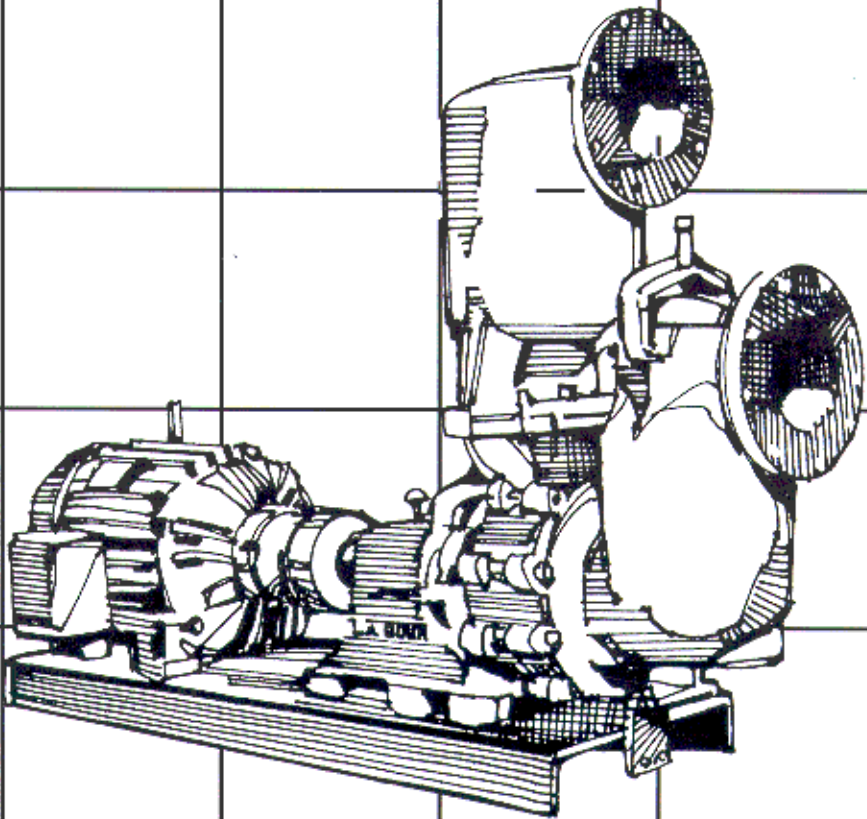


# LaBour Pumps

SELF-PRIMING  
CENTRIFUGAL  
PUMPS



**LaBour**   
**Taber**

LaBour invented the first successful design of the self-priming centrifugal pump in 1922 based on the "HYDRO-BALANCE" principle which offers the ability to evacuate air from an empty suction line and to handle liquids with high percentages of entrained air or gases without vapor-binding. This is accomplished without the use of auxiliary equipment such as by-pass, foot or check valves.

The LaBour "HYDRO-BALANCE" design also eliminates external by-pass piping used by other self-priming pumps. Each time a LaBour self-priming pump is started, it will, after receiving its initial prime, re-prime itself.

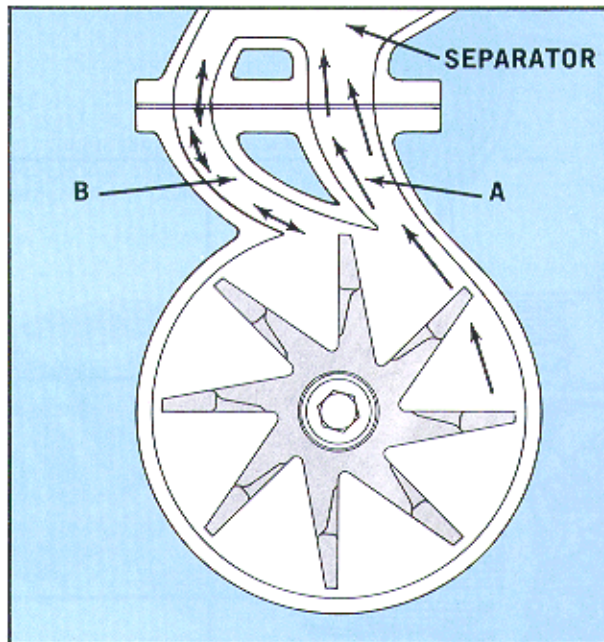
It can be located away from and above the source of supply, eliminating the necessity for and the hazard of tank bottom outlets, and lending itself ideally to remote and automatic control. Supply lines drain back to the source of supply so that piping and flanged connections do not remain under pressure. The pump also may be mounted in a location most suitable for

access and maintenance with a minimum of structural work or excavation.

Many records exist of LaBour pumps lifting water more than 30 feet on the suction side. To pass our test standards, every pump must lift water not less than 23 feet at sea level. Each is guaranteed to produce a minimum of 20" hg vacuum, but on our normal production tests most pumps will create 27" hg or more vacuum.

Since the impeller of a LaBour self-priming pump is fully open, the pressure at the stuffing box is essentially the same as that existing at the pump suction flange. This feature helps eliminate gland leakage, destruction of seals or packing, bases and foundations.

LaBour self-priming pumps are available in a choice of 17 different metals and alloys from LaBour's own foundries, as well as rubber-lined models. Many years of experience in choosing corrosion-resistant materials that best fit individual needs is available when you specify LaBour.



As shown at left, the LaBour self-priming pump has a concentric casing which is swept by a fully open impeller. This casing configuration and impeller action eliminates any pockets where air could become entrapped. Note the double throats in the separator. When the pump is started with the suction line empty, liquid with entrained air or vapor is discharged into the separator through throat "A". The liquid circulates back into the casing through throat "B", while the air is expelled into the discharge line. As this action continues, liquid is drawn into the suction line until it is filled. At this stage, the direction of flow in throat "B" is reversed and both "A" and "B" become discharge throats.

