
EBARA

CONTENTS

50Hz

Rev. D

SPECIFICATION 50Hz

Rev. D

PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	Maximum 40 (depends on maximum temperature motor)
	Sand content	Maximum : 50 parts per million
	Chlorine ion density	Maximum : 500 parts per million
Construction	Impeller	Closed centrifugal - Face clearance type
	Bearing	Sleeve type - Alumina (Ceramic) / EPDM rubber
Pipe connection	Suction	N/A
	Discharge	G1 1/4 (models 4N1, 4N2, 4N4) UNI ISO 228
		G2 (models 4N7, 4N10, 4N15) UNI ISO 228
Material	Impeller	Ixef®
	Intermediate casing	EN 1.4301 (AISI 304)
	Diffuser	PPE+PS glass fibre reinforced
	Shaft	EN 1.4301 (AISI 304)
	Discharge casing	EN 1.4308 (ASTM CF8)
	Valve	EN 1.4301 (AISI 304)
	Bracket	EN 1.4308 (ASTM CF8)
Applicable standard of test		ISO 9906 - Annex A

MOTOR					
Type		Submersible oil filled (type OY)		Submersible water filled (type WY)	
Manufacturer		Sumoto		Franklin	
		Single phase	Three phase	Single phase	Three phase
Power rating	[kW]	0.37÷2.2	0.37÷7.5	0.37÷2.2	0.37÷7.5
	[HP]	0.5÷3.0	0.5÷10	0.5÷3.0	0.5÷10
No. of Poles		2			
Rated speed		Refer to each characteristic performance rotation speed as rated speed			
Insulation class		F		B	
Protection degree		IP 58		IP 68	
Maximum ambient temperature [°C]		35		30	
Maximum immersion	[m]	150		350	
Starts / hours		30		20	
Start type		Direct on line			
Frequency	[Hz]	50 Hz			
Voltage	[V]	230 ±10%	380-415 ±10%	230 -10%+6%	380-415 -10%+6%
Capacitor for start and run		Fitted in starter box	-	Fitted in starter box	-
Over load protection		Fitted in starter box	Provided by the user	Fitted in starter box	Provided by the user
Sealing liquid		Oil type: Marcol 82 (Esso)		Propylene Glycol 50% water solution	
Motor bracket		Cast iron nickel plated		EN 1.4301 (AISI 304)	
Casing material		EN 1.4301 (AISI 304)			
Power cable	material	EPDM/Cross Seald Polyethylene			
	size [mm^2]	4x1.5			
	lenght [m]	L=1.75 (up to 2.2 kW) / L=2.5 (for 3 and 4 kW) / L=4 (for 5.5 and 7.5 kW)			
Flange mount		NEMA standard			

SELECTION CHART

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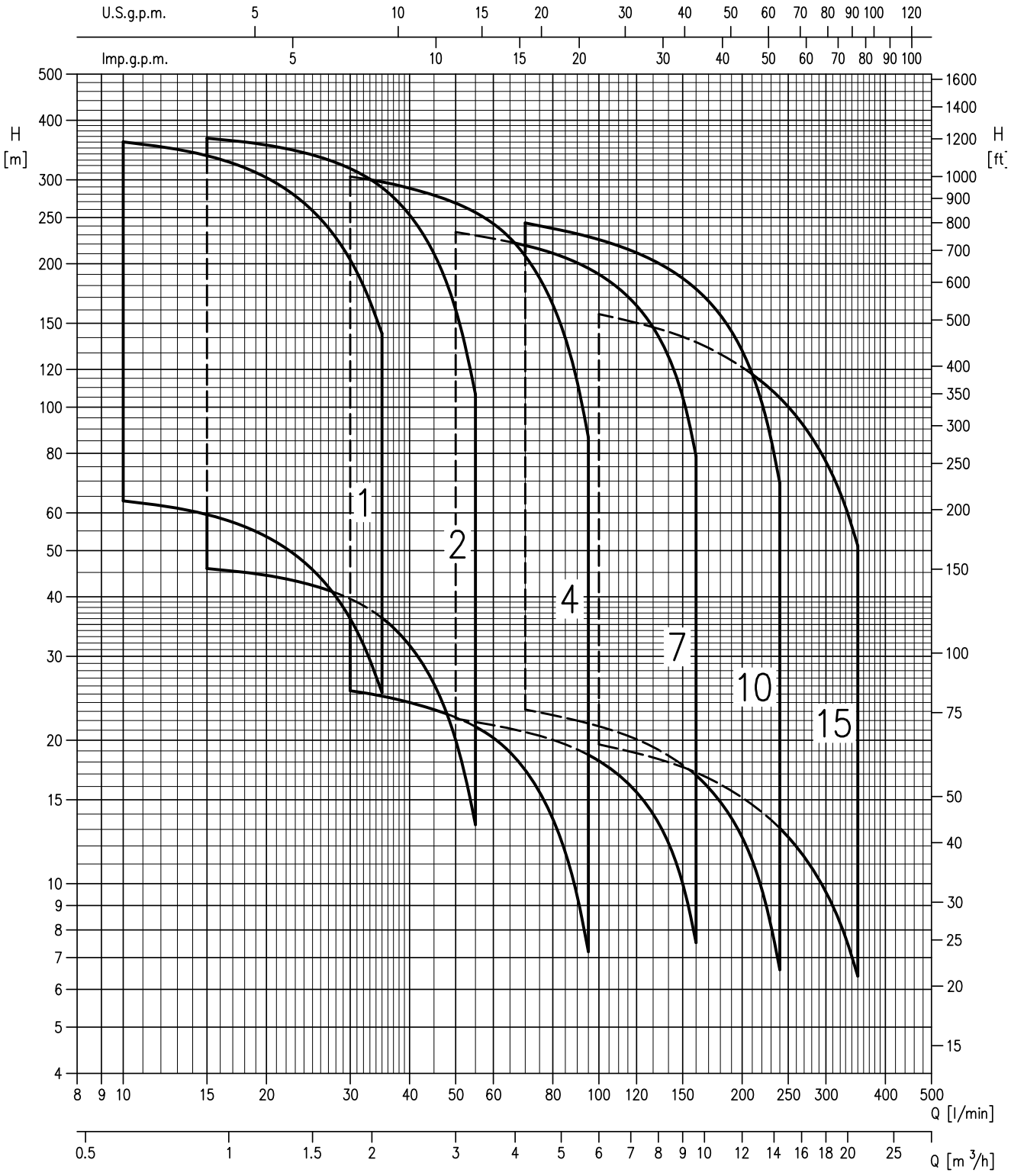

SELECTION CHART

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Pump type	Power		Q=Capacity										
			l/min	0	10	15	20	25	30	35	45	55	75	95
			m^3/h	0	0.6	0.9	1.2	1.5	1.8	2.1	2.7	3.3	4.5	5.7
	[kW]	[HP]	H=Total Head											
4N1- 12	0.37	0.5	67	64	60	54	46	36	25	-	-	-	-
4N1- 18	0.55	0.7	100	95	89	80	68	54	38	-	-	-	-
4N1- 24	0.75	1.0	133	127	119	107	91	72	50	-	-	-	-
4N1- 34	1.10	1.5	189	180	169	152	129	102	71	-	-	-	-
4N1- 48	1.50	2.0	266	254	238	214	182	144	101	-	-	-	-
4N1- 68	2.20	3.0	377	360	337	303	258	204	143	-	-	-	-
4N2- 7	0.37	0.5	49	-	46	44	42	40	36	26	13	-	-
4N2- 10	0.55	0.7	69	-	66	63	60	57	52	38	19	-	-
4N2- 14	0.75	1.0	97	-	92	89	85	79	72	53	27	-	-
4N2- 20	1.10	1.5	139	-	131	127	121	113	103	75	38	-	-
4N2- 28	1.50	2.0	194	-	183	178	169	158	144	105	53	-	-
4N2- 40	2.20	3.0	277	-	262	254	242	226	206	150	76	-	-
4N2- 56	3.00	4.0	388	-	367	355	338	317	289	210	106	-	-
4N4- 4	0.37	0.5	28	-	-	-	-	25	25	23	21	16	7
4N4- 7	0.55	0.7	49	-	-	-	-	44	43	41	37	27	13
4N4- 9	0.75	1.0	63	-	-	-	-	57	56	52	48	35	16
4N4- 13	1.10	1.5	90	-	-	-	-	83	80	75	69	51	23
4N4- 18	1.50	2.0	125	-	-	-	-	114	111	104	96	70	32
4N4- 27	2.20	3.0	188	-	-	-	-	171	167	157	144	105	49
4N4- 36	3.00	4.0	250	-	-	-	-	229	223	209	192	140	65
4N4- 48	4.00	5.5	334	-	-	-	-	305	297	278	256	187	86

Pump type	Power		Q=Capacity										
			l/min	0	50	70	100	130	160	200	240	280	320	350
			m^3/h	0	3.0	4.2	6.0	7.8	9.6	12.0	14.4	16.8	19.2	21.0
	[kW]	[HP]	H=Total Head											
4N7- 4	0.55	0.7	25	22	21	18	14	8	-	-	-	-	-
4N7- 6	0.75	1.0	37	33	31	27	21	11	-	-	-	-	-
4N7- 8	1.10	1.5	50	44	42	36	28	15	-	-	-	-	-
4N7- 12	1.50	2.0	74	67	62	54	42	23	-	-	-	-	-
4N7- 17	2.20	3.0	105	94	88	77	60	32	-	-	-	-	-
4N7- 23	3.00	4.0	143	128	120	104	81	43	-	-	-	-	-
4N7- 30	4.00	5.5	186	167	156	136	105	56	-	-	-	-	-
4N7- 42	5.50	7.5	260	233	219	190	147	79	-	-	-	-	-
4N10- 4	0.75	1.0	26	-	23	21	19	17	13	7	-	-	-
4N10- 6	1.10	1.5	39	-	35	32	29	25	19	10	-	-	-
4N10- 8	1.50	2.0	52	-	46	43	39	34	25	13	-	-	-
4N10- 12	2.20	3.0	78	-	70	64	58	51	38	20	-	-	-
4N10- 17	3.00	4.0	111	-	99	91	82	72	53	28	-	-	-
4N10- 23	4.00	5.5	150	-	133	123	111	97	72	38	-	-	-
4N10- 30	5.50	7.5	195	-	174	161	145	127	94	50	-	-	-
4N10- 42	7.50	10.0	273	-	244	225	203	177	131	69	-	-	-
4N15- 4	1.10	1.5	22	-	-	20	18	17	15	13	11	8	6
4N15- 6	1.50	2.0	33	-	-	29	28	26	23	20	16	13	10
4N15- 9	2.20	3.0	50	-	-	44	41	39	34	29	24	19	14
4N15- 13	3.00	4.0	72	-	-	64	60	56	49	43	35	27	21
4N15- 17	4.00	5.5	94	-	-	83	78	73	64	56	46	36	27
4N15- 24	5.50	7.5	133	-	-	118	110	103	91	78	65	50	38
4N15- 32	7.50	10.0	178	-	-	157	147	137	121	105	86	67	51

