

DS - DSF

SUBMERSIBLE ELECTRIC PUMPS WITH SEMI-OPEN IMPELLER FOR CLEAR AND RAIN WATER

in cast iron



Submersible electric pumps with semi-open impeller for clear and rain water.

APPLICATIONS

- Drainage tanks
- Lifting rain water
- Lifting clear water and water with small suspended particles
- Draining reservoirs

TECHNICAL FEATURES

- High efficiency semi-open impeller
- Non-clogging filter
- Top and bottom seal ring (DS)

TECHNICAL DATA

- Maximum fluid temperature: 40°C
- Maximum solid dimensions: 5 mm (50DS)
6 mm (65DS) (40DSF 1.1, 1.8 kW)
7 mm (80DS) (40DSF 6 kW)
8 mm (100DS)
10 mm (65DSF)
- Maximum length of fibres: 50mm (all DS models)
- Sealed submersible motor
- Insulation class F (DS)
- Insulation class H (DSF)
- Protection rating IP68
- Voltage: three-phase 380-415±10%, 50Hz (DS)
single phase: 230±10%, 50Hz (DSF)
three-phase: 400/690±10%, 50Hz (DSF)
- Flanges: DN50, DN65, DN80, DN100 (DS)
- Flanges: DN40, DN 65 (DSF)
- Power up to 7.5 kW

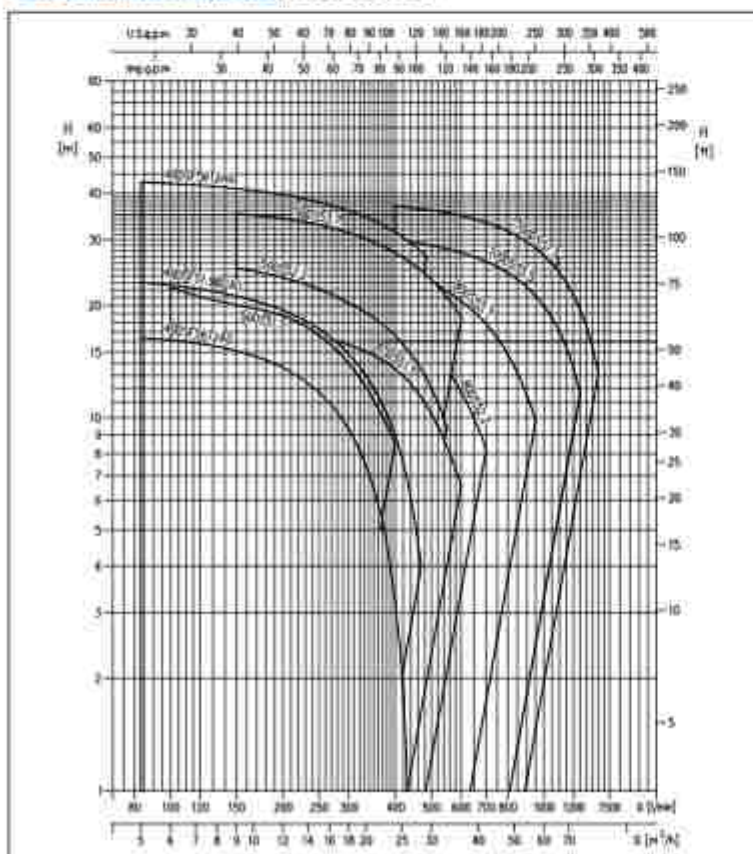
MATERIALS

- Pump body, semi-open impeller, elbow (bend) in cast iron
- Shaft in AISI 403 (DS) and AISI 420B (DSF)
- Mechanical seal: SiC/SiC/NBR (impeller side)
Carbon/Ceramic/NBR (motor side)
(6 kW and above for DSF)

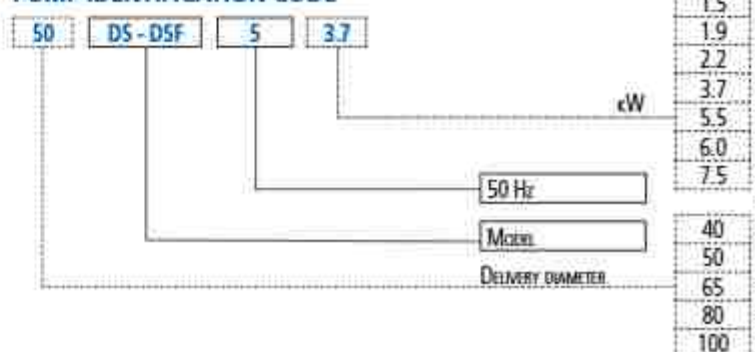
ACCESSORIES (on request)

For accessories, see page 151 onwards

PERFORMANCE RANGE (per ISO 9906 Annex A)



PUMP IDENTIFICATION CODE



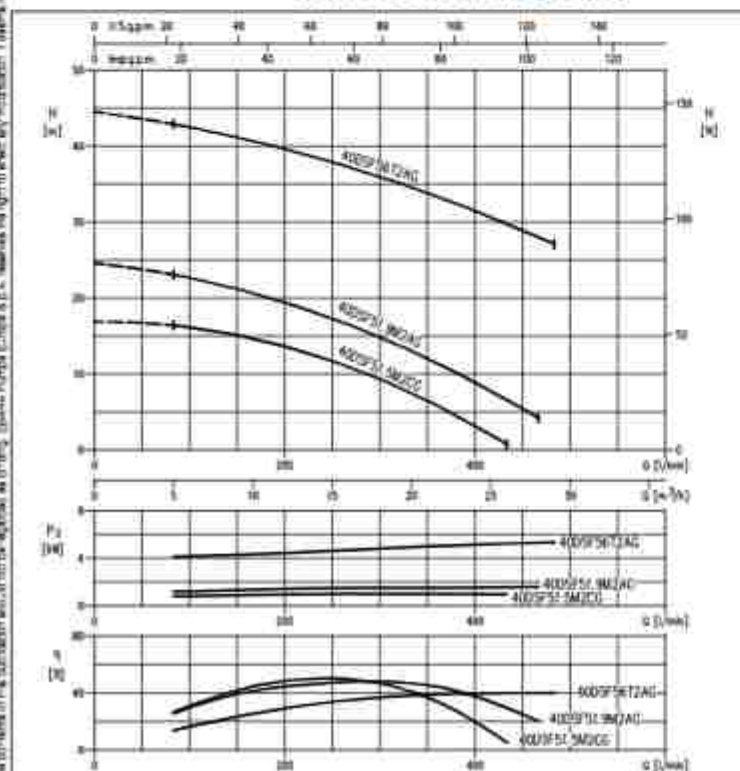
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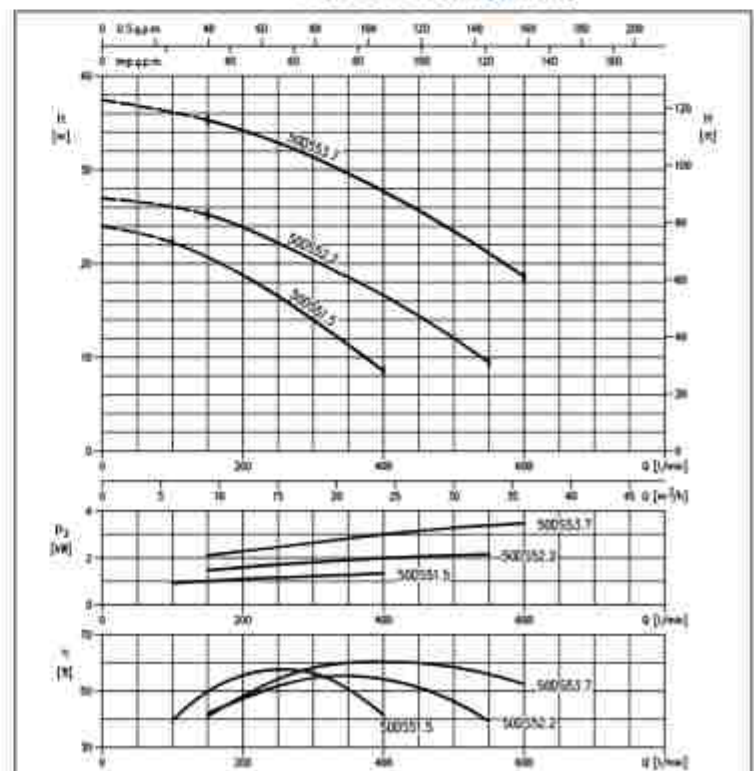
PERFORMANCE TABLE

