

# Metso Slurry Pumps

HMP and HMPT



# Nomenclature

- HMP and HMPT
  - HM=Heavy Duty Metal
    - P=High Pressure
    - PT= High Pressure and High Temperature
- Available Sizes
  - HMP 150
  - HMPT100 and 150

# Basic Specifications

- HMPT
  - Max Temperature 200 degrees C, 392 degrees F.
  - Max. Pressure 42 Bar, 610 PSI.
  - Test Pressure = 1.5 x Max. Pressure
  - Double case design
  - Impeller design - closed and semi open
- HPM
  - Max Temperature 100 degrees C, 212 degrees F.
  - Max. Pressure 42 Bar, 610 PSI.
  - Test Pressure = 1.5 x Max. Pressure
  - Traditional single case design
  - Impeller design - closed

# Applications to date

- Gulf States Paper - "cold blow" pumps
- HMP150
  - Pump injects 15% black liquor into the continuous digester to facilitate the cooking of wood chips.
    - 170-180 degrees F, 1.02 SG
    - 600 GPM at 470 Feet TDH, 180 psi suction pressure
    - Direct drive base, 150 HP, 1800 RPM
    - The HMP-150 will be the down-stream pump in a two-pump series application.

# Applications to date

- Kaiser - Alumina
- Pressure Decanter Underflow Pumps
  - Solids trihydrate digestion slurry with caustic liquor system.  
HMPT150/100-600 (6 x 4 x 24)
    - Double casing with replaceable liner
    - 6 Ring packed gland
    - Flow: 365/615/705 GPM
    - Head: 175/192/200 Ft.
    - 25 % Solids 1.A8451 sg slurry
    - Viscosity: 410 CST (600 cp)
    - Temp: 350 F

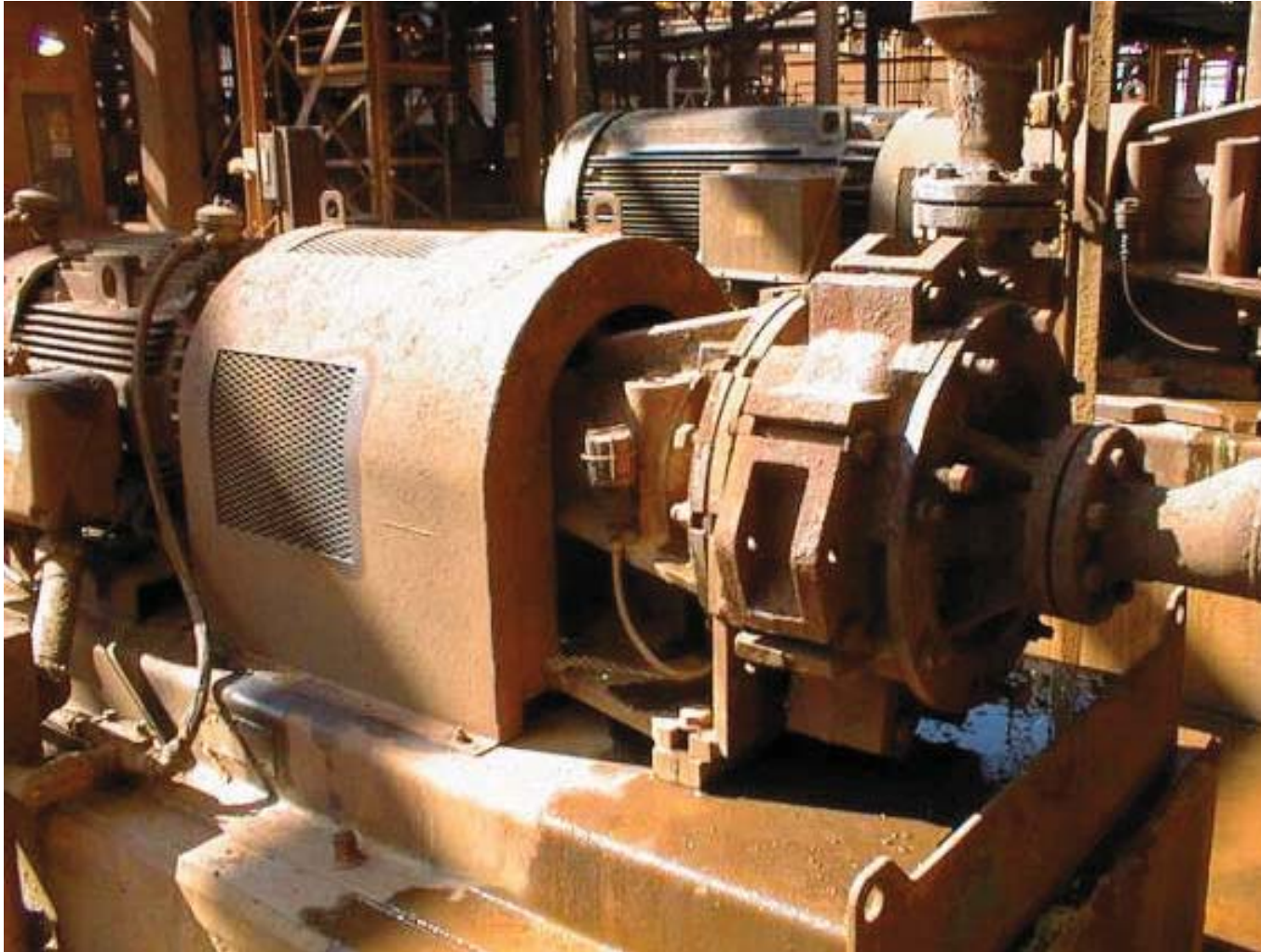
# Applications to date

- Kaiser - Alumina
- Pressure Decanter Unverflow Pumps
  - Solids trihydrate digestion slurry with caustic liquor system.  
HMPT100/75-400 (4 x 3 x 16)
    - Double casing with replaceable liner
    - 6 Ring packed gland
    - Flow: 300/400/500 GPM
    - Head: 55/65/78 Ft.
    - 36% Solids 1.60 sg solids
    - Viscosity: 600 CST (960 cp)
    - Temp: 350 F

