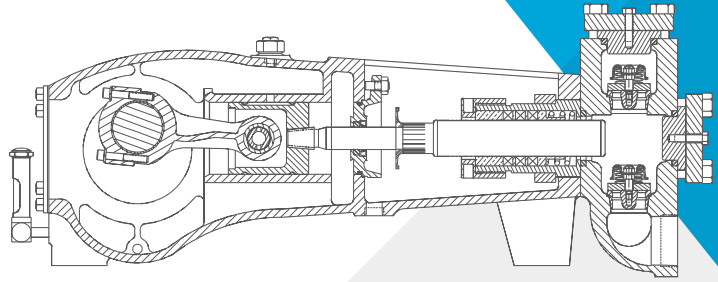


# MA-40M(L)(H)

## APLEX SERIES, TRIPLEX PLUNGER PUMP



No. of Plungers .....	3
Maximum Rated Speed.....	550 rpm
Stroke Length .....	2.50 in. 63.5 mm
Maximum Rated Power .....	40.0 hp 29.8 kW
Maximum Rod Load .....	3456 lbs. 15.3 kN
Weight 40M .....	750 lbs.
40L .....	810 lbs.
40H .....	845 lbs.

### ENGLISH UNITS (MA-40M)

PLUNGER SIZE IN.	STUFFING BOX BORE IN.	MAX PSI	*GALLON PER/REV.	250 RPM US GPM	350 RPM US GPM	450 RPM US GPM	550 RPM US GPM	650 RPM US GPM
2.250	2.875	867	0.129	25.8	32.3	45.2	58.1	71.0
2.125	2.875	973	0.115	23.0	28.8	40.3	51.8	63.3
2.000	2.875	1098	0.102	20.4	25.5	35.7	45.9	56.1
1.875	2.875	1249	0.090	17.9	22.4	31.4	40.3	49.3
1.750	2.875	1433	0.078	15.6	19.5	27.3	35.1	43.0
1.625	2.500	1663	0.067	13.5	16.8	23.6	30.3	37.0
1.500	2.500	1951	0.057	11.5	14.3	20.1	25.8	31.6
1.375	2.250	2321	0.048	9.6	12.1	16.9	21.7	26.5
1.250	2.250	2809	0.040	8.0	10.0	13.9	17.9	21.9
1.125	1.750	3468	0.032	6.5	8.1	11.3	14.5	17.8

hp Required @ rpm	14.5	18.1	25.4	32.7	40.0
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### METRIC UNITS (MA-40M)

PLUNGER SIZE MM	STUFFING BOX BORE MM	MAX PRESS. BAR	*LITER PER/REV.	250 RPM LPM	350 RPM LPM	450 RPM LPM	550 RPM LPM	650 RPM LPM
57.2	73.0	60.0	0.489	97.7	122.2	171.0	219.9	268.8
54.0	73.0	67.0	0.436	87.1	108.9	152.5	196.1	239.6
50.8	73.0	76.0	0.386	77.2	96.5	135.1	173.7	212.4
47.6	73.0	86.0	0.339	67.8	84.8	118.7	152.6	186.6
44.5	73.0	99.0	0.296	59.1	73.9	103.5	133.0	162.6
41.3	63.5	115.0	0.255	51.0	63.7	89.2	114.7	140.1
38.1	63.5	135.0	0.217	43.4	54.3	76.0	97.7	119.5
34.9	57.1	160.0	0.183	36.5	45.6	63.9	82.1	100.4
31.7	57.1	193.6	0.151	30.1	37.7	52.7	67.8	82.9
28.5	44.5	239.1	0.122	24.5	30.6	42.8	55.0	67.3

kW Required @ rpm	10.8	13.5	18.9	24.4	29.8
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# MA-40L/40H

## ENGLISH UNITS (MA-40L)

PLUNGER SIZE IN.	STUFFING BOX BORE IN.	MAX PSI	*GALLON PER/ REV.	250 RPM US GPM	350 RPM US GPM	450 RPM US GPM	550 RPM US GPM	650 RPM US GPM
2.750	3.500	580	0.193	38.6	48.2	67.5	86.8	106.1
2.625	3.500	637	0.176	35.1	43.9	61.5	79.1	96.6
2.500	3.250	703	0.159	31.9	39.8	55.8	71.7	87.7
2.375	3.250	779	0.144	28.8	36.0	50.3	64.7	79.1
2.250	2.875	867	0.129	25.8	32.3	45.2	58.1	71.0

hp Required @ rpm

	14.5	18.1	25.4	32.6	40.0
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## METRIC UNITS (MA-40L)

