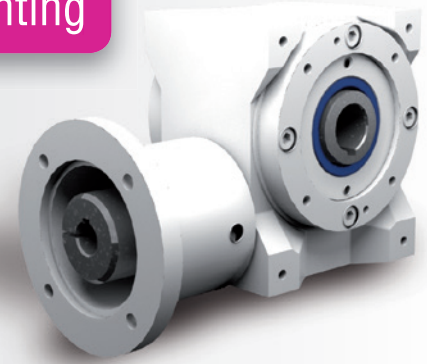


# 9.4 Type SL – Type S with flange for motor mounting



## 9.4.1 Features

- Nominal gear ratios:  $i = 10:1$  to  $83:1$
- Maximum output torque:  $1765 \text{ Nm}$
- 5 sizes, centre-to-centre distance of  $040$  to  $100 \text{ mm}$
- Low-backlash construction  $< 6$  angular minutes possible
- Suitable for fitting IEC standard motors
- Drive side with hollow-bored shaft and flange
- Housing made of grey cast iron

## 9.4.2 Models

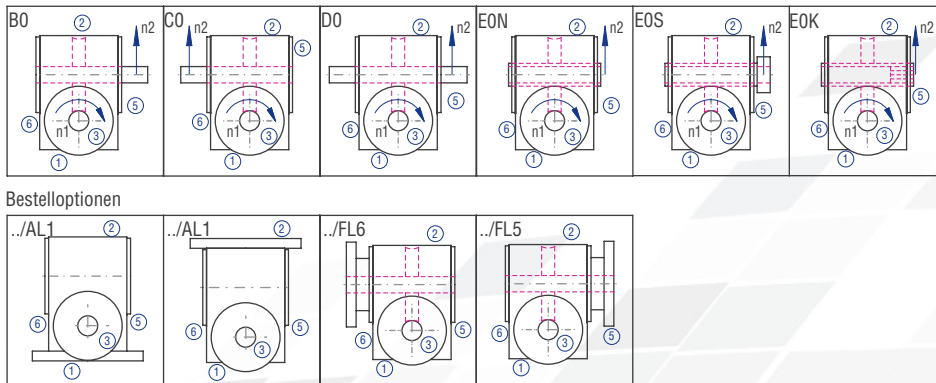


Figure 9.4.2-1; Models

## 9.4.3 Gearbox sides

The example shows the Model B0 (right picture without motor flange)

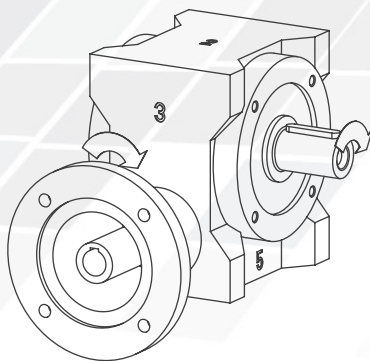


Figure 9.4.3-1; Gearbox sides

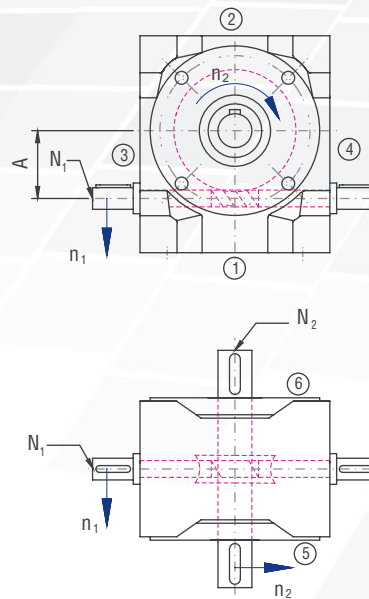


Figure 9.4.3-2; Shaft designations

## 9.4.4 Order code

The order code reflects the customer specifications. Example:

Type	Size	Gear ratio	Model	Fixing side	Installation position	Speed $n_2$	Design
SL	063	10:1	B0-	1.	1-	150	/0000
<b>Description</b>	Centre-to-centre distance A; Table 9.4.5-1	Table 9.4.5-1	Figure 9.4.2-1; Models	Side on which fixing is made; Table 9.2.3-1; Figure 4.3.1-1 Gearbox sides	Side directed downwards; Figure 4.3.1-1 Gearbox sides	Slowly rotating shaft; Table 9.4.5-1	Standard
	D120	/14x30					
	Flange diameter	Shaft diameter x length					
	Table 9.4.4-1						

## 9.4.5 Overview of performance data

size	n <sub>1</sub> [1/min]	10:1					20:1					30:1					40:1				
		n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η	n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η	n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η	n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η
040	3000	300,0	1,39	39	1,28	0,91	150,0	0,82	43	0,77	0,84	100,0	0,53	36	0,51	0,75	75,0	0,48	44	0,46	0,72
	1500	150,0	0,77	43	0,83	0,90	75,0	0,49	50	0,49	0,82	50,0	0,37	50	0,33	0,73	37,0	0,32	56	0,30	0,70
	1000	100,0	0,55	45	0,69	0,88	50,0	0,36	53	0,42	0,80	33,0	0,29	57	0,28	0,70	25,0	0,25	63	0,25	0,67
	750	75,0	0,43	47	0,63	0,87	37,0	0,28	55	0,38	0,78	25,0	0,24	60	0,26	0,68	18,0	0,20	66	0,23	0,65
	500	50,0	0,32	50	0,87	0,85	25,0	0,21	58	0,34	0,76	16,0	0,18	65	0,23	0,64	12,0	0,15	71	0,21	0,62
	150	15,0	0,13	64	0,00	0,81	7,5	0,09	75	0,00	0,71	5,0	0,08	82	0,00	0,57	3,8	0,07	91	0,00	0,56
050	3000	300,0	3,02	85	2,82	0,93	150,0	1,54	81	1,70	0,87	100,0	1,12	82	1,14	0,79	75,0	0,87	80	1,02	0,76
	1500	150,0	1,64	91	1,88	0,92	75,0	1,03	106	1,12	0,85	50,0	0,79	113	0,76	0,77	37,0	0,65	118	0,68	0,75
	1000	100,0	1,15	94	1,56	0,90	50,0	0,73	110	0,93	0,83	33,0	0,59	121	0,63	0,74	25,0	0,52	134	0,57	0,71
	750	75,0	0,96	103	1,40	0,89	37,0	0,63	123	0,84	0,81	25,0	0,54	144	0,06	0,72	18,0	0,41	137	0,52	0,69
	500	50,0	0,71	112	1,23	0,87	25,0	0,47	133	0,74	0,78	16,0	0,42	157	0,50	0,68	12,0	0,31	147	0,46	0,65
	150	15,0	0,26	130	0,00	0,82	7,5	0,18	158	0,00	0,72	5,0	0,18	201	0,00	0,59	3,8	0,13	183	0,00	0,57
063	3000	300,0	4,15	121	4,16	0,94	150,0	2,95	161	2,52	0,88	100,0	1,94	143	1,66	0,80	75,0	1,54	149	1,50	0,78
	1500	150,0	2,94	170	2,89	0,93	75,0	1,70	186	1,73	0,88	50,0	1,38	204	1,15	0,80	37,0	1,08	207	1,04	0,77
	1000	100,0	2,26	194	2,41	0,92	50,0	1,32	212	1,44	0,86	33,0	1,11	237	0,97	0,77	25,0	0,85	237	0,87	0,75
	750	75,0	1,83	207	2,15	0,91	37,0	1,14	237	1,29	0,84	25,0	0,97	268	0,86	0,75	18,0	0,74	264	0,78	0,72
	500	50,0	1,30	216	1,86	0,89	25,0	0,86	259	1,12	0,81	16,0	0,75	296	0,75	0,71	12,0	0,57	288	0,69	0,68
	150	15,0	0,51	265	0,00	0,83	7,5	0,34	310	0,00	0,74	5,0	0,36	403	0,00	0,61	3,8	0,24	348	0,00	0,59
080	3000	300,0	6,58	197	5,92	0,94	150,0	4,24	240	3,59	0,89	100,0	3,47	272	2,41	0,82	75,0	2,62	267	2,14	0,80
	1500	150,0	4,96	297	4,47	0,94	75,0	3,04	344	2,67	0,89	50,0	2,52	395	1,81	0,82	37,0	1,87	381	1,58	0,80
	1000	100,0	3,79	340	3,79	0,94	50,0	2,37	399	2,26	0,88	33,0	2,03	456	1,54	0,80	25,0	1,49	443	1,35	0,78
	750	75,0	3,15	373	3,36	0,93	37,0	2,05	450	2,01	0,86	25,0	1,78	530	1,38	0,78	18,0	1,31	501	1,21	0,75
	500	50,0	2,35	408	2,86	0,91	25,0	1,57	498	1,72	0,83	16,0	1,38	593	1,18	0,75	12,0	1,02	553	1,05	0,71
	150	15,0	0,96	513	0,00	0,84	7,5	0,64	615	0,00	0,75	5,0	0,63	760	0,00	0,63	3,8	0,40	625	0,00	0,61
100	3000	300,0	18,55	555	8,57	0,94	150,0	10,84	614	5,44	0,89	100,0	7,53	590	3,50	0,82	75,0	6,33	645	3,32	0,80
	1500	150,0	11,75	703	6,35	0,94	75,0	6,87	778	3,99	0,89	50,0	4,78	748	2,60	0,82	37,0	4,01	817	2,42	0,80
	1000	100,0	8,95	803	5,49	0,94	50,0	5,28	888	3,44	0,88	33,0	3,60	825	2,27	0,80	25,0	3,13	933	2,09	0,78
	750	75,0	7,45	882	4,95	0,93	37,0	4,45	975	3,10	0,86	25,0	3,19	950	2,06	0,78	18,0	2,65	1025	1,90	0,76
	500	50,0	5,79	1006	4,30	0,91	25,0	3,47	1112	2,69	0,84	16,0	2,51	1080	1,81	0,75	12,0	2,13	1169	1,67	0,72
	150	15,0	2,02	1095	0,00	0,85	7,5	1,49	1441	0,00	0,76	5,0	1,18	1437	0,00	0,64	3,8	1,00	1581	0,00	0,62

