Riovar®/Riovar® Z

Circulator Pumps with Manual Speed Variation

Fields of Application

- Hot-water heating systems
- Heat recovery systems

Medium Handled

Clean water or water treated in accordance with the relevant regulations, not containing aggressive, abrasive or solid substances.
Water with commercial antifreeze agents based on glycols (mixture ratio max. 1 : 1) with inhibitors (antirust).
If the glycol content exceeds 20 %, the operating data have to be checked and verified.

Operating Data

	Screw-ended pumps	Flanged pumps
	Rp 1 and 1 $^1/_4$	DN 32 to 100
Q	up to 6.2 m^3/h, 1.7 l/s	up to 80 m^3/h, 22.2 l/s
H	up to 3.4 m	up to 16 m
P_1	up to 170 W	up to 3500 W
p	10 bar	6 bar, 10 bar on option
t	+20 °C up to +130 °C	

(For temperature limit values please refer to the pump variant table on page 12)

Designation

Riovar - Z 4 4 - 8 E

- Type series
- Twin pump
- Nominal diameter in cm
- 4-pole motors
- Max. motor rating P_2 in watt : 10
- Single-phase alternating current (D = three-phase current)

Design

Riovar: Maintenance-free wet rotor pump (glandless), flanged or screw-ended, four speed levels.

Riovar Z: Riovar twin pump design for standby operation (integrated swing check valve) or peak-load operation on option (parallel operation).

Bearings

Medium-lubricated special plain bearings.

Materials

Volute casing	Cast iron EN-GJL-250 [1])
Shaft	Chrome steel
Impeller	Plastic
Bearings	Special carbon

[1]) to EN 1561 (previously GG-25)

Drive *)

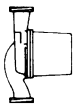
Canned motor, IP 42, thermal class F
1~230 V, 50 Hz
3~400 V, 50 Hz

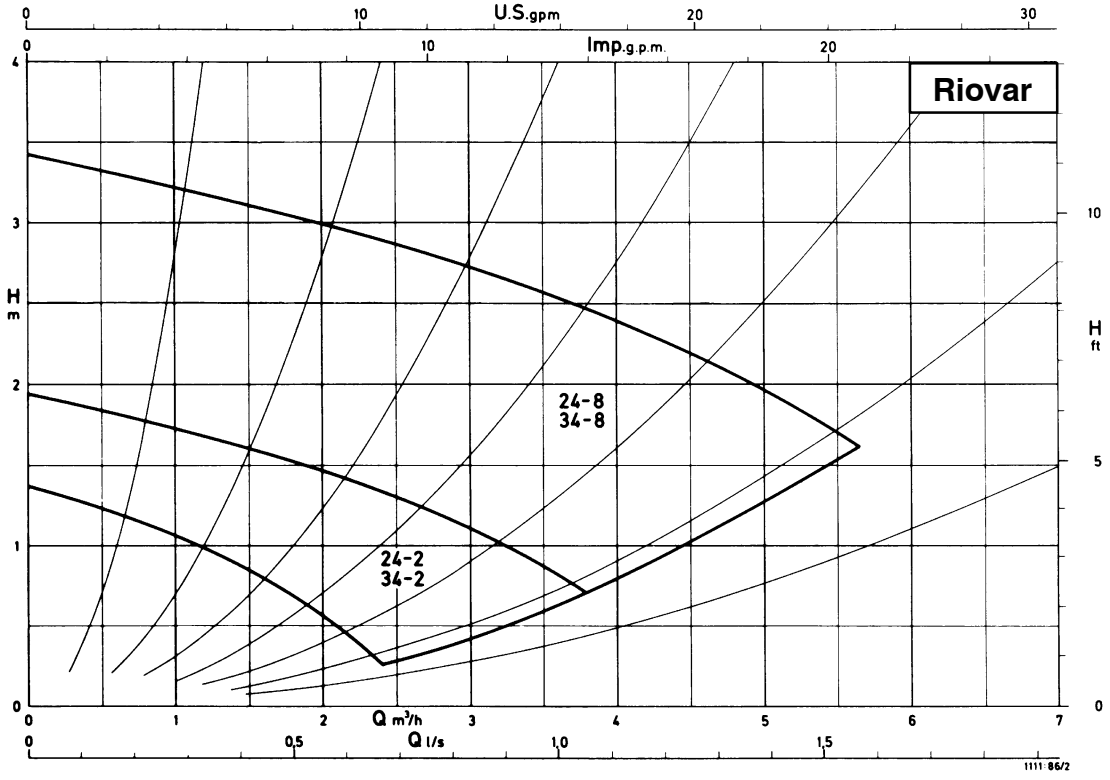
*) If a frequency inverter (included in the hyatronic mb standard design) is used for speed control (available for motor size 18 and above), make sure that the motor voltage is sinusoidal. Fit a sine filter, if required.

