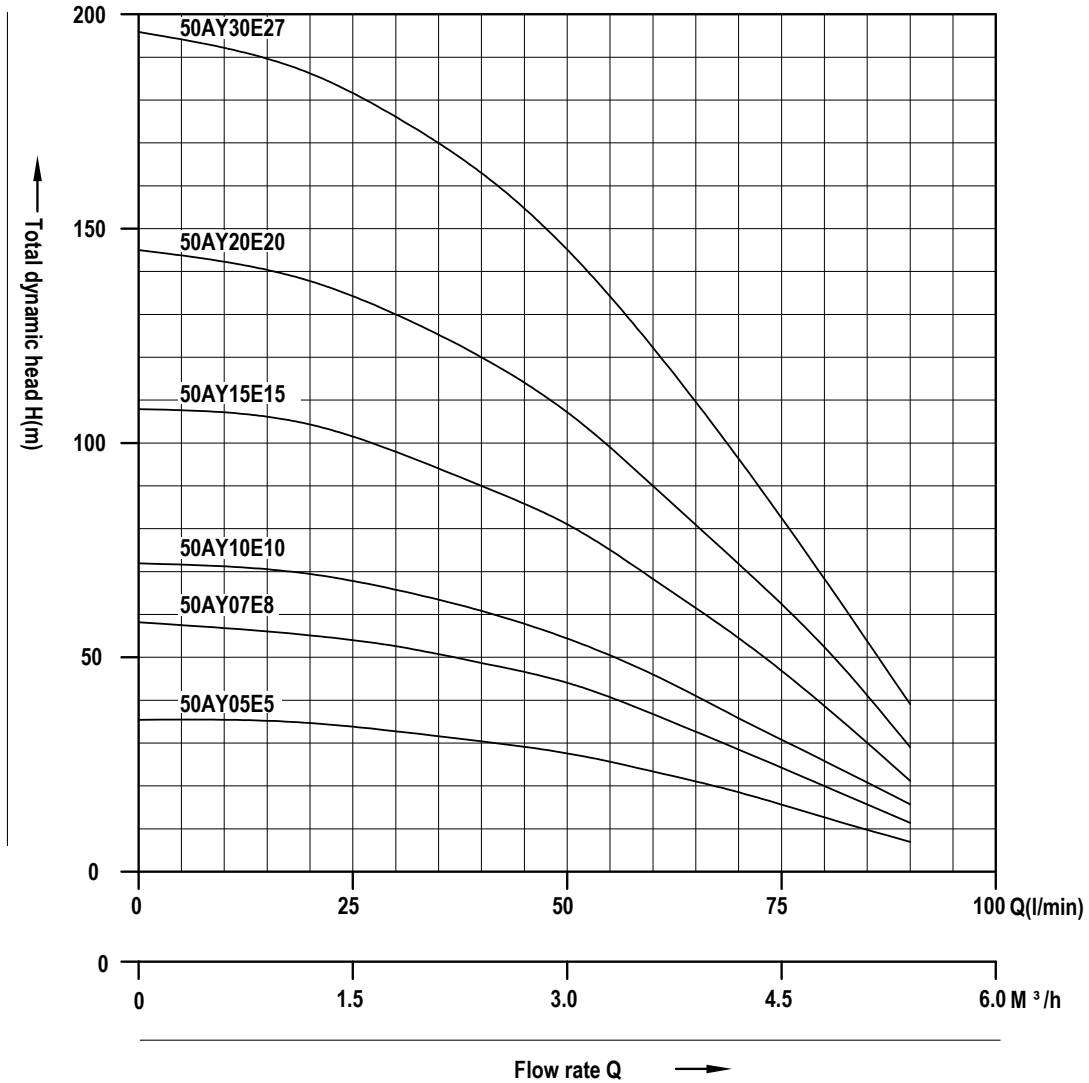


## 35AY - PERFORMANCE CURVE AT 50Hz



Pump Model	No. of Stages	Motor		Pump	Q m <sup>3</sup> /h l/min	Delivery								
		KW	HP	Outlet (in)		0	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
						0	15	20	25	30	35	40	45	50
35AY05E07	7	0.37	0.5	1.5"	Head H m	46	44	42	40	36	33	29	24	20
35AY07E10	10	0.55	0.75	1.5"		66	63	60	57	52	47	42	35	28
35AY10E13	13	0.75	1.00	1.5"		86	82	78	74	68	61	55	45	37
35AY15E19	19	1.10	1.50	1.5"		126	120	115	109	100	90	80	67	54
35AY20E25	25	1.50	2.00	1.5"		166	158	151	143	132	119	105	89	71
35AY30E38	38	2.20	3.00	1.5"		252	240	230	218	201	181	160	135	108

