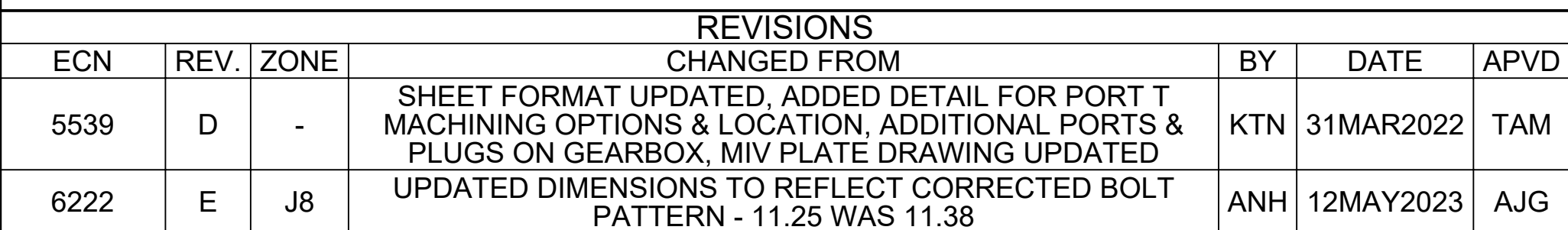
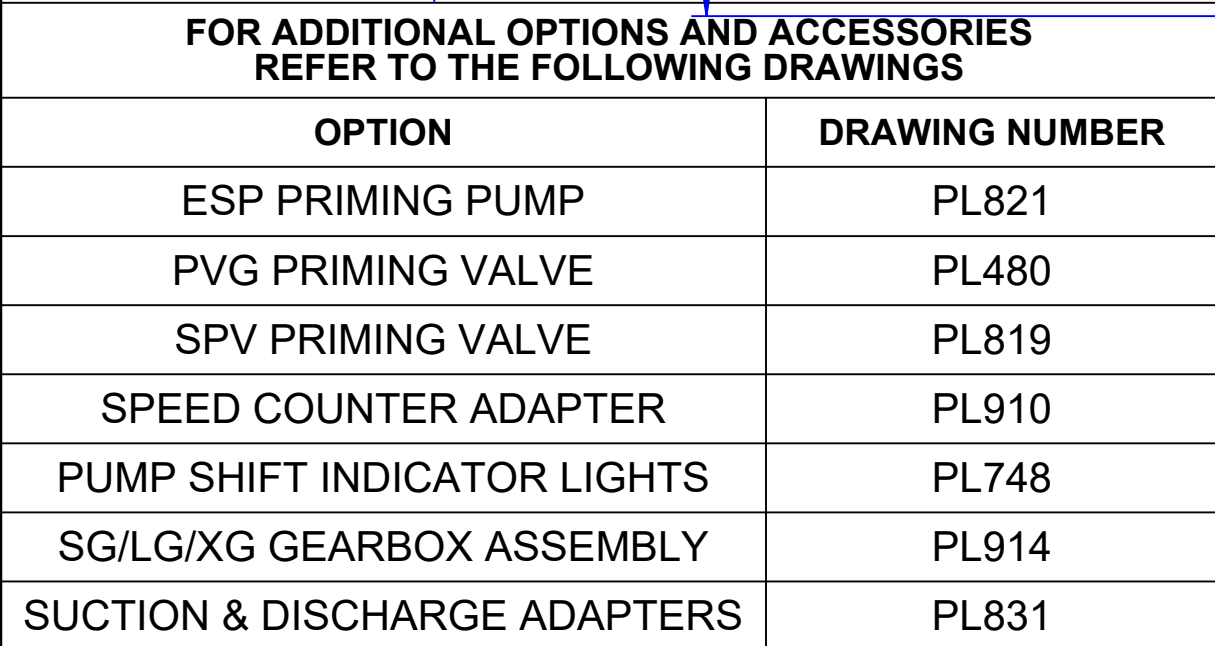
