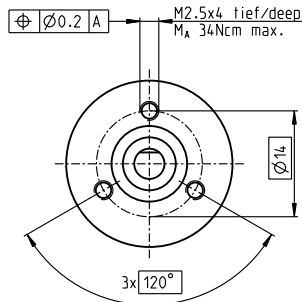
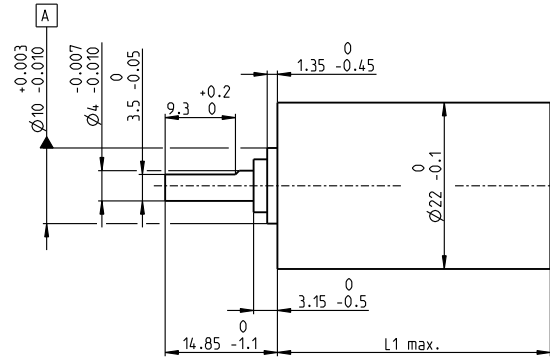


Planetary Gearhead GP 22 C Ø22 mm, 0.5–2.0 Nm

Ceramic Version



M 1:1

Technical data

Planetary Gearhead	straight teeth
Output shaft	stainless steel, hardened
Bearing at output	ball bearing
Radial play, 10 mm from flange	max. 0.2 mm
Axial play	max. 0.2 mm
Max. axial load (dynamic)	100 N
Max. force for press fits	100 N
Direction of rotation, drive to output	=
Max. continuous input speed	8000 rpm
Recommended temperature range	-40...+100°C
Number of stages	1 2 3 4 5
Max. radial load, 10 mm from flange	30 N 50 N 55 N 55 N 55 N

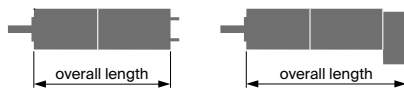
gear

- Stock program
- Standard program
- Special program (on request)

Part numbers

Gearhead data	143971	143974	143980	143986	143990	143996	144002	144004	144011	144017	144023
1 Reduction	3.8:1	14:1	53:1	104:1	198:1	370:1	590:1	742:1	1386:1	1996:1	3189:1
2 Absolute reduction	15/4	225/16	3375/64	87723/845	50625/256	10556001/28561	59049/100	759375/1024	158340015/114244	285012027/142805	1594323/500
3 Max. motor shaft diameter	mm 4	4	4	3.2	4	3.2	4	4	3.2	3.2	4
Part numbers	143972	143975	143981	143987	143991	143997	144003	144006	144012	144018	144024
1 Reduction	4.4:1	16:1	62:1	109:1	231:1	389:1	690:1	867:1	1460:1	2102:1	3728:1
2 Absolute reduction	57/13	855/62	12825/208	2187/20	192375/632	263169/676	1121937/625	2885625/3328	3947535/2704	7105563/3380	30292137/6125
3 Max. motor shaft diameter	mm 3.2	3.2	3.2	4	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Part numbers	143973	143976	143982	143988	143992	143998	144005	144007	144013	144019	144025
1 Reduction	5.4:1	19:1	72:1	128:1	270:1	410:1	850:1	1014:1	1538:1	2214:1	4592:1
2 Absolute reduction	27/5	3249/169	48735/676	41553/325	731025/2704	6561/16	531441/625	10965375/10816	98415/64	177147/60	14348907/3125
3 Max. motor shaft diameter	mm 2.5	3.2	3.2	3.2	3.2	4	2.5	3.2	4	4	2.5
Part numbers	143977	143983	143989	143993	143999		144008	144014	144020		
1 Reduction		20:1	76:1	157:1	285:1	455:1	1068:1	1621:1	2458:1		
2 Absolute reduction		81/4	1215/16	19683/125	18225/64	5000211/10985	273375/256	601692051/311293	135005697/54925		
3 Max. motor shaft diameter	mm	4	4	2.5	4	3.2	4	3.2	3.2		
Part numbers	143978	143984		143994	144000		144009	144015	144021		
1 Reduction		24:1	84:1		316:1	479:1	1185:1	1707:1	2589:1		
2 Absolute reduction		1539/65	185193/2197		2777895/6788	124659/60	41668425/35152	15000633/6788	3365793/1300		
3 Max. motor shaft diameter	mm	3.2	3.2		3.2	3.2	3.2	3.2	3.2		
Part numbers	143979	143985		143995	144001		144010	144016	144022		
1 Reduction		29:1	89:1		333:1	561:1	1249:1	1798:1	3027:1		
2 Absolute reduction		729/25	4617/62		69255/208	2368521/4225	1038825/632	373977/208	63950067/2125		
3 Max. motor shaft diameter	mm	2.5	3.2		3.2	3.2	3.2	3.2	3.2		
4 Number of stages		1	2	3	3	4	4	5	5	5	5
5 Max. continuous torque	Nm	0.5	0.6	1.2	1.2	1.8	1.8	2.0	2.0	2.0	2.0
6 Max. intermittent torque at gear output	Nm	0.8	0.9	1.9	1.9	2.7	2.7	3.0	3.0	3.0	3.0
7 Max. efficiency	%	84	70	59	59	49	49	42	42	42	42
8 Weight	g	42	55	68	68	81	81	94	94	94	94
9 Average backlash no load	°	1.0	1.2	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0
10 Mass inertia	gcm ²	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
11 Gearhead length L1*	mm	25.4	32.2	39.0	39.0	45.8	45.8	52.6	52.6	52.6	52.6

