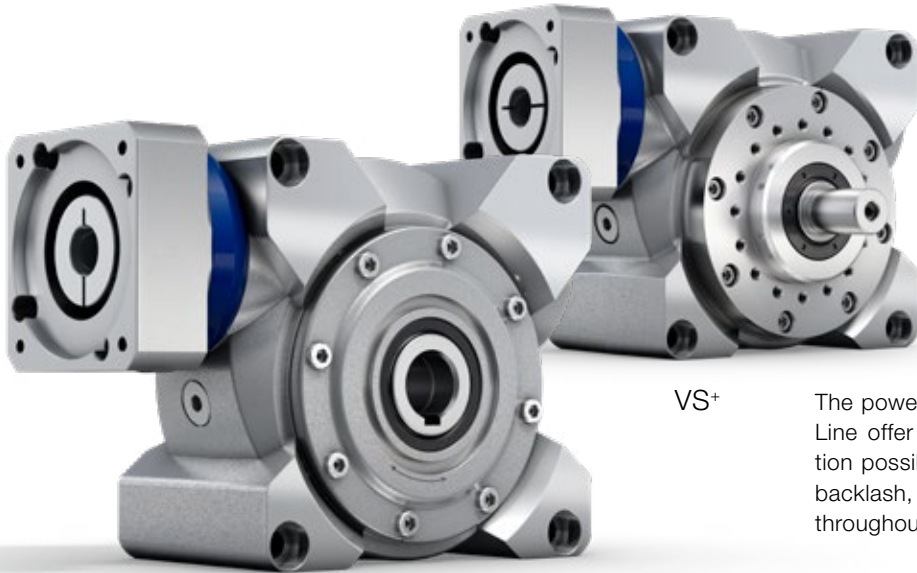


# VH+ / VS+ / VT+ – Precision worm gearboxes

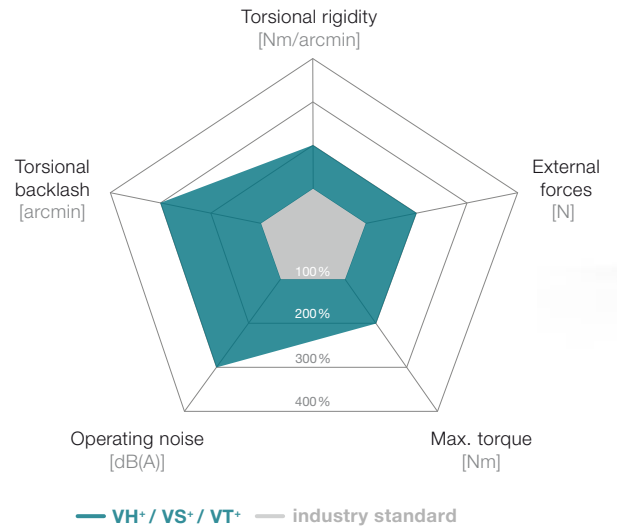


VH+

VS+

The powerful V-Drive worm gears of the alpha Advanced Line offer flexible output shapes and countless application possibilities. With high-quality toothing and constant backlash, the gearboxes remain exceptionally efficient throughout their entire service life.

## V-Drive Advanced compared to the industry standard



### Product highlights

**Max. torsional backlash [arcmin]** ≤ 3 (Standard)  
≤ 2 (Reduced)

**Constant, low torsional backlash** consistently high quality and high positioning accuracy guaranteed throughout its lifespan

**No stick-slip effect** owing to the enhanced hollow-flank teeth

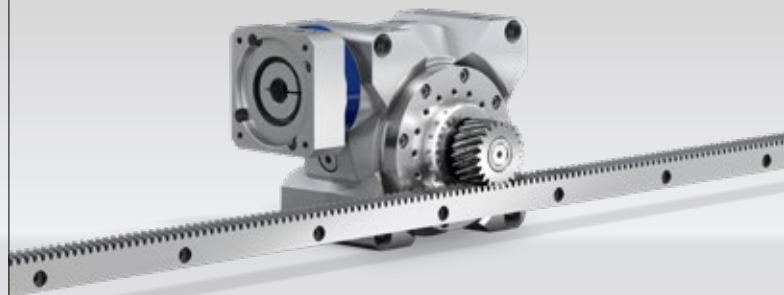
**Optimally sized output bearing** for absorbing high axial and radial forces in cyclic or continuous operation

**Hollow-flank teeth** with high overload capacity owing to the low specific tooth pressure

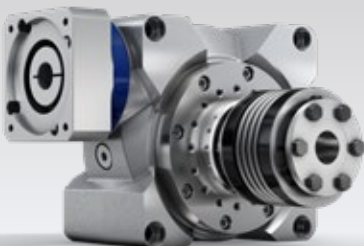
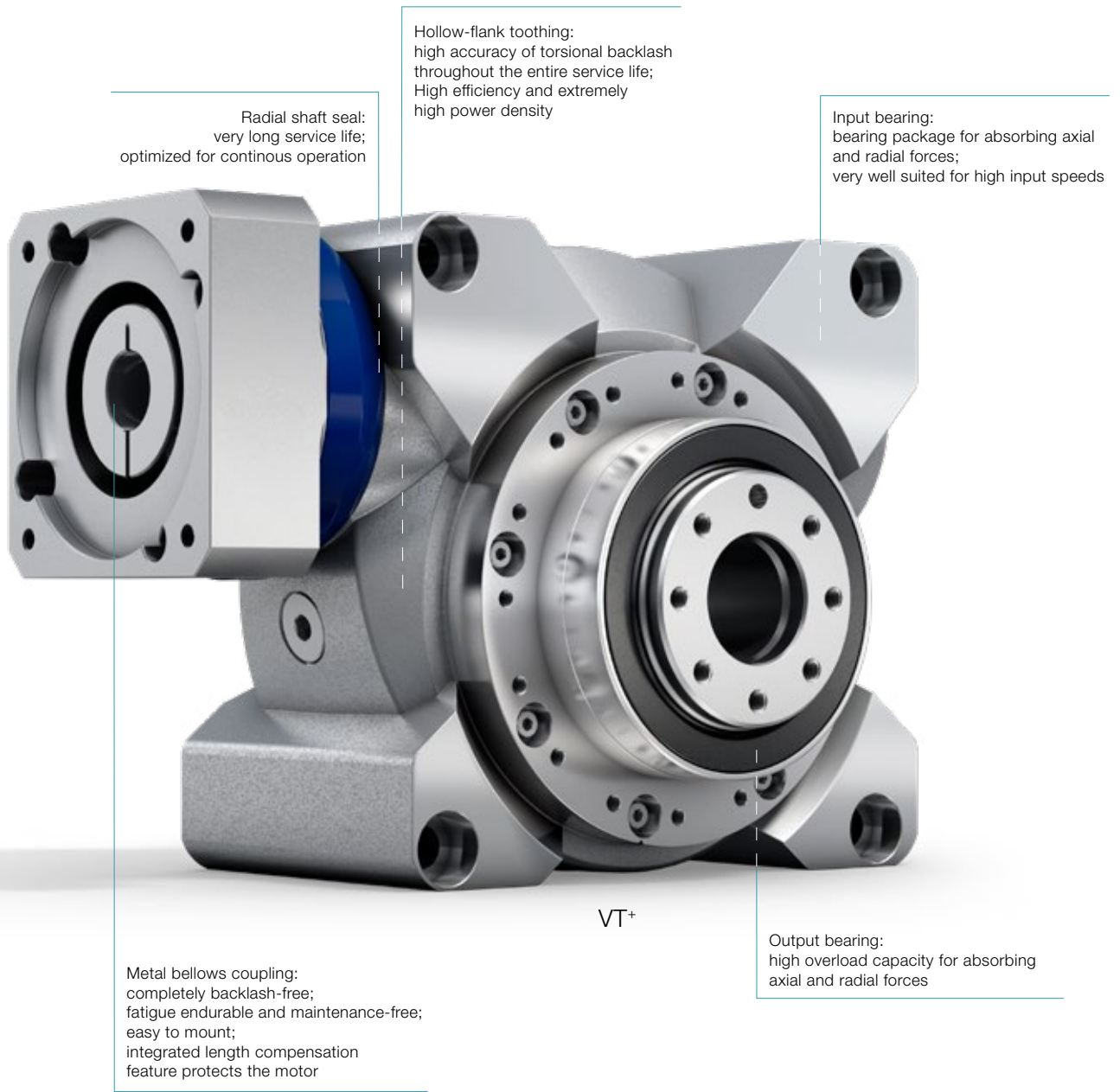
**Multiple output configurations for greater flexibility**  
Smooth shaft, shaft with key, splined shaft (DIN 5480), Hollow shaft interface, Keyed hollow shaft, Flanged hollow shaft, Flange, System output, Output on both sides



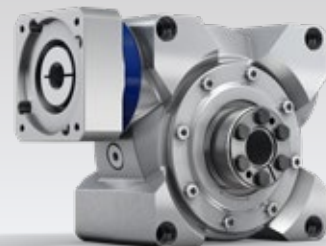
VT+ with integrated planetary input stage for higher ratios



