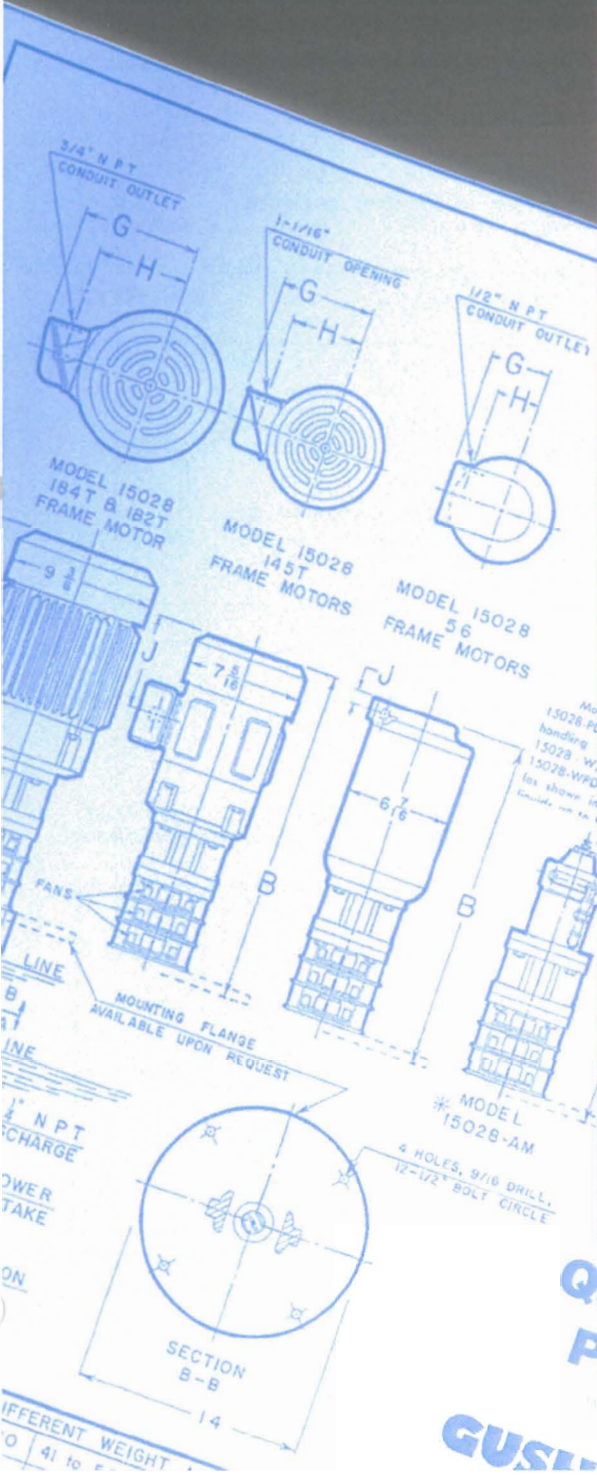


Molten Metal Pumps



A RUTHMAN COMPANY
www.gusher.com



Quality Under Pressure

GUSHER

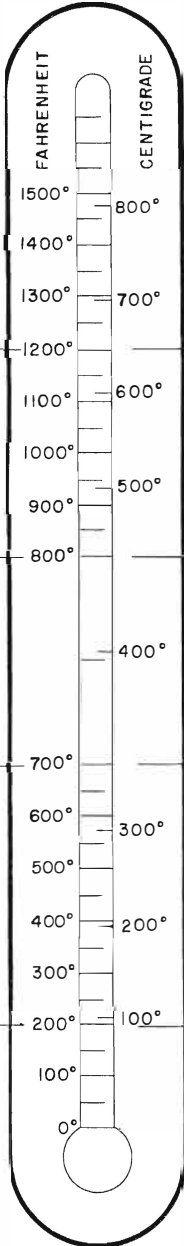


RUTHMAN
Engineering Pump Solutions™

PUMP SELECTION CHART

WHEN OPERATING IN HOT LIQUIDS OR
MOLTEN METALS OVER 1200° F.

CONTACT: **RUTHMAN PUMP & ENGINEERING, INC.**
DRY RIDGE, KENTUCKY 41035
606-824-5001



**PUMPS WITH WATER JACKET
& WATER COOLED SHAFT,**

MAY BE LEFT IMMERSED, PROVIDING THAT COOLING WATER CONTINUES TO CIRCULATE UNTIL SHAFT AND PUMP BODY DOES NOT EXCEED A TEMPERATURE OF 250°F. WATER MUST CIRCULATE WHILE MELTING POT IS BEING REHEATED. CARE MUST BE TAKEN TO BE SURE THAT PUMP SHAFT IS FREE TO ROTATE BEFORE TURNING ON ELECTRICITY.

MODELS 15028-E AND 15028-XE ● PAGE NO. 234

MODELS 15028-EB AND 15028-XEB ● PAGE NO. 235

**PUMPS WITH FANS AND
WATER JACKET.**

SAME AS PUMPS WITH WATER JACKET
AND WATER COOLED SHAFT.

MODELS 9075-MW, 9075-MWAM, 9075-MWBD
AND 9075-MWPD. PAGE NO. 232

MODELS 15028-W, 15028-WAM, 15028-WBD
AND 15028-WPD. PAGE NO. 233

PUMPS WITH FANS ONLY,

MUST BE TAKEN OUT OF HOT LIQUIDS OR
MOLTEN METALS BETWEEN OPERATIONS.

