

COSMOS

SVTG

Planetary gearboxes

GEARBOXES

GEARBOXES

COSMOS SVTG

Planetary gearboxes



Cost effective



Robust



Compact



The planetary gearboxes are characterized by a robust design and are employed for uses where high-performance and reduce dimensions are required.

The gear trains can be made of steel or plastic polymers, also in blended configurations when needed.

The gearboxes are lubricated according to the needs with reference to temperature and functionality. They are available with sleeve, ball or customized bearings.

Available also in personalized options designed upon request.

Features

Gear materials	Metal / Polymer
Diameter	from 10mm to 42mm
Torque	from 0.2Nm to 45Nm
Operating temperature	-20° +100°C (special lubrication might be needed)
Estimated operating lifetime	Lifetime depends on gearbox working conditions. Operating life span can vary between 1.000 to 3.000 work hours.

Product code

SVTG    -  -     -   

Bearings
Sleeve [A]; Ball [B]



Ratio



Diameter



Type of motor
Brushless [A]; Brushed [B]; Flat [F]



Number of gear stages



Motor diameter

Benefits

Robust

Compact

Cost-effective

Low Noise

Customizations

Flange

Shaft

Input-stage geartrain

Shape

Length/Diameter/D-Cut/...

Polymer (for quiet operation)

Table explanation

1 Housing material

2 Geartrain material

Geartrain could be in metal and polymer to increase torque performance and reduce noise.

3 Max input speed (continuous operation)

It is based on service life considerations. If this value is greatly exceeded, the service life can be shortened, the gear heats up more and more noise is generated.

4 Bearing on output shaft

It is possible to choose a ball bearing or sleeve bearing depending on the application, as standard from size 22 is available only for ball bearings.

5 Max radial load (dynamics)

The value is given for a typical distance from the front flange. As the distance increases, this value decreases.

6 Max. axial load

Dynamic: axial loading permissible in operation. If different values apply for traction and thrust, the smaller value is given.

7 Max shaft press fit force

Maximum axial force applying to the shaft at standstill if the force is not input at the other shaft end. This is not possible for motors with only one shaft end.

8 Radial play

The radial measurement is always carried out under a test force that is smaller than the maximum radial load.

9 Axial play

The value for the axial play of a gear is determined between the two axial end positions of the output shaft.

10 Temperature range

The temperature range is -20°C and +125°C, but may be extended for some gears. Special lubrication can be supplied on request, even for other temperature ranges.

11 Number of stages

It states the number of gear stages engaged in series.

12 Reduction ratio

The reduction indicates the ratio by which the speed of the gear output shaft is smaller than the motor speed.

13 Gear length L [mm]

L describes the gearbox length (adapter flange included).

14 Continuous torque [Nm]

The continuous torque provides the maximum load permanently delivered to the output shaft. It can be exceeded, but it affects the service life.

15 Intermittent torque [Nm]

The short-time torque is the maximum torque that may be output on the output shaft.

16 Efficiency [%]

The specified efficiency is a maximum value that is valid for maximum continuous torque. The efficiency is stage-dependent and is related to the output torque and operating temperature.

17 No load backlash [°]

Gear backlash is the turning angle of the gear output shaft when the input shaft is blocked.

18 Weight [g]

Table explanation

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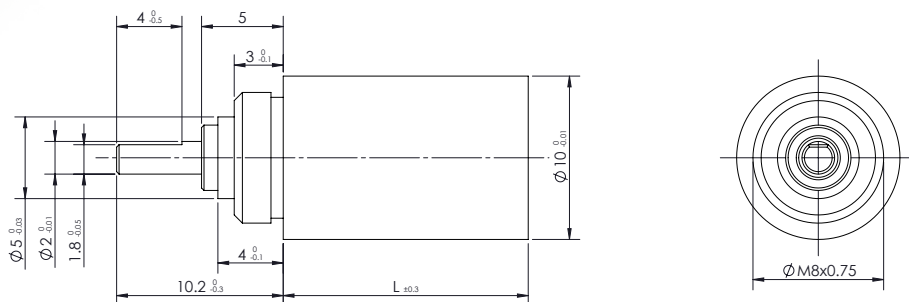
18 Weight [g]

Notes

[illegible]



