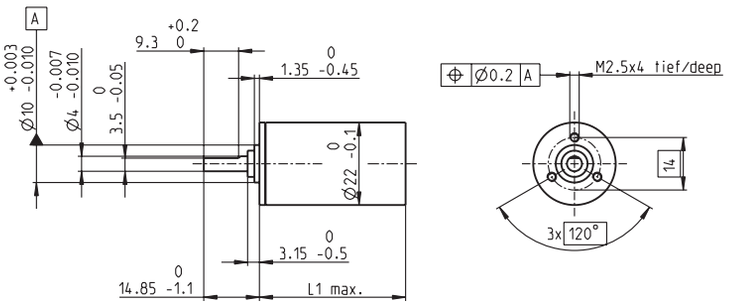
Planetary Gearhead GP 22 C ∅22 mm, 0.5–2.0 Nm

Ceramic Version



M 1:2

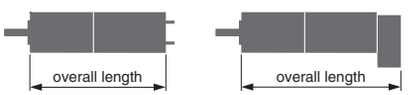
Technical Data					
Planetary Gearhead	straight teeth				
Output shaft	stainless steel, hardened				
Bearing at output	ball bearing				
Radial play, 10 mm from flange	max. 0.2 mm				
Axial play	max. 0.2 mm				
Max. permissible axial load	100 N				
Max. permissible force for press fits	100 N				
Sense of rotation, drive to output	=				
Recommended 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

Stock program
Standard program
Special program (on request)

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	Reduction absolute		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	Reduction absolute		57/13	855/52	12825/208	2187/20	192375/832	263169/676	1121931/1625	2885625/3328	3947535/2704	7105563/3380	30292137/8125
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	Reduction absolute		27/5	3249/169	48735/676	41553/325	731025/2704	6561/16	531441/625	10965375/10816	98415/64	177147/80	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	Reduction absolute			81/4	1215/16	19683/125	18225/64	5000211/10985		273375/256	60169057/371293	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	Reduction absolute			1539/65	185193/2197		2777895/8788	124659/260		41668425/35152	15000633/8788	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	Reduction absolute			729/25	4617/52		69255/208	2368521/4225		1038825/832	373977/208	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
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	2.0
6	Intermittently permissible 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	3.0
7	Max. efficiency	%	84	70	59	59	49	49	49	42	42	42	42
8	Weight	g	42	55	68	68	81	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	2.0
10	Mass inertia	gcm²	0.5	0.4	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	52.6

*L1 is–2.8 mm for calculating the overall length

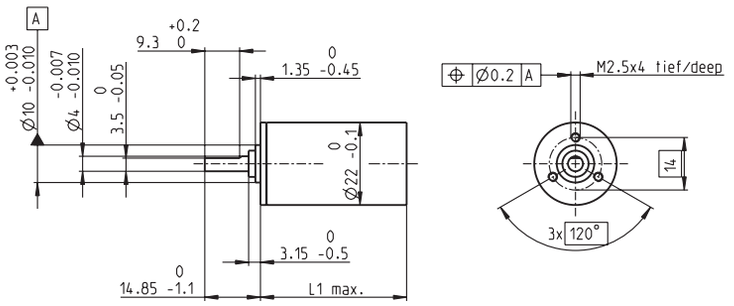


maxon Modular System

+ Motor	Page	+ Sensor/Brake	Page	Overall length [mm] = Motor length + gearhead length + (sensor/brake) + assembly parts										
A-max 19	125/126			51.6	58.4	65.2	65.2	72.0	72.0	72.0	78.8	78.8	78.8	78.8
A-max 19, 1.5 W	126	MR	315/317	56.7	63.5	70.3	70.3	77.1	77.1	77.1	83.9	83.9	83.9	83.9
A-max 19, 1.5 W	126	Enc 22	324	66.0	72.8	79.6	79.6	86.4	86.4	86.4	93.2	93.2	93.2	93.2
A-max 19, 1.5 W	126	MEnc 13	334	59.1	65.9	72.7	72.7	79.5	79.5	79.5	86.3	86.3	86.3	86.3
A-max 19, 2.5 W	127/128			54.2	61.0	67.8	67.8	74.6	74.6	74.6	81.4	81.4	81.4	81.4
A-max 19, 2.5 W	128	MR	315/317	58.5	65.3	72.1	72.1	78.9	78.9	78.9	85.7	85.7	85.7	85.7
A-max 19, 2.5 W	128	Enc 22	324	68.6	75.4	82.2	82.2	89.0	89.0	89.0	95.8	95.8	95.8	95.8
A-max 19, 2.5 W	128	MEnc 13	334	61.7	68.5	75.3	75.3	82.1	82.1	82.1	88.9	88.9	88.9	88.9
A-max 22	129-132			54.6	61.4	68.2	68.2	75.0	75.0	75.0	81.8	81.8	81.8	81.8
A-max 22	130/132	MR	315/317	59.6	66.4	73.2	73.2	80.0	80.0	80.0	86.8	86.8	86.8	86.8
A-max 22	130/132	Enc 22	324	69.0	75.8	82.6	82.6	89.4	89.4	89.4	96.2	96.2	96.2	96.2
A-max 22	130/132	MEnc 13	334	61.7	68.5	75.3	75.3	82.1	82.1	82.1	88.9	88.9	88.9	88.9
RE-max 21	155/156			51.6	58.4	65.2	65.2	72.0	72.0	72.0	78.8	78.8	78.8	78.8
RE-max 21, 3.5 W	156	MR	315/318	56.7	63.5	70.3	70.3	77.1	77.1	77.1	83.9	83.9	83.9	83.9
RE-max 21	157/158			54.2	61.0	67.8	67.8	74.6	74.6	74.6	81.4	81.4	81.4	81.4
RE-max 21, 6 W	158	MR	315/318	58.5	65.3	72.1	72.1	78.9	78.9	78.9	85.7	85.7	85.7	85.7
RE-max 24	159-162			54.6	61.4	68.2	68.2	75.0	75.0	75.0	81.8	81.8	81.8	81.8
RE-max 24	160/162	MR	316/318	59.6	66.4	73.2	73.2	80.0	80.0	80.0	86.8	86.8	86.8	86.8

