OPERATING MANUAL

MASTERFLEX® P/S

AIR-POWERED PUMP DRIVES

Model No.
850-1029

A-1299-7125
Edition 01

Thermo Fisher Scientific
1-800-637-3739 (U.S. and Canada only)
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ISO9001
REGISTERED
SUPPLIER

SAFETY PRECAUTIONS

WARNINGS: ***Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.***

The air supply must be disconnected from pump before removing or installing tubing. Fingers or loose clothing could get caught in drive mechanism. Do not operate this pump without cover or interlock door properly closed and latched. Rotating parts can cause serious injury.

To reduce risk of injury, do not pump materials hotter than 150 degrees Fahrenheit, (65.5°C).

Periodically examine bearings and moving parts for excessive wear that can cause overheating of surfaces from friction.

Select tubing for chemical compatibility. Ground or electrically bond containers during fluid transfer to avoid electrostatic charge buildup that can ignite vapors when discharged. Refer to NFPA 77.

CAUTION: ***Do not exceed 600 rpm. Speeds in excess of 600 rpm may cause damage to the unit.***

Do not attempt to use other materials in lieu of recommended tubing, as pump performance could be severly compromised with possible damage to the pump.

ATEX Rating: *The models are rated as Group II, Category 3 (Zone 2) equipment using constructional safety (c) protection, with a T6 (<85° C) temperature classification for use in Gas Group IIC (acetylene) environments:*

CE ⟨Ex⟩ II 3 G c IIC T6

North American Rating: Class I, Division 2, Groups A, B, C, & D, T6

Explanation of Symbols

CAUTION: ***Risk of Danger. Consult Operator's manual for nature of hazard and corrective actions.***

CAUTION: ***Risk of crushing. Keep fingers away from rotor while pump is in operation. Stop pump before loading or unloading tubing.***

CAUTION: ***Hot Surface. Do not touch.***

WARNING: ***Risk of Ignition. Periodically examine bearings and moving parts for excessive wear that can cause overheating of surfaces from friction. Ground or electrically bond containers during fluid transfer to avoid electrostatic charge buildup that can ignite vapors when discharged.***

WARNING: PRODUCT USE LIMITATION

This product is not designed for, nor intended for use in, patient-connected applications, including, but not limited to, medical and dental use, and, accordingly, has not been submitted for FDA approval. If drive is used in a manner not specified in this manual the protection provided by the equipment may be impaired.

Trademarks bearing the ® symbol in this publication are registered in the U.S. and in other countries.

SETUP AND DRIVE OPERATION

INTRODUCTION AND GENERAL DESCRIPTION

This air-powered pump drive, when used with a MASTERFLEX® ATEX-rated P/S Pump Head, is an excellent variable-flow pump for hazardous-duty applications, when properly grounded, or when electrical power is not available.

VARIETY OF PUMP HEADS ACCEPTED

Mount up to 2 MASTERFLEX P/S compatible Pump Heads. See individual Pump Heads for flow rates.

SETUP AND DRIVE OPERATION

1. Unpack the drive. Save packing material until proper product operation has been verified.
2. Install pressure gauge, pressure regulator/lubricator/filter assembly (B, C) and muffler (D). See Figures 1 and 2 for proper orientation. (All items and fittings included.) Use thread seal for all connections to reduce the possibility of air leakage.
3. Connect compressed air line to 1/4 NPT connection on regulator (or use adapter for 3/16 in ID hose provided).
4. Mount Pump Head and load tubing. (See Pump Head manual.)
5. Turn on compressed air line to start pumping (maximum: 150 psig [10.3 bar] inlet).
6. Adjust flow rate with the adjustment knob on top of the regulator.

   Vary flow rate from 1 to 25 psig (0.07 to 1.72 bar). (Lock flow rate by using snap-action push-pull knob.)

CAUTION: ***Ensure that pump speed does not exceed 600 rpm. Speeds higher than 600 rpm may damage pump.***

7. For continuous-duty or high-speed applications, use of the lubricator is recommended. Adjust the lubricator with the adjustment knob on top. For higher speeds, set lubricator to provide 1 to 3 drops per minute. Use a lower setting for lower speeds. See MAINTENANCE for RECOMMENDED LUBRICANTS. (Lock lubrication rate by using snap-action push-pull knob.)

A. Pump Head Mounting Holes
B. Filter/Regulator Control Knob
C. Lubricator Control Knob
D. Muffler
E. Air Motor

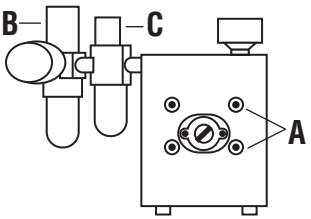

Fig. 1 Front view of drive

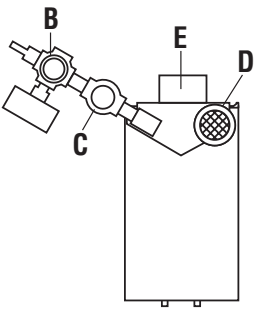

Fig. 2 Top view of drive

MAINTENANCE

The air motor is a rotary vane type motor. Lubrication is necessary for the bearings, shaft seals and rust prevention.

Excessive moisture in the air line can cause rust formation in the motor and can cause ice to form in the muffler due to expansion of air through the motor.

