

SC+ / SPC+ / TPC+ – High performance at low ratios



SPC+

If the application requires above-average performance at lower ratios: The innovative design of the alpha Advanced Line bevel gearbox SC+ / SPC+ / TPC+ is not only space-saving, elegant and energy-efficient, it also delivers an impressive performance and guarantees smooth operation.

SC+ / SPC+ / TPC+ compared to the industry standard

Product highlights

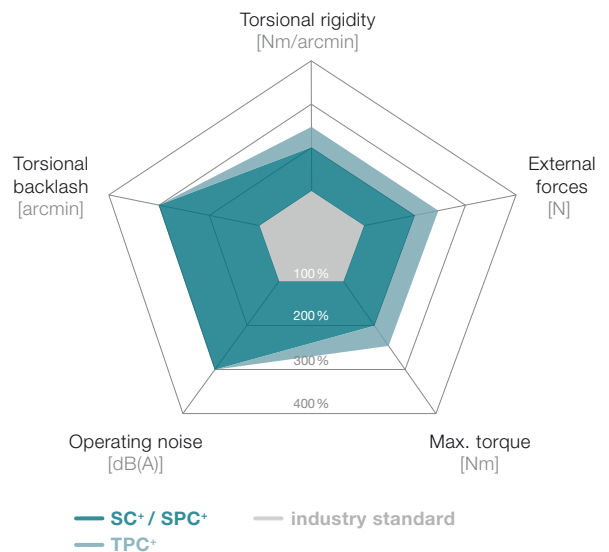
Max. torsional backlash
 SC+ ≤ 4 arcmin (Standard)
 SPC+ / TPC+ ≤ 4 arcmin (Standard)
 ≤ 2 arcmin (Reduced)

High power density and dynamics

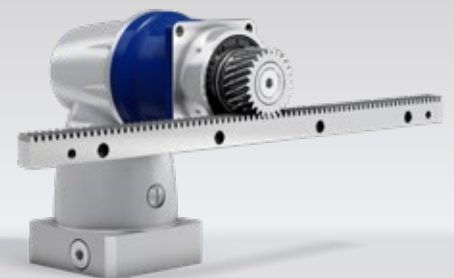
High output speeds
 due to gear ratios
 1:1 and 2:1 (single-stage)

Multiple output configurations for greater flexibility
 Smooth shaft, shaft with key, splined shaft (DIN 5480), blind hollow shaft, Flange, System output

Efficiency of 97%



TPC+ with pinions



SPC+ with rack and pinion

Intelligent design which reduces friction losses to a minimum

Output compatible with TP+ series

High toothing quality ensures:

- Improved load bearing capacity and therefore higher torque
- Precision thanks to minimum torsional backlash
- Extremely smooth operation and stable running characteristics

Low temperature development, also at high speeds

Ideal for open system concepts: no external screws and functional beading integrated in the housing

Metal bellows coupling at the input: length compensation to protect the motor bearing

TPC+



SPC+ with metal bellows coupling

SC+ 060 MF 1-stage

				1-stage		
Ratio	<i>i</i>			1	2	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		12	12	
		<i>in.lb</i>		106	106	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		10	10	
		<i>in.lb</i>		89	89	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		7	7	
		<i>in.lb</i>		62	62	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		25	25	
		<i>in.lb</i>		221	221	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		5000	5500	
Max. input speed	n_{1Max}	<i>rpm</i>		6000	6000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		0.7	0.5	
		<i>in.lb</i>		6.2	4.4	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 5		
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		0.4	0.6	
		<i>in.lb/arcmin</i>		4	5	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		500		
		<i>lb_f</i>		113		
Max. lateral force ^{c)}	F_{2OMax}	<i>N</i>		950		
		<i>lb_f</i>		214		
Max. tilting moment	M_{2KMax}	<i>Nm</i>		71		
		<i>in.lb</i>		628		
Efficiency at full load	η	<i>%</i>		97		
Service life ^{f)}	L_h	<i>h</i>		> 20000		
Weight (incl. standard adapter plate)	m	<i>kg</i>		1.9		
		<i>lb_m</i>		4		
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 66		
Max. permitted housing temperature		<i>°C</i>		+90		
		<i>F</i>		194		
Ambient temperature		<i>°C</i>		0 to +40		
		<i>F</i>		32 to 104		
Lubrication				Lubricated for life		
Direction of rotation				In- and output same direction		
Protection class				IP 65		
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00015AA - 012.000 - X		
Bore diameter of coupling on the application side		<i>mm</i>		X = 008.000 - 028.000		
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	<i>kgcm²</i>	0.66	0.42
				<i>10⁻³ in.lb.s²</i>	0.58	0.37
	E	19	J_1	<i>kgcm²</i>	0.99	0.75
				<i>10⁻³ in.lb.s²</i>	0.88	0.66

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

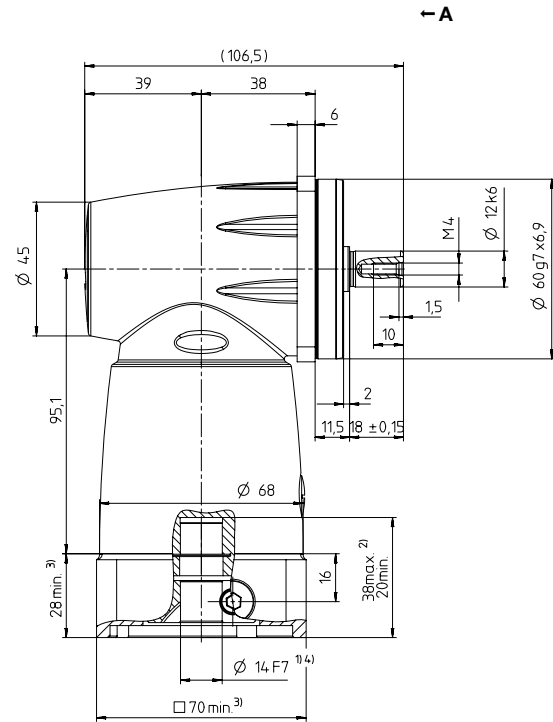
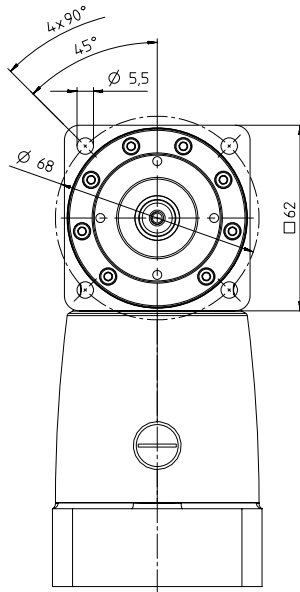
- ^{a)} At max. 10 % F_{2OMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

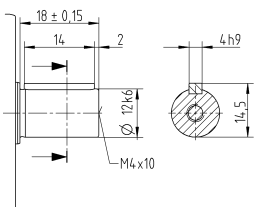
1-stage

up to 14 / 19⁴⁾
(C⁵⁾/E) clamping
hub diameter



Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions
1) Check motor shaft fit

2) Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

5) Standard clamping hub diameter

SC+ 075 MF 1-stage

				1-stage		
Ratio	<i>i</i>			1	2	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		36	36	
		<i>in.lb</i>		319	319	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		30	30	
		<i>in.lb</i>		266	266	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		20	20	
		<i>in.lb</i>		177	177	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		48	62	
		<i>in.lb</i>		425	549	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2600	4000	
Max. input speed	n_{1Max}	<i>rpm</i>		6000	6000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		1.5	0.8	
		<i>in.lb</i>		13	7.1	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4		
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		1	1.5	
		<i>in.lb/arcmin</i>		9	13	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		700		
		<i>lb_f</i>		158		
Max. lateral force ^{c)}	F_{2OMax}	<i>N</i>		1300		
		<i>lb_f</i>		293		
Max. tilting moment	M_{2KMax}	<i>Nm</i>		131		
		<i>in.lb</i>		1159		
Efficiency at full load	η	<i>%</i>		97		
Service life ^{f)}	L_h	<i>h</i>		> 20000		
Weight (incl. standard adapter plate)	m	<i>kg</i>		3.6		
		<i>lb_m</i>		8		
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68		
Max. permitted housing temperature		<i>°C</i>		+90		
		<i>F</i>		194		
Ambient temperature		<i>°C</i>		0 to +40		
		<i>F</i>		32 to 104		
Lubrication				Lubricated for life		
Direction of rotation				In- and output same direction		
Protection class				IP 65		
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00030AA - 016.000 - X		
Bore diameter of coupling on the application side		<i>mm</i>		X = 010.000 - 030.000		
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	<i>kgcm²</i>	1.99	1.19
				<i>10⁻³ in.lb.s²</i>	1.76	1.05
	H	28	J_1	<i>kgcm²</i>	3.43	2.63
				<i>10⁻³ in.lb.s²</i>	3.04	2.33

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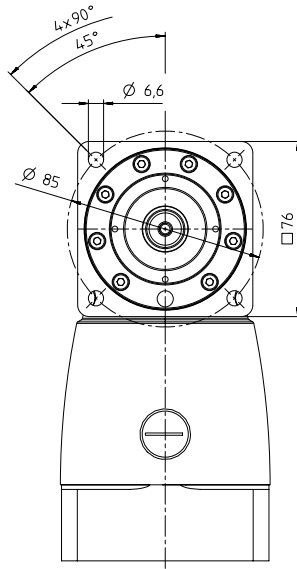
- ^{a)} At max. 10 % F_{2OMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

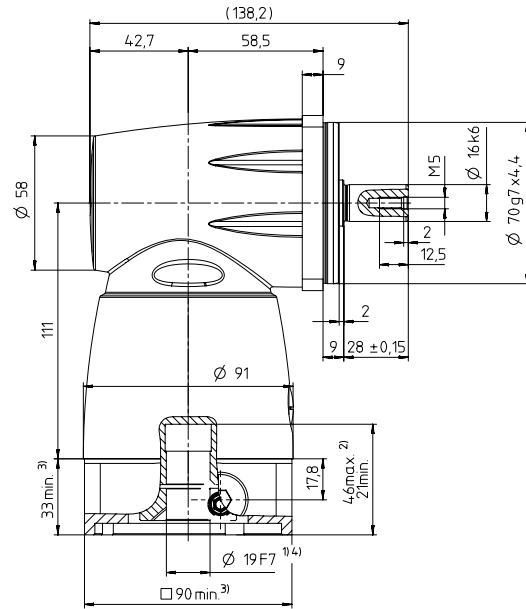
Motor shaft diameter [mm]

1-stage

up to 19/28⁴⁾
(E⁵⁾/H) clamping
hub diameter

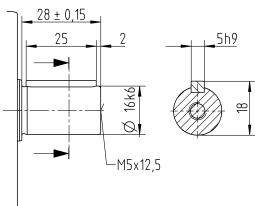


← A



Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions
1) Check motor shaft fit

2) Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

5) Standard clamping hub diameter

SC+ 100 MF 1-stage

				1-stage		
Ratio	<i>i</i>			1	2	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		97	97	
		<i>in.lb</i>		859	859	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		81	81	
		<i>in.lb</i>		717	717	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		50	50	
		<i>in.lb</i>		443	443	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		135	160	
		<i>in.lb</i>		1195	1416	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2500	2800	
Max. input speed	n_{1Max}	<i>rpm</i>		4500	4500	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		3.4	2.2	
		<i>in.lb</i>		30	19	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4		
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		2.9	4.6	
		<i>in.lb/arcmin</i>		26	41	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		1900		
		<i>lb_f</i>		428		
Max. lateral force ^{c)}	F_{2OMax}	<i>N</i>		3800		
		<i>lb_f</i>		855		
Max. tilting moment	M_{2KMax}	<i>Nm</i>		439		
		<i>in.lb</i>		3886		
Efficiency at full load	η	<i>%</i>		97		
Service life ^{f)}	L_h	<i>h</i>		> 20000		
Weight (incl. standard adapter plate)	m	<i>kg</i>		7		
		<i>lb_m</i>		15		
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68		
Max. permitted housing temperature		<i>°C</i>		+90		
		<i>F</i>		194		
Ambient temperature		<i>°C</i>		0 to +40		
		<i>F</i>		32 to 104		
Lubrication				Lubricated for life		
Direction of rotation				In- and output same direction		
Protection class				IP 65		
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00080AA - 022.000 - X		
Bore diameter of coupling on the application side		<i>mm</i>		X = 014.000 - 042.000		
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	H	28	J_1	<i>kgcm²</i>	7.1	4.8
				<i>10⁻³ in.lb.s²</i>	6.28	4.25
	K	38	J_1	<i>kgcm²</i>	14.2	11.9
				<i>10⁻³ in.lb.s²</i>	12.57	10.53

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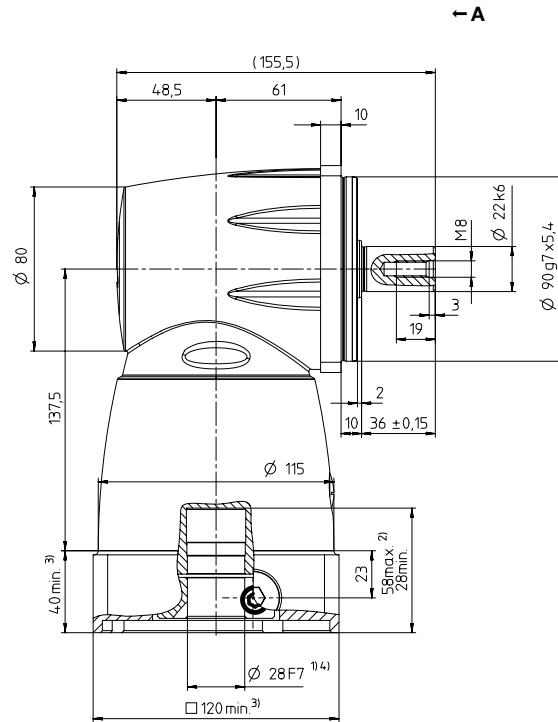
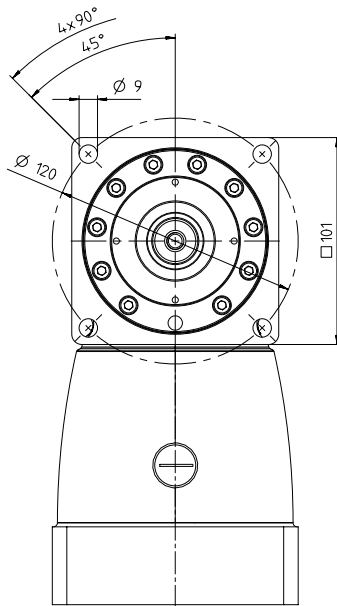
- ^{a)} At max. 10 % F_{2OMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

