

# Wilfley

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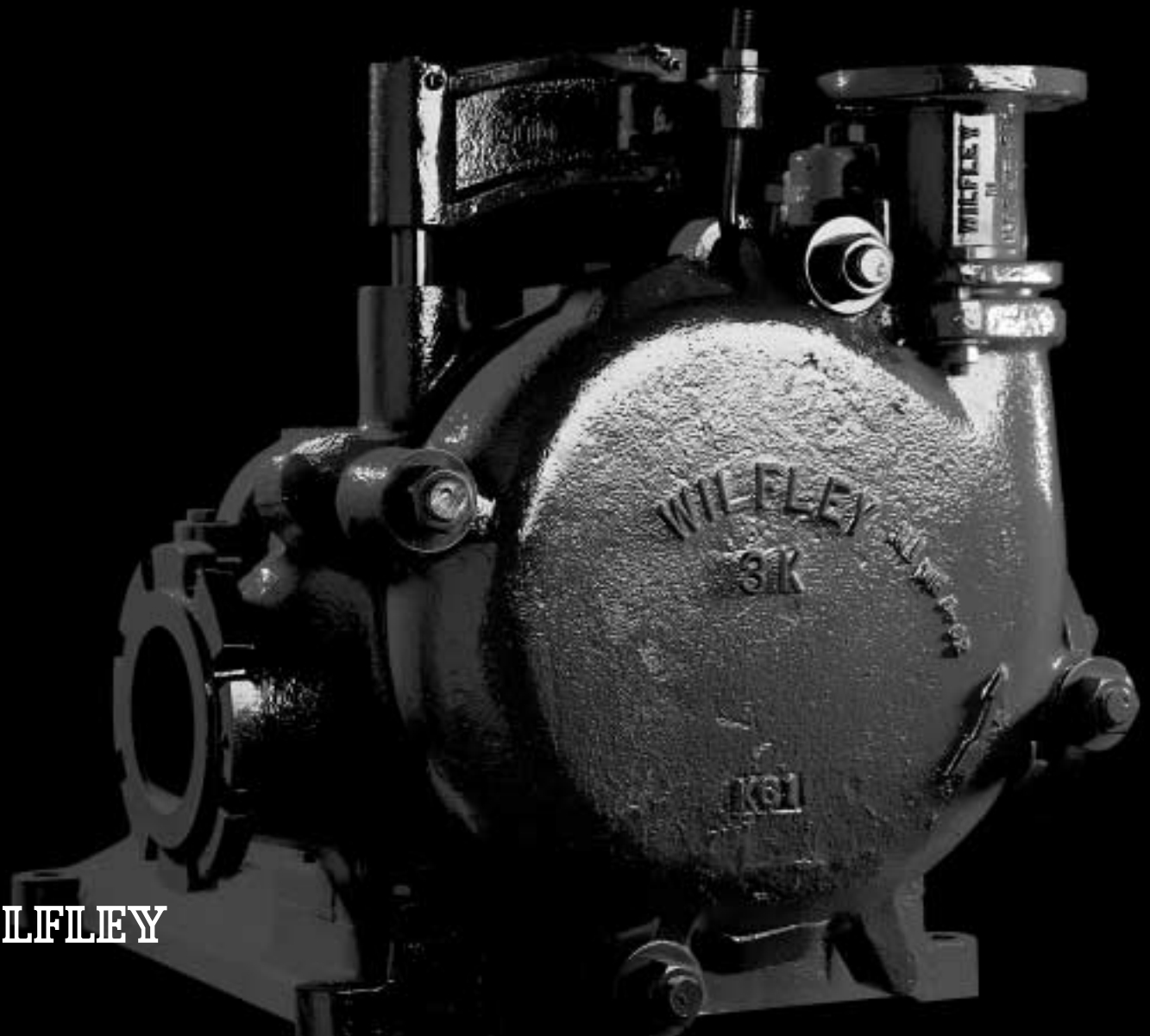
## Technical Handbook

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Centrifugal  
Slurry  
Pump

Model **K**

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**WILFLEY**

# Wilfley Model K Pumps

## A Slurry Pump for the Most Abrasive Slurries

- Single stage
- Side suction
- Horizontal
- To 12" discharge

## Sealess Design

The Wilfley Expeller

- No water gland, pump or piping
- No mechanical seals
- No air pressure
- No stuffing box

## A Wilfley Can Run Dry because there is no Rubbing Contact while Running

- No dilution
- No contamination
- No leaking while running

Wilfleys are sealed by hydraulic pressure while running. This centrifugal seal is created by the expeller which was developed more than 80 years ago. Wear is minimized on the Wilfley expeller because it operates against suction pressure only.

## Leakless at Shutdown

The Wilfley Check Valve

- Long wear life
- Low cost
- Reliable
- Easily cleaned

When the K is shut down, the check valve seals against the short cylinder head.

## Maintenance

The Wilfley Design Advantage

- Quick change wear parts
- Dual Side intake

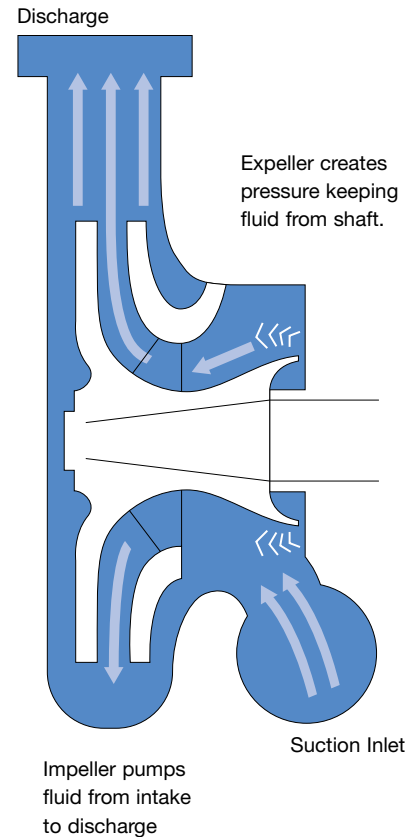
Maintenance is a major consideration in the development of all Wilfley Pumps. All moving parts in the K can be changed without disturbing the suction or discharge piping.

## Service-Support

Wilfley Integrity

- Large replacement inventory
- Engineering assistance for the life of the pump
- Quality craftsmanship

A.R. Wilfley & Sons has always produced the finest sealess centrifugal pumps. Wilfley is committed to quality, durability and customer satisfaction. Wilfley still sells parts for and services pumps that have been in continuous service for more than 80 years. It is a tradition at Wilfley. The Wilfley K continues the legacy that is A.R. Wilfley & Sons.



## General Installation Recommendations

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### **This list will help establish specific pumping conditions.**

- Solution
- Temperature
- Static Head
- Discharge Pipe Size
- Length, Discharge Pipe
- Discharge Pipe Fittings
- Equivalent Length Discharge Pipe
- Total Head
- Maximum Suction Pressure
- Minimum Suction Pressure
- Capacity—GPM
- Specific Gravity
- % Solids by Weight
- Maximum Size of Solid Particles
- Mesh Analysis
- Electrical Characteristics
- Viscosity

### **Choosing Pump Location**

The following recommendations may be helpful when choosing the best location for your pump.

