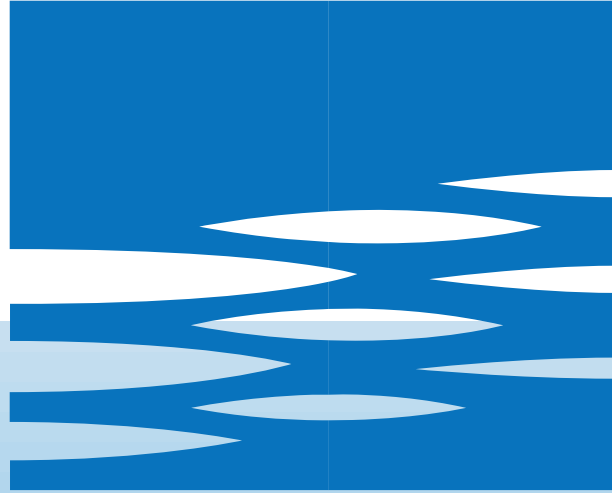


**PUMP**  **TECH**



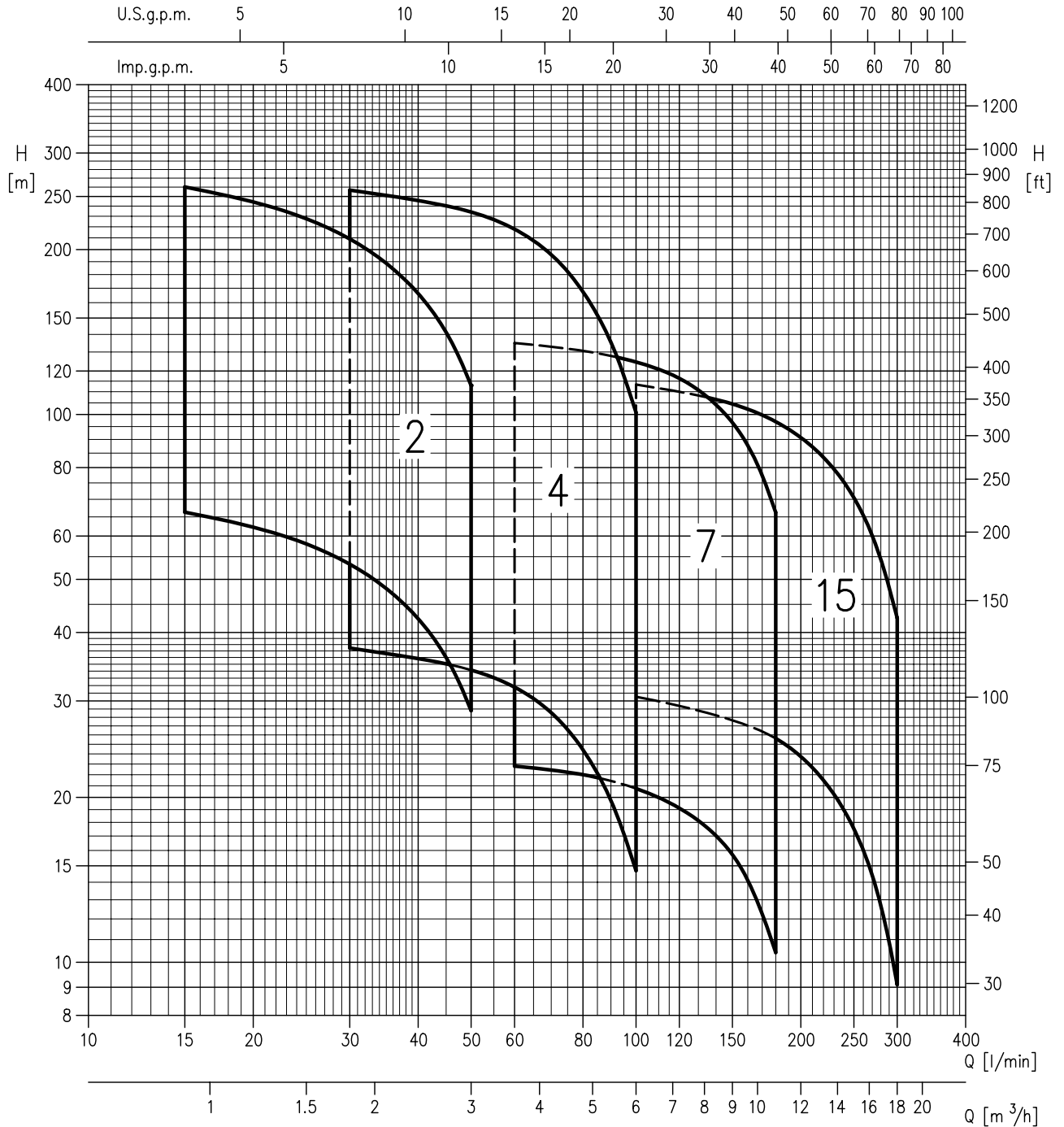
**EBARA**

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PUMP		
Liquid Handled	Type of liquid	Clean water
	Temperature [°C]	Maximum 30
	Sand content	Maximum : 50 parts per million
	Chlorine ion density	Maximum : 500 parts per million
Construction	Impeller	Closed centrifugal type
	Bearing	Sleeve type - tungsten carbide
Pipe connection	Suction	N/A
	Discharge	G1 1/4 ( 4BHS2 ) - G 1 1/2 ( 4BHS4 ) - G 2 (4BHS7-4BHS15) UNI ISO 228
Material	Impeller	EN 1.4301 (AISI 304)
	Intermediate casing	EN 1.4301 (AISI 304)
	Suction casing	EN 1.4301 (AISI 304)
	Discharge casing	EN 1.4301 (AISI 304)
	Shaft	EN 1.4401 (AISI 316)
	Liner ring	EPDM / EN 1.4301 (AISI 304)
	Valve	EN 1.4301 (AISI 304)
"O" ring	NBR	
Applicable standard of test		ISO 9906:2012 - Grade 3B

MOTOR					
Type	Submersible oil filled (type OY)		Submersible water filled (type WY)		
	Sumoto		Franklin		
	Single phase	Three phase	Single phase	Three phase	
Power rating	[kW]	0.55÷2.2	0.55÷5.5	0.55÷2.2	0.55÷5.5
	[HP]	0.75÷3.0	0.75÷7.5	0.75÷3.0	0.75÷7.5
No. of Poles	2				
Rated speed	Refer to each characteristic performance rotation speed as rated speed				
Insulation class	F		B		
Protection degree	IP 58		IP68		
Maximum ambient temperature [m]	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	Brass		Brass with nickel plate		
Casing material	EN 1.4301 (AISI 304)				
Power cable material	EPDM/Cross Seald Polyethylene				
Power cable size [mm <sup>2</sup> ]	4x1.5				
Power cable length [m]	L=1.75 (up to 2.2 kW) / L=2.5 (for 3 and 4 kW) / L=4 (for 5.5kW)				
Flange mount	NEMA standard				