MODELS 9075-M, 9075-MAM, 9075-MBD AND
9075-MPD. PAGE NO. 232

MODELS 15028, 15028-AM, 15028-BD AND
15028-PD. PAGE NO. 233

WHEN OPERATING IN TEMPERATURES
UNDER 200° F.

● WATER COOLING INSTRUCTIONS PAGE NO. 236

WEIGHT PER GAL. AT MELTING POINT IN LB.	MATERIAL	SPECIFIC GRAVITY	DEGREES FAHRENHEIT MELTING POINT	DEGREES CENTIGRADE MELTING POINT
7.26	POTASSIUM	0.870	144°	62.22°
8.23	SODIUM	0.9712	207°	97.22°
14.52	MAGNESIUM	1.741	1204°	651°
59.73	ZINC	7.04	788°	420°
60.81	TIN	7.29	449°	232°
73.82	SOLDER ▲	8.85	421°	216°
81.59	BISMUTH	9.781	520°	271°
94.61	LEAD	11.342	621°	327°

THE MASS DENSITY, VISCOSITY AND SURFACE TENSION OF ALL METALS CHANGE WITH VARIATIONS OF TEMPERATURE, AND THE PUMP CAPACITY VARIES IN RATIO. AS A RULE THE HIGHER MOLTEN METAL TEMPERATURE IS MORE FAVORABLE TO PUMPING EFFICIENCY.

THE VOLUME OBTAINED WITH MOLTEN METALS OF VISCOSITIES BETWEEN 1.4 AND 3.2 CENTIPOISES, DECREASES 5 TO 30% IN SLIDING RATIO TO THE CAPACITY CHARTS IN THIS BULLETIN.

TO APPROXIMATE CAPACITY IN POUNDS . . . Capacity in pounds = Gallons per minute X Weight per gallon.

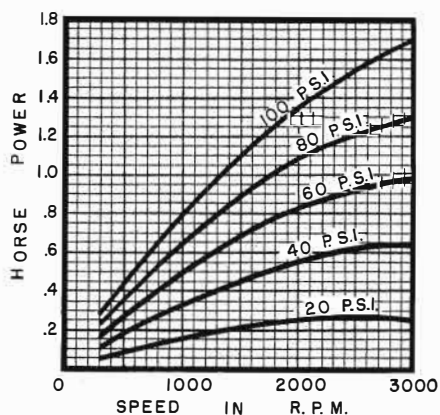
▲ 50% LEAD AND 50% TIN.

WHICH **GUSHER** SHOULD YOU USE ?

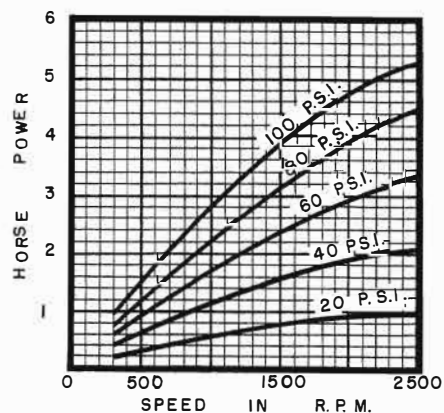
This bulletin was made to help you select the correct MOLTEN METAL GUSHER. Before a selection is made the following items must be considered.

1. G.P.M. AND FOOT HEAD REQUIRED: The mass DENSITY, VISCOSITY AND SURFACE TENSION of all metals change with variations of temperature, and the pump capacity varies in ratio. As a rule greater efficiency is obtained with higher temperatures. The volume obtained with molten metals of viscosities between 1.4 and 3.2 centipoises, decreases 5 to 30% in sliding ratio to capacity charts shown on pages 232 thru 235.
2. TYPE OF DRIVE: ELECTRIC & AIR MOTORS, and BELT DRIVES are available on models 9075-M & 15028. Models 15028E & 15028XE are available with electric motor drive only.
3. TEMPERATURE OF MATERIAL BEING PUMPED: Pump temperature limitations are shown on page 230.
4. AMBIENT TEMPERATURE SURROUNDING MOTOR OR DRIVE: Model 9075-M series are supplied with class H insulated motors. All other models in this bulletin are supplied with class A insulated motors. Class B, F or H insulation available upon request.
5. HORSE POWER REQUIRED: Horse power required is determined by the weight of material being pumped. See individual Pump drawings for horse power verses weight of materials chart.

4AM AND 8AM AIR MOTORS AVAILABLE FOR BEST APPLICATION SEE PAGES 232 AND 233.



4AM AIR MOTOR DELIVERS UP TO 1-1/2 HP. H.P. IS RELATIVE TO R.P.M. MAXIMUM RECOMMENDED OPERATING PRESSURE—100 P.S.I.



8AM AIR MOTOR DELIVERS UP TO 5 HP. H.P. IS RELATIVE TO R.P.M. MAXIMUM RECOMMENDED OPERATING PRESSURE—100 P.S.I.

