



Experts in water.

DAVEY

APPLICATIONS

- Water supply
- Turf watering
- Irrigation
- Mine dewatering
- Water treatment



6" Stainless Steel Submersible Borehole Pumps

Model Numbers: SS Series

6" stainless steel submersible borehole pump manufactured from corrosion and abrasion resistant stainless steel. Close coupled to Nema standard submersible electric motor. Designed for flow rates to 80m³/hr, 1,333 lpm from standard 6" ID bore casing.

WHY CHOOSE DAVEY 6" STAINLESS STEEL SUBMERSIBLE BOREHOLE PUMPS?

Advanced stainless steel manufacturing technology

State of the art stainless steel construction

Complete 304SS hydraulic design

- High efficiency pump design
- Flexible stage construction
- Unique sand handling capabilities

High efficiency impeller design

Radial flow impeller for 19 & 30m³/hr models

Axial flow impeller for 46 & 65m³/hr models

- Maximum efficiency
- Reduced power consumption
- Maximum performance from 6" ID bore

Silicon carbide sleeve running in a fluted nitrile bearing

- Wear resistant for longer pump life
- Unique sand handling design

Check valve assembly incorporated into discharge head

Stainless steel up thrust washer

- Pump & motor protection
- Horizontal or vertical operation

Hexagonal shaft design

Single outer casing

Flexible stage design

- Maximum pump strength
- Maximum operating pressure
- Matched pump performance
- Easy to install & service

