



WITTENSTEIN

alpha

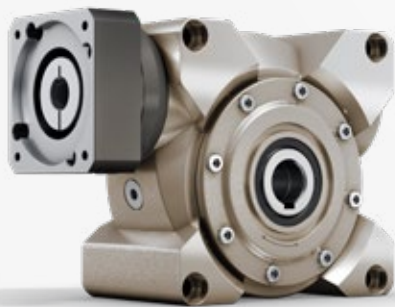
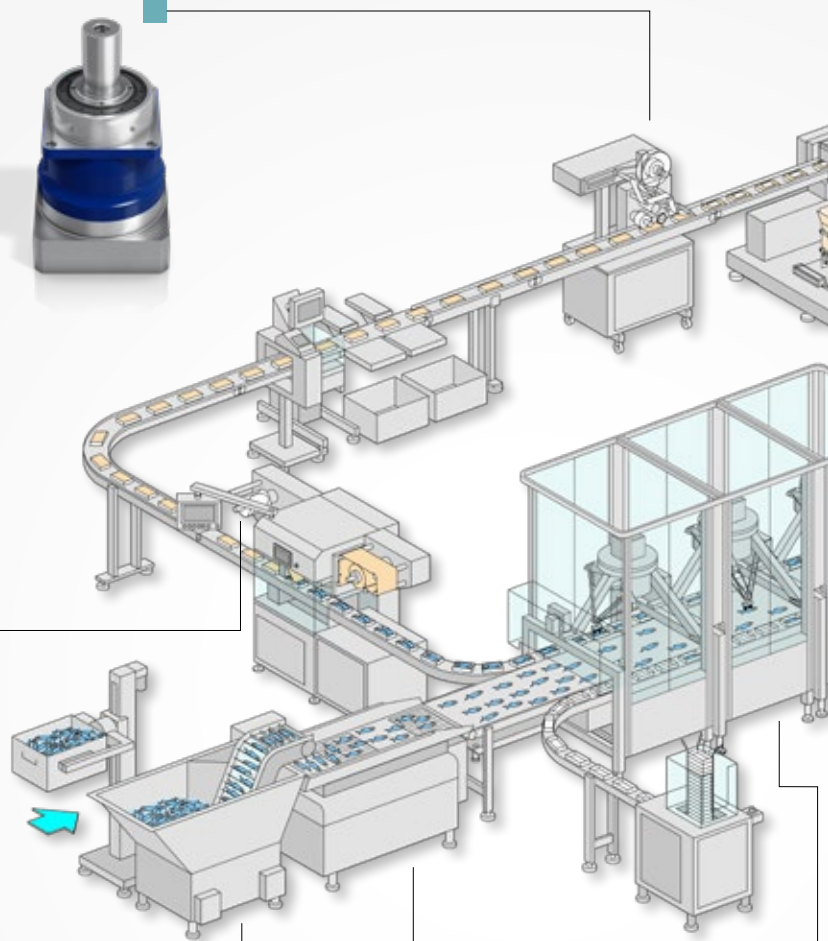
Hygienic
Reliable
Resistant

Products in corrosion-resistant and hygienic design



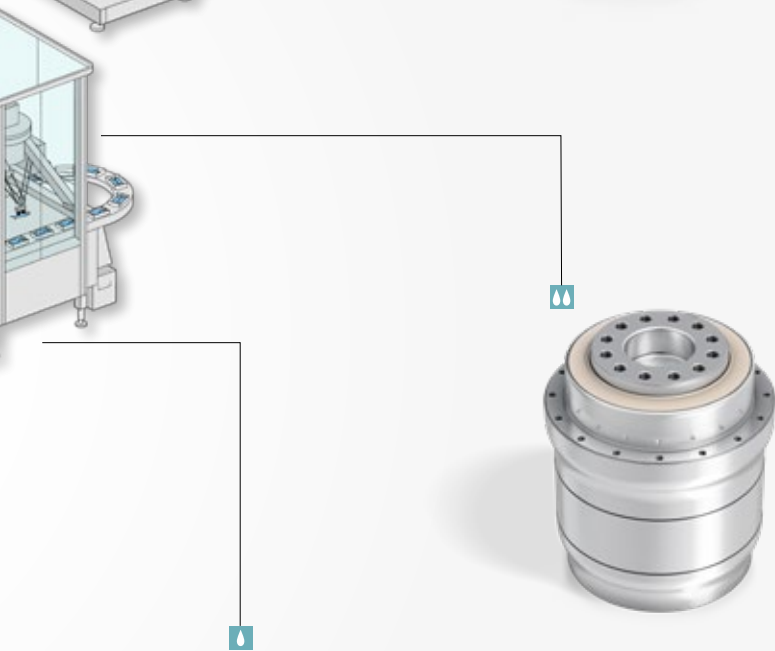
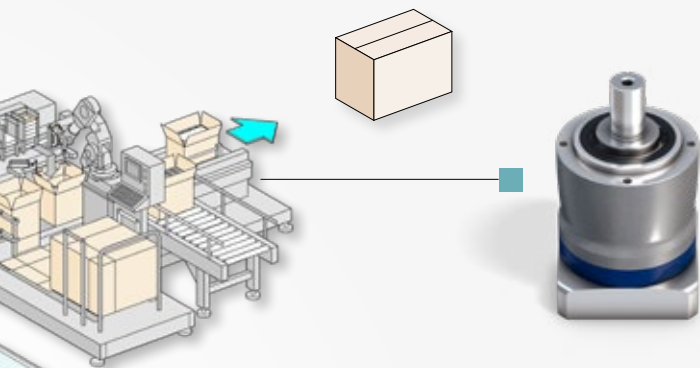
Reliable driving in a hygienically clean environment

Corrosion protection is vitally important for quality and maintenance optimized production – to meet the rising world-wide demand for industrial cleaning technology. Our Corrosion Resistant and EHEDG certified Hygienic Design gear-boxes and stainless steel actuators allow hygienic and sterile automation close to the process.