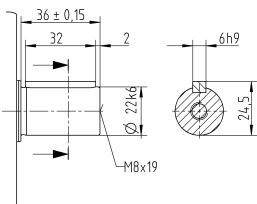
1-stage

up to 28/38⁴⁾
(H⁵⁾/K) clamping
hub diameter



Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

- Non-tolerated dimensions are nominal dimensions
- ¹⁾ Check motor shaft fit
- ²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.
- ³⁾ The dimensions depend on the motor
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
- ⁵⁾ Standard clamping hub diameter

SC+ 140 MF 1-stage

			1-stage			
Ratio	<i>i</i>		1	2		
Max. torque ^{a) b) e)}	T_{2a}	Nm	210	210		
		in.lb	1859	1859		
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	Nm	175	175		
		in.lb	1549	1549		
Nominal torque (at n_n)	T_{2N}	Nm	110	110		
		in.lb	974	974		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	240	310		
		in.lb	2124	2744		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}	1600	2100		
Max. input speed	n_{1Max}	rpm	4500	4500		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	6.2	3.9		
		in.lb	55	35		
Max. backlash	j_t	arcmin	Standard ≤ 4			
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	6.4	9.1		
		in.lb/arcmin	57	81		
Max. axial force ^{c)}	F_{2AMax}	N	3000			
		lb _f	675			
Max. lateral force ^{c)}	F_{2QMMax}	N	6000			
		lb _f	1350			
Max. tilting moment	M_{2KMMax}	Nm	957			
		in.lb	8470			
Efficiency at full load	η	%	97			
Service life ¹⁾	L_h	h	> 20000			
Weight (incl. standard adapter plate)	m	kg	14.7			
		lb _m	32			
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 70			
Max. permitted housing temperature		°C	+90			
		F	194			
Ambient temperature		°C	0 to +40			
		F	32 to 104			
Lubrication			Lubricated for life			
Direction of rotation			In- and output same direction			
Protection class			IP 65			
Metal bellows coupling (recommended product type – validate sizing with cymex [®])			BC2 - 00200AA - 032.000 - X			
Bore diameter of coupling on the application side		mm	X = 022.000 - 045.000			
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	J_1	kgcm ²	41.3	21.3
				10 ⁻³ in.lb.s ²	36.55	18.85

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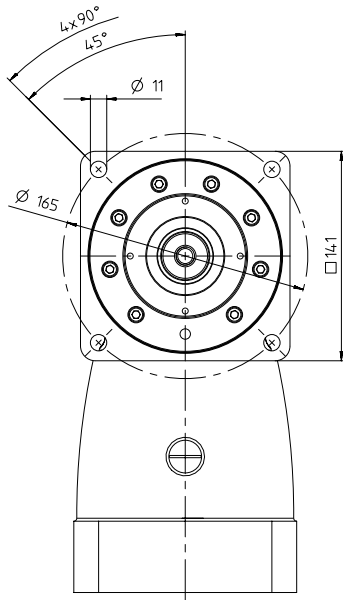
- ^{a)} At max. 10 % F_{2QMMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

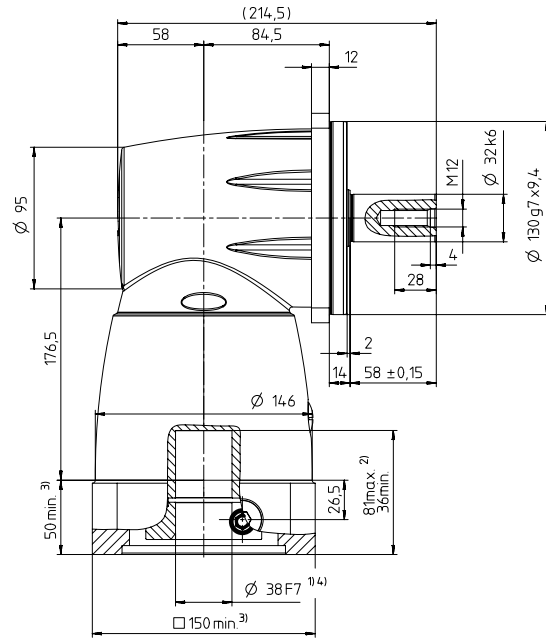
Motor shaft diameter [mm]

1-stage

up to 38⁴⁾ (K)⁵⁾
clamping hub diameter

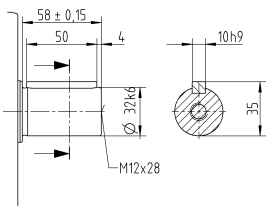


← A



Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions
¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

⁵⁾ Standard clamping hub diameter

SC+ 180 MF 1-stage

				1-stage		
Ratio	<i>i</i>		1	2		
Max. torque ^{a) b) e)}	T_{2a}	Nm	378	378		
		in.lb	3346	3346		
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	Nm	315	315		
		in.lb	2788	2788		
Nominal torque (at n_n)	T_{2N}	Nm	200	200		
		in.lb	1770	1770		
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	390	685		
		in.lb	3452	6063		
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}	1200	1500		
Max. input speed	n_{1Max}	rpm	4000	4000		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	14	8		
		in.lb	124	71		
Max. backlash	j_t	arcmin	Standard ≤ 3			
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	13	22		
		in.lb/arcmin	115	195		
Max. axial force ^{c)}	F_{2AMax}	N	4500			
		lb _f	1013			
Max. lateral force ^{c)}	F_{2QMMax}	N	9000			
		lb _f	2025			
Max. tilting moment	M_{2KMMax}	Nm	1910			
		in.lb	16905			
Efficiency at full load	η	%	97			
Service life ¹⁾	L_h	h	> 20000			
Weight (incl. standard adapter plate)	m	kg	31.4			
		lb _m	69			
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	dB(A)	≤ 70			
Max. permitted housing temperature		°C	+90			
		F	194			
Ambient temperature		°C	0 to +40			
		F	32 to 104			
Lubrication			Lubricated for life			
Direction of rotation			In- and output same direction			
Protection class			IP 65			
Metal bellows coupling (recommended product type – validate sizing with cymex [®])			BC2 - 00300AA - 040.000 - X			
Bore diameter of coupling on the application side		mm	X = 024.000 - 060.000			
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	M	48	J_1	kgcm ²	99.5	46.7
				10 ⁻³ in.lb.s ²	88.06	41.33

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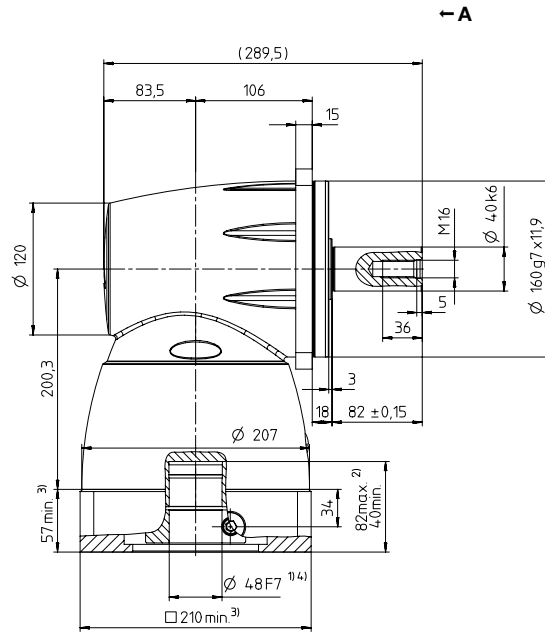
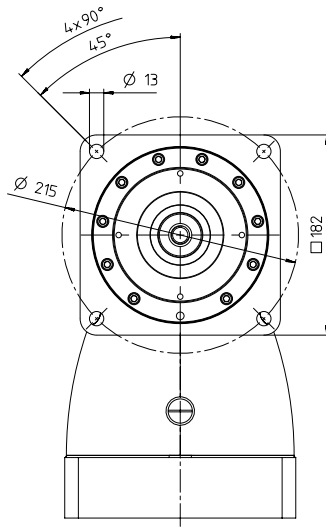
- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

