

SERIES



Chemical Gear Pumps
Steel (AISI316L)



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GENERAL FEATURES

+Application: The S-series pump is designed for the chemical, food and pharmaceutical industries. The use of corrosion resistant materials allows for the transfer of aggressive fluids. The S-series is also suitable for applications that require cleaning by a "CIP cycle." An example of this type of application is pumping biodegradable fluids. The "CIP cycle" is possible with internal channels that enable the pump to be fully cleaned with solvents.

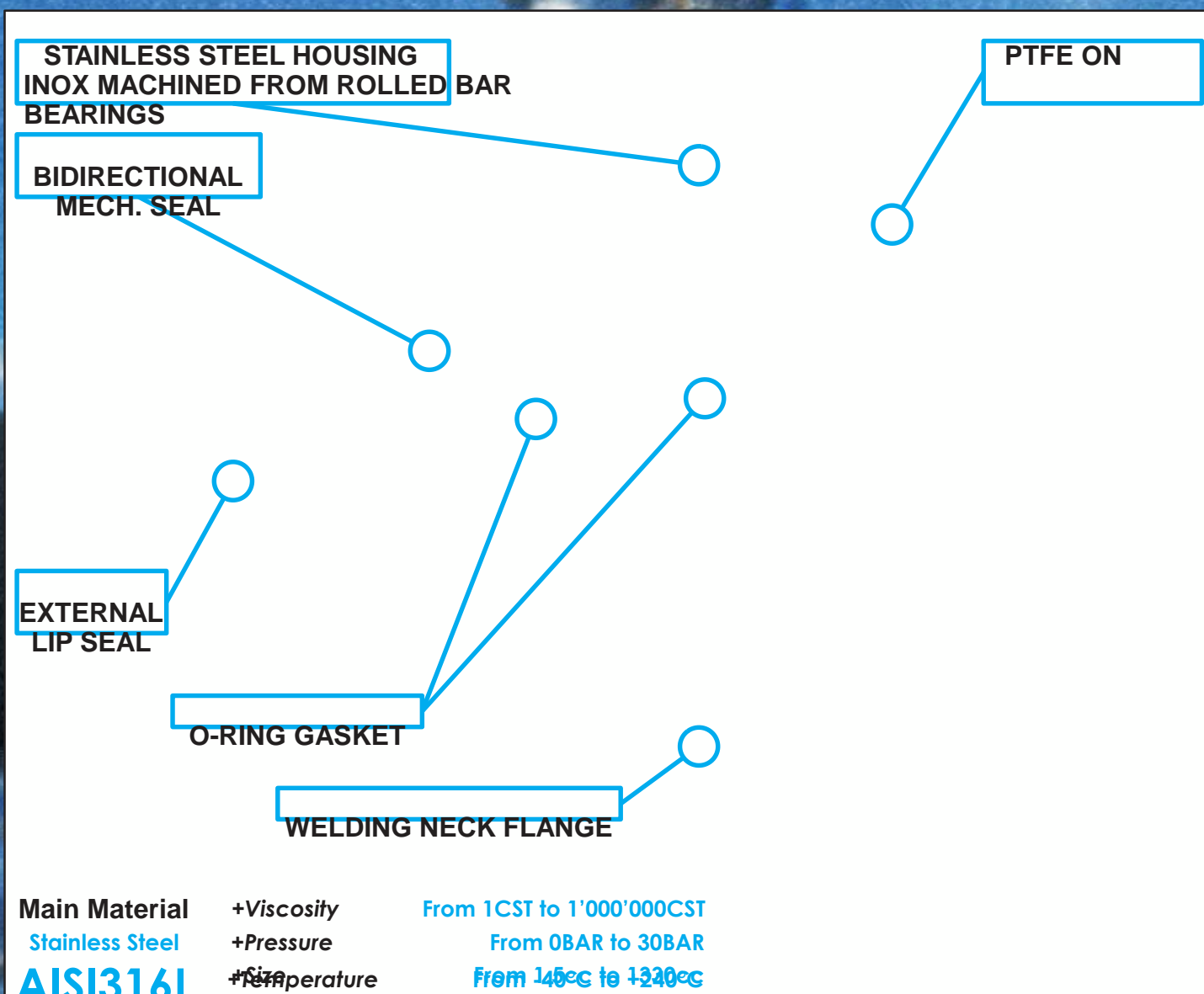
+Bidirectional: The S-Series offers the best combination of quality versus price. This series of pumps can provide flow in either direction. However keep in mind that an internal or external relief valve can only be designed for a single flow direction.

+Ports: The S-series inlet and outlet ports are threaded, are of the same diameter and are in-line (share the same axis). The flanges can be welded or screwed.

+Hardened Materials: The S-series housing, cover plates and gear shafts are machined from rolled bar forgings as apposed to casting, which insures maximum hardness.

+Complete Unit: The S-series can be supplied in different coupling configurations. Complete units consisting of a baseplate (not required for flange mounted motors), flexible coupling with guard and electric motor are available. 8-pole, 6-pole and 4-poll electric motors are available. Explosion proof motors, gear reducers, and variable speed drives are also available on request.

+Seals and Options: The S-series uses a simple and versatile mechanical seal design or magnetic coupling system. Heating options include electric or fluid (oil or steam) heating.



TECHNICAL FEATURES

Housing (1,2,3,4)

Stainless Steel AISI316L

The housing is machined from rolled bar forging that is cut, turned, machined and ground into its' final shape, thus ensuring maximum hardness as apposed to using cast parts.

Rotors (5,6,7,9)

Sainless Steel S31803 Duplex

Rotors are machined from rolled bar forging that is cut, turned and ground into its' final shape as opposed to using cast parts, thus ensuring maximum hardness. PTFE plates are installed to reduce wear.

Bearings (8)

PTFE on Stainless Steel

The bearings are aided by a metal backing to increase resistance especially for corrosive environments. A lining of PTFE is coated in the ID of the bearings forming and a solid lubricant film.

Sealing Elements (10,11,12,13)

FPM, PTFE or MVQ

O-Rings (or plane gasket) are used on all mating surfaces to eliminate leakage even when pumping low viscosity fluid.

The shaft is sealed with both an external lip seal and a bidirectional mechanical seal according to API610 and PLAN13. Dimensions are in accordance with DIN24960 and DIN3760.

Other optional materials and sealing systems are available on request.

S-

This configuration is provided with threaded holes on the front cover allowing ~~direct coupling drive~~

unit.

SP

The pump is provided with feet for mounting on a baseplate.

Projected to be coupled to drive units form B3.

