

Actuators

Series R



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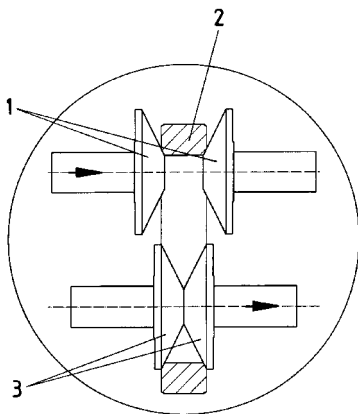
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This catalogue contains product specifications,
but no assurance of properties.
We reserve the right for technical changes and changes of
availability.



- Drive power = 0.25 to 1.5 kW
- Output torques up to 1,200 Nm
- Output speeds 0.16 to 5,600 1/min
- Adjusting range up to 1:9
- Adjustment option at standstill
- Consistent speed, quiet running, long life and high efficiency
- Lifetime lubrication means maintenance-freedom
- Completely closed design, all of the transmission parts running in oil bath, thereby suitable for use in explosion proof areas,

Function

The essential components comprise two pairs of steel cones at the drive shaft (1) - and the output shaft (3) which are enclosed by a steel ring (2) under prestressing. The input drive force is thus transmitted to the output cone pair.

Two diagonally opposite cones are rigidly connected with each other and can jointly be moved in axial direction by rotating the adjusting shaft. The ring is thus able to run on any adjustable diameter of the conical surface, making freely adjustable transmission possible between 3:1 and 1:3 (total R = 9).

Depending on the load decrease, the transfer ring moves more or less far into the wedge angle formed by the cone pairs. Contact pressure between the ring and cones performs varies at virtually the same rate as the reduced torque. This results in the well-known high efficiency of this steel system drive and reduces the wear and tear of transmission parts and bearings to a minimum.

Drive-side attachments

Free drive shaft

In this version, driving speed should not exceed 2000 1/min without additional cooling. The allowable radial load, based on the mid of the shaft is:

Actuator size	4 = 260 N
	5 = 360 N

Motor mounting

Drive is standard with B14 standard motors. 2-pole and 4-pole three-phase AC motors or three-phase Ex motors are attached.

Output-side attachments

The following devices can be attached to adjust the output speed to requirements:

- Spur gears
- Spur and bevel gears

Control devices

Standard equipment includes a manual control device. For more control devices see page 15

Actuator R4 with spur gear

Drive power P	Adjusting range R	Output speed n ₂	Output torque T ₂	Type	Gearing ratio i =	Appr. weight kg	Dimensions Page
kW		1/min	Nm				
0.25	1:9	465 - 4200	3.0 - 0.45	R4-25/4	-----	9.6	10
		155 - 1400	8.6 - 1.3	R41-25/4	3	10.7	11
		92 - 830	14.4 - 2.2	R41-25/4	5.1	10.7	11
		71 - 640	18.8 - 2.9	R41-25/4	6.6	10.7	11
		58 - 520	22.6 - 3.5	R42-25/4	8.1	11.5	12
		34 - 306	*30 - 5.9	R42-25/4	13.8	11.5	12
		26 - 233	*30 - 7.8	R42-25/4	18	11.5	12
		21 - 190	61 - 9.5	R430-25/4	21.6	13.0	13
		13 - 117	*70 - 15.3	R430-25/4	37.1	13.0	13
		9.5 - 87	*70 - 20.6	R430-25/4	48	13.0	13
		8 - 72	*70 - 24.5	R440-25/4	59	13.2	13
		4.7 - 42	*70 - 42.2	R440-25/4	100	13.2	13
		3.5 - 31	*70 - 55	R440-25/4	130	13.2	13
		3 - 27	*70 - 66	R450-25/4	158	13.4	13
		1.7 - 15	*70 - *70	R450-25/4	272	13.4	13
		1.3 - 12	*70 - *70	R450-25/4	353	13.4	13
		1.1 - 10	*70 - *70	R460-25/4	429	13.6	13
0.63 - 5.7	*70 - *70	R460-25/4	735	13.6	13		
0.48 - 4.3	*70 - *70	R460-25/4	955	13.6	13		
0.37	1:6	465 - 2800	3.0 - 1.0	R4-37/4	-----	10.9	10
		155 - 930	8.6 - 2.9	R41-37/4	3	12.0	11
		92 - 560	14.4 - 4.8	R41-37/4	5.1	12.0	11
		71 - 430	18.8 - 6.3	R41-37/4	6.6	12.0	11
		58 - 350	22.6 - 7.6	R42-37/4	8.1	12.8	12
		34 - 205	*30 - 12.9	R42-37/4	13.8	12.8	12
		26 - 155	*30 - 17	R42-37/4	18	12.8	12
		21 - 127	61 - 20.2	R430-37/4	21.6	14.3	13
		13 - 76	*70 - 33.7	R430-37/4	37.1	14.3	13
		9.5 - 57	*70 - 45.7	R430-37/4	48	14.3	13
		8 - 48	*70 - 51	R440-37/4	59	14.5	13
		4.7 - 28	*70 - *70	R440-37/4	100	14.5	13
		3.5 - 21.5	*70 - *70	R440-37/4	130	14.5	13
3 - 18	*70 - *70	R450-37/4	158	14.7	13		

* Design-related permissible torque of transmission gear

Actuator R4 with spur gear

Drive power P	Adjusting range R	Output speed n_2	Output torque T_2	Type	Gearing ratio $i =$	Appr. weight	Dimensions
kW		1/min	Nm			kg	Page
0.55	1:6	930 – 5600	3.0 - 0.76	R4-55/2	----	11.1	10
		310 – 1865	8.6 - 2.2	R41-55/2	3	12.2	11
		186 – 1120	14.4 - 3.6	R41-55/2	5.1	12.2	11
		141 – 850	19.1 - 4.7	R41-55/2	6.6	12.2	11
		116 – 700	23 - 5.6	R42-55/2	8.1	13.0	12
		71 - 430	*30 - 9.6	R42-55/2	13.8	13.0	12
		52 - 310	*30 - 12.8	R42-55/2	18	13.0	12
		42 - 255	60 - 15.1	R430-55/2	21.6	14.5	13
		25 - 151	*70 - 25.5	R430-55/2	37.1	14.5	13
		19 - 116	*70 - 33.2	R430-55/2	48	14.5	13
		16 - 96	*70 - 38.9	R440-55/2	59	14.7	13
		9.4 - 56	*70 - 67	R440-55/2	100	14.7	13
		7 - 42	*70 - *70	R440-55/2	130	14.7	13
0.75	1:6	930 - 5600	3.0 - 1.0	R4-75/2	-----	10.4	10
		310 - 1865	8.6 - 2.8	R41-75/2	3	11.5	11
		186 - 1120	14.4 - 4.8	R41-75/2	5.1	11.5	11
		141 - 850	19.1 - 6.4	R41-75/2	6.6	11.5	11
		116 - 700	23 - 7.6	R42-75/2	8.1	12.3	12
		71 - 430	*30 - 13	R42-75/2	13.8	12.3	12
		52 - 310	*30 - 17.2	R42-75/2	18	12.3	12
		42 - 255	60 - 20.1	R430-75/2	21.6	13.8	13
		25 - 151	*70 - 33.9	R430-75/2	37.1	13.8	13
		19 - 116	*70 - 44.1	R430-75/2	48	13.8	13
		16 - 96	*70 - 52	R440-75/2	59	14.0	13

