



MILLER

SALES & ENGINEERING INC.

JUMBO PUMP

OPERATION AND MAINTENANCE MANUAL

MILLER SALES & ENGINEERING

3801 N. Highway Drive
Tucson, Arizona 85705

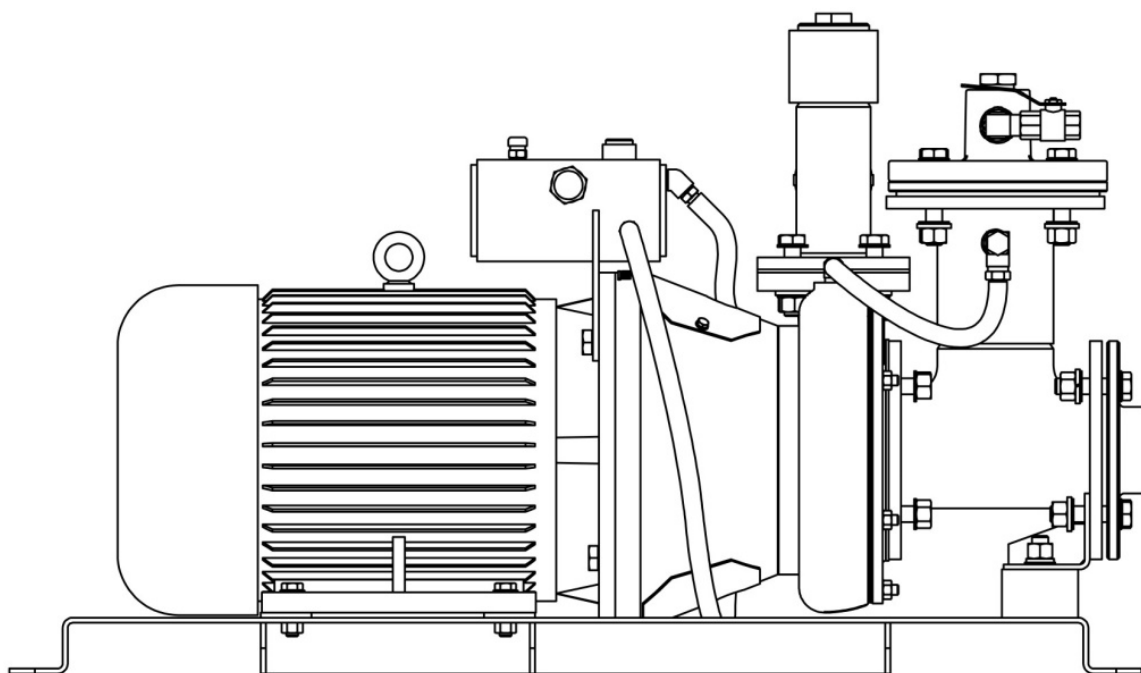
1-800-666-8320

mseinc.net

Info@mseinc.net

TABLE OF CONTENTS

3	Safety and Warning Instructions
3	Warranty
3	Description of the Product
3	Operation
4,5	Assembly
5	Fluids and Substances
5	Maintenance
6	Technical Data
6	Performance Curve
7	Parts Drawing



SAFETY AND WARNING INSTRUCTIONS

Always follow the safety and warning instructions. Operation and Maintenance must comply with local regulations and accepted codes of practice, including wearing of Personal Protective Equipment (PPE). The following instructions apply to the standard version of the product operating in normal conditions. The data in the documentation and the product itself may be subject to modification without the manufacturer being obliged to give prior notice. Failure to comply with the instructions herein, improper use of the product or unauthorized modification to the product shall void all forms of warranty, while the manufacturer shall not be held responsible for any damages resulting to persons or property.

Before performing any work on the product, always make sure that the electrical parts of the system on which work is to be carried out are disconnected from the electric power source. Any operating, servicing, repair and/or dismantling of the product may only be undertaken by specialized personnel possessing the necessary qualifications and equipped with adequate tools. Such personnel must have become fully familiar with the contents of these instructions and any other documentation supplied with the product.

WARRANTY

Tru-Flo Pumping Systems warrants the product to be free from defects in workmanship and materials under normal use and service for a period of twelve calendar months from the date of delivery or 1000 hours of operation, whichever occurs first.