COSMOS Series SVTG A 10



v3.1

A 10							
Values		Unit					
1	Housing material		Metal				
2	Geartrain material		Metal/Polymer				
3	Max input speed (continuous operation)	rpm	≤ 20.000				
4	Bearings on output shaft		Sleeve bearings				
	Max shaft load						
5	Radial (5mm from mounting face)	N	≤ 10				
6	Axial	N	≤ 8				
7	Max shaft press fit force	N	≤ 10				
	Shaft play						
8	Radial	mm	≤ 0.1				
9	Axial	mm	≤ 0.2				
10	Operating temperature range	°C	-20 +125				
11	Number of gear stages		1	2	3	4	5
12	Reduction ratio		4:1	16:1	64:1	256:1	1024:1
13	Gearhead Lenght L	mm	11	13.8	16.6	19.4	22.2
14	Continuous torque	Nm	0.01	0.025	0.1	0.15	0.15
15	Intermittent torque	Nm	0.02	0.05	0.15	0.2	0.2
16	Max Efficiency	%	90	81	73	65	59
17	No-Load Backlash	°	1	1.2	1.2	1.5	1.5
18	Weight	g	5	6.3	7.5	8.8	10

Motor combinations

SVTN A - Brushless

SVTN A 01-1220*

SVTN A 01-1230*

SVTN A 03-1228*

SVTN B - Brushed

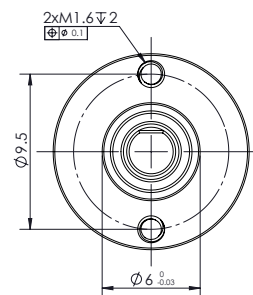
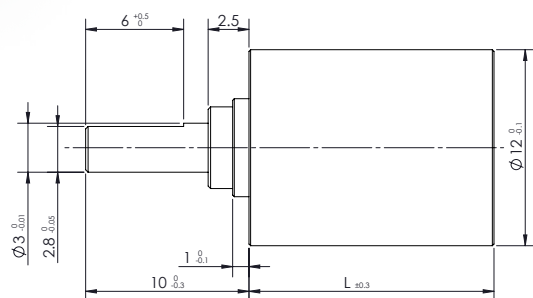
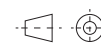
SVTN B 01-1219*

SVTN B 01-1331*

*On request



COSMOS Series SVTG A 12



v3.1

A 12							
Values		Unit					
1	Housing material	Metal					
2	Geartrain material	Metal/Polymer					
3	Max input speed (continuous operation)	rpm	≤ 20.000				
4	Bearings on output shaft	Sleeve bearings/Ball bearings**					
Max shaft load							
5	Radial (5mm from mounting face)	N	≤ 10				
6	Axial	N	≤ 8				
7	Max shaft press fit force	N	≤ 10				
Shaft play							
8	Radial	mm	≤ 0.1				
9	Axial	mm	≤ 0.2				
10	Operating temperature range	°C	-20 +125				
11	Number of gear stages		1	2	3	4	5
12	Reduction ratio		3.9:1	14:1	42:1	146:1	650:1
			4.6:1	16:1	54:1	187:1	946:1
				18:1	61:1	282:1	1345:1
				21:1	72:1	342:1	1661:1
					84:1	387:1	2094:1
					98:1	454:1	2586:1
						560:1	3194:1
13	Gearhead Lenght L	mm	13,3	16,1	18,9	21,7	24,5
14	Continuous torque	Nm	0,2	0,2	0,3	0,3	0,35
15	Intermittent torque	Nm	0,3	0,3	0,45	0,45	0,5
16	Max Efficiency	%	90	81	73	65	59
17	No-Load Backlash	°	1	1.2	1.2	1.5	1.5
18	Weight	g	7	10	13	16,5	20