Model	P ₁		Q=Flow rate																									
	[HP]	[kW]	l/min 83	100	150	200	250	300	400	433	450	467	473	483	500	550	580	600	700	800	950	1000	1170	1200	1250	1400		
			m ³ /h 5	6	9	12	15	18	24	26	27	28	28.4	29	30	33	34.8	36	42	48	57	60	70.2	72	75	84		
			H=Head [m]																									
40DSF51.5M2CG	2	1.5	16.4	16.2	15.1	13.6	11.7	9.3	3.2	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
40DSF51.9M2AG	2.5	1.9	23.1	22.7	21.2	19.4	17.3	14.8	8.9	6.6	5.4	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
40DSF56T2AG	8	6.0	43	42.5	41	39.6	37.9	36	31.5	30	28.9	28	27.7	27.1	-	-	-	-	-	-	-	-	-	-	-	-		
50DS51.5	2	1.5	-	22.3	20.7	18.8	16.5	14	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
50DS52.2	3	2.2	-	-	25.2	23.7	22.1	20.4	16.6	15.2	14.4	13.6	13.3	12.9	12	9.4	-	-	-	-	-	-	-	-	-	-		
50DS53.7	5	3.7	-	-	35.3	34.2	32.9	31.4	27.7	26.4	25.7	25.0	24.6	24.2	23.5	21.1	19.5	18.6	-	-	-	-	-	-	-	-		
65DS51.5	2	1.5	-	-	17.5	17.1	16.5	15.7	13.5	12.5	12	11	11.2	10.9	10.3	8.5	7.3	6.6	-	-	-	-	-	-	-	-		
80DS52.2	3	2.2	-	-	-	20.8	20.2	19.4	17.6	16.8	16.4	15.9	15.8	15.5	15	13.4	12.5	11.8	8.3	-	-	-	-	-	-	-		
80DS53.7	5	3.7	-	-	-	-	26.3	25.8	24.6	24.0	23.7	23.5	23.3	23.1	22.8	21.8	21.2	20.6	17.8	14.8	9.9	-	-	-	-	-		
100DS55.5	7.5	5.5	-	-	-	-	-	30.7	30	30	29.5	29.4	29.3	29.2	29	28.4	28	27.8	26.3	24.5	21.3	20.0	14.8	13.6	11.6	-		
100DS57.5	10	7.5	-	-	-	-	-	-	37	37	36.6	36.4	36.3	36.2	36	35.5	35.1	34.8	33.4	31.7	28.5	27.3	22.5	21.4	19.7	13.2		

PERFORMANCE CURVES series 40DSF51.5M2CG (1.5 kW)
series 40DSF51.9M2AG (1.9 kW)
series 40DSF56T2AG (6.0 kW)



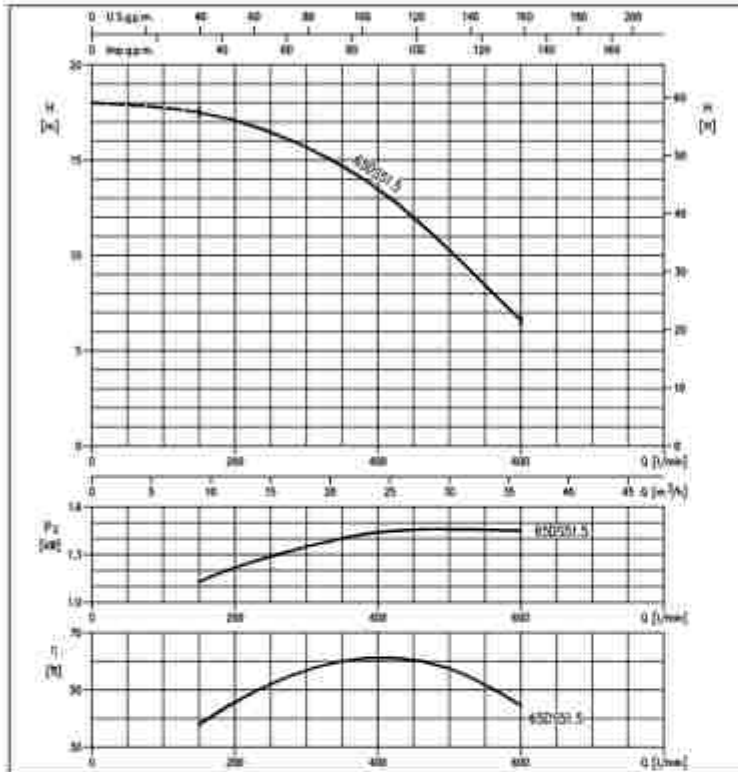
PERFORMANCE CURVES series 50DS51.5 (1.5 kW)
series 50DS52.2 (2.2 kW)
series 50DS53.7 (3.7 kW)



