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.

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

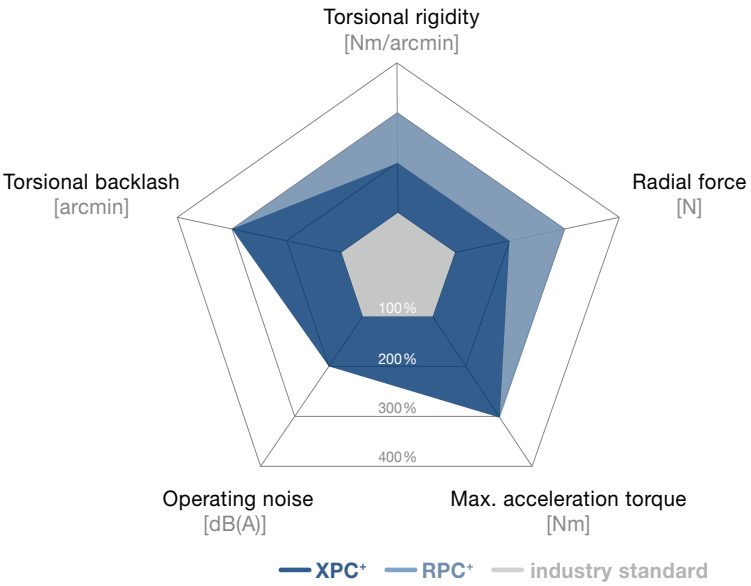
High tilting moments and torsional rigidity

Optimized for rack and pinion applications

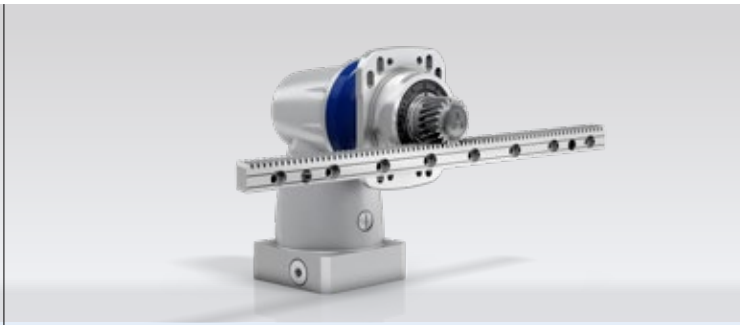
Multiple output configurations for greater flexibility

Smooth shaft, shaft with key, splined shaft (DIN 5480), blind hollow shaft, flange, System output

