

# MLS Series Mechanical Pumps

## RMLS Style for Cam Roller Drive

## EMLS Style for Eccentric Drive

### DESCRIPTION

MLS Mechanical Lube Pumps are designed for automatic lubrication of machinery where machine motion can be used as the power source for the pump. The mechanical action is transmitted directly to the pump piston, combining compactness and simplicity. A small adjustable shot of lubricant is discharged on each stroke of the pump. Actuation rate should be limited to 50 strokes per minute for oil and 25 strokes per minute for grease. A mechanical force of about 75 lbs on the roller will develop 2000 psi lube pressure. Pumps will easily develop 3000 psi if required.

All MLS Pumps are equipped with a high pressure relief assembly. Its replaceable rupture disc protects the pump and automatically signals blockage (high pressure) in the system, should it occur. Pumps are equipped with blow-out discs, Part No. 557435 (509-294-000), 2050 psi). If higher or lower disc bursting pressure is required, see Bulletin L15401 for part numbers. If desired, a pressure gauge (sold separately) can be teed into the main outlet (See Bulletin L15326). Also available is a high pressure blow-out switch, Part No. 56438 (511-573-000), which can be used to actuate a fault light or horn.

## RMLS Pumps for Roller Drive

RMLS Pumps are equipped with a cam roller for cam or stop actuation. Two sizes are available: the RMLS-5 has an output from 0.005 to 0.012 cu. in. per stroke and the RMLS-50 output ranges from 0.020 to 0.050 cu. in. per stroke.

The stroke of the pump piston (see table in specifications) is adjusted by varying the distance between the pump and the stop, cam surface or trip mechanism. The tripping mechanism should be designed with a positive lock to prevent damage due to overtravel of the pump piston. The slope of the engaging cam surface should not exceed 15 degrees.

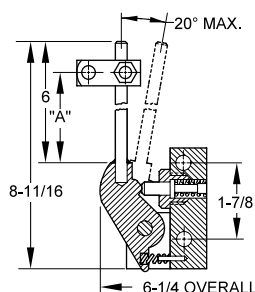
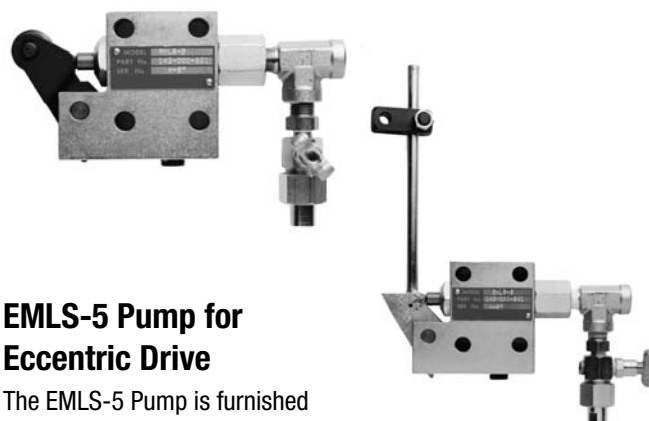


Figure 1.  
EMLS-5 Adjustment



## EMLS-5 Pump for Eccentric Drive

The EMLS-5 Pump is furnished with a drive arm with adjustable clevis position for powering the pump via a connecting rod from an eccentric pin in the end of a rotating shaft or other back-and-forth movement. Pump output can be adjusted from 0.005 to 0.012 cu. in. per stroke.

The stroke of the pump piston (see Figure 1 and table below) is adjusted by varying the position of the clevis on the drive arm. So as not to exceed piston stroke limitations, the lever arm must not be driven more than 20° or less than 10°. After determining the exact range, attachment of permanent stops to lever arm is suggested to prevent settings outside allowable range.

Oil reservoir assemblies are available in 5, 6, 12, 20, 24 and 40 pint sizes. Grease reservoirs have a spring-loaded follower and are available with either metal or plastic reservoir cylinders with capacities of 5, 6, 12 or 20 lb. Oil reservoirs of clear plastic have a top fill snap lid and cone filter screen. A low level switch may be ordered for any reservoir. (See Bulletin 12000 for reservoirs and options.)

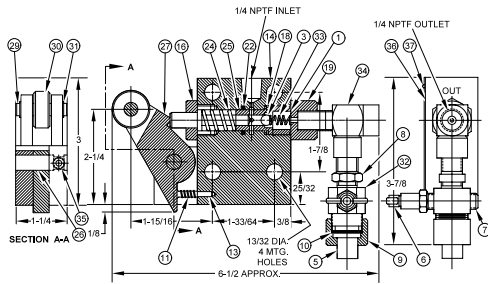
## INSTALLATION & OPERATING INSTRUCTIONS

Mount pumps with their lube inlet on the top, side or bottom. Be sure that air is purged from reservoir-to-pump line. On start-up and after repairs, bleeding air from the pump lube chamber is accomplished by loosening the test or air cock (item 6 on drawings) and operating pump by hand. (Be sure to retighten cock.)

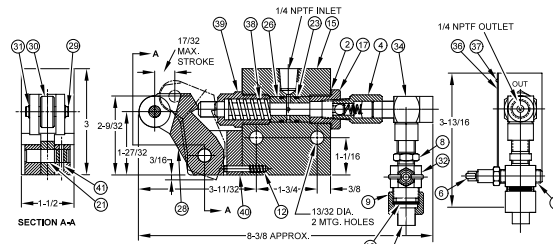
The piston sleeve o-rings must provide a good seal. Bypass can produce a leak at drive end of pump and reduce efficiency.

