V-Drive Value – Economical servo worm

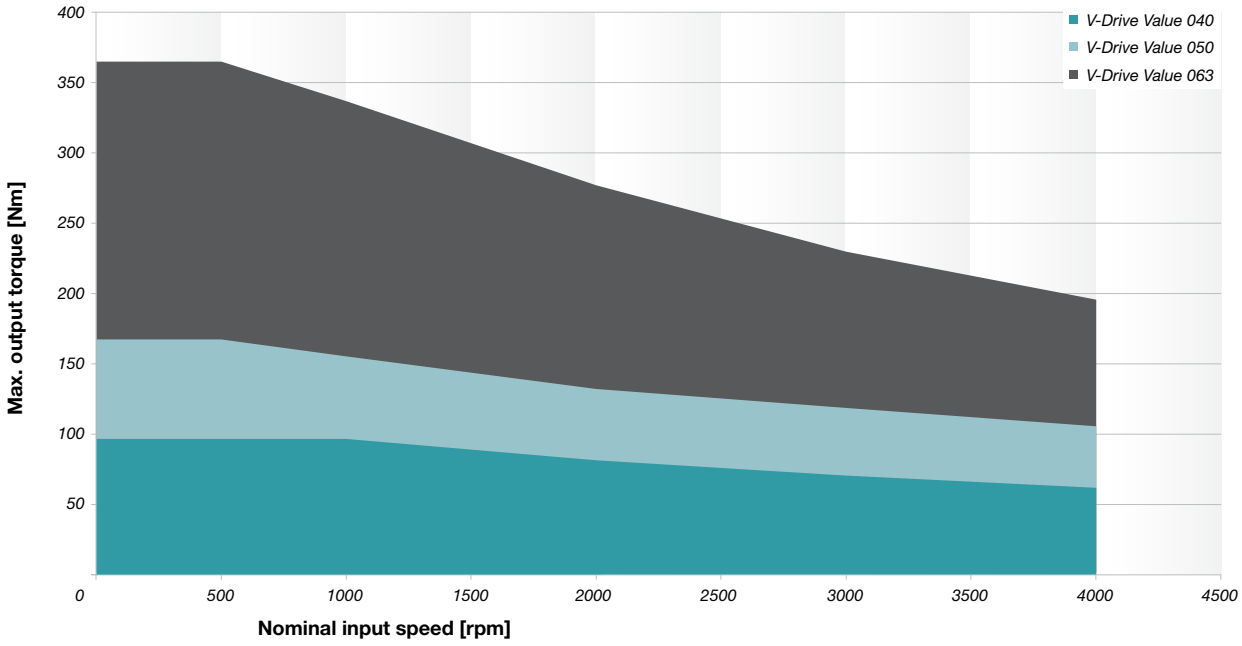
VDSe

VDHe

Low backlash servo worm gearheads with output shaft and hollow shaft. The V-Drive Value impresses with its high power density and medium torsional backlash.
It is especially suitable for economical applications in continuous operation.

Quick size selection

V-Drive Value (example for i = 28)
For applications in cyclic operation (DC ≤ 60%) or continuous operation (DC ≥ 60%)



Versions and Applications

Features	**VDHe** with smooth/keyed hollow shaft page 352	**VDSe** with smooth/keywayed solid shaft page 358
Power density	••	••
Smooth-running	•••	•••

Product features

Ratios	4 – 40	4 – 40
Torsional backlash [arcmin]	≤ 6	≤ 6
Output type		
Smooth output shaft		•
Keywayed output shaft		•
Hollow shaft interface Connected via shrink disc	•	
Hollow shaft interface, rear side Connected via shrink disc	•	
Shaft on both sides		•
Input type		
Motor mounted version	•	•
Type		
Food-grade lubrication	•	•
Corrosion resistant [a)]	•	•
Accessories		
Coupling		•
Rack		•
Pinion		•
Shrink disc	•	

