



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
Bearing life L10h	more than 15,000h	See chapter 4.9.1
Oil change intervals	Not required if the oil temperature is kept < 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
Lubricant	Synthetic lubricants	See chapter 9.2.8

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]	6.37	4.96	3.77	3.11	2.31	0.91
		T _{2N} [Nm]	94	145	165	180	198	247
		P _{1NT} [kW]	5.80	4.25	3.56	3.15	2.67	0.00
		Efficiency	0.96	0.95	0.95	0.94	0.93	0.88
7.5:1	29:4	n ₂ [rpm]	400.0	200.0	133.0	100.0	66.0	20.0
		P _{1N} [kW]	4.89	3.62	2.78	2.37	1.79	0.72
		T _{2N} [Nm]	106	157	179	201	223	280
		P _{1NT} [kW]	4.63	3.26	2.72	2.41	2.06	0.00
		Efficiency	0.94	0.94	0.93	0.92	0.90	0.84
10:1	39:4	n ₂ [rpm]	300.0	150.0	100.0	75.0	50.0	15.0
		P _{1N} [kW]	4.15	2.94	2.26	1.83	1.30	0.51
		T _{2N} [Nm]	121	170	194	207	216	265
		P _{1NT} [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
13:1	51:4	n ₂ [rpm]	230.0	115.0	76.0	57.0	38.0	11.0
		P _{1N} [kW]	3.31	1.81	1.29	1.00	0.71	0.26
		T _{2N} [Nm]	125	135	141	145	151	170
		P _{1NT} [kW]	3.68	2.53	2.12	1.90	1.66	0.00
		Efficiency	0.93	0.92	0.90	0.89	0.87	0.82
15:1	29:2	n ₂ [rpm]	200.0	100.0	66.0	50.0	33.0	10.0
		P _{1N} [kW]	3.12	2.23	1.77	1.51	1.16	0.48
		T _{2N} [Nm]	128	183	213	240	266	333
		P _{1NT} [kW]	2.80	1.95	1.62	1.44	1.23	0.00
		Efficiency	0.89	0.00	0.00	0.86	0.83	0.75
20:1	39:2	n ₂ [rpm]	150.0	75.0	50.0	37.0	25.0	7.5
		P _{1N} [kW]	2.95	1.70	1.32	1.14	0.86	0.34
		T _{2N} [Nm]	161	186	212	237	259	310
		P _{1NT} [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

	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]	295	334	306	222	395	355	295	437	360	310	240	246

i	i ist		n ₁ [rpm]					
			3000	1500	1000	750	500	150
26:1	51:2	n ₂ [rpm]	115.0	57.0	38.0	28.0	19.0	5.8
		P _{1N} [kW]	1.89	1.25	0.90	0.71	0.51	0.19
		T _{2N} [Nm]	132	173	181	187	195	222
		P _{1NT} [kW]	2.21	1.52	1.27	1.14	1.01	0.00
		Efficiency	0.86	0.85	0.83	0.81	0.78	0.71
30:1	29:1	n ₂ [rpm]	100.0	50.0	33.0	25.0	16.0	5.0
		P _{1N} [kW]	1.94	1.38	1.11	0.97	0.75	0.36
		T _{2N} [Nm]	143	204	237	268	296	403
		P _{1NT} [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 ₂ [rpm]	75.0	37.0	25.0	18.0	12.0	3.8
		P _{1N} [kW]	1.54	1.08	0.85	0.74	0.57	0.24
		T _{2N} [Nm]	149	207	237	264	288	348
		P _{1NT} [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
53:1	51:1	n ₂ [rpm]	57.0	28.0	18.0	14.0	9.4	2.8
		P _{1N} [kW]	1.16	0.80	0.58	0.47	0.34	0.14
		T _{2N} [Nm]	143	191	200	207	217	248
		P _{1NT} [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 ₂ [rpm]	48.0	24.0	16.0	12.0	8.1	2.4
		P _{1N} [kW]	0.82	0.66	0.53	0.46	0.34	0.12
		T _{2N} [Nm]	110	175	202	221	226	226
		P _{1NT} [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 ₂ [rpm]	36.0	18.0	12.0	9.0	6.0	1.8
		P _{1N} [kW]	0.75	0.46	0.33	0.26	0.19	0.07
		T _{2N} [Nm]	129	152	152	152	152	152
		P _{1NT} [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 _{2max} [Nm]	295	334	306	222	395	355	295	437	360	310	240	246

