OPERATING INSTRUCTIONS FOR GASOLINE WATER PUMP SET

P15(40ZB15)

PREFACE

Thank you for choosing a water pump by our Co.

The information and specifications included in this publication were in effect at the time of approval for printing.

Based on the latest technology at home and abroad, our Co. has successfully developed the water pump set. The water pump set is characterized by advanced design, compact structure, reliable performance, convenient service, low fuel consumption and noise as well as fashion shape. With general gasoline engine as power, it is widely used in many fields such as agriculture, gardens, open working, etc.

The manual gives information with respect to operation and maintenance of the water pump set, and be sure to read it carefully first before operating. If any trouble occurs, call your dealer who will provide you with the best after service.

All the materials and diagrams of this manual are in accordance in this manual may be a little different from the actual stares. The copyright of this manual belongs to our Co., any group or

individual is forbidden to reprint or copy any it. The manual is subject to change without notice.

Keep this manual handy, so you can refer to it at any time. This manual is considered a permanent part of the water pump set and should remain with the water pump set if resold.

IMPORTANT NOTICES

Please pay special attention to statements preceded by the following words:

⚠ **WARNING:**

A warning is used to alert the user to fact that hazardous operating and maintenance procedures may result in injury to or death of personnel if not strictly observed.

⚠ **CAUTION:**

A caution is used to alert the user to fact that hazardous operation and maintenance procedures may result in injury to or death of personnel if not strictly observed.

NOTE:

Give helpful information.

This manual is filled with important safety information — please read it carefully.

This manual should be considered as a permanent part of the water pump set and should remain with the water pump set when resold.

CONTENTS

1. PUMP SAFETY

IMPORTANT SAFETY INFORMATION

40ZB15-1. 4Q water pump sets are designed to pump only water that is not intended for human consumption, and other uses can result in injury to the operator or damage to the pump and other property.

Most accidents can be prevented if you follow all instructions in this manual and on the pump. The most common hazards are discussed below, along with the best way to protect yourself and others:

For safety, never pump flammable, noxious or corrosive liquids such as gasoline or acid. Also, to avoid pump corrosion, never pump sea water, muddy water, chemical solutions, or caustic liquids such as used oil, wine, or milk.

If the pump set appears some unusual condition, turn the ENGINE SWITCH to **OFF** stop the engine.

Operator Responsibility

It is the operator's responsibility to provide the necessary safeguards to protect people and property, know how to stop the pump quickly in case of emergency. If you leave the pump for any reason, always turn the engine off. Understand the use of all controls and connections.

Be sure that anyone who operates the pump receives proper instruction. Do not let children operate the pump. Keep children and pets away from the area of operation.

Before Operation

Place the pump on a firm, level surface. If the pump is tilted or overturned, fuel spillage may result. Do not pump the water over stated height. Use the pump set under 1000 m site altitude of installation. Do not use it in flammability, acrid environment.

Do not run without priming water, dry operation will burn the seal. To prevent fire hazards and to provide adequate ventilation, keep the pump at least 1 meter (3 feet) away from buildings and other equipment during operation. Do not place flammable objects close to the pump. A spark arrester is available as an optional part for this pump. It is illegal in some areas to operate an engine without a spark arrester. Check local laws and regulations before operating.

Refuel With Care

Gasoline is extremely flammable, and gasoline vapor can explode. Refuel outdoors, in a well-ventilated area, with the engine stopped and the pump on a level surface. Do not fill the fuel tank above the fuel strainer shoulder. Never smoke near gasoline, and keep other flames and sparks away. Always store gasoline in an approved container. Make sure that any spilled fuel has been wiped up before starting the engine.

Hot Exhaust

The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Allow the engine to cool for at least 20 minutes before transporting the pump or storing it indoors.

To prevent fire hazards, keep the pump at least 1 meter (3 feet) away from building walls and other equipment during operation. Do not place flammable objects close to the engine.

Carbon Monoxide Hazard

Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.

2. PRE-OPERATION PREPARATION

ARE YOU READY TO GET STARTED

Your safety is your responsibility. A little time spent in preparation will significantly reduce your risk of injury.

KNOWLEDGE

Read and understand this manual. Know what the controls do and how to operate them.