* Design-related permissible torque of transmission gear

Actuator R4 with spur and bevel gear

Drive power P kW	Adjusting range R	Output speed n_2 1/min	Output torque T_2 Nm	Type	Gearing ratio i =	Appr. weight kg	Dimensions Page
0.25	1:9	103 - 930	12.6 - 1.9	R41W3-25/4	4.5	12.2	14
		61 - 552	21 - 3.2	R41W3-25/4	7.65	12.2	14
		47 - 426	27.5 - 4.3	R41W3-25/4	9.9	12.2	14
		39 - 348	*30 - 8.7	R42W3-25/4	12.2	13.0	14
		23 - 204	*30 - 8.7	R42W3-25/4	20.7	13.0	14
		17 - 156	*30 - 11.5	R42W3-25/4	27	13.0	14
		14 - 126	*30 - 13.9	R430W3-25/4	32.4	14.5	14
			89 - 13.9	R430W10-25/4	32.4	16.7	14
		8.7 - 78	*30 - 22.4	R430W3-25/4	56	14.5	14
			*100 - 22.4	R430W10-25/4	56	16.7	14
		7 - 63	*150 - 27.6	R430W15-25/4	65	15.5	14
		5.3 - 48	*30 - *30	R440W3-25/4	89	14.7	14
			*100 - 36	R440W10-25/4	89	16.9	14
		3.3 - 30	*150 - 60	R430W15-25/4	144	15.5	14
		3.1 - 28	*100 - 61	R440W10-25/4	150	16.9	14
		2 - 18	*100 - 96	R450W10-25/4	237	17.1	14
		1.6 - 14	*150 - 123	R440W15-25/4	300	15.7	14
		1.1 - 10.2	*100 - *100	R450W10-25/4	408	17.1	14
		1 - 9	*150 - *150	R450W15-25/4	474	15.9	14
		0.73 - 6.6	*100 - *100	R450W10-25/4	643	17.3	14
		0.57 - 5.1	*150 - *150	R450W15-25/4	816	15.9	14
0.37 - 3.3	*150 - *150	R460W15-25/4	1287	16.1	14		
0.32 - 2.9	*100 - *100	R460W10-25/4	1432	17.3	14		
0.16 - 1.44	*150 - *150	R460W15-25/4	2865	16.1	14		
0.37	1:6	103 - 620	12.6 - 4.3	R41W3-37/4	4.5	13.5	14
		61 - 368	21 - 7	R41W3-37/4	7.65	13.5	14
		47 - 284	27.5 - 9.2	R41W3-37/4	9.9	13.5	14
		39 - 232	*30 - 11	R42W3-37/4	12.2	14.3	14
		23 - 136	*30 - 18.9	R42W3-37/4	20.7	14.3	14
		17 - 104	*30 - 25	R42W3-37/4	27	14.3	14
		14 - 84	*30 - *30	R430W3-37/4	32.4	15.8	14
			89 - 30	R430W10-37/4	32.4	18.0	14
		8.7 - 52	*30 - *30	R430W3-37/4	56	15.8	14
			*100 - 49	R430W10-37/4	56	18.0	14
		7 - 42	*150 - 59	R430W15-37/4	65	16.8	14
		5.3 - 32	*100 - 74	R440W10-37/4	89	18.2	14
		3.3 - 20	*150 - 133	R430W15-37/4	144	16.8	14
		3.1 - 18.6	*100 - *100	R440W10-37/4	150	18.2	14
		2 - 12	*100 - *100	R450W10-37/4	237	18.4	14
1.6 - 9.4	*150 - *150	R440W15-37/4	300	17.0	14		

* Design-related permissible torque of transmission gear

Actuator R4 with spur and bevel gear

Drive power P kW	Adjusting range R	Output speed n_2 1/min	Output torque T_2 Nm	Type	Gearing ratio i =	Appr. weight kg	Dimensions Page
0.55	1:6	207 - 1240	12.6 - 3.2	R41W3-55/2	4.5	13.7	14
		124 - 744	21 - 5.3	R41W3-55/2	7.65	13.7	14
		94 - 564	28 - 6.9	R41W3-55/2	9.9	13.7	14
		77 - 464	*30 - 8.2	R42W3-55/2	12.2	14.5	14
		47 - 284	*30 - 14.1	R42W3-55/2	20.7	14.5	14
		35 - 208	*30 - 18.8	R42W3-55/2	27	14.5	14
		28 - 168	*30 - 22	R430W3-55/2	32.4	16.0	14
			87 - 22	R430W10-55/2	32.4	18.2	14
		17 - 100	*30 - *30	R430W3-55/2	56	16.0	14
			*100 - 37	R430W10-55/2	56	18.2	14
		14 - 84	*150 - 44	R430W15-55/2	65	17.0	14
		10.7 - 64	*100 - 56	R440W10-55/2	89	18.4	14
		8.3 - 50	*150 - 74	R430W15-55/2	111	17.0	14
		5.3 - 32	*100 - 113	R440W15-55/2	177	17.2	14
		4.7 - 28	*100 - *100	R440W10-55/2	195	18.4	14
			*100 - *100	R450W10-55/2	408	18.6	14
		2.3 - 14	*150 - *150	R440W15-55/2	390	17.2	14
			*100 - *100	R460W10-55/2	643	18.8	14
		1.13 - 6.8	*150 - *150	R450W15-55/2	816	17.4	14
		0.73 - 4.4	*150 - *150	R460W15-55/2	1287	17.6	14
0.64 - 3.8	*100 - *100	R460W10-55/2	1432	18.8	14		
0.32 - 1.52	*150 - *150	R460W15-55/2	2865	17.6	14		
0.75	1:6	207 - 1240	12.6 - 4.1	R41W3-75/2	4.5	13.0	14
		124 - 744	21 - 7.0	R41W3-75/2	7.65	13.0	14
		94 - 564	28 - 9.4	R41W3-75/2	9.9	13.0	14
		77 - 464	*30 - 11.2	R42W3-75/2	12.2	13.8	14
		47 - 284	*30 - 19	R42W3-75/2	20.7	13.8	14
		35 - 208	*30 - 25	R42W3-75/2	27	13.8	14
		28 - 168	*30 - 29	R430W3-75/2	32.4	15.3	14
			87 - 29	R430W10-75/2	32.4	17.5	14
		17 - 100	*100 - 49	R430W10-75/2	56	17.5	14
		14 - 84	*150 - 58	R430W15-75/2	65	16.3	14
		10.7 - 64	*100 - 75	R440W10-75/2	89	17.7	14
		8.3 - 50	*150 - 98	R430W15-75/2	111	16.3	14
		5.3 - 32	*150 - *150	R440W15-75/2	177	16.5	14

