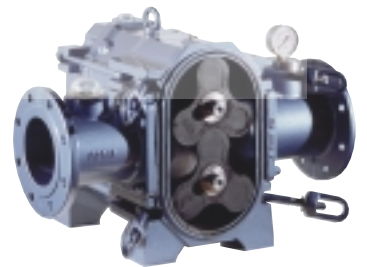
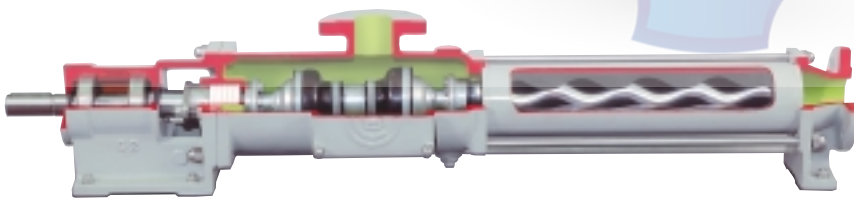




**ECCENTRIC SCREW PUMPS  
ROTARY LOBE PUMPS**

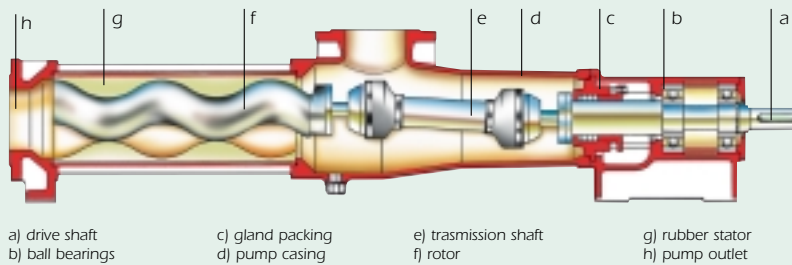
**ELECTROPOWER**  
FOR TRADING AND IMPORTING



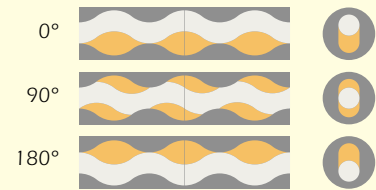
# BELLIN ECCENTRIC SCREW PUMPS

The "eccentric screw pump" is a member of the "positive displacement" pumps group. The 2 principal parts are the "rotor" (round thread screw) which turns eccentrically inside a fixed rubber part, the "stator". Cavities are created between the rotor and the stator which move progressively forward in a rotating movement free of pulsation.

Eccentric screw pump elements



Pumping principle



## BELLIN ECCENTRIC SCREW PUMPS AND THEIR FEATURES

Bellin eccentric screw pumps have been constructed for easy, low maintenance: in fact 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.

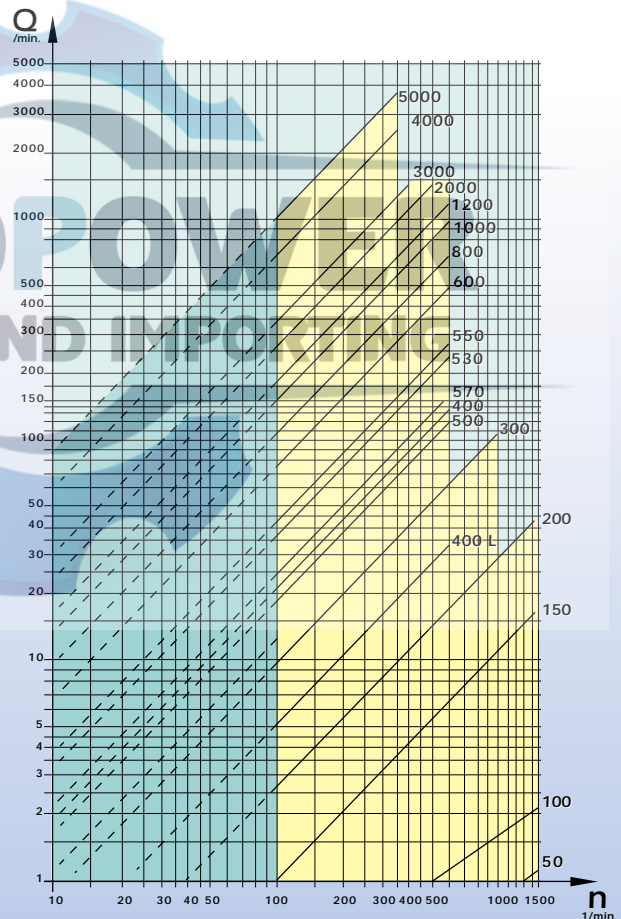
- self priming up to 7-8 mt
- low speed and so longer pump life (200-500 r.p.m. in comparison to 1400-2800 r.p.m of the centrifugal pumps)
- suitable to transfer abrasive and highly viscous products
- steady flow with minimum pulsation and low shear effects
- high abrasion resistance
- minimum maintenance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