### ADVANTAGES

**LESS PRIMING TIME** — Air-handling capacity is approximately twice that of other pumps.

**HIGH HEADS** — Maximum lift of 20 feet of cold water at sea level is guaranteed.

**INTEGRAL OPERATION** — No valves or external by-pass piping required.

**LOW SEAL PRESSURE** — Pressure at the stuffing box closely approximates the suction pressure.

**NO VAPOR-LOCK** — Circular casing has no pockets to trap air . . . or for crystal build-up.

**CLEANS TANK** — May be used to clean and scour tanks like a vacuum cleaner.

**CHOICE OF MATERIAL** — Pumps are constructed from 17 different metals and alloys. Some models are rubber-lined.



## CHOICE OF THREE TYPES

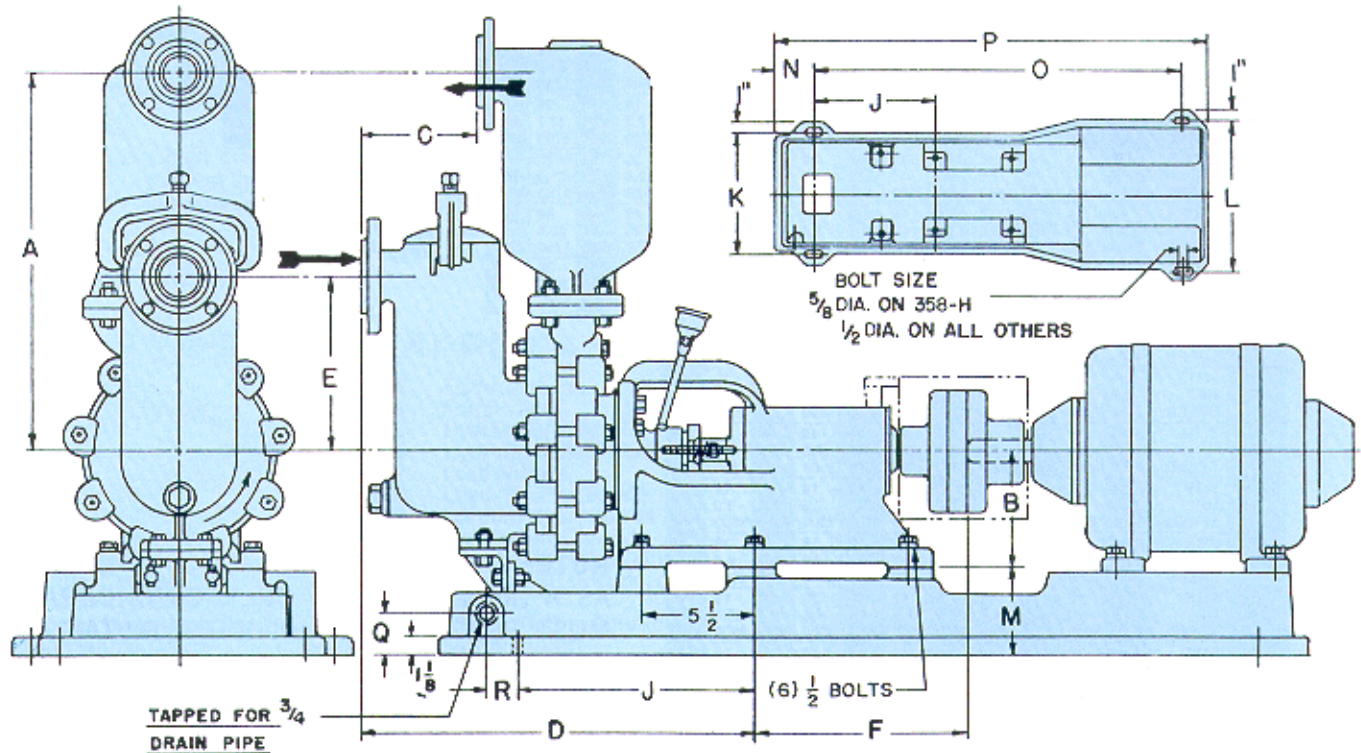
The superior performance of LaBour pumps is, in large part, due to the design of the separator which has been performance related to each pump size and type. This allows greater release of entrained air and gases.

### TYPICAL APPLICATIONS

- |  |  |
|--|--|
| CHEMICAL TRANSFER                      | VACUUM EVAPORATORS AND FILTERS                   |
| BLACK LIQUOR EVAPORATORS               | TANK CAR UNLOADING                               |
| BILGE WATER REMOVAL                    | VOLATILE LIQUID HANDLING                         |
| PLATING SOLUTIONS<br>AND SYSTEM WASTES | DRAINING SUMPS, PITS, WELLS,<br>PIPE DUCTS, ETC. |
| MINE AND TUNNEL DEWATERING             | INDUSTRIAL WASTE TREATMENT                       |

