



TOYO PUMP

OCS owned Toyo DP-100B-1 pumps are extra heavy duty submersible slurry pumps which are specialized for our dredging projects. Basically, it is a pump and an excavator at the same time. The design incorporates the renowned patented Toyo agitator, attached directly on the pump shaft, closed impeller, large open passages for easy passage of solids, heavy duty shaft and bearing configuration, special seals working in an oil bath and 8 pole customs built electric motor with 1.35 service factor. The impeller, the wear plates and the agitator are manufactured in cast chrome iron (24 to 28%) with Two adjustable wear plates which allows optimizing hydraulic efficiency of the pump.

The pump also acts as a support equipment for most of our project scopes like pipeline pre commissioning and pile refusal remedial.

TOYO SUBMERSIBLE AGITATOR SAND PUMP SPECIFICATIONS	
Model	DP-100BL
Discharge Bore	250MM (10 Inch)
Capacity	12m ³ /min @15M Max Head
Max Size of Passable Solids	100mm
Motor	415V/50Hz/3-Phase/8-Pole/Class F insulation/75kw With 60M electric cable
Speed	740Rpm
Serial Number	94716/94717
Pump Dimensions	255x180x144cm (volume 6.610m ³)
Pump Weight	2.7 tons
Gross Weight	3.3 tons
No of units	2

OCS has Equipment passports for individual Engines Skids and Fluid ends which must be reviewed before each project to assess the status. The equipment passport gives the working history, maintenance and certification history for Engines, Fluid Ends and Pump skids.

It is important to regularly review the list of critical spare parts of the equipment before each project. Common problems occur in these units during the operation include:

- Pump impellers and internals.*
- Pump Seals and Bearings.*

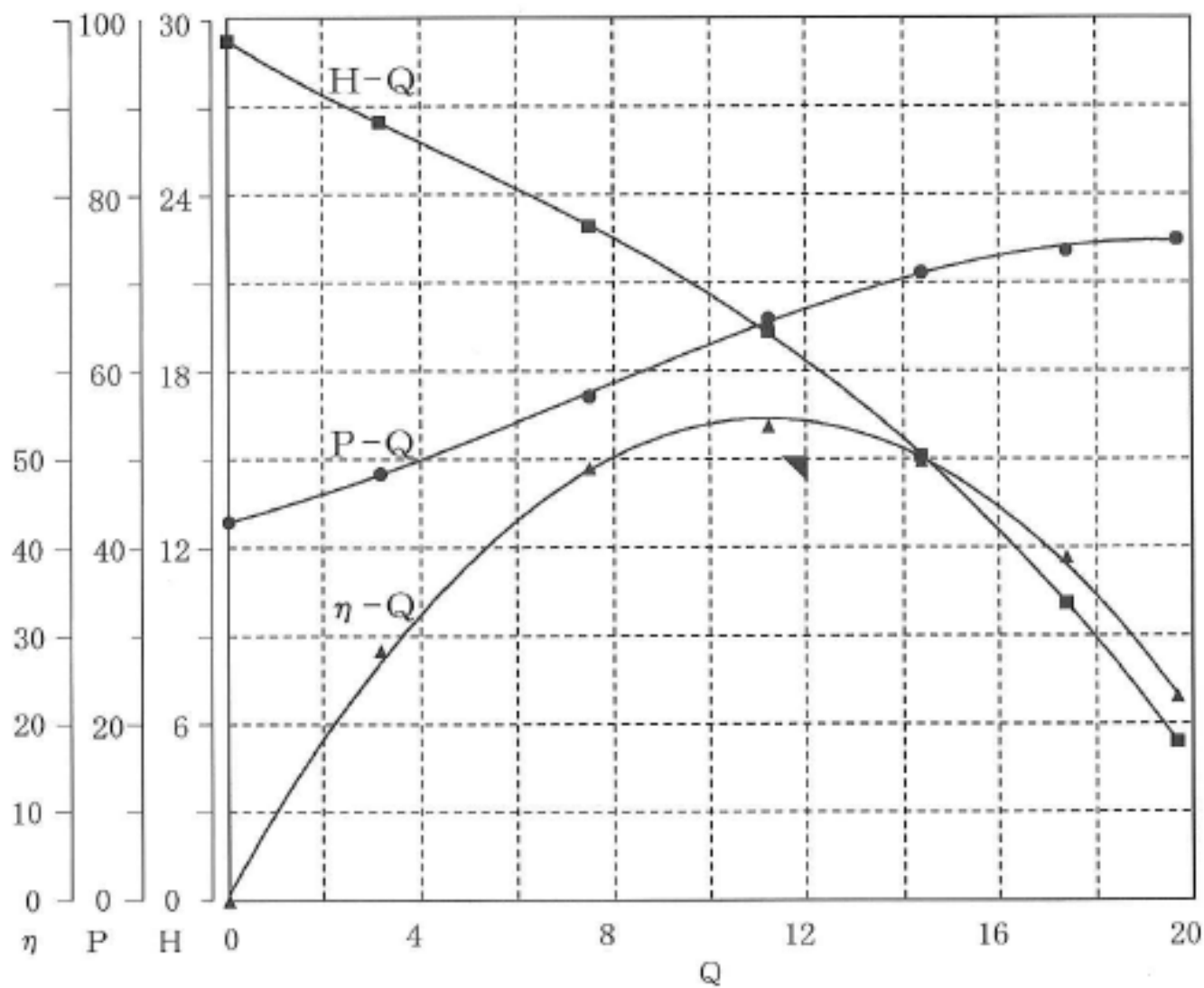
Where failures occur during operations Equipment bulletins will be issued to document the problem and the remediation solutions applied. The equipment bulletin will be circulated to all field engineers to be informed about the possible failure that can occur during the operation and thereby avoid future failure.