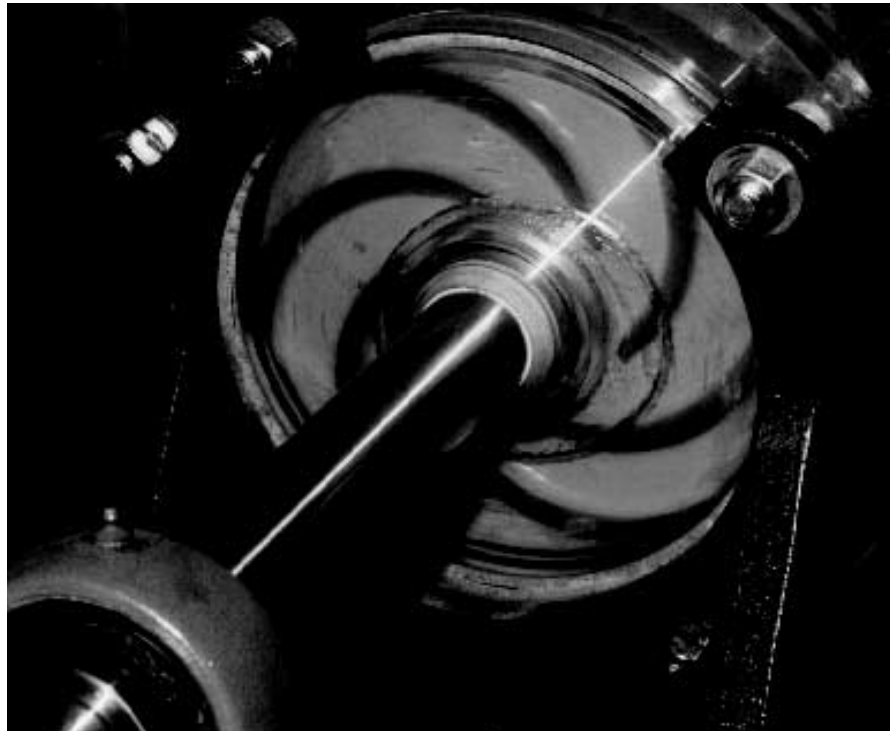
- a. Locate the pump as close to the liquid source as practical so that the suction pipe is short and direct with a minimum of elbows, fittings and valves
- b. Place the pump in a location so that the unit is accessible for inspection during operation as well as for maintenance operations involving removal and disassembly.

### **Foundation**

The foundation should be sufficiently substantial to absorb any vibration and to form a permanent, rigid support. A concrete foundation on a solid base is satisfactory. Foundation bolts of the proper size should be embedded in the concrete located by the outline drawing.

### **Alignment**

The pump and motor are aligned at the factory before shipment. Realignment may be necessary after the complete unit has been leveled on the foundation and after the foundation bolts have been tightened. Explicit directions for checking and aligning the pump components may be found in the Hydraulic Institute Standards.



Wilfley hydraulic seal in actual operation.

## Features and Components

This closed type impeller with extra thick shrouds and vanes is available in standard port design or wide port design for viscous, frothy, or large particle slurries. The unique design helps to maintain excellent performance characteristics throughout its wear life.

Crane assembly (not illustrated) allows the case to be opened or removed quickly without using separate lifting equipment. (available in sizes 3" through 8")

The extra heavy wall thickness and special volute design extends wear life.

The impeller bolt functions both as a shear pin and to hold the impeller against the taper of the shaft.

The integrated bell-shaped expeller provides a positive hydraulic leakage sealing arrangement eliminating maintenance associated with packing, water glands, or mechanical seals.

The heavy section follower plate can be rotated to prolong wear life.

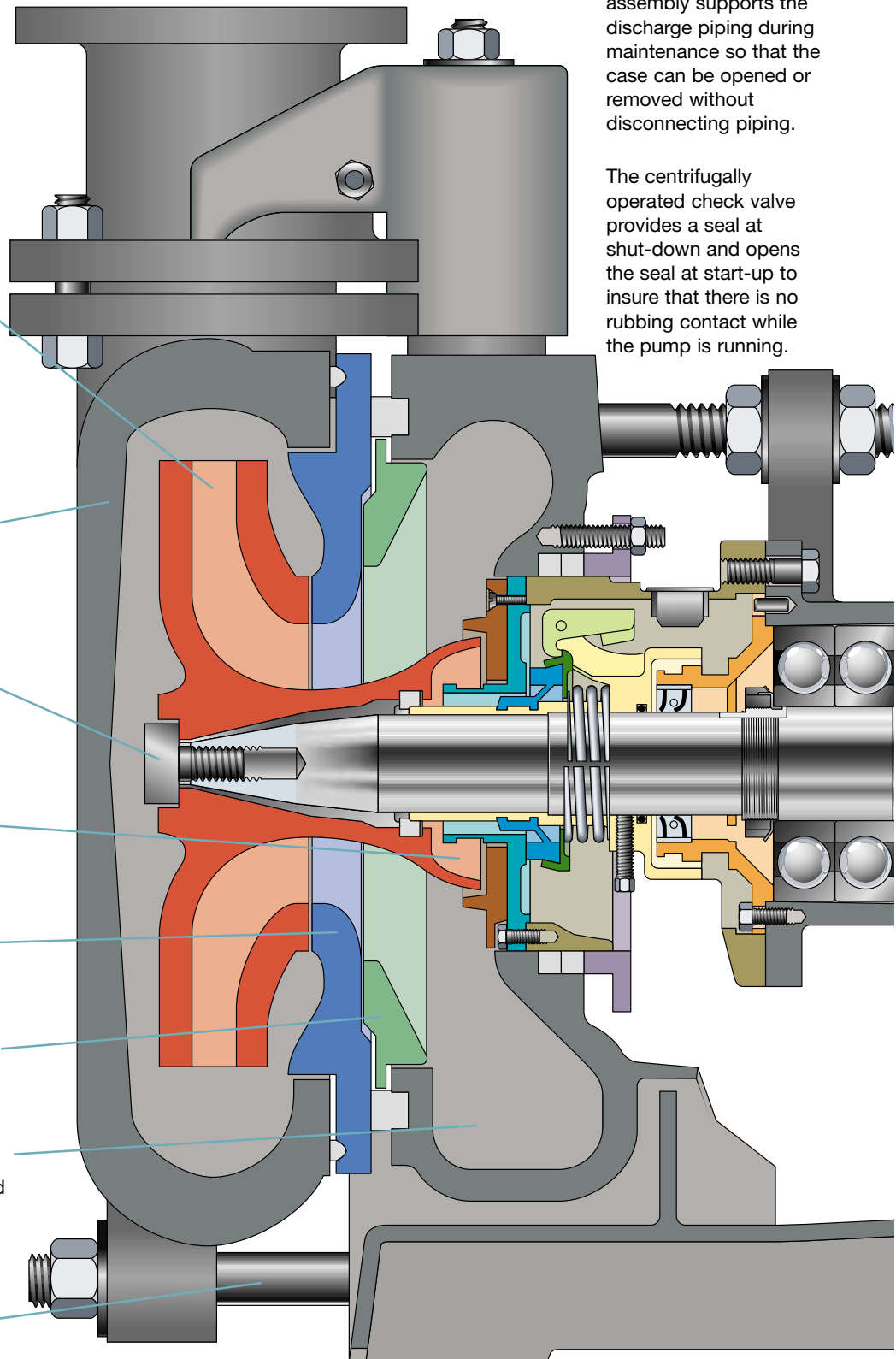
The frame protecting ring is made of abrasion resistant material to protect the inlet chamber from excessive wear.

