

Guide to LubriSystem Design and Component Selection

For single line, parallel injector lubrication systems

Step One: All bearing data should be recorded on a copy of the System Design Chart A.

- Note bearing name or location in column 1.
- List bearing size in column 2A and bearing type in column 2B. Use a separate line for each bearing.
- List the tap size in column 3 (to aid in fitting selection).
- List the lube taps per bearing in column 4.

Step Two: Calculate hourly bearing lube replacement requirements.

- Using formulas given in Design Chart B, calculate and enter in column 5. This figure is the lube volume/hr.
- Divide the figure in column 5 by the number of taps (column 4) and enter this figure in column 6. This is the calculated lube volume - cubic inches per hour per tap.

Step Three: Select injector size using Design Chart C.

- Locate the output that most closely matches the lube volume per tap (column 6).
- Enter all injector sizes in column 7 on Design Chart A (See Bulletin L12100 for more detail).
- Enter the quantity of injectors required in column 8.

Step Four: Determine manifold configuration.

- Group bearings for ease of installation, troubleshooting and repair.
- Select manifolds from Design Chart D. The manifold size must equal or exceed the number of injectors needed to supply the bearings in the bearing group (See Bulletin L12100 for more detail).

Step Five: Select pump using Design Chart E.

- Consider the following factors to determine the pump required (See Bulletin L12100 for more detail).

- Oil or grease system



- Environmental conditions to determine reservoir material
- Maintenance practice to determine reservoir size and low level warning

Note: Use NLGI Grade #1, #0, #00, or #000 only. (NLGI #1 should not be used if ambient temperature is below 40°F.)

Step Six: Select accessories.

- Order Solid State Timer, Part No. 562872 (163-400-000) (See Bulletin L14521).
- Order 115 VAC Solenoid Valve, Part No. 563315 (521-001-020) (See Bulletin L12100).
- Specify appropriate pressure switch, if one is required, using Bulletin No. L15521. Part No. – (507-509-000) is usually used.
- Specify Part No. – (560-001-780) for a pressure gauge kit if required (0-3000 psi).
- Select fittings, accessories and mounting hardware using Bulletin No. L12100.

Note: System Capacity:

LubriSystem design capacity should not exceed .75 cu.in. system requirement per pump stroke. This figure has a safety factor taking into account lube needed to recock injector, lube compressibility and line accumulation. The volume required per injector to move the valving piston (independent of injector volume output) is .004 cu.in.

Trabon®
and
Manzel®

LubriSystem®

20102-A

SYSTEM DESIGN CHART A

CUSTOMER ABC MOLDING CO

DISTRIBUTOR _____

MACHINE OR EQUIPMENT INJECTION MOLDING

DATE XX/XX/XX

PAGE 1 OF _____

REF. DWG. _____

LUBE USED: OIL ☐ GREASE ☒

TYPE 00 VISCOSITY _____

REF. NO.	LOCATION OR NAME OF BEARING	2 BEARING		3 TAP SIZE	4 TAPS PER BRG. (c)	5 LUBE VOLUME CU. IN./HR. (V)	6 LUBE VOLUME PER TAP	7 INJECTOR SIZE	8 NO. OF INJECTORS
		2A SIZE (A)	2B TYPE (B)						
1	MOVEABLE PLATTEN (4 GUIDE RODS - 1 BEARING EACH)	6" DIA x 10"	PLAIN	1/8"	2	.047	.024	8	2
2	" " " " " "	"	"	"	2	.047	.024	8	2
3	" " " " " "	"	"	"	2	.047	.024	8	2
4	" " " " " "	"	"	"	2	.047	.024	8	2
5	EJECTION CROSS BEARINGS	3" DIA x 4"	PLAIN	1/8"	1	.009	.009	3	1
6	" " " " " "	"	"	"	1	.009	.009	3	1
7	" " " " " "	"	"	"	1	.009	.009	3	1
8	" " " " " "	"	"	"	1	.009	.009	3	1
9	" " " " " "	"	"	"	1	.009	.009	3	1
10	" " " " " "	"	"	"	1	.009	.009	3	1
11	" " " " " "	"	"	"	1	.009	.009	3	1
12	" " " " " "	"	"	"	1	.009	.009	3	1
13	CARRIAGE FRONT BEARING (2)	4 1/4" DIA x 7 1/4"	PLAIN	1/8"	1	.024	.024	8	1
14	" " " " " "	"	"	"	1	.024	.024	8	1
15	CARRIAGE MIDDLE BEARING (2)	4 1/4" DIA x 7 1/4"	PLAIN	1/8"	1	.024	.024	8	1
16	" " " " " "	"	"	"	1	.024	.024	8	1
17	CARRIAGE REAR BEARING (2)	4 1/4" DIA x 7 1/4"	PLAIN	1/8"	1	.024	.024	8	1
18	" " " " " "	"	"	"	1	.024	.024	8	1
19									
20									


(A) GIVE LENGTH & WIDTH OF CYL. BEARINGS LENGTH & WIDTH OF SIDESILD. OF ANTI-FRICTION BEARINGS & NUMBER OF ROWS.