TYPE KEY AND CURVE SPECIFICATIONS

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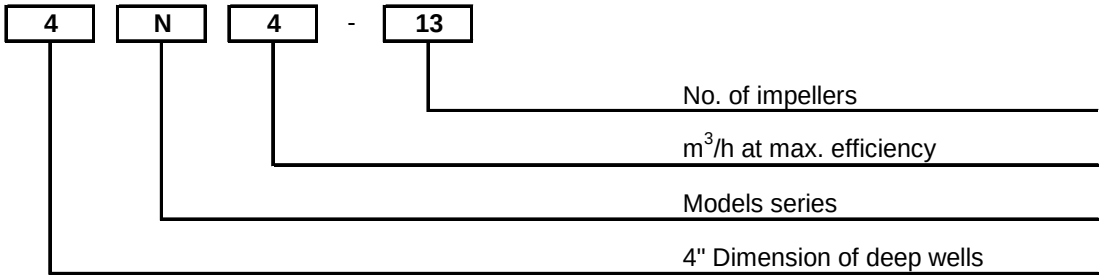
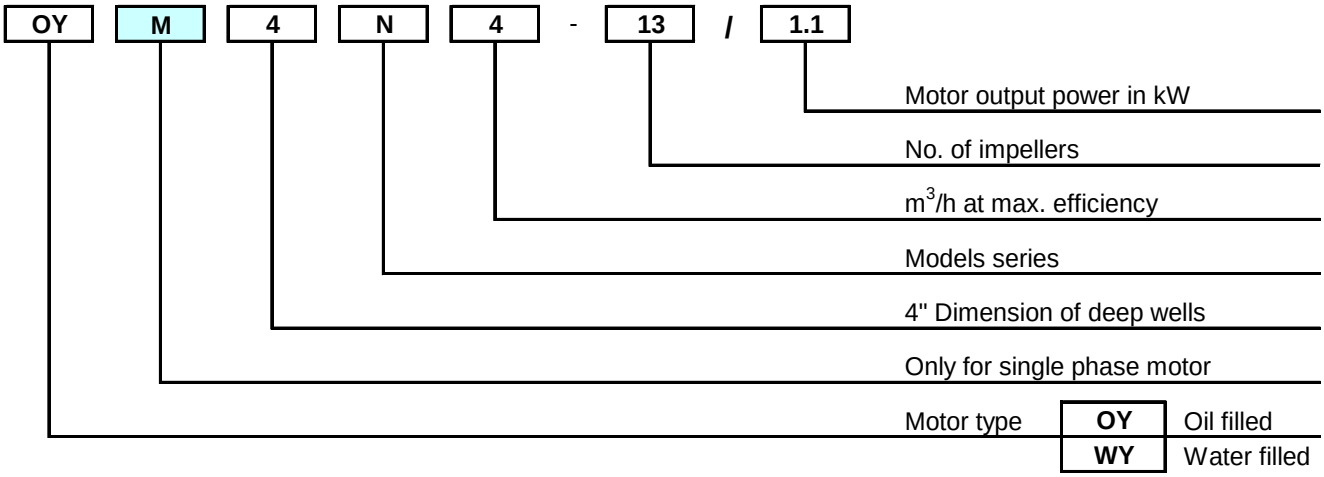
TYPE KEY

EXAMPLE (pump without motor) :



EXAMPLE (pump with motor) :



TYPE KEY AND CURVE SPECIFICATIONS

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PERFORMANCE CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906 Annex A
The curves refer to effective speed of asynchronous motors at 50 Hz
Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of ν = 1 mm^2/s (1 cSt)
The continuous curves indicate the recommended working range. The dotted curve is only a guide.
In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point.

Symbols explanation:

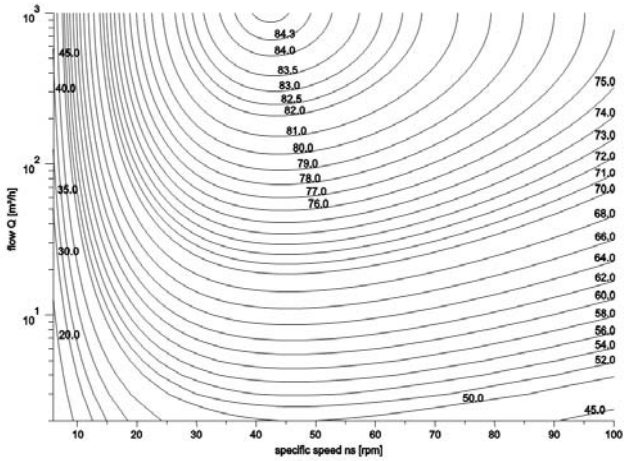
Q	=	volume flow rate
H	=	total head
P_2	=	pump power input (shaft power)
η	=	pump efficiency
NPSH	=	net positive suction head required by the pump
MEI	=	minimum efficiency index

The minimun efficiency index (MEI) is a measure of the quality of a pump size in respect to its mean efficiency. The minimum efficiency index is based on the hydraulic efficiency and on the head at the best efficiency point.

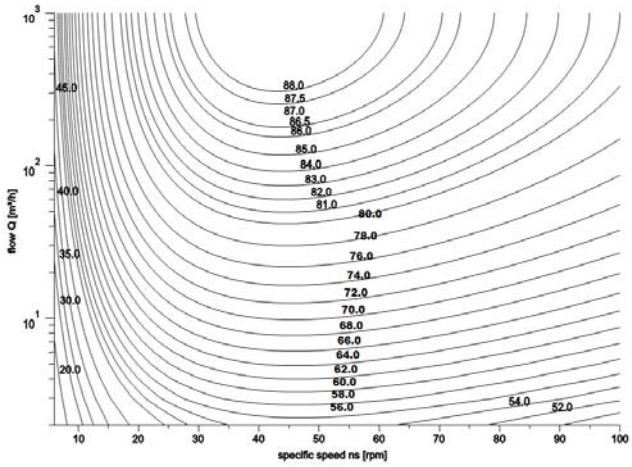
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of these water pumps with variabile duty points may be more efficient end economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

MEI = 0.4 for Multistage Submersible 2900rpm



MEI = 0.7 for Multistage Submersible 2900 rpm



PERFORMANCE CURVE

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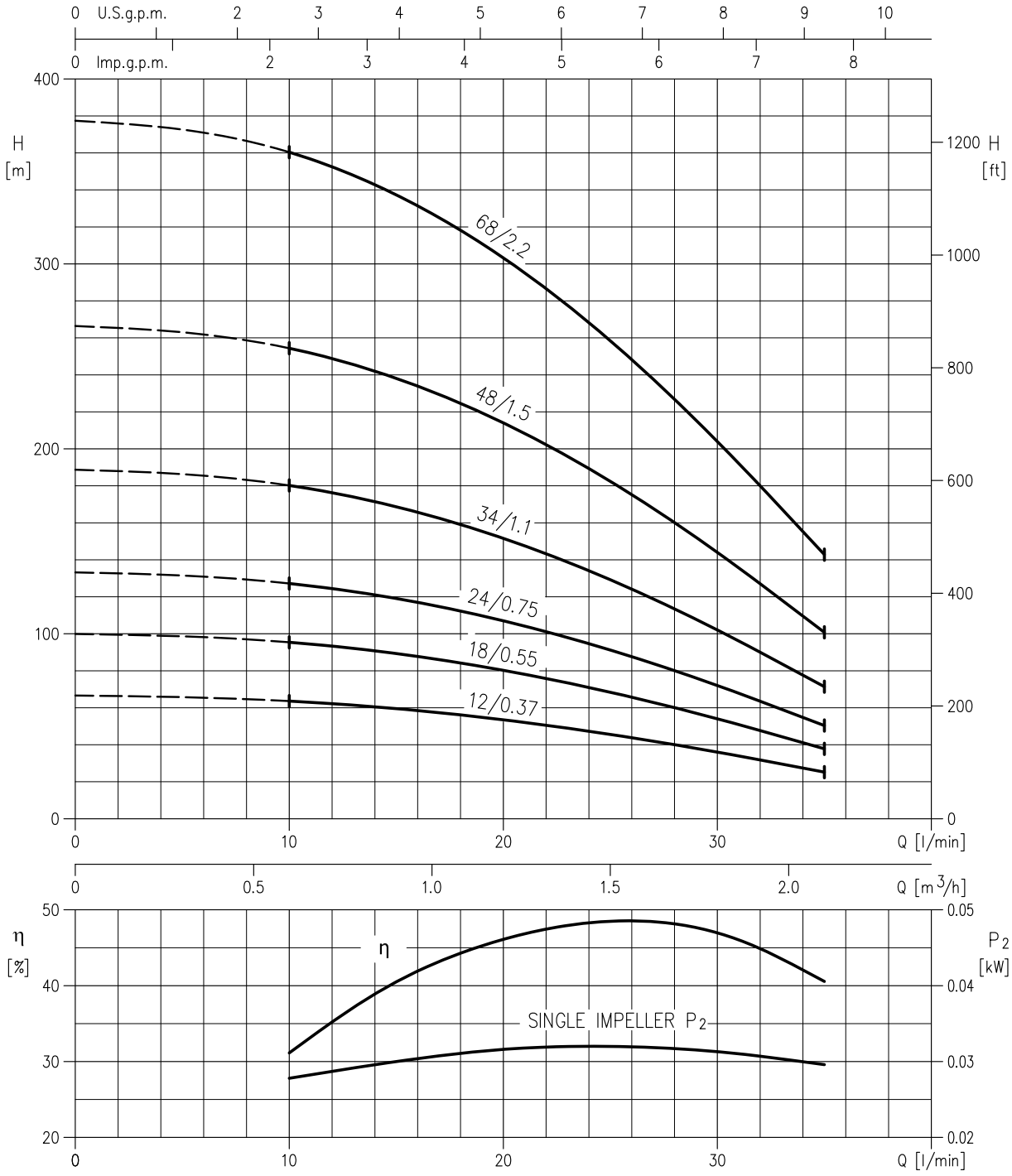
WINNER 4N1 - MEI > 0.70 - Impeller diameter = 67.6 mm