VS+ in linear system



VS+ with metal bellows coupling BC3



VH+ with shrink disk

# VH+ 040 MF 1-/2-stage

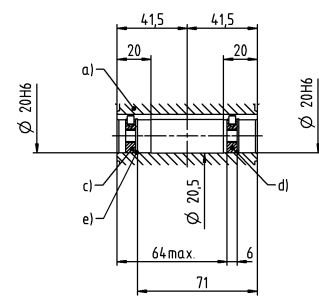
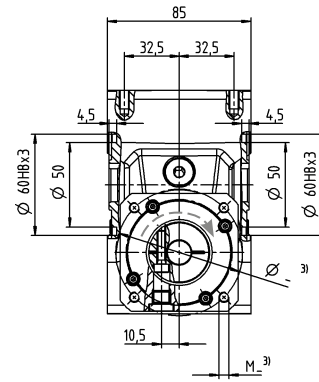
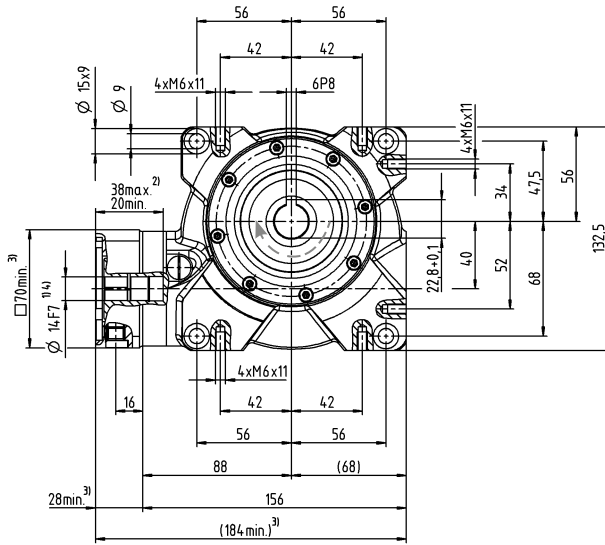
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	74	82	98	101	106	98	98	82	98	106	98	106	98		
		in.lb	655	726	867	894	938	867	867	726	867	938	867	938	867		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	17	24	25	26	29	25	25	24	25	29	25	29	25		
		in.lb	150	212	221	230	257	221	221	212	221	257	221	257	221		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	118	126	125	129	134	122	125	126	125	134	122	134	122		
		in.lb	1044	1115	1106	1142	1186	1080	1106	1115	1106	1186	1080	1186	1080		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						4400								
Max. input speed	$n_{1Max}$	rpm	6000														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.2	0.2	0.4	0.4	0.3	0.2		
		in.lb	7.1	6.2	5.3	4.4	3.5	3.5	3.5	1.8	1.8	3.5	3.5	2.7	1.8		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3							
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	4.5						5								
		in.lb/arcmin	40						40								
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N							3000								
		lb <sub>f</sub>							675								
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N							2400								
		lb <sub>f</sub>							540								
Max. tilting moment	$M_{2KMax}$	Nm							205								
		in.lb							1814								
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	93	90	88	82	73	67	86	88	86	71	65	71	65		
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	5.0						5.6								
		lb <sub>m</sub>	11.1						12.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 54						≤ 58								
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 to 104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 65														
Shrink disc (Standard version)			SD 024x050 S2														
Max. torque (without axial force)	$T_{max}$	Nm	250														
Mass moment of inertia (relates to the drive)	C	14	$J_1$	kgcm <sup>2</sup>	0.56	0.42	0.39	0.37	0.36	0.35	0.16	0.15	0.15	0.16	0.16	0.15	0.15
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.5	0.37	0.35	0.33	0.32	0.31	0.14	0.13	0.13	0.14	0.14	0.13	0.13
Clamping hub diameter [mm]	E	19	$J_1$	kgcm <sup>2</sup>	0.88	0.74	0.7	0.68	0.68	0.67	0.53	0.52	0.52	0.53	0.53	0.52	0.52
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	0.78	0.65	0.62	0.6	0.6	0.59	0.47	0.46	0.46	0.47	0.47	0.46	0.46

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

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

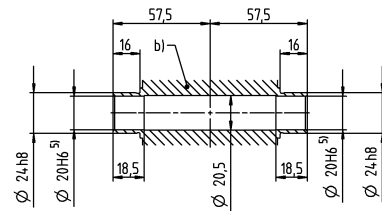
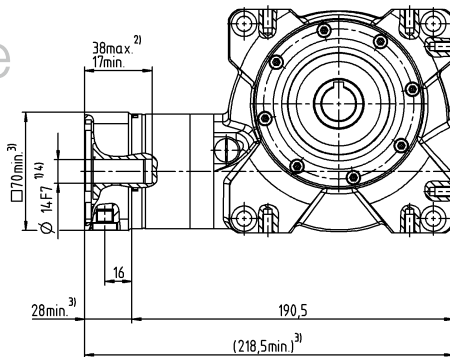
# 1-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



# 2-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



Motor shaft diameter [mm]

Worm gearboxes

VH+

- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M6
- d) End disc as forcing washer for screw M8
- e) Locking ring – DIN 472

c) - e): Already included in the scope of delivery of the gearbox

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

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit.
- <sup>2)</sup> Min. / Max. permissible motor shaft length.  
Longer motor shafts are adaptable, please contact us.
- <sup>3)</sup> The dimensions depend on the motor.
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.
- <sup>5)</sup> Tolerance h6 for mounted shaft.
- <sup>6)</sup> Standard clamping hub diameter

# VH+ 050 MF 1-/2-stage

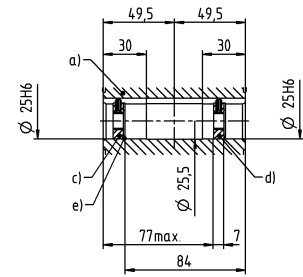
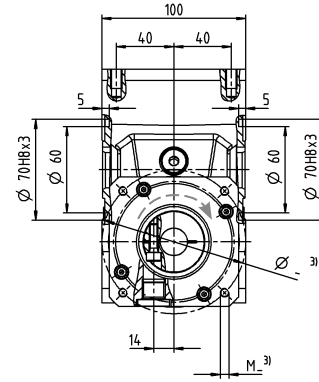
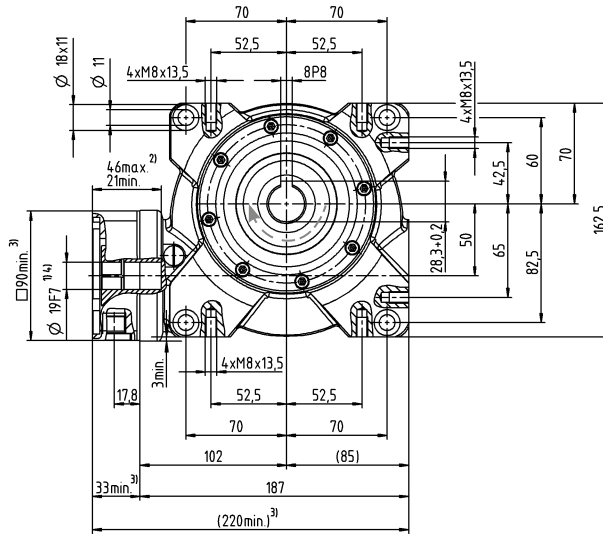
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	165	180	182	193	204	183	182	180	182	204	183	204	183		
		in.lb	1460	1593	1611	1708	1805	1620	1611	1593	1611	1805	1620	1805	1620		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	54	71	74	81	90	74	74	71	74	90	74	90	74		
		in.lb	478	628	655	717	797	655	655	628	655	797	655	797	655		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	230	242	242	250	262	236	242	242	242	262	236	262	236		
		in.lb	2036	2142	2142	2213	2319	2089	2142	2142	2142	2319	2089	2319	2089		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						3500								
Max. input speed	$n_{1Max}$	rpm	6000														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	2.3	2.2	1.6	1.5	1.2	1.1	0.7	0.5	0.4	0.6	0.6	0.4	0.4		
		in.lb	20.4	19.5	14.2	13.3	10.6	9.7	6.2	4.4	3.5	5.3	5.3	3.5	3.5		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2					Standard ≤ 4 / Reduced ≤ 3								
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	8														
		in.lb/arcmin	71														
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	5000														
		lb <sub>f</sub>	1125														
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	3800														
		lb <sub>f</sub>	855														
Max. tilting moment	$M_{2KMax}$	Nm	409														
		in.lb	3620														
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	92	89	86	82	72	64	84	87	84	70	62	70	62		
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	8.0						8.7								
		lb <sub>m</sub>	17.7						19.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 62														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 to 104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 65														
Shrink disc (Standard version)			SD 030x060 S2V														
Max. torque (without axial force)	$T_{max}$	Nm	550														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	0.21	0.16	0.16	0.2	0.21	0.16	0.16
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	0.19	0.14	0.14	0.18	0.19	0.14	0.14
	E	19	$J_1$	kgcm <sup>2</sup>	1.5	1.2	1.1	1.0	0.97	1.0	0.57	0.53	0.53	0.57	0.57	0.53	0.53
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	1.0	1.0	0.97	0.89	0.86	0.89	0.5	0.47	0.47	0.5	0.5	0.47	0.47
	G	24	$J_1$	kgcm <sup>2</sup>	1.6	1.3	1.2	1.1	1.1	1.2	-	-	-	-	-	-	-
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	1.0	1.0	1.0	0.97	0.97	1.0	-	-	-	-	-	-	-

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

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

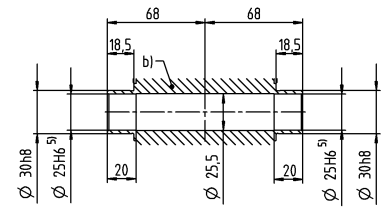
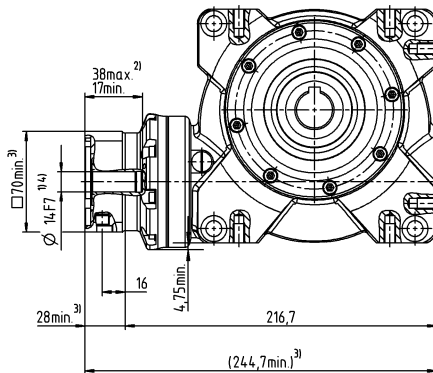
# 1-stage

up to 19/24<sup>4)</sup>  
(E<sup>6)</sup>/G) clamping  
hub diameter



# 2-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



Motor shaft diameter [mm]

Worm gearboxes

VH+

- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M10
- d) End disc as forcing washer for screw M12
- e) Locking ring – DIN 472

c) - e): Already included in the scope of delivery of the gearbox

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

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit.
- <sup>2)</sup> Min. / Max. permissible motor shaft length.  
Longer motor shafts are adaptable, please contact us.
- <sup>3)</sup> The dimensions depend on the motor.
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.
- <sup>5)</sup> Tolerance h6 for mounted shaft.
- <sup>6)</sup> Standard clamping hub diameter

