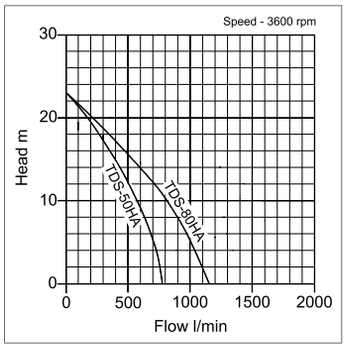
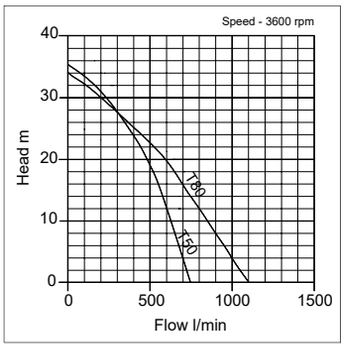
TDS • DRYMAX-T

CENTRIFUGAL - SEMI-TRASH

TDS are self-priming, centrifugal semi-trash pumps, with tool access pump casing, manufactured by Tsurumi and powered by Honda 4-stroke, recoil start, petrol engines. They have the Oil Alert engine protection system fitted to prevent damage from inadequate lubrication during use with low oil, or while at an angle. All models have easy-carry frames, rubber feet (for engine noise and vibration absorption) and elongated bolts for pump chamber access. Capable of pumping clean and dirty water, with suspended solids, they are good for site drainage, land drainage, liquid waste removal, sewage and flood defence.

DryMax-T are self-priming, centrifugal semi-trash pumps powered by electric start Hatz (1B) or Kohler (KD15) diesel engines and fitted on to 2-wheel site trolleys. Capable of pumping clean and dirty water, with suspended solids, they are good for site drainage, land drainage, liquid waste removal, sewage and flood defence.





Operating conditions: Maximum recommended suction lift: 6 mtrs | Oil alert engine protection (petrol)

Fluid: Clean water | Dirty water | Water with solids

Application: Hire fleets | Construction | Drainage | Waste removal | Submerged litter

	Type	Fuel	Starting
TDS	Centrifugal	Petrol	Recoil

	Type	Fuel	Starting
DryMax-T	Centrifugal	Diesel	Electric

	Inlet & outlet (TDS)		Inlet & outlet (DryMax-T)	
	Cast aluminium		Malleable iron	
Pump	Pump body	Volute	Impeller	Mechanical seal
	Cast aluminium	Grey cast iron	Grey cast iron	Silicon carbide

	Frame	Included fittings
Handling & Hose fittings	Tubular steel	hose couplings, sealing washers, hose clips & strainer

GX Engine 3 YEAR LIMITED WARRANTY*

KOHLER 3 YEAR WARRANTY

HATZ DIESEL 2 YEAR WARRANTY

TDS-50HA

DryMax-T (Kohler)

item code	model	inlet (mm)	outlet (mm)	engine	fuel	HP	oil alert	flow (l/min)	head (mtrs)	solids (mm)	w x l x h (mm)	dry weight (kgs)
18-20-1019	TDS-50HA	50	50	GX120	petrol	4	yes	780	23	20	345x470x420	24
18-20-1005	TDS-80HA	75	75	GX160	petrol	5.5	yes	1150	23	20	370x525x420	27
14-20-1003	DryMax-T50/HE	50	50	1B20	diesel	5	no	700	30	25	600x900x680	68
14-20-1002	DryMax-T80/HE	75	75	1B30	diesel	7	no	1100	34	32	600x900x680	92
14-20-1004	DryMax-T80/KE	75	75	KD15-350	diesel	6.8	no	1100	34	32	600x900x680	89

ENGINE PUMP

INSTRUCTION MANUAL

TSURUMI MANUFACTURING CO.,LTD.

TABLE OF CONTENTS

1. INTRODUCTION

Thank you for your recent purchase of this TSURUMI Engine pump.
This model machine is designed to give safe and dependable service when operated according to the instructions in the technical manual provided with the engine pump.
This pump features a safe, high-quality, compact and handy design.
Do not operate the engine pump before you have read and understand the instructions and the engine manufacturer's manual. Failure to do so could result in personal injury or equipment damage.

