



James M. Pleasants Co., Inc.

PO Box 100825

Nashville, TN 37224-0825

615-254-5454

615-242-9243

MUSIC CITY CENTER-NASHVILLE, TN

Quote No: 10DS051P

Variable Speed Pressure Booster

Quote Date: 12/23/2010

T5D0 3060 PCW

TAG: BP-2

_____ SYSTEM CONDITIONS _____

Application: Pressure Booster

Total Flow: 2000 Gallons Per Minute (GPM)

Pump 1 Split: 500 Gallons Per Minute (GPM)

Pump 2, 3 & 4 Splits: 500 Gallons Per Minute (GPM)

Total Head: 300 Feet (FT)

Discharge Pressure: 135 PSI

Suction Pressure: 5 PSI

Power Supply: 460/3/60

Full Load Amp Draw: 308/unit

PUMPS (MOUNTED REMOTELY)

Pump #1: ITT Goulds 7CHC

1,453 LB

Frame: 326TP Frame

US Electric Motor, RUSI, WP-1, Nema, VFD Rated

60 HP, 3600 RPM

Pump #2: ITT Goulds 7CHC

1,453 LB

Frame: 326TP Frame

US Electric Motor, RUSI, WP-1, Nema, VFD Rated

60 HP, 3600 RPM

Pump #3: ITT Goulds 7CHC

1,453 LB

Frame: 326TP Frame

US Electric Motor, RUSI, WP-1, Nema, VFD Rated

60 HP, 3600 RPM

Pump #4: ITT Goulds 7CHC

1,453 LB

Frame: 326TP Frame

US Electric Motor, RUSI, WP-1, Nema, VFD Rated

60 HP, 3600 RPM

Seal Option: Packing

Pump Material (4) Pumps: Cast Iron Head

Impeller: Silicon Bronze

Options: Suction Strainer & Sub-base

FIELD INSTALLED OPTIONAL EQUIPMENT

34 Gallon Hydro-Pneumatic Tank (Field Installed On Outlet Side of Discharge Header)

UNIT QUANTITY: 1

JOB: Music City Center
Nashville, TN

REPRESENTATIVE: James M. Pleasants Co., Inc.
Nashville, TN

UNIT TAG: BP-2

ENGINEER: I. C. Thomasson Associates
CONTRACTOR: Foley Company

ORDER NO.
SUBMITTED BY: Doug Folds
APPROVED BY:
DATE:
DATE: 1/4/11
DATE:

Technologic 502 Variable Speed Pump Controller

SYSTEM SUMMARY

Number of Pumps _____ 4 _____
 Number of Drives _____ 4 _____ Number of Zones _____ 1 _____
Power Supply 460 V/ 3 PH/ 60 HZ
 Input Power _____

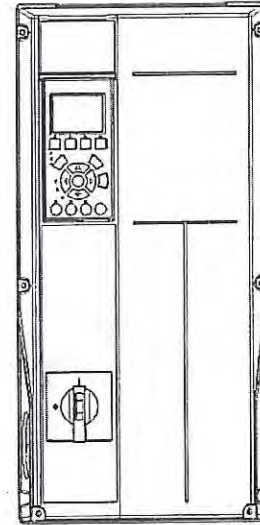
Mounting Configuration

- Separate Components
 Common Back Panel

STANDARD FEATURES

NEMA 1 Enclosure Fused Door Interlock Disconnect
 UL and CUL Listed, CE Marked Local-Remote Selection
 Motor Overload Protection Diagnostic Display
 Manual & Automatic pump Alternation Auto Start of Lag Pumps upon Lead Pump Failure
 4 Analog Inputs for Zone, Flow, or Suction Sensors End of Curve Protection
 High System Cutout No Flow Shutdown
 Serial Communication 100 KA Short Circuit Current Rating (SCCR)
 Compliant