Table 9.3.5-1

size	n <sub>1</sub> [1/min]	53:1					62:1					83:1				
		n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η	n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η	n <sub>2</sub> [1/min]	P <sub>1N</sub> [kW]	T <sub>2N</sub> [Nm]	P <sub>1NT</sub> [kW]	η
040	3000	57,0	0,39	44	0,42	0,68	48,0	0,36	45	0,35	0,63	36,0	0,25	36	0,32	0,56
	1500	28,0	0,21	46	0,28	0,65	24,0	0,20	48	0,23	0,59	18,0	0,14	37	0,21	0,52
	1000	18,0	0,15	48	0,24	0,63	16,0	0,15	51	0,20	0,56	12,0	0,10	38	0,18	0,50
	750	14,0	0,13	51	0,22	0,61	12,0	0,12	53	0,18	0,54	9,0	0,08	38	0,17	0,48
	500	9,4	0,09	55	0,20	0,59	8,1	0,09	56	0,16	0,51	6,0	0,05	38	0,15	0,46
	150	2,8	0,04	72	0,00	0,55	2,4	0,03	57	0,00	0,45	1,8	0,02	38	0,00	0,42
050	3000	57,0	0,65	77	0,92	0,73	48,0	0,61	81	0,75	0,67	36,0	0,39	59	0,70	0,58
	1500	28,0	0,38	85	0,62	0,69	24,0	0,42	105	0,50	0,64	18,0	0,21	63	0,47	0,56
	1000	18,0	0,27	88	0,52	0,67	16,0	0,31	109	0,43	0,60	12,0	0,15	64	0,41	0,54
	750	14,0	0,22	91	0,48	0,64	12,0	0,25	112	0,39	0,57	9,0	0,12	66	0,37	0,52
	500	9,4	0,16	95	0,43	0,61	8,1	0,18	113	0,36	0,53	6,0	0,09	69	0,34	0,49
	150	2,8	0,06	110	0,00	0,55	2,4	0,06	113	0,00	0,45	1,8	0,03	75	0,00	0,44
063	3000	57,0	1,16	143	1,34	0,76	48,0	0,82	110	1,10	0,69	36,0	0,75	129	0,99	0,66
	1500	28,0	0,80	191	0,96	0,74	24,0	0,66	175	0,76	0,68	18,0	0,46	152	0,69	0,63
	1000	18,0	0,58	200	0,78	0,71	16,0	0,53	202	0,65	0,65	12,0	0,33	152	0,59	0,59
	750	14,0	0,47	207	0,71	0,68	12,0	0,46	221	0,59	0,62	9,0	0,26	152	0,54	0,56
	500	9,4	0,34	217	0,63	0,65	8,1	0,34	226	0,52	0,57	6,0	0,19	152	0,49	0,52
	150	2,8	0,14	248	0,00	0,56	2,4	0,12	226	0,00	0,47	1,8	0,07	152	0,00	0,44
080	3000	57,0	1,78	234	1,93	0,78	48,0	1,40	194	1,55	0,70	36,0	1,10	196	1,43	0,68
	1500	28,0	1,04	271	1,41	0,77	24,0	1,01	279	1,15	0,70	18,0	0,90	304	1,04	0,65
	1000	18,0	0,76	284	1,20	0,74	16,0	0,81	325	0,98	0,68	12,0	0,64	304	0,90	0,61
	750	14,0	0,61	294	1,09	0,71	12,0	0,69	352	0,89	0,65	9,0	0,49	304	0,82	0,59
	500	9,4	0,45	308	0,96	0,68	8,1	0,54	393	0,78	0,61	6,0	0,35	304	0,73	0,55
	150	2,8	0,18	352	0,00	0,58	2,4	0,23	448	0,00	0,49	1,8	0,13	304	0,00	0,46
100	3000	57,0	4,76	615	3,04	0,78	48,0	4,59	645	2,39	0,70	36,0	3,33	591	2,24	0,68
	1500	28,0	2,63	670	2,19	0,77	24,0	2,91	817	1,74	0,70	18,0	1,74	599	1,61	0,66
	1000	18,0	1,92	704	1,88	0,74	16,0	2,17	886	1,52	0,68	12,0	1,23	599	1,40	0,62
	750	14,0	1,53	728	1,71	0,72	12,0	1,70	886	1,39	0,65	9,0	0,94	599	1,28	0,61
	500	9,4	1,11	762	1,51	0,69	8,1	1,21	886	1,24	0,61	6,0	0,67	599	1,15	0,57
	150	2,8	0,45	870	0,00	0,59	2,4	0,44	886	0,00	0,50	1,8	0,24	599	0,00	0,47

Table 9.3.5-1

Worm  
gearboxes

## 9.4.6 Type SL 040 – Type S with flange for motor mounting



### Characteristics

Characteristic	Standard	Option
<b>Toothing</b>	Hardened and ground worm shaft / bronze worm gear	See chapter 9.2.1
<b>Gear ratio</b>	10:1 to 83:1	
<b>Housing / Flanges</b>	Grey cast iron	
<b>Threaded mounting hole</b>	On gearbox side 1 and on the flanges	See chapter 9.2.3
<b>Shaft</b>	Material 1 C45, shaft ends greased Fit with ISO j6 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.2
<b>Hollow shaft</b>	Material 1 C45, shafts greased Fit with ISO H7 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.3
<b>Radial shaft seal ring</b>	NBR, form A	See chapter 4.8
<b>Ambient temperature</b>	-10°C to +90°C. The values of the performance tables are valid for 20°C	See chapter 4.9.3
<b>Circumferential backlash</b>	< 30 arcmin	See chapter 9.2.10
<b>Protection class</b>	IP 54	See chapter 4.5
<b>Corrosion protection</b>	Prime coat; layer thickness > 40 µm	See chapter 4.4.1
<b>Bearing life L10h</b>	more than 15,000h	See chapter 4.9.1
<b>Oil change intervals</b>	Not required if the oil temperature is kept below 90°C. The lifetime of the bearings can be increased by the factor 1.5 if the oil is changed after the first 500 service hours and then every 5000 service hours.	See chapter 9.2.8
<b>Lubricants</b>	Synthetic lubricants	See chapter 9.2.8
<b>Flange</b>	Suited for the mounting of IEC motors, models IM B5 and B14	
<b>Coupling</b>	Three-piece claw coupling	

## Performance data

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
10:1	39:4	n <sub>2</sub> [1/min]	300,0	150,0	100,0	75,0	50,0	15,0
		P <sub>1N</sub> [kW]	1,39	0,77	0,55	0,43	0,32	0,13
		T <sub>2N</sub> [Nm]	39	43	45	47	50	64
		P <sub>1NT</sub> [kW]	1,28	0,83	0,69	0,63	0,87	0,00
		Efficiency	0,91	0,90	0,88	0,87	0,85	0,81
20:1	39:2	n <sub>2</sub> [1/min]	150,0	75,0	50,0	37,0	25,0	7,5
		P <sub>1N</sub> [kW]	0,82	0,49	0,36	0,28	0,21	0,09
		T <sub>2N</sub> [Nm]	43	50	53	55	58	75
		P <sub>1NT</sub> [kW]	0,77	0,49	0,42	0,38	0,34	0,00
		Efficiency	0,84	0,82	0,80	0,78	0,76	0,71
30:1	29:1	n <sub>2</sub> [1/min]	100,0	50,0	33,0	25,0	16,0	5,0
		P <sub>1N</sub> [kW]	0,53	0,37	0,29	0,24	0,18	0,08
		T <sub>2N</sub> [Nm]	36	50	57	60	65	82
		P <sub>1NT</sub> [kW]	0,51	0,33	0,28	0,26	0,23	0,00
		Efficiency	0,75	0,73	0,70	0,68	0,64	0,57
40:1	39:1	n <sub>2</sub> [1/min]	75,0	37,0	25,0	18,0	12,0	3,8
		P <sub>1N</sub> [kW]	0,48	0,32	0,25	0,20	0,15	0,07
		T <sub>2N</sub> [Nm]	44	56	63	66	71	91
		P <sub>1NT</sub> [kW]	0,46	0,30	0,25	0,23	0,21	0,00
		Efficiency	0,72	0,70	0,67	0,65	0,62	0,56

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
53:1	52:1	n <sub>2</sub> [1/min]	57,0	28,0	18,0	14,0	9,4	2,8
		P <sub>1N</sub> [kW]	0,39	0,21	0,15	0,13	0,09	0,04
		T <sub>2N</sub> [Nm]	44	46	48	51	55	72
		P <sub>1NT</sub> [kW]	0,42	0,28	0,24	0,22	0,20	0,00
		Efficiency	0,68	0,65	0,63	0,61	0,59	0,55
62:1	63:1	n <sub>2</sub> [1/min]	48,0	24,0	16,0	12,0	8,1	2,4
		P <sub>1N</sub> [kW]	0,36	0,20	0,15	0,12	0,09	0,03
		T <sub>2N</sub> [Nm]	45	48	51	53	56	57
		P <sub>1NT</sub> [kW]	0,35	0,23	0,20	0,18	0,16	0,00
		Efficiency	0,63	0,59	0,56	0,54	0,51	0,45
83:1	82:1	n <sub>2</sub> [1/min]	36,0	18,0	12,0	9,0	6,0	1,8
		P <sub>1N</sub> [kW]	0,25	0,14	0,10	0,08	0,05	0,02
		T <sub>2N</sub> [Nm]	36	37	38	38	38	38
		P <sub>1NT</sub> [kW]	0,32	0,21	0,18	0,17	0,15	0,00
		Efficiency	0,56	0,52	0,50	0,48	0,46	0,42

	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
T <sub>2max</sub> [Nm]	73	83	77	59	97	90	77	107	99	87	72	64

## Permissible radial force F<sub>r2</sub> and axial force F<sub>a2</sub> on shaft N<sub>2</sub>

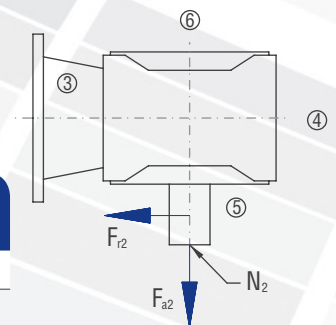
n <sub>2</sub> [rpm]	200		125		75		50		30		10	
	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]
< 80	970	485	1250	625	1380	690	1600	800	1800	900	2500	1250

## Inertia moments/mass

Inertia moment J<sub>1</sub> related to the fast-rotating shaft (N<sub>1</sub>)

J <sub>1</sub>	Inertia moment [kgcm <sup>2</sup> ]												
	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1	
J <sub>1</sub>	0,68	0,60	0,53	0,50	0,54	0,50	0,48	0,53	0,49	0,47	0,48	0,47	