2. PREPARATION & CAUTIONARY POINTS

PREPARING THE PUMP FOR STARTING

1. FUEL
   (1) Selecting Fuel

2-stroke, Gasoline engine	Use mixture fuel
4-stroke, Gasoline engine	Use automotive gasoline
4-stroke, Diesel engine	Use diesel light oil
4-stroke, Kerosene engine	Use kerosene
	(Automotive gasoline for starting)

   (2) Filling Fuel
   Fill fuel into the fuel tank.
   NOTE: Do not fill the tank while the engine is running.

2. PRIMING WATER
   (1) Filling Priming Water
   Fill priming water to the top of the pump casing.

3. SUCTION AND DELIVERY HOSE
   (1) Install and tighten the suction hose securely.
   (2) Install and tighten the delivery hose securely.
   NOTE: Strainer should be installed at the end of the suction hose.
   All the suction hose joints must be tightly secured to prevent leaks.

3. HOW TO OPERATE & CAUTIONARY POINTS

START THE PUMP

1. Turn the fuel cock lever to ñOPENò
2. Turn the speed regulator to ñSTARTò
3. Operation of choke lever.
   (1) When the engine is cold: In cold weather, start with the choke lever fully-closed.
   (2) When the engine is warm: Start with the choke lever fully- opened.
4. Starting
   (1) Pull the recoil starter rope quickly and forcibly.
   Repeat until the engine starts.

※Diesel engine: See the engine manual.

OPERATE THE PUMP

1. Idle the engine for 3 to 5 minutes to warm it up.
2. Push the speed regulator handle to the upper zone, when ready to warm up engine.
   When the proper RPM for service loads is attained, secure the speed regulator handle by tightening the knob.

STOPPING THE PUMP

1. For short periods
   Push the speed regulator handle all the way down and let the engine run at low RPM for a while, then push the stop switch.
2. For long periods
   Close the fuel cock, (do not push the stop switch), allowing the engine to idle until the fuel in the carburetor has been used up,(about 2 to 3 minutes) engine will stop after fuel is exhausted.
3. For cold weather periods
   Drain all water from the pump.

WARNING

1. Do not use this pumping equipment to pump/move anything that is flammable.
2. Do not operate the engine pump near flammable materials or inside a room, cave, tunnel, or other insufficiently ventilated area.

3. Do not operate without suction strainer attached.
4. Always operate with safety devices in place and in working order.
5. Do not fill fuel when the engine is hot or running.
6. Do not smoke when filling a fuel or during operation.
7. Do not enclose the engine pump nor cover it with a box.
8. Do not pump liquids above 40 degree C (104 degree F).
9. Do not pump water containing corrosive chemicals or toxic substances. These fluids can cause serious health and environmental hazards.
10. Risk of burns. Use caution when draining hot engine oil. Hot oil may burn.

CAUTION

1. Fill engine oil to specified level before operation. (4-stroke engine)
2. Prime the pump before operation.

4. AFTER USE

PUMP MAINTENANCE

To maintain the centrifugal pump in peak operating condition, observe and implement the maintenance and adjustment schedule in Table 4-1. Inspect and/or service the centrifugal pump at the intervals shown in Table 4-1.

WARNING

1. Shut off the engine before performing any maintenance. If operation of the engine is required, make sure the area is well ventilated;The engine exhaust contains poisonous carbon monoxide gas.
2. It may cause burns while the engine is hot. Equip appropriate working gear and use caution when working with hot engines.
3. Most used oils contain small amounts of substances that can cause cancer and other health problems. Do not inhale, ingest, or leave in contact with the skin for long periods of time.

Table 4-1: Maintenance Schedule

Frequency	Maintenance Action
Daily	Check oil level. Tighten any loose nuts and bolts.
50 Hours	Wash cleaner element. Check spark plug and clean if necessary.
100 Hours	Change engine oil. Remove the casing cover and clean by washing with water. Remove the air cleaner cap and remove the cleaner sponge. Rinse the sponge well in gasoline. Squeeze it to remove the fuel and dry, then dip it in new lubricating oil, squeeze it tight and remount.
200 Hours	Adjust spark plug gap. The gap should be adjusted to 0.6 0.7mm if necessary. Tighten all outside nuts, bolts, and screw. Clean fuel strainer.
500 Hours (12 Months)	Replace spark plug and cleaner element. Clean and adjust carburetor, valve clearance, and valve seat along with cylinder head.
1,000 Hours (24 Months)	Replace engine isolation mounts. Overhaul engine. Change fuel lines.