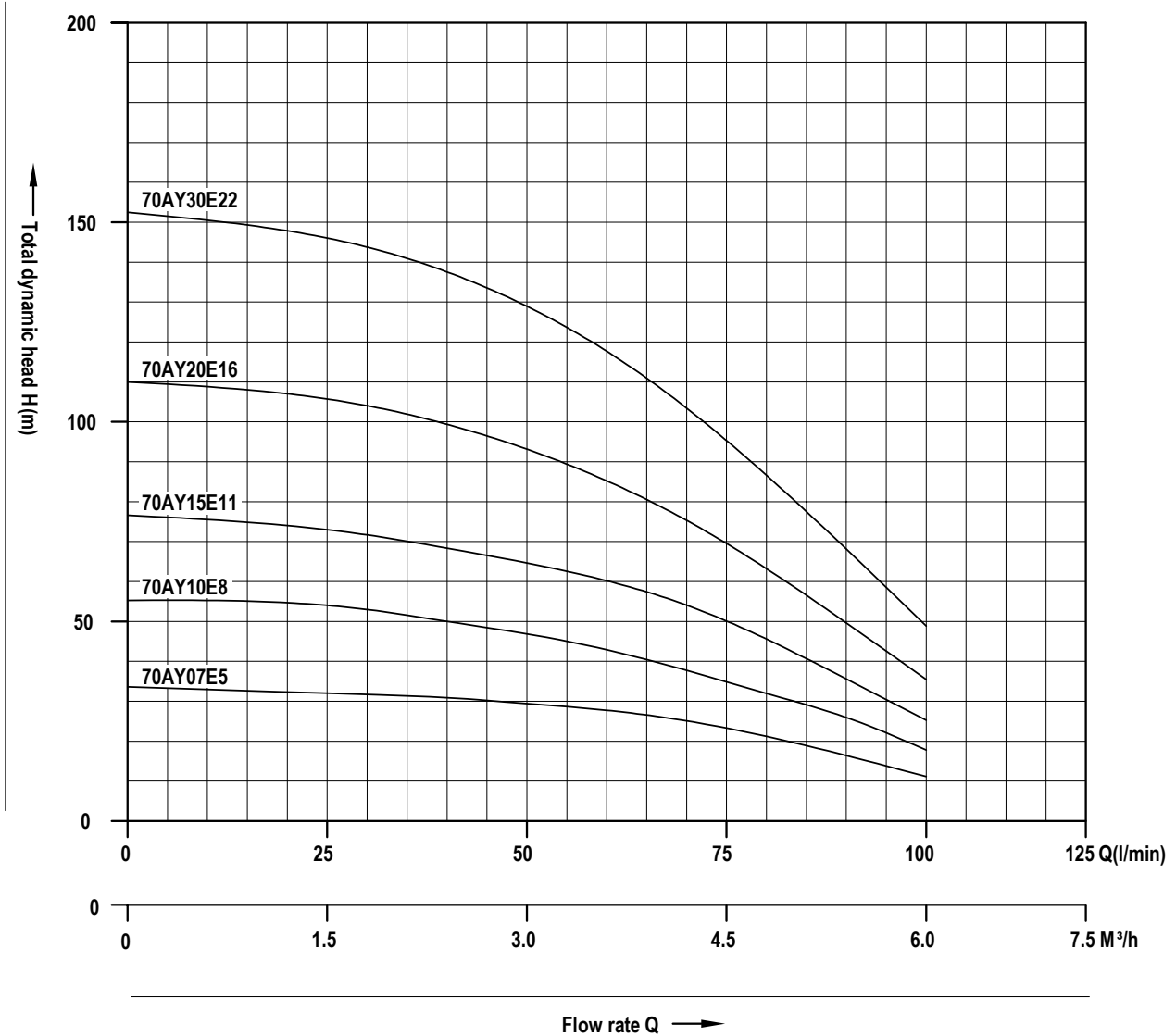
## 50AY - PERFORMANCE CURVE AT 50Hz



Pump Model	No. of Stages	Motor		Pump	Q $\frac{m^3/h}{l/min}$	Delivery								
		KW	HP	Outlet (in)		0	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4
						0	20	30	40	50	60	70	80	90
50AY05E05	5	0.37	0.50	1.5"	Head H m	36	34	32	30	27	23	18	13	7
50AY07E08	8	0.55	0.75	1.5"		58	55	52	48	43	36	28	20	11
50AY10E10	10	0.75	1.00	1.5"		72	69	65	60	53	45	35	25	14
50AY15E15	15	1.10	1.50	1.5"		109	104	98	90	81	68	53	39	22
50AY20E20	20	1.50	2.00	1.5"		145	138	130	120	108	90	70	52	29
50AY30E27	27	2.20	3.00	1.5"		196	186	176	162	145	122	95	70	39