+Foot **Stainless Steel**

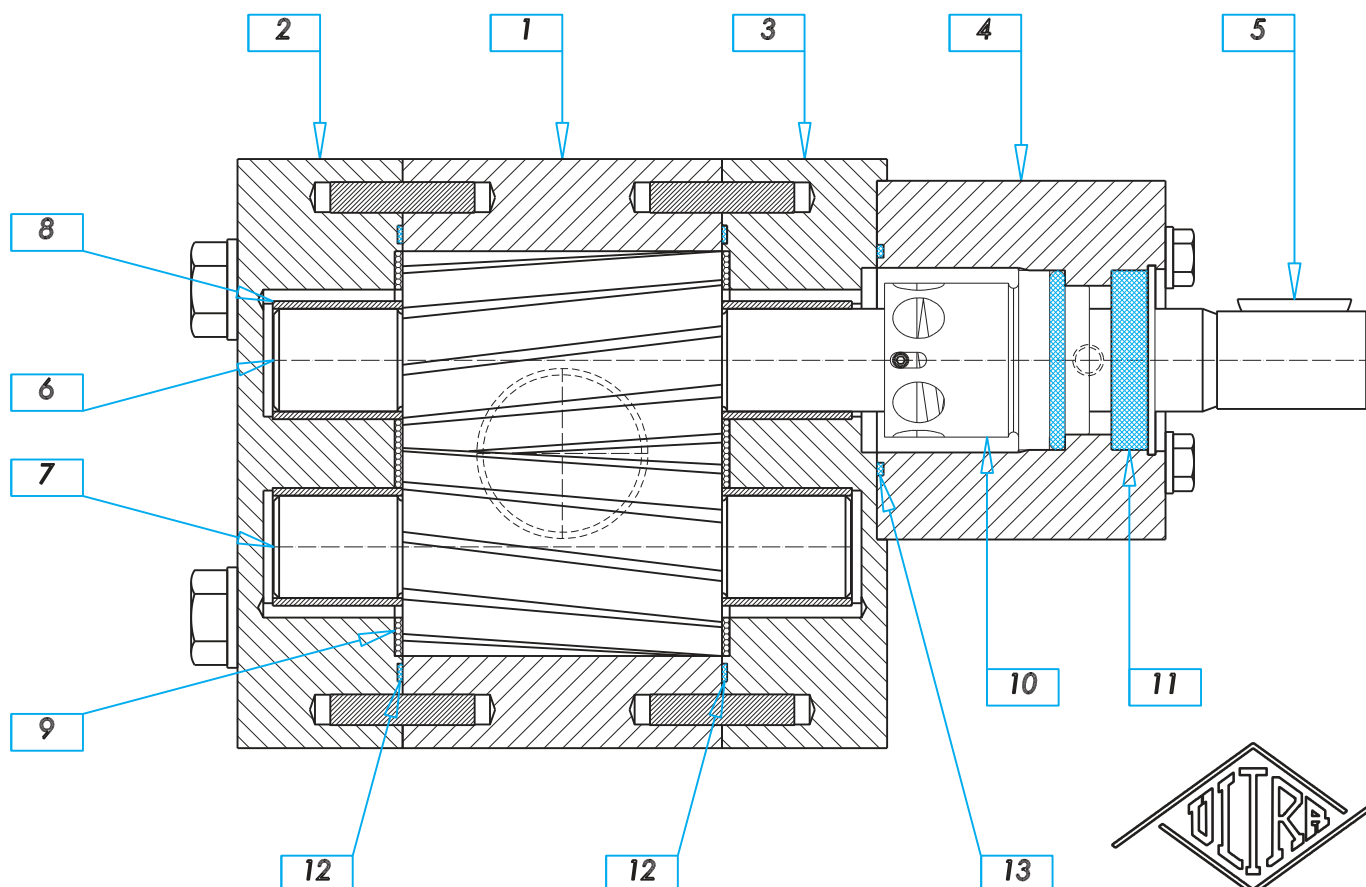
SL

The pump is provided with an extension flange that couples with any B3/B5 or B3/B14 UNEL MEC flange.

Available in different lengths.

+Mask **Cast Iron**

+Lantern **Aluminum**



SHARE

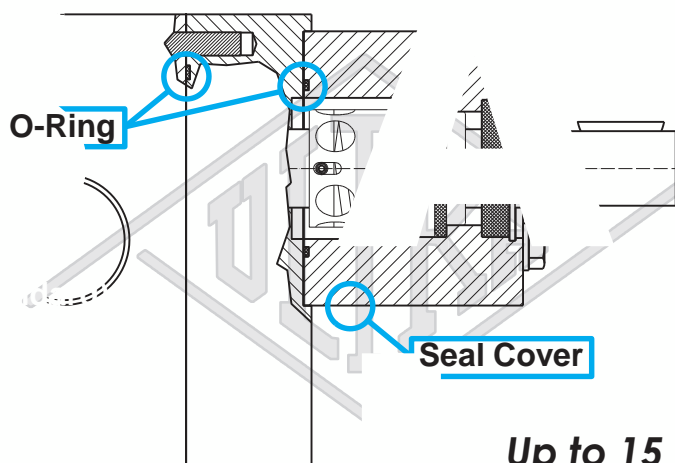
M

V Sealing elements made of **FPM**
T Sealing elements made of **PTFE S**
 Sealing elements made of **MVQ** **Features:**
 According to API610 and PLAN13, **external lip seal** and **bidirectional mechanical seal**, unaffected by the direction of shaft rotation. Dimensions according to DIN24960 and DIN3760. **STAINLESS STEEL** and **CARBON GRAPHITE** mechanical seals are first choice for all such applications where pumped fluid doesn't have any oxidative property and work temperature is under 150°C.

Maximum prussure: 15 BAR

Temperature: -10/+240°C

Work Sense: Bidirectional



Up to 15 BAR

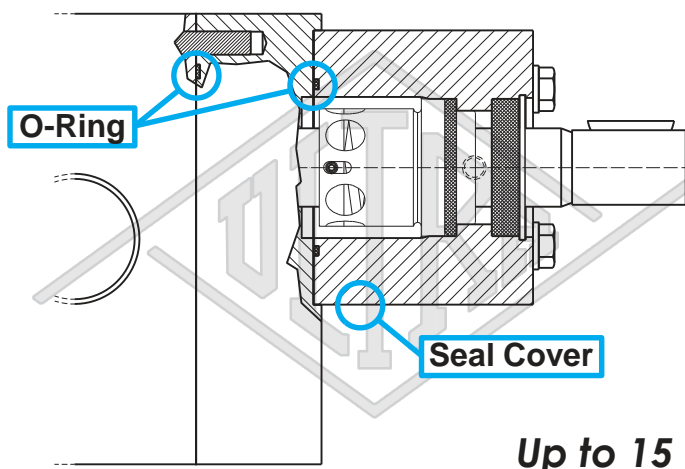
MECHANICAL SEAL "K" (Optional)

KV Sealing elements made of **FPM**
KT Sealing elements made of **PTFE KS**
 Sealing elements made of **MVQ** **Features:**
 According to API610 and PLAN13, **external lip seal** and **bidirectional mechanical seal**, unaffected by the direction of shaft rotation. Dimensions according to DIN24960 and DIN3760. **BRAZED TUNGSTEN CARBIDES** on **STAINLESS STEEL** mechanical seals are used when pumped fluids require the use of anticorrosion materials or work temperature is up to 240°C.

