

ECCENTRIC SCREW PUMPS • ROTARY LOBE PUMPS



BELLIN
THE POWER OF EXPERIENCE

THE POWER OF EXPERIENCE



THE ORIGINS

BELLIN S.p.a was established and has grown in Orgiano by mean of the intuition and initiative of Giovanni Carlo Bellin in the 1950's. Equipment for the agricultural sector was originally produced there, in particular trailers for tractors and then tank trucks for irrigation. Subsequently/Following this the production was displaced in the development of the "eccentric screw pumps" and BELLIN became the oldest Italian producer of "screw" pumps thanks to this decision. Subsequently, however, and thanks also to the versatility of these pumps, requests from the industrial sector, and in particular the sewage treatment plants, industries, oenological and agro-alimentary fields, became more frequent.



PRODUCTION UNIT 1



HEADQUARTERS - PRODUCTION UNIT 2

BELLIN S.P.A. TODAY

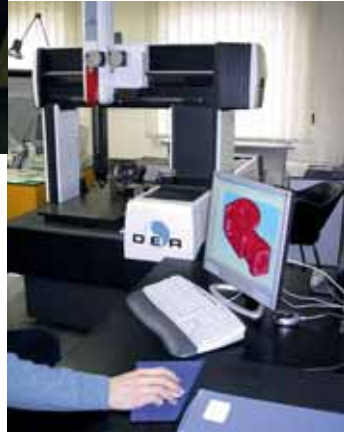
The product range in the 90s it was then enlarged in the design and development of PL series rotary lobe pumps, allowing to BELLIN to offer a wide range of solutions to various pumping problems.

High technology machineries are used in the manufacturing process (C.L - CNC etc.). The two factories in Orgiano cover a surface area of more than 6,000 square metres and guarantee a high productive capacity, which means that orders are executed in very short times.

The technical staff BELLIN always grant a important support in the most suitable pump selection according to customer's requirement.

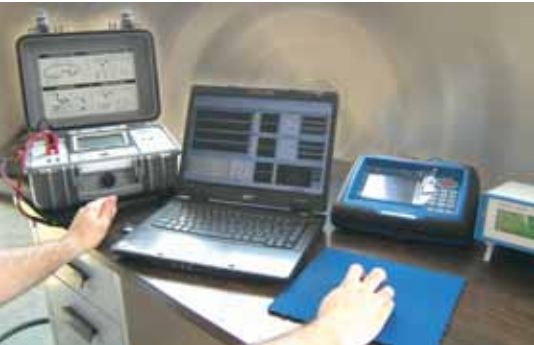
The constant participation at the most important exhibitions and several agreements with commercial partners abroad contribute in confirming the "BELLIN S.p.a." brand.





PRODUCTION FLOW

BELLIN S.p.a. production flow from design to the internal implementation of each part of the pump with constant monitoring of the quality of both, product and production process.



The almost immediate availability of spare parts, thanks to a important and continuous company investment in the business "spare parts stock", allowing the Company to resolve its clients' problems in very short times, avoiding long and costly plant stops.

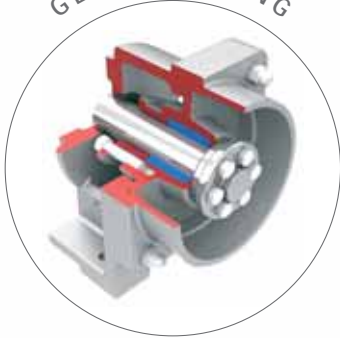


Bellin S.p.A. provides not only products but also solutions, giving to customers the Bellin's experience!



ECCENTRIC SCREW PUMPS

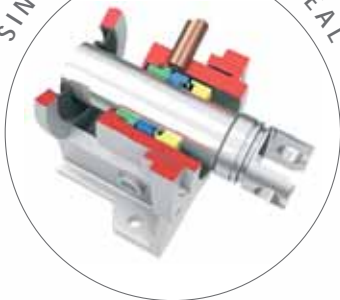
GLAND PACKING



PACKING WITH FLUSHING RING



SINGLE MECHANICAL SEAL



DOUBLE MECHANICAL SEAL



CONNECTIONS

- flange according to UNI/DIN
 - gas threaded
 - sanitary DIN 11851
 - oenological type "garolla"
 - other on request

CONSTRUCTION:
with BEARINGS
SUPPORT

SEALING

CONSTRUCTION:
MONO-BLOCK PUMP
(FLANGED SUPPORT)