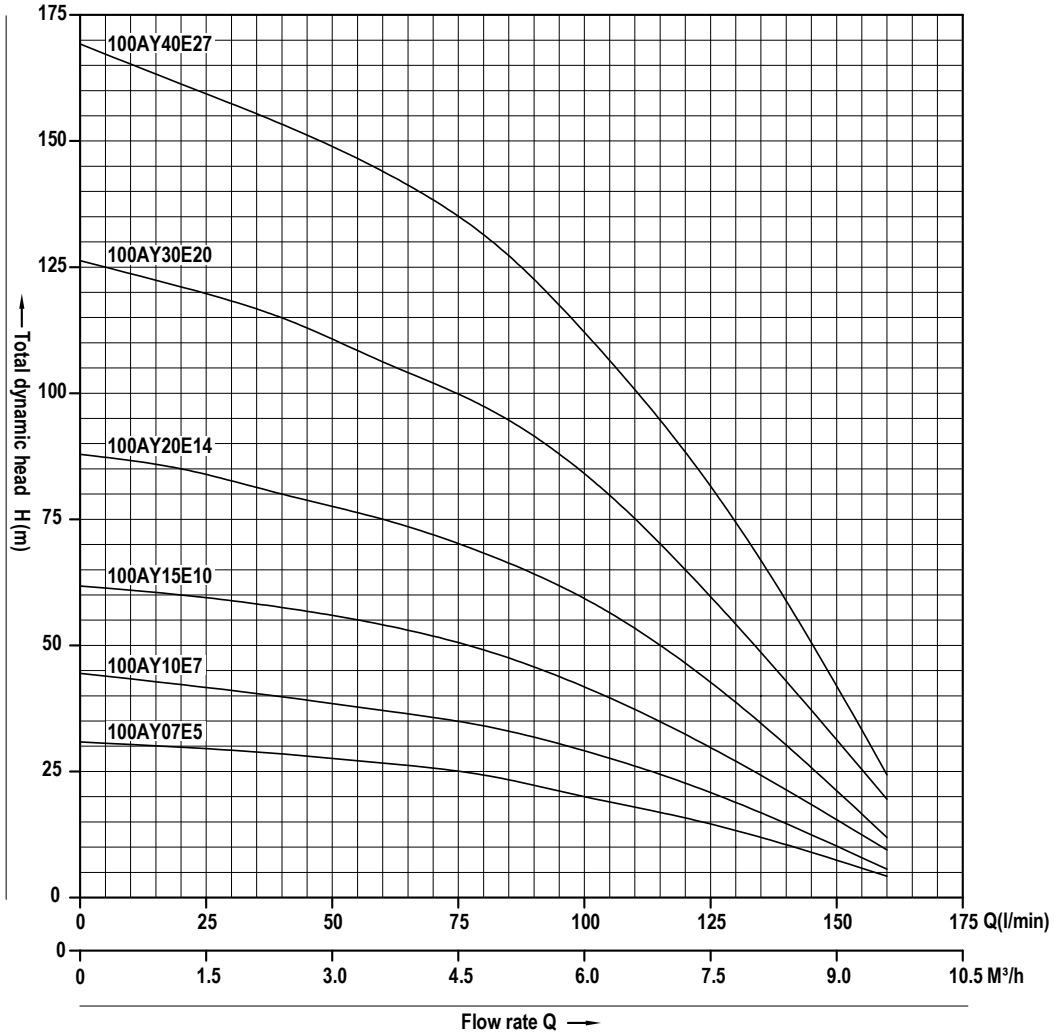


## 70AY - PERFORMANCE CURVE AT 50Hz



Pump Model	No. of Stages	Motor		Pump	Q m <sup>3</sup> /h l/min	Delivery									
		KW	HP	Outlet (in)		0	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6.0	
						0	30	40	50	60	70	80	90	100	
70AY07E5	5	0.55	0.75	1.5"	Head H m	34	32	31	29	27	24	19	16	11	
70AY10E8	8	0.75	1.00	1.5"		55	52	49	47	44	38	31	25	18	
70AY15E11	11	1.10	1.50	1.5"		76	71	67	65	60	53	43	34	24	
70AY20E16	16	1.50	2.00	1.5"		110	104	98	94	86	76	62	49	36	
70AY30E22	22	2.20	3.00	1.5"		151	143	134	130	119	104	85	68	49	

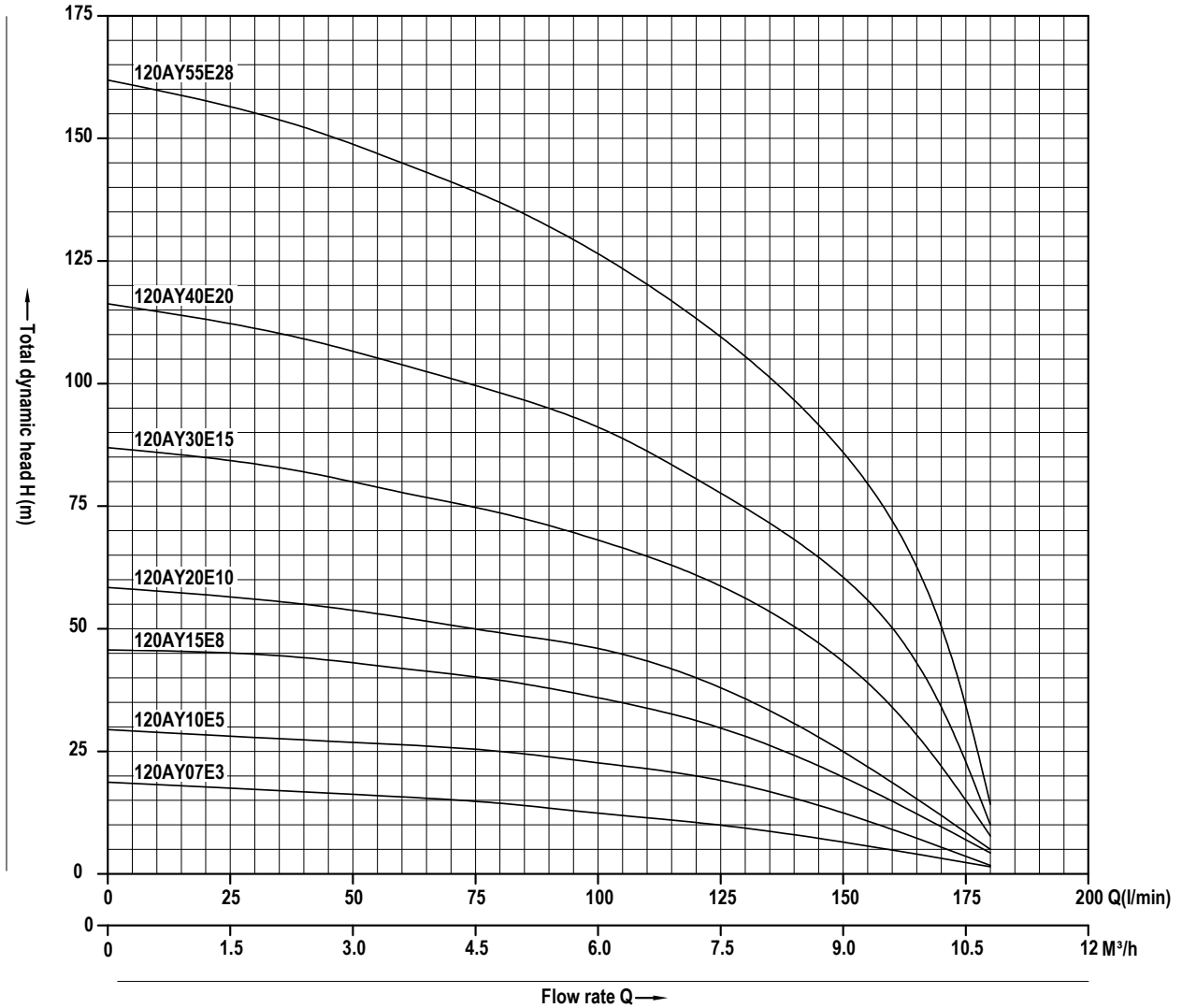
# 100AY - PERFORMANCE CURVE AT 50Hz



Pump Model	No. of Stages	Motor		Pump	Q $\frac{m^3/h}{l/min}$	Delivery								
		KW	HP	Outlet (in)		0	1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6
						0	20	40	60	80	100	120	140	160
100AY07E5	5	0.55	0.75	2"	Head H m	31	30	28	26	24	20	16	10	4
100AY10E7	7	0.75	1.00	2"		44	42	39	37	34	29	23	14	6
100AY15E10	10	1.10	1.50	2"		63	60	56	54	49	42	33	21	9
100AY20E14	14	1.50	2.00	2"		88	85	78	75	68	59	46	30	13
100AY30E20	20	2.20	3.00	2"		126	121	112	107	98	84	65	43	19
100AY40E27	27	3.00	4.00	2"		169	162	152	144	132	112	88	56	24

