



## Aplex Series

### MA-120M-HD, ( L-HD ), ( H-HD ) Triplex Plunger Pump

No. of Plungers.....	3
Maximum Rated Speed.....	450 rpm
Stroke Length.....	4.25 in. 108.0 mm
Maximum Rated Power.....	144.0 hp 107.4 kW
Maximum Rod Load.....	8,937 lbs. 39.7 kN
Weight MA-120M-HD.....	1,950 lbs.
MA-120L-HD.....	1,860 lbs.
120H-HD.....	2,025 lbs.

#### ENGLISH UNITS

#### MA-120M-HD

PLUNGER SIZE IN.	STUFFING BOX BORE IN.	MAX PSI	*GALLON PER/REV.	250 RPM GPM	300 RPM GPM	350 RPM GPM	400 RPM GPM	450 RPM GPM
2.250	3.250	2250	0.219	54.9	65.8	76.8	87.8	98.8
2.125	3.250	2520	0.196	48.9	58.7	68.5	78.3	88.1
2.000	2.875	2850	0.173	43.4	52.0	60.7	69.4	78.0
1.875	2.875	3230	0.152	38.1	45.7	53.3	61.0	68.6
1.750	2.875	3715	0.133	33.2	39.8	46.5	53.1	59.7
1.625	2.500	3900	0.114	28.6	34.3	40.1	45.8	51.5
hp Required @ rpm				80.1	96.1	112.1	128.1	144.1

#### METRIC UNITS

#### MA-120M-HD

PLUNGER SIZE MM	STUFFING BOX BORE MM	MAX PRESS. BAR	*LITER PER/REV.	250 RPM LPM	300 RPM LPM	350 RPM LPM	400 RPM LPM	450 RPM LPM
57.2	82.6	155.0	0.831	207.7	249.3	290.8	332.4	373.9
54.0	82.6	173.6	0.741	185.3	222.4	259.4	296.5	333.5
50.8	73.0	196.0	0.656	164.1	196.9	229.7	262.6	295.4
47.6	73.0	223.2	0.577	144.2	173.1	201.9	230.8	259.6
44.5	73.0	256.0	0.503	125.7	150.8	175.9	201.1	226.2
41.3	63.5	268.6	0.433	108.4	130.0	151.7	173.4	195.0
kW Required @ rpm				59.4	70.2	83.2	95.1	107.3

#### ENGLISH UNITS

#### MA-120L-HD

PLUNGER SIZE IN.	STUFFING BOX BORE IN.	MAX PSI	*GALLON PER/REV.	250 RPM GPM	300 RPM GPM	350 RPM GPM	400 RPM GPM	450 RPM GPM
3.500	4.500	930	0.531	132.8	159.3	185.9	212.4	239.0
3.375	4.500	1000	0.494	123.4	148.1	172.8	197.5	222.2
3.250	4.500	1079	0.458	114.5	137.4	160.3	183.2	206.0
3.125	4.000	1166	0.423	105.8	127.0	148.2	169.3	190.5
3.000	4.000	1266	0.390	97.5	117.0	136.6	156.1	175.6
2.875	4.000	1376	0.358	89.6	107.5	125.4	143.3	161.2
2.750	4.000	1506	0.328	82.0	98.4	114.7	131.1	147.5
2.625	4.000	1652	0.299	74.7	89.6	104.5	119.5	134.4
2.500	3.250	1823	0.271	67.7	81.3	94.8	108.4	121.9
2.375	3.250	2020	0.245	61.1	73.4	85.6	97.8	110.0
hp Required @ rpm				80.1	96.1	112.1	128.0	144.0

