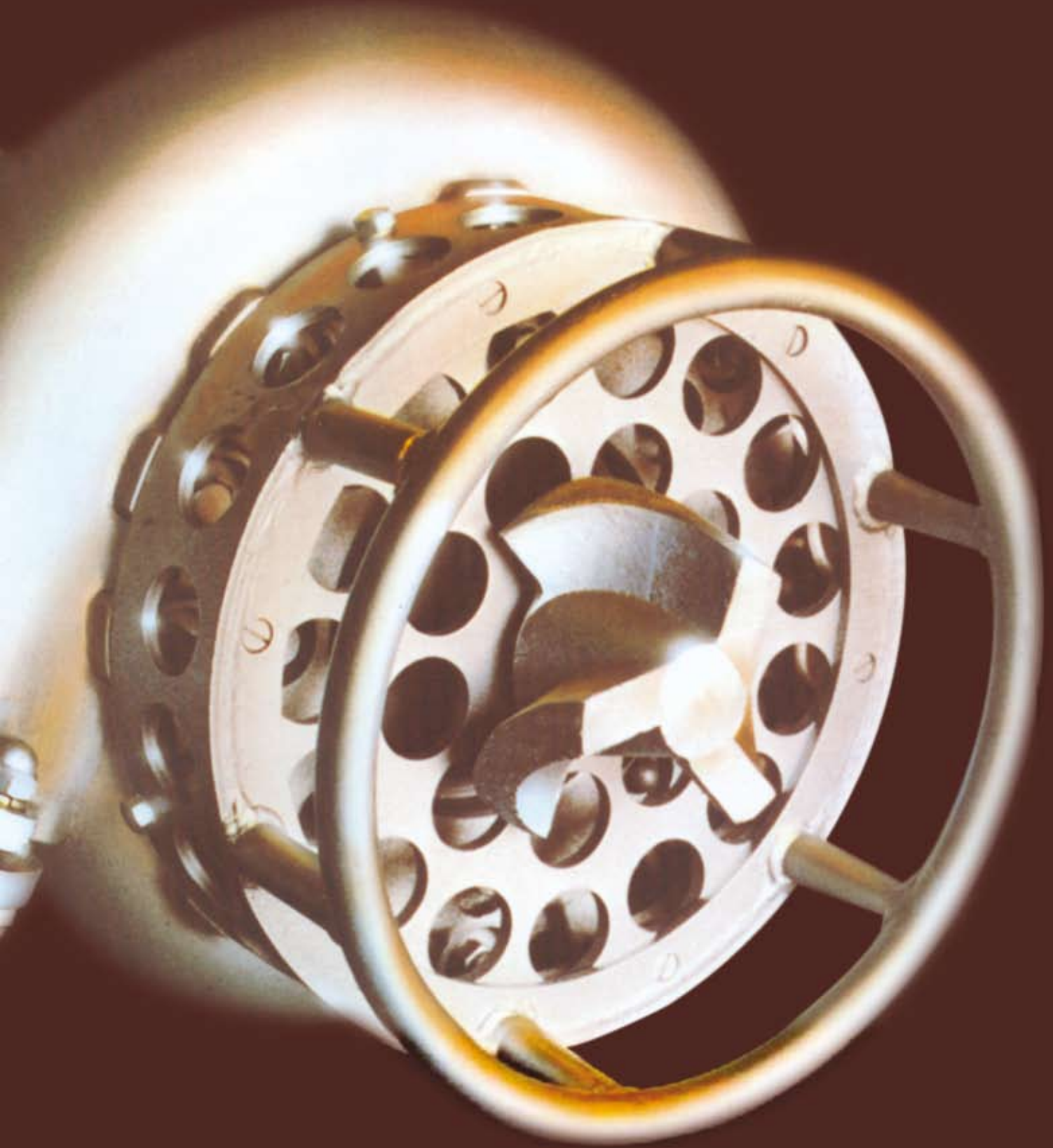


**ALL PUMPS
WERE NOT
CREATED EQUAL**



Toyon



*The ultimate solution to your
solids handling problems*



ALL PUMPS WERE NOT CREATED EQUAL

PRESENTING

THE TOYO PUMP

Moving slurries using pumps is a well known technology; using pumps to transfer low density slurries is also common. What is **NEW** is using a pump to agitate materials from rest, whip it into a slurry and pump it at high densities continuously and to comparably long distances -

ALL IN ONE SINGLE OPERATION.

THIS IS THE TOYO PUMP.

The TOYO pump is a Submersible, agitator sand pump. Built very sturdily with extra ordinary features for use in rugged, difficult and exacting service conditions.

The TOYO PUMP, with its built-in mechanical agitator, has been specially designed to pump solids that have settled. The rotating custom built agitator of TOYO pump moves the solids from rest, whips it into a dense slurry and directs a highly concentrated and continuous flow of material into the impeller. This is then pumped out.

The TOYO PUMP incorporates many unique features which sets it apart from other pumps

- The TOYO PUMP is provided with a protective screen, which prevents ingestion of oversize solids.
- Special seals are used to withstand pressure / temperature.
- The excellent metallurgy of wearing parts ensures long life.
- The efficient performance of pumps can be maintained for long periods by adjusting the clearance between the impeller and impeller disc.
- Unique shaped pump parts made of abrasive resistant materials.
- All wearing parts made of special alloys extra thick for longer life.
- Compartmentalised construction to minimize parts subject to abrasion.

The standard range TOYO PUMP DPF / DP Series can effectively handle solids upto 120mm dia., head and depth of 30 Metres. TOYO's special range pumps can operate at much greater depths and head.

The TOYO PUMP combined with booster slurry pumps are used to transport material over longer distances.

The TOYO system is easily the most cost effective method of converting stationary material into a pumpable state and transporting it – **all at a fraction of the costs of conventional methods.** Its simplicity and ease in operation makes the TOYO system universally acceptable.