Familiarize yourself with the pump and its operation before you begin pumping. Know what to do in case of emergencies.

Be sure of what you are pumping. This pump is designed to pump only water that is not intended for human consumption.

CONNECTING WATER INLET PIPE

Use commercially available hose, hose joint and clamp. The water inlet hose must be of continuous structure and be non-folded. The length of the hose should be as the same as or not more than that required. In this case, not far away from the surface of water supply, the water pump will arrive its optimal performance. Self-suction time varies with the length of the water inlet hose in direct ratio. The filter matching with the water pump should be mounted to the end of the water inlet hose with a hose clamp, shown in the diagram below.

⚠ CAUTION

Before pumping, install the filter securely to the end of the water inlet hose. The filter filtrates any impurity, which may produce passage jam to damage impellers.

Be sure to install the hose joint and clamp well so as to prevent from air leaks and pumping performance drop; loose water inlet hose will decrease the water pump performance and self-suction ability

Filter

Fig.1

CONNECTING THE WATER OULET HOSE

Use commercially available hose, hose joint and clamp. A short hose with a big diameter is the best. A long hose with small diameter will increase flowing resistance and decrease the power output of the water pump.

NOTE

Tighten the hose clamp to avoid falling off under high pressure.

ENGINE OIL LEVEL CHECK

⚠ CAUTION

The quality of the engine oil is one of the key factors in deciding engine performance and service life. Not apply filthy engine oil or vegetable oil.

Be sure to check engine oil level with the engine stalled and stand vertically in level ground.

Check the engine with it stopped on a level ground.

SAE10W – 30 (Fig.2) is recommended for general, all temperature use.

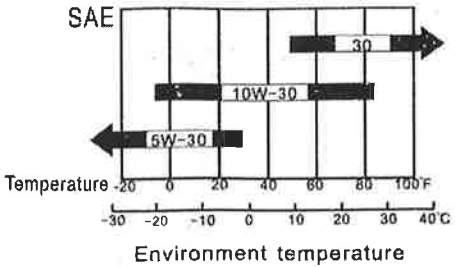

Fig.2

Check (Fig.3)

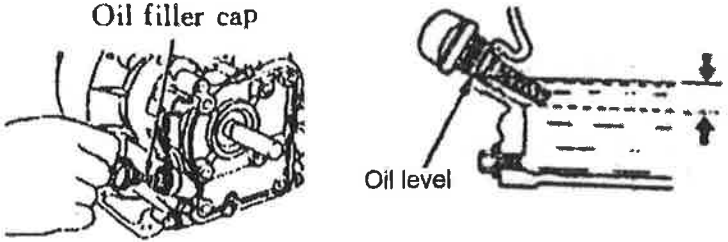

Fig.3

1. Ensure that the engine is stopped on a level ground.
2. Remove the dipstick and clean it.

3. Reinsert the dipstick into the oil filler without screwing in, and check oil level.
4. If the oil level is too low, add the recommended engine oil to the oil filler nick.
5. Reinstall the dipstick.

CAUTION

Run with insufficient engine oil may damage the engine severely.

AIR CLEANER

Check the filter element for dirt, and remove it if any.

CARTION

Never run the engine without an air cleaner, or severe wear of the engine may occur.

FUEL AND FUEL TANK (Fig.4)

1. Fuel

The engine must apply unleaded gasoline or low – leaded gasoline. Using unleaded gasoline will decrease the possibility of producing carbon deposit and prolong the engine's service life.

Never use an oil gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

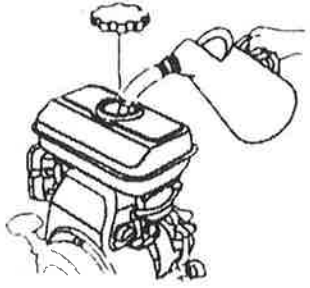

Fig . 4

2. Fuel Tank

Fuel tank capacity: 1.2 liters

3. Reinsert the dipstick into the oil filler without screwing in, and check oil level.
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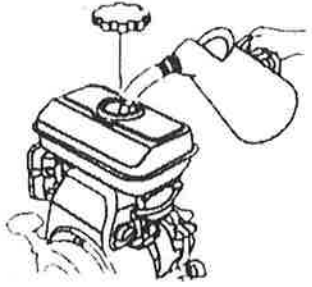


Fig. 4

2. Fuel Tank

Fuel tank capacity: 1.2 liters

⚠ WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.
- Refueling in a well – ventilation area with the engine stopped. Do not smoke and allow flames or sparks in the area where gasoline is stored or where the fuel tank is refueled.
- Do not overfill the tank (there should be no fuel in the filler neck). After refueling, make sure the fuel tank cap is set back securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry enough before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of fuel vapor.
- Keep out of reach of children.