SUCTION CASING

- grey cast iron GJL 200
- stainless steel AISI 304 (1.4301)
- stainless steel AISI 316 (1.4401)
- other on request

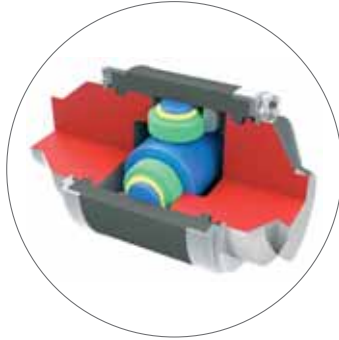
E X E C U T I O N

ECCENTRIC SCREW PUMPS

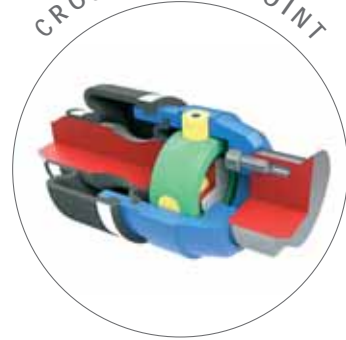
UNIVERSAL PIN



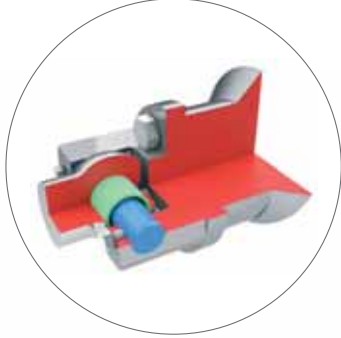
CROSS



CROSS-COVER JOINT



HYGIENIC



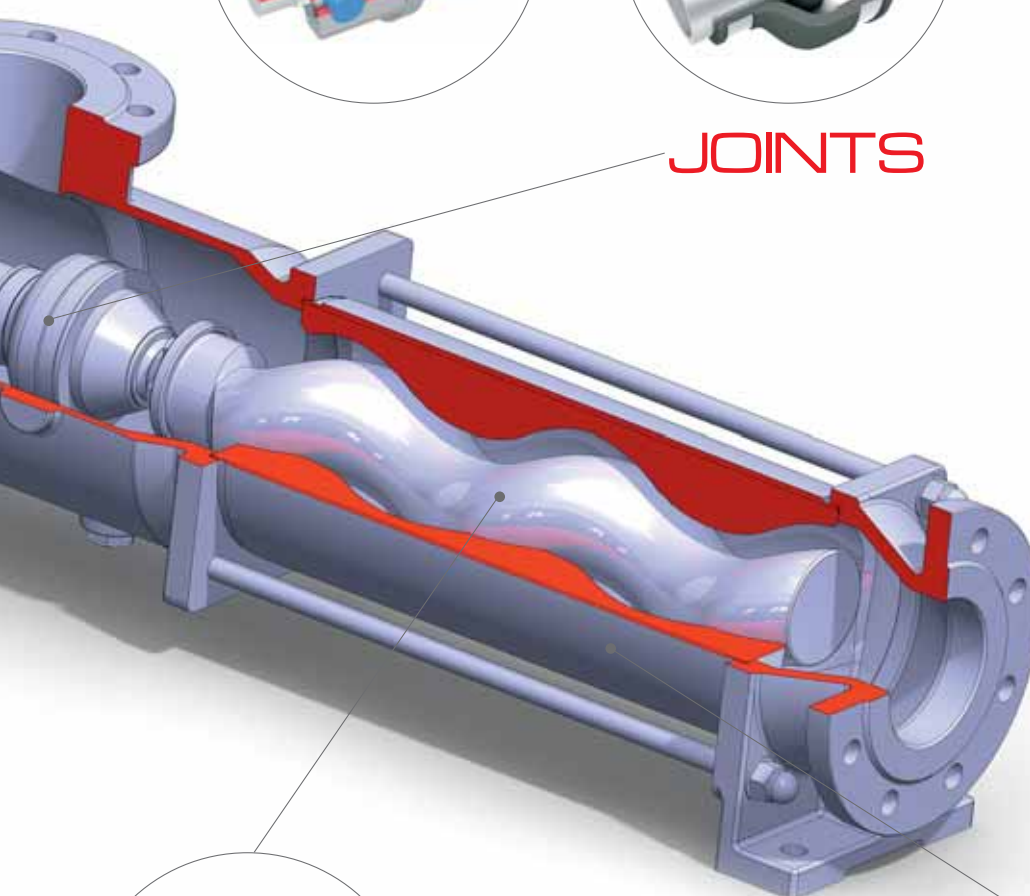
HOMOKINETIC



CARDANIC



JOINTS



ROTORS

- carbon steel with chrome plating
- stainless steel AISI 304 (1.4301)
- stainless steel AISI 316 (1.4401)
- other on request

