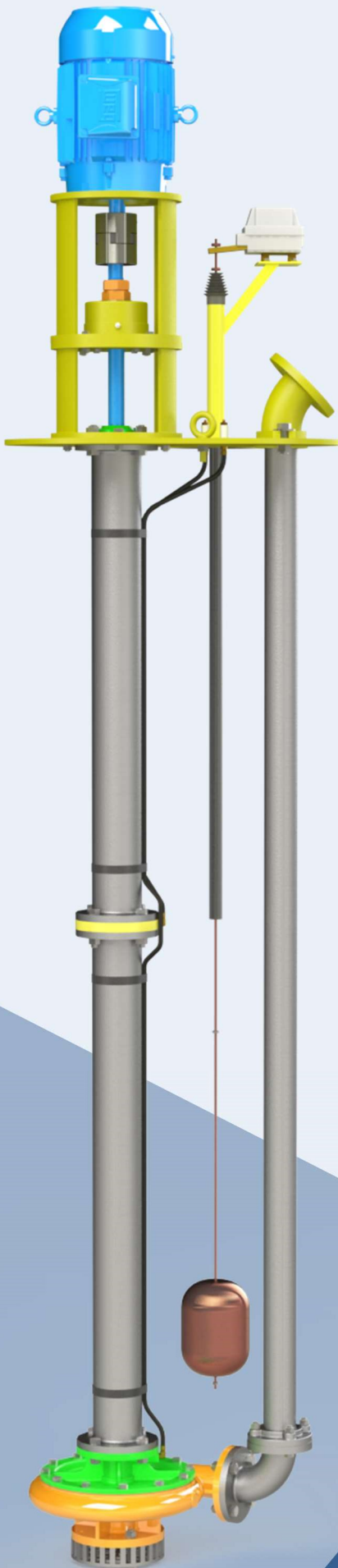


# "CASCADE SERIES"

Vertical Sump Pumps For Heavy Duty Wet Pit Drainage Service



## APPLICATIONS

- Condensate Return
- Tank Farms
- Drainage Control
- Industrial Process

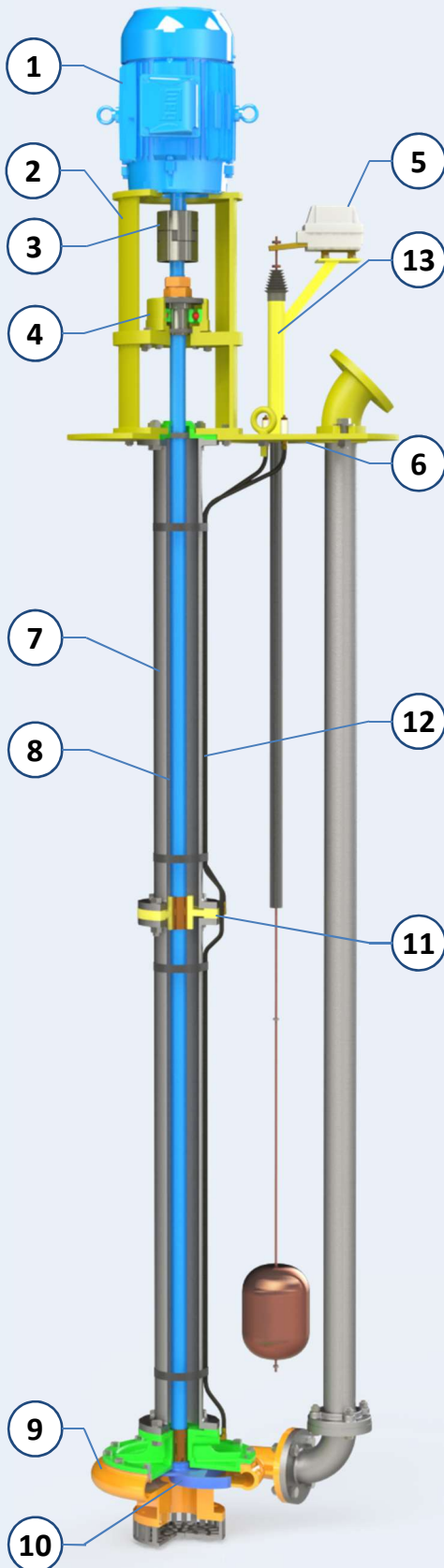
## TYPICAL INSTALLATIONS

- Water & Sewage Treatment Plants
- Industrial Plants
- Refineries
- Commercial Buildings
- Chemical Plants
- Power Stations
- Municipal Buildings