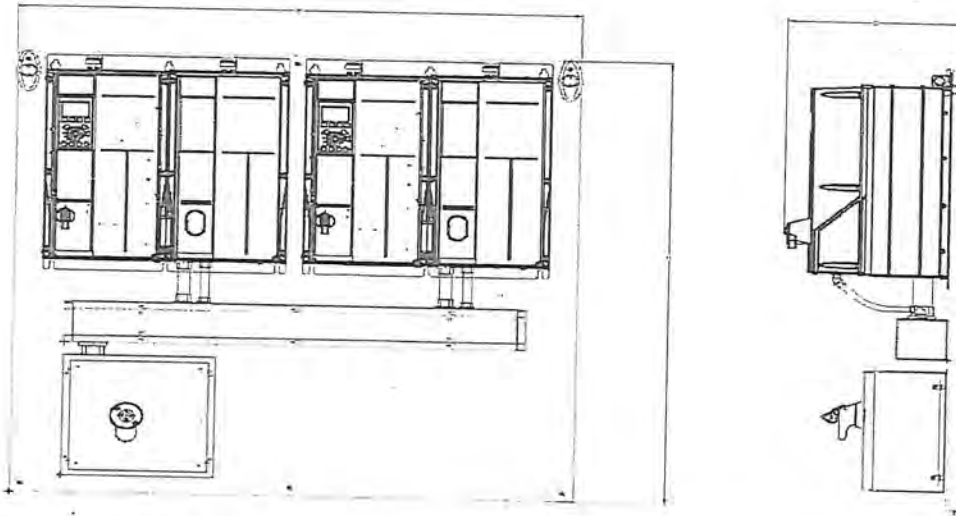
HP	Maximum Continuous Output (Amps)		
	208/230V	460V	575V
3	10.6	4.8	3.9
5	16.7	8.2	6.1
7.5	24.2	11	9
10	30.8	14.5	11
15	46.2	21	17
20	59.4	27	22
25	74.8	34	27
30	88	40	32
40	115	52	41
50	143	65	52
60	170	80	62
75	N/A	105	77
100	N/A	130	108
125	N/A	160	131
150	N/A	190	155


TECHNOLOGIC 502 PUMP LOGIC CONTROLLER

- Staging Low Suction Cut-Out
 Alternation NEMA 1 Enclosure
 End of Curve Protection NEMA 4 Enclosure
 No Flow Shutdown NEMA 12 Enclosure

AFD BYPASS/TRANSFER OPTION

- None Automatic Type III
 Manual Automatic Type IV
 Automatic Type I Other (specify)