Maximum prussure: 15 BAR

Temperature: -10/+240°C

Work Sense: Bidirectional



Up to 15 BAR

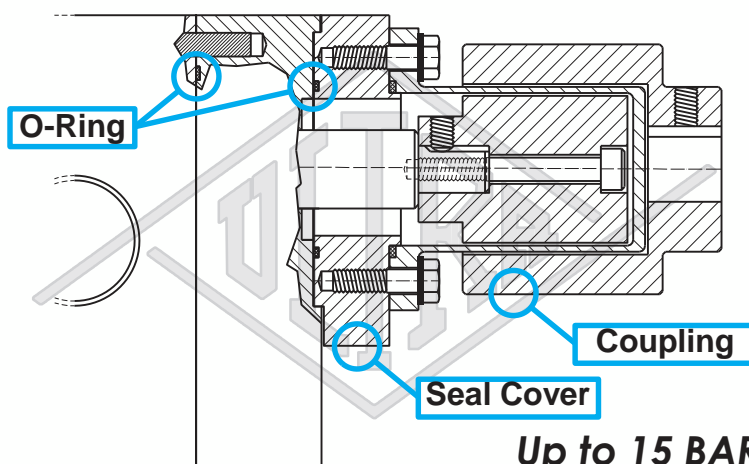
MAGNETIC COUPLING (Optional)

MV Sealing elements made of **FPM**
MT Sealing elements made of **PTFE MS**
 Sealing elements made of **MVQ** **Features:**
 The standard mechanical seal can be replaced by a **magnetic coupling** system that definitively eliminates seal leakage and wear in particularly harsh conditions. Magnetic coupling are synchronous coupling that transmits torque through magnetic forces between the internal and external rotor, but ensures a hermetic separation of the drive and the driven side via **STAINLESS STEEL** bell.

Maximum prussure: 15 BAR

Temperature: -30/+240°C

Work Sense: Bidirectional



Up to 15 BAR

SHAF A

DOUBL E

Dual Non-Pressurized (tandem)

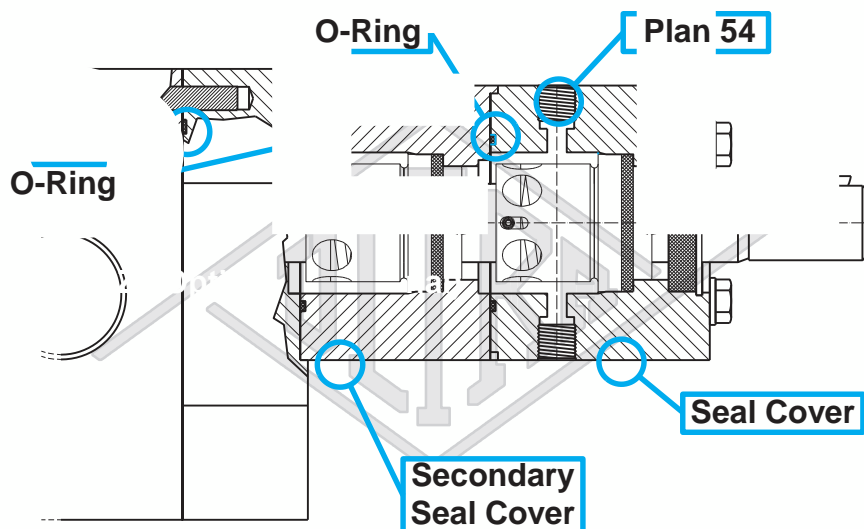
- +ZV** Added seal type **V (FPM)**
- +ZT** Added seal type **T (PTFE)**
- +ZS** Added seal type **S (MVQ)**
- +ZKV** Added seal type **KV (FPM)**
- +ZKT** Added seal type **KT (PTFE)**
- +ZKS** Added seal type **KS (MVQ)**

Features: Secondary mechanical seal system (as Plan 54 circulation) added to standard one. This solution is used when flushing liquid is not available under pressure. Pumped liquid may vary its pressure, while the chamber does not have to be at a higher pressure than the pumped fluid.

Maximum pressure: 15 BAR

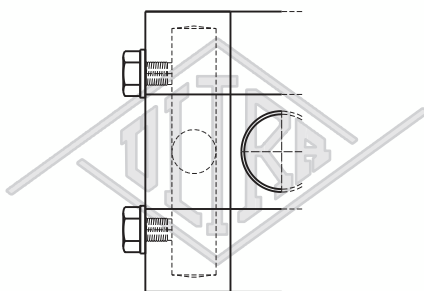
Temperature: -10/+240°C

Work Sense: Bidirectional



OPTNA

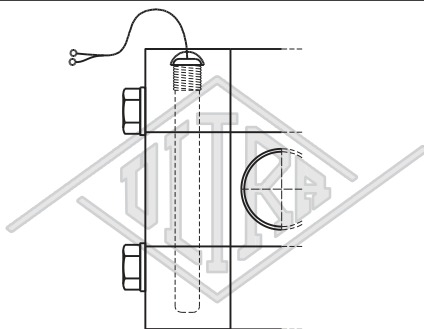
The pump is supplied with an integrated heating system to provide the heating of the entire pump with hot oil or steam. Heating fluid is pumped by an external pump in the internal channels of the gear pump.



Electric Heating system

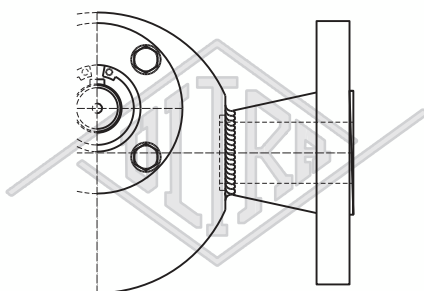
The pump is supplied with an integrated electric cartridge heating system to provide the heating of the entire pump.

PT100 Probes are probes which show a change in resistance with a change of temperature.



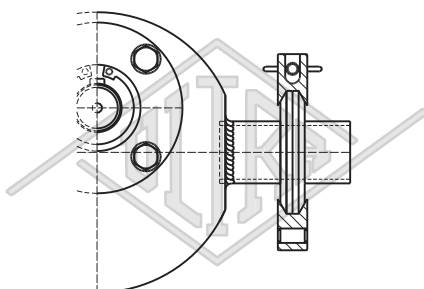
Welded Neck flange (ANSI or UNI)

The pump is supplied with a welding neck flange welded on the body. Also available, is a flexible coupling to mount between the pump flange and pipeline.



Clamp flange

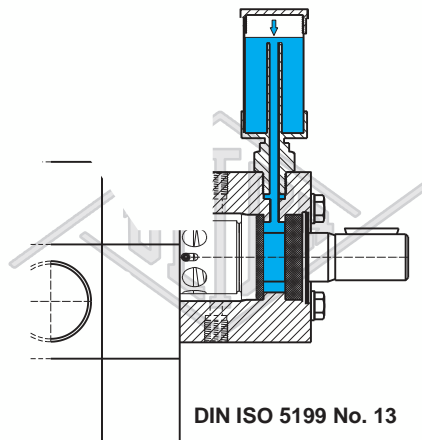
The pump is supplied with a welding clamp flange welded on the body. This allows fast mounting operation.



OPTIA

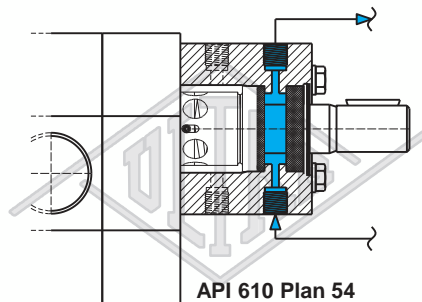
Quench

The pump is supplied with a transparent and ventilated reservoir positioned directly above the seal casing. Used when pumped fluid reacts with atmospheric oxygen, the quench medium stops the leakage making contact with the atmosphere. Quench applies a pressure less than external fluid to mechanical seal's faces on the atmosphere side.



