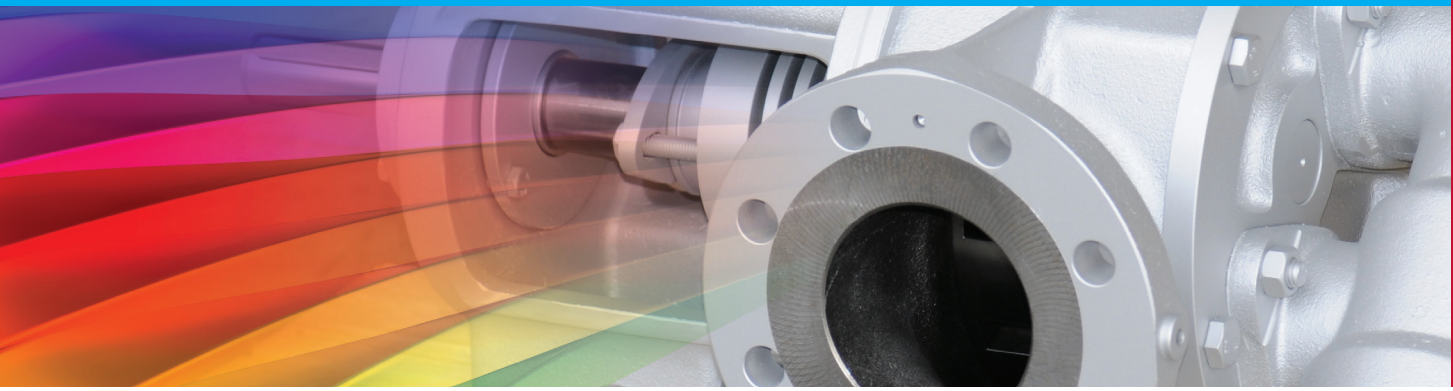


**Any questions?** You may still have questions and/or comments after reading this product brochure. Please feel free to contact us on for technical & sales enquiries: +44(0)1924 221 001. You can also respond via email to [info@verder.co.uk](mailto:info@verder.co.uk) or [www.verder.co.uk](http://www.verder.co.uk)

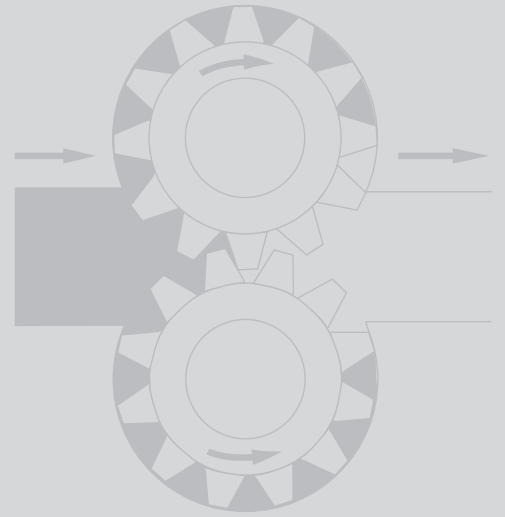
*The Verdergear Micro series is intended for smaller dosing and metered applications. If you would like more information on the Micro Series please go to [www.verder.com](http://www.verder.com) or contact a Verder UK Sales Engineer on 01924 221 001.*