[a)] Please contact WITTENSTEIN alpha

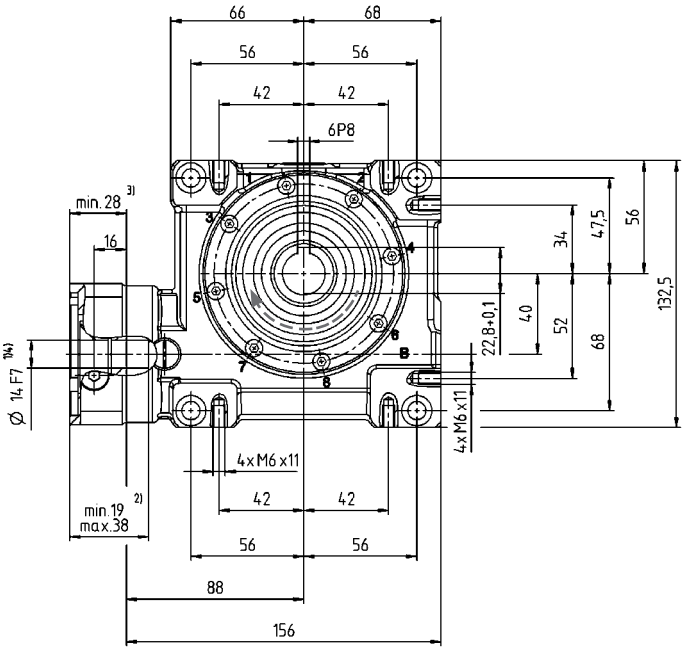
VDH Value 040 1-stage

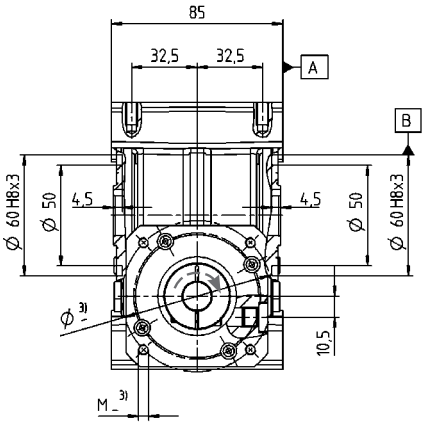
					1-stage					
Ratio			***i***		**4**	**7**	**10**	**16**	**28**	**40**
n_{1N}=500 rpm			T_{2Max}	Nm	74	82	91	94	98	91
				in.lb	655	726	805	832	867	805
			T_{2Servo}	Nm	17	24	25	26	29	25
				in.lb	150	212	221	230	257	221
			η	%	93	90	88	82	73	67
n_{1N}=1000 rpm			T_{2Max}	Nm	63	73	87	89	96	84
				in.lb	558	646	770	788	850	743
			T_{2Servo}	Nm	19	26	28	29	32	28
				in.lb	168	230	248	257	283	248
			η	%	94	92	90	86	77	73
n_{1N}=2000 rpm			T_{2Max}	Nm	47	58	71	76	81	72
				in.lb	416	513	628	673	717	637
			T_{2Servo}	Nm	19	26	28	29	33	29
				in.lb	168	230	248	257	292	257
			η	%	96	94	92	88	81	77
n_{1N}=3000 rpm			T_{2Max}	Nm	37	47	59	65	70	62
				in.lb	327	416	522	575	620	549
			T_{2Servo}	Nm	19	26	28	29	32	28
				in.lb	168	230	248	257	283	248
			η	%	96	95	93	90	83	79
n_{1N}=4000 rpm			T_{2Max}	Nm	31	38	48	56	61	55
				in.lb	274	336	425	496	540	487
			T_{2Servo}	Nm	19	25	27	28	31	27
				in.lb	168	221	239	248	274	239
			η	%	96	95	94	91	84	81
Emergency stop torque			T_{2Not}	Nm	118	126	125	129	134	122
				in.lb	1044	1115	1106	1142	1186	1080
Max. input speed			n_{1Max}	rpm	6000					
Mean no load running torque [a] (With n_1=3000 min^{-1} and 20° C gear temperature)			T_{012}	Nm	0.8	0.7	0.6	0.5	0.4	0.4
				in.lb	7.1	6.2	5.3	4.4	3.5	3.5
Max. torsional backlash			j_t	arcmin	≤ 6					
Torsional rigidity			C_{t21}	Nm/arcmin	4,5					
				in.lb/arcmin	40					
Max. axial force [b]			F_{2AMax}	N	3000					
				lb_f	675					
Max. radial force [b]			F_{2RMax}	N	2400					
				lb_f	540					
Max. tilting moment			M_{2KMax}	Nm	205					
				in.lb	1814					
Service life (For calculation see "Information")			L_h	h	> 20000					
Weight incl. standardadapter plate			m	kg	4,0					
				lb_m	8,8					
Operating noise (with n_1 = 3000 rpm no load)			L_{PA}	dB(A)	< 54					
Max. permitted housing temperature				°C	+90					
				F	194					
Ambient temperature				°C	-15 to +40					
				F	5 to 104					
Lubrication					Synthetic transmission oil					
Paint					None					
Direction of rotation					See drawing					
Protection class					IP 65					
Moment of inertia (relates to the drive) Moments of inertia for motor shaft diameter 14 and 19 mm	C	14	J_1	kgcm²	0.52	0.38	0.34	0.32	0.32	0.31
				10^{-3} in.lb.s²	0.46	0.34	0.30	0.28	0.28	0.27
	E	19	J_1	kgcm²	0.54	0.40	0.37	0.35	0.34	0.33
				10^{-3} in.lb.s²	0.48	0.35	0.33	0.31	0.30	0.29

