

GENERAL

Whirling Pumps are very versatile and have many applications in the industry.

Whirling progressive cavity pumps are single eccentric screw pumps, which rotate inside the double entry thread stator.

The rotor-stator assembly forms internal sealed cavities every 180°, which are filled with the fluid that is intended to be pumped. During the rotation of the rotor, while some cavities begin to empty, the opposite ones fill with liquid in the same proportion. The continuous operation of the equipment generates the displacement of the fluid from the suction to the discharge. This provides constant flow, which is free of pulsations and positive displacement.

Our pumps are built by highly trained personnel to the highest quality standards and incorporate the latest technology..

WARNING!

⚠ Before starting the equipment, check that it is full of fluid and that the valves are open. Prevent the pump from running dry.

⚠ Protect all moving parts, pulleys, belts, couplings, drive shafts, with safety accessories. Poor protections can result in injury to personnel operating equipment.

⚠ All the transmissions that are made with pulleys and belts, have speed limitations. Check with the pulley manufacturer and follow their recommendations.

IDENTIFICATION

All Whirling pumps have an identification plate that is placed on the bearing support. On this plate you will find the pump model, type and serial number.

This information is very important and should be used when placing an order for spare parts.

Whirling Pumps are identified with a combination of letters and numbers ex. (1WL8).

The first number indicates the number of rotor and stator stages, the letters indicate the series and the final number indicates the size of the rotor and stator combo. Different combinations of rotor-stator controls and combos can be utilized for different applications.

The designation of the type of pump, is a combination of 6 characters for example CDQ C5A. Each character identifies a different feature of the pump.

1st Character

This character signifies the casing material

C: Cast Iron

S: Stainless Steel

W: Carbon Steel casting WCB grade

X: Special material

2nd Character

This letter signifies the material of the internal parts.

D: 4140 Carbon steel

S: Stainless Steel

X: Special material

3rd Character

This letter signifies the material of the stator

B: EPDM

R: Natural Rubber 50 Shore A hardness

Q: Nitrile 70 Shore A hardness

F: Viton®

T: Teflon

4th and 5th Character

This combination signifies the rotor's features.

C5: Chrome plated 4140 carbon steel / Standard size

S3: Chrome plated Stainless Steel / Standard size

*Ask our sales engineers for additional details.

