GOULDS WATER TECHNOLOGY
a xylem brand

SUBMITTAL

Quote ID: 3302-220120-019:0:1 QTY: 1
VIT-CAFM 12CHC, 5 Stages

PERFORMANCE ON DESIGN CURVE AT 1770 RPM

	Shut Off	Design [2]	Run Out [5]
Flow (USGPM)	0.0	1021.0	1493.0
TDH-Bowl (ft)	464.0	394.0	278.0
TDH-Disch Flange (ft)	458.4	387.8	271.1
Bowl Efficiency (%)	-	86.60	76.80
Guaranteed Bowl Efficiency (%)	-	82.27	-
Power (Hp)	56.5	117.0	136.0
Guaranteed Power (Hp)	-	126.4	-
NPSHr (ft) [1]	-	12.8	22.2
NPSH Margin (ft) [1]	-	23.4	14.0
Hydraulic Thrust(lb)	3478.0	2956.0	2087.0
Thrust (lb)	3713.8	3177.4	2284.5
Pressure-Bowl (psi)	200.9	170.6	120.3
Pressure-Disch Flange (psi)	198.4	167.9	117.4
Min Submergence (Inch) [3]	-	26.52	33.47
Friction Loss (ft) [4]	-	0.60	1.28
Lineshaft Elongation (Inch)	0.00255	0.00217	-
Column Elongation (Inch)	0.00074	0.00062	-
Lateral (Inch)	0.13182	0.13155	-

Best Efficiency	86.70 % at 1083.0 USgpm
Design Flow % BEP	94.28 %
Pump Efficiency	86.15 %
Overall Efficiency	80.90 %
NOL Power	136.0 Hp at 1493.0 USgpm
Specified NPSH Ratio	1.1
Thrust Load Power Loss	0.41103 Hp
Total Flow Derate Factor	1.00
Total Head Derate Factor	1.00
Total Efficiency Derate Factor	1.00
Actual Submergence	44.50 in
Shaft Friction Power Loss	0.04 Hp
Min Flow (MCSF)	271.0 USgpm
kWh per 1000 gal	1.48655
Impeller Running Clearance	0.13 in

[1] at 1st impeller eye [2] rated values [3] from pump suction inlet [4] from bowl to disch flange [5] per published data

OPERATING CONDITIONS

Specified Flow	1021.00 USgpm
Specified TDH	383.00 ft
Rated Speed	1770 RPM
Atmospheric Pressure	14.70 psi
TPL	9.00 ft
Pumping Level	5.00 ft
NPSHa at 1st Impeller	36.2 ft
NPSHa at Grade	34.0 ft
Operational Design	Constant Speed

FLUID CHARACTERISTICS

Fluid	Water
Fluid Temperature	68.0 °F
Specific Gravity	1.0000
Viscosity	1.0017 cP
Vapor Pressure	0.3393 psi
Density	62 lbs/ft³

MATERIALS & DIMENSIONS

Bowl Data

Bowl Material	Cast Iron with Glass Enamel
Impeller Material	316SS
Bowlshaft Material	416SS
Impeller Attachment	Taper Lock
Taperlock Material	Carbon Steel
Suction Type	Bell
Suction Material	Cast Iron
Bowl Bolting Material	316SS
Suction Bearing	Chrome Plated Iron
Intermediate Bowl Bearing	Chrome Plated Iron

Bowl Data

Impeller Trim	8.63 in
Bowl Pressure Limit	380 psi
Model Max Sphere Size	0.94 in
Available Lateral	0.75 in
Bowl Shaft Diameter	1 11/16 in [42.9 mm]
Impeller Balance	Manufacturer's Standard
Impeller Design	Enclosed
Bowl Shaft Power Limit	374.47 Hp
Bowl Assembly Provided By	Xylem

Bowl Specials

Column Data

Column Type	Flanged

Column Data

Column Diameter	8 in [203 mm]