XPC⁺ and RPC⁺ compared to industry standard



XPC⁺ with pinion and slots



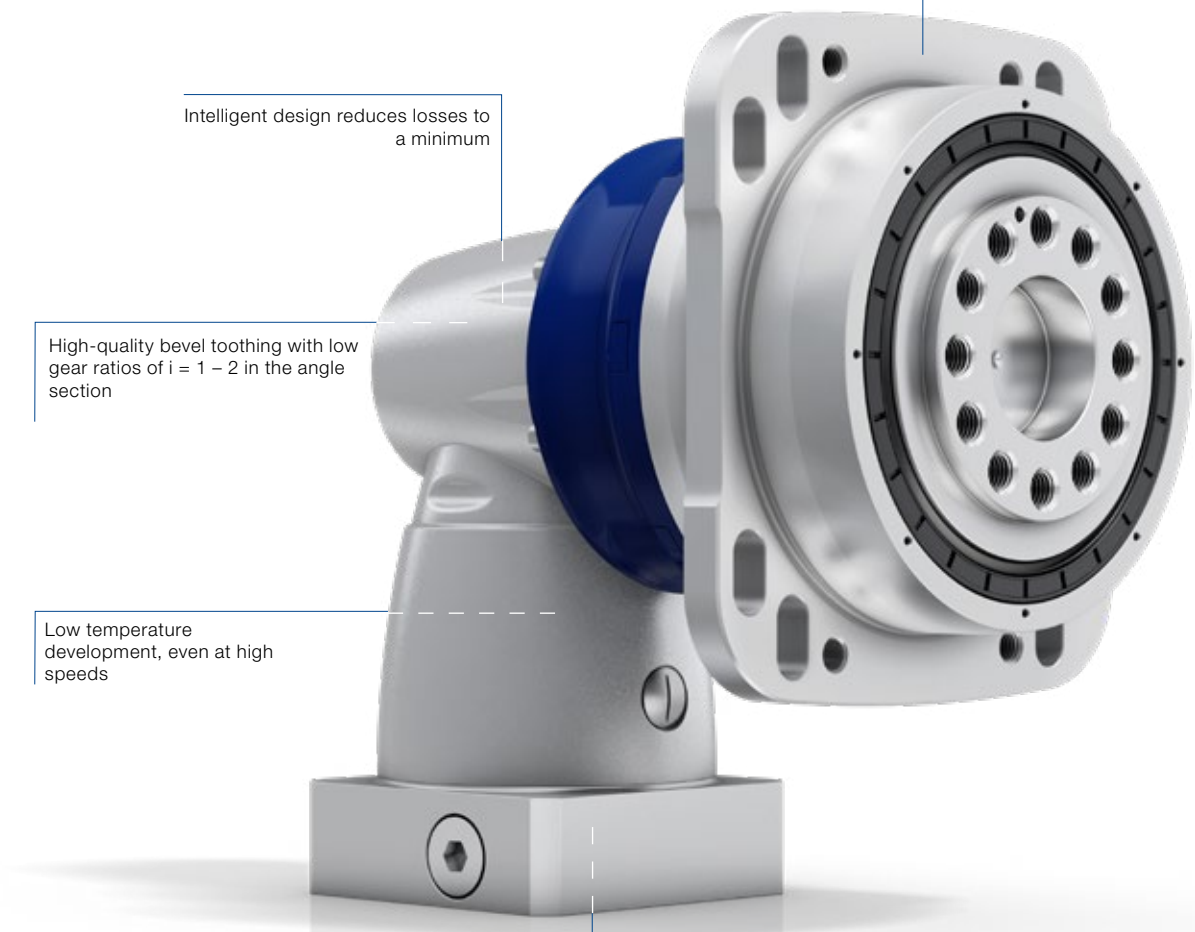
XPC⁺ with pinion, slots and rack

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

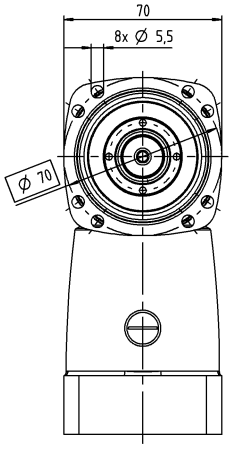
RPC+ with pinion and slots

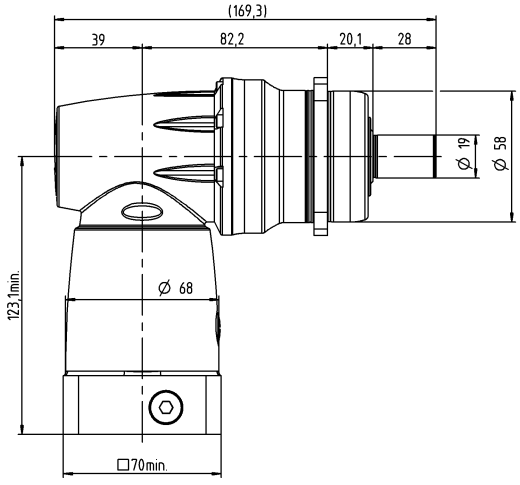
RPC+ with pinion, slots and rack

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

2-stage

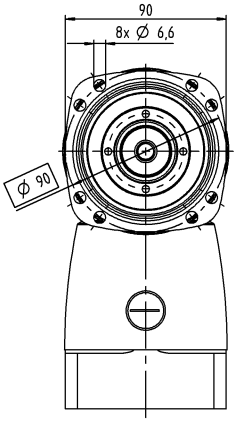


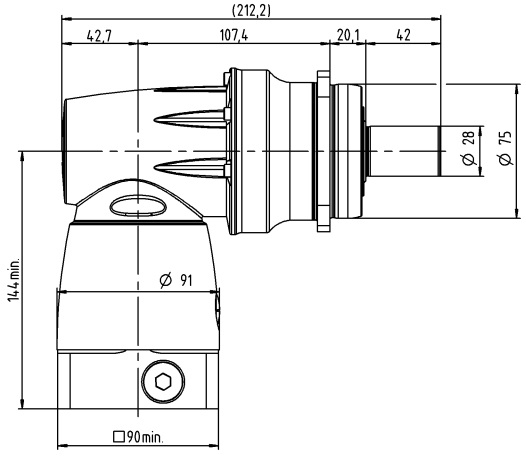


			2-stage
Ratio	*i*		**4 / 5 / 7 / 8 / 10 / 14 / 20**
Max. torque [a]	T_{2a}	*Nm*	144 – 240
		in.lb	1275 – 2124
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*	120 – 180
		in.lb	1062 – 1593
Nominal torque (at n_{1N})	T_{2N}	*Nm*	60 – 75
		in.lb	531 – 664
Emergency stop torque (permitted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