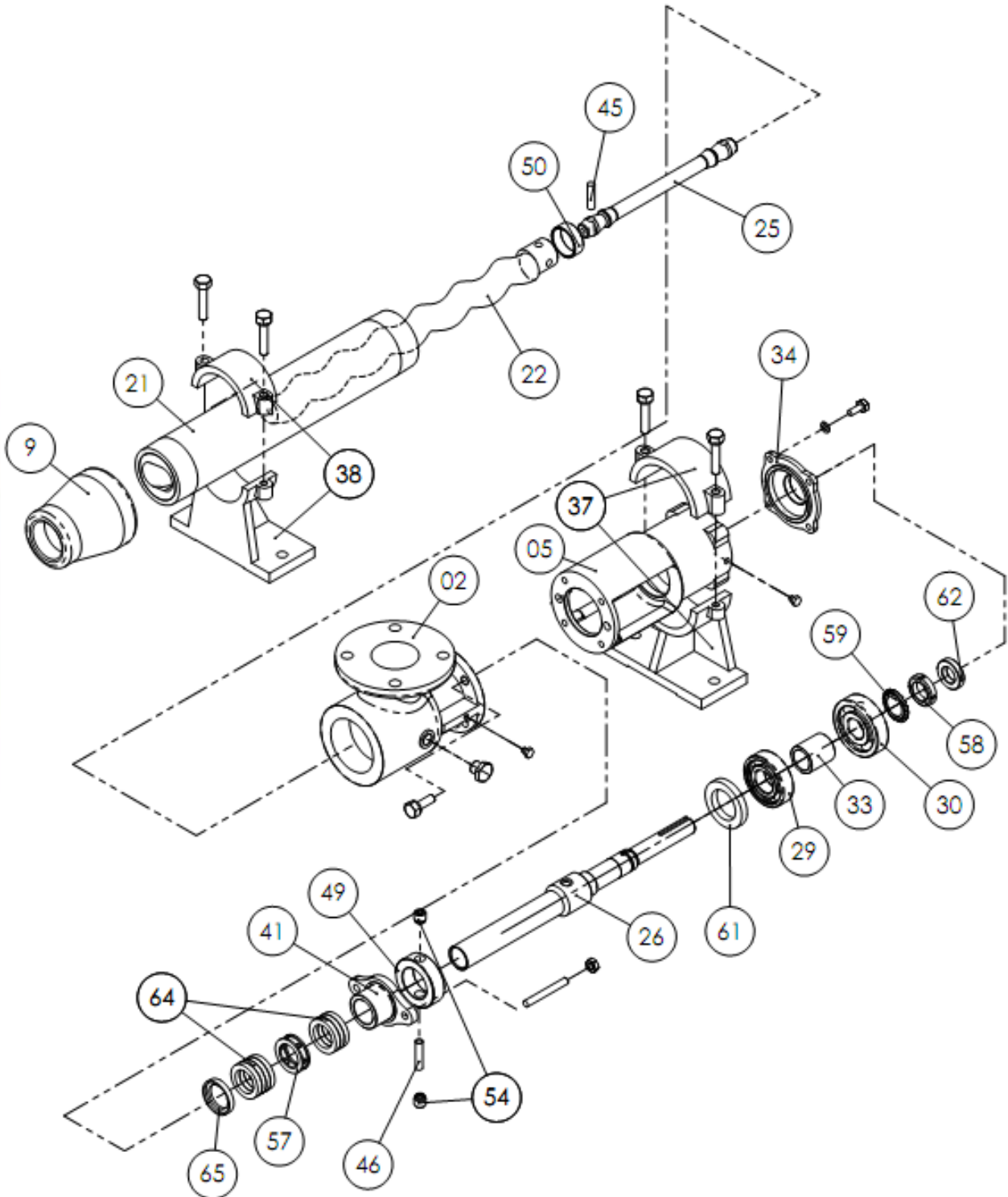
6th Character

This signifies the type of seal used.