* Design-related permissible torque of transmission gear

Actuator R5 with spur gear

Drive power P	Adjusting range R	Output speed n ₂	Output torque T ₂	Type	Gearing ratio i =	Appr. weight kg	Dimensions Page
kW		1/min	Nm				
0.55	1:9	465 - 4200	6.0 - 1.0	R5-55/4	-----	18	10
		155 - 1400	17.7 - 2.9	R51-55/4	3	22	11
		92 - 830	29.4 - 4.9	R51-55/4	5.1	22	11
		71 - 640	39.2 - 6.5	R51-55/4	6.6	22	11
		35 - 315	76 - 12.6	R52-55/4	13.1	24.3	12
		21 - 190	*110 - 21.2	R52-55/4	22.4	24.3	12
		16 - 144	*110 - 27.9	R52-55/4	29.1	24.3	12
0.75	1:9	465 - 4200	6.0 - 1.3	R5-75/4	-----	20	10
		155 - 1400	25.9 - 3.9	R51-75/4	3	23.8	11
		92 - 830	43.5 - 6.6	R51-75/4	5.1	23.8	11
		71 - 640	*50 - 8.6	R51-75/4	6.6	23.8	11
		35 - 315	*110 - 16.7	R52-75/4	13.1	25.8	12
		21 - 190	*110 - 28.4	R52-75/4	22.4	25.8	12
		16 - 144	*110 - 37.4	R52-75/4	29.1	25.8	12
1.1	1:6	930 - 5600	6.0 - 1.5	R5-110/2	-----	18.8	10
		310 - 1865	17.4 - 4.3	R51-110/2	3	22.8	11
		186 - 1120	28.8 - 7.3	R51-110/2	5.1	22.8	11
		141 - 850	38.2 - 9.5	R51-110/2	6.6	22.8	11
		71 - 430	74 - 18.3	R52-110/2	13.1	24.8	12
		42 - 255	*110 - 31	R52-110/2	22.4	24.8	12
		32 - 193	*110 - 40.9	R52-110/2	29.1	24.8	12
1.5	1:6	930 - 5600	6.0 - 2.0	R5-150/2	-----	19.8	10
		310 - 1865	17.4 - 5.8	R51-150/2	3	23.8	11
		186 - 1120	28.8 - 9.6	R51-150/2	5.1	23.8	11
		141 - 850	38.2 - 12.7	R51-150/2	6.6	23.8	11
		71 - 430	74 - 24.5	R52-150/2	13.1	25.8	12
		42 - 255	*110 - 41.3	R52-150/2	22.4	25.8	12
		32 - 193	*110 - 55	R52-150/2	29.1	25.8	12

* Design-related permissible torque of transmission gear

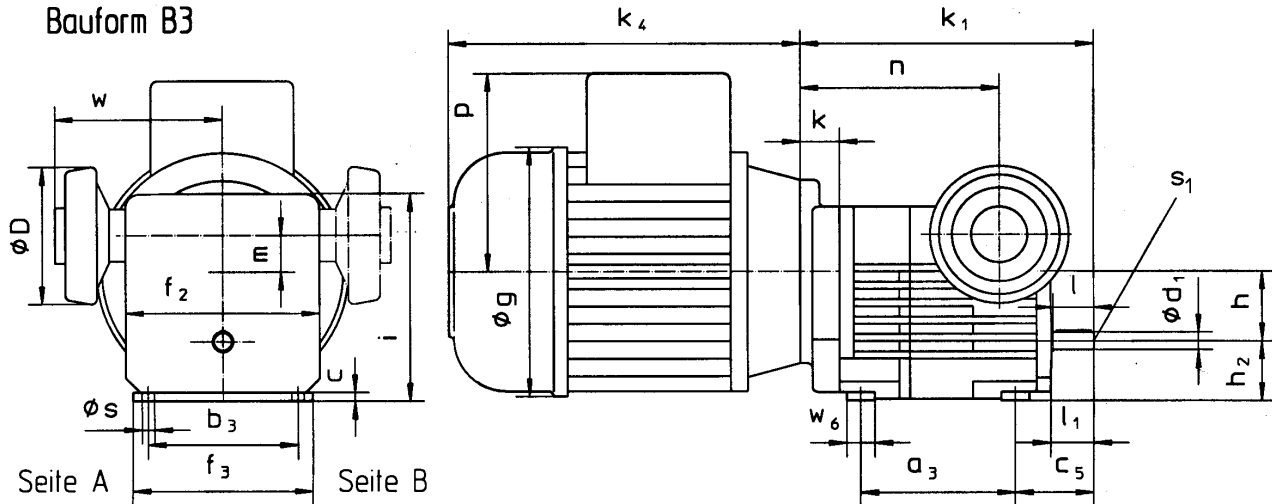
Actuator R5 with spur and bevel gear

Drive power P kW	Adjusting range R	Output speed n_2 1/min	Output torque T_2 Nm	Type	Gearing ratio i =	Appr. weight kg	Dimensions Page
0.55	1:9	103 - 927	25.8 - 4.2	R51W10-55/4	4.5	25.7	14
		61 - 549	42.8 - 7.1	R51W10-55/4	7.65	25.7	14
		47 - 423	57 - 9.5	R51W10-55/4	9.9	25.7	14
		31 - 279	86 - 14.2	R51W15-55/4	15.3	24.5	14
		24 - 216	114 - 18.9	R51W15-55/4	19.8	24.5	14
0.75	1:9	103 - 927	37.7 - 5.7	R51W10-75/4	4.5	27.5	14
		61 - 549	63 - 9.6	R51W10-75/4	7.65	27.5	14
		47 - 423	73 - 12.5	R51W10-75/4	9.9	27.5	14
		31 - 279	126 - 19.2	R51W15-75/4	15.3	26.3	14
		24 - 216	145 - 25	R51W15-75/4	19.8	26.3	14
1.1	1:6	207 - 1240	25.3 - 6.3	R51W10-110/2	4.5	26.5	14
		124 - 744	42 - 10.6	R51W10-110/2	7.65	26.5	14
		94 - 564	55 - 13.8	R51W10-110/2	9.9	26.5	14
		62 - 372	84 - 21.2	R51W15-110/2	15.3	25.3	14
		47 - 282	111 - 27.6	R51W15-110/2	19.8	25.3	14
1.5	1:6	207 - 1240	25.3 - 8.4	R51W10-150/2	4.5	27.5	14
		124 - 744	42 - 14	R51W10-150/2	7.65	27.5	14
		94 - 564	55 - 18.5	R51W10-150/2	9.9	27.5	14
		62 - 372	84 - 28	R51W15-150/2	15.3	26.3	14
		47 - 282	111 - 37	R51W15-150/2	19.8	26.3	14