# VH+ 063 MF 1-/2-stage

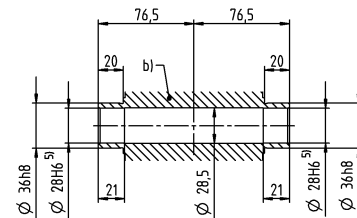
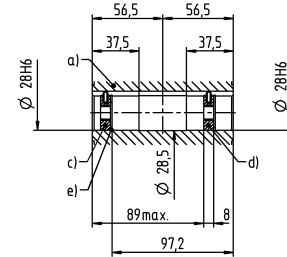
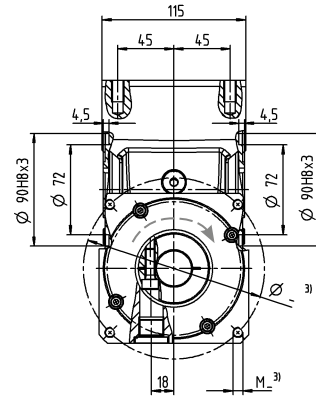
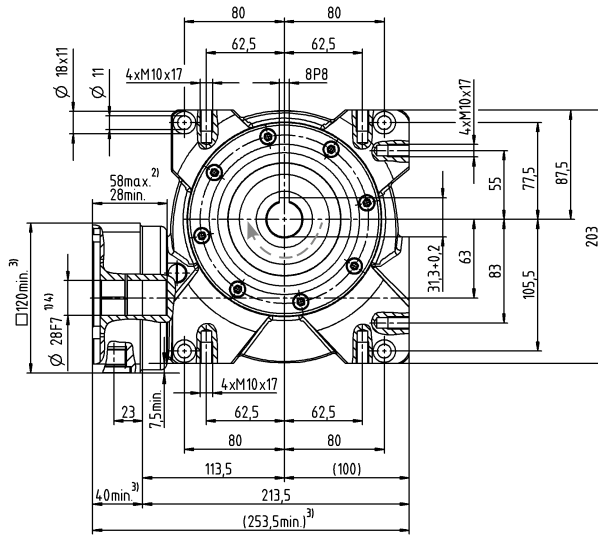
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	319	353	364	372	392	363	364	353	364	392	363	392	363		
		in.lb	2823	3124	3221	3292	3469	3213	3221	3124	3221	3469	3213	3469	3213		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	198	210	225	221	229	226	225	210	225	229	226	229	226		
		in.lb	1752	1859	1991	1956	2027	2000	1991	1859	1991	2027	2000	2027	2000		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	460	484	491	494	518	447	491	484	494	518	447	518	447		
		in.lb	4071	4283	4345	4372	4584	3956	4345	4283	4372	4584	3956	4584	3956		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						3100								
Max. input speed	$n_{1Max}$	rpm	4500														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	4.2	3.1	3	2.4	2.3	2.2	1.2	0.7	0.7	1.1	1.1	0.8	0.6		
		in.lb	37.2	27.4	26.6	21.2	20.4	19.5	10.6	6.2	6.2	9.7	9.7	7.1	5.3		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3							
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	28														
		in.lb/arcmin	248														
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	8250														
		lb <sub>f</sub>	1856														
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	6000														
		lb <sub>f</sub>	1350														
Max. tilting moment	$M_{2KMax}$	Nm	843														
		in.lb	7461														
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	93	91	88	83	74	68	86	89	86	72	66	72	66		
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	13.0						13.7								
		lb <sub>m</sub>	28.7						30.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 64														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 to 104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 65														
Shrink disc (Standard version)			SD 036x072 S2V														
Max. torque (without axial force)	$T_{max}$	Nm	640														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	0.75	0.59	0.58	0.75	0.75	0.58	0.58
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	0.66	0.52	0.51	0.66	0.66	0.51	0.51
	G	24	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	2.3	2.2	2.2	2.3	2.3	2.2	2.2
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	H	28	$J_1$	kgcm <sup>2</sup>	4.9	4.0	3.8	3.7	3.6	3.6	-	-	-	-	-	-	-
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	4.3	3.5	3.4	3.3	3.2	3.2	-	-	-	-	-	-	-

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

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

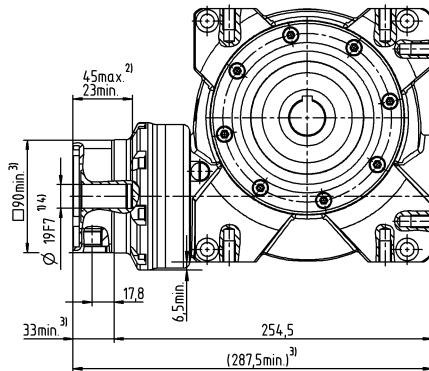
# 1-stage

up to 28<sup>4)</sup> (H)<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 19/24<sup>4)</sup>  
(E<sup>6)</sup>/G) clamping  
hub diameter



Motor shaft diameter [mm]

- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M10
- d) End disc as forcing washer for screw M12
- e) Locking ring – DIN 472

c) - e): Already included in the scope of delivery of the gearbox

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

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit.
- <sup>2)</sup> Min. / Max. permissible motor shaft length.  
Longer motor shafts are adaptable, please contact us.
- <sup>3)</sup> The dimensions depend on the motor.
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.
- <sup>5)</sup> Tolerance h6 for mounted shaft.
- <sup>6)</sup> Standard clamping hub diameter



# VH+ 080 MF 1-/2-stage

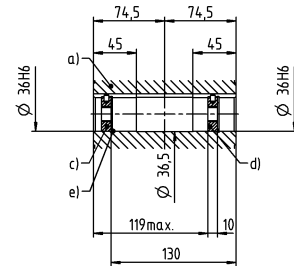
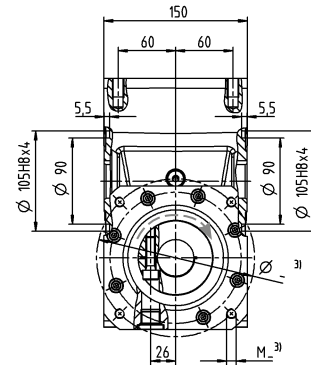
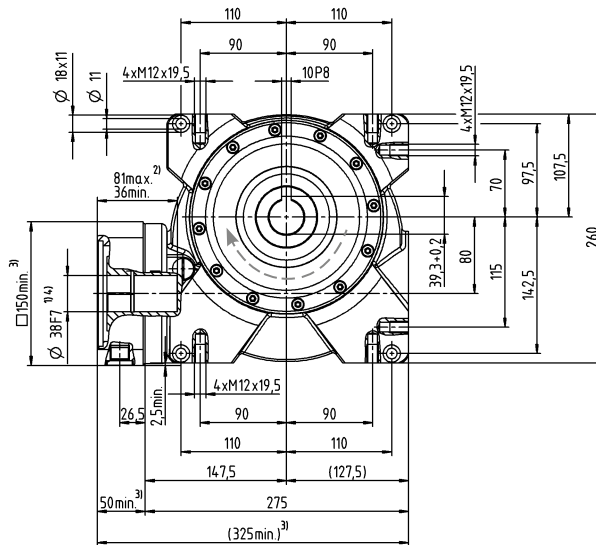
			1-stage						2-stage							
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400	
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	578	646	672	702	785	676	672	646	672	785	676	785	676	
		in.lb	5115	5717	5947	6213	6947	5983	5947	5717	5947	6947	5983	6947	5983	
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	469	601	613	677	764	631	613	601	613	764	631	764	631	
		in.lb	4151	5319	5425	5991	6761	5584	5425	5319	5425	6761	5584	6761	5584	
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	938	993	963	1005	1064	941	963	993	963	1064	941	1064	941	
		in.lb	8301	8788	8523	8894	9416	8328	8523	8788	8523	9416	8328	9416	8328	
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	3500						2900							
Max. input speed	$n_{1Max}$	rpm	4000						4500							
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	7.2	7.1	6.5	5	4.8	4.5	2.8	1.6	1.5	2.4	2.4	1.8	1.3	
		in.lb	63.7	62.8	57.5	44.3	42.5	39.8	24.8	14.2	13.3	21.2	21.2	15.9	11.5	
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3						
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	78													
		in.lb/arcmin	690													
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	13900													
		lb <sub>f</sub>	3128													
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	9000													
		lb <sub>f</sub>	2025													
Max. tilting moment	$M_{2KMax}$	Nm	1544													
		in.lb	13664													
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	94	92	89	86	77	70	87	90	87	75	68	75	68	
Service life <sup>1)</sup>	$L_h$	h	> 20000													
Weight (incl. standard adapter plate)	$m$	kg	27.0						29.5							
		lb <sub>m</sub>	59.7						68.0							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 66						≤ 68							
Max. permitted housing temperature		°C	+90													
		F	194													
Ambient temperature		°C	-15 to +40													
		F	5 to 104													
Lubrication			Lubricated for life													
Direction of rotation			In- and output same direction													
Protection class			IP 65													
Shrink disc (Standard version)			SD 050x090 S2V													
Max. torque (without axial force)	$T_{max}$	Nm	1400													
Mass moment of inertia (relates to the drive)	G 24	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	3.0	2.4	2.4	3.0	3.0	2.4	2.4
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	-	2.7	2.1	2.1	2.7	2.7	2.1
Clamping hub diameter [mm]	K 38	$J_1$	kgcm <sup>2</sup>	19.8	16.3	16.3	14.9	14.8	15.4	10.2	9.5	9.5	10.1	10.2	9.5	9.5
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	17.5	14.4	14.4	13.2	13.1	13.6	9.0	8.4	8.4	8.9	9.0	8.4	8.4

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

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

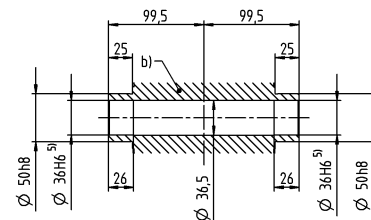
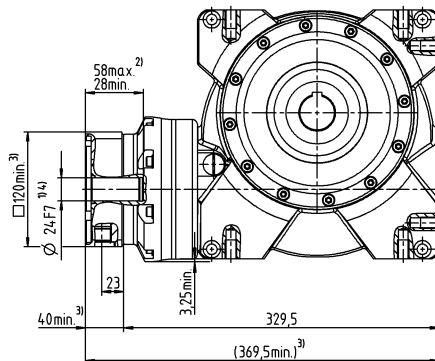
# 1-stage

up to 38<sup>4)</sup> (K)<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 24/38<sup>4)</sup>  
(G<sup>6)</sup>/K) clamping  
hub diameter



- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M12
- d) End disc as forcing washer for screw M16
- e) Locking ring - DIN 472

c) - e): Already included in the scope of delivery of the gearbox

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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min. / Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Tolerance h6 for mounted shaft.