### CONFIGURATIONS AND NOMINAL DIMENSIONS

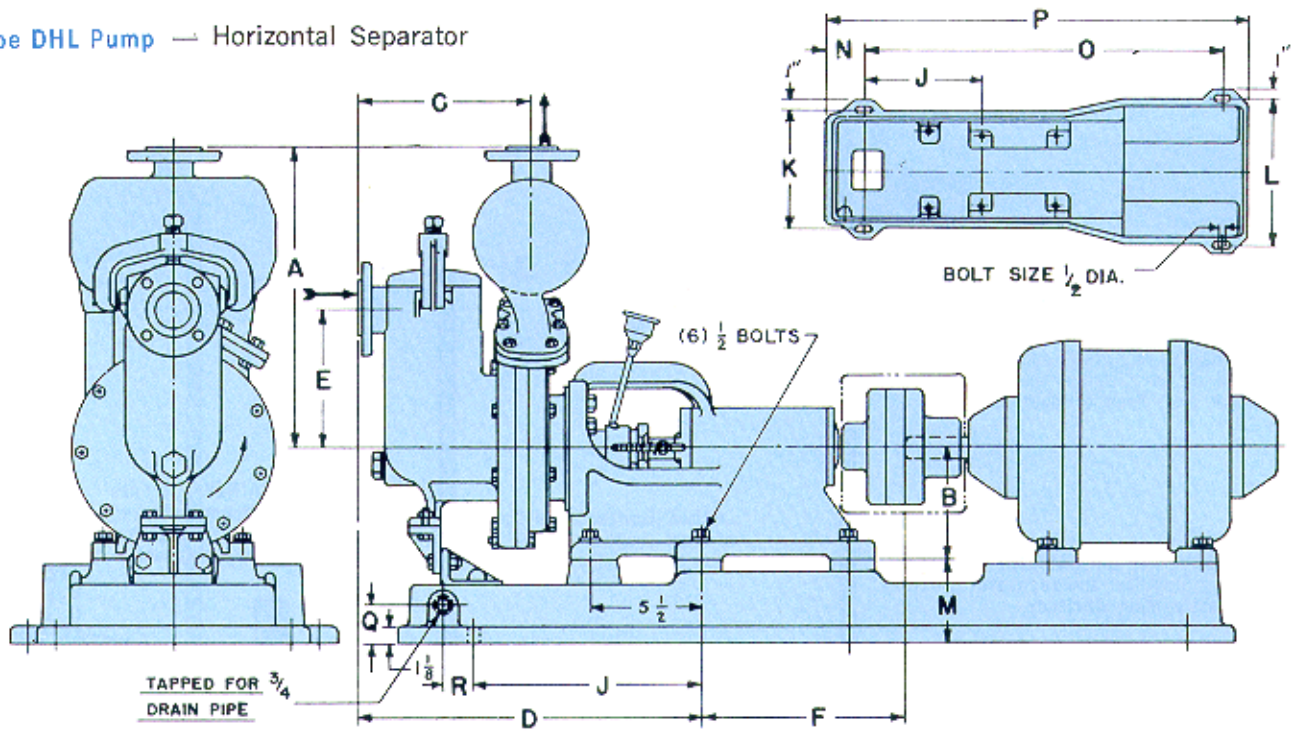
Type DPL Pump — Vertical Separator



PUMP NO.	SUC-TION	DIS-CHARGE		A	B	C	D	E	F
15 & 15 W	2½	2½	NOMINAL	19¾	6	5¾	20¾	9¾	11
20 & 20 XW	3	3	NOMINAL	22¾	7	6¼	22¾	8½	11
23 XW	3	3	NOMINAL	23¾	7	6¼	22¾	8½	11
25 & 25 W	4	4	NOMINAL	25¾	7	6¾	23¾	11	11
35 & 35 W	6	6	NOMINAL	25¾	7	8¾	27¾	11¾	11

BASE NO.		J	K	L	M	N	O	P	Q	R
18-H-6	NOMINAL	8¾	12¾	12¾	2¾	4	31	37¾	1¾	1¾
158-H-6	NOMINAL	12¾	12¾	15¾	3¾	4¾	38¾	45	2¾	1¾
28-H-6	NOMINAL	11¾	14	18¾	5¾	5¾	44¾	52¾	2¾	2¾
258-H-6	NOMINAL	12¾	16	21	7	4¾	49	55¾	2¾	1¾
358-H-6	NOMINAL	10¾	15¾	26	9¾	4¾	51	61¾	2½	2¾

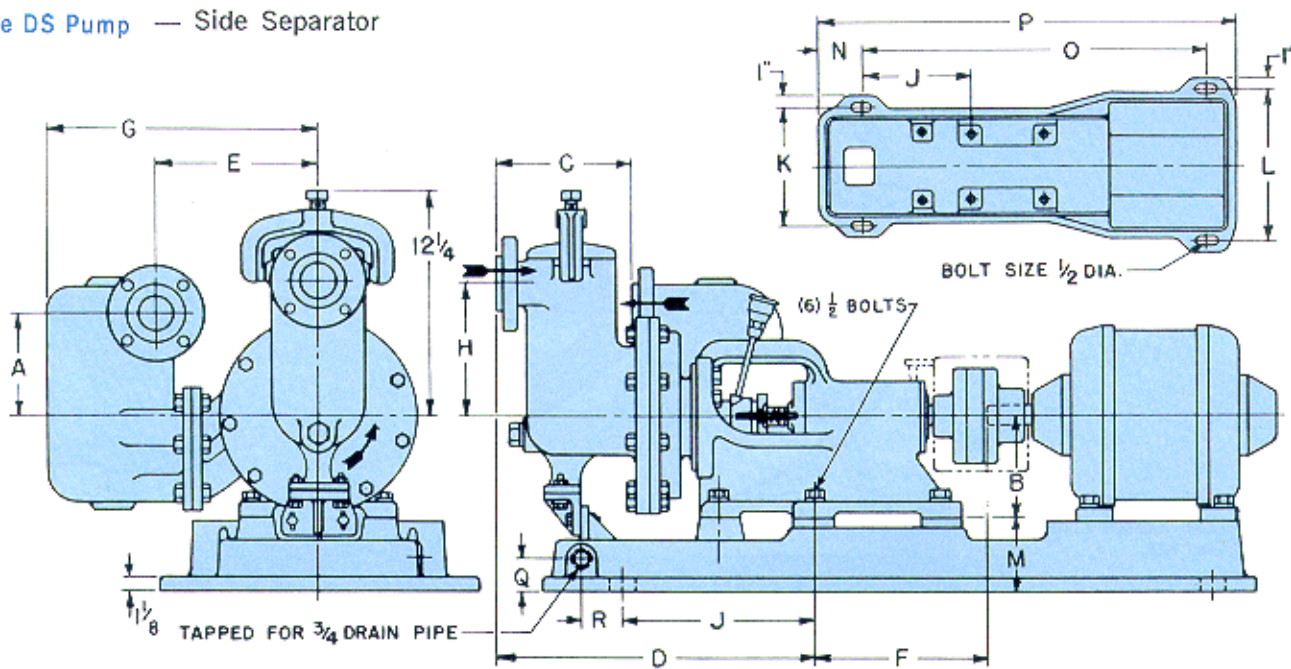
Type DHL Pump — Horizontal Separator



PUMP NO.	SUC-TION	DIS-CHARGE		A	B	C	D	E	F
10 & 10 W	2	2	NOMINAL	16 $\frac{1}{4}$	6	9 $\frac{1}{4}$	18 $\frac{1}{2}$	7 $\frac{1}{2}$	11

BASE NO.		J	K	L	M	N	O	P	Q	R
18-H-6	NOMINAL	8 $\frac{3}{4}$	12 $\frac{1}{4}$	12 $\frac{3}{4}$	2 $\frac{1}{2}$	4	31	37 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$
158-H-6	NOMINAL	12 $\frac{1}{4}$	12 $\frac{3}{4}$	15 $\frac{1}{4}$	3 $\frac{1}{4}$	4 $\frac{1}{4}$	38 $\frac{1}{4}$	45	2 $\frac{1}{4}$	1 $\frac{1}{8}$
28-H-6	NOMINAL	11 $\frac{1}{4}$	14	18 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	44 $\frac{1}{4}$	52 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$

