



INTERNAL GEAR PUMPS



K.E. JEPSEN

Ambolten 2
2970 Hørsholm • Danmark
Tlf. (+45) 45 57 04 04
Jepsen@Jepsen.dk
www.Jepsen.dk



INTERNAL
GEAR
PUMPS



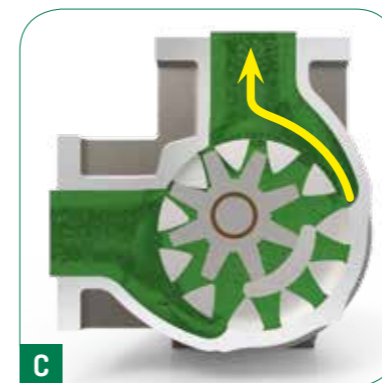
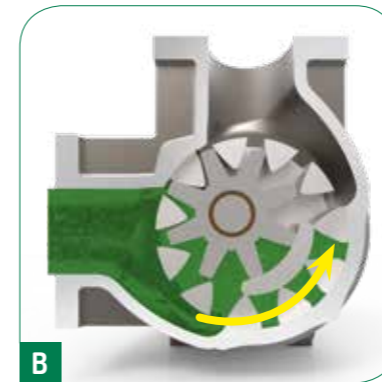
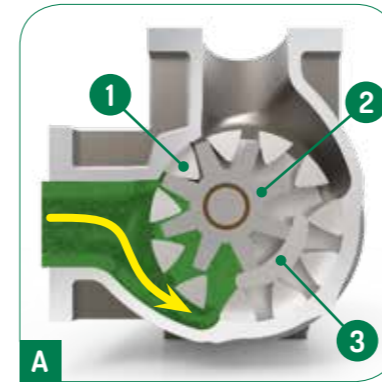
IMPORTANT:

The technology of "Victor Pumps" is constantly evolving thanks to new technical and design solutions. We therefore reserve us the right to make changes at any time without notice.

Some pump pictures may contain optional equipment.



Operating principle and limits of use



The R internal gear pumps are self-priming positive displacement rotary pumps perfect for viscous liquids (0,5 to over 500.000 mm²/s) of any temperature (-60°C to 350°C), which can be corrosive, abrasive and dangerous for the environment. The pumps are used for transferring, dosing, processing, loading and unloading.

Two gears generate the flow: the rotor ① and the idler ②. The rotor moves the internal idler. As the gears rotate, the liquid is drawn into the spaces created between the gears and smoothly moved toward the discharge port, where the divider ③, called crescent, closes the free space between the two gears. When the gears mesh, the liquid is slowly forced out of the pump. The result is a constant and smooth flow with no pulsations with a capacity directly proportional to the rotation speed. This will avoid vibrations on fittings, valves or couplings, reducing the foaming or churning of the liquid.

The pump is equipped with one shaft seal or with magnetic coupling only, and has the possibility of a heating jacket around the casing in one cast. The full performance is available in either direction of rotation and the casing can be rotated and delivered with 90° or 180° (in-line) ports. A safety relief valve against over-pressure is incorporated in the pump. This is a heavy duty construction optimized for rare maintenance.



The pumps are available with ATEX certifications to fulfill the EU regulation "Directive 2014/34/EU" that regulates the security of use for equipment in potentially explosive atmospheres. We can supply ATEX certifications for the areas of Group II, categories 2GD (Zone 1) and 3GD (Zone 2) for the temperature classes T1/T2/T3 and T4.

By filling out a simple questionnaire, you can check the availability of the certificate for the specific request.

Further information is available on request.

Bare shaft



R 80 HR1B+Y

Cast iron high temperature pump with DN80 flanged ports and packing shaft seal in bare shaft version. Designed to resist up to 350°C.

