

# XPC+ / RPC+ – High precision and low ratios around the corner



XPC+

New performance standard, also available in the bevel version

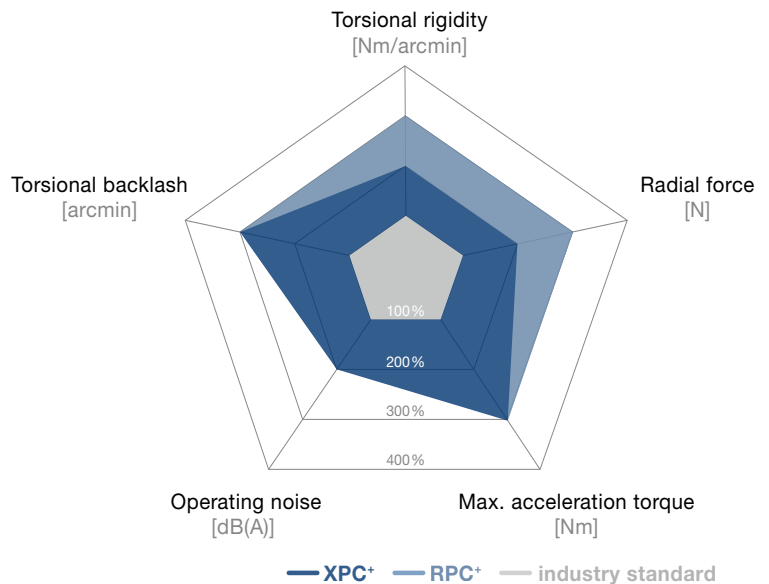
Both the XP+ and RP+ Premium planetary gearboxes are now available in a right-angle version with bevel toothing. Bevel gearboxes are primarily characterized by low gear ratios (ratio 1 and 2) in the angle section. Consequently, right-angle and planetary gearbox combinations can achieve the same low ratios as planetary gearboxes. The product design has a positive influence on temperature development in the gearbox and reduces overall heat development in the system as a result. The overall system achieves a higher degree of positioning accuracy as a consequence.

XPC+ and RPC+ compared to industry standard

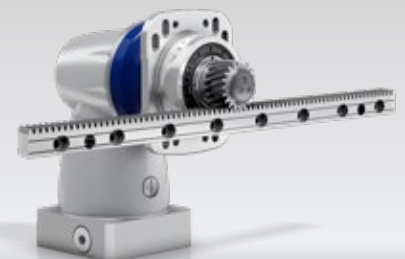
**Product highlights**

**Max. torsional backlash**  
 XPC+ ≤ 4 arcmin (Standard)  
 ≤ 2 arcmin (Reduced)  
 RPC+ ≤ 1.3 arcmin

**XPC+ and RPC+:**  
 Low ratios of  $i = 4 - 88$  possible  
 Optimized temperature distribution, even at high speeds  
 High tilting moments and torsional rigidity  
 Optimized for rack and pinion applications