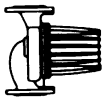
Special Design

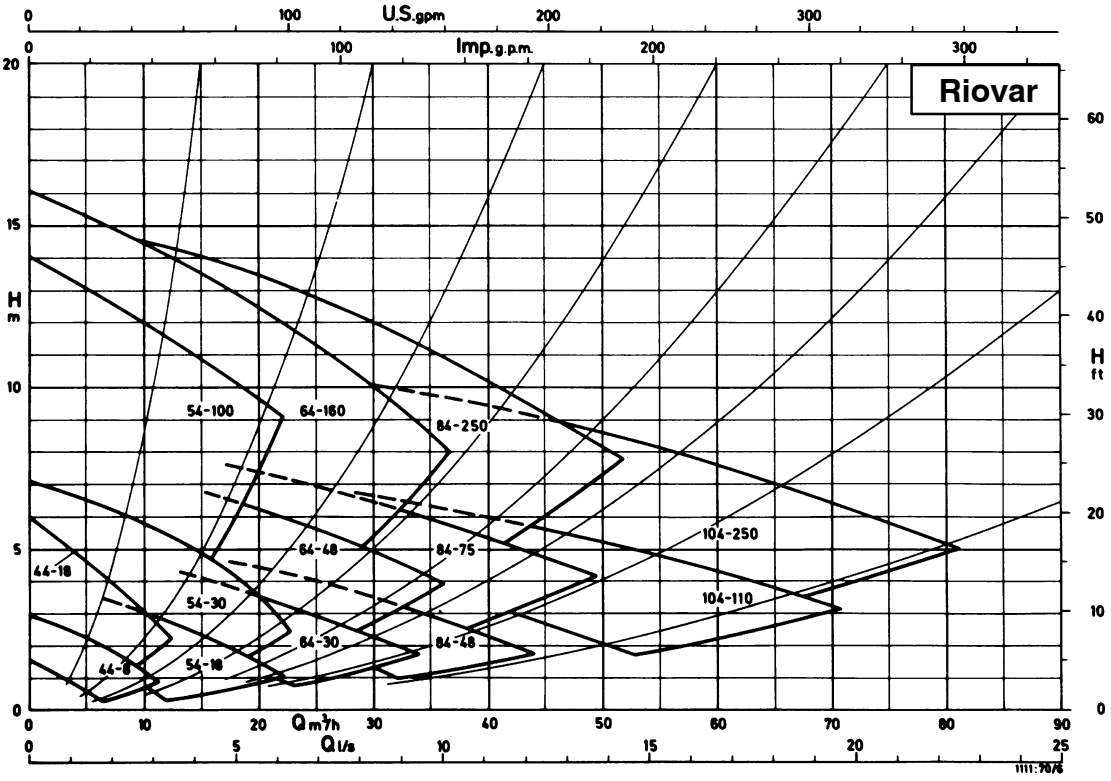
See pump variant table on page 12.