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Column Data	
Lineshaft Diameter	1 1/2 in [38.1 mm]
Column Bolting	Carbon Steel
Column Pipe Material	Carbon Steel
Lineshaft Material	416SS
Lineshaft Coupling Type	Threaded
Lineshaft Coupling Material	416SS
Column Loss	0.08 ft
Column Velocity	6.79 ft/s
Column Flange	Carbon Steel

Column Data	
Bearing Retainer Design	Not Included
Maximum Bearing Spacing	5 ft [1.5 m] Spacing
Max Column Section Length	60 in
Column Wall Thickness	0.32 in
Lubrication Method	(Open LS) Product Lube
Lineshaft Power Limit	255 Hp
Column Assembly Provided By	Xylem

Column Specials

Head Data	
Head Type	CA (Cast Iron A)
Discharge Flange Rating	125 #
Disch Flange Pressure Limit	175 psi
Head Design	One Piece Head
Discharge Head Material	Cast Iron
Headshaft Material	416SS
Headshaft Coupling Type	Threaded
Headshaft Coupling Material	416SS
Headshaft Diameter	1.50 in
Discharge Head Size	8 in [203 mm]
Discharge Head BD	16.5 in [419 mm]

Head Data	
Sealing Method	Packing
Packing Material	Acrylic Yarn and Graphite
Stuffing Box Material	Cast Iron
Stuffing Box / Seal Hsg Bolt	316SS
Stuffing Box / Seal Hsg Brg	Chrome Plated Iron
Head Loss	0.52 ft
Head Bolting	316SS
Split Gland	316SS
Head Assembly Provided By	Xylem

Head Specials

Motor Data	
Driver Type	Vertical Hollow Shaft Motor
Manufacturer	US
HP Rating	150 Hp
Speed [Poles]	1800 rpm [4 pole]
Voltage	460 V
Phase / Frequency	3 PH / 60 Hz
Enclosure	TEFC Corro-Duty
Efficiency / Config	Premium
Motor Efficiency	95.80 %
Motor Frame	447TP
BD	16.5 in
BX / U	1.50 in

Motor Data	
Thrust Level	100% HT
Thrust Capacity	9300 lbs
Inverter Duty	Yes
Steady Bushing	Yes
Coupling	NRR w/ Steady Bushing
SF / Insulation**	1.15 H
Mfg Catalog Number	CHT150V2CLG
Motor Part Number	H150C2A1GE-CVRU-100A0C000
Motor Provided By	Xylem
Motor Mounted By	Customer

Motor Specials

Coating Data	
Bowl OD	Goulds Water Technology Blue Enamel

Coating Data	
Column OD	Goulds Water Technology Blue Enamel
Head OD	Goulds Water Technology Blue Enamel

Testing Data

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Engineering Services

Engineering Services Notes

Miscellaneous Specials

Assembly and Crating

Assembly	Fully Assembled
Crating	Export Skid

Assembly and Crating Notes

In general, pumps are crated and shipped fully assembled* via standard freight methods (LTL/LCL) if overall crated length is 25 ft or less and weight is 2500 lbs or less. Up to 45 ft and 4000 lbs can still be fully assembled but will ship via dedicated freight methods (FTL/FCL/flatbed/air/special). Otherwise, each sub-assembly (bowl, column, and head) is crated separately ("column loose"). *Motors, suction cans, mechanical seals, spare parts, and other special items are crated separately. Coordinate specific expectations with the factory at time of order.

Weight Data

Total Bowl Weight	759 lbs
Total Column Weight	180 lbs
Head Weight	460 lbs

Weight Data

Motor Weight	2300 lbs
Total Weight	3699 lbs

Comments

Duplicate of S/N 601941 - new standard 316SS impellers

INFO, WARNING & ERROR MESSAGES

Discharge Flange Rating	Invalid	Shut Off Pressure (Discharge Flange) is greater than 175 psi. There are no Flange Ratings available Change the Head Type for more options.
	Warning	The Shut Off Pressure (Disch Flange) 198.4 psi is greater than the Discharge Flange Pressure Limit 175 psi. Select a valid Discharge Flange Rating

Our offer does not include specific review and incorporation of any Statutory or Regulatory Requirements, and the offer is limited to the requirements of the design specifications. Should any Statutory or Regulatory requirements need to be reviewed and incorporated, then the Customer is responsible to identify those and provide copies for review and revision of our offer.