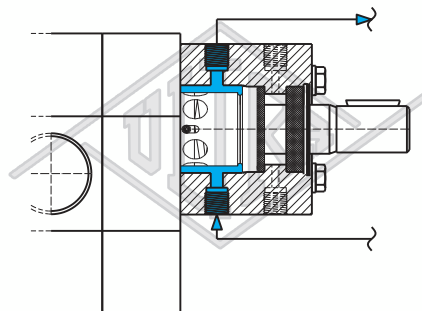
Plan 54 circulation system

The pump is supplied with two threaded holes on a seal casing that allows the circulation of a quenching medium from an external system. The system absorbs the mechanical seal leakage by the quenching



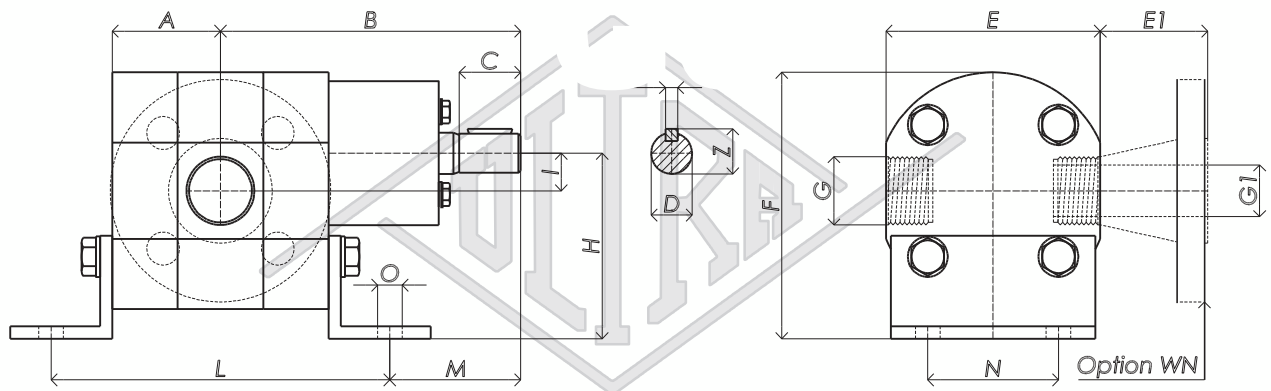
Flushing system

The pump is supplied with flushing holes. The seal washing can be ensured by a "CIP cycle," that through internal channels and with an appropriate solvent pumped from an external system, removes pumped fluid residue.

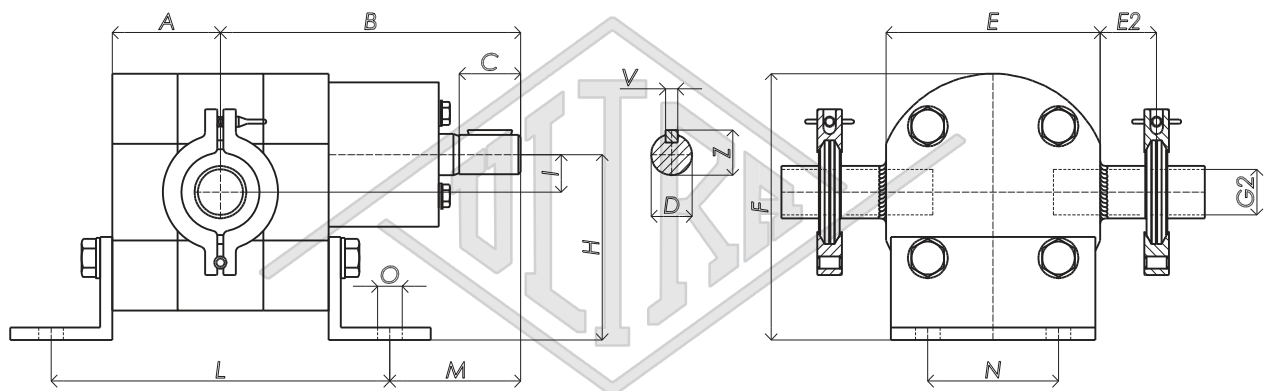


Many combinations of options are available limited by the pump material and pump series. Note that some options change the envelope dimensions of the pump. Options can be combined, such as a bypass system and oil heating system.