Permissible radial force F_{r1} and axial force F_{a1} on shaft N₁

n ₁ [rpm]	3000		1500		1000		750		500		150	
	T ₁ [Nm]	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]	
< 20	820	410	1000	500	1130	565	1320	660	1420	710	1850	925
> 20	630	315	770	385	870	435	1020	510	1090	545	1420	710

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

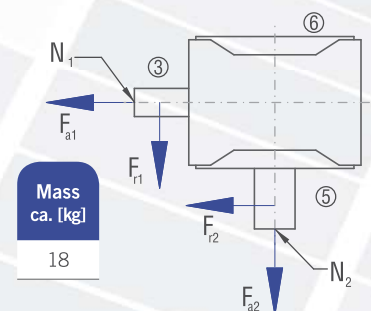
n ₂ [rpm]	200		125		75		50		30		10	
	T ₂ [Nm]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	F _r [N]	F _a [N]	
< 220	2700	1350	3150	1575	3800	1900	4500	2250	5200	2600	5200	2600
> 220	2080	1040	2420	1210	2920	1460	3460	1730	4000	2000	4000	2000

Inertia moments/mass

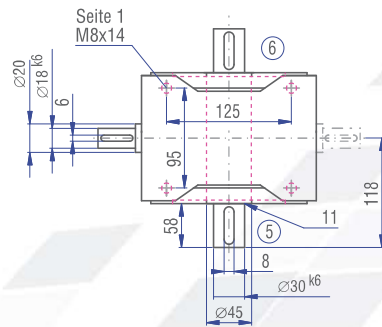
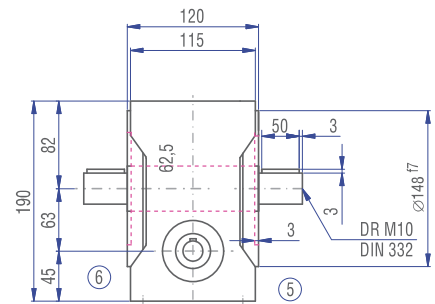
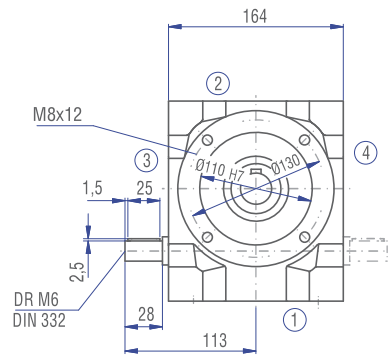
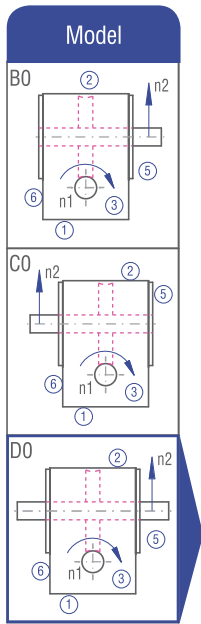
Inertia moment J₁ related to the fast-rotating shaft (N₁)

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	2.17	1.64	1.14	0.94	1.33	0.94	0.82	1.25	0.90	0.79	0.97	0.80

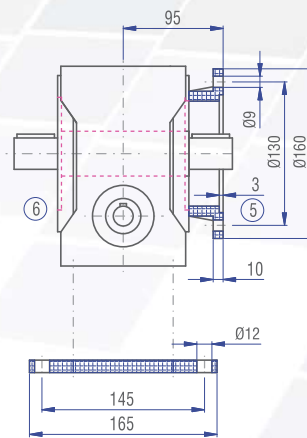
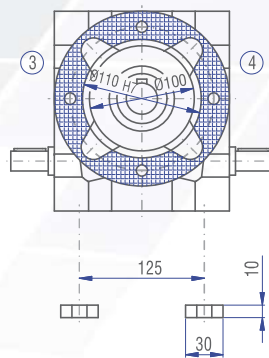
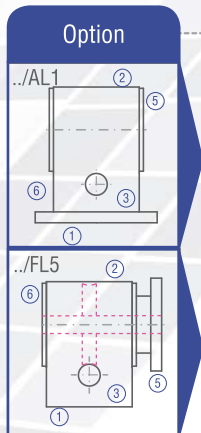
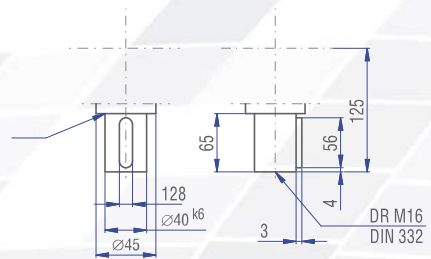
The mass of the gearbox may deviate depending on the gear ratio and the type.