PERFORMANCE RANGE



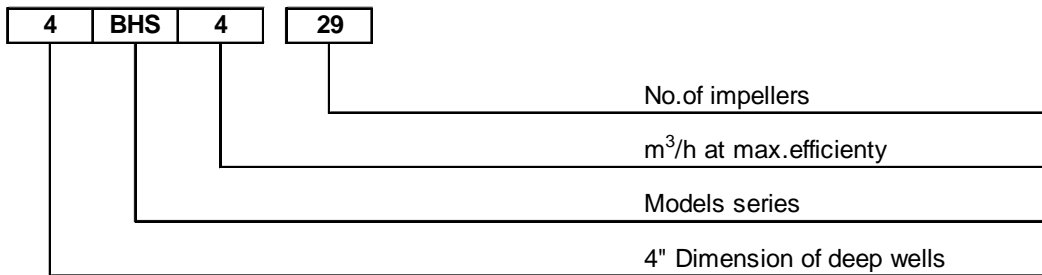
### SELECTION CHART

Pump type		Power		Q=Capacity														
Single phase	Three phase	[kW]	[HP]	l/min.	15	20	30	40	50	60	80	100	120	150	180	220	260	300
				m <sup>3</sup> /h	0,9	1,2	1,8	2,4	3,0	3,6	4,8	6	7,2	9	10,8	13,2	15,6	18
				H=Total manometric head in meters														
4BHS2 13/5M	4BHS2 13/5	0,55	0,75	75,5	66,5	62,5	53,5	42,5	28,6	-	-	-	-	-	-	-	-	-
4BHS2 18/7M	4BHS2 18/7	0,75	1,0	104,0	92,0	86,0	74,0	58,5	39,6	-	-	-	-	-	-	-	-	-
4BHS2 27/11M	4BHS2 27/11	1,1	1,5	157,0	138,0	129,0	111,0	88,0	59,5	-	-	-	-	-	-	-	-	-
4BHS2 36/15M	4BHS2 36/15	1,5	2,0	209,0	184,0	172,0	148,0	117,0	79,0	-	-	-	-	-	-	-	-	-
4BHS2 44/22M	4BHS2 44/22	2,2	3,0	255,0	224,0	211,0	180,0	143,0	97,0	-	-	-	-	-	-	-	-	-
4BHS2 51/22M	4BHS2 51/22	2,2	3,0	296,0	260,0	244,0	209,0	166,0	112,0	-	-	-	-	-	-	-	-	-
4BHS4 7/5M	4BHS4 7/5	0,55	0,75	43,0	-	-	37,5	35,8	34,2	31,8	24,4	14,7	-	-	-	-	-	-
4BHS4 10/7M	4BHS4 10/7	0,75	1,0	61,5	-	-	53,5	51,0	49,0	45,5	34,9	21,0	-	-	-	-	-	-
4BHS4 15/11M	4BHS4 15/11	1,1	1,5	92,5	-	-	80,5	77,0	73,0	68,0	52,5	31,5	-	-	-	-	-	-
4BHS4 20/15M	4BHS4 20/15	1,5	2,0	123,0	-	-	107,0	102,0	97,5	91,0	70,0	42,0	-	-	-	-	-	-
4BHS4 24/22M	4BHS4 24/22	2,2	3,0	148,0	-	-	128,0	123,0	117,0	109,0	84,0	50,5	-	-	-	-	-	-
4BHS4 29/22M	4BHS4 29/22	2,2	3,0	178,0	-	-	155,0	148,0	142,0	132,0	101,0	61,0	-	-	-	-	-	-
/	4BHS4 36/30	3,0	4,0	221,0	-	-	193,0	184,0	176,0	163,0	126,0	75,5	-	-	-	-	-	-
/	4BHS4 48/40	4,0	5,5	295,0	-	-	257,0	246,0	234,0	218,0	168,0	101,0	-	-	-	-	-	-
4BHS7 4/7M	4BHS7 4/7	0,75	1,0	24,6	-	-	-	-	-	22,8	22,0	20,8	19,1	15,7	10,4	-	-	-
4BHS7 7/11M	4BHS7 7/11	1,1	1,5	43,0	-	-	-	-	-	39,9	38,5	36,3	33,5	27,5	18,2	-	-	-
4BHS7 10/15M	4BHS7 10/15	1,5	2,0	61,5	-	-	-	-	-	57,0	55,0	52,0	48,0	39,3	26,0	-	-	-
4BHS7 12/22M	4BHS7 12/22	2,2	3,0	74,0	-	-	-	-	-	68,5	66,0	62,5	57,5	47,0	31,3	-	-	-
4BHS7 14/22M	4BHS7 14/22	2,2	3,0	86,0	-	-	-	-	-	80,0	77,0	72,5	67,0	55,0	36,5	-	-	-
/	4BHS7 18/30	3,0	4,0	113,0	-	-	-	-	-	106,0	102,0	97,5	91,0	75,5	52,0	-	-	-
/	4BHS7 23/40	4,0	5,5	144,0	-	-	-	-	-	135,0	131,0	125,0	116,0	96,5	66,0	-	-	-
*4BHS15 7/15M	*4BHS15 7/15	1,5	2,0	38,5	-	-	-	-	-	-	-	30,5	29,3	27,7	25,6	21,5	16,0	9,1
*4BHS15 10/22M	*4BHS15 10/22	2,2	3,0	55,0	-	-	-	-	-	-	-	43,5	42,0	39,5	36,6	30,7	22,9	13,0
/	*4BHS15 13/30	3,0	4,0	71,5	-	-	-	-	-	-	-	59,0	57,5	54,5	50,5	43,5	34,1	22,1
/	*4BHS15 17/40	4,0	5,5	93,5	-	-	-	-	-	-	-	77,0	75,0	71,0	66,0	57,0	44,5	28,9
/	*4BHS15 25/55	5,5	7,5	138,0	-	-	-	-	-	-	-	114,0	110,0	105,0	97,0	83,5	65,5	42,5

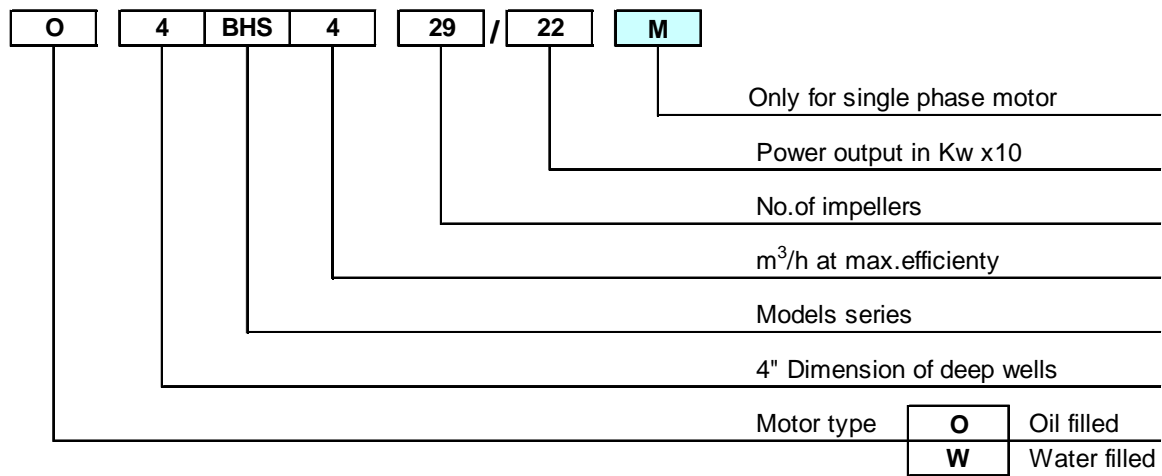
\* product not available for the European market

TYPE KEY

EXAMPLE ( pump without motor ) :



EXAMPLE ( pump with motor ) :



### PERFORMANCE CURVE SPECIFICATIONS

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

Tolerances according to ISO 9906:2012 - Grade 3B

The curves refer to effective speed of asynchronous motors at 50 Hz, 2 poles.

Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of  $\nu = 1 \text{ mm}^2/\text{s}$  (1 cSt)

During the pump selection, consider to get a safety margin of at least 0.5 m.

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)
- $\eta$  = pump efficiency
- MEI = minimum efficiency index

The minimum 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.

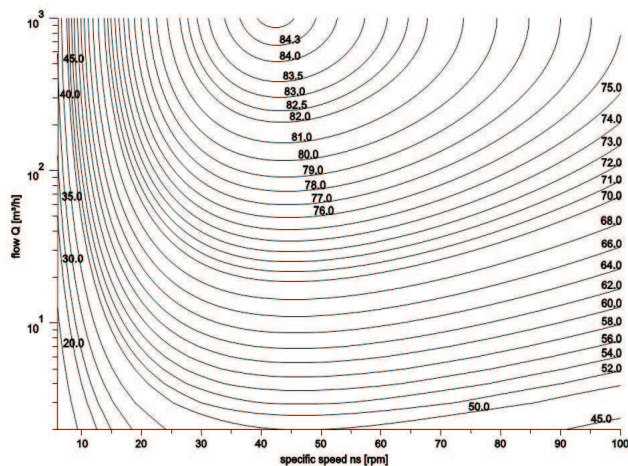
The benchmark for most efficient water pumps is  $MEI \geq 0,70$ .

Information on benchmark efficiency is available at: [www.ebara.eu](http://www.ebara.eu)

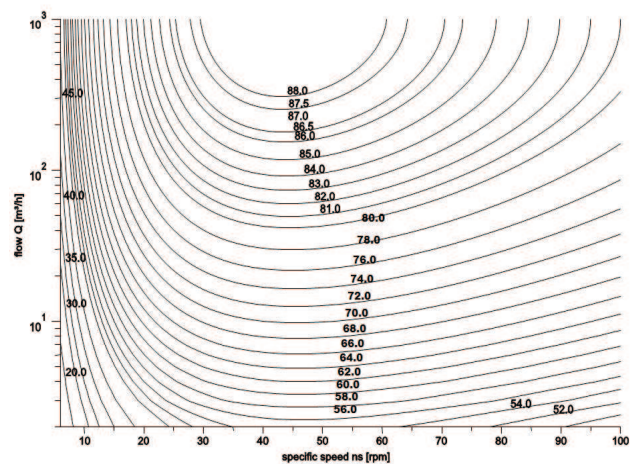
The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

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

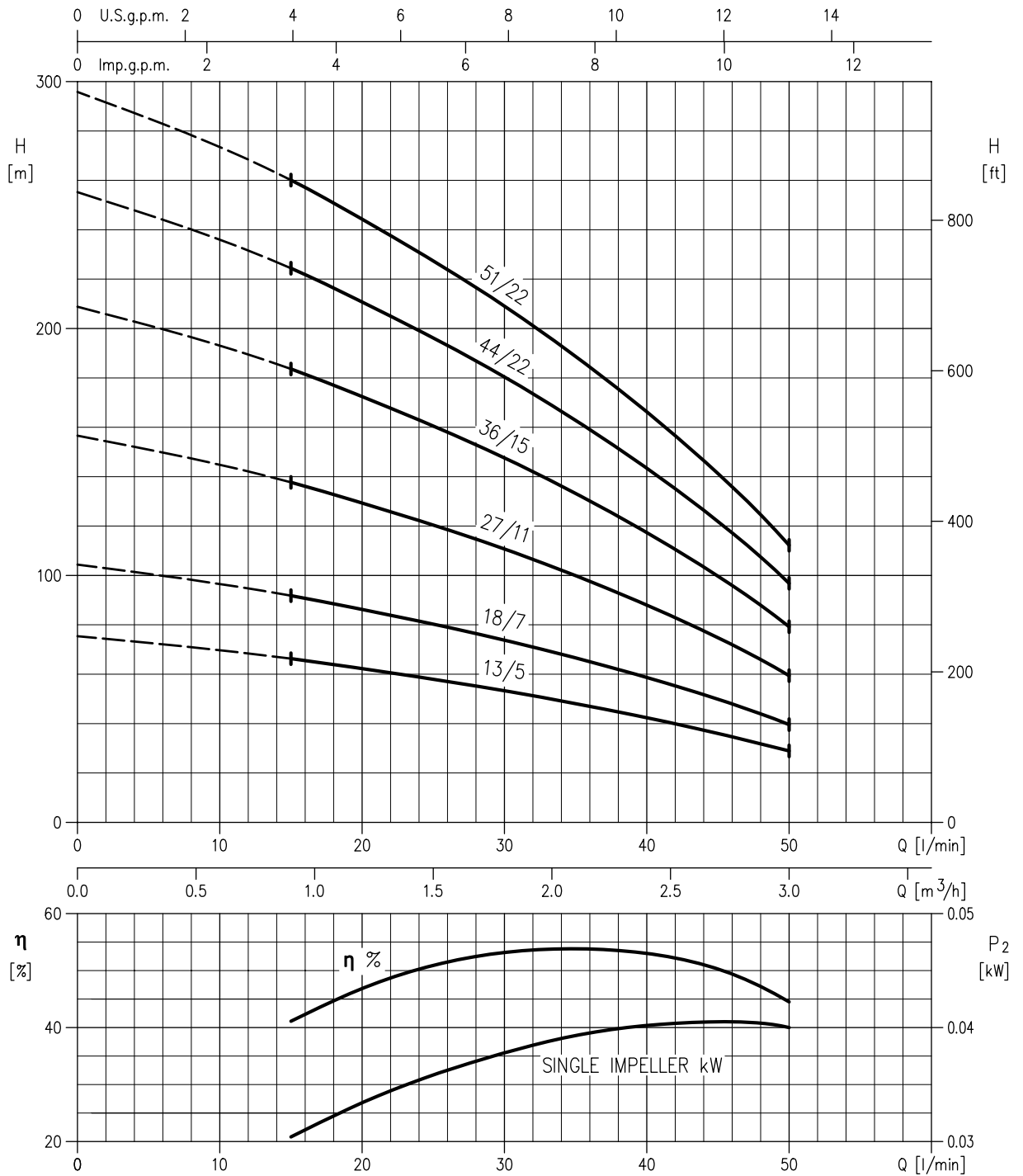
MEI = 0.4 for Multistage Submersible 2900rpm