(B) GIVE TYPE OF BEARING SURFACES SLIDING, PLAIN OR TYPE OF ANTI-FRICTION BEARING.

(C) INDICATE NUMBER OF INLETS TO EACH BEARING & TAP CONDITION FIXED (F), MOVABLE (M), FLEX OR ROTATING (R) OR SWIVEL CONNECTION. BY: _____

Description	Size	Qty	Circle Aluminum Alloy		Circle 316 Stainless Steel		Notes
			Part No.	Old Part No.	Part No.	Old Part No.	
Injectors	0	—	563628	550-100-001	—	550-100-110	Determine the total number of each size injector by adding the numbers in Column B of Design Chart A for each injector size
	1	—	563630	550-100-011	—	550-100-120	
	2	—	563632	550-100-021	—	550-100-130	
	3	8	563634	550-100-031	—	550-100-140	
	4	—	563636	550-100-041	563639	550-100-150	
	8	14	563638	550-100-081	—	—	
Manifolds	1	—	561117	550-401-771	563764	550-401-101	Determine the total number of each size manifold. See Bulletin 12100 for more details
	2	—	561118	550-401-772	563765	550-401-102	
	3	—	561119	550-401-773	563766	550-401-103	
	4	2	561120	550-401-774	563767	550-401-104	
	6	—	—	550-401-776	—	—	
	8	1	561122	550-401-783	—	—	
	10	—	561123	550-401-784	—	—	
	12	1	561124	550-401-785	—	—	
Manifold Plug		1 each	15M038	550-350-040	561115	550-401-120	
Pump		1	563571	550-000-050			Use Design Chart E
Solid State Timer		1	562872	163-400-000			Use Bulletin L14521
Solenoid Valve		1	563315	521-001-020			Use Bulletin L12100
Pressure Switch (if required)		—					See Bulletin L15521 (P/N - (507-509-000) usually used)
Pressure Gauge Kit (if required)		1	—	506-001-780			Contains 0-3000 psi gauge and mounting hardware
Fittings & Mounting Hardware							See Bulletin L12100

DESIGN CHART A



20102-A
SYSTEM DESIGN CHART A

CUSTOMER _____
 DISTRIBUTOR _____
 MACHINE OR EQUIPMENT _____

DATE _____
 PAGE _____ OF _____
 REF. DWG. _____
 LUBE USED: OIL ☐ GREASE ☐
 TYPE _____ VISCOSITY _____

REF. NO.	LOCATION OR NAME OF BEARING	BEARING		TAP SIZE	TAPS PER BRG. (c)	LUBE VOLUME CU. IN./HR. (V)	LUBE VOLUME PER TAP	INJECTOR SIZE	NO. OF INJECTORS
		2A SIZE (A)	2B TYPE (B)						
1									
2									
3									
4									
5									
6									
19									
20									

(A) GIVE LENGTH & WIDTH OF CYL. BEARINGS & LENGTH & WIDTH OF SIDES & D.D. OF ANTI-FRICTION BEARINGS & NUMBER OF ROWS.
 (B) GIVE TYPE OF BEARING SURFACE SLIDING, PLAIN OR TYPE OF ANTI-FRICTION BEARING.
 (C) INDICATE NUMBER OF INLETS TO EACH BEARING & TAP CONDITION (FIXED (F), MOVABLE (M), FLEX OR ROTATING (R) OR SWIVEL CONNECTION. BY: _____

Suggested Lube Replenishment Guidelines

VOLUME REQUIRED

$V = A \times T$
 A = Equivalent Area
 T = Film Thickness

EQUIVALENT AREA (A)
Anti-Friction Bearings—

$A = D \times R$
 D = Shaft Diameter
 R = Number of Rows

Plain Bearings—

$A = \pi \times DL$
 $\pi = 3.14$
 D = Shaft Diameter
 L = Length of Bearing

Slides, Gibs, and/or Ways—

A = Area of contact
 Area = Area of largest contact surface

Gears Calculate each gear in train—

$A = \pi \times P.D. \times W$
 $\pi = 3.14$
 P.D. = Pitch Diameter of Gear
 W = Width of Gear

Large Bull Gears—

$A = 2$
 $\pi = 3.14$
 P.D. = Pitch Diameter of Pinion
 W = Width of Pinion Gear

Worm Gears—

$A = \pi (P.D._w + P.D._g) W$
 $\pi = 3.14$
 P.D. = Pitch Diameter of Worm
 P.D._g = Pitch Diameter of Worm Gear
 W = Width of Worm Gear

Labyrinth Seal—

$A = \pi \times D \times L \times 30$
 $\pi = 3.14$
 D = Shaft Diameter
 L = Add Length of each Contacting Surface of Seal

FILM THICKNESS, REPLACEMENT (T)

Oil — .001 Film Thickness every 1 hour period.
 Grease — .00025 Film Thickness every 1 hour period
Note: All units are in inches.