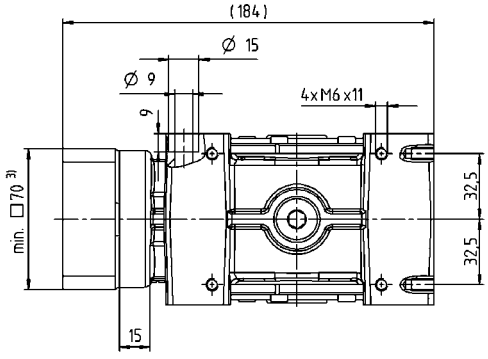
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

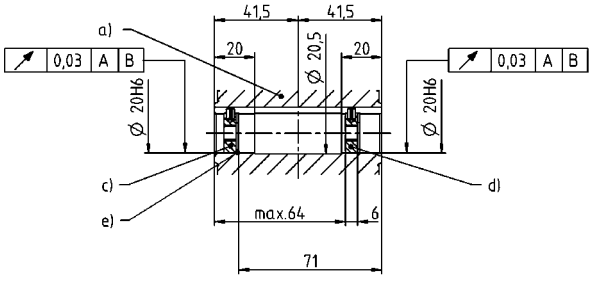
[a] Idling torques decrease during operation

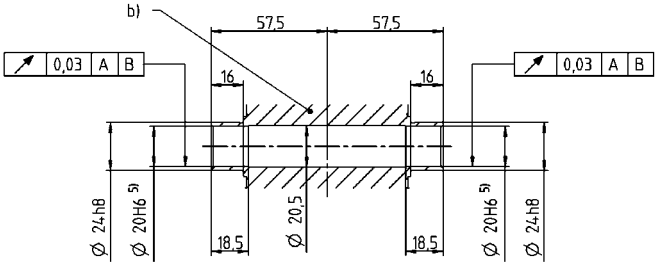
[b] Refers to center of output shaft or flange at n_2 = 300 rpm











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

Non-tolerated dimensions ± 1 mm
1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
3) The dimensions depend on the motor.
4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm. Motor shaft diameters up to 19 mm available – please contact WITTENSTEIN alpha.
5) Tolerance h6 for mounted shaft.

CAD data is available under www.wittenstein-alpha.com

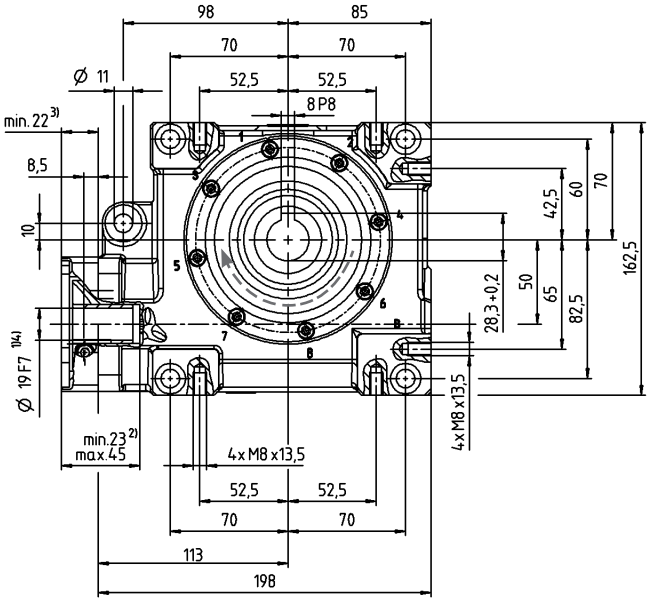
Motor mounting according to operating manual