# Kaiser Alumina



# Kaiser Alumina



© Metso Minerals, Inc. 2003



# HMPT Outer Casing



# HMPT Inner Casing



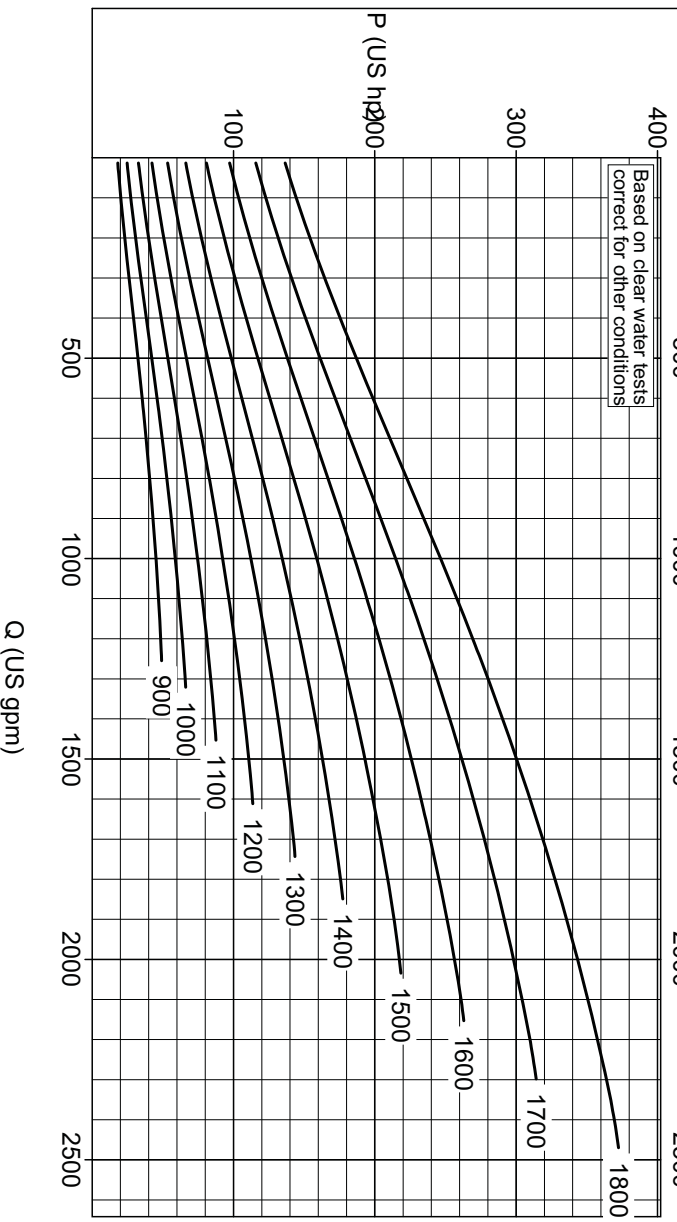
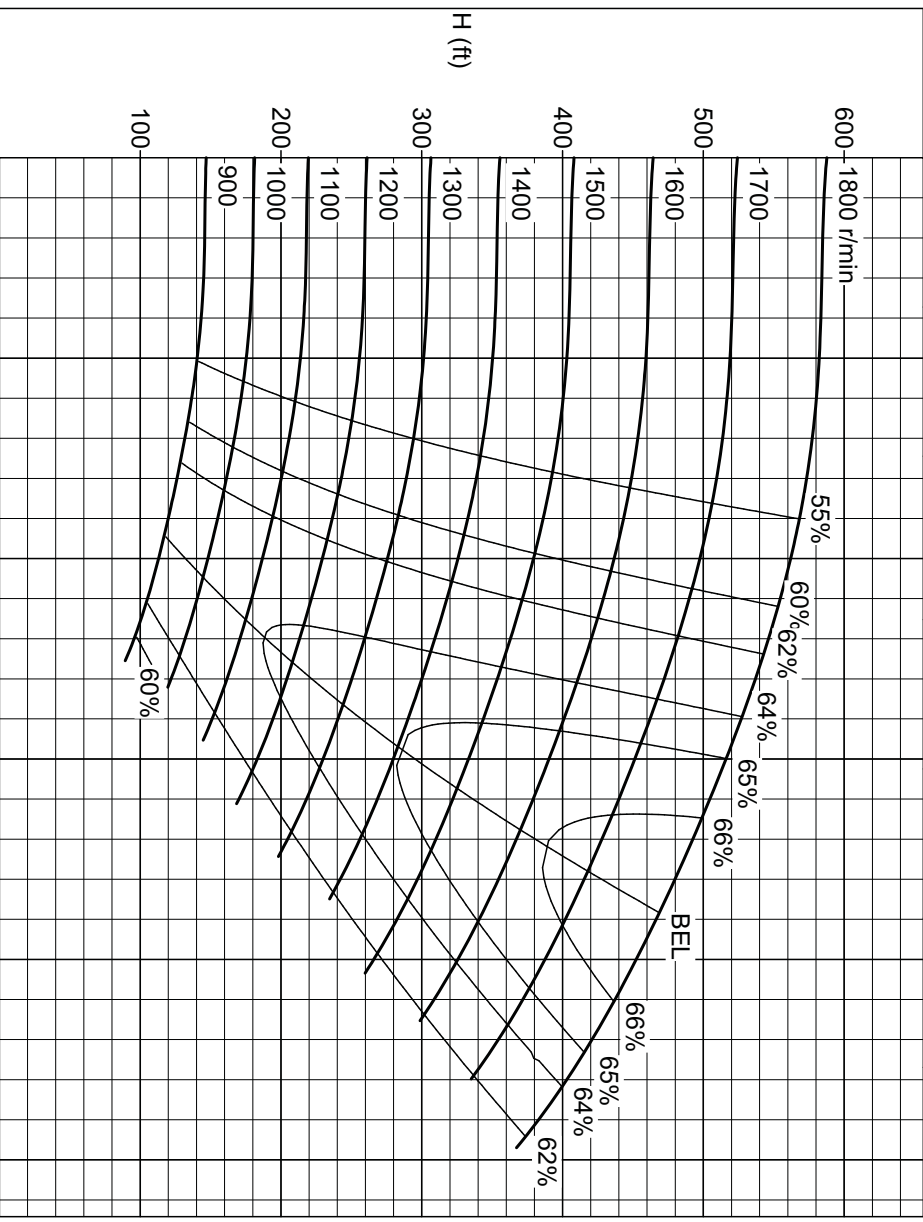
# HMPT Pump on Test Stand