Our quotation is offered in accordance with our comments and exceptions identified in our proposal and governed by our standard terms and conditions of sale – Xylem Americas attached hereafter.

For units requiring a factory performance test, all performance tests will be conducted per ANSI/HI 14.6 standards unless otherwise noted. As a standard, test results for the primary design point meeting grade 2B tolerances for pumps with a rated shaft power of 134 hp or less and grade 1B for greater than 134 hp will be considered passing. If secondary or tertiary design points are required to be tested, these will be subject to grade 3B tolerances. For testing of more than 3 points, consult the factory. Other acceptance grades are available and must be clearly noted and mutually agreed upon between the Customer and Xylem before release to manufacture.

Holding shipment for testing approval allows 2 weeks of production lead time for the approval process, after which Xylem reserves the right to ship passing pumps without explicit approval. For approval processes exceeding 2 weeks, please consider that additional lead time and coordinate expectations with the factory. For faster shipment, select "No" to the hold shipment for testing approval option.

For units not requiring a factory performance test, product performance can be expected to meet 3B tolerances primarily due to the variability of field conditions. Field-measured performance may vary from factory-measured performance or published data as a result of unknown or unpredictable system conditions and measurement variability. If field performance testing is required after installation, factory performance testing before shipment is strongly recommended. Field performance test results do not constitute a warranty claim unless verified by Xylem.

The information provided in this submittal is published data nominally representative of the selected pump model's performance characteristics. If factory performance testing is included, actual as-tested performance curves for each tested pump will be provided after testing is complete. Impeller trim diameter is subject to change to meet intended design conditions.

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OUTLINE DRAWING

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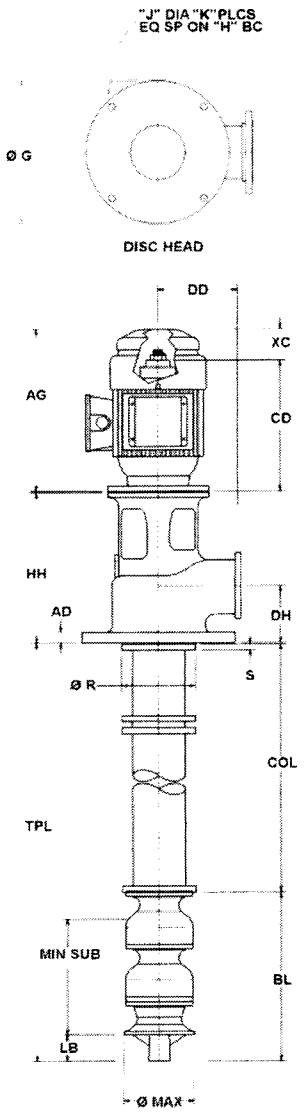

DIMENSIONS

Dim G [Mounting Flange Dia]:	23.50 in
J [Mounting Flange Hole Dia]	0.75 in
K [Mounting Hole Places]	4
H [Mounting Flange Bolt Circle]	21.25 in
AG [Motor Height]	51.63 in
CD [Motor Coupling Height]	46.00 in
XC [Top Hdshft to top VHS Motor]	4.63 in
BD [Motor Base Dia]	16.50 in
Discharge Head Size	8.00 in
BD Head [Discharge Head Base Dia]	16.50 in
HH [Head Height]	17.50 in
AD [Mounting Flange Thickness]	1.88 in
DD [Disch Flange Stickout]	13.00 in
DH [Disch Flange Height]	7.50 in
S [Hanger Flange Stickdown Length]	1.00 in
R [Hanger Flange OD]	12.25 in
Column Length (COL)	42.62 in
COL [Column Diameter]	8.00 in
TPL [Total Pump Length]	108.00 in
MIN SUB [Minimum Submergence]	26.52 in
LB [Length to Bottom]	3.50 in
MAX [Max Assembly OD]	12.25 in
BL [Bowl Assembly Length]	65.38 in
SU [Shaft Stickup]	8.00 in
Discharge Flange	8"-125#