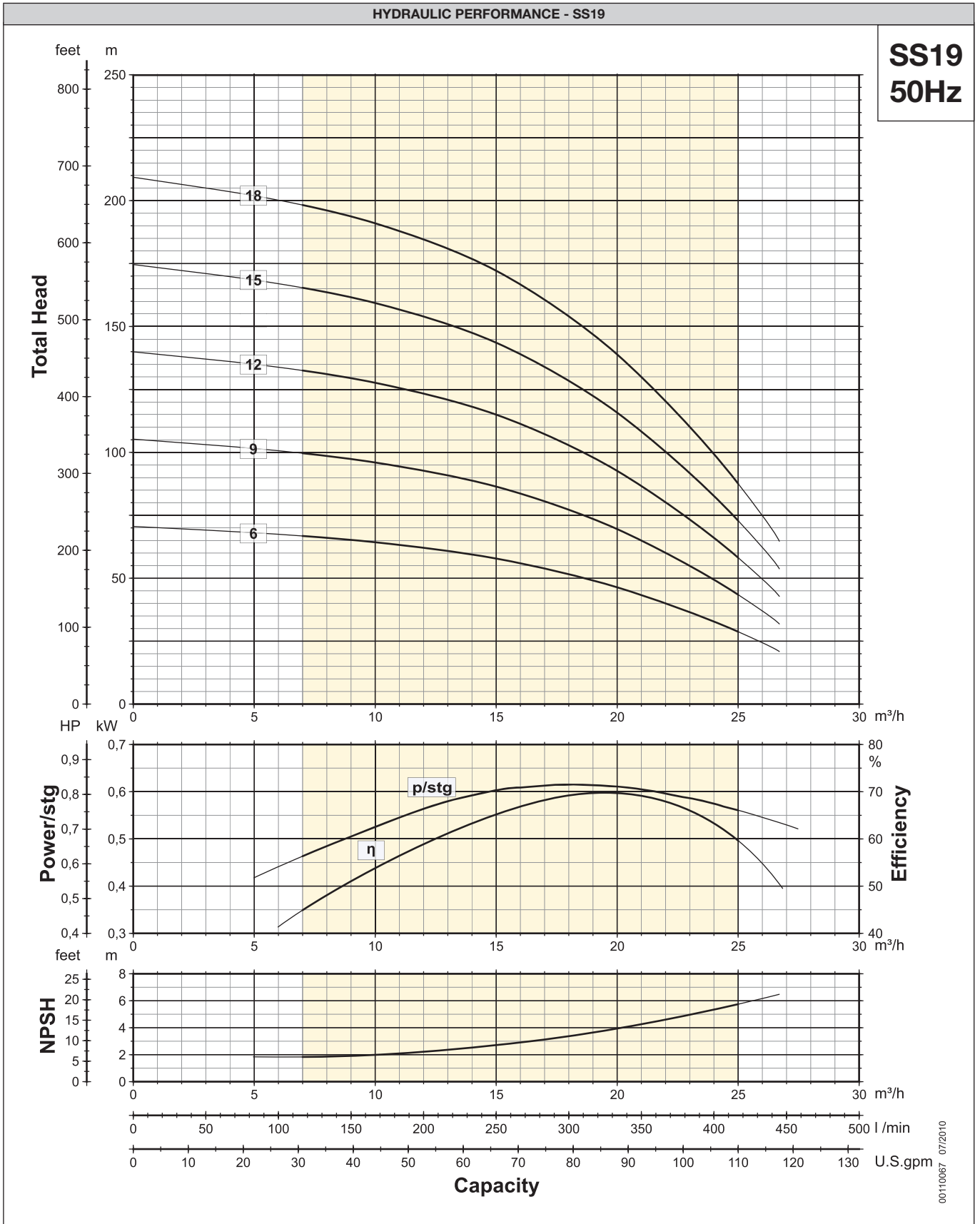


MATERIALS OF CONSTRUCTION	
Part	Material
Outer case with motor adapter	304 stainless steel
Discharge head with built-in check valve	304 stainless steel
Sealing o-ring	Nitrile rubber
Pump shaft	431 stainless steel
Coupling to motor	431 / 329 stainless steel
Diffuser	304 stainless steel
Floating neck ring	Teflon (PTFE)
Secondary bearing bush	Nitrile
Impeller	304 stainless steel
Cable guard	316 stainless steel
Suction strainer	316 stainless steel
Outer case locking nuts	316 stainless steel
Up-thrust washer	316 stainless steel
Screws and washers	316 stainless steel

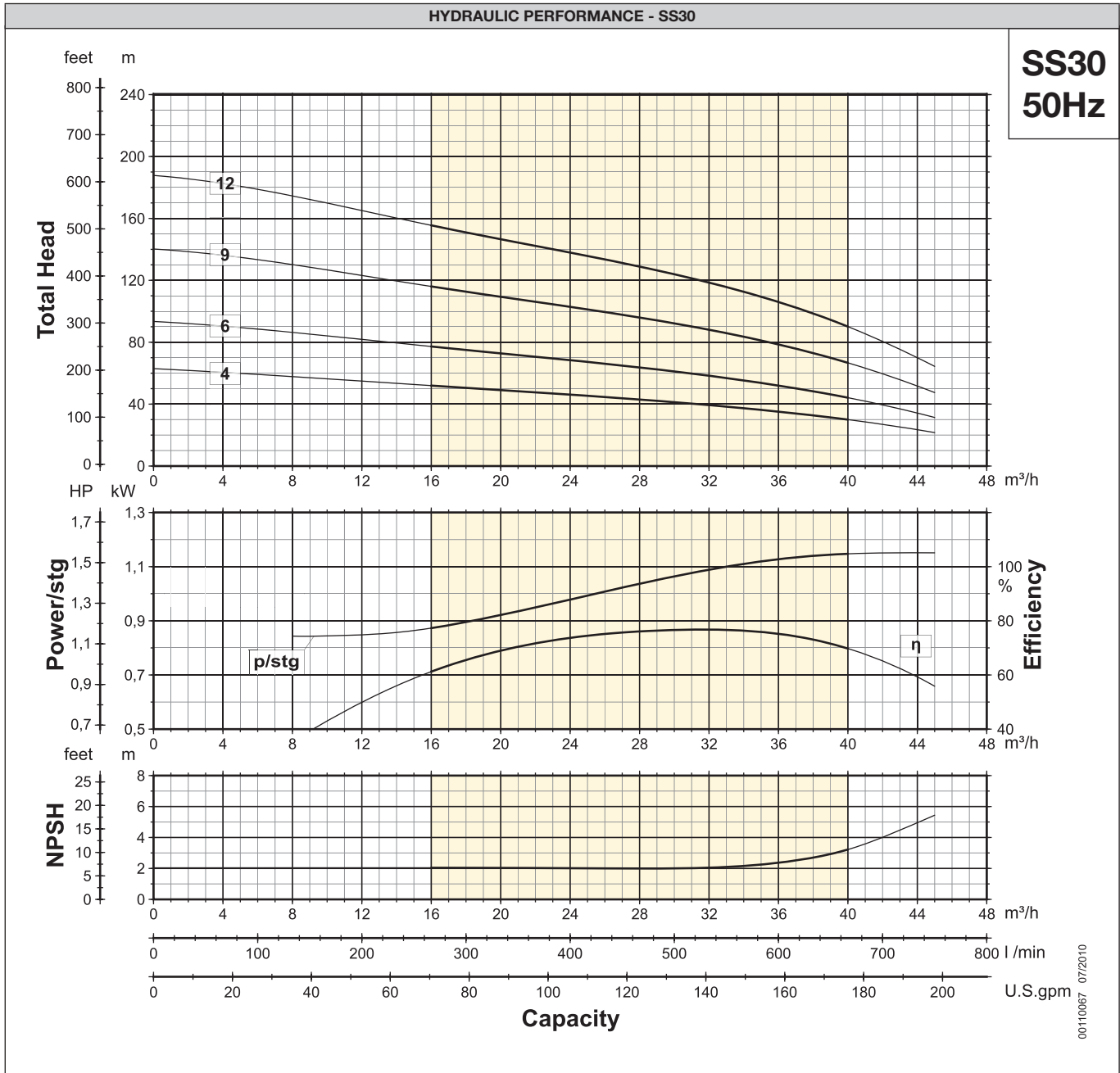
OPERATING LIMITS	
Capacity to	80m ³ /hr 1330 lpm
Maximum total head	210m
Maximum allowable sand content	50g/m ³
Water temperature	10 to 50°C
Motor	4kW to 22kW
Maximum diameter	143m with standard motor
	Rotation counter clockwise when looking into discharge
Vertical mounting	Standard
Horizontal mounting	4": up to 5.5kW
	6": up to 15kW
Maximum starts per hour	30