Common Back Panel Dimensions

Number of Drives	NEMA Enclosure Type	Bypass (Y/N)	280/230V	460V	575/600V	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Weight lbs (Kg)
2	1	NO	1.5-5HP	1.5-10HP	1.5-10HP	26.97 (685.1)	26.97 (685.1)	10.39 (263.8)	85 (38.5)
3	1	NO	1.5-5HP	1.5-10HP	1.5-10HP	26.97 (685.1)	38.97 (989.9)	10.39 (263.8)	85 (38.5)
4	1	NO	1.5-5HP	1.5-10HP	1.5-10HP	26.97 (685.1)	38.97 (989.9)	10.39 (263.8)	85 (38.5)
2	1	YES	1.5-5HP	1.5-10HP	1.5-10HP	38.97 (989.9)	32.98 (837.5)	10.48 (266.2)	125 (56.7)
3	1	YES	1.5-5HP	1.5-10HP	1.5-10HP	38.97 (989.9)	44.97 (1142.3)	10.48 (266.2)	160 (72.6)
4	1	YES	1.5-5HP	1.5-10HP	1.5-10HP	44.0 (1117)	56.00 (1422)	10.48 (266.2)	225 (102.1)
2	12	NO	1.5-5HP	1.5-10HP	1.5-10HP	32.97 (837.5)	38.97 (989.9)	12.87 (327.0)	135 (61.2)
3	12	NO	1.5-5HP	1.5-10HP	1.5-10HP	32.0 (812.8)	48.0 (1219.2)	12.87 (327.0)	175 (79.4)
4	12	NO	1.5-5HP	1.5-10HP	1.5-10HP	32.0 (812.8)	60.0 (1524.0)	12.87 (327.0)	230 (104.3)
2	12	YES	1.5-5HP	1.5-10HP	1.5-10HP	32.0 (812.8)	60.0 (1524.0)	11.10 (281.9)	225 (102.1)
3	12	YES	1.5-5HP	1.5-10HP	1.5-10HP	33.75 (857.3)	78.0 (1981.2)	11.10 (281.9)	315 (142.9)
2	1/12	NO	7.5-15HP	15-25HP	15-25HP	32.97 (837.5)	38.97 (989.9)	12.87 (327.0)	175 (79.4)
3	1/12	NO	7.5-15HP	15-25HP	15-25HP	32.0 (812.8)	60.0 (1524.0)	12.87 (327.0)	275 (124.7)
4	1/12	NO	7.5-15HP	15-25HP	15-25HP	32.0 (812.8)	60.0 (1524.0)	12.87 (327.0)	325 (147.4)
2	1/12	YES	7.5-15HP	15-25HP	15-25HP	44.0 (1117)	44.0 (1117)	13.66 (347.0)	295 (133.8)
3	1/12	YES	7.5-15HP	15-25HP	15-25HP	33.75 (857.3)	78.0 (1981.2)	13.66 (347.0)	415 (188.2)
2	1/12	NO	20HP	30-40HP	30-40HP	32.97 (837.5)	38.97 (989.9)	12.79 (324.9)	210 (95.3)
3	1/12	NO	20HP	30-40HP	30-40HP	33.75 (857.3)	60.0 (1524.0)	12.84 (326.2)	300 (136.1)
4	1/12	NO	20HP	30-40HP	30-40HP	33.75 (857.3)	60.0 (1524.0)	12.84 (326.2)	365 (165.6)
2	1/12	YES	20HP	30-40HP	30-40HP	56.00 (1422)	44.0 (1117)	13.61 (345.7)	350 (158.8)
3	1/12	YES	20HP	30-40HP	30-40HP	44.0 (1117)	78.0 (1981.2)	13.61 (345.7)	500 (226.8)
2	1/12	NO	25-30HP	50-75HP	50-75HP	44.0 (1117)	44.0 (1117)	14.96 (324.9)	315 (142.9)
3	1/12	NO	25-30HP	50-75HP	50-75HP	44.0 (1117)	56.0 (1422)	14.96 (324.9)	425 (192.8)
4	1/12	NO	25-30HP	50-75HP	50-75HP	44.0 (1117)	78.0 (1981.2)	14.96 (324.9)	555 (251.7)
2	1/12	YES	25-30HP	50-75HP	50-75HP	44.0 (1117)	68.0 (1727.2)	15.07 (395.0)	365 (174.6)
2	1/12	NO	40-60HP	100-125HP	100-125HP	44.0 (1117)	56.0 (1422)	15.67 (398.0)	415 (188.2)
3	1/12	NO	40-60HP	100-125HP	100-125HP	44.0 (1117)	78.0 (1981.2)	15.67 (398.0)	590 (267.6)
4	1/12	NO	40-60HP	100-125HP	100-125HP	44.0 (1117)	78.0 (1981.2)	15.67 (398.0)	750 (340.2)
2	1/12	YES	40-60HP	100-125HP	100-125HP	44.0 (1117)	78.0 (1981.2)	17.02 (432.4)	675 (306.2)

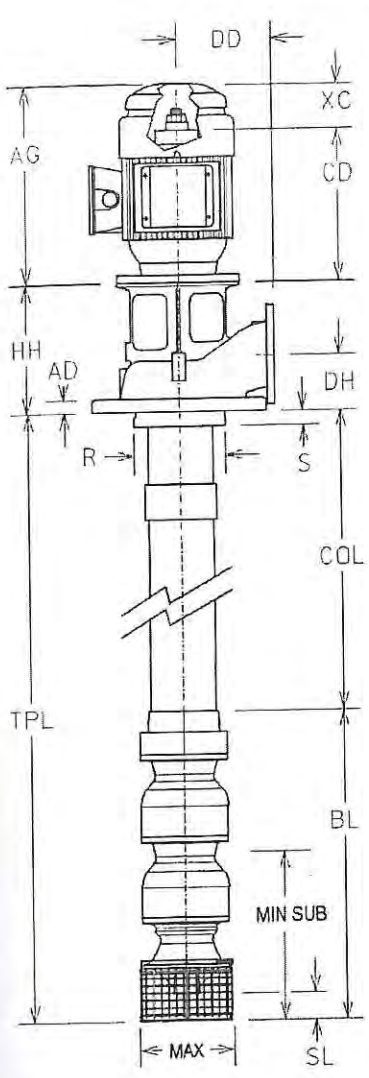
Note: Refer to Bulletin D-153G for Individual Drive/Bypass Dimensions.