STATORS

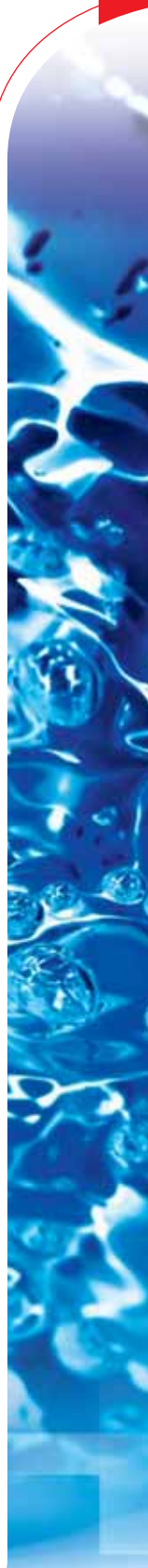
- NBR rubber
- HNBR rubber
- EPDM rubber
- CSM rubber
- FPM rubber
- food grade rubber



ROTORS STANDARD GEOMETRY



ROTORS LONG PITCH GEOMETRY





ECCENTRIC SCREW PUMPS



TYPE "N"

Execution with bearings housing for coupling with any kind of drive through a flexible coupling.
Strong construction suitable for heavy duty jobs.
Capacity up to 260 m³/h - Pressure up to 30 bar.
(Special executions up to 50 bar).



TYPE "L"

Mono-block execution direct-coupled to the motor.
Unit. Compact and economical version to meet the needs of limited space.
Capacity up to 110 m³/h - Pressure up to 14 bar.



TYPE "T" - "LT"

Execution with hopper and infeed screw to convey high viscous products.
Capacity up to 260 m³/h - Pressure up to 24/30 bar.



TYPE "T" - "LT" with bridge breaker system

Execution as type "T"-LT" but with a "bridge breaker" system to transfer products which have the tendency to bridge above the infeed screw (e.g. dewatered sludges from belt press).
Capacity up to 260 m³/h - Pressure up to 24/30 bar.



TYPE "T" - "LT" for dewatered sludges

Execution as type "T"-LT" with special infeed screw at high efficiency and profile to transfer sludge with high concentrations of solids; the arrangement is able sometimes to substitute the bridgebreaker device.
Body pump stator side entrance easily removable and washable.
Capacity up to 260 m³/h - Pressure up to 24/30 bar.

ECCENTRIC SCREW PUMPS



TYPE "E" DOSING PUMPS

Small pumps ideal for metering and dosing duties. Compact execution direct-coupled to the motor unit. Capacity up to 3000 l/h - Pressure up to 14 bar.



TYPE "U"

Mono-block execution suitable in the olive oil industry.



TYPE "LS"

Execution in stainless steel can be used in the oenological sector in many different ways: for pumping wine-must for simple transfers, for filter replacement-feeding - filling operation etc. Execution with hopper type "LTS" to transfer crushed grapes, grapes, etc. Capacity up to 110 m³/h - Pressure up to 14 bar. (See also OENOLOGICAL section).



TYPE "HYGIENIC - FOOD GRADE"

Pump made of stainless steel, designed to have high hygienic standards. Construction with open joints shaft, free of stagnation points for optimal cleaning. On request, the pump is supplied with special connections for CIP cleaning.



TYPE "V"

Semi-submersible pumps in vertical execution suitable to transfer high viscous products.



ECCENTRIC SCREW PUMPS

OPERATION

The "eccentric screw pumps" are "positive displacement" pumps. The 2 principal parts are the "rotor" (round thread screw) which turns eccentrically inside a fixed rubber part, the "stator" (vulcanized rubber into a steel cylinder) - moving the fluid in a series of cavities along the axis of the pump.

