

6.3.8 Type V 120 – Standard bevel gearboxes



Characteristics

Characteristic	Standard	Option
Toothing	Spiral toothed bevel gear set	See chapter 6.2.1
Gear ratio	1:1 to 6:1	
Housing / Flanges	Grey cast iron; steel	
Threaded mounting hole	On all housing surfaces without flange and on all flanges.	See chapter 6.2.3
Shaft	Material 1 C45, shaft ends greased Fit with ISO 6 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 7 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 6.2.10
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 < 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 6.2.8
Lubricant	Synthetic lubricants	See chapter 6.2.8

Performance data

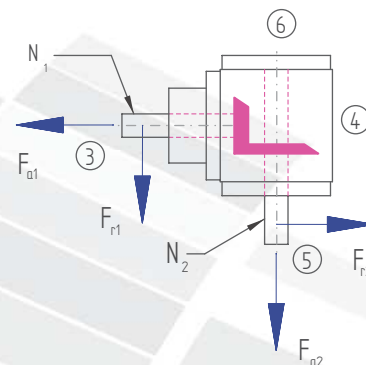
n ₁ [rpm]	1:1			1.5:1			2:1			3:1			4:1			5:1			6:1		
	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]	n ₂ [rpm]	P _{1N} [kW]	T _{2N} [Nm]
3000	3000	21.82	66	2000	13.45	61	1500	9.26	56	1000	6.39	58	750	4.96	60	600	3.97	60	500	2.95	54
2400	2400	18.52	70	1600	11.46	65	1200	8.07	61	800	5.56	63	600	4.43	67	480	3.44	65	400	2.53	57
1500	1500	13.56	82	1000	8.60	78	750	6.03	73	500	4.08	74	375	3.06	74	300	2.38	72	250	1.75	64
1000	1000	10.14	92	667	6.32	86	500	4.46	81	333	3.01	82	250	2.18	79	200	1.76	80	167	1.22	66
750	750	8.51	103	500	5.18	94	375	3.55	86	250	2.40	87	188	1.69	82	150	1.42	86	125	0.94	68
500	500	6.34	115	333	3.85	100	250	2.54	92	167	1.66	90	125	1.16	84	100	0.98	89	83	0.63	69
250	250	3.39	123	167	1.99	100	125	1.35	98	83	0.87	95	63	0.60	87	50	0.51	92	42	0.33	71
50	50	0.72	130	33	0.41	100	25	0.29	107	17	0.21	110	13	0.12	90	10	0.10	95	8	0.06	66
P _{1Nt} [kW]		6.2		6.2			6.2			6.2			6.2			6.2			6.2		
T _{2max} [Nm]		220		100			169			155			155			140			120		

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

n ₁ [rpm]	3000		1000		500		250		100		50	
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]	F _r [N]	F _a [N]
< 80	470	235	620	310	720	360	900	450	1150	575	1400	700
> 80	390	195	520	260	600	300	750	375	960	480	1170	585

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

n ₂ [rpm]	3000		1000		500		250		100		50	
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]	F _r [N]	F _a [N]
< 80	750	375	1000	500	1250	625	1500	750	1900	950	2200	1100
> 80	630	315	830	415	1040	520	1250	625	1580	790	1830	915