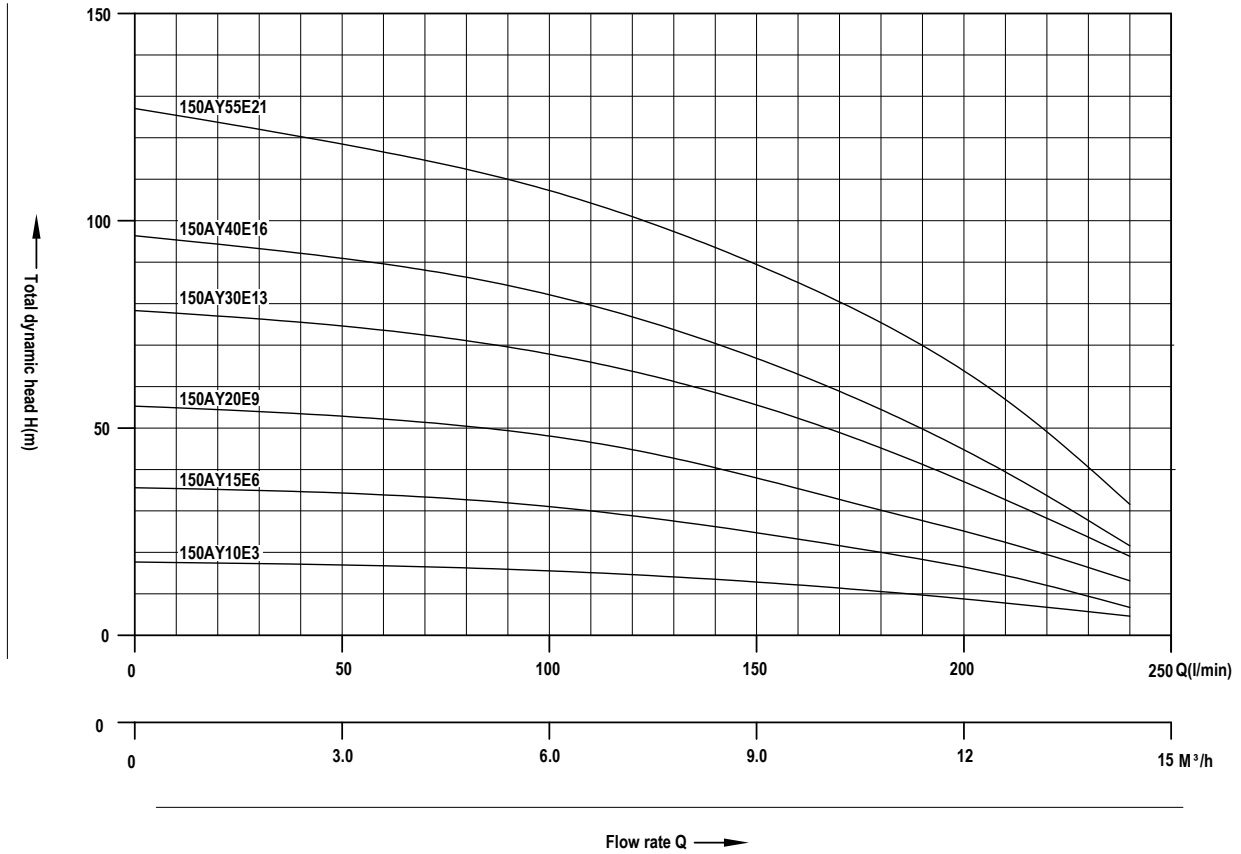


# 120AY - PERFORMANCE CURVE AT 50Hz



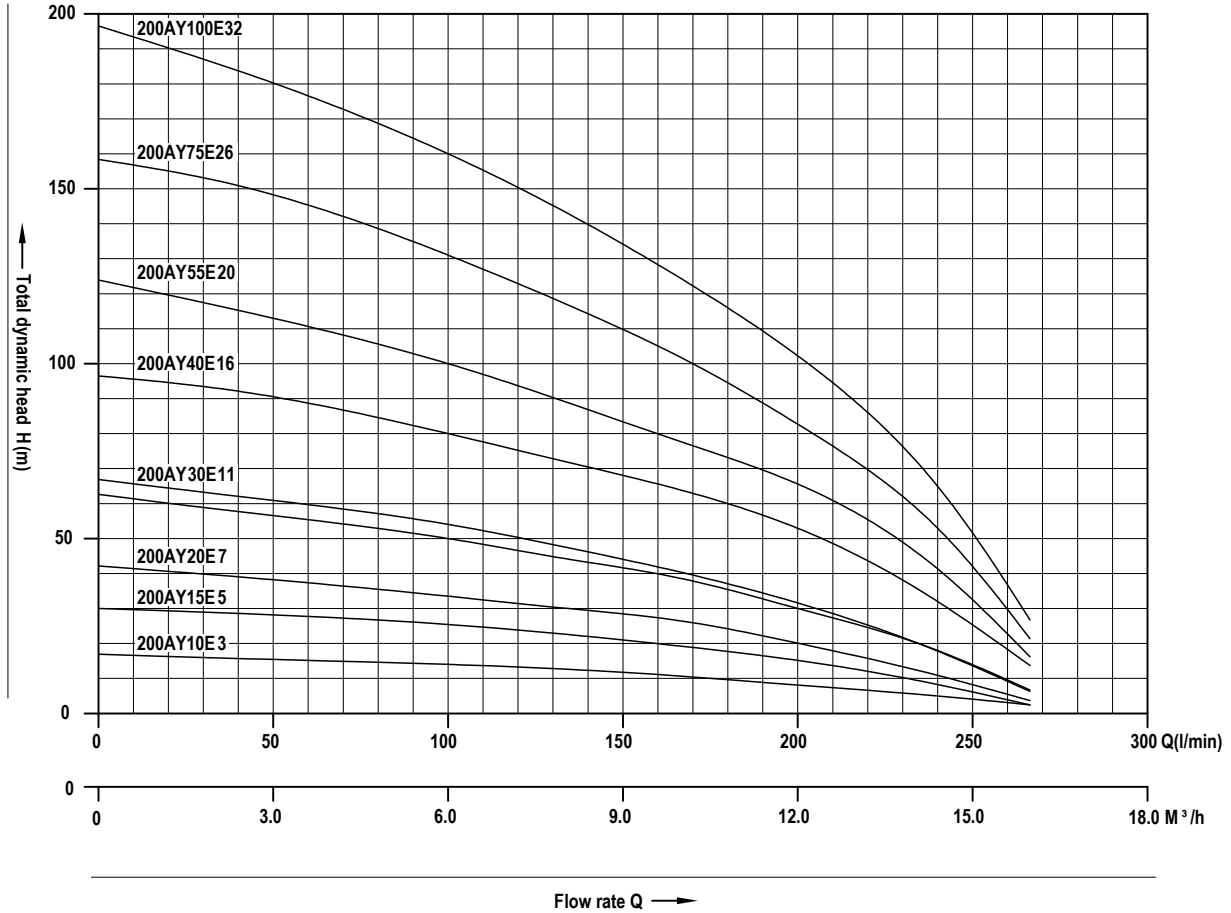
Pump Model	No. of Stages	Motor		Pump	Q m <sup>3</sup> /h l/min	Delivery									
		KW	HP	Outlet (in)		0	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	
						0	40	60	80	100	120	140	160	180	
120AY07E3	3	0.55	0.75	2"	Head H m	18	16	15	14	13	12	10	7	2	
120AY10E5	5	0.75	1.00	2"		29	27	26	25	23	20	17	13	3	
120AY15E8	8	1.10	1.50	2"		46	44	41	39	36	32	27	21	4	
120AY20E10	10	1.50	2.00	2"		58	55	52	49	45	41	35	25	5	
120AY30E15	15	2.20	3.00	2"		87	82	78	74	68	61	51	39	8	
120AY40E20	20	3.00	4.00	2"		116	109	103	98	91	81	69	52	10	
120AY55E28	28	4.00	5.50	2"		162	153	145	137	127	114	96	72	14	