* Design-related permissible torque of transmission gear

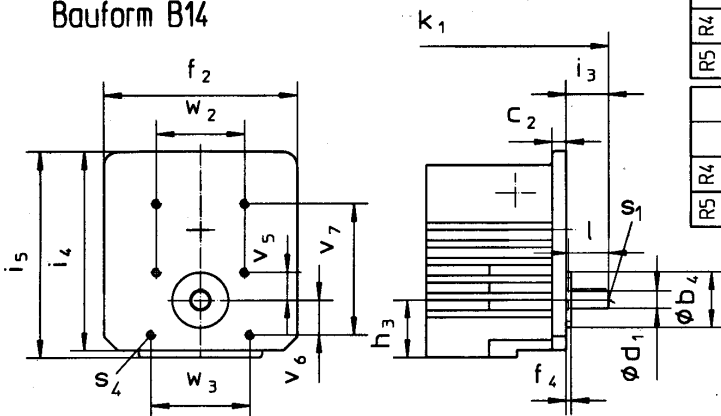
Typ R4/R5

Fußausführung
Bauform B3



	Motor-Maße			Handrad-Maße				Fußleisten-Maße					Wellen-Maße				Getriebe-Maße										
	g	k ₄	p	D	w	m	n	a ₃	b ₃	c	c ₅	f ₃	w ₆	Øs	Ød ₁	l	l ₁	s ₁	tief	f ₂	i ₅	h	h ₂	k	k ₁	i	h ₃
R4	145	210	116	80	95,6	21,1	123,5	88	85	5	44,5	102	16	7	10 k6	23	24,5	M4, 8		110	118	40	34	32,5	177	119	33
R5	162	234	124	100	103,6	28	185	131	110	8	56	130	20	9,5	12 k6	30	32	M4, 8		130	152	50	54	63	263	155	51

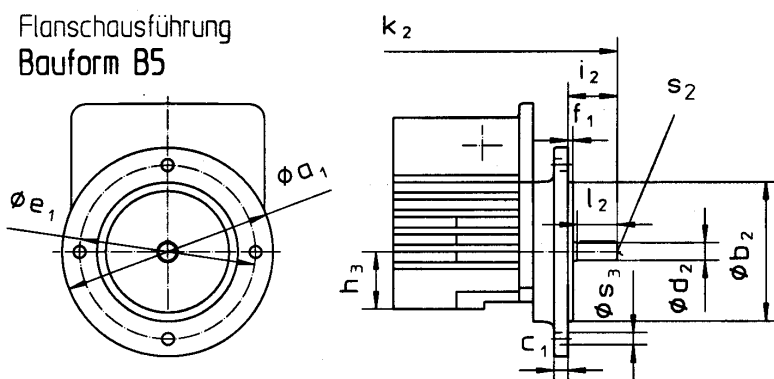
Flanschausführung
Bauform B14



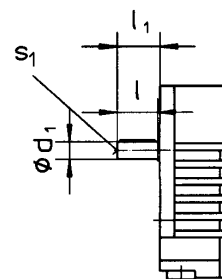
B14 Flansch-Maße												
	Øb ₄	c ₂	f ₄	i ₃	i ₄	s ₄	tief	v ₅	v ₆	v ₇	w ₂	w ₃
R4	32 _{m6}	8	3	24,5	114	M5, 10		20	75	50	56	
R5	40 _{h6}	11	5	32	152	M8, 12		25	36	122	70	70

B5 Flansch-Maße												
	Øa ₁	Øb ₂	c ₁	Øe ₁	f ₁	k ₂	Øs ₃	i ₂	Ød ₂	l ₂	s ₂	tief
R4	120	80 _{j6}	8	100	3	201	7	28,5	10 _{k6}	23	M4, 8	
R5	160	110 _{j6}	10	130	3	287,5	9	30,5	14 _{k6}	30	M5, 11	