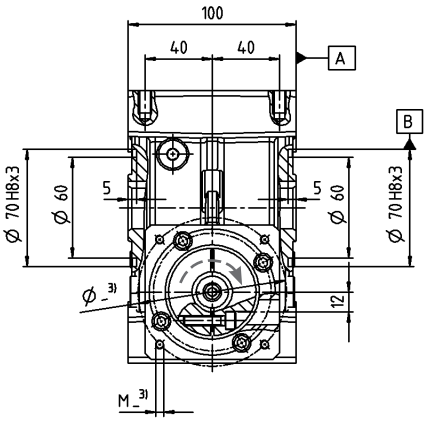
				1-stage					
Ratio			***i***	**4**	**7**	**10**	**16**	**28**	**40**
n_{1N}=500 rpm			T_{2Max}	Nm	–	150	153	157	167	141
				in.lb	–	1328	1354	1389	1478	1248
			T_{2Servo}	Nm	–	62	64	70	78	64
				in.lb	–	549	566	620	690	566
			η	%	–	89	86	82	72	64
n_{1N}=1000 rpm			T_{2Max}	Nm	–	127	130	146	155	112
				in.lb	–	1124	1151	1292	1372	991
			T_{2Servo}	Nm	–	66	70	76	84	70
				in.lb	–	584	620	673	743	620
			η	%	–	91	89	85	77	69
n_{1N}=2000 rpm			T_{2Max}	Nm	–	104	109	124	132	115
				in.lb	–	920	965	1097	1168	1018
			T_{2Servo}	Nm	–	68	71	77	86	72
				in.lb	–	602	628	681	761	637
			η	%	–	93	91	88	75	75
n_{1N}=3000 rpm			T_{2Max}	Nm	–	90	94	107	119	101
				in.lb	–	797	832	947	1053	894
			T_{2Servo}	Nm	–	67	70	76	84	70
				in.lb	–	593	620	673	743	620
			η	%	–	94	93	90	83	78
n_{1N}=4000 rpm			T_{2Max}	Nm	–	77	82	97	105	91
				in.lb	–	681	726	858	929	805
			T_{2Servo}	Nm	–	64	69	75	83	69
				in.lb	–	566	611	664	735	611
			η	%	–	95	93	91	85	80
Emergency stop torque			T_{2Not}	Nm	–	242	242	250	262	236
				in.lb	–	2142	2142	2213	2319	2089
Max. input speed			n_{1Max}	rpm	6000					
Mean no load running torque [a] (With n_1=3000 min^{-1} and 20° C gear temperature)			T_{012}	Nm	–	2.2	1.6	1.5	1.2	1.1
				in.lb	–	19.5	14.2	13.3	10.6	9.7
Max. torsional backlash			j_t	arcmin	≤ 6					
Torsional rigidity			C_{t21}	Nm/arcmin	8					
				in.lb/arcmin	71					
Max. axial force [b]			F_{2AMax}	N	5000					
				lb_f	1125					
Max. radial force [b]			F_{2RMax}	N	3800					
				lb_f	855					
Max. tilting moment			M_{2KMax}	Nm	409					
				in.lb	3620					
Service life (For calculation see "Information")			L_h	h	> 20000					
Weight incl. standardadapter plate			m	kg	7,4					
				lb_m	16,4					
Operating noise (with n_1 = 3000 rpm no load)			L_{PA}	dB(A)	≤ 62					
Max. permitted housing temperature				°C	+90					
				F	194					
Ambient temperature				°C	-15 to +40					
				F	5 to 104					
Lubrication					Synthetic transmission oil					
Paint					None					
Direction of rotation					See drawing					
Protection class					IP 65					
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	kgcm²	–	2,02	1,93	1,84	1,81	1,86
				10^{-3} in.lb.s²	–	1,79	1,71	1,63	1,60	1,64

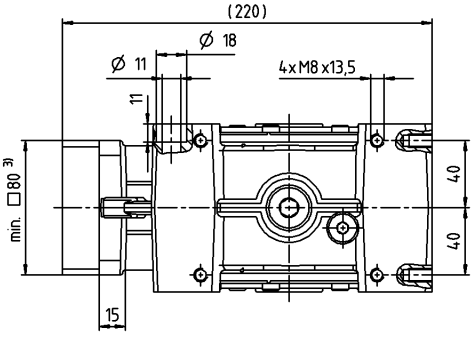
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