WATER CAPACITY CHECK IN THE PUMP

Before operating the pump, make sure to fill the pump with enough water.

⚠ **CAUTION**

Do not try to run the engine without water inside, otherwise the pump will become overheated. Prolonged running of the pump without water will damage the pump gasket. If the water in the pump is used up, stall the engine at once and fill the pump once it cools down.

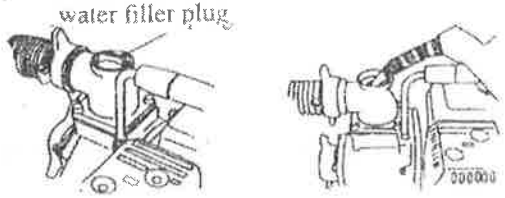


Fig. 5

3. Starting Gasoline Water Pump Set

1. Push the fuel cock to ON position (Fig.6).

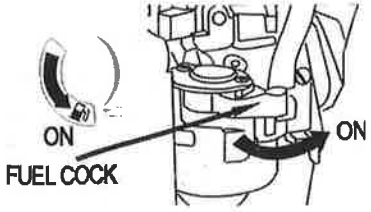


Fig. 6

2. Push the choke lever to the CLOSE position (Fig. 7).

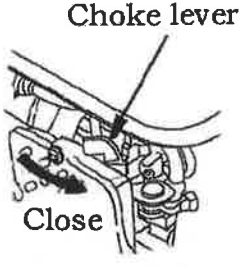


Fig. 7

NOTE

Do not the choke if the engine is warm or the air temperature is high.

3. Move down the throttle lever slightly to the FAST position (Fig.8).

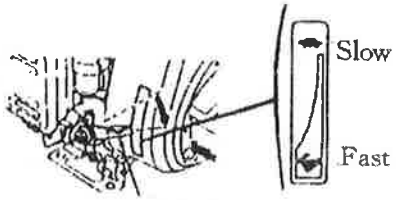


Fig.8 Throttle lever

4. Start the engine (Fig. 9).

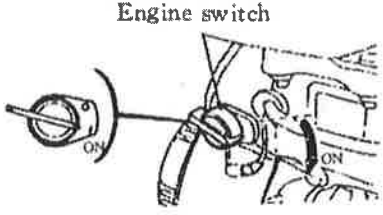


Fig. 9

a) Push the engine switch to the ON position.

b) Pull slightly the starting rope handle up until feeing anti-action, and then make a rapid pull.

CAUTION

Return the starting rope handle gently to prevent damage to the starter.

5. Gradually move the choke lever to the ON position. Warm up the engine until it runs smoothly (Fig. 10).

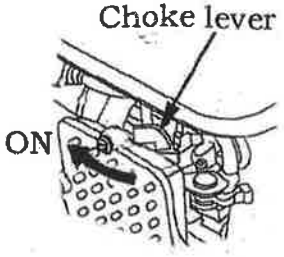


Fig. 10

6. Set the throttle lever in proper position to ensure the engine runs at required velocity (Fig. 11).

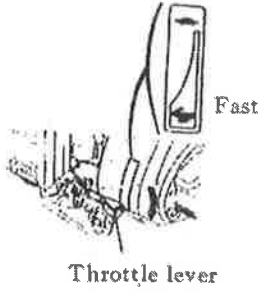


Fig. 11

★ **Operating on Highlands**

On highlands, the standard carburetor air/fuel mixture is relatively too rich so the engine performance may be impaired while the fuel consumption may increase.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor, and readjusting the idle needle screw and the idle adjust screw. If you always operate the engine at altitudes higher than 1830m above sea level, ask your dealer for adjusting the carburetor.