DESCRIPTION OF THE PRODUCT

The Jumbo pump has been specifically designed for the underground mining industry and is supplied with a flotation suction strainer intended for use in sumps at the development face. The strainer floats on the water and draws from one inch below the surface, thereby reducing shotcrete fibers in the pumping system.

OPERATION

PRIMING

The water from the drilling equipment's hydraulic coolers (that normally drains to the ground), is piped through the venturi on the Jumbo pump, producing a vacuum to lift water from the face to prime the pump. (Vacuum prime: -60 to -80kPa, 20 to 26Ft head lift). This lifts the venture ball off its seat, allowing air to be displaced from the vacuum canister and pump casting. The outlet reflux ball seals on its seat to prevent air being drawn into the vacuum canister.

When the air has been displaced, a vacuum is present in the canister and the pump casting, which draws the water into the pump. After the pump has primed, normal operation will occur. At this point the venturi ball is drawn on to its seat to prevent the pump from sucking air from the air discharge port.

When the sump has been emptied, the pump will continue to run until enough water is available to re-prime itself and the above process begins again.

MECHANICAL SEAL

The pump is fitted with a tungsten/tungsten single mechanical seal which is located in the seal chamber on the back of the pump casting. This chamber is filled with oil, which cools and lubricates the seal which in turn allows the pump to run-dry for 3 to 4 hours without damage to the seal faces.

PUMP PERFORMANCE ADJUSTMENTS (Shimming)

After the pump has been operating for a long period of time, the performance will gradually decline and the wear plate will require adjustment to maintain discharge flow.

When the impeller wears, it is adjusted by removing the front cover and taking out one of the 3 x 1.5mm gaskets. This will shim the wear plate back to the impeller for renewed discharge flow and pressure.

ASSEMBLY

ATTACH THE PUMP SHAFT TO THE MOTOR

1. Locate the electric motor on to the base frame. Fix the motor to the base frame with the four M12 bolts
2. Align the pump shaft onto the motor shaft with the locking bolt
3. Slide the shaft collar onto the pump shaft
4. Locate the shaft key into the pump shaft

ATTACH THE MOTOR BELL HOUSING AND RESERVOIR

1. Locate the motor bell housing on to the motor location flange, align with the four holes.
Note: The Tru-Flo logo is to be facing upwards
2. Fix the lower bolts through the motor flange and finger tighten
3. Position reservoir tank behind the motor flange and align the bolt holes
4. Fix the bolts into the motor bell housing
5. Tighten all the bolts

ATTACH THE VOLUTE ASSEMBLY TO THE MOTOR BELL HOUSING

1. Fit the seal cover plate including the gasket and radial shaft seal into the rear of the volute casing. Only finger tighten the four M8 bolts
2. Locate volute casing into the motor bell housing. **Note:** Be careful not to hit the pump shaft
3. Fix the four M16 bolts and the washer through the motor bell housing into the volute casing and tighten
4. Tighten the four M8 bolts on the seal cover plate
5. Locate the mechanical seal over the pump shaft within the volute casing. Align the slot on the mechanical seal with the parallel pin within the volute casing

ATTACH IMPELLER AND SUCTION COVER

1. Locate the impeller on to the pump shaft and align with the keyway. Screw the locking nut and the washer to lock the impeller on to the pump shaft
2. Place the three suction cover gaskets on to the volute casing aligning with the studs
3. Locate the suction cover onto the studs on the volute casing
4. Fix the nut, spring washer and washer on to the stud and tighten

5. Fit the suction cover over the 10mm studs. Ensure there is clearance between the impeller and suction cover. Clearance of 1.5mm to 2.2mm is recommended and is set using the suction cover gaskets (3 off)

ATTACH THE VACUUM CANISTER

1. Place the cover plate seal over the studs on the suction cover
2. Locate the vacuum tee canister on the studs. Note: the canister fits between the vertical plate on the base frame and the cover plate seal. Finger tighten the M16 nut
3. Locate the four M16 bolts through the canister and vertical plate on the base frame. Place the inlet connection plate over the bolt and place the spring washer, the nut on to the bolt ends and tighten all bolts
4. Place the inline filter and the flange spacer on to the top of the vacuum tee canister. Place the vacuum canister head on top of the flange spacer, fix the bolts and tighten