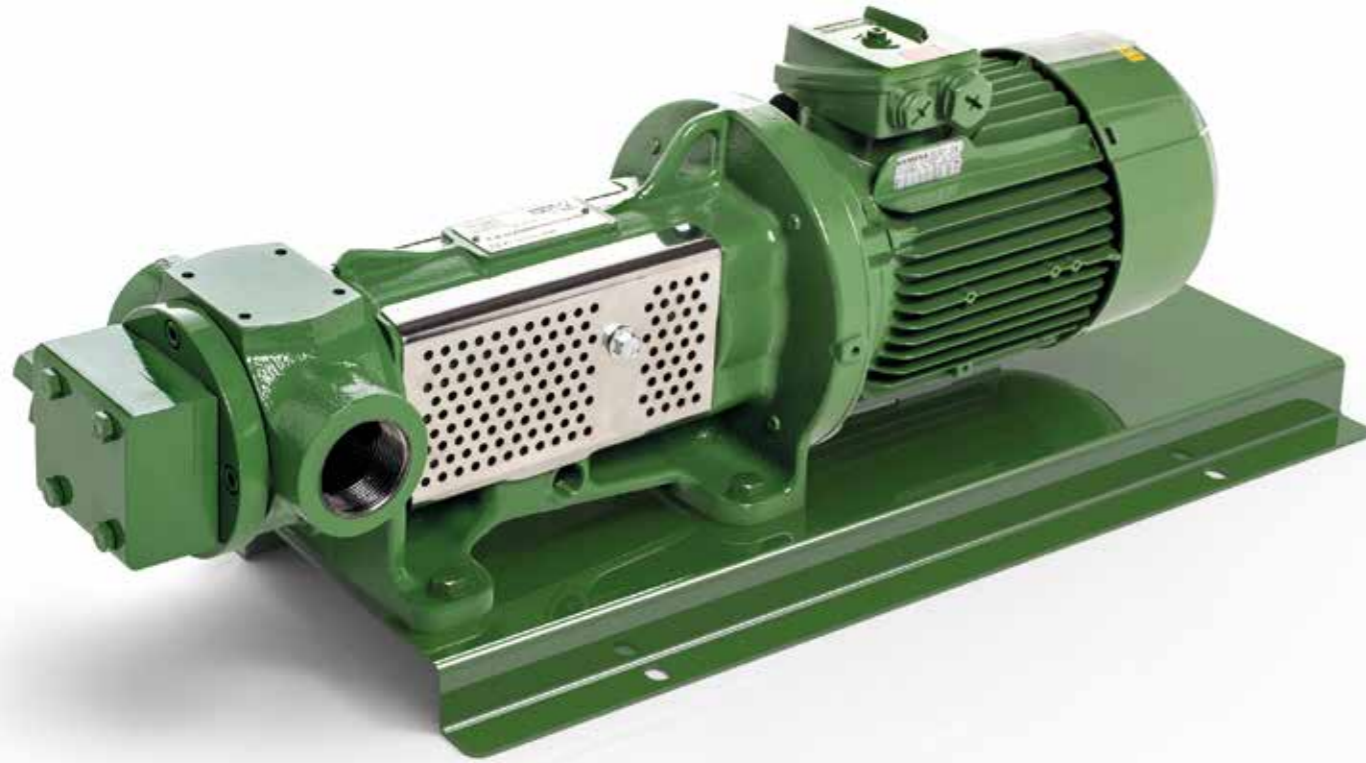
Bi-Block



R 35 GL44BBT16

Cast iron pump, with 1 1/2" threaded in-line ports (180°) in Bi-Block version directly connected to the motor through a safety coupling, integrated in the pedestal. The pedestal is compatible with standard IEC B5 drives.

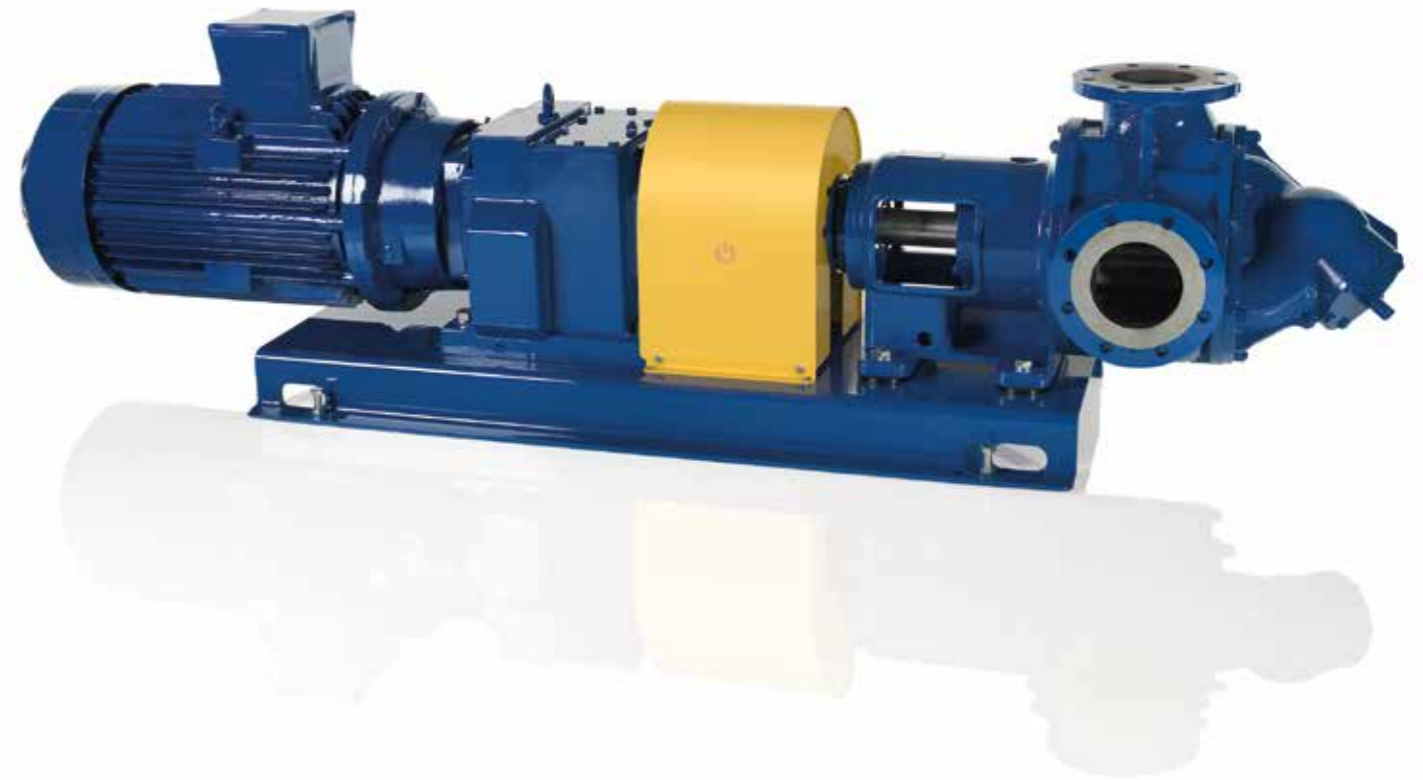
Bi-Block on base plate



R 35 GL44BBT16+B

Cast iron pump with 1 1/2" threaded inlet ports and integrated safety relief valve; in Bi-Block version with base plate for installation on concrete foundation.

Classic



R180 GG30B+Y+2A/245RF129+362De374

Cast iron pump with DN150 ports in classic version. All components (gear box, motor, base plate and coupling guard) are painted separately for long lasting protection.



4-wheeled trolley for flat ground



R 35 GL44BBT16+TV+SQ

Cast iron pump, with 1 1/2" threaded in-line ports. The practical trolley with four wheels allows a quick movement on smooth surfaces and is also available with an on/off switch and a quick connection plug.