"Theoretical capacity" is in relation to the pump speed and to rotor dimension. Theoretical capacity is as below:

$$Q_{th} = 4e \times d \times S \times V$$

e = rotor eccentricity  
d = rotor diameter  
S = stator pitch / twice rotor pitch  
V = rotor speed

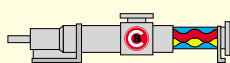
Pump "pressure" depends on the number of rotor/stator stages.



Data refers to water at 20°C - pressure=0 bar.  
All indications are without any obligation.

### • MAX DIFFERENTIAL PRESSURE

Pump type	Press. bar	Pump type	Press. bar	Pump type	Press. bar	Pump type	Press. bar	Pump type	Press. bar
50	30	300 C	7	500 L	20	600 M	9	1200 L2	30
100	14	300 M	14	530 L	24	600 M2	14	2000 M	7
150 C	7	300 L	28	570	50	600 L	24	3000 M	7
150 M	14	400 C	7	550 C	7	800 M	8	3000 L	14
200 C	7	400 B	14	550 M	14	800 L	20	3000 L2	25
200 M	14	400 M	20	550 L	30	1000 M	8	4000 M	7
200 L	28	500 M	10	600 C2	7	1200 M	8	4000 L	14
						1200 L	14	5000 M	6



1 stages:  
up to 6-7 bar



2 stages:  
up to 12-14 bar



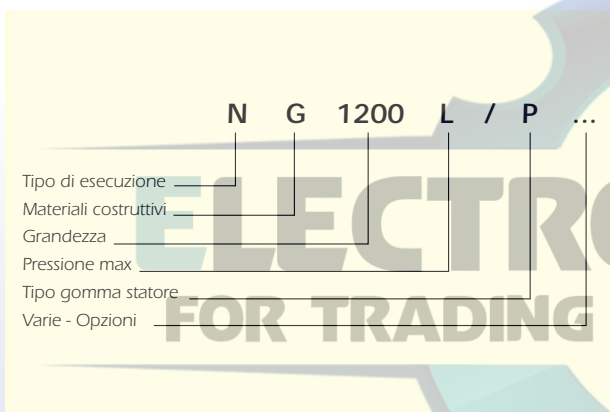
4 stages:  
up to 24-28 bar

## TECHNICAL DATA NECESSARY TO SELECT BELLIN ECCENTRIC SCREW PUMPS CORRECTLY:

- 1) capacity: lt/min - mc/h
- 2) outlet pressure: bar
- 3) suction pressure: positive or negative
- 4) viscosity: Cps - Cst of the medium
- 5) specific gravity of the medium
- 6) percentage of solid parts
- 7) working temperature of the medium
- 8) kind of abrasion: ex.
  - non abrasive liquids: water, oily water, wine etc.
  - low abrasive liquids: dirty water, biological sludge etc.
  - abrasive liquids: slurry, lime milk
  - high abrasive liquids: emery sludge, dehydrated sludge
- 9) corrosion: it is necessary to know PH, acid concentration, temperature
- 10) presence of solvents.

Pump speed is in relation to the type of medium being pumped. The relation above all refers to the abrasion and the viscosity of the medium. Generally for high abrasives products it is better to use multistages pumps and bigger pump size in order to run at low speed.

## BELLIN PUMP IDENTIFICATION CODE:



Please refer to our technical office for the right selection of the pump model.