MEI = 0.7 for Multistage Submersible 2900 rpm



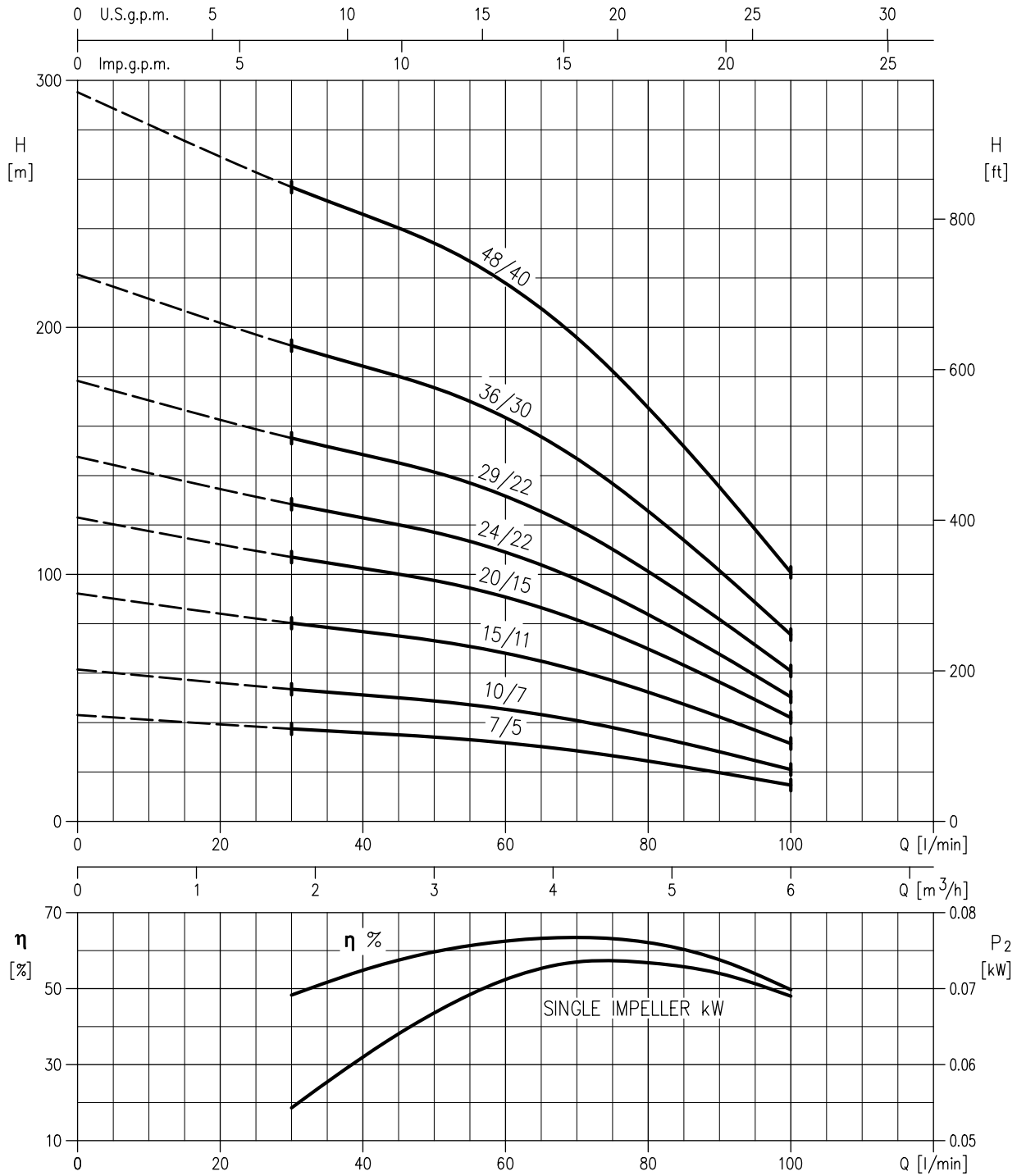
4BHS2 - MEI > 0.70 - Impeller diameter = 70.5 mm



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test Standard: ISO 9906:2012 - Grade 3B