Pumpable liquids

Amines

Animal fats

Anti-foaming

Asphalt

Binding agents

Bitumen

Chemical products

Chocolate

Colors

Diathermic oils

Emulsions

Fats

Foams

Frying oils

Fuel oils

Gasoline

Gelatine

Glucose

Glue

Glycerine

Glycols

Isocyanates

Kerosene

Lacquer

Lubricating oils

Mineral oils

Molasses

Naphtha

Paints

Palm oil

Paraffins

Petroleum

Petrol

Pitch

Plasticizers

Polymers

Polyols

Printing inks

Protein concentrate

Rapeseed oil

Resins

Soaps

Viscose

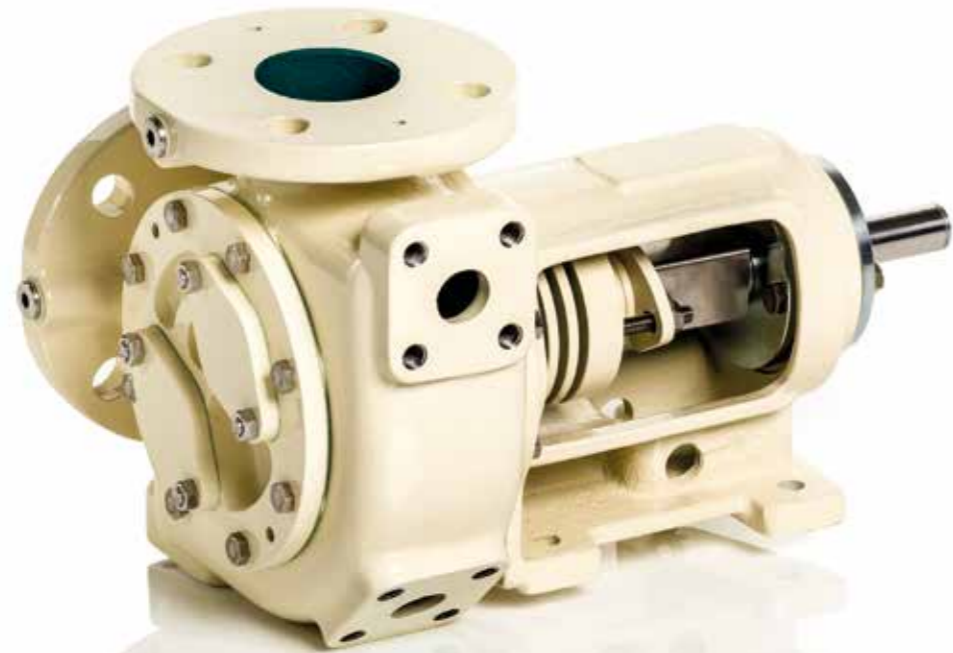
Soluble glass

Starches

Wax

and many others...

R 50 for chocolate



The casing with integrated heating jacket allows the chocolate to maintain a constant temperature and keeps the hot water completely separated. The pump is supplied with food compatible materials and a FDA approved packing.

R 80 for bitumen



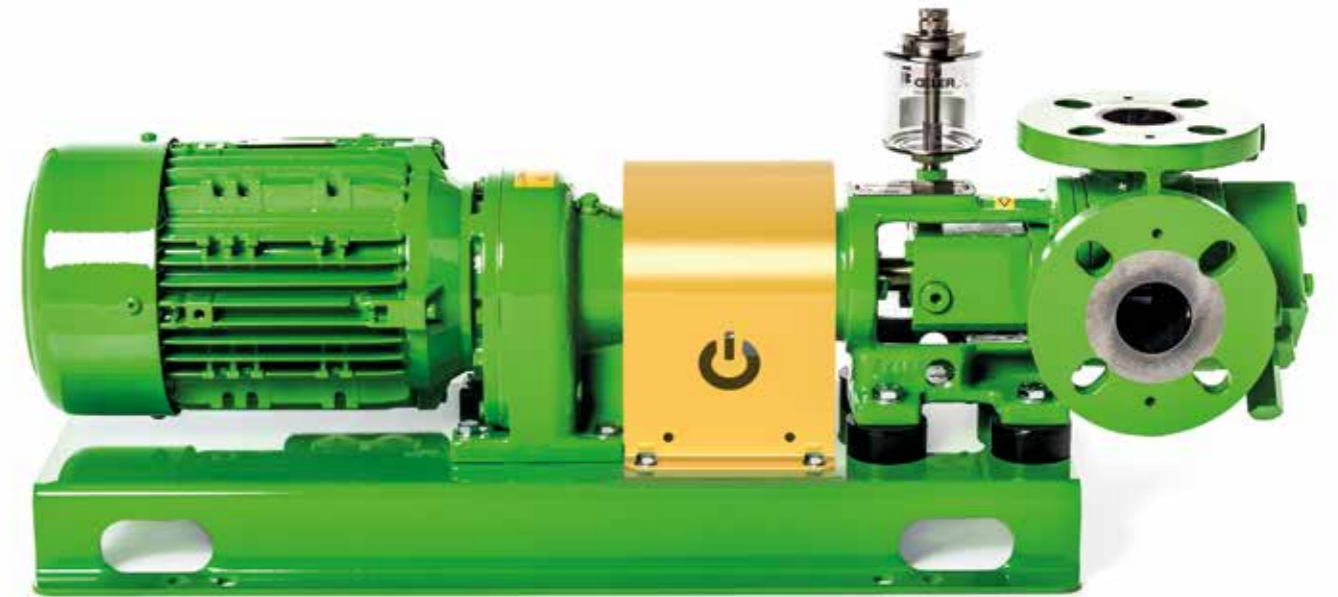
The bitumen is brought to the right temperature thanks to the wide heating jacket; the safety relief valve avoids possible overpressure problems in the system. The pump can also pump bitumen near to the limit of solidification.

R 50 with magnetic coupling for isocyanate



The magnetic coupling of this pump allows a perfect seal, preventing dangerous losses of the liquid that is being pumped. The environment remains clean and odorless to protect the staff and the environment.