XPC+ with pinion and slots



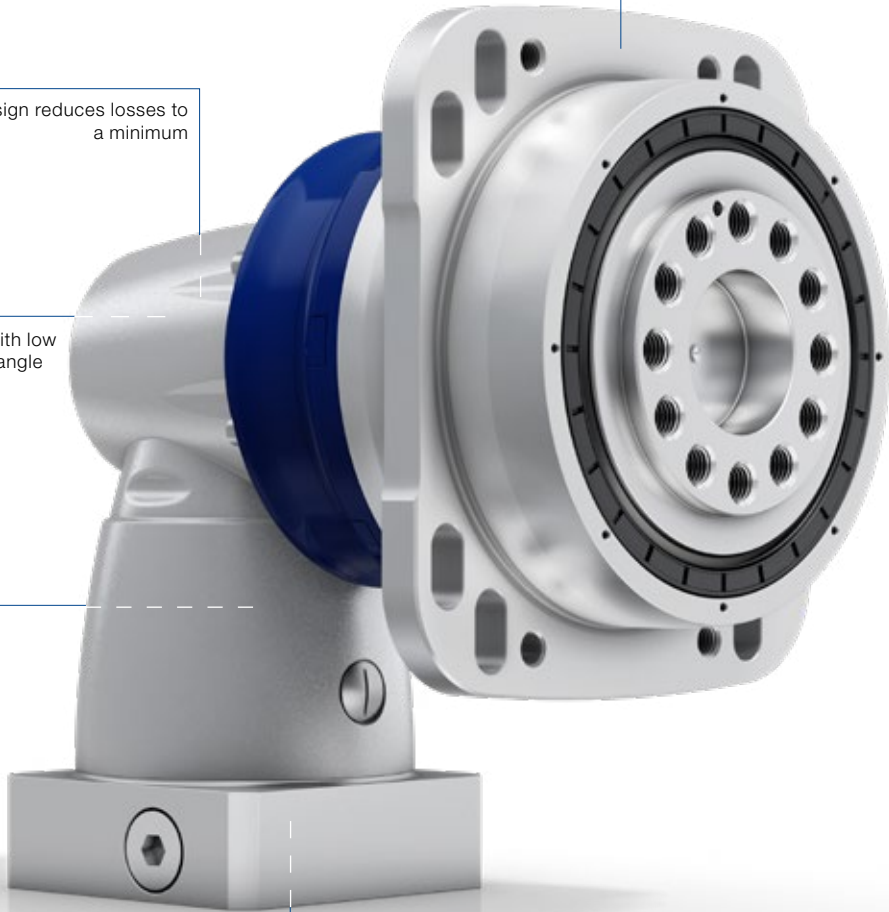
XPC+ with pinion, slots and rack

Specially designed output for transmitting extremely high torques

Intelligent design reduces losses to a minimum

High-quality bevel toothing with low gear ratios of  $i = 1 - 2$  in the angle section

Low temperature development, even at high speeds



RPC+

Metal bellows coupling incorporated for thermal length compensation and protection of the motor bearing



RPC+ with pinion and slots



RPC+ with pinion, slots and rack

# XPC+ 010 MF 2-stage

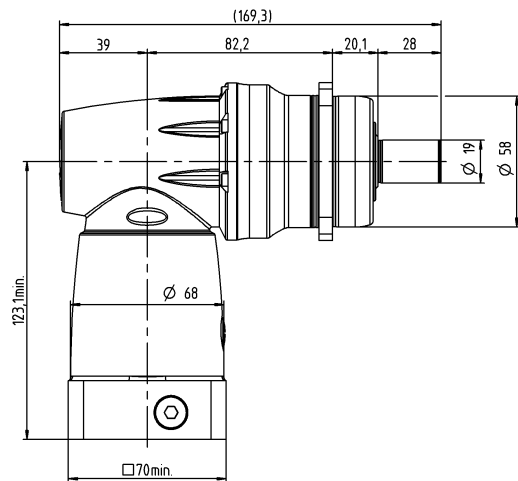
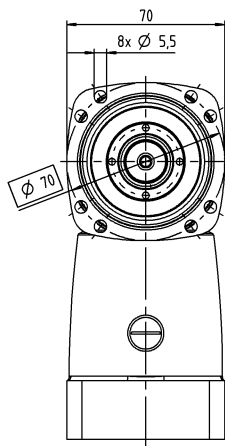
			2-stage
<b>Ratio</b>	$i$		<b>4 / 5 / 7 / 8 / 10 / 14 / 20</b>
Max. torque <sup>a)</sup>	$T_{2a}$	<i>Nm</i>	48 – 84
		<i>in.lb</i>	425 – 743
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	<i>Nm</i>	40 – 70
		<i>in.lb</i>	354 – 620
Nominal torque (at $n_n$ )	$T_{2N}$	<i>Nm</i>	27 – 28
		<i>in.lb</i>	239 – 248
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	<i>Nm</i>	100 – 165
		<i>in.lb</i>	885 – 1460
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{1T}$	<i>rpm</i>	3300 – 3750
Max. input speed	$n_{1Max}$	<i>rpm</i>	6000
Max. torsional backlash	$j_t$	<i>arcmin</i>	Standard $\leq 5$ / Reduced $\leq 3$
Torsional rigidity	$C_{t21}$	<i>Nm/arcmin</i>	3.1 – 5,5
		<i>in.lb/arcmin</i>	27 – 49
Max. tilting moment	$M_{2KMax}$	<i>Nm</i>	339
		<i>in.lb</i>	3000
Operating noise <sup>c)</sup>	$L_{PA}$	<i>dB(A)</i>	$\leq 68$
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	14 – 19