PLUNGER SIZE MM	STUFFING BOX BORE MM	MAX PRESS. BAR	*LITER PER/REV.	200 RPM LPM	300 RPM LPM	400 RPM LPM	500 RPM LPM	600 RPM LPM
69.9	88.9	40.1	0.730	146.0	182.4	255.4	328.4	401.4
66.7	88.9	43.9	0.665	133.0	166.3	232.8	299.3	365.8
63.5	82.6	48.5	0.603	120.7	150.8	211.2	271.5	331.8
60.3	82.6	53.7	0.543	108.7	135.8	190.2	244.5	298.8
57.2	73.0	59.7	0.489	97.7	122.2	171.0	219.9	268.8

kW Required @ rpm

	10.8	13.5	18.9	24.3	29.8
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## ENGLISH UNITS (MA-40H)

PLUNGER SIZE IN.	STUFFING BOX BORE IN.	MAX PSI	*GALLON PER/ REV.	250 RPM US GPM	350 RPM US GPM	450 RPM US GPM	550 RPM US GPM	650 RPM US GPM
1.00	1.750	4392	0.026	5.1	6.4	8.9	11.5	14.0
.875	1.500	5000	0.020	3.9	4.9	6.8	8.8	10.7

hp Required @ rpm

	14.5	18.2	25.4	32.7	40.0
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## METRIC UNITS (MA-40H)

PLUNGER SIZE MM	STUFFING BOX BORE MM	MAX PRESS. BAR	*LITER PER/REV.	200 RPM LPM	300 RPM LPM	400 RPM LPM	500 RPM LPM	600 RPM LPM
25.4	44.5	302.8	0.097	19.3	24.1	33.8	43.4	53.1
22.2	38.1	344.7	0.074	14.8	18.5	25.8	33.2	40.6

kW Required @ rpm

	10.8	13.6	18.9	24.4	29.8
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\*Displacement based on 100% Volumetric Efficiency

$$l_{hp} = \frac{USGPM \times (\text{Discharge psig} - 1/2 \text{ Suction psig})}{1542}$$

$$\text{Pump rpm} = \frac{USGPM \text{ Desired}}{USG \text{ per Revolution of Selected Plunger}}$$

