

PLATE NO. 1207AC

NOTES:

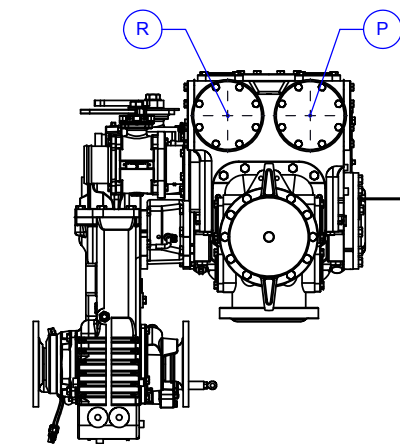
- REFER TO HALE PUMP/ENGINE COMBINATION LIST 029-0020-52-0 TO SELECT PROPER RATIO TO MATCH PUMP WITH ENGINE.
- WEIGHT OF STANDARD QMAX-XS 1500 G.P.M. PUMP AS SHOWN LESS PRIMING PUMP APPROXIMATELY 1300 LBS.
- IMPELLER SHAFT SEAL - MECHANICAL SEAL OR PACKING AVAILABLE.
- APPLY LOCTITE #246 HIGH TEMPERATURE THREAD LOCKER OR EQUIVALENT TO SCREW THREADS AND TORQUE SCREWS PER HALE ENGINEERING STANDARD ES018-002.
- UNLESS OTHERWISE INDICATED FASTENERS ARE GRADE 5 ZINC PLATED STEEL.
- FOR PUMP COOLING, AN ADDITIONAL 3/8 LINE SHOULD BE INSTALLED BETWEEN THE PUMP DISCHARGE AND BOOSTER TANK. THIS COOLING LINE SHOULD BE CONTROLLED BY A PANEL MOUNTED BALL VALVE AND A CHECK VALVE (HALE P/N: 038-1550-00-0 OR EQUIV) SHOULD BE INSTALLED IN THE BOOSTER TANK END OF THE COOLING LINES.

FOR ADDITIONAL OPTIONS AND ACCESSORIES REFER TO THE FOLLOWING DRAWINGS

OPTION	DRAWING NUMBER
ESP PRIMING PUMP	PL821
PVG PRIMING VALVE	PL480
SPV PRIMING VALVE	PL819
SPEED COUNTER ADAPTER	PL910
PUMP SHIFT INDICATOR LIGHTS	PL748
SG/LG/XG GEARBOX ASSEMBLY	PL914
SUCTION & DISCHARGE ADAPTERS	PL831