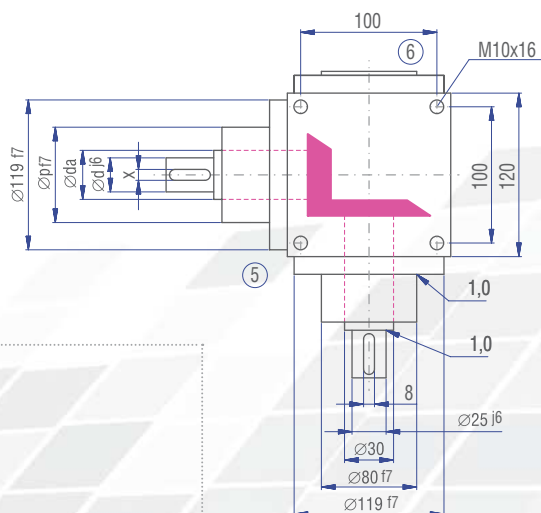
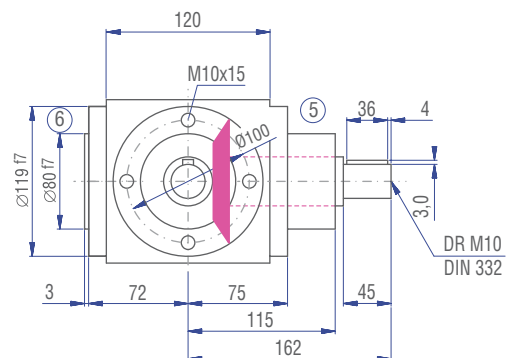
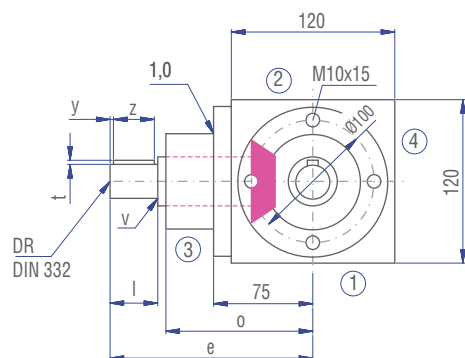
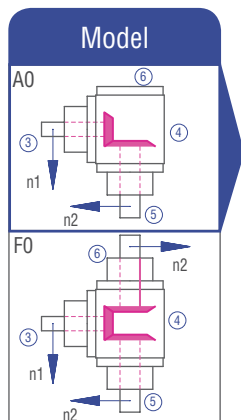


Inertia moments/mass

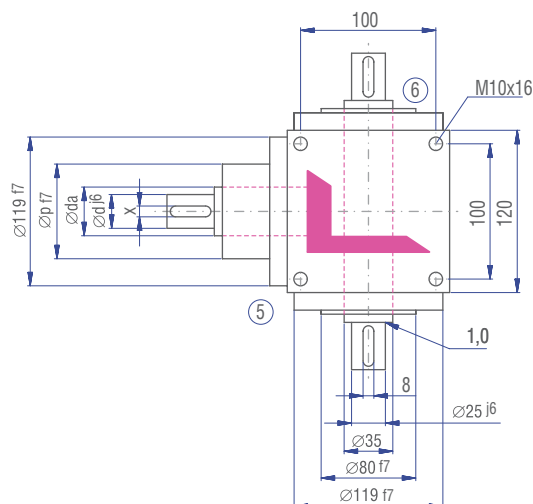
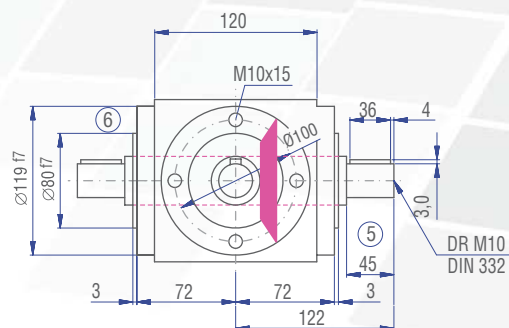
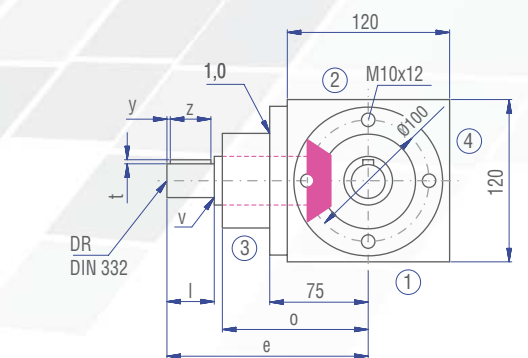
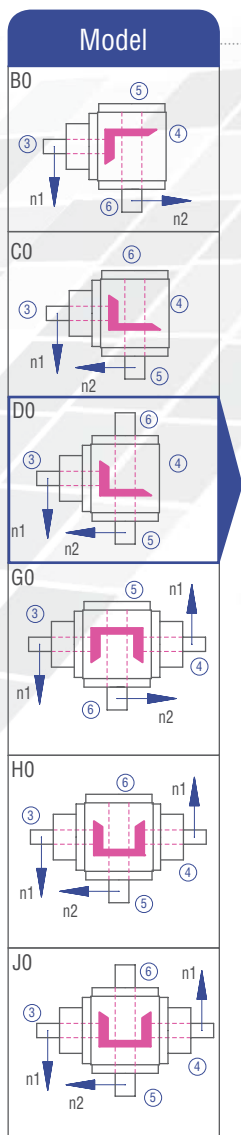
Inertia moment J₁ related to the fast-rotating shaft (N₁)