# 150AY - PERFORMANCE CURVE AT 50Hz



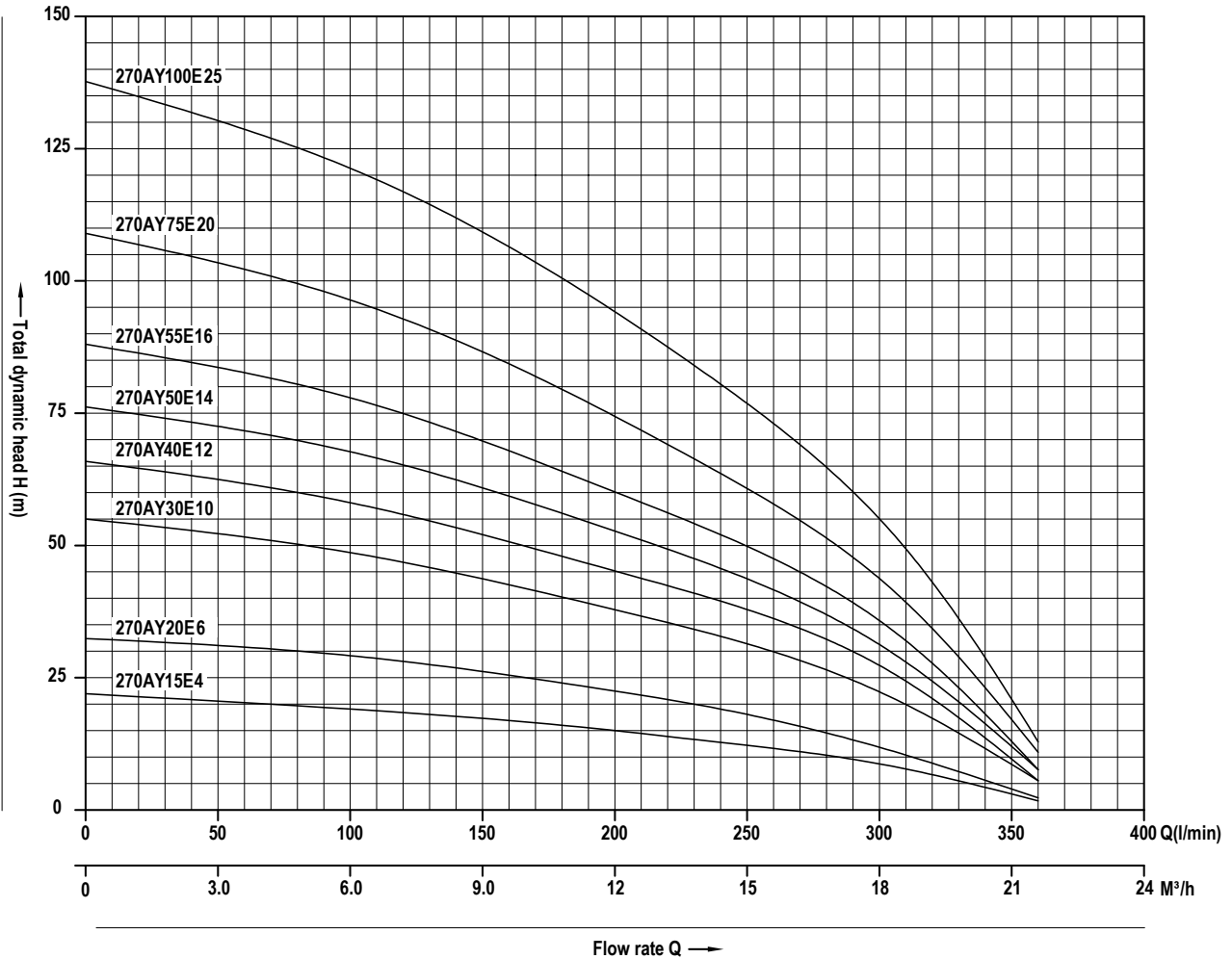
Pump Model	No. of Stages	Motor		Pump	Q m <sup>3</sup> /h l/min	Delivery								
		KW	HP	Outlet (in)		0	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4
						0	30	60	90	120	150	180	210	240
150AY10E3	3	0.75	1.00	2"	Head H m	18	17	16	15	14	12	9	7	4
150AY15E6	6	1.10	1.50	2"		36	35	33	31	29	24	18	14	8
150AY20E9	9	1.50	2.00	2"		55	53	50	47	43	37	28	22	13
150AY30E13	13	2.20	3.00	2"		79	77	72	68	63	54	41	37	19
150AY40E16	16	3.00	4.00	2"		96	93	89	84	78	66	50	38	22
150AY55E21	21	4.00	5.50	2"		128	124	116	110	102	87	66	57	31