Oil reservoirs must be mounted **above** the pump inlet. (Spring loaded grease reservoirs may be mounted slightly below the pump, **but only if necessary**.) Grease reservoir-to-pump lines should be 1/2" OD or 5/8" OD tubing, two feet or less in length, with as few bends as possible. 3/8" OD tubing is satisfactory for oil reservoir-to-pump connections.

## RMLS-5

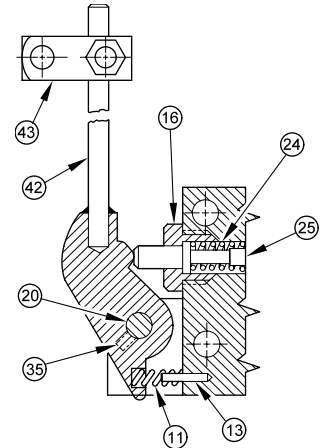


## RMLS-50



## EMLS-5 (Partial)

See RMLS-5 Dwg. for additional parts



### SPECIFICATIONS

Min Piston Stroke Lube Discharge	
RMLS-5	0.005 cu.in @ 3/16 in
RMLS-50	0.050 cu.in @ 5/16 in
Max Piston Stroke Lube Discharge	
RMLS-5	0.012 cu.in. @ 3/8 in
RMLS-50	0.050 cu.in. @ 17/32 in
<b>EMLS-5 (see fig. 1)</b>	
<b>Arm Travel</b>	2-3/4 in, 2-1/16 in, 1-5/16 in
<b>Piston Travel</b>	3/8 in, 9/32 in, 1-5/16 in
<b>Lube Discharge</b>	0.012 cu.in., 0.008 cu.in., 0.005 cu.in.

### HOW TO ORDER

Description	Part No.	Old Part No.
RMLS-5	562860	143-000-821
EMLS-5	562861	143-000-841
RMLS-50	562858	143-000-800
RMLS/EMLS-5 Repair Kit	563900	560-000-140
RMLS-50 Repair Kit	563901	560-000-150

## BILL OF MATERIALS

Item	Description	Part No.	Old Part No.	Quantity Required		
				RMLS-5	RMLS-50	EMLS-5
1	Gasket	—	500-760-000	1	—	1
2	Copper Gasket	557316	500-239-000	—	1	—
3	9/32" Diameter Steel Ball	556330	401-030-060	1	—	1
4	Check Valve	563207	509-360-030	—	1	—
5	Union Spud	557403	509-223-000	1	1	1
6	Air Cock	557342	501-930-000	1	1	1
7	1/8" Pipe Plug	557349	503-485-000	1	1	1
8	Reducing Brushing	556402	412-170-010	1	1	1
9	Union Nut	15R128	509-224-000	1	1	1
10	Blow-Out Disc	557435	509-294-000	1	1	1
11	Spring-Pivot	557375	506-198-001	1	—	1
12	Spring-Pivot	557532	511-410-000	—	1	—
13	Grove Pin	—	411-101-660	1	—	1
14	Pump Body	560675	511-631-000	1	—	1
15	Pump Body	567531	511-405-000	—	1	—
16	End Plug	560678	511-634-000	1	—	1
17	End Plug	560661	511-409-000	—	1	—
18	Leather Packaging	—	511-635-000	1	—	1
19	Check Valve Body	560679	511-636-001	1	—	1
20	Link Pin	560680	511-638-002	1	—	1
21	Pin-Pivot	560685	511-402-000	—	1	—
22	O-Ring	—	442-011-120	1	—	1

Item	Description	Part No.	Old Part No.	Quantity Required		
				RMLS-5	RMLS-50	EMLS-5
23	O-Ring	—	442-011-130	—	2	—
24	Return Spring	557536	511-640-020	1	—	1
25	Piston and Sleeve Ass'y	563293	511-641-001	1	—	1
26	Piston and Sleeve Ass'y	—	511-403-000	—	1	—
27	Operating Link	560685	511-678-000	1	—	—
28*	Lever Ass'y	563290	511-412-000	—	1	—
29	Roller Pin	560686	511-698-000	1	1	—
30	Roller	560687	511-699-000	1	1	—
31	Retainer Ring	555546	418-010-090	2	2	—
32	Combination Fitting	560697	511-751-000	1	1	1
33	Spring	557537	511-649-010	1	—	1
34	1/4" Service Tee	556420	412-380-020	1	1	1
35	1/4" -20 x 1/4" Soc. Hd. Setscrew	555531	417-060-020	1	—	1
36	Serial Retaining Plug	558831	457-008-321	1	1	1
37	Drive Screw	558636	411-050-070	2	2	2
38	Spring Piston	557530	511-401-000	—	1	—
39	Spring Retaining Plug	560659	511-404-000	—	1	—
40	Dowel	557533	511-411-000	—	1	—
41	Grove Pin	556384	411-101-680	—	1	—
42	Operating Arm Ass'y	563294	511-645-001	—	—	2
43	Clevis Ass'y	563554	534-108-000	—	—	1

\*Lever Assembly (P/N 511-412-000) for RML S-50 includes items 29, 30 and 31

All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

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