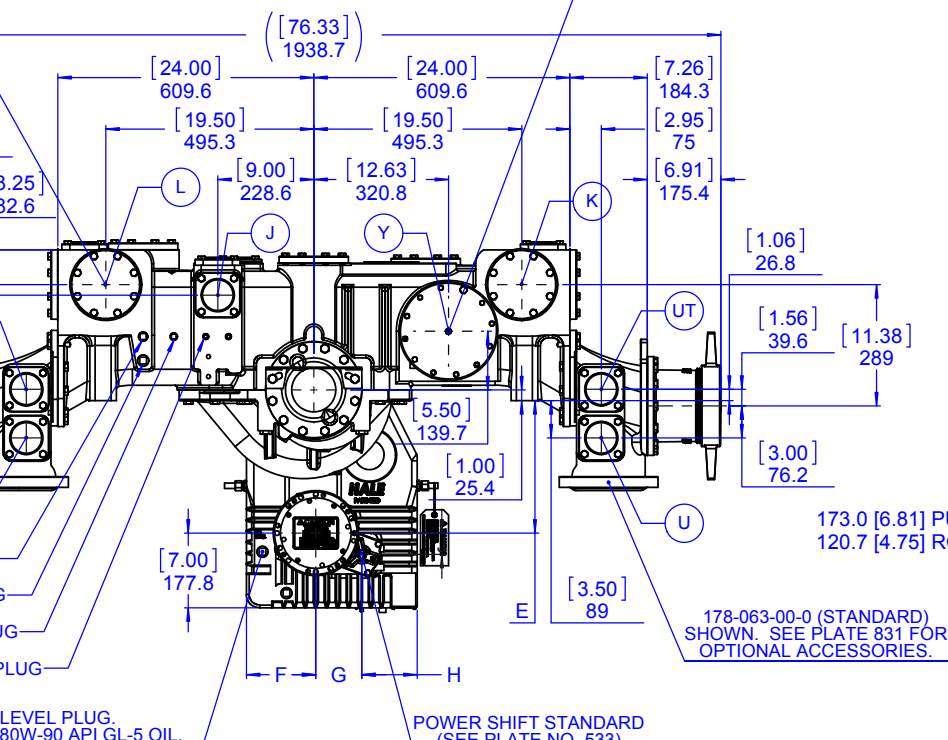
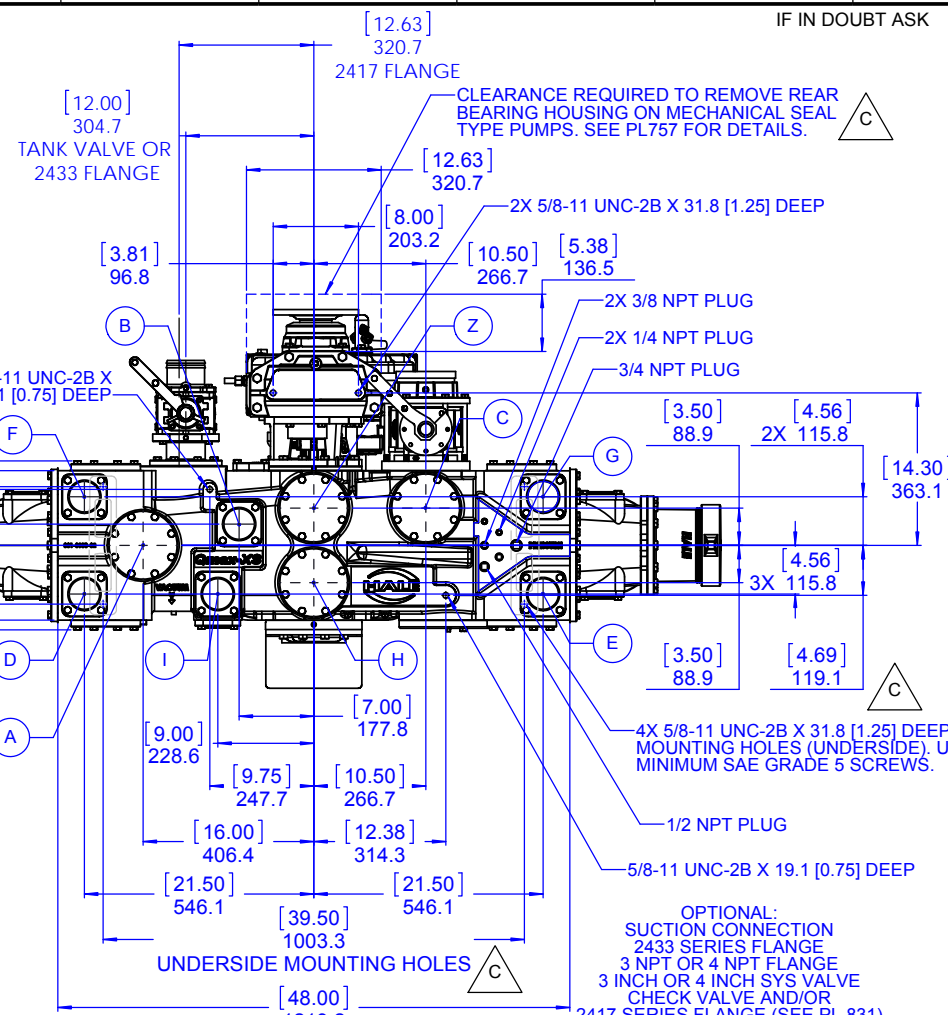
(2) FRONT AND (2) REAR OPENINGS MACHINED FOR 2433 SERIES FLANGES. STANDARD FLANGES: FRONT AND REAR BLANK. OPTIONAL FLANGES: 1-1/4 NPT, 2-1/2 NPT, 3 NPT, AND 4 NPT