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#### METRIC UNITS

#### MA-120L-HD

PLUNGER SIZE MM	STUFFING BOX BORE MM	MAX PRESS. BAR	*LITER PER/ REV.	250 RPM LPM	300 RPM LPM	350 RPM LPM	400 RPM LPM	450 RPM LPM
88.9	114.3	64.1	2.010	502.5	603.0	703.5	804.0	904.5
85.3	114.3	69.0	1.869	467.3	560.8	654.2	747.7	841.1
82.6	114.3	74.4	1.733	433.3	520.0	606.7	693.3	780.0
79.4	101.6	80.4	1.602	400.6	480.7	560.8	641.0	721.1
76.2	101.6	87.3	1.477	369.3	443.1	517.0	590.8	664.7
73.0	101.6	94.9	1.356	339.1	406.9	474.7	542.5	610.3
69.9	101.6	103.8	1.241	310.2	372.3	434.3	496.4	558.4
66.7	101.6	113.9	1.131	282.7	339.2	395.7	452.3	508.8
63.5	82.6	125.7	1.026	256.4	307.7	358.9	410.2	461.5
60.3	82.6	139.3	0.926	231.4	277.6	323.9	370.2	416.5
kW Required @ rpm				59.4	70.2	83.2	95.1	107.3

#### ENGLISH UNITS

#### MA-120H-HD

PLUNGER SIZE IN.	STUFFING BOX BORE IN.	MAX PSI	*GALLON PER/REV.	250 RPM GPM	300 RPM GPM	350 RPM GPM	400 RPM GPM	450 RPM GPM
2.000	2.875	2844	0.173	43.4	52.0	60.7	69.4	78.0
1.875	2.875	3236	0.152	38.1	45.7	53.3	61.0	68.6
1.750	2.875	3715	0.133	33.2	39.8	46.5	53.1	59.7
1.625	2.500	4309	0.114	28.6	34.3	40.1	45.8	51.5
1.500	2.500	5057	0.098	24.4	29.3	34.1	39.0	43.9
hp Required @ rpm				80.1	96.1	112.1	128.1	144.0

#### METRIC UNITS

#### MA-120H-HD

PLUNGER SIZE MM	STUFFING BOX BORE MM	MAX PRESS. BAR	*LITER PER/ REV.	250 RPM LPM	300 RPM LPM	350 RPM LPM	400 RPM LPM	450 RPM LPM
50.8	73.3	196.1	0.656	164.1	196.9	229.7	262.6	295.4
47.6	73.0	223.1	0.577	144.2	173.1	201.9	230.8	259.6
44.4	73.0	256.1	0.503	125.7	150.8	175.9	201.1	226.2
41.3	63.5	297.1	0.433	108.4	130.0	151.7	173.4	195.0
38.1	63.5	348.7	0.369	92.3	110.7	129.2	147.6	166.1
kW Required @ rpm				59.4	70.2	83.2	95.1	107.3

\*Displacement based on 100% Volumetric Efficiency

Power based on 90% Mechanical Efficiency

$$I_{hp} = \frac{USGPM \times [\text{Discharge psig} - 1/2 \text{ Suction psig}]}{1542}$$

