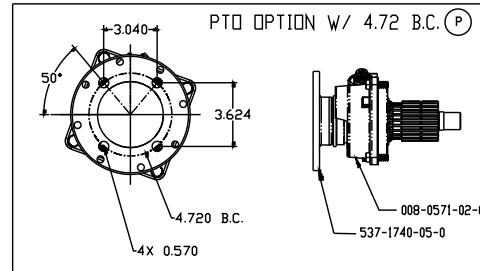


THIS PRODUCT AND ITS COMPONENTS MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS AND OTHER PATENTS PENDING:
4,337,830 5,018,665
4,587,862 5,139,393
4,653,978

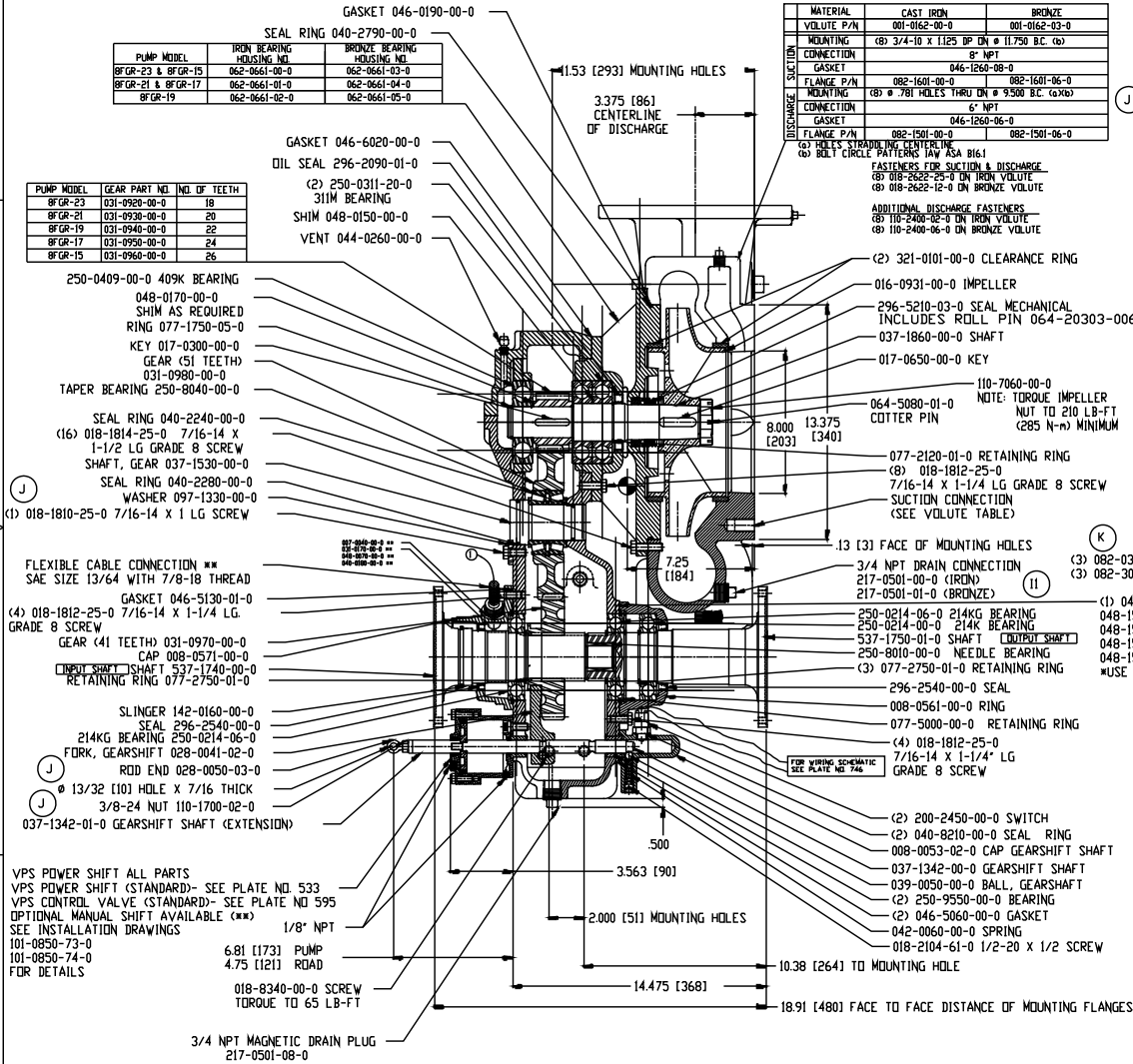
OPTIONS & ACCESSORIES - PLATE REFERENCES

OPTION	PLATE NO.
WIRING SCHEMATIC	PL746
SPEED COUNTER ATTACHMENT	PL910
G SERIES GEARBOX ASSEMBLY	PL914
B & C DRIVE ADAPTER	PL1199 & PL1200
PTO	PL766

HALE TYPE 8FGR SERIES PUMP



DETAIL A:
*HOSE TO BE CONNECTED IN SIMILAR PATTERN
WHEN VIEWED FROM SIDE OF GEARBOX



NOTES:

- 1) DIMENSIONS ARE IN INCHES & [MILLIMETERS].
- 2) WEIGHT 575 LBS (261 kg).
- 3) PRIMING SYSTEM, DISCHARGE & SUCTION VALVES ARE AVAILABLE.
- 4) OPTIONAL EQUIPMENT INDICATED BY (**).
- 5) WHEN ASSEMBLING, USE 8" OF HOSE. CONNECT ENDS OF HOSE TO FITTINGS TO FORM A KINK FREE "U-SHAPE".