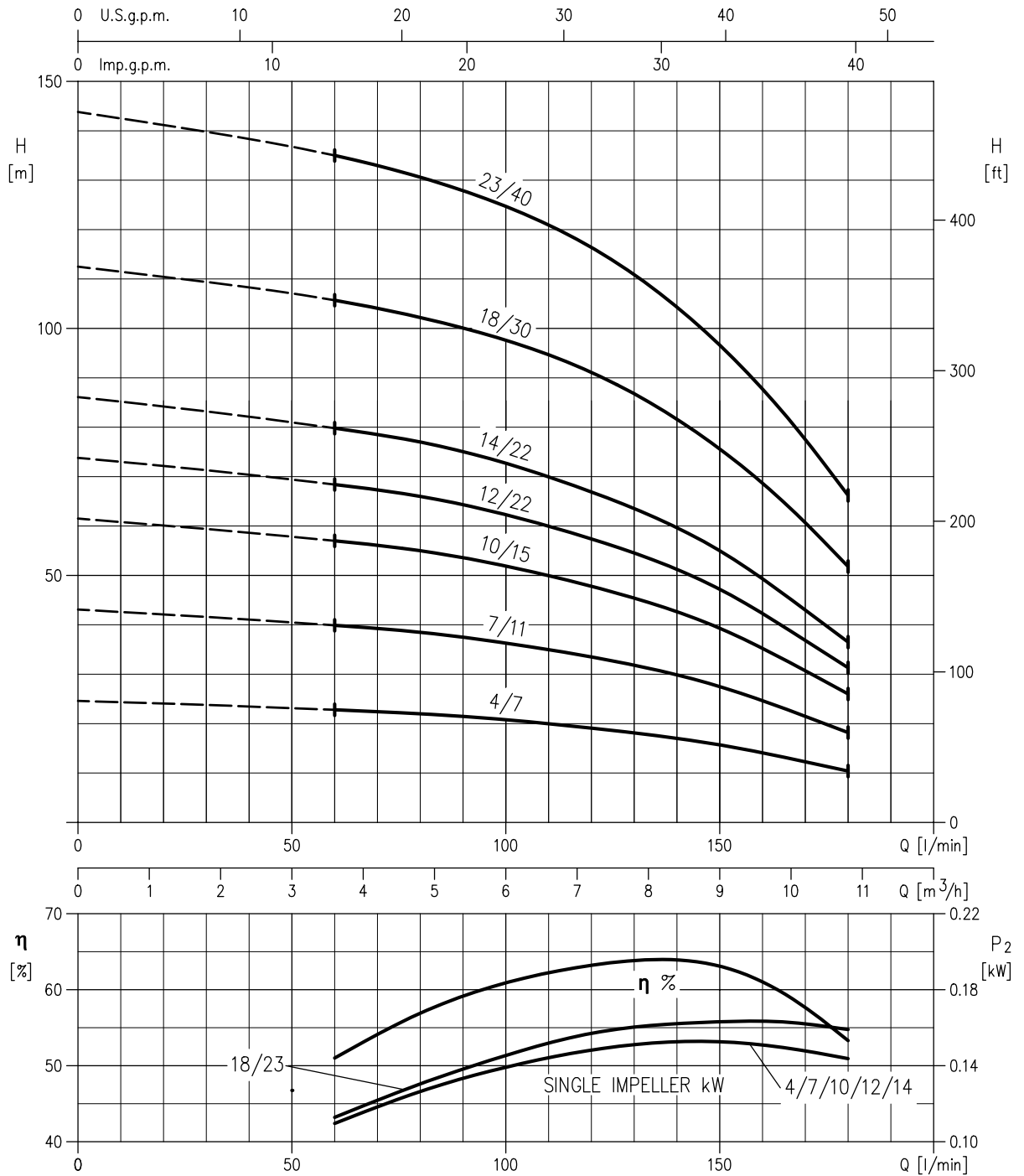


4BHS4 - MEI > 0.70- Impeller diameter = 72 mm



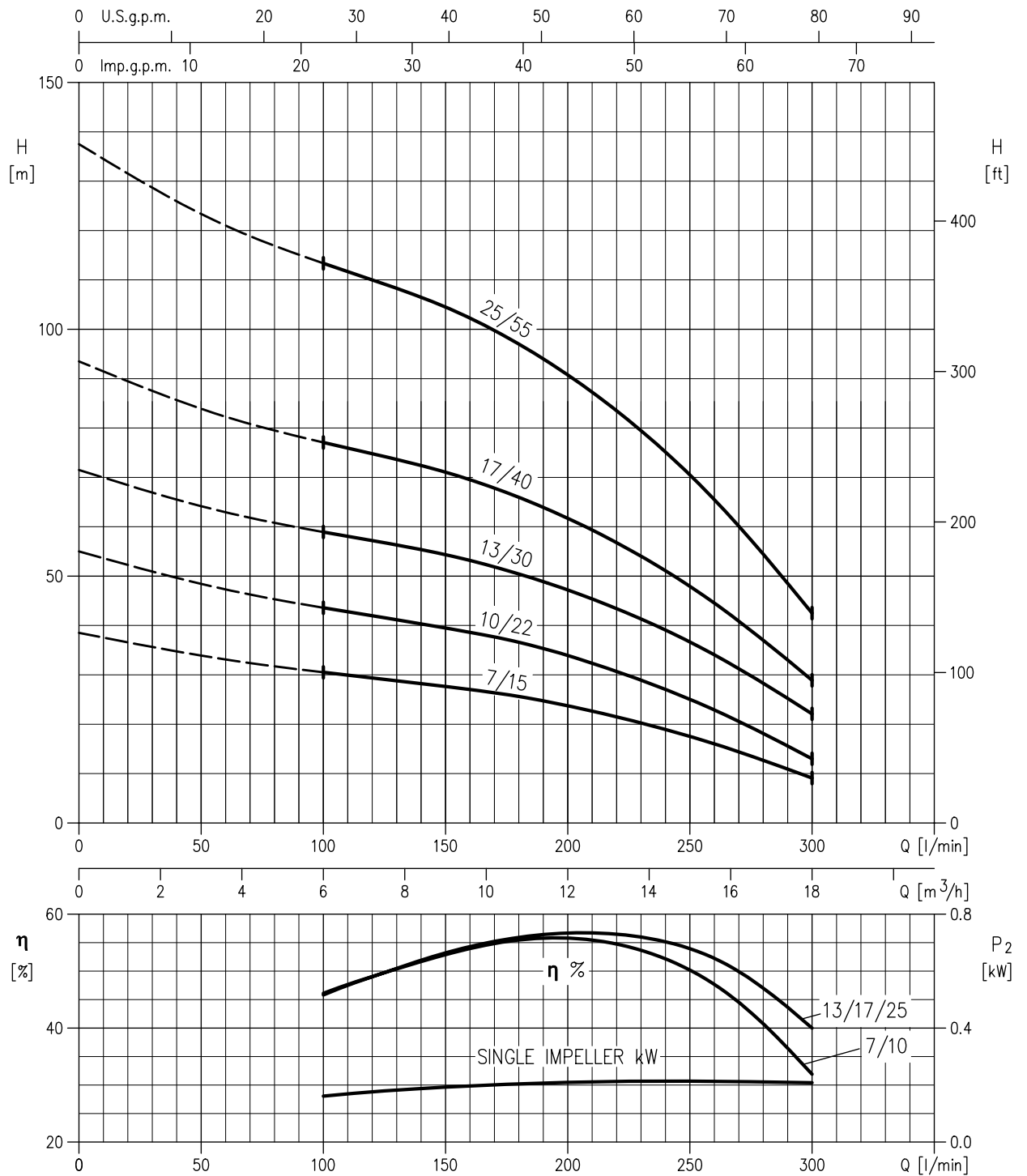
Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test Standard: ISO 9906:2012 - Grade 3B

4BHS7 - MEI > 0.50- Impeller diameter = 74 mm



Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test Standard: ISO 9906:2012 - Grade 3B

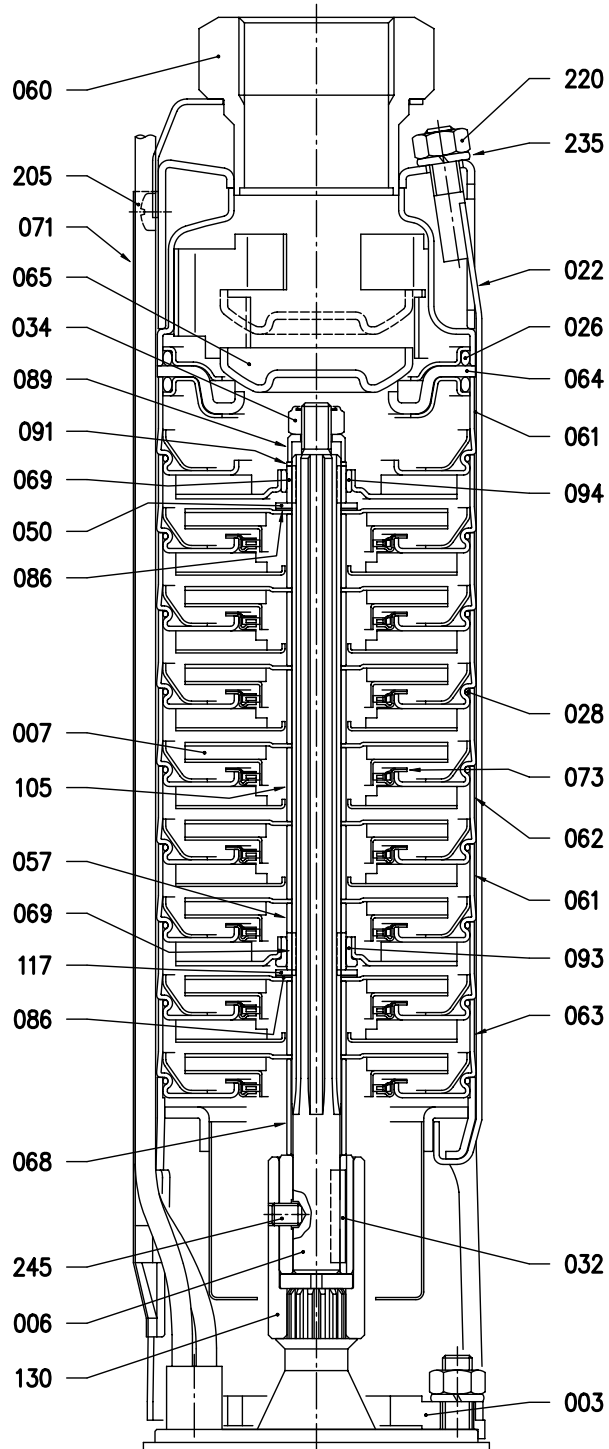
4BHS15 - Impeller diameter = 72 mm



**PRODUCT NOT AVAILABLE FOR THE EUROPEAN MARKET**

Rotation speed ≈ 2850 min<sup>-1</sup>  
 Test Standard: ISO 9906:2012 - Grade 3B