Motor combinations

SVTN A - Brushless

SVTN A 01-1220*

SVTN A 01-1230*

SVTN A 03-1228*

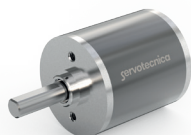
SVTN B - Brushed

SVTN B 01-1219*

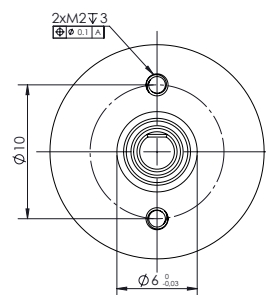
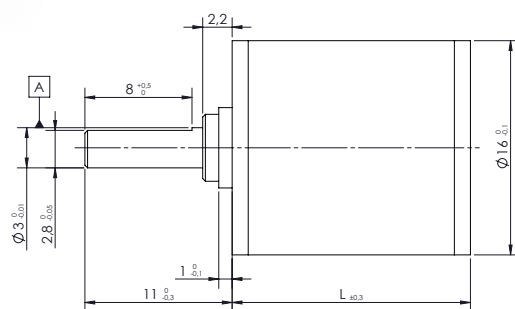
SVTN B 01-1331*

*On request

**Optional



COSMOS Series SVTG A 16



v3.1

A 16							
Values		Unit					
1	Housing material		Metal				
2	Geartrain material		Metal/Polymer				
3	Max input speed (continuous operation)	rpm	≤ 20.000				
4	Bearings on output shaft		Sleeve bearings/Ball bearings *				
Max shaft load							
5	Radial (5mm from mounting face)	N	≤ 10				
6	Axial	N	≤ 8				
7	Max shaft press fit force	N	≤ 10				
Shaft play							
8	Radial	mm	≤ 0.1				
9	Axial	mm	≤ 0.2				
10	Operating temperature range	°C	-20 +125				
11	Number of gear stages		1	2	3	4	5
12	Reduction ratio		3.8:1	14:1	54:1	206:1	1012:1
			4.3:1	16:1	70:1	267:1	1152:1
			5.1:1	18:1	80:1	304:1	1311:1
				22:1	94:1	407:1	1492:1
					111:1	479:1	1596:1
					131:1	664:1	2067:1
							2434:1
13	Gearhead Lenght L	mm	17.8	21.4	25	28.6	32.2
14	Continuous torque	Nm	0.2	0.2	0.3	0.3	0,35
15	Intermittent torque	Nm	0.3	0.3	0.45	0.45	0.5
16	Max Efficiency	%	90	81	73	65	59
17	No-Load Backlash	°	1	1.5	1.5	2	2
18	Weight	g	15	20	25	30	35

Motor combinations

SVTN A - Brushless

SVTN A 01-1630

SVTN A 01-1636

SVTN A 03-1638

SVTN B - Brushed

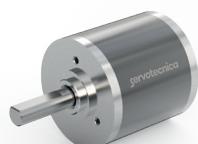
SVTN B 01-1524

SVTN B 01-1640

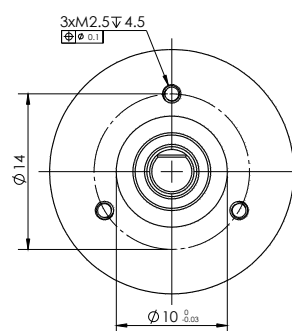
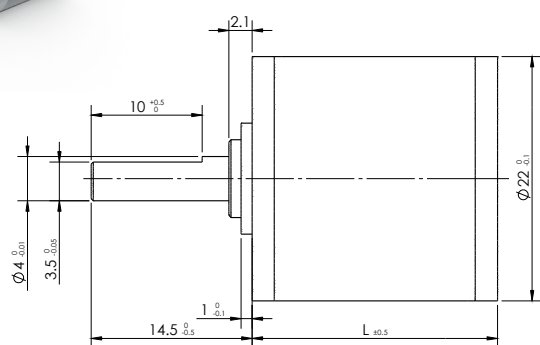
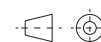
SVTN B 01-1725