**Pump HMP150 C5**  
**Performance curve**



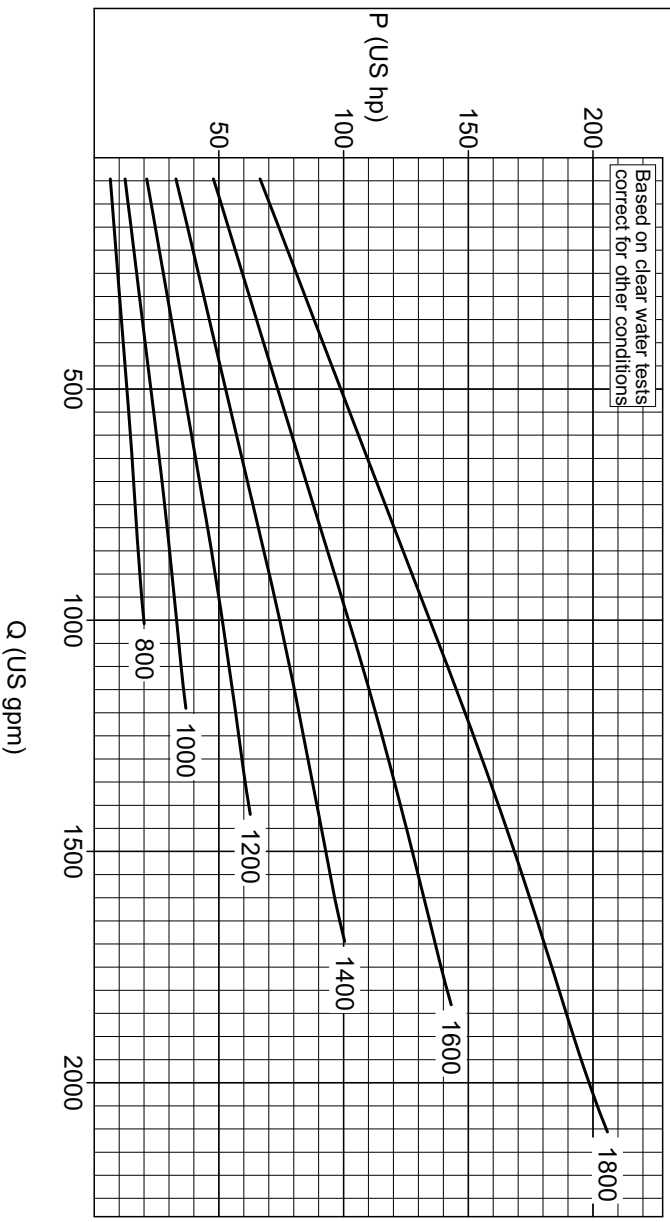
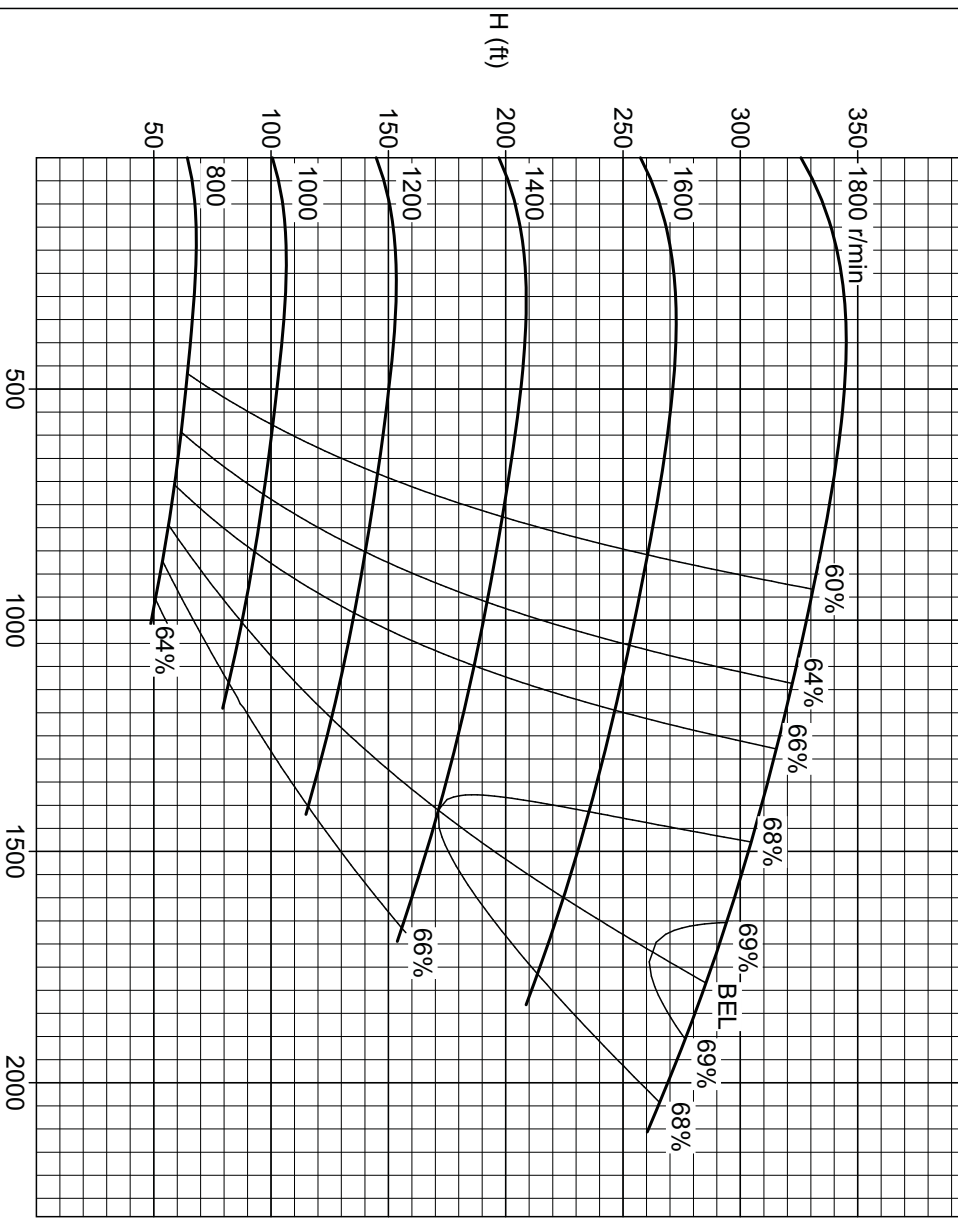
Full impeller dia	Vane diameter	Vane config	Impeller type	No. of vanes	Max sphere	Impeller material	Liner material
600 mm	600 mm	Full	Closed	5	0 mm	Metal	Metal



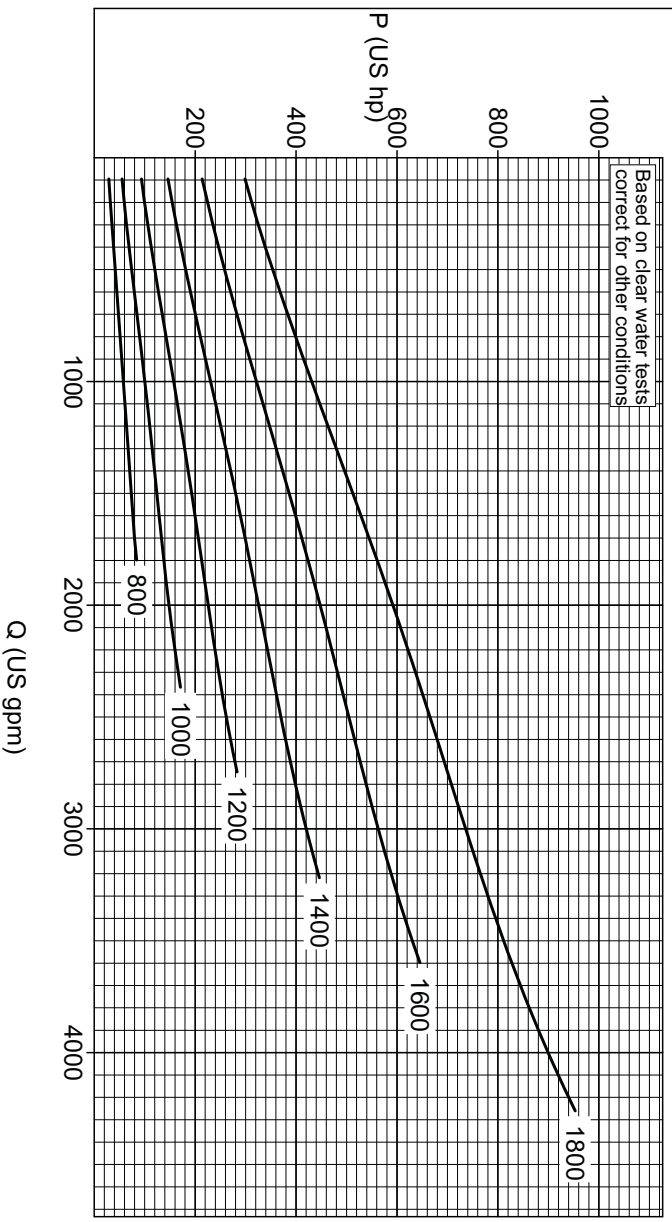
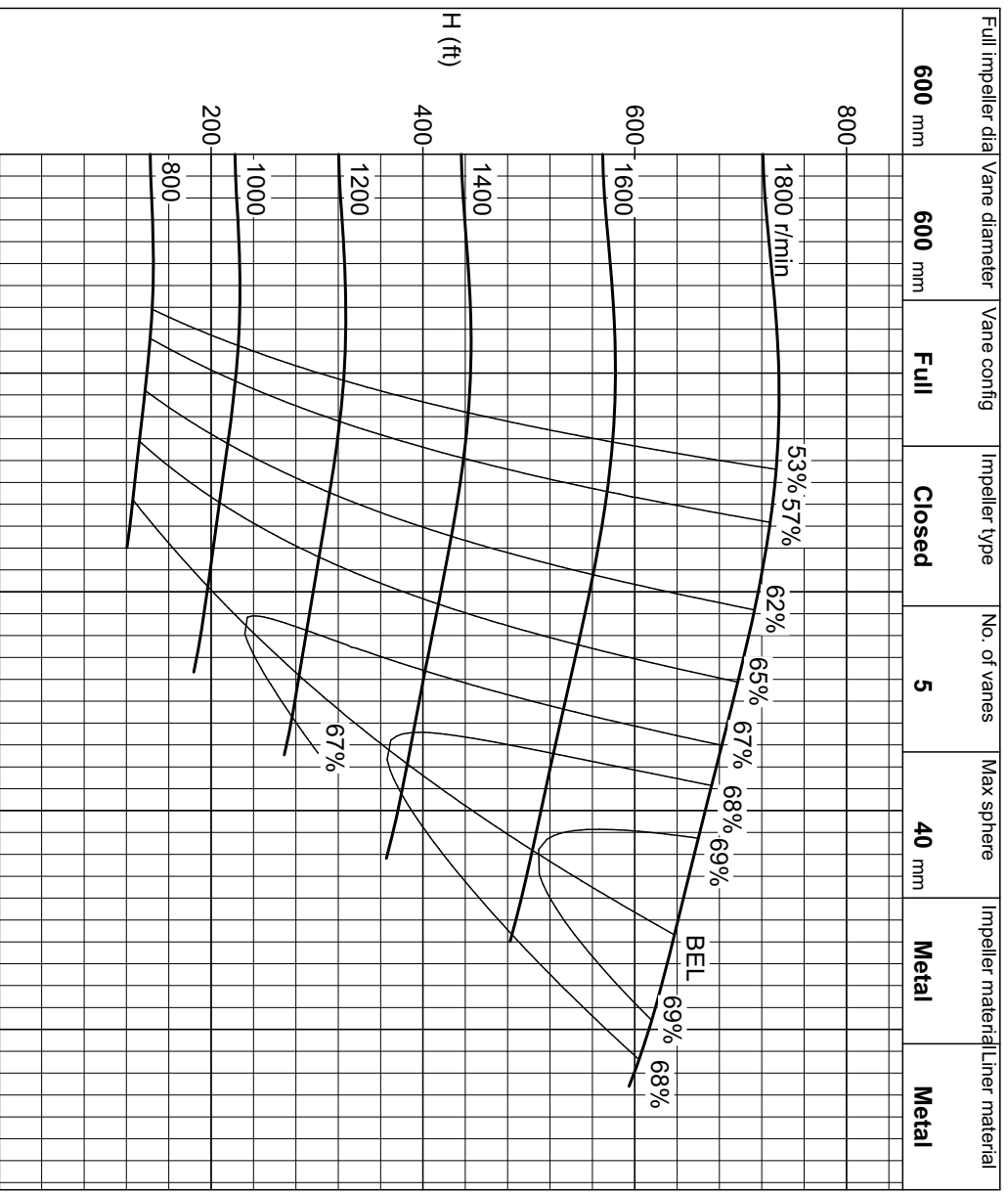
**Pump HMPT100 C5**  
**Performance curve**