This equipment file remains a live document and will be constantly updated by the equipment department.

PUMP PERFORMANCE TEST

PUMP NAME		TOYO SUBMERSIBLE AGITATOR SAND PUMP	
PUMP MODEL		DP-100BL-4	
S.No	94716	OUTPUT	75 kW
DISCHAGE		250 mm	PHASE·POLES 3 * 8
CAPACITY	12 m ³ /min	FREQUENCY	50 Hz
HEAD	15 m	VOLTAGE	415 V
SPEED	740 r/min	CURRENT	145 A
		P.G.	1 Mpa
		W.T.	NOMAL
		A.MULT.F.	50
		V.MULT.F.	4
		W.MULT.F.	10
		TOTAL.MULT.F.	2000
		TEST.No.	20374
		METHOD	1.5m SUPPRESSED WEIR

	OVER WEIR mm	CAPACITY (Q) m ³ /min	PRESSURE MPa	GROUND HT m	VELOCITY m	TOTAL (Hm)	WATER POWER kW	VOLTAGE V	CURRENT A	OUTPUT (P) kW	COMB.E. (η) %
1	0.0	0.00	0.260	26.5	2.7	29.2	0.00	415	83.0	42.93	0
2	70.8	3.17	0.233	23.8	2.7	26.5	13.68	415	93.6	48.39	28
3	125.0	7.50	0.198	20.2	2.7	22.9	27.98	415	110.5	57.16	49
4	162.8	11.23	0.163	16.6	2.7	19.3	35.39	415	127.4	65.92	54
5	190.8	14.37	0.122	12.4	2.7	15.1	35.37	415	137.5	71.13	50
6	215.6	17.38	0.073	7.4	2.7	10.1	28.59	415	142.4	73.64	39
7	233.5	19.69	0.026	2.7	2.7	5.4	17.27	415	144.8	74.89	23