Contents

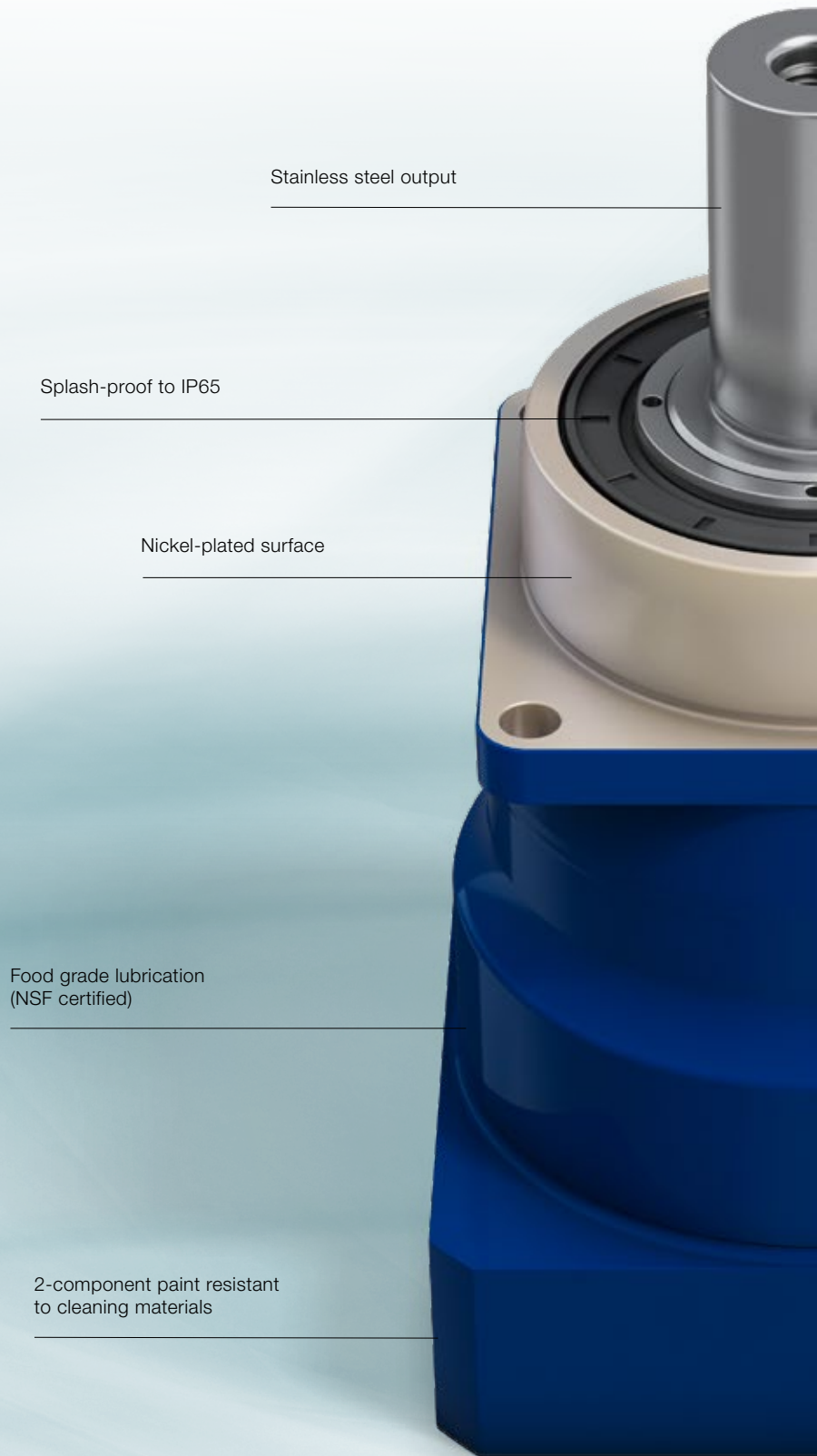
Corrosion Resistant Design	4
Hygienic Design	5
Applications and benefits	8
HDV 015 1-/2-stage	10
HDV 025 1-/2-stage	12
HDV 035 1-/2-stage	14
HDP+ 010 2-stage	16
HDP+ 025 2-stage	18
HDP+ 050 2-stage	20
Mounting Kit	22
Ordering codes	23



Classification to DIN EN 1672-2

- Standard use
in dry areas
(non-food zone)
- Use in wet or damp
environments
(splash zone)
→ close to the process
- Use in wet areas
(including high-pressure
cleaning) as well as in
contact with cleaning
materials and chemicals
(food zone)
→ integrated in the process

Corrosion Resistant Design



Hygienic Design



Seals resistant to cleaning materials have IP69K protection (max. 30 bar)

Triple sealing concept guarantees optimal reliability

Smooth rolled surface in hygienic steel 1.4404 (optionally also in electropolished steel)

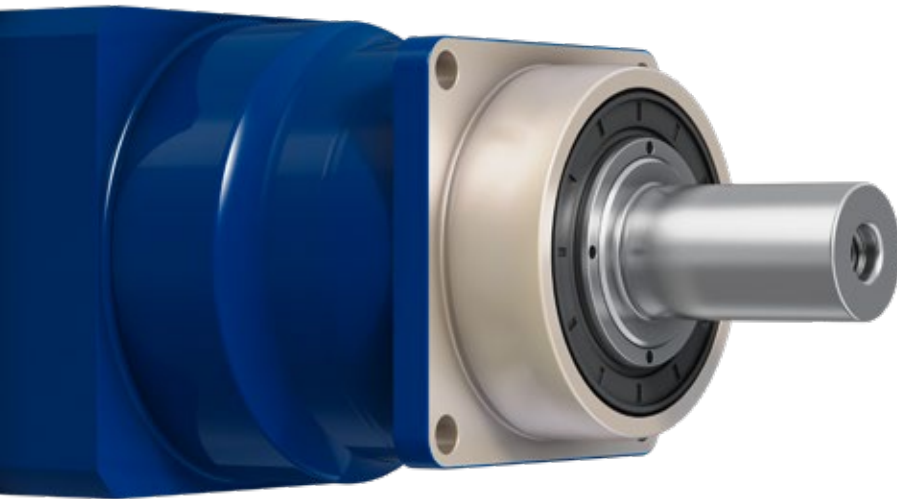
Food grade lubrication (NSF certified)

No dead spaces



TYPE EL - CLASS I
MAY 2013

Corrosion Resistant Design



SP+ in corrosion resistant design

Protection against corrosion

Our drive solutions provide innovative, incomparable alternatives for applications in corrosive environments.

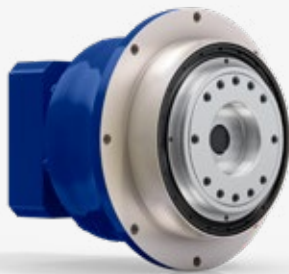
- Special protective coating
- Food grade lubrication (NSF certified)
- Stainless steel output
- Flexible design:
Compatible with the complete product portfolio
- Optional accessories available:
Stainless steel shrink discs, corrosion proof couplings

Applications:

- Environments with high humidity
- Environments where contact with food occurs
- Delta robots
(e. g. with TP+ in corrosion resistant design)
- Solar industry
- Packaging industry
- Outdoor use

Your benefits:

- Protection against external influences (splash-proof to IP65)
- Protection against flash rust and oxidation
- Easy removal of fouling (germs, microorganisms, etc.)
- Stable processes thanks to WITTENSTEIN alpha quality



TP+ in corrosion resistant design

The compact precision of the TP+ series is ideal for applications where high dynamics are a must.



Hypoid gearbox in corrosion resistant design

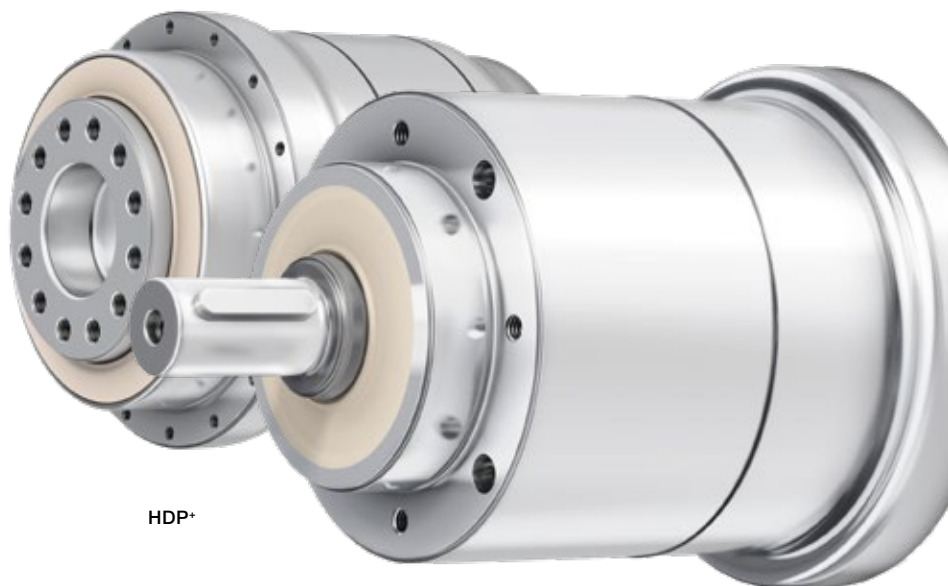
Profit from our modular hypoid gearbox system with multiple variants and variable output geometries.

Hygienic Design

Hygienic and sterile

WITTENSTEIN alpha Hygienic Design – the world's first planetary gearbox **certified by EHEDG**.
For a secure and direct process integration.

