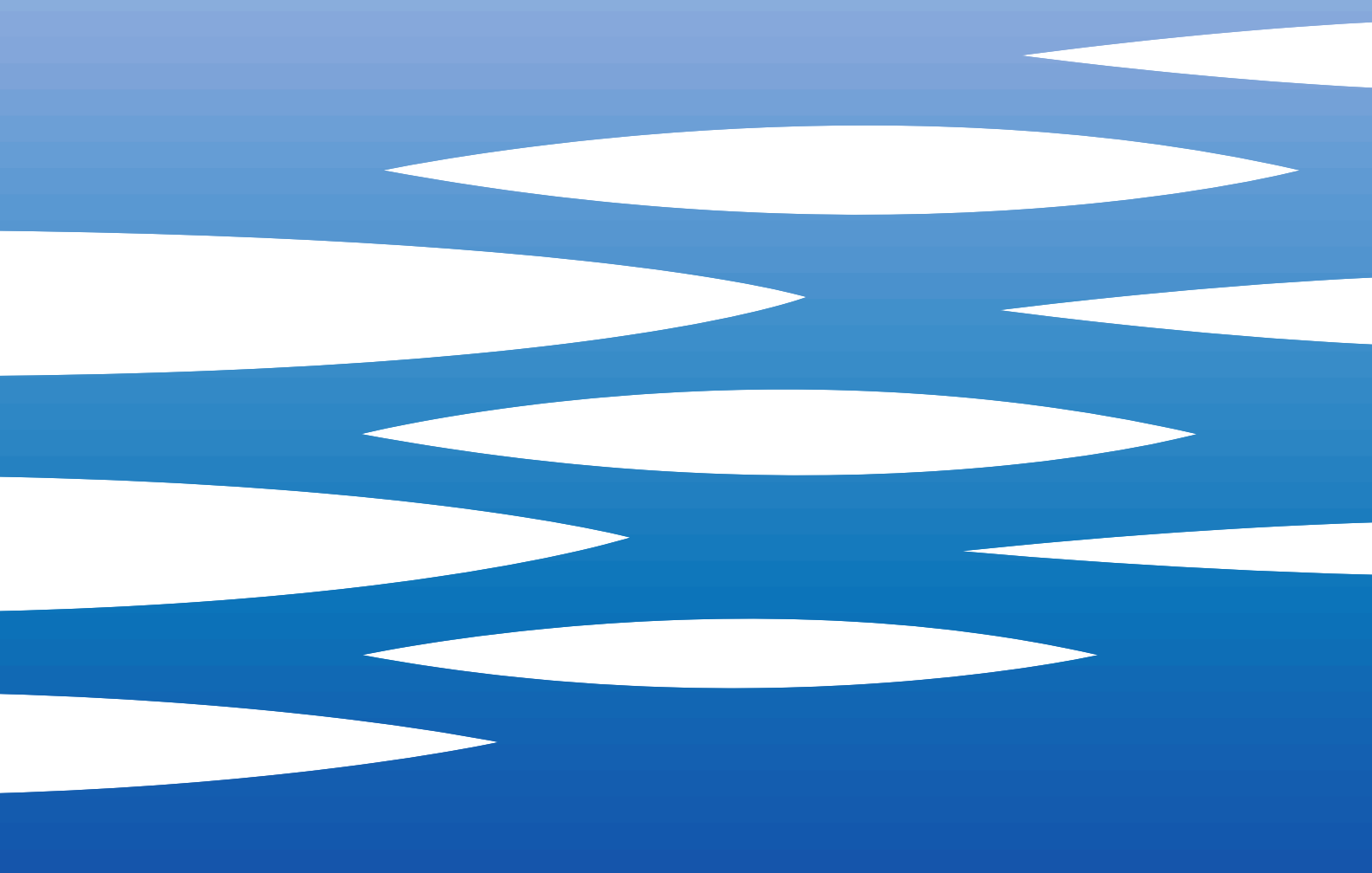




EBARA



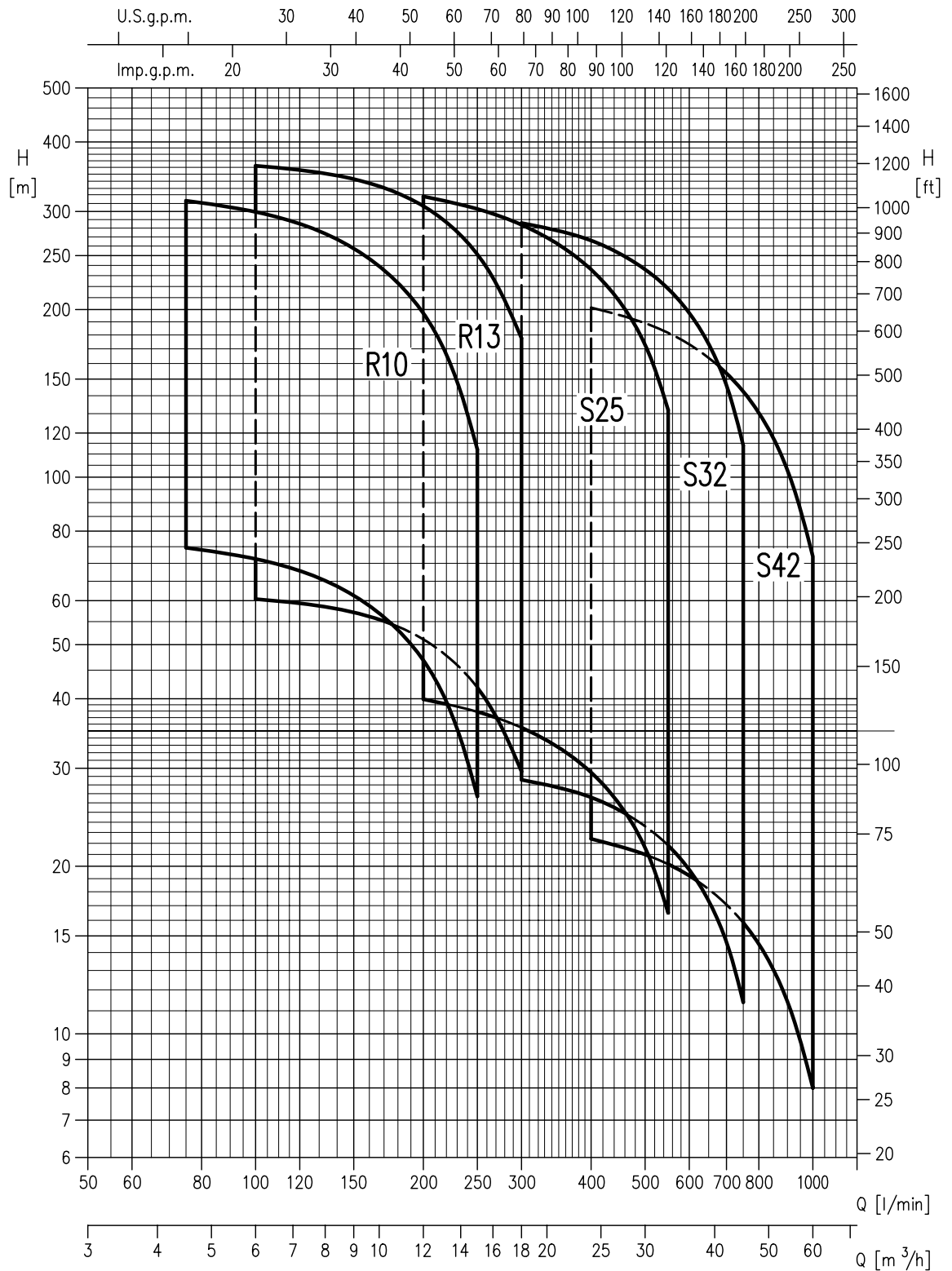
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SPECIFICATIONS