Selection Charts, Single Pumps ≈1400 1/min



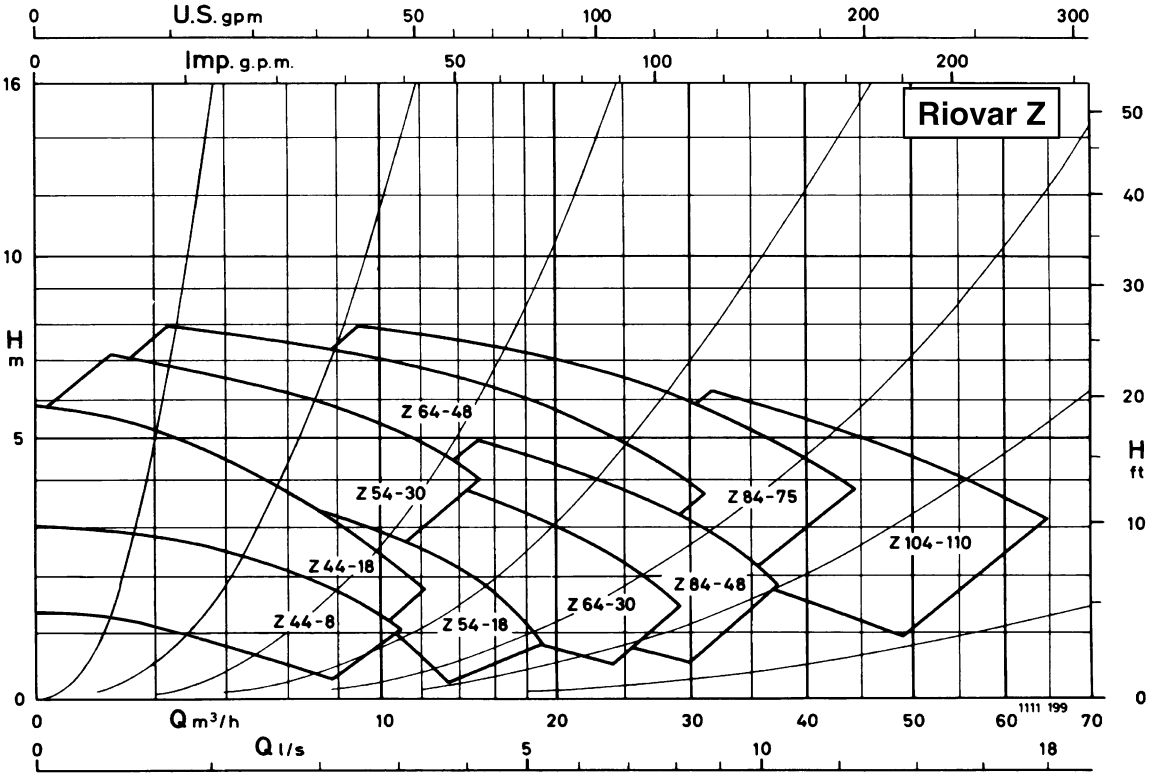


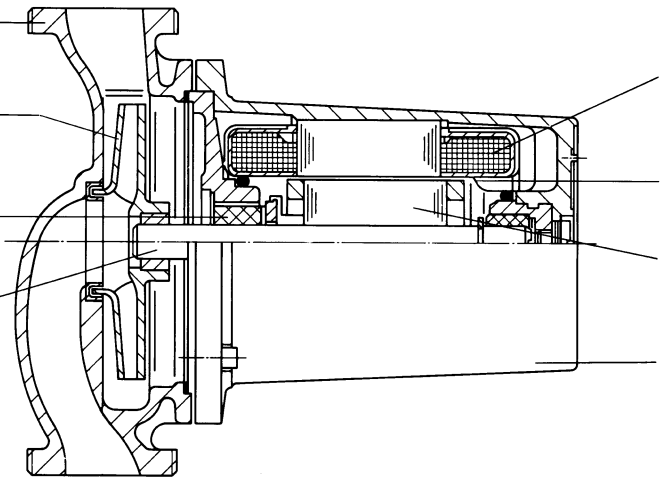




Selection Chart, Twin Pumps ≈1400 1/min

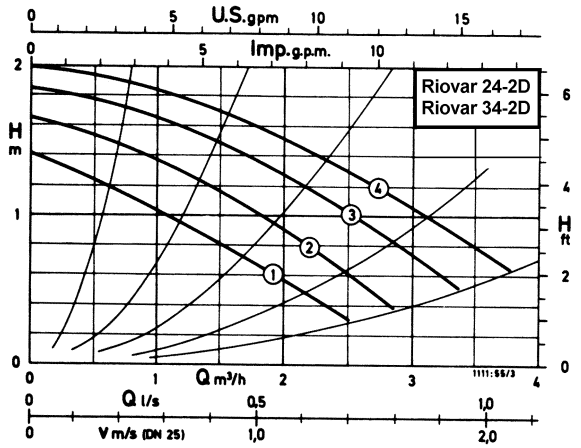
The characteristic curves refer to operation of one pump.