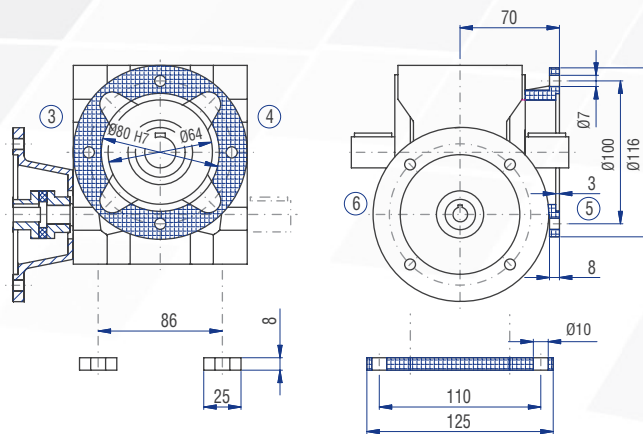
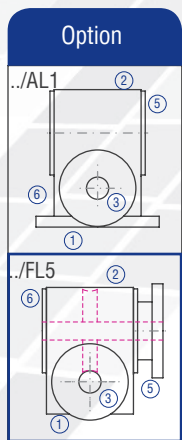
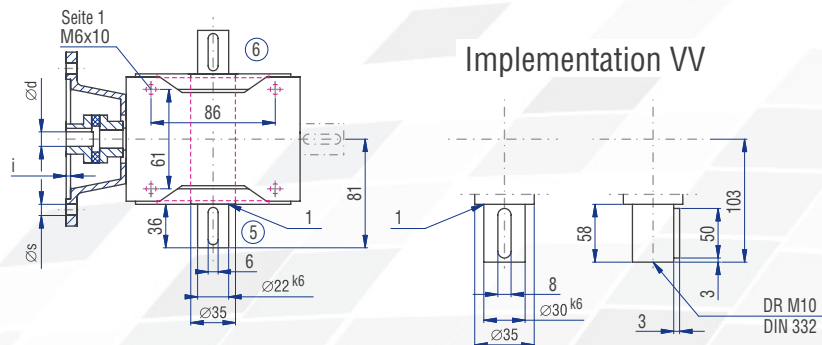
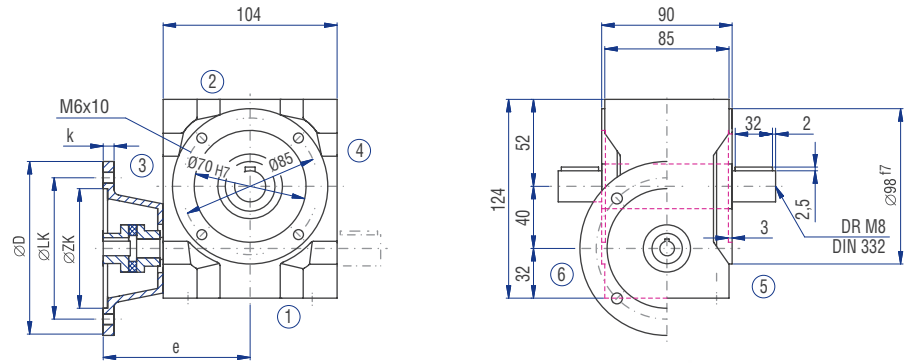
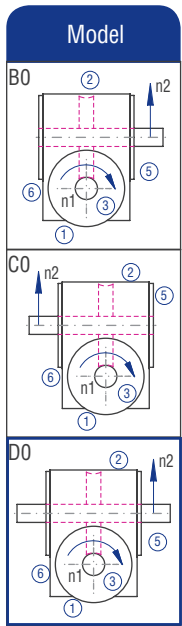
Mass  
ca. [kg]  
7



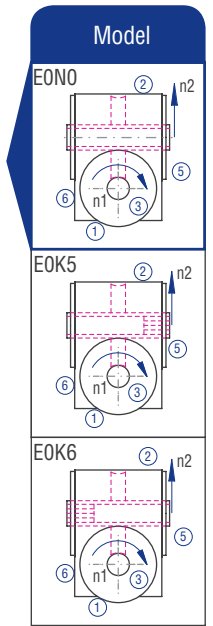
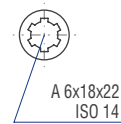
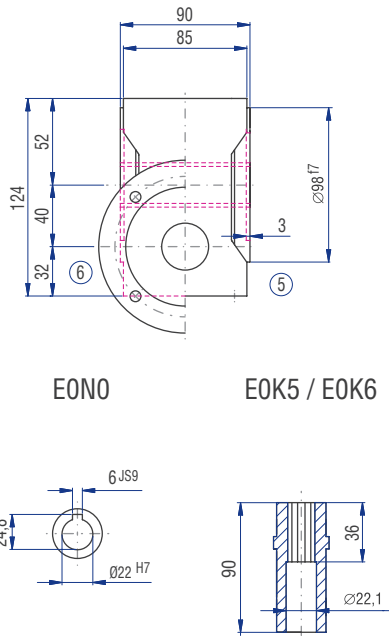
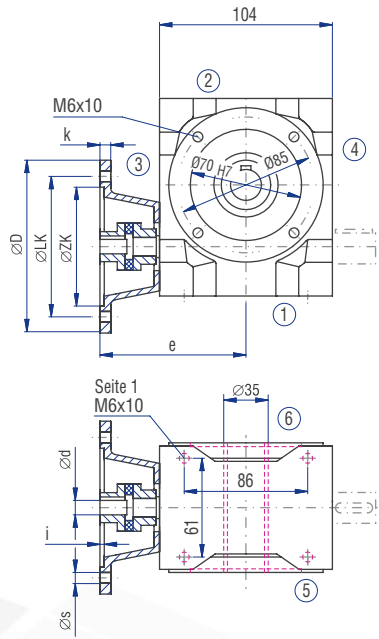
The mass of the gearbox may deviate depending on the flange size, the type and the gear ratio.

Worm  
gearboxes

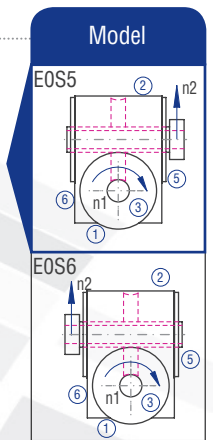
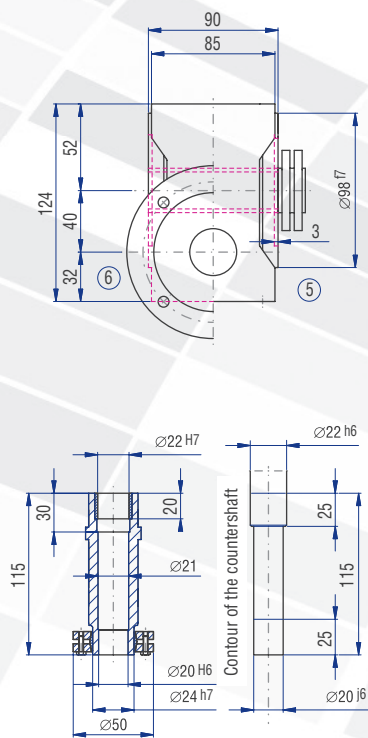
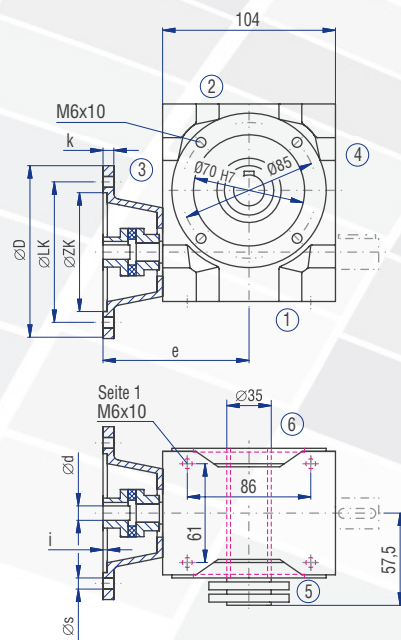
# 9.4.6 Type SL 040 – Type S with flange for motor mounting



IEC motor	Model	Motor shaft (dxl)	Flange diameter D [mm]	LK [mm]	ZK [mm]	s [mm]	i [mm]	k [mm]	e [mm]
63	B14	11x23	120	100	80	7	3	10	121
	B5	11x23	140	115	95	9	3	10	121
71	B14	14x30	140	115	95	9	3	10	121
	B14	14x30	105	85	70	7	3	10	121



Worm  
gearboxes





## 9.4.7 Type SL 050 – Type S with flange for motor mounting



### Characteristics

Characteristic	Standard	Option
<b>Toothing</b>	Hardened and ground worm shaft / bronze worm gear	See chapter 9.2.1
<b>Gear ratio</b>	10:1 to 83:1	
<b>Housing / Flanges</b>	Grey cast iron	
<b>Threaded mounting hole</b>	On gearbox side 1 and on the flanges	See chapter 9.2.3
<b>Shaft</b>	Material 1 C45, shaft ends greased Fit with ISO j6 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.2
<b>Hollow shaft</b>	Material 1 C45, shafts greased Fit with ISO H7 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.3
<b>Radial shaft seal ring</b>	NBR, form A	See chapter 4.8
<b>Ambient temperature</b>	-10°C to +90°C. The values of the performance tables are valid for 20°C	See chapter 4.9.3
<b>Circumferential backlash</b>	< 30 arcmin	See chapter 9.2.10
<b>Protection class</b>	IP 54	See chapter 4.5
<b>Corrosion protection</b>	Prime coat; layer thickness > 40 µm	See chapter 4.4.1
<b>Bearing life L10h</b>	more than 15,000h	See chapter 4.9.1
<b>Oil change intervals</b>	Not required if the oil temperature is kept below 90°C. The lifetime of the bearings can be increased by the factor 1.5 if the oil is changed after the first 500 service hours and then every 5000 service hours.	See chapter 9.2.8
<b>Lubricants</b>	Synthetic lubricants	See chapter 9.2.8
<b>Flange</b>	Suited for the mounting of IEC motors, models IM B5 and B14	
<b>Coupling</b>	Three-piece claw coupling	

## Performance data

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
10:1	38:4	n <sub>2</sub> [1/min]	300,0	150,0	100,0	75,0	50,0	15,0
		P <sub>1N</sub> [kW]	3,02	1,64	1,15	0,96	0,71	0,26
		T <sub>2N</sub> [Nm]	85	91	94	103	112	130
		P <sub>1NT</sub> [kW]	2,82	1,88	1,56	1,40	1,23	0,00
		Efficiency	0,93	0,92	0,90	0,89	0,87	0,82
20:1	38:2	n <sub>2</sub> [1/min]	150,0	75,0	50,0	37,0	25,0	7,5
		P <sub>1N</sub> [kW]	1,54	1,03	0,73	0,63	0,47	0,18
		T <sub>2N</sub> [Nm]	81	106	110	123	133	158
		P <sub>1NT</sub> [kW]	1,70	1,12	0,93	0,84	0,74	0,00
		Efficiency	0,87	0,85	0,83	0,81	0,78	0,72
30:1	29:1	n <sub>2</sub> [1/min]	100,0	50,0	33,0	25,0	16,0	5,0
		P <sub>1N</sub> [kW]	1,12	0,79	0,59	0,54	0,42	0,18
		T <sub>2N</sub> [Nm]	82	113	121	144	157	201
		P <sub>1NT</sub> [kW]	1,14	0,76	0,63	0,06	0,50	0,00
		Efficiency	0,79	0,77	0,74	0,72	0,68	0,59
40:1	38:1	n <sub>2</sub> [1/min]	75,0	37,0	25,0	18,0	12,0	3,8
		P <sub>1N</sub> [kW]	0,87	0,65	0,52	0,41	0,31	0,13
		T <sub>2N</sub> [Nm]	80	118	134	137	147	183
		P <sub>1NT</sub> [kW]	1,02	0,68	0,57	0,52	0,46	0,00
		Efficiency	0,76	0,75	0,71	0,69	0,65	0,57