**VERDERGEAR**

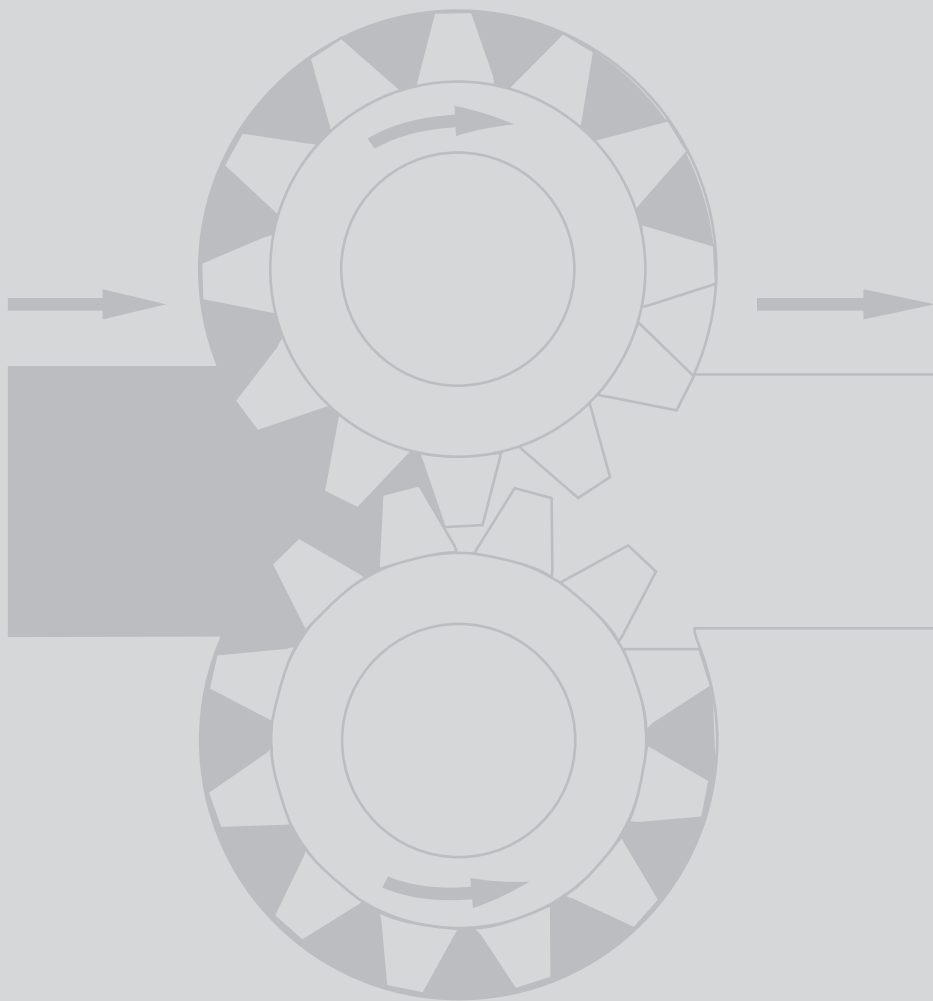
R Series Internal Rotary Gear Pumps





## Verdergear R Series

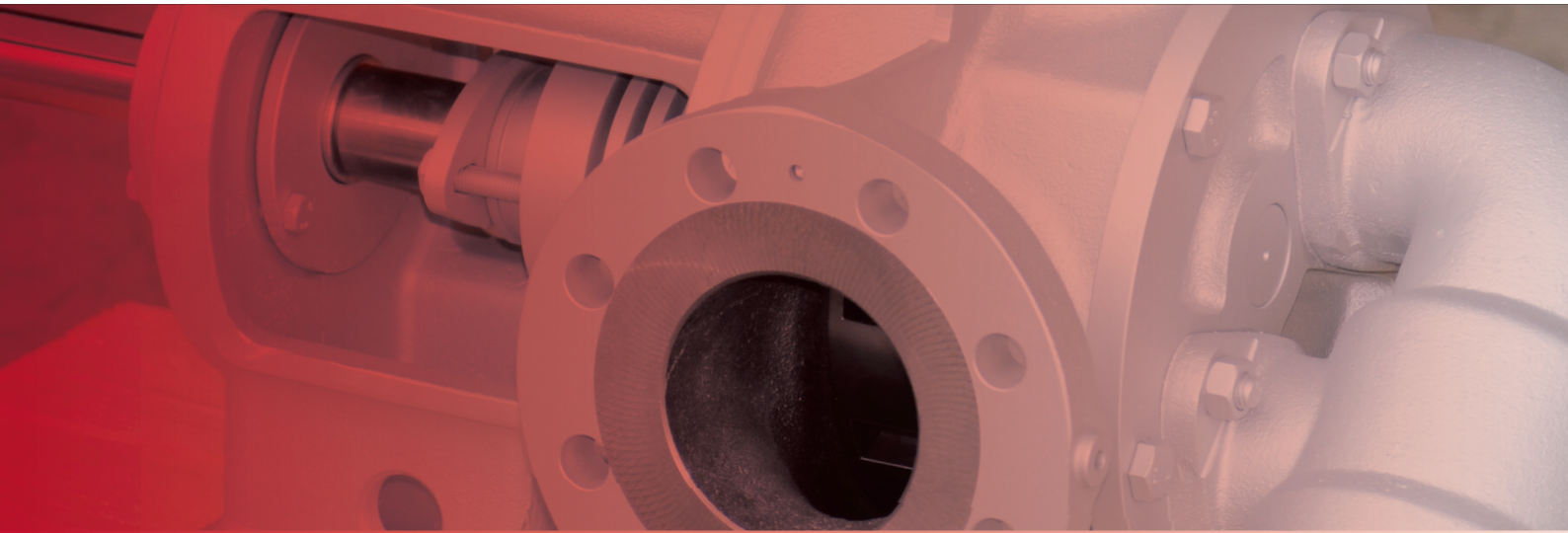
### Internal Rotary Gear Pumps



# Verdergear

## R Series Internal Rotary Gear Pumps

*The Verdergear series of pumps comprises the R series and the Micro series, offering a comprehensive solution for many applications. As with all Verder pumps, build quality is assured with a two year warranty.*



The range of Verdergear R series internal gear pumps use a positive displacement principle. The capacity is directly proportional to the rotation speed and virtually independent of the pressure. The R series is designed to give a smooth, non-pulsating flow.

The R series internal gear pumps are used for fluids of any viscosity, such as solvents (1mm<sup>2</sup>/s) or chocolate (max 100,000 mm<sup>2</sup>/s). The special design also makes the R series pumps suitable for lubricating and non-lubricating fluid and for liquids with solids.

### Features and advantages

- Self-priming
- Can handle viscous liquids
- Smooth non-pulsating flow
- Constant capacity
- Durable and robust build-quality for a long service life

Verdergear internal gear pumps are being used in a wide range of industrial areas:

### Paints & Detergent

Dosing and transfer of paints & lacquers, dosing of peroxide, pigments

### Food

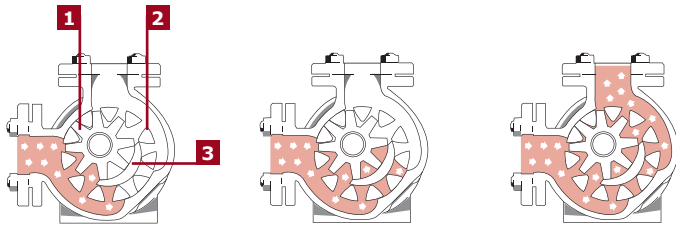
Pumping of chocolate, syrup, icing

### Chemical

Pumping of resin, hardeners, acids & lyes, solvents

### Pharmaceutical

Transport of peroxide solutions, dyes, fragrances & perfumes

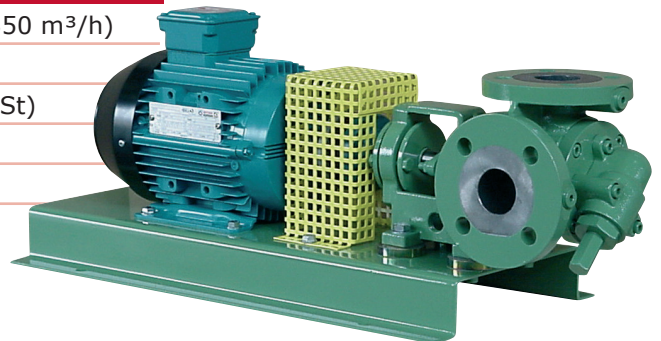


## Working Principle

Verderger internal gear pumps are self-priming positive displacement rotary pumps. Two gears generate the flow - The Rotor (1) and the Idler (2). The Rotor moves the internal idler. As the gears rotate, liquid is drawn into the spaces created between the gears and smoothly towards the discharge port, where the divider (3) (known as a crescent) closes the free space between the gears. When the gears mesh, the liquid is slowly forced out of the pump. The result is a constant, smooth flow with no pulsation.

### Technical Specifications

Nominal capacity	up to 97 l/s, (5800 l/min, 350 m <sup>3</sup> /h)
Max. differential pressure	16 bar (230 PSI)
Viscosity	to over 100,000 mm <sup>2</sup> /s (cSt)
Temperature	from -60°C to +300°C
Material options	Cast Iron or Stainless Steel



### Operating Ranges

Type	Bar		mm <sup>2</sup> /s(cSt)		°C		pH			
Cast Iron	A	B	C	D	E	Min	Max	Min	Max	pH
G1	12	8	4	12	20	100	100,000	-40	200	6-13
G44	12	8	4	12	20	100	100,000	-30	150	6-13
GW44	-	-	8	12	20	100	100,000	-30	150	6-8
H1	12	8	4	12	20	20	100,000	120	300	6-8
HR1	12	8	4	12	20	20	100,000	120	300	6-8
S43	-	8	-	12	20	1	4,000	-30	150	6-13
Type	Bar		mm <sup>2</sup> /s(cSt)		°C		pH			
SS 316	A	B	C	D	E	Min	Max	Min	Max	pH
K1	12	6	-	12	20	20	4,000	-40	200	2-14
KB1	12	8	4	12	20	100	100,000	-40	200	6-8
K43	12	6	-	12	20	20	4,000	-30	150	2-14
KB44	12	8	4	12	20	100	100,000	-30	150	6-8

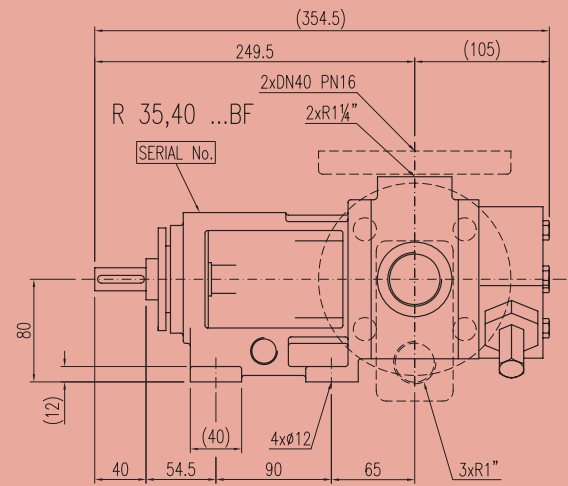
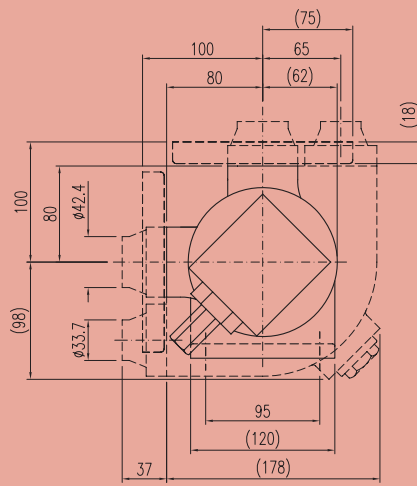
A - Maximum differential pressure with lubricating liquids