## 200AY - PERFORMANCE CURVE AT 50Hz



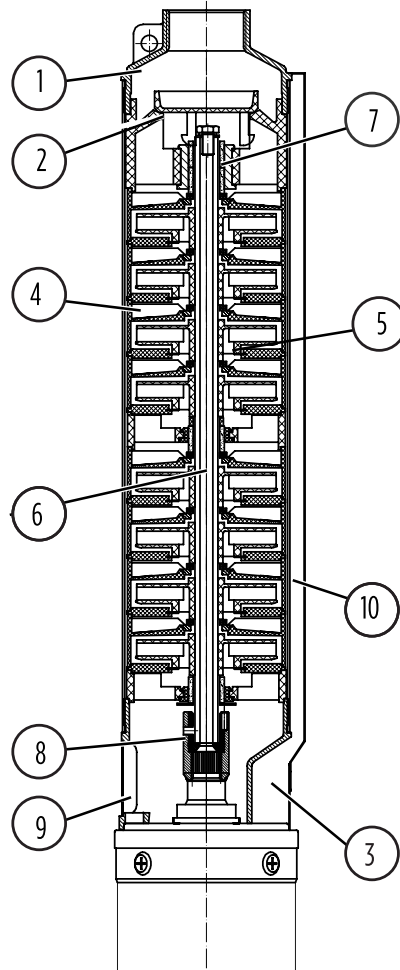
Pump Model	No. of Stages	Motor		Pump	Q m <sup>3</sup> /h l/min	Delivery								
		KW	HP	Outlet (in)		0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
						0	33	67	100	133	167	200	233	267
200AY10E3	3	0.75	1.00	2"	Head H m	18	17	16	14	13	11	8	5	2
200AY15E5	5	1.10	1.50	2"		30	28	26	24	21	18	14	9	2
200AY20E7	7	1.50	2.00	2"		42	39	37	33	30	25	19	12	3
200AY30E11	11	2.20	3.00	2"		66	62	58	53	47	40	31	20	5
200AY40E16	16	3.00	4.00	2"		98	93	86	80	71	62	51	36	13
200AY55E20	20	4.00	5.50	2"		123	116	108	100	89	78	64	45	16
200AY75E26	26	5.50	7.50	2"		159	151	140	130	115	101	83	59	21
200AY100E32	32	7.50	10.00	2"		196	186	172	160	142	124	102	72	26

## 270AY - PERFORMANCE CURVE AT 50Hz



Pump Model	No. of Stages	Motor		Pump	Q m <sup>3</sup> /h l/min	Delivery									
		KW	HP	Outlet (in)		0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	21.6	
						0	100	130	165	200	230	265	300	360	
270AY15E4	4	1.10	1.50	2"	Head H m	22	19	17	15	14	13	11	9	2	
270AY20E6	6	1.50	2.00	2"		33	29	27	23	22	20	16	13	3	
270AY30E10	10	2.20	3.00	2"		55	48	45	39	37	34	28	23	6	
270AY40E12	12	3.00	4.00	2"		66	58	54	47	44	41	33	27	6	
270AY50E14	14	3.70	4.00	2"		76	68	62	55	52	47	39	31	8	
270AY55E16	16	4.00	5.50	2"		88	77	72	62	58	55	45	36	8	
270AY75E20	20	5.50	7.50	2"		109	96	89	78	73	68	56	45	11	
270AY100E25	25	7.50	10.00	2"		137	121	112	97	91	85	71	56	13	

## MATERIAL OF CONSTRUCTION



No.	4" SS Pump Parts	Materials
1.	Discharge Head	Casted Stainless Steel
2.	Non Return Valve	Polycarbonate
3.	Bottom Bracket (Motor Adapter)	Casted Stainless Steel
4.	Impeller	Polyformaldehyde (POM)
5.	Diffuser	Polycarbonate with Ceramic Insert
6.	Shaft	Stainless Steel
7.	Bearing	N.B.R.
8.	Coupling	Stainless Steel
9.	Filter	Stainless Steel
10.	Cable Guard	Stainless Steel

# SUBMERSIBLE OIL-FILLED MOTOR

## Features

- ✓ AquaDuty 4" electric motors ensure reliable operation in wells with diameters equal to or greater than 4"
- ✓ The axial and radial oil lubricated bearings allow for maintenance-free operation
- ✓ The pressure compensation inside the motor is ensured by a special membrane

## Advantages

- ✓ Stator submerged in oil
- ✓ Sand protection and mechanical seal to allow for optimal operation even in the presence of sand in the well
- ✓ Excellent efficiency and low operating costs
- ✓ All motors are pre-filled with liquid and 100% tested

## Technical Data

- ✓ Ratings: 0.37 - 7.5 kW
- ✓ 4" NEMA flange
- ✓ Protection rating: IP68
- ✓ Number of starts per hour: max. 30
- ✓ Vertical and horizontal operation (prior authorization from our technical department)
- ✓ Standard rated voltage:
  - Single Phase: 220V 50Hz
  - Three Phase: 380V 50Hz
- ✓ Voltage tolerance:  $\pm 10\%$
- ✓ Insulation class: F
- ✓ Ambience temperature: 300C
- ✓ Cable dimensions: 4x1.5mm<sup>2</sup>
- ✓ Cooling flow rate: min. 0.08 m/sec
- ✓ Water pH: 6.5-8
- ✓ Thrust Load: 1500 N, 2500 N, 4500 N