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

2-stage



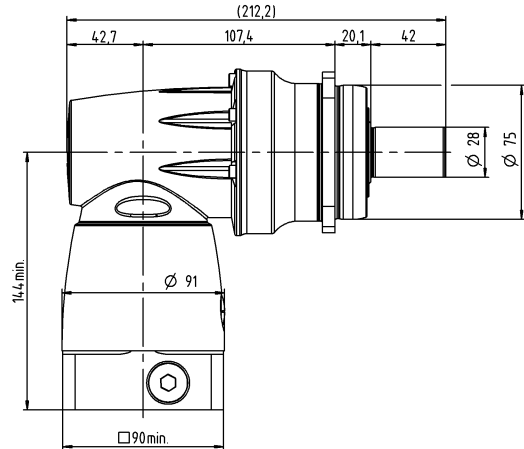
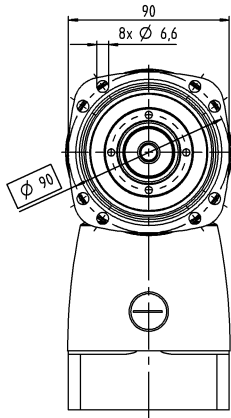
			2-stage
Ratio	$i$	4 / 5 / 7 / 8 / 10 / 14 / 20	
Max. torque <sup>a)</sup>	$T_{2a}$	<i>Nm</i>	144 – 240
		<i>in.lb</i>	1275 – 2124
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	<i>Nm</i>	120 – 180
		<i>in.lb</i>	1062 – 1593
Nominal torque (at $n_n$ )	$T_{2N}$	<i>Nm</i>	60 – 75
		<i>in.lb</i>	531 – 664
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	<i>Nm</i>	192 – 418
		<i>in.lb</i>	1699 – 3700
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{TT}$	<i>rpm</i>	2600 – 3050
Max. input speed	$n_{1Max}$	<i>rpm</i>	6000
Max. torsional backlash	$j_t$	<i>arcmin</i>	Standard $\leq 4$ / Reduced $\leq 2$
Torsional rigidity	$C_{t21}$	<i>Nm/arcmin</i>	9.1 – 14
		<i>in.lb/arcmin</i>	81 – 124
Max. tilting moment	$M_{2KMax}$	<i>Nm</i>	675
		<i>in.lb</i>	5974
Operating noise <sup>c)</sup>	$L_{PA}$	<i>dB(A)</i>	$\leq 68$
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	19 – 28

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

2-stage



# XPC+ 030 MF 2-stage

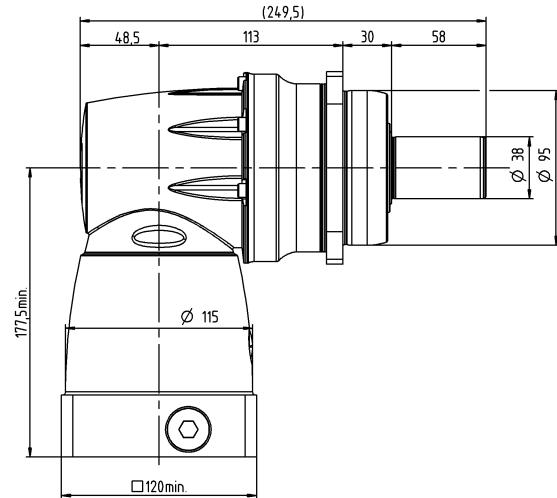
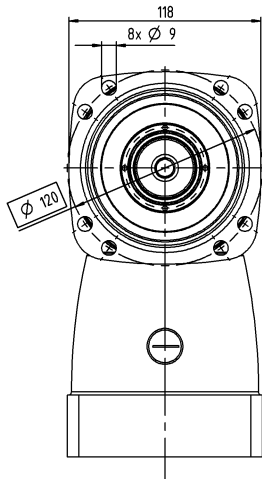
			2-stage
Ratio	$i$		4 / 5 / 7 / 8 / 10 / 14 / 20
Max. torque <sup>a)</sup>	$T_{2a}$	Nm	389 – 486
		in.lb	3443 – 4301
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	Nm	320 – 420
		in.lb	2832 – 3717
Nominal torque (at $n_n$ )	$T_{2N}$	Nm	120 – 180
		in.lb	1062 – 1593
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	540 – 800
		in.lb	4779 – 7081
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{1T}$	rpm	2100 – 2750
Max. input speed	$n_{1Max}$	rpm	4500
Max. torsional backlash	$j_t$	arcmin	Standard $\leq 4$ / Reduced $\leq 2$
Torsional rigidity	$C_{t21}$	Nm/arcmin	23 – 36
		in.lb/arcmin	204 – 319
Max. tilting moment	$M_{2KMax}$	Nm	1296
		in.lb	11471
Operating noise <sup>c)</sup>	$L_{PA}$	dB(A)	$\leq 68$
Lubrication			Lubricated for life
Clamping hub diameter		mm	28 – 38