OPTIONAL: MIV MASTER INTAKE VALVE (NOT SHOWN) AVAILABLE FOR MOUNTING BETWEEN THE SUCTION TUBE AND MIV SUCTION TUBE EXTENSION ON LEFT, RIGHT, OR BOTH SIDES. ALSO AVAILABLE ON FRONT, REAR, AND BOTTOM FLANGED OPENING. (SEE PLATE NO. 814, 815, 841 & 842)



3/4 NPT OIL LEVEL PLUG. USE SAE EP-90 OR 80W-90 API GL-5 OIL. APPROX. CAPACITY: SHORT GEARBOX = 2.8 L [3.0 QTS] LONG GEARBOX = 3.8 L [4.0 QTS] EXTRA LONG GEARBOX = 3.8 L [4 QTS]

REVISIONS			BY	DATE	APVD
ECN	REV.	ZONE	CHANGED FROM		
CFL3299	C	ALL	REDRAWN ON FSG BORDER; 128.6 [5.06]; ADDED MOUNTING HOLE DIMENSIONS; ADDED REAR BEARING HOUSING CLEARANCE; ADDED ACCESSORIES/OPTIONS TABLE	JRP	24SEP2014 AJG



OPTIONAL: SUCTION CONNECTION 2433 SERIES FLANGE 3 NPT OR 4 NPT FLANGE 3 INCH OR 4 INCH SYS VALVE CHECK VALVE AND/OR 2417 SERIES FLANGE (SEE PL 831)

HALE TYPE QMAX-XS SERIES PUMP INSTALLATION

PUMP MODEL	GEAR RATIO	GEARBOX TYPE **	DIMENSIONS				
			E	F	G	H	J
QMAX-XS*-28	2.83	EXTRA LONG GEARBOX ONLY (X)	369.8 [14.56]	165.1 [6.50]	138.2 [5.44]	103.1 [4.06]	46.7 [1.84]
QMAX-XS*-25	2.55		374.6 [14.75]				
QMAX-XS*-23	2.32		378.5 [14.90]				
QMAX-XS*-21	2.13		382.5 [15.06]				
QMAX-XS*-19	1.96		387.4 [15.25]				
QMAX-XS*-23	2.28	LONG (L)	314.5 [12.38]		109.5 [4.31]	131.6 [5.18]	50.8 [2.00]
		SHORT (S)	266.7 [10.50]		120.7 [4.75]	69.9 [2.75]	9.7 [0.38]
QMAX-XS*-21	2.05	LONG (L)	319.0 [12.56]		109.5 [4.31]	131.6 [5.18]	50.8 [2.00]
		SHORT (S)	271.3 [10.68]		120.7 [4.75]	69.9 [2.75]	9.7 [0.38]
QMAX-XS*-19	1.86	LONG (L)	323.8 [12.75]		109.5 [4.31]	131.6 [5.18]	50.8 [2.00]
		SHORT (S)	276.4 [10.88]		120.7 [4.75]	69.9 [2.75]	9.7 [0.38]
QMAX-XS*-17	1.71	LONG (L)	328.7 [12.94]		109.5 [4.31]	131.6 [5.18]	50.8 [2.00]
		SHORT (S)	280.9 [11.06]		120.7 [4.75]	69.9 [2.75]	9.7 [0.38]
QMAX-XS*-15	1.58	LONG (L)	333.5 [13.13]		109.5 [4.31]	131.6 [5.18]	50.8 [2.00]
		SHORT (S)	285.8 [11.25]		120.7 [4.75]	69.9 [2.75]	9.7 [0.38]

* RATED CAPACITY 1000, 1250, 1500, 1750, 2000 AND 2250 GPM; 4000, 5000, 6000, 7000 AND 8000 LPM
EXAMPLE: THE MODEL NUMBER FOR A 1500 GPM RATED PUMP WITH A 2.28 GEAR RATIO AND A SHORT GEARBOX WOULD BE QMAX-XS150-23S.