Model	Inertia moment [kgcm ²]							Mass [kg]
	1:1	1.5:1	2:1	3:1	4:1	5:1	6:1	
A0	10.4976	4.84090	3.64650	2.31590	1.21640	0.75160	0.67660	12.6
B0	15.3022	7.44410	4.97470	3.01230	1.67290	1.05930	0.89820	12.3
C0	15.3022	7.44410	4.97470	3.01230	1.67290	1.05930	0.89820	12.3
D0	15.5996	7.57620	5.04900	3.04530	1.69150	1.07120	0.90650	12.5
E0N	15.1939	7.39590	4.94760	3.00030	1.66610	1.05500	0.89520	12.0
E0S	16.9812	8.19030	5.39440	3.19880	1.77780	1.12650	0.94490	12.3
F0	15.7464	7.17370	4.95870	2.89910	1.54440	0.96150	0.82240	15.0
G0	20.5510	9.95220	7.30900	4.74500	2.56120	1.60090	1.42900	14.7
H0	20.5510	9.95220	7.30900	4.74500	2.56120	1.60090	1.42900	14.7
J0	20.8484	10.0843	7.38330	4.77800	2.57980	1.61280	1.43730	14.9
K0N	20.4427	9.90400	7.28190	4.73300	2.55440	1.59660	1.42600	14.4
K0S	22.2300	10.6984	7.72870	4.93150	2.66610	1.66810	1.47570	14.7

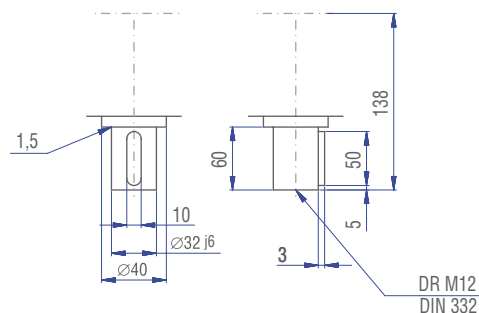
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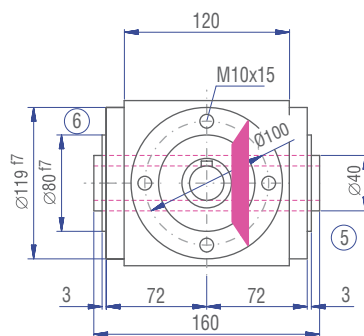
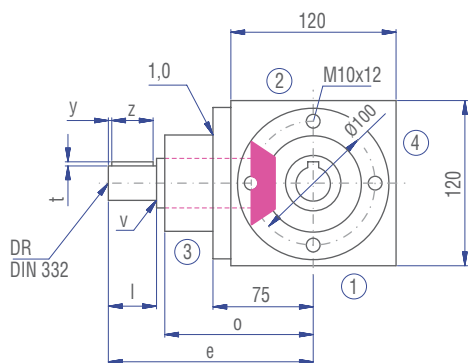


	Gear ratio						
	1:1	1.5:1	2:1	3:1	4:1	5:1	6:1
d [mm]	25	25	25	20	20	15	15
da [mm]	30	30	30	25	25	20	20
l [mm]	45	45	45	45	45	35	35
v [mm]	1	1	1	1	1	0.5	0.5
x [mm]	8	8	8	6	6	5	5
y [mm]	4	4	4	4	4	4	4
z [mm]	36	36	36	36	36	28	28
t [mm]	3	3	3	2.5	2.5	2	2
e [mm]	162	162	162	162	172	162	162
o [mm]	115	115	115	115	125	125	125
p [mm]	80	80	80	80	80	70	70
DR M	10	10	10	6	6	5	5



Implementation VV





Implementation