B - Maximum differential pressure with non-lubricating liquids

C - Maximum differential pressure with abrasive liquids (viscosity > 100 mm<sup>2</sup>/s)

D - Maximum operating pressure

E - Test pressure

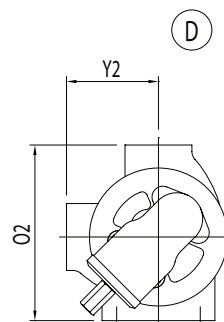
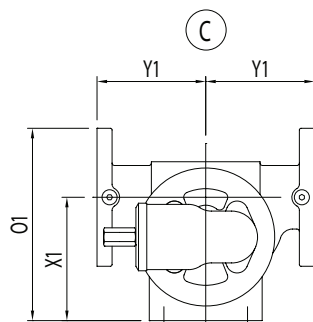
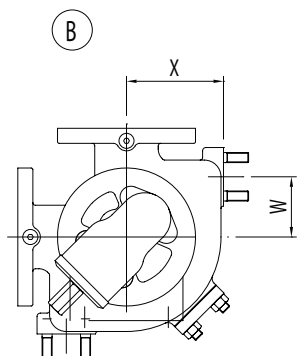
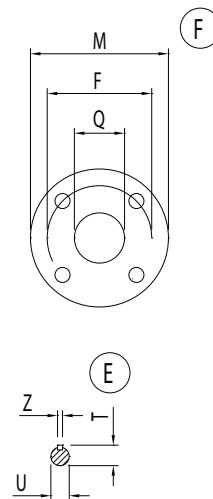
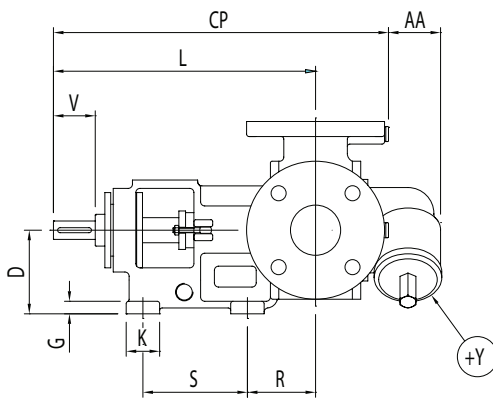
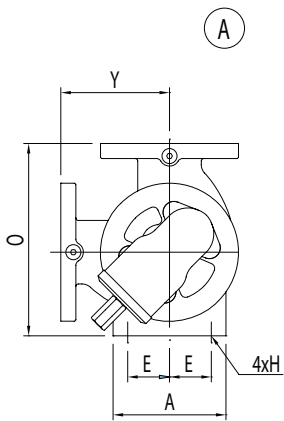


## Dimensions (mm)

Type	A	D	CP	E	G	H	A	L	O	R	S	V	Y	+Y	AA
R35,40	120	80	312.8	47.5	12	Ø12	30	247	180	65	90	40	100		37.7
R50	135	100	400	50	16	Ø12	40	313.5	230	81.5	125	50	130		63
R65	180	132	442	70	18	Ø14	50	347	297	91.5	140	60	165		68.5
R80	200	160	533	80	20	Ø14	60	430	360	117	160	80	200		99
R105	220	180	633.5	90	22	Ø18	60	505	405	135	180	110	225		115

Type	B	C	D			E	F						
	X	W	X1	O1	Y1	O2	Y2	T	U	Z	M	F	Q
R35,40	65	80				160	80	21.5	19	6	150	110	DN40
R50	116	72				210	110	24.5	22	6	165	125	DN50
R65	140	100	187	279.5	160			31	28	8	185	145	DN65
R80	170	120	225	325	195			32	32	10	200	160	DN80
R105	195	140						45	42	12	220	180	DN100



## Alignment

- All R series pumps are equipped with pump casings that can be rotated on the pedestal.
- All casings can be rotated to 45° or 90° from the original rotation (R35 and R40 90° only)
- By-pass must always point to the suction port