DISASSEMBLY AND CLEANING (For trash pump)

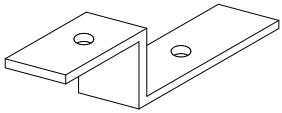
WARNING

A worn impeller may have sharp edges; be careful to avoid injury.

1. Turn the knob to left and remove the casing cover holder.

2. Pull the casing toward you, then casing and the inner casing can be detached.
3. Give the impeller a shock with a rod and then turn the impeller to left.
4. Draw out the mechanical seal from the engine shaft.

MULTI-PURPOSE TOOL maintain the pump easily. Use it to remove the front cover, impeller and any obstructions inside.



(The pump with, HONDA engine)

PROPER STORAGE

WARNING

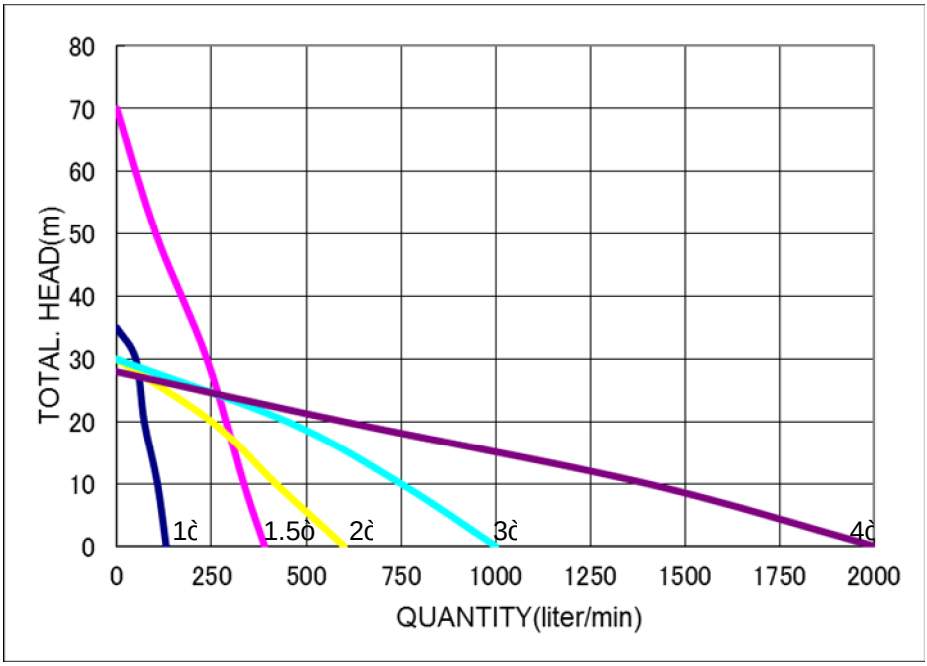
To avoid severe burns or fire hazards, let the engine cool before transporting it or storing it indoors.

When transporting the pump, turn the fuel shutoff valve to the OFF position and keep the engine level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

1. Drain all water from the pump.
2. Drain all fuel from the engine, fuel filter, fuel lines and tank.
3. Store the pump in a dry place free of air-borne sand or dust.
4. Always keep the pump covered.