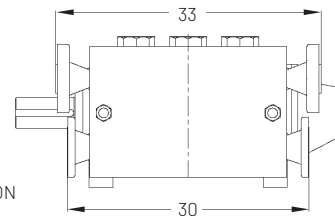
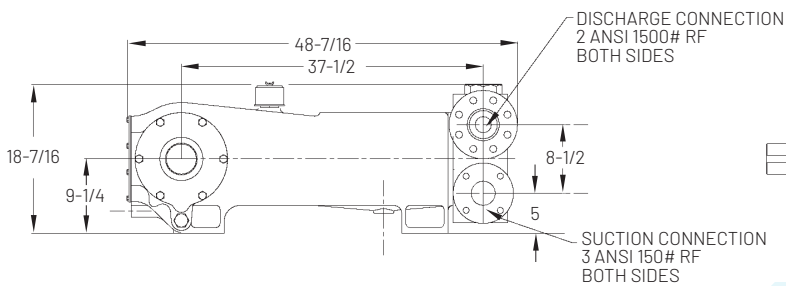
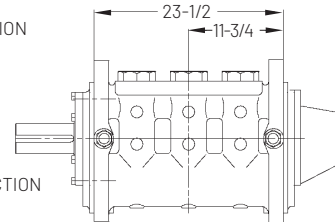
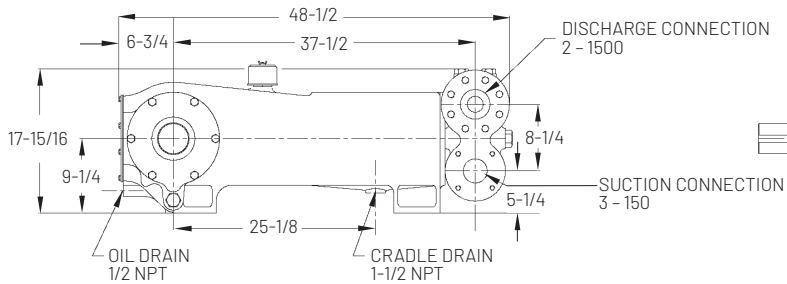
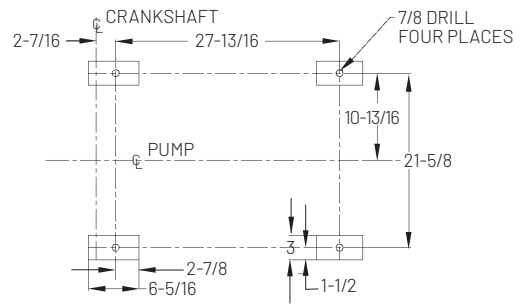
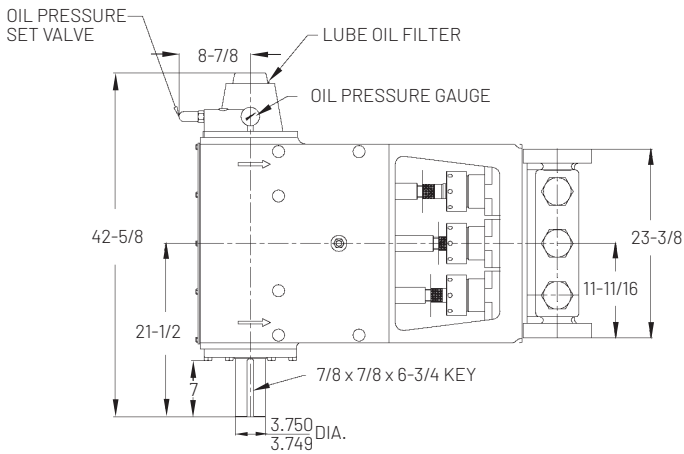
$$I_{kW} = \frac{M/HR \times [\text{Discharge Bar} - 1/2 \text{ Suction Bar}]}{32.4}$$

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

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

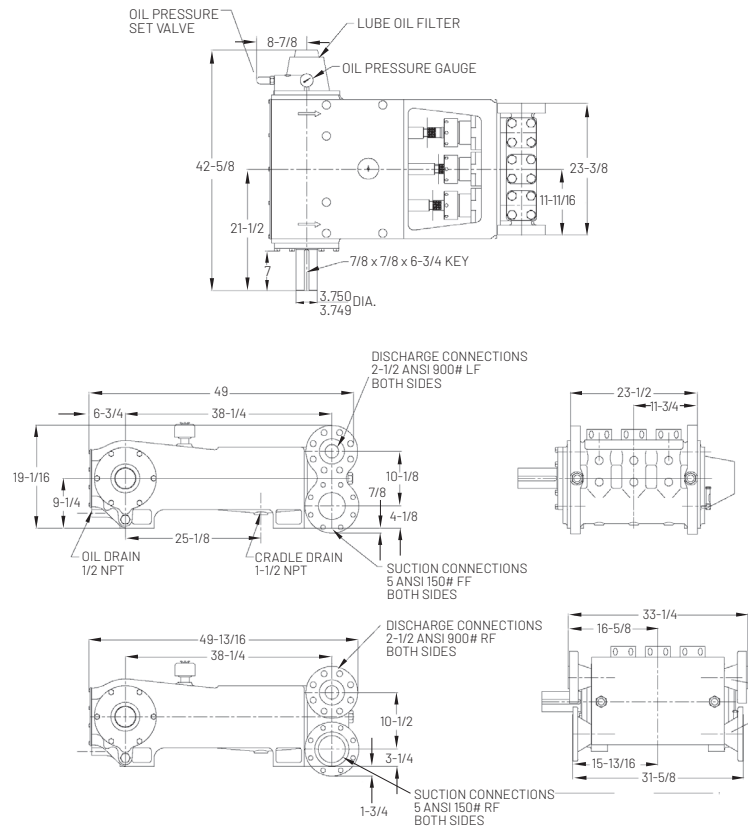
## Aplex Series MA-120M-HD, ( L-HD ), ( H-HD ) Triplex Plunger Pump