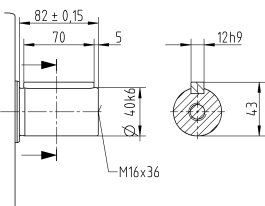
1-stage

up to 48⁴⁾ (M)⁵⁾
clamping hub diameter



Other output variants

Shaft with key



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

- Non-tolerated dimensions are nominal dimensions
- ¹⁾ Check motor shaft fit
- ²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.
- ³⁾ The dimensions depend on the motor
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
- ⁵⁾ Standard clamping hub diameter

SPC+ 060 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		48	60	67	48	60	67	51	
		<i>in.lb</i>		425	531	593	425	531	593	451	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		40	50	50	40	50	50	38	
		<i>in.lb</i>		354	443	443	354	443	443	336	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		26	26	26	26	26	26	17	
		<i>in.lb</i>		230	230	230	230	230	230	150	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		100	109	109	100	109	109	100	
		<i>in.lb</i>		885	965	965	885	965	965	885	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		3000	3000	3200	3400	3400	3600	3600	
Max. input speed	n_{1Max}	<i>rpm</i>		6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		1.7	1.5	1.3	1	1	0.84	0.67	
		<i>in.lb</i>		15	13	12	8.9	8.9	7.4	5.9	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 5 / Reduced ≤ 3							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		2.4	2.7	3.1	2.7	3	3.2	3.3	
		<i>in.lb/arcmin</i>		21	24	27	24	27	28	29	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		2400							
		<i>lb_f</i>		540							
Max. lateral force ^{c)}	F_{2OMax}	<i>N</i>		2800							
		<i>lb_f</i>		630							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		152							
		<i>in.lb</i>		1345							
Efficiency at full load	η	%		95							
Service life ^{f)}	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	<i>m</i>	<i>kg</i>		3.1							
		<i>lb_m</i>		7							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68							
Max. permitted housing temperature		°C		+90							
		<i>F</i>		194							
Ambient temperature		°C		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00060AA - 016.000 - X							
Bore diameter of coupling on the application side		<i>mm</i>		X = 012.000 - 035.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	<i>kgcm²</i>	0.72	0.7	0.66	0.44	0.43	0.43	0.43
				<i>10⁻³ in.lb.s²</i>	0.64	0.62	0.58	0.39	0.38	0.38	0.38
	E	19	J_1	<i>kgcm²</i>	1.05	1.03	0.99	0.77	0.76	0.76	0.75
				<i>10⁻³ in.lb.s²</i>	1	1	1	1	1	1	1

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

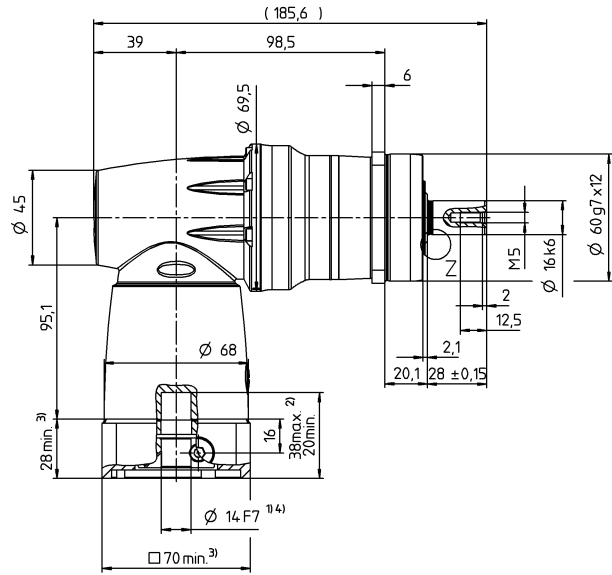
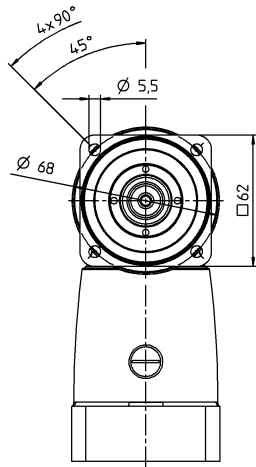
- ^{a)} At max. 10 % F_{2OMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

2-stage

up to 14/19⁴⁾
(C⁵⁾/E) clamping
hub diameter



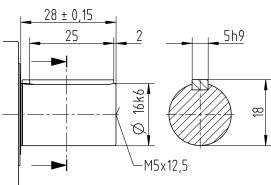
← A

Bevel gearboxes

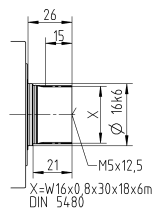
SPC

Other output variants

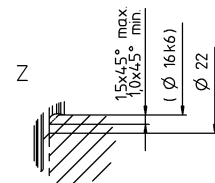
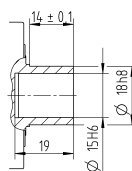
Shaft with key



Spined shaft (DIN 5480)



Shaft mounted



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions
1) Check motor shaft fit

2) Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

5) Standard clamping hub diameter

SPC+ 075 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		144	176	176	144	176	176	152	
		<i>in.lb</i>		1275	1558	1558	1275	1558	1558	1345	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		120	132	132	120	132	132	114	
		<i>in.lb</i>		1062	1168	1168	1062	1168	1168	1009	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		75	75	75	75	75	75	52	
		<i>in.lb</i>		664	664	664	664	664	664	460	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		192	240	250	248	250	250	250	
		<i>in.lb</i>		1699	2124	2213	2195	2213	2213	2213	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2200	2200	2400	2650	2650	2800	2800	
Max. input speed	n_{1Max}	<i>rpm</i>		6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		3.8	3.3	2.8	2.7	2.4	1.9	1.6	
		<i>in.lb</i>		34	29	25	24	21	17	14	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		6.6	7.5	8.6	7.6	8.3	9.1	9.5	
		<i>in.lb/arcmin</i>		58	66	76	67	73	81	84	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		3350							
		<i>lb_f</i>		754							
Max. lateral force ^{c)}	F_{2OMax}	<i>N</i>		4200							
		<i>lb_f</i>		945							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		236							
		<i>in.lb</i>		2089							
Efficiency at full load	η	%		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	<i>m</i>	<i>kg</i>		5.9							
		<i>lb_m</i>		13							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68							
Max. permitted housing temperature		°C		+90							
		<i>F</i>		194							
Ambient temperature		°C		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00150AA - 022.000 - X							
Bore diameter of coupling on the application side		<i>mm</i>		X = 019.000 - 042.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	<i>kgcm²</i>	2.33	2.15	1.99	1.25	1.23	1.21	1.2
				<i>10⁻³ in.lb.s²</i>	2.06	1.9	1.76	1.11	1.09	1.07	1.06
	H	28	J_1	<i>kgcm²</i>	3.66	3.59	3.43	2.68	2.67	2.65	2.64
				<i>10⁻³ in.lb.s²</i>	3.24	3.18	3.04	2.37	2.36	2.35	2.34