Type DS Pump — Side Separator

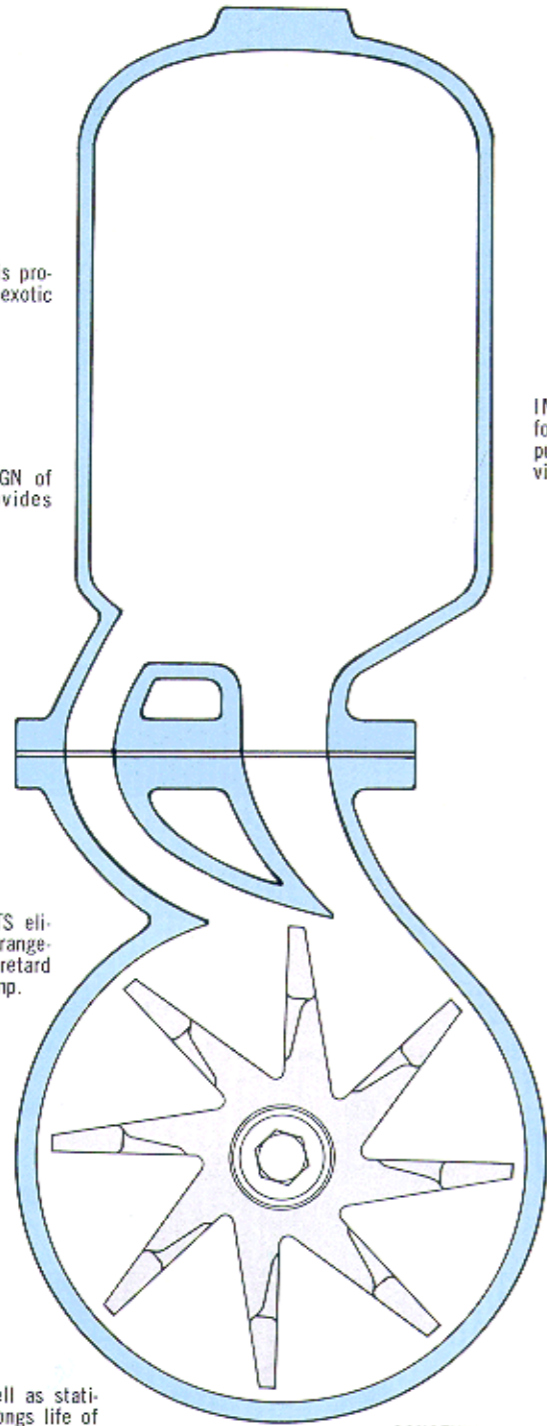


PUMP NO.	SUC-TION	DIS-CHARGE		A	B	C	D	E	F	G	H
10 & 10 W	2	2	NOMINAL	5 $\frac{3}{4}$	6	7	18 $\frac{1}{4}$	9 $\frac{1}{4}$	11	14 $\frac{3}{4}$	7 $\frac{3}{4}$

BASE NO.		J	K	L	M	N	O	P	Q	R
18-H-6	NOMINAL	8 $\frac{3}{4}$	12 $\frac{1}{4}$	12 $\frac{3}{4}$	2 $\frac{1}{2}$	4	31	37 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$
158-H-6	NOMINAL	12 $\frac{1}{4}$	12 $\frac{3}{4}$	15 $\frac{1}{4}$	3 $\frac{1}{4}$	4 $\frac{1}{4}$	38 $\frac{1}{4}$	45	2 $\frac{1}{4}$	1 $\frac{1}{8}$
28-H-6	NOMINAL	11 $\frac{1}{4}$	14	18 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	44 $\frac{1}{4}$	52 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$

**LaBOUR**  
**DPL**  
 DHL AND DS PUMPS

**THE ORIGINAL SELF-PRIMING  
 CENTRIFUGAL PUMP**



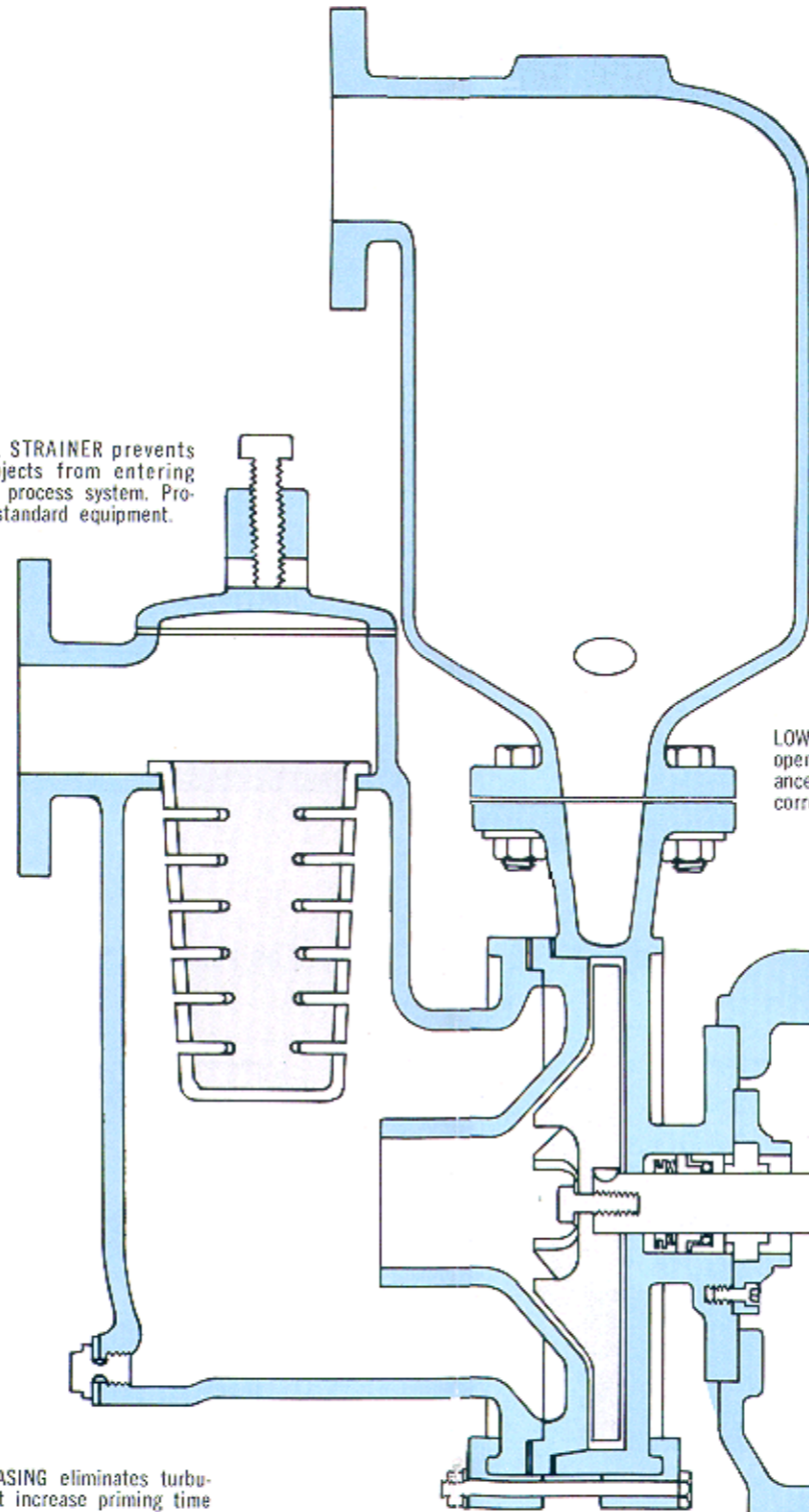
CORROSION RESISTANT construction is provided by 17 different metals and exotic alloys, plus choice of rubber linings.