DESIGN CHART C

DESIGN CHART D

DESIGN CHART E

Injector Selection		Aluminum Alloy			For Selection Manifolds				Pump Selection		
Size #	Output	Adjustment Spacers	Part No.	Old Part No.	Manifold Size	Description	Part No.	Old Part No.	Oil Pumps Description	Part No.	Old Part No.
0	0.002	—	563628	550-100-001	1 Port	Aluminum Alloy	561117	550-401-771	6 Pint Oil Plastic	563574	550-000-170
1	0.005	1	563630	550-100-011	2 Port	Aluminum Alloy	561118	550-401-772	12 Pint Oil Plastic	563575	550-000-180
2	0.009	2	563632	550-100-021	3 Port	Aluminum Alloy	561119	550-401-773	20 Pint Oil Plastic	563576	550-000-190
3	0.012	3	563634	550-100-031	4 Port	Aluminum Alloy	561120	550-401-774	6 Pint Oil Plastic — 10 Watt L.L.	563577	550-000-230
4	0.015	4	563636	550-100-041	6 Port	Aluminum Alloy	—	550-401-776	12 Pint Oil Plastic — 10 Watt L.L.	563578	550-000-240
8	0.025	4	563638	550-100-081	8 Port	Aluminum Alloy	561122	550-401-783	20 Pint Oil Plastic — 10 Watt L.L.	—	550-000-250
					10 Port	Aluminum Alloy	561123	550-401-784	Grease Pumps Description	Order Part No.	
					12 Port	Aluminum Alloy	561124	550-401-785	8 Lb. Flexible PVC	—	550-000-290
Injector Selection		Stainless Steel			1 Port	316 Stainless Steel	563764	550-401-101	6 Lb. Grease Plastic	563571	550-000-050
0	0.002	—	—	550-100-110	2 Port	316 Stainless Steel	563765	550-401-102	12 Lb. Grease Plastic	—	550-000-060
1	0.005	1	—	550-100-120	3 Port	316 Stainless Steel	563766	550-401-103	20 Lb. Grease Plastic	—	550-000-070
2	0.009	2	—	550-100-130	4 Port	316 Stainless Steel	563767	550-401-104	6 Lb. Grease Plastic W/L.L.	563572	550-000-080
3	0.012	3	—	550-100-140					12 Lb. Grease Plastic W/L.L.	563573	550-000-090
4	0.015	4	563639	550-100-150					20 Lb. Grease Plastic W/L.L.	—	550-000-100
									6 Lb. Grease Metal	—	550-000-110
									12 Lb. Grease Metal	—	550-000-120
									20 Lb. Grease Metal	—	550-000-130
									6 Lb. Grease Metal W/L.L.	—	550-000-140
									12 Lb. Grease Metal W/L.L.	—	550-000-150
									20 Lb. Grease Metal W/L.L.	—	550-000-160

COMPONENT ORDER FORM

Description	Size	Qty	Circle Which Aluminum Alloy		Circle Which 316 Stainless Steel		Notes
			Part No.	Old Part No.	Part No.	Old Part No.	
Injectors	0		563628	550-100-001	—	550-100-110	Determine the total number of each size injector by adding the numbers in Column B of Design Chart A for each injector size
	1		563630	550-100-011	—	550-100-120	
	2		563632	550-100-021	—	550-100-130	
	3		563634	550-100-031	—	550-100-140	
	4		563636	550-100-041	563639	550-100-150	
	8		563638	550-100-081	—	—	
Manifolds	1		561117	550-401-771	563764	550-401-101	Determine the total number of each size manifold. See Bulletin 12100 for more details
	2		561118	550-401-772	563765	550-401-102	
	3		561119	550-401-773	563766	550-401-103	
	4		561120	550-401-774	563767	550-401-104	
	6		—	550-401-776	—	—	
	8		561122	550-401-783	—	—	
	10		561123	550-401-784	—	—	
	12		561124	550-401-785	—	—	
Manifold Plug			15M038	550-350-040	561115	550-401-120	
Pump			563571	550-000-050			Use Design Chart E
Solid State Timer			562872	163-400-000			Use Bulletin L14521
Solenoid Valve			563315	521-001-020			Use Bulletin L12100
Pressure Switch (if required)							See Bulletin 15521 (P/N — (507-509-00) usually used)
Pressure Gauge Kit (if required)			—	506-001-780			Contains 0-3000 psi gauge and mounting hardware
Fittings & Mounting Hardware							See Bulletin L12100

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