DIMENSIONS										
Pump Model	Motors Power (kW)	Pump Discharge (B.S.P)	Pump Diameter (mm)	Motor Diameter (mm)	Pump Length (mm)	Pump Weight (kg)	Motor Length (mm)	Motor Weight (kg)	Pump Unit Length (mm)	Pump Unit Weight (kg)
SS19-06	4	2½"	143	96	495	60.5	468	15.3	963	75.8
SS19-09	5.5	2½"	143	96	607.5	63	538	18.6	1145.5	81.6
SS19-12	7.5	2½"	143	96	720	67.5	810	27	1530	94.5
SS19-15	9.3	2½"	143	139	832.5	73	598	39	1430.5	112
SS19-18	7.5	2½"	143	139	945	78.5	698	42	1643	120.5
SS30-04	5.5	3"	143	96	705.5	65	538	18.6	1243.5	83.6
SS30-06	7.5	3"	143	96	876	71	810	27	1686	98
SS30-09	11	3"	143	139	1132.5	83.5	698	42	1830.5	125.5
SS30-12	15	3"	143	139	1389	99.5	758	48	2147	147.5
SS46-04	5.5	3"	143	96	819.5	67	538	18.6	1357.5	85.6
SS46-05	7.5	3"	143	96	933.5	71.5	810	27	1743.5	98.5
SS46-08	11	3"	143	139	1275	85	698	42	1973	127
SS46-11	15	3"	143	139	1617	103	758	48	2375	151
SS46-14	18.5	3"	143	139	1958.5	115	834	65	2792.5	180
SS65-03	5.5	3"	143	96	705.5	64	538	18.6	1243.5	82.6
SS65-04	7.5	3"	143	96	819.5	69	810	27	1629.5	96
SS65-06	11	3"	143	139	1047	80	698	42	1745	122
SS65-09	15	3"	143	139	1389	98	758	48	2147	146
SS65-11	18.5	3"	143	139	1617	107	834	65	2451	172
SS65-13	22	3"	143	139	1844.5	121.5	894	70	2738.5	191.5