### MA-120M-HD TRIPLEX PUMP (MEASUREMENTS SHOWN IN INCHES)

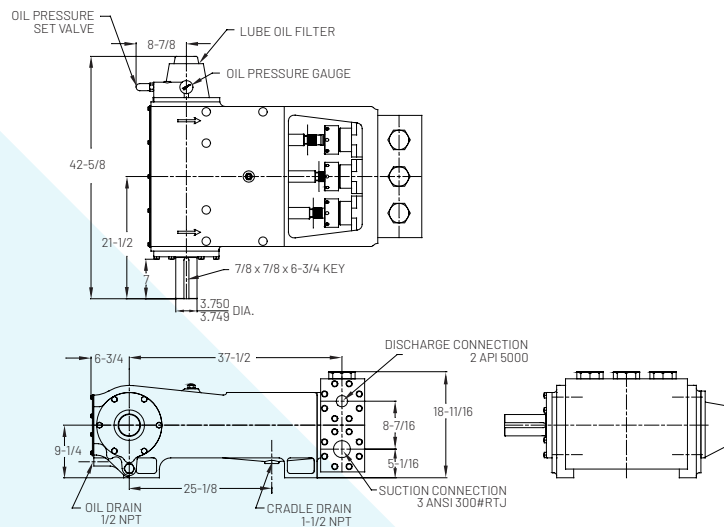


# Aplex Series MA-120M-HD, ( L-HD ), ( H-HD ) Triplex Plunger Pump

## MA-120L-HD TRIPLEX PUMP (MEASUREMENTS SHOWN IN INCHES)



## MA-120H-HD TRIPLEX PUMP (MEASUREMENTS SHOWN IN INCHES)





## Aplex Series

### MA-120M-HD, ( L-HD ), ( H-HD ) Triplex Plunger Pump

#### ENGINEERING DATA - MA-120H-HD TRIPLEX PUMPS

##### POWER END ENGINEERING DATA

Max. Input hp @ Speed .....	144 @ 450 rpm
Rated Continuous Plunger Load .....	8,937 lbs.
Normal Continuous Speed Range .....	150 to 400 rpm
Minimum Speed.....	100 rpm
Oil Capacity .....	18 U.S. Qts
Power End Oiling System .....	Pressure Lubrication
Power Frame, One-Piece .....	Cast Iron
Crosshead, Full Cylindrical .....	Cast Iron
Dia. x Length .....	5-3/4 x 6-3/16 in.
Crankshaft .....	AISI 4140 Steel, Nitrided
Crankshaft Diameters:	
At Tapered Roller Bearings .....	4 in.
At Crankpin Bearings, Dia. x Length .....	4 x 3 in.
Crosshead (Wrist) Pin, Case-Hardened and Ground .....	AISI 8620
Main Bearings, Tapered Roller .....	Timken
Crankpin Bearings, Precision Automotive .....	Steel Backed, Babbitt-Lined
Extension (Pony) Rod .....	17-4 PH S.ST.
Connecting Rod, Automotive Type .....	Ductile Iron
Average Crosshead Speed @ 450 rpm .....	318 fpm
Minimum Life Expectancy, Main Bearings, L <sub>10</sub> .....	45,000+ hr.