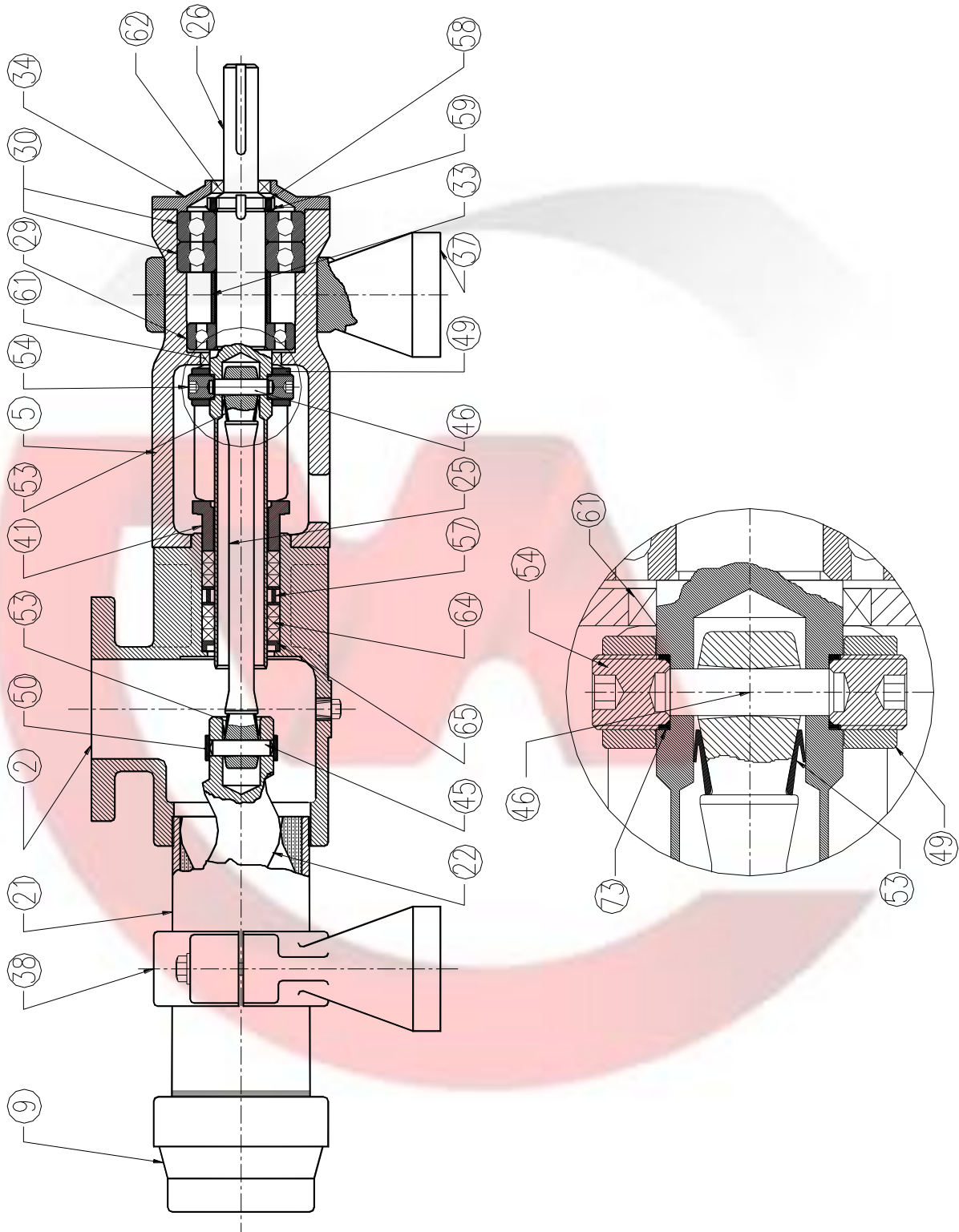
A: Packing seal

S: Mechanical seal

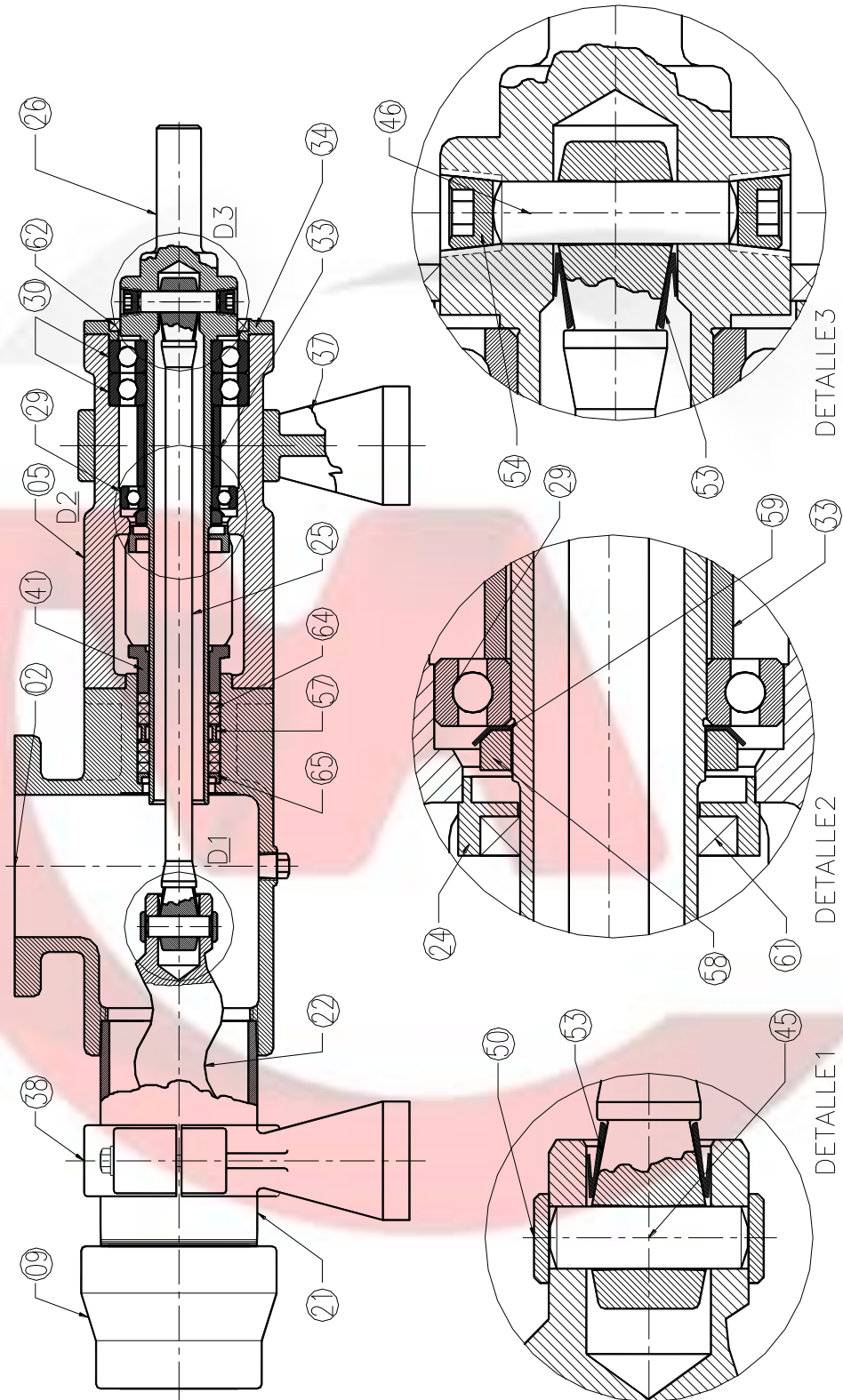
Parts List
WL3 / WL4 / WL6



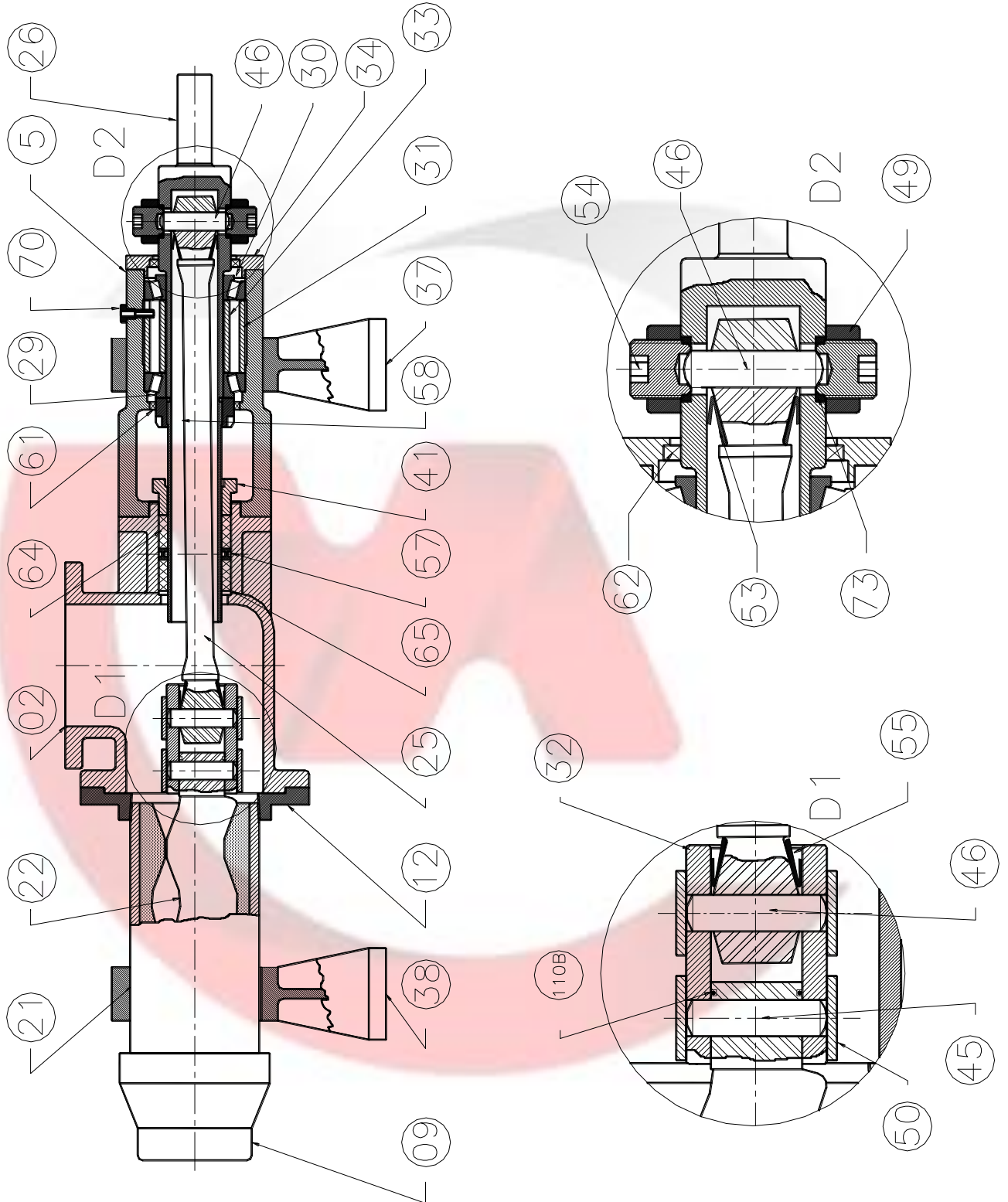
Parts List
WL8



Parts List
WL10 / WL10H



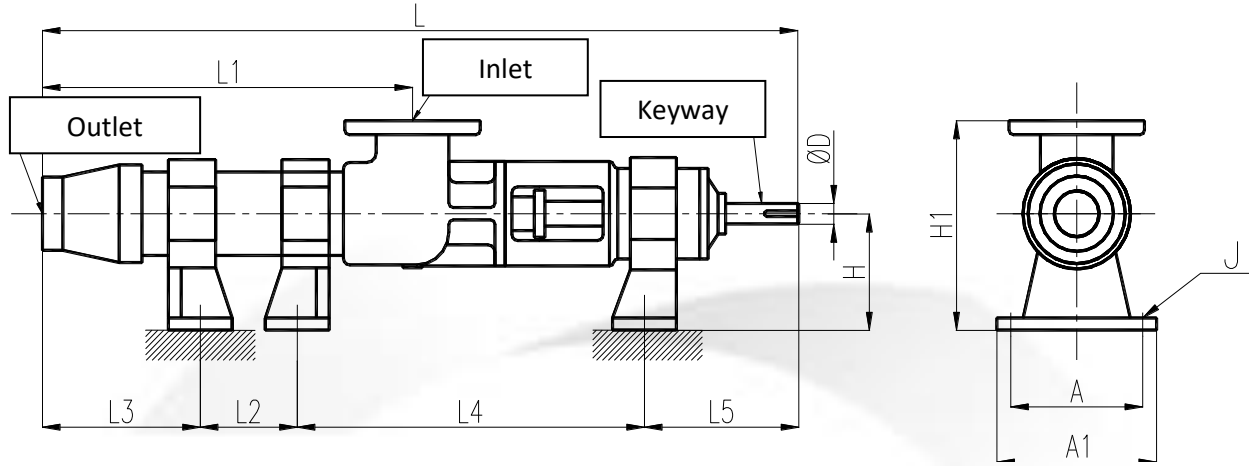
Parts List
WL112 / WL12H



Parts List

Pos	Part	Pos	Part	Pos	Part
02	Suction Housing	32	Rotor Head	54	Pin Retainer Screw
05	Bearing Housing	33	Bearing Spacer	57	Lantern Ring
09	Reducer	34	Bearing Cover Plate	58	Bearing Lock Nut
21	Stator	37	Body Support	59	Bearing Lock Washer
22	Rotor	38	Stator Support	61	Radial Grease Seal
24	Seal support	41	Packing Gland	62	Thrust Grease seal
25	Connecting Rod	45	Rotor Pin	64	Packing
26	Drive Shaft	46	Shaft Pin	65	Packing Gland Insert
29	Radial Bearing	49	Collar	70	Grease Feeder
30	Thrust Bearing	50	Rotor Band	73	Drive Pin Washer
31	External Bearing spacer	53	Connecting Rod Washer	110B	Rotor Head O´ring