## EXECUTION-MATERIALS.

**PUMP BODY:** grey cast iron - stainless steel AISI 304 1.4301 - stainless steel AISI 316 1.4571 - food alloy;

**STATOR:** available in Perbunan/NBR - EPDM - Hypalon - Viton rubber; available also in white colour for food process.

**ROTOR:** hard chromed steel CK 40, in Stainless steel AISI 304 (1.4301), Stainless steel AISI 316 (1.4571).

**TRANSMISSION PARTS:** steel, Stainless steel 304, Stainless steel 316 with joint sleeve with holding bands.

**SEALS:** stuffing box standard construction, stuffing box with flushing ring, single mechanical seal, double mechanical seal

**CONNECTIONS:** Flange according to DIN, Gas threaded connections, DIN connections 11851

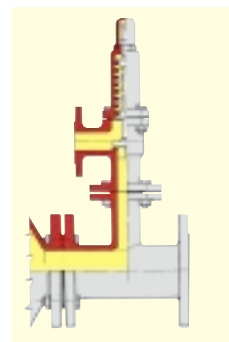
## DRIVES SYSTEM

Direct coupling or flexible coupling to electric motor, speed reducer, mechanical speed variator, simple belt variator with manual variation or with remote control, frequency converter; coupling possibility with hydraulic motor and engine motor. Execution on baseplate or on trolley.

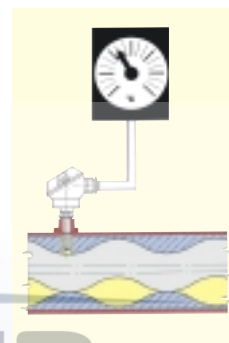
## AUXILIARY EQUIPMENTS:

Dry-running protection systems - manometric/electric overpressure protection - over pressure protection with by-pass system and relief pressure valve - rubber pipes, etc.

**Relief pressure valve:** protects the pump in case of overpressure.

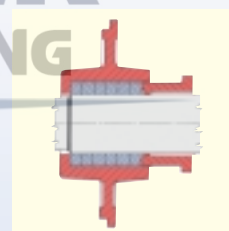


**Dry running protection system:** protects the pump against dangerous dry running which causes damage to the stator and so break-down of the pump.

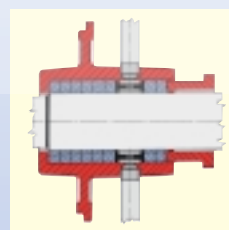


## SHAFT SEALINGS:

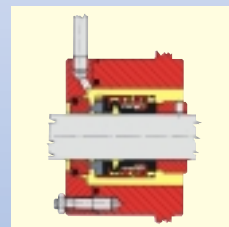
**Staffing box** in standard construction.



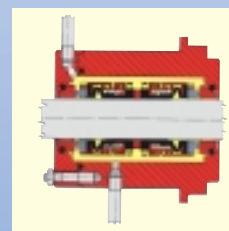
**Staffing box with flushing ring:** for abrasive products in order to reduce the penetration of solids into the packing and reduce the wear.



**Single mechanical seal:** in order to avoid leakages of the product.



**Double mechanical seal:** for toxic and corrosives products.

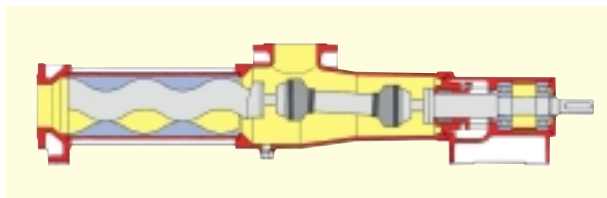




# PRODUCTION RANGE

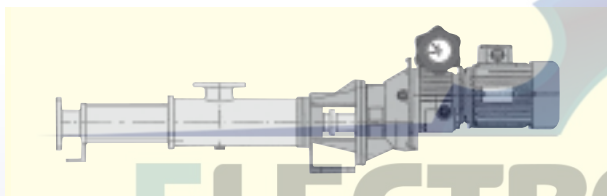
## TYPE "N"

This is the basic execution. This is supplied with bearings support for heavy duty jobs. Capacity up to 200 mc/h - Pressure up to 30 bar.