SVTN B 01-1740

*Optional



COSMOS Series SVTG B 22



v3.1

B 22													
Values			Unit										
1	Housing material		Metal										
2	Geartrain material		Metal/Polymer										
3	Max input speed (continuous operation)		rpm	≤ 10.000									
4	Bearings on output shaft		Ball bearings										
Max shaft load													
5	Radial (5mm from mounting face)		N	≤ 50									
6	Axial		N	≤ 50									
7	Max shaft press fit force		N	≤ 100									
Shaft play													
8	Radial		mm	≤ 0.1									
9	Axial		mm	≤ 0.2									
10	Operating temperature range		°C	-20 +125									
11	Number of gear stages		1		2		3		4		5		
12	Reduction ratio		3.6:1	5.5:1	13:1	22:1	46:1	101:1	182:1	405:1	729:1	1936:1	
			4.0:1		14:1		51:1	121:1	204:1	466:1	816:1	2286:1	
					16:1		59:1		263:1	557:1	1024:1	2662:1	
					18:1		64:1		302:1		1209:1		
							74:1		339:1		1557:1		
							85:1						
13	Gearhead Lenght L		mm	22.1	28.5	27.6	32.6	31.4	36.4	35.2	40.2	39	44
14	Continuous torque		Nm	0.3	0.3		0.5		0.5		0.75		
15	Intermittent torque		Nm	0.5	0.5		0.8		0.8		1		
16	Max Efficiency		%	90	81		73		65		59		
17	No-Load Backlash		°	1	1.5		1.5		2		2		
18	Weight		g	30	35		46		55		65		

Motor combinations

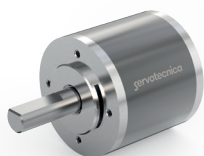
SVTN A - Brushless

SVTN A 01-2040
SVTN A 01-2232
SVTN A 01-2240
SVTN A 01-2248
SVTN A 01-2260
SVTN A 03-2238
SVTN A 03-2246

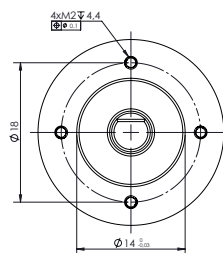
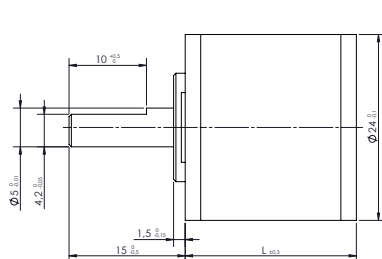
SVTN B - Brushed

SVTN B 01-2225
SVTN B 01-2230

*Optional



COSMOS Series SVTG B 24



v3.1

B 24											
Values		Unit									
1	Housing material	Metal									
2	Geartrain material	Metal/Polymer									
3	Max input speed (continuous operation)	rpm	≤ 10.000								
4	Bearings on output shaft	Ball bearings									
	Max shaft load										
5	Radial (5mm from mounting face)	N	≤ 50								
6	Axial	N	≤ 50								
7	Max shaft press fit force	N	≤ 100								
	Shaft play										
8	Radial	mm	≤ 0.1								
9	Axial	mm	≤ 0.2								
10	Operating temperature range	°C	-20 +125								
11	Number of gear stages	1	2		3		4		5		
12	Reduction ratio	3.3:1	12:1	17:1	36:1	56:1	119:1	408:1	660:1	1036:1	
		4.3:1	14:1	22:1	47:1	95:1	154:1	493:1	741:1	1346:1	
					61:1		200:1		857:1	1628:1	
					79:1		260:1			1748:1	
							337:1			2114:1	
13	Gearhead Lenght L	mm	22.1	26.2	30.8	32	36.6	36.1	40.7	40.2	44.8
14	Continuous torque	Nm	0.5	0.8	1.5		1.8		2.5		
15	Intermittent torque	Nm	1	1.5	2		2.5		3.5		
16	Max Efficiency	%	90	81	73		65		59		
17	No-Load Backlash	°	1	1.5	1.5		2		2		
18	Weight	g	35	41	52		59		68		

Motor combinations

SVTN A - Brushless

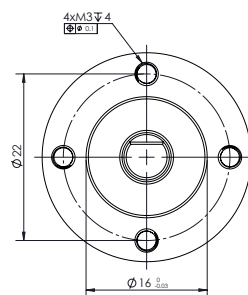
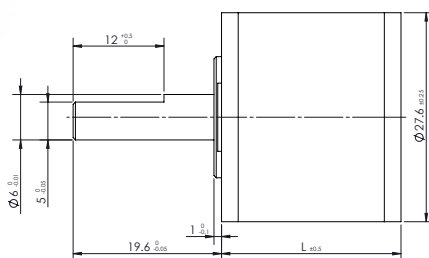
SVTN A 01-2232
SVTN A 01-2240
SVTN A 01-2248
SVTN A 01-2260
SVTN A 01-2446
SVTN A 01-2453
SVTN A 03-2238
SVTN A 03-2246
SVTN A 03-2452
SVTN A 03-2459

SVTN B - Brushed

SVTN B 01-2225
SVTN B 01-2230



COSMOS Series SVTG B 28



v3.1

B 28											
Values		Unit									
1	Housing material		Metal								
2	Geartrain material		Metal/Polymer								
3	Max input speed (continuous operation)	rpm	≤ 10.000								
4	Bearings on output shaft		Ball bearings								
	Max shaft load										
5	Radial (5mm from mounting face)	N	≤ 50								
6	Axial	N	≤ 50								
7	Max shaft press fit force	N	≤ 100								
	Shaft play										
8	Radial	mm	≤ 0.1								
9	Axial	mm	≤ 0.2								
10	Operating temperature range	°C	-20 +125								
11	Number of gear stages		1	2	3	4	5				
12a	Reduction ratio ("A" combination)		3.6:1	5.5:1	16:1	46:1	101:1	182:1	405:1	729:1	1936:1
			4.0:1		18:1	51:1	121:1	204:1	466:1	816:1	2286:1
					21:1	59:1		263:1	557:1	1024:1	2662:1
						64:1		302:1		1209:1	
						74:1		339:1		1557:1	
						85:1					
13a	Gearhead Lenght L ("A" combination)	mm	28.7	34.2	33.2	37.7	44.2	42.2	48.7	46.7	53.2
12b	Reduction ratio ("B" combination)		3.6:1		16:1	46:1		182:1		729:1	
			4.0:1		18:1	51:1		204:1		816:1	
			5.5:1		21:1	59:1		263:1		1024:1	
						64:1		302:1		1209:1	
						74:1		339:1		1557:1	
						85:1		405:1		1936:1	
						101:1		466:1		2286:1	
						121:1		557:1		2662:1	
13b	Gearhead Lenght L ("B" combination)	mm	23.7		29.2	33.7		38.2		42.7	
12c	Reduction ratio ("C" combination)		3.6:1	4.0:1	16:1	46:1		182:1		729:1	
				5.5:1	18:1	51:1		204:1		816:1	
					21:1	59:1		263:1		1024:1	
						64:1		302:1		1209:1	
						74:1		339:1		1557:1	
						85:1		405:1		1936:1	
						101:1		466:1		2286:1	
						121:1		557:1		2662:1	
13c	Gearhead Lenght L ("C" combination)	mm	28.7	34.2	38.7	43.2		47.7		52.2	
14	Continuous torque	Nm	0.5		1	3		3		3	
15	Intermittent torque	Nm	0.8		2	4		4		4	
16	Max Efficiency	%	90		81	73		65		59	
17	No-Load Backlash	°	1		1.2	1.2		1.5		1.5	
18	Weight	g	50		65	85		95		110	

Motor combinations "A"

SVTN A - Brushless	SVTN B - Brushed
SVTN A 01-2845	SVTN B 01-2864
SVTN A 01-2854	
SVTN A 01-2864	
SVTN A 03-2854	
SVTN A 03-2863	

Motor combinations "B"

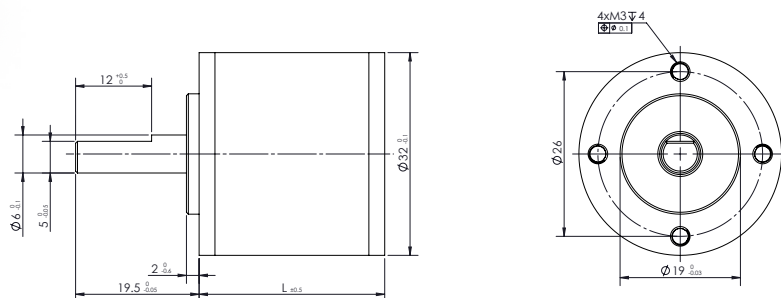
SVTN A - Brushless	SVTN B - Brushed
SVTN A 01-2446	SVTN B 01-2642
SVTN A 01-2453	
SVTN A 03-2452	
SVTN A 03-2459	

Motor combinations "C"