##### LIQUID END ENGINEERING DATA

Max. Continuous Working Pressure 120M-HD .....	3,900 psi
120M-HD .....	2,020 psi
120H-HD .....	5,057 psi
Hydrostatic Test 120M-HD .....	4,875 psi
120L-HD .....	2,523 psi
120H-HD .....	7,500 psi
Available Liquid End Materials, A.S.T.M.	
Stainless Steel Block .....	Various Grades
Nickel Aluminum Bronze Casting 120M-HD, 120L-HD .....	B148-C955
Carbon Steel Block .....	Various Grades
Ductile Iron Casting 120L-HD .....	A536 80-55-06
Plunger Type Rokide (Chromium Oxide-Coated).....	316 S.ST (Other types available include Tungsten carbide & ceramic)
Stuffing Boxes, Field-Removable and Replaceable	
Aluminum Bronze 120M-HD, 120L-HD .....	B148-C955
Carbon Steel 120M, 120L .....	1020
Stainless Steel .....	Various Grades



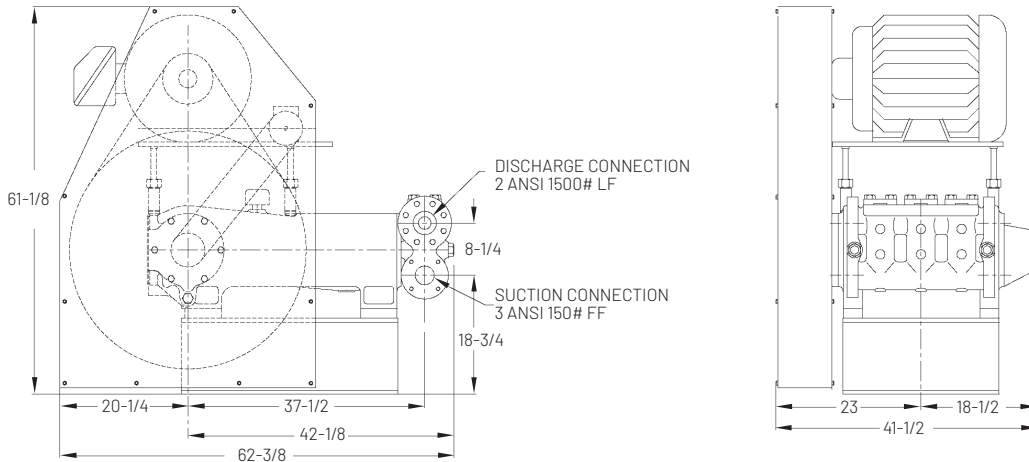
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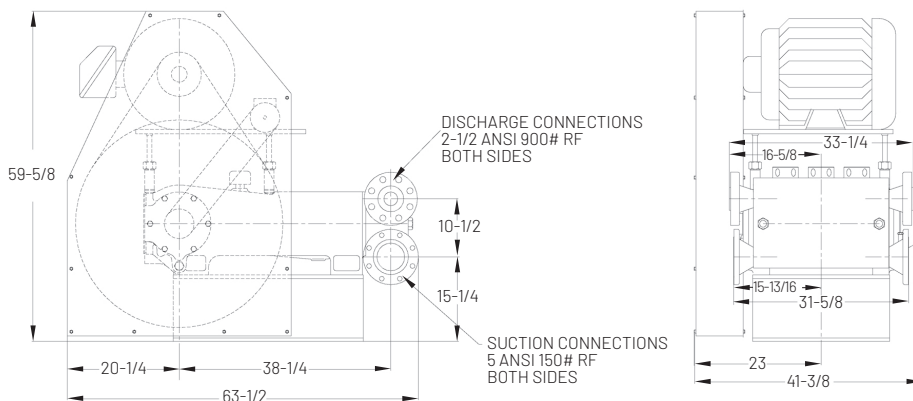
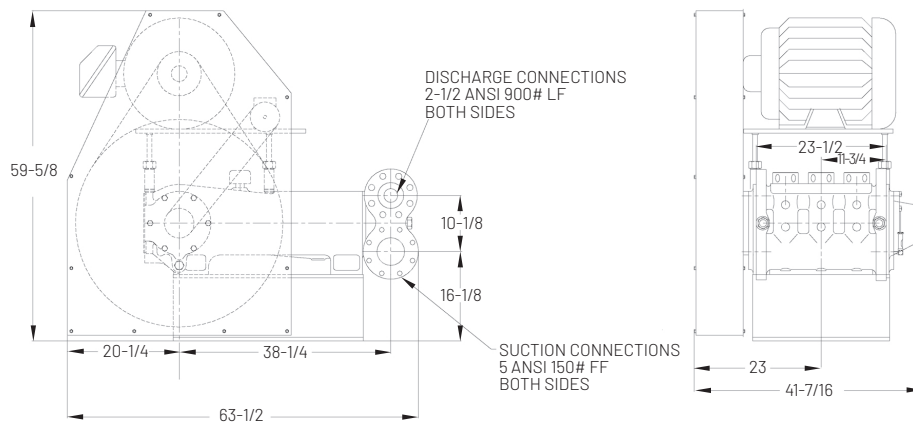
Packing Types Available	
Gland-Loaded, Non-Adjustable.....	Style 838
Spring-Loaded, Braided PTFE Coating & Aramid Fiber .....	Style 140,141, 8921K
Spring-Loaded, Cup-Type .....	Style 120X
Valve Cover.....	Dependant on fluid end material
Seals, Stuffing Boxes, Valve Covers, Cyl. Heads .....	Nitrile
Disc Valve Types	
Standard Disc Type, Acetal Resin 120M-HD, 120L-HD .....	Acetal
Optional Disc Style, Hardened and Lapped.....	17-4 PH S.ST.
Optional, Abrasion Resistant Wing Guided .....	17-4 PH S.ST.
Valve Spring Material .....	Inconel
Valve Seat, Liquid Passage Areas - Plate (Disc) Valves, (Acetal or S.ST.) 120M-HD .....	2.35 sq.in.
120L-HD .....	6.26 sq.in.
120H-HD .....	2.30 sq.in.
Avg. Liquid Velocity @ 450 rpm	
through Valves 120M-HD.....	8.97 fps
120L -HD.....	8.17 fps
120H-HD .....	7.25 fps
through Suction Manifold 120M-HD.....	4.47 fps
120L-HD .....	3.90 fps
120H-HD .....	3.54 fps
through Discharge Manifold 120M-HD .....	10.09 fps
120L-HD.....	15.62 fps
120H-HD .....	7.96 fps