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

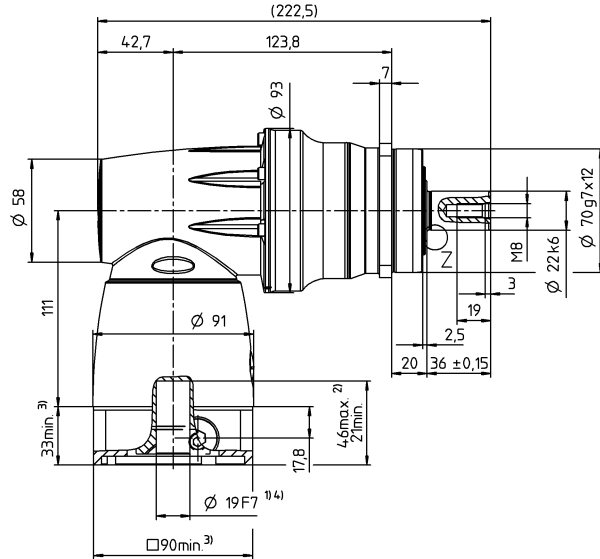
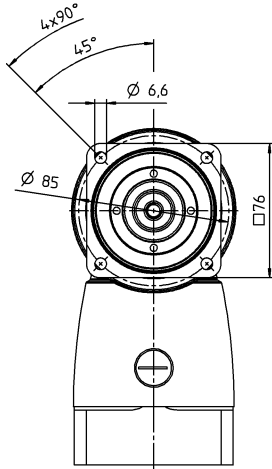
- ^{a)} At max. 10 % F_{2OMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

2-stage

up to 19/28⁴⁾
(E⁵⁾/H) clamping
hub diameter



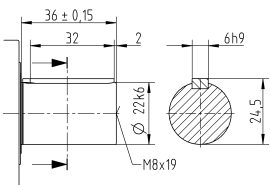
← A

Bevel gearboxes

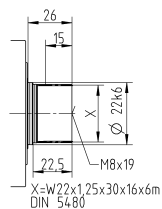
SPC

Other output variants

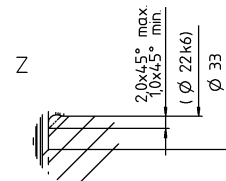
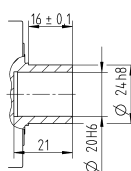
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

- Non-tolerated dimensions are nominal dimensions
- ¹⁾ Check motor shaft fit
- ²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.
- ³⁾ The dimensions depend on the motor
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
- ⁵⁾ Standard clamping hub diameter

SPC+ 100 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		389	486	428	389	486	428	376	
		<i>in.lb</i>		3443	4301	3788	3443	4301	3788	3328	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		324	378	378	324	378	378	282	
		<i>in.lb</i>		2868	3346	3346	2868	3346	3346	2496	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		180	175	170	180	175	170	120	
		<i>in.lb</i>		1593	1549	1505	1593	1549	1505	1062	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		540	625	625	625	625	625	625	
		<i>in.lb</i>		4779	5532	5532	5532	5532	5532	5532	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2000	2000	2200	2300	2300	2400	2400	
Max. input speed	n_{1Max}	<i>rpm</i>		4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		7.1	6.7	5.6	4.3	4	3.4	3.2	
		<i>in.lb</i>		63	59	50	38	35	30	28	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		20	23	26	24	26	28	30	
		<i>in.lb/arcmin</i>		177	204	230	212	230	248	266	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		5650							
		<i>lb_f</i>		1271							
Max. lateral force ^{c)}	F_{2OMax}	<i>N</i>		6600							
		<i>lb_f</i>		1485							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		487							
		<i>in.lb</i>		4310							
Efficiency at full load	η	%		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	<i>m</i>	<i>kg</i>		11.7							
		<i>lb_m</i>		26							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68							
Max. permitted housing temperature		°C		+90							
		<i>F</i>		194							
Ambient temperature		°C		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00300AA - 032.000 - X							
Bore diameter of coupling on the application side		<i>mm</i>		X = 024.000 - 060.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	H	28	J_1	<i>kgcm²</i>	8	7.6	7	5	4.9	4.9	4.8
				<i>10⁻³ in.lb.s²</i>	7	7	6	4	4	4	4
	K	38	J_1	<i>kgcm²</i>	15	14.7	14.1	12.1	12	11.9	11.9
				<i>10⁻³ in.lb.s²</i>	13	13	12	11	11	11	11

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
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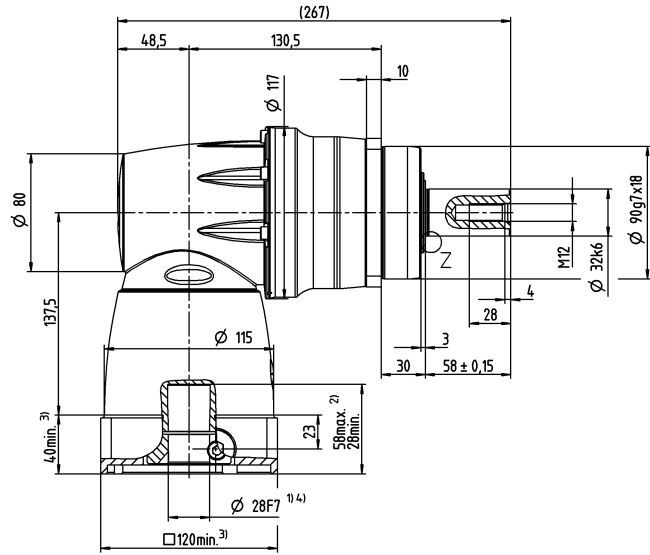
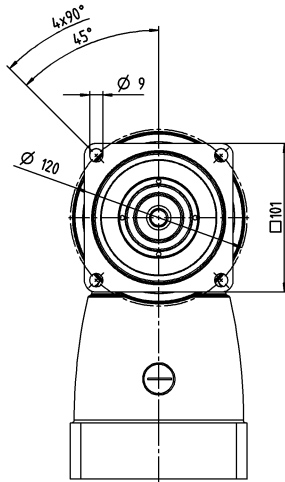
- ^{a)} At max. 10 % F_{2OMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

2-stage

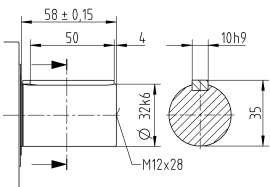
up to 28 / 38⁴⁾
(H⁵⁾ / K) clamping
hub diameter



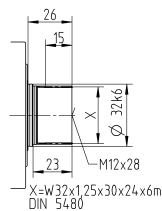
← A

Other output variants

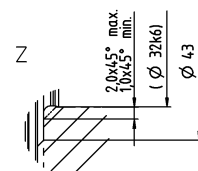
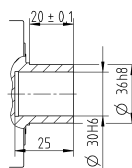
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

³⁾ The dimensions depend on the motor

⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

⁵⁾ Standard clamping hub diameter

SPC+ 140 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		840	1050	825	840	1050	825	720	
		<i>in.lb</i>		7435	9293	7302	7435	9293	7302	6373	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		700	792	792	700	792	792	636	
		<i>in.lb</i>		6196	7010	7010	6196	7010	7010	5629	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		360	360	360	360	360	360	220	
		<i>in.lb</i>		3186	3186	3186	3186	3186	3186	1947	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		960	1200	1350	1240	1350	1350	1250	
		<i>in.lb</i>		8497	10621	11949	10975	11949	11949	11064	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		1300	1300	1400	1500	1500	1600	1600	
Max. input speed	n_{1Max}	<i>rpm</i>		4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		15	13	11	11	9.2	7.8	6.6	
		<i>in.lb</i>		133	115	97	97	81	69	58	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		37	41	46	41	45	48	51	
		<i>in.lb/arcmin</i>		327	363	407	363	398	425	451	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		9870							
		<i>lb_f</i>		2221							
Max. lateral force ^{c)}	F_{2QMMax}	<i>N</i>		9900							
		<i>lb_f</i>		2228							
Max. tilting moment	M_{2KMMax}	<i>Nm</i>		952							
		<i>in.lb</i>		8426							
Efficiency at full load	η	<i>%</i>		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	m	<i>kg</i>		24.7							
		<i>lb_m</i>		55							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 70							
Max. permitted housing temperature		<i>°C</i>		+90							
		<i>F</i>		194							
Ambient temperature		<i>°C</i>		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 00800AA - 040.000 - X							
Bore diameter of coupling on the application side		<i>mm</i>		X = 040.000 - 075.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	J_1	<i>kgcm²</i>	30.6	29.7	27.9	18.9	18.7	18.5	18.4
				<i>10⁻³ in.lb.s²</i>	27	26	25	17	17	16	16

