

Internal Gear Pumps

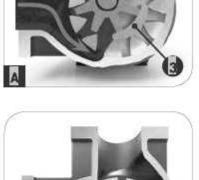


R series

made for your process

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 $500.000 \text{ mm}^2/\text{s}$) of any temperature (-60°C to 350°C), which can be corrosive, abrasive and dangerous for the environment. The pumps are used for transfer, 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, 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.



R 35 GL44BBT16

Cast iron pump, with $1\frac{1}{2}$ " 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.

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.



Pumpable liquids

Amines

Animal fats	Glue	Polymers
Anti- foaming	Glycerine	Polyols
Asphalt	Glycols	Printing inks
Binding agents	Isocyanates	Protein concentrate
Bitumen	Kerosene	Rapeseed oil
Chemical products	Lacquer	Resins
Chocolate	Lubricating oils	Soaps
Colors	Mineral oils	Viscose

Plasticizers

Diathermic oils Molasses Soluble glass

Emulsions Naphtha Starches

Glucose

Fats Paints Wax

Foams Palm oil

Frying oils Paraffins and many others...

Fuel oils Petroleum

Gasoline Petrol

Gelatine Pitch

R50 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 thus protecting the staff and the environment.

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 for its excellent performance.



Resins and polymers

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

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.



available for R 35 and R 40 suitable to create more compact

Casing with threaded ports installations.



Idler

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

Pump characteristics



Rotorwith materials designed to prevent accidental breakages caused by unforeseen solids.

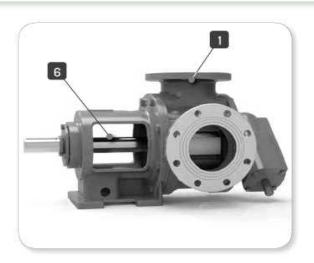


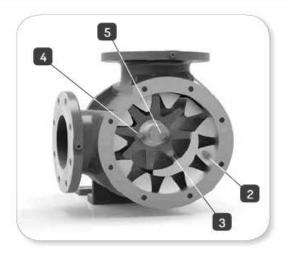
Pin the variety of materials which can be made guarantees its compatibility with different liquids.



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

Materials and compnent section







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.

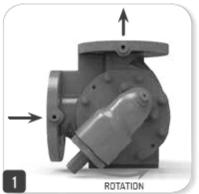


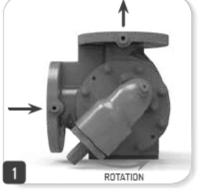
Heating plates on the casing, adaptable to individual requirements, easily removable for a simple maintenance.



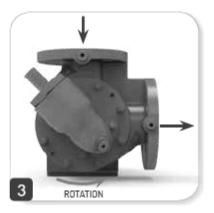
Integral heating, to maintain the temperature constant within the whole pump.
Supplied "taylormade".

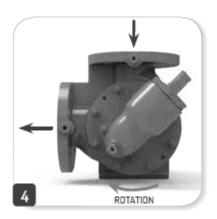
Orientation of suction and discharge flange

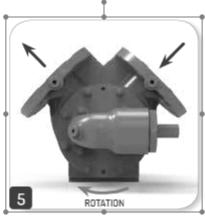


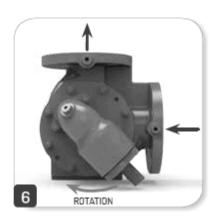














Great versatility:

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 0-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



ON REQUEST: double valve for reversible pump.



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



Grounded baseON 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.