Typical applications of TOYO PUMPS include:

- Dredging of Fishing Harbors and Minor Ports;
- Mineral/Iron Ore Processing Plants
- Steel Plants - mill scales, sludge / slag pumping
- Coal Ash Handling in Thermal Power Stations
- Civil Constructions - Dredging & Caisson Well sinking
- Rivers / Inland Waterway Dredging
- Hydropower / Irrigation Reservoir Deepening/Desilting
- Sewage Disposal, Water Treatment Plants, etc.

The standard TOYO PUMPS range consists of the DPF/DP (Light & Dredge Pump Series) and ET series of Pumps. Special Range includes the Deep Sea Pumps; the DPE Series & DV Series. TOYO accessories - The TOYO Agitators & TOYO Excavators – PK & EPK Series are used to increase the area of agitation and / or output of solids.



KEY FEATURES OF THE TOYO PUMP

1. AGITATOR

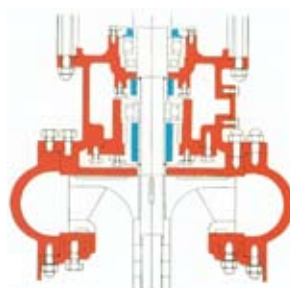
The unique feature of the Toyo Pump is its patented built in mechanical agitator. Specifically designed to agitate the solids that have settled and whip it into a thick slurry. A high concentration of this slurry is then directed into the impeller, which is then pumped out.

This is precisely where conventional pumps fail to deliver.



2. PUMP CASING & SEALS

The pump casing, which is subjected to very high wear and tear, is made from abrasion resistant alloy material specially developed by Toyo after decades of experience. Compartmentalised construction allows for specific replacement of worn out parts. Pump seals are special type to withstand the pressure and operate in self contained fluid reservoir.



3. GRAVEL SIZES

The Toyo Pump effectively handles solids upto 120mm dia., depending on models.



Size : 10 - 35 mm Dia; Dis. Dia 100 mm



Size : 35 - 60 mm Dia; Dis. Dia 150 - 200 mm



Size : 35 - 120 mm Dia; Dis. Dia 200 - 250 mm

4. SAND COLLECTION FROM SEA

The Toyo DP(A) Deep Sea Series is specially designed to collect sand from the Sea at depths of 90 metres and even more. Capacities range from 720 to 1500 M3 per hour of **SOLIDS - SAND**.



THE TOYO DREDGING SYSTEM

The TOYO Dredging System typically consists of:

1. TOYO Pump (with Control Panel for larger Models).
2. Floating Pontoon
3. Delivery Pipeline with Floaters.
4. Flexible Hose to connect TOYO Pump outlet to delivery pipeline.
5. Power Winch for lifting & lowering TOYO Pump
6. Generator/ Electric mains supply
7. Direction Control Winches, tools & tackles.

The TOYO Pump is suspended from an A frame attached to the pontoon using a Power winch. The power supply is connected to the control panel. The pontoon is anchored using the manual direction control winches. The pump outlet is connected to the flexible hose which in turn is connected to the delivery pipeline. The pump is started and lowered into the water. Water is first pumped and when the pump is lowered further, sand is pumped out.

In sites containing large concentrations of clay, TOYO EXCAVATORS may be required. Two types of TOYO EXCAVATORS are available – PK Series & EPK Series.



A typical pontoon arrangement.



A typical ladder arrangement.

THE TOYO RANGE

The TOYO PUMP range consists of the ET Series, DP(Light) Series, DPF/ DP (Dredge Pump) Series, DP(A) – Sand Collection Series, the DV Tank Mounted Series, the DPE Series and TOYO Accessories.

THE TOYO ET SERIES

The TOYO ET series are intended for intermittent use where the project requirements are small. Typical applications include de-silting of raw water intake pump house, cooling water channels in thermal power stations, pits de-silting, coal ash ponds de-silting, settling tanks de-silting, storm water drains clearing, dewatering operations etc.



Range	: 1- 20 HP
Capacities	: 6 - 120 M ³ /Hr.
Discharge dia	: 50 - 150 mm
Head	: 6-20 mtrs.
Size of Solids	: 10-30 mm dia
Applications	: Intermittent pumping of slurry in processing plants, Steel plants, Thermal power plant, Minerals processing etc.

THE TOYO DP (LIGHT) SERIES

The TOYO DP Light series is a modified version of TOYO ET Pump series. DP Light Series incorporates the compartmentalised construction of the DP series. The applications are same as that of ET Series. DP Light series pumps is used where increased working hours are required.



Range	: 3- 10 HP
Capacities	: 30 - 60 M ³ /Hr.
Discharge dia	: 80 - 100 mm
Head	: 7-20 mtrs.
Size of Solids	: 14-20 mm dia
Applications	: Processing plants of Steel / Minerals, Coal, Bauxite etc.

THE TOYO DPF / DP (DREDGE PUMP) SERIES

The TOYO DPF / DP Dredge Pump series is the commonly used versatile pumps for dredging and de-silting. The application includes dredging in Fishing Harbours, Minor Ports, Jetties, Shipyards - docks and quaysides etc. De-silting of intake water channels in Paper Mills, Thermal Power Stations, Aquaculture farms as well as de-silting of reservoirs of hydro electric dams. Designed for continuous operation.



Standard Range	: 15 - 150 HP
Capacities	: 90 - 720 M ³ /Hr.
Discharge dia	: 100 - 250 mm
Head	: 8-40 mtrs.
Size of solids	: 35-120 mm dia
Applications	: Dredging in Ports / Harbour, Sea, Jetties etc. De-silting & Land Reclamation.