Full impeller dia	Vane diameter	Vane config	Impeller type	No. of vanes	Max sphere	Impeller material	Liner material
400 mm	400 mm	Full	Closed	5	54 mm	Metal	Metal



**Pump HMPT150 C5**  
**Performance curve**



## 2.7 Dimensions

(See Figure 2-7)

SIZE	A	B	C	D	E	F	G	H	I	J
	HMP100	1097	438	390	53	216	545	3	35	71
HMP150	1430	516	513	95	305	816	4	38.5	106	48

SIZE	K	L	M	N	O	P	Q	R	S	T
	HMP100	37.5	470	365	331	226	226.5	193	104	190
HMP150	38	740	500	459	332	249	255	190	269	440

SIZE	Ø U	Ø V	Ø W	Ø X	Y	øzx	øzy
	HMP100	100	157	75	127	390	600
HMP150	150	216	100	157	535	600	630

SIZE	a	b	c	d	e	f	g	h	i	Ø j
	HMP100	383	713	30.5	3	197	70	30	330	142
HMP150	500	1055	35	4	292	100	45	555	224	28

SIZE	INLET FLANGE No.				OUTLET FLANGE No.					
	k	l	O/D	HOLES	DIA.	PCD	O/D	HOLES	DIA.	PCD
HMP100	M30×60	327	254	8	22	200	210	8	22	168
HMP150	M36×70	520	318	12	22	270	254	8	22	200

HMP100 & 150 Slurry Pump

SIZE	WEIGHT (kg)
HMP100	750
HMP150	2250

\* joint

Description

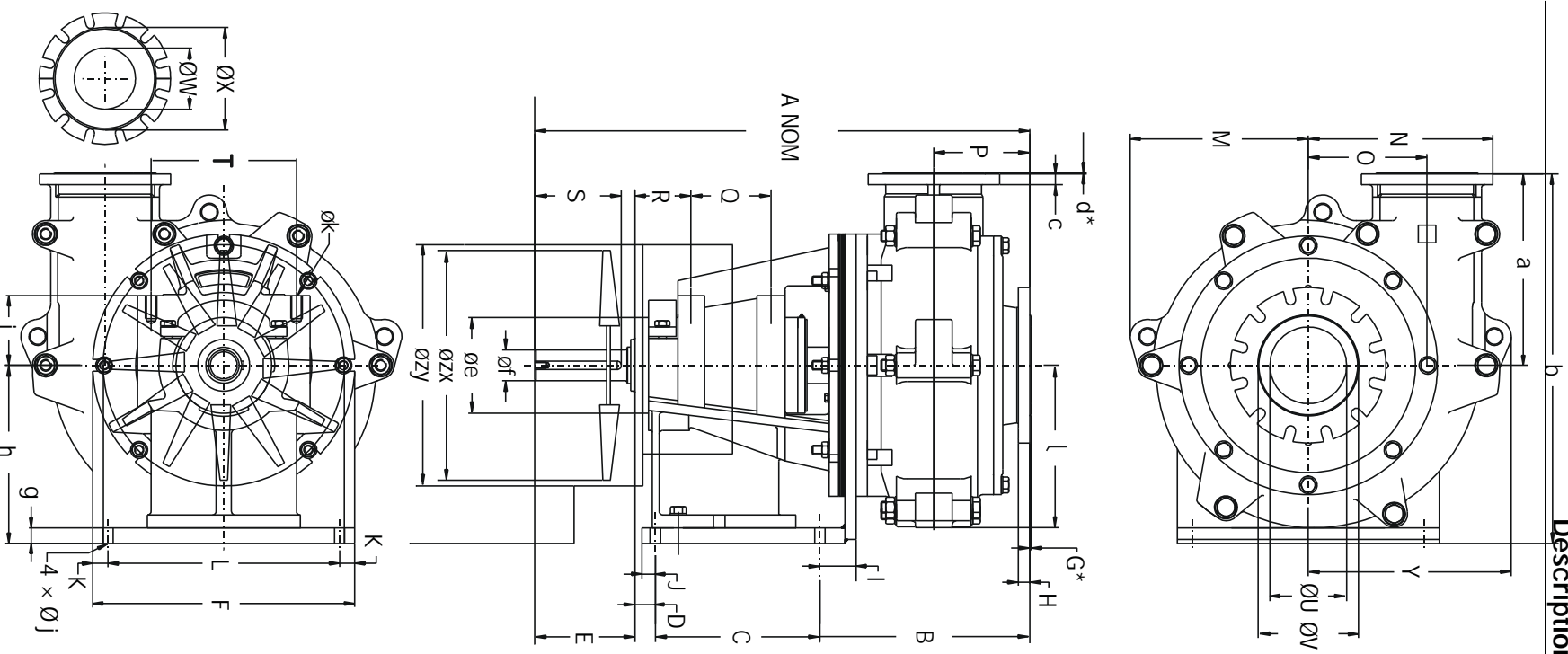
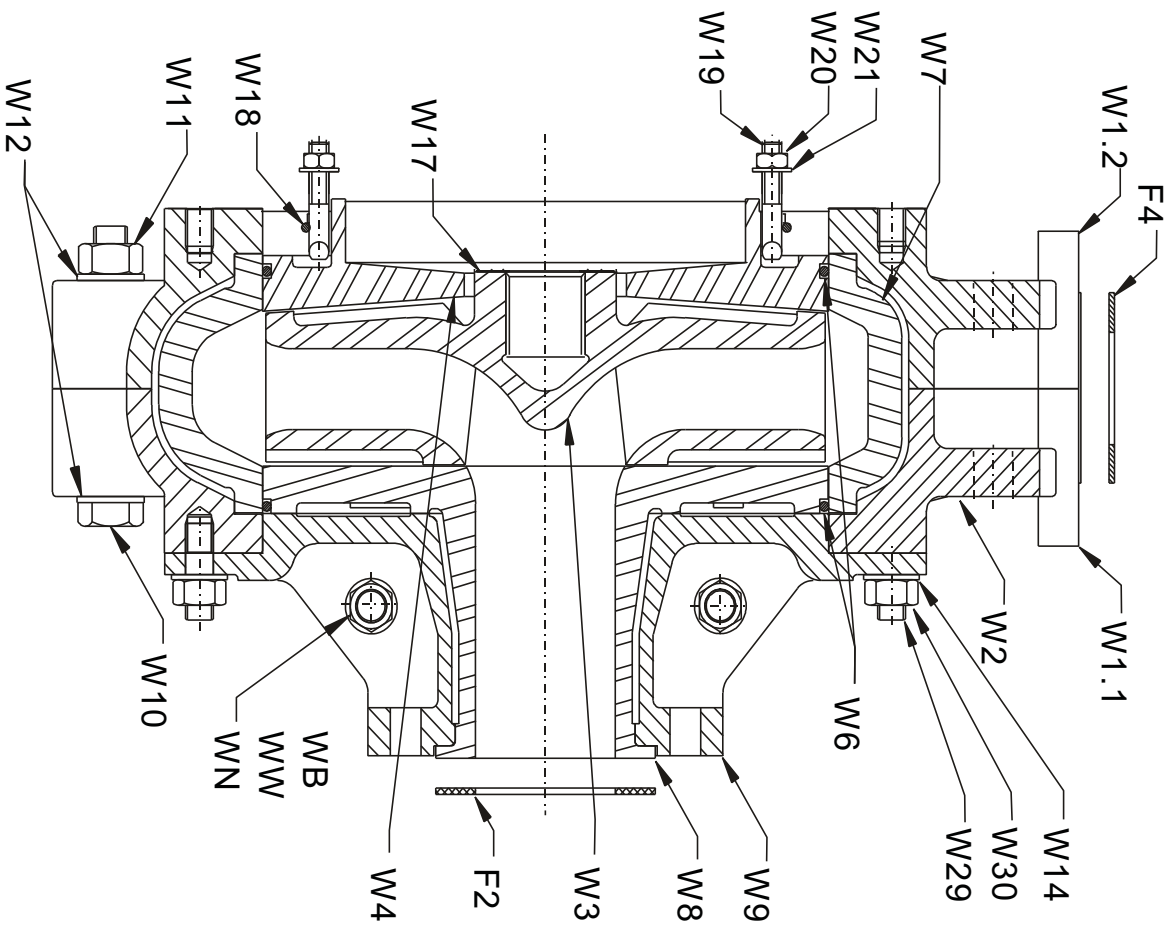