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

Ceramic Version



M 1:2

Technical Data

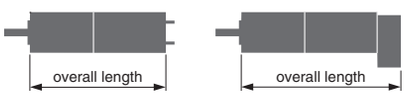
Planetary Gearhead	straight teeth
Output shaft	stainless steel, hardened
Bearing at output	ball bearing
Radial play, 10 mm from flange	max. 0.2 mm
Axial play	max. 0.2 mm
Max. permissible axial load	100 N
Max. permissible force for press fits	100 N
Sense of rotation, drive to output	=
Recommended input 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

Stock program
Standard program
Special program (on request)

Gearhead Data		Part Numbers										
		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 Reduction absolute		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 Reduction absolute		57/13	855/52	12825/208	2187/20	192375/832	263169/676	1121931/1625	2885625/3328	3947535/2704	7105563/3380	30292137/8125
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 Reduction absolute		27/5	3249/169	48735/676	41553/325	731025/2704	6561/16	531441/625	10965375/10816	98415/64	177147/80	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 Reduction absolute			81/4	1215/16	19683/125	18225/64	5000211/10985		273375/256	601692057/371293	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 Reduction absolute			1539/65	185193/2197		2777895/8788	124659/260		41668425/35152	15000633/8788	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 Reduction absolute			729/25	4617/52		69255/208	2368521/4225		1038825/832	373977/208	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
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	2.0
6 Intermittently permissible 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	3.0
7 Max. efficiency	%	84	70	59	59	49	49	49	42	42	42	42
8 Weight	g	42	55	68	68	81	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	2.0
10 Mass inertia	gcm²	0.5	0.4	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	52.6

*for EC-max 16 L1 is–2.8 mm



maxon Modular System

+ Motor	Page	+ Sensor/Brake	Page	Overall length [mm] = Motor length + gearhead length + (sensor/brake) + assembly parts										
EC 16, 60 W	180			81.5	88.3	95.1	95.1	101.9	101.9	101.9	108.7	108.7	108.7	108.7
EC 16, 60 W	180	MR	318	92.2	99.0	105.8	105.8	112.6	112.6	112.6	119.4	119.4	119.4	119.4
EC 22, 40 W	185			70.0	76.8	83.6	83.6	90.4	90.4	90.4	97.2	97.2	97.2	97.2
EC 22, 40 W	185	MR	318	76.0	82.8	89.6	89.6	96.4	96.4	96.4	103.2	103.2	103.2	103.2
EC 22, 100 W	187			88.2	95.0	101.8	101.8	108.6	108.6	108.6	115.4	115.4	115.4	115.4
EC 22, 100 W	187	MR	318	94.2	101.0	107.8	107.8	114.6	114.6	114.6	121.4	121.4	121.4	121.4
EC-max 16, 8 W	201			58.7	65.5	72.3	72.3	79.1	79.1	79.1	85.9	85.9	85.9	85.9
EC-max 16, 8 W	201	MR	318	66.0	72.8	79.6	79.6	86.4	86.4	86.4	93.2	93.2	93.2	93.2
EC-max 22, 12 W	202			57.5	64.3	71.1	71.1	77.9	77.9	77.9	84.7	84.7	84.7	84.7
EC-max 22, 12 W	202	MR	318	67.2	74.0	80.8	80.8	87.6	87.6	87.6	94.4	94.4	94.4	94.4
EC-max 22, 12 W	202	AB 20	370	93.1	99.9	106.7	106.7	113.5	113.5	113.5	120.3	120.3	120.3	120.3
EC 20 flat, 3 W, A	221			33.1	39.9	46.7	46.7	53.5	53.5	53.5	60.3	60.3	60.3	60.3
EC 20 flat, 3 W, B	221			32.5	39.3	46.1	46.1	52.9	52.9	52.9	59.7	59.7	59.7	59.7
EC 20 flat, 5 W	222			36.7	43.5	50.3	50.3	57.1	57.1	57.1	63.9	63.9	63.9	63.9
EC 20 flat, IE, IP 00	223			39.7	46.5	53.3	53.3	60.1	60.1	60.1	66.9	66.9	66.9	66.9
EC 20 flat, IE, IP 40	223			40.8	47.6	54.4	54.4	61.2	61.2	61.2	68.0	68.0	68.0	68.0
EC 20 flat, IE, IP 00	224			43.7	50.5	57.3	57.3	64.1	64.1	64.1	70.9	70.9	70.9	70.9
EC 20 flat, IE, IP 40	224			44.8	51.6	58.4	58.4	65.2	65.2	65.2	72.0	72.0	72.0	72.0
EC 32 flat, 6 W	225			39.8	46.6	53.4	53.4	60.2	60.2	60.2	67.0	67.0	67.0	67.0