ATTACH THE DISCHARGE DRAIN VALVE

1. Place the outlet seal on top of the volute casing outlet
2. Locate the discharge tee assembly on to the volute outlet and tighten
3. Place the rubber ball within the vertical straight, seal with the end cap. Fit the check valve on to the horizontal straight
4. Fit the ball valve to the 3/4" socket on the discharge tee assembly. Connect the hose connector and the discharge hose

ATTACH THE HOSE ASSEMBLY AND BELL HOUSING GUARDS

1. Connect the hose assembly from the volute casing outlet to the vacuum canister inlet
2. Connect both the reservoir hoses to the outlets located on the volute casing
3. Connect both the bell housing guards, fix with the M6 bolt

FLUIDS AND SUBSTANCES

Details of the relevant substances found on the Jumbo Pump are listed below.

SUBSTANCE REGISTER	
LOCATION	SUBSTANCE NAME
Pump seal canister	ISO 32 Hydraulic Oil
Electric motor	Lithium based grease

MAINTENANCE

MAINTENANCE SCHEDULE	
LOCATION	FREQUENCY
Pump Oil Sight Glass	Check oil level daily
Electric motor	As per manufacturer's recommendations

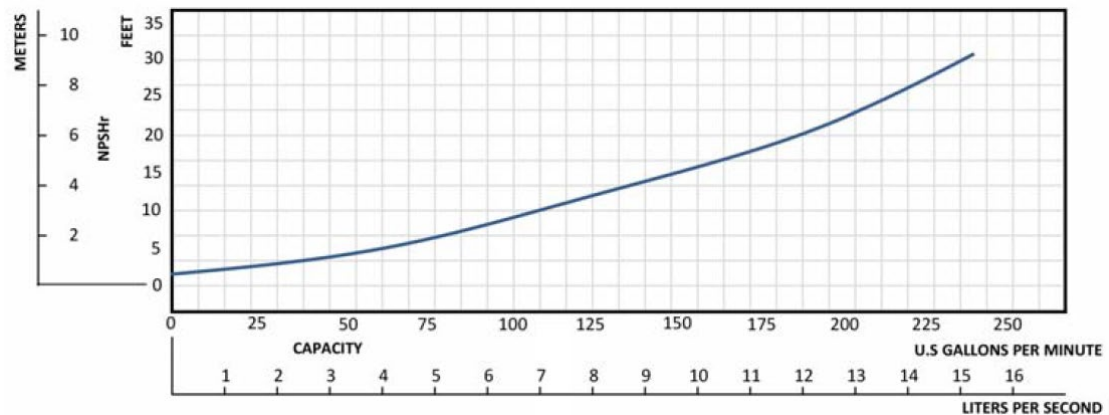
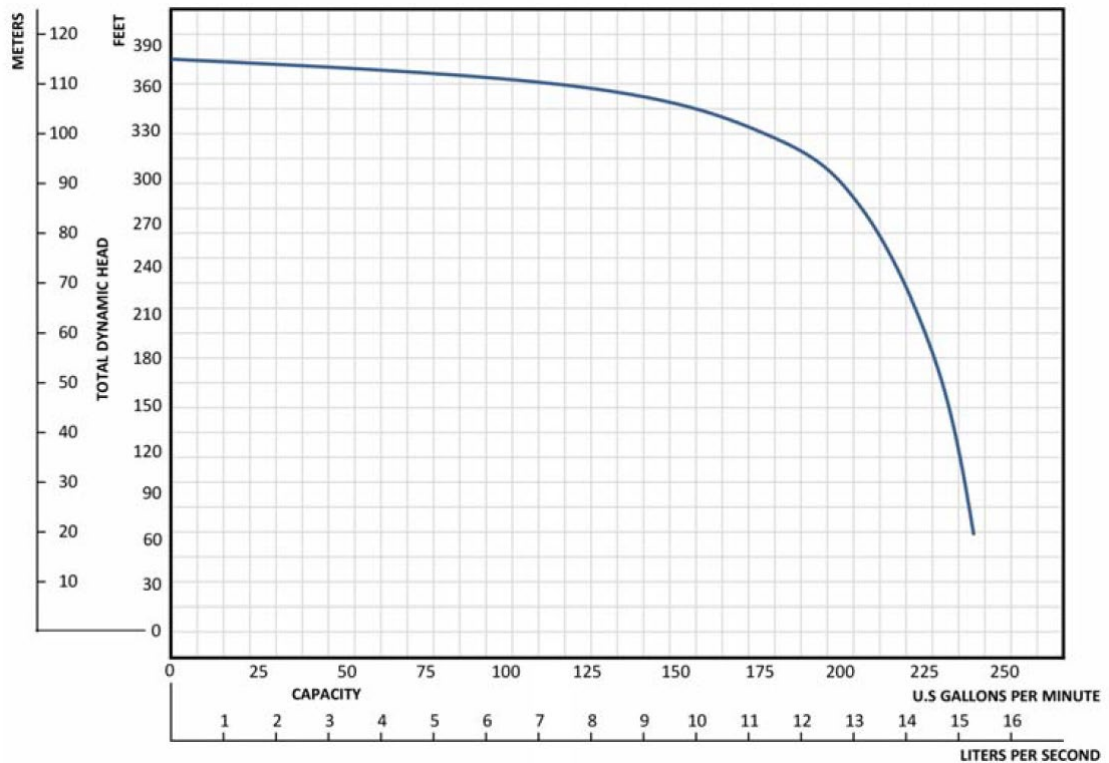
TECHNICAL DATA