Figure 2-7 Pump dimensions

### 10.4 Spare parts drawings

Wet-end parts-list drawing



ITEM	DESCRIPTION	PART N°	QTY
------	-------------	---------	-----

BEARING/SHAFT ASSEMBLY PDWB05104			
B1	FLINGER	PD730099	1
B2.1	END COVER, WET END	PDC6341	1
B2.2	END COVER, DRY END	PDC6342	1
B3	END COVER SHIM SET	PD730025	1
B5	END COVER SCREW	Z1140337	16
B6	SHAFT SPACER	PDC821	1
B8	BEARING	PD730009	2
B10	KEY	PD730070	1
B11	SHAFT	PDC1876	1
B14	BEARING CYLINDER HOUSING	PDC6340	1
B16	SHAFT SPACER SEAL	Z3045339	1
B19.1	SEAL ( SECONDARY ) WET END	Z3016398	1
B19.2	SEAL ( SECONDARY ) DRY END	Z3014481	1
B22.1	SEAL ( PRIMARY ) WET END	Z30408912	1
B22.2	SEAL ( PRIMARY ) DRY END	Z30408895	1
B25	IMPELLER RELEASE MECHANISM	PDC6558	1
B39	LUBRICATION SYSTEM ASSY	PDC6440	1
B54	IMPELLER SPACER	PDC6559	1
B55	COOLING FAN ASSY	PDC6453	1

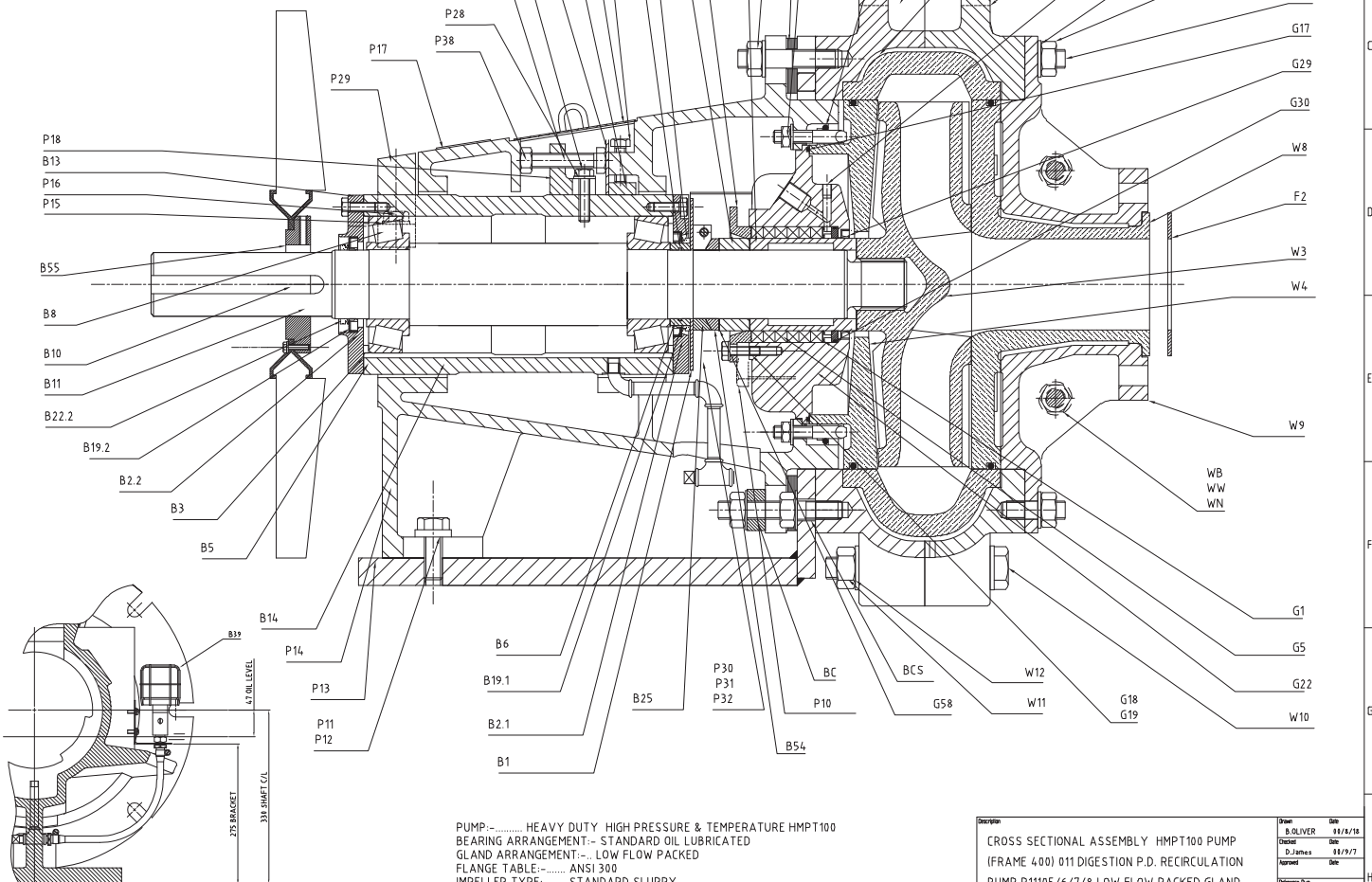
GLAND PARTS			
G1	LANTERN RING	PDC6384	1
G2	SHAFT SLEEVE	PDCF2539	1
G5	PACKING	PD730011	6
G10	GLAND FOLLOWER	PDC6383	1
G17	STUFFING BOX SEAL	Z30504566	1
G18	GLAND FOLLOWER SCREW	PD720045	3
G19	GLAND FOLLOWER WASHER	PD710057	3
G22	STUFFING BOX	PDC6352	1
G24	GLAND SPACER	PDC2371	1
G29	GLAND LIP SEAL	Z3018000	1
G30	LANTERN RING SEAL	Z3045357	1
G58	SHAFT SLEEVE GASKET	PDCA565	3
FP	FLUSH WATER PLUG 1/8" BSP	Z4168505	1

