

RP+ – The high-precision powerhouse



RP+

Product highlights

- Max. torsional backlash [arcmin] $\leq 1 - 3$
- High axial and radial forces
- Easy installation
- Optimized for rack and pinion applications

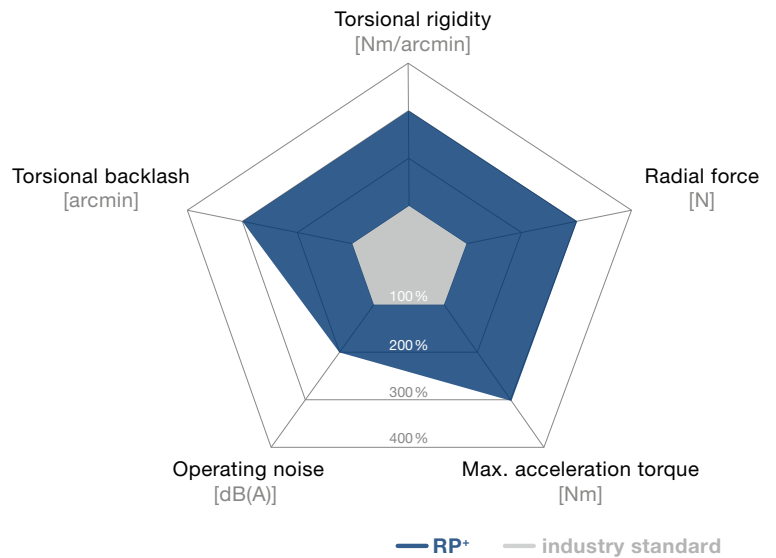
This gearbox series sets standards in terms of power density, modularity and easy installation. It is used in all applications where the individual requirements far exceed what has previously been possible. RP+ gearboxes combine all the advantages of the familiar gearbox series:

- Reduced backlash of ≤ 1 arcmin
- Maximum power density
- Extremely smooth-running thanks to helical toothing
- Maximum positioning accuracy and world-class lifespan

The RP+ impresses with maximum power density

- if your drive requires maximum performance
- if you value world-class engineering
- if you require an even more compact system

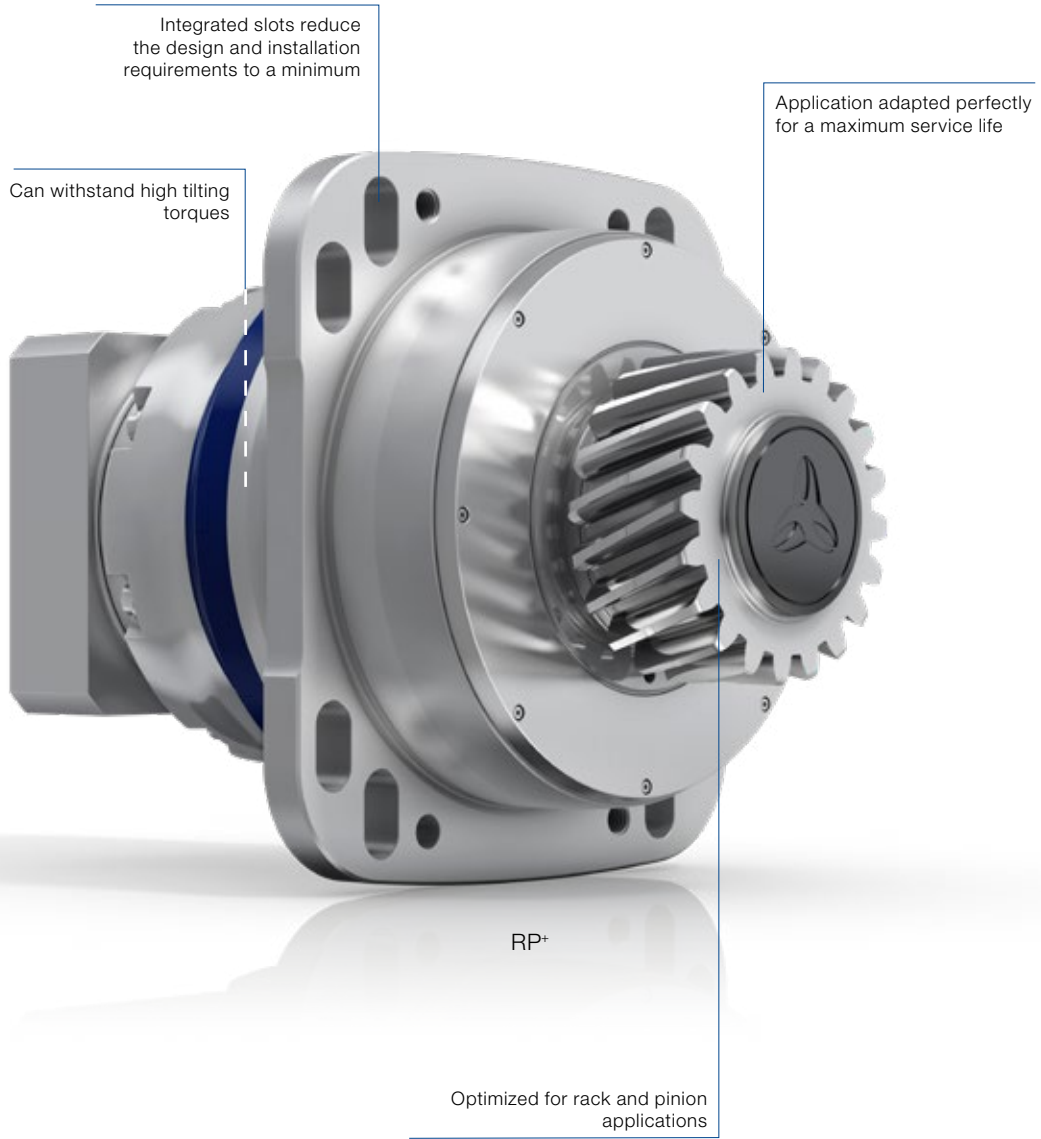
The RP+ compared to the industry standard