DRIVE LINE RECOMMENDATIONS

APPARATUS BUILDER SUPPLIED DRIVE LINES SHALL BE OF APPROPRIATE SIZE TO MATCH THE CHASSIS AND PUMP REQUIREMENTS WITH INDIVIDUAL JOINT CANCELLATION AND PHASING BEFORE AND AFTER THE PUMP. DRIVE SHAFT BALANCE (INCLUDING YOKES) SHALL NOT EXCEED THE RECOMMENDED LIMIT OF EITHER THE DRIVE SHAFT OR CHASSIS TRANSMISSION MANUFACTURER'S SPECIFICATIONS. DRIVE SHAFT FULL RANGE OPERATING SPEEDS SHALL NOT EXCEED 42% OF ITS CRITICAL SPEED.

WARNING

EXCEEDING THESE LIMITS OR FAILURE TO FOLLOW THE RECOMMENDATIONS OUTLINED ON THIS DRAWING COULD DAMAGE THE GEARBOX AND RESULT IN PERSONAL INJURY.

QMAX-XS MIDSHIP MAXIMUM PUMP PRESSURE:
HYDROSTATIC = 41.4 BAR [600 PSI] (34.5 BAR [500 PSI] BRONZE)
HYDRODYNAMIC = 27.6 BAR [400 PSI]

MAXIMUM POWER INPUT FOR PUMPING = 336 kW [450 HP]
MAXIMUM TORQUE ON PUMP SHAFT = 3120 N-m [2,300 LB-FT]
MAXIMUM GEARBOX SHAFT TORQUE (ROAD) = 21,693 N-m [16,000 LB-FT]

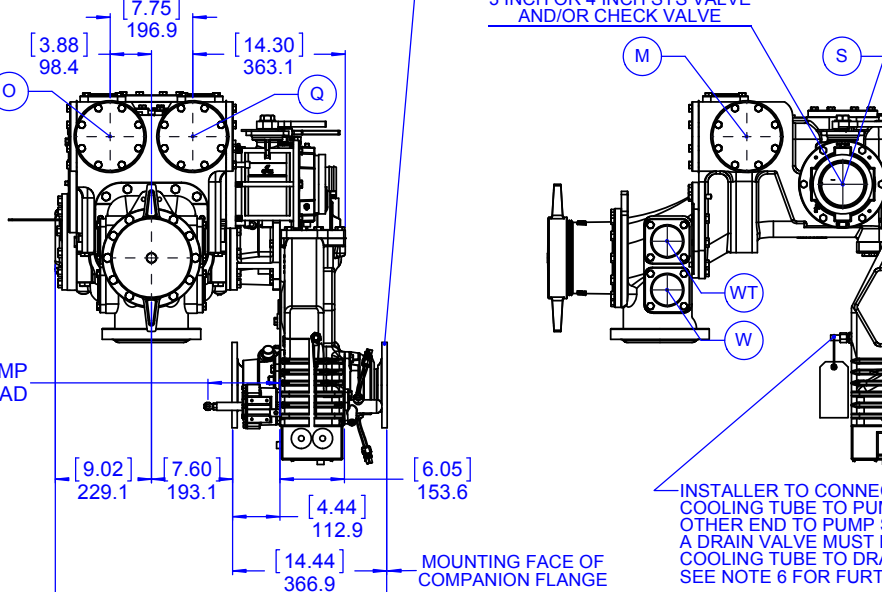
PUMP MODEL	QMAX-XS*-28X	QMAX-XS*-25X	QMAX-XS*-23X	QMAX-XS*-21X	QMAX-XS*-19X
MAX GEARBOX INPUT	1840	2040	2230	2430	2650
PUMP MODEL	QMAX-XS*-23 L/S	QMAX-XS*-21 L/S	QMAX-XS*-19 L/S	QMAX-XS*-17 L/S	QMAX-XS*-15 L/S
MAX GEARBOX INPUT	2280	2530	2780	3030	3280