The rear inlet design allows for removal of the case without disturbing piping, reduces surging, controls pre-whirl, and can be vented for froth applications.

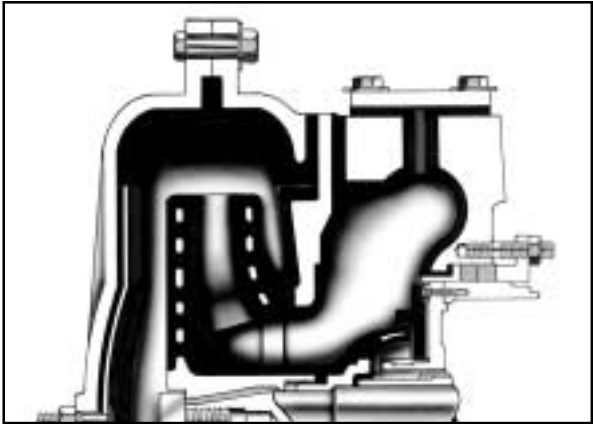
The case bolts are extra large so that fewer are required. Each nut is conveniently located for quick disassembly.

The discharge keeper assembly supports the discharge piping during maintenance so that the case can be opened or removed without disconnecting piping.

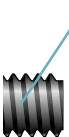
The centrifugally operated check valve provides a seal at shut-down and opens the seal at start-up to insure that there is no rubbing contact while the pump is running.



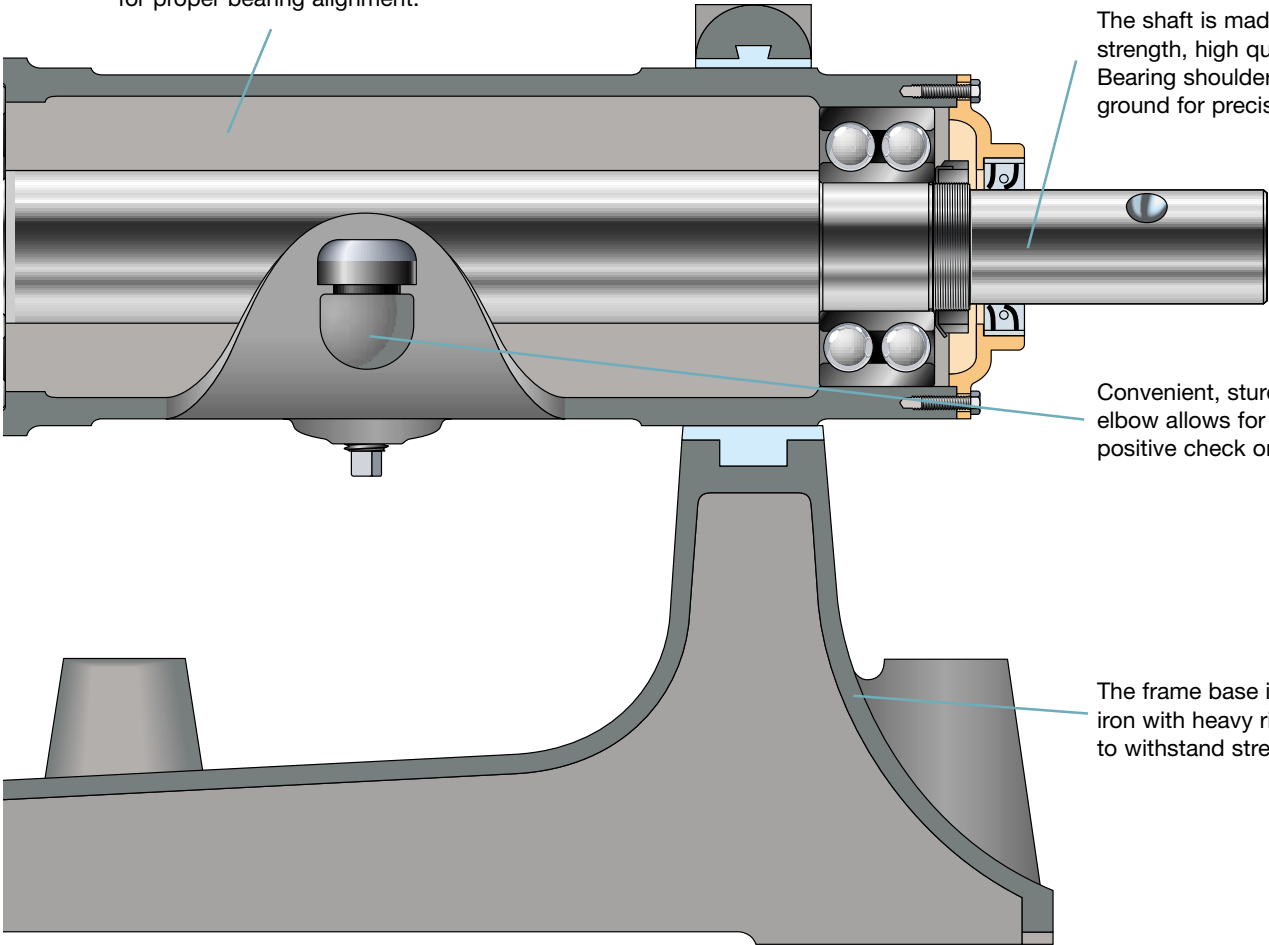
**Rubber Lined Intake Chamber optional**



The draw bolt is provided to adjust for wear to maintain peak pump performance.



The long cylinder has a large oil reservoir for superior bearing lubrication. Bearing bores are machined to precise concentricity for proper bearing alignment.



The shaft is made of extra strength, high quality steel. Bearing shoulder diameters are ground for precision bearing fits.

Convenient, sturdy oil filler elbow allows for simple positive check on oil level.

The frame base is made of cast iron with heavy rib reinforcement to withstand stresses.

## Maintenance Features

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### 1. Impeller Seal Face Adjustment - to maintain efficiency

One of the losses in a centrifugal pump is the re-circulation of the pumpage in the pump case back into the suction of the impeller. The amount of re-circulation depends upon the clearance between the impeller and the follower plate. On the Wilfley Model K pump a MINIMUM clearance is maintained by a simple adjustment. This Wilfley feature is appreciated by all operators because it eliminates the need for increasing the pump speed, adding makeup water, early replacement of pump parts and other methods of maintaining efficiency.