THE TOYO DP (A) SERIES

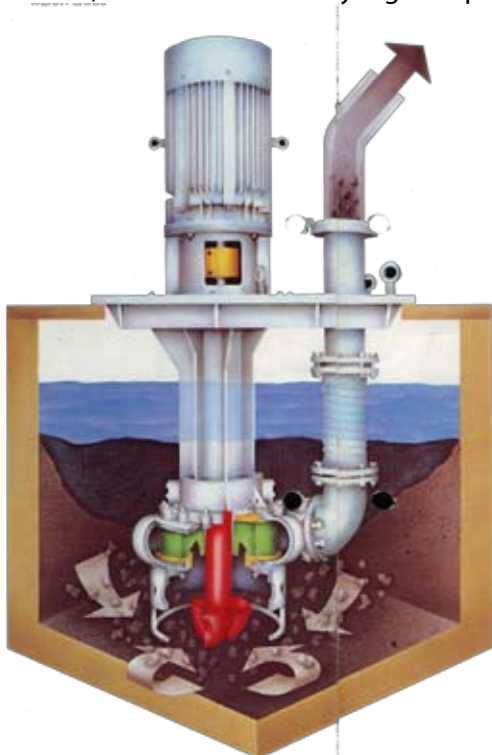
The TOYO DP (A) Pump series are the unique Deep Sea Application Dredge pumps. These are specially designed pumps and can operate to depths exceeding 90 mts. The capacities of these pumps are also huge which is necessary to ensure very high volume of sand collection in very less time. TOYO DP(A) is widely used for deep sea sand collection in Japan as well as in Europe and some parts in the Far East.



Range	: 150 - 1300 KW
Capacities	: 720 - 7500 M ³ /Hr. OF SAND
Discharge dia	: 200 - 700 mm
Head	: 8-40 mtrs.
Size of solids	: 35-120 mm dia
Applications	: Collection of Sand from Sea / River / Lakes / Dams

THE TOYO DV / DFV SERIES

The TOYO DV / DFV series is specially designed for sump operations - De-silting of sumps and agitating tanks in minerals processing industries. This series has found wide acceptance in many mineral processing plants world wide. The major advantages include continuous operation; no clogging or cavitations, continuous and very high output of solids.



	DV	DFV
Range (HP)	: 3 - 10	15 - 150
Capacities (M ³ /Hr.)	: 30 - 60	90 - 720
Head (mtrs.)	: 5 - 25	15 - 40
Shaft Length (mtrs.)	: 3 - 4	3 - 4
Applications	: Sump & Tanks De-silting	

THE TOYO DPE / DPFV SERIES

The TOYO DPE / DPFV series is used mainly for dewatering and sewage pumping applications.



	DPE	DPFV
Range (HP)	: 3 - 10	15 - 75
Capacities (M ³ /Hr.)	: 30 - 60	90 - 360
Head (mtrs.)	: 7 - 20	15 - 40
Size of Solids (mm dia)	: 14 - 25	35 - 60
Applications	: Sump & Tanks De-silting, Water Treatment Plants	

THE TOYO PUMP ACCESSORIES

The TOYO Excavators PK & EPK Series are used in conjunction with TOYO DPF / DP where soil is found to be sticky due to higher percentage of clay and DP (A) Series Dredge Pumps to increase the concentration of sand in the slurry. Different type of teeth is available in PK series depending upon site conditions and applications. OPK Series is the hydraulic version of EPK.

THE TOYO EXCAVATOR – PK SERIES



Range	: 10 - 50 HP
Type of Teeth	: A, B & D
RPM	: 24.5 - 27.3
Applications	: Attachment to Toyo Pump for pumping sticky sand mixed with clay / slit.

THE TOYO EXCAVATOR EPK SERIES



Range	: 10 - 50 HP
RPM	: 24.5 - 27.3
Applications	: Attachment to Toyo Pump for dredging sand mixed with clay / slit.

THE TOYO AGITATOR – VHA & THAF SERIES

The TOYO THA and VHA are multi - nozzle agitators, which have been proved to successfully agitate settled solids into highly concentrated slurry where many other systems have failed.

THE TOYO AGITATOR – VHA SERIES



Range	: 3 -30 HP
Capacities	: 96 - 480 M ³ /Hr.
Size of Solids	: 25 - 60 mm dia
Applications	: Agitator for Tanks, Settling Ponds etc.

THE TOYO AGITATOR – THAF SERIES

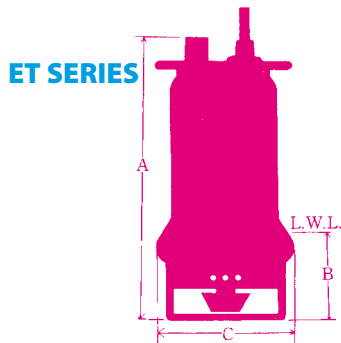


Range	: 15 - 50 HP
Capacities	: 150 -600 M ³ /Hr.
Size of Solids	: 60 mm dia
Applications	: Agitator for Tanks, Settling Ponds etc.

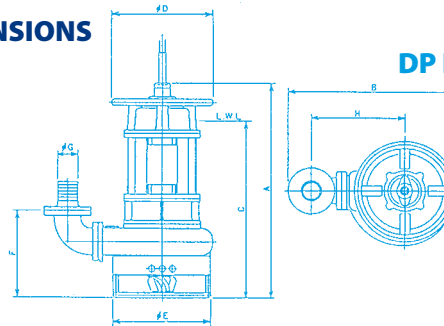
TOYO PUMPS SPECIFICATIONS

SPECIFICATIONS – ET SERIES

Pump Model	Discharge Dia	Discharge head	Capacity	Max. Size Solid	Out put		Weight	Synch. speed	A	B	C
	mm	M	M3/min	mm	KW	HP	Kg	Rpm	mm	mm	mm
ET – 1-2	50	6	0.1	10	0.75	1.0	90	1500	658	190	310
ET – 2-2	50	8	0.2	10	1.5	2.0	95	1500	688	190	310
ET – 3-2	80	7	0.5	20	2.2	3.0	145	1500	798	245	360
ET – 5-2	80	12	0.5	20	3.7	5.0	155	1500	853	245	360
ET – 7.5 –2	80	15	0.5	25	5.5	7.5	195	1500	863	265	440
ET-7.5B-2	100	12	1.0	25	5.5	7.5	195	1500	883	265	440
ET – 10-2	100	15	1.0	25	7.5	10.0	215	1500	923	265	440
ET-10H –2	100	20	0.8	14	7.5	10.0	225	1500	923	265	440
ET-15-2	100	15	1.2	30	11	15	300	1500	1033	350	500
ET-15B-2	150	12	2.0	30	11	15	300	1500	1063	350	500
ET-20-2	100	20	1.2	30	15	20	320	1500	1078	350	500
ET-20B-2	150	18	2.0	30	15	20	320	1500	1108	350	500