MODEL 9075-M

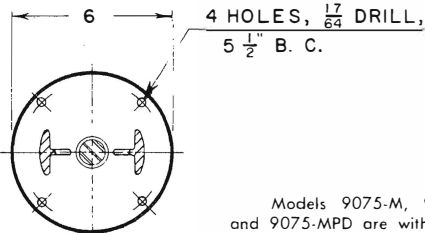
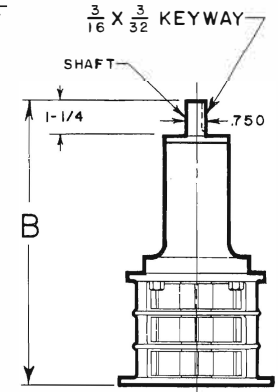
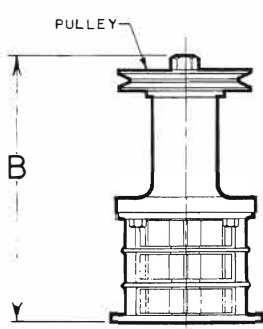
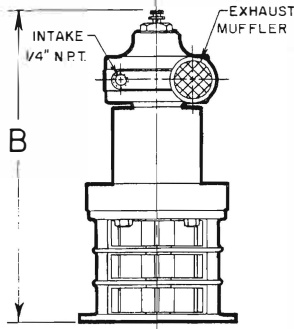
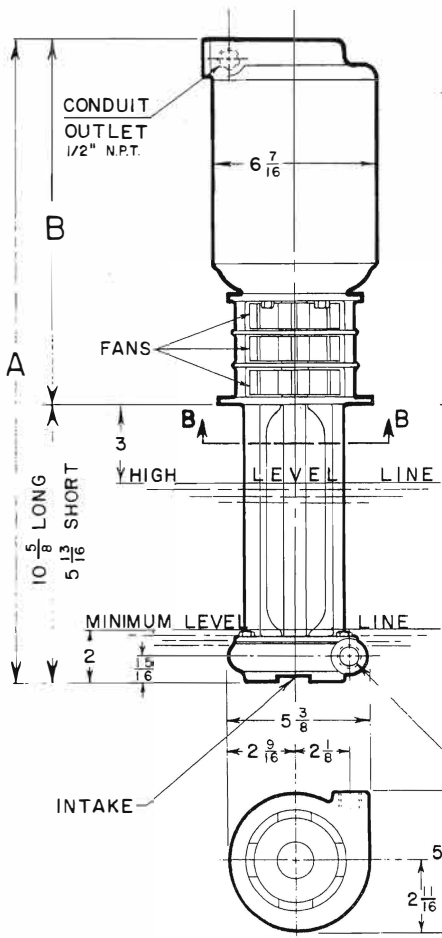
9075M-AM

9075M-BD

9075M-PD

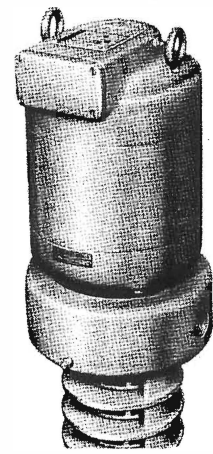
AVAILABLE WITH 4-AM AIR MOTOR

AVAILABLE WITH 5" OR 7" PITCH DIAMETER PULLEY A SIZE V-BELT.

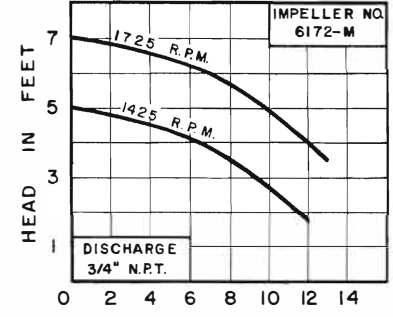


MOUNTING PLATE SECTION B-B

Models 9075-M, 9075-MAM, 9075-MBD and 9075-MPD are without water jacket which allows handling of liquids up to 700 F. Models 9075-MW, 9075-MWAM, 9075-MWBD and 9075-MWPD are equipped with a water jacket (as shown in photo) these models will handle liquids up to 800 F.



VOLTS	CYCLE	PHASE	R. P. M.	MODEL	DIMENSION IN INCHES								
					HORSE POWER OF MOTOR								
					A (long)			A (short)			B		
230 460	60	3	1725	9075-M	23 1/4	24 5/8	24 7/16	18 7/16	19 13/16	19 5/8	12 5/8	14	13 13/16
230 460	60	3	1140	9075-M WITH ELECTRIC MOTOR	23 1/4	24 1/8	—	18 7/16	19 5/16	—	12 5/8	13 1/2	—
NOTE: WHEN WATER JACKET IS NEEDED FOR HIGHER TEMPERATURES, ADD 3-1/2" TO A AND B DIMENSIONS.					4AM AIR MOTOR 9075-MAM	23 3/8			18 9/16			12 3/4	
					BELT DRIVE 9075-MBD	21 5/16			16 1/2			10 11/16	
					PLAIN DRIVE 9075-MPD	21 9/16			16 3/4			10 15/16	



GALLONS PER MINUTE—SOLUBLE COOLANT HEAD 8 G.P.M. MEASURED AT DISCHARGE TO APPROXIMATE CAPACITY IN POUNDS SEE PAGE 230

NOTE: 208/220/440 VOLT 50/60 CYCLES—220/380 VOLTS 50 CYCLE—550 VOLTS 50/60 CYCLE SAME DIMENSIONS AS 230/460 VOLTS 60 CYCLE. EXCEPT SINGLE PHASE. (OTHER CURRENT CHARACTERISTICS AVAILABLE).
● MUST BE T.E.F.C.

HORSE POWER RECOMMENDATION CHART FOR DIFFERENT WEIGHT MATERIALS			
R.P.M.	H.P.	POUNDS PER GALLON	
		IMPELLER	NUMBER 6172-M
1725	1/4	1	UP TO 30
1140		1	UP TO 60
1725	1/2	31	UP TO 80
1140		61	UP TO 120
1725	3/4	81	UP TO 120

SEE TABLE ON PAGE 230 FOR DIFFERENT WEIGHT MATERIALS.