SVTN A - Brushless
SVTN A 01-3242
SVTN A 01-3260
SVTN A 01-3270
SVTN A 03-3270



COSMOS Series SVTG B 32



v3.1

B 32													
Values		Unit											
1	Housing material	Metal											
2	Geartrain material	Metal/Polymer											
3	Max input speed (continuous operation) rpm	≤ 10.000											
4	Bearings on output shaft	Ball bearings											
	Max shaft load												
5	Radial (5mm from mounting face)	N	≤ 100										
6	Axial	N	≤ 80										
7	Max shaft press fit force	N	≤ 120										
	Shaft play												
8	Radial	mm	≤ 0.1										
9	Axial	mm	≤ 0.2										
10	Operating temperature range	°C	-20 +125										
11	Number of gear stages	1		2		3		4			5		
12a	Reduction ratio ("A" combination)	3.1:1	4.8:1	10:1	15:1	30:1	46:1	159:1	223:1	412:1	694:1	2548:1	
		4.0:1			19:1	51:1	62:1	178:1	266:1		765:1	3174:1	
					23:1		72:1		298:1		856:1		
							80:1		344:1		989:1		
							92:1				1429:1		
							111:1				1836:1		
13a	Gearhead Lenght L ("A" combination)	mm	29.3	38.8	38.1	42.6	44.4	48.9	50.7	55.2	57.2	61.5	63.5
12b	Reduction ratio ("B" combination)	3.1:1	5.7:1	10:1	23:1	30:1		159:1		412:1		694:1	3174:1
		4.0:1		15:1		46:1		178:1				765:1	
		4.8:1		19:1		51:1		223:1				856:1	
						62:1		266:1				989:1	
						72:1		298:1				1429:1	
						80:1		344:1				1846:1	
						92:1						2548:1	
						111:1							
13b	Gearhead Lenght L ("B" combination)	29.3	38.8	38.1	44.6	44.4		50.7		57.2		57	63.5
14	Continuous torque	Nm	1	1.5		2.5		3				5	
15	Intermittent torque	Nm	2	3		5		6				7.5	
16	Max Efficiency	%	90	81		73		65				59	
17	No-Load Backlash	°	1	1.5		1.5		2				2	
18	Weight	g	125	147		169		191				213	

Motor combinations "A"

SVTN A - Brushless

SVTN A 01-3242
SVTN A 01-3260
SVTN A 01-3270
SVTN A 03-3270

Motor combinations "B"

SVTN A - Brushless

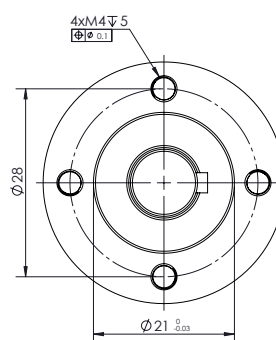
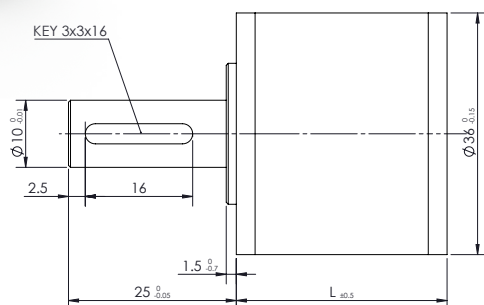
SVTN A 01-2845
SVTN A 01-2854
SVTN A 01-2864
SVTN A 03-2854
SVTN A 03-2863

SVTN B - Brushed

SVTN B 01-2864



COSMOS Series SVTG B 36



v3.1

B 36											
Values			Unit								
1	Housing material			Metal							
2	Geartrain material			Metal/Polymer							
3	Max input speed (continuous operation)	rpm		≤ 10.000							
4	Bearings on output shaft			Ball bearings							
	Max shaft load										
5	Radial (5mm from mounting face)	N		≤ 100							
6	Axial	N		≤ 80							
7	Max shaft press fit force	N		≤ 120							
	Shaft play										
8	Radial	mm		≤ 0.1							
9	Axial	mm		≤ 0.2							
10	Operating temperature range	°C		-20 +125							
11	Number of gear stages			1	2	3	4	5			
12	Reduction ratio			3.7:1	6.5:1	14:1	30:1	53:1	142:1	198:1	661:1
				4.7:1		17:1		66:1	169:1	246:1	920:1
						22:1		82:1	197:1	306:1	920:1
								102:1	241:1	381:1	920:1
									275:1	474:1	920:1
13a	Gearhead Length L ("A" combination)	mm	31.4	39.4	42.7	50.7	50	58	57.3	65.3	64.6
13b	Gearhead Length L ("B" combination)	mm	41.4	40.4	23.7	51.7	51	59	58.3	66.3	65.6
14	Continuous torque	Nm	4		8		16		16		20
15	Intermittent torque	Nm	5		12		25		25		30
16	Max Efficiency	%	90		81		73		65		59
17	No-Load Backlash	°	0.8		1		1		1.2		1.2
18	Weight	g	210		245		280		315		350