DIMENSIONS



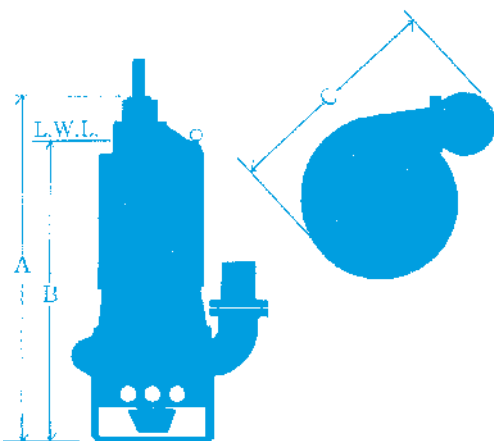
DP LIGHT SERIES

SPECIFICATIONS – DP (LIGHT) SERIES

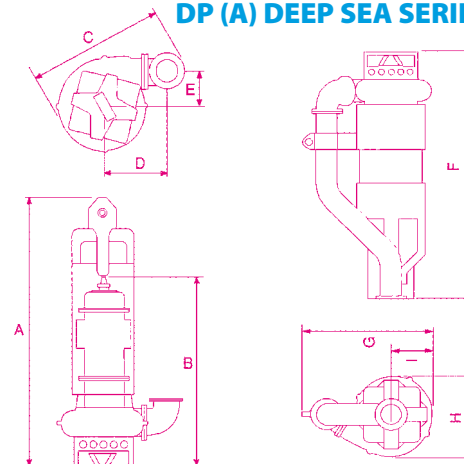
Pump Model	Discharge	Discharge head	Capacity	Max. Size Solid	Out put		Weight	Synchronous speed	A	B	C
	mm	M	M/min	mm	KW	HP	Kg	Rpm	mm	mm	Mm
DP – 3-2	80	7	0.5	20	2.2	3.0	145	1500	785	636	680
DP – 5-2	80	12	0.5	20	3.7	5.0	155	1500	840	636	700
DP – 7.5-2	80	15	0.5	25	5.5	7.5	195	1500	850	666	700
DP-7.5B-2	100	12	1.0	25	5.5	7.5	195	1500	850	727	700
DP – 10-2	100	15	1.0	25	7.5	10.0	215	1500	890	727	740
DP-10H-2	100	20	0.8	14	7.5	10.0	215	1500	890	788	740

DIMENSIONS

DPF / DP DREDGE PUMP SERIES



DP (A) DEEP SEA SERIES



SPECIFICATION SHEET – DPF & DP (DREDGE PUMP) SERIES

PUMP MODEL	DISCHARGE BORE	DISCHARGE HEAD	CAPACITY	MAX. SOLID SIZE	MOTOR		WT.	SYN. SPEED	DIMENSIONS			RECOMMENDED GENERATOR CAP	
					OUT PUT	POLES			A	B	C		
	mm	Mtrs	M3/min	mm	KW	HP	Kgs	RPM	mm	mm	mm	DOL	RS
DPF-15	100	15	1.5	35	11	15	490	1000	1295	1100	750	50	-
DPF-15B	150	8	3.2	60	11	15	530	1000	1295	1100	840	50	-
DPF-20	100	20	1.5	35	15	20	550	1000	1310	1100	825	70	-
DPF-20H-1	100	25	1.5	30	15	20	550	1000	1310	1100	825	70	-
DPF-20B	150	10	3.2	60	15	20	540	1000	1310	1100	840	70	-
DPF-30	100	30	1.5	35	22	30	750	1000	1390	1200	910	100	-
DPF-30B	150	15	3.2	60	22	30	730	1000	1390	1200	955	100	-
DPF-40B	200	12	6	40	30	40	750	1000	1390	1200	1010	130	-
DPF-50	150	25	3.2	60	37	50	950	1000	1575	1350	1020	175	125
DPF-50H	150	28	3.2	40	37	50	950	1000	1580	1350	1094	175	125
DPF-50B	200	15	6	60	37	50	970	1000	1575	1350	1065	175	125
DPF-50BL	250	5	12	100	37	50	1150	1000	1650	1450	1350	175	125
DPF-75B	200	28	6	60	55	75	1020	1000	1670	1450	1145	225	175
DP-100B1	200	30	6	60	75	100	2300	750	1875	1650	1570	275	225
DP-100BL	250	15	12	100	75	100	2700	750	2058	1850	1645	275	225
DP-150	200	40	6.5	120	110	150	3500	600	2734	2300	1610	360	300
DP-150L	200	30	8	120	110	150	3500	600	2734	2300	1610	360	300
DP-150B	250	22	12	120	110	150	3500	600	2794	2400	1695	360	300

DOL = DIRECT ON LINE R.S = REACTOR STARTER(O.E)

CAB TIRE CABLE	
DPF 15 TO DPF 20	3PNCT 8MM2 X 4C
DPF 30, 30B	3PNCT 14MM2 X 4C
DPF 40B	3PNCT 22MM2 X 3C & 3.5MM2 X 1C

CAB TIRE CABLE	
DPF 50 TO DPF 75	3PNCT 38MM2 X 3C & 3.5MM2 X 1C
DP-100	3PNCT 100MM2 X 3 C & 8,0MM2 X 1C
DP-150	3PNCT 100MM2 X 3C & 14MM2 X 1C