Flanschausführung
Bauform B5

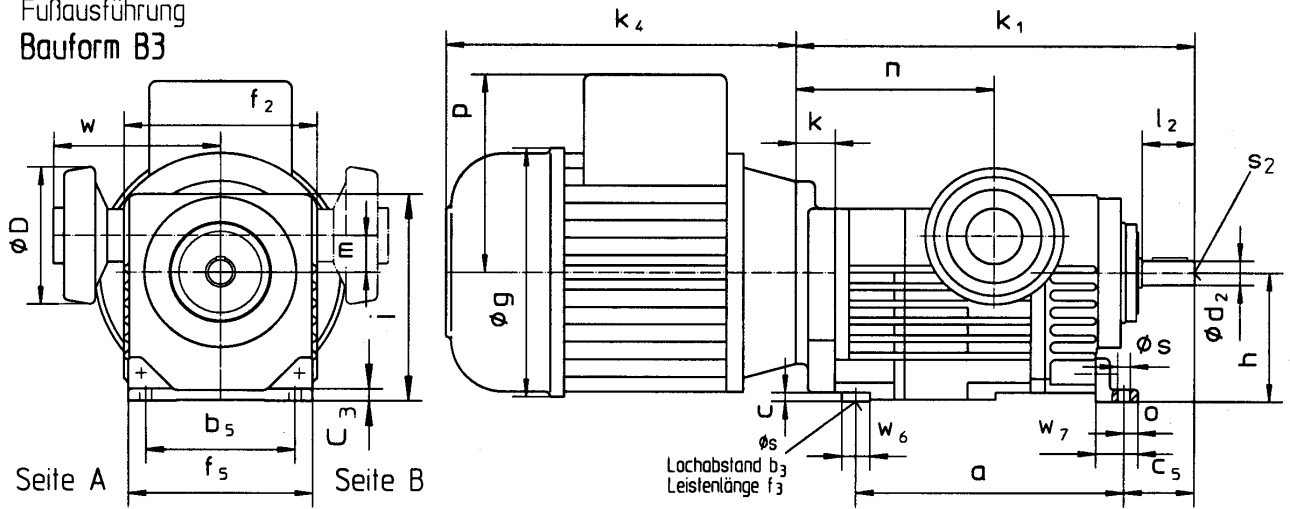


freie Antriebswelle



Typ R41/R51

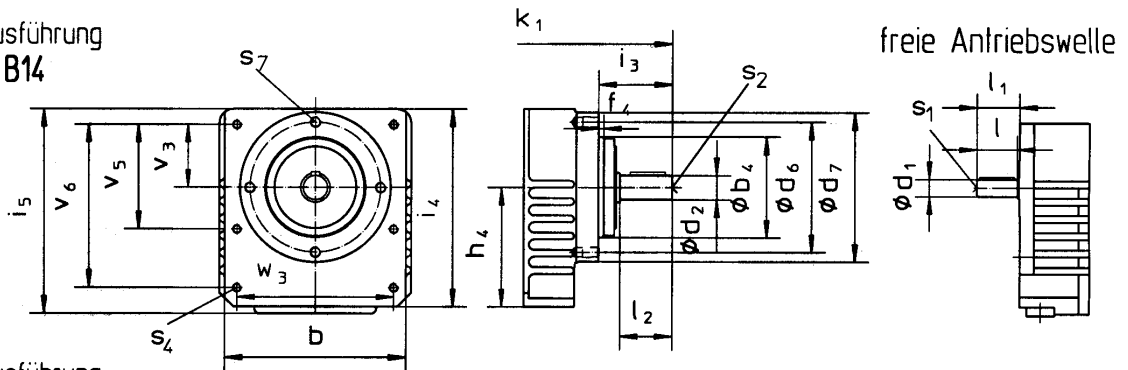
Fußausführung
Bauform B3



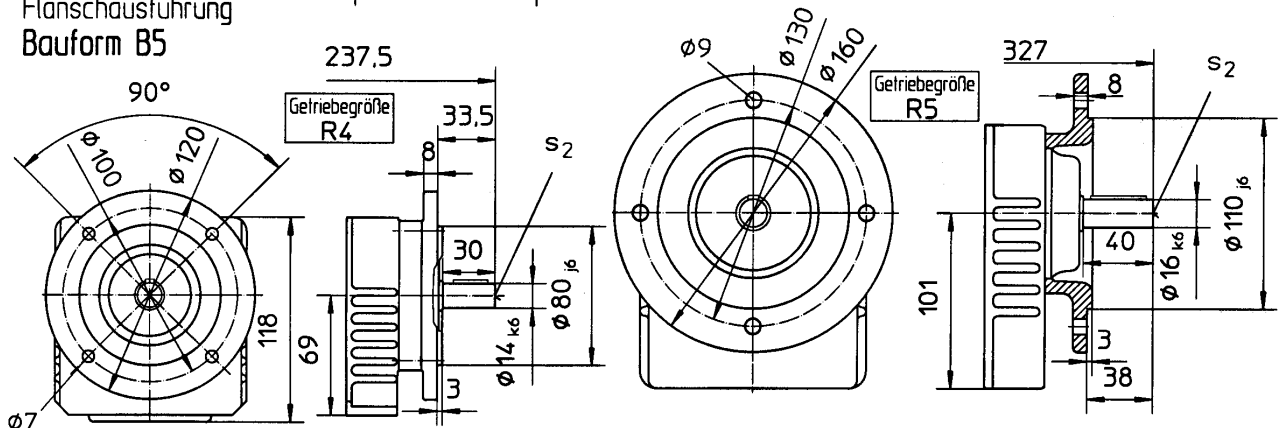
	Motor-Maße			Handrad-Maße				Fußleisten-Maße										Wellen-Maße								
	g	k ₄	p	D	w	m	n	a	b ₃	b ₅	c	c ₃	c ₅	f ₃	f ₅	o	φ _s	w ₆	w ₇	φ _{d1}	l	l ₁	s ₁ tief	φ _{d2}	l ₂	s ₂
R ₄	145	210	116	80	95,6	21,1	123,5	153	85	85	5	7	40	102	105	8	7	16	24	10 _{k6}	23	24,5	M4, 8	14 _{k6}	30	M5, 11tief
R ₅	162	234	124	100	103,6	28	185	207,5	110	100	8	10	43,5	130	120	8	9,5	20	26	12 _{k6}	30	32	M4, 8	16 _{k6}	40	M6, 13tief

	Getriebe-Maße					B14 Flansch-Maße																
	k	k ₁	i	f ₂	i ₅	h	w ₅	b	φ _{b4}	φ _{d6}	φ _{d7}	h ₄	f ₄	i ₃	i ₄	s ₄ tief	s ₇ tief	v ₃	v ₅	v ₆	w ₃	
R ₄	32,5	237,5	119	110	118	74	70	104	58 _{h6}	75	86	69	4	42,5	114	—	M6, 9	—	—	—	—	—
R ₅	63	327	155	130	152	104	—	120	75 _{j6}	—	—	101	5	62	152	M8,12	—	30	60	110	100	