DESIGN DETAILS	
Head (Maximum):	370 Ft. (115 Meters)
Flow Rate (Maximum):	255 US GPM (16 Ltr/sec)
Electric Motor:	22kW (30 HP)
Operating Speed:	Max: 3600 RPM
Base:	Cassette
Nominal dimensions:	1115 (L) x 573 (W) x 650 (H)
Product code:	Jumbo

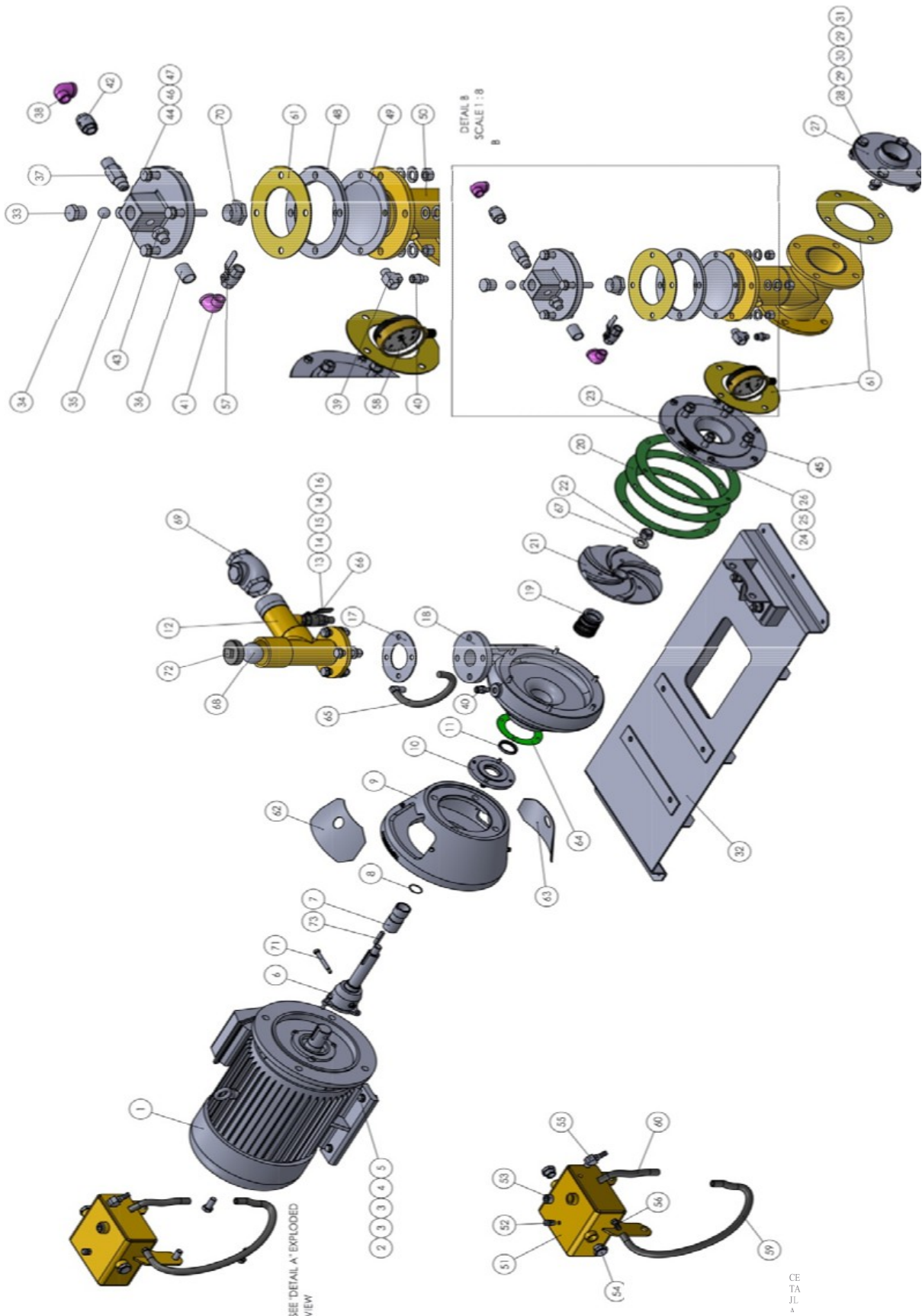
STANDARD CONSTRUCTION	
Impeller:	CD4MCU Duplex Stainless Steel
Volute:	
Suction cover:	
Shaft:	316 stainless steel
Shaft sleeve:	
Mechanical sleeve:	Cycloseal with thermosiphon run-dry lubrication reservoir
<i>Other materials available on request</i>	