50Hz

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 - polyamide/rubber
Pipe connection	Suction	N/A
	Discharge	G 2 1/2 (R10 - R13) - G 3 (S25 - S32 - S42) UNI ISO 228
Material	Impeller	PPO mod. + G.F.
	Intermediate casing	PPO mod. + G.F.
	Suction casing	EN 1.4301 (AISI 304)
	Discharge casing	EN 1.4301 (AISI 304)
	Shaft	EN 1.4021 (AISI 420)
	Wear ring	EN 1.4301 (AISI 304)
	Valve	EN 1.4301 (AISI 304)
	Strain	EN 1.4301 (AISI 304)
Applicable standard of test		ISO 9906 Annex A

MOTOR				
Type	Submersible oil filled (type O)		Submersible water filled (type W)	
Size	4"	6"	4"	6"
Power rating [kW]	2.2÷5.5	7.5÷30	2.2÷5.5	7.5÷30
	Three phase			
No. of Poles	2			
Rated speed	Refer to each characteristic performance rotation speed as rated speed			
Insulation class	F		B	F
Protection degree	IP 58		IP 68	IP 58
Maximum immersion [m]	100		350	
Starts / hours	25		20	
Start type	Direct on line			
Frequency [Hz]	50 Hz			
Voltage [V]	400 (±10%)		400 (+6% -10%)	
Over load protection	User to provide			
Motor bracket	Brass	Cast iron with nickel plate	EN 1.4301 (AISI 304)	Cast iron with epoxy painted
Casing material	EN 1.4301 (AISI 304)			
Flange mount	NEMA			