FRAME PARTS			
F2	INLET GASKET	PD702032	1
F4	OUTLET GASKET	PD771032	1

FRAME PARTS			
P1	CASE NUT	PD721055	10
P2	CASE WASHER (SA956911)	Z1182568	10
P3	CASE SHIM	PDC6420-M22	1
P5	CASE STUD	Z12775395	6
BCS	BRIDGING CLAMP STUD	PDC7800	2
P10	JACK SCREW	PD730068	2
P11	BEARING FRAME SCREW	PD760056	2
P12	BEARING FRAME WASHER	PD730084	2
P13	BASE/CASE SUPPORT	PD730003	1
P14	BEARING FRAME	PDC1885	1
P15	HOUSING CLAMP WASHER	PD701057	2
P16	HOUSING CLAMP SCREW	PD734056	2
P17	NAMEPLATE	PD730098	1
P18	SADDLE	PDC33068	1
P19	ADJUSTING SCREW	Z1140464	1
P20	SADDLE SCREW	PDC6343	2
P21	TENSION BLOCK	PD730053	1
P22	RETAINING PLATE	PDCB279-3	1
P23	TENSION SCREW	PD730056	2
P24	COVER	PD770098	1
P28	SADDLE WASHER	PD721057	2
P29	HOUSING CLAMP	PD730059	1
P30	GLAND GUARD	PDC382	1
P31	GLAND GUARD WASHER	Z1182487	2
P32	GLAND GUARD SCREW	Z1140219	2
P38	ADJUSTING SCREW LOCKNUT	Z1075166	1
BC	BRIDGING CLAMP	PDC6765	2

WET END			
WB	WEB BOLT (M20 x 60)	Z1018044	2
WW	WEB WASHER	Z1182560	4
WN	WEB NUT	Z1075206	2

WET END			
W11	CASE HALF, INLET SIDE	PDC6405	1
W12	CASE HALF, FRAME SIDE	PDC6403	1
W2	BADGE	PD710098	1
W3	IMPELLER	PDC6380	1
W4	BACK LINER	PD721041	1
W6	BACK LINER SEAL	Z3050510	2
W7	CASE LINER ( COMPLETE VOLUTE )	PDC6358	1
W8	INLET LINER	PDC6388	1
W9	INLET DOOR	PDC6390	2
W10	CASING ASSY BOLT	Z1053375	9
W11	CASING ASSY NUT	Z1075246	9
W12	CASING ASSY WASHER (SA951136)	Z1182576	18
W14	INLET DOOR WASHER	Z1182560	8
W17	IMPELLER GASKET	PDCA564	1
W18	BACK LINER BOLT STRAP	Z3050503	1
W19	BACK LINER BOLT	PD730040	4
W20	BACK LINER NUT	PD720055	4
W21	BACK LINER WASHER	PD720057	4
W29	INLET DOOR STUD	Z1277506	8
W30	INLET DOOR NUT	Z1075206	8



SECTIONAL VIEW SHOWING LUBRICATION BOTTLE POSITION

PUMP----- HEAVY DUTY HIGH PRESSURE & TEMPERATURE HMPT100  
 BEARING ARRANGEMENT-- STANDARD OIL LUBRICATED  
 GLAND ARRANGEMENT-- LOW FLOW PACKED  
 FLANGE TABLE----- ANSI 300  
 IMPELLER TYPE----- STANDARD SLURRY  
 IMPELLER SIZE----- FULL SIZE 400mm  
 OPTIONS----- NONE  
 BUILD No----- PDC6416

Description		Drawn	Date
CROSS SECTIONAL ASSEMBLY HMPT100 PUMP		B. OLIVER	01/12/18
(FRAME 400) 011 DIGESTION P.D. RECIRCULATION		Checked	Date
PUMP P11105/6/7/8 LOW FLOW PACKED GLAND		D. James	01/19/17
Reference Dwg		Scale	Sheet
CH34.09		1:2.5	G
Project		File Name	Revision
SVEDALA		CH6416.DWG	A1
Page & Process		Sheet	Part
		64/16	1

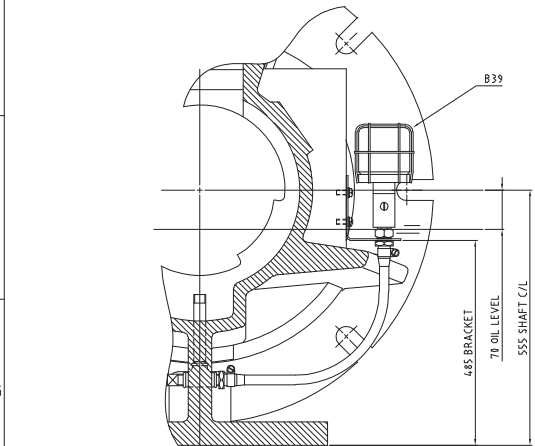
REVISIONS	E	CE4507	DH	01/11/18			
D	CE 4494	DAR		01/12/18			
C	CE 4478	JT		01/19/18			
B	CE 4406	JT		01/19/18	G	CE4863	SMK 01/19/18
A	CE 4400	BH		01-12	F	CE4769	SLS 01/17/18

ITEM	DESCRIPTION	PART N°	QTY
BEARING/SHAFT ASSEMBLY PDWB87102			
B1	FLINGER	PD740099	1
B2.1	END COVER - WET END	PDCHE325	1
B2.2	END COVER - DRY END	PDCHE324	1
B3	END COVER SHM SET	PD740025	1
B5	END COVER SCREW	Z1144459	16
B6	SHAFT SPACER	PDCF2555	1
B8	BEARING	PD740009	2
B10	KEY	PD740070	1
B11	SHAFT	PDCI1887	1
B14	BEARING CYLINDER HOUSING	PDCHE323	1
B16	SHAFT SPACER SEAL	Z3070045	1
B19.1	SEAL (SECONDARY) WET END	Z30181346	1
B19.2	SEAL (SECONDARY) DRY END	Z30180999	1
B22.1	SEAL (PRIMARY) WET END	Z30448961	1
B22.2	SEAL (PRIMARY) DRY END	Z30448935	1
B25	IMPELLER RELEASE MECHANISM	PDCHE545	1
B39	LUBRICATION SYSTEM ASSY	PDCHE440	1
B54	IMPELLER SPACER	PDCHE546	1
B55	COOLING FAN ASSY	PDCHE453	1