*L1 is -2.8 mm for calculating the overall length

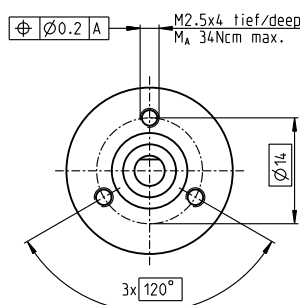
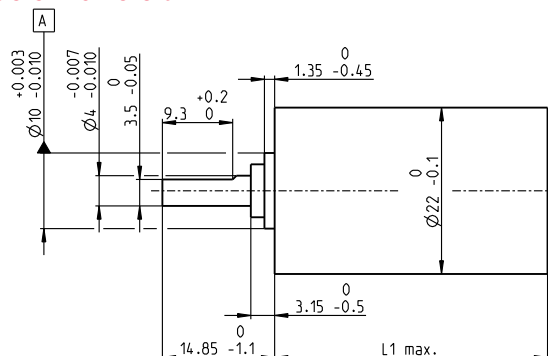


Modular system											
+ Motor	Page	+ Sensor/Brake	Page	Overall length [mm] = Motor length + gearhead length + (sensor/brake) + assembly parts							
A-max 19	175–176			51.6	58.4	65.2	65.2	72.0	72.0	78.8	78.8
A-max 19, 1.5 W	176	ENX 13 GAMA	498	59.1	65.9	72.7	72.7	79.5	79.5	86.3	86.3
A-max 19, 1.5 W	176	ENX 19 IMR	503	56.7	63.5	70.3	70.3	77.1	77.1	83.9	83.9
A-max 19, 1.5 W	176	MR	533	56.7	63.5	70.3	70.3	77.1	77.1	83.9	83.9
A-max 19, 2.5 W	177–178			54.2	61.0	67.8	67.8	74.6	74.6	81.4	81.4
A-max 19, 2.5 W	178	ENX 13 GAMA	498	61.7	68.5	75.3	75.3	82.1	82.1	88.9	88.9
A-max 19, 2.5 W	178	ENX 19 IMR	503	58.5	65.3	72.1	72.1	78.9	78.9	85.7	85.7
A-max 19, 2.5 W	178	MR	533	58.5	65.3	72.1	72.1	78.9	78.9	85.7	85.7
A-max 22	179–182			54.6	61.4	68.2	68.2	75.0	75.0	81.8	81.8
A-max 22	179–182	ENX 13 GAMA	498	61.7	68.5	75.3	75.3	82.1	82.1	88.9	88.9
A-max 22	179–182	ENX 22 IMR	504	59.6	66.4	73.2	73.2	80.0	80.0	86.8	86.8
A-max 22	179–182	MR	533	59.6	66.4	73.2	73.2	80.0	80.0	86.8	86.8

Planetary Gearhead GP 22 C Ø22 mm, 0.5–2.0 Nm

Ceramic Version

gear



M 1:1

Technical data

Planetary Gearhead	straight teeth
Output shaft	stainless steel, hardened
Bearing at output	ball bearing
Radial play, 10 mm from flange	max. 0.2 mm
Axial play	max. 0.2 mm
Max. axial load (dynamic)	100 N
Max. force for press fits	100 N
Direction of rotation, drive to output	=
Max. continuous input speed	8000 rpm
Recommended temperature range	-40...+100°C
Number of stages	1 2 3 4 5
Max. radial load, 10 mm from flange	30 N 50 N 55 N 55 N 55 N