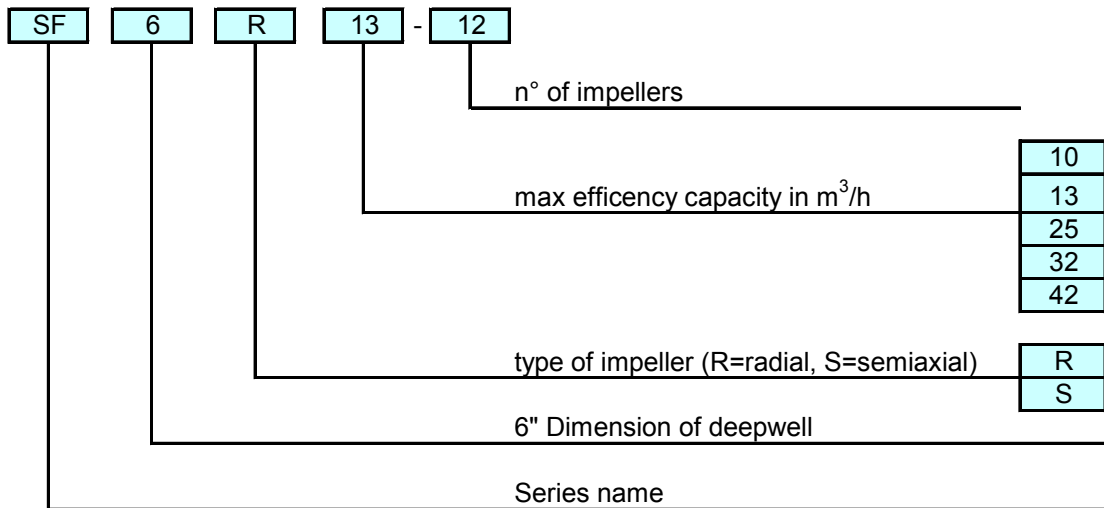
SELECTION CHART

50Hz

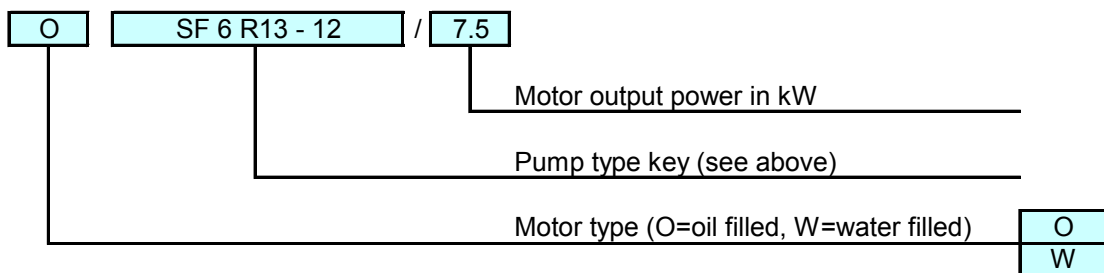
Pump Type	Motor size	kW	HP	l/min m ³ /h																
				0	75	100	150	200	250	300	400	500	550	600	700	750	800	900	1000	
				0	4.5	6	9	12	15	18	24	30	33	36	42	45	48	54	60	
R10 5	4"	2.2	3	81.5	74.5	71.5	61.5	47	26.5	-	-	-	-	-	-	-	-	-	-	
R10 6		3	4	97.5	89.5	85.5	73.5	56.5	32	-	-	-	-	-	-	-	-	-	-	
R10 7		4	5.5	114	105	100	86	65.5	37.5	-	-	-	-	-	-	-	-	-	-	
R10 8				130	119	114	98	75	42.5	-	-	-	-	-	-	-	-	-	-	-
R10 9		6"	7.5	10	147	134	128	110	84.5	48	-	-	-	-	-	-	-	-	-	-
R10 12					196	179	171	147	113	64	-	-	-	-	-	-	-	-	-	-
R10 15	244				224	214	184	141	80	-	-	-	-	-	-	-	-	-	-	-
R10 18	6"	9.2	12.5	293	269	257	221	169	96	-	-	-	-	-	-	-	-	-	-	
R10 21				342	314	300	258	197	112	-	-	-	-	-	-	-	-	-	-	-
R13 4	4"	2.2	3	62.5	-	60.5	57	51	42	29.5	-	-	-	-	-	-	-	-	-	
R13 5		3	4	78	-	75.5	71.5	64	52.5	37	-	-	-	-	-	-	-	-	-	
R13 6		4	5.5	93.5	-	90.5	85.5	76.5	63	44.5	-	-	-	-	-	-	-	-	-	-
R13 7		5.5	7.5	109	-	106	100	89.5	73.5	52	-	-	-	-	-	-	-	-	-	-
R13 8				125	-	121	114	102	84	59	-	-	-	-	-	-	-	-	-	-
R13 9		140	-	136	129	115	94	66.5	-	-	-	-	-	-	-	-	-	-	-	-
R13 12	6"	7.5	10	187	-	181	172	153	126	89	-	-	-	-	-	-	-	-	-	
R13 15		9.2	12.5	234	-	227	214	192	157	111	-	-	-	-	-	-	-	-	-	-
R13 18		11	15	281	-	272	257	230	189	133	-	-	-	-	-	-	-	-	-	-
R13 21		15	20	328	-	317	300	268	220	155	-	-	-	-	-	-	-	-	-	-
R13 24				374	-	362	343	307	251	178	-	-	-	-	-	-	-	-	-	-
S25 3		4"	3	4	46	-	-	-	40	38	35.5	29.5	21.5	16.5	-	-	-	-	-	-
S25 4	4		5.5	61	-	-	-	53	50.5	47.5	39.5	29	22	-	-	-	-	-	-	
S25 6	5.5		7.5	91.5	-	-	-	80	76	71	59	43	33	-	-	-	-	-	-	-
S25 8	6"	7.5	10	122	-	-	-	106	101	94.5	78.5	57.5	44	-	-	-	-	-	-	
S25 10		9.2	12.5	153	-	-	-	133	126	118	98.5	72	55	-	-	-	-	-	-	-
S25 12		11	15	183	-	-	-	160	152	142	118	86.5	66	-	-	-	-	-	-	-
S25 14		15	20	214	-	-	-	186	177	166	138	101	77	-	-	-	-	-	-	-
S25 16				244	-	-	-	213	202	189	157	115	88	-	-	-	-	-	-	-
S25 20		18.5	25	305	-	-	-	266	253	237	197	144	110	-	-	-	-	-	-	-
S25 24	22	30	366	-	-	-	319	303	284	236	173	132	-	-	-	-	-	-	-	