The engine power will decrease approximately 3.5% for every 305 meters increase in altitude, even the proper main jet of carburetor is used. The affect of altitude on power will be greater than this if no carburetor modification is conducted.

CAUTION

The engine equipped with the main jet applicable to highlands may be damaged seriously in area below specified altitude, because its mixture ratio is too lean, output drops and the engine overheats for operation in low altitude area. In the case, ask your dealer to recover the engine to its normal technical status.

4. STOPPING GASOLINE WATER PUMP SET

In an emergency, push the engine switch to "OFF" to stall the engine. Stop it in normal in the following sequence:

1. Push up the throttle lever to the SLOW position (Fig. 12).
2. Push the engine switch to the OFF position (Fig. 13).

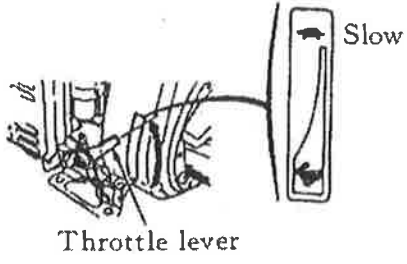


Fig. 12

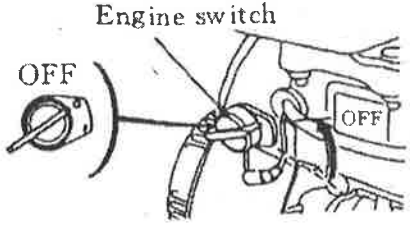


Fig. 13

3. Set the fuel cock to the OFF position (Fig. 14).

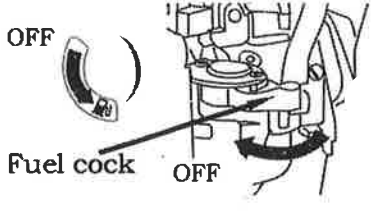


Fig. 14

5. MAINTENANCE

⚠ WARNING

- **Shut off the engine before performing any maintenance.**
- **To prevent accidental start – up, turn OFF the engine switch and disconnect the spark plug cap.**
- **The engine should be serviced by your dealer unless the owner has proper tools and service data and fells hie is mechanically qualified.**

1. MAINTENANCE SCHEDULE

Periodic inspection and adjustment of the engine is essential if high level performance is to be maintained. Regular maintenance will also ensure a long service life. The required service intervals and the kind of maintenance to be performed are described on the table below.

Maintenance Schedule

Item \ Frequency		Each time	First month or 20 hrs	Each season or 50 hrs	Every 6-month or 100hrs	Each year or 300 hrs
Engine oil	Oil level check	√				
	Replace		√		√	
Air cleaner	Check	√				
	Clean					
Deposit cup	Clean			√①	√	
Spark plug	Check/Clean				√	
Valve clearance	Clean					√②
Combustion chamber	Clean					√②
Fuel tank & fuel filter	Clean					√②
Fuel supply line	Clean	Every two years (do a replacement if necessary) ②				

CAUTION

Use only genuine parts manufactured by the company or equivalents in quality; otherwise damage to equipment may occur.

NOTES

① The item should be serviced more often than that in the schedule if used in dusty circum-stances.
② The items should be done by your dealer unless you are specially trained and is well equipped with tools.

2. REPLACEMENT OF ENGINE OIL (Fig. 15).

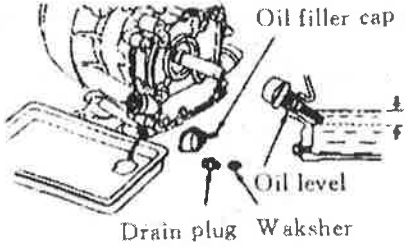


Fig. 15

A still hot engine is helpful to drain out the engine oil in the crankcase rapidly and entirely.

a) Turn off the oil filler cap and drain plug to drain engine oil thoroughly.
b) Reinstall the drain plug and screw in securely.
c) Fill the specified engine, and check the oil level.
d) Reinstall the oil filler cap.
Engine oil capacity: 0.3L

CAUTION

Do not contact engine oil repeatedly for long – time, otherwise, it may cause skin cancer. Wash your hands with soap and water immediately after handling oil.