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
53:1	51:1	n <sub>2</sub> [1/min]	57,0	28,0	18,0	14,0	9,4	2,8
		P <sub>1N</sub> [kW]	0,65	0,38	0,27	0,22	0,16	0,06
		T <sub>2N</sub> [Nm]	77	85	88	91	95	110
		P <sub>1NT</sub> [kW]	0,92	0,62	0,52	0,48	0,43	0,00
		Efficiency	0,73	0,69	0,67	0,64	0,61	0,55
62:1	62:1	n <sub>2</sub> [1/min]	48,0	24,0	16,0	12,0	8,1	2,4
		P <sub>1N</sub> [kW]	0,61	0,42	0,31	0,25	0,18	0,06
		T <sub>2N</sub> [Nm]	81	105	109	112	113	113
		P <sub>1NT</sub> [kW]	0,75	0,50	0,43	0,39	0,36	0,00
		Efficiency	0,67	0,64	0,60	0,57	0,53	0,45
83:1	83:1	n <sub>2</sub> [1/min]	36,0	18,0	12,0	9,0	6,0	1,8
		P <sub>1N</sub> [kW]	0,39	0,21	0,15	0,12	0,09	0,03
		T <sub>2N</sub> [Nm]	59	63	64	66	69	75
		P <sub>1NT</sub> [kW]	0,70	0,47	0,41	0,37	0,34	0,00
		Efficiency	0,58	0,56	0,54	0,52	0,49	0,44

	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
T <sub>2max</sub> [Nm]	150	167	152	100	195	179	137	219	197	145	120	112

## Permissible radial force F<sub>r2</sub> and axial force F<sub>a2</sub> on shaft N<sub>2</sub>

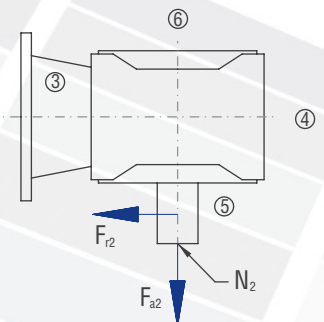
n <sub>2</sub> [rpm]	200		125		75		50		30		10	
	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]
< 120	2000	1000	2400	1200	2850	1425	3350	1675	4000	2000	4800	2400
> 120	1540	770	1850	925	2190	1095	2580	1290	3080	1540	3700	1850

## Inertia moments/mass

Inertia moment J<sub>1</sub> related to the fast-rotating shaft (N<sub>1</sub>)

J <sub>1</sub>	Inertia moment [kgcm <sup>2</sup> ]											
	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
J <sub>1</sub>	2.03	1.81	1.66	1.57	1.68	1.58	1.52	1.65	1.56	1.50	1.55	1.50

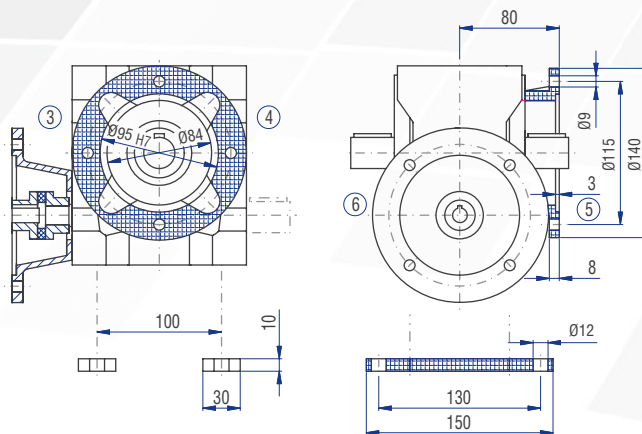
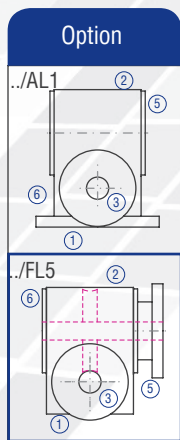
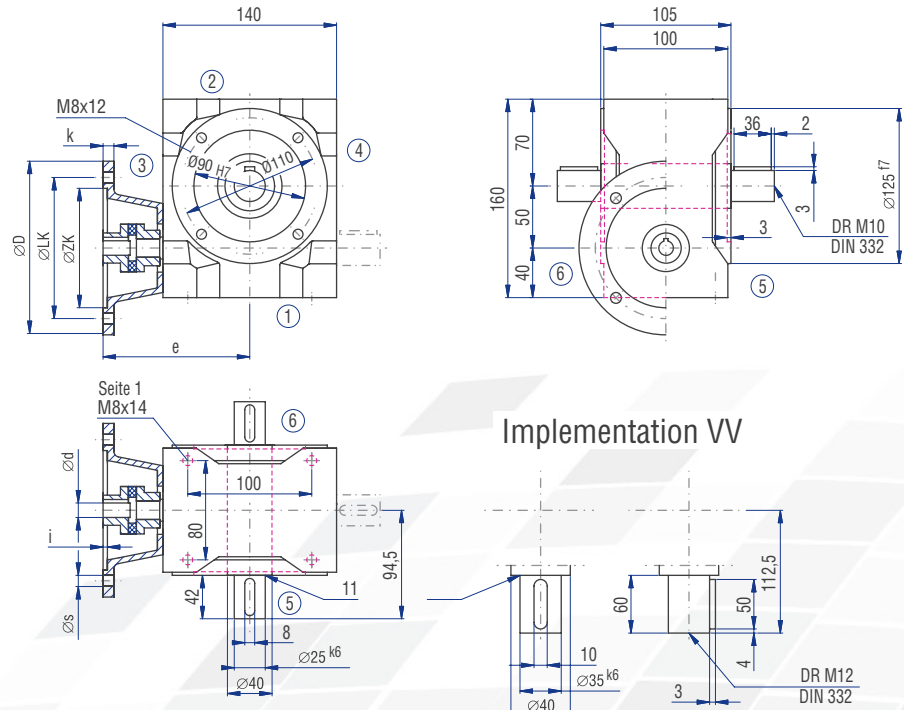
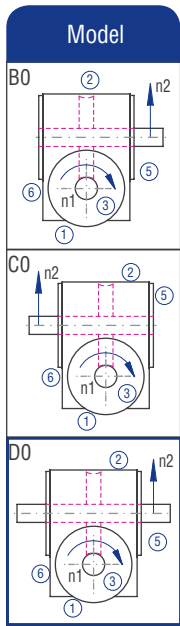
Mass  
ca. [kg]  
14



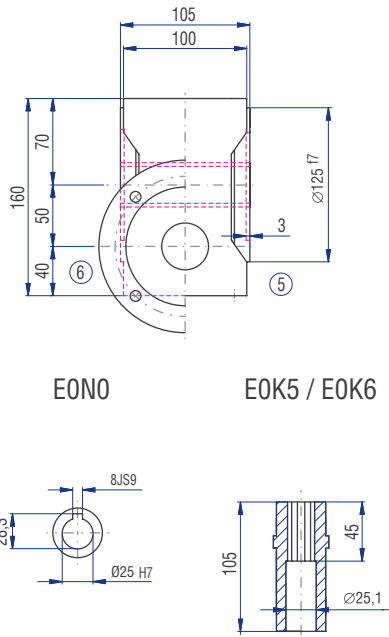
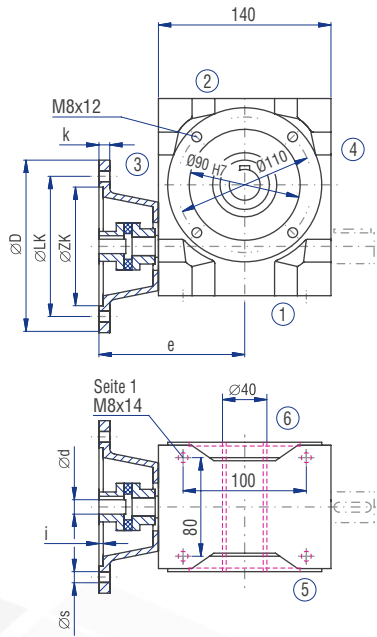
The mass of the gearbox may deviate depending on the flange size, the type and the gear ratio.



## 9.4.7 Type SL 050 – Type S with flange for motor mounting

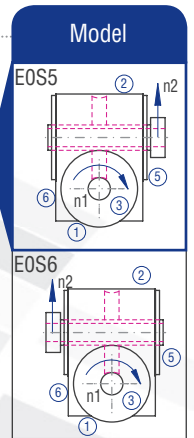
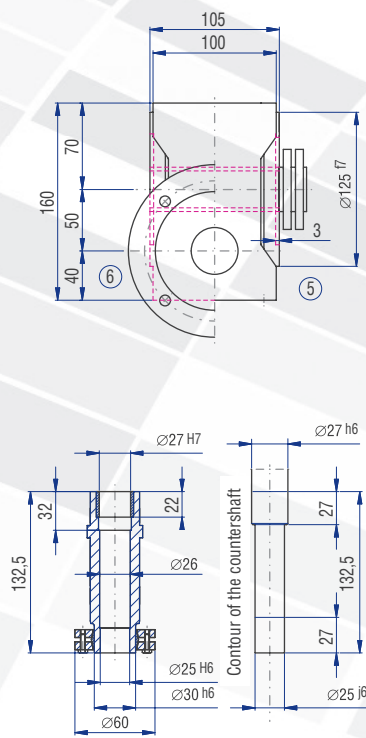
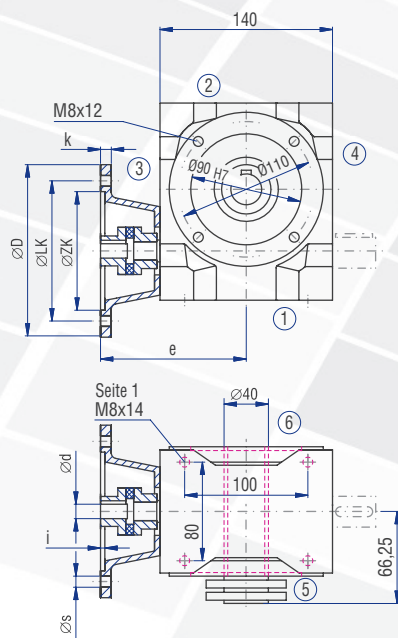
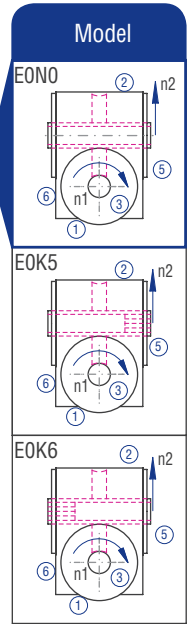
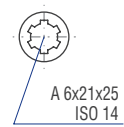