<sup>6)</sup> Standard clamping hub diameter

# VH+ 100 MF 1-/2-stage

			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	1184	1336	1377	1392	1505	1376	1377	1336	1377	1505	1376	1505	1376		
		in.lb	10478	11824	12186	12319	13319	12178	12186	11825	12186	13319	12178	13319	12178		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	1155	1304	1343	1359	1469	1343	1343	1304	1343	1469	1343	1469	1343		
		in.lb	10222	11540	11886	12027	13001	11886	11886	11541	11886	13001	11886	13001	11886		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	1819	1932	1940	1955	2073	1856	1940	1940	1940	2073	1856	2073	1856		
		in.lb	16098	17098	17169	17302	18346	16426	17169	17169	17169	18346	16426	18346	16426		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	3000						2700								
Max. input speed	$n_{1Max}$	rpm	3500						4000								
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	12.2	10.5	9.8	9.1	8.2	7.2	4.1	2.3	2.2	3.8	3.6	2.6	2		
		in.lb	108.0	92.9	86.7	80.5	72.6	63.7	36.3	20.4	19.5	33.6	31.9	23.0	17.7		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3							
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin							153								
		in.lb/arcmin							1354								
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N							19500								
		lb <sub>f</sub>							4388								
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N							14000								
		lb <sub>f</sub>							3150								
Max. tilting moment	$M_{2KMax}$	Nm							3059								
		in.lb							27072								
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	95	93	91	87	80	76	89	89	89	78	74	78	74		
Service life <sup>f)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	51.0						53.6								
		lb <sub>m</sub>	112.7						118.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 70														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 to 104														
Lubrication			Lubricated for life														
Direction of rotation			In- and output same direction														
Protection class			IP 65														
Shrink disc (Standard version)			SD 062x110 S2V														
Max. torque (without axial force)	$T_{max}$	Nm	2300														
Mass moment of inertia (relates to the drive)	K	38	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	11.9	10.0	10.0	11.8	11.8	10.0	10.0
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	10.5	8.9	8.9	10.4	10.4	8.9	8.9
Clamping hub diameter [mm]	M	48	$J_1$	kgcm <sup>2</sup>	53.4	43.8	41.9	42.7	40.3	40.6	26.9	25.1	25.0	26.8	26.9	25.0	25.0
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	47.3	38.8	27.1	37.8	35.7	35.9	23.8	22.2	22.1	23.7	23.8	22.1	22.1

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

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



# VS+ 050 MF 1-/2-stage

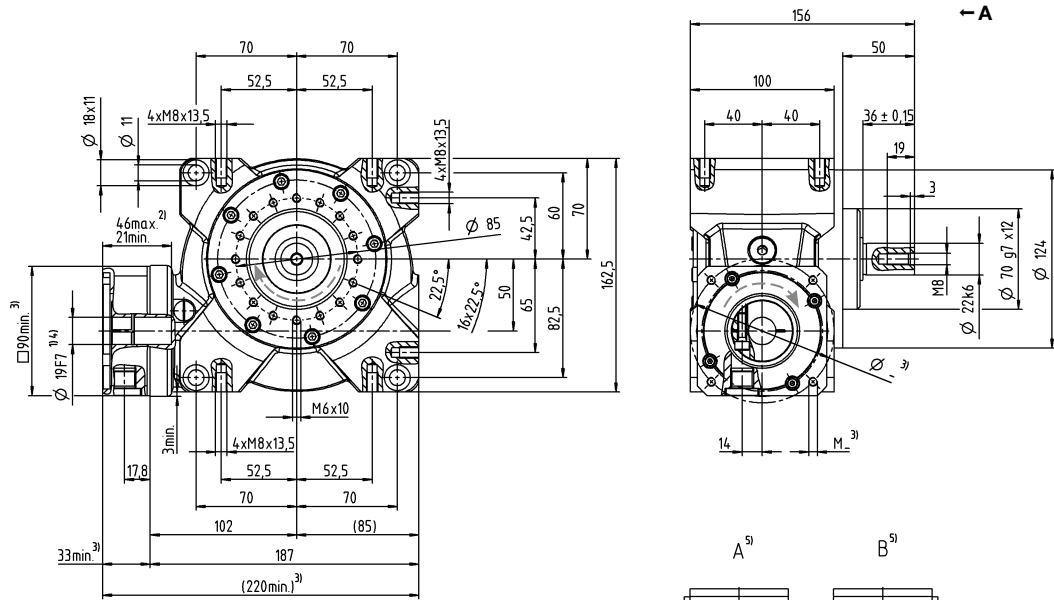
			1-stage						2-stage								
Ratio	$i$		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b) e)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	165	180	182	193	204	183	182	180	182	204	183	204	183		
		in.lb	1460	1593	1611	1708	1805	1620	1611	1593	1611	1805	1620	1805	1620		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	54	71	74	81	90	74	74	71	74	90	74	90	74		
		in.lb	478	628	655	717	797	655	655	628	655	797	655	797	655		
Emergency stop torque <sup>a) b) e)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	230	242	242	250	262	236	242	242	242	262	236	262	236		
		in.lb	2036	2142	2142	2213	2319	2089	2142	2142	2142	2319	2089	2319	2089		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						3500								
Max. input speed	$n_{1Max}$	rpm	6000														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	2.3	2.2	1.6	1.5	1.2	1.1	0.7	0.5	0.4	0.6	0.6	0.4	0.4		
		in.lb	20.4	19.5	14.2	13.3	10.6	9.7	6.2	4.4	3.5	5.3	5.3	3.5	3.5		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2					Standard ≤ 4 / Reduced ≤ 3								
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	8														
		in.lb/arcmin	71														
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	5000														
		lb <sub>f</sub>	1125														
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	3800														
		lb <sub>f</sub>	855														
Max. tilting moment	$M_{2KMax}$	Nm	409														
		in.lb	3620														
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	92	89	86	82	72	64	84	87	84	70	62	70	62		
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	9.0						9.7								
		lb <sub>m</sub>	19.9						21.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 62														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 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 <sup>®</sup> )			BC3 - 00200A - 022.000 - X														
Bore diameter of coupling on the application side		mm	X = 015.000 - 044.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	0.21	0.16	0.16	0.2	0.21	0.16	0.16
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	0.19	0.14	0.14	0.18	0.19	0.14	0.14
	E	19	$J_1$	kgcm <sup>2</sup>	1.5	1.2	1.1	1.0	0.97	1.0	0.57	0.53	0.53	0.57	0.57	0.53	0.53
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	1.3	1.1	0.97	0.89	0.86	0.89	0.5	0.47	0.47	0.5	0.5	0.47	0.47
	G	24	$J_1$	kgcm <sup>2</sup>	1.6	1.3	1.2	1.1	1.1	1.2	-	-	-	-	-	-	-
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	1.4	1.2	1.1	0.97	0.97	1.1	-	-	-	-	-	-	-

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

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

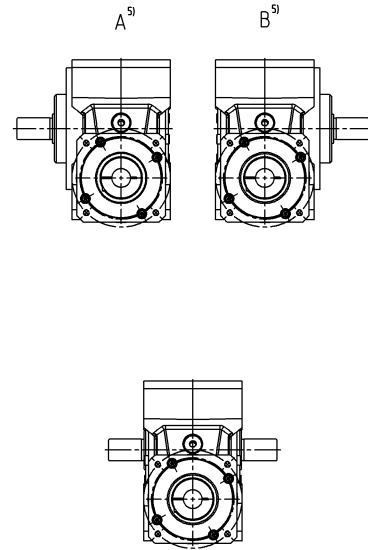
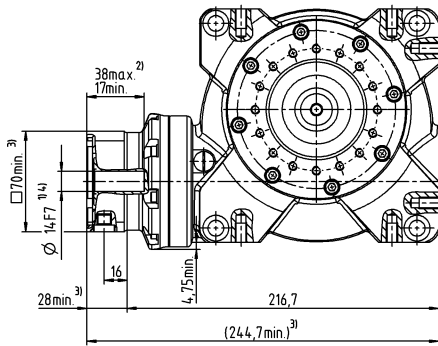
# 1-stage

up to 19/24<sup>4)</sup>  
(E<sup>6)</sup>/G) clamping  
hub diameter



# 2-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



Optional dual-shaft output. Drawings available upon request.  
Involute gearing is not possible.