*Swaby*  
SINCE 1893



SECTION	PAGE
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1910XA	
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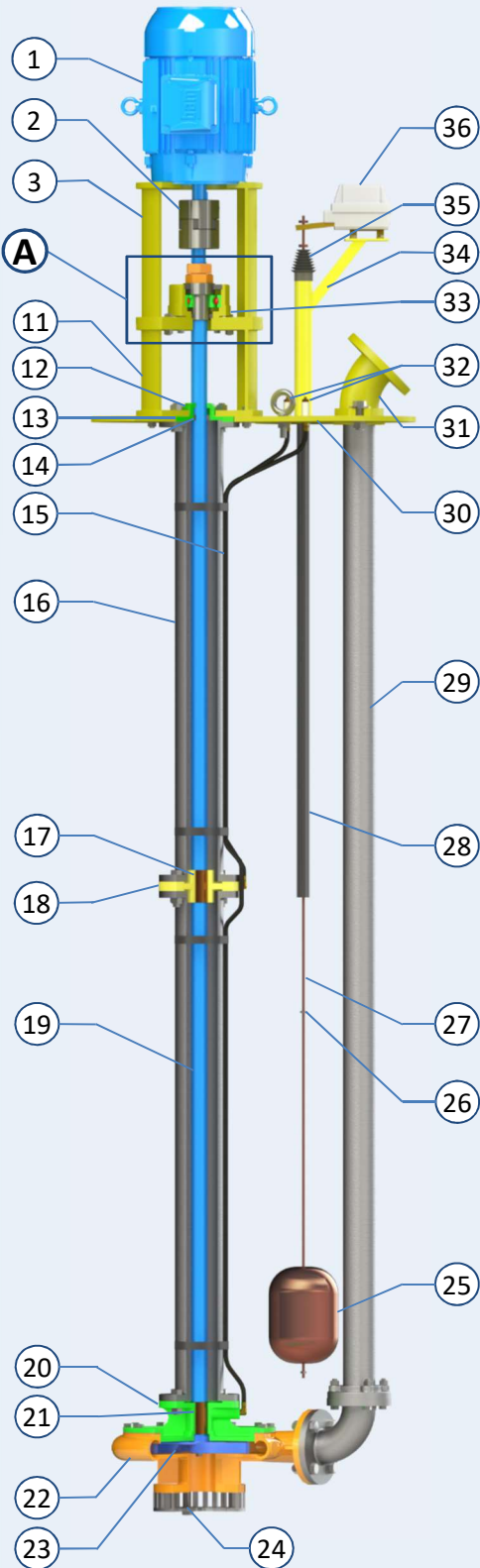
- 1 **Motor** – Highest quality, nationally known and serviced. Vertical, ball bearing type available in single phase, polyphaser and direct current electrical ratings and in drip-proof, totally-enclosed and explosion-proof construction.
- 2 **Motor Support Bracket** - Cast Iron. Machined to registered fit insuring perfect alignment of motor and pump shaft.
- 3 **Flexible Coupling** -Three piece jaw and cushion type, accurately machined, key-seated and balanced.
- 4 **Ball Thrust Bearing**- Mounted in dust sealed, moisture proof and grease lubricated housing, elevated 10" above pump plate. Carries thrust load and weight of impeller – shaft assembly. Bearing locknut and collar provide axial adjustment of pump shaft to restore proper impeller clearance when required.
- 5 **Float Switch** - U/L listed, two pole type, mounted on motor height pedestal to facilitate wiring. Available in NEMA 1 General Purpose, NEMA 4 Watertight and NEMA 7 Explosion-Proof Enclosures.
- 6 **Pump Plate** – Individual pump plate permits removal of entire unit without disturbing basin cover or second pump of a duplex set. Provided with hoisting eye for easy pump installation.
- 7 **Column** - Rigid, wrought steel, enclosing drive shaft. Tongue and groove construction for proper alignment.
- 8 **Shaft** – 316 St. St, special accuracy steel. Turned, ground and polished throughout its entire length. Shaft diameter is oversize to prevent deflection and provide smooth operation.
- 9 **Volute** – Close-grained cast iron of streamlined design, affords maximum strength and efficient performance.
- 10 **Impeller** - Accurately machined, balanced, board, keyseated and securely locked to shaft.
- 11 **Shaft Bearing Housings** – Replaceable bronze, accurately board for proper alignment and running clearances. Intermediate bearings , when required are spaced to prevent shaft vibration.
- 12 **Lubrication** – Exclusive Swaby "Transverse Flush" lubrication provided for ball thrust bearings. Clean lubricant purges contaminated grease through bearing and out bottom drain. Eliminates possibility of excessive lubrication. Individual grease lines extend from all radial bearings to central point above pump plate. Automatic solenoid oilers available.
- 13 **Float Switch Assembly** - Completely self contained unit can be withdrawn from opening in basin cover. Pedestal mounted float switch with protected brass float rod. Flexible, gas-tight bellows seal and sliding type float and adjustable stops.