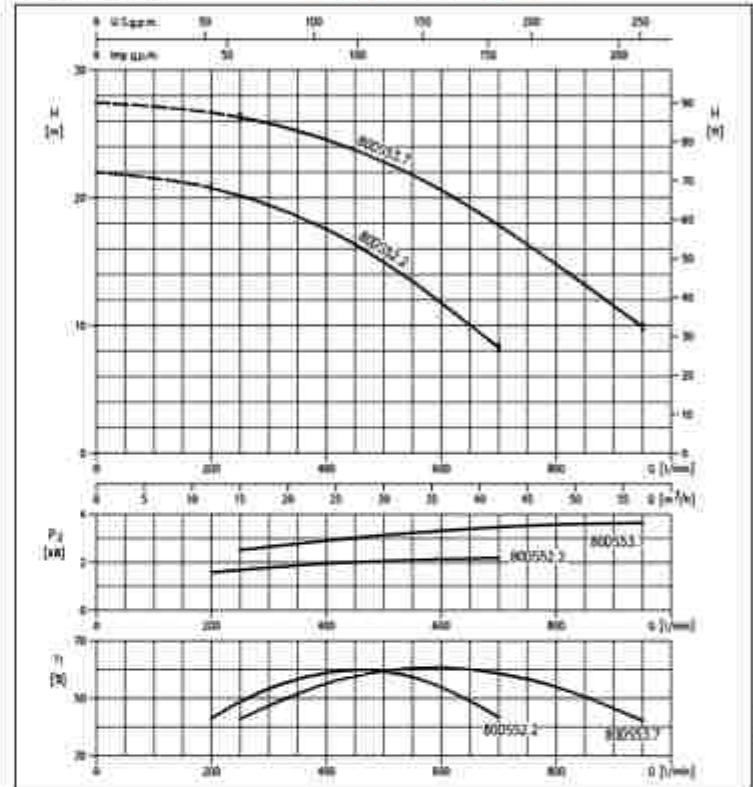
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in cast iron

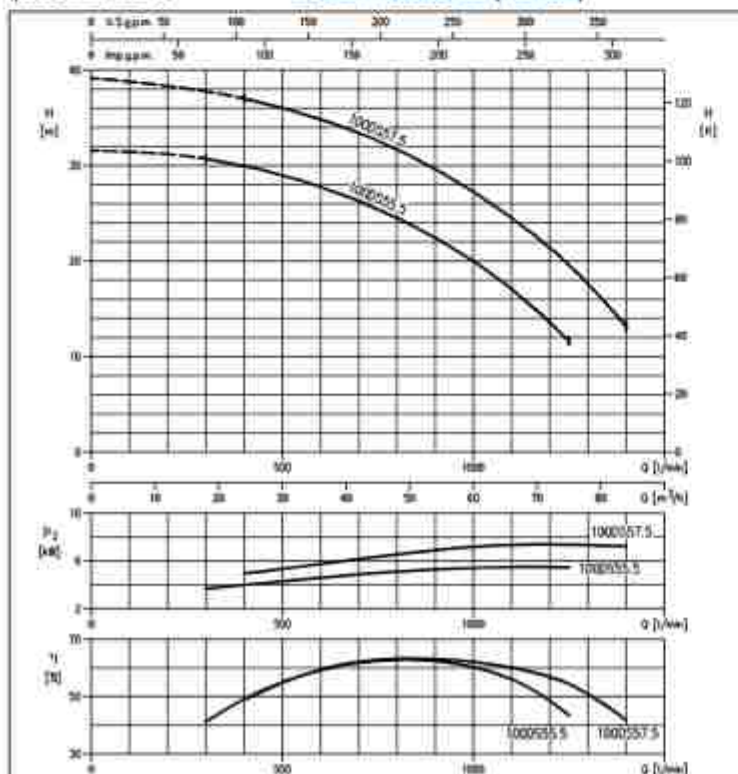
PERFORMANCE CURVES series 65DS1.5 (1.5 kW)
(per ISO 9906 Annex A)



**PERFORMANCE CURVES series 80DS52.2 (2.2 kW)
series 80DS53.7 (3.7 kW)**
(per ISO 9906 Annex A)



**PERFORMANCE CURVES series 100DS55.5 (5.5 kW)
series 100DS57.5 (7.5 kW)**
(per ISO 9906 Annex A)



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DIMENSIONS DS

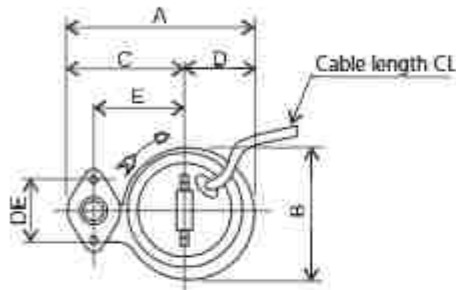


Figure 1

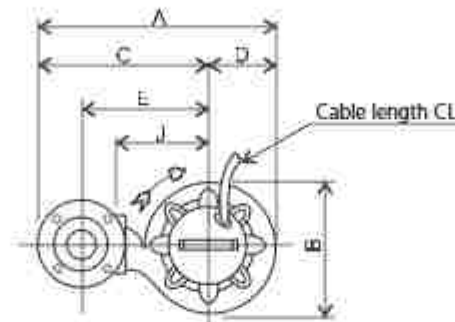
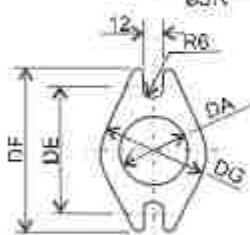
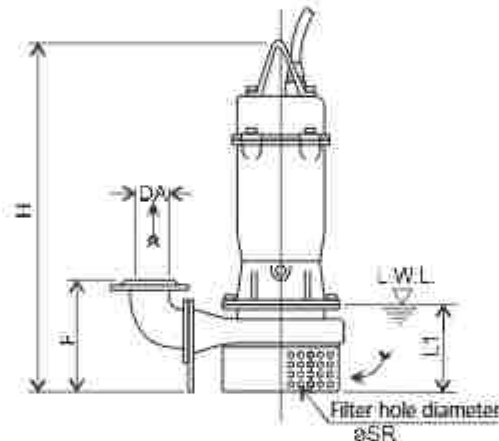
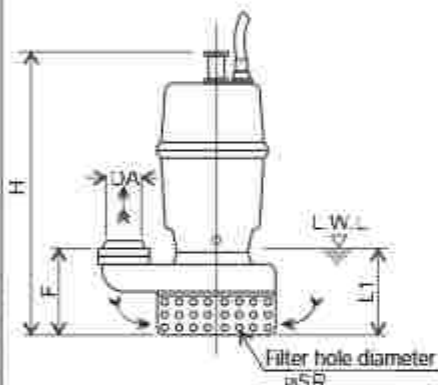
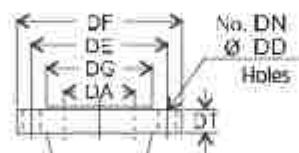


Figure 2



Oval flange



Round flange

Flange dimensions table [mm] - EN 1092-2

Type	DA	DE	DF	DG	DT	DN	DD
Oval	50	96	114	76	-	-	-
		125	165	99	17	4	19
	65	145	185	118	19	8	
	80	160	220	132	21		
Round	100	180	220	156			