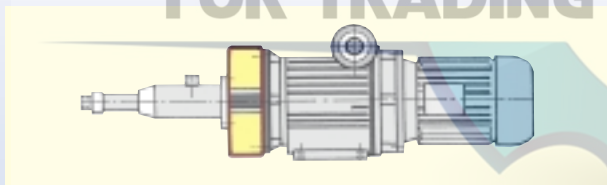
## TYPE "E"- "L":

execution directly coupled to the motorization. Compact and economical execution. Capacity up to 50 mc/h - pressure up to 14 bar.



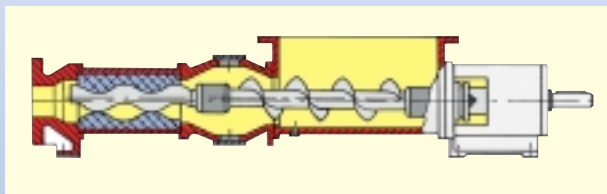
## TYPE "E" dosing pumps:

small pumps ideals for metering and dosing duties.

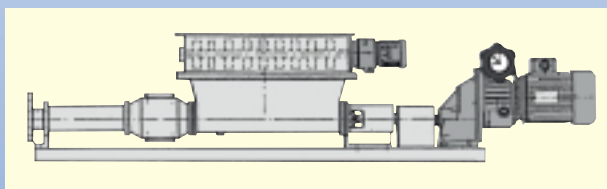


## TYPE "T"- "LT":

execution with hopper and infeed screw to convey high viscous products.

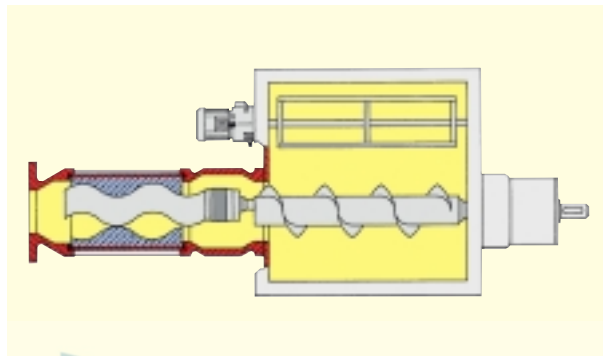


Available also with "bridge breaker" system to pump products which have the tendency to bridge above the infeed screw (e.g. dewatered sludges from belt press)



## TYPE "TL-LT":

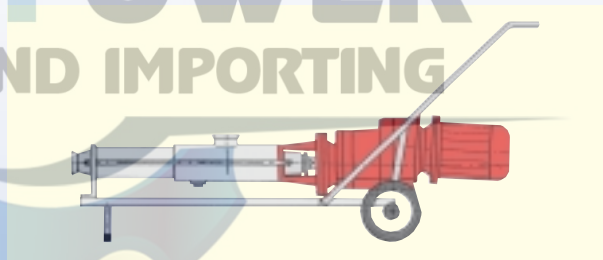
execution with large hopper with infeed screw and additional infeed paddles driven by independent motor; ideal for pumping grapes - crushed grapes with low damages to the product.



Available also with particular infeed paddle/bridge breaker for high viscous product.

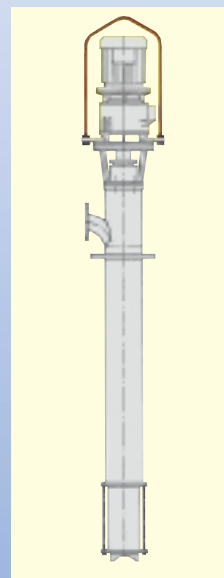
## TYPE "US-NS":

execution in stainless steel suitable in the wine industries; possibility to use them also in certain food industry applications. Execution with connections: Garolla, DIN 11851 - SMS etc.

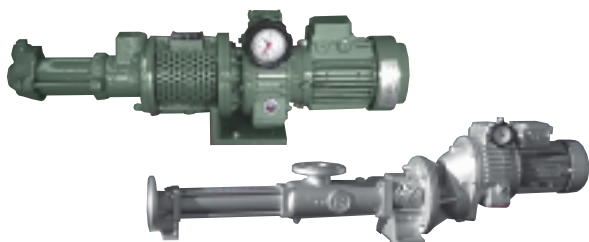


## TYPE "V":

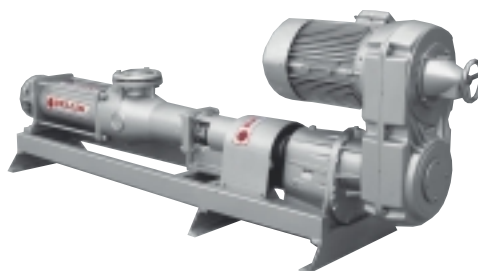
semi-submersible pumps in vertical execution suitable to transfer high viscous products.