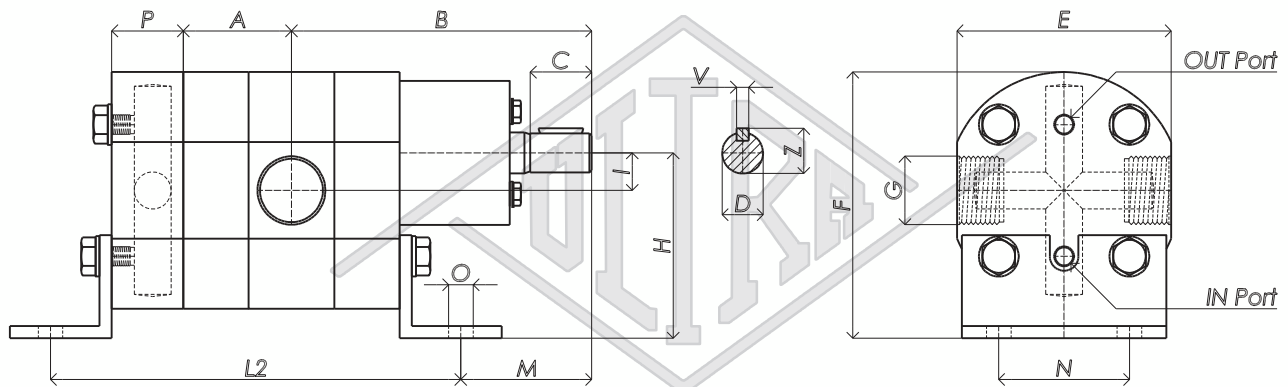
OUTLINE DRAWING



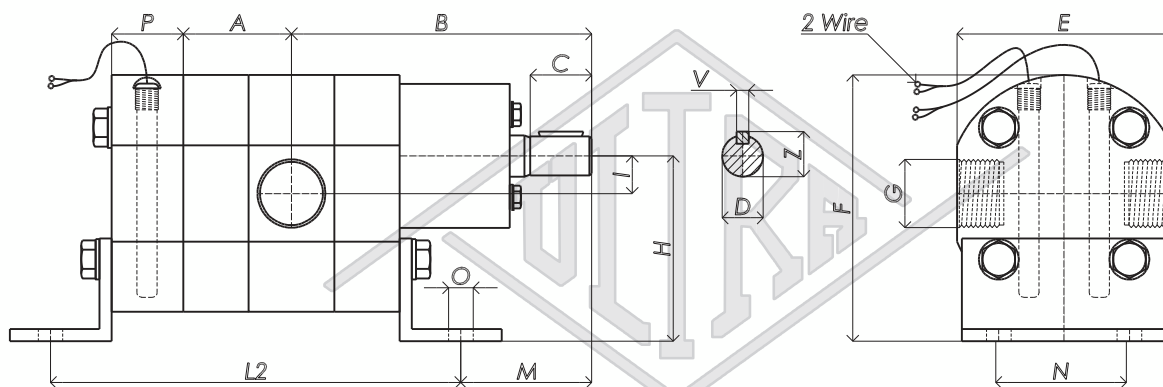
SP-WC

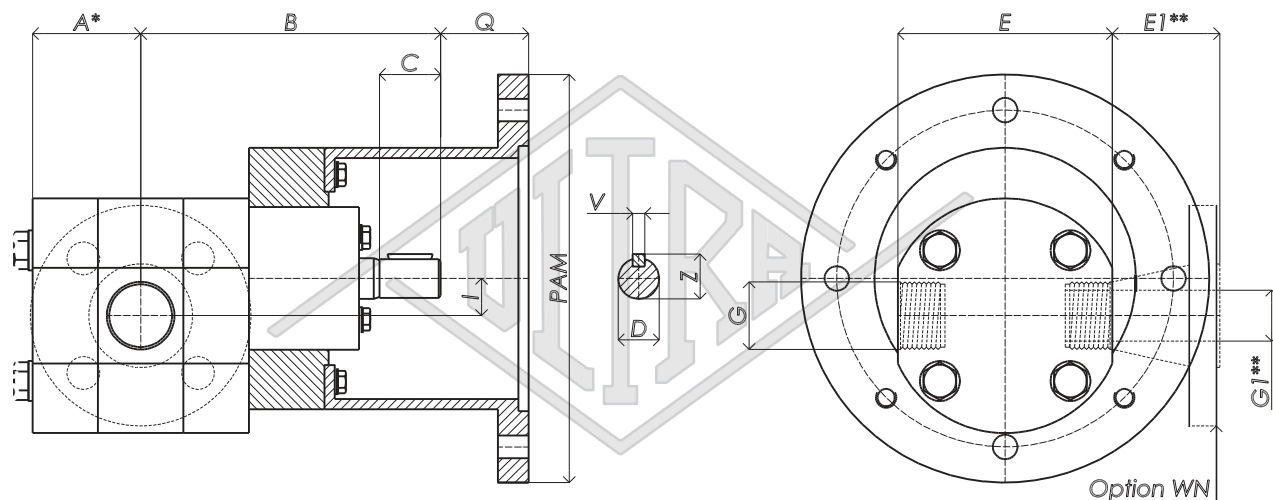


SP-OH



SP-EH





* if Oil or Electric Heating add P to quote A ** if Welded Clamp use E2 and G2

Size	A	B	C	D	E	E1	E2	F	G	G1	G2	H	I	L	L2	M	N	O
1.5	43	94	25	11	65	40	25.6	85	¼"	Dn15	¼"	56	11	94	119	63	44	7
3	53	94												104	129			
4.5	37	120												114	139			
7	44.5	127.5												129	154			
10	40	131	30	14	90	40	25.6	110	½"	Dn15	½"	76	16	130	165	66	56	10
14	45	136				45	25.6		¾"	Dn20	¾"			140	175			
21	54	145												158	193			
28	53	147				52.5	25.6		1"	Dn25	1"			166	201			
35	58	152	35	19	105	52.5	25.6	132	1"	Dn25	1"	90	18	176	211	64	64	12
42	63	157												186	221			
52	72	171				52.5	25.6		1"	Dn25	1"			204	244			
72	81	180				57.5	25.6		1½"	Dn40	1½"			222	264			
93	89	188	50	28	160	57.5	25.6	200	1½"	Dn40	1½"	132	30	230	270	87	122	14
114	97.5	196.5												255	295			
144	90	207				57.5	25.6		1½"	Dn40	1½"			240	280			
200	100	217				60	25.6		2"	Dn50	2"			260	300			
300	118	235							2½"	Dn65	2½"			296	336			

SIZE	P	Q							V	Z
1.5	25	56	56	69	NA	NA	NA	NA	NA	NA
3										
4.5										
7										
10	35	NA	69	69	89	NA	NA	NA	5	16
14										
21										
28										
35	35	NA	NA	68	81	81	105	NA	6	21.5
42										
52										
72										
93	40	NA	NA	NA	83	83	100	151	8	27
114										
144										
200										
300	40	NA	NA	NA	NA	83	100	136	8	31
		71	80	90	100	112	132	160		
		LANTERN (B5 or B14) PAM (Type)								

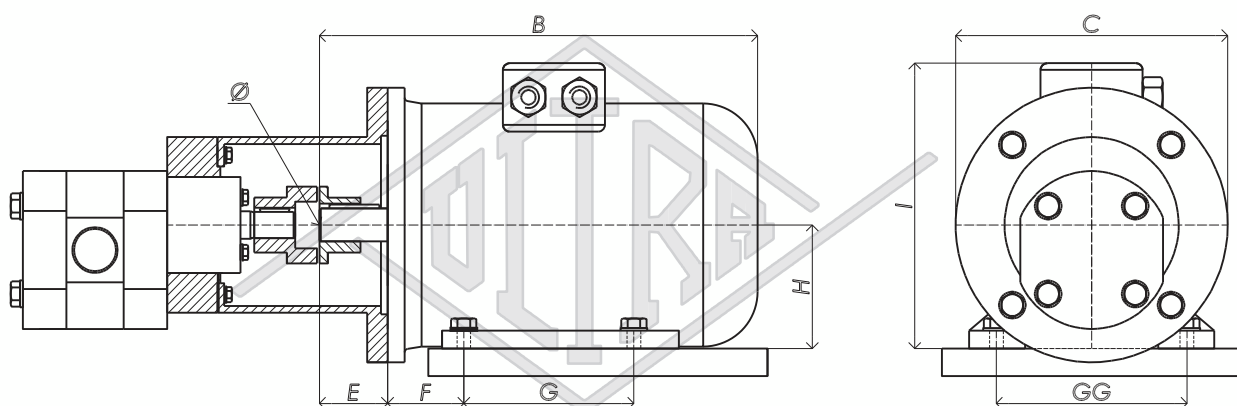
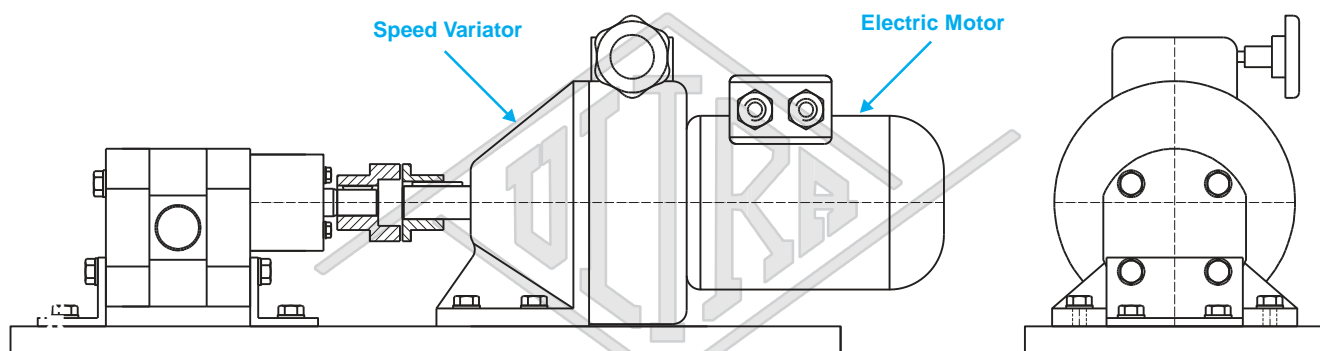
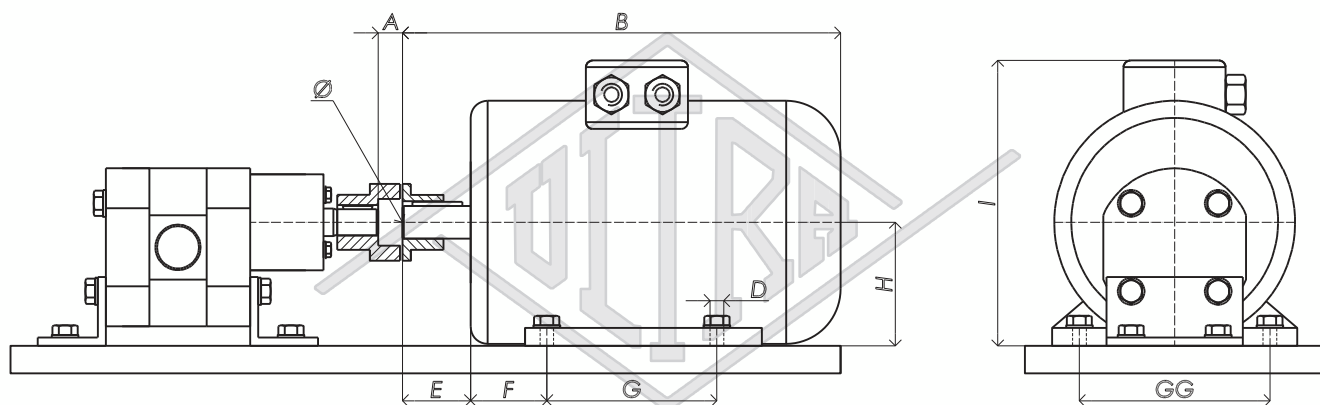
IMPORTANT NOTE