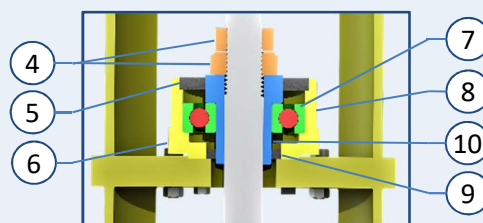
SWABY MANUFACTURING CO.  
CHICAGO ILLINOIS  
MANUFACTURERS OF CENTRIFUGAL PUMPS SINCE 1893

**"CASCADE SERIES"**  
**1910XA Parts List**

SECTION	PAGE
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Item	Description	Material		
1	Motor	Per Mfg.		
2	Flexible Coupling	Per Mfg.		
3	Upper Motor Bracket	Steel		
4	Adjustable Locknuts	Steel		
5	Grease Seal	Nitrile Rubber		
6	Alemite Grease Fitting	Steel		
7	Ball Thrust Bearing	Steel		
8	Bearing Housing	Cast Iron		
9	Grease Seal	Nitrile Rubber		
10	Adjustable Thrust Bearing Collar	Cast Iron		
11	Lower Motor Bracket	Steel		
12	Alemite Grease Fitting	Steel		
13	Shaft Seal Cartridge	CI Seal Cartridge w/ Seal   Packing Arrangement   Mechanical Seal		
14	Grease Seal	Nitrile Rubber		
15	Lubrication Tube	PVC		
16	Hanger Column	BSP Sch. 40	BSP Sch. 40	316 St. Sch. 40
17	Intermediate Bearing Sleeve	Bronze	Graphite Bronze	Teflon
18	Intermediate Bearing Housing	Cast Iron		
19	Shaft	High Carbon St.	316 St. St.	316 St. St.
20	Topside	Cast Iron		
21	Pump Bearing Sleeve	Bronze	Graphite Bronze	Teflon
22	Volute	Cast Iron		316 St. St.
23	Impeller	Cast Iron	Bronze	316 St. St.
24	Strainer	Cast Iron		316 St. St.
25	Float	Bronze		
26	Adjustable Float Rod Stops	Steel		
27	Float Rod	Bronze		
28	Float Rod Guide	Steel		
29	Discharge Pipe	BSP Sch. 40	BSP Sch. 40	316 St. Sch. 40
30	Pump Plate	Steel		
31	Discharge Elbow	Cast Iron		
32	Alemite Grease Fitting	Steel		
33	Grease Drain Plug	Steel		
34	Float Switch Pedestal	Steel		
35	Float Rod Seal	Nitrile Rubber		
36	Float Switch	Per Mfg.		



**A**



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## DUPLEX UNIT

A duplex set of pumps is recommended wherever possible. A duplex unit consists of 2 individual pumps and controls installed in a single sump basin. This arrangement provides a stand-by unit if one pump should become disabled, and also the added protection of double capacity for peak loads.

On duplex installations, each pump is sized for the normal load whereas a single unit requires a larger capacity to handle infrequent peak loads.

## HIGH WATER ALARM

A high water alarm is always recommended as a safety device. In the event of a power failure causing a dangerous high-water level, an alarm bell rings.

Equipment consists of diaphragm operated switch, transformer, alarm bell and compression piping.

Available with remote bell and transformer float switch operation and alarm bell silencer.