FEATURES

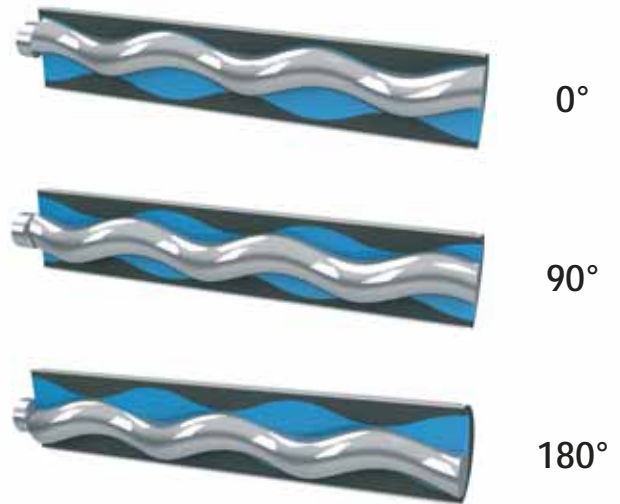
Bellin eccentric screw pumps have been constructed for easy, low maintenance: wear parts can easily be replaced on the site. Eccentric screw pumps are heavy duty pumps and they can be used to pump abrasives sludges, viscous products, oils, emulsions etc. Due to the steady non turbulent flow they can also handle shear sensitive products and medium with solids content without breaking up the solids.

ADVANTAGES

Bellin eccentric screw pumps have many advantages over other types of pumps which allow use extremely diverse:

- self priming up to 7-8 mt
- low speed and so longer pump life (200-500 r.p.m. in comparison to 1400-2800 r.p.m of the centrifugal pumps)
- suitable to transfer abrasive and highly viscous products
- steady flow with minimum pulsation and low shear effects
- high abrasion resistance
- minimum maintenance
- low noisy
- capacity up to 260 mc/h
- pressure up to 30 bar
- direct relation between conveying capacity and speed makes the Bellin pumps suitable also for dosing purposes.

OPERATION DIAGRAM



Pump "PRESSURE" depends on the number of rotor/stator stages:



1 STAGE:
UP TO 6-7 BAR

2 STAGES:
UP TO 12-14 BAR

4 STAGES:
UP TO 24-28 BAR

IDENTIFICATION CODE PUMPS: EX.

N	G	4000	M	/	P
Pumps execution	Materials	Pumps size	Max pressure	Type rubber	stator	Optional

ECCENTRIC SCREW PUMPS: PERFORMANCE TABLE

PUMP TYPE	MAX CAPACITY @ 0 bar	MAX PRESSURE	MAX SPEED	PUMP TYPE	MAX CAPACITY @ 0 bar	MAX PRESSURE	MAX SPEED	PUMP TYPE	MAX CAPACITY @ 0 bar	MAX PRESSURE	MAX SPEED
	m³/h	bar	r.p.m.		m³/h	bar	r.p.m.		m³/h	bar	r.p.m.
50	0,035	28	1000	450C	25	6	600	800L	22	20	400
100	0,09	12-14	1000	500M	5,5	9	500	1000M	45	6-7	500
150C	0,75	6-7	1000	500L	5,5	20	500	1200M	55	8-9	500
150M	0,75	12-14	1000	500AL	15	6	600	1200L	45	12-14	400
200C	1,5	6-7	1000	500AL2	12	12	500	1200L2	35	24-28	300
210C	3	6-7	1000	530L	9	24	400	2000M	70	6-7	450
200M	1	12-14	600	550C	15	6-7	600	3000M	100	6-7	450
200L	0,8	24-28	500	550M	12	12-14	500	3000L	80	12-14	400
300C	4	6-7	700	550L	10	24-28	400	3000L2	60	24-28	280
300M	3,5	12-14	600	570L	6,5	40	400	3500M	110	6-7	350
300L	2,8	24-28	500	600C2	25	6-7	500	4000M	130	6-7	350
400C	9	6-7	700	600M	25	9	500	4000L	110	12-14	300
400B	6	12-14	500	600M2	25	12-14	500	5000M	180	6-7	300
400L	2	20	500	600L	20	24	400	5500L	240	12	300
400AL	9	6	700	800M	30	8	500	6000M	260	5-6	300