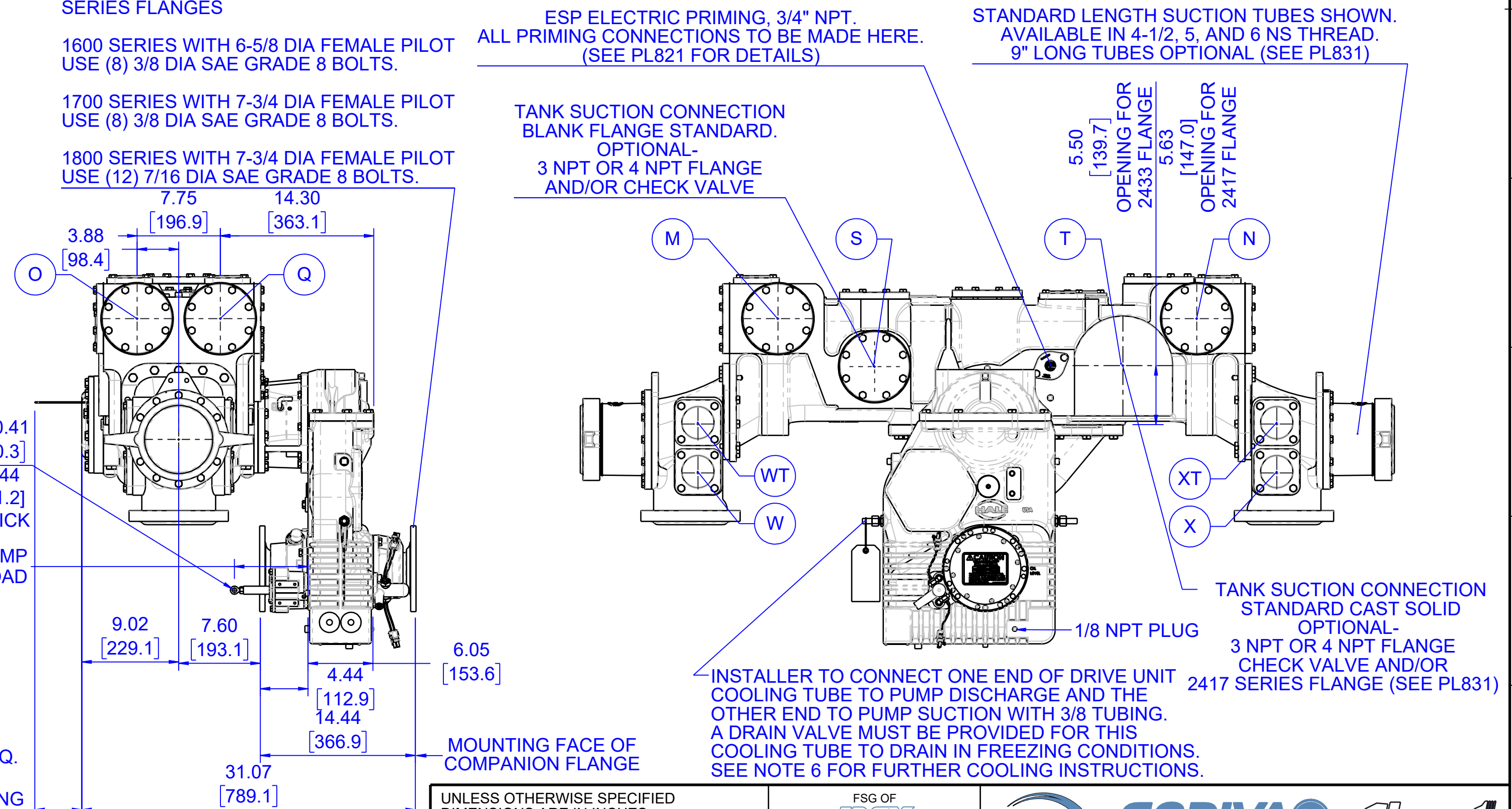