RECOMMENDED LUBRICANTS

Use a misting type oil rated 50 to 200 SSU (ISO Grade 7 to 46) at 100˚F (38˚C). Unscrew the bowl to fill the lubricator. Press up on the bottom drain to empty bowl.

CLEANING

Keep the drive enclosure clean with mild detergents. Never immerse nor use excessive fluid.

GEAR REPLACEMENT

A plastic intermediate gear protects the drive system from torque overloads. To replace gear (see Figure 3):

1. Disconnect from compressed air supply.
2. Remove housing.
3. Remove front mounting plate.
4. Replace gear or gear/shaft assembly. See REPLACEMENT PARTS AND ACCESSORIES.
5. Reassemble in reverse order.

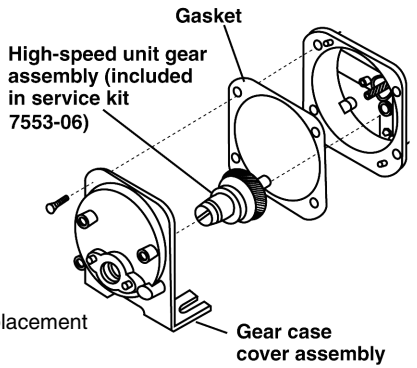

Fig. 3 Gear Replacement

DRAIN OPERATION

The filter/regulator assembly has a manual drain. Check it frequently for water accumulation. Open drain by pressing up on bottom of bowl.

TROUBLESHOOTING

If drive does not operate, disconnect power and

a. Check Pump Head for tubing jam.

b. Check air supply.

c. Check drive gear for stripping.

Contact your dealer for further service needs.

REPLACEMENT PARTS AND ACCESSORIES

7553-06, Gear Service Kit, High-speed units

7553-09, Gear only, High-speed units

7055-50, Replacement air motor

SPECIFICATIONS

Output:	
Pump Speed:	60 to 600 rpm
Torque output, maximum:	180 oz-in (13 kg-cm)
Regulation:	± 15 rpm (60 to 150 rpm) ± 20 rpm (150 to 600 rpm)
Power Output:	3/4 hp (560 W)
Input:	
Compressed air:	10 cfm (0.28 m^3/min) @ 150 psig (10.3 bar)
Construction:	
Dimensions (W × H × D):	4-13/16 in × 8-13/16 in × 9-7/8 in (12.2 cm × 22.4 cm × 25.1 cm)
Weight:	14 lbs (6.35 kg)
Enclosure Rating:	Not Applicable
Environment:	
Operating Temperature:	1°C to 40°C (34°F to 104°F)
Storage Temperature:	–10°C to 65°C (+14°F to 149°F)
Humidity: (non-condensing)	20% to 80%
Altitude:	Less than 2000 m
North American Rating:	Class I, Division 2, Groups A, B, C, & D, T6
ATEX Rating:	CE ⟨Ɛx⟩ II 3 G c IIC T6
Group:	II (Non-mining equipment)
Category:	3 (No ignition source)
Zone:	2 (Infrequent exposure)
Type of Atmosphere:	G (Gas)
Gas Group	IIC (Hydrogen/Acelylene)
Method of Protection:	“c” (Non-electrical equipment construction)
Temperature Classification:	T6 (85°C max. surface temperature)
Chemical Resistance:	Exposed materials are painted CRS, brass, aluminum and plastic
Compliance (for CE mark):	EN809 (EU Machine Directive)
	EN13463-1 and EN13463-5 (EU ATEX Directive)

WARRANTY

Use only MASTERFLEX precision tubing with MASTERFLEX pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

This product is warranted against defects in material or workmanship, and at the option of the manufacturer or distributor, any defective product will be repaired or replaced at no charge, or the purchase price will be refunded to the purchaser, provided that: (a) the warranty claim is made in writing within the period of time specified on this warranty card, (b) proof of purchase by bill of sale or receipted invoice is submitted concurrently with the claim and shows that the product is within the applicable warranty period, and (c) the purchaser complies with procedures for returns set forth in the general terms and conditions contained in the manufacturer's or distributor's most recent catalog.

This warranty shall not apply to: (a) defects or damage resulting from: (i) misuse of the product, (ii) use of the product in other than its normal and customary manner, (iii) accident or neglect, (iv) improper testing, operation, maintenance, service, repair, installation, or storage, (v) unauthorized alteration or modification, or (b) post-expiration dated materials.

THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER, AND THE MANUFACTURER AND DISTRIBUTOR DISCLAIM ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE MANUFACTURER OR DISTRIBUTOR IS AUTHORIZED TO BIND THE MANUFACTURER OR DISTRIBUTOR TO ANY OTHER WARRANTY. IN NO EVENT SHALL THE MANUFACTURER OR DISTRIBUTOR BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES.

The warranty period for this product is two (2) years from date of purchase.

PRODUCT RETURN

To limit charges and delays, contact the seller or Manufacturer for authorization and shipping instructions before returning the product, either within or outside of the warranty period. When returning the product, please state the reason for the return. For your protection, pack the product carefully and insure it against possible damage or loss. Any damages resulting from improper packaging are your responsibility.

TECHNICAL ASSISTANCE

If you have any questions about the use of this product, contact the Manufacturer or authorized seller.

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