GENERAL ARRANGEMENTS



Pump	DIMENSIONS					WEIGHT (Pounds)	Pump	DIMENSIONS					WEIGHT (Pounds)
	L	L1	L2	L3	L4			L	L1	L2	L3	L4	
2WM1	17"	7.3"	---	4.0"	8.0"	22 lbs	3WL6	60"	39.1"	18.0"	13.8"	20.0	191 lbs
3WM1	19"	9.1"	---	4.9"	9.6"	24 lbs	1WL8	46"	20.2"	---	9.8"	27.0	301 lbs
6WM1	24"	14.8"	---	4.4"	15.7"	31 lbs	2WL8	58"	32.6"	14.0"	---	25.0	330 lbs
1WL2	17"	7.3"	---	4.2"	8.5"	22 lbs	3WL8	71"	45.0"	24.0"	12.6"	25.0	370 lbs
2WL2	20"	10.9"	---	5.7"	10.5"	26 lbs	1WL10	53"	21.9"	---	9.6"	30.0	409 lbs
3WL2	24"	14.4"	---	7.8"	12.0"	31 lbs	2WL10	64"	32.2"	10.5"	9.5"	30.0	528 lbs
6WM2	39"	26.4"	14.0"	7.9"	11.5"	48 lbs	3WL10	74"	42.6"	18.0"	12.4"	30.0	550 lbs
1WL3	23"	10.1"	---	5.6"	11.5"	46 lbs	1WL10H	59"	27.5"	---	15.0"	30.0	462 lbs
2WL3	28"	15.4"	---	9.4"	13.0"	53 lbs	2WL10H	74"	42.6"	18.0"	12.4"	30.0	550 lbs
3WL3	33"	20.7"	9.0"	7.2"	11.5"	59 lbs	4P10H	116"	75.9"	16.5"	11.3"	33.7	1540 lbs
6WM3	55"	38.0"	22.0"	10.4"	11.5"	110 lbs	6P10	116"	75.9"	16.5"	11.3"	33.7	1540 lbs
1WL4	30"	13.1"	---	7.2"	15.7"	84 lbs	1WL12	70"	31.0"	---	14.5"	37.5	880 lbs
2WL4	37"	20.2"	---	8.1"	---	90 lbs	2WL12	86"	46.5"	20.5"	12.0"	35.0	990 lbs
3WL4	44"	27.4"	11.0"	10.5"	---	97 lbs	3WL12	101"	62.1"	27.0"	14.1"	42.0	1210 lbs
6WM4	71"	49.7"	25.1"	17.4"	20.0"	169 lbs	1WL12H	78"	38.7"	---	17.8"	42.0	968 lbs
1WL6	39"	17.8"	---	10.6"	20.0"	141 lbs	2WL12H	101"	62.1"	27.0"	14.1"	42.0	1298 lbs
2WL6	50"	28.4"	12.0"	9.2"	20.0"	172 lbs							

Tolerance: +1/8"

Pump	H	H1	A	A1	L5	J	ØD	Keyway	Inlet	Outlet
WL2 / WM1	3.2"	5.9"	3.1"	4.0"	4.3"	0.4"	0.625"	3/16" x 1/8"	1"	NPT 3/4" x 14"
WL3 / WM2	4.1"	7.3"	4.3"	5.4"	5.7"	0.4"	0.750"	3/16" x 1/8"	1 1/2"	NPT 1 1/4" x 11.5"
WL4 / WM3	5.5"	9.9"	5.5"	7.0"	7.0"	0.6"	0.935"	1/4" x 1/8"	2 1/2"	NPT 2" x 11"
WL6 / WM4	6.3"	11.3"	7.0"	8.6"	8.5"	0.7"	1.125"	1/4" x 1/8"	3"	NPT 2 1/2" x 8"
WL8	8.1"	14.0"	10.0"	11.5"	9.3"	0.9"	1.376"	3/8" x 3/16"	4"	NPT 4" x 8"
WL10 / WL10H	9.8"	16.7"	9.1"	11.5"	13.5"	0.9"	1.878"	1/2" x 1/4"	6"	NPT 5" x 8"
WL12 / WL12H	12.5"	21.0"	12.6"	14.5"	18.0"	1.0"	2.250"	1/2" x 1/4"	8"	NPT 6" x 8"

- ⚠ The measurements shown in this table are for ref only. The manufacturer reserves the right to change them without notice.
- ⚠ Drawings with certified measurements are available upon request.

OPERATION

- ✓ Fill the pump with liquid.

Do not start the pump. if it is empty. If the pump rotates even a few turns without liquid, stator damage will occur. Before starting the pump for the first time or after being inactive for a long period of time it should be assumed that the liquid has evaporated the pump must be filled with liquid. This is also true after repair. This will provide lubrication and avoid friction within the pump, thus preventing damage to the pump.

- ✓ Long term stops

After prolonged stops or when switching on for the first time, check that the pump turns easily. If this is not possible by hand, turn the pump from the keyway of the drive shaft using a tool.

Take care not to damage the drive shaft while doing this.

- ✓ Rotating direction

Outlet through the reducer: Drive shaft clockwise rotating
Outlet though the body: Drive shaft counter clockwise rotating

MAINTENAINCE

- ✓ Maintenance check list.

Do NOT start the pump when it's empty.

Do Not exceed the motor power.

Verify that the suction and discharge pipes are not clogged.

Pumps with mechanical seal should not leak.

Check pressure and temperature control instruments.

Verify the operating specifications with the data sheet of the pump.

