

Gear Pump Drive

Drive catalog number	7144-00 7144-02
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Cole-Parmer Instrument Co.

[REDACTED]
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[REDACTED]
1-800-323-4340

A-1299-206
Edition 2891

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.

GENERAL DESCRIPTION

This versatile electronic drive is designed especially for compact, magnetic drive gear pumps such as Cole Parmer's models 7002-23, 7002-25, 7002-26, 7002-27, 7003-02 and 7003-04. It incorporates a high torque permanent magnet D.C. motor which is extremely quiet, is rated for continuous duty and has long brush life for minimal maintenance.

The pump heads can be easily mounted on the "universal" pump mounting adapter which is accessible from the front panel.

The solid-state speed control circuitry offers excellent speed regulation even with line voltage and load variations. Pump drive speed can be manually controlled over a 100% range with the front panel mounted potentiometer, or remotely from a rear panel phone jack with an external 4 - 20 mA control signal. A select switch is located on the rear panel which allows switching between an internal or external control signal. "Soft-start" and smooth gradual acceleration to speed setting is provided when line power switching is remote from unit.

Drive catalog number	Motor rpm	Power requirement
7144-00	180 - 3600	100 - 130 VAC
7144-02	180 - 3600	200 - 260 VAC

AC voltage can be either 50 or 60 Hz.

OPERATION

Operation of this variable speed drive is extremely simple. Plug the drive into the appropriate grounded outlet. **Never operate this drive without a good electrical ground!** Select and mount the desired pump head to the drive via two # 8-32 screws.

This unit can be operated by either the front panel speed control or an external 4-20 mA signal. Positioning of the switch located on the rear panel marked INT/EXT control selects the mode of operation desired. When the switch is in the INT position, the front panel speed control regulates motor speed. In the EXT position the front panel speed control is disabled and the motor speed is now controlled by an external 4-20 mA signal.

This 4-20 mA signal is fed into the drive circuitry through the jack located just below the INT/EXT switch. Wiring from the signal source can be connected to a mating 1/4" phone plug which is not included with the drive. Signal polarity should be observed when wiring the plug to insure proper drive operation. The positive side of the line should be wired to the tip terminal of the plug and the negative side to the shank terminal.

The drive has been calibrated to shut off at a 4 mA input and run at full speed at 20 mA.

Repair Parts List

ITEM	PART NO.	UNIT
Motor Brushes (set of 2)	7520-04	7144-00 7144-02
Brush Cap (2)	7530-03	ALL
Fuse Holder	A-1089	ALL
Rubber Foot	A-1215	ALL
Coupler	A-3207	ALL
Switch-Toggle	B-1084-0006	ALL
Knob	B-1083-0032	ALL
Fuse	B-1115-0033 3A	7144-00
Fuse	B-1115-0032 1.5A	7144-02
Cover Assy.	D-2009-CR	ALL
P.C. Board Assy.	E-1391-0003CR	7144-00
P.C. Board Assy.	E-1391-0004CR	7144-02

MAINTENANCE

The speed control circuit has solid-state components which do not require servicing.

Exact motor brush and commutator life will depend on the speed. Brushes should be inspected every six months or 2000 hours whichever occurs first. Replace when less than 0.300" long. The commutator should be periodically inspected and cleaned if necessary. If preventive maintenance is not performed, excessive commutator wear or "bridging" between commutator segments will cause excessive current through the controller circuit.

RETURN OF ITEMS

Authorization must be obtained from our Customer Service Department before returning items for any reason. When applying for authorization, please include data regarding the reason the items are to be returned. A 15% restocking charge will be made on all unauthorized returns.

TECHNICAL ASSISTANCE

Technical information and advice on the use of the products in specific applications may be obtained. Modifications can be made to adapt the unit to special customer applications. Contact the Engineering Department for information.

The Cole-Parmer Instrument Company reserves the right to make improvements in design, construction and appearance of our products without notice.

WARRANTY

The Cole-Parmer Instrument Company warrants the product to be free from defects in material and workmanship, as noted on the warranty card. If repair or adjustment is necessary and has not been the result of abuse or misuse, please return, freight prepaid, and correction of the defect will be made without charge (see note on return of items).

For your protection, items being returned must be *carefully packed* to prevent damage in shipment and *insured* against possible damage or loss. Cole-Parmer will not be responsible for damage resulting from careless or insufficient packing.

Out of warranty products will be repaired for a nominal charge.

Discontinued

Continuous-duty drives with controllers

- Up to 3600 rpm for precise metering
- Gradual start-up

Use these continuous-duty variable-speed drives with the low-flow pump heads described on pages 768-769 (see table below) to provide flow rates to 4 l/min. They have a high-torque magnet, mounting adapter, and 1/4-hp DC motor.

Set desired flow rate by adjusting the variable speed control from 180 to 3600 rpm. Protect against power surging and resultant damage to internal circuitry or your hydraulic system—soft-start feature allows gradual one-second acceleration to any chosen speed. Withstand up to 100 psi differential pressure.

Motor and controller

This economical drive features a solid-state speed controller connected by a 6-ft line cord to a separate motor. Control speed manually with the single-turn potentiometer. Motor includes a welded base for mounting or free-standing use. Motor measures 4.2"W x 3.6"H x 6.8"L; controller is 7"W x 3.25"H x 5.25"L. Shpg wt: 9 lbs (4.1 kg).



