

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



Characteristics

Characteristic	Standard	Option
Toothing	Hardened and ground worm shaft / bronze worm gear	See chapter 9.2.1
Gear ratio	5:1 to 83:1	
Housing / Flanges	Grey cast iron	
Threaded mounting hole	On gearbox side 1 and on the flanges	See chapter 9.2.3
Shaft	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
Hollow shaft	Material 1 C45, shafts greased Fit with ISO H7 tolerance with parallel keyway: according to DIN 6885 Sheet 1	See chapter 4.6.3
Radial shaft seal ring	NBR, form A	See chapter 4.8
Ambient temperature	-10°C to +90°C. The values of the performance tables are valid for 20°C	See chapter 4.9.3
Circumferential backlash	< 30 arcmin	See chapter 9.2.10
Protection class	IP 54	See chapter 4.5
Corrosion protection	Prime coat; layer thickness > 40 µm	See chapter 4.4.1
Bearing life L10h	more than 15,000h	See chapter 4.9.1
Oil change intervals	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
Lubricants	Synthetic lubricants	See chapter 9.2.8
Flange	Suited for the mounting of IEC motors, models IM B5 and B14	
Coupling	Three-piece claw coupling	

Performance data

i	i ist		n ₁ [rpm]					
			3000	1500	1000	750	500	150
5:1	29:6	n ₂ [rpm]	600.0	300.0	200.0	150.0	100.0	30.0
		P _{1N} [kW]	2.26	1.43	1.09	0.87	0.64	0.25
		T _{2N} [Nm]	33	41	47	49	53	67
		P _{1NT} [kW]	1.85	1.25	1.10	0.90	0.80	0.00
		Efficiency	0.94	0.94	0.93	0.87	0.90	0.86
7.5:1	29:4	n ₂ [rpm]	400.0	200.0	133.0	100.0	66.0	20.0
		P _{1N} [kW]	1.68	1.06	0.81	0.65	0.48	0.19
		T _{2N} [Nm]	36	45	51	54	58	73
		P _{1NT} [kW]	1.45	0.95	0.77	0.70	0.61	0.00
		Efficiency	0.92	0.91	0.90	0.89	0.87	0.82
10:1	39:4	n ₂ [rpm]	300.0	150.0	100.0	75.0	50.0	15.0
		P _{1N} [kW]	1.39	0.77	0.55	0.43	0.32	0.13
		T _{2N} [Nm]	39	43	45	47	50	64
		P _{1NT} [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
13:1	52:4	n ₂ [rpm]	230.0	115.0	76.0	57.0	38.0	11.0
		P _{1N} [kW]	0.85	0.45	0.32	0.26	0.19	0.08
		T _{2N} [Nm]	31	32	34	36	39	50
		P _{1NT} [kW]	1.13	0.75	0.63	0.57	0.52	0.00
		Efficiency	0.88	0.87	0.85	0.84	0.83	0.80
15:1	29:2	n ₂ [rpm]	200.0	100.0	66.0	50.0	33.0	10.0
		P _{1N} [kW]	0.93	0.60	0.48	0.39	0.29	0.12
		T _{2N} [Nm]	37	48	55	58	63	79
		P _{1NT} [kW]	0.85	0.55	0.46	0.41	0.36	0.00
		Efficiency	0.86	0.84	0.82	0.81	0.78	0.72
20:1	39:2	n ₂ [rpm]	150.0	75.0	50.0	37.0	25.0	7.5
		P _{1N} [kW]	0.82	0.49	0.36	0.28	0.21	0.09
		T _{2N} [Nm]	43	50	53	55	58	75
		P _{1NT} [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
26:1	52:2	n ₂ [rpm]	115.0	57.0	38.0	28.0	19.0	5.8
		P _{1N} [kW]	0.55	0.30	0.21	0.17	0.12	0.05
		T _{2N} [Nm]	36	38	40	42	45	59
		P _{1NT} [kW]	0.68	0.44	0.38	0.34	0.31	0.00
		Efficiency	0.80	0.78	0.76	0.75	0.73	0.69
30:1	29:1	n ₂ [rpm]	100.0	50.0	33.0	25.0	16.0	5.0
		P _{1N} [kW]	0.53	0.37	0.29	0.24	0.18	0.08
		T _{2N} [Nm]	36	50	57	60	65	82
		P _{1NT} [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 ₂ [rpm]	75.0	37.0	25.0	18.0	12.0	3.8
		P _{1N} [kW]	0.48	0.32	0.25	0.20	0.15	0.07
		T _{2N} [Nm]	44	56	63	66	71	91
		P _{1NT} [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
53:1	52:1	n ₂ [rpm]	57.0	28.0	18.0	14.0	9.4	2.8
		P _{1N} [kW]	0.39	0.21	0.15	0.13	0.09	0.04
		T _{2N} [Nm]	44	46	48	51	55	72
		P _{1NT} [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 ₂ [rpm]	48.0	24.0	16.0	12.0	8.1	2.4
		P _{1N} [kW]	0.36	0.20	0.15	0.12	0.09	0.03
		T _{2N} [Nm]	45	48	51	53	56	57
		P _{1NT} [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 ₂ [rpm]	36.0	18.0	12.0	9.0	6.0	1.8
		P _{1N} [kW]	0.25	0.14	0.10	0.08	0.05	0.02
		T _{2N} [Nm]	36	37	38	38	38	38
		P _{1NT} [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 _{2max} [Nm]	73	83	77	59	97	90	77	107	99	87	72	64