- EHEDG- and FDA-certified
- Gearbox housing in hygienic steel 1.4404
- Smooth rolled or electropolished surface
- Triple sealing concept (IP69X) (max. 30 bar)
- No dead spaces
- Food grade lubrication (NSF certified)



HDP+

HDV

Your benefits:

- Suited for hygienic and sterile production
- Direct contact with food allowed
- Fast, efficient and reliable cleaning
- Resistant to chemical cleaning materials and disinfectants (e.g. alkalis or acids such as chloride, sulphuric acid, hydrochloric acid)
- Optimal sealing properties
- Maximum resistance to corrosion
- New design freedom because the drive is integrated directly in the process
- High-pressure cleaning also possible depending on the operating environment
- Ideal for any standard motor mounting concept

Applications:

- CIP (cleaning in place)/ SIP (sterilization in place)
- Delta robots
- Food industry
(production, processing, packaging, filling)
- Pharmaceutical industry
- Cosmetics industry
- Process technology
- Textile industry
- Medical technology



HDP+

Our Hygienic Design Gearboxes with an output flange represent the solution of choice for highly dynamic and compact applications (e.g. delta robots) involving direct food contact.



EHEDG certified

The principal goal of EHEDG is the promotion of safe food by improving hygienic engineering and design in all aspects of food manufacture.




Optional mounting kit

We have developed special mounting kits for our Hygienic Design Gearboxes HDV and HDP+. They help to ensure a hygienic connection to the application with maximum process reliability.

Applications and benefits

Comparison of installation

	
<p>Conventional solutions: Complicated encapsulation is required to protect the drives.</p> <ul style="list-style-type: none"> · Risk of dirt and moisture build-up under the encapsulation · Surfaces to be cleaned are large · Extra costs (design, cleaning) · Heat build-up under the encapsulation reduces the service life of the drive 	<p>Hygienic solution: New design freedom thanks to the Hygienic Design motor-gearbox unit.</p> <ul style="list-style-type: none"> · Hygienic production because the drive components are cleaned directly · Smaller surfaces save time and cleaning costs · Open drive system extends the service life

Product benefits

- High chemical / corrosion resistance
- High IP protection for optimal sealing
- Design integration Hygienic Design (the complete plant can be designed according to HD principles)
- High power density and dynamics

Benefits for plant manufacturers

- Integration in a plant designed according to hygienic principles (certification available)
- All legal obligations fulfilled (Machinery Directive, food hygiene regulations)
- Easier production / assembly because there are fewer components
- More compact machine design
- Higher overall equipment effectiveness
- Innovative technology / competitive advantage

Benefits for operators

- Easier, faster cleaning: shorter CIP / SIP times
- Improved reliability and longer life
- Quick and easy disassembly
- Reduced consumption of cleaning materials
- Minimal costs for maintenance and repair
- Cost savings: competitive advantage and lower end user price
- Increased food safety

Application examples of food industry



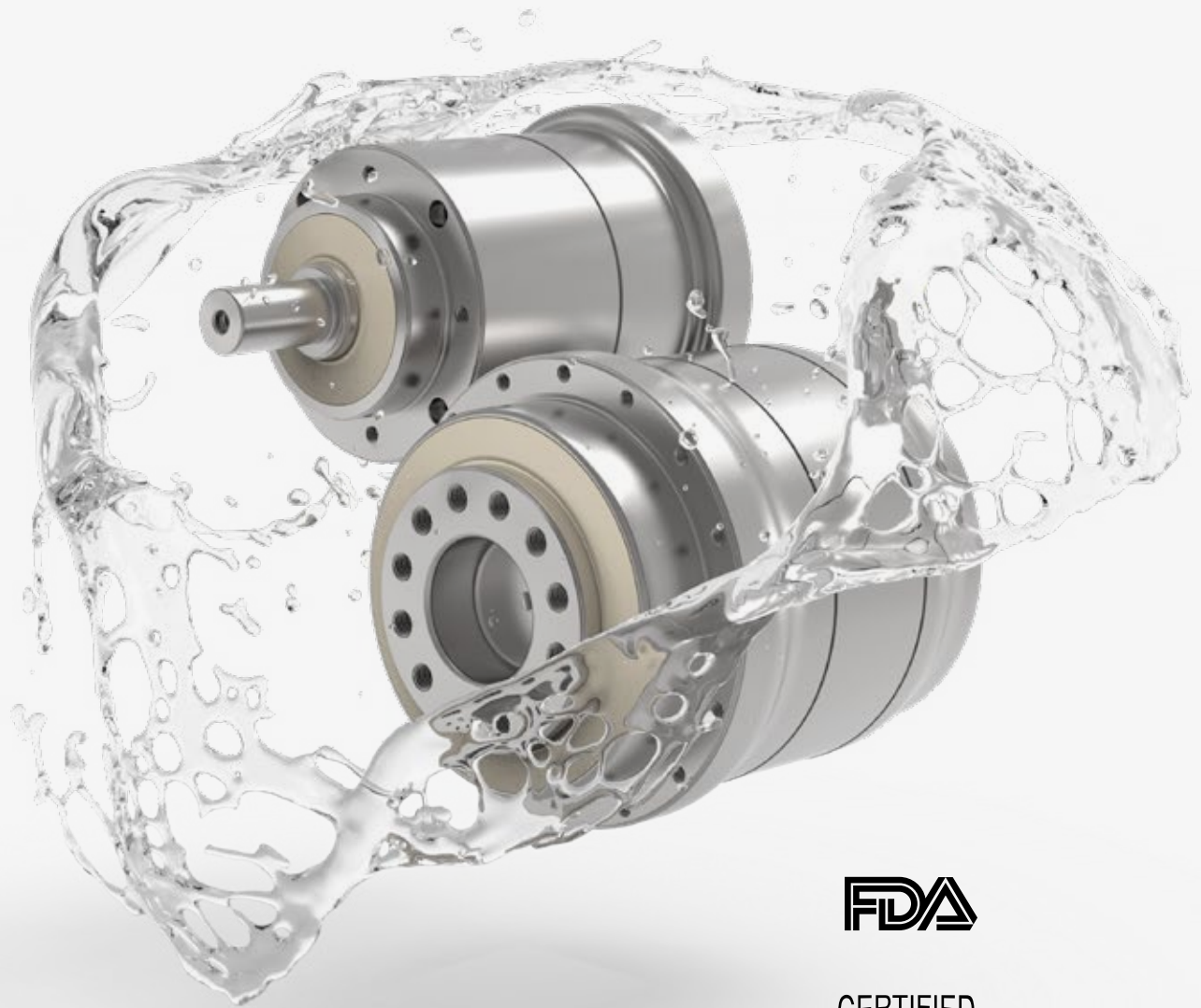
Fish processing



Filling and packing dairy products



Slicing meat products



TYPE EL - CLASS I
MAY 2013

HDV 015 MF 1-/2-stage

				1-stage				2-stage							
Ratio	<i>i</i>		4	5	7	10	16	20	25	35	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	51	51	51	46	51	51	51	51	51	51	46		
		in.lb	451	451	451	407	451	451	451	451	451	451	407		
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	32	32	32	29	32	32	32	32	32	32	29		
		in.lb	283	283	283	257	283	283	283	283	283	283	257		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	75	75	75	75	75	75	75	75	75	75	75		
		in.lb	664	664	664	664	664	664	664	664	664	664	664		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	3000	3000	3000	3000	3700	3700	3700	3700	3700	3700	3700		
Max. input speed	n_{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		
		in.lb	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3		
Max. backlash	j_1	arcmin	≤ 10				≤ 15								
Torsional rigidity ^{b)}	C_{I21}	Nm/arcmin	2.3	2.3	2.3	2	2.3	2.3	2.3	2.3	2.3	2.3	2		
		in.lb/arcmin	20	20	20	18	20	20	20	20	20	20	18		
Max. axial force ^{c)} (Standard / HIGH FORCES)	F_{2AMax}	N	500 / 1000				500 / 1000								
		lb _f	113 / 225				113 / 225								
Max. lateral force ^{c)} (Standard / HIGH FORCES)	F_{2QMax}	N	350 / 1600				350 / 1600								
		lb _f	79 / 360				79 / 360								
Max. tilting moment (Standard / HIGH FORCES)	M_{2KMax}	Nm	20 / 105				20 / 105								
		in.lb	177 / 929				177 / 929								
Efficiency at full load	η	%	97				95								
Service life	L_h	h	> 20000				> 20000								
Weight (incl. standard adapter plate)	<i>m</i>	kg	3.2				3.8								
		lb _m	7.1				8.4								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 60				≤ 60								
Max. permitted housing temperature		°C	+90				+90								
		°F	+194				+194								
Ambient temperature		°C	-25 to +40				-25 to +40								
		°F	-13 to +104				-13 to +104								
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 69X												
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	C	14	J_1	kgcm ²	0.18	0.17	0.15	0.15	0.17	0.16	0.16	0.15	0.15	0.15	0.15
				10 ⁻³ in.lb.s ²	0.16	0.15	0.13	0.13	0.15	0.14	0.14	0.13	0.13	0.13	0.13