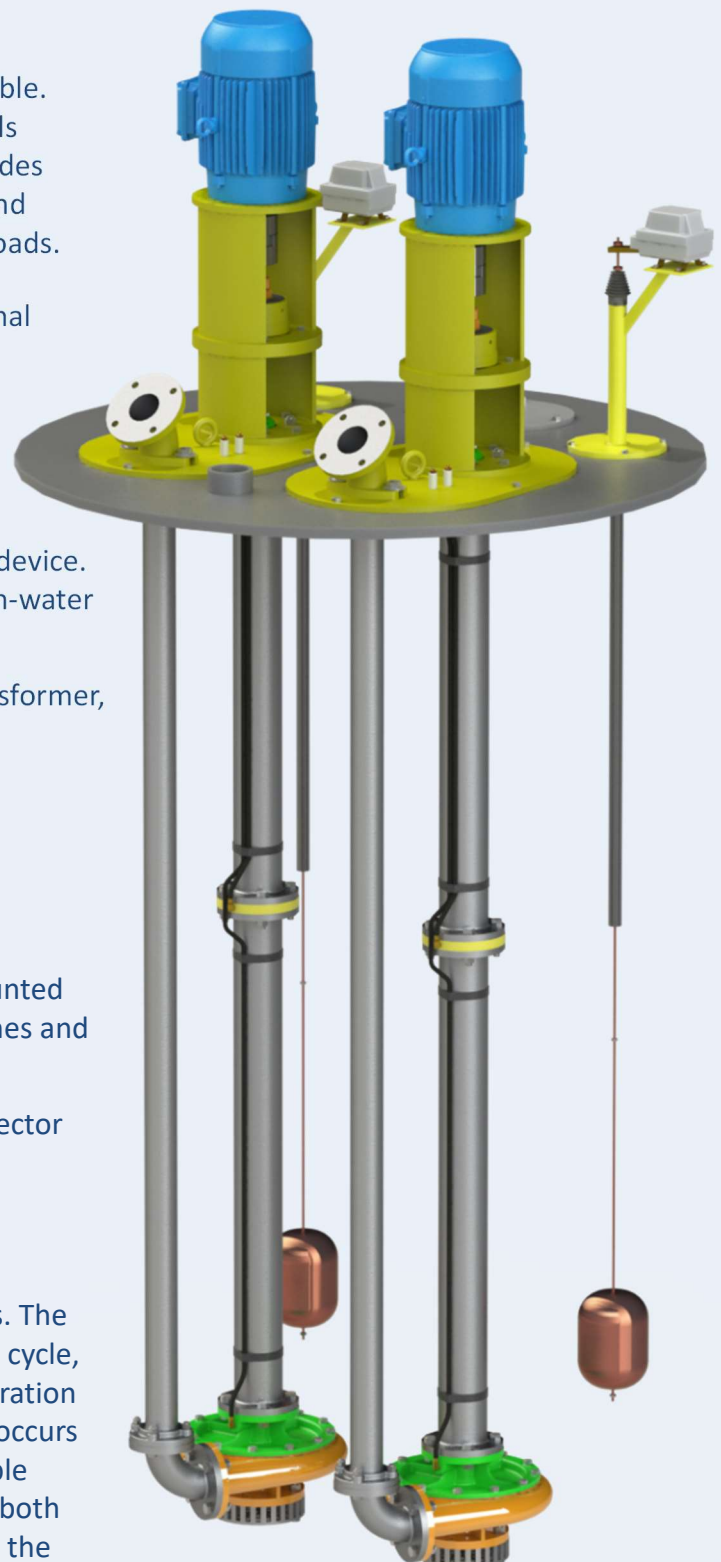
## MOTOR STARTERS

When furnished by us, magnetic motor starters are mounted on float switch pedestals for convenient wiring to switches and motors.

On duplex units, starters with hand - off – automatic selector switches are recommended.

## ALTERATOR OPERATION

An Alternator should be provided with all duplex pumps. The sequence of pumping operation is alternated after each cycle, thereby distributing wear and extending pump life. Operation is assured if driving motor or liquid level control failure occurs on operating pump since second unit then cuts in. Double capacity for peak loads is provided by a duplex set with both pumping units operating until a single pump can handle the load.