RP+ with rack and pinion



RPK+ with hypoid angle section



Further information is available in the „alpha Linear Systems“ catalog or online at www.wittenstein-alpha.com



RP+ available as RPM+ servo actuator version (series in an even more compact design)

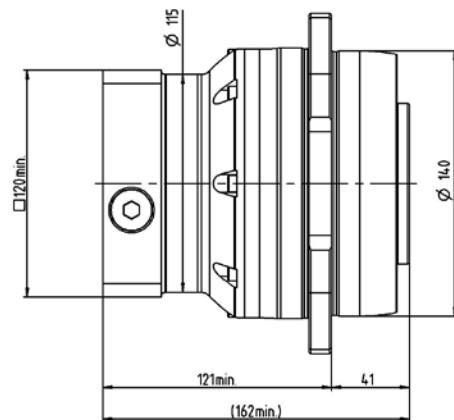
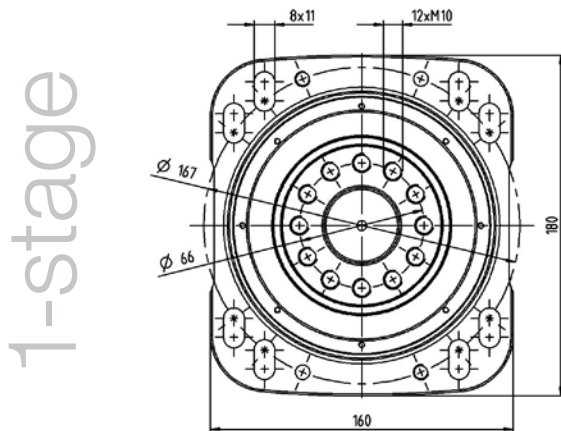
RP+ 030 MF 1-stage

			1-stage
Ratio	i		4 / 5 / 7 / 10
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	352 – 380
		<i>in.lb</i>	3115 – 3363
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	318 – 380
		<i>in.lb</i>	2815 – 3363
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	172 – 182
		<i>in.lb</i>	1522 – 1611
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	625
		<i>in.lb</i>	5532
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	<i>rpm</i>	2000 – 2800
Max. input speed	n_{1Max}	<i>rpm</i>	5500
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	62 – 86
		<i>in.lb/arcmin</i>	549 – 761
Max. tilting moment	M_{2KMax}	<i>Nm</i>	1800
		<i>in.lb</i>	15931
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 61
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	19 – 38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.



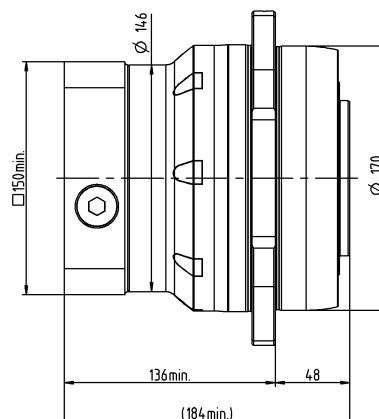
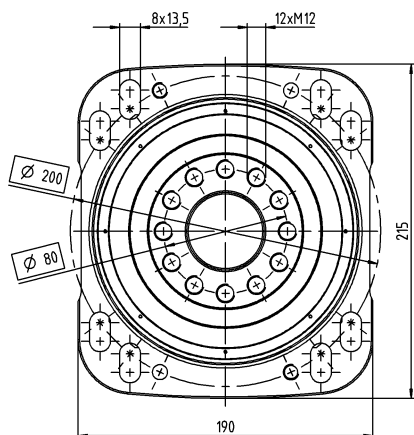
			1-stage
Ratio	i		4 / 5 / 7 / 10
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	720 – 1120
		<i>in.lb</i>	6373 – 9913
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	540 – 700
		<i>in.lb</i>	4779 – 6196
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	272 – 318
		<i>in.lb</i>	2408 – 2810
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	1563
		<i>in.lb</i>	13829
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	<i>rpm</i>	2500 – 3200
Max. input speed	n_{1Max}	<i>rpm</i>	5000
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 3 / Reduced ≤ 1
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	123 – 190
		<i>in.lb/arcmin</i>	1089 – 1682
Max. tilting moment	M_{2KMax}	<i>Nm</i>	3600
		<i>in.lb</i>	31863
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 61
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	24 – 48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