Please use our sizing software cymex® for a detailed sizing – www.wittenstein-cymex.com

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

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

^{e)} Valid for: Smooth shaft

Assembly accessories:

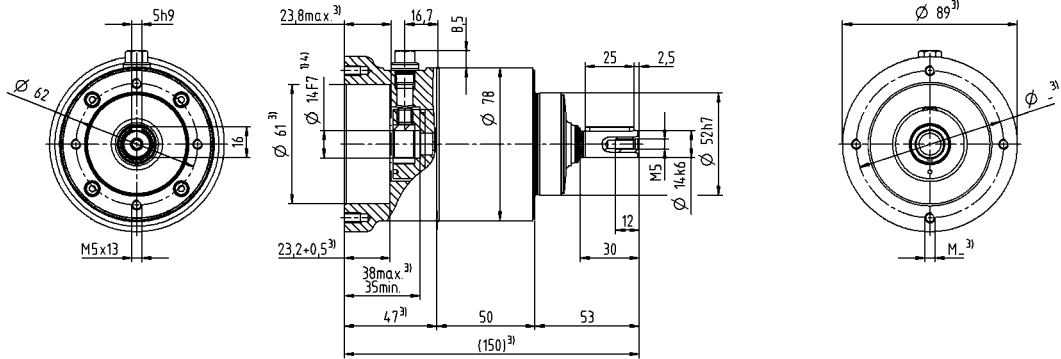
There is an optional mounting kit available for this gearbox that includes stainless steel screws, discs, seals and O-rings. For more information, see page 22.

View A

View B

1-stage

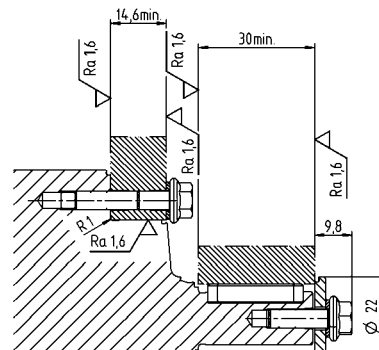
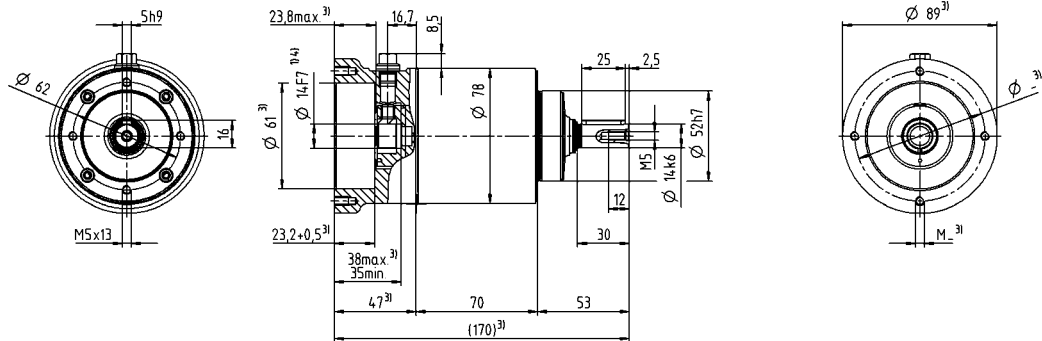
up to 14⁴⁾ (C)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

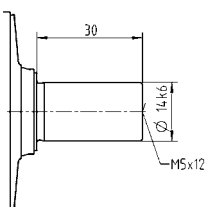
2-stage

up to 14⁴⁾ (C)⁵⁾
clamping hub diameter



Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

HDV 025 MF 1-/2-stage

			1-stage				2-stage								
Ratio	<i>i</i>		4	5	7	10	16	20	25	35	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	128	128	128	115	128	128	128	128	128	128	115		
		in.lb	1133	1133	1133	1018	1133	1133	1133	1133	1133	1133	1018		
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	80	80	80	72	80	80	80	80	80	80	72		
		in.lb	708	708	708	637	708	708	708	708	708	708	637		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	190	190	190	190	190	190	190	190	190	190	190		
		in.lb	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	2700	2700	2700	2700	3400	3400	3400	3400	3400	3400	3400		
Max. input speed	n_{1Max}	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3		
		in.lb	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7		
Max. backlash	j_i	arcmin	≤ 10				≤ 15								
Torsional rigidity ^{b)}	C_{I21}	Nm/arcmin	7.5	7.5	7.5	5.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	5.5	
		in.lb/arcmin	66	66	66	49	66	66	66	66	66	66	66	49	
Max. axial force ^{c)} (Standard / HIGH FORCES)	F_{2AMax}	N	500 / 1500				500 / 1500								
		lb _f	113 / 338				113 / 338								
Max. lateral force ^{c)} (Standard / HIGH FORCES)	F_{2QMax}	N	500 / 2500				500 / 2500								
		lb _f	113 / 563				113 / 563								
Max. tilting moment (Standard / HIGH FORCES)	M_{2KMax}	Nm	31 / 185				31 / 185								
		in.lb	274 / 1637				274 / 1637								
Efficiency at full load	η	%	97				95								
Service life	L_h	h	> 20000				> 20000								
Weight (incl. standard adapter plate)	<i>m</i>	kg	5.2				6.5								
		lb _m	11				14								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 63				≤ 63								
			+90				+90								
Max. permitted housing temperature		°C	+90				+90								
		°F	+194				+194								
Ambient temperature		°C	-25 to +40				-25 to +40								
		°F	-13 to +104				-13 to +104								
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 69X												
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_i	kgcm ²	0.63	0.54	0.52	0.46	0.6	0.52	0.54	0.5	0.52	0.52	0.46
				10 ⁻³ in.lb.s ²	0.56	0.48	0.46	0.41	0.53	0.46	0.48	0.44	0.46	0.46	0.41

Please use our sizing software cymex® for a detailed sizing – www.wittenstein-cymex.com

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

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

^{e)} Valid for: Smooth shaft

Assembly accessories:

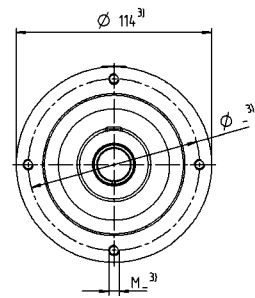
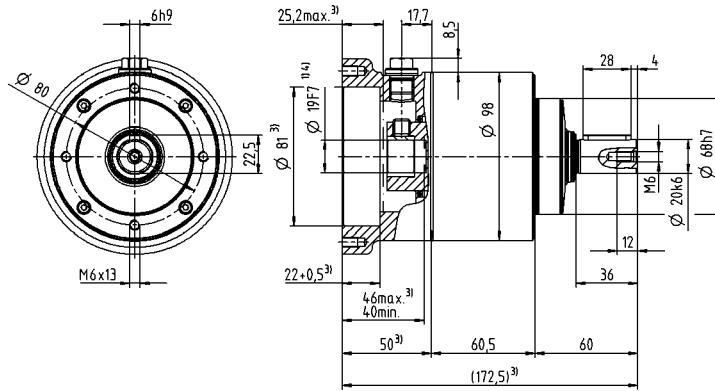
There is an optional mounting kit available for this gearbox that includes stainless steel screws, discs, seals and O-rings. For more information, see page 22.