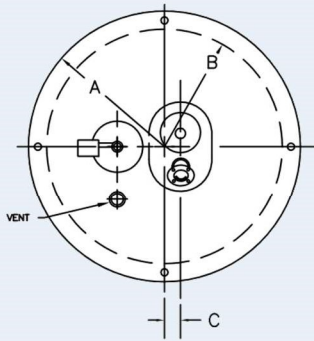
**Fig. 3.** – Duplex set of Bull. 1910XA Cascade pumps. Unit consists of two pumps, two motors , two starters and basin cover with manhole and vent



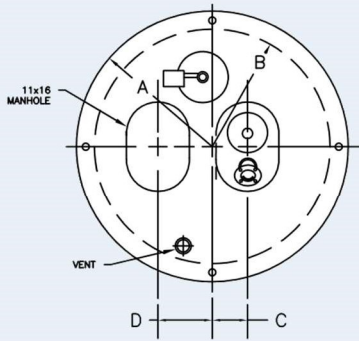
SWABY MANUFACTURING CO.  
CHICAGO ILLINOIS  
MANUFACTURERS OF CENTRIFUGAL PUMPS SINCE 1893

**"CASCADE SERIES"**  
**Min. Cover & Basin Dimensions –**  
**ROUND**

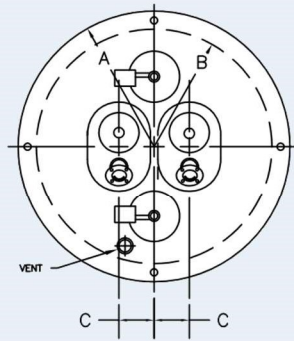
SECTION	PAGE
MODEL NO. 1910XA	ISSUED
REV:	KEY:



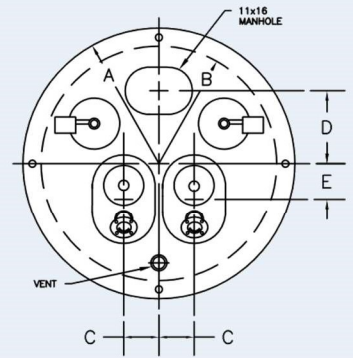
TYPE 1



TYPE 2



TYPE 3



TYPE 4

PUMP UNIT	TYPE 1			TYPE 2				TYPE 3			TYPE 4				
	A	B	C	A	B	C	D	A	B	C	A	B	C	D	E
1A	14	12	5	17	15	8	7½	20	18	10	23	21	10	15	5
1½A	14	12	5	17	15	8	7½	20	18	10	23	21	10	15	5
1½B	14	12	5	17	15	8	7½	20	18	10	23	21	10	15	5
1½C	14	12	5	17	15	8	7½	20	18	10	23	21	10	15	5
1½D	14	12	5	17	15	8	7½	20	18	10	23	21	10	15	5
2A	17	15	5	20	18	8	10	20	18	9½	23	21	9½	15	6
2B	14	12	4½	17	15	8	7½	20	18	11	23	21	10	15	7
2C	14	12	4½	17	15	8	7½	20	18	11	23	21	10	15	7
2½A	17	15	4	20	18	7	11	20	18	10	26	24	11	18	4½
3A	17	15	5	20	18	8	9	20	18	9	23	21	9	14	6
3B	17	15	4	20	18	7	11	23	21	11	26	24	11	18	6
3C	17	15	4	20	18	7	11	23	21	11	26	24	10	18	7
3D	17	15	4	20	18	7	11	23	21	11	26	24	10½	18	6
3E	20	18	4	20	18	7	11	26	24	13	30	28	13	22	6
4A	20	18	4	20	18	7	11	26	24	13	30	28	13	22	6
4B	20	18	4	23	21	7	14	26	24	12	30	28	14	22	5½
4C	23	21	–	23	21	6	14	30	28	13	30	28	12½	22	5
4D	17	15	4	20	18	7	11	23	21	11	26	24	9½	18	7
6A	26	24	–	26	24	6	17	38	36	17	38	36	16	29	7