R 35 for polyol



The mechanical seal is protected by a barrier liquid contained in the "quench" which avoids the product to get in contact with the air and to solidify on the faces of the seal.

Applications



Adhesives

the possibility to adjust the speed of rotation also allows more viscous liquids to enter between the gears and to be pumped.



Molasses

thanks to their high reliability our pumps are often used for loading and unloading of ships in ports.



Heated oils

the heated casing maintains a constant temperature and viscosity to enable the fluid to remain pumpable.



Diesel and petrol

it is possible to pump low viscosity liquids that could be flammable and in ATEX environments (on request certifications available).



Colors

the use of these pumps in the paint factories is appreciated for the very low maintenance and its excellent performance.



Resins and polymers

since these pumps are not transmitting vibrations or pulsations to the pipes, they are more and more being installed in industrial plants of various types.



flow rate: up to 360 m³/h



pressure: up to 16 bar



viscosity: from 0.5 to over 500.000 mm²/s



temperature: from -60° C to 350° C

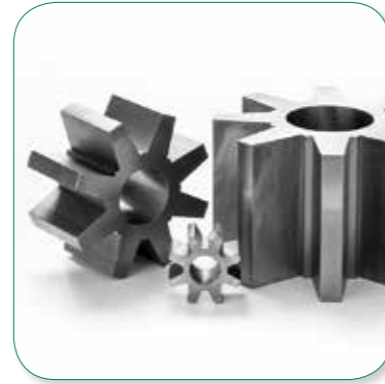
Pump characteristics



DIN or ANSI flanged ports from DN40 to DN250, with through-holes to facilitate the installation. 1/4" threaded holes for vacuum/pressure gauge.



Casing with threaded ports available for R 35 and R 40 suitable to create more compact installations.



Idler of robust construction, with thick teeth and wide tolerance for abrasives.



Rotor with materials designed to prevent accidental breakages caused by unforeseen solids.

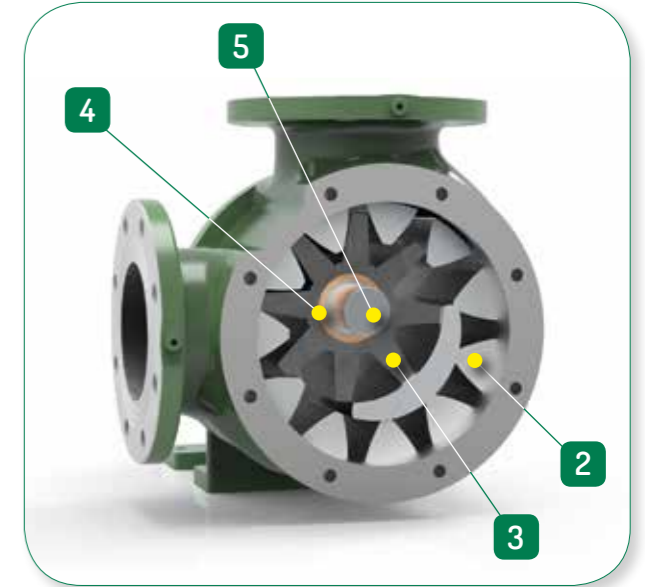
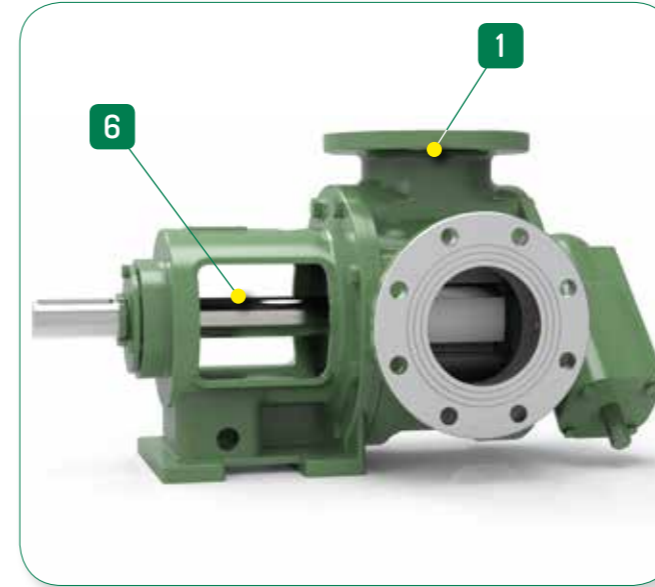


Pin the variety of materials which can be made guarantees its compatibility with different liquids.



Bushings available in different variants to avoid seizures between the pump parts and to withstand abrasion.

Materials and components section



- | | | |
|----------|-----------------|---|
| 1 | CASING | Available in ductile iron and stainless steel. |
| 2 | ROTOR | Available in steel, stainless steel and tempered steel. |
| 3 | IDLER | Available in cast iron, stainless steel and tempered steel. |
| 4 | BUSHINGS | Available in cast iron, sintered iron, graphite, sintered bronze, high temperature bronze, tempered stainless steel and tungsten carbide. |
| 5 | PIN | Available in hardened steel, stainless steel, tempered stainless steel, tungsten carbide. |
| 6 | SHAFT | Available in tempered steel, stainless steel and coated versions. |

Pump heating



Jacket integrated in the casing of the pump in one cast: a very appreciated invention of Vittorio Varisco that combines effectiveness and simplicity of use.



Heating plates on the cover (+R2). An economic alternative for less complex heating systems. With threaded ports.



Heating plates on the cover. Available also with flanged connections.



Heating jacket integrated with counter-flanges to weld. Very practical system to be installed in small spaces.