View A

View B

1-stage

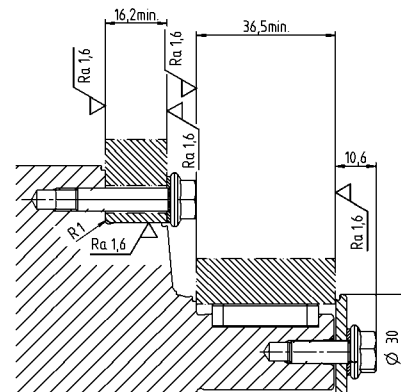
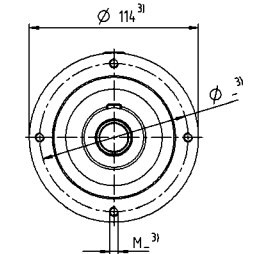
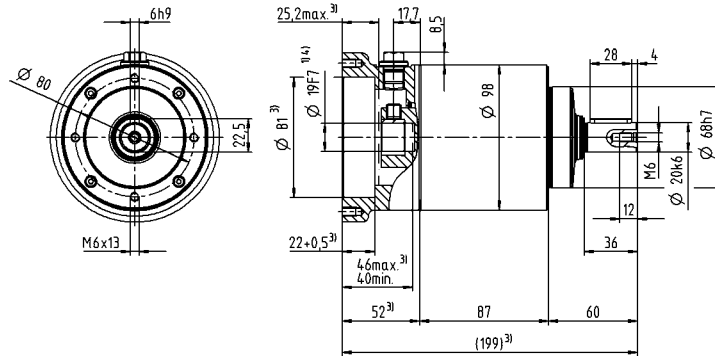
up to 19⁴⁾ (E)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

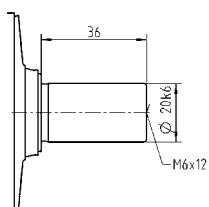
2-stage

up to 19⁴⁾ (E)⁵⁾
clamping hub diameter



Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

HDV 035 MF 1-/2-stage

			1-stage				2-stage								
Ratio	<i>i</i>		4	5	7	10	16	20	25	35	50	70	100		
Max. torque ^{a) b) e)}	T_{2a}	Nm	320	320	320	288	320	320	320	320	320	320	288		
		in.lb	2832	2832	2832	2549	2832	2832	2832	2832	2832	2832	2832	2549	
Max. acceleration torque ^{e)} (max. 1000 cycles per hour)	T_{2B}	Nm	200	200	200	180	200	200	200	200	200	200	180		
		in.lb	1770	1770	1770	1593	1770	1770	1770	1770	1770	1770	1593		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	480	480	480	480	480	480	480	480	480	480	480		
		in.lb	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248	4248		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1N}	rpm	2000	2000	2000	2000	2600	2600	2600	2600	2600	2600	2600		
Max. input speed	n_{1Max}	rpm	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
		in.lb	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4		
Max. backlash	j_1	arcmin	≤ 10				≤ 15								
Torsional rigidity ^{b)}	C_{I21}	Nm/arcmin	24	24	24	24	24	24	24	24	24	24	24		
		in.lb/arcmin	212	212	212	212	212	212	212	212	212	212	212		
Max. axial force ^{c)} (Standard / HIGH FORCES)	F_{2AMax}	N	1700 / 3000				1700 / 3000								
		lb _f	383 / 675				383 / 675								
Max. lateral force ^{c)} (Standard / HIGH FORCES)	F_{2QMax}	N	1200 / 4250				1200 / 4250								
		lb _f	270 / 956				270 / 956								
Max. tilting moment (Standard / HIGH FORCES)	M_{2KMax}	Nm	95 / 407				95 / 407								
		in.lb	841 / 3602				841 / 3602								
Efficiency at full load	η	%	97				95								
Service life	L_h	h	> 20000				> 20000								
Weight (incl. standard adapter plate)	m	kg	13.6				16.6								
		lb _m	30				37								
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex®)	L_{PA}	dB(A)	≤ 68				≤ 68								
Max. permitted housing temperature		°C	+90				+90								
		°F	+194				+194								
Ambient temperature		°C	-25 to +40				-25 to +40								
		°F	-13 to +104				-13 to +104								
Lubrication			Lubricated for life												
Direction of rotation			In- and output same direction												
Protection class			IP 69X												
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm]	G	24	J_1	kgcm ²	2.6	2.3	2	1.8	2.3	2.1	2.1	1.9	1.8	1.8	1.8
				10 ⁻³ in.lb.s ²	2.3	2	1.8	1.6	2	1.9	1.9	1.7	1.6	1.6	1.6

Please use our sizing software cymex® for a detailed sizing – www.wittenstein-cymex.com

^{a)} Valid for torque transmission only

^{b)} Valid for standard clamping hub diameter

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

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

^{e)} Valid for: Smooth shaft

Assembly accessories:

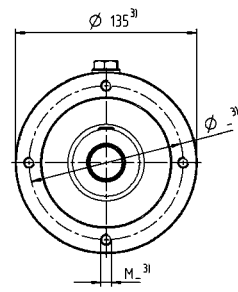
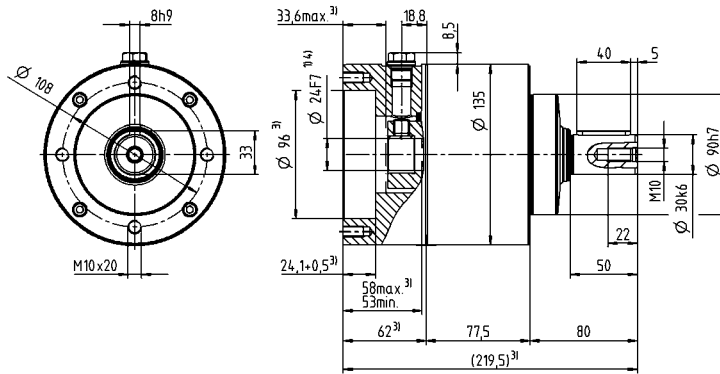
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View A

View B

1-stage

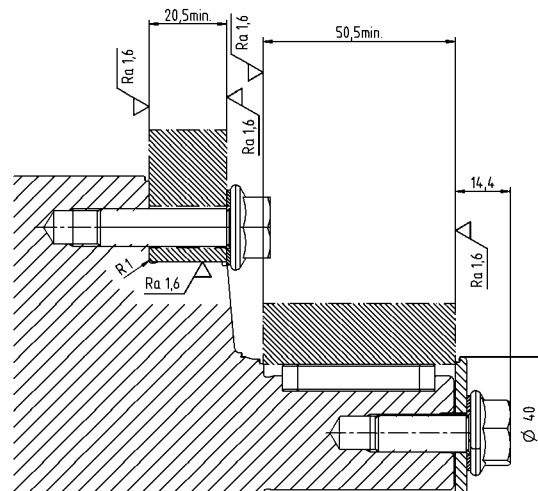
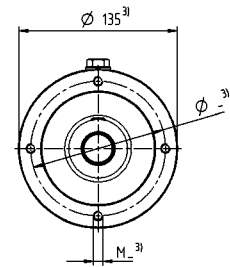
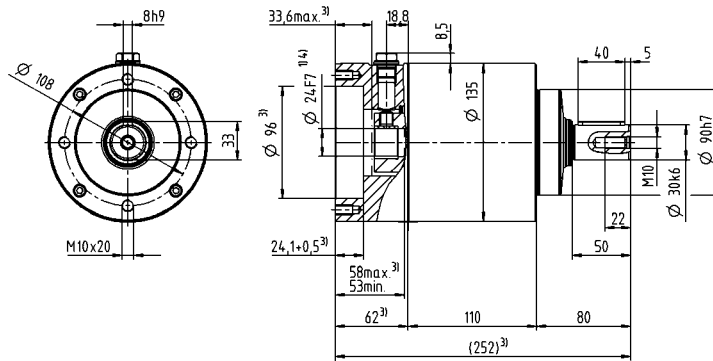
up to 24⁴⁾ (G)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