## PERFORMANCE DATA SINGLE-PHASE 210V-220V-230V 50HZ

Phase	Power		Voltage (V)	In (A)	RPM	Efficiency (n%)			Power Factor (cos)			Capacitor (uF)
	HP	KW				50	75	100	50	75	100	
1	0.5	0.37	220	3.3	2835	37.2	47.9	54.8	0.882	0.940	0.972	20
	0.75	0.55	220	4.6	2810	41.1	52.5	58.8	0.869	0.937	0.971	25
	1	0.75	220	5.8	2810	45.9	56.7	62.4	0.811	0.903	0.957	30
	1.5	1.1	220	8.5	2805	48.0	59.1	64.7	0.768	0.879	0.948	35
	2	1.5	220	10.9	2800	53.6	62.9	66.4	0.807	0.910	0.964	40
	3	2.2	220	15.5	2810	51.4	64.8	69.5	0.824	0.923	0.974	70

## PERFORMANCE DATA THREE-PHASE 380V-400V-415V 50HZ

Phase	Power		Voltage (V)	In (A)	RPM	Efficiency (n%)			Power Factor (cos)		
	HP	KW				50	75	100	50	75	100
3	2	1.5	380	3.8	2825	69.9	73.8	73.9	0.628	0.757	0.833
	3	2.5	380	5.7	2810	72.2	75.8	75.6	0.554	0.703	0.801
	4	3	380	7.5	2815	73.9	77.0	76.6	0.579	0.721	0.808
	5.5	4	380	10.2	2820	74.6	77.7	77.5	0.572	0.719	0.811
	7.5	5.5	380	13.2	2830	78.3	80.1	79.1	0.617	0.757	0.84
	10	7.5	380	18.3	2850	76.4	79.5	79.3	0.558	0.709	0.806



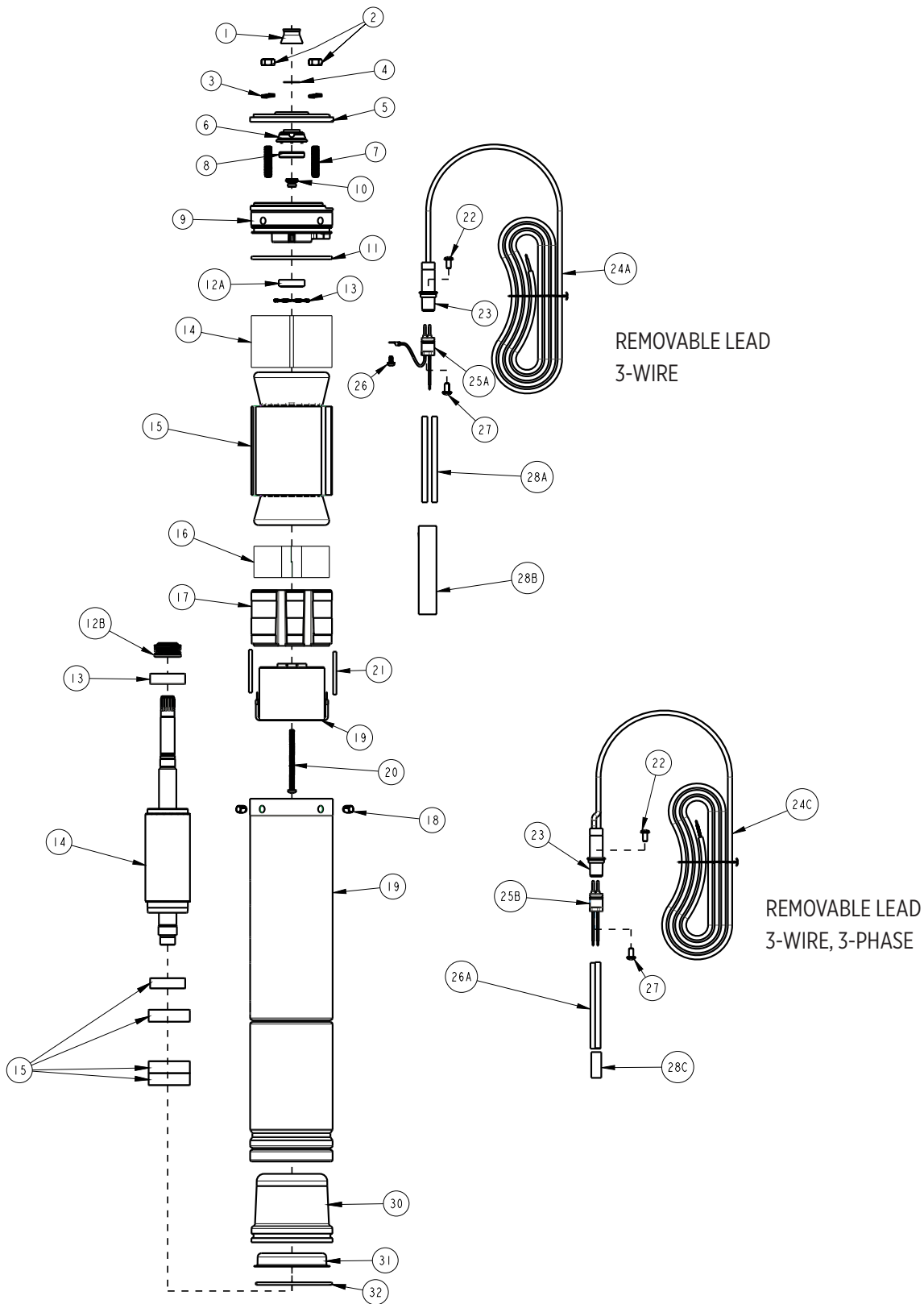
## ORDERING INFORMATION

### 3-WIRE SINGLE PHASE MODELS

HP	KW	Model No.	Volts	Hz	S.F.	Lead Type	Thrust Rating (N)
0.5	0.37	2752030262GS	230	50	1.0	Removable	1500
0.75	0.55	2752130262GS	230	50	1.0	Removable	1500
1	0.75	2742230262GS	230	50	1.0	Removable	1500
1.5	1.1	2752330262GS	230	50	1.0	Removable	1500
2	1.5	2752430362GS	230	50	1.0	Removable	1500
3	2.2	2752530362GS	230	50	1.0	Removable	1500

### THREE-PHASE MODELS

HP	KW	Model No.	Volts	Hz	S.F.	Lead Type	Thrust Rating (N)
2	1.5	2752460362GS	380	50	1.0	Removable	2500
3	2.2	2742560362GS	380	50	1.0	Removable	2500
4	3	2742660462GS	380	50	1.0	Removable	4500
5.5	4	2742860462GS	380	50	1.0	Removable	4500
7.5	5.5	2742960462GS	380	50	1.0	Removable	4500
10	7.5	2743060462GS	380	50	1.0	Removable	4500