S32 2	4"	3	4	31.5	-	-	-	-	-	28.5	26.5	23.5	22	19.7	14.6	11.4	-	-	-	
S32 3		4	5.5	47	-	-	-	-	-	43	40	35.5	32.5	29.5	22	17.1	-	-	-	
S32 4		5.5	7.5	63	-	-	-	-	-	57	53	47	43.5	39.5	29	23	-	-	-	-
S32 5	6"	7.5	10	78.5	-	-	-	-	-	71.5	66.5	59	54.5	49.5	36.5	28.5	-	-	-	
S32 6		9.2	12.5	94	-	-	-	-	-	86	80	71	65.5	59	44	34	-	-	-	
S32 8		11	15	126	-	-	-	-	-	114	106	94.5	87	79	58.5	45.5	-	-	-	-
S32 9		15	20	141	-	-	-	-	-	129	120	106	98	88.5	65.7	51.5	-	-	-	-
S32 10				157	-	-	-	-	-	143	133	118	109	98.5	73	57	-	-	-	-
S32 12		18.5	25	188	-	-	-	-	-	172	160	142	131	118	87.5	68.5	-	-	-	-
S32 15	22	30	236	-	-	-	-	-	215	200	177	164	148	110	85.5	-	-	-	-	
S32 18	30	40	283	-	-	-	-	-	257	239	212	196	178	131	103	-	-	-	-	
S32 20			314	-	-	-	-	-	286	266	236	218	197	146	114	-	-	-	-	-
S42 2	4"	4	5.5	26	-	-	-	-	-	-	22.5	21	20	19.2	17.1	16	14.5	11.4	8	
S42 3		5.5	7.5	39.5	-	-	-	-	-	-	-	33.5	31.5	30	29	25.5	24	22	17.2	12
S42 4	6"	7.5	10	52.5	-	-	-	-	-	-	45	42	40	38.5	34	31.5	29	23	16	
S42 5		9.2	12.5	65.5	-	-	-	-	-	-	-	56	52.5	50	48	42.5	39.5	36.5	28.5	20
S42 6		11	15	78.5	-	-	-	-	-	-	-	67	63	60	57.5	51	47.5	43.5	34.5	24
S42 8		15	20	105	-	-	-	-	-	-	-	89.5	84	80	77	68	63.5	58	46	32
S42 9				118	-	-	-	-	-	-	-	-	101	94.5	90.5	86.5	77	71.5	65.5	51.5
S42 10		18.5	25	131	-	-	-	-	-	-	-	112	105	101	96	85.5	79	72.5	57	40
S42 12	22	30	157	-	-	-	-	-	-	-	134	126	121	115	102	95	87	68.5	48	
S42 15	30	40	197	-	-	-	-	-	-	-	168	158	152	144	128	119	109	86	60	
S42 18			236	-	-	-	-	-	-	-	-	202	189	181	173	154	143	131	103	72



TYPE KEY - pump without motor



TYPE KEY - pump with motor



PERFORMANCE CURVES

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

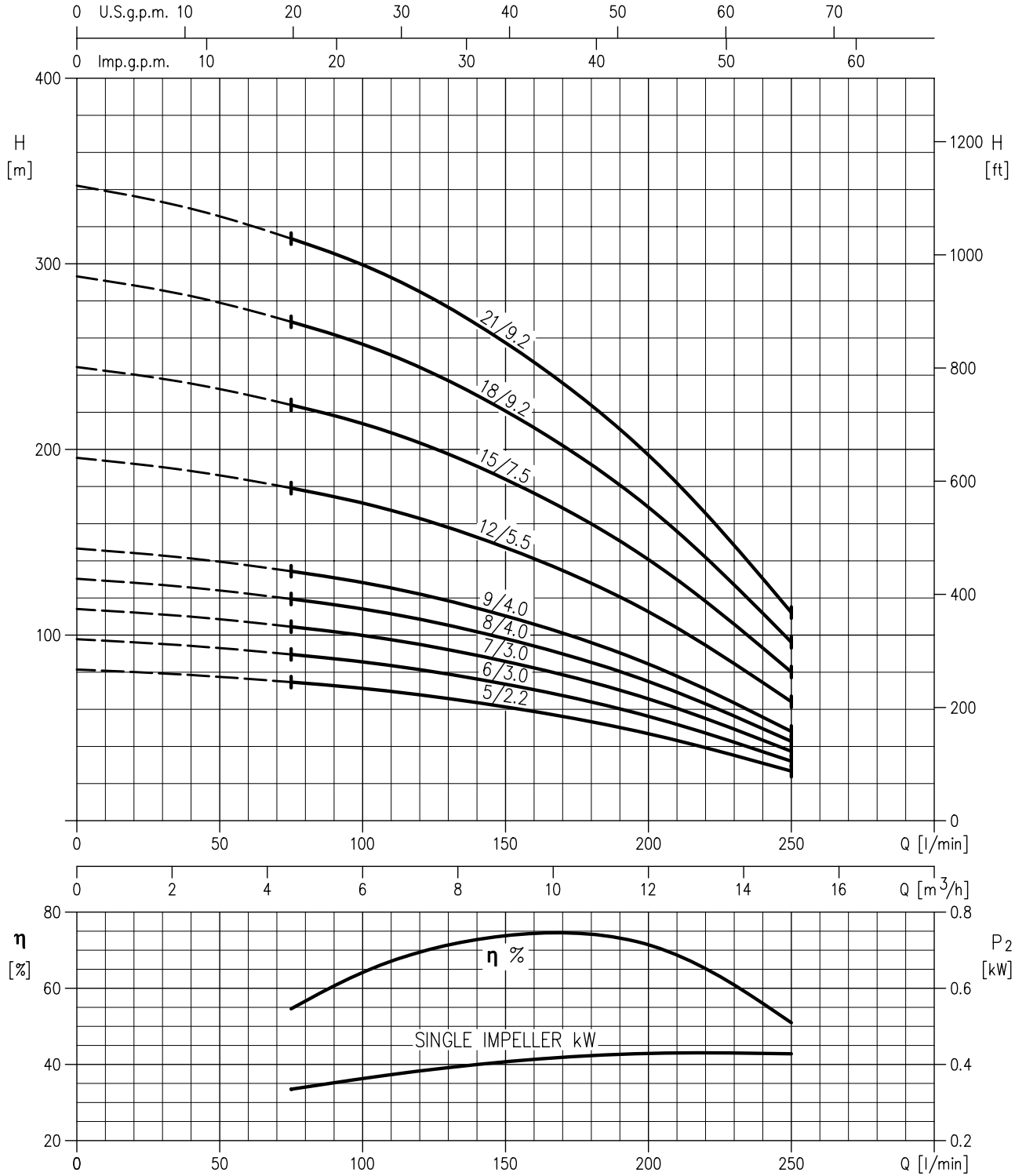
- ◆ Tolerances according to ISO 9906 Annex A
- ◆ The curves refer to effective speed of asynchronous motors at 50 Hz
- ◆ Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt)
- ◆ The continuous curves indicate the 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
 - P₂ = pump power input (shaft power)
 - η = pump efficiency