<b>Applications</b>	Fuel oil	Petroleum
Acetone	Gelatine	Plastifiers
Acids	Glue	Polyol
Alcohols	Glycerine	Printer inks
Alkalis	Glycol	Resin
Asphalt	Heat transfer oil	Soap
Bitumen	Isocyanate	Sodium silicate
Blood	Kerosene	Solvents
Brine	Lacquers	Starch
Bunker fuel	Liquified gas	Syrup
Colours	Lubricating oil	Tar
Creosote	Methanol	Trichloroethylene
Detergents	Milk	Varnish
Diesel fuel	Milk of lime	Viscose
Ether	Mineral oil	Wax
Fat	Molasses	Wine
Freon	Must	
Fruit juices	Petrol	

### Speed Rating

Type	Rated speed	Recommended speed for pumping solids
R35	1450	500
R40	1450	500
R50	960	315
R65	720	250
R80	630	200
R105	560	160
R151	500	125
R180	400	100
R200	315	90
R250	280	80

*To increase the life of the pump when pumping abrasive liquids, reduce the pump speed to one third of the rated speed.*

Type	Ports		Viscosity		Speed		Nominal capacity			Weight
	Inch	DN PN16	mm <sup>2</sup> /s	-°E	Min -1	LPR*	1/min	m <sup>3</sup> /h	1/s	kg
R35	1 1/4"	40	200	30	1450	0.04	62	3.7	1.0	11
			4000	550	720		32	1.9	0.5	
			25000	3200	450		20	1.2	0.3	
R40	1 1/4"	40	200	30	1450	0.08	117	7	1.9	12
			4000	550	720		58	3.5	1.0	
			25000	3200	450		37	2.2	0.6	
R50	2"	50	200	30	960	0.22	210	12.6	3.5	32
			4000	550	560		125	7.5	2.1	
			25000	3200	355		83	5	1.4	
R65	2 1/2"	65	200	30	720	0.48	342	20.5	5.7	46
			4000	550	450		217	13	3.6	
			25000	3200	280		138	8.3	2.3	
R80	3"	80	200	30	630	1.15	717	43	11.9	84
			4000	550	400		467	28	7.8	
			25000	3200	250		300	18	5.0	
R105	4"	100	200	30	560	2.25	1258	75.5	21.0	152
			4000	550	355		817	49	13.6	
			25000	3200	224		522	31.3	8.7	
R151	6"	150	200	30	500	3.8	1900	114	31.7	240
			4000	550	315		1217	73	20.3	
			25000	3200	200		783	47	13.1	
R180	6"	150	200	30	400	6.8	2717	163	45.3	-
			4000	550	250		1700	102	28.3	
			25000	3200	160		1083	65	18.1	
R200	8"	200	200	30	315	14	4417	265	73.6	-
			4000	550	200		2800	168	46.7	
			25000	3200	125		1750	105	29.2	
R250	10"	250	200	30	280	21	5833	350	97.2	-
			4000	550	180		5500	330	91.7	
			20000	3200	112		2333	140	38.9	

## Pump Coding System

**R35                      G                      F                      1                      B                      +Y**

### Pump Size

### Material

G	All cast iron
S	Cast iron (for solvents)
H	Cast iron (for high temperatures)
C	Cast iron (for chocolate)
K	All AISI 316 stainless steel

### Internal Option

B	Bronze bushings
F	Flanged ports
L	In-line ports
R	Heating jacket around casing
W	Pin and idler bushing in tungsten carbide

### External Option

+O2	Quench reservoir
+Y	Bypass (relief valve)
+YY	Double bypass

### Mounting

B	Heavy duty pedestal
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### Shaft Seal

1	With packing
43	mechanical seal tungsten graphite, ceramic, PTFE
44	mechanical seal tungsten carbide, ceramic, PTFE
45	mechanical seal tungsten carbide, ilicon, silicon (tungsten) carbide, PTFE