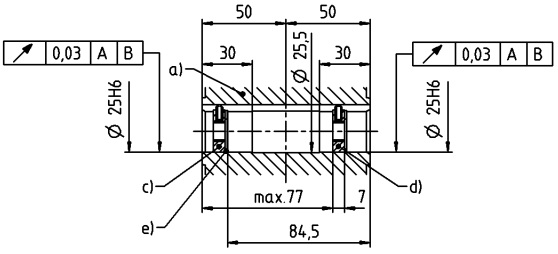
[a] Idling torques decrease during operation

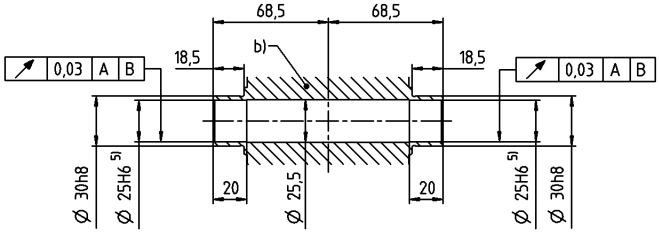
[b] Refers to center of output shaft or flange at n_2 = 300 rpm











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

Non-tolerated dimensions ± 1 mm
1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
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) Tolerance h6 for mounted shaft.

CAD data is available under www.wittenstein-alpha.com

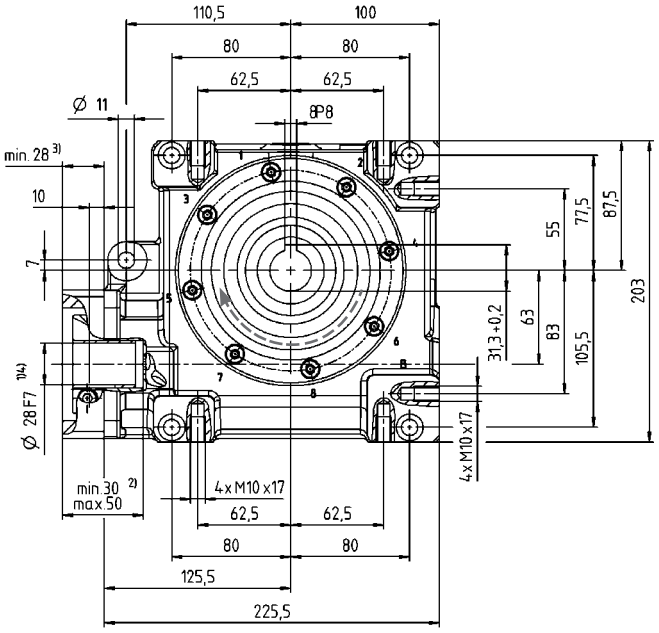
Motor mounting according to operating manual