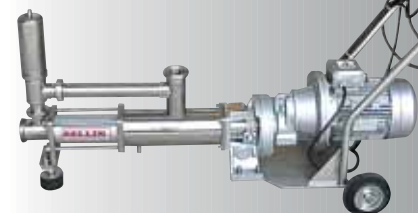
P E R F O R M A N C E

ECCENTRIC SCREW PUMPS



ELECTRIC CONTROL PANEL WITH TEMPERATURE PROBE IN THE STATOR

Dry running protection device



BY PASS WITH SAFETY VALVE

Discharge overpressure device



ELECTRIC CONTROL PANELS

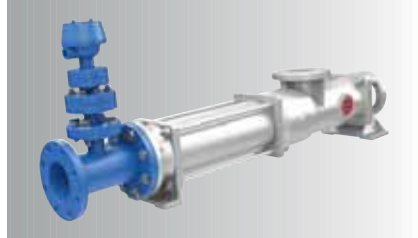
For start/stop, protection of electro-pump and various regulations



VARIABLE SPEED DRIVE WITH ELECTRIC SERVOMOTOR



HOPPER WITH LEVEL SENSOR FOR FLUID PRESENCE



PRESSURE SWITCH FOR MINIMUM AND MAXIMUM PRESSURE

Device for dry running protection and discharge overpressure



ELECTRIC CONTROL PANEL COMPLETE WITH INVERTER

O P T I O N A L



ECCENTRIC SCREW PUMPS



Execution with mechanical speed variator drive.



Execution coupled by flexible coupling to speed reducer.



Execution with mechanical speed variator drive with electric servomotor and remote control 4-20 mA.



Execution with diesel engine with speed gear - aside coupled by sprocket and chain - on trolley. Available also execution on baseplate.



Execution coupled by flexible coupling to simpla-belt variator drive (for electric power over 11 kW).



Execution with V-belt transmission on trolley. Available also execution on baseplate.



Execution with hydraulic motor (radial piston or orbital).



Execution with hopper and infeed screw; with bridge breaker system driven by independent speed reducer.



Execution with motoinverter.



Execution with hopper - coupled to speed reducer - complete of electric control panel and inverter.

D R I V E S S Y S T E M

ECCENTRIC SCREW PUMPS

BELLIN eccentric screw pumps are used in the following fields of application:

WATER TREATMENT PLANTS: to feed centrifugal machines - press belts - filter presses; to meter milk of lime and flocculants; to transfer primary mud, digested mud, activated and dehydrated sludge (up to a dry content of 30-35%) waste water mud, waste lye, washing water, etc.

CHEMICAL INDUSTRY: to transfer and meter synthetic resin dispersions and emulsions, thick adhesives, magnesia, lyes, colouring pastes and paints without solvents and pigmented and transparent enamels, etc.

CERAMIC INDUSTRY: to pump china slip, clay, fireclay, enamels, etc.

BUILDING INDUSTRY: to transfer unicellular cement, mortar of cement, cement/sand and water mixtures, bentonite, grout, lime compound, light concrete.

PAPER-MAKING INDUSTRY: to pump starch paste, rag pulp, paper-mill mud, milk of lime, wood pulp (up to a dry content of 18%), paper pulp (up to a dry content of 10%), cellulose, etc.

MINING INDUSTRY: to transfer mining water with various compositions, for flotation mud, grease, oils, etc.

SHIPYARDS: for brackish water, separation mud, separator feed, etc.

FISH PROCESSING INDUSTRY: for pumping small pieces of fish, press water and fish waste, concentrate.

AGRICULTURE: to transfer sewage pigs and cattle, various swill, chemicals and liquids product for the consolidation of land, etc.

OENOLOGIC AND DRINKS INDUSTRY: for pumping wine musts, de-stemmed and crushed, fermented grapes, whole grapes, fruit juices or concentrates, pulps of fruits and vegetables, etc.

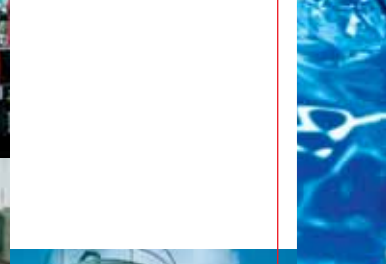
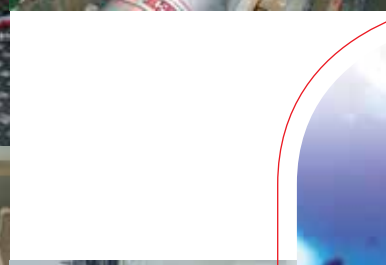
OLIVE OIL INDUSTRY: for pumping oil, olive paste, olive residue, etc.

SUGAR-REFINERIES: to transfer sugary solutions, molasses, saturation and waste mud, thickened mud and milk of lime.