ITEMS NOT SHOWN

- 101-0310-00-0 (1) OIL WARNING TAG

DRIVE LINE RECOMMENDATIONS

APPARATUS BUILDER SUPPLIED DRIVELINES 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. DRIVELINE SHALL BE INSTALLED PER SAE UNIVERSAL JOINT AND DRIVESHAFT DESIGN MANUAL, PUBLICATION # AE-7

FASTENER NOTE

- (P) UNLESS OTHERWISE NOTED FASTENERS TO BE USED ARE GRADE 8. WHEN REPLACING BROKEN OR DAMAGED FASTENERS MAKE SURE THE PROPER GRADE IS USED. DURING ASSEMBLY COAT FASTENERS WITH LOCTITE #246 (OR EQUIV.) HIGH TEMPERATURE REMOVABLE THREAD LOCKER.

ECD NO	REV	CHANGED FROM	BY	DATE	APVD	ECD NO	REV	CHANGED FROM	BY	DATE	APVD
3525	J	SEE ECD 2525 FULL FORM	TNJ	8-18-15	JRH	03-132	E	REDRAWN - UPDATED	JG	4-25-03	NAL
3979	K	ADDED UPPER COOLING TUBE AND HOSES. CHECK LOWER TUBE TO 3/8" WRAPPED	DMB	03-14-17	JLS	04-017	F	018-1812-02-0 TO 018-1812-25-0	JFG	3-5-04	NAL
4014	M	CHANGED COOLING TUBE TO 007-00136-000	DMB	04-06-17	JLS	04-280	G	046-5130-01-0 TO 046-5131-00-0 & SHIMS	JFG	11-16-04	NAL
4074	N	UPDATED COOLING TUBE FITTING P/N	DMB	05-31-17	JLS	0803	H	VOLUTE RIBS UPDATED TO MATCH CHANGES TO CASTING	GWH	03-18-09	NAL
4364	P	ADDED PTO OPTION	JS2	03-01-18	JLS	0922	I	ADDED 217-0501-00-01-0	MM	11-16-09	NAL
4374		296-5210-00-0 TO 296-5210-03-0 ADDED PIN NOTE				0922	I2	ADDED ARROW TO VOLUTE	MM	11-18-09	NAL

PUMP MODEL	GEAR RATIO	"X" DIMENSION
8FGR*-23R	2.28	13.375 [340]
8FGR*-21R	2.05	13.563 [344]
8FGR*-19R	1.86	13.750 [349]
8FGR*-17R	1.71	13.938 [354]
8FGR*-15R	1.58	14.125 [359]

THE HALE TYPE 8FGR PUMP IS AVAILABLE IN 2000 & 2500 GPM NFPA RATINGS AND A 3000 GPM & 150 PSIG RATING. THE COMPLETE PUMP MODEL NUMBER IS FORMED AS FOLLOWS:
FOR EXAMPLE, A 8FGR PUMP IS REQUIRED TO HAVE A 2500 GPM RATING WITH A 1.71 GEAR RATIO. THE PUMP MODEL NUMBER WOULD BE AS SHOWN: 8FGR 2500-1.7 R
PUMP RATED PUMP MODEL CAPACITY RATIO

WARNING

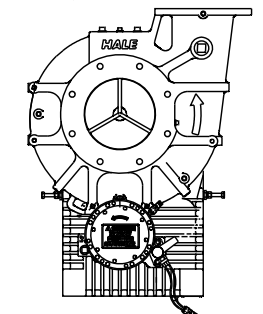
EXCEEDING THESE LIMITS OR FAILURE TO FOLLOW THE RECOMMENDATIONS OUTLINED ON THIS DRAWING COULD DAMAGE THE GEARBOX AND RESULT IN PERSONAL INJURY.
MAXIMUM TORQUE ON PUMP SHAFT = 2300 LBS-FT (310 N-m)
MAXIMUM TORQUE ON PUMP SHAFT TORQUE (GRADE) = 16,000 LBS-FT (21,693 N-m)

PUMP MODEL	MAX GEARBOX INPUT RPM
8FGR*-23R	2630
8FGR*-21R	2920
8FGR*-19R	3220
8FGR*-17R	3500
8FGR*-15R	3800

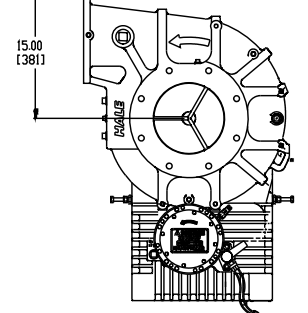
SEE HALE TORQUE LIMIT CHART F-72 FOR ADDITIONAL DATA.
MAXIMUM ALLOWABLE HYDROSTATIC PRESSURE: 500 PSIG
MAXIMUM ALLOWABLE HYDRODYNAMIC PRESSURE: 400 PSIG

VOLUTE POSITIONS

POSITION #1

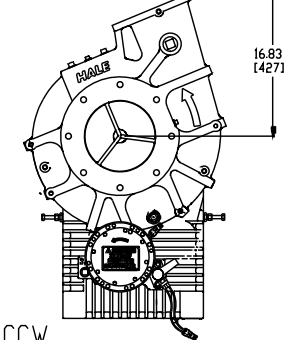


POSITION #13



90° CCW

POSITION #16



22.5° CCW



HALE PRODUCTS, INC.
A Unit of IDEX Corporation
Conshohocken, PA 19428 USA

NOT TO BE REPRODUCED OR USED TO MAKE OTHER DRAWINGS OR MACHINERY.
DRAWN: JDR
CHECKED: RET
DATE: 10-24-95
SIZE: SCALE: FULL

PLATE NO. 765AP