Rotation speed ≈ 2850 min^{-1}

Test standard: ISO 9906-Annex A

PERFORMANCE CURVE

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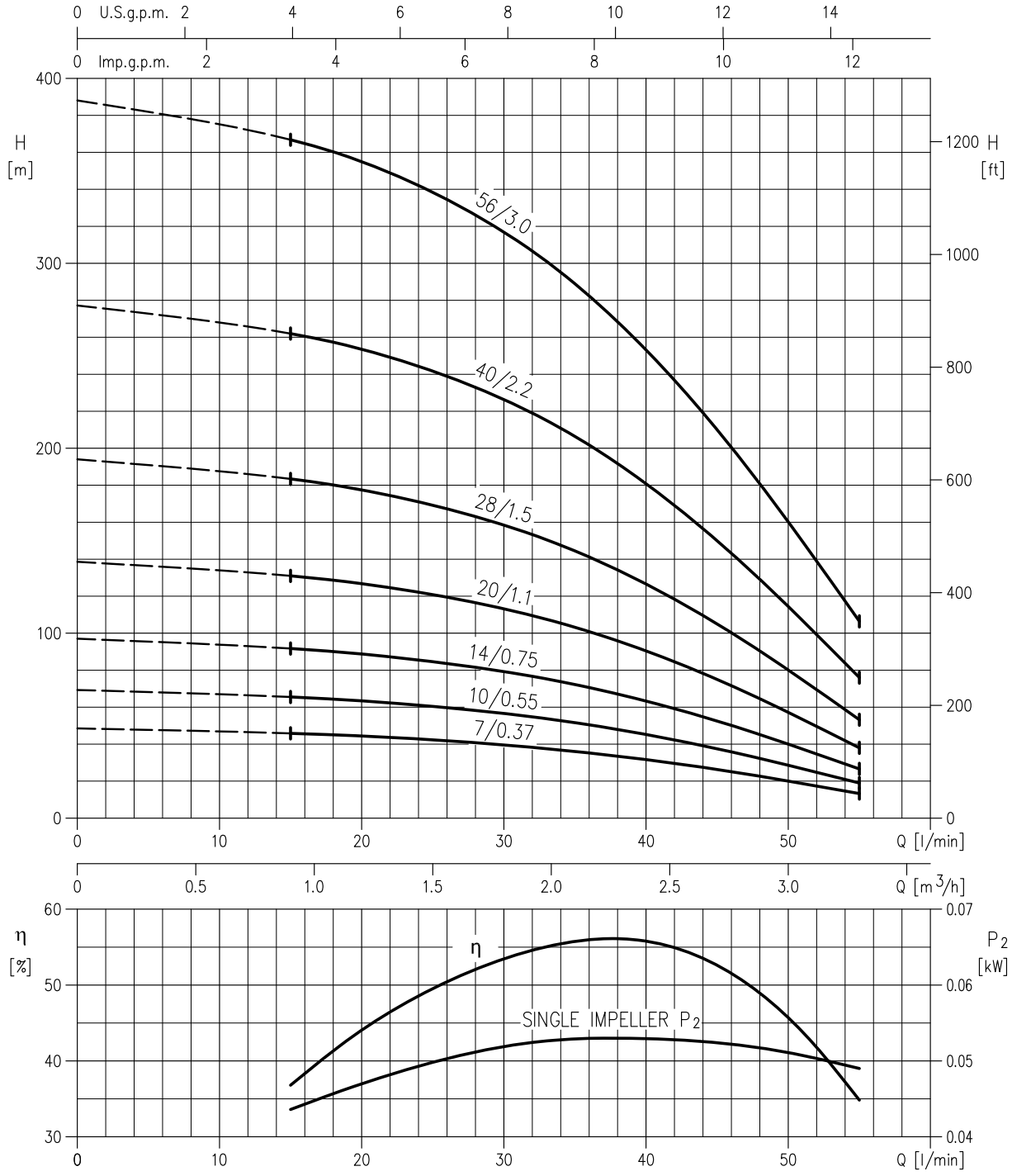
WINNER 4N2 - MEI > 0.70 - Impeller diameter = 76 mm



Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906-Annex A

PERFORMANCE CURVE

50Hz

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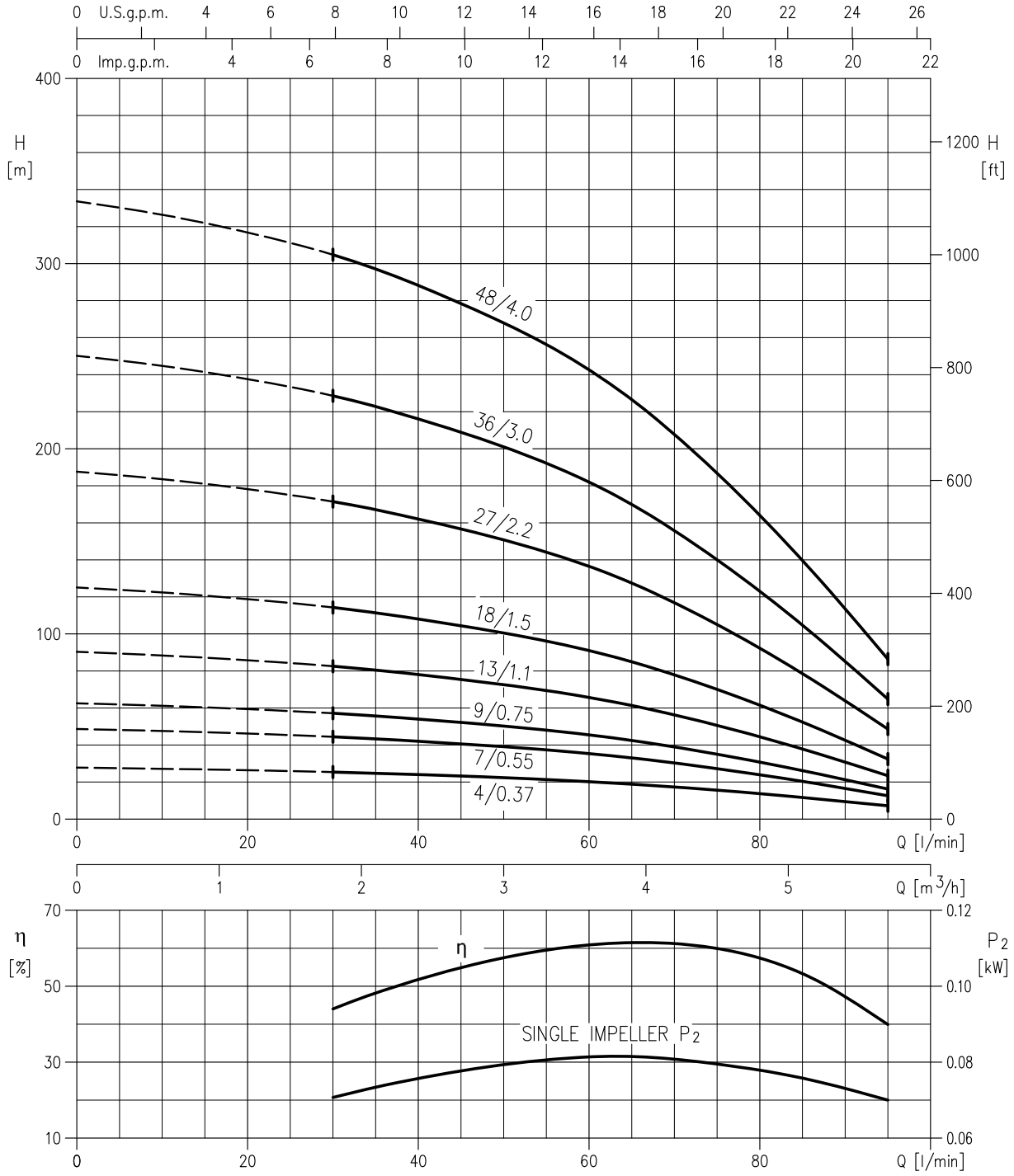
WINNER 4N4 - MEI > 0.70 - Impeller diameter = 76 mm