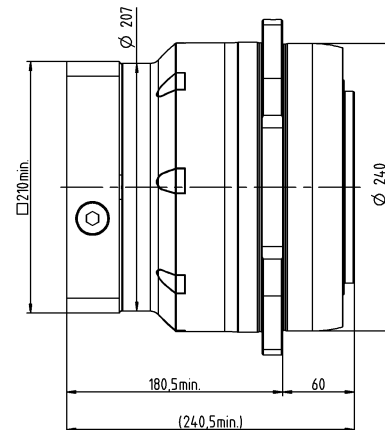
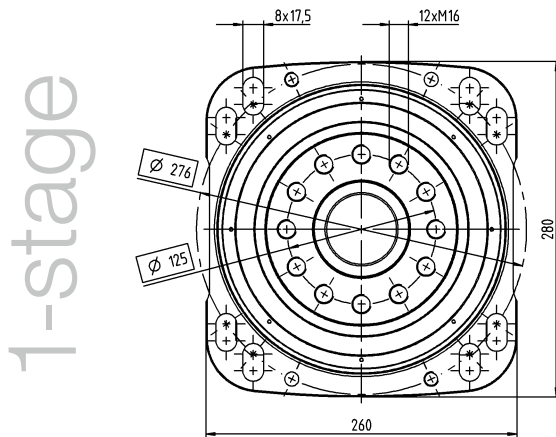
RP+ 050 MF 1-stage

			1-stage
Ratio	i		4 / 5 / 7 / 10
Max. torque ^{a)}	T_{2a}	Nm	2240 – 2560
		in.lb	19826 – 22658
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	1400 – 1600
		in.lb	12391 – 14161
Nominal torque (at n_n)	T_{2N}	Nm	725 – 927
		in.lb	6419 – 8203
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	3204 – 3438
		in.lb	28357 – 30425
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	rpm	1500 – 2300
Max. input speed	n_{1Max}	rpm	4500
Max. torsional backlash	j_t	arcmin	Standard ≤ 3 / Reduced ≤ 1
Torsional rigidity	C_{t21}	Nm/arcmin	445 – 610
		in.lb/arcmin	3939 – 5399
Max. tilting moment	M_{2KMax}	Nm	11000
		in.lb	97359
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 66
Lubrication			Lubricated for life
Clamping hub diameter		mm	38 – 48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.





Planetary gearboxes

RP+ 030 MA 1-/2-stage

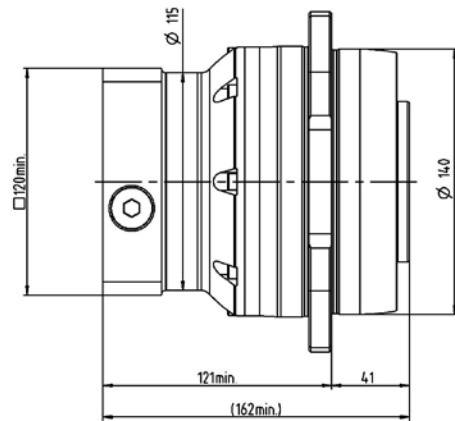
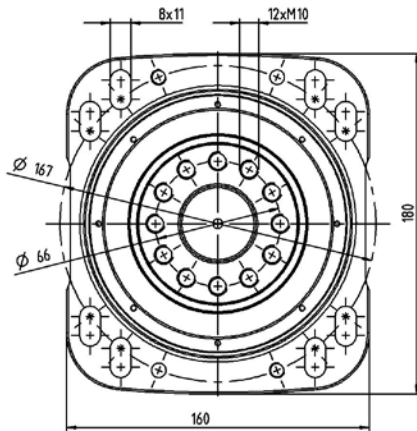
			1-stage	2-stage
Ratio	i		5.5	16 / 22 / 27.5 / 38.5 / 55
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	583	583
		<i>in.lb</i>	5160	5160
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	530	530
		<i>in.lb</i>	4691	4691
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	243	315 – 432
		<i>in.lb</i>	2150	2788 – 3823
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	1200	1200
		<i>in.lb</i>	10621	10621
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	<i>rpm</i>	2000	3000
Max. input speed	n_{1Max}	<i>rpm</i>	5500	7500
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 1	Standard ≤ 1
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	105	100 – 105
		<i>in.lb/arcmin</i>	929	885 – 929
Max. tilting moment	M_{2KMax}	<i>Nm</i>	1800	1800
		<i>in.lb</i>	15931	15931
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 65	≤ 58
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		<i>mm</i>	19 – 38	19 – 24