Flanschausführung
Bauform B14



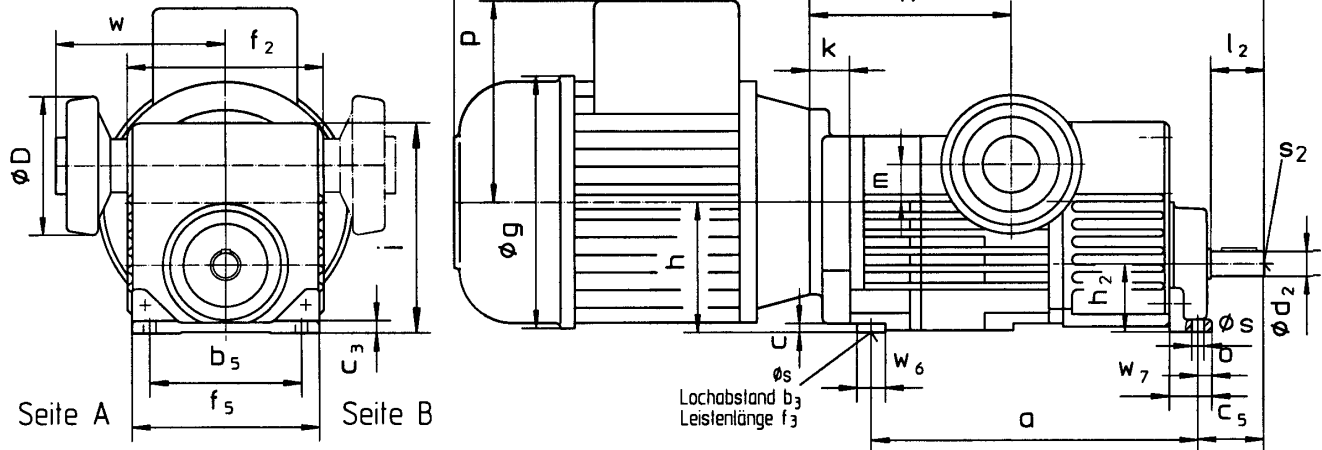
Flanschausführung
Bauform B5



Typ R42/R52

Fußausführung

Bauform B3

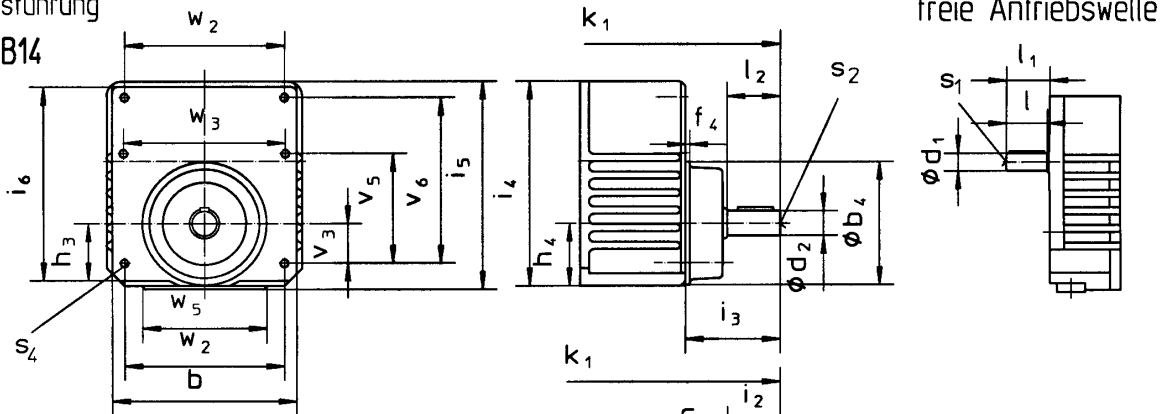


Motor-Maße			Handrad-Maße				Fußleisten-Maße								Wellen-Maße												
g	k ₄	p	D	w	m	n	a	b ₃	b ₅	c	c ₃	c ₅	f ₃	f ₅	o	ø _s	w ₆	w ₇	ø _{d1}	l	l ₁	s ₁	tief	ø _{d2}	l ₂	s ₂	
R4	145	210	116	80	95,6	21,1	123,5	183,5	85	85	5	7	37	102	105	8	7	16	24	10 _{k6}	23	24,5	M4, 8	14 _{k6}	30	M5, 11	tief
R5	162	234	124	100	103,6	28	185	259,5	110	100	8	10	72	130	120	8	9,5	20	26	12 _{k6}	30	32	M4, 8	20 _{k6}	50	M6, 13	tief

Getriebe-Maße				B14 Flansch-Maße										B5 Flansch-Maße															
k	k ₁	i	f ₂	i ₅	h	h ₂	w ₅	b	ø _{b4}	h ₃	h ₄	f ₄	i ₃	i ₄	i ₆	s ₄ tief	v ₃	v ₅	v ₆	w ₂	w ₃	ø _{d1}	ø _{b2}	c ₁	ø _{e1}	f ₁	i ₂	s ₃	
≥	32,5	265	119	110	118	74	38,5	70	104	70 _{j6}	32,5	35,5	3	53,5	116	110	M5,10	22,5	62,5	90	90	91	160	110 _{j6}	8	130	3	29,5	9
≥	63	407,5	155	130	152	104	54	—	120	90 _{j6}	—	51	5	90	152	—	M8,12	30	60	110	100	100	200	130 _{j6}	11,5	165	3,5	50	11