NOTE

Do not dump oil containers or discarded engine oil into rubbish boxes or onto the ground .For the sake of environmental protection, we suggest you take in discarded engine oil with a closed container and bring to local recycling station.

3. SERVICE OF AIR CLEANER

A dirty air cleaner may block enough air's flowing into the carburetor. To prevent the carburetor from producing of trouble, please service the air cleaner periodically. If operating the engine in extremely dusty area, the job should be done more often.

⚠ WARNING

Never clean the air cleaner core in gasoline or low flash – point detergents, or explosion may happen.

CAUTION

Never run the engine without an air cleaner, or air with dirt and dust may enter the engine so speed the engine's wear.

1. Unscrew 2 nuts M5 and remove the air cleaner cover, take out the element.
2. Wash the element in a nonflammable or high flash point solvent and dry it thoroughly.
3. Soak the element in clean engine oil until it becomes saturated, and then squeeze out the excess oil.
4. Install the removed parts in the reverse order of removal.

4. WASHING OF DEPOSIT CUP (Fig. 16)

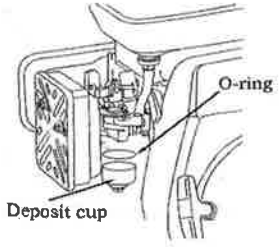


Fig. 16

Set the fuel cock at "OFF", remove the deposit cup and O – ring, Wash them in nonflammable or high flash point cleansing solvents, and then dry them up, at last , carry out reinstallation. Set the fuel cock to "ON" and check for leaks.

⚠ WARNING

- Gasoline is extremely flammable and explosive in certain conditions. Keep cigarette, sparks and open flames away.
- After reinstalling the deposit cup, check it for leakage and make sure the area around the engine is dry enough.

5. SPARK PLUG

Spark plug recommended: 6RTF, BM4A, BMR4A (NGK)

Proper spark plug clearance ensures the engine's normal running under no deposit around the spark plug.

1. Remove the spark plug by means of spark plug wrench (Fig. 17).

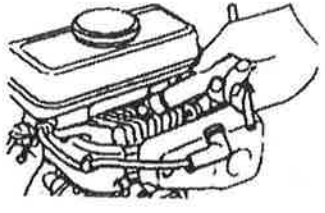


Fig. 17

⚠ WARNING

Be careful not to touch the muffler and the spark plug during or just after running the engine.

2. Visually inspect the spark plug. Clean the spark plug with a steel brush. If the insulator is cracked or chipped, or if there is apparent wear, replace the spark plug with new one.

3. Measure the spark plug clearance with a feeler. The clearance should be 0.6~0.7mm (Fig. 18). If adjustment is necessary, bend the side electrode carefully.

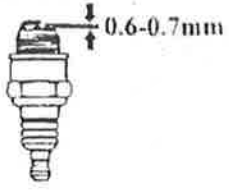


Fig. 18

4. Check if the spark plug gasket is in good conditions, or replace with a new one. Screw on the spark plug to the bottom first by hand to prevent cross – threading (Fig. 19).

5. After the spark plug is seated, tighten it up by a spark plug wrench to compress the gasket.

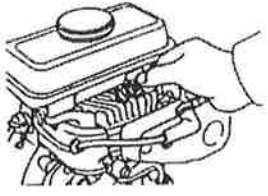


Fig. 19

NOTE

If a new spark plug is used, twist 1/2 more turns after impacting the gasket; if reinstall the original one, just twist 1/8~1/4 more turns.

CAUTION

- The spark plug must be tightened securely, or it may become very hot to damage the engine.
- Only use recommended spark plug or the equivalent. Incorrect heat range of the spark plug may damage the engine.

CONTROL STEEL WIRE OF THROTTLE (OPTION)

The hole in throttle is used for mounting control steel wires. Fig. 19 shows how to mount a stiff steel wire.

If necessary, you may unscrew the damping nut on the throttle lever slightly when controlling the throttle valve by a remote – controlled steel wire.

6. Transportation and Storage

CAUTION:

- **To avoid burns or fire hazards, allow the engine to cool down before transporting it or storing it indoors.**
- **When transporting the water pump, turn the fuel valve of the engine to the OFF position. Keep the pump level to prevent fuel spillage. Spilled fuel or fuel vapor may ignite.**

Before storing the unit for an extended period:

1) Be sure the storage area is free from excessive humidity and dust.
2) Clean the water pump inside.....