IEC motor	Model	Motor shaft (dxl)	Flange diameter D [mm]	LK [mm]	ZK [mm]	s [mm]	i [mm]	k [mm]	e [mm]
63	B14	11x23	120	100	80	7	3	9	150
	B14	19x40	120	100	80	7	3	9	150
80	B14	19x40	160	130	110	9	4	10	150
	B14	24x50	160a	130	110	9	4	20	160



EONO

EOK5 / EOK6



Worm  
gearboxes

## 9.4.8 Type SL 063 – Type S with flange for motor mounting



### Characteristics

Characteristic	Standard	Option
<b>Toothing</b>	Hardened and ground worm shaft / bronze worm gear	See chapter 9.2.1
<b>Gear ratio</b>	10:1 to 83:1	
<b>Housing / Flanges</b>	Grey cast iron	
<b>Threaded mounting hole</b>	On gearbox side 1 and on the flanges	See chapter 9.2.3
<b>Shaft</b>	Material 1 C45, shaft ends greased Fit with ISO j6 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.2
<b>Hollow shaft</b>	Material 1 C45, shafts greased Fit with ISO H7 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.3
<b>Radial shaft seal ring</b>	NBR, form A	See chapter 4.8
<b>Ambient temperature</b>	-10°C to +90°C. The values of the performance tables are valid for 20°C	See chapter 4.9.3
<b>Cumferential backlash</b>	< 30 arcmin	See chapter 9.2.10
<b>Protection class</b>	IP 54	See chapter 4.5
<b>Corrosion protection</b>	Prime coat; layer thickness > 40 µm	See chapter 4.4.1
<b>Bearing life L10h</b>	more than 15,000h	See chapter 4.9.1
<b>Oil change intervals</b>	Not required if the oil temperature is kept below 90°C. The lifetime of the bearings can be increased by the factor 1.5 if the oil is changed after the first 500 service hours and then every 5000 service hours.	See chapter 9.2.8
<b>Lubricants</b>	Synthetic lubricants	See chapter 9.2.8
<b>Flange</b>	Suited for the mounting of IEC motors, models IM B5 and B14	
<b>Coupling</b>	Three-piece claw coupling	

## Performance data

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
10:1	39:4	n <sub>2</sub> [1/min]	300,0	150,0	100,0	75,0	50,0	15,0
		P <sub>1N</sub> [kW]	4,15	2,94	2,26	1,83	1,30	0,51
		T <sub>2N</sub> [Nm]	121	170	194	207	216	265
		P <sub>1NT</sub> [kW]	4,16	2,89	2,41	2,15	1,86	0,00
		Efficiency	0,94	0,93	0,92	0,91	0,89	0,83
20:1	39:2	n <sub>2</sub> [1/min]	150,0	75,0	50,0	37,0	25,0	7,5
		P <sub>1N</sub> [kW]	2,95	1,70	1,32	1,14	0,86	0,34
		T <sub>2N</sub> [Nm]	161	186	212	237	259	310
		P <sub>1NT</sub> [kW]	2,52	1,73	1,44	1,29	1,12	0,00
		Efficiency	0,88	0,88	0,86	0,84	0,81	0,74
30:1	29:1	n <sub>2</sub> [1/min]	100,0	50,0	33,0	25,0	16,0	5,0
		P <sub>1N</sub> [kW]	1,94	1,38	1,11	0,97	0,75	0,36
		T <sub>2N</sub> [Nm]	143	204	237	268	296	403
		P <sub>1NT</sub> [kW]	1,66	1,15	0,97	0,86	0,75	0,00
		Efficiency	0,80	0,80	0,77	0,75	0,71	0,61
40:1	39:1	n <sub>2</sub> [1/min]	75,0	37,0	25,0	18,0	12,0	3,8
		P <sub>1N</sub> [kW]	1,54	1,08	0,85	0,74	0,57	0,24
		T <sub>2N</sub> [Nm]	149	207	237	264	288	348
		P <sub>1NT</sub> [kW]	1,50	1,04	0,87	0,78	0,69	0,00
		Efficiency	0,78	0,77	0,75	0,72	0,68	0,59

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
53:1	51:1	n <sub>2</sub> [1/min]	57,0	28,0	18,0	14,0	9,4	2,8
		P <sub>1N</sub> [kW]	1,16	0,80	0,58	0,47	0,34	0,14
		T <sub>2N</sub> [Nm]	143	191	200	207	217	248
		P <sub>1NT</sub> [kW]	1,34	0,96	0,78	0,71	0,63	0,00
		Efficiency	0,76	0,74	0,71	0,68	0,65	0,56
62:1	61:1	n <sub>2</sub> [1/min]	48,0	24,0	16,0	12,0	8,1	2,4
		P <sub>1N</sub> [kW]	0,82	0,66	0,53	0,46	0,34	0,12
		T <sub>2N</sub> [Nm]	110	175	202	221	226	226
		P <sub>1NT</sub> [kW]	1,10	0,76	0,65	0,59	0,52	0,00
		Efficiency	0,69	0,68	0,65	0,62	0,57	0,47
83:1	82:1	n <sub>2</sub> [1/min]	36,0	18,0	12,0	9,0	6,0	1,8
		P <sub>1N</sub> [kW]	0,75	0,46	0,33	0,26	0,19	0,07
		T <sub>2N</sub> [Nm]	129	152	152	152	152	152
		P <sub>1NT</sub> [kW]	0,99	0,69	0,59	0,54	0,49	0,00
		Efficiency	0,66	0,63	0,59	0,56	0,52	0,44

	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
T <sub>2max</sub> [Nm]	295	334	306	222	395	355	295	437	360	310	240	246

## Permissible radial force F<sub>r2</sub> and axial force F<sub>a2</sub> on shaft N<sub>2</sub>

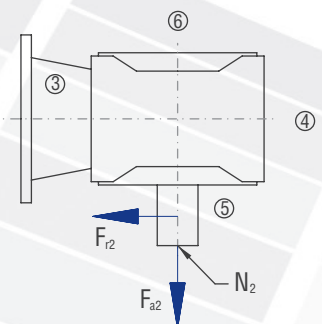
n <sub>2</sub> [rpm]	200		125		75		50		30		10		
	T <sub>2</sub> [Nm]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]
< 220		2700	1350	3150	1575	3800	1900	4500	2250	5200	2600	5200	2600
> 220		2080	1040	2420	1210	2920	1460	3460	1730	4000	2000	4000	2000

## Inertia moments/mass

Inertia moment J<sub>1</sub> related to the fast-rotating shaft (N<sub>1</sub>)

J <sub>1</sub>	Inertia moment [kgcm <sup>2</sup> ]											
	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
J <sub>1</sub>	3.25	2.72	2.22	2.02	2.41	2.02	1.90	2.33	1.98	1.87	2.05	1.88

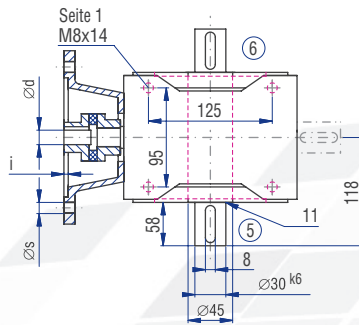
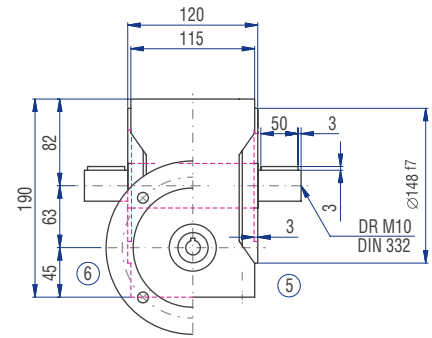
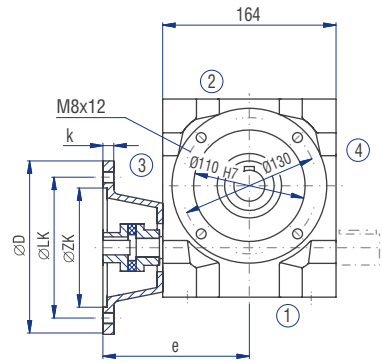
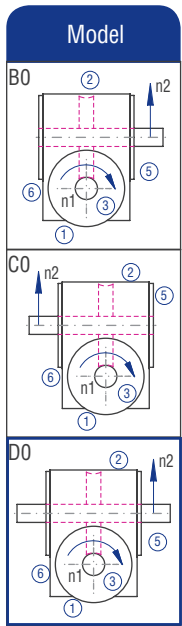
Mass  
ca. [kg]  
21



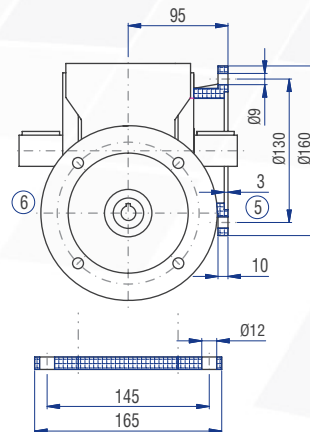
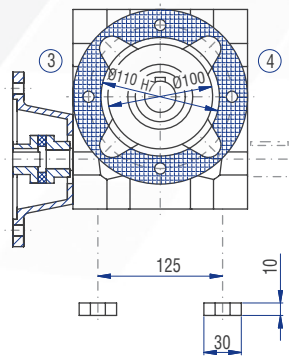
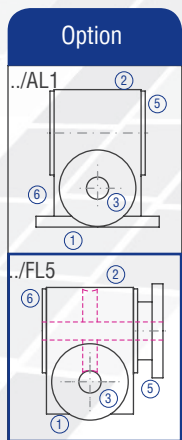
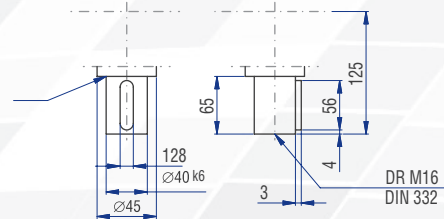
The mass of the gearbox may deviate depending on the flange size, the type and the gear ratio.