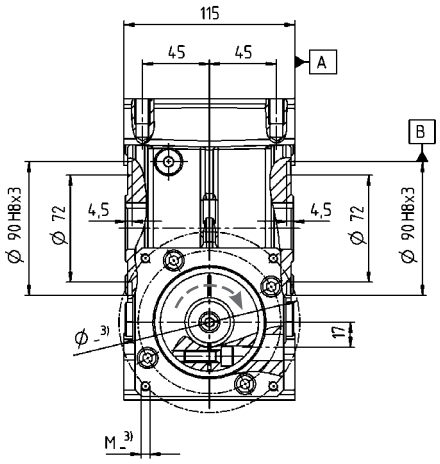
				1-stage					
Ratio			***i***	**4**	**7**	**10**	**16**	**28**	**40**
n_{1N}=500 rpm			T_{2Max}	Nm	–	303	319	331	365	321
				in.lb	–	2682	2823	2929	3230	2841
			T_{2Servo}	Nm	–	183	195	198	215	201
				in.lb	–	1620	1726	1752	1903	1779
			η	%	–	91	88	83	74	68
n_{1N}=1000 rpm			T_{2Max}	Nm	–	269	287	302	337	308
				in.lb	–	2381	2540	2673	2982	2726
			T_{2Servo}	Nm	–	197	208	212	230	215
				in.lb	–	1743	1841	1876	2036	1903
			η	%	–	93	91	86	78	73
n_{1N}=2000 rpm			T_{2Max}	Nm	–	234	252	263	277	269
				in.lb	–	2071	2230	2328	2451	2381
			T_{2Servo}	Nm	–	188	203	212	224	217
				in.lb	–	1664	1797	1876	1982	1920
			η	%	–	94	93	89	83	78
n_{1N}=3000 rpm			T_{2Max}	Nm	–	183	198	209	230	224
				in.lb	–	1620	1752	1850	2036	1982
			T_{2Servo}	Nm	–	145	163	181	182	177
				in.lb	–	1283	1443	1602	1611	1566
			η	%	–	95	94	91	85	81
n_{1N}=4000 rpm			T_{2Max}	Nm	–	146	162	175	196	193
				in.lb	–	1292	1434	1549	1735	1708
			T_{2Servo}	Nm	–	114	134	152	152	149
				in.lb	–	1009	1186	1345	1345	1319
			η	%	–	96	94	92	86	83
Emergency stop torque			T_{2Not}	Nm	–	484	491	494	518	447
				in.lb	–	4283	4345	4372	4584	3956
Max. input speed			n_{1Max}	rpm	4500					
Mean no load running torque [a] (With n_1=3000 min^{-1} and 20° C gear temperature)			T_{012}	Nm	–	3.1	3.0	2.4	2.3	2.2
				in.lb	–	27.4	26.6	21.2	20.4	19.5
Max. torsional backlash			j_t	arcmin	≤ 6					
Torsional rigidity			C_{t21}	Nm/arcmin	28					
				in.lb/arcmin	248					
Max. axial force [b]			F_{2AMax}	N	8250					
				lb_f	1856					
Max. radial force [b]			F_{2RMax}	N	6000					
				lb_f	1350					
Max. tilting moment			M_{2KMax}	Nm	843					
				in.lb	7461					
Service life (For calculation see "Information")			L_h	h	> 20000					
Weight incl. standardadapter plate			m	kg	12					
				lb_m	26,5					
Operating noise (with n_1 = 3000 rpm no load)			L_{PA}	dB(A)	≤ 64					
Max. permitted housing temperature				°C	+90					
				F	194					
Ambient temperature				°C	-15 to +40					
				F	5 to 104					
Lubrication					Synthetic transmission oil					
Paint					None					
Direction of rotation					See drawing					
Protection class					IP 65					
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	H	28	J_1	kgcm²	–	5,77	5,53	5,44	5,40	5,35
				10^{-3} in.lb.s²	–	5,11	4,89	4,81	4,78	4,74

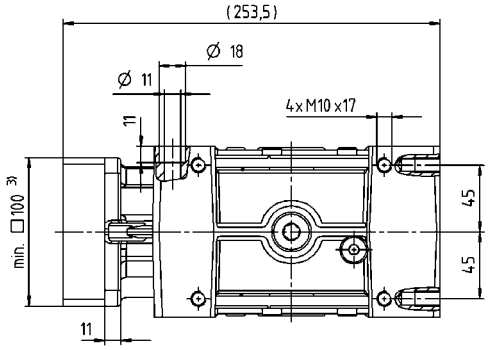
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

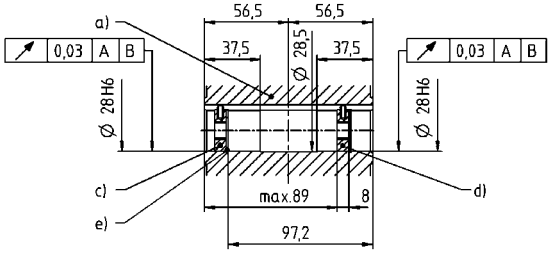
[a] Idling torques decrease during operation

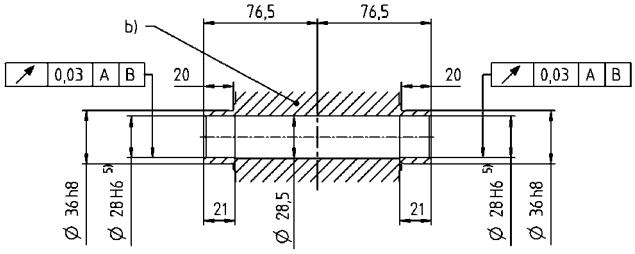
[b] Refers to center of output shaft or flange at n_2 = 300 rpm











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

Non-tolerated dimensions ± 1 mm
1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length.
Longer motor shafts are adaptable, please contact us.
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) Tolerance h6 for mounted shaft.