STANDARD MATERIAL:
STAINLESS STEEL SHAFT,
CAST IRON HOUSING,
CARBON STEEL SCREWS.

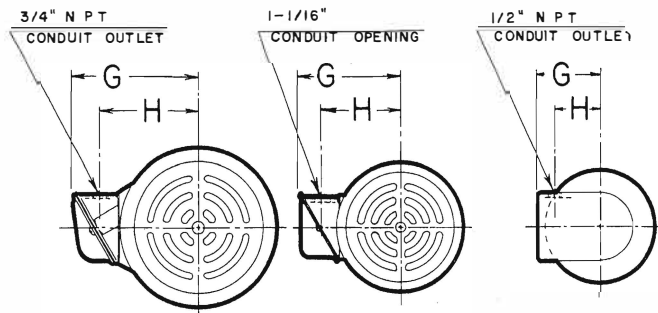
NOTE:
OTHER MATERIALS AVAILABLE, QUOTATION UPON REQUEST.

MODEL GUSHER 9075-M

MOLTEN METAL AND HOT LIQUIDS PUMP

WHEN ORDERING SPECIFY:

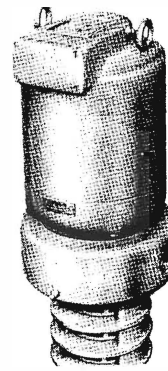
- MODEL 9075-M, 9075-MAM, 9075-MBD, 9075-MPD, 9075-MW, 9075-MWAM, 9075-MWBD, OR 9075-MWPD (SHORT OR LONG)
- IMPELLER NUMBER,
- MOTOR HORSE POWER AND
- CURRENT CHARACTERISTICS.