TABLE OF DIMENSIONS DS

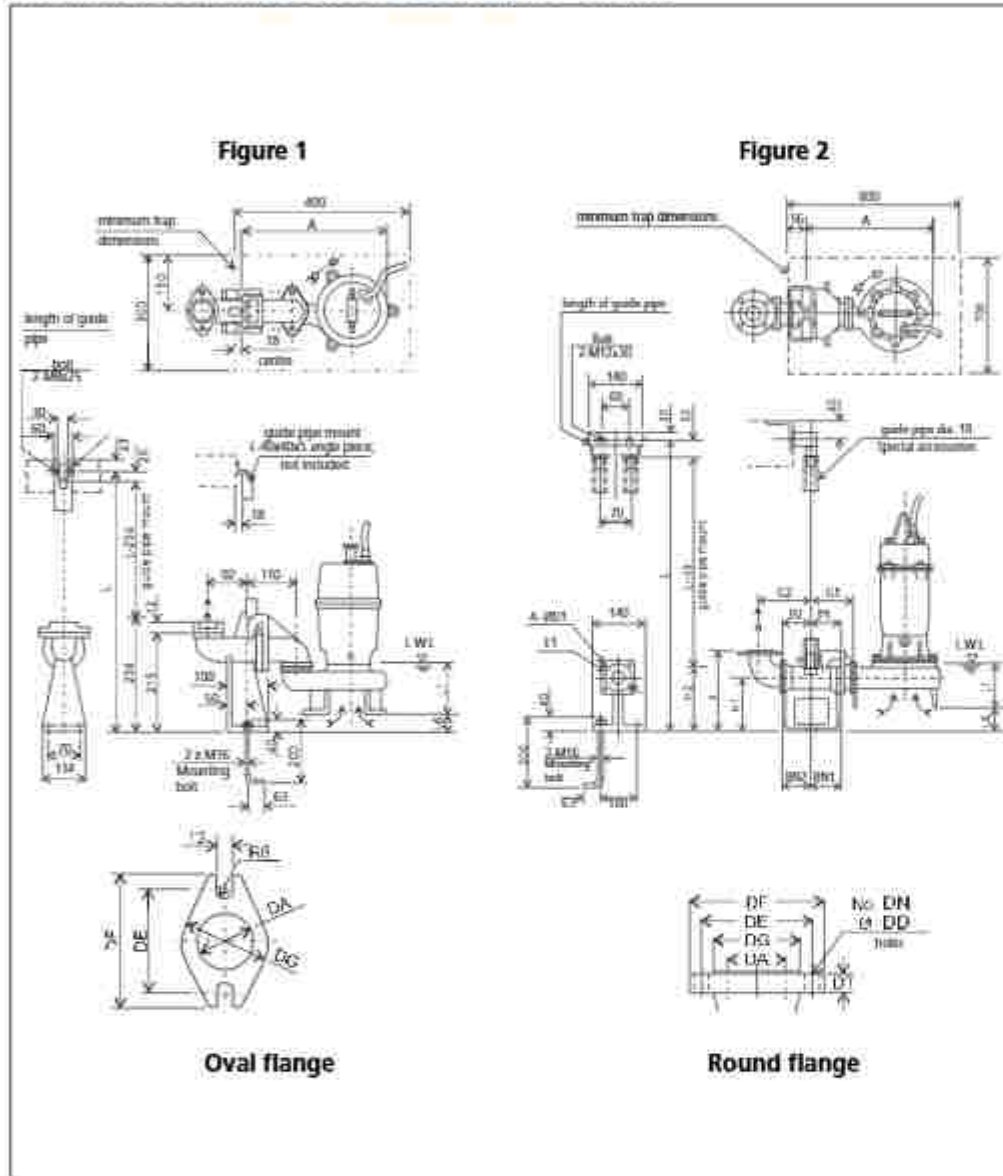
DA	Model	Fig.	Flange type	[kW]	DA	A	B	C	D	E	F	H	DE	J	L1 (*)	ØSR	CL [m]	Weight [kg]
50	50DS51.5	1	Oval	1.5	G2	266	200	168	98	130	115	450	96	-	120	10	6	25
	2.2			50	433	245	313	120	235	198	619	-	180	160	10		55	
	3.7														61			
65	65DS51.5	2	Round	1.5	65	407	210	303	104	215	197	503	-	150	120	10	6	35
80	80DS52.2			2.2	80	503	268	368	135	275	215	625	-	200	160		10	59
	80DS3.7			3.7														64
100	100DS55.5			5.5	100	615	309	460	155	355	257	730	-	250	200	13	92	
	100DS57.5			7.5													104	

(*) - L.W.L. (minimum fluid level)

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DIMENSIONS DS with QDC (lowering device) (1.5 - 3.7 kW)



Flange dimensions table [mm] - EN 1092-2								
Type	DA	DE	DF	DG	DT	DN	DD	
Oval	50	96	114	76	-	-	-	
		125	165	99	17	4	19	
Round	65	145	185	118	19	8		
	80	160	220	132				

TABLE OF DIMENSIONS DS with QDC (lowering device kit) (1.5 - 3.7 kW)

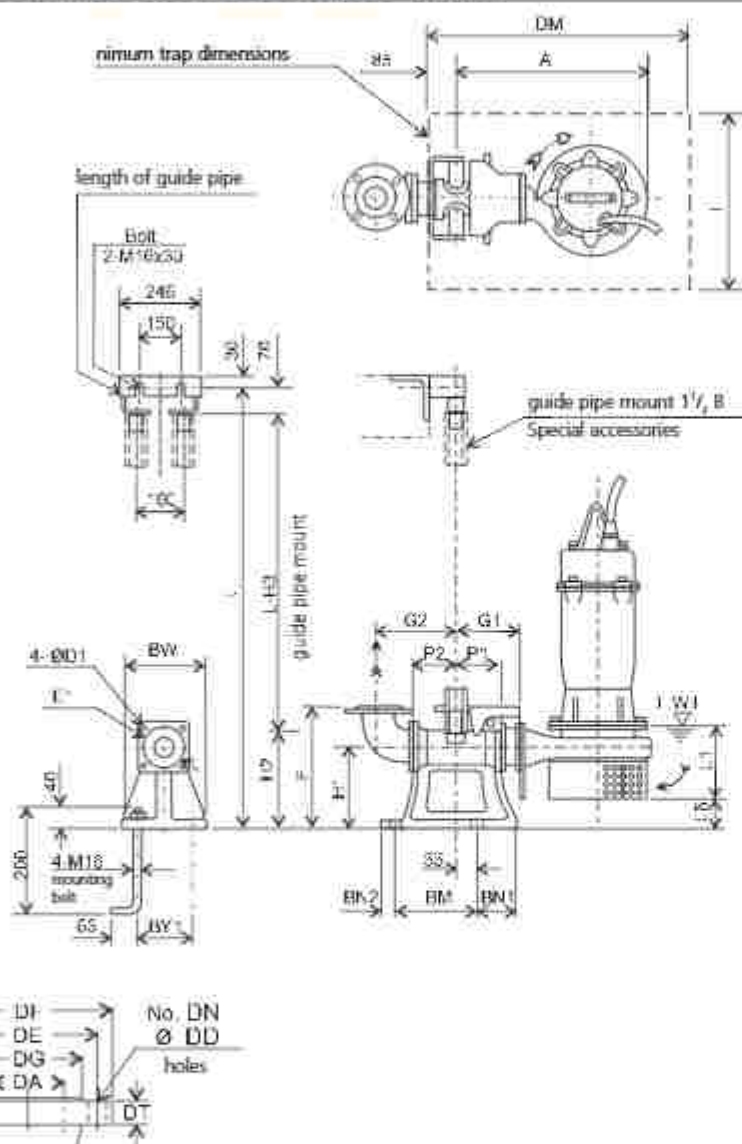
DA	Model	Fig.	Flange type	[kW]	DA	A	P1	P2	G1	G2	F	H1	H2	H3	L1 (*)	L6	BN1	BN2	D1	E1	QDC (lowering device kit) Model	Weight [kg]
50	50DS51.5	1	Oval	1.5	G2	-	-	-	-	-	-	-	-	-	120	25	-	-	-	-	LS50	9
	50DS52.2			2.2	50	415	75	80	115	135	230	135	165	215	160	32		80	12	120	LM50	11
	50DS53.7			3.7																		
65	65DS51.5	2	Round	1.5	65	374	75	95	120	160	250	145	190	240	120	53	75	95	12	140	LM65	14
	65DS52.2			2.2	80	460	75	90	125	165	285	175	230	280	160	70		90	15	155	LM80	17
	65DS53.7			3.7																		