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

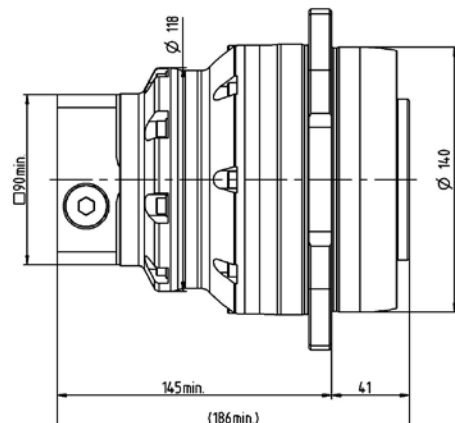
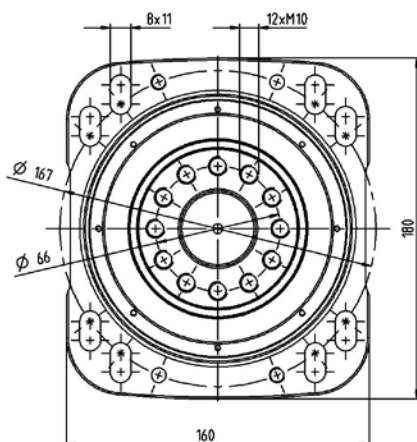
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



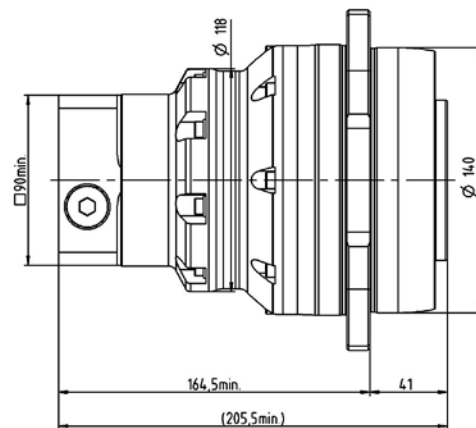
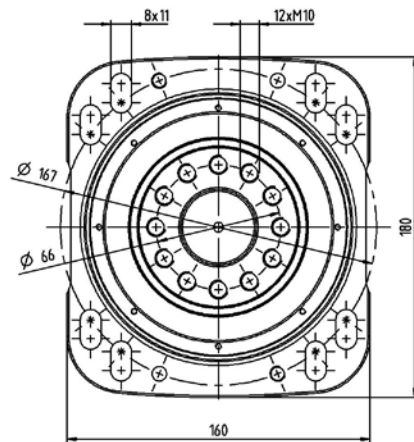
2-stage



			3-stage
Ratio	i		66 / 88 / 110 / 154 / 220
Max. torque ^{a)}	T_{2a}	Nm	583
		$in.lb$	5160
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	530
		$in.lb$	4691
Nominal torque (at n_n)	T_{2N}	Nm	284 – 397
		$in.lb$	2513 – 3513
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	1200
		$in.lb$	10621
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	rpm	3000
Max. input speed	n_{1Max}	rpm	7500
Max. torsional backlash	j_t	$arcmin$	Standard ≤ 1
Torsional rigidity	C_{t21}	$Nm/arcmin$	95
		$in.lb/arcmin$	841
Max. tilting moment	M_{2KMax}	Nm	1800
		$in.lb$	15931
Operating noise ^{c)}	L_{PA}	$dB(A)$	≤ 56
Lubrication			Lubricated for life
Clamping hub diameter		mm	19

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com
^{b)} For higher ambient temperatures, please reduce input speed
^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage



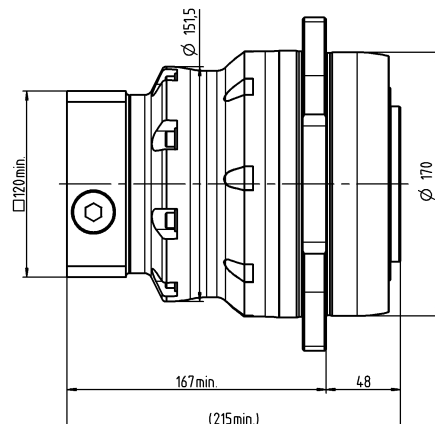
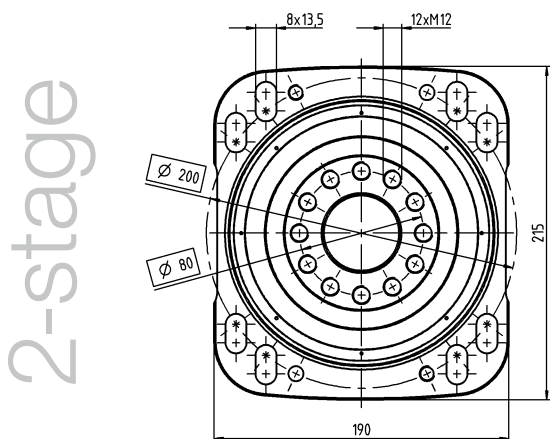
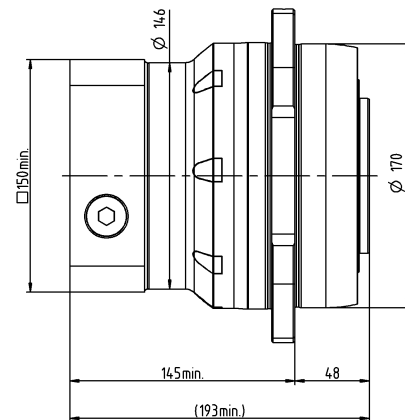
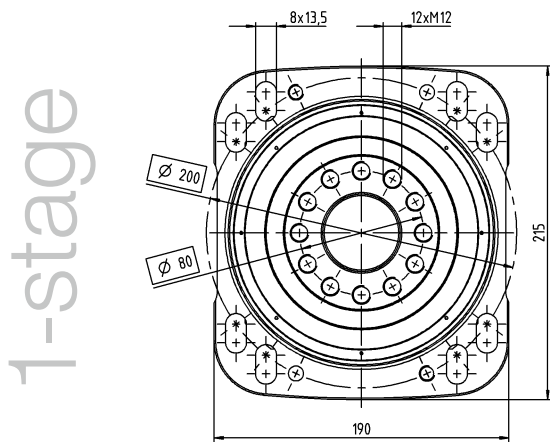
RP+ 040 MA 1-/2-stage