+Chosen dimensions: During the design phase we have tried to use dimensions that can easily match with standard components such as IEC motor dimensions.

+Overall Dimensions change: While in the Flange configuration, the addition of optional parts, such as valve systems or heating systems, doesn't effect coupling dimensions. In the foot configuration, the overall dimensions may change and positions of anchor bolts may change significantly due to modifications. Please contact our office for detailed drawings in these cases.

+ Disclaimer: Please not that all dimensions contained in this catalog are not binding. Please contact our office for detailed drawings.

MORE PUMP SIZE »



SIZE	Gr 71	Gr 80	Gr 90	Gr 100	Gr 112	Gr 132	Gr 160	Pump SIZE			
A	16	16	16	NA	NA	NA	NA	1.5	3	4.5	7
	NA	16	16	18	NA	NA	NA	10	14	21	
	NA	NA	18	18	18	20	NA	28	35	42	
	NA	NA	20	20	20	20	26	52	72	93	114
	NA	NA	NA	20	20	20	26	144	200	300	
B	234	264	302	367	384	483	653				
C	160	200	200	250	250	300	350				
D	7	10	10	12	12	12	15				
E	30	40	50	60	60	80	110				
Ø	14	19	24	28	28	38	42				
F	45	50	56	63	70	89	108				
G	90	100	125	140	140	178	254				
GG	112	125	140	160	190	216	254				
H	71	80	90	100	112	132	160				
I	175	192	208	245	277	312	380				

Why should I use a lantern instead of a foot mounting configuration?

The use of a lantern configuration is used to reduce cost, because it eliminates the baseplate and guard. Additionally it is lighter and reduces shipping costs.

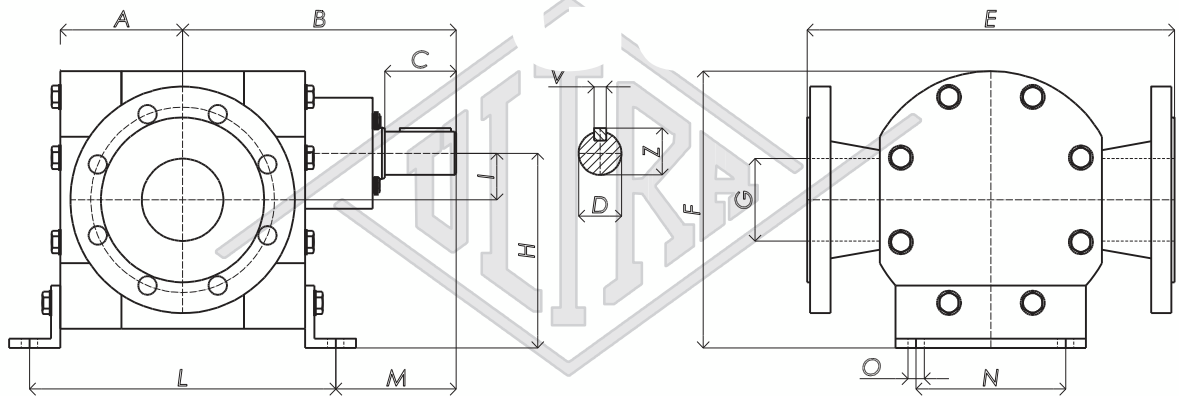
TORSIONALLY FLEXIBLE COUPLINGS

When the pump is connected to the electric motor via a coupling, the dimension "A" is based on the size of the coupling model.

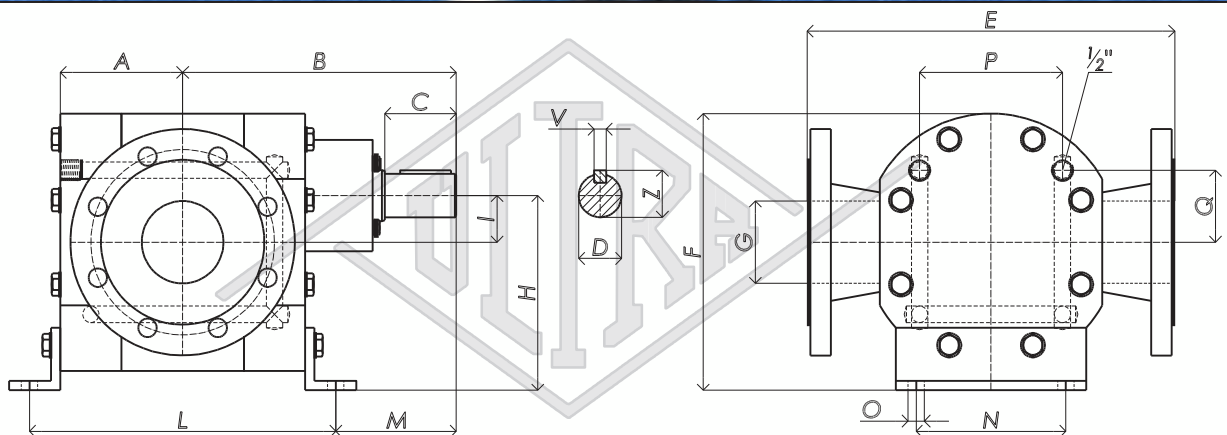
This is determined by each coupling manufacturer. See manufacturer brochure for details.