(*) - L.W.L (minimum fluid level)

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DIMENSIONS DS with ODC (lowering device) (5.5 - 7.5 kW)



Flange dimensions table [mm] - EN 1092-2

Type	DA	DE	DF	DG	DT	DN	DO
Round	100	180	220	156	21	8	19

TABLE OF DIMENSIONS DS with QDC (lowering device kit) (5.5 - 7.5 kW)

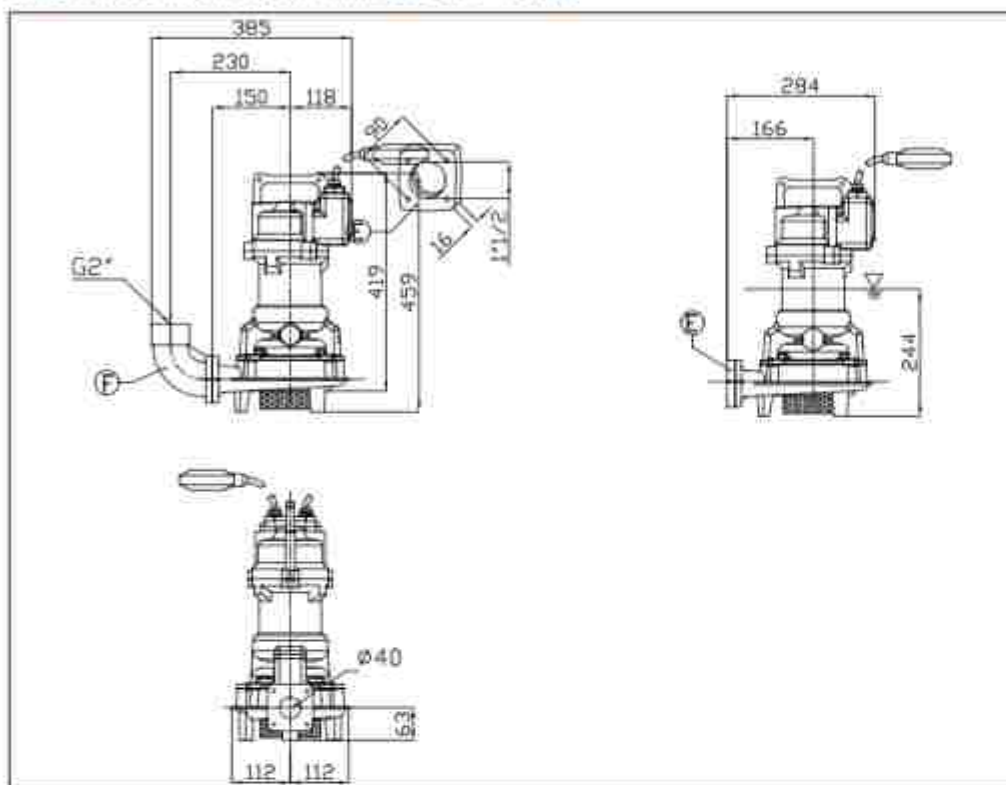
DA	Model	[kW]	A	P1	P2	G1	G2	F	H1	H2	H3	L1 (°)	L6	BN1	BN2	BM	BY1	BW	DM	I	D1	E1	QDC (lowering device kit)	Weight (kg)
100	100DSS5.5 100DSS7.5	5.5 7.5	590	105	105	185	210	365	240	265	335	200	108	100	40	220	180	230	800	700	19	175	LL100	46

(*) - L.W.L. Grunbaum's final jewel

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DIMENSIONS 40DSF/40DSF with QDC (1.5 - 1.9 kW)



DIMENSIONS CHART 40DSF/40DSF with QDC (1.5 - 1.9 kW)

DA	Model	[kW]	Weight [kg]
40	40DSF51.5M2CG	1.5	38
	40DSF51.9M2AG	1.9	38

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DIMENSIONS 40DSF/40DSF WITH QDC (6.0 kW)