PERFORMANCE CURVE

50 Hz

SF6 R10

Impeller diameter = 118 mm



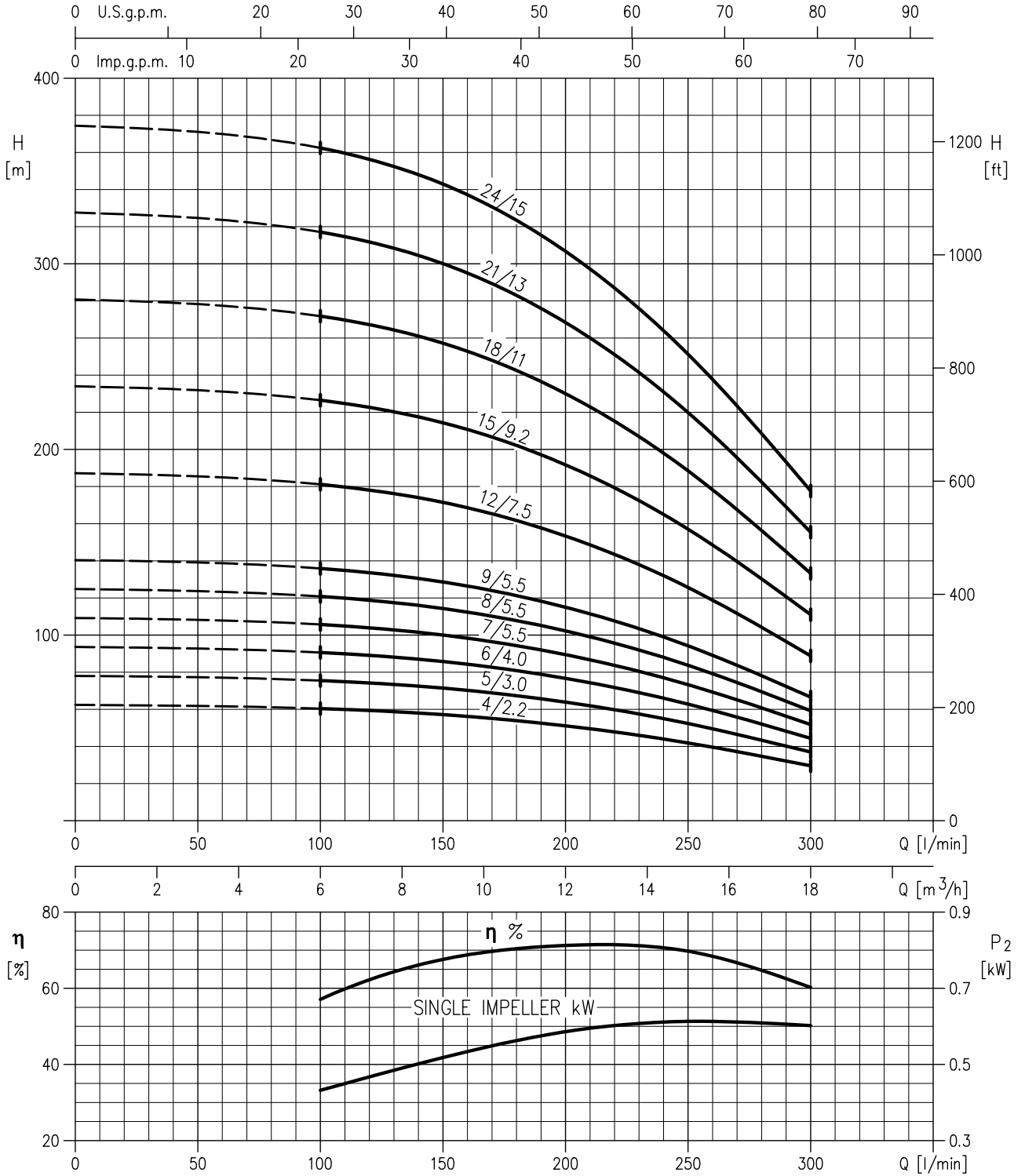
Rotation speed $\approx 2850 \text{ min}^{-1}$
 Applicable standard of test : ISO 9906 Annex A

PERFORMANCE CURVE

50 Hz

SF6 R13

Impeller diameter = 117 mm



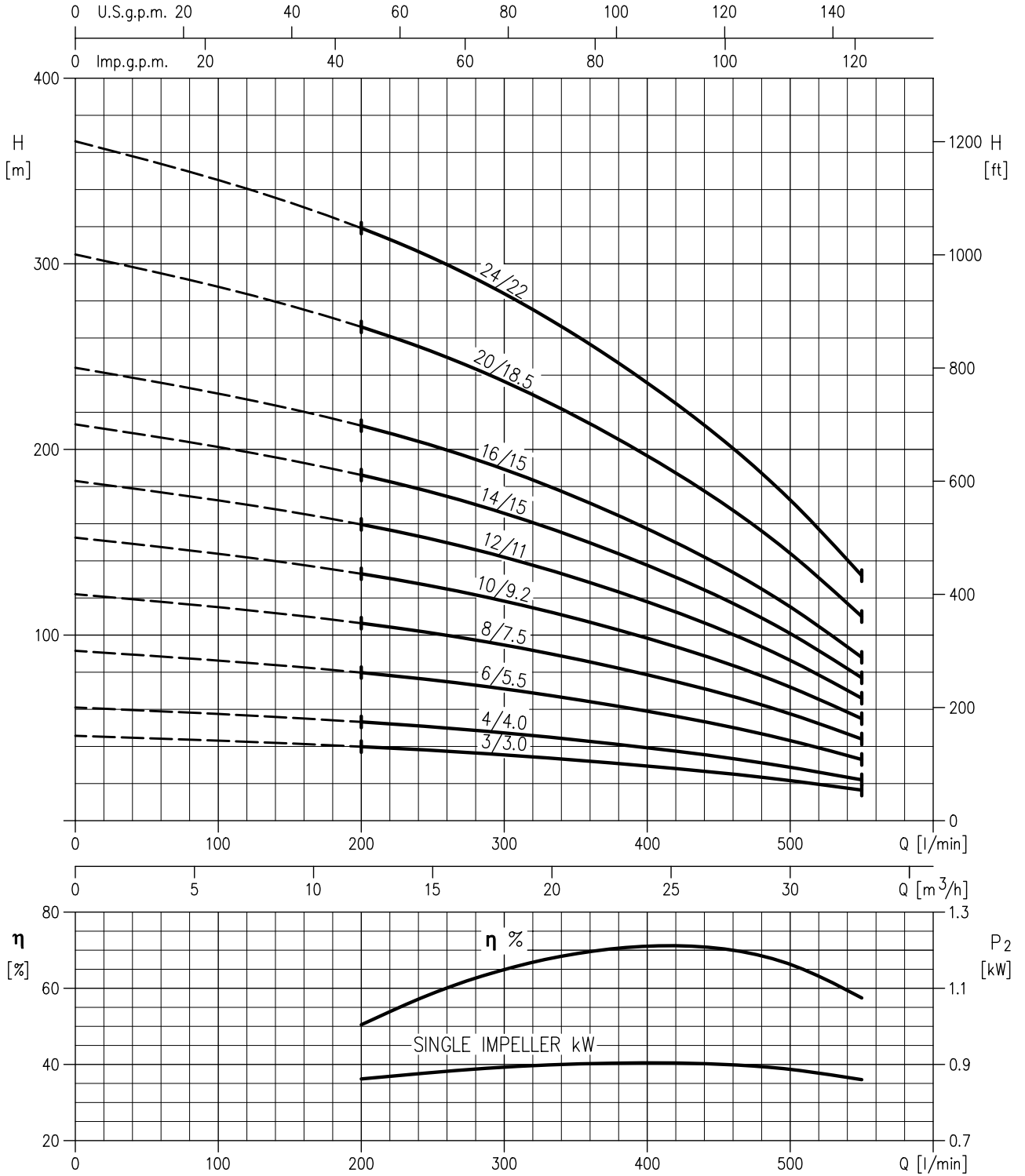
Rotation speed ≈ 2850 min⁻¹
 Applicable standard of test : ISO 9906 Annex A