SPECIFICATIONS – DP(A) SERIES

Pump Model	Discharge		Discharge head	Out put	Max. Size Solid	Out put		Weight	Synchro nous speed	A	B	C
	Mm	Inch	M	THP	mm	KW	Hp	TONS	rpm	Mm	Mm	Mm
DP – 150, DP – 150L	200	8	40	390	120	110	150	308	720	-	2734	1610
DP – 150 A	200	8	40	390	120	110	150	3.8	720	-	2854	1610
DP – 150 L - A	200	8	30	480	120	110	150	3.8	720	-	2854	1610
DP – 150 B	250	10	22	720	120	110	150	3.8	720	-	2794	1695
DP – 150B-A	250	10	22	720	120	110	150	3.8	720	-	2914	1695
DP – 175	400	16	8	1000	120	132	175	6.0	900	-	2885	2090
DP – 200 – 10	300	12	21	1080	120	160	200	7.0	600	4219	2952	2140
DP – 200 – 12 A	300	12	23	1080	120	160	200	7.0	600	4219	2952	2140
DP – 300 – 10	400	16	20	1800	120	220	300	9.0	600	4638	3232	2230
DP – 300 – 12 A	350	14	30	1440	120	220	300	9.0	600	4638	3232	2230
DP – 400 – 12 A	400	16	30	1800	120	280	400	10	600	5063	3380	2370
DP – 600 – 12 A	450	18	30	2880	120	450	600	17	600	5027	3587	2825
DP – 700 – 14 A	500	20	30	3720	120	550	700	18	514	5180	3857	2980
DP – 800 – 14 A	550	22	30	4200	120	600	800	20	514	5245	4137	2980
DP – 900 – 16 A	550	22	30	4800	120	700	900	30	450	-	-	-
DP – 1200 – 16 A	600	24	30	6000	120	900	1200	33	450	-	-	-
DP – 1500 – 16 A	650	26	40	6960	120	1100	1500	40	450	-	-	-
DP – 1800 – 16 A	700	28	42	7500	120	1300	1800	45	450	-	-	-

TOYO PUMPS ACCESSORIES SPECIFICATIONS

SPECIFICATIONS–PK EXCAVATORS

PUMP MODEL	KW			RPM	KGM	WEIGHT KG	200V	400V
PK-10-4	7.5	4	1/59	24.5	269	600	3RNCT 8X4 ^C	3RNCT 5.5X4 ^C
				29.3	225			
PK-20-4	15	6	1/43	22.6	582	1400	3RNCT 8X4 ^C	3RNCT 8X4 ^C
				27.1	486			
PK-30-4	22			22.7	850	2000	3PNCT 38X3 ^C 3.5X1 ^C	3RNCT 14X4 ^C
				27.2	710			
PK-50-4	37			22.8	1424	3800	3PNCT 50X3 ^C 8X1 ^C	3PNCT 38X3 ^C 3.5X1 ^C
				27.3	1189			

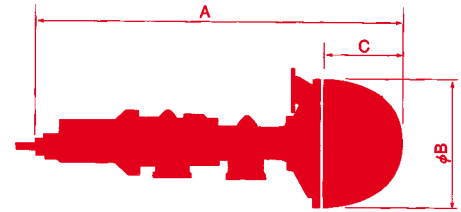
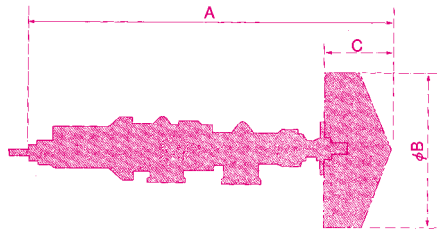
SPECIFICATIONS – EPK EXCAVATORS

PUMP MODEL	MM	KW			RPM	KGM	WEIGHT KG	200V	400V
EPK-10-4	150	7.5	4	1/59	24.5	269	700	3RNCT 8X4 ^C	3RNCT 5.5X4 ^C
					29.3	225			
EPK-20-4	200	15	6	1/43	22.6	582	1700	3RNCT 8X4 ^C	3RNCT 8X4 ^C
					27.1	486			
EPK-30-4	250	22			22.7	850	2700	3PNCT 38X3 ^C 3.5X1 ^C	3RNCT 14X4 ^C
					27.2	710			
EPK-50-4	300	37			22.8	1424	5800	3PNCT 50X3 ^C 8X1 ^C	3PNCT 38X3 ^C 3.5X1 ^C
					27.3	1189			

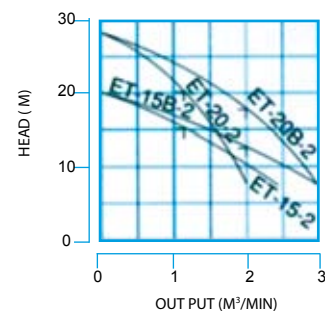
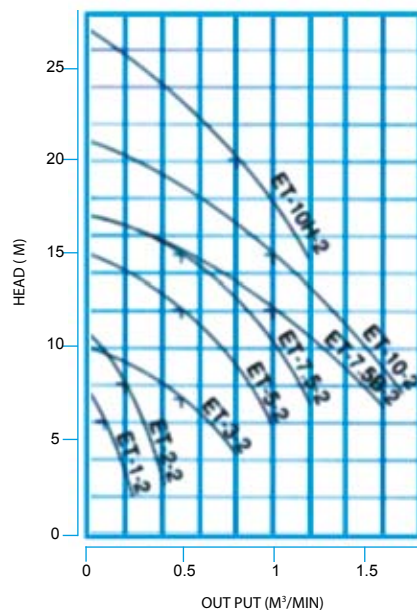
TOYO EXCAVATOR PK SERIES