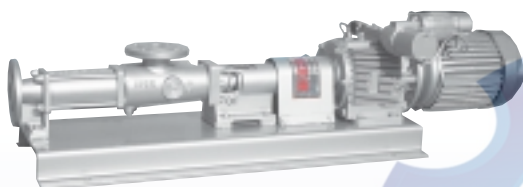
## EXECUTION - COUPLING DETAILS



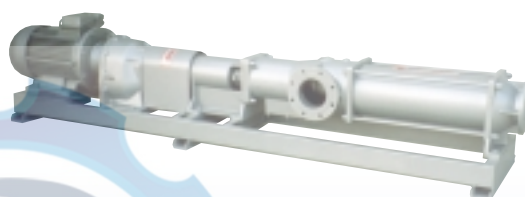
Pumps in mono-block execution type "E"-**"L"**, compact dimensions - directly coupled to speed variator drive. Applications e.g. in sewage treatment plants.



Pump type **"N"** coupled with flexible coupling to a simple belt variator, on base-frame.



Pump type **"N"** coupled with flexible coupling to hydraulic speed variator with remote control and electronic card (4-20mA)



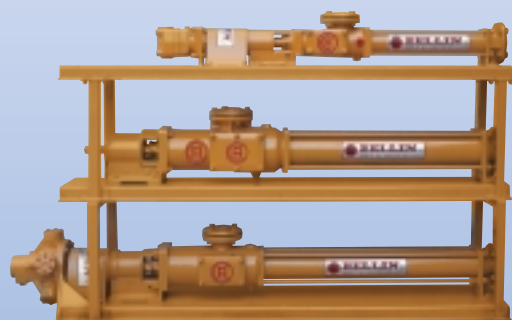
Pump type **"N"** coupled to speed reducer drive.



Pump type **"N"** with diesel-engine motor; execution on trolley - gear-box - speed reducer - electric star. Available also with base-frame execution.



Pump type **"N"** with V belt transmission. Execution on trolley. Typical execution in agricultural applications and in the marble sawing mills to dewater the sedimentation marble tanks.



High pressure pumps type **"N"** - with hydraulic motor. Typical execution in "well drilling" applications or in building industry to pump cement - light cement - mortar - bentonite - drilling mud etc.



Pump type **"N"** on trolley with PTO shaft to be driven by a tractor in agricultural applications to pump animal sewage (ex. pigs).



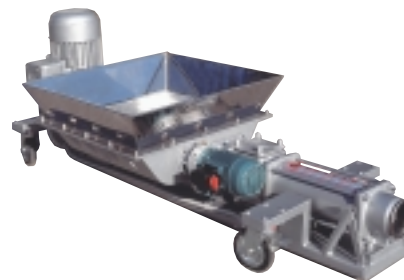
Pump type **"US"** in stainless steel execution with speed variator drive with automatic pressure safety valve and by-pass system. Application in the enological industry to pump wine-must etc.



Pump type **"ET"** with hopper and infeed screw directly coupled to speed variator drive.



Pump type **"T"** with hopper and infeed screw with bridge breaker system driven by independent speed reducer. To pump dehydrated sludge from belt press - filter press.



Pump type **"LTLW"** with large hopper - infeed screw - and infeed paddles driven by independent speed reducer. Suitable to pump grapes - crushed grapes.

## FIELDS OF APPLICATION

- **Sewage treatment plants** (primary sludge, digested sludge, dewatered sludge up to 30%-33% d.s.c., polymer solutions, milk of lime.)

- **Ceramics industry** (ceramic slip, clay sludge etc.)

- **Sugar refinery** (sugar solutions, molasses, sugar waste etc.)

- **Fish processing** - Fish farming (stick water, press water, concentrated, etc)

- **Olive oil industry** (olive oil, olive paste)

- **Paper and pulp manufacturing** (starch, paper mill sludge, wood pulp, paper pulp (10%) etc.)