SECTIONAL VIEW



## SECTIONAL VIEW TABLE

N°	PART.NAME	MATERIAL	DIMENSIONS	Q.TY
003	Bracket	EN 1.4301 (AISI 304)		1
006	Pump shaft	EN 1.4401 (AISI 316)		1
007	Impeller	EN 1.4301 (AISI 304)		[*]
022	Strap	EN 1.4301 (AISI 304)		4
026	"O" ring	NBR	3 x 74.5	2
028	"O" ring	NBR	1.85 x 78.4	[*]
032	Key	EN 1.4401 (AISI 316)	A 4 x 4 x 25 UNI 6604	1
034	Impeller nut self locking	EN 1.4301 (AISI 304)	M8	1
050	Washer	EN 1.4301 (AISI 304)		[*]
057	Bearing spacer	EN 1.4301 (AISI 304)		[*]
060	Discharge casing	EN 1.4301 (AISI 304)		1
061	Intermediate casing bearing	EN 1.4301 (AISI 304)		[*]
062	Intermediate casing	EN 1.4301 (AISI 304)		[*]
063	Intermediate casing suction	EN 1.4301 (AISI 304)		1
064	Valve seat	EN 1.4301 (AISI 304) + NBR		1
065	Valve	EN 1.4301 (AISI 304)		1
068	Spacer	EN 1.4301 (AISI 304)		1
069	Shaft sleeve	Tungsten carbide		[*]
071	Cable cover	EN 1.4301 (AISI 304)		1
073	Liner ring	EN 1.4301 (AISI 304) + EPDM		[*]
086	Spacer	EN 1.4301 (AISI 304)		[*]
089	Washer	EN 1.4301 (AISI 304)		1
091	Spacer	EN 1.4301 (AISI 304)		[*]
093	Axial bearing	Tungsten carbide		1
094	Radial bearing	Tungsten carbide		[*]
105	Spacer	EN 1.4301 (AISI 304)		[*]
117	Friction ring	Tungsten carbide		1
130	Coupling	EN 1.4301 (AISI 304)		1
205	Screw	EN 1.4301 (AISI 304)	M5 x 6 UNI 7687	2
220	Nut	EN 1.4301 (AISI 304)	M8 UNI 5588	4
235	Washer	EN 1.4301 (AISI 304)	8,4 UNI 1751	4
245	Set screw	EN 1.4301 (AISI 304)	M6 x 8 UNI 5923	1

[\*] See table pag. 302

## QUANTITY FOR MODEL

Pump type	Quantity for model											
	N°007	N°028	N°050	N°057	N°061	N°062	N°069	N°073	N°086	N°091	N°094	N°105
4BHS2 13	13	14	/	0	1	12	1	13	1	1	0	12
4BHS2 18	18	19	1	1	2	16	2	18	2	1	1	16
4BHS2 27	27	28	1	1	2	25	2	27	2	1	1	25
4BHS2 36	36	37	2	2	3	33	3	36	3	1	2	33
4BHS2 44	44	45	3	3	4	40	4	44	4	1	3	40
4BHS2 51	51	52	3	3	4	47	4	51	4	1	3	47
4BHS4 7	7	8	/	0	1	6	1	7	1	1	0	6
4BHS4 10	10	11	/	0	1	9	1	10	1	1	0	9
4BHS4 15	15	16	/	0	1	14	1	15	1	1	0	14
4BHS4 20	20	21	1	1	2	18	2	20	2	1	1	18
4BHS4 24	24	25	1	1	2	22	2	24	2	1	1	22
4BHS4 29	29	30	2	2	3	26	3	29	3	1	2	26
4BHS4 36	36	37	2	2	3	33	3	36	3	1	2	33
4BHS4 48	48	49	3	3	4	44	4	48	4	1	3	44
4BHS7 4	4	5	/	0	1	4	1	4	/	/	0	3
4BHS7 7	7	8	/	0	1	6	1	7	/	/	0	6
4BHS7 10	10	11	/	0	1	9	1	10	/	/	0	9
4BHS7 12	12	13	1	1	2	10	2	12	/	/	1	10
4BHS7 14	14	15	1	1	2	12	2	14	/	/	1	12
4BHS7 18	18	19	1	1	2	16	2	18	/	/	1	16
4BHS7 23	23	24	2	2	3	20	3	23	/	/	2	20
4BHS15 7	7	8	/	0	1	6	1	7	/	/	0	6
4BHS15 10	10	11	1	1	2	8	2	10	/	/	1	8
4BHS15 13	13	14	1	1	2	11	2	13	/	/	1	11
4BHS15 17	17	18	2	2	3	14	3	17	/	/	2	14
4BHS15 25	25	26	3	3	4	21	4	25	/	/	3	21