Rotation speed ≈ 2850 min^{-1}

Test standard: ISO 9906-Annex A

PERFORMANCE CURVE

50Hz

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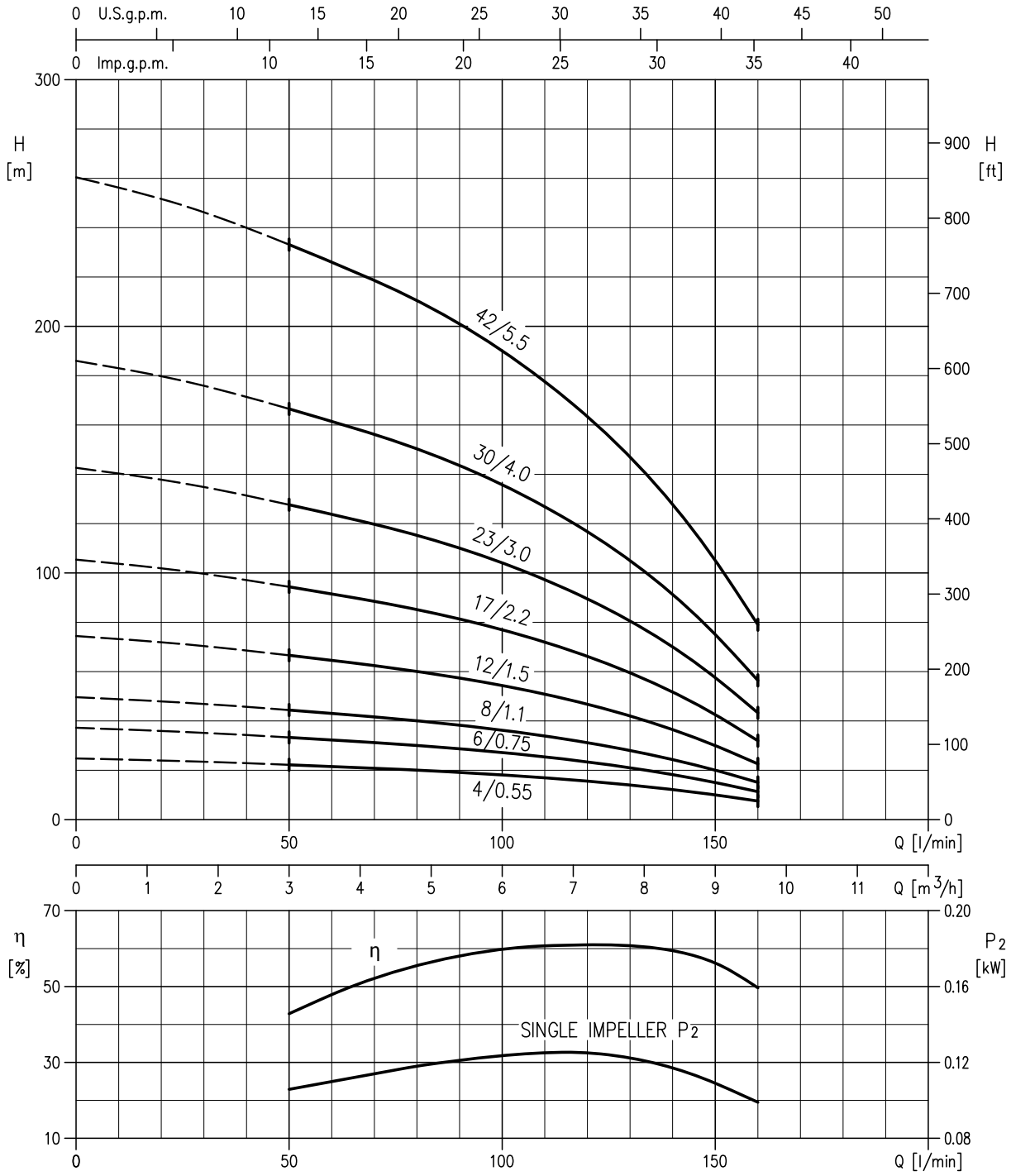
WINNER 4N7 - MEI > 0.40 - Impeller diameter = 74.2 mm



Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906-Annex A

PERFORMANCE CURVE

50Hz

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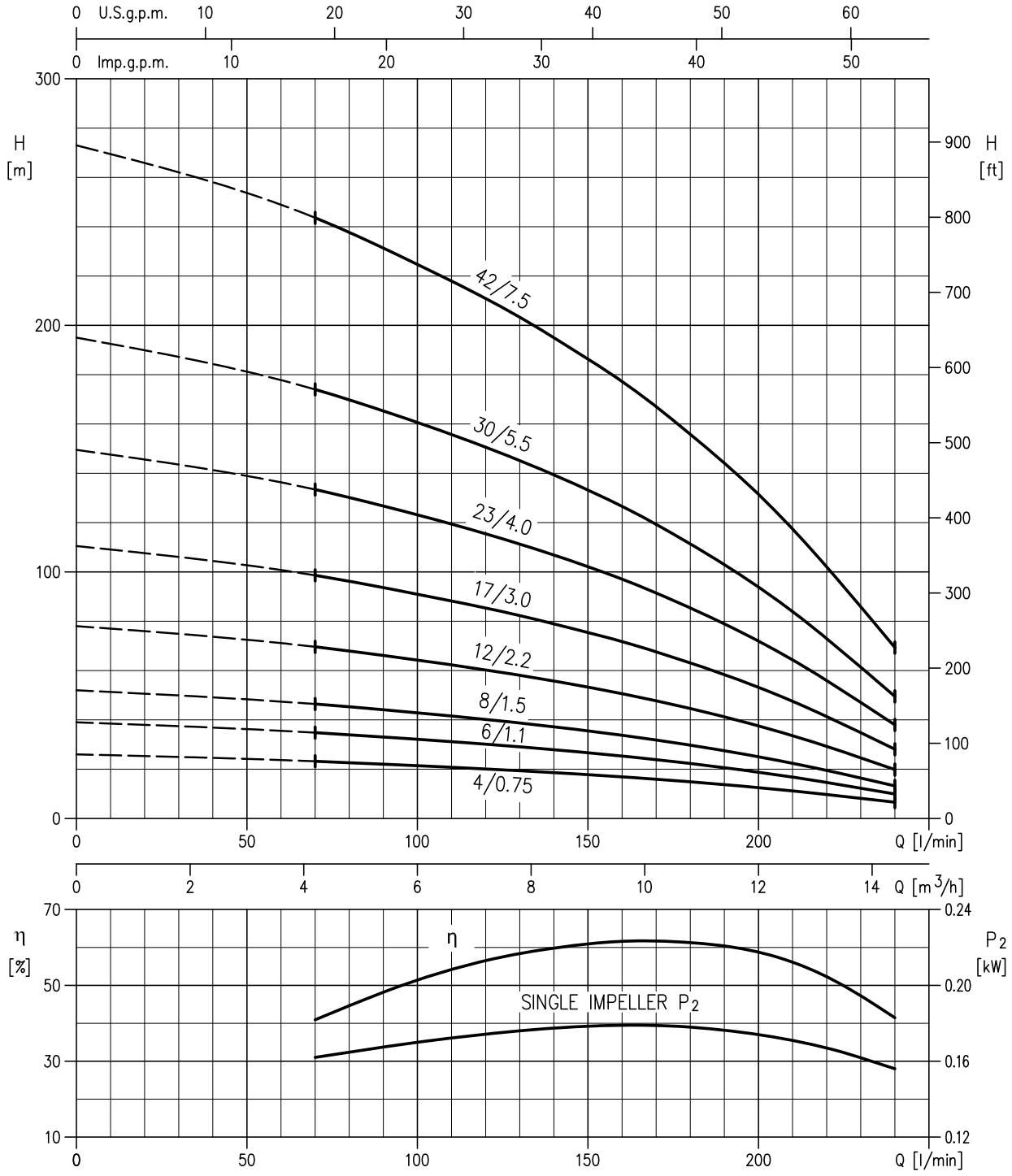
WINNER 4N10 - MEI > 0.20 - Impeller diameter = 72 mm



Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906-Annex A

PERFORMANCE CURVE

50Hz

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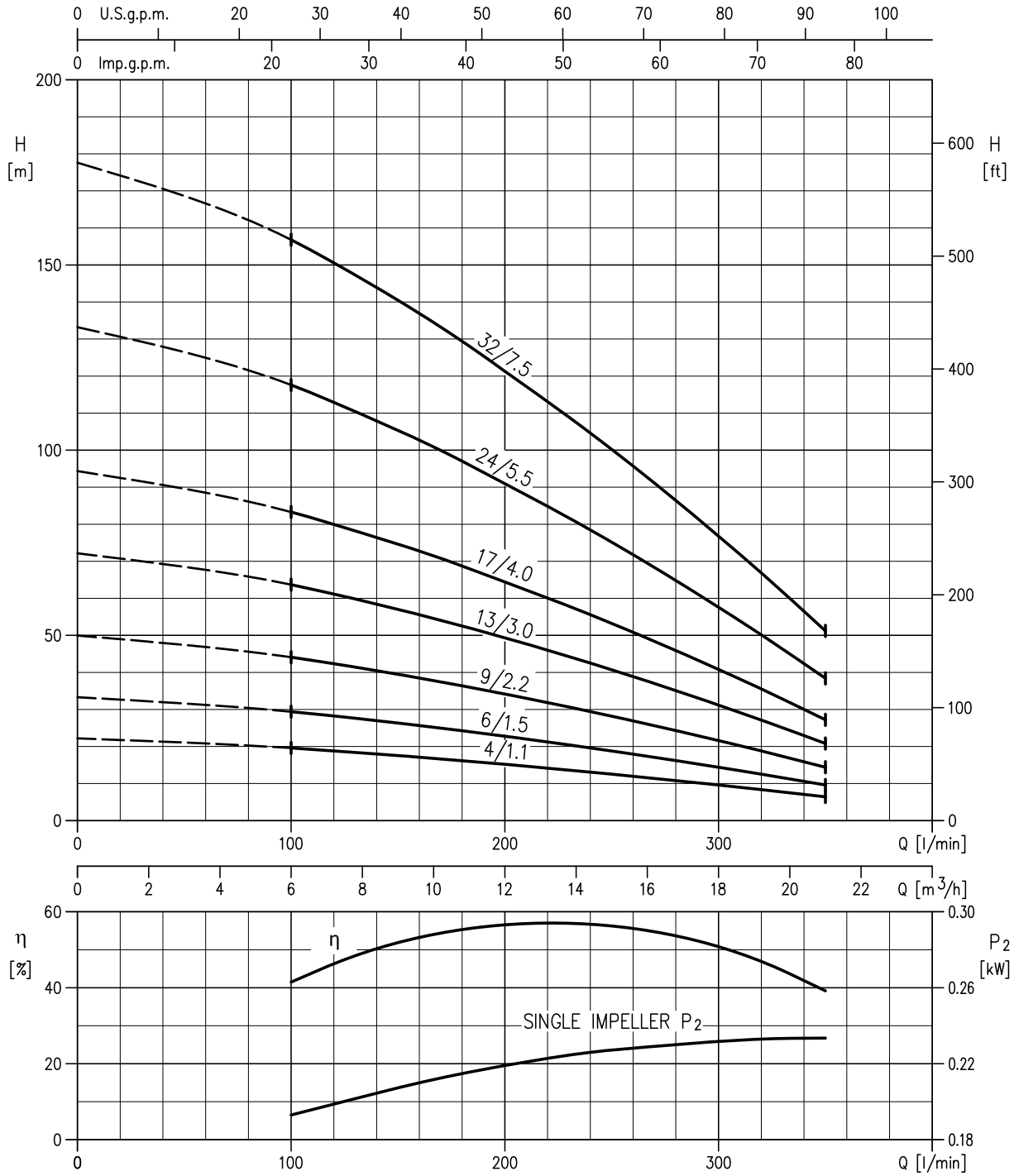
WINNER 4N15 - MEI > 0.10 - Impeller diameter = 75.5 mm