Worm  
gearboxes

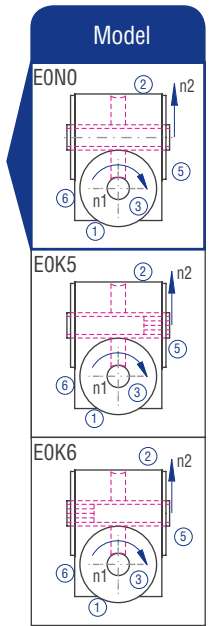
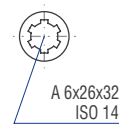
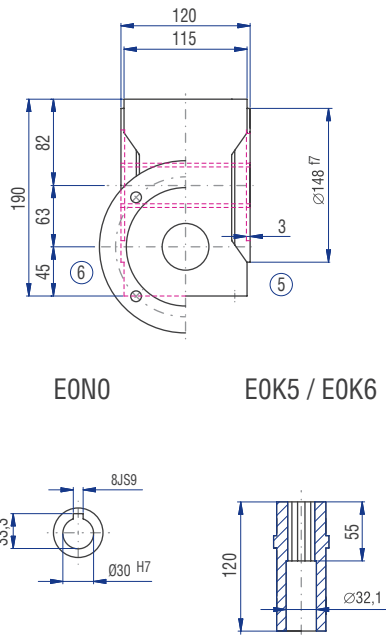
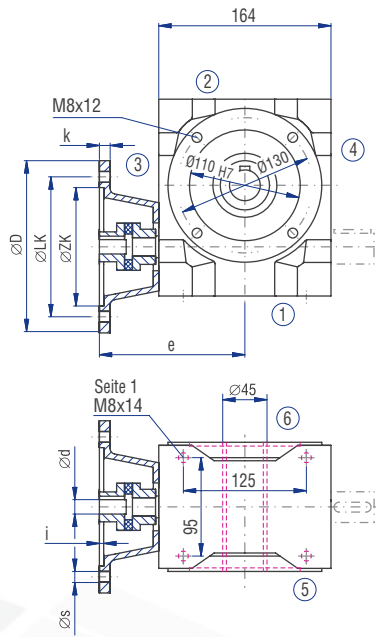
# 9.4.8 Type SL 063 – Type S with flange for motor mounting



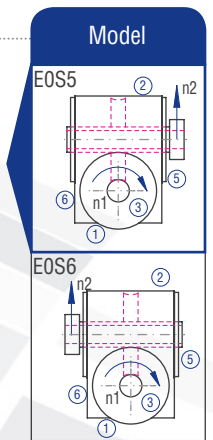
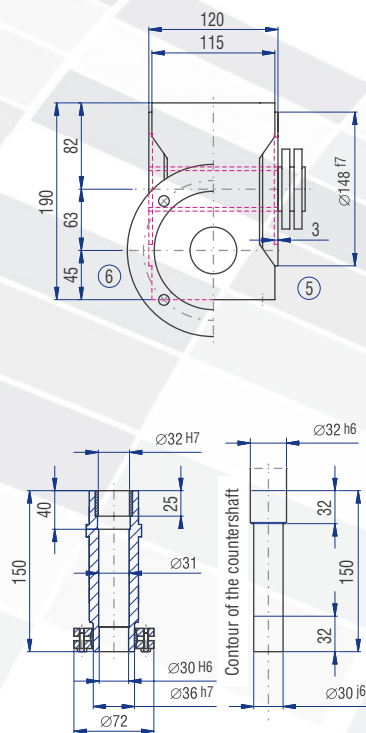
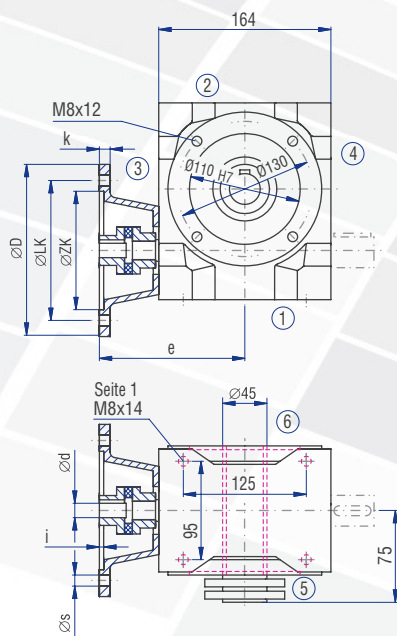
## Implementation VV



IEC motor	Model	Motor shaft (dxl)	Flange diameter D [mm]	LK [mm]	ZK [mm]	s [mm]	i [mm]	k [mm]	e [mm]
71	B5	14x30	160	130	110	9	4	10	163
80	B14	19x40	160	130	110	9	4	10	163
	B5	19x40	200	165	130	11	4	10	175
90	B14	24x50	160a	130	110	9	4	10	175
	B5	24x50	200	165	130	11	4	10	175
100	B14	28x60	200a	165	130	11	4	20	185
112	B14	28x60	200a	165	130	11	4	20	185



Worm  
gearboxes







### Characteristics

Characteristic	Standard	Option
<b>Toothing</b>	Hardened and ground worm shaft / bronze worm gear	See chapter 9.2.1
<b>Gear ratio</b>	10:1 to 83:1	
<b>Housing / Flanges</b>	Grey cast iron	
<b>Threaded mounting hole</b>	On gearbox side 1 and on the flanges	See chapter 9.2.3
<b>Shaft</b>	Material 1 C45, shaft ends greased Fit with ISO j6 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.2
<b>Hollow shaft</b>	Material 1 C45, shafts greased Fit with ISO H7 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.3
<b>Radial shaft seal ring</b>	NBR, form A	See chapter 4.8
<b>Ambient temperature</b>	-10°C to +90°C. The values of the performance tables are valid for 20°C	See chapter 4.9.3
<b>Circumferential backlash</b>	< 30 arcmin	See chapter 9.2.10
<b>Protection class</b>	IP 54	See chapter 4.5
<b>Corrosion protection</b>	Prime coat; layer thickness > 40 µm	See chapter 4.4.1
<b>Bearing life L10h</b>	more than 15,000h	See chapter 4.9.1
<b>Oil change intervals</b>	Not required if the oil temperature is kept below 90°C. The lifetime of the bearings can be increased by the factor 1.5 if the oil is changed after the first 500 service hours and then every 5000 service hours.	See chapter 9.2.8
<b>Lubricants</b>	Synthetic lubricants	See chapter 9.2.8
<b>Flange</b>	Suited for the mounting of IEC motors, models IM B5 and B14	
<b>Coupling</b>	Three-piece claw coupling	

## Performance data

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
10:1	40:4	n <sub>2</sub> [1/min]	300,0	150,0	100,0	75,0	50,0	15,0
		P <sub>1N</sub> [kW]	6,58	4,96	3,79	3,15	2,35	0,96
		T <sub>2N</sub> [Nm]	197	297	340	373	408	513
		P <sub>1NT</sub> [kW]	5,92	4,47	3,79	3,36	2,86	0,00
		Efficiency	0,94	0,94	0,94	0,93	0,91	0,84
20:1	40:2	n <sub>2</sub> [1/min]	150,0	75,0	50,0	37,0	25,0	7,5
		P <sub>1N</sub> [kW]	4,24	3,04	2,37	2,05	1,57	0,64
		T <sub>2N</sub> [Nm]	240	344	399	450	498	615
		P <sub>1NT</sub> [kW]	3,59	2,67	2,26	2,01	1,72	0,00
		Efficiency	0,89	0,89	0,88	0,86	0,83	0,75
30:1	30:1	n <sub>2</sub> [1/min]	100,0	50,0	33,0	25,0	16,0	5,0
		P <sub>1N</sub> [kW]	3,47	2,52	2,03	1,78	1,38	0,63
		T <sub>2N</sub> [Nm]	272	395	456	530	593	760
		P <sub>1NT</sub> [kW]	2,41	1,81	1,54	1,38	1,18	0,00
		Efficiency	0,82	0,82	0,80	0,78	0,75	0,63
40:1	40:1	n <sub>2</sub> [1/min]	75,0	37,0	25,0	18,0	12,0	3,8
		P <sub>1N</sub> [kW]	2,62	1,87	1,49	1,31	1,02	0,40
		T <sub>2N</sub> [Nm]	267	381	443	501	553	625
		P <sub>1NT</sub> [kW]	2,14	1,58	1,35	1,21	1,05	0,00
		Efficiency	0,80	0,80	0,78	0,75	0,71	0,61

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
53:1	53:1	n <sub>2</sub> [1/min]	57,0	28,0	18,0	14,0	9,4	2,8
		P <sub>1N</sub> [kW]	1,78	1,04	0,76	0,61	0,45	0,18
		T <sub>2N</sub> [Nm]	234	271	284	294	308	352
		P <sub>1NT</sub> [kW]	1,93	1,41	1,20	1,09	0,96	0,00
		Efficiency	0,78	0,77	0,74	0,71	0,68	0,58
62:1	62:1	n <sub>2</sub> [1/min]	48,0	24,0	16,0	12,0	8,1	2,4
		P <sub>1N</sub> [kW]	1,40	1,01	0,81	0,69	0,54	0,23
		T <sub>2N</sub> [Nm]	194	279	325	352	393	448
		P <sub>1NT</sub> [kW]	1,55	1,15	0,98	0,89	0,78	0,00
		Efficiency	0,70	0,70	0,68	0,65	0,61	0,49
83:1	82:1	n <sub>2</sub> [1/min]	36,0	18,0	12,0	9,0	6,0	1,8
		P <sub>1N</sub> [kW]	1,10	0,90	0,64	0,49	0,35	0,13
		T <sub>2N</sub> [Nm]	196	304	304	304	304	304
		P <sub>1NT</sub> [kW]	1,43	1,04	0,90	0,82	0,73	0,00
		Efficiency	0,68	0,65	0,61	0,59	0,55	0,46

	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
T <sub>2max</sub> [Nm]	610	695	625	321	826	725	432	920	780	480	480	510

## Permissible radial force F<sub>r2</sub> and axial force F<sub>a2</sub> on shaft N<sub>2</sub>

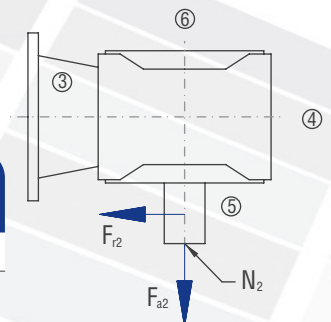
n <sub>2</sub> [rpm]	200		125		75		50		30		10		
	T <sub>2</sub> [Nm]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]
< 430	3300	3300	1650	3750	1875	4500	2250	5300	2650	6300	3150	7600	3800
> 430	2640	2640	1320	3000	1500	3600	1800	4240	2120	5040	2520	6080	3040

## Inertia moments/mass

Inertia moment J<sub>1</sub> related to the fast-rotating shaft (N<sub>1</sub>)