[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®.

2-stage

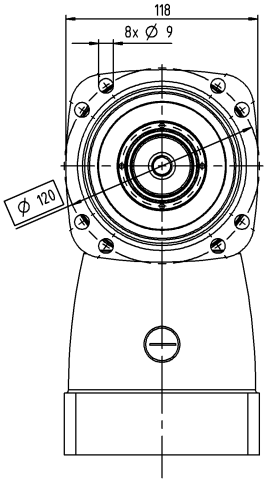


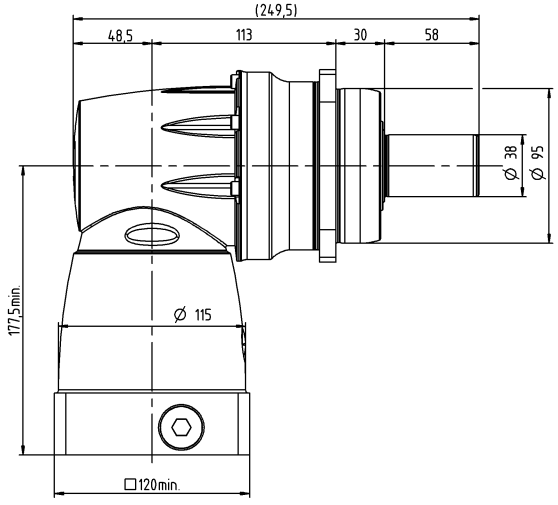


			2-stage
Ratio	i		**4 / 5 / 7 / 8 / 10 / 14 / 20**
Max. torque [a]	T_{2a}	*Nm*	389 – 486
		in.lb	3443 – 4301
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*	320 – 420
		in.lb	2832 – 3717
Nominal torque (at n_{1N})	T_{2N}	*Nm*	120 – 180
		in.lb	1062 – 1593
Emergency stop torque (permitted 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) [b]	n_{1T}	*rpm*	2100 – 2750
Max. input speed	n_{1Max}	*rpm*	4500
Max. torsional backlash	j_t	*arcmin*	Standard ≤ 4 / Reduced ≤ 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 [c]	L_{PA}	*dB(A)*	≤ 68
Lubrication			Lubricated for life
Clamping hub diameter		*mm*	28 – 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®.