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

2-stage



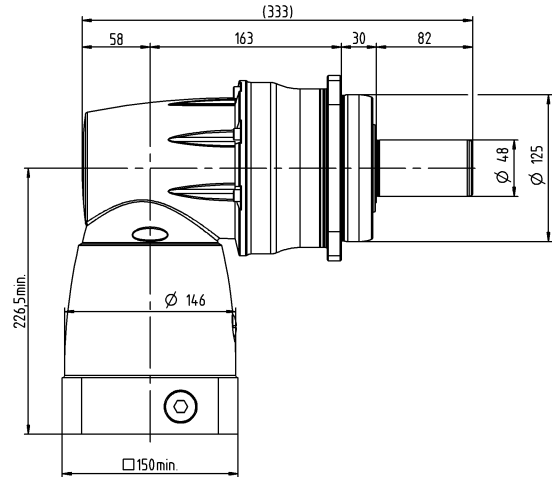
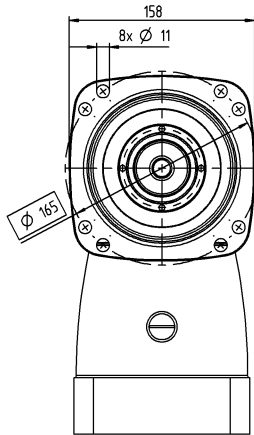
			2-stage
<b>Ratio</b>	<i>i</i>		<b>4 / 5 / 7 / 8 / 10 / 14 / 20</b>
Max. torque <sup>a)</sup>	$T_{2a}$	<i>Nm</i>	792 – 1050
		<i>in.lb</i>	7010 – 9293
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	<i>Nm</i>	700 – 875
		<i>in.lb</i>	6196 – 7744
Nominal torque (at $n_n$ )	$T_{2N}$	<i>Nm</i>	240 – 370
		<i>in.lb</i>	2124 – 3275
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	<i>Nm</i>	960 – 2170
		<i>in.lb</i>	8497 – 19206
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{1T}$	<i>rpm</i>	1550 – 1900
Max. input speed	$n_{1Max}$	<i>rpm</i>	4500
Max. torsional backlash	$j_t$	<i>arcmin</i>	Standard $\leq 4$ / Reduced $\leq 2$
Torsional rigidity	$C_{t21}$	<i>Nm/arcmin</i>	50 – 74
		<i>in.lb/arcmin</i>	443 – 655
Max. tilting moment	$M_{2KMax}$	<i>Nm</i>	1635
		<i>in.lb</i>	14471
Operating noise <sup>c)</sup>	$L_{PA}$	<i>dB(A)</i>	$\leq 70$
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	38

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

2-stage



# XPC+ 050 MF 2-stage

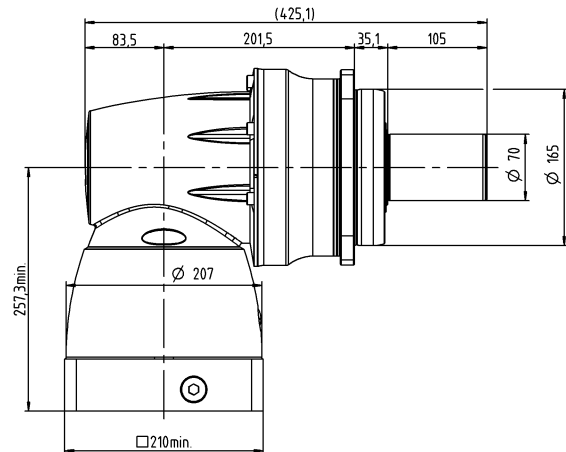
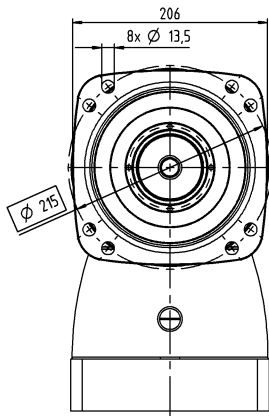
			2-stage
<b>Ratio</b>	$i$		<b>4 / 5 / 7 / 8 / 10 / 14 / 20</b>
Max. torque <sup>a)</sup>	$T_{2a}$	$Nm$	1512 – 2646
		$in.lb$	13382 – 23419
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2B}$	$Nm$	1260 – 2205
		$in.lb$	11152 – 19516
Nominal torque (at $n_n$ )	$T_{2N}$	$Nm$	700 – 750
		$in.lb$	6196 – 6638
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	$Nm$	1560 – 4795
		$in.lb$	13807 – 42440
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{1T}$	$rpm$	1050 – 1550
Max. input speed	$n_{1Max}$	$rpm$	4000
Max. torsional backlash	$j_t$	$arcmin$	Standard $\leq 4$ / Reduced $\leq 2$
Torsional rigidity	$C_{t21}$	$Nm/arcmin$	127 – 215
		$in.lb/arcmin$	1124 – 1903
Max. tilting moment	$M_{2KMax}$	$Nm$	3256
		$in.lb$	28818
Operating noise <sup>c)</sup>	$L_{PA}$	$dB(A)$	$\leq 70$
Lubrication			Lubricated for life
Clamping hub diameter		$mm$	48