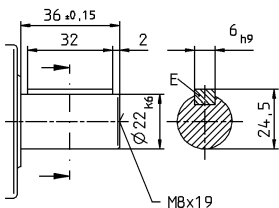
Motor shaft diameter [mm]

Worm gearboxes

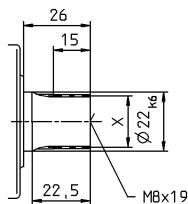
VS+

## Other output variants

Shaft with key



Spined shaft (DIN 5480)



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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

# VS+ 063 MF 1-/2-stage

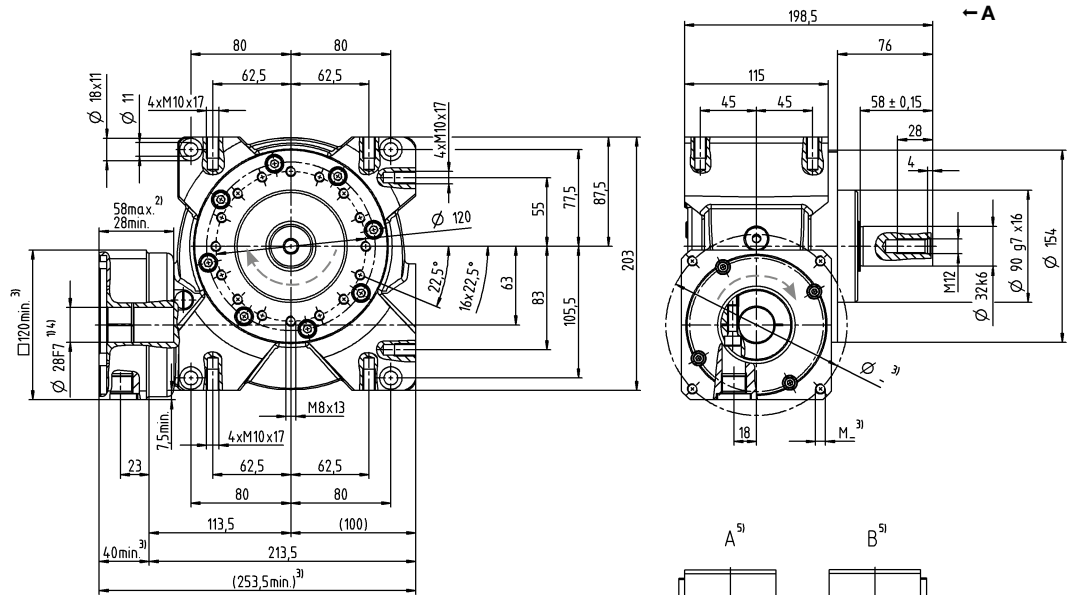
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b) e)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	319	353	364	372	392	363	364	353	364	392	363	392	363		
		in.lb	2823	3124	3221	3292	3469	3213	3221	3124	3221	3469	3213	3469	3213		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	198	210	225	221	229	226	225	210	225	229	226	229	226		
		in.lb	1752	1859	1991	1956	2027	2000	1991	1859	1991	2027	2000	2027	2000		
Emergency stop torque <sup>a) b) e)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	460	484	491	494	518	447	491	484	494	518	447	518	447		
		in.lb	4071	4283	4345	4372	4584	3956	4345	4283	4372	4584	3956	4584	3956		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						3100								
Max. input speed	$n_{1Max}$	rpm	4500														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	4.2	3.1	3	2.4	2.3	2.2	1.2	0.7	0.7	1.1	1.1	0.8	0.6		
		in.lb	37.2	27.4	26.6	21.2	20.4	19.5	10.6	6.2	6.2	9.7	9.7	7.1	5.3		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2					Standard ≤ 4 / Reduced ≤ 3								
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	28														
		in.lb/arcmin	248														
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	8250														
		lb <sub>f</sub>	1856														
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	6000														
		lb <sub>f</sub>	1350														
Max. tilting moment	$M_{2KMax}$	Nm	843														
		in.lb	7461														
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	93	91	88	83	74	68	86	89	86	72	66	72	66		
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	16.0						16.7								
		lb <sub>m</sub>	35.4						37.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 64														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 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 <sup>®</sup> )			BC3 - 00500A - 032.000 - X														
Bore diameter of coupling on the application side		mm	X = 024.000 - 056.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	0.75	0.59	0.58	0.75	0.75	0.58	0.58
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	0.66	0.52	0.51	0.66	0.66	0.51	0.51
	G	24	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	2.3	2.2	2.2	2.3	2.3	2.2	2.2
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	H	28	$J_1$	kgcm <sup>2</sup>	4.9	4.0	3.8	3.7	3.6	3.6	-	-	-	-	-	-	-
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	4.3	3.5	3.4	3.3	3.2	3.2	-	-	-	-	-	-	-

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Please contact us for optimum sizing at S1 conditions (Continuous operation).

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

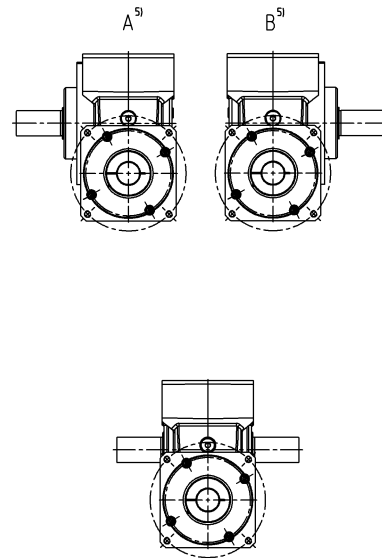
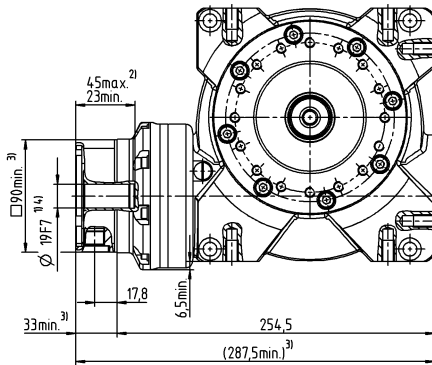
# 1-stage

up to 28<sup>4)</sup> (H)<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 19/24<sup>4)</sup> (E<sup>6)</sup>/G)  
clamping hub diameter

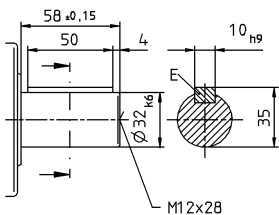


Optional dual-shaft output. Drawings available upon request.  
Involute gearing is not possible.

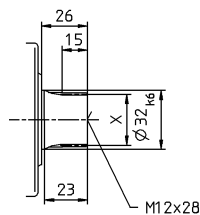
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Spined shaft (DIN 5480)



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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter



# VS+ 080 MF 1-/2-stage

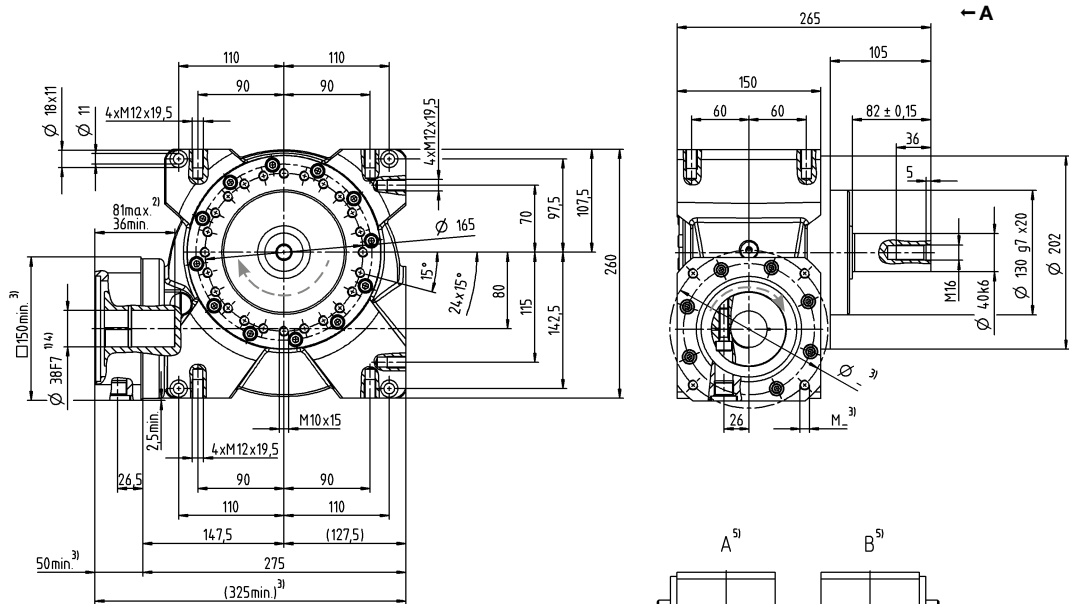
			1-stage						2-stage							
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400	
Max. torque <sup>a) b) e)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	578	646	672	702	785	676	672	646	672	785	676	785	676	
		in.lb	5115	5717	5947	6213	6947	5983	5947	5717	5947	6947	5983	6947	5983	
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	469	601	613	677	764	631	613	601	613	764	631	764	631	
		in.lb	4151	5319	5425	5991	6761	5584	5425	5319	5425	6761	5584	6761	5584	
Emergency stop torque <sup>a) b) e)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	938	993	963	1005	1064	941	963	993	963	1064	941	1064	941	
		in.lb	8301	8788	8523	8894	9416	8328	8523	8788	8523	9416	8328	9416	8328	
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	3500						2900							
Max. input speed	$n_{1Max}$	rpm	4000						4500							
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	7.2	7.1	6.5	5	4.8	4.5	2.8	1.6	1.5	2.4	2.4	1.8	1.3	
		in.lb	63.7	62.8	57.5	44.3	42.5	39.8	24.8	14.2	13.3	21.2	21.2	15.9	11.5	
Max. backlash	$j_i$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3						
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	78													
		in.lb/arcmin	690													
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	13900													
		lb <sub>f</sub>	3128													
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	9000													
		lb <sub>f</sub>	2025													
Max. tilting moment	$M_{2KMax}$	Nm	1544													
		in.lb	13664													
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	94	92	89	86	77	70	87	90	87	75	68	75	68	
Service life <sup>1)</sup>	$L_h$	h	> 20000													
Weight (incl. standard adapter plate)	$m$	kg	33.0						35.5							
		lb <sub>m</sub>	72.9						78.0							
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 66						≤ 68							
Max. permitted housing temperature		°C	+90													
		F	194													
Ambient temperature		°C	-15 to +40													
		F	5 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 <sup>®</sup> )			BC3 - 00800A - 040.000 - X													
Bore diameter of coupling on the application side		mm	X = 030.000 - 060.000													
Mass moment of inertia (relates to the drive)	G 24	$J_i$	kgcm <sup>2</sup>	-	-	-	-	-	-	3.0	2.4	2.4	3.0	3.0	2.4	2.4
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	-	2.0	2.1	2.1	2.7	2.7	2.1
Clamping hub diameter [mm]	K 38	$J_i$	kgcm <sup>2</sup>	19.8	16.3	16.3	14.9	14.8	15.4	10.2	9.5	9.5	10.1	10.2	9.5	9.5
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	17.5	14.4	14.4	13.2	13.1	13.6	9.0	8.4	8.4	8.9	9.0	8.4	8.4