STANDARD FLANGES: THE HALE COMBINATION FLANGES ARE SIZED FOR SPICER 1600, 1700, AND 1800 SERIES FLANGES

1600 SERIES WITH 6-5/8 DIA FEMALE PILOT USE (8) 3/8 DIA SAE GRADE 8 BOLTS.

1700 SERIES WITH 7-3/4 DIA FEMALE PILOT USE (8) 3/8 DIA SAE GRADE 8 BOLTS.

1800 SERIES WITH 7-3/4 DIA FEMALE PILOT USE (12) 7/16 DIA SAE GRADE 8 BOLTS.

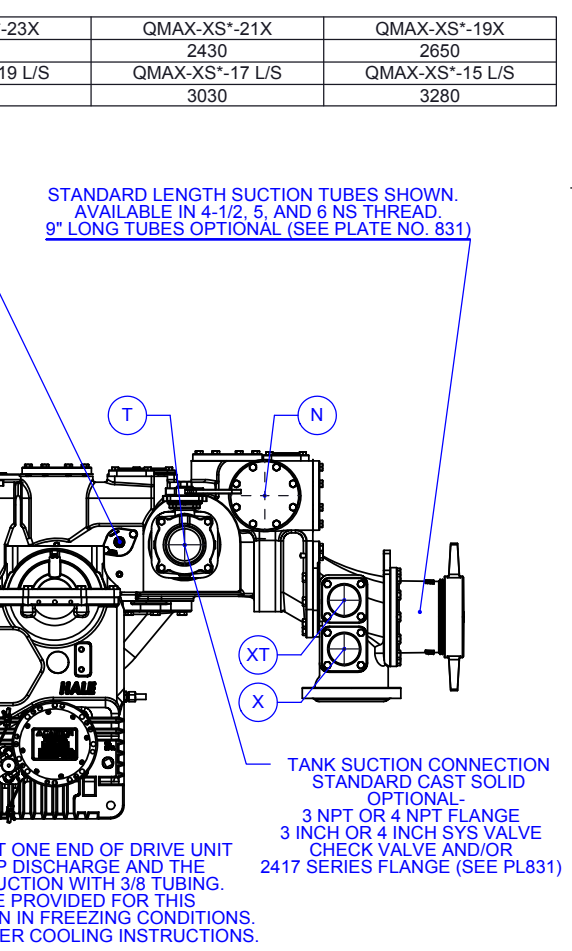


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS (INCHES ARE FOR REFERENCE, ONLY) TOLERANCE FOR MILLIMETER DIMENSIONS:
X: ±1
XX: ±0.5
XXX: ±0.25
X.XXX: ±0.125
ANGLES: ±0.25°
SURFACE TEXTURE IN µm Ra REMOVE ALL SHARP EDGES, 0.25MAX

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OPTIONAL DISCHARGE FLANGES			
STANDARD	OPTIONAL	STD. CAST HOLE	
A	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
B	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
C	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
D	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
E	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
F	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
G	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
H	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
I	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
J	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	CAST SOLID
K	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
L	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
M	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
N	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
O	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
P	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
Q	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
R	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	101.6 [4.00]
S	BLANK	3, 4 NPT OR CHECK VALVE	CHECK VALVE
T	-	3, 4 NPT OR CHECK VALVE	CAST SOLID
U	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
UT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
V	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
VT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
W	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
WT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
X	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
XT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	76.2 [3.00]
Y	-	3, 4 NPT OR CHECK VALVE	CAST SOLID
Z	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	76.2 [3.00]

STANDARD LENGTH SUCTION TUBES SHOWN. AVAILABLE IN 4-1/2, 5, AND 6 INCH THREAD. 9" LONG TUBES OPTIONAL (SEE PLATE NO. 831)



INSTALLER TO CONNECT ONE END OF DRIVE UNIT COOLING TUBE TO PUMP DISCHARGE AND THE OTHER END TO PUMP SUCTION WITH 3/8 TUBING. A DRAIN VALVE MUST BE PROVIDED FOR THIS COOLING TUBE TO DRAIN IN FREEZING CONDITIONS. SEE NOTE 6 FOR FURTHER COOLING INSTRUCTIONS.

TANK SUCTION CONNECTION STANDARD CAST SOLID OPTIONAL- 3 NPT OR 4 NPT FLANGE 3 INCH OR 4 INCH SYS VALVE CHECK VALVE AND/OR 2417 SERIES FLANGE (SEE PL831)

FSG OF IDEX CORPORATION		HALE GODIVA class1	
TITLE: HALE TYPE QMAX-XS SERIES PUMP INSTALLATION		DRAWING NUMBER: PL1207A	
MATERIAL:	FINISH:	DATE: 21MAY2012	SCALE: 1:10
MADE FROM:	PROJECT:	APPROVED: JRP	REV: C
SHEET 1 OF 1		REVISIONS	