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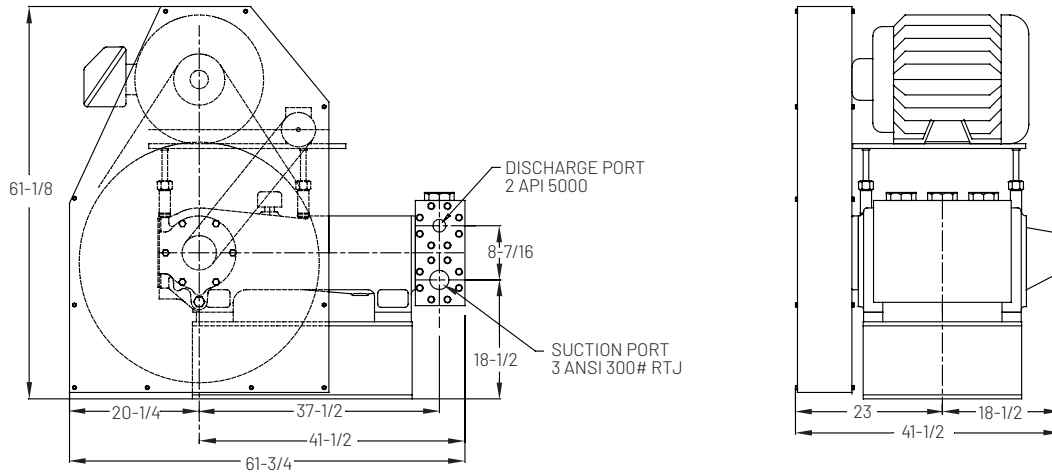
### MA-120M-HD TRIPLEX PUMP (MEASUREMENTS SHOWN IN INCHES)



### MA-120L-HD TRIPLEX PUMP (MEASUREMENTS SHOWN IN INCHES)



**MA-120H-HD TRIPLEX PUMP (MEASUREMENTS SHOWN IN INCHES)**



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