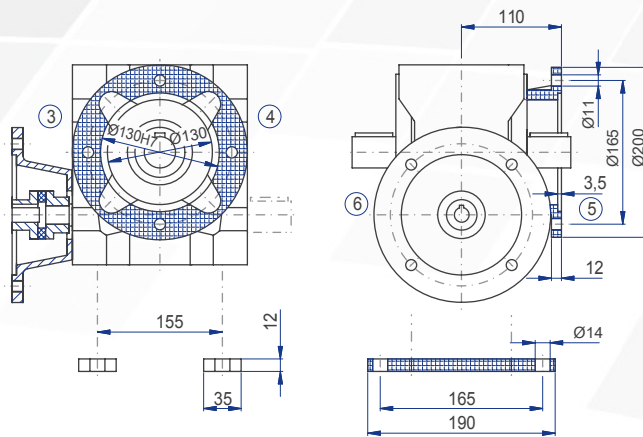
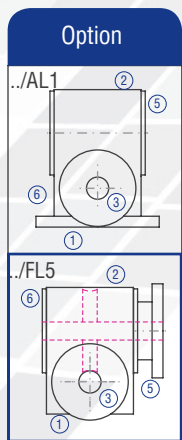
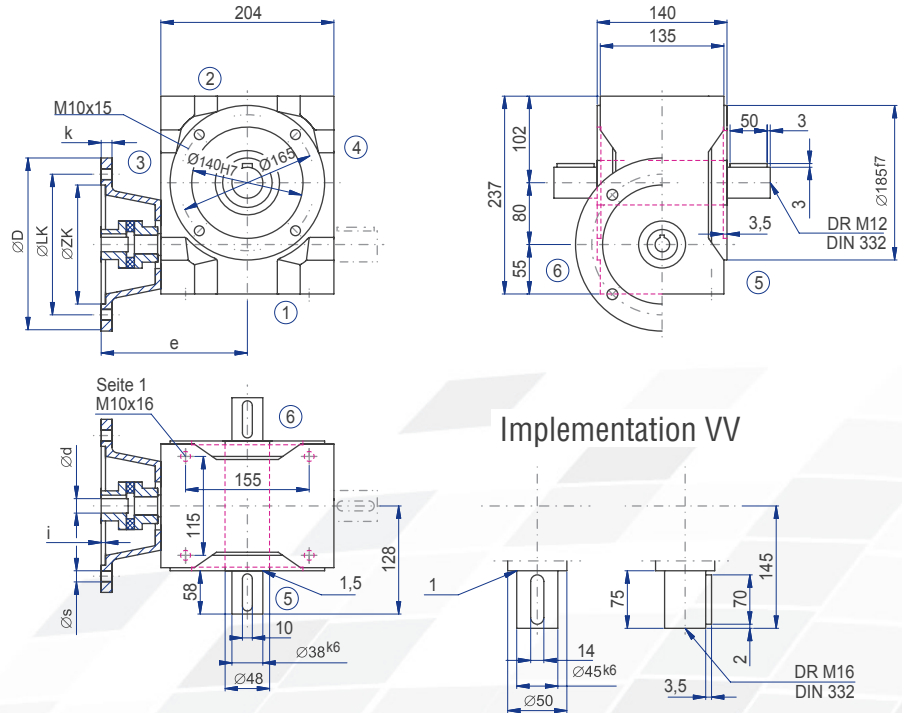
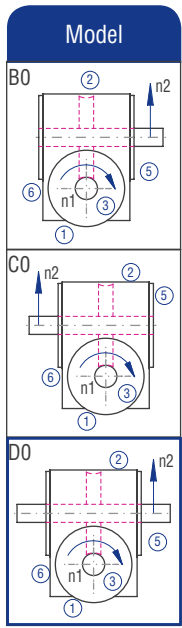
J <sub>1</sub>	Inertia moment [kgcm <sup>2</sup> ]											
	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
J <sub>1</sub>	6.90	5.30	4.04	3.34	4.34	3.48	2.99	4.09	3.34	2.90	3.59	2.99

Mass  
ca. [kg]  
33

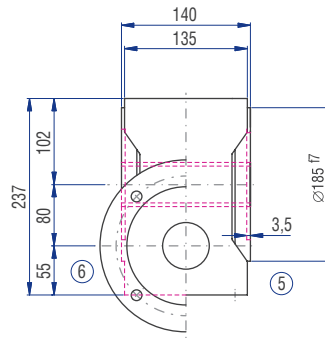
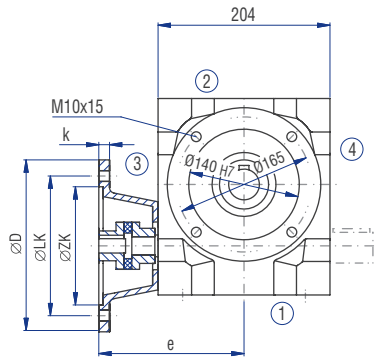


The mass of the gearbox may deviate depending on the flange size, the type and the gear ratio.

# 9.4.9 Type SL 080 – Type S with flange for motor mounting

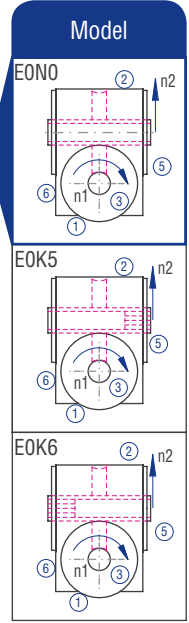
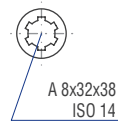
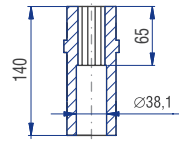
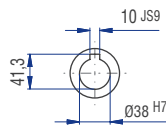
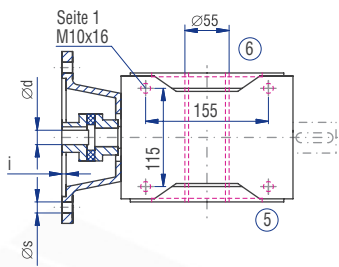


IEC motor	Model	Motor shaft (dxl)	Flange diameter D [mm]	LK [mm]	ZK [mm]	s [mm]	i [mm]	k [mm]	e [mm]
71	B5	14x30	160	130	110	9	4	10	183
	B14	19x40	160	130	110	9	4	10	183
80	B5	19x40	200	165	130	11	4	10	195
	B14	24x50	160a	130	110	9	4	10	195
90	B5	24x50	200	165	130	11	4	10	195
	B14	28x60	200a	165	130	11	4	20	205
100	B14	28x60	200a	165	130	11	4	20	205

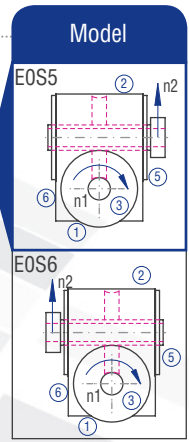
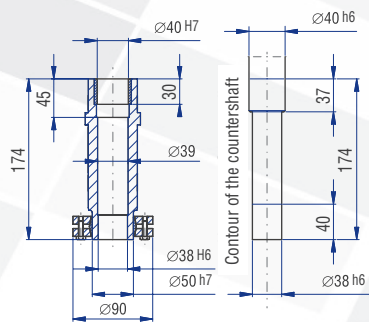
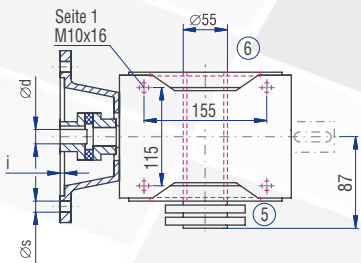
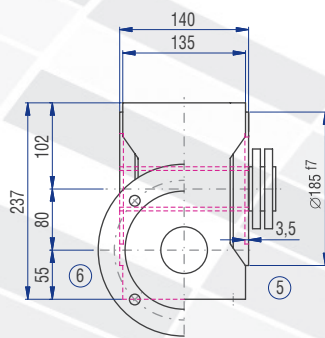
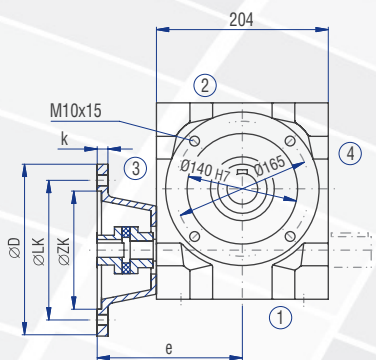


EON0

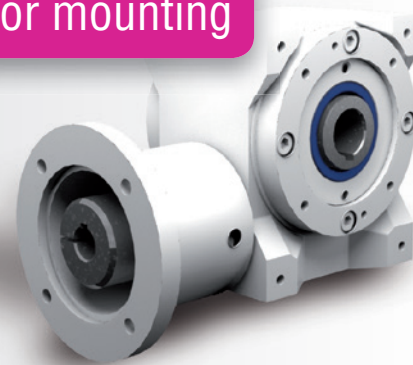
EOK5 / EOK6



Worm  
gearboxes



## 9.4.10 Type SL 100 – Type S with flange for motor mounting



### Characteristics

Characteristic	Standard	Option
<b>Toothing</b>	Hardened and ground worm shaft / bronze worm gear	See chapter 9.2.1
<b>Gear ratio</b>	10:1 to 83:1	
<b>Housing / Flanges</b>	Grey cast iron	
<b>Threaded mounting hole</b>	On gearbox side 1 and on the flanges	See chapter 9.2.3
<b>Shaft</b>	Material 1 C45, shaft ends greased Fit with ISO j6 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.2
<b>Hollow shaft</b>	Material 1 C45, shafts greased Fit with ISO H7 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.3
<b>Radial shaft seal ring</b>	NBR, form A	See chapter 4.8
<b>Ambient temperature</b>	-10°C to +90°C. The values of the performance tables are valid for 20°C	See chapter 4.9.3
<b>Circumferential backlash</b>	< 30 arcmin	See chapter 9.2.10
<b>Protection class</b>	IP 54	See chapter 4.5
<b>Corrosion protection</b>	Prime coat; layer thickness > 40 µm	See chapter 4.4.1
<b>Bearing life L10h</b>	more than 15,000h	See chapter 4.9.1
<b>Oil change intervals</b>	Not required if the oil temperature is kept below 90°C. The lifetime of the bearings can be increased by the factor 1.5 if the oil is changed after the first 500 service hours and then every 5000 service hours.	See chapter 9.2.8
<b>Lubricants</b>	Synthetic lubricants	See chapter 9.2.8
<b>Flange</b>	Suited for the mounting of IEC motors, models IM B5 and B14	
<b>Coupling</b>	Three-piece claw coupling	