Motor combinations "A"

SVTN A - Brushless

SVTN A 01-3242
SVTN A 01-3260
SVTN A 01-3270
SVTN A 01-3660
SVTN A 01-3670
SVTN A 03-3270
SVTN A 03-3673
SVTN A 03-3683

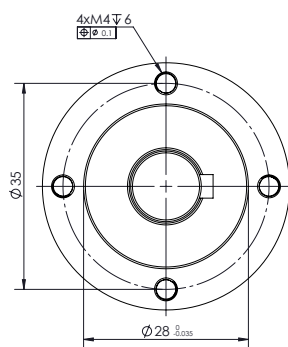
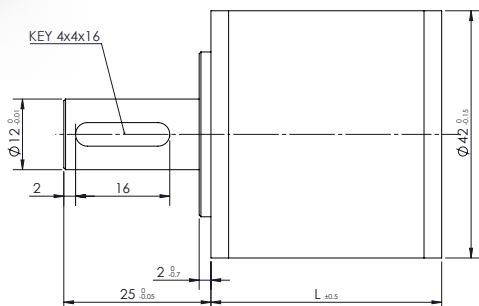
Motor combinations "B"

SVTN B - Brushed

SVTN B 01-3571



COSMOS Series SVTG B 42



v3.1

B 42											
Values		Unit									
1	Housing material	Metal									
2	Geartrain material	Metal/Polymer									
3	Max input speed (continuous operation)	rpm	≤ 10.000								
4	Bearings on output shaft	Ball bearings									
Max shaft load											
5	Radial (5mm from mounting face)	N	≤ 200								
6	Axial	N	≤ 100								
7	Max shaft press fit force	N	≤ 120								
Shaft play											
8	Radial	mm	≤ 0.1								
9	Axial	mm	≤ 0.2								
10	Operating temperature range	°C	-20 +125								
11	Number of gear stages	1		2		3		4		5	
12a	Reduction ratio (“A” combination)	3.1:1	5.7:1	10:1	43:1	115:1	168:1	574:1	807:1	1834:1	
		4.2:1		12:1	54:1	159:1	225:1	661:1	1080:1	2300:1	
				15:1	72:1		301:1	762:1	1434:1	3301:1	
				20:1	83:1		400:1			4060:1	
					96:1		461:1			5247:1	
12b	Gearhead Lenght L (“A” combination)	mm	39.2	41.7	51.2	60.2	62.7	75.2	77.7	84.2	86.7
13a	Reduction ratio (“B” combination)	3.1:1	5.7:1	10:1	43:1	115:1	168:1	574:1	806.5:1	1834:1	
		4.2:1		12:1	54:1	159:1	225:1	661:1	1080:1	2300:1	
				15:1	72:1		301:1	762:1	1434:1	3301:1	
				20:1	83:1		400:1			4060:1	
					96:1		461:1			5247:1	
13b	Gearhead Lenght L (“B” combination)	mm	34.2	39.2	46.2	55.2	60.2	70.2	75.2	79.2	84.2
18	Continuous torque	Nm	3		12	16		25		25	
19	Intermittent torque	Nm	5		20	25		36		36	
20	Max Efficiency	%	90		81	73		65		59	
21	No-Load Backlash	°	0.8		1	1		1.2		1.2	
22	Weight	g	250		345	405		490		580	

Motor combinations "A"

SVTN A - Brushless

SVTN A 01-4058
SVTN A 01-4070
SVTN A 01-4088

SVTN B - Brushed

SVTN B 01-4050
SVTN B 01-4070

Motor combinations "B"

SVTN A - Brushless

SVTN A 01-3660
SVTN A 01-3670
SVTN A 03-3673
SVTN A 03-3683

SVTN B - Brushed

SVTN B 01 3571