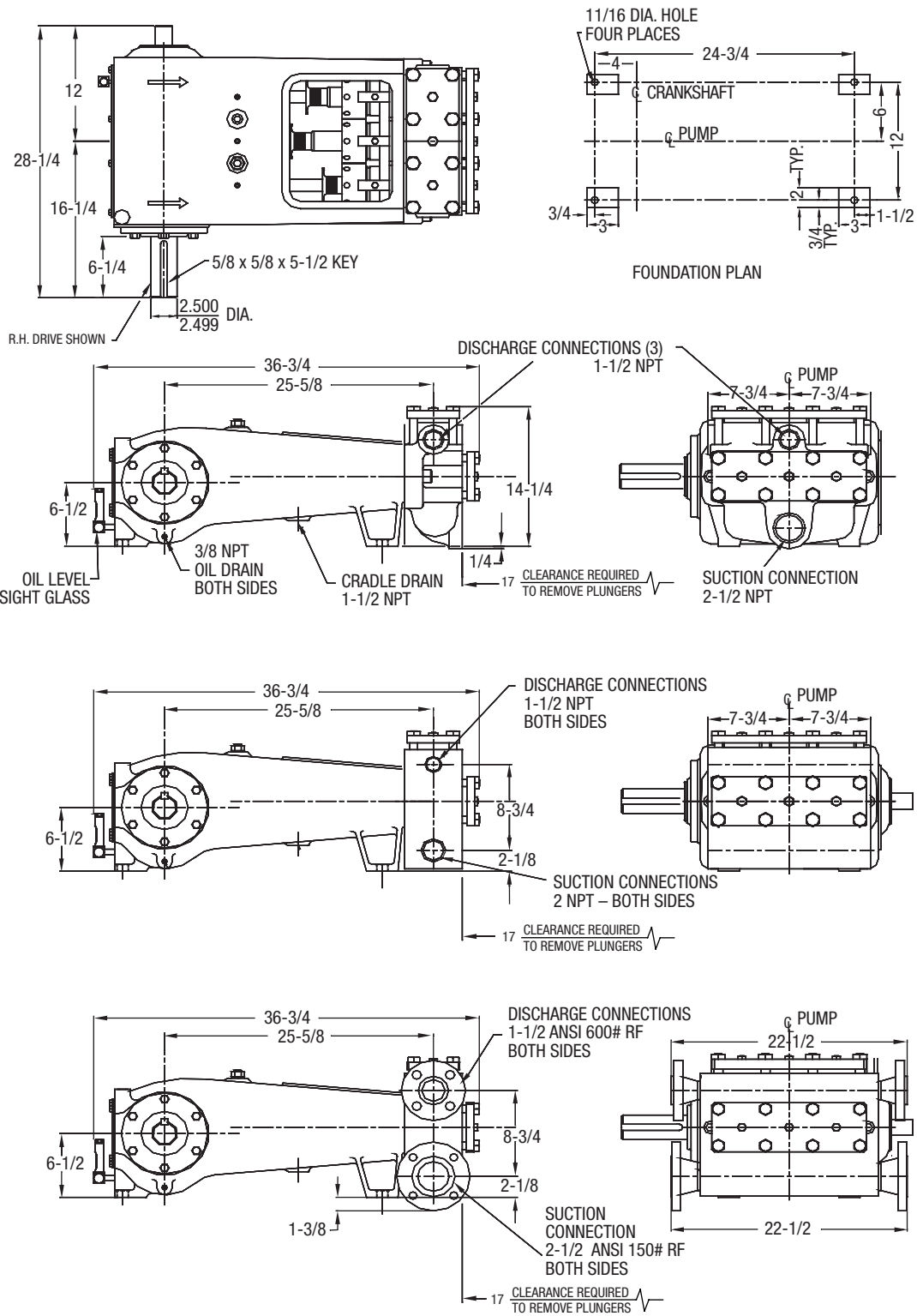
Power based on 90% Mechanical Efficiency

$$l_{kW} = \frac{M^3/HR \times (\text{Discharge Bar} - 1/2 \text{ Suction Bar})}{32.4}$$

$$\text{Pump rpm} = \frac{M^3/HR \text{ Desired}}{M^3 \text{ per Revolution of Selected Plunger}}$$