## Performance data

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
10:1	40:4	n <sub>2</sub> [1/min]	300,0	150,0	100,0	75,0	50,0	15,0
		P <sub>1N</sub> [kW]	18,55	11,75	8,95	7,45	5,79	2,02
		T <sub>2N</sub> [Nm]	555	703	803	882	1.006	1.095
		P <sub>1NT</sub> [kW]	8,57	6,35	5,49	4,95	4,30	0,00
		Efficiency	0,94	0,94	0,94	0,93	0,91	0,85
20:1	40:2	n <sub>2</sub> [1/min]	150,0	75,0	50,0	37,0	25,0	7,5
		P <sub>1N</sub> [kW]	10,84	6,87	5,28	4,45	3,47	1,49
		T <sub>2N</sub> [Nm]	614	778	888	975	1.112	1.441
		P <sub>1NT</sub> [kW]	5,44	3,99	3,44	3,10	2,69	0,00
		Efficiency	0,89	0,89	0,88	0,86	0,84	0,76
30:1	30:1	n <sub>2</sub> [1/min]	100,0	50,0	33,0	25,0	16,0	5,0
		P <sub>1N</sub> [kW]	7,53	4,78	3,60	3,19	2,51	1,18
		T <sub>2N</sub> [Nm]	590	748	825	950	1.080	1.437
		P <sub>1NT</sub> [kW]	3,50	2,60	2,27	2,06	1,81	0,00
		Efficiency	0,82	0,82	0,80	0,78	0,75	0,64
40:1	40:1	n <sub>2</sub> [1/min]	75,0	37,0	25,0	18,0	12,0	3,8
		P <sub>1N</sub> [kW]	6,33	4,01	3,13	2,65	2,13	1,00
		T <sub>2N</sub> [Nm]	645	817	933	1.025	1.169	1.581
		P <sub>1NT</sub> [kW]	3,32	2,42	2,09	1,90	1,67	0,00
		Efficiency	0,80	0,80	0,78	0,76	0,72	0,62

i	i ist		n <sub>1</sub> [1/min]					
			3000	1500	1000	750	500	150
53:1	52:1	n <sub>2</sub> [1/min]	57,0	28,0	18,0	14,0	9,4	2,8
		P <sub>1N</sub> [kW]	4,76	2,63	1,92	1,53	1,11	0,45
		T <sub>2N</sub> [Nm]	615	670	704	728	762	870
		P <sub>1NT</sub> [kW]	3,04	2,19	1,88	1,71	1,51	0,00
		Efficiency	0,78	0,77	0,74	0,72	0,69	0,59
62:1	63:1	n <sub>2</sub> [1/min]	48,0	24,0	16,0	12,0	8,1	2,4
		P <sub>1N</sub> [kW]	4,59	2,91	2,17	1,70	1,21	0,44
		T <sub>2N</sub> [Nm]	645	817	886	886	886	886
		P <sub>1NT</sub> [kW]	2,39	1,74	1,52	1,39	1,24	0,00
		Efficiency	0,70	0,70	0,68	0,65	0,61	0,50
83:1	82:1	n <sub>2</sub> [1/min]	36,0	18,0	12,0	9,0	6,0	1,8
		P <sub>1N</sub> [kW]	3,33	1,74	1,23	0,94	0,67	0,24
		T <sub>2N</sub> [Nm]	591	599	599	599	599	599
		P <sub>1NT</sub> [kW]	2,24	1,61	1,40	1,28	1,15	0,00
		Efficiency	0,68	0,66	0,62	0,61	0,57	0,47

	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
T <sub>2max</sub> [Nm]	1190	1360	1090	736	1610	1440	980	1765	1582	1080	1040	1000

## Permissible radial force F<sub>r2</sub> and axial force F<sub>a2</sub> on shaft N<sub>2</sub>

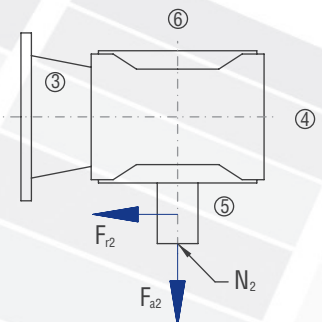
n <sub>2</sub> [rpm]	200		125		75		50		30		10	
	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]	F <sub>r</sub> [N]	F <sub>a</sub> [N]
< 800	3650	1825	4000	2000	4750	2375	5600	2800	6700	3350	9500	4750
> 800	2920	1460	3200	1600	3800	1900	4480	2240	5360	2680	7600	3800

## Inertia moments/mass

Inertia moment J<sub>1</sub> related to the fast-rotating shaft (N<sub>1</sub>)

J <sub>1</sub>	Inertia moment [kgcm <sup>2</sup> ]											
	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
J <sub>1</sub>	30.63	26.13	22.28	20.53	23.42	20.62	19.59	22.75	20.21	19.35	20.81	19.59

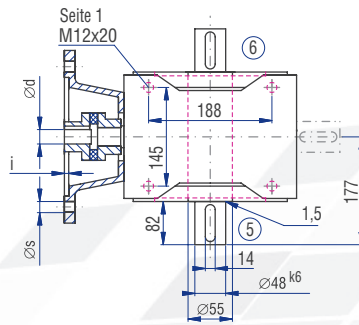
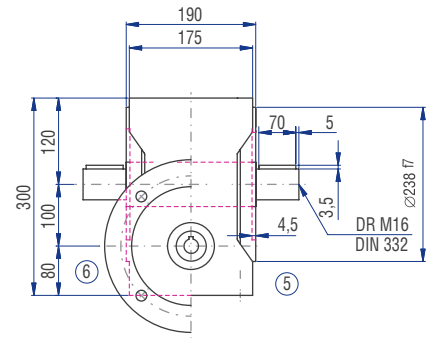
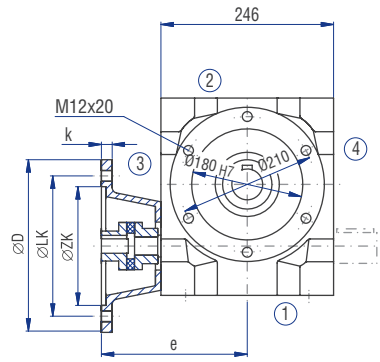
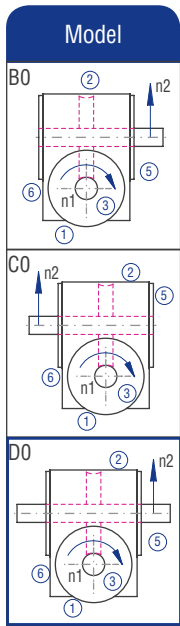
Mass  
ca. [kg]  
55



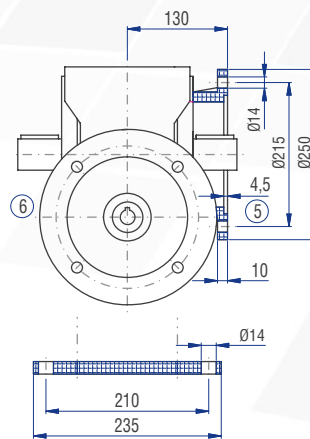
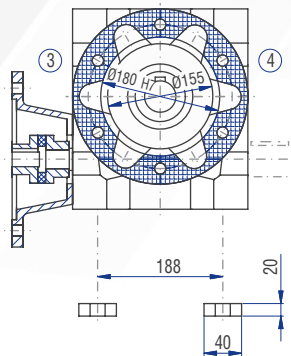
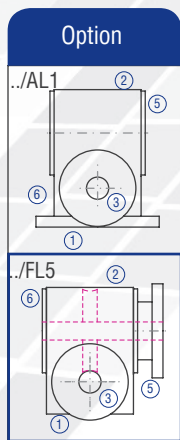
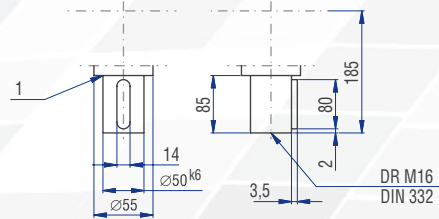
The mass of the gearbox may deviate depending on the flange size, the type and the gear ratio.



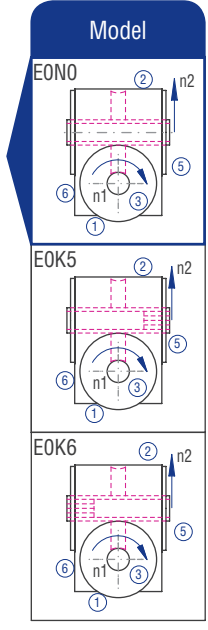
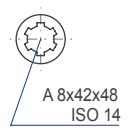
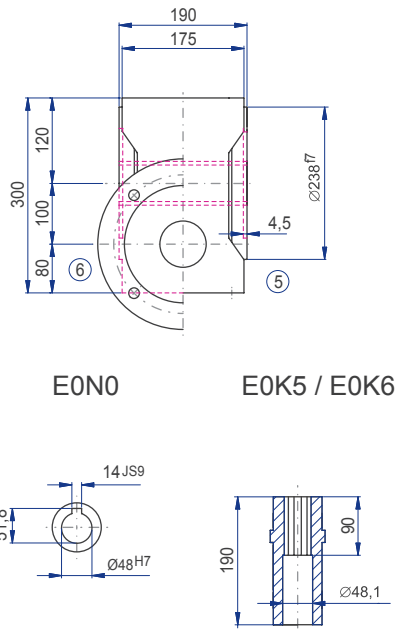
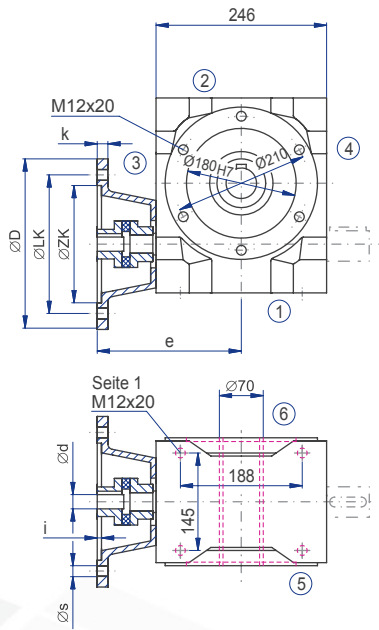
# 9.4.10 Type SL 100 – Type S with flange for motor mounting



## Implementation VV



IEC motor	Model	Motor shaft (d x l)	Flange diameter D [mm]	LK [mm]	ZK [mm]	s [mm]	i [mm]	k [mm]	e [mm]
90	B5	24x50	200	165	130	M10	4	18	235
100	B5	28x60	250	215	180	14	5	18	245
112	B5	28x60	250	215	180	14	5	18	245
132	B5	38x80	300	265	230	14	5	18	265



Worm  
gearboxes