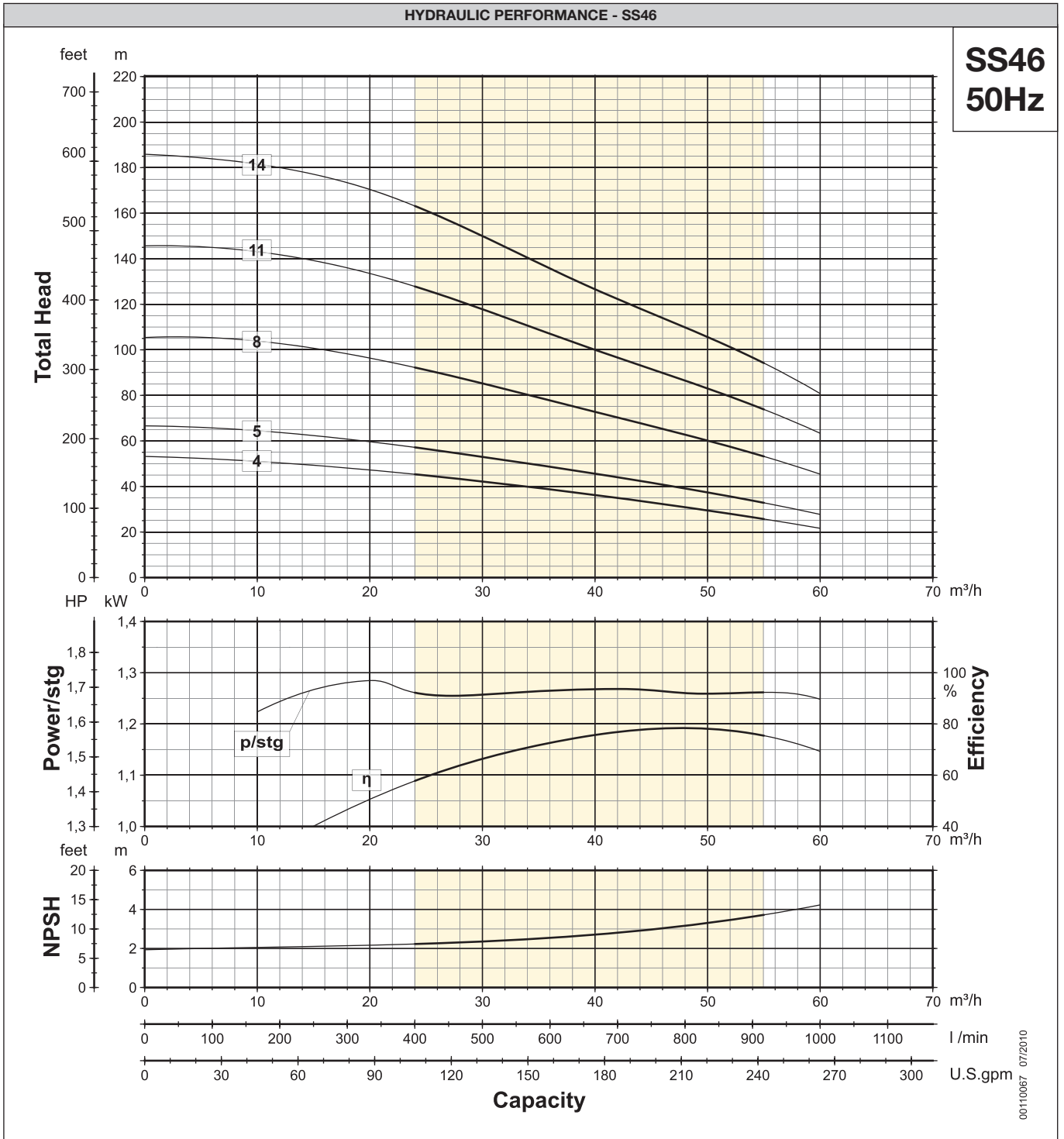




Performance characteristics are guaranteed to AS2417-2001 Annex A / ISO 9906 Annex A.