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % F_{2AMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ¹⁾ Please contact us to discuss application-specific service lifetimes

SPC+ 180 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b) e)}	T_{2a}	<i>Nm</i>		1512	1890	1936	1512	1890	1936	1552	
		<i>in.lb</i>		13382	16728	17135	13382	16728	17135	13736	
Max. acceleration torque ^{b) e)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		1260	1452	1452	1260	1452	1452	1164	
		<i>in.lb</i>		11152	12851	12851	11152	12851	12851	10302	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		750	750	750	750	750	750	750	
		<i>in.lb</i>		6638	6638	6638	6638	6638	6638	6638	
Emergency stop torque ^{a) b) e)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		1560	1950	2730	2740	2750	2750	2750	
		<i>in.lb</i>		13807	17259	24163	24251	24340	24340	24340	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		1000	1000	1100	1200	1200	1300	1300	
Max. input speed	n_{1Max}	<i>rpm</i>		4000	4000	4000	4000	4000	4000	4000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		30	27	24	16	15	13	12	
		<i>in.lb</i>		266	239	212	142	133	115	106	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		104	122	143	130	144	157	166	
		<i>in.lb/arcmin</i>		920	1080	1266	1151	1275	1390	1469	
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		15570							
		<i>lb_f</i>		3503							
Max. lateral force ^{c)}	F_{2QMMax}	<i>N</i>		15400							
		<i>lb_f</i>		3465							
Max. tilting moment	M_{2KMMax}	<i>Nm</i>		1600							
		<i>in.lb</i>		14161							
Efficiency at full load	η	%		95							
Service life ^{f)}	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	<i>m</i>	<i>kg</i>		54.7							
		<i>lb_m</i>		121							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 70							
Max. permitted housing temperature		°C		+90							
		<i>F</i>		194							
Ambient temperature		°C		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BC2 - 01500AA - 055.000 - X							
Bore diameter of coupling on the application side		<i>mm</i>		X = 050.000 - 080.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	M	48	J_1	<i>kgcm²</i>	109.5	105	94.7	49.2	48.1	46.9	46.2
				<i>10⁻³ in.lb.s²</i>	97	93	84	44	43	42	41

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

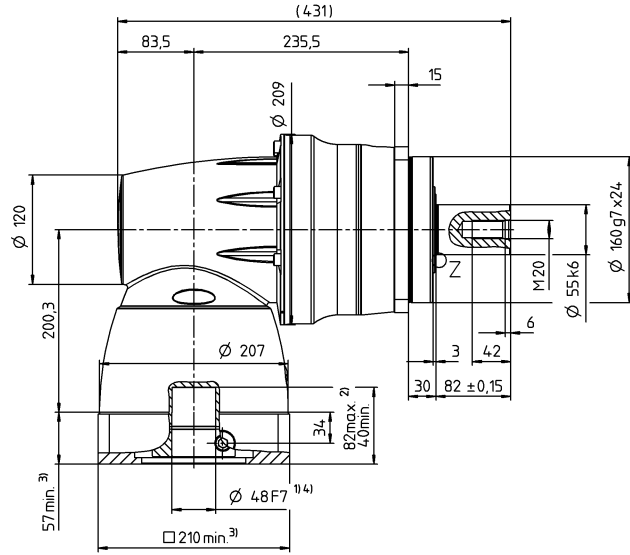
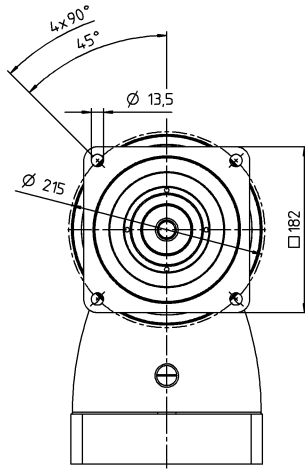
- ^{a)} At max. 10 % F_{2QMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{e)} Smooth shaft
- ^{f)} Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

2-stage

up to 48⁴⁾ (M)⁵⁾
clamping hub diameter



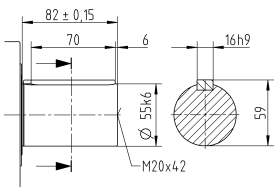
← A

Bevel gearboxes

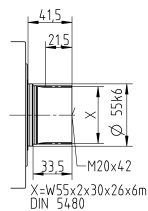
SPC

Other output variants

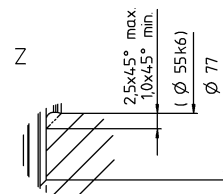
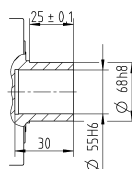
Shaft with key



Splined shaft (DIN 5480)



Shaft mounted



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

Non-tolerated dimensions are nominal dimensions
1) Check motor shaft fit

2) Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.

3) The dimensions depend on the motor

4) Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm

5) Standard clamping hub diameter

TPC+ 004 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b)}	T_{2a}	<i>Nm</i>		48	60	83	48	60	83	56	
		<i>in.lb</i>		425	531	735	425	531	735	496	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		40	50	66	40	50	66	42	
		<i>in.lb</i>		354	443	584	354	443	584	372	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		28	28	28	28	28	28	18	
		<i>in.lb</i>		248	248	248	248	248	248	159	
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		100	100	100	100	100	100	100	
		<i>in.lb</i>		885	885	885	885	885	885	885	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2900	2900	3100	3400	3400	3600	3600	
Max. input speed	n_{1Max}	<i>rpm</i>		6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		2.1	1.8	1.5	1.3	1.2	1	0.84	
		<i>in.lb</i>		19	16	13	12	11	8.9	7.4	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 5 / Reduced ≤ 3							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		4.8	6.2	7.6	6.1	7.4	8.5	7.3	
		<i>in.lb/arcmin</i>		42	55	67	54	65	75	65	
Tilting rigidity	C_{2K}	<i>Nm/arcmin</i>		85							
		<i>in.lb/arcmin</i>		752							
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		2119							
		<i>lb_f</i>		477							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		110							
		<i>in.lb</i>		974							
Efficiency at full load	η	<i>%</i>		95							
Service life ^{f)}	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	m	<i>kg</i>		2.6							
		<i>lb_m</i>		6							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68							
Max. permitted housing temperature		<i>°C</i>		+90							
		<i>F</i>		194							
Ambient temperature		<i>°C</i>		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BCT - 00015AAX - 031.500							
Bore diameter of coupling on the application side		<i>mm</i>		X = 012.000 - 028.000							
Mass moment of inertia (relates to the drive)	C	14	J_1	<i>kgcm²</i>	0.72	0.7	0.66	0.44	0.43	0.43	0.43
				<i>10⁻³ in.lb.s²</i>	0.64	0.62	0.58	0.39	0.38	0.38	0.38
Clamping hub diameter [mm]	E	19	J_1	<i>kgcm²</i>	1.05	1.03	0.99	0.77	0.76	0.76	0.75
				<i>10⁻³ in.lb.s²</i>	1	1	1	1	1	1	1