		Part numbers										
		143971	143974	143980	143986	143990	143996	144002	144004	144011	144017	144023
Gearhead data												
1	Reduction	3.8:1	14:1	53:1	104:1	198:1	370:1	590:1	742:1	1386:1	1996:1	3189:1
2	Absolute reduction	$\frac{15}{4}$	$\frac{225}{16}$	$\frac{3375}{64}$	$\frac{87723}{645}$	$\frac{50625}{256}$	$\frac{10556001}{28561}$	$\frac{59049}{100}$	$\frac{759375}{1024}$	$\frac{158340015}{114244}$	$\frac{285012027}{142805}$	$\frac{1594323}{500}$
3	Max. motor shaft diameter	mm 4	4	4	3.2	4	3.2	4	4	3.2	3.2	4
Part numbers		143972	143975	143981	143987	143991	143997	144003	144006	144012	144018	144024
1	Reduction	4.4:1	16:1	62:1	109:1	231:1	389:1	690:1	867:1	1460:1	2102:1	3728:1
2	Absolute reduction	$\frac{57}{43}$	$\frac{855}{62}$	$\frac{12825}{208}$	$\frac{2187}{20}$	$\frac{192375}{632}$	$\frac{263169}{676}$	$\frac{112193}{625}$	$\frac{2885625}{3328}$	$\frac{3947535}{2704}$	$\frac{7105563}{3380}$	$\frac{30292137}{6125}$
3	Max. motor shaft diameter	mm 3.2	3.2	3.2	4	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Part numbers		143973	143976	143982	143988	143992	143998	144005	144007	144013	144019	144025
1	Reduction	5.4:1	19:1	72:1	128:1	270:1	410:1	850:1	1014:1	1538:1	2214:1	4592:1
2	Absolute reduction	$\frac{27}{5}$	$\frac{3249}{169}$	$\frac{48735}{676}$	$\frac{41559}{325}$	$\frac{731025}{2704}$	$\frac{656}{16}$	$\frac{53144}{625}$	$\frac{10965375}{10816}$	$\frac{98415}{64}$	$\frac{177147}{80}$	$\frac{14348907}{3125}$
3	Max. motor shaft diameter	mm 2.5	3.2	3.2	3.2	3.2	4	2.5	3.2	4	4	2.5
Part numbers			143977	143983	143989	143993	143999		144008	144014	144020	
1	Reduction		20:1	76:1	157:1	285:1	455:1		1068:1	1621:1	2458:1	
2	Absolute reduction		$\frac{81}{4}$	$\frac{1215}{16}$	$\frac{19683}{125}$	$\frac{18225}{64}$	$\frac{5000211}{10985}$		$\frac{273375}{256}$	$\frac{801692057}{317293}$	$\frac{135005987}{54925}$	
3	Max. motor shaft diameter	mm	4	4	2.5	4	3.2		4	3.2	3.2	
Part numbers			143978	143984		143994	144000		144009	144015	144021	
1	Reduction		24:1	84:1		316:1	479:1		1185:1	1707:1	2589:1	
2	Absolute reduction		$\frac{1539}{65}$	$\frac{185193}{2197}$		$\frac{2777895}{8788}$	$\frac{124659}{260}$		$\frac{41668475}{35152}$	$\frac{56006833}{6788}$	$\frac{3365793}{1300}$	
3	Max. motor shaft diameter	mm	3.2	3.2		3.2	3.2		3.2	3.2	3.2	
Part numbers			143979	143985		143995	144001		144010	144016	144022	
1	Reduction		29:1	89:1		333:1	561:1		1249:1	1798:1	3027:1	
2	Absolute reduction		$\frac{729}{25}$	$\frac{4617}{62}$		$\frac{69255}{208}$	$\frac{236852}{4225}$		$\frac{1038825}{632}$	$\frac{373977}{208}$	$\frac{63950067}{21125}$	
3	Max. motor shaft diameter	mm	2.5	3.2		3.2	3.2		3.2	3.2	3.2	
4	Number of stages		1	2	3	3	4	4	4	5	5	5
5	Max. continuous torque	Nm	0.5	0.6	1.2	1.2	1.8	1.8	1.8	2.0	2.0	2.0
6	Max. intermittent torque at gear output	Nm	0.8	0.9	1.9	1.9	2.7	2.7	2.7	3.0	3.0	3.0
7	Max. efficiency	%	84	70	59	59	49	49	49	42	42	42
8	Weight	g	42	55	68	68	81	81	81	94	94	94
9	Average backlash no load	°	1.0	1.2	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0
10	Mass inertia	gcm ²	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
11	Gearhead length L1*	mm	25.4	32.2	39.0	39.0	45.8	45.8	45.8	52.6	52.6	52.6

*for EC-max 16 L1 is ~2.8 mm



Modular system											
+ Motor	Page	+ Sensor/Brake	Page	Overall length [mm] = Motor length + gearhead length + (sensor/brake) + assembly parts							
EC-max 16, 8 W	281			58.7	65.5	72.3	72.3	79.1	79.1	85.9	85.9
EC-max 16, 8 W	281	16 EASY/XT/Abs.	509-511	68.9	75.7	82.5	82.5	89.3	89.3	96.1	96.1
EC-max 16, 8 W	281	16 EASY Abs. XT	512	69.4	76.2	83.0	83.0	89.8	89.8	96.6	96.6
EC-max 22, 12 W	282			57.5	64.3	71.1	71.1	77.9	77.9	84.7	84.7
EC-max 22, 12 W	282	16 EASY Abs. XT	512	67.6	74.4	81.2	81.2	88.0	88.0	94.8	94.8
EC-max 22, 12 W	282	AB 20	584	93.1	99.9	106.7	106.7	113.5	113.5	120.3	120.3
EC-max 22, 25 W	283			74.0	80.8	87.6	87.6	94.4	94.4	101.2	101.2
EC-max 22, 25 W	283	16 EASY/XT/Abs.	509-511	83.6	90.4	97.2	97.2	104.0	104.0	110.8	110.8
EC-max 22, 25 W	283	16 EASY Abs. XT	512	84.1	90.9	97.7	97.7	104.5	104.5	111.3	111.3
EC-max 22, 25 W	283	AB 20	584	109.6	116.4	123.2	123.2	130.0	130.0	136.8	136.8