PERFORMANCE CURVE

50 Hz

SF6 S25

Impeller diameter = 111.5 mm



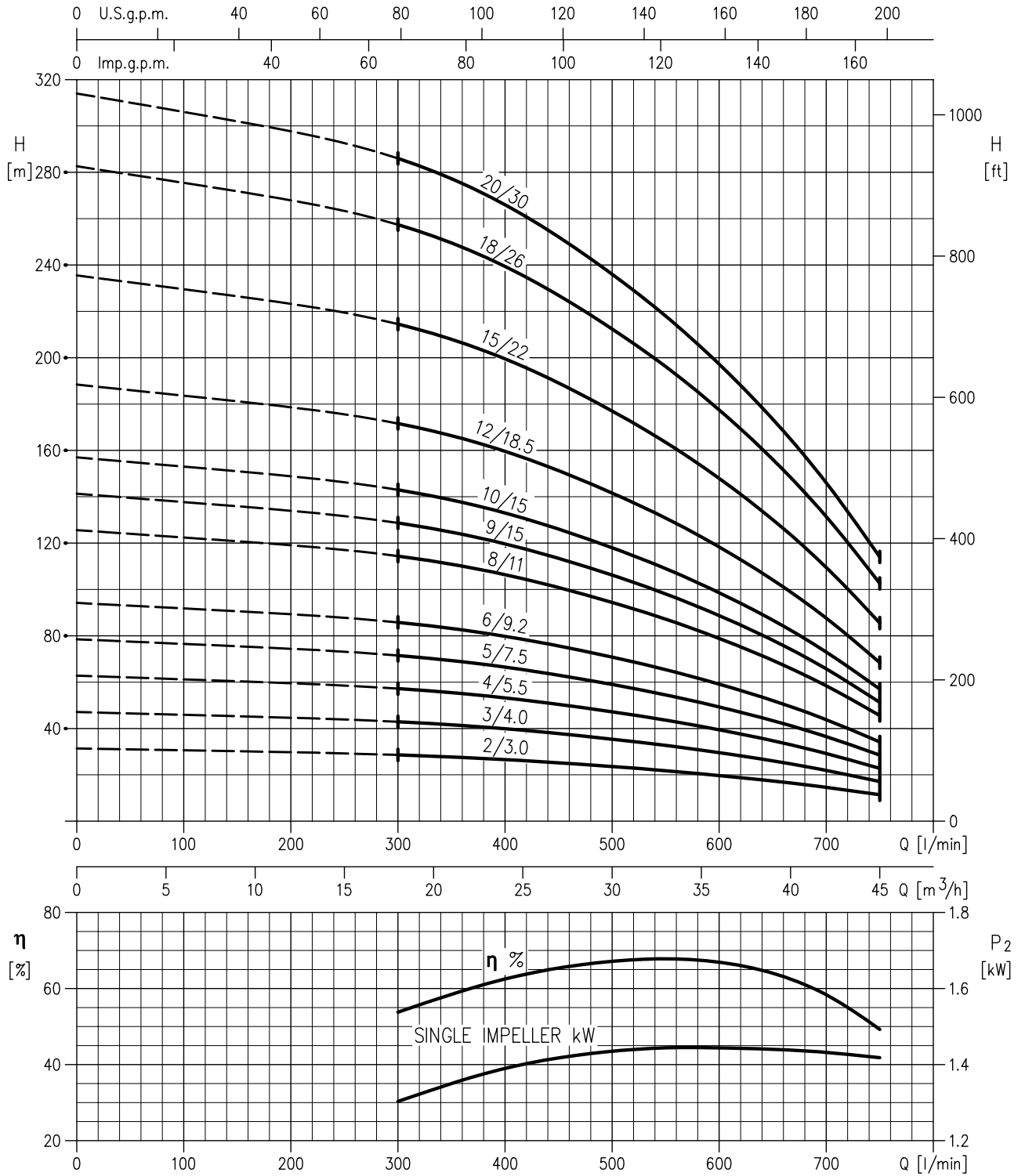
Rotation speed ≈ 2850 min⁻¹
 Applicable standard of test : ISO 9906 Annex A

PERFORMANCE CURVE

50 Hz

SF6 S32

Impeller diameter = 113.7 mm



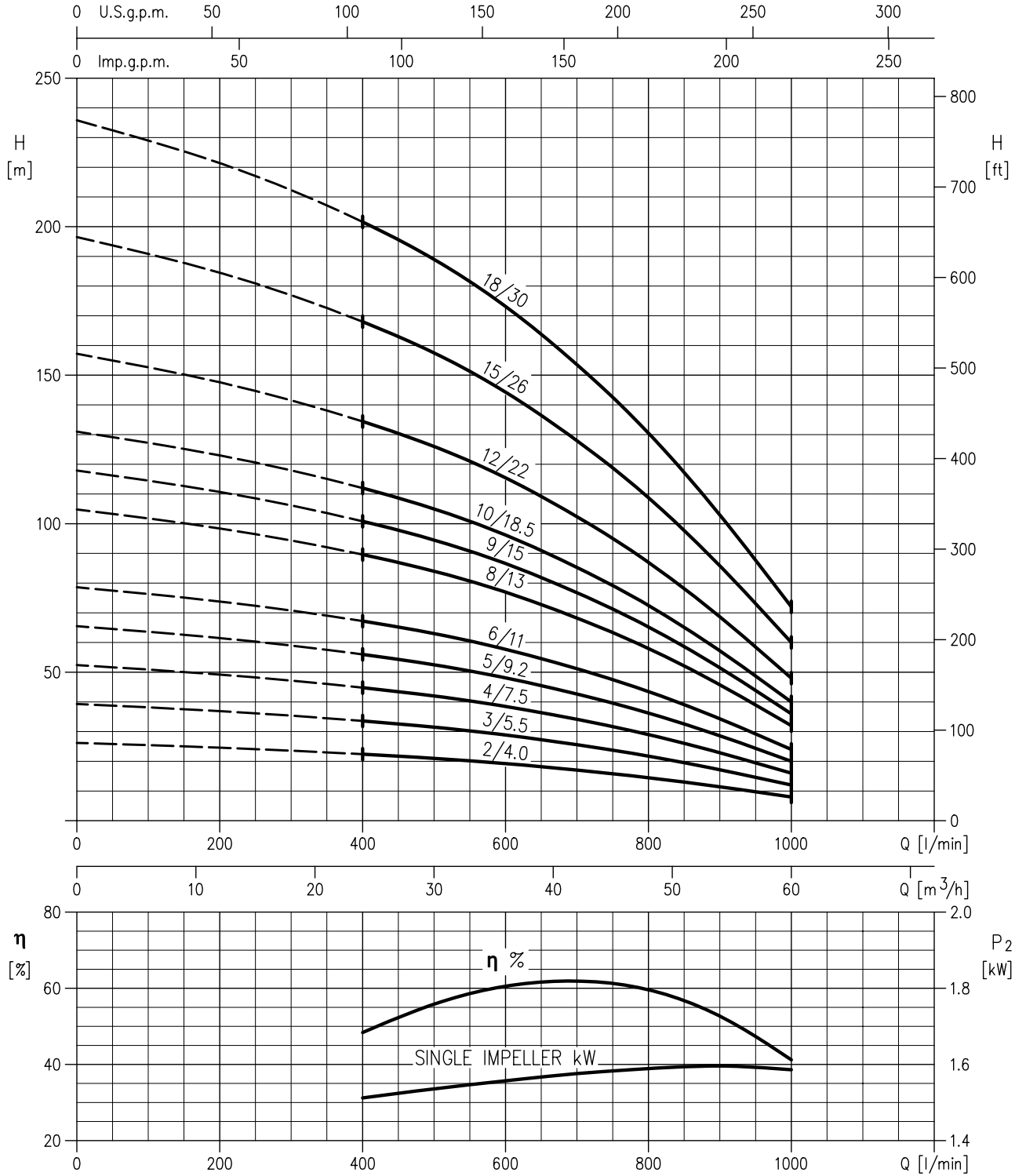
Rotation speed $\approx 2850 \text{ min}^{-1}$
 Applicable standard of test : ISO 9906 Annex A