- **Chemical industry** (latex, adhesives, resins etc.)

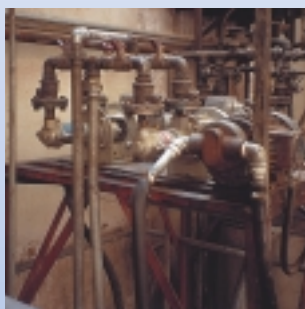
- **Agriculture** (farm-animal sewage, sewage sludge, etc.)

- **Building industry - Well-drilling applications** (cement, light cement, mortar, lime, bentonite, drilling mud etc.)

- **Shipyards** (salt water, bilge waters, sludges, fuel oil, etc.)

- **Enological industry** (wine, must, crushed grapes, grapes etc.)

- **Others:** marble sawing mills, tanneries, abbatoirs, waste disposal tankers etc.

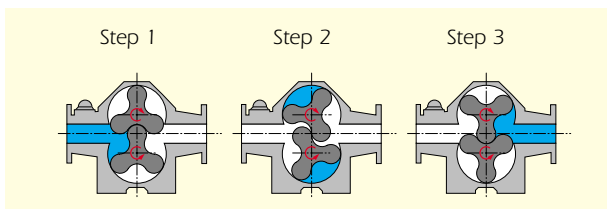




# ROTARY LOBE PUMPS

## OPERATING PRINCIPLE.

These pumps are of the positive displacement horizontal type; the two counter-rotating rubber trilobes are synchronised by means of a gear box.

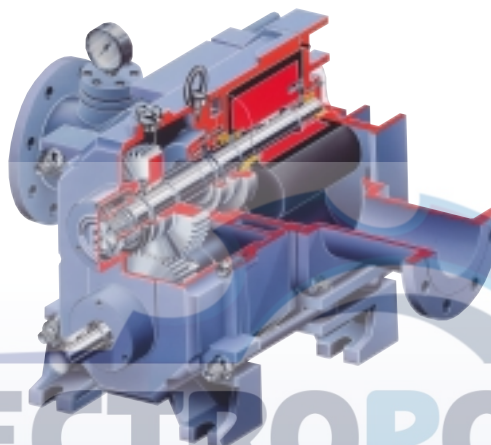


## TECHNICAL FEATURES.

- **Ease of cleaning and maintenance.** In order to inspect the pump casing, it is necessary only to remove the few bolts securing the front cover without disturbing connecting pipework.
- **Dry running ability:** tolerance of intermittent dry running without suffering lobe damage.
- **Reverse operation possible:** change of the flow by changing the rotation direction.
- **Compact construction** = space saving
- **Pumping possibility of solids up to 25 mm diameter**
- **Capacity** from 80 lt/min up to 5000 lt/min
- **Pressure** up to 8-10 bar - Suction lift up to 6-7 mt.

## EXECUTION - MATERIALS.

- pump body: in grey cast iron ("PLG" range) plus an option for internal hard chromium plating ("PLGC" range); possibility to incorporate replaceable wear plates at the back of the rotor/lobes case and on the frontal inspection cover.
- Lobes: possibility of different rubber quality to suit many products (NBR/Perbunan, EPM, VITON).
- Oil bath mechanical seals (ceramic - tungsten carbide).



## TECHNICAL DATA

Pump type	Max capacity lt/min	Max pess. bar	Max. speed r.p.m.
PL- 500	520	10	540
PL-1500	1450	10	540
PL-2500	2350	10	540
PL-3500	3300	6	450
PL-7000	4500	3	300

## DRIVES SYSTEM.

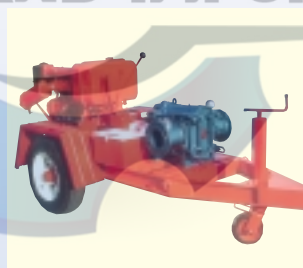
Bellin Rotary Lobe Pumps can be coupled to speed variable drive, speed reducer drive, engine motor, hydraulic motor, with P.T.O shaft driven by tractor. Powerful advantages in comparison to mono pumps.