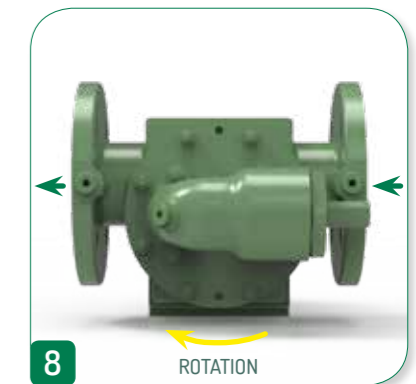
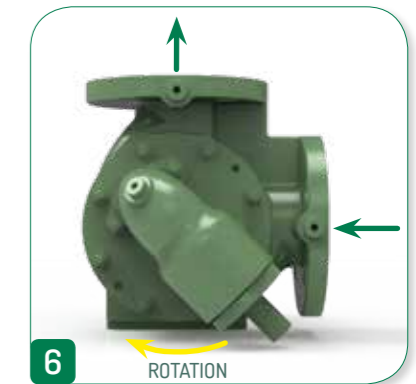
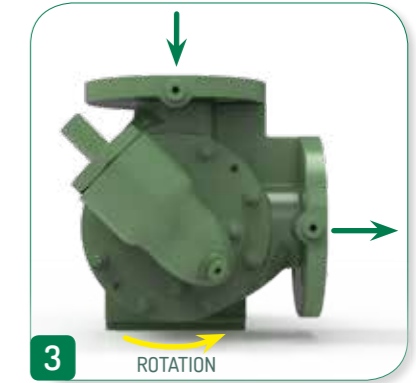
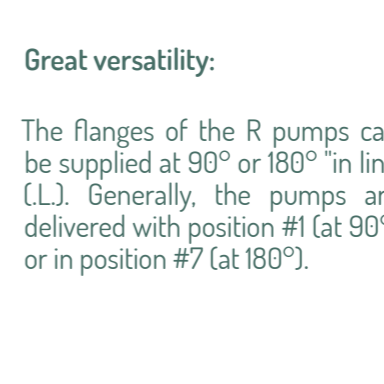
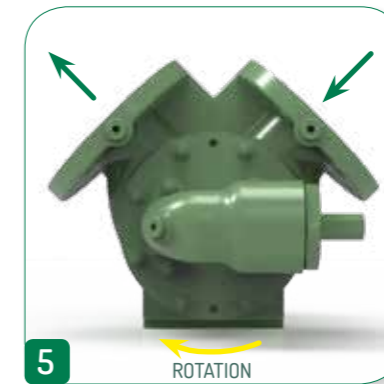
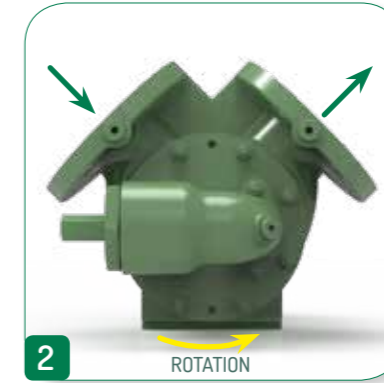
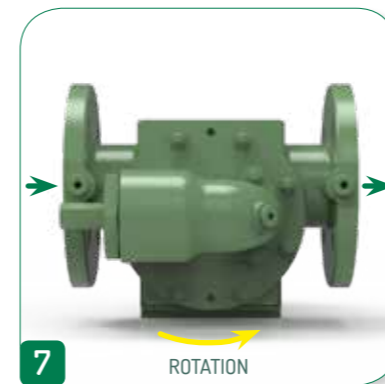
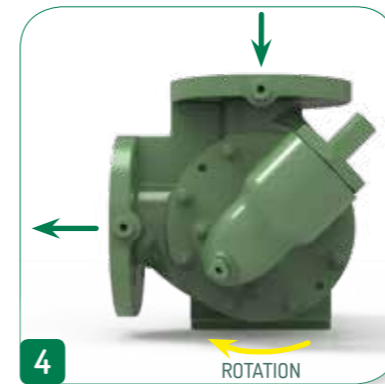
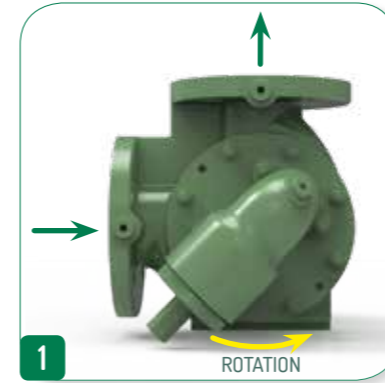


Heating plates on the casing, adaptable to individual requirements, easily removable for a simple maintenance.



Integral heating, to maintain the temperature constant within the whole pump. Supplied "taylor-made".

Orientation of suction and discharge flanges



Great versatility:

The flanges of the R pumps can be supplied at 90° or 180° "in line" (L.). Generally, the pumps are delivered with position #1 (at 90°) or in position #7 (at 180°).

Types of seals and accessories



Packing
simple or lubricated (flushed). It is very robust and economical; recommended for many applications.



Mechanical seal
single or double (back to back or in tandem). Available in various materials and with O-rings in FKM, PTFE or Kalrez®.



Quench
additional barrier room after the seal, with tank for barrier liquid which is useful to preserve the mechanical seal; for air-sensitive liquids.