DIMENSIONS

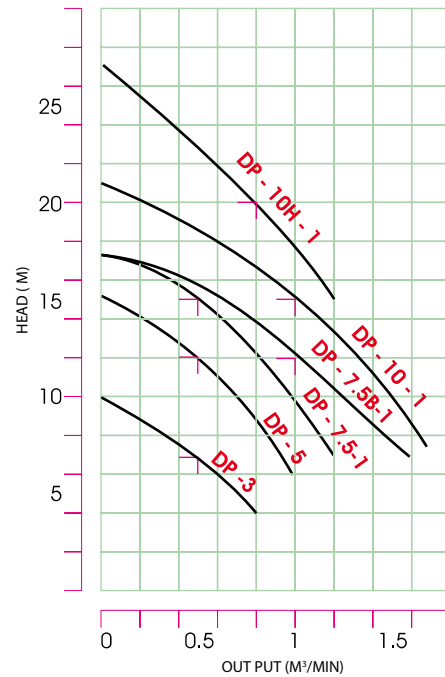
TOYO EXCAVATOR EPK SERIES



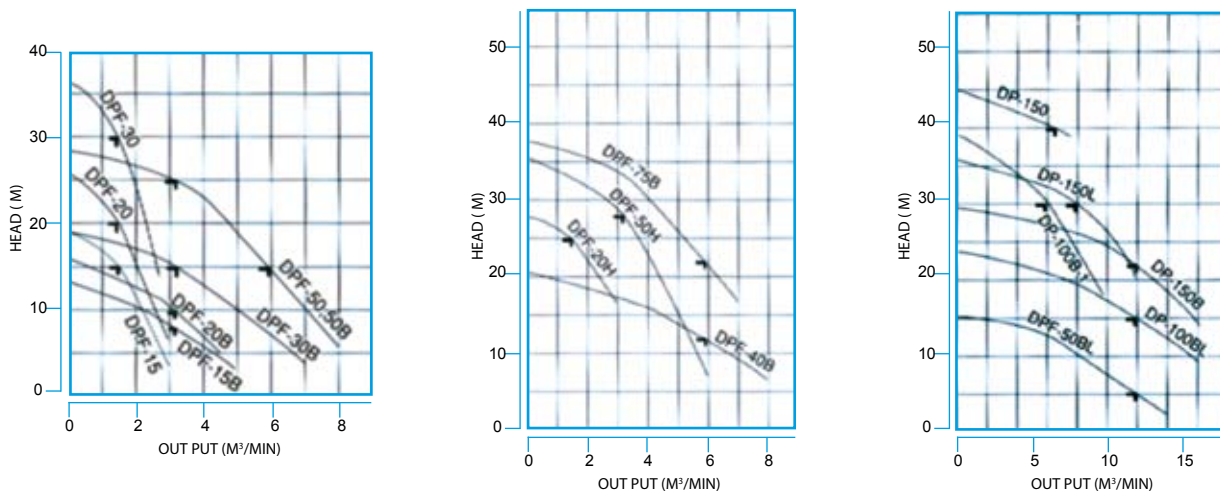
PERFORMANCE CURVE OF ET SERIES



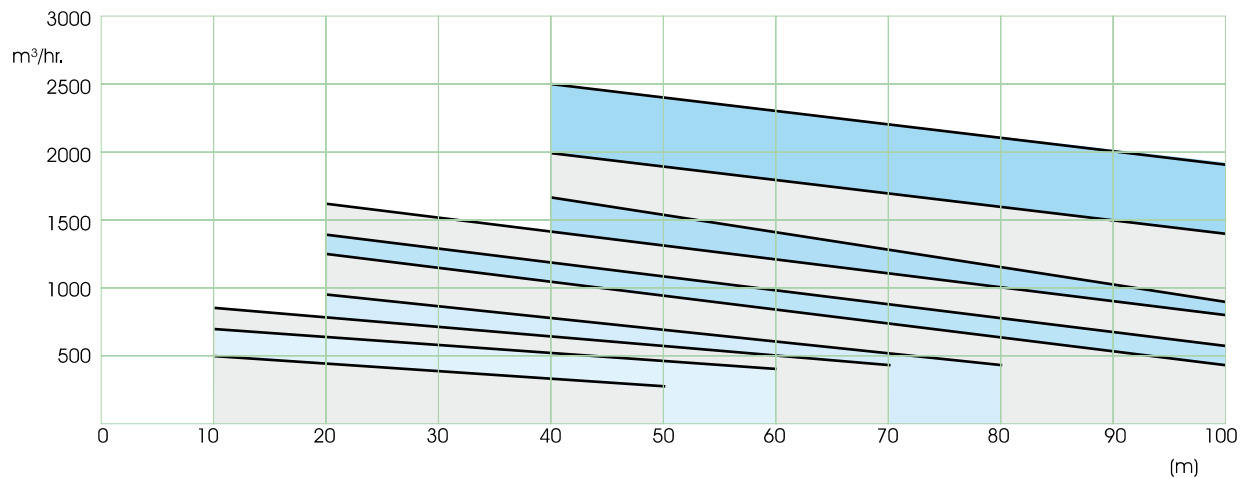
PERFORMANCE CURVE OF DP LIGHT



PERFORMANCE CURVE OF DPF/DP (DREDGE PUMP) SERIES



PERFORMANCE CURVE OF DP(A) SERIES



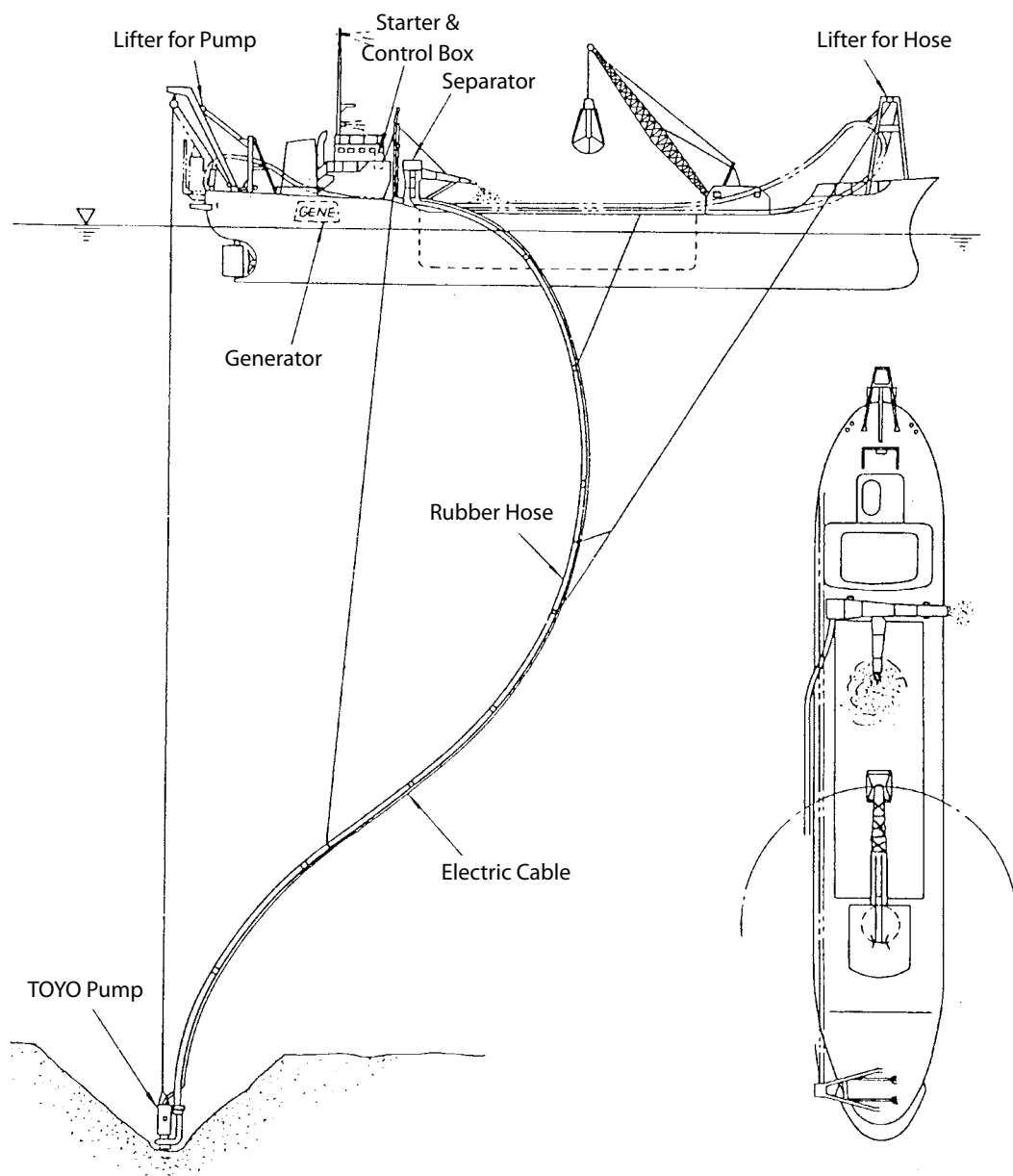
THE TOYO DEEP SEA SAND COLLECTION SYSTEM

The TOYO Sand Collection System is being used in Japan and most parts of Europe for the past 45 years. A Specially Designed TOYO Pump, which can operate in depths of water of more than 90 mtrs, is used to collect sand from the sea – about 15-30 kms from the shore. Further details can be had on request.

A Typical TOYO Sand Collection System Consists of:

- TOYO SUBMERSIBLE AGITATOR DREDGE/SAND PUMP
- PONTOON/BARGE
- PUMP STARTER & CONTROL PANEL
- SHOOTER/SELECTOR
- DISCHARGE HOSE, HOSE REEL & PIPE
- CAB TIRE CABLE & CABLE REEL
- GENERATOR

A typical sketch of the TOYO Sand Collection System.



DATA REQUIRED FOR TOYO PUMP SELECTION

Site Information :

Purpose : ☐ Land Reclamation ☐ Mining ☐ Dredging ☐ Recovery
☐ Ash Handling ☐ Desilting ☐ Sand Collection
 Others :

COMPOSITION OF MATERIAL TO BE PUMPED

Material	%	Free	Soft	Sticky	Hardness (Pl. Specify NPT in 'N')
Mud/Silt					
Clay					
Sand					
Gravel					
Others					

AVERAGE SOLID SIZE :