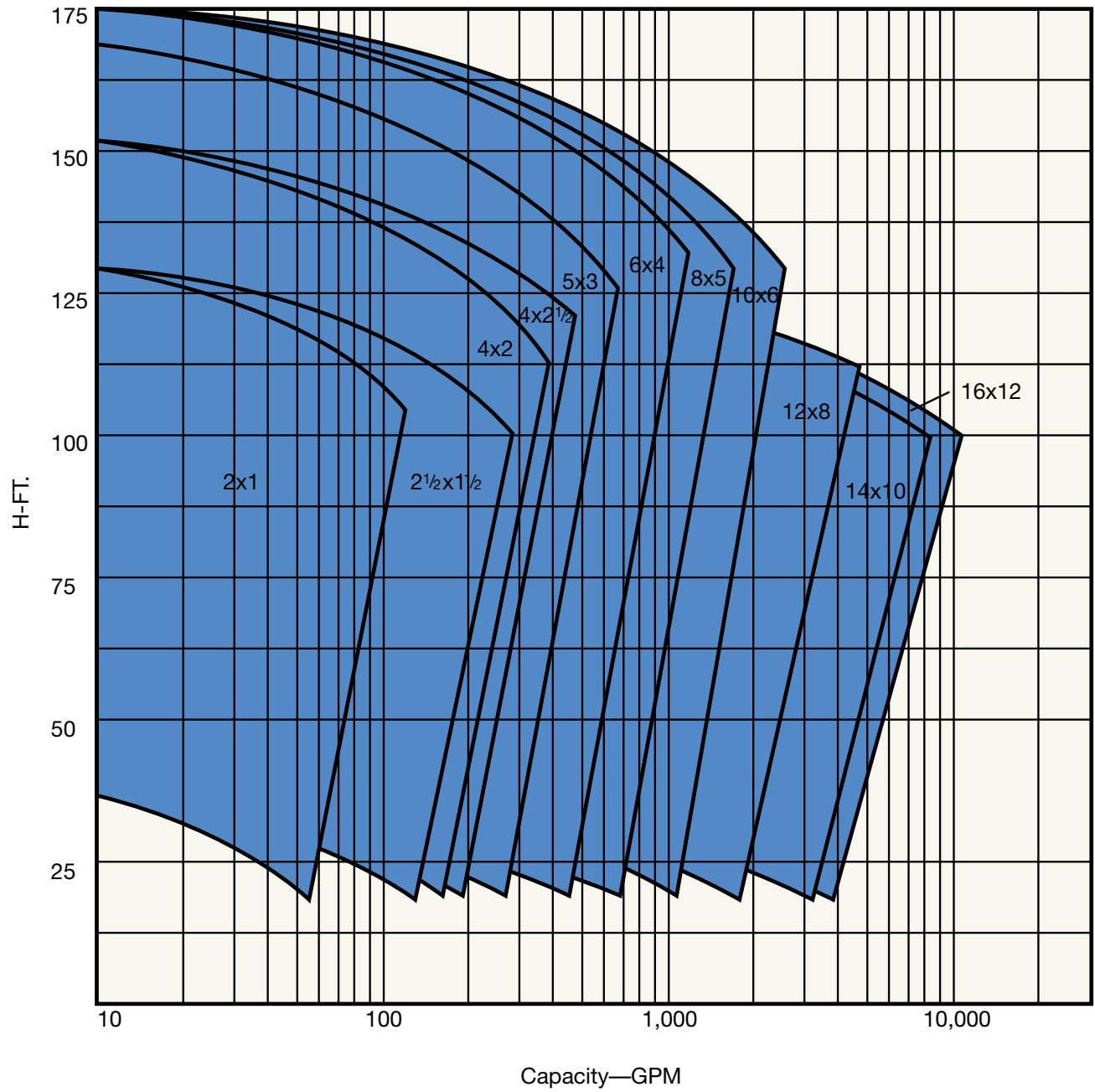
### 2. Quick Change out of Wear Parts - to minimize down time

The five key wear parts – case, impeller, follower plate, frame protecting ring and die ring – can be changed within a few minutes without disturbing the suction or discharge piping. This quick change is made possible by the case crane (available on sizes 3"-8"), discharge keeper, the use of only four case bolts, and the manner in which the impeller is attached to the shaft. This exclusive Wilfley feature saves valuable time and manpower over other solids handling pumps that may require hours to make accomplish such required maintenance.



# K Pump Capacities

Model K 2" x 1" through 12" x 8"  
Model L 14" x 10" through 16" x 12"



## General Characteristics

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Model K pumps are available in discharge sizes ranging from 1" to 12". Cram arm assemblies that support the case during maintenance are available in discharge sizes 3" to 8". Larger pumps, designate model L use support base to slide the case away from the pump. Special pump configurations are available for high suction head and extreme horsepower services. Each pump is engineered to match service and system requirements.

### Special Modifications

We are equipped to modify pumps that are used for special services. Such things as flush ports, special lubrication systems and special drain plugs are common. We will also engineer modifications required to fit your specific installation.

We provide engineering modifications for related pumping problems such as maintenance and installation. Many applications require specific motor

and drive configurations as well as base plates and mounting brackets. We will design and produce these items to your specifications and satisfaction. We also have the capability to supply pumps with a number of exotic corrosion resistant paints.

### Materials of Construction

A.R. Wilfley & Sons produces model K pumps in a variety of hard irons and stainless steels including proprietary alloys specially developed to stand up to the difficult erosive-corrosive conditions found in slurry services.

Wilfley Model K pumps are also available in natural rubber, synthetic elastimers and urethane.

Wear in a slurry pump is a complex process. It is a function of:

- The size and concentration of the solid particles
- The shape and hardness of the solid particles
- Temperature
- PH level

This type of wear involves sliding and impact erosion in conjunction with corrosion. This combination intensifies the effects of each individual type of wear. Material hardness, fracture toughness and corrosion resistance must be properly balanced to provide reasonable wear resistance. A.R. Wilfley & Sons developed proprietary alloys that optimize this balance for pumping conditions where standard alloys were not adequate. Maxalloy 5 and Maxalloy 8 are two proprietary alloys that significantly surpass traditional white iron and NiHard in corrosion, erosion and corrosion-erosion services.

A.R. Wilfley & Sons has over 80 years of experience designing, manufacturing and applying slurry pumps and can provide the expertise to assist in selection of pumps and materials for a wide variety of difficult services.

Material	Hardness HBN	Tensile Strength (psi)	Fracture Toughness (psi)	Application Range (pH)
White iron	400-600	45,000	12,000	5 – 8
NiHard 4	620-670	80,000	22,000	4.5 – 8.5
Maxalloy 5	580-720	80,000	30,000	3.6 – 9.5
Maxalloy 8	415-520	90,000	20,000	1.3 – 12.2

## Pump Weights and Sump Dimensions

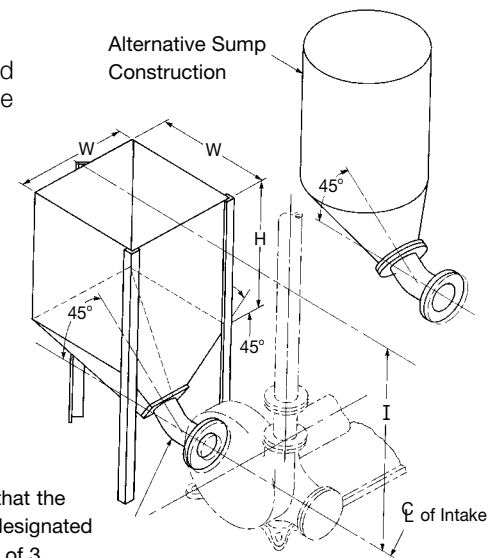
Complete Metal Pumps												
Pump Size	Approximate Shipping Weight in Pounds											
	1	1½	2	2½	3	4	5	6	8	10	12	14
Bare Pump	430	450	680	690	1030	1675	2150	2550	4150	6320	7900	9875
Direct Driven Pump with base plate and flexible coupling	640	665	1060	1060	1350	2120	2600	3350	5450	8230	10290	12860
Overhead V-Belt Driven Pump with Fixture (Less Sheeves & Belts)	700	720	950	960	1300	2185	2820	3140	4850	7420	9275	11600