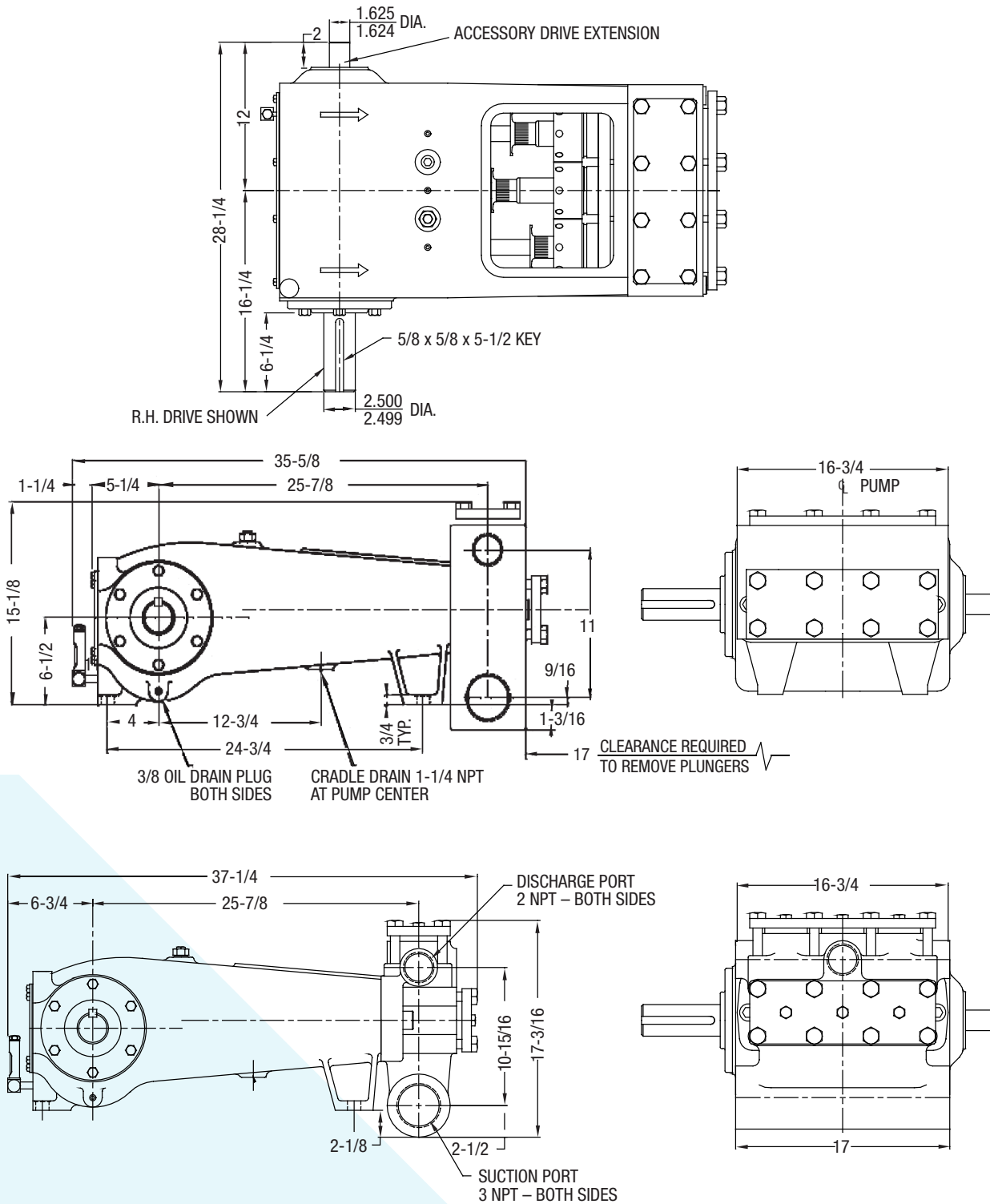
# MA-40M TRIPLEX PUMP

Measurements shown in inches



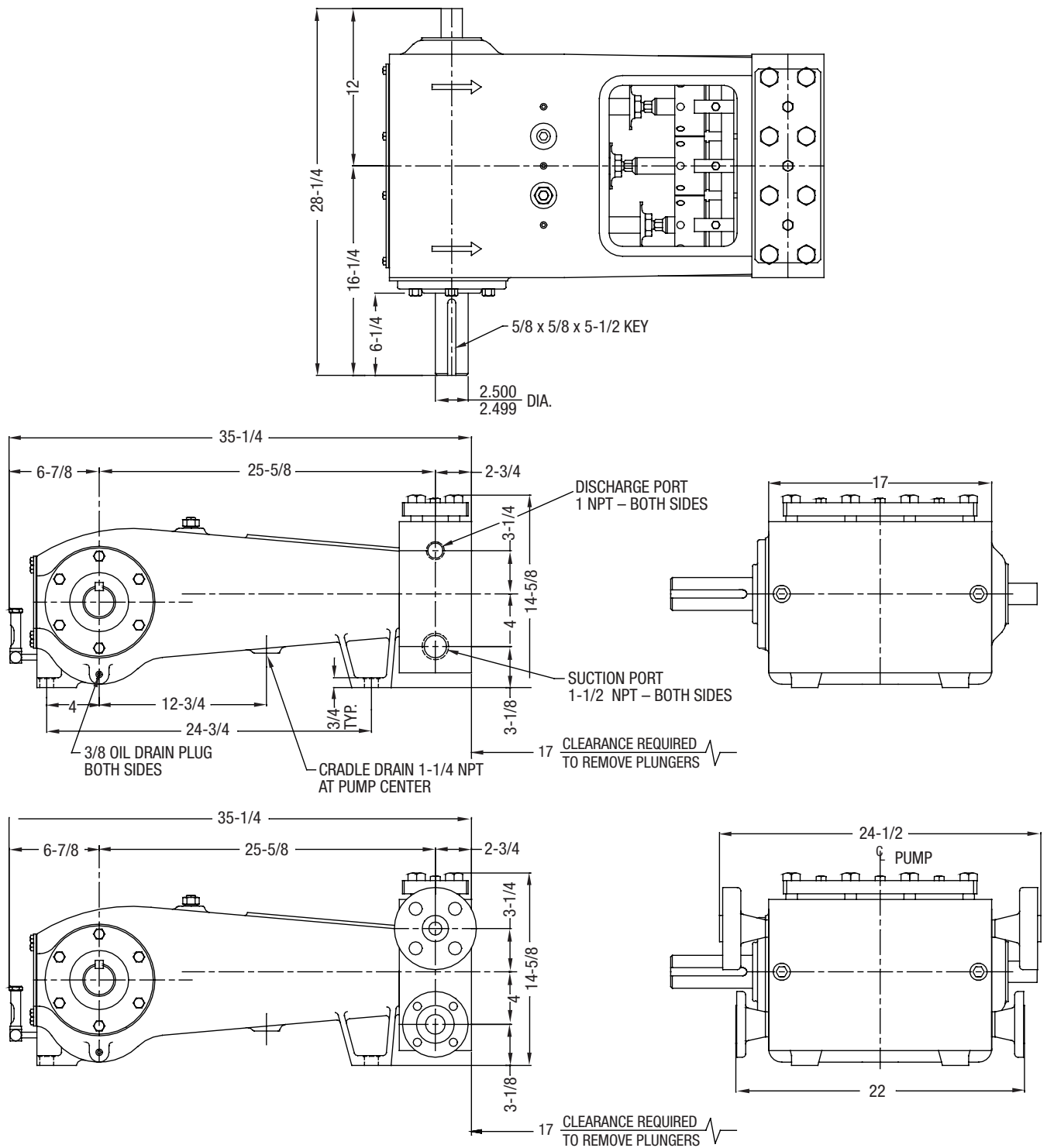
# MA-40L TRIPLEX PUMP

Measurements shown in inches



# MA-40H TRIPLEX PUMP

Measurements shown in inches



# ENGINEERING DATA

## MA-40M, MA-40L AND MA-40H TRIPLEX PUMPS

### POWER END ENGINEERING DATA

Max. Input Power @ Speed .....	40 hp @ 550 rpm
Rated Continuous Plunger Load .....	3,456 lbs.
Max. Rated Continuous Speed .....	550 rpm
Normal Continuous Speed Range .....	150 to 500 rpm
Minimum Speed .....	100 rpm
Oil Capacity .....	8 U.S. Qts
Power End Oiling System .....	Splash & Scoop
Power Frame, One-Piece .....	Cast Iron
Crosshead, Full Cylindrical .....	Cast Iron
Dia. x Length .....	4 x 4-1/2 in.
Crankshaft .....	Ductile Iron
Crankshaft Diameters:	
At Tapered Roller Bearings .....	3.35 in.
At Crankpin Bearings, Dia. x Length .....	2-3/4 x 2 in.
Crosshead (Wrist) Pin, Case-Hardened and Ground .....	AISI 8620
Wrist Pin Bushing, SAE 660, Dia. x Width .....	1-5/16 x 2 in.
Main Bearings, Tapered Roller .....	Timken®
Crankpin Bearings, Precision Automotive .....	Steel Backed, Babbitt-Lined
Extension (Pony) Rod, Integral w/ Plungers .....	316 S.ST.
Connecting Rod, Automotive Type .....	Ductile Iron
Average Crosshead Speed @ 550 rpm .....	229 fpm
Minimum Life Expectancy, Main Bearings, L <sub>10</sub> .....	100,000+ hr.