5. PERFORMANCE CURVE & SPECIFICATIONS

Dewatering pump



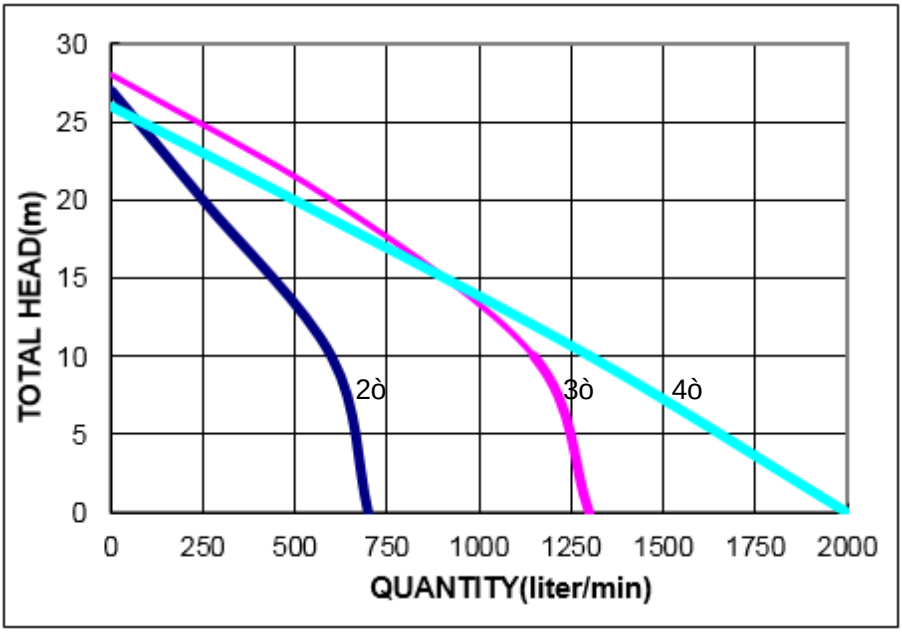
Suc.&Dis.Dia mm(inch)	Engine Model & Max. Output (kW)HP/min^{-1}	Max.Capacity liter(usg)/min	Total.Head m(ft)
25×25 (1×1)	HONDA GX25 (0.81)1.1/7000	130(34)	35(115)
40×40 (1.5×1.5)	HONDA GX160 (3.6)4.8/3600	390(103)	70(230)
50×50 (2×2)	HONDA GX120 (2.9)4.0/3600	520～600 (137～158)	32(105)
	HONDA GX160 (4.0)5.5/3600		
	YANMAR L48 (3.5)4.7/3600		
80×80 (3×3)	HONDA GX160 (4.0)5.5/3600	1000(264)	32(105)
	YANMAR L48 (3.5)4.7/3600		
100×100 (4×4)	HONDA GX240 (5.9)8.0/3600	1800(474)	28(92)

Suction head: 8m(26ft).

※Specifications subject to change without notice

※Performance of the products might be different depend on the engine bland

Trash pump



Suc.& Dis. Dia mm(inch)	Max. Slid Size mm(inch)	Engine Model & Max. Output (kW)HP/min^{-1}	Max.Capacity liter(usg/min)	Total.Head m(ft)
50×50 (2×2)	25 (1)	HONDA GX160 (4.0)5.5/3600	700 (185)	27 (88)
80×80 (3×3)	31 (1.2)	HONDA GX240 (5.9)8.0/3600	1200～1300 (312～343)	24～28 (78～91)
		YANMAR L70 (4.9)6.7/3600		
100×100 (4×4)	31 (1.2)	HONDA GX340 (8.0)11.0/3600	1800～2000 (467～528)	24～26 (78～85)
		YANMAR L100 (7.4)10.1/3600		

Suction head: 8m(26ft).

※Specifications subject to change without notice.

※Performance of the products might be different depend on the engine bland

6. TROUBLE SHOOTING

The troubleshooting tables below can be used as a guide to isolate centrifugal pump faults. Refer to these tables when the engine fails to start after several attempts. If, after following these procedures, the pump fails to start, contact the nearest Tsurumi pump dealer.

Table 6-1: Troubleshooting Table

Fault	Probable Cause	Remedy
Pump does not pump .	Insufficient priming water .	Add more water through priming plug.
	Mechanical seal chipped or broken .	Replace mechanical seal.
	Check valve damaged .	Replace check valve.
	Suction hose damaged or strainer clogged.	Replace hose. Clean strainer.
	Air leaks caused by O-ring damage.	Replace O-rings.
Discharge flow or pump pressure too low.	Air leaks caused by O-ring damage.	Replace O-rings.
	Suction hose or strainer clogged.	Replace hose. Clean strainer.
	Excessive impeller clearance.	Disassemble to obtain casing cover and impeller. Determine clearance and re-shim as required (refer to Replacement of Mechanical Seal).
	Engine rpm too low .	Check rpm and reset throttle as required.
	Lift head too high .	Lower lift head.
Pump primes too slowly.	Insufficient priming water .	Add more water through priming plug.
	Mechanical seal chipped or broken .	Replace mechanical seal.
	Check valve damaged .	Replace check valve.
	Suction hose damaged or strainer clogged.	Replace hose. Clean strainer.
	Air leaks caused by O-ring damage.	Replace O-rings.
	Engine rpm too low.	Check rpm and reset throttle as required.
	Lift head too high .	Lower lift head.
Noise or vibration .	Faulty mounting .	Pump/engine attaching parts loose. Tighten as required. Damaged vibration isolation mounts. Replace mounts.

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