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

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

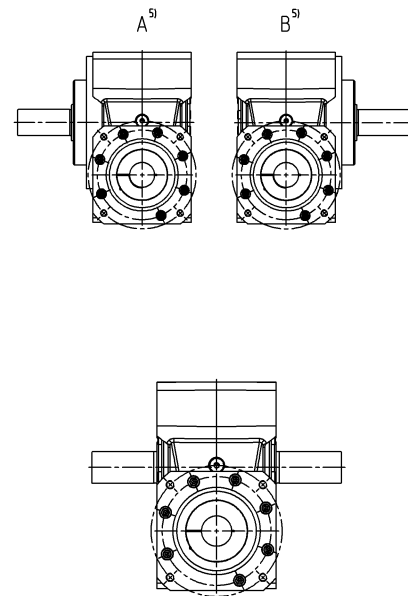
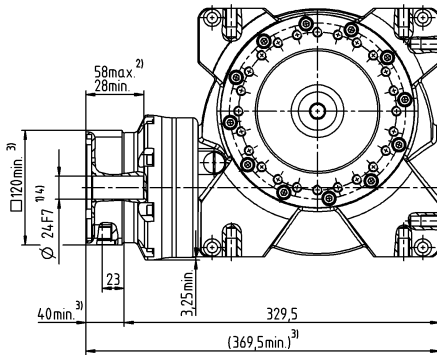
# 1-stage

up to 38<sup>4)</sup> (K)<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 24/38<sup>4)</sup>  
(G<sup>6)</sup>/K) clamping hub diameter



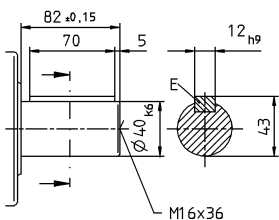
Optional dual-shaft output. Drawings available upon request.  
Involute gearing is not possible.

Motor shaft diameter [mm]

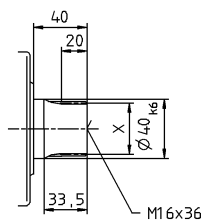
Worm gearboxes

## Other output variants

Shaft with key



Spined shaft (DIN 5480)



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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

VS+

# VS+ 100 MF 1-/2-stage

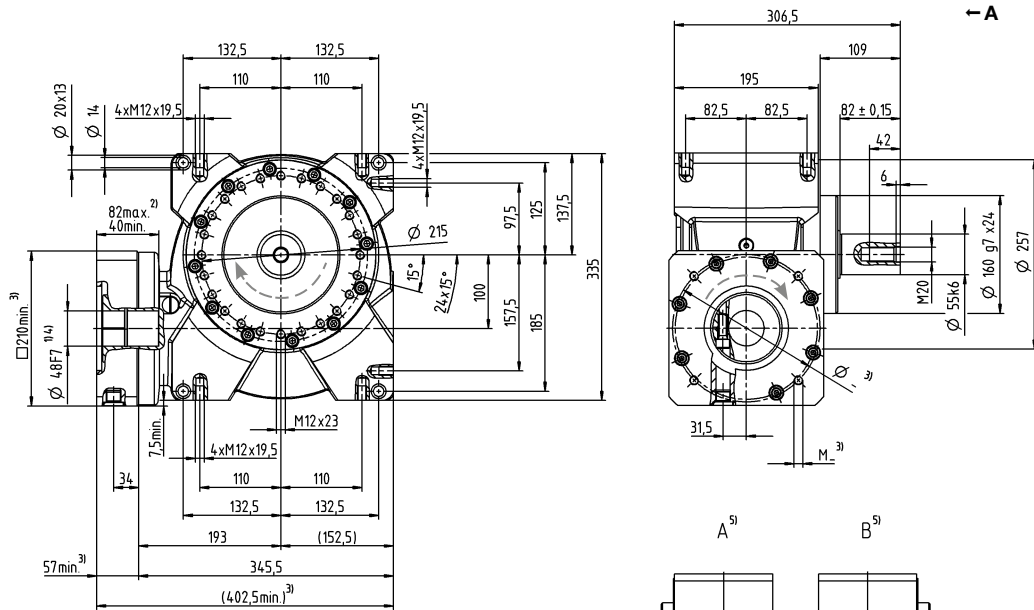
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b) e)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	1184	1336	1377	1392	1505	1376	1377	1336	1377	1505	1376	1505	1376		
		in.lb	10478	11824	12186	12319	13319	12178	12186	11825	12186	13319	12178	13319	12178		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	1155	1304	1343	1359	1469	1343	1343	1304	1343	1469	1343	1469	1343		
		in.lb	10222	11540	11886	12027	13001	11886	11886	11541	11886	13001	11886	13001	11886		
Emergency stop torque <sup>a) b) e)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	1819	1932	1940	1955	2073	1856	1940	1940	1940	2073	1856	2073	1856		
		in.lb	16098	17098	17169	17302	18346	16426	17169	17169	17169	18346	16426	18346	16426		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	3000						2700								
Max. input speed	$n_{1Max}$	rpm	3500						4000								
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	12.2	10.5	9.8	9.1	8.2	7.2	4.1	2.3	2.2	3.8	3.6	2.6	2		
		in.lb	108.0	92.9	86.7	80.5	72.6	63.7	36.3	20.4	19.5	33.6	31.9	23.0	17.7		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3							
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	153														
		in.lb/arcmin	1354														
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	19500														
		lb <sub>f</sub>	4388														
Max. lateral force <sup>c)</sup>	$F_{2QMax}$	N	14000														
		lb <sub>f</sub>	3150														
Max. tilting moment	$M_{2KMax}$	Nm	3059														
		in.lb	27072														
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	95	93	91	87	80	76	89	89	89	78	74	78	74		
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	62.0						64.6								
		lb <sub>m</sub>	137.0						143.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 70														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 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 <sup>®</sup> )			BC3 - 01500A - 055.000 - X														
Bore diameter of coupling on the application side		mm	X = 035.000 - 070.000														
Mass moment of inertia (relates to the drive)	K	38	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	11.9	10.0	10.0	11.8	11.8	10.0	10.0
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	10.5	8.9	8.9	10.4	10.4	8.9	8.9
Clamping hub diameter [mm]	M	48	$J_1$	kgcm <sup>2</sup>	53.4	43.8	41.9	42.7	40.3	40.6	26.9	25.1	25.0	26.8	26.9	25.0	25.0
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	47.3	38.8	37.1	37.8	35.7	35.9	23.8	22.2	22.1	23.7	23.8	22.1	22.1

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

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

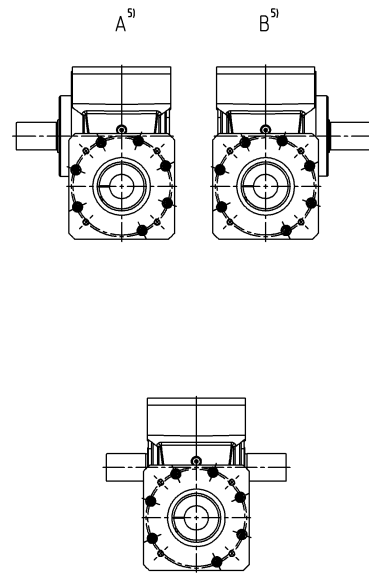
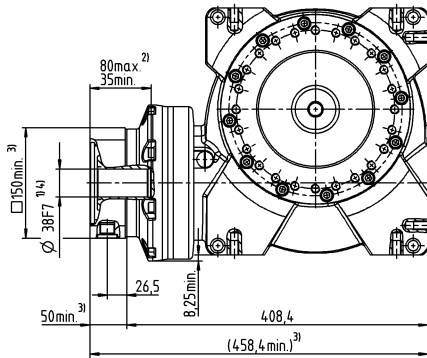
# 1-stage

up to 48<sup>4)</sup> (M<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 38/48<sup>4)</sup>  
(K<sup>6)</sup>/M) clamping hub diameter

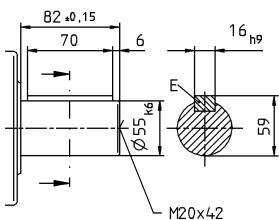


Optional dual-shaft output. Drawings available upon request.  
Involute gearing is not possible.

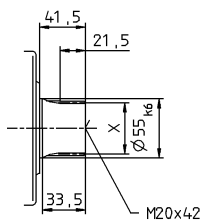
Motor shaft diameter [mm]

## Other output variants

Shaft with key



Splined shaft (DIN 5480)



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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min./Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