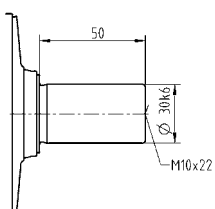
2-stage

up to 24⁴⁾ (G)⁵⁾
clamping hub
diameter



Other output variants

Smooth shaft



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

HDP+ 010 MA 2-stage

			2-stage					
Ratio	<i>i</i>		22	27.5	38.5	55		
Max. torque ^{a) b)}	T_{2a}	Nm	252	252	252	252		
		in.lb	2230	2230	2230	2230		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	185	185	185	185		
		in.lb	1637	1637	1637	1637		
Nominal torque (at n_n)	T_{2N}	Nm	140	137	139	147		
		in.lb	1242	1213	1230	1303		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	525	525	525	525		
		in.lb	4647	4647	4647	4647		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1Max}	rpm	4000	4000	4000	4000		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	0.52	0.47	0.38	0.38		
		in.lb	4.6	4.2	3.4	3.4		
Max. backlash	j_t	arcmin	≤ 1					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	43	43	43	42		
		in.lb/arcmin	381	381	381	372		
Tilting rigidity	C_{2K}	Nm/arcmin	225					
		in.lb/arcmin	1991					
Max. axial force ^{c)}	M_{2KMax}	Nm	2795					
		in.lb	629					
Max. tilting moment	M_{2KMax}	Nm	400					
		in.lb	3540					
Efficiency at full load	L_h	h	94					
Service life	L_h	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	7.3					
		lb _m	16.1					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	°C	≤ 56					
			+90					
Max. permitted housing temperature		°C	194					
			-15 to +40					
Ambient temperature		°F	-15 to +40					
			5 to 104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 69X					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	C	14	J_1	kgcm ²	0.21	0.18	0.16	0.14
				10 ⁻³ in.lb.s ²	0.19	0.16	0.14	0.12
	E	19	J_1	kgcm ²	0.52	0.50	0.47	0.46
				10 ⁻³ in.lb.s ²	0.46	0.44	0.42	0.41

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

^{b)} Valid for standard clamping hub diameter

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

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

Assembly accessories:

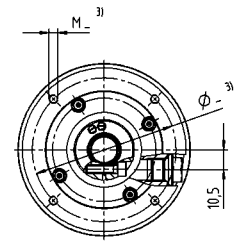
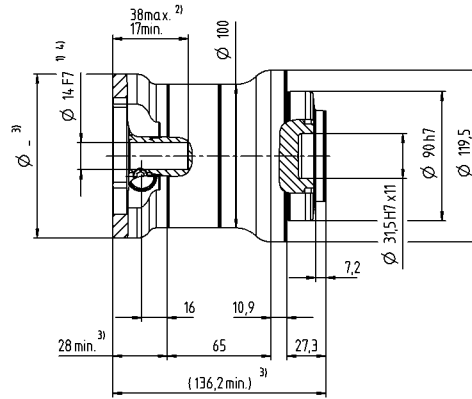
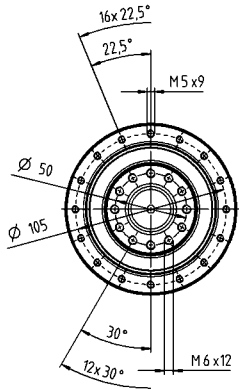
There is an optional mounting kit available for this gearbox that includes stainless steel screws, discs, seals and O-rings. For more information, see page 22.

View A

View B

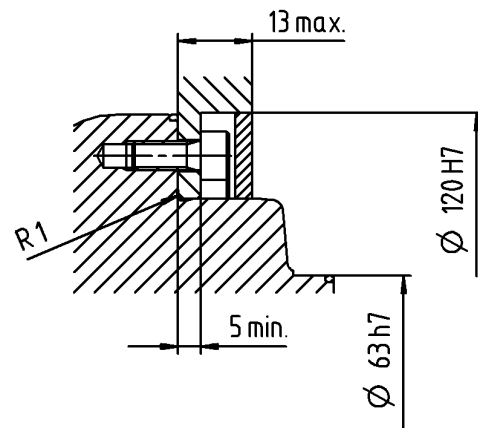
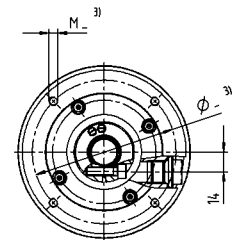
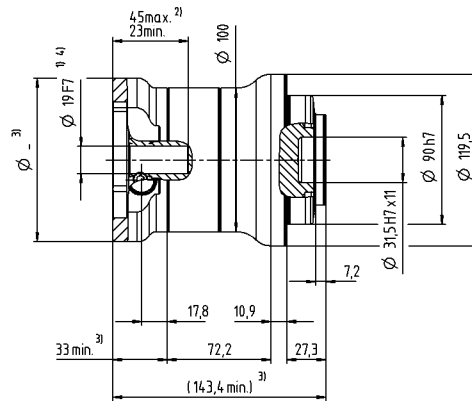
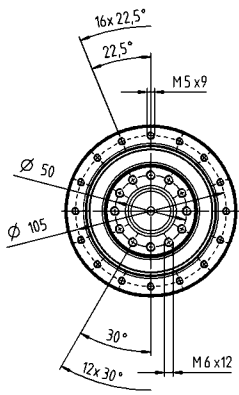
2-stage

up to 14⁴⁾ (C)⁵⁾
clamping hub
diameter



Motor shaft diameter [mm]

up to 19⁴⁾ (E)
clamping hub
diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

HDP+ 025 MA 2-stage

			2-stage					
Ratio	<i>i</i>		22	27.5	38.5	55		
Max. torque ^{a) b)}	T_{2a}	Nm	466	466	466	466		
		in.lb	4128	4128	4128	4128		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	425	425	425	425		
		in.lb	3762	3762	3762	3762		
Nominal torque (at n_n)	T_{2N}	Nm	312	314	371	413		
		in.lb	2762	2775	3286	3652		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	1200	1200	1200	1200		
		in.lb	10621	10621	10621	10621		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1Max}	rpm	3500	3500	3500	3500		
Max. input speed	n_{1Max}	rpm	7500	7500	7500	7500		
Mean no load running torque ^{b)} (at $n_1 = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	1.0	0.87	0.78	0.70		
		in.lb	9.2	7.7	6.9	6.2		
Max. backlash	j_t	arcmin	≤ 1					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	100	100	100	100		
		in.lb/arcmin	885	885	885	885		
Tilting rigidity	C_{2K}	Nm/arcmin	550					
		in.lb/arcmin	4868					
Max. axial force ^{c)}	M_{2KMax}	Nm	4800					
		in.lb	1080					
Max. tilting moment	M_{2KMax}	Nm	550					
		in.lb	4868					
Efficiency at full load	L_h	h	94					
Service life	L_h	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	11.1					
		lb _m	24.5					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	°C	≤ 58					
		°F	+90					
Max. permitted housing temperature		°C	194					
		°F	-15 to +40					
Ambient temperature		°F	5 to 104					
		°C						
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 69X					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	E	19	J_1	kgcm ²	0.87	0.70	0.60	0.55
				10 ⁻³ in.lb.s ²	0.77	0.62	0.53	0.49
	G	24	J_1	kgcm ²	2.39	2.22	2.12	2.07
				10 ⁻³ in.lb.s ²	2.12	1.96	1.88	1.83