## MATERIAL OF CONSTRUCTION

No.	KW	Qty	Materials
1.	Sand Slinger	1	NBR
2.	Nut	4	304SS
3.	Washer	4	304SS
4.	Washer	1	304SS
5.	Top End Bell Cover	1	304SS
6.	Sand Slinger Base	1	Polyacetal (POM)
7.	Stud	4	304SS
8.	Lip Seal	1	NBR
9.	Top End Bell	1	E-Coated Cast-Iron
10.	Oil Fill Plug	1	Brass
11.	O-Ring for Top End Bell	1	NBR
12.	Mechanical Shaft Seal	1	NBR-Carbon and ceramic face seal
13.	Wave Spring	1	Hi Carbon Steel
14.	Top Insulation Roll-Up	1	Mylar A
15.	Wound Stator	1	Copper wire/Steel
16.	Bottom Insulation Roll-Up	1	Mylar A
17.	Bottom End Bell	1	Aluminum
18.	Lock Pins	4	304SS
19.	Capacitor	1	PBT or PBO case, epoxy or urethane fill
20.	Capacitor Screw	1	Zinc plated steel
21.	Shrink tube	2	Polyolefin
22.	Screw for Lead Clamp	1	304SS
23.	Lead Material	1	VPE/EPR/Cu
24.	Internal Connector	1	PA/Cu/NBR
25.	SEMS Grounding Screw	1	Zinc plated steel
26.	Lead Sleeveing		Glass/Silicone
27.	Lead Seal Rubber	1	NBR
28.	Pressure Equalization Diaphragm	1	NBR
29.	Diaphragm Retainer/Cover	1	304SS
30.	Retaining Ring	1	304SS
31.	Parallel Connectors	3	CuZn/Sn
32.	Lead Clamp Bushing	1	Nylon
33.	Lead Clamp Plate	1	304SS
34.	Upper Ball Bearing	1	SS
35.	Lower Ball Bearing	1-2	SS
36.	Shrink Tube	3	Polyolefin
37.	Rotor with Shaft	1	Steel/304SS/WCU
38.	Motor Outer Shell	1	304SS
39.	Lead Pressure Disk	2	Polyamide
40.	Filling Solution - Non-Toxic Oil		Food Contact Grade Mineral Oil

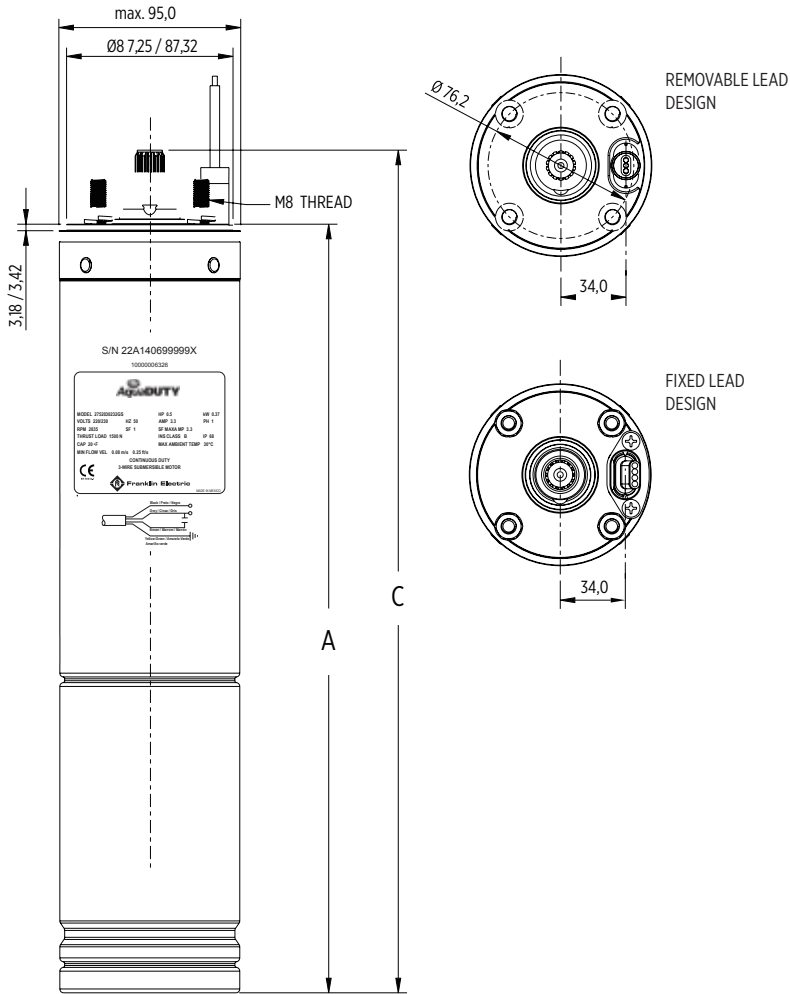
# DIMENSIONAL DATA AND DRAWING

## SINGLE-PHASE MOTORS 50 HZ

4" 1-3-wire Motors 50Hz					
P <sub>N</sub> [HP]	P <sub>N</sub> [kW]	A [mm]	C [mm]	Weight [kg]	Oil [kg]
0.5	0.37	327	365	7.4	0.7
0.75	0.55	336	374	8	0.71
1	0.75	35	395	8.5	0.72
1.5	1.1	380	419	8.8	0.73
2	1.5	426	464	10.8	0.74
3	2.2	475	513	12.5	0.78

## THREE-PHASE MOTORS 50 HZ

4" 3 Motors 50Hz					
P <sub>N</sub> [HP]	P <sub>N</sub> [kW]	A [mm]	C [mm]	Weight [kg]	Oil [kg]
2	1.5	388	426	8.8	0.74
3	2.2	426	464	10.8	0.75
4	3	475	513	12.8	0.76
5.5	4	540	579	15.5	0.82
7.5	5.5	635	673	18.3	0.84
10	7.5	744	782	24.3	0.87





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