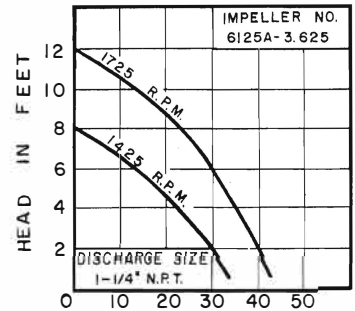
MODEL 15028
184T & 182T
FRAME MOTOR

MODEL 15028
145T
FRAME MOTORS

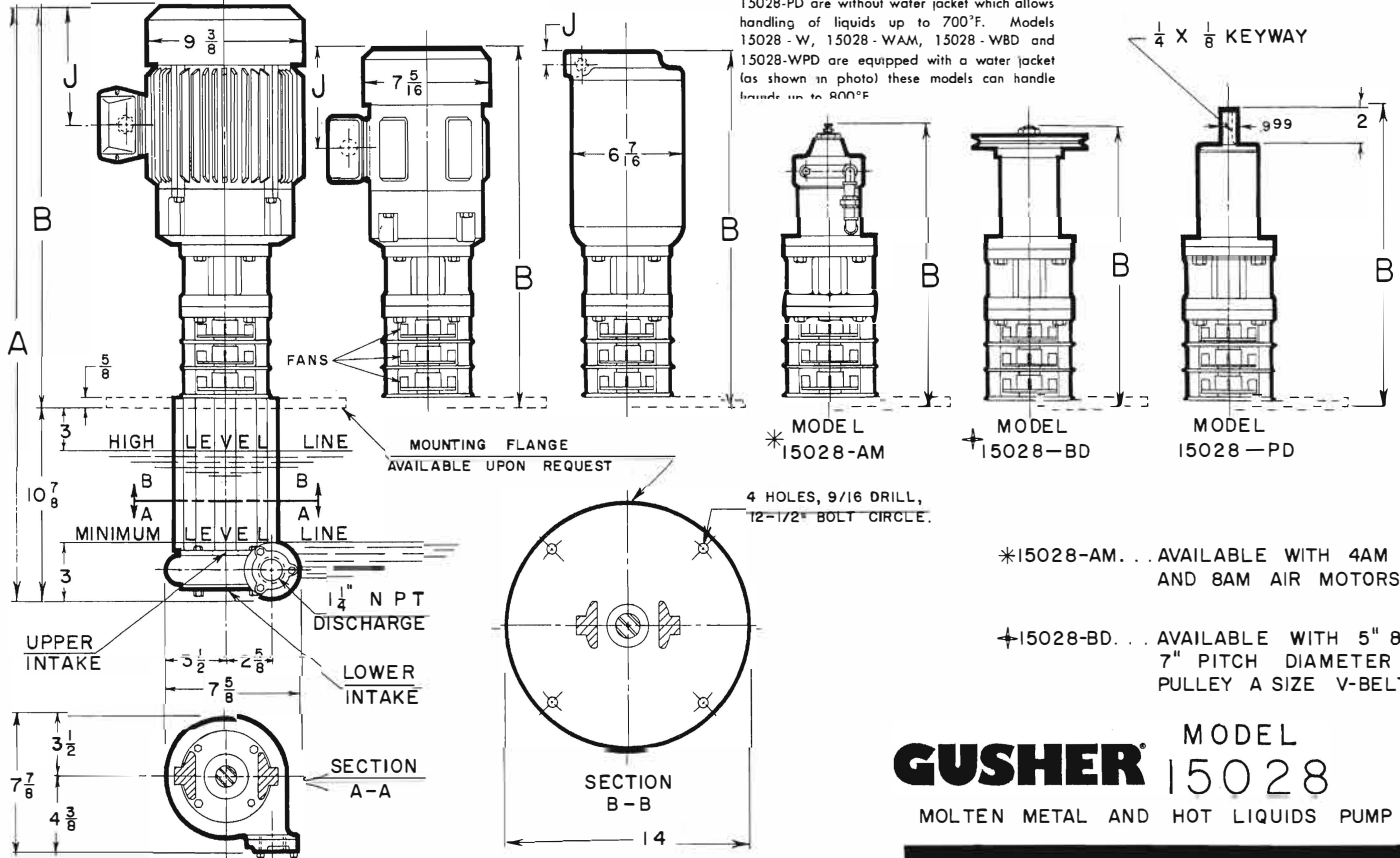
MODEL 15028
56
FRAME MOTORS



Models 15028, 15028-AM, 15028-BD and 15028-PD are without water jacket which allows handling of liquids up to 700°F. Models 15028-W, 15028-WAM, 15028-WBD and 15028-WPD are equipped with a water jacket (as shown in photo) these models can handle liquids up to 800°F.



GALLONS PER MINUTE—SOLUBLE COOLANT. HEAD 8 G.P.M. MEASURED AT DISCHARGE. TO APPROXIMATE CAPACITY IN POUNDS SEE PAGE 230.



*15028-AM... AVAILABLE WITH 4AM AND 8AM AIR MOTORS.

+15028-BD... AVAILABLE WITH 5" & 7" PITCH DIAMETER PULLEY A SIZE V-BELT.

GUSHER MODEL 15028

MOLTEN METAL AND HOT LIQUIDS PUMP

HORSE POWER RECOMMENDED FOR DIFFERENT WEIGHT MATERIALS					
POUNDS PER GALLON OF MATERIAL PUMPED	1 to 20	21 to 40	41 to 50	51 to 80	81 to 120
H.P. RECOMMENDED FOR 1725 R.P.M.	3/4	1-1/2	2	3	5

SEE TABLE ON PAGE 230 FOR DIFFERENT WEIGHT MATERIALS.

HORSE POWER	FRAME	VOLTS	R.P.M.	CYCLE	PHASE	DIMENSIONS IN INCHES					
						A	B	G	H	J	OTHER MEANS OF DRIVING PUMP
3/4	56					29 1/2	18 5/8	4 5/8	2 5/8	1 1/8	AIR MOTOR 15028-AM, 4AM AIR MOTOR
1 1/2 & 2	145T	230 460	1725	60	3	32 7/16	21 9/16	5 3/4	4 9/16	6 1/4	DIMENSIONS A B
3	182T					32 15/16	22 1/16	7 1/4	5 3/4	6 13/16	8AM AIR MOTOR
5	184T					33 15/16	23 1/16	7 1/4	5 3/4	7 5/16	BELT DRIVE 15028-BD
											PLAIN DRIVE 15028-PD

▲ ALL "B" DIMENSIONS GO TO BOTTOM OF MOUNTING FLANGE. ■ PUMPS WITH WATER JACKET HAVE THE SAME DIMENSIONS.
NOTE: 208/220/440 VOLTS 50/60 CYCLES — 220/380 VOLTS 50 CYCLES — 550 VOLTS 50/60 CYCLES SAME DIMENSIONS AS 230/460 VOLTS 60 CYCLES. EXCEPT SINGLE PHASE. OTHER CURRENT CHARACTERISTICS AVAILABLE.

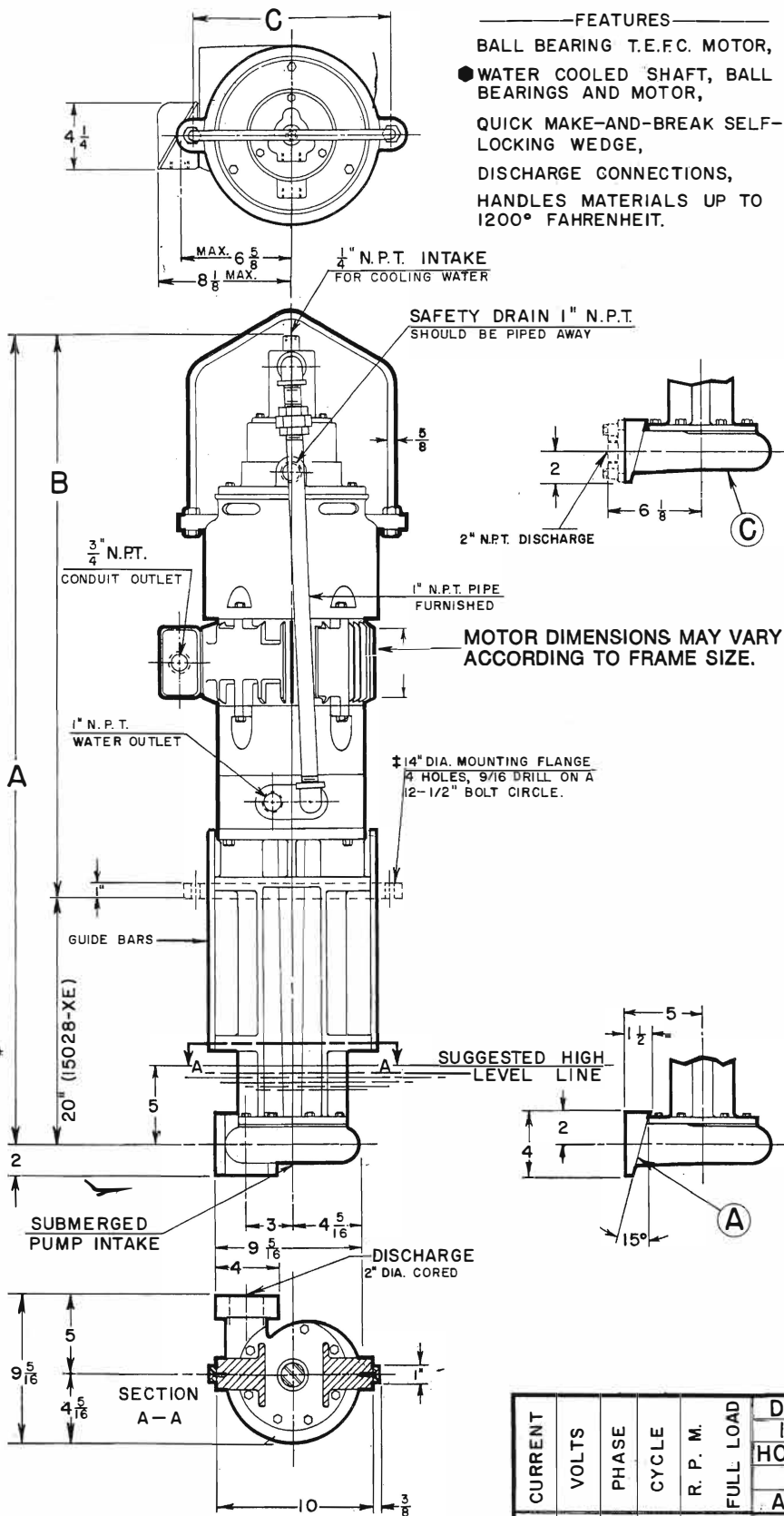
WHEN ORDERING SPECIFY:

- MODEL 15028, 15028-AM, 15028-BD, 15028-PD, 15028-W, 15028-WAM, 15028-WBD OR 15028-WPD [WHEN MOUNTING FLANGE IS DESIRED ADD SUFFIX "MF" TO MODEL DESIRED (15028-MF, 15028-WMF ECT.)]

- IMPELLER NUMBER,
- MOTOR HORSE POWER AND
- CURRENT CHARACTERISTICS.

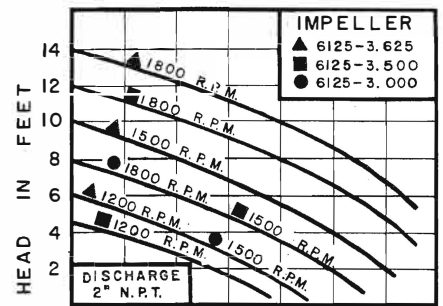
STANDARD MATERIAL:
STAINLESS STEEL SHAFT,
CAST IRON HOUSING,
CARBON STEEL SCREWS.

NOTE: OTHER MATERIALS AVAILABLE, QUOTATION UPON REQUEST. DISCHARGE IN HORIZONTAL POSITION ONLY



● SEE PAGE 236
 ‡ WHEN MOUNTING FLANGE DESIRED, GUIDE BARS ARE REMOVED.
 * SEE PAGE 230

—FEATURES—
 ● BALL BEARING T.E.F.C. MOTOR,
 ● WATER COOLED SHAFT, BALL BEARINGS AND MOTOR,
 ● QUICK MAKE-AND-BREAK SELF-LOCKING WEDGE,
 ● DISCHARGE CONNECTIONS,
 ● HANDLES MATERIALS UP TO 1200° FAHRENHEIT.



GALLONS PER MINUTE — TIN AT 850° F. HEAD AND G.P.M. MEASURED AT DISCHARGE. TO APPROXIMATE CAPACITY IN POUNDS AND FOR DIFFERENT WEIGHT MATERIALS.*

HORSE POWER RECOMMENDATION CHART FOR DIFFERENT WEIGHT MATERIALS				
R. P. M.	H. P.	POUNDS PER GALLON		
		IMPELLER NUMBER		
		6125-3.000	6125-3.500	6125-3.625
1725	7 1/2			81 to 120
1140				

MODEL
GUSHER 15028-XE

MOLTEN METAL PUMP FOR MOLTEN LEAD, BABBIT, SOLDERS, TIN AND ALLOYS AT TEMPERATURES UP TO 1200°F. FOR SPECTER OR ZINC, RECOMMENDED TEMPERATURE 875°F.

WHEN ORDERING SPECIFY:

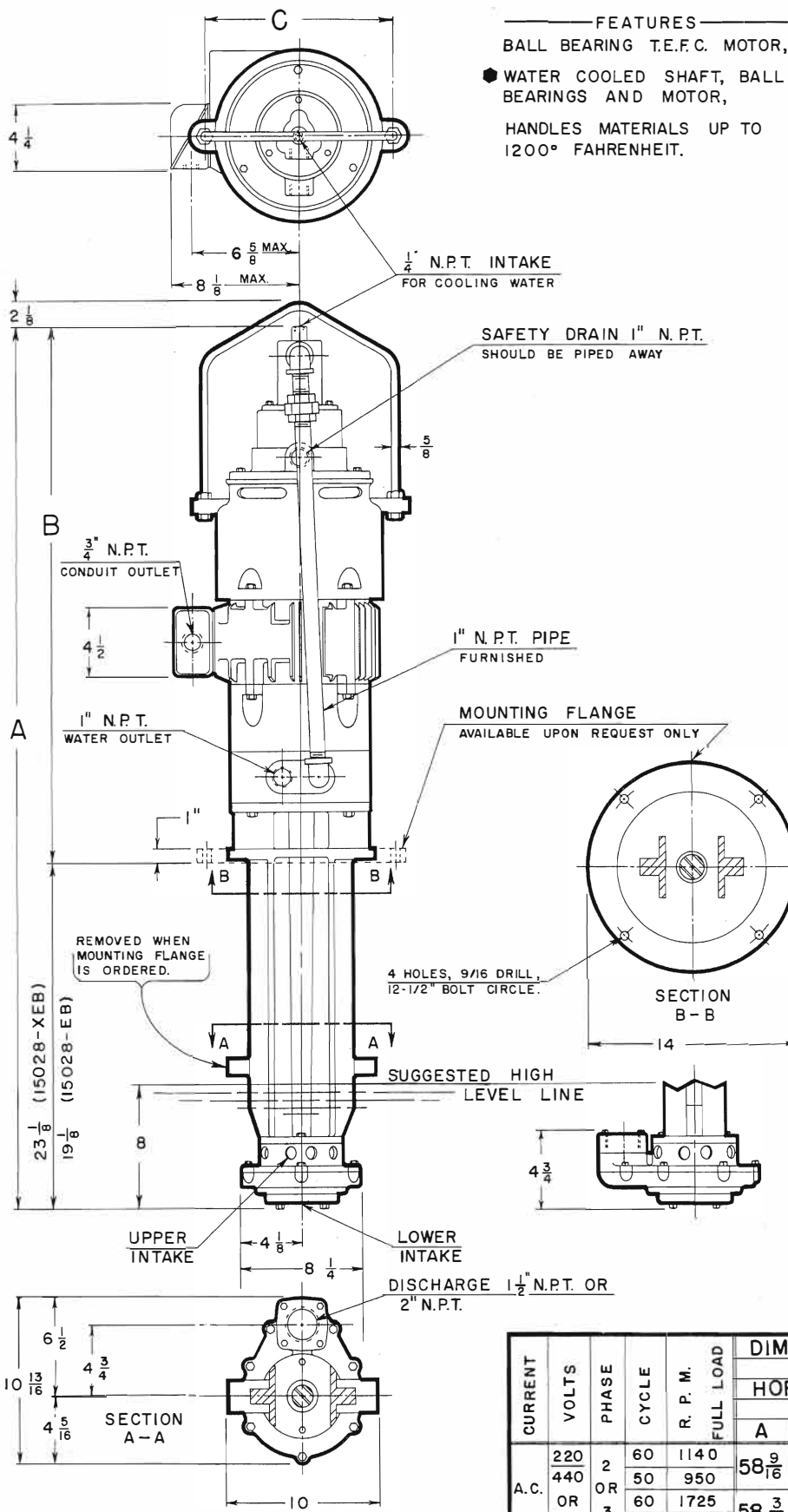
- MODEL 15028-E OR 15028-XE [IF MOUNTING FLANGE IS DESIRED ADD SUFFIX MF TO MODEL DESIRED (15028-EMF OR 15028-XEMF)].
- DISCHARGE CONFIGURATIONS:
 (A) MACHINED WEDGE,
 (B) DISCHARGE FLANGE,
- IMPELLER NUMBER,
- MOTOR HORSE POWER AND
- CURRENT CHARACTERISTICS.

STANDARD MATERIALS:

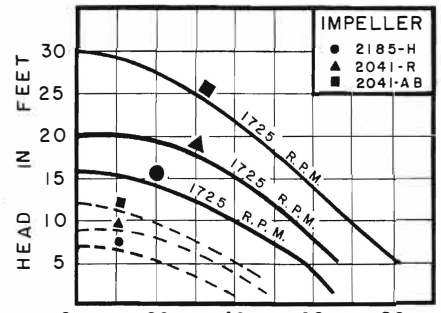
STAINLESS STEEL SHAFT,
 CAST IRON HOUSING,
 CARBON STEEL SCREWS.

NOTE: OTHER MATERIALS AVAILABLE, QUOTATION UPON REQUEST.

CURRENT	VOLTS	PHASE	CYCLE	R. P. M.	FULL LOAD	DIMENSION 15028-XF HORSEPOWER		
						A	B	C
A.C.	220	2	60	1140	59 3/16	38 15/16	12 3/4	7 1/2
	440		50	950				
	OR	3	60	1725				
	550		50	1425				



FEATURES
 BALL BEARING T.E.F.C. MOTOR,
 WATER COOLED SHAFT, BALL BEARINGS AND MOTOR,
 HANDLES MATERIALS UP TO 1200° FAHRENHEIT.



GALLONS PER MINUTE — SOLUBLE COOLANT HEAD AND GPM MEASURED AT DISCHARGE. DOTTED CURVE — — — 1140 R.P.M. SIZE OF DISCHARGE 1 1/2 N.P.T.

TO APPROXIMATE CAPACITY IN POUNDS AND FOR DIFFERENT WEIGHT MATERIALS SEE PAGE 230.