PERFORMANCE CURVE

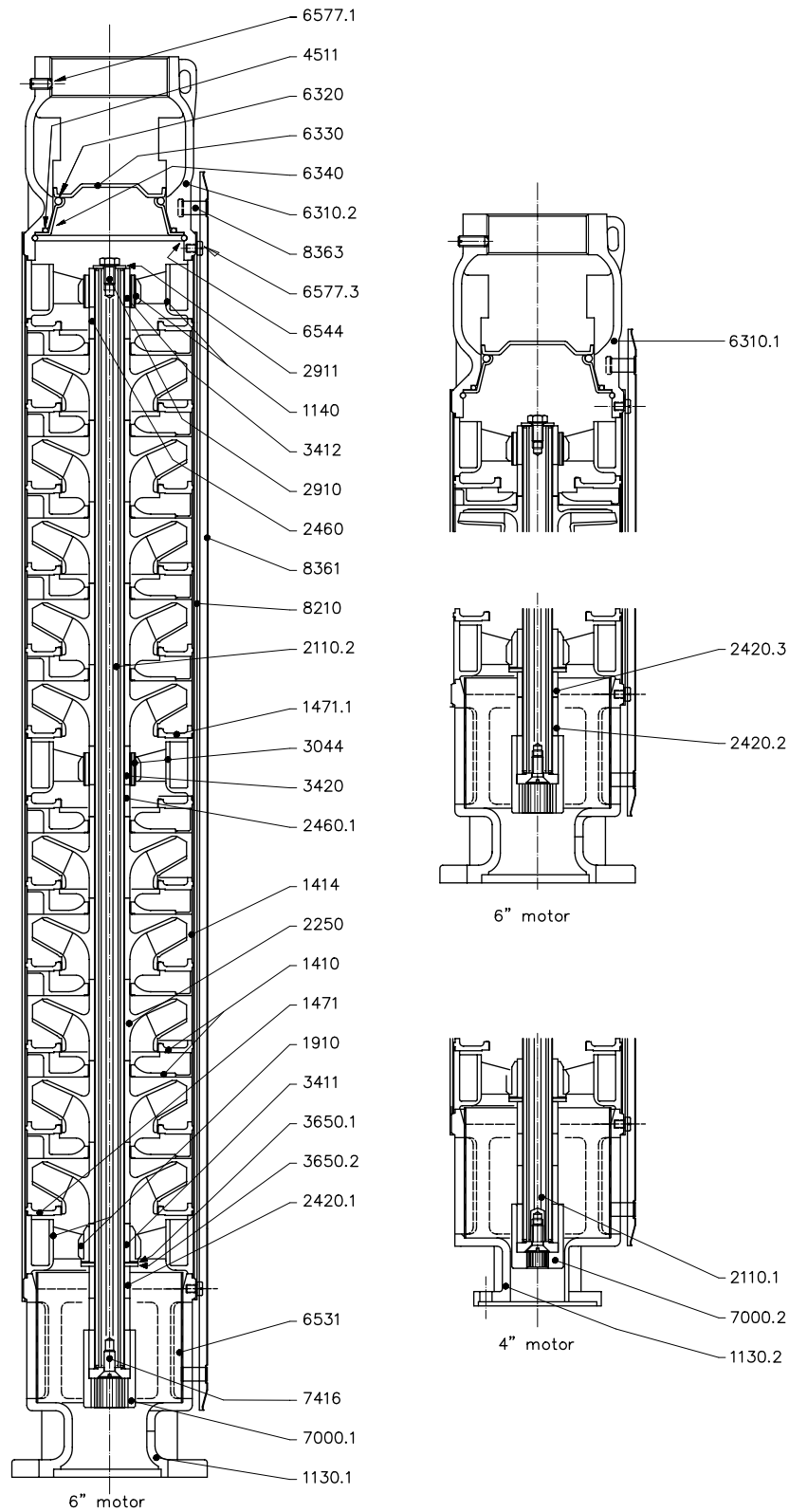
50 Hz

SF6 S42

Impeller diameter = 114 mm



Rotation speed ≈ 2850 min⁻¹
 Applicable standard of test : ISO 9906 Annex A



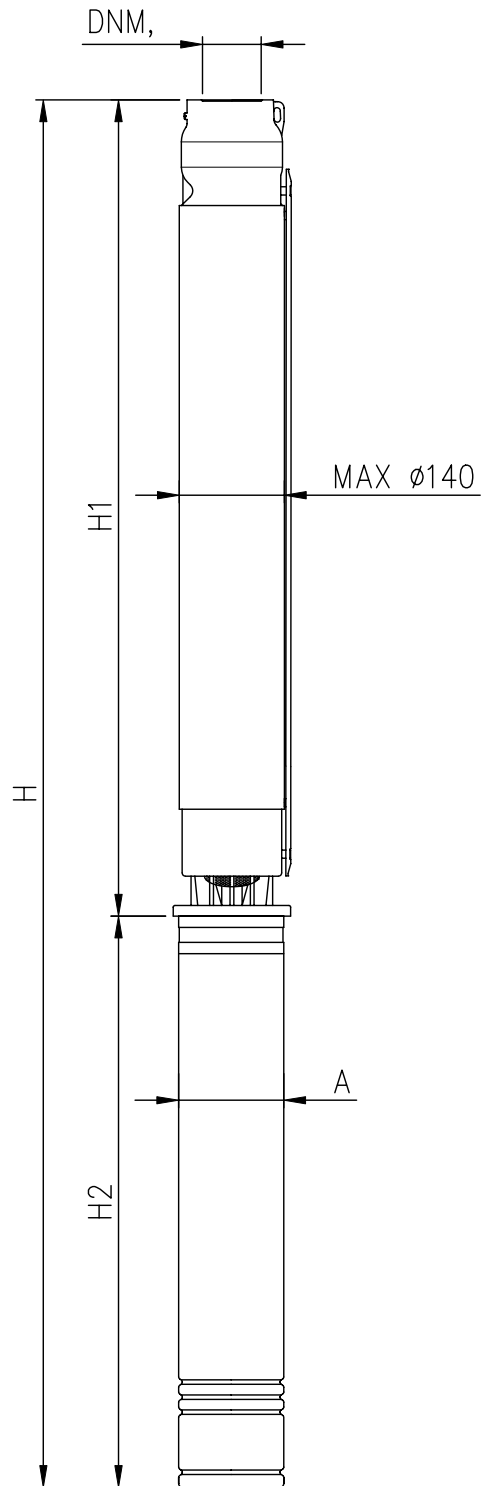
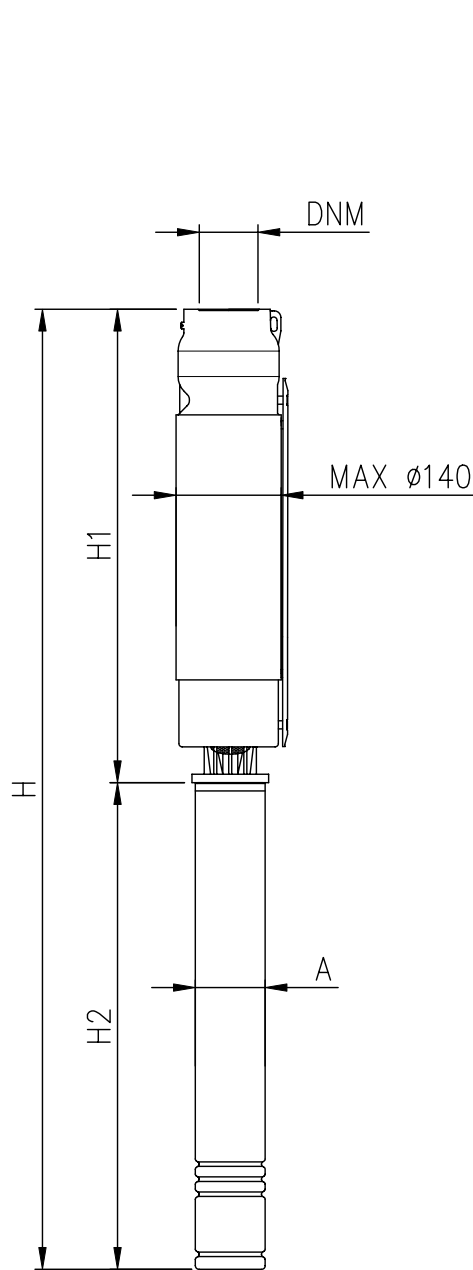
CONSTRUCTIONS

50 Hz

Pos.	Part.name	Material
1130.1	Suction casing 6"	EN 1.4301 (AISI 304)
1130.2	Suction casing 4"	EN 1.4301 (AISI 304)
1140	Upper bearing support + rubber bearing	(PPO mod.+ G.F.) and NBR
1410	Diffuser	(PPO mod.+ G.F.) + EN 1.4301 (AISI 304)
1414	Diffuser casing	EN 1.4301 (AISI 304)
1471	Suction disc	(PPO mod.+ G.F.) + EN 1.4301 (AISI 304)
1471.1	Suction disc	(PPO mod.+ G.F.) + EN 1.4301 (AISI 304)
1910	Lower bearing support + PA bearing	(PPO mod.+ G.F.) + Polyamide
2110.1	Pump shaft 4"	EN 1.4021 (AISI 420)
2110.2	Pump shaft 6"	EN 1.4021 (AISI 420)
2250	Impeller	PPO mod.+ G.F.
2420.1	Shaft sleeve	PPO mod.+ G.F.
2420.2	Shaft sleeve	PPO mod.+ G.F.
2420.3	Shaft sleeve	PPO mod.+ G.F.
2460	Shaft sleeve	PPO mod.+ G.F.
2460.1	Spacer sleeve	PPO mod.+ G.F.
2910	Screw	EN 1.4301 (AISI 304)
2911	Washer	EN 1.4301 (AISI 304)
3044	Intermediate bearing support + rubber bearing	(PPO mod.+ G.F.) and NBR
3411	Lower bearing sleeve	EN 1.4401 (AISI 316L) +ceramic coating
3412	Upper bearing sleeve	EN 1.4401 (AISI 316L) +ceramic coating
3420	Intermediate bearing sleeve	EN 1.4401 (AISI 316L) +ceramic coating
3650.1	Thrust bearing - washer	Low friction RULON W2
3650.2	Thrust bearing - plate	EN 1.4301 (AISI 304)
4511	O-Ring	NBR
6310.1	Discharge casing (G 2 1/2)	EN 1.4301 (AISI 304)
6310.2	Discharge casing (G 3)	EN 1.4301 (AISI 304)
6320	O-Ring	NBR
6330	Valve plate	EN 1.4301 (AISI 304)
6340	Valve seat	EN 1.4301 (AISI 304)
6531	Strainer	EN 1.4301 (AISI 304)
6544	Split ring	EN 1.4301 (AISI 304)
6577.1	Set screw	EN 1.4301 (AISI 304)
6577.3	Screw	EN 1.4301 (AISI 304)
7000.1	Coupling (with screw)	EN 1.4105 (AISI 430F)
7000.2	Coupling (with screw)	EN 1.4105 (AISI 430F)
7416	Screw	EN 1.4301 (AISI 304)
8210	Pump casing	EN 1.4301 (AISI 304)
8361	Cable guard	EN 1.4301 (AISI 304)
8363	Cable guard hook	EN 1.4301 (AISI 304)