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

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

^{b)} Valid for standard clamping hub diameter

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

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

Assembly accessories:

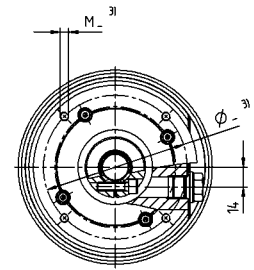
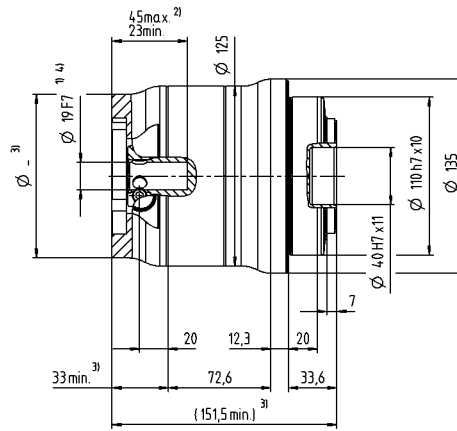
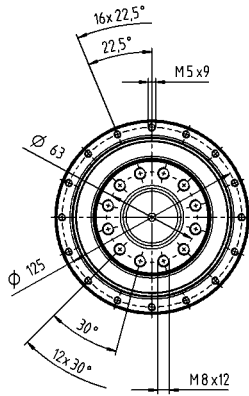
There is an optional mounting kit available for this gearbox that includes stainless steel screws, discs, seals and O-rings. For more information, see page 22.

View A

View B

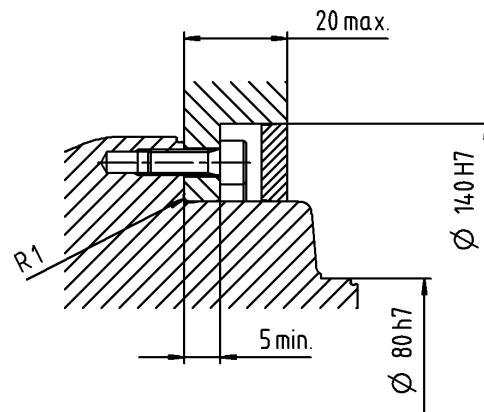
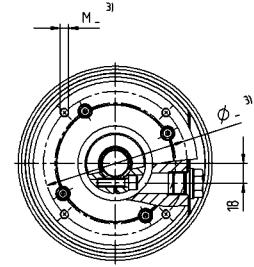
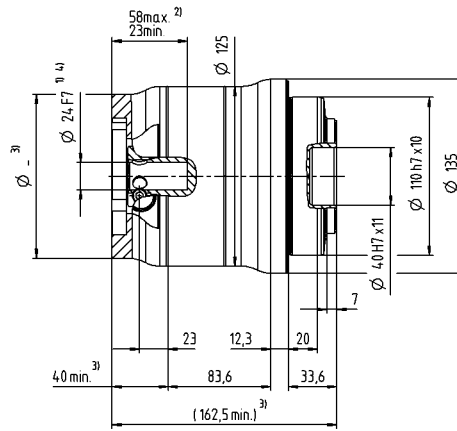
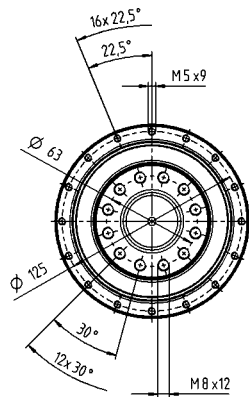
2-stage

up to 19⁴⁾ (E)⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

up to 24⁴⁾ (G)
clamping hub diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

HDP+ 050 MA 2-stage

			2-stage					
Ratio	<i>i</i>		22	27.5	38.5	55		
Max. torque ^{a) b)}	T_{2a}	Nm	1121	1121	1121	1121		
		in.lb	9925	9925	9925	9925		
Max. acceleration torque ^{b)} (max. 1000 cycles per hour)	T_{2B}	Nm	795	795	795	795		
		in.lb	7036	7036	7036	7036		
Nominal torque (at n_n)	T_{2N}	Nm	523	566	638	717		
		in.lb	4632	5005	5649	6348		
Emergency stop torque ^{a) b)} (permitted 1000 times during the service life of the gearbox)	T_{2Not}	Nm	2375	2375	2375	2375		
		in.lb	21021	21021	21021	21021		
Permitted average input speed ^{d)} (at T_{2a} and 20 °C ambient temperature)	n_{1Max}	rpm	3000	3000	3000	3000		
Max. input speed	n_{1Max}	rpm	6250	6250	6250	6250		
Mean no load running torque ^{b)} (at $n_i = 3000$ rpm and 20 °C gearbox temperature)	T_{012}	Nm	2.7	2.4	2.1	1.7		
		in.lb	23.9	21.2	18.9	15.0		
Max. backlash	j_t	arcmin	≤ 1					
Torsional rigidity ^{b)}	C_{t21}	Nm/arcmin	210	210	210	210		
		in.lb/arcmin	1859	1859	1859	1859		
Tilting rigidity	C_{2K}	Nm/arcmin	560					
		in.lb/arcmin	4956					
Max. axial force ^{c)}	M_{2KMax}	Nm	6130					
		in.lb	1379					
Max. tilting moment	M_{2KMax}	Nm	1335					
		in.lb	11816					
Efficiency at full load	L_h	h	94					
Service life	L_h	h	> 20000					
Weight (incl. standard adapter plate)	m	kg	21.9					
		lb _m	48.4					
Operating noise (at reference ratio and reference speed – ratio-specific values available in cymex [®])	L_{PA}	°C	≤ 60					
			+90					
Max. permitted housing temperature		°C	194					
			-15 to +40					
Ambient temperature		°F	-15 to +40					
		°F	5 to 104					
Lubrication			Lubricated for life					
Direction of rotation			In- and output same direction					
Protection class			IP 69X					
Mass moment of inertia (relates to the drive) Clamping hub diameter [mm] Optimized mass inertia version available on request	G	24	J_1	kgcm ²	3.80	3.33	3.00	2.80
				10 ⁻³ in.lb.s ²	3.36	2.95	2.66	2.48
	K	38	J_1	kgcm ²	10.7	10.3	9.90	9.70
				10 ⁻³ in.lb.s ²	9.47	9.12	8.76	8.58

Please use our sizing software cymex[®] for a detailed sizing – www.wittenstein-cymex.com

Assembly accessories:

There is an optional mounting kit available for this gearbox that includes stainless steel screws, discs, seals and O-rings. For more information, see page 22.