OUTLINE DRAWING

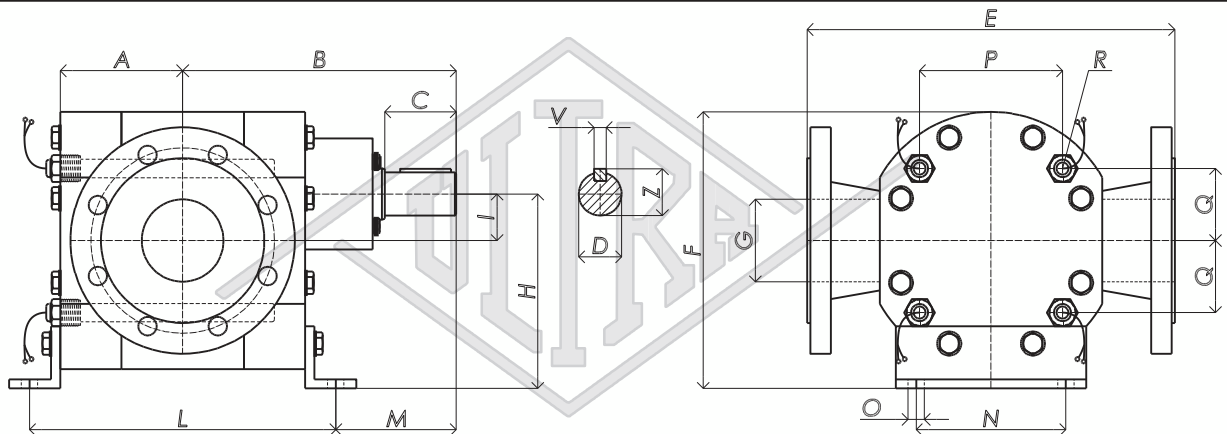
SP-(Standard)



SP-OH



SP-EH



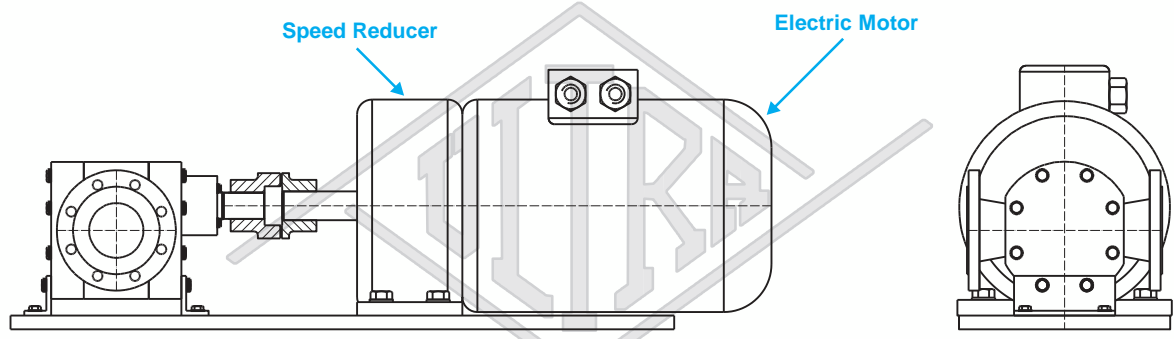
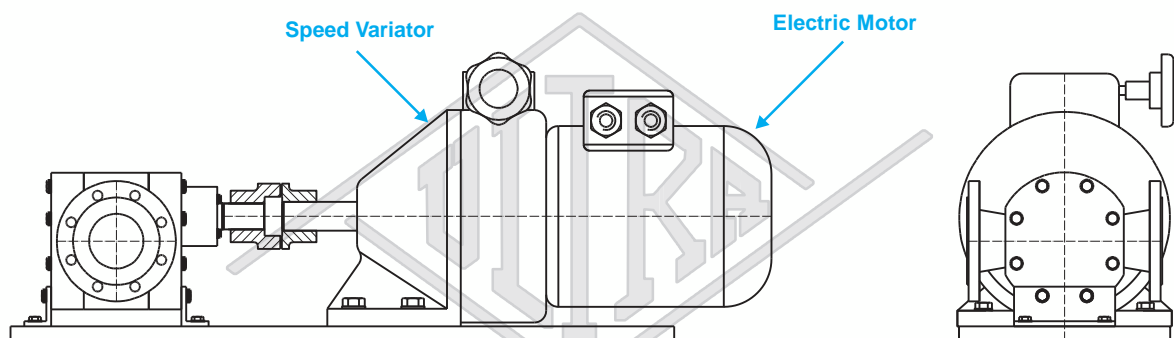
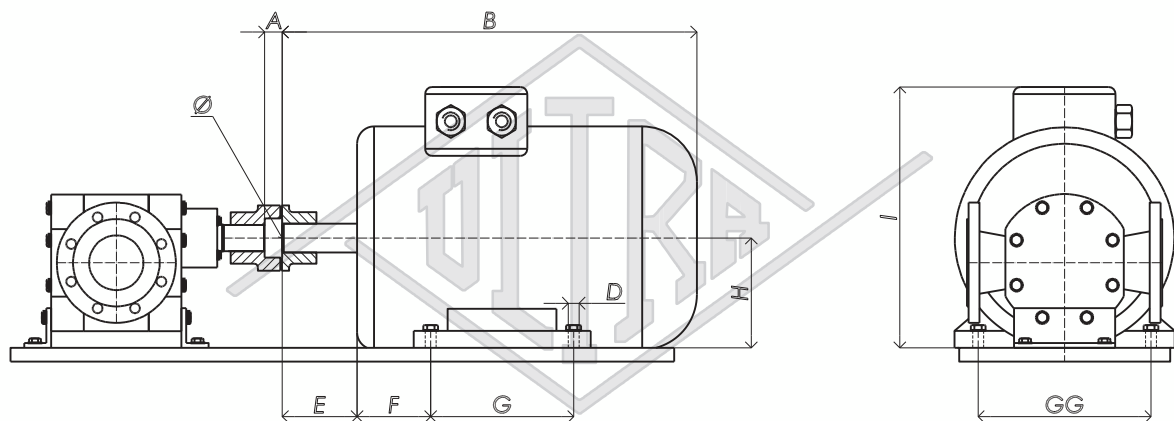
Size	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	V
460	125	257	60	38	310	220	3" Dn80Pn16	150	37	310	102	122	14	118	59	1/2"	10
636	132	280	70	42	370	265	4" Dn100Pn16	184	45	324	118	140	14	140	70	3/4"	12
863	153	301								366							
1330	178	341	80	48	410	275	5" Dn125Pn16	200	49	416	133	150	14	150	70	3/4"	14

Size	V	Z
460	10	41.5
636	12	45.5
863		
1330	14	52

IMPORTANT NOTE

+Chosen Dimension: During the design phase, we have tried to use dimensions that easily match with standard components, such as IEC motor dimensions.