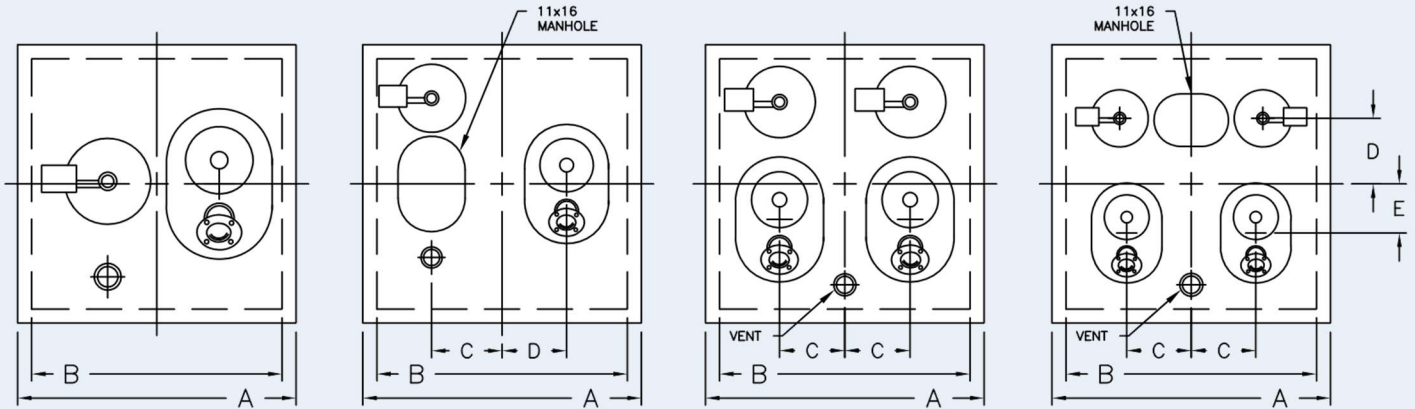
ALL DIMENSIONS IN INCHES



SWABY MANUFACTURING CO.  
CHICAGO ILLINOIS  
MANUFACTURERS OF CENTRIFUGAL PUMPS SINCE 1893

**"CASCADE SERIES"**  
**Min. Cover & Basin Dimensions –**  
**SQUARE**

SECTION	PAGE
MODEL NO.	ISSUED
1910XA	
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TYPE 1

TYPE 2

TYPE 3

TYPE 4

PUMP UNIT	TYPE 1		TYPE 2				TYPE 3			TYPE 4				
	A	B	A	B	C	D	A	B	C	A	B	C	D	E
1A	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
1 $\frac{1}{2}$ A	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
1 $\frac{1}{2}$ B	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
1 $\frac{1}{2}$ C	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
1 $\frac{1}{2}$ D	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
2A	34	30	34	30	9	7 $\frac{1}{2}$	40	36	10	40	36	10	12	7
2B	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
2C	28	24	34	30	9	7	34	30	8 $\frac{1}{4}$	40	36	9	12	7
2 $\frac{1}{2}$ A	28	24	34	30	9	7 $\frac{1}{2}$	40	36	10	46	42	10	14	7
3A	28	24	34	30	9	7 $\frac{1}{2}$	40	36	9 $\frac{1}{2}$	40	36	9 $\frac{1}{2}$	12	7
3B	34	30	34	30	9 $\frac{1}{2}$	7	40	36	10	46	42	11	14	7
3C	34	30	34	30	9 $\frac{1}{2}$	7	40	36	10	46	42	11	14	7
3D	34	30	40	36	11	7	46	42	11	46	42	11	15	6
3E	34	30	40	36	11	7	46	42	11	52	48	12	17	7
4A	34	30	40	36	11	7	46	42	11	52	48	12	17	7
4B	40	36	40	36	11	8	52	48	12	52	48	12	17 $\frac{1}{2}$	5
4C	40	36	40	36	12	7 $\frac{1}{2}$	52	48	12	52	48	12 $\frac{1}{2}$	18	6
4F	34	30	34	30	9 $\frac{1}{2}$	7	40	36	10	46	42	11	14	7
6A	46	42	46	42	15 $\frac{1}{2}$	7	64	60	15 $\frac{1}{2}$	64	60	15 $\frac{1}{2}$	22	7 $\frac{1}{2}$