Minimum (mm)	Maximum (mm)	Percentage	Remarks
0.01	1.0		
1.0	2.0		

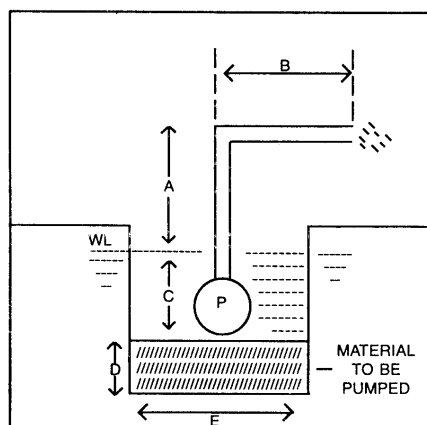
Average Sp. Gr. Material :

Total Solids to be pumped : M³

Time for the operation : No. of Days :

Power Source available : V HZ PH

PIPING CONFIGURATION



A	B	C	D	E

A. Maximum Height of Pipe Line above water level (mtrs)

B. Horizontal distance (mtrs)

C. Water Depth (mtrs)

D. Dredging Depth (mtrs)

E. Distance to be dredged :

Length - mtrs

Breadth - mtrs

Total Dredging Depth (C+D) - mtrs

CONTACT DETAILS

Name : Designation :

Organization : Tel :

Mob : Email :

TOYO PUMP IN ACTION



Model : Toyo Pump DP 100 B on Pontoon
Application : Dredging in Fishing Harbour, Tadri.
Customer : Karnataka Govt. / Indo Danish Fisheries Project



Model : DP 20 with Water Jets
Application : For pumping Sand and Clay for Bridge Support Caissons
Customer : USA



Model : Toyo Pump DP 150 B on Pontoon
Application : Desilting of Hydro Electric Dam in Mexico.



Model : Toyo Pump DP 30 B
Application : Unloading of Silica from Barge.
Customer : Glass Factory, Japan.



Model : DP 50 on Oil Drum Pontoon
Application : Dredging
Customer : USA



Model : DP 50 B on Pontoon
Application : Channel Dredging in Assam
Customer : HPC, Assam, India.



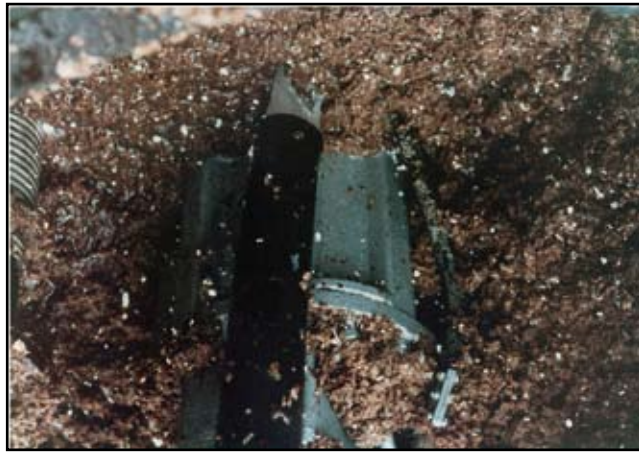
Model : DP 20 S on Pontoon
Application : Effluents Lagoon De-silting
Customer : SIV, India.