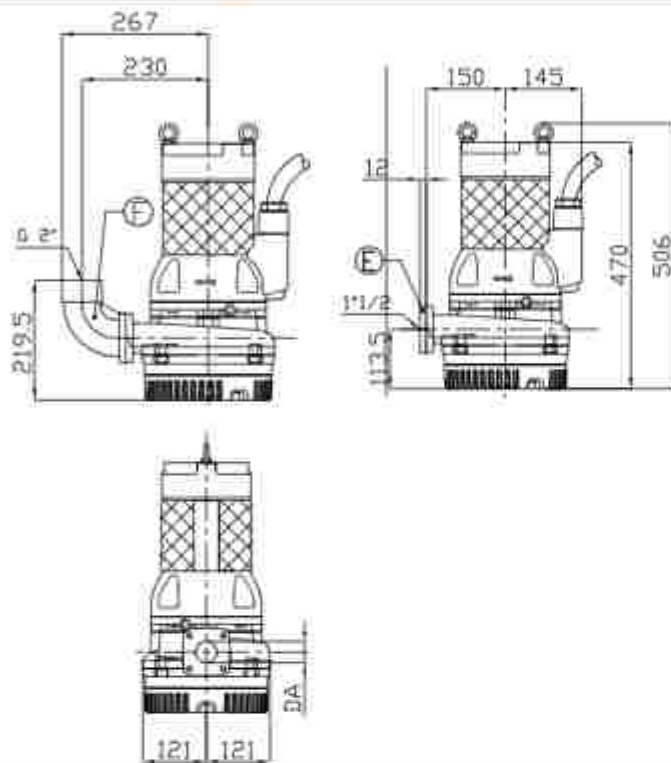
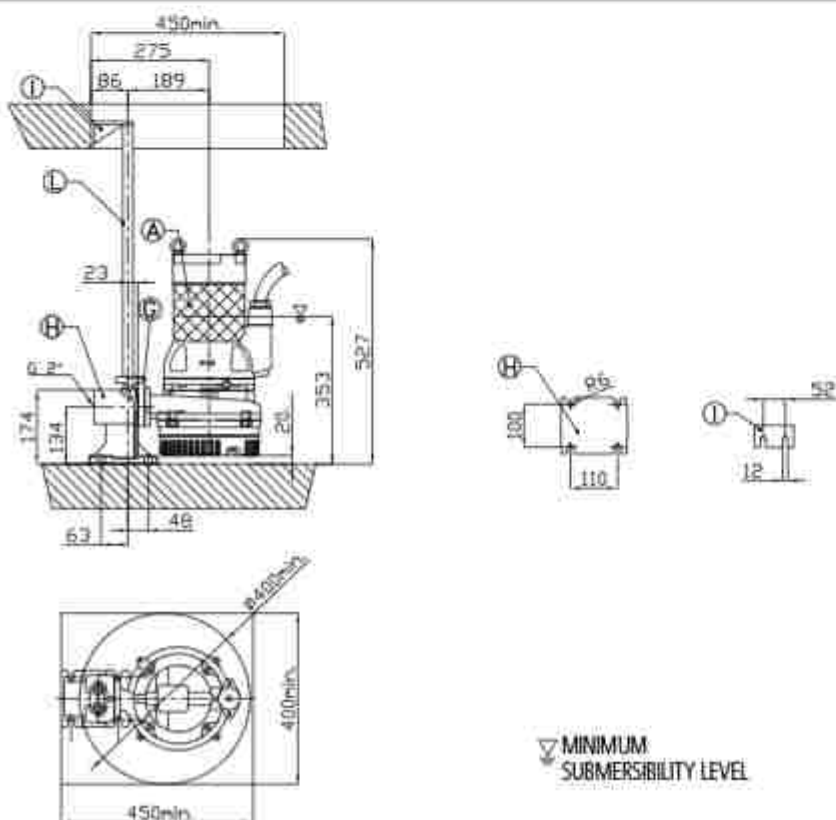


TABLE OF DIMENSIONS 40DSF (6.0 kW)

DA	Model	[kW]	Weight [kg]
40	40DSF56T2AG	6	68

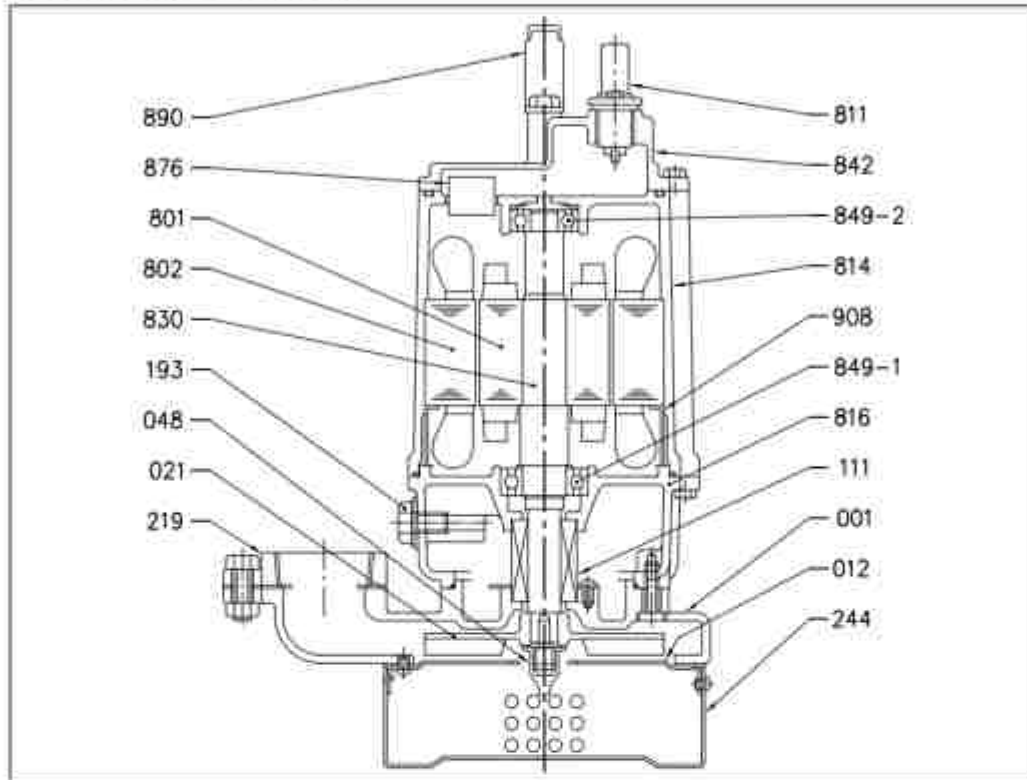


DS - DSF

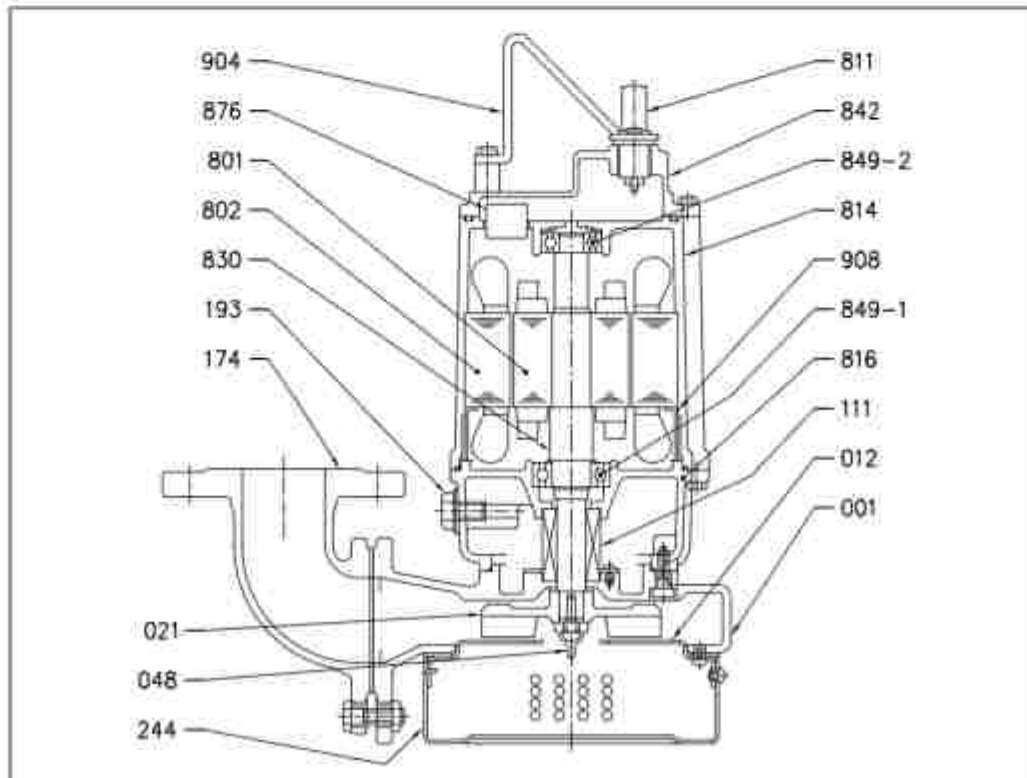
**SUBMERSIBLE ELECTRIC PUMPS
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in cast iron