EXCLUSIVE "HYDROBALANCE" DESIGN of casing, impeller and separator provides greatest priming efficiency.

UNITIZED CONSTRUCTION OF THROATS eliminates hoses, valves or other arrangements that can permit entry of air to retard or destroy self-priming feature of pump.

DYNAMICALLY BALANCED IMPELLER (as well as statically balanced) reduces vibration and prolongs life of seals and bearings.

INTERNAL STRAINER prevents foreign objects from entering pump and process system. Provided as standard equipment.



FLEXIBILITY IN DESIGN permits choice of vertical, horizontal or side-mounted separator (with or without trap) to meet space requirements and operation conditions.

LOW STUFFING BOX PRESSURE results from the fully open impeller design which requires no close clearance on back side. Also, efficiency is not impaired by corrosion build-up in this area.

HEAVY-DUTY BALL BEARINGS for thrust and radial positioning provide longer maintenance-free operation.

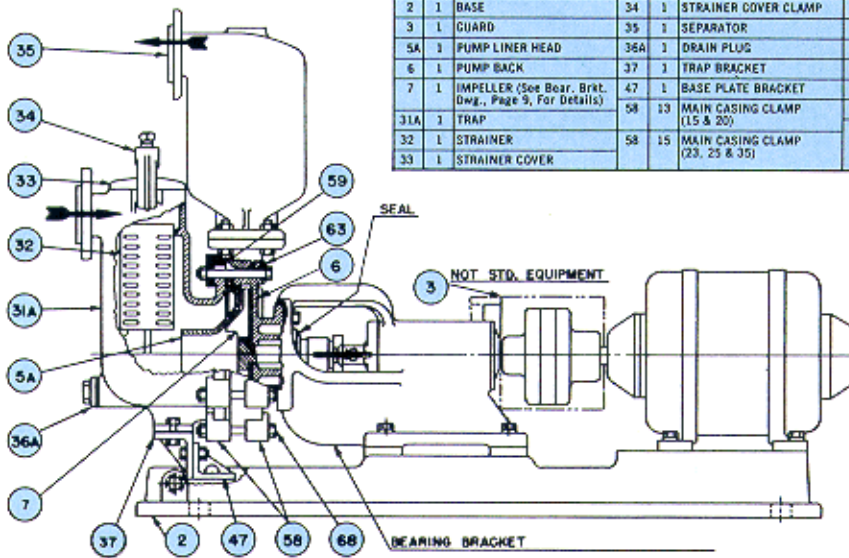
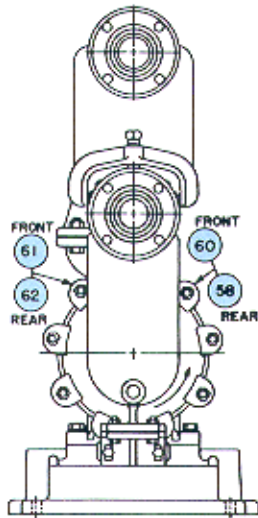
CONCENTRIC CIRCULAR CASING eliminates turbulence and air pockets that increase priming time and reduce efficiency.

FULLY OPEN IMPELLER equalizes pressures on both sides for longer seal life. No wear rings, no close tolerances. Full sweep of casing and full-width blade tips increase efficiency.

BIG SHAFT DIAMETER (no sleeves or bushings) provides the strength to withstand intermittent operation without strain or damage.

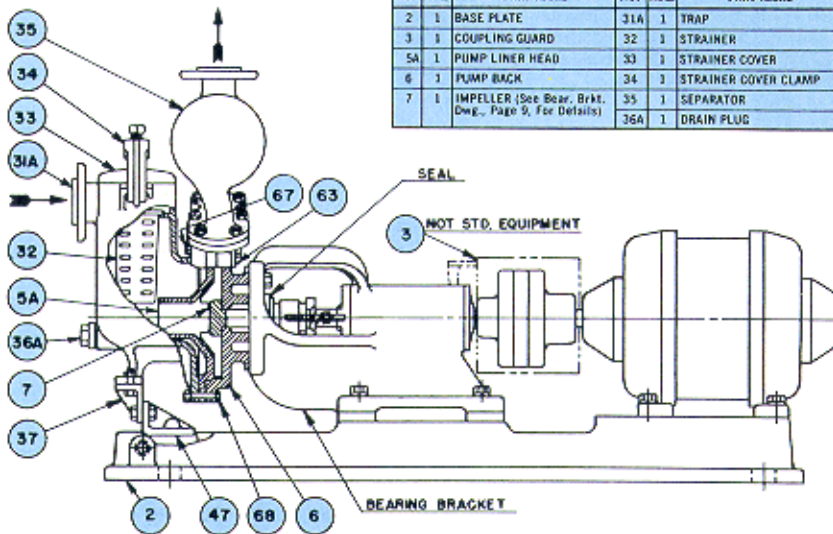
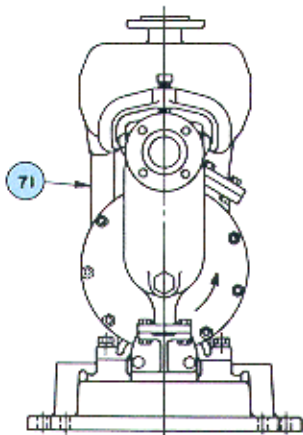
# CROSS SECTION DRAWINGS & PARTS LIST