STARCH FACTORIES: to transfer glens, starch-water, grated potato, starch paste, etc.

OTHER INDUSTRIES: installation on tank truck, marble mills, tanneries, slaughterhouses, etc.

USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES ACCORDING TO ATEX DIRECTIVE 94/9/EC petrochemical, offshore platforms, distilleries, paint manufacturing, dyeing fabrics, etc.



A P P L I C A T I O N S



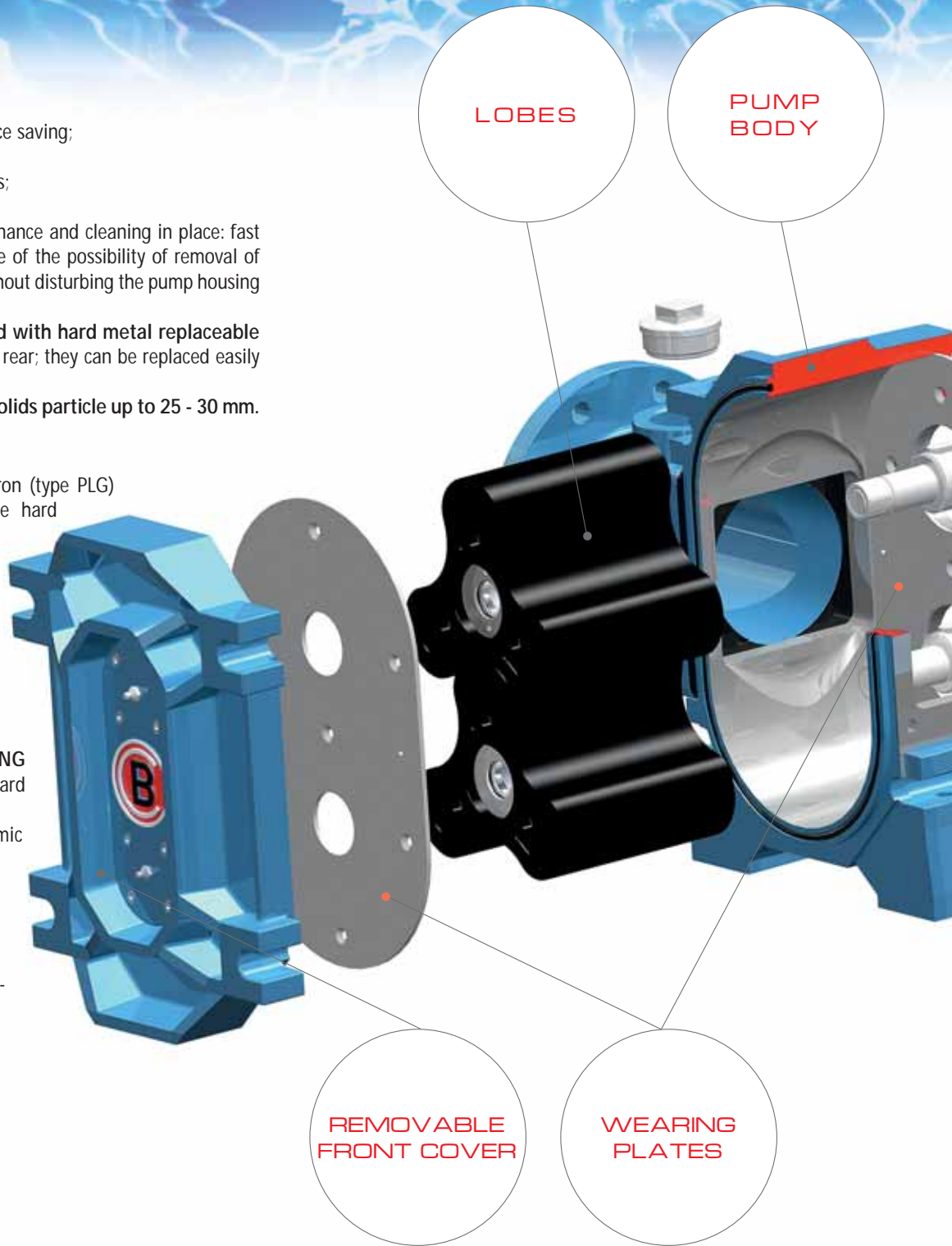
ROTARY LOBE PUMPS

FEATURES

- **Compact construction:** space saving;
- **Self-priming** up to 7-8 mt.;
- **Dry running** for short periods;
- **Reversible operation**;
- **Easy maintenance** - maintenance and cleaning in place: fast opening of the pump because of the possibility of removal of the front inspection cover without disturbing the pump housing or pipe work;
- **Pump body can be supplied with hard metal replaceable wearing plates** at front and rear; they can be replaced easily on site;
- **Possibility to handle large solids particle** up to 25 - 30 mm.