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

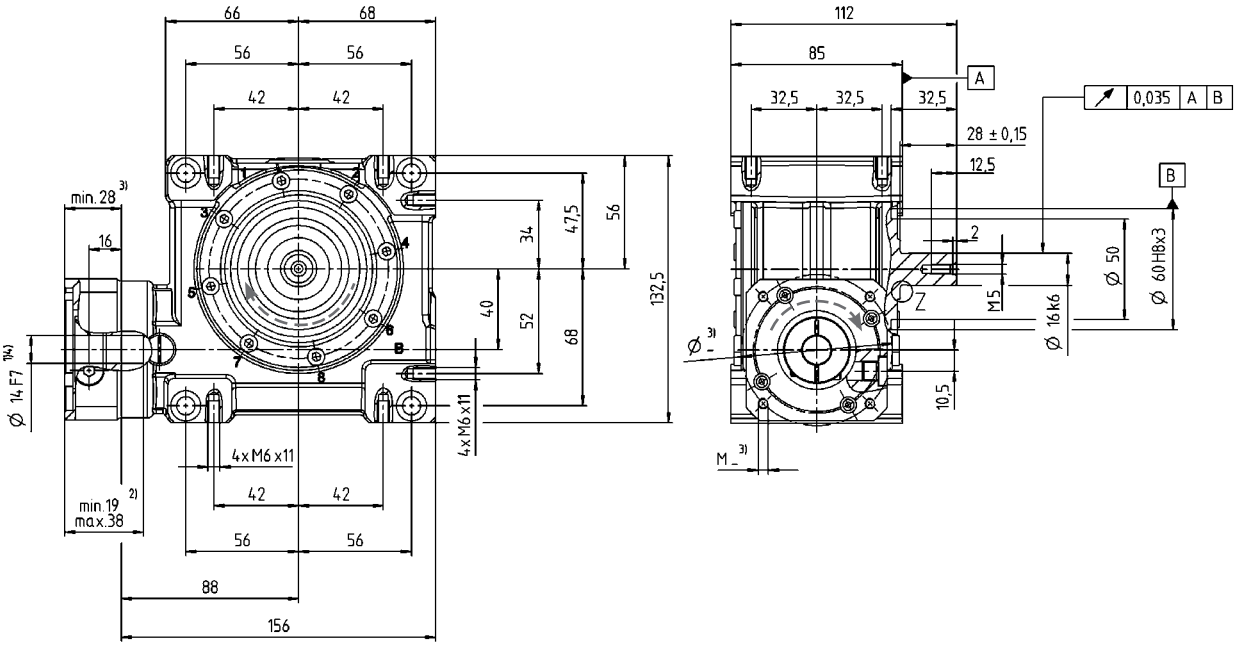
VDS Value 040 1-stage

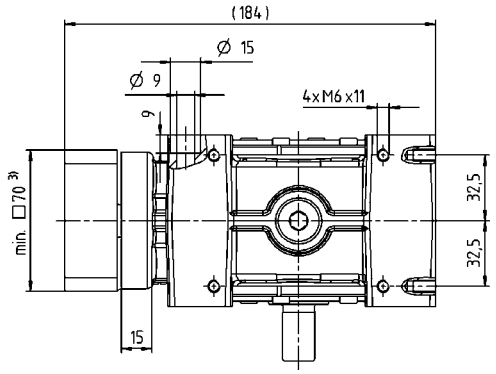
				1-stage					
Ratio			***i***	**4**	**7**	**10**	**16**	**28**	**40**
n_{1N}=500 rpm			T_{2Max} Nm	63	73	87	89	96	84
			T_{2Max} in.lb	558	646	770	788	850	743
			T_{2Servo} Nm	19	26	28	29	32	28
			T_{2Servo} in.lb	168	230	248	257	283	248
			η %	93	90	88	82	73	67
n_{1N}=1000 rpm			T_{2Max} Nm	63	73	87	89	96	84
			T_{2Max} in.lb	558	646	770	788	850	743
			T_{2Servo} Nm	19	26	28	29	32	28
			T_{2Servo} in.lb	168	230	248	257	283	248
			η %	94	92	90	86	77	73
n_{1N}=2000 rpm			T_{2Max} Nm	47	58	71	76	81	72
			T_{2Max} in.lb	416	513	628	673	717	637
			T_{2Servo} Nm	19	26	28	29	33	29
			T_{2Servo} in.lb	168	230	248	257	292	257
			η %	96	94	92	88	81	77
n_{1N}=3000 rpm			T_{2Max} Nm	37	47	59	65	70	62
			T_{2Max} in.lb	327	416	522	575	620	549
			T_{2Servo} Nm	19	26	28	29	32	28
			T_{2Servo} in.lb	168	230	248	257	283	248
			η %	96	95	93	90	83	79
n_{1N}=4000 rpm			T_{2Max} Nm	31	38	48	56	61	55
			T_{2Max} in.lb	274	336	425	496	540	487
			T_{2Servo} Nm	19	25	27	28	31	27
			T_{2Servo} in.lb	168	221	239	248	274	239
			η %	96	95	94	91	84	81
Emergency stop torque			T_{2Not} Nm	118	126	125	129	134	122
			T_{2Not} in.lb	1044	1115	1106	1142	1186	1080
Max. input speed			n_{1Max} rpm	6000					
Mean no load running torque [a] (With n_1=3000 min^{-1} and 20° C gear temperature)			T_{012} Nm	0.8	0.7	0.6	0.5	0.4	0.4
			T_{012} in.lb	7.1	6.2	5.3	4.4	3.5	3.5
Max. torsional backlash			j_t arcmin	≤ 6					
Torsional rigidity			C_{t21} Nm/arcmin	4,5					
			C_{t21} in.lb/arcmin	40					