Rotation speed ≈ 2850 min^{-1}
Test standard: ISO 9906-Annex A

CONSTRUCTION

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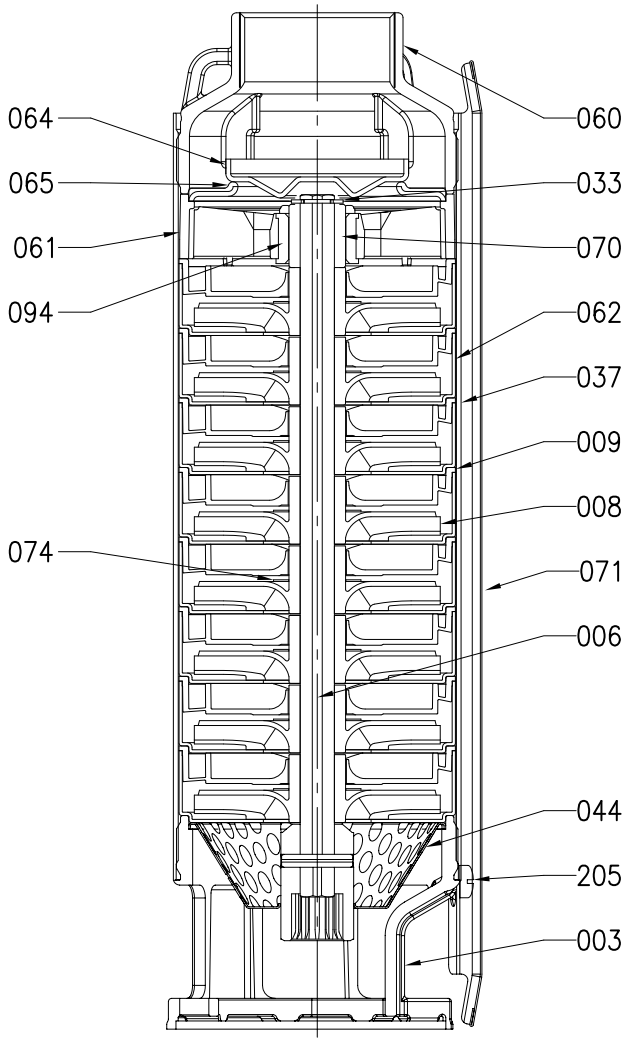
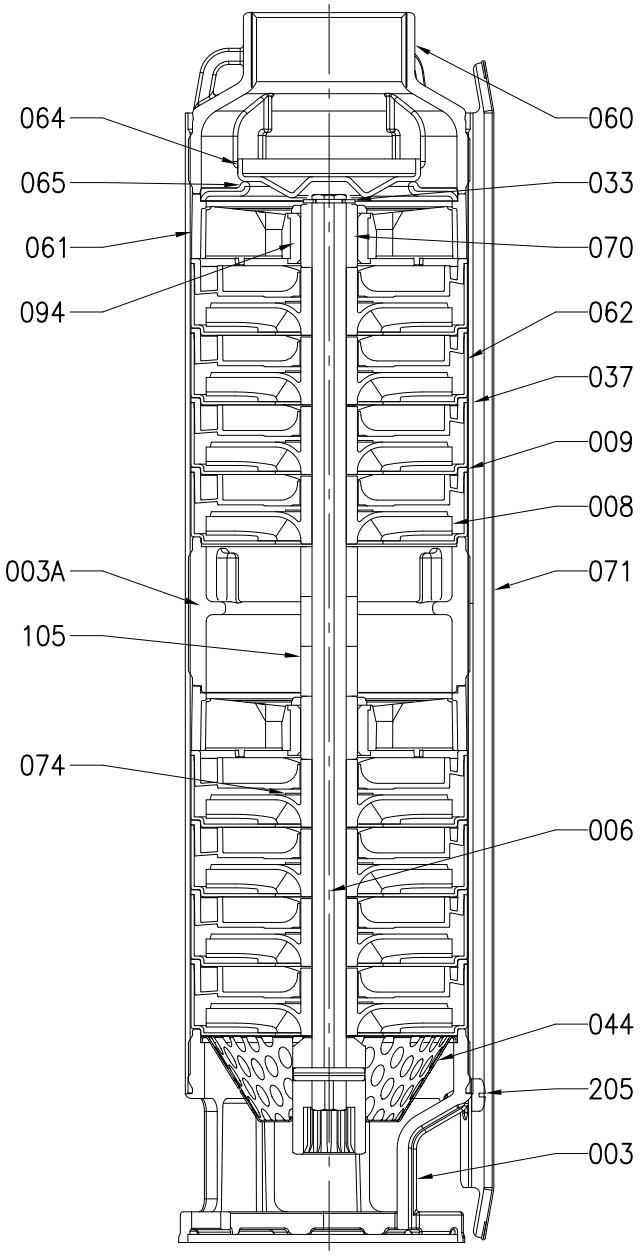
Rev. D

SECTIONAL VIEW
4N1 – 4N2 – 4N4

SINGLE PUMP CASING



DOUBLE PUMP CASING



CONSTRUCTION

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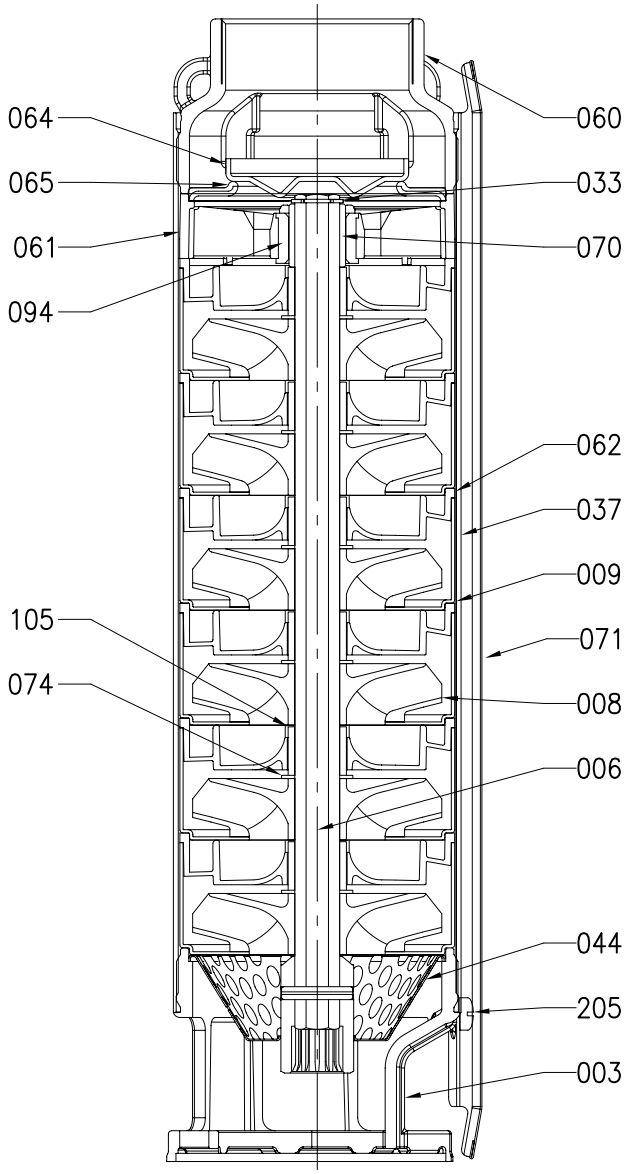
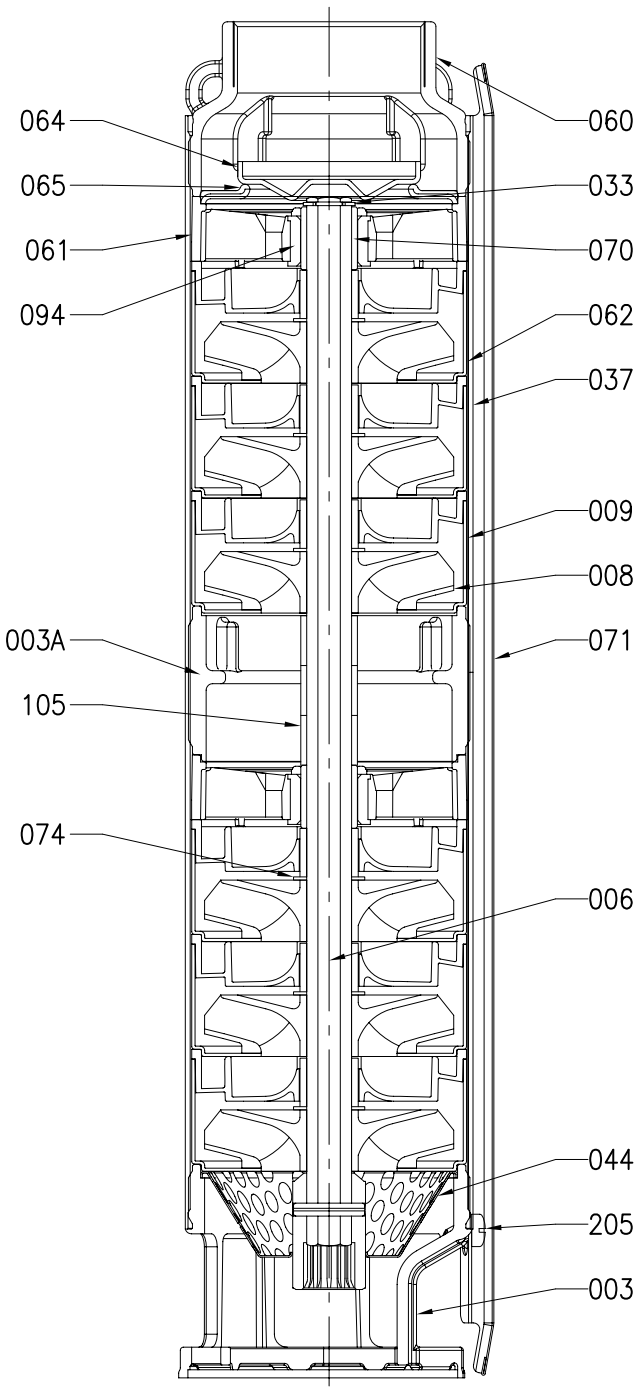
4N7 – 4N10 – 4N15