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

2-stage



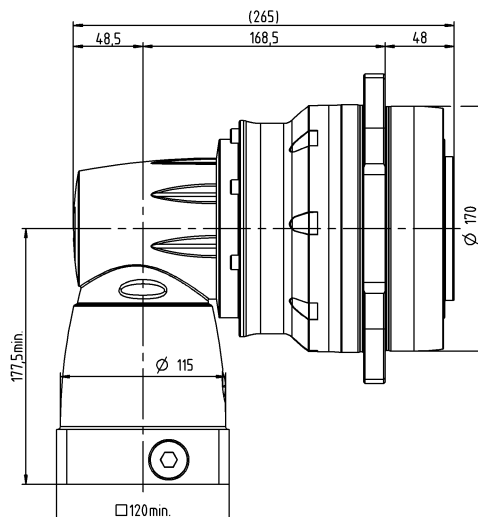
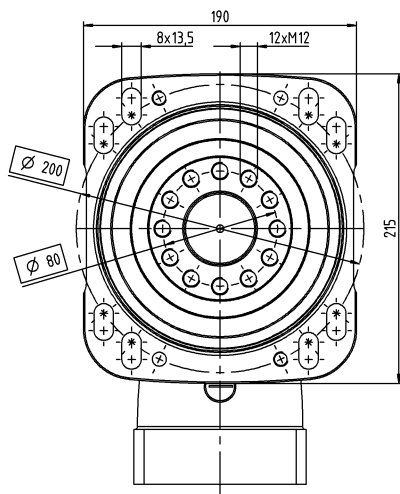
			<b>3-stage</b>
<b>Ratio</b>	$i$		<b>22 / 27.5 / 38.5 / 44 / 55</b>
Max. torque <sup>a)</sup>	$T_{2a}$	<i>Nm</i>	1402
		<i>in.lb</i>	12409
Max. acceleration torque (max. 1000 cycles per hour)	$T_{2Not}$	<i>Nm</i>	2613
		<i>in.lb</i>	23127
Nominal torque (at $n_n$ )	$T_{2B}$	<i>Nm</i>	950
		<i>in.lb</i>	8408
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2N}$	<i>Nm</i>	675
		<i>in.lb</i>	5974
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{1T}$	<i>rpm</i>	1800 – 2500
Max. input speed	$n_{1Max}$	<i>rpm</i>	4500
Max. torsional backlash	$j_t$	<i>arcmin</i>	Standard $\leq 1,3$
Torsional rigidity	$C_{t21}$	<i>Nm/arcmin</i>	194 – 215
		<i>in.lb/arcmin</i>	1717 – 1903
Max. tilting moment	$M_{2KMax}$	<i>Nm</i>	3600
		<i>in.lb</i>	31863
Operating noise <sup>c)</sup>	$L_{PA}$	<i>dB(A)</i>	$\leq 70$
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	28 – 38