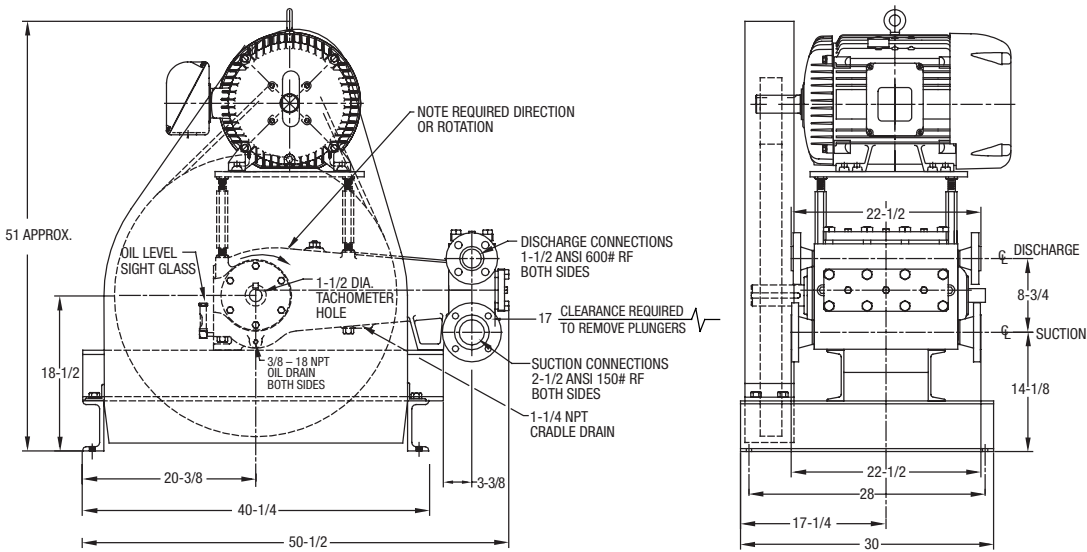
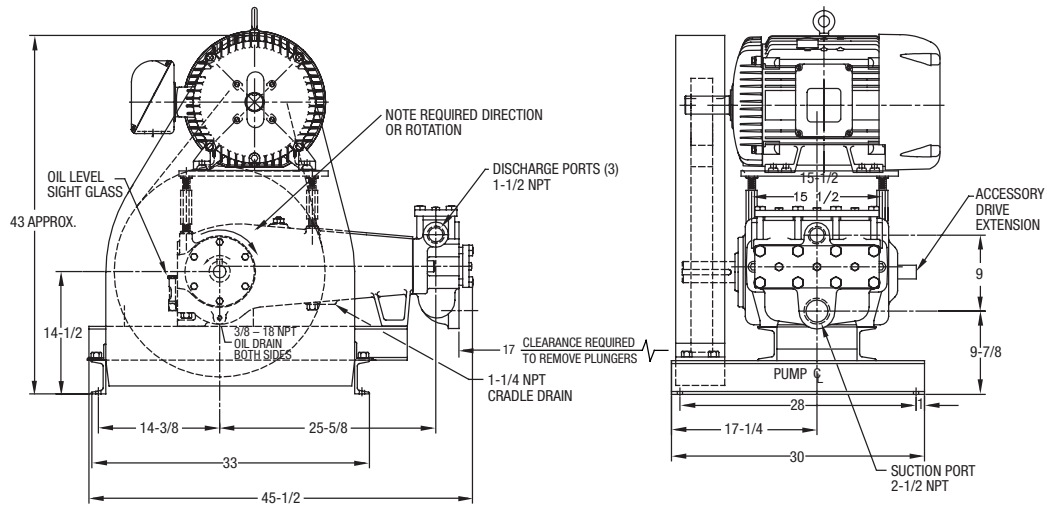
### LIQUID END ENGINEERING DATA