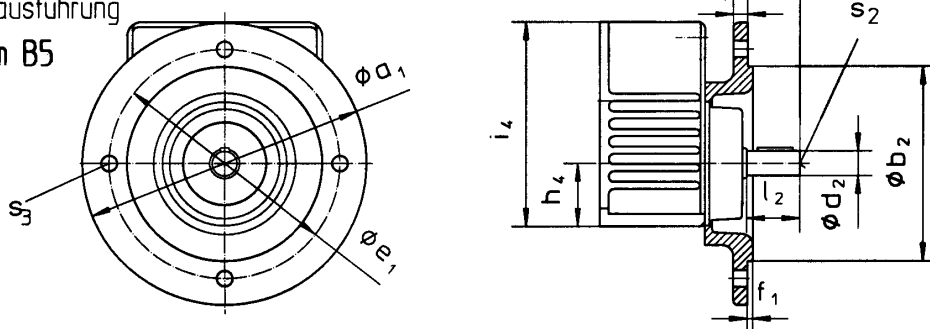
Flanschausführung

Bauform B14



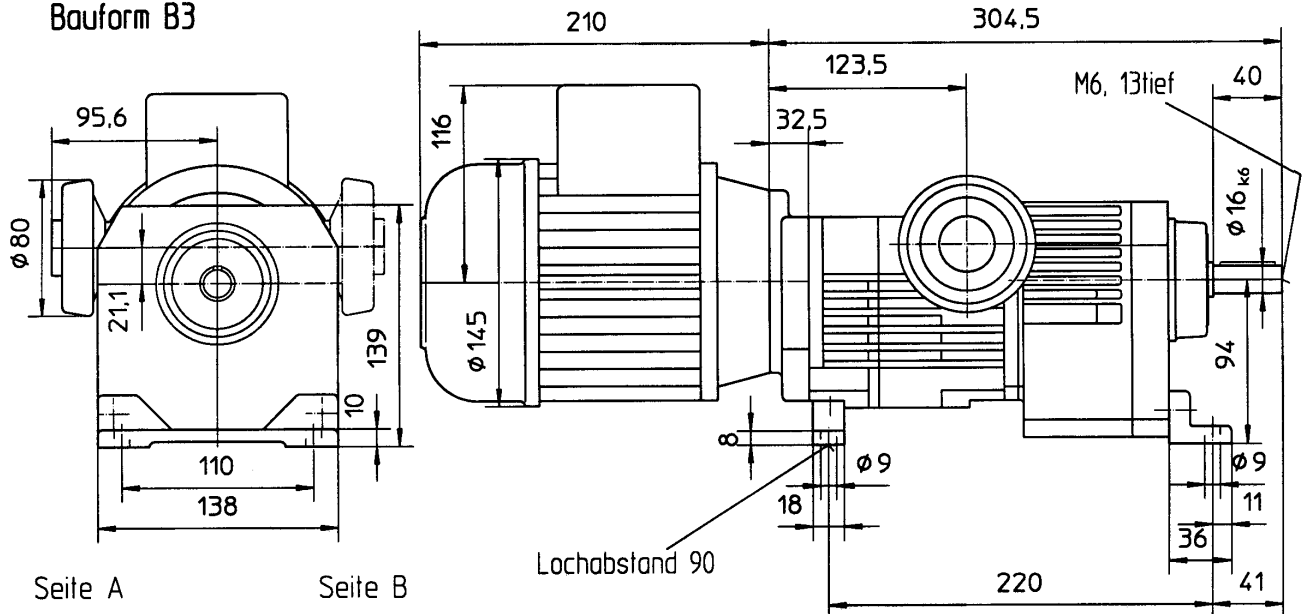
Flanschausführung

Bauform B5

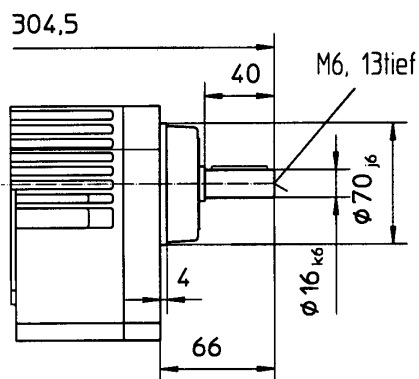
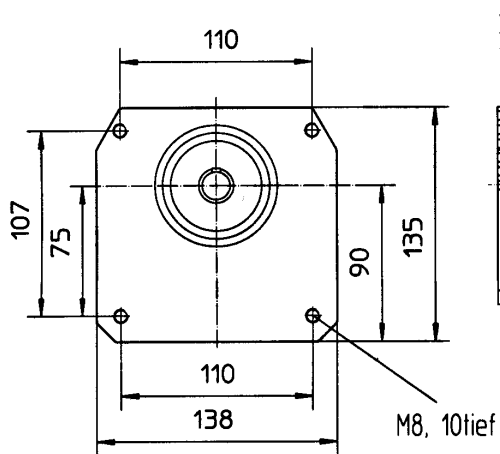


Typ R430 - R460

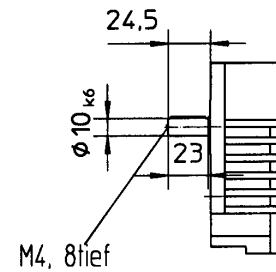
Fußausführung Bauform B3



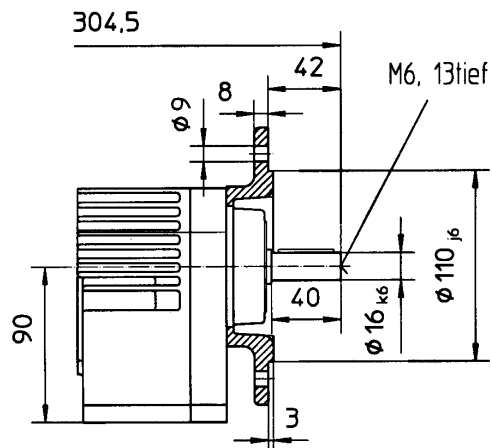
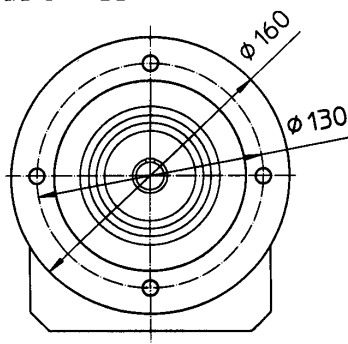
Flanschausführung Bauform B14