Type DPL Pump — Vertical Separator



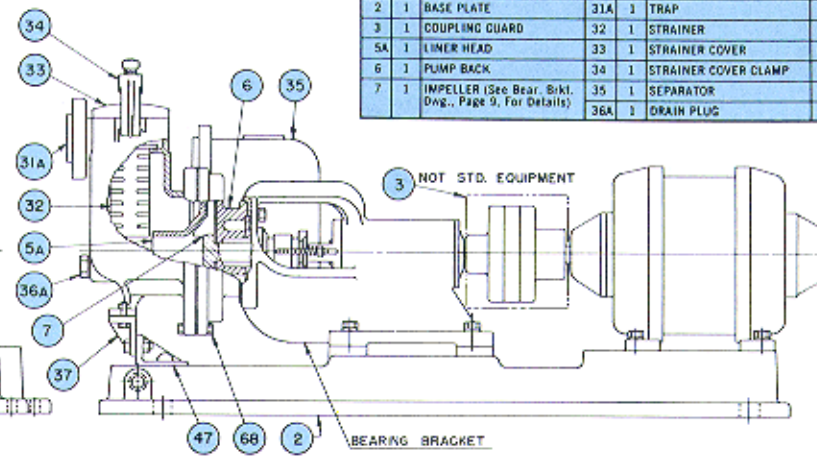
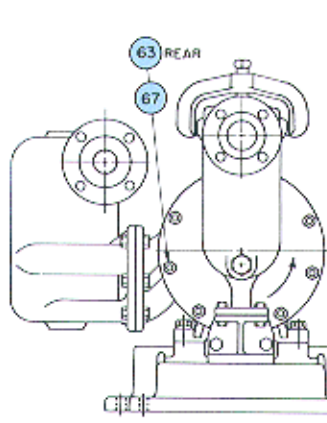
PC. NO.	REQ.	PART NAME	PC. NO.	REQ.	PART NAME	PC. NO.	REQ.	PART NAME
2	1	BASE	34	1	STRAINER COVER CLAMP	59	1	TOP HEAD CASING CLAMP
3	1	GUARD	35	1	SEPARATOR	60	1	LONG HEAD CASING CLAMP
5A	1	PUMP LINER HEAD	36A	1	DRAIN PLUG	61	1	SHORT HEAD CASING CLAMP
6	1	PUMP BACK	37	1	TRAP BRACKET	62	1	SHORT BACK CASING CLAMP
7	1	IMPELLER (See Bear. Brkt. Dwg., Page 9, For Details)	47	1	BASE PLATE BRACKET	63	1	LOOSE BOSS
31A	1	TRAP	58	13	MAIN CASING CLAMP (15 & 20)	68	9	CASING BOLT (15 & 20)
32	1	STRAINER	58	15	MAIN CASING CLAMP (23, 25 & 35)	68	10	CASING BOLT (23, 25 & 35)
33	1	STRAINER COVER						

Type DHL Pump — Horizontal Separator



PC. NO.	REQ.	PART NAME	PC. NO.	REQ.	PART NAME	PC. NO.	REQ.	PART NAME
2	1	BASE PLATE	31A	1	TRAP	37	1	TRAP BRACKET
3	1	COUPLING GUARD	32	1	STRAINER	47	1	BASE PLATE BRACKET
5A	1	PUMP LINER HEAD	33	1	STRAINER COVER	63	1	LOOSE BOSS
6	1	PUMP BACK	34	1	STRAINER COVER CLAMP	67	1	TOP BOLT & NUT
7	1	IMPELLER (See Bear. Brkt. Dwg., Page 9, For Details)	35	1	SEPARATOR	68	8	MAIN BOLT & NUT
			36A	1	DRAIN PLUG	71	1	SEPARATOR BRACKET

Type DS Pump — Side Separator



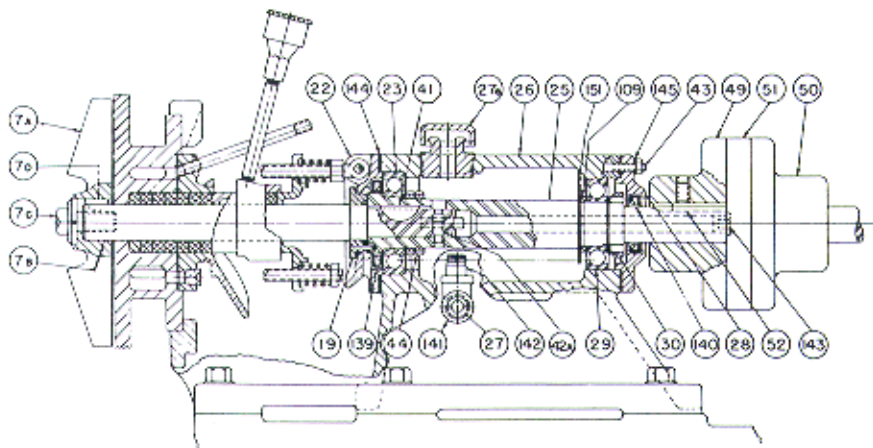
PC. NO.	REQ.	PART NAME	PC. NO.	REQ.	PART NAME	PC. NO.	REQ.	PART NAME
2	1	BASE PLATE	31A	1	TRAP	37	1	TRAP BRACKET
3	1	COUPLING GUARD	32	1	STRAINER	47	1	BASE PLATE BRACKET
5A	1	LINER HEAD	33	1	STRAINER COVER	63	1	LOOSE BOSS
6	1	PUMP BACK	34	1	STRAINER COVER CLAMP	67	1	TOP BOLT & NUT
7	1	IMPELLER (See Bear. Brkt. Dwg., Page 9, For Details)	35	1	SEPARATOR	68	8	MAIN BOLT & NUT
			36A	1	DRAIN PLUG			

PC. NO.	NO. RQ.	PART NAME	WET END MATERIAL									
			CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.*
5A	1	Liner Head	CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
6	1	Pump Back	CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
31A	1	Trap	CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
32	1	Strainer	CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
33	1	Strainer Cover	CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
35	1	Separator	CI	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
36A	1	Drain Plug	316	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
7A	1	Impeller	316	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.
7B	1	Impeller Shaft	316	48	304	316	ELCOMET K	R55	Ni	Y-17	Y-30	R.L.

2	1	Base Plate	Cast Iron or Channel Steel									
3	1	Coupling Guard	Steel									
34	1	Strainer Cover Clamp	Stainless									
	1	Strainer Cover Screw	Cold Rolled Steel									
37	1	Trap Bracket	Stainless									
47	1	Base Plate Bracket	Steel									
56	1	Separator Bracket	Steel									
	2	Hex Head Cap Screws	Cold Rolled Steel									
	2	Hex Nuts	Cold Rolled Steel									
	4	Lockwashers	Cold Rolled Steel									
58	13/15	Main Casing Clamp	Stainless									
59	1	Top Head Casing Clamp	Stainless									
60	1	Long Head Casing Clamp	Stainless									
61	1	Short Head Casing Clamp	Stainless									
62	1	Short Back Casing Clamp	Stainless									
63	1	Loose Boss	Stainless									
67	1	Top Casing Bolt and Nut	Cold Rolled Steel									
68	9/10	Main Casing Bolt and Nut	Cold Rolled Steel									
71	1	Separator Bracket	Steel									