FLANGE / JOINT			
F2	INLET GASKET	PD710132	1
F4	OUTLET GASKET	PD702932	1

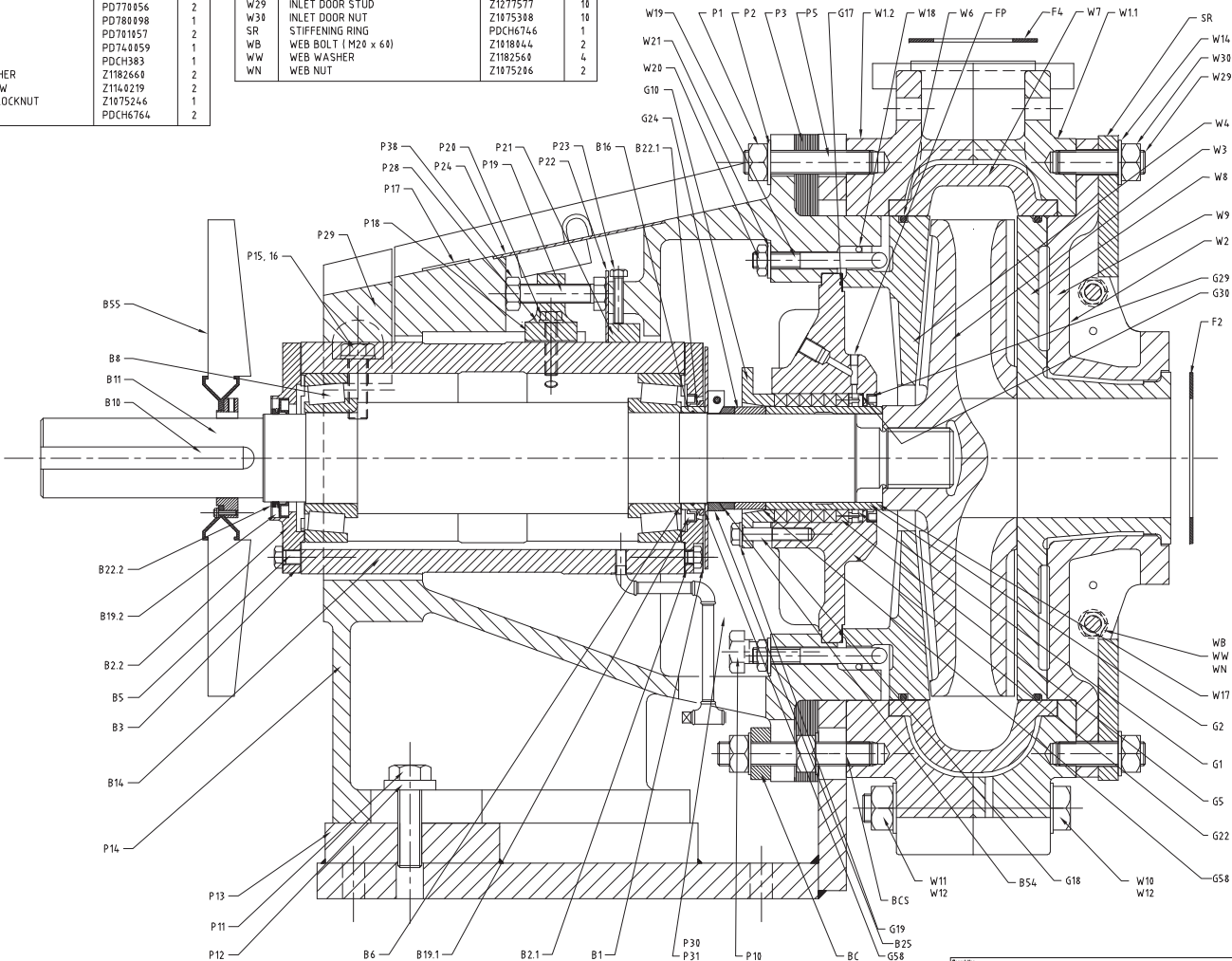
GLAND PARTS			
G1	LANTERN RING	PDCHE411	1
G2	SHAFT SLEEVE	PDCF2551	1
G5	PACKING	PD740011	6
G10	GLAND FOLLOWER	PDCHE410	1
G17	STUFFING BOX SEAL	Z3045456	1
G18	GLAND FOLLOWER SCREW	PD730045	3
G19	GLAND FOLLOWER WASHER	PD730057	3
G22	STUFFING BOX (FULL FLOW)	PDCHE335	1
G24	GLAND SPACER	PDCHE2421	1
G29	GLAND LIPSEAL	Z30181345	1
G30	LANTERN RING SEAL	Z3045370	1
G58	SHAFT SLEEVE GASKET	PDCA566	3
FP	FLUSHING WATER PLUG 1/8" BSP	Z4168505	1

PUMP:.....HEAVY DUTY HIGH PRESSURE & TEMPERATURE HMPT 150  
 BEARING ARRANGEMENT-- STANDARD OIL LUBRICATED  
 GLAND ARRANGEMENT-- LOW FLOW PACKED  
 FLANGE TABLE:..... ANSI 300  
 IMPELLER TYPE:..... HMPT 150  
 IMPELLER SIZE--..... FULL SIZE 600mm  
 OPTIONS:..... NONE  
 BUILD No--PDCHE415



REVISIONS	H	CE 4.863	SMK	01/9/24
	G	CE 4.831	B.JH	01/2/23
	F	CE 4.769	SLS	01/07/10
	E	CE 4.507	DH	01/01/10
	D	CE 4.494	DAR	01/02/12
	C	CE 4.418	JT	01/9/24
	B	CE 4.406	JT	01/9/14
	A	CE 4.400	B.JH	01-9-12

FRAME PARTS				WET END			
P1	CASE NUT	PD750055	12	W1.1	CASE HALF-INLET SIDE	PDCHE394	1
P2	CASE WASHER (SA951138)	Z182681	12	W1.2	CASE HALF-FRAME SIDE	PDCHE392	1
P3	CASE SHM SET	PDCHE421 M36	1	W2	BADGE	PD710098	1
P5	CASE STUD	Z1271595	8	W3	IMPELLER	PDCHE328	1
BCS	BRIDGING CLAMP STUD	PDCH7799	2	W4	BACK LINER SEAL	PD770041	1
P10	JACK SCREW	PD751040	2	W6	BACK LINER SEAL	Z3045741	2
P11	BEARING FRAME SCREW	PD731040	2	W7	CASELINER (COMPLETE VOLUTE)	PDCHE414	1
P12	BEARING FRAME WASHER	PD740084	2	W8	INLET LINER	PDCHE331	1
P13	BASE/CASE SUPPORT	PD740003	1	W9	INLET DOOR	PDCHE386	2
P14	BEARING FRAME	PDCI1900	1	W10	CASING ASSY BOLT	Z1053673	9
P15	HOUSING CLAMP WASHER	PD73685	2	W11	CASING ASSY NUT	Z1075308	9
P16	HOUSING CLAMP SCREW	PD741040	2	W12	CASING ASSY WASHER (SA951142)	Z1182689	18
P17	NAMEPLATE	PD730998	1	W14	INLET DOOR WASHER	Z1182595	8
P18	SADDLE	PDCI3070	1	W17	IMPELLER GASKET	PDCA568	1
P19	ADJUSTING SCREW	Z1140618	1	W18	BACK LINER BOLT RETAINING STRAP	Z3069990	1
P20	SADDLE SCREW	PDCH6336	2	W19	BACK LINER BOLT	PD740044	4
P21	TENSION BLOCK	PD740053	1	W20	BACK LINER NUT	PD711055	4
P22	RETAINING PLATE	PDCB279-4	1	W21	BACK LINER WASHER	PD750057	4
P23	TENSION SCREW	PD770056	2	W29	INLET DOOR STUD	Z1277577	10
P24	COVER	PD780098	1	W30	INLET DOOR NUT	Z1075308	10
P28	SADDLE WASHER	PD701057	2	SR	STIFFENING RING	PDCHE746	1
P29	HOUSING CLAMP	PD740059	1	WB	WEB BOLT (M20 x 60)	Z1018044	2
P30	GLAND GUARD	PDCI383	1	WW	WEB WASHER	Z1182560	4
P31	GLAND GUARD WASHER	Z182660	2	WN	WEB NUT	Z1075206	2
P32	GLAND GUARD SCREW	Z1140219	2				
P38	ADJUSTING SCREW LOCKNUT	Z1075246	2				
BC	BRIDGING CLAMP	PDCHE764	2				