Model : DP 100 B on temporary Pontoon
Application : For sand dredging
Customer : Harbour Engg. Dept., Kerala, Neendakara
Fishing Harbour



Model : DP 50 on Pontoon
Application : Coal Separation Plant
Customer : Australia



Model : DP 15
Application : Pumping Paper Mills Sludge
Customer : USA



Model : DP 15
Application : Iron Ore Pumping
Customer : Steel Mill, Japan



Model : DP 150 B on Pontoon
Application : Dredging in Harbour
Customer : USA.



TOYO SAND COLLECTION SYSTEM



Model : DP 400 A
Application : Sand Collection from Sea
Customer : Japan



Model : DP 150 A & EPK 30 - 2 Nos.
Application : Sand Collection from Sea
Customer : Japan



Model : DP 150 A.
Application : Sand Collection from Sea
View of Shooter
Customer : Japan

TOYO EPK EXCAVATOR



TOYO EPK / PK



Model : DP 150 B & EPK 30
Application : Dredging
Customer : Europe



Model : DP 50 & EPK 10
Application : Submarine Oil
Pipeline Laying
Customer : USA



Model : DP 150 B & PK 10-4 Nos.
Application : Caisson Well Boring
Customer : Europe

TYPICAL APPLICATIONS OF TOYO PUMPS

1. DREDGING

1.1.0 Dredging Projects

- 1.1.1 Fishing Harbours
- 1.1.2 Minor Ports
- 1.1.3 Ocean Projects
- 1.1.4 Jetties
- 1.1.5 Land Reclamation

1.2.0 Desilting Projects

- 1.2.1 Hydro Electric Dam Reservoir
- 1.2.2 Quayside in Shipyard / Ports / Jetties
- 1.2.3 Intake Channels
- 1.2.4 Raw water intake channel cutting & Desilting
- 1.2.5 Intake water pump house

1.3.0 Maintenance Dredging of :

- 1.3.1 Fishing Harbours
- 1.3.2 Minor Ports / Jetties
- 1.3.3 Ocean Projects
- 1.3.4 Effluent Lagoons & Ponds
- 1.3.5 Inlet Channels

2. CONSTRUCTION

2.1.0 Foundations

- 2.1.1 Caission Well boring
- 2.1.2 Pile Boring
- 2.1.3 Pumping Slurry during piling

2.2.0 General Construction

- 2.2.1 Removal of Earth / Crushed stone
- 2.2.2 Construction of tunnels
- 2.2.3 Land reclamation
- 2.2.4 Site levelling
- 2.2.5 Transportation of Sand
- 2.2.6 Dewatering of Pits & Wells

2.3.0 Collection of Sand from River / Sea for :

- 2.3.1 Approach Roads
- 2.3.2 Construction

2.4.0 Others

- 2.4.1 Submarine Pipe laying

3. MINERALS/ORE/RARE EARTHS PROCESS PLANTS

- 3.1 Collection of raw sand with mineral / ore
- 3.2 In-process transfer of abrasive slurry
- 3.3 Pits de-silting
- 3.4 Emptying of hoppers
- 3.5 Pumping of rejects
- 3.6 Tank desilting
- 3.7 Raw water intake channel dredging
- 3.8 River / Canal dredging
- 3.9 Desilting of settling plants
- 3.10 Sedimentation basin dredging
- 3.11 Effluent treatment basin

4. MINING

- 4.1 Ore Slurry Pumping
- 4.2 De watering
- 4.3 In process transfer of abrasive slurries.
- 4.4 Washeries

5. THERMAL POWER PLANTS

- 5.1 Raw water intake canal desilting
- 5.2 Ash Disposal
- 5.3 Pits Desilting
- 5.4 Cooling water channel desilting
- 5.5 Effluent lagoon Desilting
- 5.6 Intake pump house desilting
- 5.7 Cutting new intake water channel
- 5.8 Coal handling plant pits desilting
- 5.9 Setting tanks desilting

6. SHIPYARD

6.1.0 Dry Dock Area

- 6.1.1 Desilting of dock gate area
- 6.1.2 Cleanng of dock after sand blast
- 6.1.3 Dewatering dock

6.2.0 Quayside

- 6.2.1 Desilting alongside quay
- 6.2.2 Deepening quayside area for draft

6.3.0 Utilities & Maintenance

- 6.3.1 Dewatering repair dock
- 6.3.2 Desilting entrance of repair dock
- 6.3.3 Dredging for maintenance of draft
- 6.3.4 Dredging sides & Release of stuck vessels
- 6.3.5 Reclaiming land area
- 6.3.6 Refilling of low areas

7. PUBLIC HEALTH & SEWAGE

- 7.1 Raw Water Reservoir Desilting
- 7.2 Sedimentation basin desilting
- 7.3 Storm water drains desilting
- 7.4 Pumping slurry during treatment of sludge
- 7.5 Sewage tank desilting / dewatering
- 7.6 Cutting new intake water channels
- 7.7 Dewatering of drains

8. PAPER MILLS

- 8.1 Effluent lagoon desilting
- 8.2 Raw water intake pump house desilting
- 8.3 Raw water intake channel dredging
- 8.4 Sludge removal
- 8.5 Ash slurry handling in captive power plant
- 8.6 Effluent Treatment Plant sludge removal
- 8.7 Fly ash disposal
- 8.8 Cutting new intake water channel

9. STEEL PLANTS

- 9.1 Mill Scales pumps
- 9.2 Sludge Pit desilting
- 9.3 Slag pumping

10. SAND COLLECTION

- 10.1 Collection of sand from river
- 10.2 Collection of sand from sea





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