If the water pump is used to pump water with mud, sand or heavy debris, deposit of such may remain inside it.

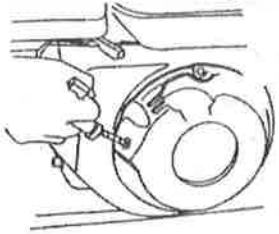
Before storage, operate the water pump to suck into fresh water to wash, otherwise impeller may be damaged once reuse. Finishing wash, drive off the water drain plug, then empty the water in the water pump thoroughly.

3) Never hot wash the flexible shaft or severely bend it.
4) Take out the flexible shaft and clean it, then coat grease for storage.
5) Drain the fuel.....
   a. Turn the fuel valve to **OFF** position, drive off the fuel drain plug of the carburetor floater room, and drain the fuel in the carburetor into a proper container.
   b. Open the fuel valve (OFF position) and drain the fuel into a proper container.
   c. Reinstall the drain screw of the carburetor.
6) Replace engine oil.

7) Dismantle the spark plug, and fill clean specified engine oil into the cylinder about one soupspoon. Turn the engine several times to distribute oil evenly and then reinstall the spark plug.

8) Pull the starter handle until feel resistance, and then continue pulling until the triangle mark on the starter wheel lines up with the starter screw hole (see Figure 10.2).

At this location, both the air inlet and exhaust valves are closed, which may prevent the engine inside from rusting.



Triangle mark on the starter wheel limes up with the starter screw hole

Fig 20

9) Cover the water pump to protect from dust.

7. TROUBLESHOOTING

Engine will not start:

1. Is there enough fuel?
2. Is the fuel valve ON?
3. Is fuel reaching the carburetor?

In the case that the fuel valve is turned on, check through dismantle the fuel drain plug at the bottom of the carburetor.

DANGER:

If fuel is spilled, be sure to wipe it dry before checking the spark plug and starting up the engine, otherwise spilled fuel or fuel vapor may ignite.

4. Is engine switch ON?
5. Is there enough fuel inside the crankcase?
6. Is there a spark at the spark plug?
   a. Remove the spark plug cap. Clean any dirt around the spark plug base. Then remove the spark plug.
   b. Install the spark plug in the plug cap.
   c. Turn the engine switch to ON.
   d. Grounding the side electrode to any engine ground, pull the recoil starter and see if sparks jump across the gap.
   e. If there is no spark, replace the spark plug, If OK, start the engine according to the instructions.
7. If the engine still does not start, take the engine to the dealer for services.

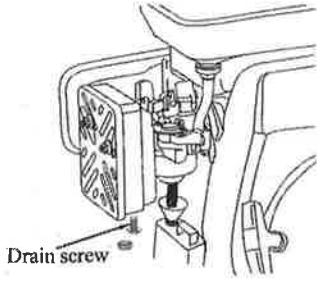


Fig. 21

Water pump will no pump water:

1. Is the strainer clogged?
2. Is hose clamp tightened securely?
3. Is the hose OK?
4. If the water pump still does not work, take it to the dealer for services.

8. SPECIFICATIONS

Model		25ZB12-1.4Q	40ZB15-1.4Q	50ZB20-1.4Q
Engine	Model	152F-3		
	Type	Single cylinder, 4 – stroke, Side – mounted rave		
	Displacement	79 cm^3		
	Max. power output	1.2kW/3600rpm		
	Ignition system	Non-contractor transistorized magneto（TCI）		
	Noise (at muffler side)	≤65dB(A)		
Water Pump	Inlet and outlet diameter	25mm(1in)	40mm(1.5in)	50mm(2in)
	Rotation velocity	3600r/min		
	Suction height	6m	5m	6m
	Pump lift	12m	15m	20m
	Pump output	4.6m^3/h	9m^3/h	15m^3/h
	Duration of runs	2.5h	2.5h	2.5h
Complete Unit	Length	400mm	340mm	405mm
	Width	300mm	298mm	295mm
	Height	380mm	380mm	370mm
	Net Weight	14kg	12kg	15kg