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ^{f)} Please contact us to discuss application-specific service lifetimes

TPC+ 010 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b)}	T_{2a}	<i>Nm</i>		144	180	210	144	180	210	168	
		<i>in.lb</i>		1275	1593	1859	1275	1593	1859	1487	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		120	150	172	120	150	172	126	
		<i>in.lb</i>		1062	1328	1522	1062	1328	1522	1115	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		75	75	75	75	75	75	60	
		<i>in.lb</i>		664	664	664	664	664	664	531	
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		192	240	251	248	251	251	251	
		<i>in.lb</i>		1699	2124	2222	2195	2222	2222	2222	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		2100	2100	2300	2650	2650	2800	2800	
Max. input speed	n_{1Max}	<i>rpm</i>		6000	6000	6000	6000	6000	6000	6000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		4.2	3.7	3.2	2.9	2.7	2.1	1.9	
		<i>in.lb</i>		37	33	28	26	24	19	17	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		12	16	20	16	20	23	21	
		<i>in.lb/arcmin</i>		106	142	177	142	177	204	186	
Tilting rigidity	C_{2K}	<i>Nm/arcmin</i>		225							
		<i>in.lb/arcmin</i>		1991							
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		2795							
		<i>lb_f</i>		629							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		270							
		<i>in.lb</i>		2390							
Efficiency at full load	η	%		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	m	<i>kg</i>		5.8							
		<i>lb_m</i>		13							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68							
Max. permitted housing temperature		°C		+90							
		<i>F</i>		194							
Ambient temperature		°C		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BCT - 00060AAX - 050.000							
Bore diameter of coupling on the application side		<i>mm</i>		X = 014.000 - 035.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	<i>kgcm²</i>	2.41	2.27	1.99	1.29	1.26	1.22	1.21
				<i>10⁻³ in.lb.s²</i>	2.13	2.01	1.76	1.14	1.12	1.08	1.07
	H	28	J_1	<i>kgcm²</i>	3.85	3.71	3.43	2.73	2.7	2.66	2.64
				<i>10⁻³ in.lb.s²</i>	3.41	3.28	3.04	2.42	2.39	2.35	2.34

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

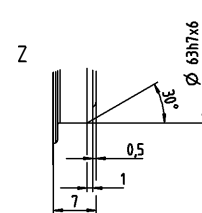
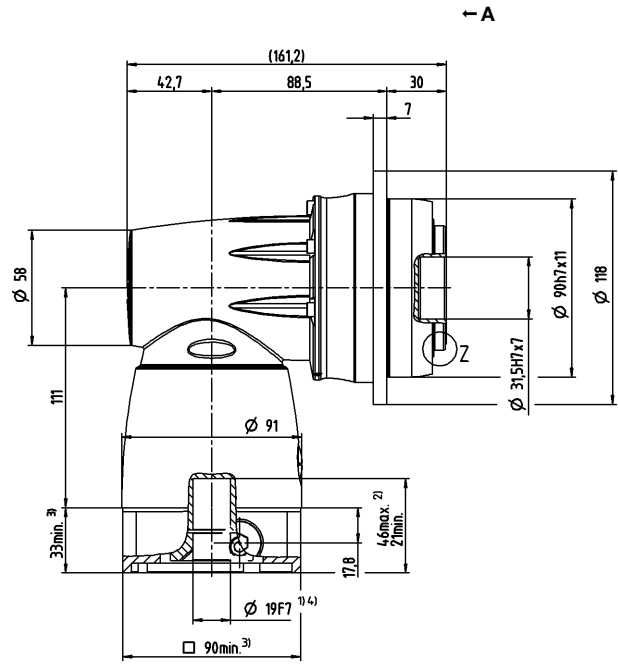
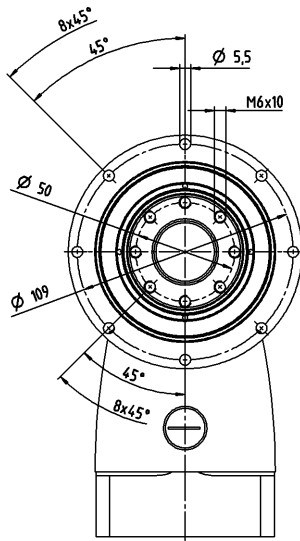
¹⁾ Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

2-stage

up to 19/28⁴⁾
(E⁵⁾/H) clamping
hub diameter



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

- Non-tolerated dimensions are nominal dimensions
- ¹⁾ Check motor shaft fit
- ²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.
- ³⁾ The dimensions depend on the motor
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
- ⁵⁾ Standard clamping hub diameter

TPC+ 025 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b)}	T_{2a}	<i>Nm</i>		352	380	352	352	380	352	352	
		<i>in.lb</i>		3115	3363	3115	3115	3363	3115	3115	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		324	380	352	324	380	352	318	
		<i>in.lb</i>		2868	3363	3115	2868	3363	3115	2815	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		170	170	170	180	175	170	120	
		<i>in.lb</i>		1505	1505	1505	1593	1549	1505	1062	
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		540	625	625	625	625	625	625	
		<i>in.lb</i>		4779	5532	5532	5532	5532	5532	5532	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		1900	1900	2100	2300	2300	2400	2400	
Max. input speed	n_{1Max}	<i>rpm</i>		4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		7.9	7.1	6.1	4.7	4.3	3.7	3.2	
		<i>in.lb</i>		70	63	54	42	38	33	28	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		33	43	53	45	56	61	57	
		<i>in.lb/arcmin</i>		292	381	469	398	496	540	504	
Tilting rigidity	C_{2K}	<i>Nm/arcmin</i>		550							
		<i>in.lb/arcmin</i>		4868							
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		4800							
		<i>lb_f</i>		1080							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		440							
		<i>in.lb</i>		3894							
Efficiency at full load	η	<i>%</i>		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	m	<i>kg</i>		10.5							
		<i>lb_m</i>		23							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 68							
Max. permitted housing temperature		<i>°C</i>		+90							
		<i>F</i>		194							
Ambient temperature		<i>°C</i>		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BCT - 00150AAX - 063.000							
Bore diameter of coupling on the application side		<i>mm</i>		X = 019.000 - 042.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	H	28	J_1	<i>kgcm²</i>	8.3	7.9	7	5.1	5	4.9	4.8
				<i>10⁻³ in.lb.s²</i>	7	7	6	5	4	4	4
	K	38	J_1	<i>kgcm²</i>	15.4	14.9	14.1	12.2	12.1	12	11.9
				<i>10⁻³ in.lb.s²</i>	14	13	12	11	11	11	11