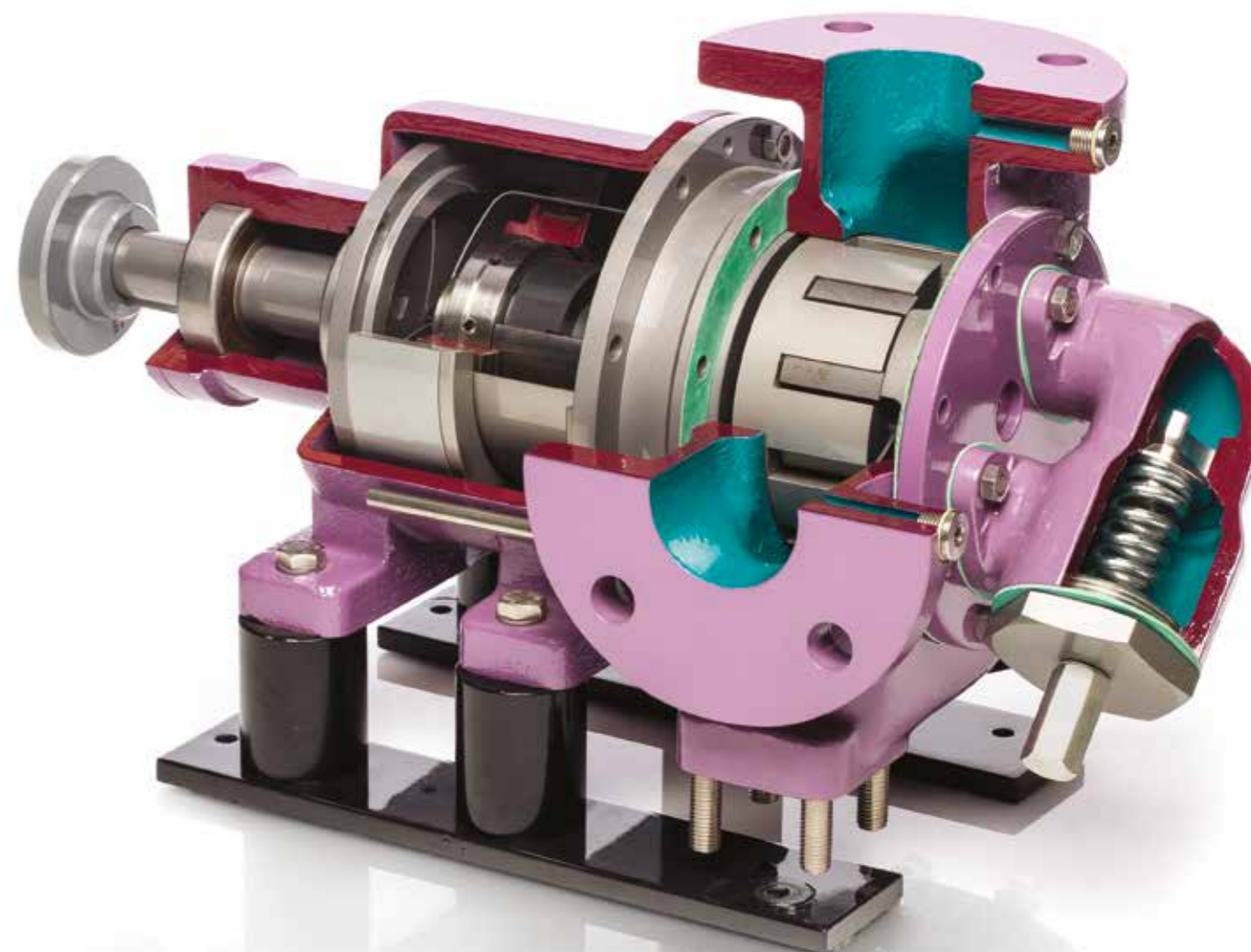
Sealing with security packing
in case of accidental breakage of the mechanical seal, the packing ring prevents leakage of the liquid until the next maintenance.



Cartridge seal
for special needs of standardization in installations.



Magnetic coupling
the pump becomes sealless and has only gaskets of a static type, recommended with dangerous liquids to protect the users and the environment.





Accessories



Integrated safety valve
simple setting, useful to protect the pump and the system from dangerous overpressure.
ON REQUEST:
double valve for reversible pump.



Pedestal
over-sized bearing, regulation of rotor and drip tray integrated in one cast.



Grounded base
ON REQUEST:
in the ATEX area, it simplifies the work of electrical installation.



SX coupling
elastic coupling to dampen noises caused by the engine and by the irregular flow. The central elastic element breaks in the event of a blockage of the pump, protecting the motor and the gear box.



PX coupling
standard coupling for pumps of large dimensions, guarantees a great elasticity and durability of coupling also with considerable misalignments.



BDS coupling for ATEX pump
excellent flexible coupling for ATEX use, special designed to be maintenance free.

Performance

R 35 (0,04 l/rot.)		DIFFERENTIAL PRESSURE					
		4 bar		8 bar		16 bar	
		cSt	rpm	m³/h	kW	m³/h	kW
LUBRICATING LIQUIDS							
2	1450	2,9	1,2	2,1	1,6	-	-
20	1450	3,5	1,2	2,9	1,6	-	-
200	1450	3,7	1,4	3,5	1,9	3,3	2,8
2.000	960	2,5	1,3	2,4	1,6	2,3	2,2
8.000	720	1,7	1,2	1,6	1,4	1,6	1,9
20.000	320	0,8	0,5	0,8	0,6	0,7	0,7
200.000	220	0,6	0,4	0,6	0,5	0,6	0,6
NON-LUBRICATING LIQUIDS							
2	960	1,6	0,6	-	-	-	-
20	960	2,2	0,6	-	-	-	-
200	960	2,4	0,7	2,2	1	-	-
2.000	960	2,5	1,3	2,4	1,6	-	-
8.000	720	1,7	1,2	1,6	1,4	-	-
20.000	320	0,8	0,5	0,8	0,6	-	-
200.000	220	0,6	0,4	0,6	0,5	-	-
ABRASIVE LIQUIDS							
2	960	1,6	0,6	-	-	-	-
20	720	1,5	0,4	-	-	-	-
200	720	1,7	0,5	1,5	0,7	-	-
2.000	720	1,8	0,9	1,7	1,1	-	-
8.000	660	1,7	1,2	1,6	1,4	-	-
20.000	320	0,8	0,5	0,8	0,6	-	-
200.000	220	0,6	0,4	0,6	0,5	-	-