\*Rubber Lined

### TYPE "QC" BEARING BRACKET ASSEMBLY



PC. NO.	NO. REQ'D	PART NAME
7C	1	SHAFT SCREW
7D	1	WOODRUFF KEY
19	1	SLINGER "O" RING & PIN
22	1	FRONT BEARING COVER
23	1	FRONT BEARING
25	1	DRIVE SHAFT
26	1	BEARING BRACKET
27	1	PIPE PLUG 3/8-18
27B	1	BREATHER PLUG
28	1	REAR BEARING COVER
29	1	REAR BEARING
30	1	REAR LOCKNUT
41	1	WOODRUFF KEY
42A	1	SOCKET LOCKSCREW
43	4	STUD BOLTS
44	2	FRONT LOCKNUTS
49	1	FLEXIBLE COUPLING (Pump Half)
50	1	FLEXIBLE COUPLING (Motor Half)
51	1	FLEXIBLE COUPLING DISC
52	1	FLEXIBLE COUPLING KEY
109	1	SHAFT SHOULDER RING
139	1	FRONT OIL SEAL
140	1	REAR OIL SEAL
141	1	3/8 PIPE TEE
142	1	OIL LEVEL ASSEMBLY
143	1	CA PLUG
144	2	GASKETS
145	4	GASKETS
151	1	REAR SLINGER



## LaBOUR PROPRIETARY ALLOYS

ELEMENT	ALLOY 48	ELCOMET K	ALLOY R-55	ALLOY Y-17	ALLOY Y-30
Chromium	24.5—26.5	19.0—22.0	21.0—24.0	17.0—20.0	1.0 max.
Nickel	4.75—6.0	27.5—30.5	50.0—55.0	Balance	Balance
Copper	2.75—3.25	3.0—4.0	5.5—6.5		
Molybdenum	1.75—2.25	2.0—3.0	5.5—6.5	17.0—20.0	30.0—33.0
Silicon	1.00 max.	1.5 max.	3.5—4.5	1.00 max.	
Carbon	0.04 max.	0.07 max.	0.15 max.	0.07 max.	0.07 max.
Manganese	1.00 max.	1.5 max.	0.6—0.9	1.00 max.	1.00 max.
Iron	Balance	Balance	8.0 max.	3.0 max.	3.0 max.

### ALLOY 48

A heat-treatable alloy that has outstanding corrosion, erosion and wear resistance. Has excellent resistance to sulfuric, phosphoric, nitric, formic and many other acids and salts. Similar to commercial CD4MCU alloy.

### ELCOMET K

A LaBour alloy developed in 1927 for improved resistance to 10%-40% sulfuric acid at temperatures up to 175°F. Elcomet K is more resistant to reducing conditions than standard stainless steels while also resistant to oxidizing solutions. Similar to commercial Alloy 20.

### ALLOY R-55

The relatively high silicon content (4%) is the basis for R-55 alloy's excellent corrosion resistance to mineral acids at elevated temperatures. Also a nickel-base alloy, it is

highly resistant to intergranular corrosion. R-55 will withstand the corrosive effects of both oxidizing and reducing agents.

### ALLOY Y-17

A nickel-base alloy containing significant amounts of molybdenum and chromium. Y-17 has exceptional resistance to strong oxidizing agents and bleaching solutions. Similar to Hastelloy Type C alloys.

### ALLOY Y-30

Primarily developed for resistance to the corrosive effects of hydrochloric acid at all concentrations and temperatures. Alloy Y-30 is also resistant to boiling sulfuric acid, acetic acid and phosphoric acid. Similar to Hastelloy Type B alloys.

## SUGGESTED APPLICATIONS OF LaBOUR ALLOYS

Acetic Acid	K	Formaldehyde	316	Potassium Permanganate, 5%	316
Acetic Acid, Glacial	316	Formic Acid	316	Rayon Spin Bath	R55, Y17
Acid Wastes	48	Hydrochloric Acid	Y30, Y17	Rosin	316
Aluminum Chloride, 20%	R55	Hydrofluosilicic Acid	Y17, R55	Sodium Aluminum Sulfate	R55
Ammonium Chloride	R55, Y17	Lead Nitrate	K	Sodium Chlorate	316
Ammonium Nitrate	R55, Y17	Lead-Tin Fluoborate	K	Sodium Hypochlorite	Y17
Ammonium Phosphate	316	Lithium Hypochlorite	Y17	Sodium Sulfate	R55
Ammonium Sulfate	K	Magnesium Chloride	K	Sulfurous Acid	K, R55
Black Liquor	316	Mixed Acid (nitric, sulfuric)	R55	Sulfuric Acid — to 98%, ambient	K
Calcium Chloride, 30%	316	Mixed Acid (sulfuric, chromic)	48	— to 95%, 200 F.	R55
Calcium Hypochlorite	Y17	Naphtha	316	Tannic Acid	316
Chlorine Dioxide, 200 F.	R55	Nickel Plating Solution	R55	Thionyl Chloride	Y17
Chlorosulfonic Acid	Y17	Nickel Sulfate	R55	Thorium Oxide Slurry	316
Chromic Acid	R55	Nitric Acid, 5%, 125 F.	316	Titanium Dioxide Slurry	316
Chrome Plating	K, R55	Oleum, 30%	R55	Zinc Ammonium Chloride	316
Condensate	316	Phosphoric Acid, 75%	R55	Zinc Sulfate	R55
Copper Plating Solution — 180 F.	R55	Pickling Liquor	K, R55		
Copper Sulfate	K	Pitch	316		

## OTHER LaBOUR CONSTRUCTION MATERIALS

### METALS

Aluminum, Cast Iron, Aluminum Bronze Ductile Iron, Monel, Nickel, Silicon Bronze, Stainless (304 ELC, 316, 316 ELC), Zirconium, Titanium.

### RUBBER-LINED

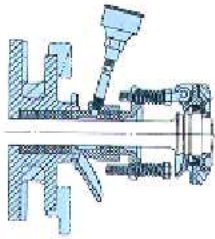
Natural and synthetic rubber linings, permanently bonded to wetted parts (casing, impeller, shaft and stuffing box

areas). Available for LaBour self-priming pumps TYPE RPL and standard ANSI pumps TYPE RV.

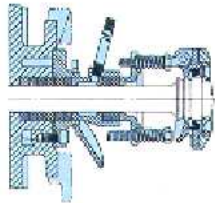
### FIBER-REINFORCED PLASTIC

High strength, fiber-reinforced plastic is corrosion resistant, non-sparking, non-magnetic. Used to mold all wetted parts including impeller. Also covers surface of steel shaft. Used for TYPE CV pumps.

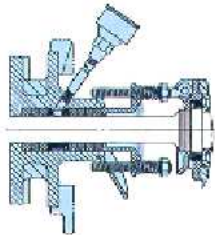
**TYPICAL GLAND ASSEMBLIES**



Standard packed gland, grease sealed.