### Intake Sump

It is desirable to feed the Wilfley pump by means of sump tank or feed box placed as close to the pump as possible. Recommended sump sizes are given below. When the feed to the pump is increased or decreased, the material in the sump simply seeks a higher or lower level, respectively. Hopper bottom sumps are much more satisfactory than flat bottom sumps. A sloping pipe from the intake sump into the pump is particularly desirable when handling materials that settle quickly, such as concentrates and coarse sands, or when the quantity is small for the size of intake pipe and pump. Long suction pipes require sufficient velocity in the pipe to prevent setting.

### Suction Piping

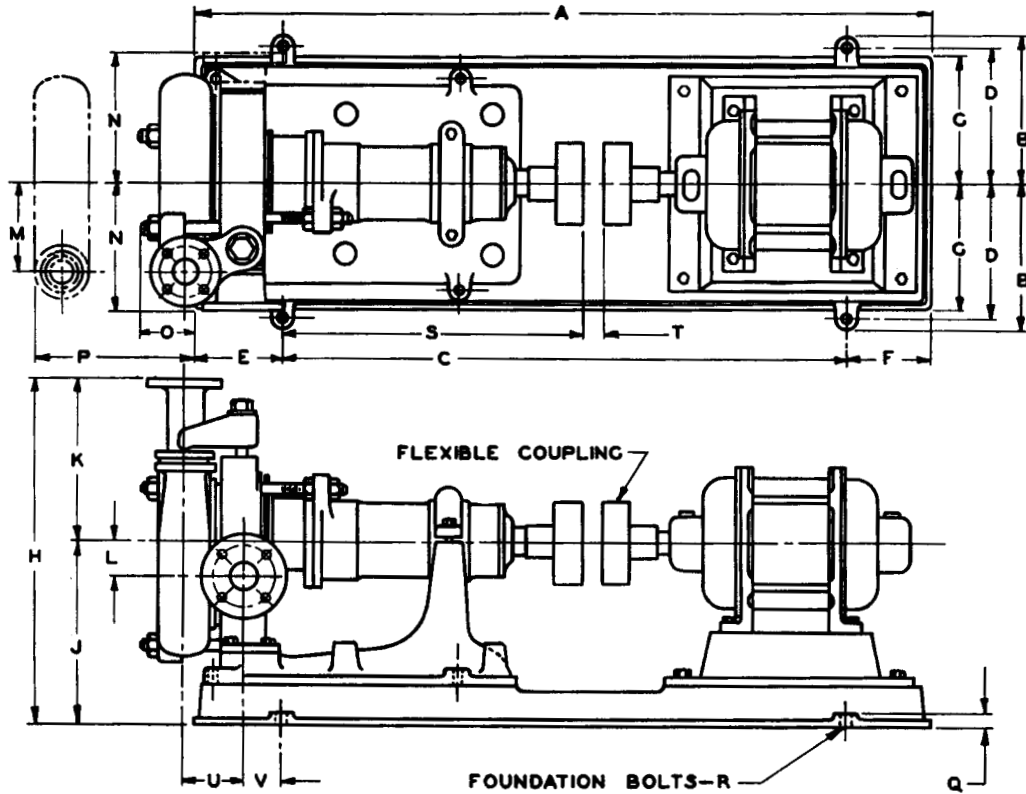
Suction pipe may be connected to either or both sides of the pump and need not be disturbed to change the pumping parts or bearing unit.



It is preferred that the sump tank is designated for a minimum of 3 minutes restriction time.

Sump Dimensions											
Pump Size	1" & 1½"	2" & 2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"
W—Inches	18	24	30	36	48 42 Min.	60 48 Min.	72 60 Min.	84 75 Min.	132 120 Min.	150	190
H—Inches	36	36	42	48	54	66	72	84 75 Min.	84 75 Min.	96	108
I—Inches	46	57	68	79	96 90 Min.	118 106 Min.	135 123 Min.	166 150 Min.	166 150 Min.	192	210

# Direct Driven



Dimensions in Inches																							
Size	Discharge	Suction	A	B	C	D	E	F	G	*H	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	1	2	59	11 <sup>1</sup> / <sub>4</sub>	37	10	11	11	9 <sup>3</sup> / <sub>8</sub>	24	13	11	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>4</sub>	2	7 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	<sup>3</sup> / <sub>4</sub>	22 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	4 <sup>11</sup> / <sub>16</sub>	4 <sup>13</sup> / <sub>16</sub>
1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	59	11 <sup>1</sup> / <sub>4</sub>	37	10	11	11	9 <sup>3</sup> / <sub>8</sub>	24	13	11	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	2	7 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	<sup>3</sup> / <sub>4</sub>	22 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	4 <sup>13</sup> / <sub>16</sub>	4 <sup>13</sup> / <sub>16</sub>
2	2	4	65 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>8</sub>	42 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	12	10 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>2</sub>	15	13 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	<sup>3</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	5 <sup>7</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	4	65 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>8</sub>	42 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	12	10 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	28 <sup>5</sup> / <sub>8</sub>	15	13 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	<sup>3</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	5 <sup>11</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>16</sub>
3	3	5	67	14 <sup>5</sup> / <sub>8</sub>	42 <sup>3</sup> / <sub>4</sub>	13 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	12	13 <sup>1</sup> / <sub>8</sub>	31	16 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>8</sub>	13 <sup>7</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	<sup>3</sup> / <sub>4</sub>	23 <sup>15</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>	5 <sup>13</sup> / <sub>16</sub>
4	4	6	80 <sup>1</sup> / <sub>2</sub>	15 <sup>7</sup> / <sub>8</sub>	46 <sup>1</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>2</sub>	16	18 <sup>1</sup> / <sub>4</sub>	14 <sup>1</sup> / <sub>8</sub>	40	20 <sup>3</sup> / <sub>8</sub>	19 <sup>5</sup> / <sub>8</sub>	5	9 <sup>3</sup> / <sub>4</sub>	15	6 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>	1 <sup>7</sup> / <sub>8</sub>	<sup>3</sup> / <sub>4</sub>	27 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	8
5	5	8	91	17 <sup>1</sup> / <sub>2</sub>	63	16	14	14	15 <sup>3</sup> / <sub>8</sub>	43 <sup>3</sup> / <sub>8</sub>	22	21 <sup>3</sup> / <sub>8</sub>	8	11 <sup>3</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	20	1 <sup>1</sup> / <sub>2</sub>	<sup>7</sup> / <sub>8</sub>	34	1 <sup>3</sup> / <sub>4</sub>	10 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>
6	6	10	93 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>2</sub>	61	17	16 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>4</sub>	16 <sup>5</sup> / <sub>8</sub>	55 <sup>3</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	31 <sup>**</sup>	5 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>4</sub>	18 <sup>7</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	17 <sup>1</sup> / <sub>4</sub>	1 <sup>7</sup> / <sub>8</sub>	<sup>7</sup> / <sub>8</sub>	37 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>
8	8	12	114	24	76 <sup>3</sup> / <sub>4</sub>	22 <sup>3</sup> / <sub>8</sub>	24 <sup>3</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>	21 <sup>5</sup> / <sub>8</sub>	62 <sup>7</sup> / <sub>8</sub>	28 <sup>1</sup> / <sub>4</sub>	34 <sup>5</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>4</sub>	20	9 <sup>1</sup> / <sub>4</sub>	22	2 <sup>1</sup> / <sub>4</sub>	<sup>7</sup> / <sub>8</sub>	37 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>4</sub>

Dimension P is the minimum clearance for removing wearing parts. Provide ample clearance at this point for removing the wearing parts as they are very heavy.

Dimension K is distance from center of pump to outside of discharge sleeve.

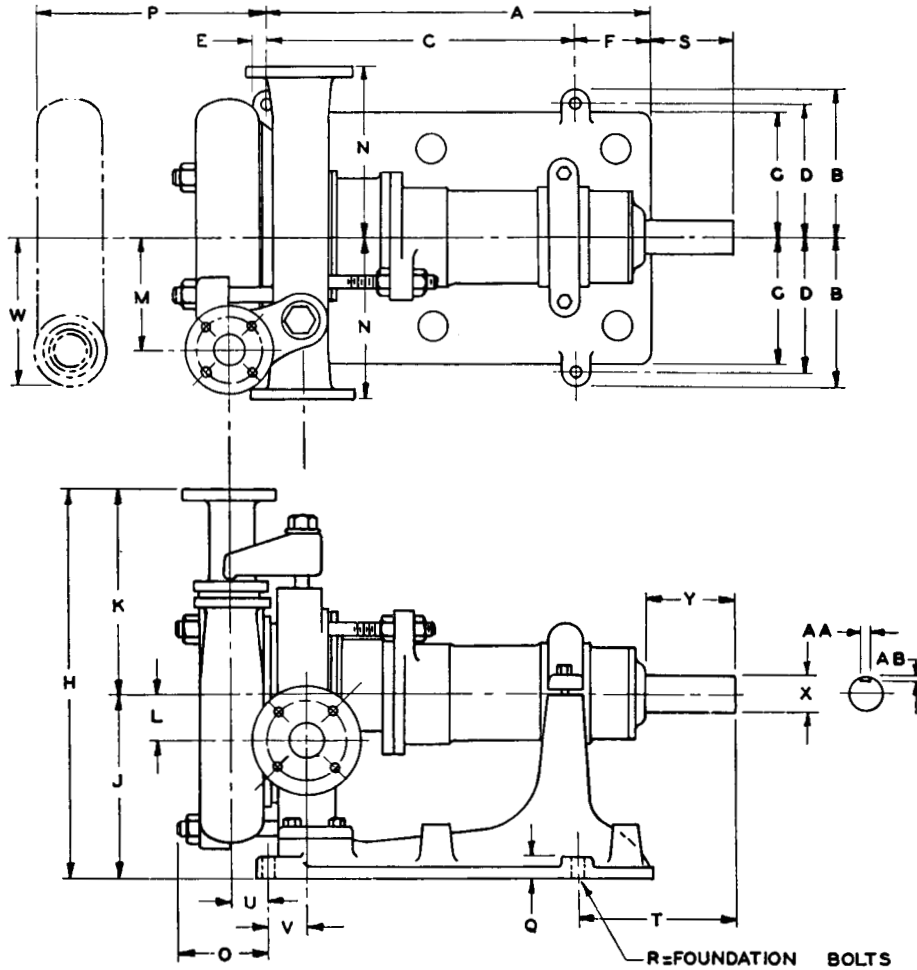
Dimension N is distance from center of pump to outside of suction flange. the feed may be from either side.

Use 1 1/2" pipe sleeves around foundation bolts and allow 1/2" for grouting. Place valves in suction and discharge lines near pump. The suction line should be short, free from elbows if possible, and sloping when heavy materials or large particles are to be pumped.

\*Dimension H is the maximum height of the pump.

\*\*Rubber pump 22

# Bare Pump



Dimensions in Inches																												
Size	Discharge	Suction	A	B	C	D	E	F	G	*H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	AA	AB
1	1	2	28 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	7	1 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	21	10	11	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>	9	1 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	7	1 <sup>1</sup> / <sub>8</sub>	3 <sup>9</sup> / <sub>16</sub>	7	1 <sup>7</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>
1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	7	1 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	21	10	11	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>	9	1 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	7	1 <sup>1</sup> / <sub>4</sub>	3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub>	1 <sup>7</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>
2	2	4	30 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>8</sub>	8	25 <sup>1</sup> / <sub>8</sub>	11 <sup>9</sup> / <sub>32</sub>	13 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	11	1 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	8 <sup>7</sup> / <sub>8</sub>	1 <sup>11</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	4	30 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>8</sub>	8	25 <sup>1</sup> / <sub>8</sub>	11 <sup>9</sup> / <sub>32</sub>	13 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	11	1 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	2 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	1 <sup>11</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>
3	3	5	29 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	26 <sup>7</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	27 <sup>1</sup> / <sub>2</sub>	12 <sup>3</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	8	15 <sup>1</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	3 <sup>15</sup> / <sub>16</sub>	6 <sup>11</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	3 <sup>13</sup> / <sub>16</sub>	11 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>4</sub>
4	4	6	32 <sup>1</sup> / <sub>4</sub>	12 <sup>9</sup> / <sub>16</sub>	26	11 <sup>9</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	10 <sup>7</sup> / <sub>8</sub>	35 <sup>1</sup> / <sub>2</sub>	15 <sup>7</sup> / <sub>8</sub>	19 <sup>5</sup> / <sub>8</sub>	5	9 <sup>3</sup> / <sub>4</sub>	15	8 <sup>3</sup> / <sub>4</sub>	15	2 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	9	15 <sup>1</sup> / <sub>4</sub>	4	5 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	6 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>4</sub>
5	5	8	36	14	30	12 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	6	12	39 <sup>3</sup> / <sub>8</sub>	18	21 <sup>3</sup> / <sub>8</sub>	8	11 <sup>3</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>2</sub>	8	23	2	7 <sup>7</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>4</sub>	15 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>2</sub>	16 <sup>3</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>16</sub>
6	6	10	40 <sup>1</sup> / <sub>2</sub>	15	35 <sup>1</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	50 <sup>3</sup> / <sub>4</sub>	18 <sup>3</sup> / <sub>4</sub>	31 <sup>**</sup>	5 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>4</sub>	18 <sup>7</sup> / <sub>8</sub>	9	19	2 <sup>1</sup> / <sub>4</sub>	7 <sup>7</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>8</sub>	16 <sup>7</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>16</sub>
8	8	12	48 <sup>3</sup> / <sub>4</sub>	20	40	18 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	17 <sup>1</sup> / <sub>4</sub>	56 <sup>5</sup> / <sub>8</sub>	22	34 <sup>5</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>4</sub>	20	12 <sup>1</sup> / <sub>4</sub>	25	3	7 <sup>7</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	19 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	19 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>16</sub>	8 <sup>5</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>

Dimension P is the minimum clearance for removing wearing parts. Provide ample clearance at this point for removing the wearing parts as they are very heavy.