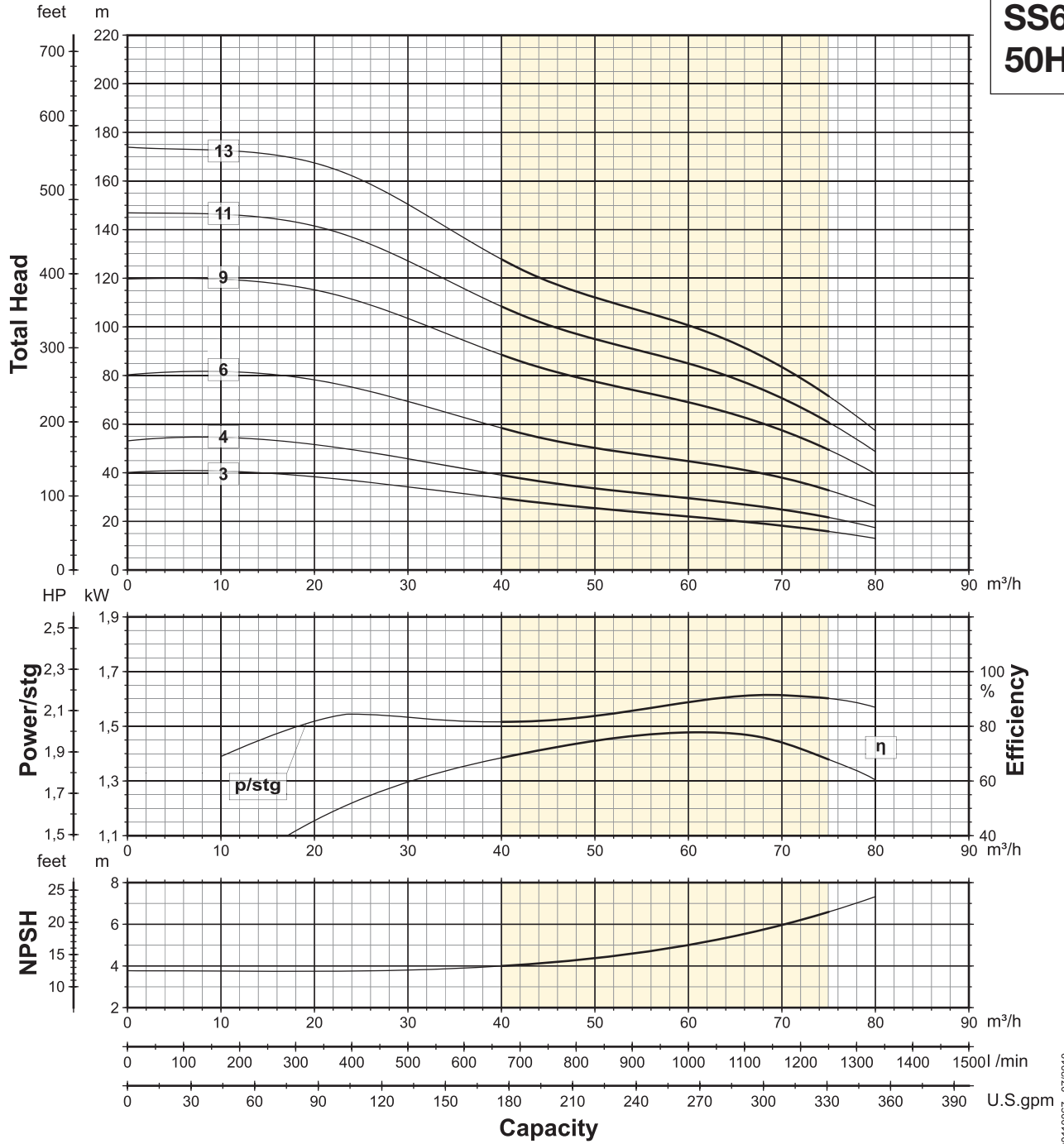
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HYDRAULIC PERFORMANCE - SS65

**SS65
50Hz**



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Performance characteristics are guaranteed to AS2417-2001 Annex A / ISO 9906 Annex A.

DAVEY MOTOR SPECIFICATIONS – 415V, 50HZ, 3Ø

Motor Model	Motor Size kW	Motor Diameter		Thrust N	Mechanical Seal	Weight kg	Length mm	Cable m
		Nom	mm					
DM3400	4	4"	96	2500	Hard Face SiC/Al	15.3	468	2.5
DM3550	5.5	4"	96	2500	Hard Face SiC/Al	18.6	538	3
DM3750	7.5	4"	96	4400	Hard Face SiC/Al	27	810	4
DM6093	9.3	6"	139	10,000	Hard Face SiC/Al	39	598	2.8
DM6110	11	6"	139	10,000	Hard Face SiC/Al	42	698	2.8
DM6150	15	6"	139	10,000	Hard Face SiC/Al	48	758	2.8
DM6185	18.5	6"	139	10,000	Hard Face SiC/Al	65	834	2.8
DM6220	22	6"	139	10,000	Hard Face SiC/Al	70	894	2.8