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

^{b)} Valid for standard clamping hub diameter

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

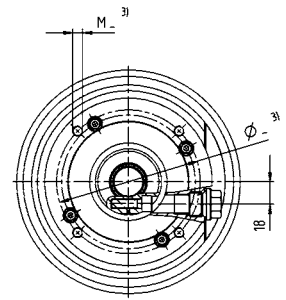
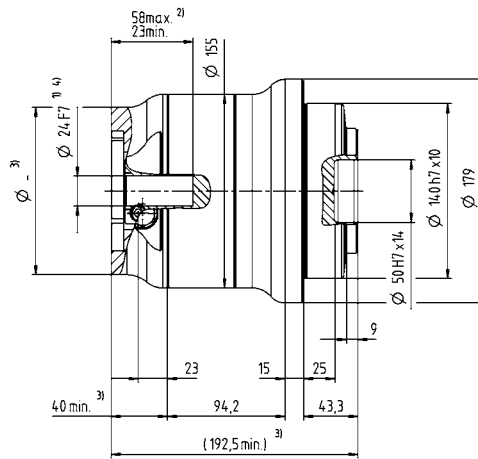
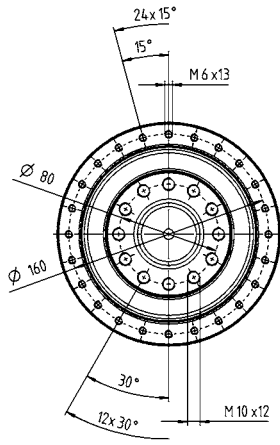
^{d)} Please reduce input speed at higher ambient temperatures

View A

View B

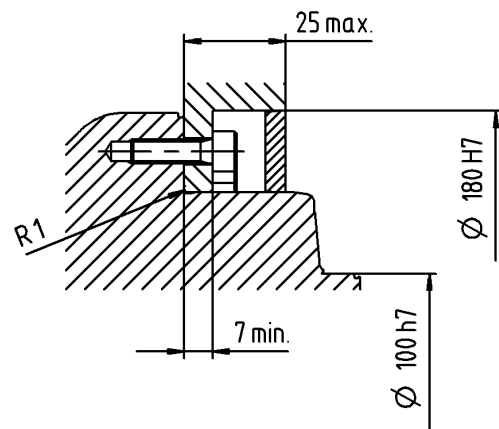
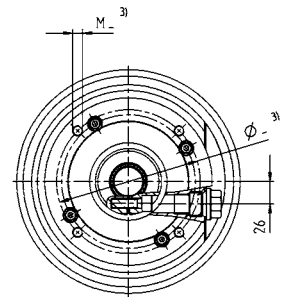
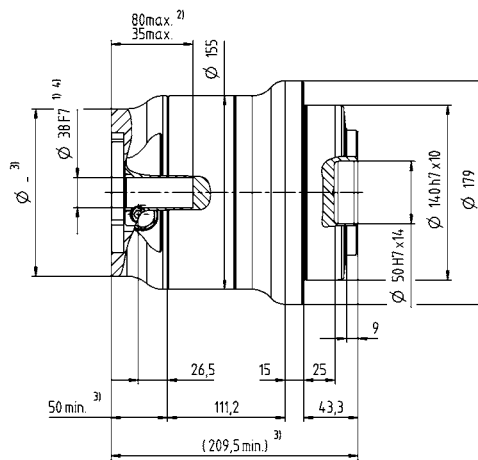
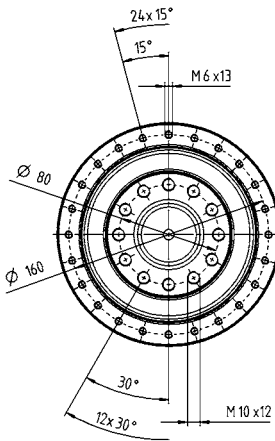
2-stage

up to 24 ⁴⁾ (G) ⁵⁾
clamping hub diameter



Motor shaft diameter [mm]

up to 38 ⁴⁾ (K)
clamping hub diameter



Non-tolerated dimensions are nominal dimensions

¹⁾ Check motor shaft fit

²⁾ Min. / Max. permissible motor shaft length

Longer motor shafts are possible, please contact alpha

³⁾ The dimensions depend on the motor

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

⁵⁾ Standard clamping hub diameter

Mounting kit – Hygienic mounting

Hygienically safe mounting

Our Hygienic Design Gearboxes have been designed for applications that require maximum cleanability and leak tightness. To meet these requirements in a comprehensive approach all the way to the connection of the gearbox, the gearbox must be mounted to the gearbox in a tailor-made and hygienically safe manner. For this end we have developed special mounting kits to ensure a hygienic connection with maximum process reliability. The sealing parts and screws included in the mounting kits prevent hygienic weak spots and seal cavities on the application side.

HDV:

The mounting kit for our HDV includes:

- O-rings to seal the direct contact surfaces between gearbox and machine
- a suitable stainless steel screw set with screw head seals for assembly to the machine
- a disc to seal the centering in the output shaft



HDP+:

The hygienic mounting kit for our HDP+ includes:

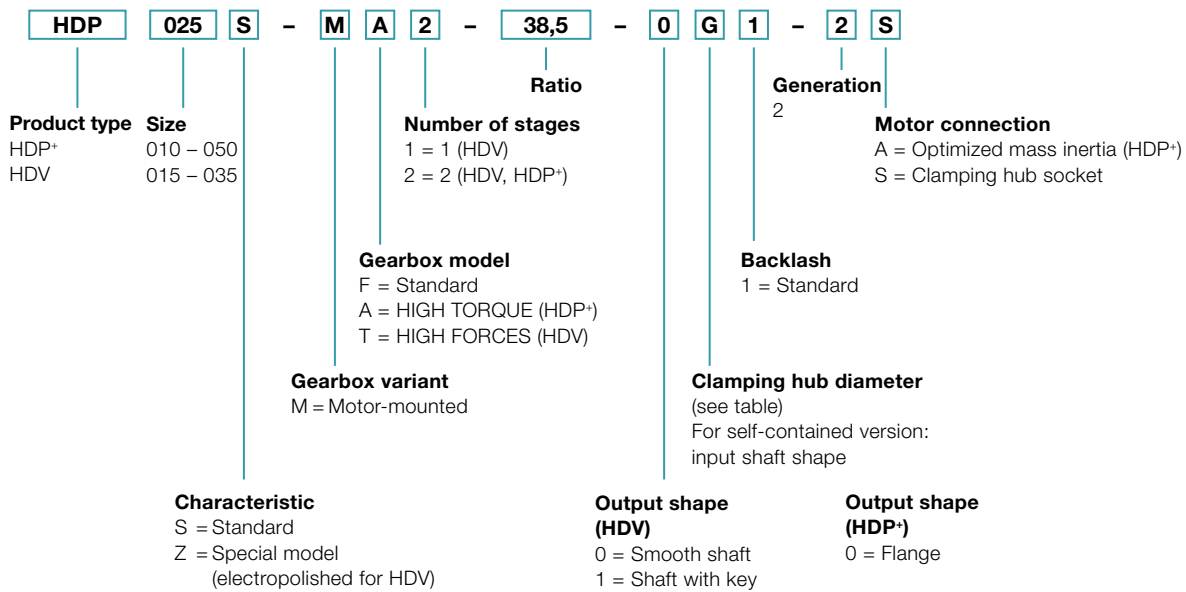
- O-rings to seal the direct contact surfaces between gearbox and machine
- a suitable screw set for assembly to the machine
- a sealing disc for the final sealing of the flange connection

Advantages for you:

- Procure tailor-made screws that conform to hygiene standards from a single source
- Take advantage of the opportunities to save storage capacities by packaging of the mounting material
- Benefit from a comprehensive solution for maximum process reliability

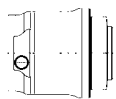
If you have any questions, please don't hesitate to contact your sales representative or WITTENSTEIN alpha.

Ordering code – Planetary gearbox

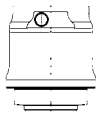


Mounting positions and clamping hub diameters

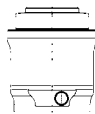
B5
Horizontal



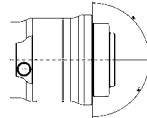
V1
Output vertical downwards



V3
Output vertical upwards



S
Can be tilted $\pm 90^\circ$
from a horizontal position



Clamping hub diameter
(see technical data sheet for possible diameters)

Code letter	mm	Code letter	mm
B	11	I	32
C	14	K	38
E	19	M	48
G	24	N	55
H	28	O	60

Intermediate sizes possible using bushings with a minimum thickness of 1 mm.

For information purposes only – not required when placing orders!

Exceptions:

- HDP+ is designed for mounting position B5 as standard!
- If the mounting position is different, contact WITTENSTEIN alpha.



alpha

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info@wittenstein-alpha.com

Subject to technical changes. Hygienic Design

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alpha Accessories. Optimally designed and adapted for gearboxes and actuators.