PUMP WITH 4" MOTOR VERSION

PUMP WITH 6" MOTOR VERSION



SUBMERSIBLE PUMPS

SF6

DIMENSIONS

50Hz

Pump type	POWER		Pump without motor			Motor size	Pump with water motor filled				Pump with oil motor filled				
	kW	HP	DNM	H1 [mm]	Weight (Kgf)		A [mm]	H2 [mm]	H [mm]	Weight (Kgf)	A [mm]	H2 [mm]	H [mm]	Weight (Kgf)	
R10 5/2.2	2,2	3	G 2 1/2	478	9,8	4"	95,3	353,5	831,5	26	93	417,5	895,5	24	
R10 6/3.0	3	4		516	10,4			420,5	936,5	29,5		577,5	1093,5	29,5	
R10 7/3.0				554	11			974,5	30	1131,5			30		
R10 8/4.0	4	5,5		592	11,8			580,5	1172,5	36		647,5	1169,5	32,5	
R10 9/4.0				630	12,4				1210,5	36,5			1207,5	33	
R10 12/5.5	5,5	7,5		744	14,3			695,5	1439,5	43,5		647,5	1391,5	37	
R10 15/7.5	7,5	10		858	16,3			647	1505	61,5		140	600	1458	58,5
R10 18/9.2	9,2	12,5		972	18,2			679	1651	65,5			600	1572	63,5
R10 21/9.2				1086	22,5				1765	69,5			1686	67,5	
R13 4/2.2	2,2	3	440	9,1	4"	95,3	353,5	793,5	25,5	93	417,5	857,5	23,5		
R13 5/3.0	3	4	478	9,8			420,5	898,5	29		577,5	1055,5	29		
R13 6/4.0	4	5,5	516	10,4			580,5	1096,5	34,5			647,5	1093,5	31	
R13 7/5.5	5,5	7,5	554	11			695,5	1249,5	40		760		1201,5	33,5	
R13 8/5.5			592	11,7				1287,5	41			1239,5	34,5		
R13 9/5.5			630	12,4				1325,5	41,5			1277,5	35		
R13 12/7.5	7,5	10	744	14,2			647	1391	59,5		140	600	1344	56,5	
R13 15/9.2	9,2	12,5	858	16,2			679	1537	63,5			600	1458	61,5	
R13 18/11	11	15	972	18,1			712	1684	68,5			700	1672	66,5	
R13 21/13	15	20	1086	22,5	777	1863	78,5	760	1846	76,5					
R13 24/15			1200	24		1977	80		1960	78					
S25 3/3.0	3	4	459	9,2	4"	95,3	420,5	879,5	28	93	577,5	1036,5	28,5		
S25 4/4.0	4	5,5	516	10,1			580,5	1096,5	33,5		647,5	1093,5	31		
S25 6/5.5	5,5	7,5	630	11,9			695,5	1325,5	41			647,5	1277,5	34,5	
S25 8/7.5	7,5	10	744	13,6			647	1391	59		600	1344	56		
S25 10/9.2	9,2	12,5	858	15,5			679	1537	62,5			600	1458	60,5	
S25 12/11	11	15	972	17,3			712	1684	67,5			700	1672	65,5	
S25 14/15	15	20	1086	19,1			777	1863	75,5		760	1846	73,5		
S25 16/15			1200	21				1977	77			1960	75		
S25 20/18.5	18,5	25	1480	27,5			842	2322	90,5		830	2310	92,5		
S25 24/22	22	30	1708	31,5	907	2615	101	890	2598	102					
S32 2/3.0	3	4	408	8,5	4"	95,3	420,5	828,5	27,5	93	577,5	985,5	27,5		
S32 3/4.0	4	5,5	468	9,4			580,5	1048,5	33,5		647,5	1045,5	30		
S32 4/5.5	5,5	7,5	528	10,2			695,5	1223,5	39,5			647,5	1175,5	33	
S32 5/7.5	7,5	10	588	11,2			647	1235	56,5		600	1188	53,5		
S32 6/9.2	9,2	12,5	648	12,1			679	1327	59,5			600	1248	57,5	
S32 8/11	11	15	768	13,9			712	1480	64			700	1468	62	
S32 9/15	15	20	828	15			777	1605	71		760	1588	69		
S32 10/15			888	15,8				1665	72			1648	70		
S32 12/18.5	18,5	25	1008	17,7			842	1850	81		830	1838	83		
S32 15/22	22	30	1188	20,5	907	2095	90	890	2078	91					
S32 18/26	30	40	1420	26,5	1037	2457	110	1037	2457	117					
S32 20/30			1540	28,5		2577	112		2577	119					
S42 2/4.0	4	5,5	408	8,4	4"	95,3	580,5	988,5	32,5	93	577,5	985,5	29		
S42 3/5.5	5,5	7,5	468	9,3			695,5	1163,5	38,5		647,5	1115,5	32		
S42 4/7.5	7,5	10	528	10,1			647	1175	55,5			600	1128	52,5	
S42 5/9.2	9,2	12,5	588	11,1			679	1267	58,5		600		1188	56,5	
S42 6/11	11	15	648	12			712	1360	62		700		1348	60	
S42 8/13	15	20	768	13,8			777	1545	70		760	1528	68		
S42 9/15			828	14,8				1605	71			1588	69		
S42 10/18.5	18,5	25	888	15,7			842	1730	79		830	1718	81		
S42 12/22	22	30	1008	17,8			907	1915	87		890	1898	88		
S42 15/26	30	40	1188	20,5	1037	2225	104	1030	2218	111					
S42 18/30			1420	26,5		2457	110		2450	117					

OIL FILLED MOTOR

	Output [kW]	HP	Input [kW]	Volt	IN [A]	IA [A]	Efficiency [%]	Power factor
4"	2.2	3	2.82	400V	6	24	78	0.7
	3	4	3.89		7.9	34	77	0.75
	4	5.5	5.06		10	47	79	0.77
	5.5	7.5	7.24		14.4	58	76	0.79
6"	7.5	10	9.62		17.5	96.3	78	0.85
	9.2	12.5	11.50		21	105	80	0.82
	11	15	13.25		24.1	123	83	0.83
	15	20	18.29		31.5	164	82	0.88
	18.5	25	22.56		41.5	208	82	0.85
	22	30	26.51		48	216	83	0.86
	30	40	34.88		62	310	86	0.86

WATER FILLED MOTOR

	Output [kW]	HP	Input [kW]	Volt	IN [A]	IA [A]	Efficiency [%]	Power factor
4"	2.2	3	2.93	400V	5.9	28.9	75	0.75
	3	4	3.95		7.8	41.6	76	0.75
	4	5.5	5.1		10	58	78	0.78
	5.5	7.5	7.23		13.7	76	76	0.79
6"	7.5	10	9.49		16	83	79	0.86
	9.2	12.5	11.35		20.7	112	81	0.8
	11	15	13.58		23.3	129	81	0.85
	15	20	18.52		31.3	169	81	0.85
	18.5	25	22.56		38.5	231	82	0.85
	22	30	26.51		45.3	268	83	0.86
	30	40	36.14		63.5	393	83	0.84

EXAMPLE : MOTOR 4 kW 380 V CABLE LENGTH 70 m - 4x2,5 mm²

OIL FILLED MOTOR

THREE PHASE MOTOR 400 V DIRECT STARTING			CABLE TYPE AND MAXIMUM LENGTH (*)								
SIZE	kW	HP	4x1	4x1,5	4x2,5	4x4	4x6	4x10	4x16	4x25	4x35
4"	2.2	3	51	78	130	207	310	516	-	-	-
	3	4	41	62	104	167	250	416	-	-	-
	4	5.5	31	46	77	124	186	310	496	-	-
	5.5	7.5	-	33	56	90	135	225	360	-	-
6"	7.5	10	-	-	53	84	126	207	325	-	-
	9.2	12.5	-	-	44	70	104	171	267	413	-
	11	15	-	-	-	59	87	144	223	347	-
	15	20	-	-	-	-	65	107	167	258	350
	18.5	25	-	-	-	-	-	87	136	210	295
	22	30	-	-	-	-	-	75	117	181	246
	30	40	-	-	-	-	-	-	110	170	235

WATER FILLED MOTOR

THREE PHASE MOTOR 400 V DIRECT STARTING			CABLE TYPE AND MAXIMUM LENGTH (*)								
SIZE	kW	HP	4x1	4x1,5	4x2,5	4x4	4x6	4x10	4x16	4x25	4x35
4"	2.2	3	53	81	134	214	321	534	-	-	-
	3	4	43	65	110	176	263	438	-	-	-
	4	5.5	32	47	79	127	190	316	506	-	-
	5.5	7.5	-	35	60	96	144	240	384	-	-
6"	7.5	10	-	-	60	96	138	228	354	-	-
	9.2	12.5	-	-	48	70	120	192	306	468	-
	11	15	-	-	-	66	102	162	258	396	-
	15	20	-	-	-	-	72	126	192	294	402
	18.5	25	-	-	-	-	60	102	156	240	330
	22	30	-	-	-	-	-	84	132	204	276
	30	40	-	-	-	-	-	-	102	156	210

(*) 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 following formula:

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