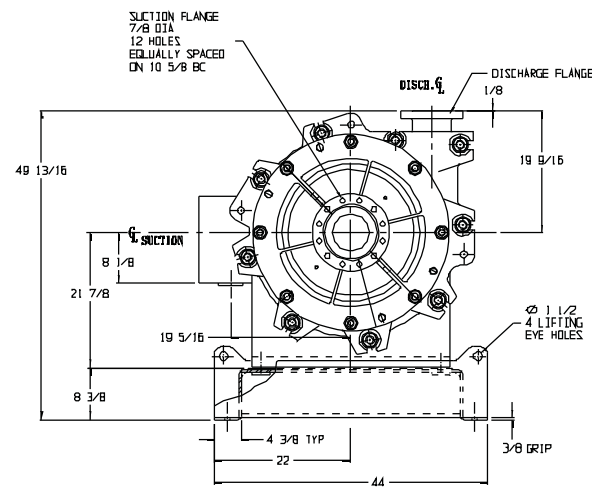
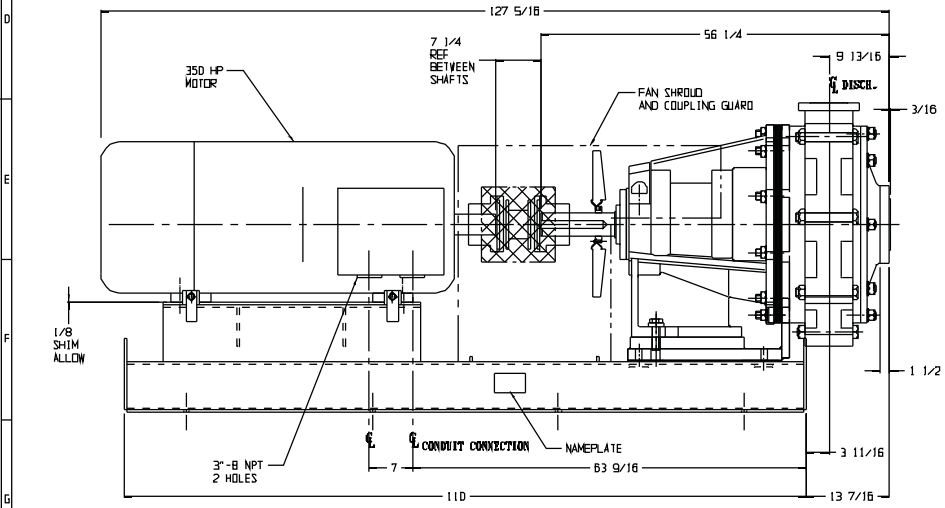
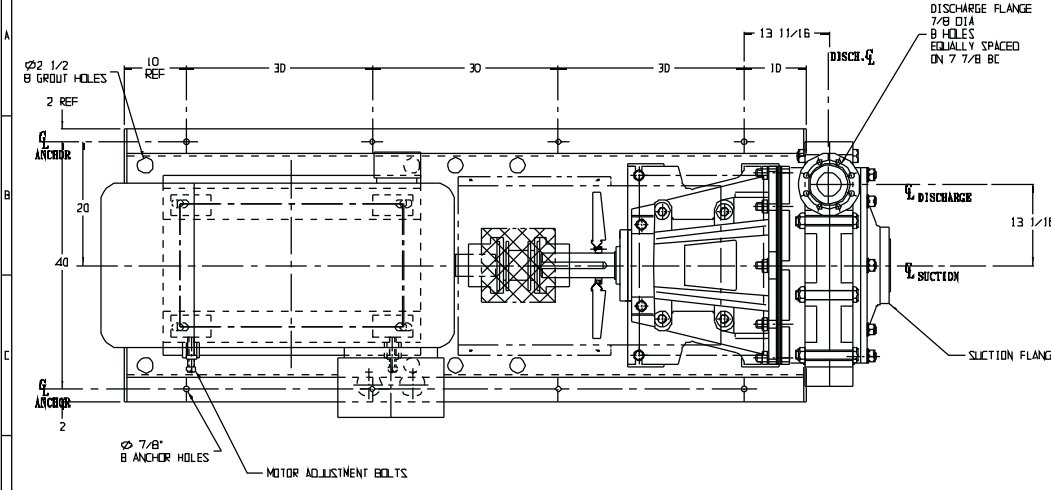


NOTES  
 1) G22 STUFFING BOX PDCHE335 INCLUDES G17 STUFFING BOX SEAL Z3045455  
 2) W4 BACKLINER PD770041 INCLUDES W6 BACKLINER SEAL PD711050

Description <b>CROSS SECTIONAL ASSEMBLY HMPT150 PUMP</b> (FRAME 600) 811 DIGESTION P.D. UNDERFLOW PUMP P11000/1/2/3 LOW FLOW PACKED GLAND		Drawn D.James 01/8/17
Project <b>CH6415.DWG</b>		Checked B.Oliver 02/9/17
Scale 1:3		Approved Date
Revision <b>CH2413</b>		Date
SVDALA Pumps & Process		Title <b>CH 6415</b>

REVISION NO.	DATE	DESCRIPTION
1		PC DRAWING SENT

REFERENCE DRAWINGS	DESCRIPTION
CH4115	CROSS SECTIONAL ASSEMBLY
CS1192D	BASE
CS1192Z	GUARD



**PUMP INFORMATION:**  
 FRAME SIZE: 600  
 SUCTION SIZE: 6 IN. 300# RF  
 DISCHARGE SIZE: 4 IN. 300# RF

**MOTOR INFORMATION:**  
 HORSEPOWER: 350  
 FRAME SIZE: 5011LL  
 SYN. SPEED: RPM  
 VOLTAGE:  
 CYCLES/SEC.: 60  
 PHASE: 3

**DRIVE INFORMATION:**  
 MOTOR/PUMP SPEED: RPM (ACTUAL)  
 DRIVE:  
 MAX SPEED: RPM

**COUPLING**  
 COLLING BORE: 3 3/8 MOTOR  
 COUPLING BORE: 100 MM PUMP

APPROXIMATE PUMP WEIGHT: 4600 LBS.

APPROXIMATE MOTOR WEIGHT: 5000 LBS.

- NOTES:
- ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.
  - TAG NAME:

APPROXIMATE ASSEMBLY WEIGHT: LBS. (AS SHOWN)

PRELIMINARY PROPOSAL DRAWING  
 NOT FOR CONSTRUCTION

	HMP150 FRAME 600 G. A. PC2003052	Date: 1-9 Drawn: A Checked: T
	Projection: 1st Angle Scale: 1:1	Drawing No: PC2003052 Revision: 1