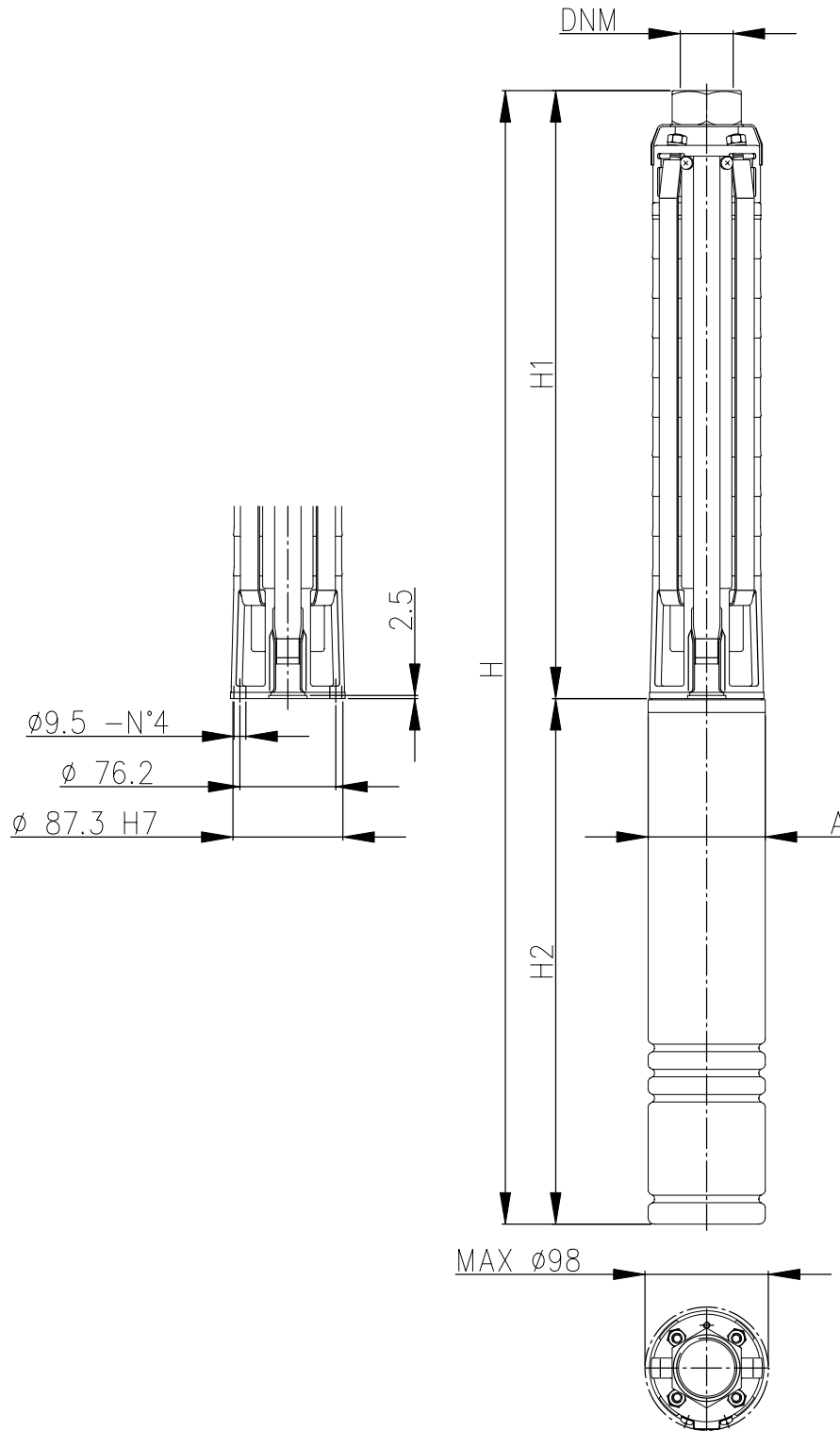
**INTERMEDIATE CASING WITH BEARING POSITION**

Pump type	N°impeller	Intermediate casing with bearing					
		Quantity for model		Position *			
		axial	radial				
4BHS2 13	13	1	/				14th
4BHS2 18	18	1	1	5th			19th
4BHS2 27	27	1	1	5th			28th
4BHS2 36	36	1	2	5th	20th		37th
4BHS2 44	44	1	3	5th	20th	35th	45th
4BHS2 51	51	1	3	5th	20th	35th	52th
4BHS4 7	7	1	/				8th
4BHS4 10	10	1	/				11th
4BHS4 15	15	1	/				16th
4BHS4 20	20	1	1	5th			21th
4BHS4 24	24	1	1	5th			25th
4BHS4 29	29	1	2	5th	20th		30th
4BHS4 36	36	1	2	5th	20th		37th
4BHS4 48	48	1	3	5th	20th	35th	49th
4BHS7 4	4	1	/				5th
4BHS7 7	7	1	/				8th
4BHS7 10	10	1	/				11th
4BHS7 12	12	1	1	4th			13th
4BHS7 14	14	1	1	4th			15th
4BHS7 18	18	1	1	4th			19th
4BHS7 23	23	1	2	4th	16th		24th
4BHS15 7	7	1	/				8th
4BHS15 10	10	1	1	3th			11th
4BHS15 13	13	1	1	3th			14th
4BHS15 17	17	1	2	3th	12th		18th
4BHS15 25	25	1	3	3th	12th	21th	26th

\* the first intermediate suction casing is used as reference for the position of the bearing

 axial bearing

PUMP DRAWING



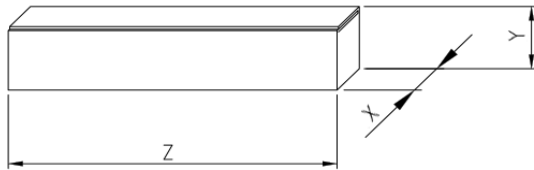


### DIMENSIONS PUMP TABLE

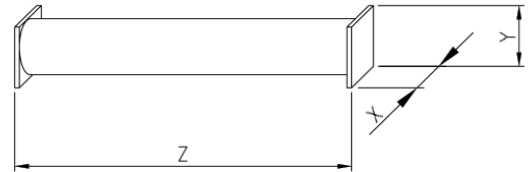
Pump type	Power		Pump without motor		Pump with oil filled motor						Pump with water filled motor					
	[kW]	[HP]	DNM	H1 [mm]	single phase			three phase			single phase			three phase		
					A [mm]	H2 [mm]	H [mm]	A [mm]	H2 [mm]	H [mm]	A [mm]	H2 [mm]	H [mm]	A [mm]	H2 [mm]	H [mm]
4BHS2 13/5	0.55	0.75	G 1 1/4	489	97	325	814	97	325	814	91	248	737.2	91	228	717.2
4BHS2 18/7	0.75	1.0	G 1 1/4	594	97	350	944	97	325	919	91	283	876.6	91	248	842.2
4BHS2 27/11	1.1	1.5	G 1 1/4	783	97	385	1168	97	350	1133	91	339	1121.6	91	283	1065.6
4BHS2 36/15	1.5	2.0	G 1 1/4	972	97	420	1392	97	385	1357	91	350	1321.6	91	307	1278.6
4BHS2 44/22	2.2	3.0	G 1 1/4	1140	97	470	1610	97	420	1560	91	437	1576.6	91	339	1478.6
4BHS2 51/22	2.2	3.0	G 1 1/4	1287	97	470	1757	97	420	1707	91	437	1723.6	91	339	1625.6
4BHS4 7/5	0.55	0.75	G 1 1/2	368	97	325	693	97	325	693	91	248	616.2	91	228	596.2
4BHS4 10/7	0.75	1.0	G 1 1/2	431	97	350	781	97	325	756	91	283	713.6	91	248	679.2
4BHS4 15/11	1.1	1.5	G 1 1/2	536	97	385	921	97	350	886	91	339	874.6	91	283	818.6
4BHS4 20/15	1.5	2.0	G 1 1/2	641	97	420	1061	97	385	1026	91	350	990.6	91	307	947.6
4BHS4 24/22	2.2	3.0	G 1 1/2	725	97	470	1195	97	420	1145	91	437	1161.6	91	339	1063.6
4BHS4 29/22	2.2	3.0	G 1 1/2	830	97	470	1300	97	420	1250	91	437	1266.6	91	339	1168.6
4BHS4 36/30	3.0	4.0	G 1 1/2	977	/	/	/	97	544	1521	/	/	/	91	394	1370.6
4BHS4 48/40	4.0	5.5	G 1 1/2	1229	/	/	/	97	574	1803	/	/	/	91	543	1772.2
4BHS7 4/7	0.75	1.0	G 2	373	97	350	723	97	325	698	91	283	655.6	91	248	621.2
4BHS7 7/11	1.1	1.5	G 2	468	97	385	853	97	350	818	91	339	806.6	91	283	750.6
4BHS7 10/15	1.5	2.0	G 2	562	97	420	982	97	385	947	91	350	911.6	91	307	868.6
4BHS7 12/22	2.2	3.0	G 2	625	97	470	1095	97	420	1045	91	437	1061.6	91	339	963.6
4BHS7 14/22	2.2	3.0	G 2	688	97	470	1158	97	420	1108	91	437	1124.6	91	339	1026.6
4BHS7 18/30	3.0	4.0	G 2	814	/	/	/	97	544	1358	/	/	/	91	394	1207.6
4BHS7 23/40	4.0	5.5	G 2	972	/	/	/	97	574	1546	/	/	/	91	543	1515.2
4BHS15 7/15	1.5	2.0	G 2	552	97	420	972	97	385	937	91	350	901.6	91	307	858.6
4BHS15 10/22	2.2	3.0	G 2	678	97	470	1148	97	420	1098	91	437	1114.6	91	339	1016.6
4BHS15 13/30	3.0	4.0	G 2	804	/	/	/	97	544	1348	/	/	/	91	394	1197.6
4BHS15 17/40	4.0	5.5	G 2	972	/	/	/	97	574	1546	/	/	/	91	543	1515.2
4BHS15 25/55	5.5	7.5	G 2	1308	/	/	/	97	644	1952	/	/	/	91	653	1960.5