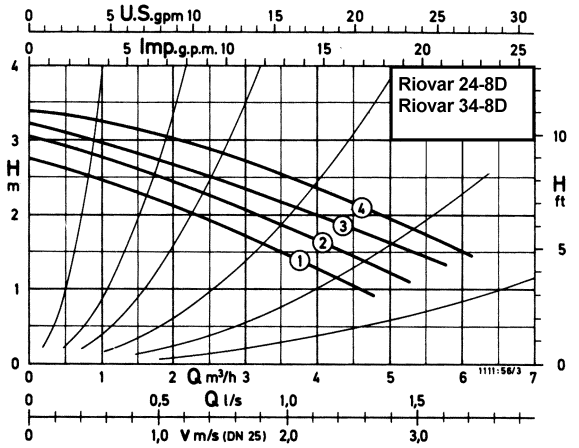


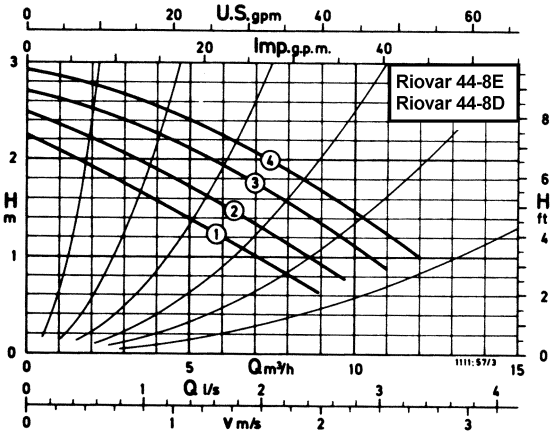

Screwed joint, above DN 32 **flanges**
Hydraulically optimized **impeller** of wear-resistant plastic
Carbon **plain bearings,** wear-resistant, safe to run dry, low-noise
Shaft of corrosion-resistant chrome steel
Condensation-proof winding, also suitable for cold-water operation
Can of antimagnetic stainless steel
4 speed levels allow exact adjustment to the system conditions
Canned motor with high starting torque at each speed level

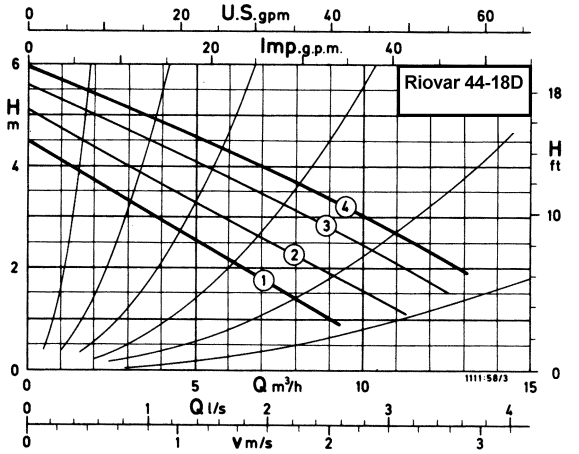
Single Pump Characteristic Curves ≈1400 1/min