R 35 DIFFERENTIAL PRESSURE (0.04 I/rot.)									R 46		[IFFER	RENTIAL PRESSURE				
10,041/1	0(.)	4 b	ar I	8 b	ar	16 1	oar		(0,071/1	OL.J	4 b	ar	8 b	ar	16 H	oar	
cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW		cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW	
		LUBRIC	ATING	LIQUII	DS	2011	- 10				LUBRIC	S LIQUII	os		- 1		
2	1450	2,9	1,2	2,1	1,6	-	-		2	1450	6,2	1,7	5,4	2,5	-	-	
20	1450	3,5	1,2	2,9	1,6	-	-		20	1450	6,8	1,7	6,2	2,5	-	-	
200	1450	3,7	1,4	3,5	1,9	3,3	2,8		200	960	4,6	1,1	4,4	1,6	4,2	2,7	
2.000	960	2,5	1,3	2,4	1,6	2,3	2,2		2.000	960	4,7	1,6	4,6	2,2	4,4	3,3	
8.000	660	1,7	1,2	1,6	1,4	1,6	1,9		8.000	720	3,5	1,8	3,5	2,3	3,4	3,1	
20.000	320	0,8	0,5	0,8	0,6	0,7	0,7		20.000	320	1,6	0,7	1,5	0,9	1,4	1,3	
200.000	220	0,6	0,4	0,6	0,5	0,6	0,6		200.000	180	0,9	0,4	0,9	0,6	0,9	0,8	
								, (
	-	N-LUB		ING LIQ	UIDS					77			ING LIQ	UIDS			
2	960	1,6	0,6	-	-	-	-		2	960	3,8	0,9	-	-	-	100	
20	960	2,2	0,6	-	-	-	-		20	960	4,4	1		· T	-	-	
200	960	2,4	0,7	2,2	1	-			200	960	4,6	1,1	4,4	1,6	-	- 10.00	
2.000	960	2,5	1,3	2,4	1,6	-	-		2.000	960	4.7	1,6	4,6	2,2	-	-	
8.000	660	1,7	1,2	1,6	1,4	_	-		8.000	720	3,5	1,8	3,5	2,3	-	-	
20.000	320	0,8	0,5	0,8	0,6	-	-		20.000	320	1,6	0.7	1,5	0,9	-	-	
200.000	220	0,6	0,4	0,6	0,5	-	-		200.000	180	0,9	0,4	0,9	0,6	=	-	
		ADDA	CIVE	IOLUDO) (ADDA	CIVE	LOUIDO				
2	960	1.6	0.6	LIQUIDS					2	960	3.8	0.9	LIQUIDS				
20	720	1,5	0,6	-	6.5	-	-		20	720	3,2	0,6					
200	720	1,5	0,4	1,5	0,7	-		1	200	720	3,4	0,0	3,2	1,1	-		
2.000	720	1,7	0,9	1,7	1,1	-		8	2.000	720	3,5	1,1	3,4	1,7			
8.000	660	1,7	1,2	1,6	1,4			8	8.000	660	3,2	1,5	3,2	1,8			
20.000	320	0.8	0.5	0,8	0,6			9	20.000	320	1,6	0,7	1.5	0,9			
200.000	220	0,6	0,5	0,6	0,5			i i	200.000	180	0,9	0,7	0,9	0,6			
200.000	220	0,0	0,4	0,0	0,5				200.000	100	0,5	0,4	0,3	0,0			

cSt: viscosity / rpm: maximal recommended revolutions per minute / m³/h: flow / kW: required power

	R 50 DIFFERENTIAL PRESSURE (0,22 l/rot.)								R 65 (0,48 l/rot.)					RENTIAL PRESSURE				
(0,221/11	UC.J	4 b	ar I	8 b	ar _I	16 H	oar		10,40 1/1	OL.J	4 b	ar	8 b	ar	16 H	oar _I		
cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW		cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW		
		LUBRIC	ATING	LIQUII	DS						LUBRIC	LIQUI	DS					
2	720	8,2	1,6	6,4	2,7	-	-		2	620	17	3,2	15	5,2		-		
20	720	8,6	1,7	7,4	2,8	-	-		20	620	18	3,3	17	5,3		-		
200	640	7,9	1,8	7,2	2,8	6,3	4,8		200	480	14	2,4	13	4,2	12	5,5		
2.000	520	6,7	1,9	6,3	2,8	5,8	4,6		2.000	380	11	2,8	11	4,1	10	6,5		
8.000	380	4,9	1,9	4,6	2,6	4,3	3,7		8.000	300	9	3	8,7	4	8,4	5,9		
20.000	200	2,6	0,9	2,4	1,2	2,1	1,7		20.000	140	4,1	1,1	3,9	1,6	3,7	2,5		
200.000	120	1,6	0,6	1,6	0,8	1,6	1,3		200.000	100	2,9	0,7	2,9	1,2	2,9	1,6		
								_										
		N-LUB		ING LIQ	UIDS) (N-LUB		ING LIC	UIDS				
2	720	8,2	1,6	-	-	-	-		2	600	16	3,1	-	-	-	-		
20	720	8,6	1,7	-	-	-	-		20	600	17	3,2	-	-	-	-		
200	640	7,9	1,8	7,2	2,8	-	-		200	480	14	2,4	13	4,2	-	-		
2.000	520	6,7	1,9	6,3	2,8	-	-		2.000	380	11	2,8	11	4,1	=	-		
8.000	380	4,9	1,9	4,6	2,6	-	-		8.000	300	9	3	8,7	4	-	-		
20.000	200	2,6	0,9	2,4	1,2	-	-		20.000	140	4,1	1,1	3,9	1,6	-	-		
200.000	120	1,6	0,6	1,6	0,8	-	-		200.000	100	2,9	0,7	2,9	1,2	-	-		
		ADDA	CIVE	IOLUD					<u> </u>		ADDA	CIVIE	LIGHIDA					
2	600	6,6	1,3	LIQUIDS)) (2	500	13	2,4	LIQUIDS)				
20	600	7.0	1,3	_		-	-		20	360	9,7	1,7	-		-			
200	600	7.4	1,5	6,7	2,4	-	-		200	360	10	2,1	9.4	3,3	-			
2.000	460	5,8	1,5	5,4	2,1				2.000	360	11	2,8	10	3,3	-			
8.000	380	4,9	1,9	4,6	2,6				8.000	300	9	3	8,7	4				
20.000	200	2,6	0,9	2,4	1,2				20.000	140	4.1	1,1	3.9	1,6				
200.000	120	1,6	0,6	1,6	0,8	_			200.000	100	2,9	0,7	2,9	1,2				
200.000	120	1,0	0,0	1,0	0,0				200.000	100	2,5	0,7	2,0	1,6				