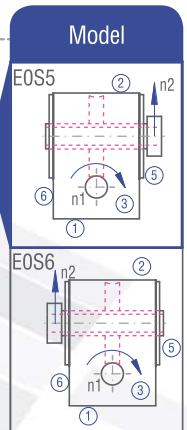
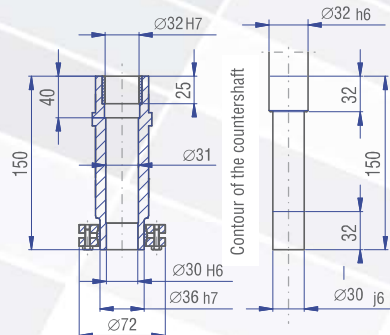
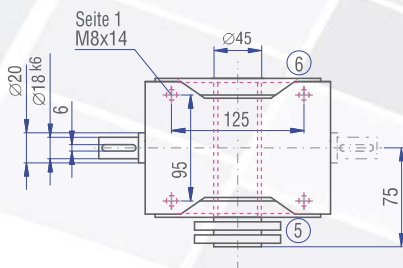
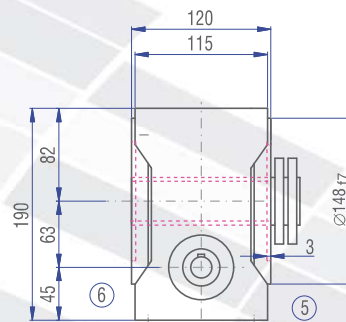
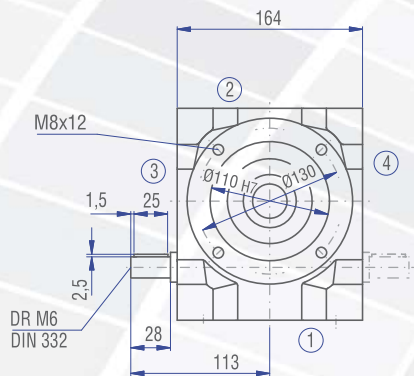
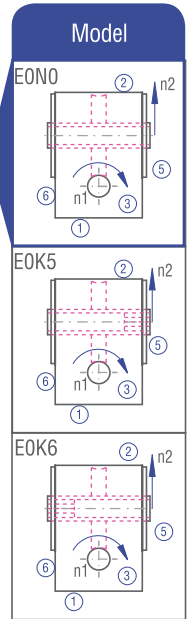
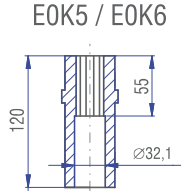
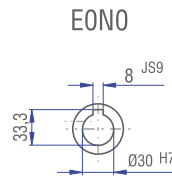
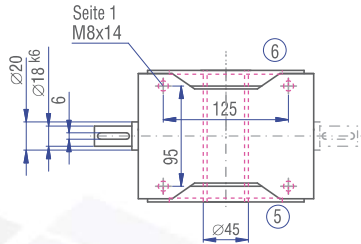
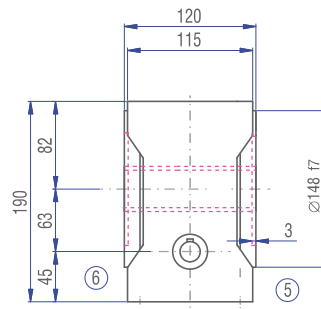
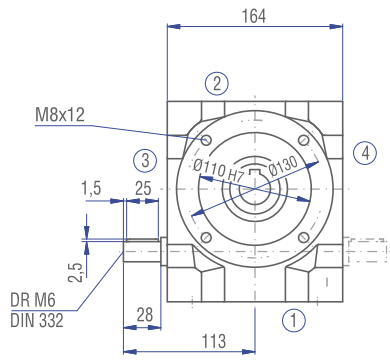


9.3.8 Type S 063 – Standard worm gearboxes



Implementation VV





Worm
gearboxes