R 40 (0,07 l/rot.)		DIFFERENTIAL PRESSURE					
		4 bar		8 bar		16 bar	
		cSt	rpm	m³/h	kW	m³/h	kW
LUBRICATING LIQUIDS							
2	1450	6,2	1,7	5,4	2,5	-	-
20	1450	6,8	1,7	6,2	2,5	-	-
200	960	4,6	1,1	4,4	1,6	4,2	2,7
2.000	960	4,7	1,6	4,6	2,2	4,4	3,3
8.000	720	3,5	1,8	3,5	2,3	3,4	3,1
20.000	320	1,6	0,7	1,5	0,9	1,4	1,3
200.000	180	0,9	0,4	0,9	0,6	0,9	0,8
NON-LUBRICATING LIQUIDS							
2	960	3,8	0,9	-	-	-	-
20	960	4,4	1	-	-	-	-
200	960	4,6	1,1	4,4	1,6	-	-
2.000	960	4,7	1,6	4,6	2,2	-	-
8.000	720	3,5	1,8	3,5	2,3	-	-
20.000	320	1,6	0,7	1,5	0,9	-	-
200.000	180	0,9	0,4	0,9	0,6	-	-
ABRASIVE LIQUIDS							
2	960	3,8	0,9	-	-	-	-
20	720	3,2	0,6	-	-	-	-
200	720	3,4	0,7	3,2	1,1	-	-
2.000	720	3,5	1,1	3,4	1,7	-	-
8.000	660	3,2	1,5	3,2	1,8	-	-
20.000	320	1,6	0,7	1,5	0,9	-	-
200.000	180	0,9	0,4	0,9	0,6	-	-

cSt: VISCOSITY / rpm: MAXIMAL RECOMMENDED REVOLUTIONS PER MINUTE / m³/h: FLOW / kW: REQUIRED POWER

Performance

R 50 (0,22 l/rot.)		DIFFERENTIAL PRESSURE					
		4 bar		8 bar		16 bar	
		cSt	rpm	m³/h	kW	m³/h	kW
LUBRICATING LIQUIDS							
2	720	8,2	1,6	6,4	2,7	-	-
20	720	8,6	1,7	7,4	2,8	-	-
200	640	7,9	1,8	7,2	2,8	6,3	4,8
2.000	520	6,7	1,9	6,3	2,8	5,8	4,6
8.000	380	4,9	1,9	4,6	2,6	4,3	3,7
20.000	200	2,6	0,9	2,4	1,2	2,1	1,7
200.000	120	1,6	0,6	1,6	0,8	1,6	1,3
NON-LUBRICATING LIQUIDS							
2	720	8,2	1,6	-	-	-	-
20	720	8,6	1,7	-	-	-	-
200	640	7,9	1,8	7,2	2,8	-	-
2.000	520	6,7	1,9	6,3	2,8	-	-
8.000	380	4,9	1,9	4,6	2,6	-	-
20.000	200	2,6	0,9	2,4	1,2	-	-
200.000	120	1,6	0,6	1,6	0,8	-	-
ABRASIVE LIQUIDS							
2	600	6,6	1,3	-	-	-	-
20	600	7,0	1,3	-	-	-	-
200	600	7,4	1,5	6,7	2,4	-	-
2.000	460	5,8	1,5	5,4	2,1	-	-
8.000	380	4,9	1,9	4,6	2,6	-	-
20.000	200	2,6	0,9	2,4	1,2	-	-
200.000	120	1,6	0,6	1,6	0,8	-	-

cSt: VISCOSITY / rpm: MAXIMAL RECOMMENDED REVOLUTIONS PER MINUTE / m³/h: FLOW / kW: REQUIRED POWER

R 65 (0,48 l/rot.)		DIFFERENTIAL PRESSURE					
		4 bar		8 bar		16 bar	
		cSt	rpm	m³/h	kW	m³/h	kW
LUBRICATING LIQUIDS							
2	620	17	3,2	15	5,2	-	-
20	620	18	3,3	17	5,3	-	-
200	480	14	2,4	13	4,2	12	5,5
2.000	380	11	2,8	11	4,1	10	6,5
8.000	300	9	3	8,7	4	8,4	5,9
20.000	140	4,1	1,1	3,9	1,6	3,7	2,5
200.000	100	2,9	0,7	2,9	1,2	2,9	1,6
NON-LUBRICATING LIQUIDS							
2	600	16	3,1	-	-	-	-
20	600	17	3,2	-	-	-	-
200	480	14	2,4	13	4,2	-	-
2.000	380	11	2,8	11	4,1	-	-
8.000	300	9	3	8,7	4	-	-
20.000	140	4,1	1,1	3,9	1,6	-	-
200.000	100	2,9	0,7	2,9	1,2	-	-
ABRASIVE LIQUIDS							
2	500	13	2,4	-	-	-	-
20	360	9,7	1,7	-	-	-	-
200	360	10	2,1	9,4	3,3	-	-
2.000	360	11	2,8	10	4	-	-
8.000	300	9	3	8,7	4	-	-
20.000	140	4,1	1,1	3,9	1,6	-	-
200.000	100	2,9	0,7	2,9	1,2	-	-

Performance

R 80 (1,2 l/rot.)		DIFFERENTIAL PRESSURE							
		4 bar		8 bar		16 bar			
		cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW
LUBRICATING LIQUIDS									
2	400	25	4,2	22	7,5	-	-	-	-
20	400	27	4,5	26	7,7	-	-	-	-
200	300	21	3,3	20	5,5	18	10	-	-
2.000	240	17	4	16	5,8	15	9,5	-	-
8.000	180	13	3,8	12	5,4	12	8,3	-	-
20.000	90	6,3	1,7	6	2,4	5,6	3,9	-	-
200.000	60	4,2	1,4	4,2	2	4,1	3	-	-
NON-LUBRICATING LIQUIDS									
2	400	25	4,2	-	-	-	-	-	-
20	400	27	4,5	-	-	-	-	-	-
200	300	21	3,3	20	5,5	18	10	-	-
2.000	240	17	4	16	5,8	15	9,5	-	-
8.000	180	13	3,8	12	5,4	12	8,3	-	-
20.000	90	6,3	1,7	6	2,4	5,6	3,9	-	-
200.000	60	4,2	1,4	4,2	2	4,1	3	-	-
ABRASIVE LIQUIDS									
2	380	24	3,8	-	-	-	-	-	-
20	300	20	3,2	18,6	5,4	-	-	-	-
200	300	21	3,3	20	5,5	18	10	-	-
2.000	240	17	4	16	5,8	15	9,5	-	-
8.000	180	13	3,8	12	5,4	12	8,3	-	-
20.000	90	6,3	1,7	6	2,4	5,6	3,9	-	-
200.000	60	4,2	1,4	4,2	2	4,1	3	-	-