Max. Continuous Working Pressure 40M .....	3468 psi
40L .....	867 psi
40H .....	5,000 psi
Hydrostatic Test 40M .....	4,500 psi
40L .....	1,300 psi
40H .....	7,500 psi
Available Liquid End Materials, A.S.T.M.	
Nickel Aluminum Bronze Casting 40M.....	B148-C955
Carbon Steel Block 40M, 40L, 40H .....	Various Grades
Plunger Type Rokide® (Chromium Oxide-Coated).....	316 S.ST. (Other types available include Tungsten Carbide, Ceramic)
Stuffing Boxes, Field-Removable and Replaceable	
Carbon Steel .....	Various Grades
Stainless Steel .....	Various Grades
Packing Types Available	
Gland-Loaded, Non-Adjustable 40M, 40L.....	Style 838
Spring-Loaded, Braided PTFE Coating & Aramid Fiber .....	Style 140, 0141, 8921K
Spring-Loaded, Cup-Type .....	Style 120X
Valve Cover and Cyl. Head Plugs.....	Ductile Iron, 416 S.ST.
Retainer Plates, Carbon Steel, A.S.T.M. ....	1018 CDS
Seals, Stuffing Boxes, Valve Covers, Cyl. Heads .....	Nitrile
Valve Types	
Standard, Disc Type: Acetal Resin 40M, 40L .....	Acetal
Optional, Disc Type: Hardened and Lapped Stainless Steel 40M, 40L, 40H .....	17-4 PH S.ST.
Abrasion Resistant Wing Guided 40M, 40L, 40H .....	17-4 PH S.ST.
Valve Spring Material .....	Inconel®
Valve Seat, Liquid Passage Areas	
Plate (Disc) Valves, (Acetal or S.ST.) 40M .....	2.3 sq.in.
40L .....	2.4 sq.in.
40H .....	1.4 sq.in.
Abrasion Resistant Wing Guided Valves 40M.....	1.07 sq.in.
40L .....	2.4 sq.in.
40H.....	0.7 sq.in.
Avg. Liquid Velocity @ 550 rpm	
through Disc Valves 40M.....	.66 fps
40L .....	.98 fps
40H .....	2.1 fps
through Abrasion Resistant Wing Guided Valves 40M.....	15.0 fps
40L .....	9.5 fps
40H.....	4.3 fps
through Suction Manifold 40M .....	4.6 fps
40L .....	4.8 fps
40H .....	2.5 fps
through Discharge Manifold 40M .....	12.8 fps
40L .....	10.8 fps
40H.....	5.7 fps

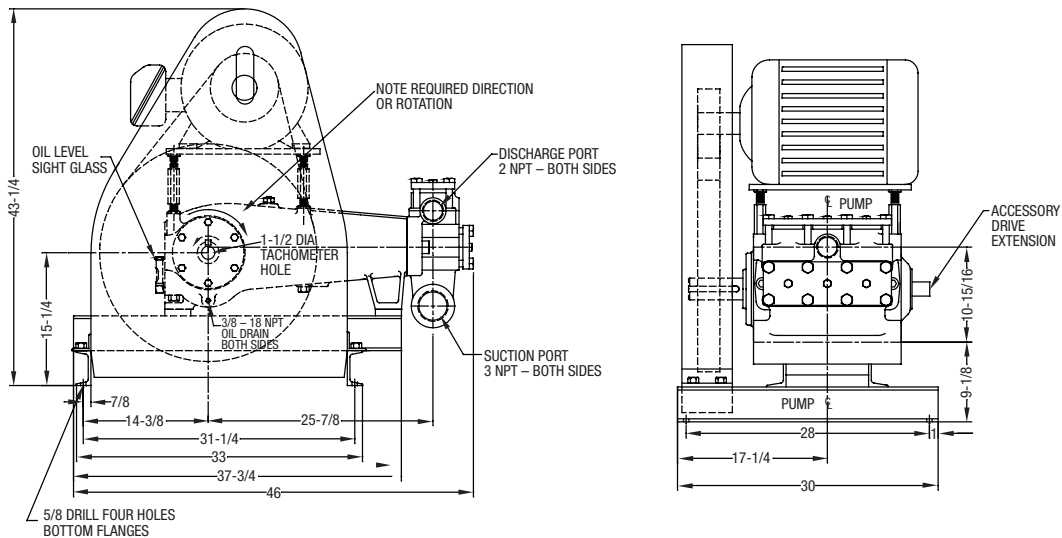
All drawings and specifications subject to change without notice.