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage





# RPC+ 050 MA 3-stage

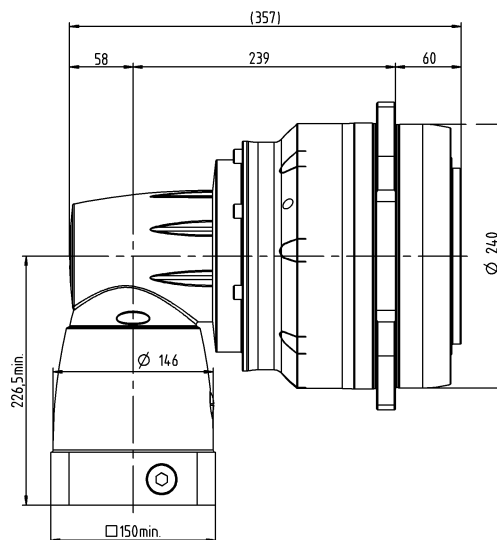
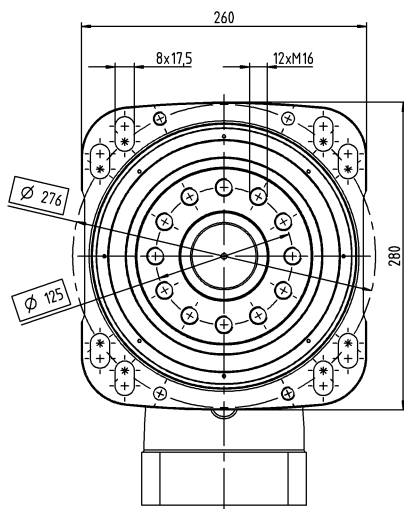
			<b>3-stage</b>
<b>Ratio</b>	$i$		<b>22 / 27.5 / 38.5 / 44 / 55</b>
<b>Max. torque <sup>a)</sup></b>	$T_{2a}$	$Nm$	3822
		$in.lb$	33828
<b>Max. acceleration torque</b> (max. 1000 cycles per hour)	$T_{2B}$	$Nm$	3100
		$in.lb$	27437
<b>Nominal torque</b> (at $n_n$ )	$T_{2N}$	$Nm$	1650
		$in.lb$	14604
<b>Emergency stop torque</b> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	$Nm$	5280 – 7150
		$in.lb$	46732 – 63283
<b>Thermal speed limit</b> (with 20°C ambient temperature and 10% torque utilization <sup>b)</sup> )	$n_{IT}$	$rpm$	1300 – 1700
<b>Max. input speed</b>	$n_{IMax}$	$rpm$	4500
<b>Max. torsional backlash</b>	$j_t$	$arcmin$	Standard $\leq 1,3$
<b>Torsional rigidity</b>	$C_{t21}$	$Nm/arcmin$	607 – 671
		$in.lb/arcmin$	5372 – 5939
<b>Max. tilting moment</b>	$M_{2KMax}$	$Nm$	11000
		$in.lb$	97359
<b>Operating noise <sup>c)</sup></b>	$L_{PA}$	$dB(A)$	$\leq 71$
<b>Lubrication</b>			Lubricated for life
<b>Clamping hub diameter</b>		$mm$	38

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage



			<b>3-stage</b>
<b>Ratio</b>	$i$		<b>22 / 27.5 / 38.5 / 44 / 55</b>
Max. torque <sup>a)</sup>	$T_{2a}$	<i>Nm</i>	7535
		<i>in.lb</i>	66691
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>	3500
		<i>in.lb</i>	30978
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	<i>Nm</i>	8580 – 14575
		<i>in.lb</i>	75940 – 129000
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) <sup>b)</sup>	$n_{TT}$	<i>rpm</i>	850 – 1350
Max. input speed	$n_{rMax}$	<i>rpm</i>	4000
Max. torsional backlash	$j_t$	<i>arcmin</i>	Standard $\leq 1,8$
Torsional rigidity	$C_{t21}$	<i>Nm/arcmin</i>	1039 – 1171
		<i>in.lb/arcmin</i>	9196 – 10364
Max. tilting moment	$M_{2KMax}$	<i>Nm</i>	21000
		<i>in.lb</i>	185867
Operating noise <sup>c)</sup>	$L_{PA}$	<i>dB(A)</i>	$\leq 71$
Lubrication			Lubricated for life
Clamping hub diameter		<i>mm</i>	48

<sup>a)</sup> Application-specific design with cymex® – [www.wittenstein-cymex.com](http://www.wittenstein-cymex.com)

<sup>b)</sup> For higher ambient temperatures, please reduce input speed

<sup>c)</sup> At reference ratio and reference speed. Ratio-specific values available in cymex®.

3-stage