2-stage

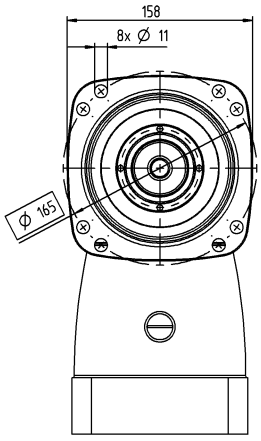


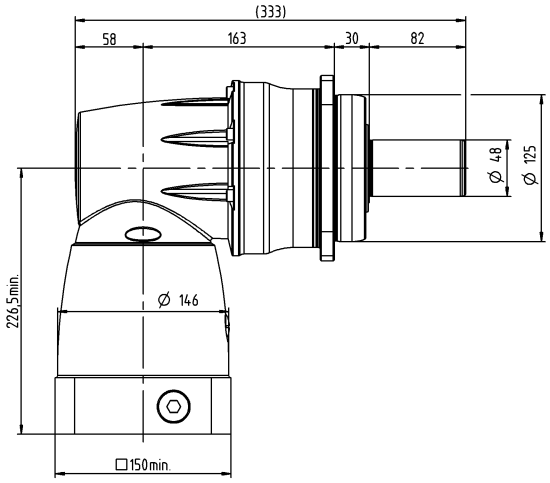


			2-stage
Ratio	*i*		**4 / 5 / 7 / 8 / 10 / 14 / 20**
Max. torque [a]	T_{2a}	*Nm*	792 – 1050
		in.lb	7010 – 9293
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*	700 – 875
		in.lb	6196 – 7744
Nominal torque (at n_{1N})	T_{2N}	*Nm*	240 – 370
		in.lb	2124 – 3275
Emergency stop torque (permitted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

2-stage

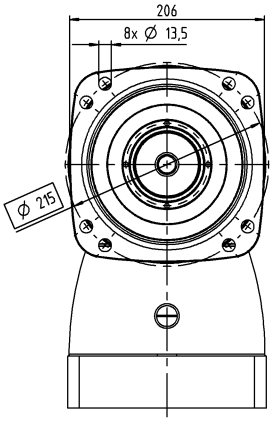


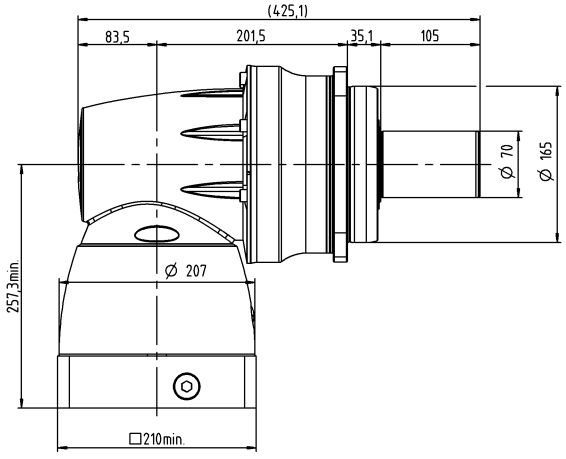


			2-stage
Ratio	*i*		**4 / 5 / 7 / 8 / 10 / 14 / 20**
Max. torque [a]	T_{2a}	*Nm*	1512 – 2646
		in.lb	13382 – 23419
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*	1260 – 2205
		in.lb	11152 – 19516
Nominal torque (at n_{1N})	T_{2N}	*Nm*	700 – 750
		in.lb	6196 – 6638
Emergency stop torque (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) [b]	n_{1T}	*rpm*	1050 – 1550
Max. input speed	n_{1Max}	*rpm*	4000
Max. torsional backlash	j_t	*arcmin*	Standard ≤ 4 / Reduced ≤ 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 [c]	L_{PA}	*dB(A)*	≤ 70
Lubrication			Lubricated for life
Clamping hub diameter		*mm*	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®.