Permissible radial force F_{r2} and axial force F_{a2} on shaft N₂

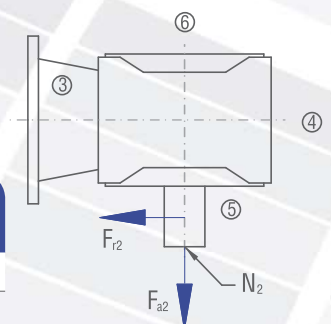
n ₂ [rpm]	200		125		75		50		30		10	
	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]
< 80	970	485	1250	625	1380	690	1600	800	1800	900	2500	1250

Inertia moments/mass

Inertia moment J₁ related to the fast-rotating shaft (N₁)

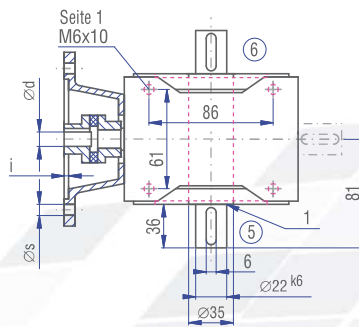
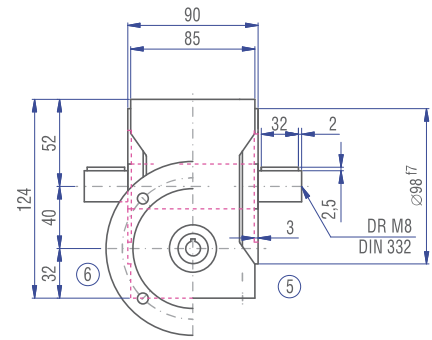
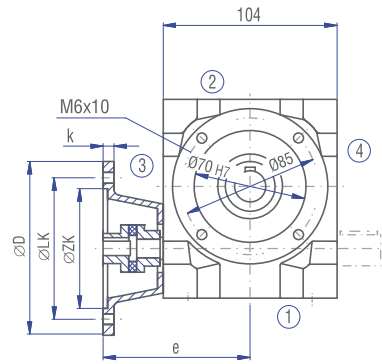
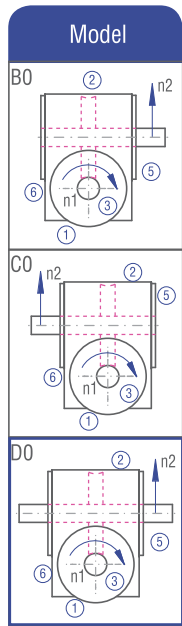
J ₁	Inertia moment [kgcm ²]											
	5:1	7.5:1	10:1	13:1	15:1	20:1	26:1	30:1	40:1	53:1	62:1	83:1
J ₁	0.68	0.60	0.53	0.50	0.54	0.50	0.48	0.53	0.49	0.47	0.48	0.47