# MA-40M/40L TRIPLEX PUMP

**MA-40M Triplex Pump**  
(Measurements shown in inches)

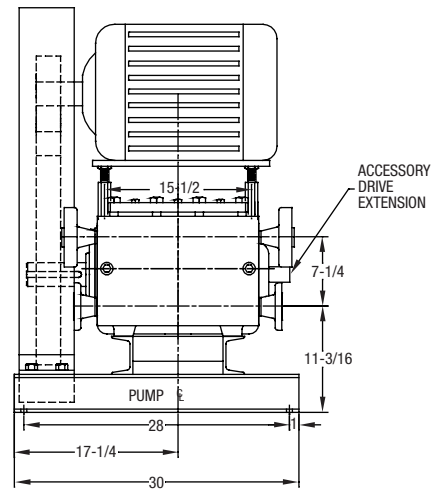
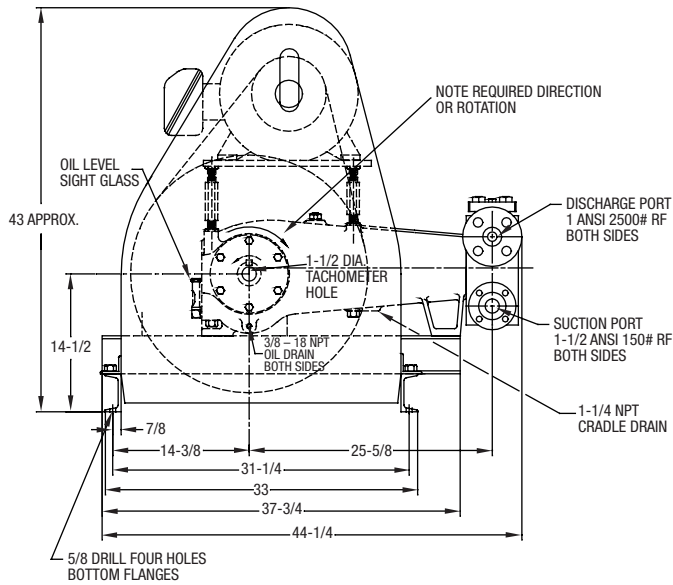
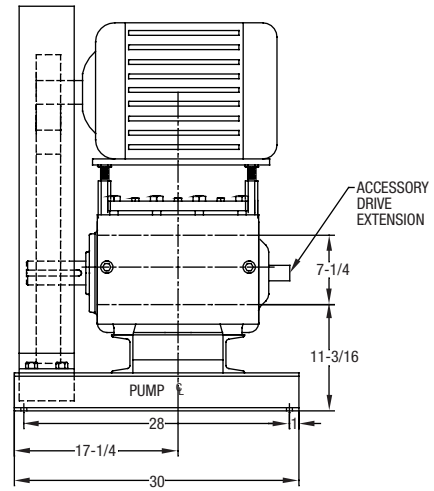
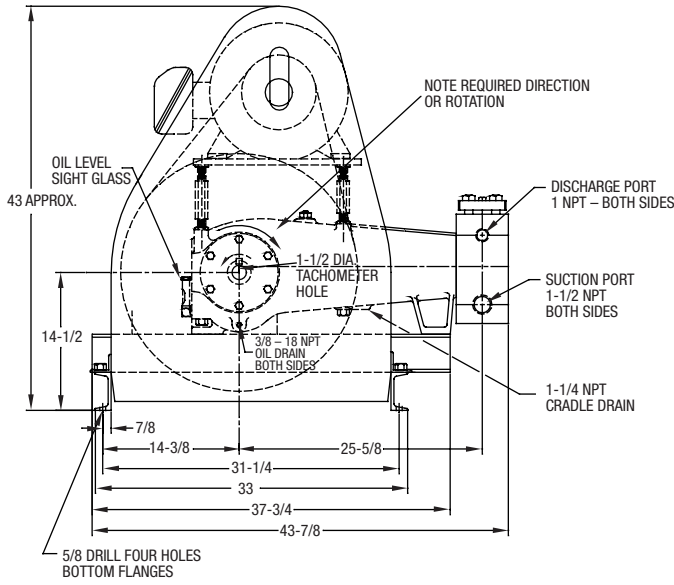


**MA-40L Triplex Pump**  
(Measurements shown in inches)



# MA-40H TRIPLEX PUMP

## MA-40H Triplex Pump (Measurements shown in inches)



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