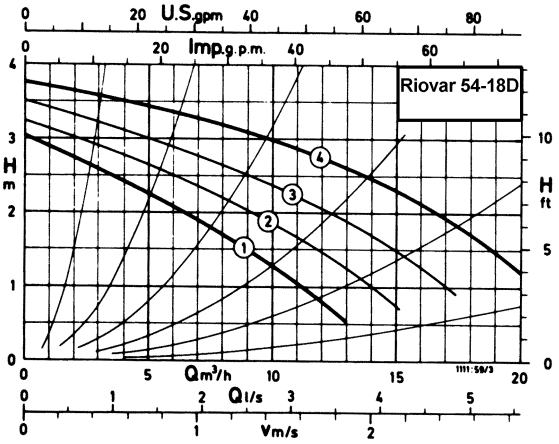
o = speed level and η_{opt}

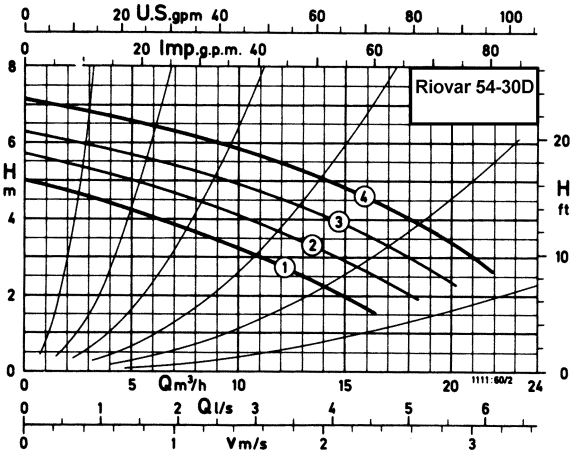


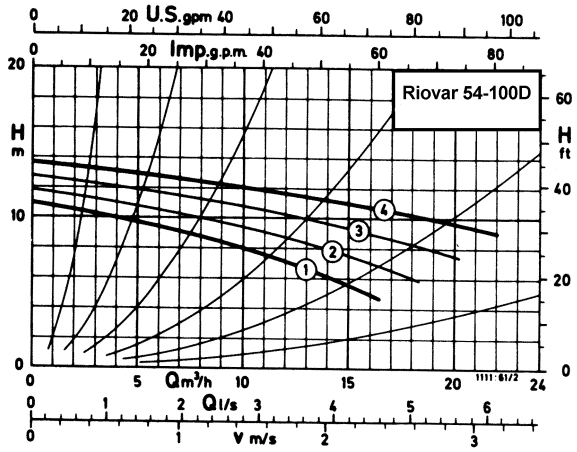


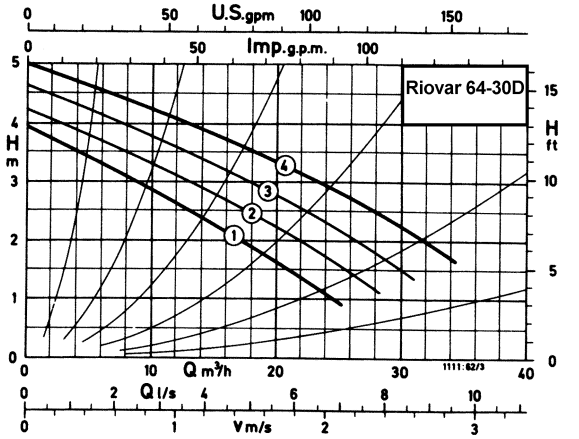












Technical Data

Riovar [1]	ISO 7/1 *) Rp or DN	Speed level	1/min	P_1 W	A	Motor protection [2]	Switch plug [3]	Max. permissible operating pressure 6 bar	kg	10 bar	kg
24-2 D	1	4 3 2 1	1300 1250 1150 1050	112 86 64 46	0.35 0.23 0.17 0.13	-	C	-	-	00 126 839	5.4
24-8 D	1	4 3 2 1	1350 1300 1200 1150	150 120 100 80	0.53 0.38 0.28 0.22	V	C	-	-	00 126 841	7.3
34-2 D	1 1/4	4 3 2 1	1300 1250 1150 1050	112 86 64 46	0.35 0.23 0.17 0.13	-	C	-	-	00 126 843	5.8
34-8 D	1 1/4	4 3 2 1	1350 1300 1200 1150	150 120 100 80	0.53 0.38 0.28 0.22	V	C	-	-	00 126 845	7.8
44-8 E	40	4 3 2 1	1250 1200 1100 1000	200 190 175 155	1.1 1.05 0.95 0.85	V	E	00 126 836	10.3	00 126 846	11.8
44-8 D	40	4 3 2 1	1250 1150 1100 1000	170 140 110 85	0.53 0.38 0.28 0.22	V	C	00 126 837	10.3	00 126 847	11.8
44-18 D	40	4 3 2 1	1300 1150 1050 850	365 320 260 185	0.9 0.75 0.6 0.45	V	C	29 120 663	19.4	29 120 664	20.9
54-18 D	50	4 3 2 1	1350 1300 1200 1100	290 260 220 165	0.9 0.75 0.6 0.45	V	C	29 120 665	14.0	29 120 666	16.2
54-30 D	50	4 3 2 1	1350 1250 1150 1050	635 585 490 395	1.6 1.3 1.1 0.8	V	C	29 120 667	25.0	29 120 668	27.6
54-100 D	50	4 3 2 1	1400 1350 1300 1200	1650 1500 1330 1100	4.0 3.6 3.1 2.7	V	C	-	-	29 120 669	67.0
64-30 D	65	4 3 2 1	1400 1300 1200 1100	580 530 450 370	1.6 1.3 1.1 0.8	V	C	29 120 670	27.0	29 120 671	29.8
64-48 D	65	4 3 2 1	1300 1200 1050 950	970 880 715 560	2.2 1.9 1.5 1.2	V	C	29 120 672	28.0	29 120 673	31.0
64-160 D	65	4 3 2 1	1400 1300 1200 1100	2500 2200 1800 1350	6.1 5.3 4.6 3.7	V	C	-	-	29 120 674	79.0
84-48 D	80	4 3 2 1	1350 1300 1150 1050	745 685 585 490	2.2 1.9 1.5 1.2	V	C	29 120 675	32.5	29 120 676	35.3
84-75 D	80	4 3 2 1	1400 1350 1250 1100	1330 1260 1140 920	3.2 2.8 2.5 2.2	V	C	29 120 677	38.5	29 120 678	40.4
84-250 D	80	4 3 2 1	1400 1300 1200 1100	3500 3100 2700 2300	8.6 8.0 7.3 6.7	V	C	-	-	29 120 679	97.0
104-110 D	100	4 3 2 1	1400 1300 1200 1100	1650 1500 1300 1000	4.1 3.6 3.1 2.6	V	C	29 120 680	43.5	29 120 681	46.8
104-250 D	100	4 3 2 1	1400 1300 1200 1100	3400 3200 2700 2300	8.6 8.0 7.3 6.7	V	C	-	-	29 120 682	109.5