			1-stage	2-stage
Ratio	i		5.5	16 / 22 / 27.5 / 38.5 / 55
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	1402	1270 – 1402
		<i>in.lb</i>	12406	11243 – 12406
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	950	950
		<i>in.lb</i>	8408	8408
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	417	476 – 653
		<i>in.lb</i>	3695	4217 – 5779
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	2865	2420 – 2613
		<i>in.lb</i>	25358	21416 – 25358
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization ^{b)})	n_{1T}	<i>rpm</i>	2500	4000 – 4100
Max. input speed	n_{1Max}	<i>rpm</i>	5000	6250
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 1	Standard ≤ 1
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	220	220
		<i>in.lb/arcmin</i>	1947	1947
Max. tilting moment	M_{2KMax}	<i>Nm</i>	3600	3600
		<i>in.lb</i>	31863	31863
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 63	≤ 61
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		<i>mm</i>	38 – 48	24 – 38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.



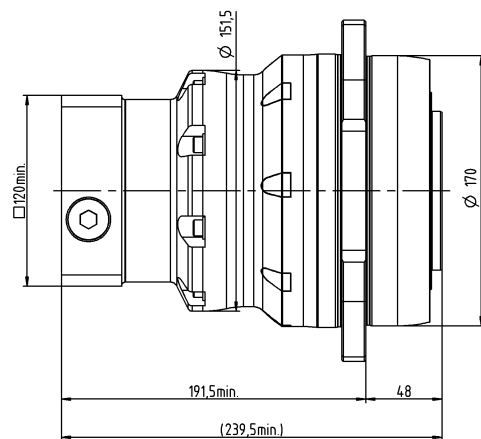
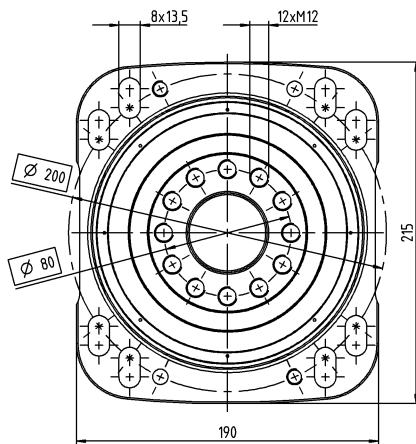
			3-stage
Ratio	i		66 / 88 / 110 / 154 / 220
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	1402
		<i>in.lb</i>	12406
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	950
		<i>in.lb</i>	8408
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	690 – 760
		<i>in.lb</i>	6103 – 6727
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	2865
		<i>in.lb</i>	25358
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	<i>rpm</i>	4100
Max. input speed	n_{1Max}	<i>rpm</i>	6250
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 1
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	205
		<i>in.lb/arcmin</i>	1814
Max. tilting moment	M_{2KMax}	<i>Nm</i>	3600
		<i>in.lb</i>	31863
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 58
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	24