EXECUTION

- **PUMP BODY:** in grey cast iron (type PLG) with possibility of replaceable hard metal wearing plates in HARDOX (PLGP type); for oenologic execution: see special section.
- **LOBES:** covered with
 - NBR rubber
 - EPDM rubber
 - FPM rubber
 - Other on request;
- **HARD METAL WEARING PLATES:** internal removable hard steel HARDOX plates;
- **MECHANICAL SEAL:** ceramic or tungsten carbide self-lubricated;
- **CONNECTIONS:**
 - flange according to UNI/DIN
 - ball joints
 - oenological type "garolla" - DIN - SMS
 - other on request.



OPERATION

Bellin Rotary Lobe Pumps type "PL" are of the positive displacement pumps type; the two counter-rotating rubber tri-lobes are synchronised. The product is displaced in the direction of the volume flow into the discharge side.



PERFORMANCE TABLE

PUMP TYPE	MAX CAPACITY @ 0 bar	MAX PRESSURE	MAX SPEED
	m ³ /h	bar	r.p.m.
PL-500	35	8	600
PL-1500	80	8	500
PL-2500	132	8	500
PL-3500	180	6	400
PL-4000	125	3	300
PL-7000	230	3	250

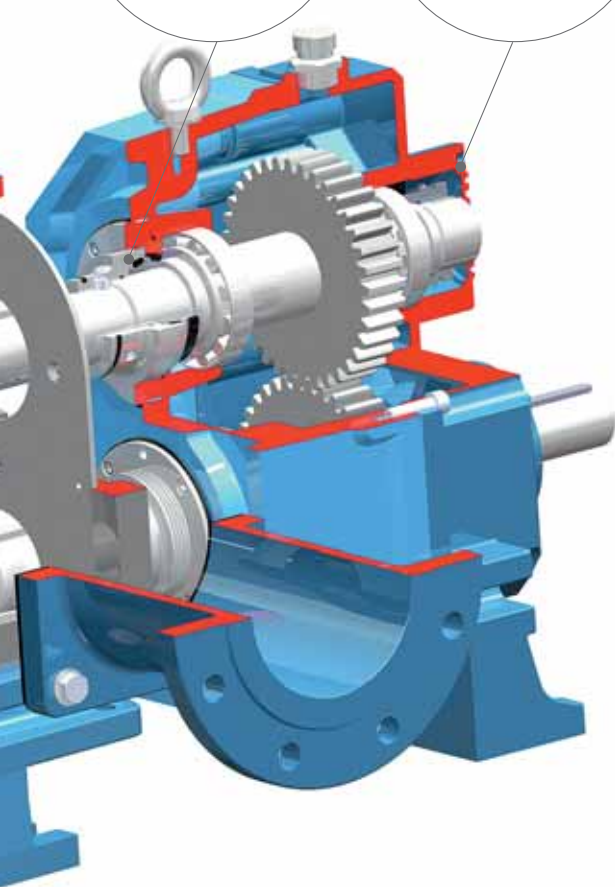
E X E C U T I O N

ROTARY LOBE PUMPS

DRIVES SYSTEM

SELF-LUBRIFICATED MECHANICAL SEAL

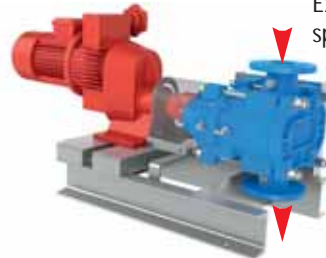
GEAR BOX



Execution with speed reducer



Execution with diesel engine with speed gear



Execution with mechanical variable speed drive and pump in vertical position



Execution with hydraulic motor



Execution with simpla-belt variator drive



Execution with V-belt transmission

FIELDS OF APPLICATION

CERAMIC INDUSTRY: to pump china slip, clay, fireclay, enamels, etc.

BUILDING INDUSTRY: to transfer unicellular cement, mortar of cement, cement/sand and water mixtures, bentonite, grout, lime compound, light concrete, etc.