Technical Data

Riovar Z [1]	DN	Speed level	1/min	P_1 W	A	Motor protection [2]	Switch plug [3]	Max. permissible operating pressure 6 bar	kg	10 bar	kg
Z 44-8 E	40	4 3 2 1	1250 1200 1100 1000	200 190 175 155	1.1 1.05 0.95 0.85	V	E	00 126 870	20.0	00 126 872	22.0
Z 44-8 D	40	4 3 2 1	1250 1150 1100 1000	170 140 110 85	0.53 0.38 0.28 0.22	V	C	00 126 871	20.0	00 126 873	21.0
Z 44-18 D	40	4 3 2 1	1300 1150 1050 850	365 320 260 185	0.9 0.75 0.6 0.45	V	C	48 837 867	42.0	48 837 873	44.0
Z 54-18 D	50	4 3 2 1	1350 1300 1200 1100	290 260 220 165	0.9 0.75 0.6 0.45	V	C	29 120 687	27.0	29 120 688	29.0
Z 54-30 D	50	4 3 2 1	1350 1250 1150 1050	635 585 490 395	1.6 1.3 1.1 0.8	V	C	48 837 868	54.5	48 837 874	57.0
Z 64-30 D	65	4 3 2 1	1400 1300 1200 1100	580 530 450 370	1.6 1.3 1.1 0.8	V	C	29 120 689	58.0	29 120 690	59.0
Z 64-48 D	65	4 3 2 1	1300 1200 1050 950	970 880 715 560	2.2 1.9 1.5 1.2	V	C	48 837 869	57.0	48 837 875	61.0
Z 84-48 D	80	4 3 2 1	1350 1300 1150 1050	745 685 585 490	2.2 1.9 1.5 1.2	V	C	29 120 691	62.0	29 120 692	64.0
Z 84-75 D	80	4 3 2 1	1400 1350 1250 1100	1330 1260 1140 920	3.2 2.8 2.5 2.2	V	C	48 837 870	72.0	48 837 876	73.0
Z 104-110 D	100	4 3 2 1	1400 1300 1200 1100	1650 1500 1300 1000	4.1 3.6 3.1 2.6	V	C	29 120 693	90.5	29 120 694	91.5

*) Gaskets are included in the scope of supply. For union ends and union nuts, see Pump Accessories.
1) E = 1~230 V, D = 3~400 V
2) - = No motor protection required, anti-jam motors.
V = Full protection of motor by way of integrated temperature switches in connection with Riovar switchgears DV or, for three-phase current pumps, DUV 2-G or DDV 4.
3) Switch plug variants, if a Riovar switchgear is used.