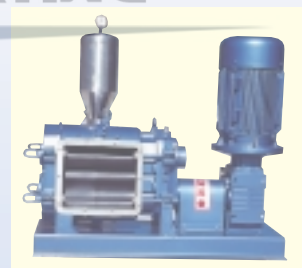
PLGC 3500 with V belt speed variator



PLGC 1500 with hydraulic motor



PLGC 2500 with engine motor



PLWX 7000 with speed reducer and dumper

## APPLICATIONS.

- **Sewage treatment plants** (primary sludges, digested sludges....)
- **Sugar refinery** (sugar solutions, molasses, sugar waste etc.)
- **Fish processing - Fish farming** (stick water, press water, concentrated etc)
- **Paper and pulp manufacturing** (starch, paper mill sludge etc.)
- **Agriculture** (farm-animal sewage, sewage sludge etc.)
- **Building industry** (cement, light cement, mortar, lime, bentonite etc.)
- **Shipyards** (salt water, bilge waters, sludges etc.)
- **Enological industry** (wine, must, crashed grapes, grapes, etc.)
- **Special installations on truck-tanks - waste oil tanks, etc.**



Sewage treatment plants



Construction site



Truck-tanks



Enological: pumping grapes



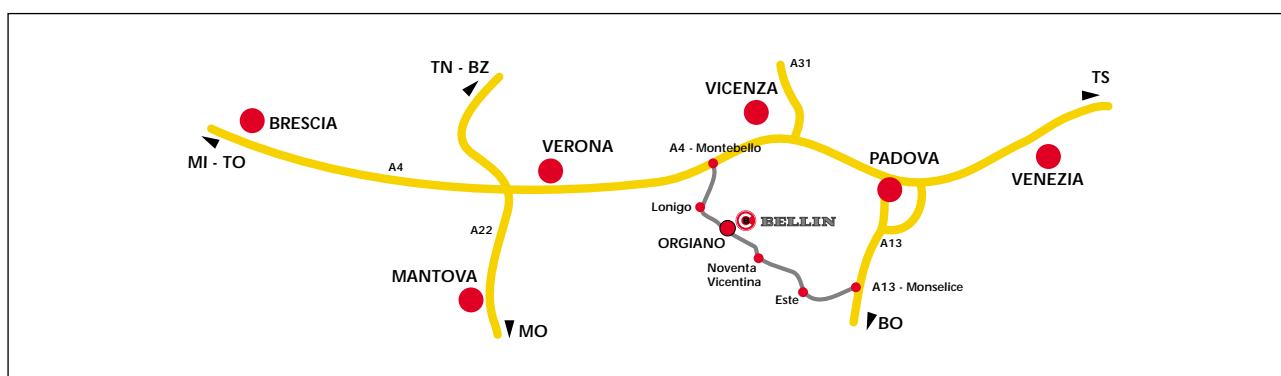
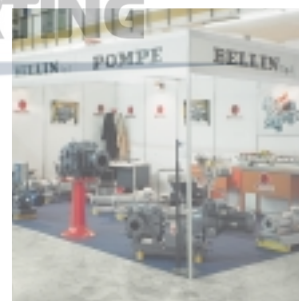
Established at the beginning of the 60's, BELLIN S.p.a. has always been a safe and reliable solution to the most difficult pumping problems and has, through time, become one of the leaders in its sector. In order to reach this objective, the company invested a great deal of resources in technology; the two establishments in Orgiano in fact, guarantee a high production capacity that makes possible to execute orders very quickly, thanks also to a considerable stock of spare parts.

High technology machinery is used during the various production stages, while constant and rigorous checks ensure that Bellin pumps are at a constantly high quality level.

The Sales Department consists of technical consultants able to satisfy any special customers requirements. The Company is also present in the overseas market with Distributors who make Bellin S.p.a. a well-known international brand.

All this, combined with a constant participation in the main sector exhibitions, consolidated the BELLIN S.p.a. image of a "quality product" guaranteed by a Company that is "at customer's service".

**ELECTROPOWER**  
FOR TRADING AND IMPORTING



BELLIN S.p.A.

Capitale Sociale L. 850.000.000 int. vers.

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C.F. e Part. I.V.A. 01278210248 - C.C.I.A.A. VI 158340 - ISCR. TRIB. VI REG. SOC. N. 12078