# VT+ 050 MF 1-/2-stage

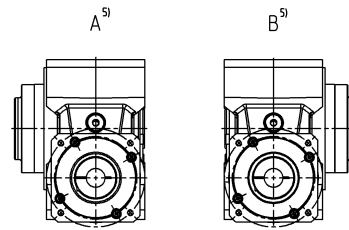
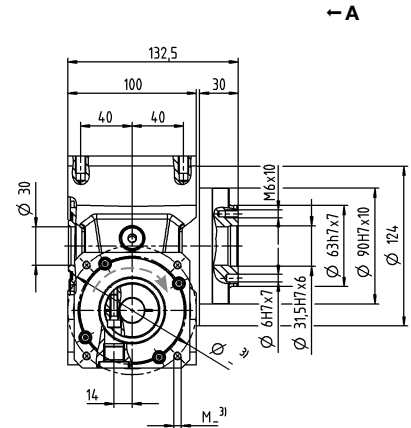
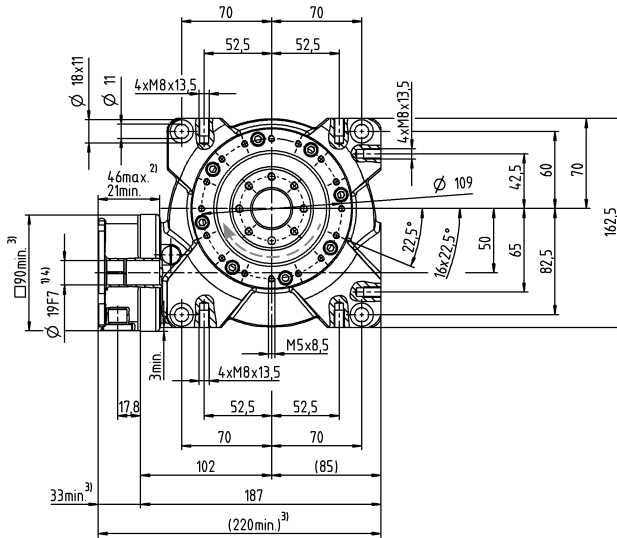
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	165	180	182	193	204	183	182	180	182	204	183	204	183		
		in.lb	1460	1593	1611	1708	1805	1620	1611	1593	1611	1805	1620	1805	1620		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	54	71	74	81	90	74	74	71	74	90	74	90	74		
		in.lb	478	628	655	717	797	655	655	628	655	797	655	797	655		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	230	242	242	250	262	236	242	242	242	262	236	262	236		
		in.lb	2036	2142	2142	2213	2319	2089	2142	2142	2142	2319	2089	2319	2089		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						3500								
Max. input speed	$n_{1Max}$	rpm	6000														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	2.3	2.2	1.6	1.5	1.2	1.1	0.7	0.5	0.4	0.6	0.6	0.4	0.4		
		in.lb	20.4	19.5	14.2	13.3	10.6	9.7	6.2	4.4	3.5	5.3	5.3	3.5	3.5		
Max. backlash	$j_i$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2					Standard ≤ 4 / Reduced ≤ 3								
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	17						17								
		in.lb/arcmin	150						150								
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N							5000								
		lb <sub>f</sub>							1125								
Max. tilting moment	$M_{2KMax}$	Nm							409								
		in.lb							3620								
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	92	89	86	82	72	64	84	87	84	70	62	70	62		
Tilting rigidity	$C_{2K}$	Nm/arcmin							504								
		in.lb/arcmin							4460								
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	9.0						9.5								
		lb <sub>m</sub>	19.9						21.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 62														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 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 <sup>®</sup> )			BCT-00060AAX-050.000														
Bore diameter of coupling on the application side		mm	X = 014.000 - 035.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	$J_i$	kgcm <sup>2</sup>	-	-	-	-	-	-	0.21	0.16	0.29	0.2	0.21	0.16	0.16
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	0.19	0.14	0.26	0.18	0.19	0.14	0.14
	E	19	$J_i$	kgcm <sup>2</sup>	1.8	1.3	1.1	1.0	1.0	1.0	0.58	0.53	0.53	0.57	0.57	0.53	0.53
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	1.6	1.2	0.97	0.89	0.89	0.89	0.51	0.47	0.47	0.5	0.5	0.47	0.47
G	24	$J_i$	kgcm <sup>2</sup>	1.9	1.4	1.3	1.1	1.1	1.1	-	-	-	-	-	-	-	
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	1.7	1.2	1.2	0.97	0.97	0.97	-	-	-	-	-	-	-	

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

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

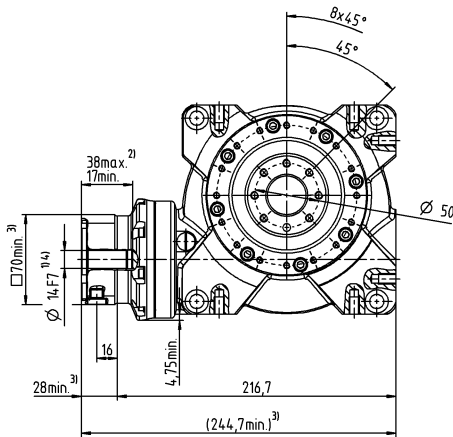
# 1-stage

up to 19/24<sup>4)</sup>  
(E<sup>6)</sup>/G) clamping  
hub diameter



# 2-stage

up to 14/19<sup>4)</sup>  
(C<sup>6)</sup>/E) clamping  
hub diameter



Motor shaft diameter [mm]

Worm gearboxes

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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min. / Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter

VT<sup>+</sup>

# VT+ 063 MF 1-/2-stage

			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	319	353	364	372	392	363	364	353	364	392	363	392	363		
		in.lb	2823	3124	3221	3292	3469	3213	3221	3124	3221	3469	3213	3469	3213		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	198	210	225	221	229	226	225	210	225	229	226	229	226		
		in.lb	1752	1859	1991	1956	2027	2000	1991	1859	1991	2027	2000	2027	2000		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	460	484	491	494	518	447	491	484	494	518	447	518	447		
		in.lb	4071	4283	4345	4372	4584	3956	4345	4283	4372	4584	3956	4584	3956		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	4000						3100								
Max. input speed	$n_{1Max}$	rpm	4500														
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	4.2	3.1	3	2.4	2.3	2.2	1.2	0.7	0.7	1.1	1.1	0.8	0.6		
		in.lb	37.2	27.4	26.6	21.2	20.4	19.5	10.6	6.2	6.2	9.7	9.7	7.1	5.3		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2					Standard ≤ 4 / Reduced ≤ 3								
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	50						50								
		in.lb/arcmin	443						443								
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	8250						8250								
		lb <sub>f</sub>	1856						1856								
Max. tilting moment	$M_{2KMax}$	Nm	843						843								
		in.lb	7461						7461								
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	93	91	88	83	74	68	86	89	86	72	66	72	66		
Tilting rigidity	$C_{2K}$	Nm/arcmin	603						603								
		in.lb/arcmin	5337						5337								
Service life <sup>1)</sup>	$L_h$	h	> 20000														
Weight (incl. standard adapter plate)	$m$	kg	15.0						15.2								
		lb <sub>m</sub>	33						34.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 64														
Max. permitted housing temperature		°C	+90														
		F	194														
Ambient temperature		°C	-15 to +40														
		F	5 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 <sup>®</sup> )			BCT-00150AAX-063.000														
Bore diameter of coupling on the application side		mm	X = 019.000 - 042.000														
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	0.76	0.59	0.59	0.75	0.75	0.58	0.58
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	0.67	0.52	0.52	0.66	0.66	0.51	0.51
	G	24	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	-	2.3	2.2	2.2	2.3	2.3	2.2	2.2
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0
H	28	$J_1$	kgcm <sup>2</sup>	5.7	4.2	3.9	3.7	3.6	3.6	-	-	-	-	-	-	-	
			10 <sup>-3</sup> in.lb.s <sup>2</sup>	5.0	3.7	3.5	3.3	3.2	3.2	-	-	-	-	-	-	-	

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

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





# VT+ 080 MF 1-/2-stage

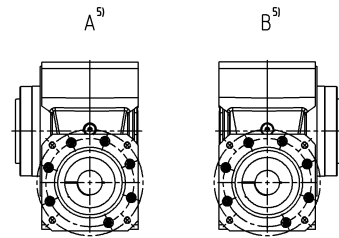
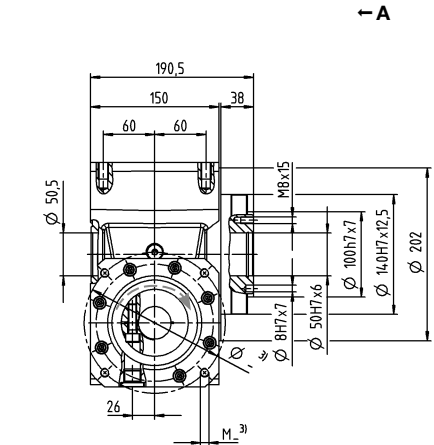
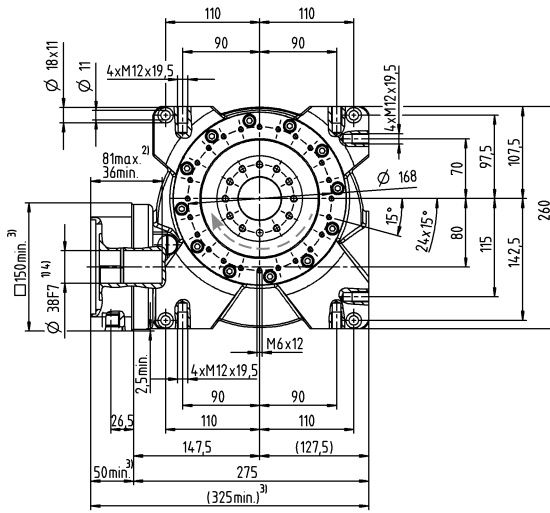
			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	578	646	672	702	785	676	672	646	672	785	676	785	676		
		in.lb	5115	5717	5947	6213	6947	5983	5947	5717	5947	6947	5983	6947	5983		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	469	601	613	677	764	631	613	601	613	764	631	764	631		
		in.lb	4151	5319	5425	5991	6761	5584	5425	5319	5425	6761	5584	6761	5584		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	938	993	963	1005	1064	941	963	993	963	1064	941	1064	941		
		in.lb	8301	8788	8523	8894	9416	8328	8523	8788	8523	9416	8328	9416	8328		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	3500						2900								
Max. input speed	$n_{1Max}$	rpm	4000						4500								
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	7.2	7.1	6.5	5	4.8	4.5	2.8	1.6	1.5	2.4	2.4	1.8	1.3		
		in.lb	63.7	62.8	57.5	44.3	42.5	39.8	24.8	14.2	13.3	21.2	21.2	15.9	11.5		
Max. backlash	$j_1$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3							
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	113						113								
		in.lb/arcmin	1000						1000								
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	13900						13900								
		lb <sub>f</sub>	3128						3128								
Max. tilting moment	$M_{2KMax}$	Nm	1544						1544								
		in.lb	13664						13664								
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	94	92	89	86	77	70	87	90	87	75	68	75	68		
Tilting rigidity	$C_{2K}$	Nm/arcmin	1178						1178								
		in.lb/arcmin	10425						10425								
Service life <sup>1)</sup>	$L_h$	h	> 20000						> 20000								
Weight (incl. standard adapter plate)	$m$	kg	32.0						33.5								
		lb <sub>m</sub>	70.7						74.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 66						≤ 68								
Max. permitted housing temperature		°C	+90						+90								
		F	194						194								
Ambient temperature		°C	-15 to +40						-15 to +40								
		F	5 to 104						5 to 104								
Lubrication			Lubricated for life						Lubricated for life								
Direction of rotation			In- and output same direction						In- and output same direction								
Protection class			IP 65						IP 65								
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )			BCT-00300AAX-080.000						BCT-00300AAX-080.000								
Bore diameter of coupling on the application side		mm	X = 024.000 - 060.000						X = 024.000 - 060.000								
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	3.1	2.4	2.4	3.0	3.0	2.4	2.4	
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	2.7	2.1	2.1	2.7	2.7	2.1	2.1	
	K	38	$J_1$	kgcm <sup>2</sup>	22.5	17.1	16.7	15.1	14.8	15.5	10.2	9.5	9.5	10.2	10.2	9.5	9.5
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	19.9	15.1	14.8	13.4	13.1	13.7	9.0	8.4	8.4	9.0	9.0	8.4	8.4

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Please contact us for optimum sizing at S1 conditions (Continuous operation).