cSt: VISCOSITY / rpm: MAXIMAL RECOMMENDED REVOLUTIONS PER MINUTE / m³/h: FLOW / kW: REQUIRED POWER

Performance

R151 (3,9 l/rot.)		DIFFERENTIAL PRESSURE							
		4 bar		8 bar		16 bar			
		cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW
LUBRICATING LIQUIDS									
2	420	90	14	84	24	-	-	-	-
20	400	90	14	87	24	-	-	-	-
200	340	78	13	76	22	74	49	-	-
2.000	260	60	14	59	21	58	34	-	-
8.000	200	46	14	46	19	45	30	-	-
20.000	100	23	6	23	8	22	15	-	-
200.000	70	16	6	16	8	16	12	-	-
NON-LUBRICATING LIQUIDS									
2	340	72	12	-	-	-	-	-	-
20	340	76	13	-	-	-	-	-	-
200	340	78	13	76	22	74	49	-	-
2.000	260	60	14	59	21	58	34	-	-
8.000	200	46	14	46	19	45	30	-	-
20.000	100	23	6	23	8	22	15	-	-
200.000	70	16	6	16	8	16	12	-	-
ABRASIVE LIQUIDS									
2	260	53	8	-	-	-	-	-	-
20	200	43	6	40	12	-	-	-	-
200	200	45	7	43	12	41	22	-	-
2.000	200	46	10	45	14	44	25	-	-
8.000	200	46	14	46	19	45	30	-	-
20.000	100	23	6	23	8	22	15	-	-
200.000	70	16	6	16	8	16	12	-	-

cSt: VISCOSITY / rpm: MAXIMAL RECOMMENDED REVOLUTIONS PER MINUTE / m³/h: FLOW / kW: REQUIRED POWER

Performance

R200 (14 l/rot.)		DIFFERENTIAL PRESSURE					
		4 bar		8 bar		16 bar	
		m³/h	kW	m³/h	kW	m³/h	kW
cSt	rpm						
LUBRICATING LIQUIDS							
2	210	182	25	170	40	-	-
20	210	188	26	184	45	-	-
200	160	145	22	143	37	-	-
2.000	130	119	19	118	32	-	-
8.000	100	92	20	92	29	-	-
20.000	50	46	9	46	13	-	-
200.000	30	28	8	28	12	-	-
NON-LUBRICATING LIQUIDS							
2	210	182	25	-	-	-	-
20	210	188	26	184	45	-	-
200	160	145	22	143	37	-	-
2.000	130	119	19	118	32	-	-
8.000	100	92	20	92	29	-	-
20.000	50	46	9	46	13	-	-
200.000	30	28	8	28	12	-	-
ABRASIVE LIQUIDS							
2	170	145	19	133	32	-	-
20	130	114	15	110	27	-	-
200	130	117	16	115	28	-	-
2.000	100	91	15	90	24	-	-
8.000	100	92	20	92	29	-	-
20.000	50	46	9	46	13	-	-
200.000	30	28	8	28	12	-	-

R250 (21 l/rot.)		DIFFERENTIAL PRESSURE					
		4 bar		8 bar		16 bar	
		m³/h	kW	m³/h	kW	m³/h	kW
cSt	rpm						
LUBRICATING LIQUIDS							
2	240	288	44	276	75	-	-
20	240	294	47	290	79	-	-
200	180	223	37	221	64	-	-
2.000	150	187	42	186	68	-	-
8.000	110	138	38	137	55	-	-
20.000	55	69	20	68	32	-	-
200.000	35	44	17	44	25	-	-
NON-LUBRICATING LIQUIDS							
2	190	225	34	-	-	-	-
20	190	231	35	227	60	-	-
200	180	223	37	221	64	-	-
2.000	150	187	42	186	68	-	-
8.000	110	138	38	137	55	-	-
20.000	55	69	20	68	32	-	-
200.000	35	44	17	44	25	-	-
ABRASIVE LIQUIDS							
2	150	175	27	163	43	-	-
20	110	131	28	126	44	-	-
200	110	134	30	132	45	-	-
2.000	110	137	34	135	49	-	-
8.000	110	138	38	137	55	-	-
20.000	55	69	20	68	32	-	-
200.000	35	44	17	44	25	-	-

cSt: VISCOSITY / rpm: MAXIMAL RECOMMENDED REVOLUTIONS PER MINUTE / m³/h: FLOW / kW: REQUIRED POWER

Endless
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and reliability.



12 USEFUL QUESTIONS FOR THE OFFER REQUEST

- Flow
- Pressure
- Type of liquid
- Viscosity of the liquid
- Use of the pump
- Type of plant
- Suction height
- Liquid temperature
- Operating hours per day
- Voltage (V)
- Frequency (Hz)
- Experiences on the pump used previously

VICTOR PUMPEN GmbH

 Dieselstraße 7
 D-85551 Kirchheim bei München
 Tel. +49 89 9048660
 Fax +49 89 9043447
 Mail: germany@victorpumps.com

VICTOR PUMPS Srl

 Viale Svevia 2
 I-35020 Ponte San Nicolò (Padova)
 Tel. +39 049 8961266
 Fax +39 049 8961255
 Mail: italy@victorpumps.com