SINGLE PUMP CASING



DOUBLE PUMP CASING



CONSTRUCTION

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N°	PART.NAME	MATERIAL	Q.TY
003	Bracket	EN 1.4308 (ASTM CF8)	1
003A	Join ring	EN 1.4308 (ASTM CF8)	[*]
006	Pump shaft with coupling	EN 1.4301 (AISI 304)	1
008	Impeller	Ixef®	[*]
009	Diffuser	PPE+PS Glass fibre reinforced	[*]
033	Elastic Ring	EN 1.4301 (AISI 304)	1
037	Outer casing	EN 1.4301 (AISI 304)	[*]
044	Strainer	EN 1.4301 (AISI 304)	1
060	Discharge casing	EN 1.4308 (ASTM CF8)	1
061	Upper / Intermediate bracket	PPO mod. + Glass Fiber	[*]
062	Stage housing	EN 1.4301 (AISI 304)	[*]
064	Valve	EN 1.4301 (AISI 304)	1
065	Valve seat	EN 1.4301 (AISI 304) + EPDM Rubber	1
070	Shaft sleeve bearing	Alumina (Ceramic)	[*]
071	Cable guard	EN 1.4301 (AISI 304)	1
074	Thrust washer	EN 1.4301 (AISI 304)	[*]
094	Bearing	EPDM Rubber	[*]
105	Spacer	PPE+PS Glass fibre reinforced	[*]
205	Screw (M4 x 6 UNI 7687)	EN 1.4301 (AISI 304)	2

[*] See table pag.303

CONSTRUCTION

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QUANTITY FOR MODEL

Pump type	Quantity for model									
	N°003A	N°008	N°009	N°037	N°061	N°062	N°070	N°074	N°094	N°105
4N1- 12 [*]	-	12	12	1	1	12	1	12	1	-
4N1- 18 [*]	-	18	18	1	1	18	1	18	1	-
4N1- 24 [*]	-	24	24	1	1	24	1	24	1	-
4N1- 34 [*]	-	34	34	1	1	34	1	34	1	-
4N1- 48 [**]	1	48	48	2	2	48	2	48	2	1
4N1- 68 [**]	1	68	68	2	2	68	2	68	2	1
4N2- 7 [*]	-	7	7	1	1	7	1	7	1	-
4N2- 10 [*]	-	10	10	1	1	10	1	10	1	-
4N2- 14 [*]	-	14	14	1	1	14	1	14	1	-
4N2- 20 [*]	-	20	20	1	1	20	1	20	1	-
4N2- 28 [*]	-	28	28	1	1	28	1	28	1	-
4N2- 40 [**]	1	40	40	2	2	40	2	40	2	1
4N2- 56 [**]	1	56	56	2	2	56	2	56	2	1
4N4- 4 [*]	-	4	4	1	1	4	1	4	1	-
4N4- 7 [*]	-	7	7	1	1	7	1	7	1	-
4N4- 9 [*]	-	9	9	1	1	9	1	9	1	-
4N4- 13 [*]	-	13	13	1	1	13	1	13	1	-
4N4- 18 [*]	-	18	18	1	1	18	1	18	1	-
4N4- 27 [*]	-	27	27	1	1	27	1	27	1	-
4N4- 36 [**]	1	36	36	2	2	36	2	36	2	1
4N4- 48 [**]	1	48	48	2	2	48	2	48	2	1
4N7- 4 [*]	-	4	4	1	1	4	1	4	1	4
4N7- 6 [*]	-	6	6	1	1	6	1	6	1	6
4N7- 8 [*]	-	8	8	1	1	8	1	8	1	8
4N7- 12 [*]	-	12	12	1	1	12	1	12	1	12
4N7- 17 [*]	-	17	17	1	1	17	1	17	1	17
4N7- 23 [*]	-	23	23	1	1	23	1	23	1	23
4N7- 30 [**]	1	30	30	2	2	30	2	30	2	33
4N7- 42 [**]	1	42	42	2	2	42	2	42	2	45
4N10- 4 [*]	-	4	4	1	1	4	1	4	1	4
4N10- 6 [*]	-	6	6	1	1	6	1	6	1	6
4N10- 8 [*]	-	8	8	1	1	8	1	8	1	8
4N10- 12 [*]	-	12	12	1	1	12	1	12	1	12
4N10- 17 [*]	-	17	17	1	1	17	1	17	1	17
4N10- 23 [*]	-	23	23	1	1	23	1	23	1	23
4N10- 30 [**]	1	30	30	2	2	30	2	30	2	33
4N10- 42 [**]	1	42	42	2	2	42	2	42	2	45
4N15- 4 [*]	-	4	4	1	1	4	1	4	1	12
4N15- 6 [*]	-	6	6	1	1	6	1	6	1	18
4N15- 9 [*]	-	9	9	1	1	9	1	9	1	27
4N15- 13 [*]	-	13	13	1	1	13	1	13	1	39
4N15- 17 [*]	-	17	17	1	1	17	1	17	1	51
4N15- 24 [**]	1	24	24	2	2	24	2	24	2	72
4N15- 32 [**]	1	32	32	2	2	32	2	32	2	96

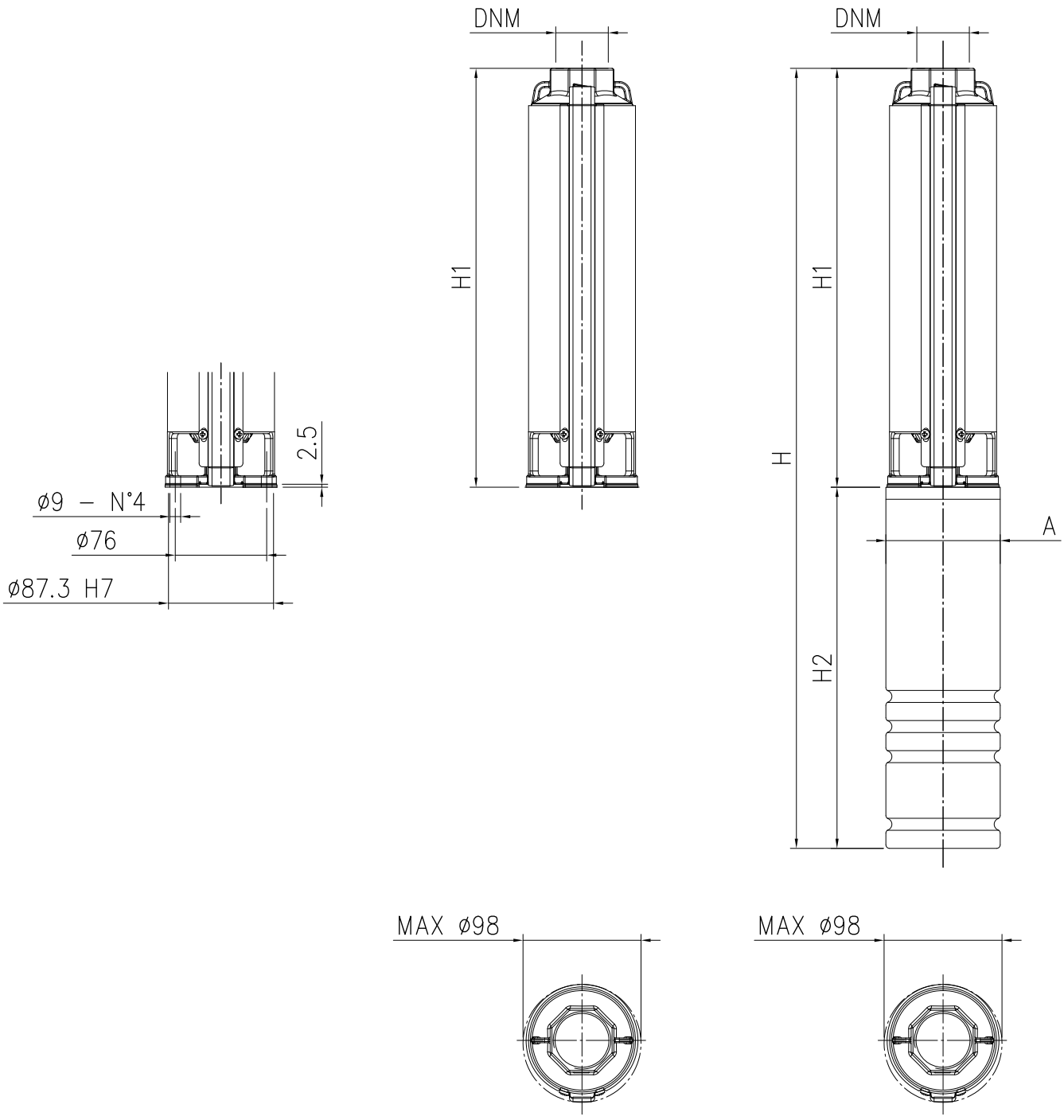
[*] See drawing pag. 300 - pag. 301 Single pump casing
[**] See drawing pag. 300 - pag. 301 Double pump casing