PUMP DATA

Column Diameter	8 in [203 mm]
Lineshaft Diameter	1 1/2 in [38.1 mm]
Specified Flow	1021.00 USgpm
Specified TDH	383.00 ft
Pumping Level	5.00 ft
Motor Manufacturer	US
Driver Type	Vertical Hollow Shaft Motor
Selected Motor Power	150.00 Hp
Motor Speed	1770 RPM
Phase / Frequency	3 PH / 60 Hz
Voltage	460 V

WEIGHTS

Total Bowl Weight	759 lbs
Total Column Weight	180 lbs
Head Weight	460 lbs
Motor Weight	2300 lbs
Total Weight	3699 lbs

NOTES

1	Total Pump Length ± 1.0 inch.
2	Tolerance on all dimensions is .12 or ± .12 inch per 5 ft, whichever is greater.
3	All dimensions shown are in inches unless otherwise specified.
4	Drawing not to scale.
5	½" NPT – Gauge Conn (plugged)
6	Driver may be rotated at 90° intervals about vertical centerline for details refer to driver dimension drawing.
7	Refer to product IOM for impeller setting requirements.
8	This assembly has been designed so that its natural frequency responses avoid the specific operating speeds by an adequate safety margin. The design has assumed the foundation to be rigid.

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CROSS SECTION DRAWING

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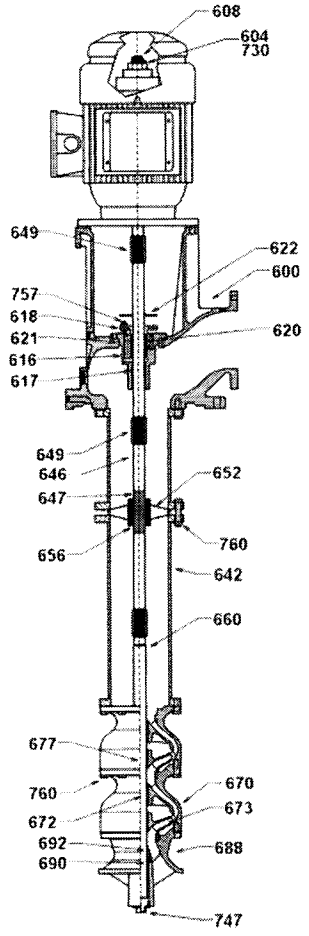

BILL OF MATERIALS

ITEM	PART NAME	CODE	MATERIAL	ASTM#
Head Assembly				
608	Headshaft	2227	SST 416	A582 S41600
600	Head - Discharge	1003	Cast Iron CL 30	A48 CLASS 30B
604	Nut - Adjusting	2242	Carbon Steel 1018	A108
616	Box - Stuffing	1003	Cast Iron CL 30	A48 CLASS 30B
617	Bearing - Seal Housing	6714	Cast Iron Chrome PL	6714 REV 0
618	Gland - Split	1203	SST 316	A744M
620	Packing	5026	Graphite Packing	ML402-99
621	O-Ring	5302	Nitrile Buna N	D4322
622	Slinger	5121	Rubber EPDM	D3568
649	Coupling - Headshaft	2265	SST 416	A582M
730	Key - Motor Gib	2242	Carbon Steel 1018	A108
757	Screw - Gland Adj	2229	SST 316	A276
760	Capscrew - Hex	2229	SST 316	A276
Column Assembly				
637	Flange - Column	9645	Carbon Steel Fab	A53
642	Pipe - Column	9645	Carbon Steel Fab	A53
646	Lineshaft	2227	SST 416	A582 S41600
649	Coupling - Lineshaft	2265	SST 416	A582M
Bowl Assembly				
660	Bowlshaft	2227	SST 416	A582 S41600
670	Bowl - Intermediate	6911	Cast Iron CL 30 Enamel	A48
672	Bearing - Intermediate Bowl	6714	Cast Iron Chrome PL	6714 REV 0
673	Impeller	1203	SST 316	A744M
677	Taperlock - Impeller	2242	Carbon Steel 1018	A108
688	Suction	1003	Cast Iron CL 30	A48 CLASS 30B
690	Bearing - Suction	6714	Cast Iron Chrome PL	6714 REV 0
760	Capscrew - Hex	2229	SST 316	A276