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

^{a)} At max. 10 % M_{2KMax}

^{b)} Valid for standard clamping hub diameter

^{c)} Refers to center of the output shaft or flange

^{d)} Please reduce input speed at higher ambient temperatures

¹⁾ Please contact us to discuss application-specific service lifetimes

TPC+ 050 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b)}	T_{2a}	<i>Nm</i>		840	992	868	840	992	868	720	
		<i>in.lb</i>		7435	8780	7682	7435	8780	7682	6373	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		700	840	840	700	840	840	648	
		<i>in.lb</i>		6196	7435	7435	6196	7435	7435	5735	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		370	370	370	370	370	370	240	
		<i>in.lb</i>		3275	3275	3275	3275	3275	3275	2124	
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		960	1200	1250	1240	1250	1250	1250	
		<i>in.lb</i>		8497	10621	11064	10975	11064	11064	11064	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		1200	1200	1300	1500	1500	1600	1600	
Max. input speed	n_{1Max}	<i>rpm</i>		4500	4500	4500	4500	4500	4500	4500	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		19	16	14	13	11	9.4	7.8	
		<i>in.lb</i>		168	142	124	115	97	83	69	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		73	93	111	93	113	124	111	
		<i>in.lb/arcmin</i>		646	823	982	823	1000	1097	982	
Tilting rigidity	C_{2K}	<i>Nm/arcmin</i>		560							
		<i>in.lb/arcmin</i>		4956							
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		6130							
		<i>lb_f</i>		1379							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		1379							
		<i>in.lb</i>		12205							
Efficiency at full load	η	<i>%</i>		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	m	<i>kg</i>		21.5							
		<i>lb_m</i>		48							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 70							
Max. permitted housing temperature		<i>°C</i>		+90							
		<i>F</i>		194							
Ambient temperature		<i>°C</i>		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BCT - 00300AAX - 080.000							
Bore diameter of coupling on the application side		<i>mm</i>		X = 024.000 - 060.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	K	38	J_1	<i>kgcm²</i>	32.3	30.8	27.9	19.4	19	18.7	18.5
				<i>10⁻³ in.lb.s²</i>	29	27	25	17	17	17	16

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ¹⁾ Please contact us to discuss application-specific service lifetimes

TPC+ 110 MF 2-stage

				2-stage							
Ratio	<i>i</i>			4	5	7	8	10	14	20	
Max. torque ^{a) b)}	T_{2a}	<i>Nm</i>		1512	1890	2560	1512	1890	2560	2240	
		<i>in.lb</i>		13382	16728	22658	13382	16728	22658	19826	
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>		1260	1575	1920	1260	1575	1920	1680	
		<i>in.lb</i>		11152	13940	16994	11152	13940	16994	14869	
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>		700	750	750	700	750	750	750	
		<i>in.lb</i>		6196	6638	6638	6196	6638	6638	6638	
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>		1560	1950	2730	2740	3075	3075	3075	
		<i>in.lb</i>		13807	17259	24163	24251	27216	27216	27216	
Permitted average input speed (at T_{2a} and 20 °C ambient temperature) ^{d)}	n_{1N}	n_{1T}		900	900	1000	1200	1200	1300	1300	
Max. input speed	n_{1Max}	<i>rpm</i>		4000	4000	4000	4000	4000	4000	4000	
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	<i>Nm</i>		37	32	28	20	17	15	13	
		<i>in.lb</i>		327	283	248	177	150	133	115	
Max. backlash	j_t	<i>arcmin</i>		Standard ≤ 4 / Reduced ≤ 2							
Torsional rigidity ^{b)}	C_{t21}	<i>Nm/arcmin</i>		181	242	324	278	345	407	390	
		<i>in.lb/arcmin</i>		1602	2142	2868	2461	3054	3602	3452	
Tilting rigidity	C_{2K}	<i>Nm/arcmin</i>		1452							
		<i>in.lb/arcmin</i>		12851							
Max. axial force ^{c)}	F_{2AMax}	<i>N</i>		10050							
		<i>lb_f</i>		2261							
Max. tilting moment	M_{2KMax}	<i>Nm</i>		3280							
		<i>in.lb</i>		29031							
Efficiency at full load	η	<i>%</i>		95							
Service life ¹⁾	L_h	<i>h</i>		> 20000							
Weight (incl. standard adapter plate)	m	<i>kg</i>		50.7							
		<i>lb_m</i>		112							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	<i>dB(A)</i>		≤ 70							
Max. permitted housing temperature		<i>°C</i>		+90							
		<i>F</i>		194							
Ambient temperature		<i>°C</i>		0 to +40							
		<i>F</i>		32 to 104							
Lubrication				Lubricated for life							
Direction of rotation				In- and output same direction							
Protection class				IP 65							
Metal bellows coupling (recommended product type – validate sizing with cymex [®])				BCT - 01500AAX - 125.000							
Bore diameter of coupling on the application side		<i>mm</i>		X = 050.000 - 080.000							
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	M	48	J_1	<i>kgcm²</i>	121.2	112.6	94.7	52.1	50	47.9	46.7
				<i>10⁻³ in.lb.s²</i>	107	100	84	46	44	42	41

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com
Please contact us for optimum sizing at S1 conditions (Continuous operation).

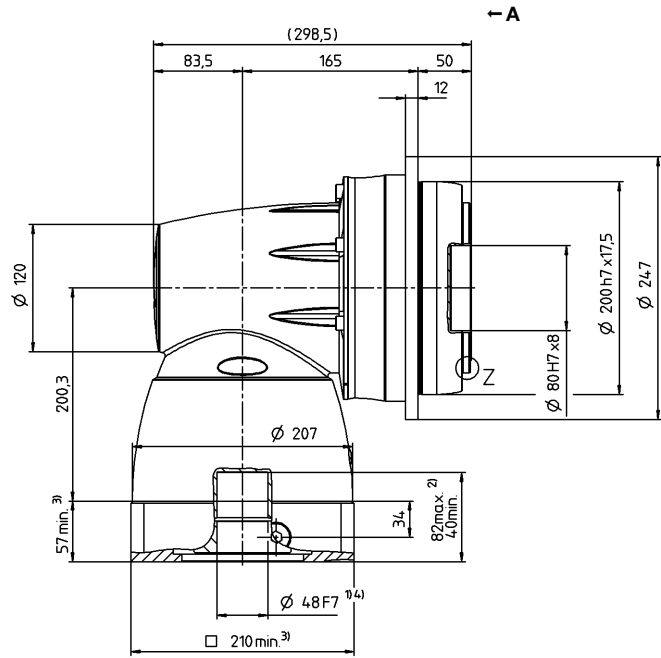
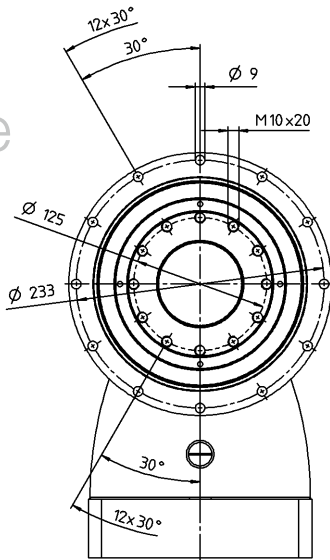
- ^{a)} At max. 10 % M_{2KMax}
- ^{b)} Valid for standard clamping hub diameter
- ^{c)} Refers to center of the output shaft or flange
- ^{d)} Please reduce input speed at higher ambient temperatures
- ¹⁾ Please contact us to discuss application-specific service lifetimes

View A

Motor shaft diameter [mm]

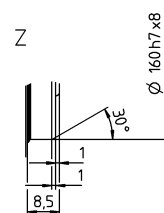
2-stage

up to 48⁴⁾ (M)⁵⁾
clamping hub diameter



Bevel gearboxes

TPC+



See technical data sheet for available clamping hub diameters (mass moment of inertia). Dimensions available on request.

- Non-tolerated dimensions are nominal dimensions
- ¹⁾ Check motor shaft fit
- ²⁾ Min./Max. permissible motor shaft length. Longer motor shafts are possible, please contact alpha.
- ³⁾ The dimensions depend on the motor
- ⁴⁾ Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm
- ⁵⁾ Standard clamping hub diameter