DIMENSIONS

50Hz

Rev. D

PUMP



DIMENSIONS

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Pump type	Power		Pump without motor		Pump with oil filled motor						Pump with water filled motor					
					single phase			three phase			single phase			three phase		
	[kW]	[HP]	H1 [mm]	DNM	A [mm]	H2 [mm]	H [mm]	A [mm]	H2 [mm]	H [mm]	A [mm]	H2 [mm]	H [mm]	A [mm]	H2 [mm]	H [mm]
4N1- 12	0.37	0.5	332	G 1 1/4	97	325	657	97	304	636	97	228	560	97	214	546
4N1- 18	0.55	0.75	437	G 1 1/4	97	325	762	97	325	762	97	248	685	97	228	665
4N1- 24	0.75	1	542	G 1 1/4	97	350	892	97	325	867	97	283	825	97	248	790
4N1- 34	1.1	1.5	717	G 1 1/4	97	385	1102	97	350	1067	97	339	1056	97	283	1000
4N1- 48	1.5	2	1028	G 1 1/4	97	420	1448	97	385	1413	97	350	1378	97	307	1335
4N1- 68	2.2	3	1378	G 1 1/4	97	470	1848	97	420	1798	97	437	1815	97	339	1717
4N2- 7	0.37	0.5	245	G 1 1/4	97	325	570	97	304	549	97	228	473	97	214	459
4N2- 10	0.55	0.75	297	G 1 1/4	97	325	622	97	325	622	97	248	545	97	228	525
4N2- 14	0.75	1	367	G 1 1/4	97	350	717	97	325	692	97	283	650	97	248	615
4N2- 20	1.1	1.5	472	G 1 1/4	97	385	857	97	350	822	97	339	811	97	283	755
4N2- 28	1.5	2	612	G 1 1/4	97	420	1032	97	385	997	97	350	962	97	307	919
4N2- 40	2.2	3	888	G 1 1/4	97	470	1358	97	420	1308	97	437	1325	97	339	1227
4N2- 56	3	4	1168	G 1 1/4	97	-	-	97	544	1712	97	-	-	97	394	1562
4N4- 4	0.37	0.5	208	G 1 1/4	97	325	533	97	304	512	97	228	436	97	214	422
4N4- 7	0.55	0.75	273	G 1 1/4	97	325	598	97	325	598	97	248	521	97	228	501
4N4- 9	0.75	1	316	G 1 1/4	97	350	666	97	325	641	97	283	598	97	248	564
4N4- 13	1.1	1.5	402	G 1 1/4	97	385	787	97	350	752	97	339	740	97	283	684
4N4- 18	1.5	2	509	G 1 1/4	97	420	929	97	385	894	97	350	859	97	307	816
4N4- 27	2.2	3	703	G 1 1/4	97	470	1173	97	420	1123	97	437	1139	97	339	1041
4N4- 36	3	4	962	G 1 1/4	97	-	-	97	544	1506	97	-	-	97	394	1356
4N4- 48	4	5.5	1220	G 1 1/4	97	-	-	97	574	1794	97	-	-	97	543	1763
4N7- 4	0.55	0.75	262	G 2	97	325	587	97	325	587	97	248	510	97	228	490
4N7- 6	0.75	1	333	G 2	97	350	683	97	325	658	97	283	616	97	248	581
4N7- 8	1.1	1.5	404	G 2	97	385	789	97	350	754	97	339	743	97	283	687
4N7- 12	1.5	2	546	G 2	97	420	966	97	385	931	97	350	896	97	307	853
4N7- 17	2.2	3	724	G 2	97	470	1194	97	420	1144	97	437	1160	97	339	1062
4N7- 23	3	4	937	G 2	97	-	-	97	544	1481	97	-	-	97	394	1330
4N7- 30	4	5.5	1251	G 2	97	-	-	97	574	1825	97	-	-	97	543	1794
4N7- 42	5.5	7.5	1677	G 2	97	-	-	97	644	2321	97	-	-	97	653	2330
4N10- 4	0.75	1	262	G 2	97	350	612	97	325	587	97	283	545	97	248	510
4N10- 6	1.1	1.5	333	G 2	97	385	718	97	350	683	97	339	672	97	283	616
4N10- 8	1.5	2	404	G 2	97	420	824	97	385	789	97	350	754	97	307	711
4N10- 12	2.2	3	546	G 2	97	470	1016	97	420	966	97	437	983	97	339	885
4N10- 17	3	4	724	G 2	97	-	-	97	544	1268	97	-	-	97	394	1117
4N10- 23	4	5.5	937	G 2	97	-	-	97	574	1511	97	-	-	97	543	1480
4N10- 30	5.5	7.5	1251	G 2	97	-	-	97	644	1895	97	-	-	97	653	1904
4N10- 42	7.5	10	1677	G 2	97	-	-	97	805	2482	97	-	-	97	731	2408
4N15- 4	1.1	1.5	440	G 2	97	385	825	97	350	790	97	339	779	97	283	723
4N15- 6	1.5	2	600	G 2	97	420	1020	97	385	985	97	350	950	97	307	907
4N15- 9	2.2	3	840	G 2	97	470	1310	97	420	1260	97	437	1277	97	339	1179
4N15- 13	3	4	1160	G 2	97	-	-	97	544	1704	97	-	-	97	394	1554
4N15- 17	4	5.5	1480	G 2	97	-	-	97	574	2054	97	-	-	97	543	2023
4N15- 24	5.5	7.5	2106	G 2	97	-	-	97	644	2750	97	-	-	97	653	2759
4N15- 32	7.5	10	2746	G 2	97	-	-	97	805	3551	97	-	-	97	731	3477

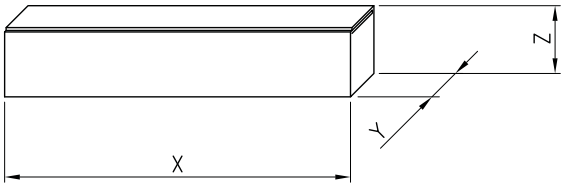
PACKING AND WEIGHT

50Hz

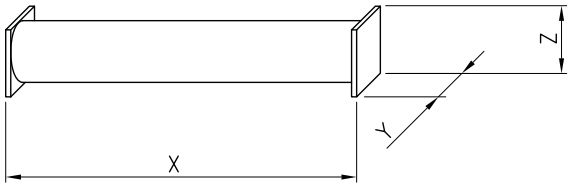
Rev. D

PACKING

type 1



type 2



Pump type	Pump without motor					Pump with oil filled motor										Pump with water filled motor									
						single phase					three phase					single phase					three phase				
	X [mm]	Y [mm]	Z [mm]	Weight [Kgf]	type	X [mm]	Y [mm]	Z [mm]	Weight [Kgf]	type	X [mm]	Y [mm]	Z [mm]	Weight [Kgf]	type	X [mm]	Y [mm]	Z [mm]	Weight [Kgf]	type	X [mm]	Y [mm]	Z [mm]	Weight [Kgf]	type
4N1- 12	350	100	100	3.7	1	800	100	100	10.7	1	640	100	100	10.2	1	640	100	100	12.7	1	640	100	100	12.1	1
4N1- 18	495	100	100	4.8	1	800	100	100	12.4	1	800	100	100	11.8	1	800	100	100	14.8	1	800	100	100	13.7	1
4N1- 24	640	100	100	5.9	1	1035	100	100	14.6	1	1035	100	100	13.5	1	1035	100	100	17.2	1	1035	100	100	15.9	1
4N1- 34	800	100	100	8.0	1	1300	100	100	18.3	1	1300	100	100	16.7	1	1300	100	100	21.9	1	1035	100	100	20.5	1
4N1- 48	1035	100	100	11.8	1	1530	100	100	23.8	1	1530	100	100	22.2	1	1530	100	100	26.6	1	1530	100	100	25.3	1
4N1- 68	1300	100	100	15.0	1	2430	100	100	29.2	2	1810	100	100	27.0	2	2430	100	100	33.7	2	1810	100	100	29.4	2
4N2- 7	350	100	100	3.8	1	640	100	100	10.8	1	640	100	100	10.3	1	495	100	100	12.8	1	495	100	100	12.2	1
4N2- 10	350	100	100	4.1	1	640	100	100	11.7	1	800	100	100	11.1	1	640	100	100	14.1	1	640	100	100	13.0	1
4N2- 14	495	100	100	4.4	1	800	100	100	13.1	1	800	100	100	12.0	1	800	100	100	15.7	1	640	100	100	14.4	1
4N2- 20	495	100	100	5.3	1	1035	100	100	15.6	1	1035	100	100	14.0	1	1035	100	100	19.2	1	800	100	100	17.8	1
4N2- 28	640	100	100	6.7	1	1035	100	100	18.7	1	1035	100	100	17.1	1	1035	100	100	21.5	1	1035	100	100	20.2	1
4N2- 40	1035	100	100	10.0	1	1530	100	100	24.2	1	1300	100	100	22.0	1	1530	100	100	28.7	1	1300	100	100	24.4	1
4N2- 56	1300	100	100	13.0	1	-	-	-	-	-	1810	100	100	25.8	2	-	-	-	-	-	1810	100	100	29.8	2
4N4- 4	350	100	100	2.4	1	640	100	100	9.4	1	640	100	100	8.9	1	495	100	100	11.4	1	495	100	100	10.8	1
4N4- 7	350	100	100	3.0	1	640	100	100	10.6	1	640	100	100	10.0	1	640	100	100	13.0	1	640	100	100	11.9	1
4N4- 9	350	100	100	3.4	1	800	100	100	12.1	1	640	100	100	11.0	1	640	100	100	14.7	1	640	100	100	13.4	1
4N4- 13	495	100	100	4.3	1	800	100	100	14.6	1	800	100	100	13.0	1	800	100	100	18.2	1	800	100	100	16.8	1
4N4- 18	640	100	100	5.4	1	1035	100	100	17.4	1	1035	100	100	15.8	1	1035	100	100	20.2	1	1035	100	100	18.9	1
4N4- 27	800	100	100	7.3	1	1530	100	100	21.5	1	1300	100	100	19.3	1	1300	100	100	26.0	1	1300	100	100	21.7	1
4N4- 36	1035	100	100	11.0	1	-	-	-	-	-	1530	100	100	23.8	1	-	-	-	-	-	1530	100	100	27.8	1
4N4- 48	1300	100	100	14.0	1	-	-	-	-	-	1810	100	100	29.3	2	-	-	-	-	-	1810	100	100	35.8	2
4N7- 4	350	100	100	3.0	1	640	100	100	10.6	1	640	100	100	10.0	1	640	100	100	13.0	1	640	100	100	11.9	1
4N7- 6	350	100	100	3.5	1	800	100	100	12.2	1	800	100	100	11.1	1	800	100	100	14.8	1	640	100	100	13.5	1
4N7- 8	495	100	100	4.0	1	1035	100	100	14.3	1	800	100	100	12.7	1	800	100	100	17.9	1	800	100	100	16.5	1
4N7- 12	640	100	100	5.5	1	1035	100	100	17.5	1	1035	100	100	15.9	1	1035	100	100	20.3	1	1035	100	100	19.0	1
4N7- 17	800	100	100	7.1	1	1300	100	100	21.3	-	1300	100	100	19.1	1	1300	100	100	25.8	1	1300	100	100	21.5	1
4N7- 23	1035	100	100	9.0	1	-	-	-	-	-	1530	100	100	21.8	1	-	-	-	-	-	1530	100	100	25.8	1
4N7- 30	1300	100	100	12.8	1	-	-	-	-	-	2430	100	100	28.1	2	-	-	-	-	-	2430	100	100	34.6	2
4N7- 42	1810	100	100	16.5	2	-	-	-	-	-	3000	100	100	35.1	2	-	-	-	-	-	3000	100	100	45.2	2
4N10- 4	350	100	100	3.0	1	640	100	100	11.7	1	640	100	100	10.6	1	640	100	100	14.3	1	640	100	100	13.0	1
4N10- 6	350	100	100	3.6	1	800	100	100	13.9	1	800	100	100	12.3	1	800	100	100	17.5	1	640	100	100	16.1	1
4N10- 8	495	100	100	4.1	1	1035	100	100	16.1	1	800	100	100	14.5	1	800	100	100	18.9	1	800	100	100	17.6	1
4N10- 12	640	100	100	5.5	1	1035	100	100	19.7	1	1035	100	100	17.5	1	1035	100	100	24.2	1	1035	100	100	19.9	1
4N10- 17	800	100	100	7.3	1	-	-	-	-	-	1300	100	100	20.1	1	-	-	-	-	-	1300	100	100	24.1	1
4N10- 23	1035	100	100	9.0	1	-	-	-	-	-	1530	100	100	24.3	1	-	-	-	-	-	1530	100	100	30.8	1
4N10- 30	1300	100	100	12.8	1	-	-	-	-	-	2430	100	100	31.4	2	-	-	-	-	-	2430	100	100	41.5	2
4N10- 42	1810	100	100	16.6	2	-	-	-	-	-	3000	100	100	43.6	2	-	-	-	-	-	3000	100	100	49.3	2
4N15- 4	640	100	100	4.5	1	1035	100	100	14.8	1	1035	100	100	13.2	1	1035	100	100	18.4	1	1035	100	100	17.0	1
4N15- 6	800	100	100	5.5	1	1300	100	100	17.5	1	1300	100	100	15.9	1	1300	100	100	20.3	1	1035	100	100	19.0	1
4N15- 9	1035	100	100	7.0	1	1530	100	100	21.2	1	1530	100	100	19.0	1	1530	100	100	25.7	1	1300	100	100	21.4	1
4N15- 13	1300	100	100	10.0	1	-	-	-	-	-	1810	100	100	22.8	2	-	-	-	-	-	1810	100	100	26.8	2
4N15- 17	1810	100	100	12.0	2	-	-	-	-	-	2430	100	100	27.3	2	-	-	-	-	-	2430	100	100	33.8	2
4N15- 24	2430	100	100	20.0	2	-	-	-	-	-	3000	100	100	38.6	2	-	-	-	-	-	3000	100	100	48.7	2
4N15- 32	3000	100	100	29.0	2	-	-	-	-	-	3800	100	100	56.0	2	-	-	-	-	-	3800	100	100	61.7	2