ITT
 8200 N. Austin Avenue
 Morton Grove, IL 60053
 Phone (847)966-3700
 Facsimile (847)966-9052
www.bellcossett.com



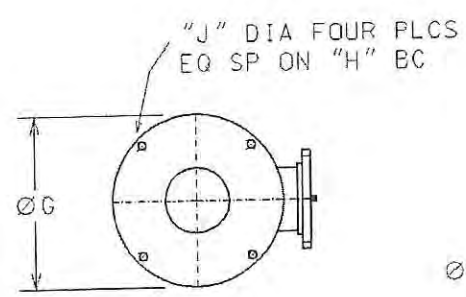


Pump Data

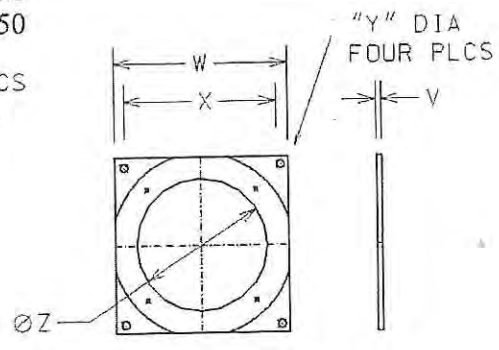


AD:	1.00
AG:	32.63
BD:	16.5
BL:	29.93
CD:	28.22
CL:	N/A
COL:	156.08"
DD:	12.00
MIN SUB:	20.3
DH:	6.75
G:	23.50
H:	21.25
HH:	15.50
J:	0.75
R:	10.25
S:	1.81
SL:	1.55
TPL:	186.0"
UG:	N/A
V:	0.75
W:	24.00
X:	22.00
XC:	4.22
Y:	0.88
Z:	14.50
MAX:	7.50

Size:	7CHC
Stages:	3
BowlShaft:	1.19"
LineShaft:	1"
LineShaft Type:	Open
Column:	6" Threaded
Column:	5 feet
Bearing Spacing:	5 feet
Section Length:	A:Cast
Head:	6"-125# FF
Flange (Disch.):	Inlet:
Seal:	Packing
Strainer:	Bolt-On Basket
SubBase:	Yes



DISC HEAD



SOLE PLATE

Hydraulic Data

Flow (gpm):	500
Pump Head (ft):	296.1
TDH (ft):	300.0
Speed (rpm):	3560
Fluid:	Water
Temperature (F):	60
Viscosity:	1.105
Spec. Grav:	1.002

Miscellaneous

Thrust At Design (lb):	1099
Thrust At Shutoff (lb):	1390
Pumping Level(in):	36

Weight

Pump (lb):	778
Motor (lb):	675
Total (lb):	1453

Motor Data

Model:	HO60S1SLG
Make:	USEM
HP:	60
RPM:	3600
Type:	RU
Efficiency:	89.5
Frame:	326TP
Ratchet:	NRR

TAG: BP-2

ITT Corporation
Ron Sartele

HYDRAULIC ANALYSIS
VIT-CATM
3 Stage 6x7CHC



Overall Pump Parameters

Size and Model:	7CHC	Pump Operating Speed, RPM:	3560
Capacity, GPM:	500	Total Dynamic Head, Ft.:	300.0
Total Pump Length, In.:	186.0	Impeller Trim, In.:	4.9
Pump Type:	OpenSump	Head Type:	A:Cast
Pump K-Factor:	3.5	Number of Stages:	3
		Pumping Level, In.:	36.0

LineShaft-Related Data

Shaft Diameter, In.:	1	Shaft Limit, HP:	142
Shaft Material:	416SS	Matl Correction Fact:	1.18
LineShaft Length, In.:	156.08	Shaft Elongation, w/o Adder:	0.01
LineShaft Type:	Open	Impeller Running Clearance:	0.13

Bowl Data

Total Bowl Length, In.:	29.93	Bowl Diameter, In.:	7.125
Bowl Shaft Dia, In.:	1.19	Bowl Shaft Limit, HP:	252
		Bowl Shaft Material:	416SS