Min. Pressure

Min. pressure p_{min} at the pump suction nozzle to avoid cavitation noise at an ambient temperature of +40 °C and a pumped-water temperature of $\vartheta_{max.}$:

The values are applicable up to 300 m above sea level. For installation heights >300 m, +0.01 bar/100 m have to be added.

t	50 °C	95 °C	110 °C	130 °C
	p_{min}			
Riovar	bar	bar	bar	bar
24-2/34-2	0.05	0.2	0.8	2.1
24-8/34-8	0.05	0.2	0.8	2.1
44-8	0.05	0.2	0.8	2.1
44-18	0.05	0.5	1.1	2.4
54-18	0.05	0.3	0.9	2.2
54-30	0.05	0.5	1.1	2.4
54-100	0.3	1.0	1.6	2.9
64-30	0.05	0.3	0.9	2.2
64-48	0.05	0.5	1.1	2.4
64-160	0.3	1.0	1.6	2.9
84-48	0.05	0.3	0.9	2.2
84-75	0.05	0.5	1.1	2.4
84-250	0.3	1.0	1.6	2.9
104-110	0.05	0.5	1.1	2.4
104-250	0.3	1.0	1.6	2.9

Outline Drawings Riovar

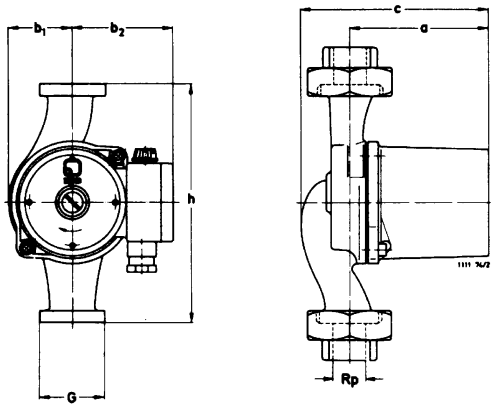


Fig. 1

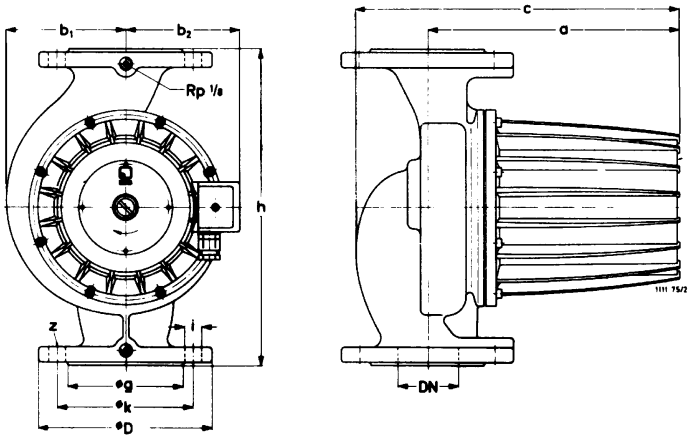


Fig. 2

Flange dimensions PN 6, DIN 2531
PN 16, DIN 2533

Dimension Table

Riovar	Fig.	ISO 7/I Rp/DN	ISO 228 G	a	b_1	b_2	c	h	D PN 6	D PN 16	g PN 6	g PN 16	k PN 6	k PN 16	i PN 6	i PN 16	z PN 6	z PN 16
24-2	1	1	$1^1/_2$	169	58	98	204	180	Screw-ended pumps									
24-8	1	1	$1^1/_2$	181	75	106	216	180										
34-2	1	$1\ ^1/_4$	2	169	58	98	204	180										
34-8	1	$1\ ^1/_4$	2	181	75	106	216	180										
44-8	2	40	-	173	65	106	226	250	130	150	80	88	100	110	14	18	4	4
44-18	2	40	-	226	106	110	296	320	130	150	80	88	100	110	14	18	4	4
54-18	2	50	-	210	88	110	272	280	140	165	90	102	110	125	14	18	4	4
54-30	2	50	-	258	115	127	327	340	140	165	90	102	110	125	14	18	4	4
54-100	2	50	-	286	165	146	391	440	-	165	-	102	-	125	-	18	-	4
64-30	2	65	-	265	128	127	342	340	160	185	110	122	130	145	14	18	4	4
64-48	2	65	-	265	128	127	342	340	160	185	110	122	130	145	14	18	4	4
64-160	2	65	-	353	175	148	462	475	-	185	-	122	-	145	-	18	-	4
84-48	2	80	-	269	134	127	357	360	190	200	128	138	150	160	18	18	4	8
84-75	2	80	-	288	134	140	376	360	190	200	128	138	150	160	18	18	4	8
84-250	2	80	-	394	185	166	521	500	-	200	-	138	-	160	-	18	-	8
104-110	2	100	-	288	143	140	391	395	210	220	148	158	170	180	18	18	4	8
104-250	2	100	-	426	194	166	566	550	-	220	-	158	-	180	-	18	-	8