TECHNICAL DATA

50Hz

Rev. D

MOTOR DATA

OIL FILLED MOTOR

Power		Hight thrust	Single phase 230 V				Three phase 380 V				Three phase 415 V			
[kW]	[HP]	[N]	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor
0.37	0.5	1500	0.78	3.6	10.2	0.94	0.66	1.4	5.0	0.72	0.83	1.6	5.0	0.72
0.55	0.75	1500	0.97	4.5	13.6	0.94	0.94	1.9	7.0	0.75	1.08	2.0	7.0	0.75
0.75	1	1500	1.32	6.0	18.5	0.96	1.17	2.4	10.0	0.74	1.38	2.6	10.0	0.74
1.1	1.5	1500	1.83	8.2	26.0	0.97	1.56	3.2	14.0	0.74	1.81	3.4	14.0	0.74
1.5	2	1500	2.48	11.0	34.0	0.98	2.09	4.4	17.0	0.72	2.38	4.6	17.0	0.72
2.2	3	4400	3.27	14.8	48.0	0.96	-	-	-	-	-	-	-	-
2.2	3	1500	-	-	-	-	3.00	6	24.0	0.76	3.39	6.2	24.0	0.76
2.2	3	5000	-	-	-	-	3.02	5.6	23.0	0.82	3.42	5.8	23.0	0.82
3	4	5000	-	-	-	-	4.05	7.7	30.0	0.80	4.49	7.8	30.0	0.80
4	5.5	5000	-	-	-	-	5.24	9.7	45.0	0.82	5.78	9.8	45.0	0.82
5.5	7.5	5000	-	-	-	-	7.37	13.5	55.0	0.83	8.23	13.8	55.0	0.83
7.5	10	4400	-	-	-	-	9.75	19	72.0	0.78	10.93	19.5	72.0	0.78

WATER FILLED MOTOR

Power		Hight thrust	Single phase 230 V				Three phase 380 V				Three phase 415 V			
[kW]	[HP]	[N]	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor
0.37	0.5	3000	0.69	3.3	12.6	0.91	0.57	1.1	5.1	0.79	0.58	1.14	5.61	0.71
0.55	0.75	3000	0.93	4.3	17.7	0.94	0.83	1.6	7	0.79	0.86	1.7	7.7	0.7
0.75	1	3000	1.28	5.7	22.7	0.98	1.07	2.0	10.1	0.81	1.10	2.1	10.9	0.73
1.1	1.5	3000	1.78	8.4	33.9	0.92	1.51	2.8	15.3	0.82	1.54	2.9	16.7	0.74
1.5	2	3000	2.34	10.7	41.7	0.95	2.13	3.9	19.7	0.83	2.10	4	21.5	0.73
2.2	3	4000	3.28	14.7	61.8	0.97	2.91	5.4	28.3	0.82	3.00	5.8	30.9	0.72
3	4	4000	-	-	-	-	3.99	7.4	39.9	0.82	4.09	7.9	43.6	0.72
4	5.5	6500	-	-	-	-	5.24	9.7	54.1	0.82	5.38	10.4	59.1	0.72
5.5	7.5	6500	-	-	-	-	7.05	12.6	73.3	0.85	7.08	12.8	80.1	0.77
7.5	10	6500	-	-	-	-	9.74	17.2	94.3	0.86	9.74	17.6	103	0.77

OIL FILLED MOTORS CABLE SELECTION

EXAMPLE : MOTOR 0.75 kW 230 V CABLE LENGTH 75 m - 4x2,5 mm^2

Single phase 230 V

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)							
[kW]	[HP]	4x1	4x1,5	4x2	4x2,5	4x4	4x6	4x10	4x16
0.37	0.5	50	75	100	125	-	-	-	-
0.55	0.75	38	57	76	95	152	-	-	-
0.75	1	30	45	60	75	120	174	-	-
1.1	1.5	22	33	43	53	85	127	210	-
1.5	2	-	23	31	38	63	92	154	246
2.2	3	-	-	22	28	45	67	112	180

Three phase 380-415 V

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)							
[kW]	[HP]	4x1	4x1,5	4x2	4x2,5	4x4	4x6	4x10	4x16
0.37	0.5	240	-	-	-	-	-	-	-
0.55	0.75	164	246	328	-	-	-	-	-
0.75	1	133	200	266	333	-	-	-	-
1.1	1.5	97	146	195	244	390	-	-	-
1.5	2	72	109	145	180	290	435	-	-
2.2	3	51	78	103	130	207	310	516	-
3	4	41	62	83	104	167	250	416	-
4	5.5	31	46	62	77	124	186	310	496
5.5	7.5	-	33	45	56	90	135	225	360
7.5	10	-	-	-	-	66	100	165	270

(*) Maximum cable lenght with a voltage drop of 3% at 30°C ambient temperature.

If the operating voltage Ui in the installation is different from the nominal voltage Un, it is possible to calculate the permissible maximum length Lmax, with the given table lenght Ltab, with the following formula:

$$\mathbf{Lmax = Ltab\ (Ui / Un)^2}$$

WATER FILLED MOTORS CABLE SELECTION

EXAMPLE : MOTOR 0.75 kW 230 V CABLE LENGTH 73 m - 4x2,5 mm^2

Single phase 230 V

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)							
[kW]	[HP]	4x1	4x1,5	4x2	4x2,5	4x4	4x6	4x10	4x16
0.37	0.5	50	76	101	126	-	-	-	-
0.55	0.75	39	58	77	97	155	-	-	-
0.75	1	29	44	58	73	117	175	-	-
1.1	1.5	20	30	40	50	79	119	198	-
1.5	2	-	23	31	39	62	93	156	249
2.2	3	-	-	23	28	45	68	113	181

Three phase 380-415 V

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)							
[kW]	[HP]	4x1	4x1,5	4x2	4x2,5	4x4	4x6	4x10	4x16
0.37	0.5	325	-	-	-	-	-	-	-
0.55	0.75	223	335	446	-	-	-	-	-
0.75	1	167	251	335	418	-	-	-	-
1.1	1.5	120	179	239	299	478	-	-	-
1.5	2	86	129	172	215	343	515	-	-
2.2	3	61	91	122	152	243	365	609	-
3	4	45	67	89	112	179	268	446	-
4	5.5	34	51	68	85	135	203	338	541
5.5	7.5	-	40	53	66	106	159	266	425
7.5	10	-	-	-	-	78	117	196	313

(*) Maximum cable lenght with a voltage drop of 3% at 30°C ambient temperature.

If the operating voltage Ui in the installation is different from the nominal voltage Un, it is possible to calculate the permissible maximum length Lmax, with the given table lenght Ltab, with the following formula:

$$\mathbf{Lmax = Ltab\ (Ui / Un)^2}$$