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

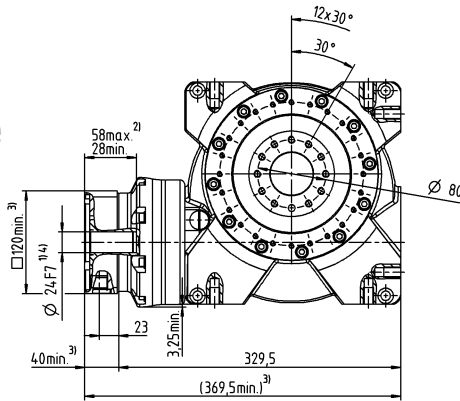
# 1-stage

up to 38<sup>4)</sup> (K)<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 24/38<sup>4)</sup>  
(G<sup>6)</sup>/K) clamping hub diameter



Motor shaft diameter [mm]

Worm gearboxes

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

Non-tolerated dimensions are nominal dimensions

- <sup>1)</sup> Check motor shaft fit.
- <sup>2)</sup> Min. / Max. permissible motor shaft length.  
Longer motor shafts are adaptable, please contact us.
- <sup>3)</sup> The dimensions depend on the motor.
- <sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.
- <sup>5)</sup> Output side
- <sup>6)</sup> Standard clamping hub diameter

VT+

# VT+ 100 MF 1-/2-stage

			1-stage						2-stage								
Ratio	<i>i</i>		4	7	10	16	28	40	50	70	100	140	200	280	400		
Max. torque <sup>a) b)</sup> (at $n_1 = 500$ rpm)	$T_{2a}$	Nm	1184	1336	1377	1392	1505	1376	1377	1336	1377	1505	1376	1505	1376		
		in.lb	10478	11824	12186	12319	13319	12178	12186	11825	12186	13319	12178	13319	12178		
Torque for constant backlash (over the lifetime)	$T_{2Servo}$	Nm	1155	1304	1343	1359	1469	1343	1343	1304	1343	1469	1343	1469	1343		
		in.lb	10222	11540	11886	12027	13001	11886	11886	11541	11886	13001	11886	13001	11886		
Emergency stop torque <sup>a) b)</sup> (permitted 1000 times during the service life of the gearbox)	$T_{2Not}$	Nm	1819	1932	1940	1955	2073	1856	1940	1940	1940	2073	1856	2073	1856		
		in.lb	16098	17098	17169	17302	18346	16426	17169	17169	17169	18346	16426	18346	16426		
Permitted average input speed (at 20 °C ambient temperature) <sup>d)</sup>	$n_{1N}$	rpm	3000						2700								
Max. input speed	$n_{1Max}$	rpm	3500						4000								
Mean no load running torque <sup>b)</sup> (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	$T_{012}$	Nm	12.2	10.5	9.8	9.1	8.2	7.2	4.1	2.3	2.2	3.8	3.6	2.6	2		
		in.lb	108.0	92.9	86.7	80.5	72.6	63.7	36.3	20.4	19.5	33.6	31.9	23.0	17.7		
Max. backlash	$j_i$	arcmin	≤ 3	Standard ≤ 3 / Reduced ≤ 2						Standard ≤ 4 / Reduced ≤ 3							
Torsional rigidity <sup>b)</sup>	$C_{121}$	Nm/arcmin	213						213								
		in.lb/arcmin	1885						1885								
Max. axial force <sup>c)</sup>	$F_{2AMax}$	N	19500						19500								
		lb <sub>f</sub>	4388						4388								
Max. tilting moment	$M_{2KMax}$	Nm	3059						3059								
		in.lb	27072						27072								
Efficiency at full load (at $n_1 = 500$ rpm)	$\eta$	%	95	93	91	87	80	76	89	89	89	78	74	78	74		
Tilting rigidity	$C_{2K}$	Nm/arcmin	2309						2309								
		in.lb/arcmin	20435						20435								
Service life <sup>1)</sup>	$L_h$	h	> 20000						> 20000								
Weight (incl. standard adapter plate)	$m$	kg	63.0						64.6								
		lb <sub>m</sub>	139.0						143.0								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex <sup>®</sup> )	$L_{PA}$	dB(A)	≤ 70						≤ 70								
Max. permitted housing temperature		°C	+90						+90								
		F	194						194								
Ambient temperature		°C	-15 to +40						-15 to +40								
		F	5 to 104						5 to 104								
Lubrication			Lubricated for life						Lubricated for life								
Direction of rotation			In- and output same direction						In- and output same direction								
Protection class			IP 65						IP 65								
Metal bellows coupling (recommended product type – validate sizing with cymex <sup>®</sup> )			BCT-01500AAX-125.000						BCT-01500AAX-125.000								
Bore diameter of coupling on the application side		mm	X = 050.000 - 080.000						X = 050.000 - 080.000								
Mass moment of inertia (relates to the drive)	K	38	$J_1$	kgcm <sup>2</sup>	-	-	-	-	-	11,9	10,0	10,0	11,8	11,8	9,9	9,9	
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	-	-	-	-	-	10,5	8,9	8,9	10,4	10,4	8,8	8,8	
Clamping hub diameter [mm]	M	48	$J_1$	kgcm <sup>2</sup>	67,6	48,5	44,2	43,6	40,6	40,7	27,0	25,1	25,1	26,8	26,9	25,0	25,0
				10 <sup>-3</sup> in.lb.s <sup>2</sup>	59,8	42,9	31,1	38,6	35,9	36,0	23,9	22,2	22,2	23,7	23,8	22,1	22,1

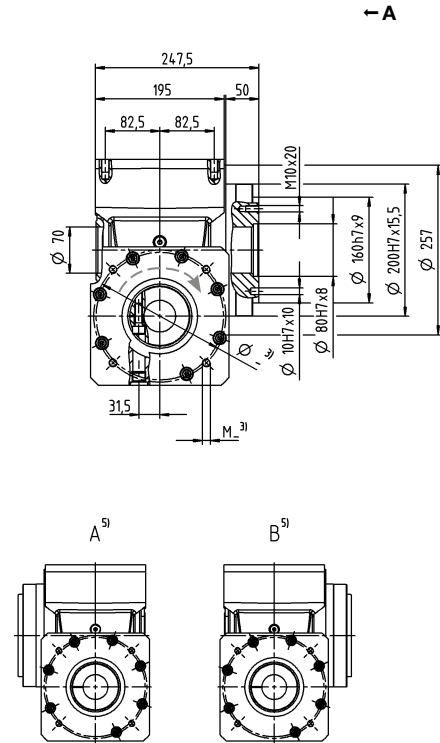
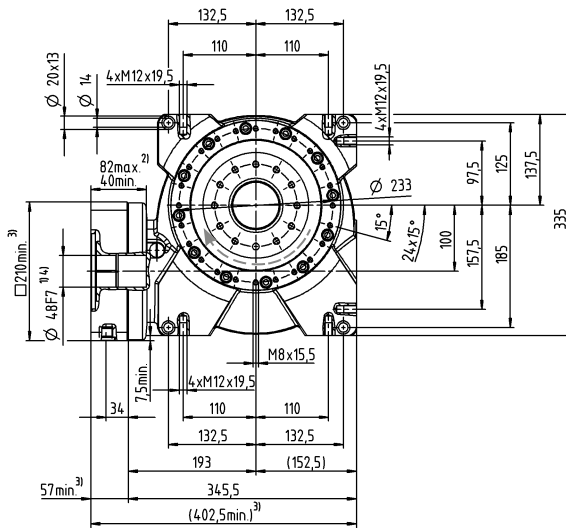
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Please contact us for optimum sizing at S1 conditions (Continuous operation).

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

View A

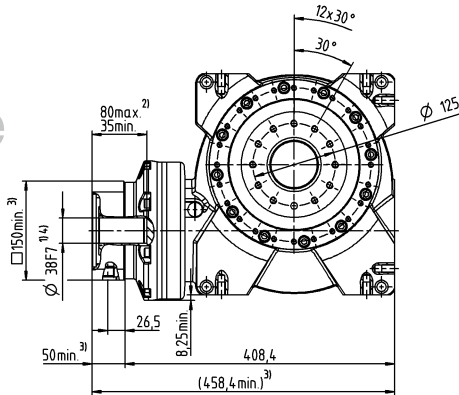
# 1-stage

up to 48<sup>4)</sup> (M<sup>6)</sup>  
clamping hub diameter



# 2-stage

up to 38/48<sup>4)</sup>  
(K<sup>6)</sup>/M) clamping hub diameter



Motor shaft diameter [mm]

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

Non-tolerated dimensions are nominal dimensions

<sup>1)</sup> Check motor shaft fit.

<sup>2)</sup> Min. / Max. permissible motor shaft length.

Longer motor shafts are adaptable, please contact us.

<sup>3)</sup> The dimensions depend on the motor.

<sup>4)</sup> Smaller motor shaft diameter is compensated by a bushing with a minimum wall thickness of 1 mm.

<sup>5)</sup> Output side

<sup>6)</sup> Standard clamping hub diameter