SECTIONAL VIEW 50 DS (1.5kW)



SECTIONAL VIEW 65 DS (1.5kW)



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SECTIONAL VIEW 50(80) DS (2.2 - 3.7 kW) - 100 DS (5.5 - 7.5 kW)

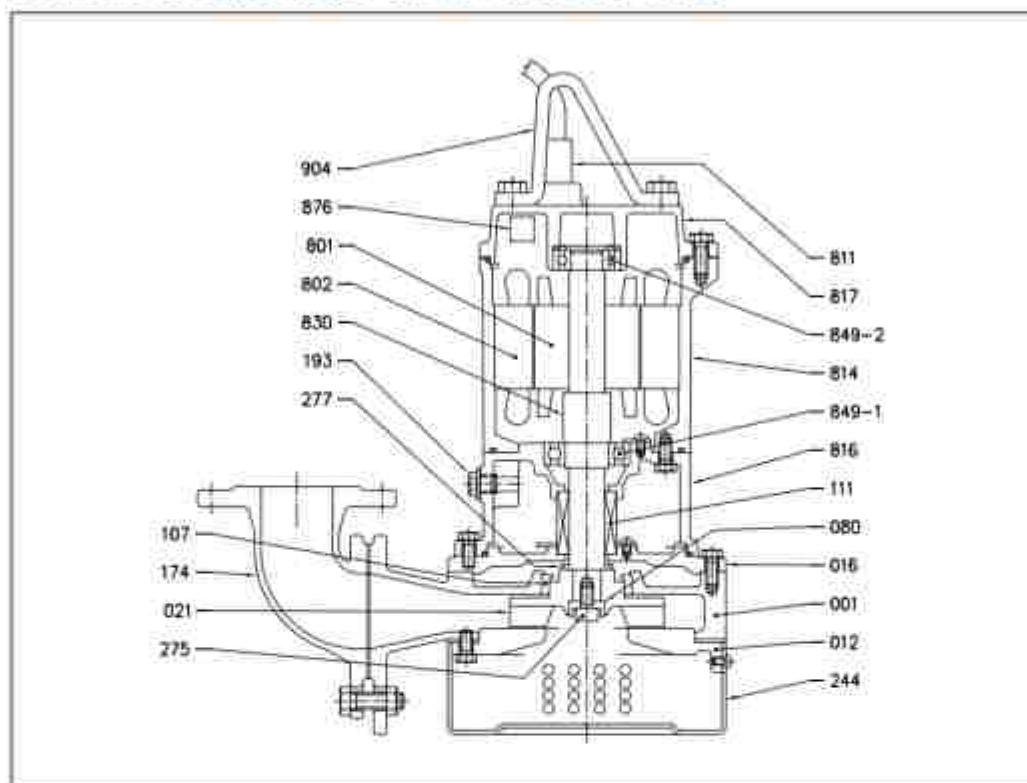


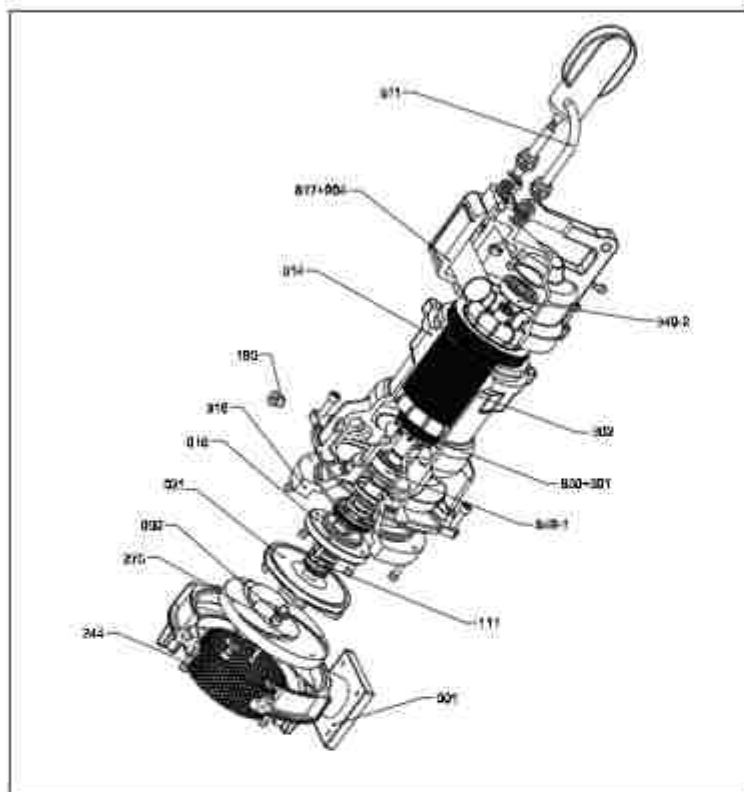
TABLE OF MATERIALS DS

Ref.	Name	Material	Ref.	Name	Material
001	Pump body	Cast iron EN-GHJL-200-EN 1561	811	Cable	-
012	Suction side cover	EN 1.4301 (AISI 304 stainless steel)	814	Motor casing	Cast iron EN-GHJL-200-EN 1561
021	Impeller	Cast iron EN-GHJL-200-EN 1561	816	Motor mount	Cast iron EN-GHJL-200-EN 1561
048	Impeller nut	Brass	830	Shaft	EN 1.4006 (AISI403)
111	Mechanical seal	-	842	Motor cover	Cast iron EN-GHJL-200-EN 1561
174	Drain bend	Cast iron EN-GHJL-200-EN 1561	849-1	Ball bearing	-
193	Oil cap	NBR/EN 1.4301 (AISI 304 stainless steel)	849-2	Ball bearing	-
244	Filter	EN 1.4301 (AISI 304 stainless steel)	876	Motor cutout	-
801	Rotor	-	904	Lifting hook	Stainless steel
802	Stator	-	908	Spacer	Steel

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SECTIONAL VIEW 40 DSF (1.5 - 1.9 kW)



SECTIONAL VIEW 40 DSF (6 kW)