cSt: viscosity / rpm: maximal recommended revolutions per minute / m^3/h : flow / kW: required power

R 86		0	IFFER	ENTIAL	. PRES	SURE		R10 !		DIFFERENTIAL PRESSURE						
(1,2 1/10	L.J	4 b	ar I	8 b	ar I	16 b	oar	(2,31/10	ןו	4 b	ar I	8 b	ar	16 b	par	
cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW	cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW	
		LUBRIC	ATING	LIQUII	os			LUBRICATING LIQUIDS								
2	400	25	4,2	22	7,5	-	-	2	350	42	7,2	37	13	-	-	
20	400	27	4,5	26	7,7	-		20	350	46	7,3	43	13	-	-	
200	300	21	3,3	20	5,5	18	10	200	270	36	6,3	35	11	34	19	
2.000	240	17	4	16	5,8	15	9,5	2.000	220	30	7,5	29	11	29	18	
8.000	180	13	3,8	12	5,4	12	8,3	8.000	160	22	7,5	21	11	21	18	
20.000	90	6,3	1,7	6	2,4	5,6	3,9	20.000	80	11	3,8	11	5,3	10	8	
200.000	60	4,2	1,4	4,2	2	4.1	3	200.000	60	8,2	3,4	8,2	4,6	8,1	6,9	
	NO	N-LUB	RICAT	NG LIQ	UIDS				NO	N-LUB	RICAT	ING LIQ	UIDS			
2	400	25	4,2	-	-	-	-	2	350	42	7,2	-	-	-	_	
20	400	27	4,5	-	-	-	-	20	350	46	7,3	_	-	-	-	
200	300	21	3,3	20	5,5	18	10	200	270	36	6,3	35	11	34	19	
2.000	240	17	4	16	5,8	15	9,5	2.000	220	30	7,5	29	11	29	18	
8.000	180	13	3,8	12	5,4	12	8,3	8.000	160	22	7,5	21	11	21	18	
20.000	90	6,3	1,7	6	2,4	5,6	3,9	20.000	80	11	3,8	11	5,3	10	8	
200.000	60	4,2	1,4	4,2	2	4,1	3	200.000	60	8,2	3,4	8,2	4,6	8,1	6,9	
				IQUIDS	5	_						LIQUIDS	5			
2	380	24	3,8	-	-	-	-	2	320	38	6,8		- 6	-		
20	300	20	3,2	18,6	5,4	-	-	20	230	29	4,4	27	8	-	-	
200	300	21	3,3	20	5,5	18	10	200	230	31	5	29	8,6	28	16	
2.000	240	17	4	16	5,8	15	9,5	2.000	220	30	7,5	29	11	29	18	
8.000	180	13	3,8	12	5,4	12	8,3	8.000	160	22	7,5	21	11	21	18	
20.000	90	6,3	1,7	6	2,4	5,6	3,9	20.000	80	11	3,8	11	5,3	10	8	
200.000	60	4,2	1,4	4,2	2	4,1	3	200.000	60	8,2	3,4	8,2	4,6	8,1	6,9	