Dimension K is distance from center of pump to outside of discharge sleeve.

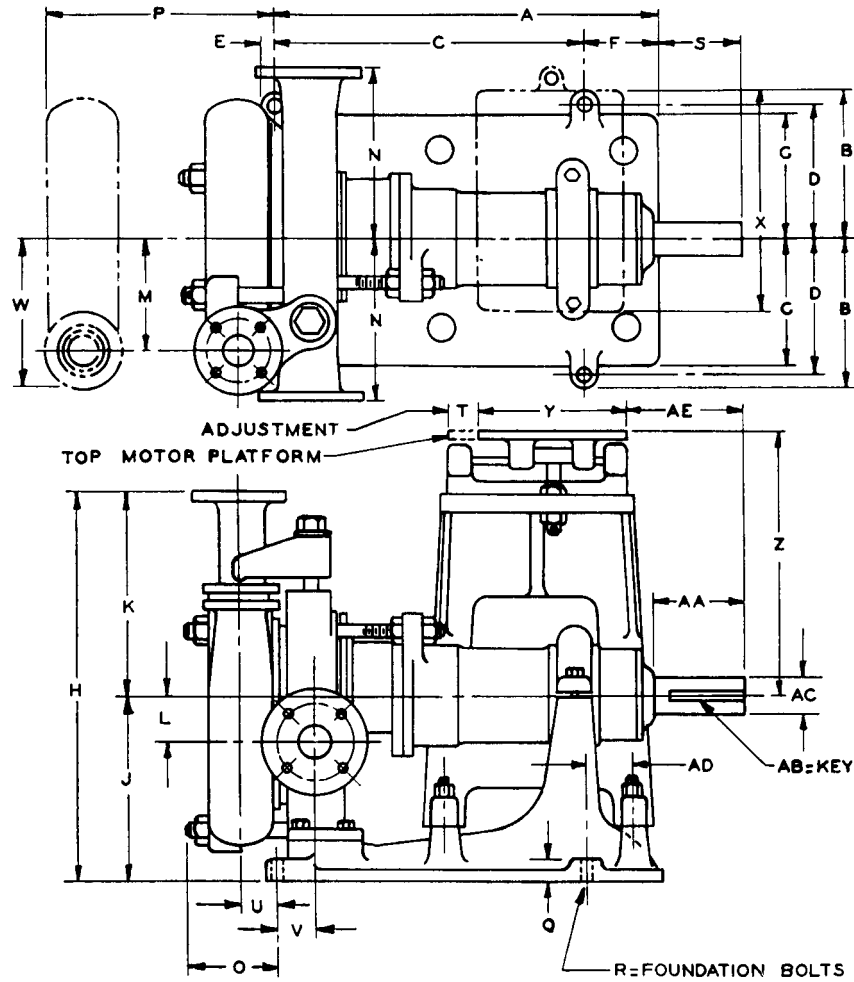
Dimension N is distance from center of pump to outside of suction flange. the feed may be from either side.

Use 1 1/2" pipe sleeves around foundation bolts and allow 1/2" for grouting. Place valves in suction and discharge lines near pump. The suction line should be short, free from elbows if possible, and sloping when heavy materials or large particles are to be pumped.

\*Dimension H is the maximum height of the pump.

\*\*Rubber pump 22

# Overhead V-Belt Driven



Dimensions in Inches																																
Size	Discharge	Suction	A	B	C	D	E	F	G	*H	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	1	2	28 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	7	1 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	21	10	11	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	3	1 <sup>1</sup> / <sub>8</sub>	3 <sup>9</sup> / <sub>16</sub>	7	12 <sup>1</sup> / <sub>2</sub>	10 <sup>3</sup> / <sub>4</sub>	18 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub> x 3 <sup>5</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>16</sub>	3	3 <sup>3</sup> / <sub>4</sub>
1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	28 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>	23 <sup>3</sup> / <sub>4</sub>	7	1 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	21	10	11	1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	3	1 <sup>1</sup> / <sub>8</sub>	3 <sup>9</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>2</sub>	10 <sup>3</sup> / <sub>4</sub>	18 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub> x 3 <sup>5</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>16</sub>	3	3 <sup>3</sup> / <sub>4</sub>
2	2	4	30 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	8	25 <sup>1</sup> / <sub>4</sub>	11 <sup>9</sup> / <sub>32</sub>	13 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	11	1 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	3	2 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	8 <sup>7</sup> / <sub>8</sub>	17 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>8</sub> x 3 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>
2 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	4	30 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	8	25 <sup>1</sup> / <sub>4</sub>	11 <sup>9</sup> / <sub>32</sub>	13 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	11	1 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	3	2 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>8</sub>	17 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>8</sub> x 3 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>
3	3	5	29 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	26 <sup>1</sup> / <sub>8</sub>	9 <sup>7</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>4</sub>	27 <sup>1</sup> / <sub>2</sub>	12 <sup>3</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	8	15 <sup>1</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>16</sub>	3	4 <sup>1</sup> / <sub>16</sub>	3 <sup>13</sup> / <sub>16</sub>	11 <sup>5</sup> / <sub>8</sub>	17 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub> x 1 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	4 <sup>7</sup> / <sub>16</sub>
4	4	6	32 <sup>1</sup> / <sub>4</sub>	12 <sup>9</sup> / <sub>16</sub>	26	11 <sup>9</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	10 <sup>7</sup> / <sub>8</sub>	35 <sup>1</sup> / <sub>2</sub>	15 <sup>7</sup> / <sub>8</sub>	19 <sup>5</sup> / <sub>8</sub>	5	9 <sup>3</sup> / <sub>4</sub>	15	8 <sup>3</sup> / <sub>4</sub>	15	2 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	9	4	4	5 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	22	20	26 <sup>1</sup> / <sub>8</sub>	6 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub> x 1 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>
5	5	8	36	14	30	12 <sup>1</sup> / <sub>2</sub>	6	6	12	39 <sup>3</sup> / <sub>8</sub>	18	21 <sup>3</sup> / <sub>8</sub>	8	11 <sup>3</sup> / <sub>8</sub>	15 <sup>1</sup> / <sub>2</sub>	8	23	2	7 <sup>7</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>4</sub>	7	3 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>2</sub>	16 <sup>3</sup> / <sub>8</sub>	22 <sup>3</sup> / <sub>8</sub>	22	30	7 <sup>3</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>8</sub> x 5 <sup>5</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	8
6	6	10	40 <sup>1</sup> / <sub>2</sub>	15	35 <sup>1</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	49 <sup>3</sup> / <sub>4</sub>	18 <sup>3</sup> / <sub>4</sub>	31 <sup>**</sup>	5 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>4</sub>	18 <sup>1</sup> / <sub>8</sub>	9	19	2 <sup>1</sup> / <sub>4</sub>	7 <sup>7</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	16 <sup>7</sup> / <sub>8</sub>	23 <sup>1</sup> / <sub>4</sub>	24	26	7 <sup>3</sup> / <sub>16</sub>	5 <sup>5</sup> / <sub>8</sub> x 5 <sup>5</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	12
8	8	12	48 <sup>3</sup> / <sub>4</sub>	20	40	18 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>	17 <sup>1</sup> / <sub>4</sub>	56 <sup>3</sup> / <sub>8</sub>	22	34 <sup>5</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>4</sub>	20	12 <sup>1</sup> / <sub>4</sub>	25	3	7 <sup>7</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	11	4 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	19 <sup>5</sup> / <sub>8</sub>	28 <sup>1</sup> / <sub>2</sub>	36	26	8 <sup>5</sup> / <sub>16</sub>	3 <sup>4</sup> / <sub>3</sub> x 3 <sup>4</sup> / <sub>3</sub>	3 <sup>3</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>4</sub>