2-stage

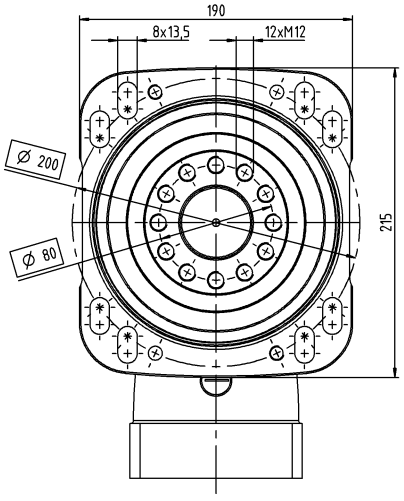


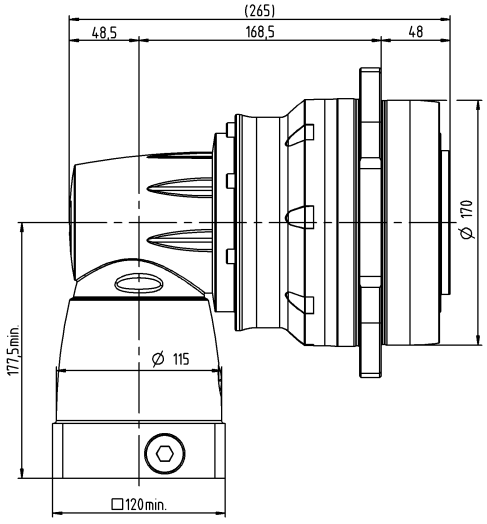


			3-stage
Ratio	*i*		**22 / 27.5 / 38.5 / 44 / 55**
Max. torque [a]	T_{2a}	*Nm*	1402
		in.lb	12409
Max. acceleration torque (max. 1000 cycles per hour)	T_{2Not}	*Nm*	2613
		in.lb	23127
Nominal torque (at n_{1N})	T_{2B}	*Nm*	950
		in.lb	8408
Emergency stop torque (permitted 1000 times during the service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

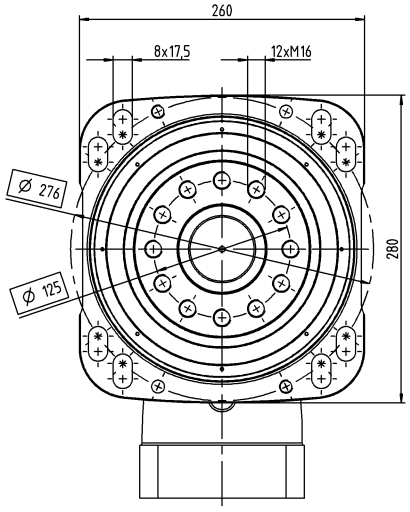


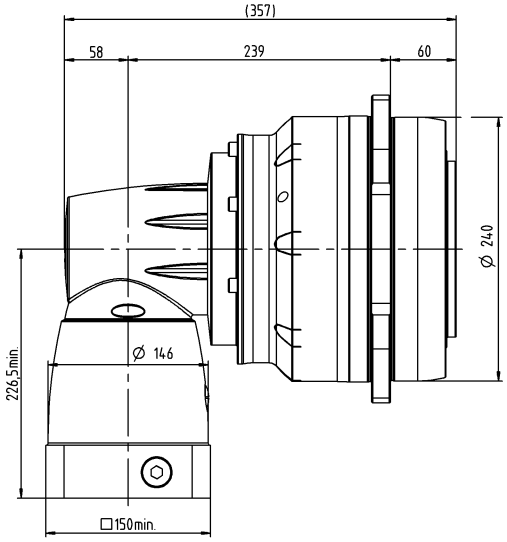


			3-stage
Ratio	*i*		**22 / 27.5 / 38.5 / 44 / 55**
Max. torque [a]	T_{2a}	*Nm*	3822
		in.lb	33828
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*	3100
		in.lb	27437
Nominal torque (at n_{1N})	T_{2N}	*Nm*	1650
		in.lb	14604
Emergency stop torque (permitted 1000 times during the service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





			3-stage
Ratio	*i*		**22 / 27.5 / 38.5 / 44 / 55**
Max. torque [a]	T_{2a}	*Nm*	7535
		in.lb	66691
Max. acceleration torque (max. 1000 cycles per hour)	T_{2B}	*Nm*	5500
		in.lb	48679
Nominal torque (at n_{1N})	T_{2N}	*Nm*	3500
		in.lb	30978
Emergency stop torque (permitted 1000 times during the service life of the gearbox)	T_{2Not}	*Nm*	8580 – 14575
		in.lb	75940 – 129000
Thermal speed limit (with 20°C ambient temperature and 10% torque utilization) [b]	n_{1T}	*rpm*	850 – 1350
Max. input speed	n_{1Max}	*rpm*	4000
Max. torsional backlash	j_t	*arcmin*	Standard ≤ 1,8
Torsional rigidity	C_{t21}	*Nm/arcmin*	1039 – 1171
		in.lb/arcmin	9196 – 10364
Max. tilting moment	M_{2KMax}	*Nm*	21000
		in.lb	185867
Operating noise [c]	L_{PA}	*dB(A)*	≤ 71
Lubrication			Lubricated for life
Clamping hub diameter		*mm*	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