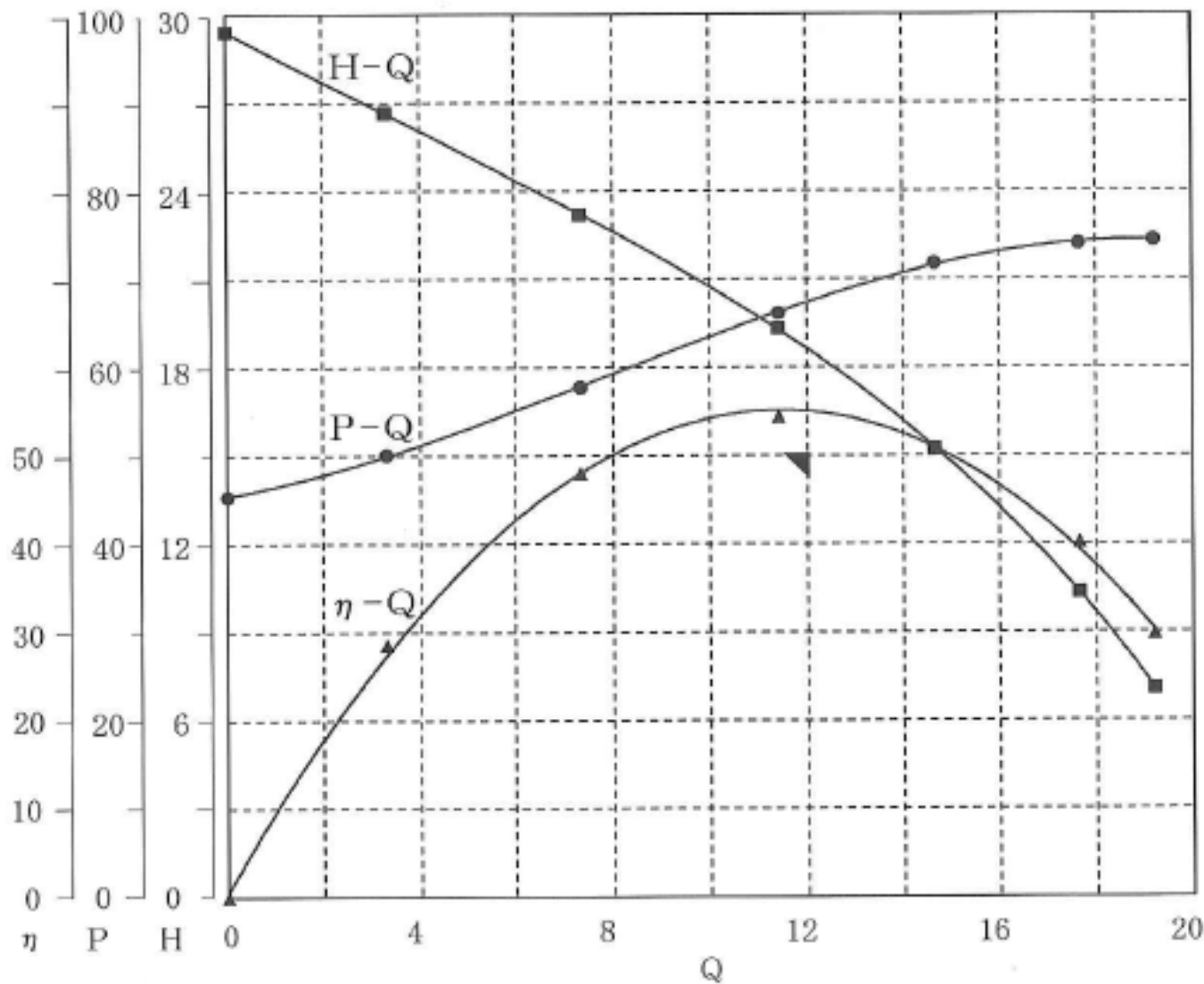
Q: CAPACITY (m³/min) H: TOTAL (m)
P: OUTPUT (kW) η: COMBINED EFFICIENCY (%)

TOYO DENKI INDUSTRIAL CO.,LTD

PUMP PERFORMANCE TEST

PUMP NAME		TOYO SUBMERSIBLE AGITATOR SAND PUMP					
PUMP MODEL		DP-100BL-4					
S.No	94717	OUTPUT	75	kw	TEST.No.	20375	
DISCHAGE	250	mm	PHASE-POLES	3	8	METHOD	1.5m SUPPRESSED WEIR
CAPACITY	12	m ³ /min	FREQUENCY	50	Hz	P.G.	1 Mpa
HEAD	15	m	VOLTAGE	415	V	A.MULT.F.	50
SPEED	740	r/min	CURRENT	145	A	W.MULT.F.	10
						V.MULT.F.	4
						TOTAL.MULT.F.	2000

	OVER WEIR mm	CAPACITY (Q)m ³ /min	PRESSURE MPa	GROUND HT m	VELOCITY m	TOTAL (H)m	WATER POWER kW	VOLTAGE V	CURRENT A	OUTPUT (P)kW	COMB.E. (η)%
1	0.0	0.00	0.260	26.5	2.9	29.4	0.00	415	87.7	45.35	0
2	72.6	3.29	0.233	23.8	2.9	26.7	14.30	415	96.9	50.11	29
3	123.2	7.33	0.199	20.3	2.9	23.2	27.71	415	111.7	57.77	48
4	164.5	11.42	0.161	16.4	2.9	19.3	35.96	415	127.9	66.14	54
5	193.3	14.66	0.121	12.3	2.9	15.2	36.41	415	138.8	71.80	51
6	217.7	17.64	0.073	7.4	2.9	10.3	29.74	415	143.1	74.03	40
7	229.9	19.21	0.041	4.2	2.9	7.1	22.17	415	143.8	74.40	30



Q: CAPACITY (m³/min) H: TOTAL (m)
P: OUTPUT (kW) η: COMBINED EFFICIENCY (%)

TOYO DENKI INDUSTRIAL CO.,LTD