- ✓ Repair service

Make sure the pump is **COMPLETELY CLEAN AND EMPTY** before you start to repair. This is mandatory before sending pumps to our facility for repair in order to protect our personnel and for environmental regulations. We will refuse delivery of any pump filled with the fluid.

- ✓ Disassembly of the Pump

Before proceeding to disassemble the pump, take the following precautions:

- Electrically disconnect the motor.
- Close the mechanisms. valves. etc. of suction and drive.
- Disconnect the impulse and suction pipes
- Dry the fluid inside the pump.
- Cleaning pump well both internally and externally.
- Disconnect the pump from the base plate.

1. Unscrew the reducer (09).
2. Remove the upper part of the Stator Support (38).
3. To disassemble the Stator (21), unscrew it in a counter clockwise direction.
4. Cut the rotor band (50) and remove the Drive pin retainer screw (54) from the collar (49). Remove rotor pin (45) and shaft pin (46).
5. Remove the Suction Body (02).
6. Remove the bolts from the bearing cover plate using a press and remove the drive shaft (26).
7. Unscrew the control shaft nut (58) and remove the lock washer (59).
8. Using a press, release the bearings and the bearing spacer.

- ✓ Replacing the Packing

Take the same precautions as when disassembling the pump.

Repeat steps 1, 2 and 3

Remove the Drive Pin Retainer Screw (54) and remove the Connecting Rod (25) and the Rotor (22).

Unscrew the nuts of the packing gland (41).

Remove the packing rings (64). diffuser ring (57) and sealing ring (65).

Replace the packing rings as shown in the figure.

Assemble the packing box by installing the packing stop ring, the three packing rings, the diffuser ring and three other packing rings. Finish by installing the packing gland.

Reassemble the pump by reversing the steps mentioned above.

PERFORMANCE DATA

For performance data. please refer to <https://whirlinginternational.com/collections/all>

PUMP DATA

Record the data here from the equipment tag for future references:

 WHIRLING INTERNATIONAL	Pump: <input type="text"/>
	Type: <input type="text"/>
	Serial: <input type="text"/>
24 Frederick St. Waldwick, NJ 07463 Tel: +1 (201) 805 9339 E-mail: info@whirlinginternational.com Web: www.whirlinginternational.com	

QUICK GUIDE TO TROUBLESHOOTING

Nº	Trouble										Causes and solutions
	Pump Doesn't Start	Pump Doesn't Suck	Low Capacity	Low Pressure	Irregular Pumping	Noise running	No flow	Motor Overheat	Fast Stator Wear	Leaking on seal / packing zone	
	a	b	c	d	e	f	g	h	i	j	
1	*							*			Rotor fit too tight on stator. Rotate pump by hand.
2		*									Check pump rotation sense.
3		*	*		*	*	*				Check the suction piping. Check seal / packing
4		*	*		*	*					Check suction piping Increase piping section Check filter capacity if installed. Open suction valves.
5		*	*		*						Check fluid viscosity
6	*		*					*			Check pump speed. Check motor voltage. frequency and power.
7			*		*						Verify that no air enters the pump.
8	*		*				*	*	*		Check impulsion pipe Open valves on impulsion piping
9		*	*		*		*		*		Pump is empty. Check liquid level at the inlet.
10		*	*								Increase pump RPM
11		*			*	*					Reduce pump RPM
12						*					Check bearings, pins and shafts.
13	*	*	*				*		*		Verify there are no solids in the pump
14		*	*	*			*				Stator and rotor may be worn. Replace defective parts.
15		*	*			*	*				Pins and shafts may be worn. Replace defective parts

Nº	Trouble										Causes and solutions
	Pump Doesn't Start	Pump Doesn't Suck	Low Capacity	Low Pressure	Irregular Pumping	Noise running	No flow	Motor Overheat	Fast Stator Wear	Leaking on seal / packing zone	
	a	b	c	d	e	f	g	h	i	j	
16		*	*				*		*		Suction pipe partially or completely blocked.
17	*	*					*	*	*		Check fluid temperature. The stator may be too tight due temperature.
18	*	*	*				*		*		Solid content is high and/or particles are big. Reduce pump RPM
19	*	*							*	*	The fluid solidifies or hardens when the pump stops. Clean the pump after use.
20	*	*					*		*	*	The fluid solidifies below a certain limit temperature. Heat the pump
21						*		*			Align pump and motor shafts.

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