PAPER-MAKING INDUSTRY: to pump starch paste, rag pulp, paper-mill mud, milk of lime, etc.

MINING INDUSTRY: to transfer mining water with various compositions, for flotation mud, grease, oils, etc.

SHIPYARDS: for brackish water, separation mud, separator feed, etc.

FISH PROCESSING INDUSTRY: for pumping small pieces of fish, press water and fish waste, concentrate.

AGRICULTURE: to transfer sewage pigs and cattle, various swill, chemicals and liquids product for the consolidation of land, sewage sludge, etc.

EXECUTION OENOLOGICAL: see special section.

SUGAR-REFINERIES: to transfer sugary solutions, molasses, saturation and waste mud, thickened mud and milk of lime.

WATER TREATMENT PLANTS: to feed centrifugal machines - press belts - filter presses; to meter milk of lime and flocculants, to transfer primary mud, digested mud, waste water mud, waste lye, washing water, etc.

For applications on **WASTE DISPOSAL TANKERS - TANK TRUCK** recovery oils.

USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES ACCORDING TO ATEX DIRECTIVE 94/9/EC petrochemical, offshore platforms, distilleries, paint manufacturing, dyeing fabrics, etc.



RECOVERY OILS PLANT



INSTALLATION ON TANK TRUCK



WATER TREATMENT PLANTS



DRIVES SYSTEM - APPLICATIONS



THE BELLIN ECCENTRIC SCREW PUMPS are used successfully for years in the oenological industry, olive oil and agro-alimentary. Thanks to its great versatility, eccentric screw pumps can be used in the "oenological" sector in many different ways: for pumping wine must for simples transfers, for filter replacement-feeding - filling operation etc. In the "olive oil" sector have been successfully used for pumping olive paste (decanter feeding), humid olive residues, filtered and unfiltered oil, etc...

Execution with capacity from 10 to 1000 qli/h - pressure up to 6-14-24 bar.

Bellin eccentric screw pumps in **execution with hopper** and infeed screw are used, for the transfer of crushed grapes and fermented grapes. Also available with additional infeed paddles for pumping whole grapes or heavy fermented grapes.



Eccentric screw pump for transfer of wine - must - oil



Pump type TLS with paddle bridge-breaker for transfer of whole grapes-fermented grapes



Pump type LTS dry running protection device (temperature probe in the stator)



Eccentric screw pump with variable speed drive and bypass against over-pressure

THE BELLIN ROTARY LOBE PUMPS are used for transfer grapes - crushed grapes; to handle fermented grapes coming from the fermentation tanks.

Fixed executions for direct coupling to the infeed-conveyor or executions on trolley complete of inlet hopper.

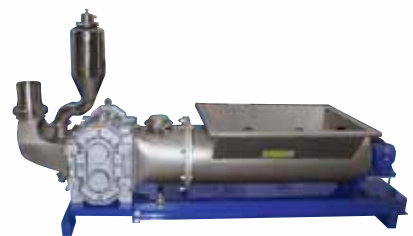
Usable also without inlet hopper for transfer of wine, must, crushed grapes.

ROTARY LOBE PUMPS: PERFORMANCE TABLE

PUMP TYPE	CAPACITY	PRESSURE	SPEED	POWER	OUTLET CONNECTIONS
	t/h	bar	r.p.m.	kW	mm
PLWX 4000	30-70	3	140-190	5,5-7,5	120
PLWX 7000	50-140	2-3	100-140	11-15	120-150



Rotary lobes pump type PL 4000 for pumping of whole grape



Rotary lobes pump type PL 7000 - fixed execution with inlet hopper



Rotary lobes pump type PL 4000 for transfer of wine-must-crushed grapes



Pump-multipurpose PL 4000 for use down vertical fermentation tanks or coupled to infeed-conveyors

CUSTOM PUMPS



Eccentric screw pump with hopper with one side open for connection to infeed conveyor



Eccentric screw pump with "raised" hopper



Eccentric screw pump with big suction connection for direct connection to tanks



Eccentric screw pump with special hopper under tank



Eccentric screw pump with special infeed paddles bridge breaker



Eccentric screw pump with enlarged extra-hopper



Eccentric screw pump with hopper and special suction cover to be connected to silos



Multistage high-pressure eccentric screw pump

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TÜV IT 09 ATEX 034 AR
TÜV IT 10 ATEX 002 AR
TÜV IT 10 ATEX 041 AR