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PERFORMANCE CURVE

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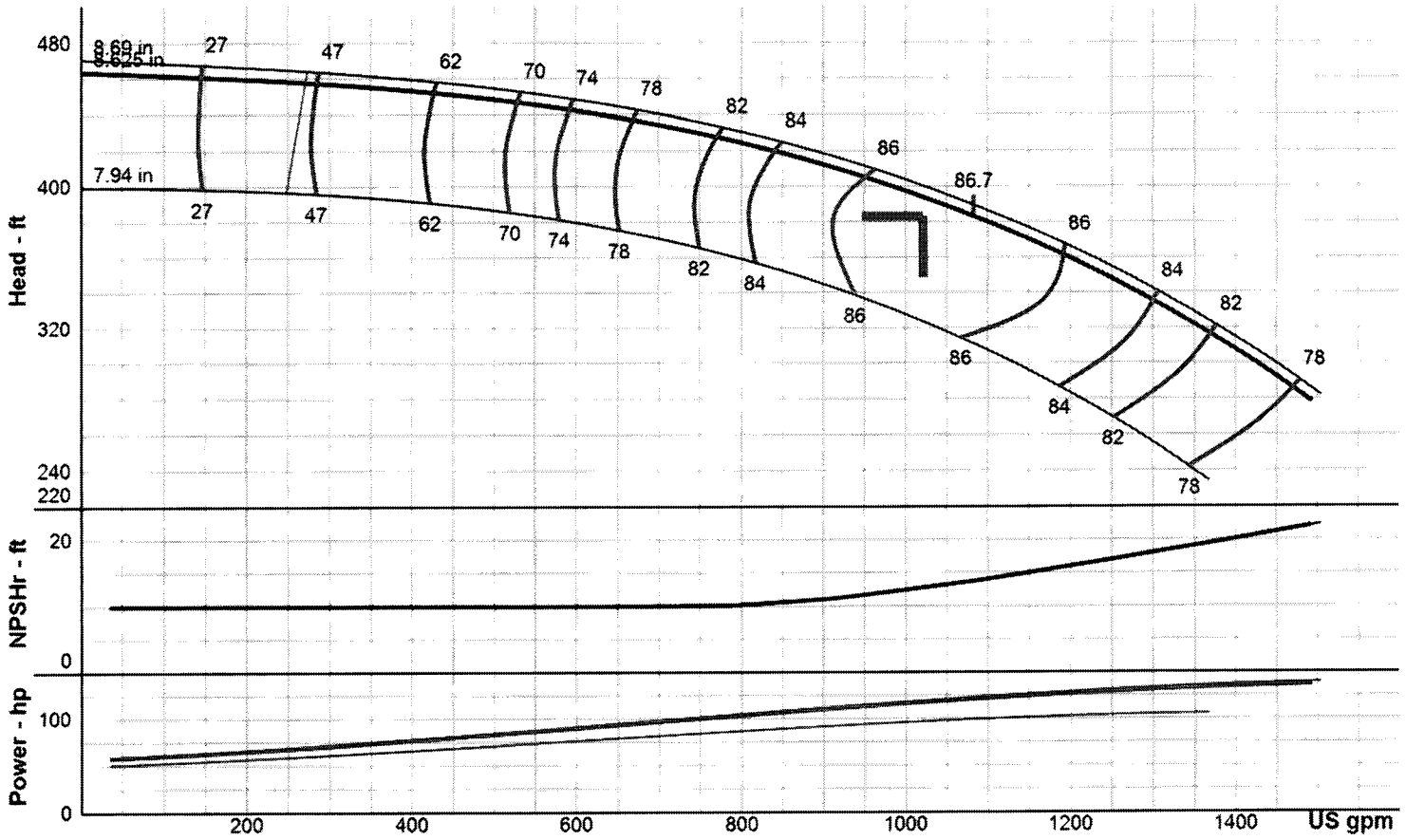

Curve & hydraulic data presented is nominal performance based on ANSI/HI 14.6 acceptance grade 2B.
Design values are guaranteed within the following tolerances: Flow ± 8%, Head + 5% and optionally either Power + 8% or Efficiency - 5% at manufacturer's discretion

Specified Flow	1021.00 USgpm	**Shut Off Pressure (Bowl)**	200.9 psi	**Driver Size Criteria**	NOL Power Across Design Curve
Specified TDH	383.00 ft	**Shut Off Pressure (Disch Flange)**	198.4 psi	**Allow Service Factor**	No
Rated Speed	1770 RPM	**Run Out Flow**	1493.0 USgpm	**kWh per 1000 gal**	1.48655
Atmospheric Pressure	14.70 psi	**Run Out TDH (Bowl)**	278.0 ft	**NPSHr at Design**	12.8 ft
Pumping Level	5.00 ft	**Run Out TDH (Disch Flange)**	271.1 ft	**NPSH Margin at Design**	23.4 ft
NPSHa at Grade	34.0 ft	**Run Out Pressure (Bowl)**	120.3 psi	**Min Submergence at Design**	26.52 in
NPSHa at 1st Impeller	36.2 ft	**Run Out Pressure (Disch Flange)**	117.4 psi	**Actual Submergence**	44.50 in
Fluid	Water	**Bowl Efficiency at Design**	86.60 %	**Thrust K-Factor**	7.5 lbpft
Fluid Temperature	68.0 °F	**Guaranteed Bowl Efficiency**	82.27 %	**Thrust at Design**	3177.4 lb
Specific Gravity	1.0000	**Best Efficiency**	86.70 %	**Thrust at Shut Off**	3713.8 lb
Viscosity	1.0017 cP	**BEP Flow**	1083.0 USgpm	**Thrust at Run Out**	2284.5 lb
Vapor Pressure	0.3393 psi	**Design Flow % BEP**	94.28 %	**Bowl Material**	Cast Iron with Glass Enamel
Density	62 lbs/ft³	**Pump Efficiency**	86.15 %	**Bowl Material Derate Factor**	1.00
Design Flow	1021.0 USgpm	**Motor Efficiency**	95.80 %	**Impeller Material**	316SS
Min Flow (MCSF)	271.0 USgpm	**Overall Efficiency**	80.90 %	**Impeller Matl Derate Factor**	1.00
Design TDH (Bowl)	394.0 ft	**Friction Loss at Design**	0.60 ft	**Total Flow Derate Factor**	1.00
Design TDH (Disch Flange)	387.8 ft	**Power at Design**	117.0 Hp	**Total Head Derate Factor**	1.00
Design Pressure (Bowl)	170.6 psi	**Guaranteed Power**	126.4 Hp	**Total Efficiency Derate Factor**	1.00
Design Pressure (Disch Flange)	167.9 psi	**NOL Power**	136.0 Hp		
Shut Off TDH (Bowl)	464.0 ft	**Max Power (NOL) Flow**	1493.0 USgpm		
Shut Off TDH (Disch Flange)	458.4 ft	**Recommended Power**	150.00 Hp		

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