Mass
ca. [kg]
7

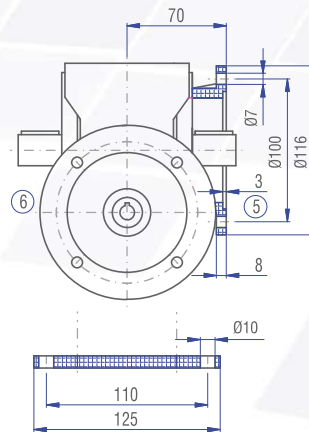
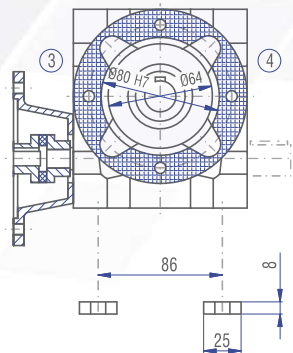
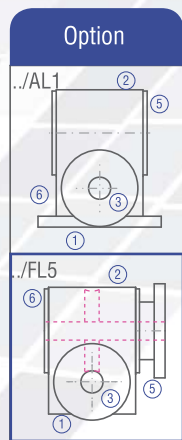
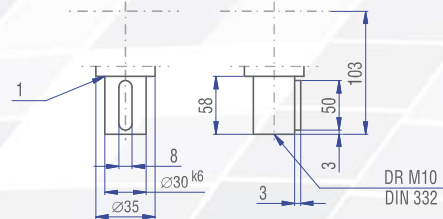


The mass of the gearbox may deviate depending on the flange size, the type and the gear ratio.

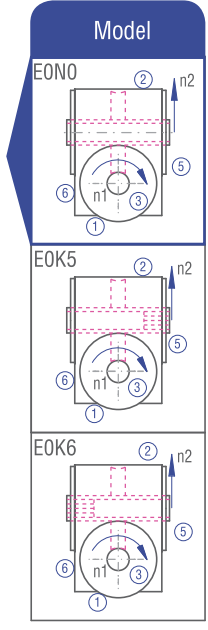
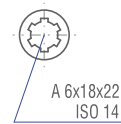
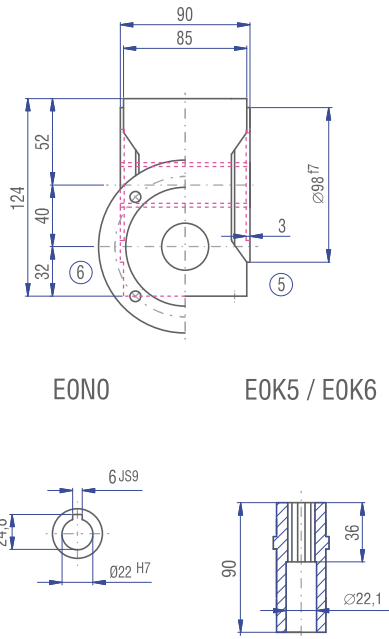
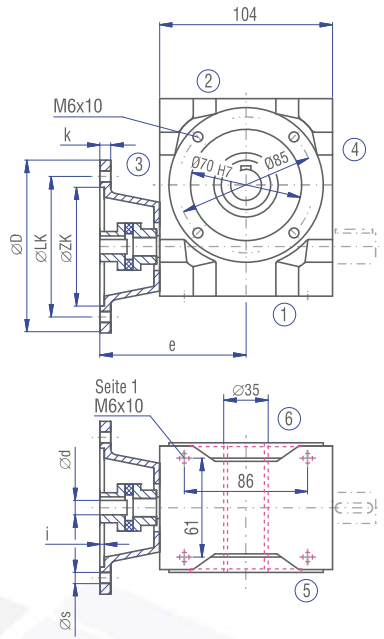
9.4.6 Type SL 040 – Type S with flange for motor mounting



Implementation VV



IEC motor	Model	Motor shaft (dxl)	Flange diameter D [mm]	LK [mm]	ZK [mm]	s [mm]	i [mm]	k [mm]	e [mm]
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