HORSE POWER RECOMMENDATION CHART FOR DIFFERENT WEIGHT MATERIALS				
R. P. M.	H. P.	POUNDS PER GALLON		
		IMPELLER NUMBER		
		2185-H	2041-R	2041-AB
1725	2	1 to 25	1 to 15	1 to 12
		1 to 120	1 to 45	1 to 33
1725	3	26 to 37	16 to 22	13 to 18
		—	46 to 70	34 to 50
1725	5	38 to 60	23 to 38	19 to 30
		—	71 to 90	51 to 85

DISCHARGE POSITION:
 15028XE-HORIZONTAL ONLY
 15028XEB-VERTICAL ONLY

MODEL GUSHER 15028 & XEB

MOLTEN METAL PUMP FOR MOLTEN LEAD, BABBIT, SOLDERS, TIN AND ALLOYS AT TEMPERATURES UP TO 1200° F. FOR SPELTER OR ZINC, RECOMMENDED TEMPERATURE 875 °F.

WHEN ORDERING SPECIFY:

- MODEL 15028-EB OR 15028-XEB
 [IF MOUNTING FLANGE IS DESIRED ADD SUFFIX MF TO MODEL DESIRED (15028-XEMF OR 15028-XEBMF)]
- IMPELLER NUMBER,
- MOTOR HORSE POWER AND
- CURRENT CHARACTERISTICS.

STANDARD MATERIALS:

STAINLESS STEEL SHAFT,
 CAST IRON HOUSING,
 CARBON STEEL SCREWS.

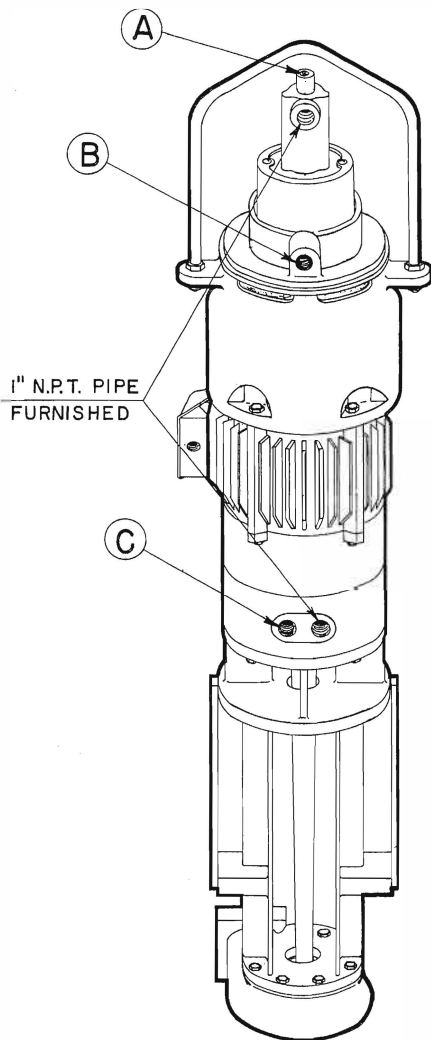
NOTE: OTHER MATERIALS AVAILABLE, QUOTATION UPON REQUEST.

CURRENT	VOLTS	PHASE	CYCLE	R. P. M.	FULL LOAD	DIMENSIONS IN INCHES								
						MODEL 15028-XEB								
						HORSE POWER OF MOTOR 2			3			5		
						A	B	C	A	B	C	A	B	C
A.C.	220	2	60	1140		58 9/16	35 7/16	12 3/4	60 1/16	36 15/16	12 3/4	—	—	—
	440			50	950									
	OR	3	60	1725		58 3/8	35 1/4	11 1/2	58 9/16	35 7/16	12 3/4	60 1/16	36 15/16	12 3/4
				550	50	1425								

MODEL 15028-XE IS 4" SHORTER THEN MODEL 15028-XEB.

SEE PAGE 236

WATER COOLING INSTRUCTIONS FOR **GUSHER** 15028XE & XEB MOLTEN METAL PUMPS.



(A) 1/4" N.P.T. WATER INLET

CONNECT WATER SUPPLY FOR COOLING AT THIS POINT **ONLY**. 3 TO 5 G.P.M. SHOULD PROVIDE ADEQUATE CIRCULATION FOR COOLING. CONTROL FLOW BY USE OF VALVE IN WATER SUPPLY LINE **ONLY**. DO NOT CONTROL FLOW OF WATER OUTLET BY USE OF VALVE IN OUTLET PIPING. (C)

(B) 1" SAFETY DRAIN

THE PURPOSE OF THE SAFETY DRAIN IS TO PIPE AWAY ANY POSSIBLE LEAKAGE FROM SEAL OR PACKING WITHIN COOLING SYSTEM.

IT IS IMPORTANT THAT THIS OUTLET BE PIPED SEPARATELY TO DRAIN.

(C) 1" N.P.T. WATER OUTLET

THE WATER OUTLET CARRIES ALL THE WATER WITHIN THE CIRCULATING COOLING SYSTEM. THIS OUTLET SHOULD BE PIPED SEPARATELY TO DRAIN.

CAUTION: DO NOT USE ANY VALVES IN PIPING FROM OUTLET TO DRAIN.

WATER CIRCULATION SHOULD CONTINUE BEFORE AND AFTER CYCLE OF OPERATION OR UNTIL PUMP PARTS HAVE COOLED TO A TEMPERATURE OF 200° F. THIS APPLIES TO BOTH PORTABLE AND PERMANENT INSTALLATIONS.

IF THE ABOVE INSTRUCTIONS ARE FOLLOWED, SATISFACTORY RESULTS SHOULD BE OBTAINED. UNLESS THESE INSTRUCTIONS ARE COMPLIED WITH, THE MANUFACTURER IS NOT RESPONSABLE FOR PUMP WARRANTY.