Column Data

Column Diameter, In.:	6	Column Load, Lb.:	1454.9
Wall Thickness, In.:	0.280	Column Elongation, In.:	0.00

HorsePower Data

Shaft Friction Loss, Hp.:	0.15	Thrust Load Loss, Hp.:	0.29
Bowl HP At Design, Hp.:	47.5	Motor HorsePower, Hp.:	60

Other Data

Hydraulic Thrust, Lb.:	1052.1	Thrust at Design, Lb.:	1099.0
Thrust at Shutoff, Lb.:	1390.5	Actual Head above Grade, Ft.:	296.14
Available Lateral, In.:	0.50	Design Lateral, In.:	0.14
Shutoff Lateral, In.:	0.14		
Suction Pressure, psi:	0.0	Shutoff Disc Pressure, psi:	164.8
Column Loss, Ft.:	0.49	NPSHa, Ft.:	45.16
Head Loss, Ft.:	0.37	NPSHr, Ft.:	19.80
Total Loss, Ft.:	0.86	NPSH margin, Ft.:	25.36

Efficiency Data (Efficiencies estimated not guaranteed)

Bowl Efficiency:	80.00	Pump Efficiency:	79.04
Motor Efficiency:	89.50	Overall Efficiency:	70.74
		KWH/1000 gallons:	1.33

Component Weights

Bowl Weight, Lbs.:	106	Column Weight, Lbs.:	312
Head Weight, Lbs.:	360	Can Weight, Lbs.:	0
Motor Weight, Lbs.:	675	Total Pump Weight, Lbs.:	1453

Version: 3.92B

Customer:

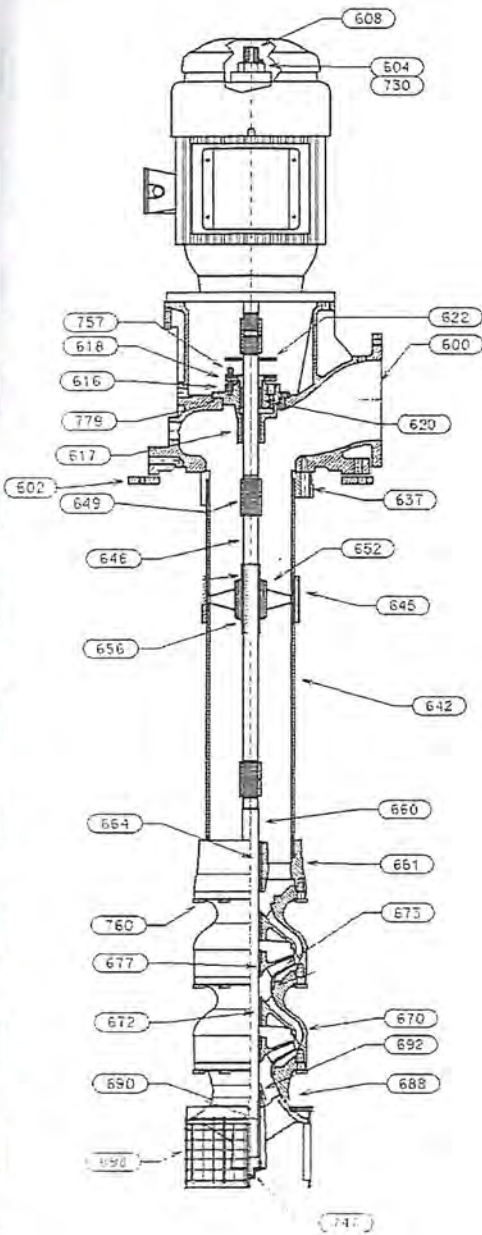
Date: 01-06-2011



ITT Corporation
Ron Sartele

TAG: BP-2

SECTIONAL
VIT-CATM
3 Stage 6x7CHC



DISCHARGE HEAD ASSEMBLY

ITEM	NAME	Code	MATERIAL	ASTM
600	HEAD- DISCHARGE	1003	CAST IRON CL30	A48-94ae1
602	SOLEPLATE	3201	CARBON STEEL GR D	A36M-00a
604	NUT- ADJUSTING	2130	BRASS C36000	B16M-00
608	HEADSHAFT	2227	SST 416	A582M-95b
616	HOUSING	1003	CAST IRON CL30	A48-94ae1
617	BEARING- HOUSING	1109	FEDERALLOY BISMUTH BRZ	B584-00
618	GLAND- SPLIT	1203	SST 316	A744M-00
620	PACKING	5026	GRAPHITE PACKING	ML402-99
622	SLINGER	5121	RUBBER EPDM	D3568-98
637	COLUMN FLANGE	1003	CAST IRON CL30	A48-94ae1
730	KEY- MOTOR GIB	2242	CARBON STEEL 1018	A108-99
757	SCREW- GLAND ADJUSTING	2229	SST 316	A276-00a
779	GASKET- HOUSING	5136	ACRYLIC/NITRILE	5136 REV 4

COLUMN AND LINESHAFT ASSEMBLY

ITEM	NAME	Code	MATERIAL	ASTM
642	COLUMN PIPE	6501	BLACK PIPE SCH 40	A 53-98
645	COLUMN COUPLING	6501	BLACK PIPE SCH 40	A 53-98
646	LINESHAFT	2227	SST 416	A582M-95b
649	LINESHAFT COUPLING	2265	SST 416	A582M-95b
652	RETAINER- BEARING	1102	SILICON BRONZE C87600	B584-00
656	LINESHAFT BEARING	5121	RUBBER EPDM	D3568-98

BOWL ASSEMBLY

ITEM	NAME	Code	MATERIAL	ASTM
660	SHAFT- BOWL	2227	SST 416	A582M-95b
661	BOWL- DISCHARGE	1003	CAST IRON CL30	A48-94ae1
664	BEARING- DISC BOWL	1109	FEDERALLOY BISMUTH BRZ	B584-00
670	BOWL- INTERMEDIATE	6911	CAST IRON CL30 ENAMEL	A48-94ae1
672	BEARING- INT BOWL	1109	FEDERALLOY BISMUTH BRZ	B584-00
673	IMPELLER	1102	SILICON BRONZE C87600	B584-00
677	COLLET- IMPELLER	2242	CARBON STEEL 1018	A108-99
688	BOWL/BELL- SUCTION	1003	CAST IRON CL30	A48-94ae1
690	BEARING- SUCTION	1109	FEDERALLOY BISMUTH BRZ	B584-00
692	SANDCOLLAR	1109	FEDERALLOY BISMUTH BRZ	B584-00
698	STRAINER- SUCTION	6952	CARBON STEEL GALV	A123M-00
747	PLUG- PIPE	1046	MALLEABLE IRON	A197
760	CAPSCREW- HEX	2298	STEEL BOLTING GR 8	J429-99

TAG: BP-2

ITT Corporation
Ron Sartele

ADDERS
VIT-CATM
3 Stage 6x7CHC



ADDITIONAL PUMP COMPONENTS

The following is a list of the additional components you ordered.
Consult factory for any other components or services.

Component

Strainer

Version: 3.92B

Customer:

Date: 01-06-2011

PUMP DATA SHEET Turbine 60 Hz

Company: ITT Corporation
 Name: Ron Sartele
 Date: 01/06/11

Customer:

TAG: BP-2

Order No:

Pump:

Size: 7CHC (3 stages)
 Type: Lineshaft
 Synch speed: 3600 rpm
 Curve: E6207CCPC2
 Specific Speeds: Ns: 2210
 Pump Notes for Standard Sizes:
 Suction Size-5" Discharge Sizes-5",6". Curves are certified for water at 60°F only. Consult factory for performance with any other fluid.
 Vertical Turbine: Bowl size: 7.13 in
 Max lateral: 0.5 in
 Thrust K factor: 3.5 lb/ft

Search Criteria:

Flow: 500 US gpm Head: 300 ft

Fluid:

Water
 SG: 1.002
 Viscosity: 1.105 cP
 NPSHa: — ft
 Temperature: 60 °F
 Vapor pressure: 0.2563 psi a
 Atm pressure: 14.7 psi a

Motor:

Standard: NEMA Size: 60 hp
 Speed: 3600

Sizing criteria: Max Power on Design Curve

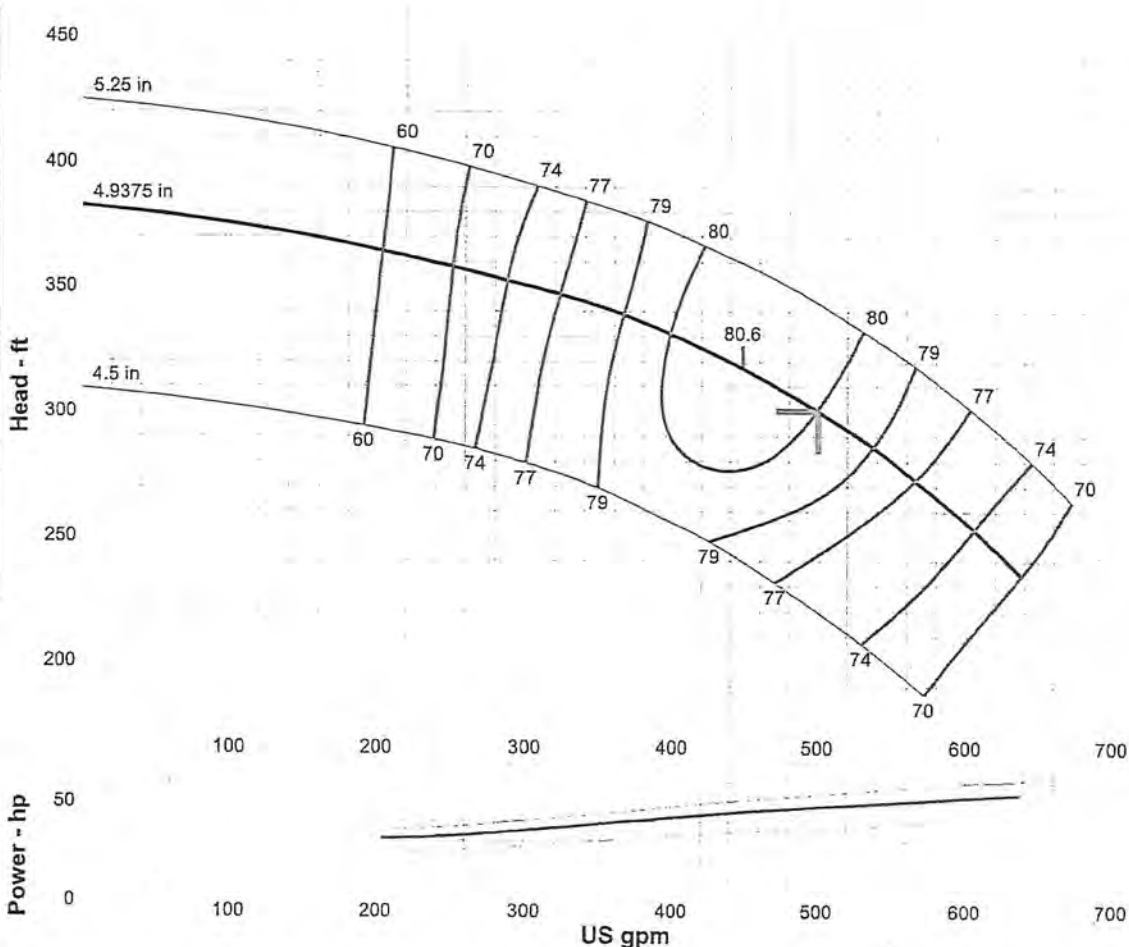
Pump Limits for Standard Construction:

Temperature: 120 °F Pressure: 415 psi g
 Sphere size: 0.43 in

— Data Point —
 Flow: 500 US gpm
 Head: 300 ft
 Eff: 80%
 Power: 47.5 hp
 NPSHr: 19.8 ft

— Design Curve —
 Shutoff Head: 383 ft
 Shutoff dP: 166 psi
 Min Flow: — US gpm
 BEP: 80.6% eff
 @ 448 US gpm
 NOL Pwr: 54 hp
 @ 637 US gpm

— Max Curve —
 Max Pwr: 64.1 hp
 @ 672 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
600	3560	255	74.4	52.1	27.9
500	3560	300	80	47.5	19.8
400	3560	330	80	41.8	14.9
300	3560	351	75	35.4	11.4
200	3560	365	59.2	31.2	11.3