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

	R151 DIFFERENTIAL PRESSURE								R180		[DIFFERENTIAL PRESSURE						
(3,51/10	J., J	4 b	ar I	8 b	ar	16 b	ar	P .	(71/10	L.)	4 b	ar	8 b	ar I	16 b	oar _I		
cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW		cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW		
		LUBRIC	CATING	LIQUII	DS													
2	420	90	14	84	24	-			2	250	98	14	87	26	_	-		
20	400	90	14	87	24	-	-		20	250	105	15	101	27	_	-		
200	340	78	13	76	22	74	49		200	200	86	12	83	22	-	-		
2.000	260	60	14	59	21	58	34		2.000	160	70	14	68	21	-	-		
8.000	200	46	14	46	19	45	30		8.000	120	53	12	52	19	-	-		
20.000	100	23	6	23	8	22	15		20.000	60	26	8	26	11	-	-		
200.000	70	16	6	16	8	16	12		200.000	40	18	5	18	7	-	-		
	NO	N-LUB	RICAT	ING LIQ	UIDS					NO	N-LUB	RICAT	ING LIQ	UIDS				
2	340	72	12	-	-	-	-		2	250	98	14	-	-	-	=		
20	340	76	13	-	-	-	-		20	250	105	15	101	27	-	-		
200	340	78	13	76	22	74	49		200	200	86	12	83	22	-	-		
2.000	260	60	14	59	21	58	34		2.000	160	70	14	68	21	-	-		
8.000	200	46	14	46	19	45	30		8.000	120	53	12	52	19	-	-		
20.000	100	23	6	23	8	22	15		20.000	60	26	8	26	11	-	-		
200.000	70	16	6	16	8	16	12		200.000	40	18	5	18	7	-	-		
			200	LIQUIDS	5						-	The state of the s	LIQUIDS	1000				
2	260	53	8	-	-	-			2	220	85	12	74	22	-	-		
20	200	43	6	40	12	-	_		20	160	65	9	61	19	-	-		
200	200	45	7	43	12	41	22		200	160	68	12	66	20	-	-		
2.000	200	46	10	45	14	44	25		2.000	160	70	14	68	21	-	-		
8.000	200	46	14	46	19	45	30		8.000	120	53	12	52	19	-	-		
20.000	100	23	6	23	8	22	15		20.000	60	26	8	26	11	-	-		
200.000	70	16	6	16	8	16	12		200.000	40	18	5	18	7	-	-		

 $\textbf{cSt:} \ \textit{viscosity} \ \textit{/} \ \textbf{rpm:} \ \textit{maximal recommended revolutions per minute} \ \textit{/} \ \textbf{m}^3 \ \textit{/} \ \textbf{h:} \ \textit{Flow} \ \textit{/} \ \textbf{kW:} \ \textit{required power}$

R20 (14 1/ro		D	IFFER	ENTIAL	PRES	SSURE			R25 (211/ro	1000	DIFFERENTIAL PRESSURE						
(14 1/10	L.J	4 b	ar I	8 b	ar	161	oar		(211/10	L.J	4 b	ar	8 bar		16 H	oar	
cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW		cSt	rpm	m³/h	kW	m³/h	kW	m³/h	kW	
		LUBRIC	ATING	LIQUII)S	01/				DS	1						
2	210	182	25	170	40	-	1-		2	240	288	44	276	75	-	-	
20	210	188	26	184	45	-	-		20	240	294	47	290	79	-	-	
200	160	145	22	143	37	-			200	180	223	37	221	64	-	-	
2.000	130	119	19	118	32	-			2.000	150	187	42	186	68	-	-	
8.000	100	92	20	92	29	-			8.000	110	138	38	137	55	-	-	
20.000	50	46	9	46	13	-			20.000	55	69	20	68	32	-	-	
200.000	30	28	8	28	12	-			200.000	35	44	17	44	25	-	-	
	NO	N-LUB	RICAT	ING LIQ	UIDS	200				NO	N-LUB	RICAT	ING LIQ	UIDS	***		
2	210	182	25	-	-	-	100		2	190	225	34	-	-	-	-	
20	210	188	26	184	45	-	-		20	190	231	35	227	60	-	-	
200	160	145	22	143	37	-	0.0		200	180	223	37	221	64	-	-	
2.000	130	119	19	118	32	-	-	8	2.000	150	187	42	186	68	-	-	
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20.000	50	46	9	46	13	-	-	9	20.000	55	69	20	68	32	-	-	
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2.000	100	91	15	90	24	-	10-	8	2.000	110	137	34	135	49	-	-	
8.000	100	92	20	92	29	-	-		8.000	110	138	38	137	55	-	-	
20.000	50	46	9	46	13	-			20.000	55	69	20	68	32	-	-	
200.000	30	28	8	28	12	-	130		200.000	35	44	17	44	25	-	-	

cSt: viscosity / rpm: maximal recommended revolutions per minute / m^3/h : flow / kW: required power



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