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage



RP+ 050 MA 1-/2-stage

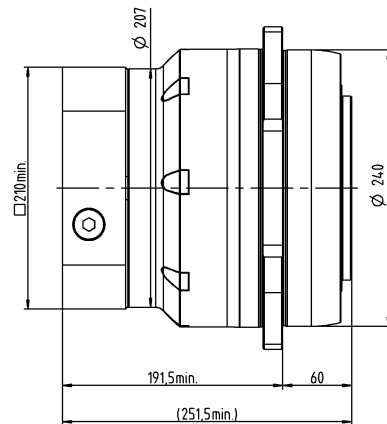
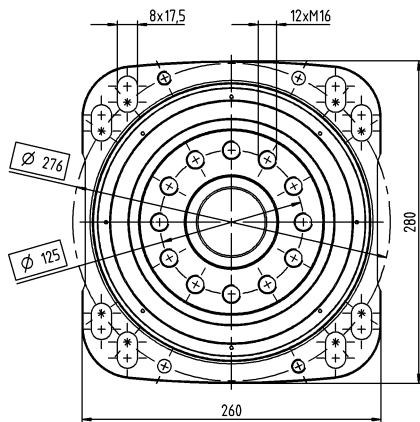
			1-stage	2-stage
Ratio	i		5.5	16 / 22 / 27.5 / 38.5 / 55
Max. torque ^{a)}	T_{2a}	Nm	3822	3518 – 3822
		in.lb	33826	28323 – 33826
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	3100	2000 – 3100
		in.lb	27437	17702 – 27437
Nominal torque (at n_n)	T_{2N}	Nm	1167	1174 – 1977
		in.lb	10326	10387 – 17501
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	6250	7150
		in.lb	55318	63283
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	rpm	1500	3100 – 3300
Max. input speed	n_{1Max}	rpm	4500	5625
Max. torsional backlash	j_t	arcmin	Standard ≤ 1	Standard ≤ 1
Torsional rigidity	C_{t21}	Nm/arcmin	730	670 – 730
		in.lb/arcmin	6461	5930 – 6461
Max. tilting moment	M_{2KMax}	Nm	11000	11000
		in.lb	97359	97359
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 66	≤ 64
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	48	38 – 48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

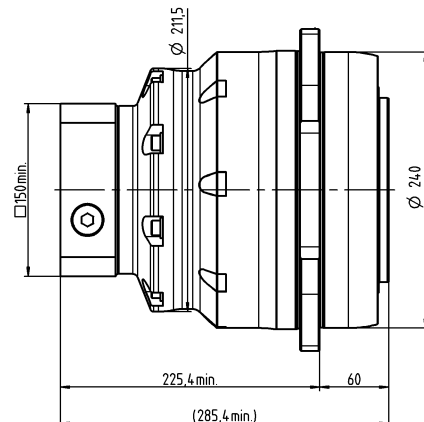
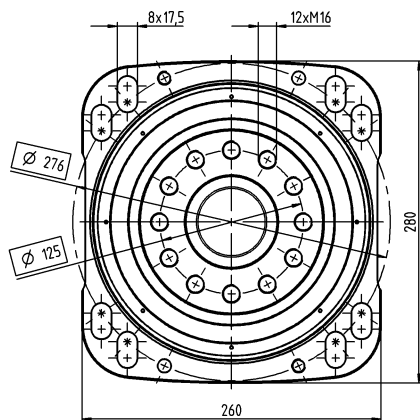
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



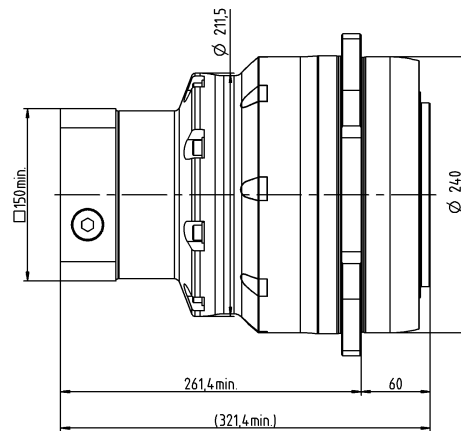
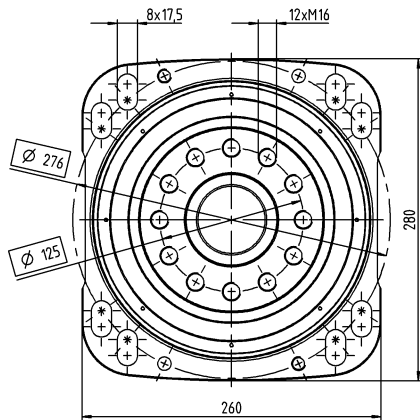
2-stage



			3-stage
Ratio	i		66 / 88 / 110 / 154 / 220
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	3023
		<i>in.lb</i>	26757
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	2600
		<i>in.lb</i>	23012
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	1602 – 2080
		<i>in.lb</i>	14182 – 18410
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	8125
		<i>in.lb</i>	71913
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	<i>rpm</i>	3300
Max. input speed	n_{1Max}	<i>rpm</i>	5625
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 1
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	650
		<i>in.lb/arcmin</i>	5753
Max. tilting moment	M_{2KMax}	<i>Nm</i>	11000
		<i>in.lb</i>	97359
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 59
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com
^{b)} For higher ambient temperatures, please reduce input speed
^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage



RP+ 060 MA 1-/2-stage

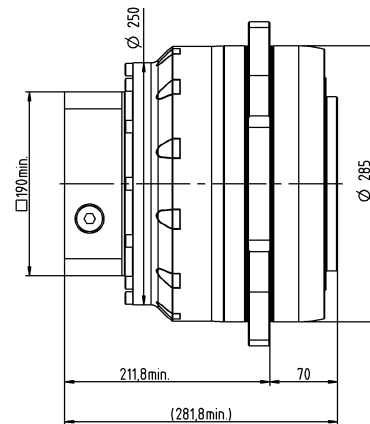
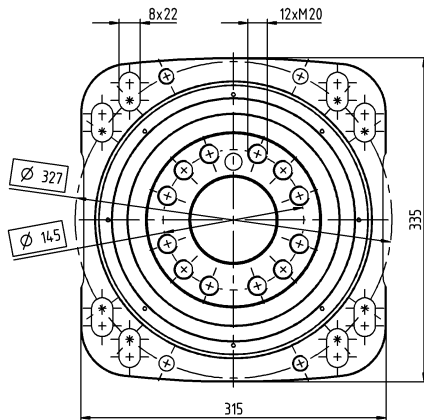
			1-stage	2-stage
Ratio	i		5.5	22 / 27.5 / 38.5 / 55
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	7360	6240 – 7535
		<i>in.lb</i>	65142	55229 – 66691
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	4600	3900 – 5500
		<i>in.lb</i>	40714	34518 – 48679
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	2829	3120 – 3530
		<i>in.lb</i>	25035	27614 – 31243
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	10938	15296 – 15333
		<i>in.lb</i>	96806	135377 – 135709
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization ^{b)})	n_{IT}	<i>rpm</i>	1000	2750
Max. input speed	n_{IMax}	<i>rpm</i>	3125	4375
Max. torsional backlash	j_t	<i>arcmin</i>	Standard ≤ 1	Standard $\leq 1,5$
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	1200	1200
		<i>in.lb/arcmin</i>	10621	10621
Max. tilting moment	M_{2KMax}	<i>Nm</i>	21000	21000
		<i>in.lb</i>	185867	185867
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 68	≤ 64
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		<i>mm</i>	55	48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

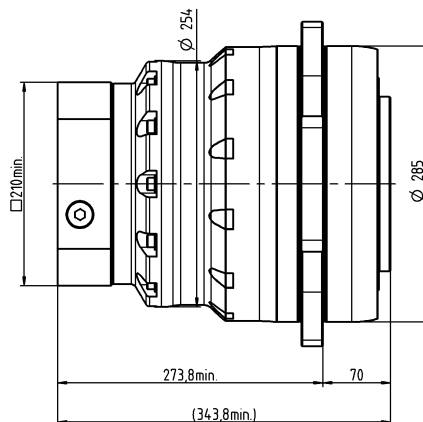
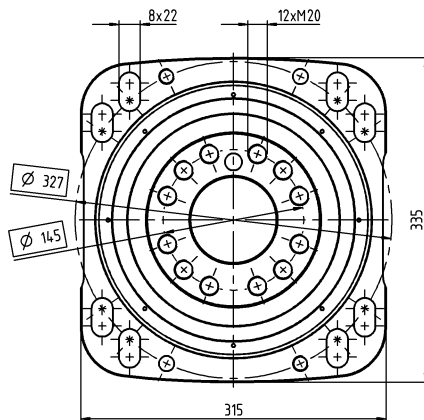
^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

1-stage



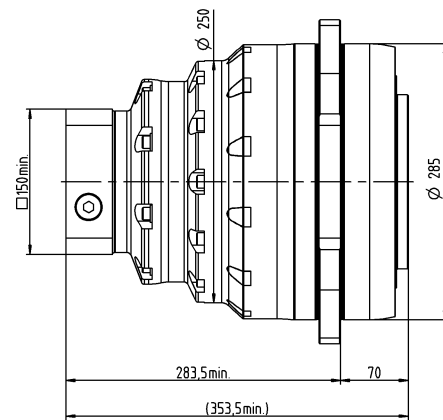
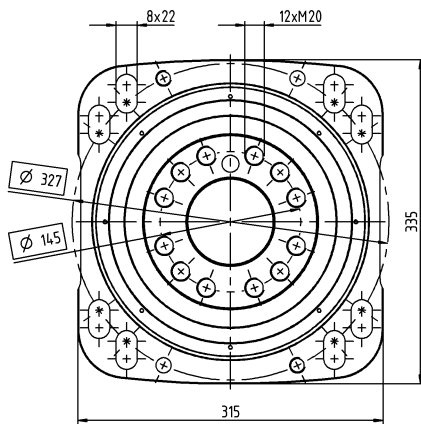
2-stage



			3-stage
Ratio	i		66 / 88 / 110 / 154 / 220
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	6987
		<i>in.lb</i>	61838
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	5500
		<i>in.lb</i>	48679
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	2923 – 4196
		<i>in.lb</i>	25869 – 37136
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	15333
		<i>in.lb</i>	135709
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	<i>rpm</i>	2750
Max. input speed	n_{1Max}	<i>rpm</i>	4375
Max. torsional backlash	j_t	<i>arcmin</i>	Standard $\leq 1,5$
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	1200
		<i>in.lb/arcmin</i>	10621
Max. tilting moment	M_{2KMax}	<i>Nm</i>	21000
		<i>in.lb</i>	185867
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 59
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	38

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com
^{b)} For higher ambient temperatures, please reduce input speed
^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage



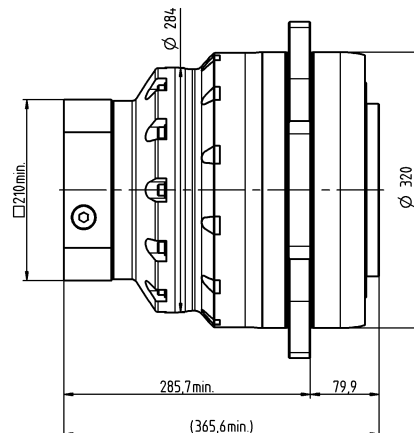
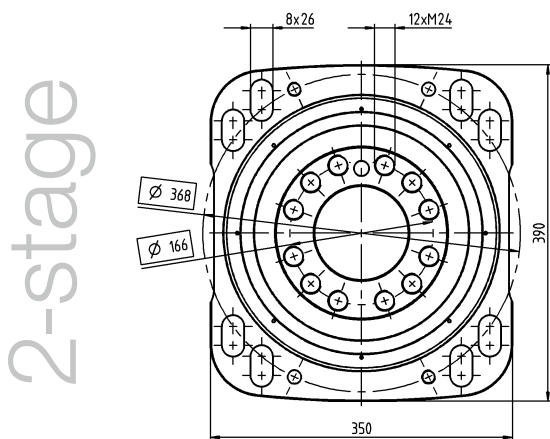
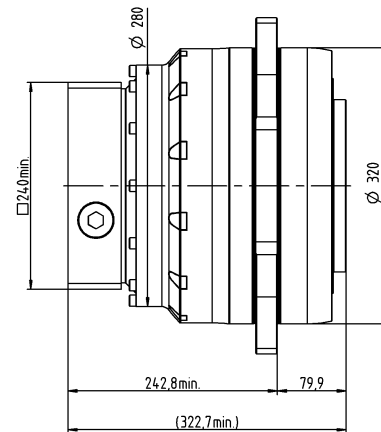
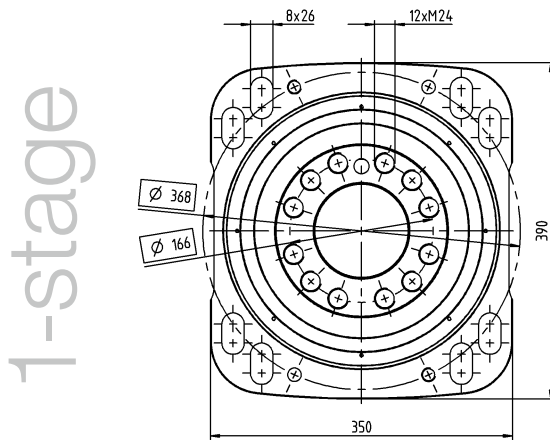
RP+ 080 MA 1-/2-stage

			1-stage	2-stage
Ratio	i		5.5	22 / 27.5 / 38.5 / 55
Max. torque ^{a)}	T_{2a}	Nm	10450	10450
		in.lb	92491	92491
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	Nm	8000	7200 – 10000
		in.lb	70806	63726 – 88508
Nominal torque (at n_n)	T_{2N}	Nm	4313	4602 – 4921
		in.lb	38174	40736 – 43558
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	18750	25000
		in.lb	165953	221270
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{1T}	rpm	900	1950
Max. input speed	n_{1Max}	rpm	3125	4375
Max. torsional backlash	j_t	arcmin	Standard ≤ 1	Standard $\leq 1,5$
Torsional rigidity	C_{t21}	Nm/arcmin	2000	2000
		in.lb/arcmin	17702	17702
Max. tilting moment	M_{2KMax}	Nm	34000	34000
		in.lb	300927	300927
Operating noise ^{c)}	L_{PA}	dB(A)	≤ 68	≤ 65
Lubrication			Lubricated for life	Lubricated for life
Clamping hub diameter		mm	60	48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com

^{b)} For higher ambient temperatures, please reduce input speed

^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.



			3-stage
Ratio	i		66 / 88 / 110 / 154 / 220
Max. torque ^{a)}	T_{2a}	<i>Nm</i>	10450
		<i>in.lb</i>	92491
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	<i>Nm</i>	10000
		<i>in.lb</i>	88508
Nominal torque (at n_n)	T_{2N}	<i>Nm</i>	4567 – 7308
		<i>in.lb</i>	40418 – 64684
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	<i>Nm</i>	25000
		<i>in.lb</i>	221270
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) ^{b)}	n_{TT}	<i>rpm</i>	1950
Max. input speed	n_{1Max}	<i>rpm</i>	4375
Max. torsional backlash	j_t	<i>arcmin</i>	Standard $\leq 1,5$
Torsional rigidity	C_{t21}	<i>Nm/arcmin</i>	1800
		<i>in.lb/arcmin</i>	15931
Max. tilting moment	M_{2KMax}	<i>Nm</i>	34000
		<i>in.lb</i>	300927
Operating noise ^{c)}	L_{PA}	<i>dB(A)</i>	≤ 62
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	38 – 48

^{a)} Application-specific design with cymex® – www.wittenstein-cymex.com
^{b)} For higher ambient temperatures, please reduce input speed
^{c)} At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage