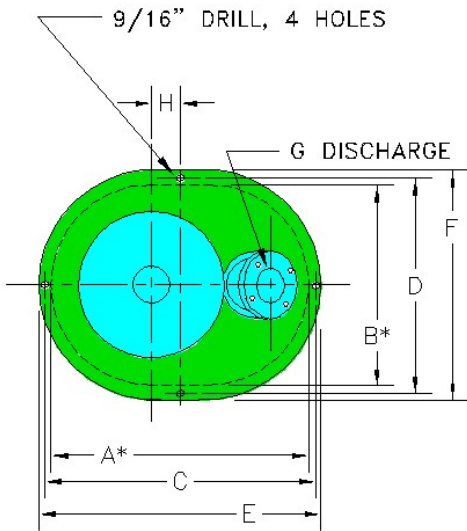
ALL DIMENSIONS IN INCHES



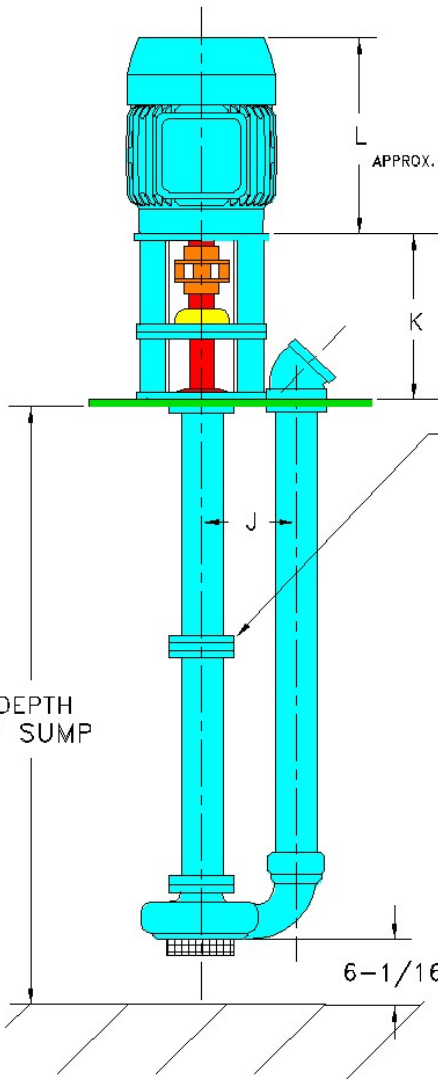
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**CHICAGO ILLINOIS**  
 MANUFACTURERS OF CENTRIFUGAL PUMPS SINCE 1893

**"CASCADE SERIES"**  
**1910XA Application Sheet**

SECTION	PAGE
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UNIT	A*	B*	C	D	E	F	G	H	J
1A	17	13	18½	14½	20	16	1	2	7½
1½A	17	13	18½	14½	20	16	1½	2	7½
1½B	17	13	18½	14½	20	16	1½	3	9
1½C	17	13	18½	14½	20	16	1½	3	9
1½D	17	13	18½	14½	20	16	1½	3	8¾
2A	20	15	21½	16½	23	18	2	3½	10½
2B	19	13	20½	14½	22	16	2	4	10¾
2C	19	13	20½	14½	22	16	2	4	10½
2½A	23	14	24½	15½	26	17	2½	4½	12¾
3A	20	14	21½	15½	23	17	3	3	9½
3B	24	15	25½	16½	27	18	3	4½	12¾
3C	26	15	27½	16½	29	18	3	5½	14
3D	27	17	28½	18½	30	20	3	5	14¾
3E	30	18	31½	19½	33	21	3	6	15¾
4A	30	18	31½	19½	33	21	4	6	16¾
4B	31	20	32½	21½	34	23	4	7	16¾
4C	35	21	36½	22½	38	24	4	7	19¾
4F	26	14	27½	15½	29	17	4	4¾	15¾
6A	42	27	43½	28½	45	30	6	9½	23¾



NO. OF INTERMEDIATE BEARINGS FOR D.O.S.:  
 0' - 5' = 0  
 6' - 9' = 1  
 10' - 13' = 2

\_\_\_\_\_ GPM @ \_\_\_\_\_ TDH  
 \_\_\_\_\_ H.P. \_\_\_\_\_ RPM  
 \_\_\_\_\_ VOL. \_\_\_\_\_ PHASE  
 \_\_\_\_\_ FRAME \_\_\_\_\_ ENC.

MOTOR FRAME	L	K
56C	9¼	17¾
143TC	10½	17¾
145TC	11¼	17¾
182TC	13½	20¾
184TC	13¾	20¾
213TC	14¾	20¾
215TC	16¼	20¾
254TC	19¼	20¾
256TC	21	20¾
284TC	22¼	20¾
286TC	23¾	20¾

\*MINIMUM OPENING THROUGH WHICH PUMPS CAN BE INSERTED

ALL DIMENSIONS IN INCHES

NOT TO BE USED FOR CONSTRUCTION