PACKING

Type 1



Type 2



Pump Type	Pump without motor					Pump with oil filled motor										Pump with water filled motor									
	X [mm]	Y [mm]	Z [mm]	weight [kgf]	type	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
4BHS2 13/5	100	100	495	6.6	1	100	100	1035	14.2	1	100	100	1035	13.6	1	100	100	800	15.1	1	100	100	800	14.4	1
4BHS2 18/7	100	100	640	8.3	1	100	100	1035	17	1	100	100	1035	15.9	1	100	100	1035	18.3	1	100	100	1035	16.9	1
4BHS2 27/11	100	100	800	11	1	100	100	1300	21.3	1	100	100	1300	19.7	1	100	100	1300	22.8	1	100	100	1300	20.5	1
4BHS2 36/15	100	100	1035	13.8	1	100	100	1530	25.8	1	100	100	1530	24.2	1	100	100	1530	27.5	1	100	100	1530	24.9	1
4BHS2 44/22	100	100	1300	16.5	1	110	100	1810	32	2	110	110	1810	30.7	2	110	110	1810	32.9	2	110	110	1810	30.3	1
4BHS2 51/22	100	100	1300	18.7	1	110	100	1950	34.2	2	110	110	1950	32.9	2	110	110	1950	35.1	2	110	110	1810	32.5	2
4BHS4 7/5	100	100	495	4.4	1	100	100	800	12	1	100	100	800	11.4	1	100	100	800	12.9	1	100	100	800	12.2	1
4BHS4 10/7	100	100	495	5.5	1	100	100	800	14.2	1	100	100	800	13.1	1	100	100	800	15.5	1	100	100	800	14.1	1
4BHS4 15/11	100	100	640	7.2	1	100	100	1035	17.5	1	100	100	1035	15.9	1	100	100	1035	19	1	100	100	1035	16.7	1
4BHS4 20/15	100	100	640	8.3	1	100	100	1300	20.3	1	100	100	1300	18.7	1	100	100	1300	22	1	100	100	1035	19.4	1
4BHS4 24/22	100	100	800	9.9	1	100	100	1300	25.4	1	100	100	1300	24.1	1	100	100	1300	26.3	1	100	100	1300	23.7	1
4BHS4 29/22	100	100	1035	11.5	1	100	100	1530	27	1	100	100	1530	25.7	1	100	100	1530	27.9	1	100	100	1300	25.3	1
4BHS4 36/30	100	100	1035	14.3	1	-	-	-	-	-	110	110	1810	33.3	2	-	-	-	-	-	100	100	1530	31.6	1
4BHS4 48/40	100	100	1300	17.6	1	-	-	-	-	-	110	110	1950	37.6	2	-	-	-	-	-	110	110	1950	38.8	2
4BHS7 4/7	100	100	495	4.2	1	100	100	800	12.9	1	100	100	800	11.8	1	100	100	800	14.2	1	100	100	800	12.8	1
4BHS7 7/11	100	100	495	5	1	100	100	1035	15.3	1	100	100	1035	13.7	1	100	100	1035	16.8	1	100	100	800	14.5	1
4BHS7 10/15	100	100	640	6.6	1	100	100	1035	18.6	1	100	100	1035	17	1	100	100	1035	20.3	1	100	100	1035	17.7	1
4BHS7 12/22	100	100	640	7.7	1	100	100	1300	23.2	1	100	100	1300	21.9	1	100	100	1300	24.1	1	100	100	1035	21.5	1
4BHS7 14/22	100	100	800	8.3	1	100	100	1300	23.8	1	100	100	1300	22.5	1	100	100	1300	24.7	1	100	100	1300	22.1	1
4BHS7 18/30	100	100	1035	9.9	1	-	-	-	-	-	100	100	1530	28.9	1	-	-	-	-	-	100	100	1530	27.2	1
4BHS7 23/40	100	100	1035	11.5	1	-	-	-	-	-	110	110	1810	31.5	2	-	-	-	-	-	110	110	1810	32.7	2
4BHS15 7/15	100	100	640	5.8	1	100	100	1035	17.8	1	100	100	1035	16.2	1	100	100	1035	19.5	1	100	100	1035	16.9	1
4BHS15 10/22	100	100	800	7.3	1	100	100	1300	22.8	1	100	100	1300.3	21.5	1	100	100	1300	23.7	1	100	100	1300	21.1	1
4BHS15 13/30	100	100	1035	8.7	1	-	-	-	-	-	100	100	1530	27.7	1	-	-	-	-	-	100	100	1530	26	1
4BHS15 17/40	100	100	1035	10.7	1	-	-	-	-	-	110	110	1810	30.7	2	-	-	-	-	-	110	110	1810	31.9	2

**MOTOR DATA**

**OIL FILLED MOTOR**

Power		Hight thrust [N]	Single phase 230 V				Three phase 380 V				Three phase 415 V			
[kW]	[HP]		Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor
0,55	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

**WATER FILLED MOTOR**

Power		Hight thrust [N]	Single phase 230 V				Three phase 380 V				Three phase 415 V			
[kW]	[HP]		Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor	Input [kW]	IN [A]	IA [A]	Power factor
0,55	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

**OIL FILLED MOTORS CABLE SELECTION**

EXAMPLE : MOTOR 0.75 kW 230 V CABLE LENGTH 75 m - 4x2,5 mm<sup>2</sup>

**Single phase 230 V**

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)							
[kW]	[HP]	4x1	4x1,5	4x2	4x2,5	4x4	4x6	4x10	4x16
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
0.55	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

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

If the operating voltage  $U_i$  in the installation is different from the nominal voltage  $U_n$ , it is possible to calculate the permissible maximum length  $L_{max}$ , with the given table length  $L_{tab}$ , with the following formula:

$$L_{max} = L_{tab} (U_i / U_n)^2$$

**WATER FILLED MOTORS CABLE SELECTION**

EXAMPLE : MOTOR 0.75 kW 230 V CABLE LENGTH 73 m - 4x2,5 mm<sup>2</sup>

**Single phase 230 V**

POWER		CABLE TYPE AND MAXIMUM LENGTH (*)							
[kW]	[HP]	4x1	4x1,5	4x2	4x2,5	4x4	4x6	4x10	4x16
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
0.55	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

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

If the operating voltage  $U_i$  in the installation is different from the nominal voltage  $U_n$ , it is possible to calculate the permissible maximum length  $L_{max}$ , with the given table length  $L_{tab}$ , with the following formula:

$$L_{max} = L_{tab} (U_i / U_n)^2$$