+Disclaimer: Please note the dimensions in this catalog are not binding. Please contact our office for detailed drawings.



SIZE	Gr 132	Gr 160	Gr 180	Gr 200	Gr 225	Pump SIZE
A	26	26	26	NA	NA	460
	NA	26	26	26	28	636 863
	NA	26	26	26	28	1330
B	483	653	697	779	817	
C	NA	NA	NA	NA	NA	
D	10	15	15	19	19	
E	80	110	110	110	140	
Ø	38	42	48	55	60	
F	89	108	121	133	179	
G	178	254	279	305	286	
GG	216	254	279	318	356	
H	132	160	180	200	225	
I	312	380	412	457	476	

TORSIONALLY FLEXIBLE COUPLINGS

Drive unit connected to pump via flexible coupling. Dimension "A" is mainly due by size and model of used coupling: each factory has its own size. Quote "A" dimensions are valid just for foot configuration and are not binding.

APPLICATIONS

General note on Stainless Steel pumps

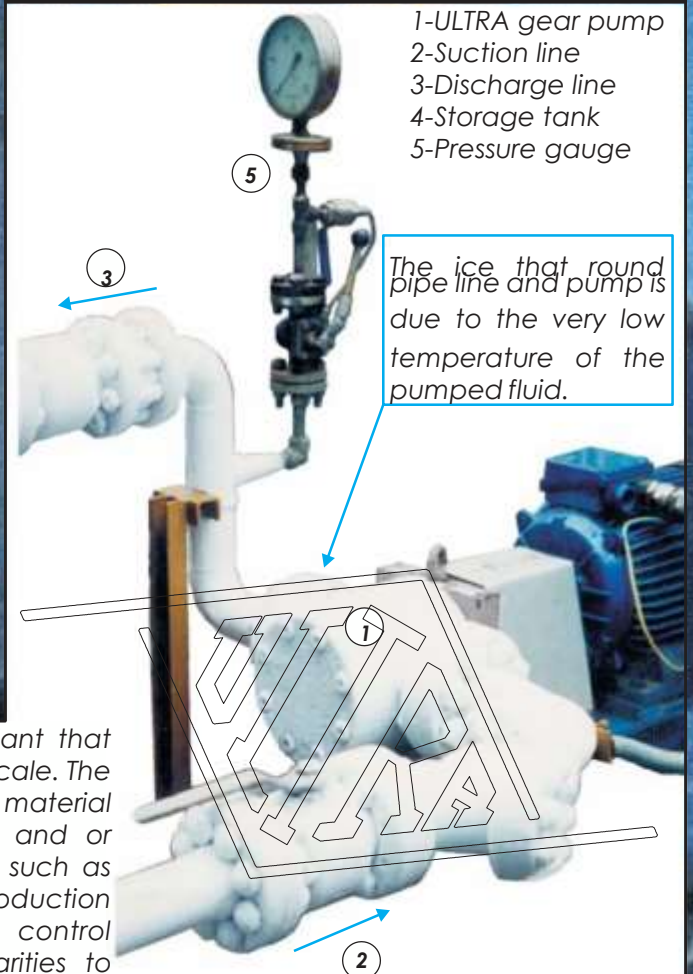
The **S-series Ultra** gear pump is usually installed in chemical plants, but is also suitable to be used in the food industry to pump food grade materials, food oil and other such products. Some plants that use CIP (Clean in Place) systems use the pump to remove impurities from the system. The pump is used to remove impurities from the system.

Stainless steel is a family of iron alloys with a minimum of 10.5% chromium content. The name originates from the fact that stainless steel does not corrode or rust as easily as ordinary steel. This material is also called corrosion resistant steel when it is not detailed exactly to its alloy type and grade, particularly in the aviation industry. As such, there are now different and easily accessible grades and surface finishes of stainless steel, to suit the environment to which the material will be subjected to in its lifetime.

SP460V WN

What is Stainless Steel? In metallurgy, stainless steel is defined as an iron carbon alloy with a minimum of 10.5% chromium content. The name originates from the fact that stainless steel does not corrode or rust as easily as ordinary steel. This material is also called corrosion resistant steel when it is not detailed exactly to its alloy type and grade, particularly in the aviation industry. As such, there are now different and easily accessible grades and surface finishes of stainless steel, to suit the environment to which the material will be subjected to in its lifetime.

Special application (SP636KT WN)



What is a chemical plant? It is an industrial process plant that manufactures or processes chemicals, usually on a large scale. The general objective of a chemical plant is to create new material wealth via the chemical or biological transformation and or separation of materials. Other kinds of industrial plants, such as polymer, pharmaceutical, food, some beverage production facilities, power plants, oil refineries and pollution control equipment use many technologies which have similarities to chemical plant technology such as fluid systems.

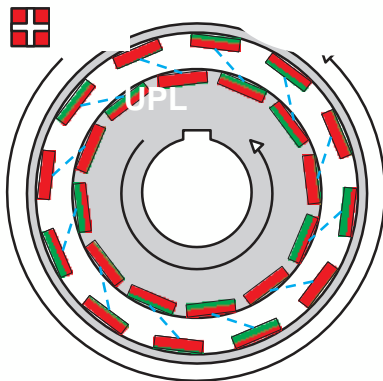
APPL N

Add itional

The coupling consists of an external and an internal rotor. The external rotor has permanent magnets on the inner side and the internal rotor has them on the outside. Magnets of the internal rotor are encapsulated through a magnetic cover that is impervious to fluids.

It is only when the rotors are twisted that the magnetic field lines are moved, that the torque is transmitted through the air gap. Then there is a synchronous operation under a constant torsion angle.

If the maximum coupling torque and the maximum torsion angle are exceeded, the power transmission is interrupted. So magnetic coupling offers an overload protection function of the drive train. After removing the cause of the overload both rotors can be synchronised again and operation is resumed.



Internal rotor

External rotor

Bell

SP300V WN, SP42V WN, SP14V WN and SP3V WN

A I C A T P H O N E S

SP14V WN

SP42V WN

SP114V WN

SP460V WN



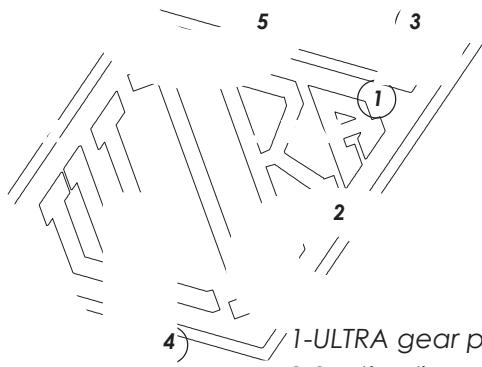
APPL

Installation on

Storage

Tank

S-series gear pump are usually installed on a chemical plant. On the example is showed a chemical storage tank and its transfer gear pump, note that tank pump and also pipe are made of stainless steel.



- 1-ULTRA gear pump
- 2-Suction line
- 3-Discharge line
- 4-Storage tank
- 5-Pressure gauge

WN

SP863V WN and SP3T

863 cc/rev

3 cc/rev