1. REFER TO HALE PUMP/ENGINE COMBINATION LIST 029-0020-52-0 TO SELECT PROPER RATIO TO MATCH PUMP WITH ENGINE.
2. WEIGHT OF STANDARD QMAX-XS 1500 G.P.M. PUMP AS SHOWN LESS PRIMING PUMP APPROXIMATELY 1300 LBS.
3. IMPELLER SHAFT SEAL - MECHANICAL SEAL OR PACKING AVAILABLE.
4. APPLY LOCTITE #246 HIGH TEMPERATURE THREAD LOCKER OR EQUIVALENT TO SCREW THREADS AND TORQUE SCREWS PER HALE ENGINEERING STANDARD ES018-002.
5. UNLESS OTHERWISE INDICATED FASTENERS ARE GRADE 8 ZINC PLATED STEEL.
6. 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.



PUMP MODEL		GEAR RATIO	GEARBOX TYPE **	DIMENSIONS					OPTIONAL DISCHARGE FLANGES			
				E	F	G	H	J	STANDARD		OPTIONAL	STD. CAST HOLE
QMAX-XS*-28		2.83	EXTRA LONG GEARBOX ONLY (X)	14.56 [369.8]	6.50 [165.1]	5.44 [138.2]	4.06 [103.1]	1.84 [46.7]	A	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
QMAX-XS*-25		2.55		14.75 [374.6]					B	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
QMAX-XS*-23		2.32		14.90 [378.5]					C	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
QMAX-XS*-21		2.13		15.06 [382.5]					D	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
QMAX-XS*-19		1.96		15.25 [387.4]					E	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
QMAX-XS*-23		2.28	LONG (L)	12.38 [314.5]		4.31 [109.5]	5.18 [131.6]	2.00 [50.8]	F	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
			SHORT (S)	10.50 [266.7]		4.75 [120.7]	2.75 [69.9]	0.38 [9.7]	G	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
QMAX-XS*-21		2.05	LONG (L)	12.56 [319.0]		4.31 [109.5]	5.18 [131.6]	2.00 [50.8]	H	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
			SHORT (S)	10.68 [271.3]		4.75 [120.7]	2.75 [69.9]	0.38 [9.7]	I	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
QMAX-XS*-19		1.86	LONG (L)	12.75 [323.8]		4.31 [109.5]	5.18 [131.6]	2.00 [50.8]	J	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	CAST SOLID
			SHORT (S)	10.88 [276.4]		4.75 [120.7]	2.75 [69.9]	0.38 [9.7]	K	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
QMAX-XS*-17		1.71	LONG (L)	12.94 [328.7]		4.31 [109.5]	5.18 [131.6]	2.00 [50.8]	L	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
			SHORT (S)	11.06 [280.9]		4.75 [120.7]	2.75 [69.9]	0.38 [9.7]	M	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
QMAX-XS*-15		1.58	LONG (L)	13.13 [333.5]		4.31 [109.5]	5.18 [131.6]	2.00 [50.8]	N	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
			SHORT (S)	11.25 [285.8]		4.75 [120.7]	2.75 [69.9]	0.38 [9.7]	O	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
* RATED CAPACITY 1000, 1250, 1500, 1750, 2000 AND 2250 GPM; 4000, 5000, 6000, 7000 AND 8000 LPM									P	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
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.									Q	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
<p>DRIVE LINE RECOMMENDATIONS</p> <p>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.</p> <p>WARNING</p> <p>EXCEEDING THESE LIMITS OR FAILURE TO FOLLOW THE RECOMMENDATIONS OUTLINED ON THIS DRAWING COULD DAMAGE THE GEARBOX AND RESULT IN PERSONAL INJURY.</p> <p>QMAX-XS MIDSHIP MAXIMUM PUMP PRESSURE: HYDROSTATIC = 600 PSI [41.4 BAR] (500 PSI [34.5 BAR] BRONZE) HYDRODYNAMIC = 400 PSI [27.6 BAR]</p> <p>MAXIMUM POWER INPUT FOR PUMPING = 450 HP [336 kW] MAXIMUM TORQUE ON PUMP SHAFT = 2300 LBS-FT [3120 N-m] MAXIMUM GEARBOX SHAFT TORQUE (ROAD) = 16,000 LBS-FT [21,693 N-m]</p>									R	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	4.00 [101.6]
									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	3.00 [76.2]
									UT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									V	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									VT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									W	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									WT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									X	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									XT	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3.00 [76.2]
									Y	-	3, 4 NPT OR CHECK VALVE	CAST SOLID
									Z	BLANK	1-1/4, 2-1/2, 3 & 4 NPT	3.00 [76.2]
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



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCE FOR INCHES DIMENSIONS:
X: ± 0.04
X.X: ± 0.02
X.XX: ± 0.01
X.XXX: ± 0.005
ANGLES: $\pm 1^\circ$
SURFACE TEXTURE IN $\mu\text{in Ra}$
REMOVE ALL BURRS AND SHARP
EDGES, 0.01MAX

FSG OF
IDEX
IDEX CORPORATION



GODIVA 

Class 1

HALE TYPE QMAX-XS SERIES PUMP INSTALLATION

DRAWN

JFB	
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	SIZE
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SIZE	DRAW
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DRAWING M

WING NUMBER

NUMBER

R

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SCALE	

E
SHEET

OF 1