Dimension P is the minimum clearance for removing wearing parts. Provide ample clearance at this point for removing the wearing parts as they are very heavy.

Dimension K is distance from center of pump to outside of discharge sleeve.

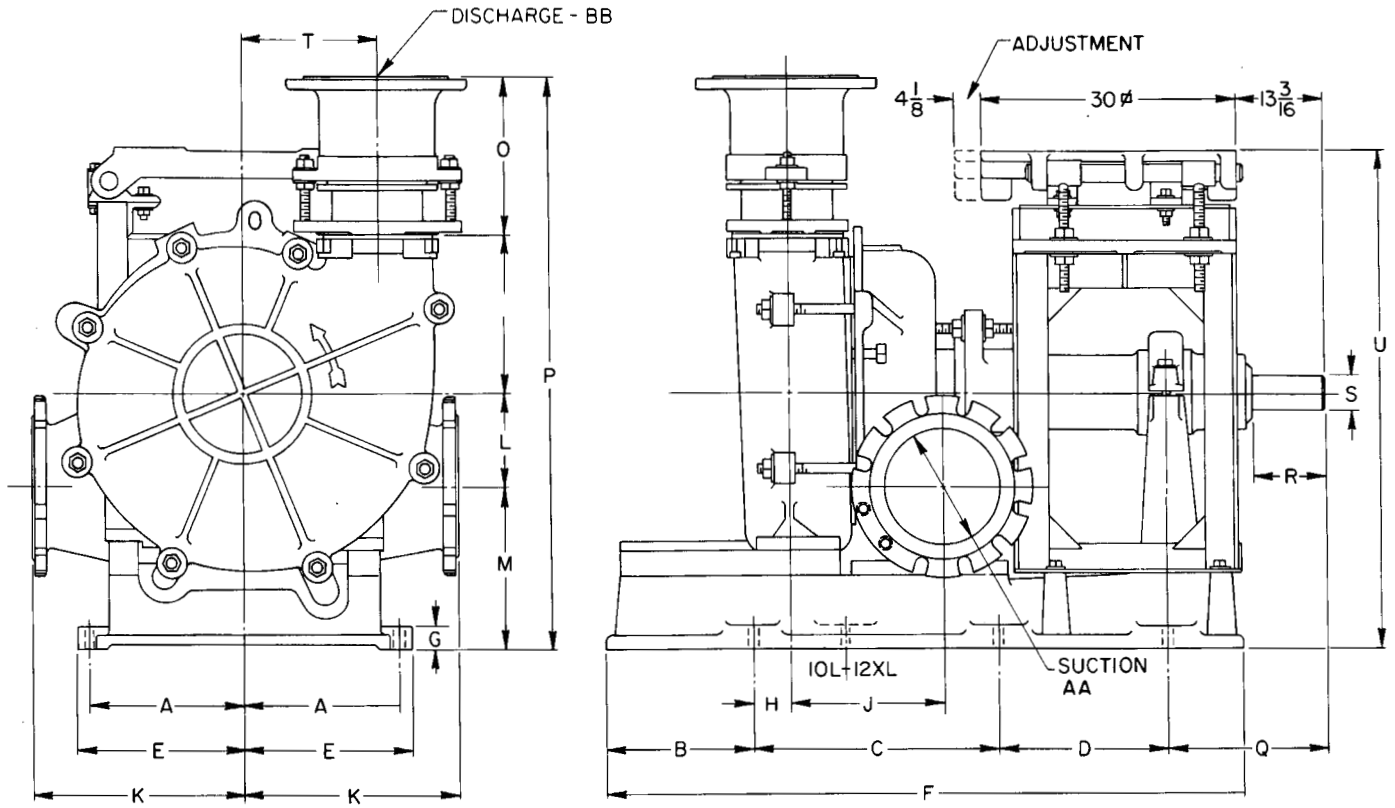
Dimension N is distance from center of pump to outside of suction flange. the feed may be from either side.

Use 1 1/2" pipe sleeves around foundation bolts and allow 1/2" for grouting. Place valves in suction and discharge lines near pump. The suction line should be short, free from elbows if possible, and sloping when heavy materials or large particles are to be pumped.

\*Dimension H is the maximum height of the pump.

\*\*Rubber pump 22

# L Series



Dimensions in Inches																					
Pump	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S		T	U
														Min.-Max.	Min.-Max.			Ave.	Dia.		
10L	17 <sup>1</sup> / <sub>4</sub>	26 <sup>1</sup> / <sub>4</sub>	20	23	18	79 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>4</sub>	24 <sup>1</sup> / <sub>2</sub>	11	19	18 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub> -19 <sup>1</sup> / <sub>2</sub>	66-68	21 <sup>11</sup> / <sub>16</sub>	9 <sup>29</sup> / <sub>32</sub>	3 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub> X1	16	58
12XL	17 <sup>1</sup> / <sub>4</sub>	26 <sup>1</sup> / <sub>4</sub>	20	23	18	79 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	19	24 <sup>1</sup> / <sub>2</sub>	11	19	20 <sup>1</sup> / <sub>2</sub>	20-22	70 <sup>3</sup> / <sub>4</sub> -72 <sup>3</sup> / <sub>4</sub>	21 <sup>11</sup> / <sub>16</sub>	9 <sup>29</sup> / <sub>32</sub>	3 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub> X1	15	58
12L	22	17	31	31	23 <sup>5</sup> / <sub>8</sub>	87	2	7 <sup>9</sup> / <sub>16</sub>	21 <sup>9</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>4</sub>	23 <sup>1</sup> / <sub>4</sub>	21 <sup>1</sup> / <sub>2</sub>	20-22	72-74	23 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub> X1	18	59 <sup>3</sup> / <sub>4</sub>

Suction & Discharge Flange Diameters (125 Lb. Amer. Std.)					
Pump	AA	BB	Pump	AA	BB
10L	14	10,12,14	14XL	18	14,16,18, 20, 24
12XL	14	12,14,16,18,20	14L	20	14,16,18, 20, 24
12L	18	12,14,16,18,20	16XL	20	16, 18, 20, 24, 30

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