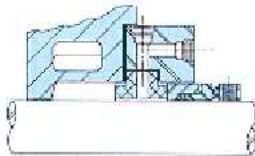


Standard water-cooled hub, liquid sealed.

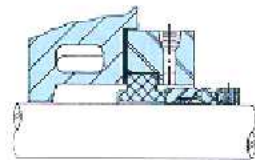


Optional extended hub, grease sealed.

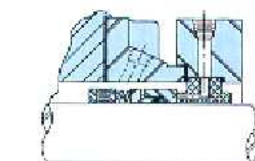
**TYPICAL MECHANICAL SEALS**



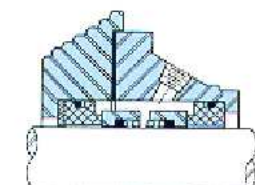
Single outside with flushing.



Single outside with quenching.



Single inside with deadend or circulating lubrication.



Double inside with single spring.

**GLANDS**

Several types of glands can be supplied, but for trouble-free running with a minimum of maintenance the "LaBour" standard glands are widely accepted as the best practical solution.

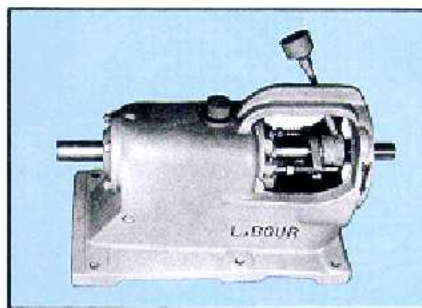
A very deep double compartment gland is provided. Room for six rings of packing is allowed in the main part of the stuffing box, and this packing is followed up by a gland collar which incorporates an annular space close to the shaft which can be greased or liquid sealed. The gland collar is in effect an external lantern ring. Two rings of packing in the outer part of the gland collar and a follower complete the seal.

**GLAND PACKING**

Braided "Blue non-Asbestos," thoroughly impregnated with a special grease and graphite, is the LaBour standard packing. Experience has proved this packing to be particularly suitable for general application over a wide range of acids and alkalis. Typical examples of special packings are Teflon for nitric acid and Rodtite "G" for high-temperature oils. LaBour can furnish any packing specified.

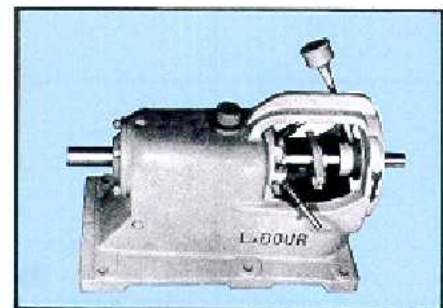
**MECHANICAL SEALS**

With the LaBour separable hub design, any type of mechanical seal can be used. Single or double, internal or external mounting is available, including seals in special corrosion-resistant materials. Seals can be liquid-flushed, and the hub cooled or heated if required. Change-over from packed-gland to mechanical seal and vice-versa is easily accomplished.

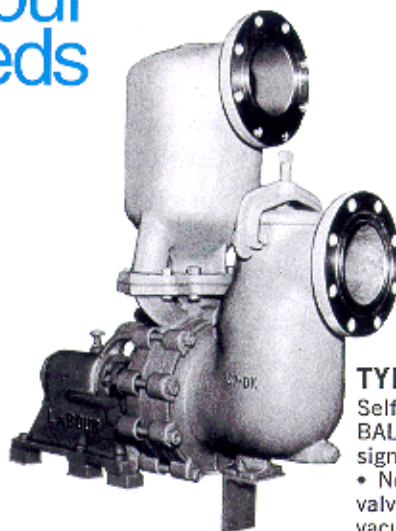


Adjustable spring tension keeps constant pressure on packing; as shown left.

Repacking is easily accomplished as shown at right.

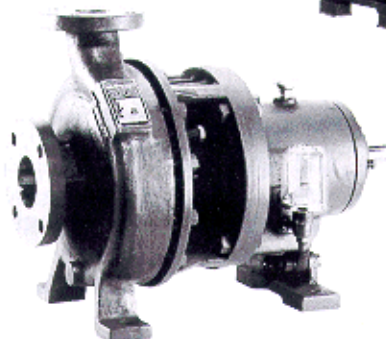


# LaBour Pumps to meet your special needs



## TYPE DPL

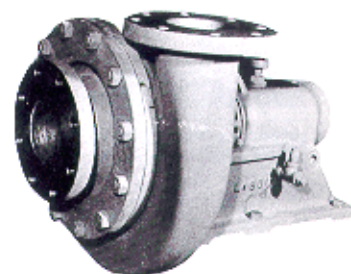
Self Priming based on HYDRO-BALANCE principle • Custom designed for optimum priming cycle • No auxiliary hoses, pumps or valves required • Handles high vacuums.



## TYPE LVA

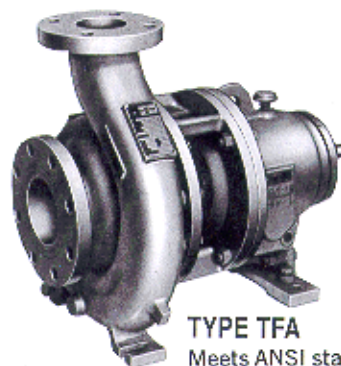
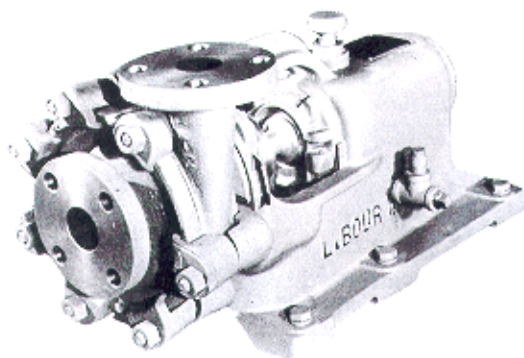
Single throat ANSI volute designs • Wide range of alloys and sizes • Constructed for minimum maintenance

**TYPE Q**  
Multiple throats • Excellent efficiency • High liquid capacity • Fully open impellers (no close clearances) • Exceptional air and viscosity capacity • Very effective use of available NPSH.



## TYPE DZT

Single throat • Fully open impellers • Wide clearance between impeller and casing • Low maintenance • Continuous operation at or near shut off point.



## TYPE TFA

Meets ANSI standards • Triple-throat design • Fully open impellers—no close clearances • High efficiency • Excellent air handling characteristics • High viscosity capacity.



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