DAVEY MOTOR ELECTRICAL SPECIFICATIONS – 415V, 50HZ, 3Ø

Motor Model	Motor Size kW	Amps		Efficiency @ Full Load	RPM	Cos	Ts/Tn PSC	R (main) Ω
		Run Current	Start Current					
DM3400	4	9.7	45	78%	2825	0.82	2.8	3.86
DM3550	5.5	13.5	55	78%	2820	0.82	3.0	2.81
DM3750	7.5	17	70	77%	2820	0.78	3.2	2.09
DM6093	9.3	21	95	78%	2870	0.79	2.6	-
DM6110	11	23.9	121	80%	2870	0.80	2.4	-
DM6150	15	29.7	160	81%	2860	0.84	2.5	-
DM6185	18.5	36.6	225	83%	2860	0.82	2.2	-
DM6220	22	47.6	250	82%	2860	0.84	2.1	-

ELECTRICAL CABLE SELECTION

Cable for submersible motors must be suitable for submerged operation and adequate in size to operate within rated temperature and maintain adequate voltage at the motor.
 Cable may be twisted conductors with or without jacket or flat molded type.
 Cable selections from the following table maintain motor voltage to at least 95% of supply voltage with maximum rated running amps and maintain acceptable starting voltage and cable temperature.

ELECTRICAL CABLE SELECTION CHART – 3 x 415V SUPPLY

Motor Size		Metric Cable Size (mm ²)									
kW	HP	1.5	2.5	4	6	10	16	25	35	50	70
4.0	5.5	90	160	265	391	678	1058	1599	2196	3070	4140
5.5	7.5	69	126	200	300	510	790	1220	1670	2330	3160
7.5	10	57	92	150	230	390	610	930	1280	1790	2440
11	15	-	57	100	150	260	410	630	860	1220	1660
15	20	-	-	80	120	200	310	470	660	920	1240
18.5	25	-	-	-	90	160	240	380	520	720	990
22	30	-	-	-	80	140	210	320	440	620	850

WATER TEMPERATURE

Reduced motor loading in water over 35°C.

Water Temperature	Approx. allowable % of max. nameplate Amps		
	Through 3hp (2.2kW)	5-15hp (3.7-11kW)	Over 15hp (11kW)
35°C	100%	100%	90%
40°C	100%	90%	80%
45°C	90%	80%	70%
50°C	80%	70%	60%
55°C	70%	60%	45%

Do not use submersible motors in water over 55°C.

With proper water flow past the motor, submersible motors are designed to operate up to nameplate amperage rating in water as hot as 35°C. If the water temperature exceeds 35°C, reduce the load by changing pumps or throttling the pump discharge.

COOLING REQUIREMENTS AT 35°C

Bore Size		Minimum Flow Rate		
Inch	mm	lpm	gpm	m ³ /hr
6	152.4	34	7.5	2.1
7	177.8	95	20.9	5.7
8	203.2	170	37.4	10.2
10	254.0	340	74.9	20.4
12	304.8	530	116.7	31.8
14	355.6	760	167.4	45.6

If flow rate is less than above or water is coming from above the pump a shroud must be fitted. A shroud is always required in an open body of water e.g. a dam or river, or a cascading bore.

FREQUENCY OF STARTS

The maximum number of starts per hour over a period of months or years influences the life of a submersible pumping system. Excessive cycling affects the life of control components such as pressure switches, starters, relays and capacitors, plus splines and bearings. Rapid cycling can also cause motor overheating and winding failures.

The pump size, tank size and other controls should be selected to keep the starts per hour as low as practical for longest life. The maximum allowable number of starts per hour are shown in the table below.

Motors should be allowed to run a minimum of one minute to dissipate heat build up from starting current.

Motor Rating	Maximum Starts per hour
4": 4 – 7.5	30
6": 9.3 – 2.2	30

OVERLOAD PROTECTION - 3Ø

Characteristics of submersible motors differ from standard motors and special overload protection is required. In order to provide sufficient protection against overload and locked rotor, the overload relay has to be of the following characteristics:

- Trip time of <10 sec. at 500% I_N (nameplate current) based on cold bi-metal
- Protection against single phasing
- Must trip at 120% I_N (nameplate current)
- Temperature compensated to avoid nuisance tripping