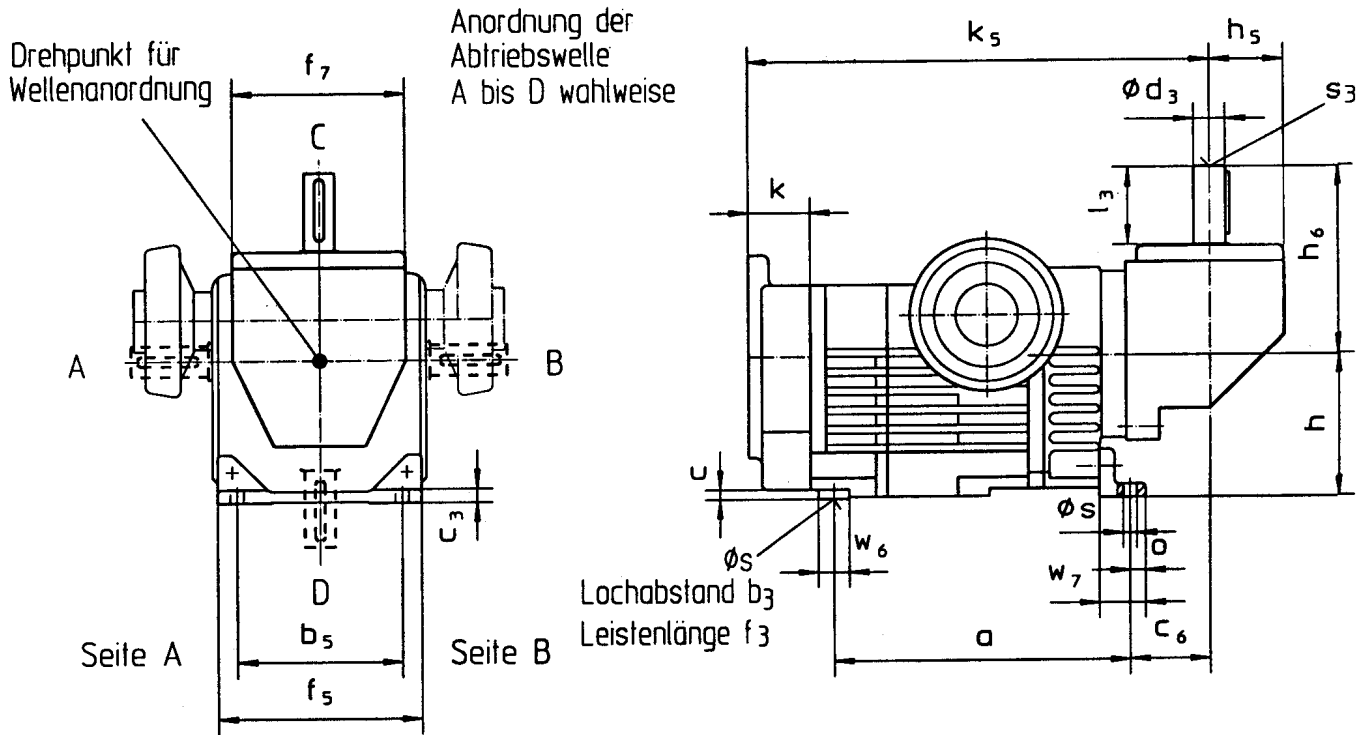
freie Antriebswelle



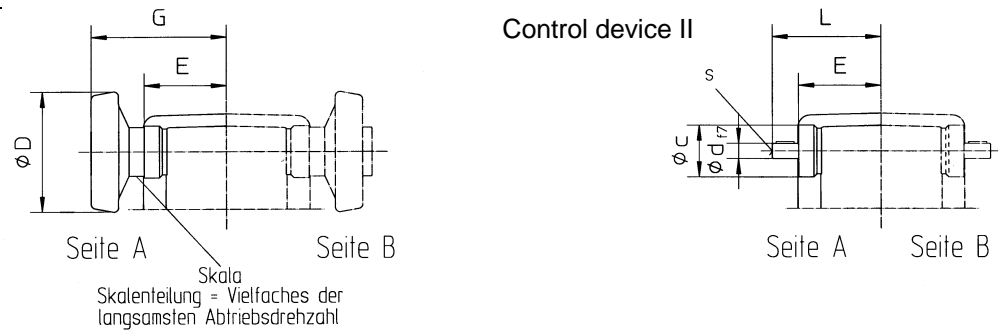
Flanschausführung Bauform B5



Abtriebsseitiger Kegelwinkeltrieb W3,W10,W15

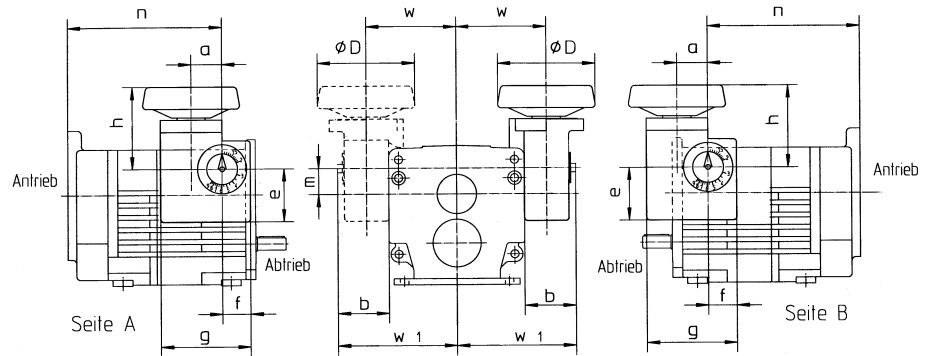


	Getriebe-Maße						Fuß-Maße										Wellen-Maße				
	c ₆	f ₇	h	h ₅	h ₆	k	k ₅	a	b ₃	b ₅	c	c ₃	f ₃	f ₅	o	ø _s	w ₆	w ₇	ø _{d3}	l ₃	s ₃
R41W3	41	89	74	37,5	97	32,5	238,5	153	85	85	5	7	102	105	8	7	16	24	16 _{k6}	40	M6; 13tief
R42W3	44	89	48,5	37,5	97	32,5	266	177,5	90	130	8	12	110	154	10	9	18	20	16 _{k6}	40	M6; 13tief
R430-460W3	30	89	94	37,5	97	32,5	293,5	220	90	110	8	10	110	138	11	9	18	36	16 _{k6}	40	M6; 13tief
R430-460W10	47	122	94	61	125	32,5	310,5	219,5	90	110	8	10	110	138	11	9	18	36	20 _{k6}	50	M6; 13tief
R430-460W15	50	126	94	63	110	32,5	313,5	220	90	110	8	10	110	138	11	9	18	36	22 _{k6}	50	M8; 16tief
R51W10	54	122	104	61	125	63	337	207	110	100	8	10	130	120	8	9,5	20	26	20 _{k6}	50	M6; 13tief
R51W15	57	126	104	63	110	63	345	207	110	100	8	10	130	120	8	9,5	20	26	22 _{k6}	50	M8; 16tief



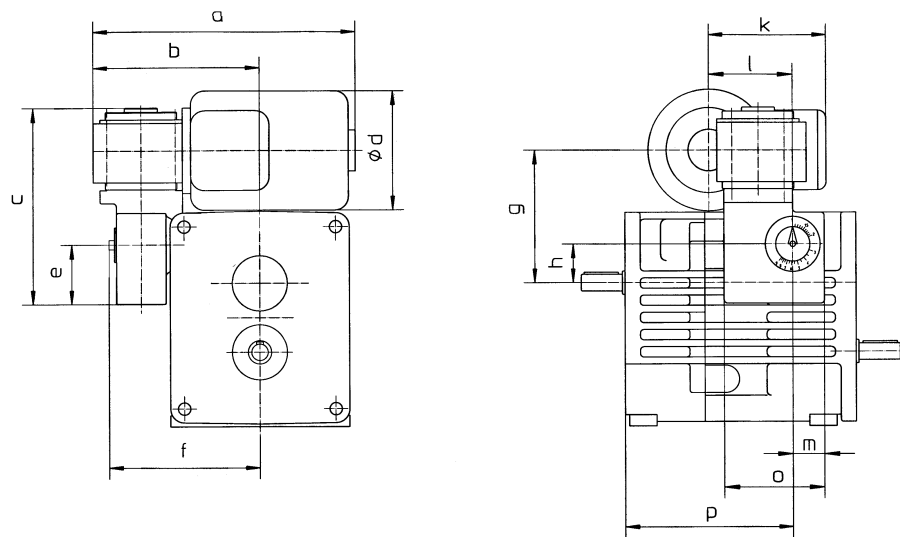
	ØD	Øc	Ød	E	G	L	s ; tief
æ	80	34	10 _{f7}	54,5	90	72	M5 ; 12
æ	100	34	10 _{f7}	63	100	80	M5 ; 12

Angular control device



	a	b	ØD	e	f	g	h	m	n	w	w ₁	Stellrad Umdrehungen R=6	Stellrad Umdrehungen R=9	Übersetzung	Stellmomente in Nm		
															Still- stand	Leer- lauf	Voll- last
æ	25	42	80	43	23	73	67	21	123,5	73	97	7,6	9,2	15 : 1	0,3	0,2	0,9
æ	25	47	80	43	23	73	67	28	185	78	102	7,8	9,3	15 : 1	0,9	0,5	1,9

Electrical control device



	a	b	c	Ød	e	f	g	h	k	l	m	o	p
R4	191	113	142	86	43	102	89	21	81	56	23	73	91
R5	191	121	142	86	43	110	96	28	81	56	23	73	122