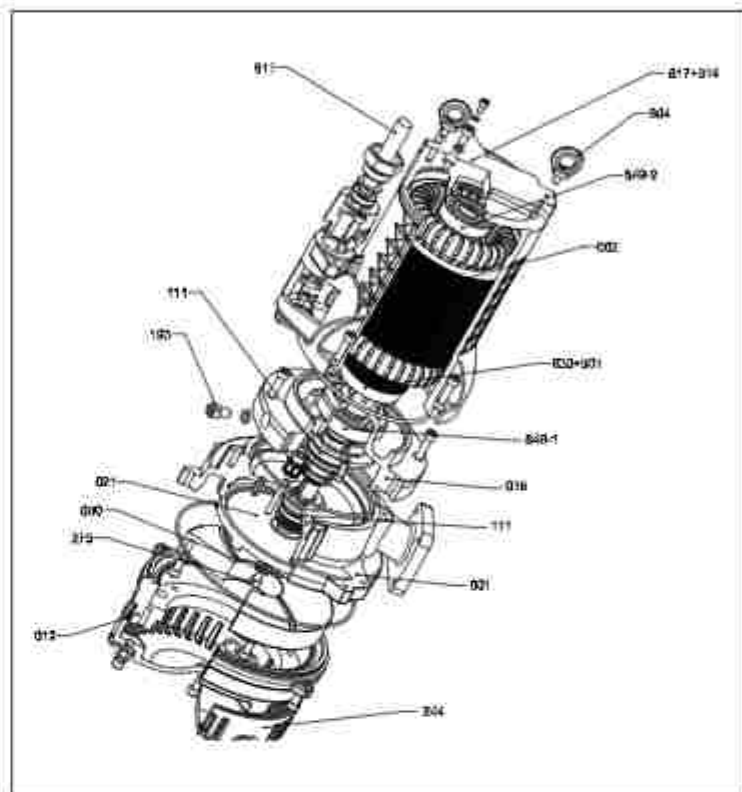


TABLE OF MATERIALS DSF

Ref.	Name	Material	Ref.	Name	Material
001	Pump body	Cast iron EN-GJL-250	811	Cable	-
012	Suction side cover	Cast iron EN-GJL-250	814	Motor casing	Cast iron EN-GJL-250
016	Mechanical seal cover	Cast iron EN-GJL-250	816	Upper mount	Cast iron EN-GJL-250
021	Impeller	Ductile cast iron GS400 UNI-EN1563	817	Lower bearing	Cast iron EN-GJL-250
080	Bushing	Steel	830	Shaft	AISI 420B
111	Mechanical seal	-	842-1	Motor cover	Cast iron EN-GJL-250
193	Oil cap	NBR/stainless steel	842-2	Motor cover	Cast iron EN-GJL-250
244	Filter	AISI 316L	849-1	Ball bearing	-
275	Impeller nut	Class A2 AISI 304 stainless steel	849-2	Ball bearing	-
801	Rotor	-	904	Lifting hook [1]	Cast iron EN-GJL-250
802	Stator	-	904	Lifting hook [2]	Steel

[1] - For models 40 DSF (1.5 - 1.9 kW)

[2] - For models 40 DSF (6 kW) and 40 DSF (15.9 kW)

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ELECTRICAL DATA TABLE DS (1.5 - 3.7 kW)

[P ₂]			[kW]	1.5			2.2			3.7		
Resistance at 20°C			[Ω]	11.973			4.942			2.647		
GD ²			[kg/m ²]	0.0057			0.0082			0.011		
Voltage			[V]	380	400	415	380	400	415	380	400	415
Full load	0%	Current	[A]	1.25	1.32	1.30	1.95	2.15	2.33	3.20	3.30	3.90
		Power	[W]	430	405	400	500	500	252	800	500	600
	75%	Current	[A]	2.92	2.62	2.61	4.07	4.06	3.82	7.07	6.32	6.45
		Efficiency	[%]	63.59	69.18	70.11	71.23	69.69	77.58	68.00	75.54	74.26
		Power factor	[%]	91.93	89.54	85.68	86.44	84.27	77.40	87.75	83.92	80.61
		rpm	[min ⁻¹]	2872	2887	2898	2895	2901	2927	2890	2917	2922
	100%	Current	[A]	3.70	3.30	3.30	5.10	5.00	4.60	8.80	7.80	7.80
		Efficiency	[%]	65.61	71.25	70.89	73.05	72.28	79.33	70.79	77.64	76.74
		Power factor	[%]	93.88	92.08	89.21	89.71	87.87	83.88	90.24	88.18	86.00
		rpm	[min ⁻¹]	2821	2847	2854	2851	2864	2900	2847	2886	2890
Torque with rotor locked			[%]	243	295	303	161	186	184	175	216	233
Starting current			[A]	20.5	21.1	22.5	28.7	30.0	31.5	51.2	51.0	53.0
Starts per hour				10								
Model				ZDSEU								

ELECTRICAL DATA TABLE DS (5.5 - 7.5 kW)

[P ₂]			[kW]	5.5			7.5		
Resistance at 20°C			[Ω]	2.001			1.345		
GD ²			[kg/m ²]	0.03			0.037		
Voltage			[V]	380	400	415	380	400	415
Full load	0%	Current	[A]	3.00	2.70	2.70	3.65	3.20	3.27
		Power	[W]	340	800	340	400	800	400
	75%	Current	[A]	8.37	8.36	7.59	11.43	11.02	10.17
		Efficiency	[%]	82.89	77.34	83.68	83.36	79.51	84.44
		Power factor	[%]	90.37	92.05	90.40	89.70	92.68	91.14
		rpm	[min ⁻¹]	2944	2932	2945	2941	2928	2942
	100%	Current	[A]	10.80	10.80	9.80	14.80	14.30	13.20
		Efficiency	[%]	83.87	79.10	84.51	84.26	80.96	85.13
		Power factor	[%]	92.25	92.92	92.39	91.34	93.50	92.85
		rpm	[min ⁻¹]	2922	2905	2923	2917	2900	2918
Torque with rotor locked			[%]	168	155	168	159	154	159
Starting current			[A]	77.0	70.0	70.0	105.0	93.5	94.0
Starts per hour				10					
Model				ZDSEU					

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ELECTRICAL DATA TABLE DSF (1.5 - 6 kW)

[P ₂]			[kW]	1.5	1.9	6
Resistance at 20°C			[Ω]	-	-	-
GD ²			[kg/m ²]	0.0021	0.0025	0.015
Voltage			[V]	230	230	400/690
Full load	0%	Current	[A]	-	-	-
		Power	[W]	-	-	-
	75%	Current	[A]	-	-	-
		Efficiency	[%]	72	80	73
		Power factor	[%]	0.97	0.97	0.84
		rpm	[min ⁻¹]	-	-	-
	100%	Current	[A]	-	-	-
		Efficiency	[%]	73	73	90
		Power factor	[%]	0.99	0.99	0.88
		rpm	[min ⁻¹]	-	-	-
Torque with rotor locked			[%]	-	-	-
Starting current			[A]	33.3	35	64.3
Phases				1		3
Starts per hour				15		
Model				M271M-1.5-230/50NY-IE	M271M-1.9-230/50NY-IE	M210T-6-400/50YY-IE3
Type of pump				40DSF51.5M2CG	40DSF51.9M2AG	40DSF56T2AG