PERFORMANCE CURVE

22kW (30HP) 3600RPM 60Hz



PARTS DRAWING



FOR ALL PART ENQUIRIES, CONTACT:

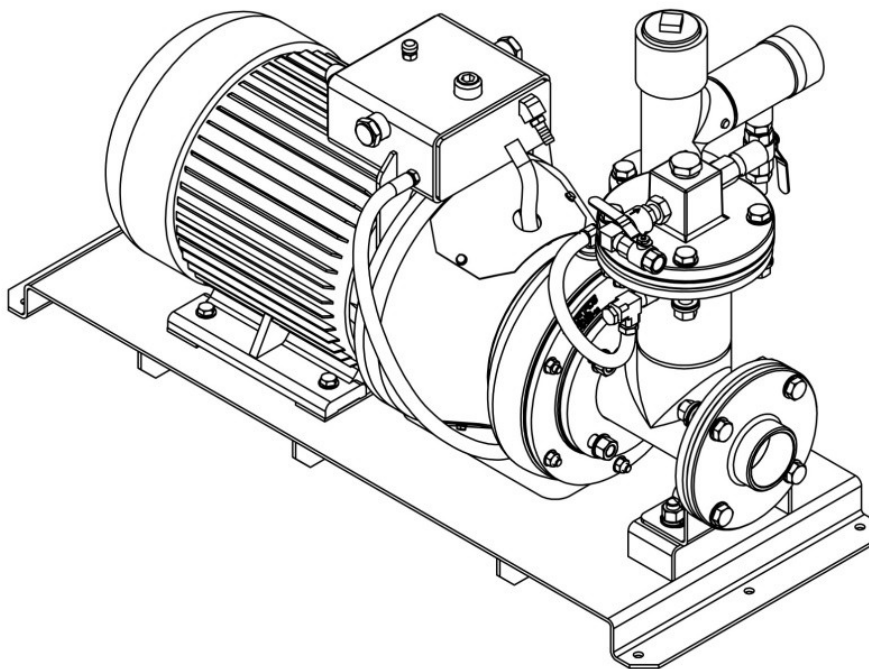
MILLER SALES & ENGINEERING

3801 N. Highway Drive
Tucson, Arizona 85705

1-800-666-8320

mseinc.net

Info@mseinc.net



MILLER
SALES & ENGINEERING INC.