- N-07144-04** Variable speed drive, includes motor and controller; with 6-ft line cord and plug for 115 VAC operation ~~\$295.00~~
- N-07144-06** Variable speed drive, includes motor and controller; with 6-ft line cord for 230 VAC operation ~~\$395.00~~



Enclosed drive

Motor and controller are in one benchtop case. Adjust speed with front-panel potentiometer or by remote control. A 1/4" phone jack port accepts a 4 to 20 mA input signal. Remote control linearity is better than ±3% FS. Dimensions: 5.4"H x 6.4"W x 11.4"L. Shpg wt: 10 lbs (4.5 kg).

- N-07144-00** Enclosed variable-speed drive with magnetic coupler. With 6-ft line cord and plug. For 115 VAC operation ~~\$495.00~~
- N-07144-02** Enclosed variable-speed drive with magnetic coupler. With 6-ft line cord. For 230 VAC operation ~~\$495.00~~

MICROPUMP® adapter for MASTERFLEX® drives

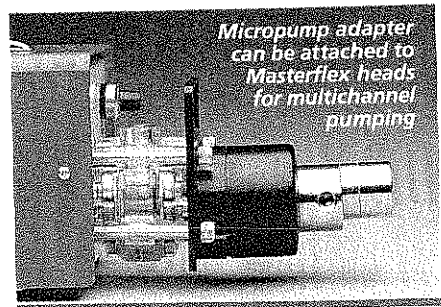
- For 6- to 600-rpm Masterflex drives
- Leakproof service

Mount the low-flow pump heads described on pages 768-769 (see table below) on any 6- to 600-rpm Masterflex drive*. Masterflex offers precise speed control in a variety of packages, including computerized drives (see pages 672-700). The magnetically-driven Micropump heads offer pulse-free flow at relatively high back pressure.

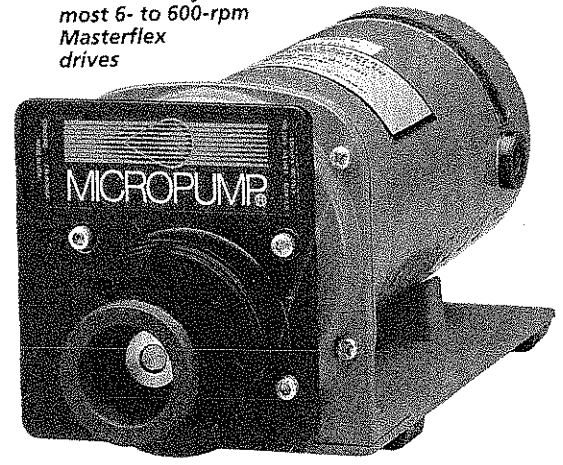
For multichannel pumping, you can mount the adapter on top of one or two Standard Masterflex pump heads. Just order the appropriate hardware in next column.

- N-07002-15** Micropump adapter for Masterflex drives \$90.00

- N-07013-02** Hardware for mounting Micropump adapter on one Masterflex head \$3.50/st
- N-07013-03** Hardware for mounting Micropump adapter on two Masterflex heads \$5.00/st



Micropump adapters mount directly to most 6- to 600-rpm Masterflex drives



Flow capacities and specifications

Series	Pump heads Cat. no.	Flow range (ml/min)		Wetted materials ¹	Max diff pressure		Max system pressure	Temperature range (°F)	Price	Service kit	Price
		Cont. duty	Masterflex ¹		Cont. duty	Masterflex ¹					
A	N-07002-25	4 to 60	0.2 to 10	Graphite & Teflon* TFE	30 psi	20 psi	600 psi	-100 to 275	\$273.00	N-07144-42	\$ 93.00
	N-07002-26	9 to 151	0.3 to 25						268.00	N-07144-44	88.00
	N-07002-27	18 to 302	0.5 to 50						263.00	N-07144-47	88.00
B	N-07002-14	21 to 363	1.5 to 60	Ryton* & Teflon TFE	30 psi	20 psi	600 psi	-50 to 250	240.00	N-07144-36	80.00
	N-07002-16	60 to 1130	1.9 to 190	Teflon TFE	45 psi	25 psi	300 psi	-50 to 210	347.00	N-07144-38	150.00
C	N-07002-23*	121 to 2300	3.6 to 360	Ryton & Teflon TFE	60 psi	25 psi	300 psi	-50 to 250	245.00	N-07002-08	50.00
	N-07001-80*	121 to 2300	3.6 to 360						255.00	N-07001-89	60.00
D	N-07003-02*	108 to 2030	3.4 to 340	Ryton & Viton*	60 psi	20 psi	300 psi	-100 to 275	240.00	N-07003-12	57.00
	N-07003-04*	216 to 4100	6.6 to 660						255.00	N-07003-14	65.00

¹ Use pump heads with 6- to 600-rpm Masterflex drives only. Should not be used with Masterflex hand pumps, UltraMasterflex® drives, explosion-proof Masterflex drives, or drives which accept 07019-series Masterflex pump heads.
² For gear assemblies, O-rings, and magnet shields; all pump housings include parts made of 316 stainless steel. Port size is 1/8" NPT(F).
 *With adjustable bypass
 Masterflex—Reg TM Cole-Parmer Instrument Co. Micropump—Reg TM Micropump Corp. Teflon, Viton—Reg TM E. I. du Pont de Nemours & Co. Ryton—Reg TM Phillips Petroleum Co.