Max. axial force [b]			F_{2AMax} N	3000					
			F_{2AMax} lb_f	675					
Max. radial force [b]			F_{2RMax} N	2400					
			F_{2RMax} lb_f	540					
Max. tilting moment			M_{2KMax} Nm	205					
			M_{2KMax} in.lb	1814					
Service life (For calculation see "Information")			L_h ~~h~~	> 20000					
Weight incl. standardadapter plate			m kg	4,1					
			m lb_m	9,1					
Operating noise (with n_1 = 3000 rpm no load)			L_{PA} dB(A)	≤ 54					
Max. permitted housing temperature			°C	+90					
			F	194					
Ambient temperature			°C	-15 to +40					
			F	5 to 104					
Lubrication				Synthetic transmission oil					
Paint				None					
Direction of rotation				See drawing					
Protection class				IP 65					
Moment of inertia (relates to the drive) Moments of inertia for motor shaft diameter 14 and 19 mm	C	14	J_1 kgcm²	0.52	0.38	0.34	0.32	0.32	0.31
			J_1 10^{-3} in.lb.s²	0.46	0.34	0.30	0.28	0.28	0.27
	E	19	J_1 kgcm²	0.54	0.40	0.37	0.35	0.34	0.33
			J_1 10^{-3} in.lb.s²	0.48	0.35	0.33	0.31	0.30	0.29

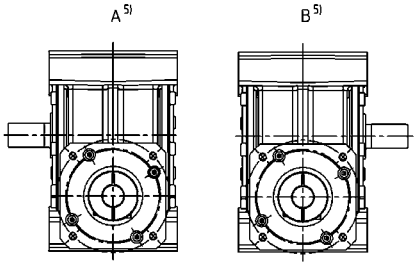
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

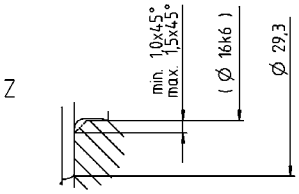
[a] Idling torques decrease during operation

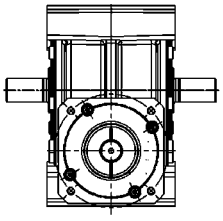
[b] Refers to center of output shaft or flange at n_2 = 300 rpm









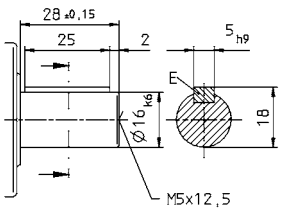


Optional dual-shaft output. Drawings available upon request.

Alternatives: Output shaft variants

Keywayed output shaft in mm

E = key as per DIN 6885, sheet 1, form A



Non-tolerated dimensions ± 1 mm

1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length.
   Longer motor shafts are adaptable, please contact us.
3) The dimensions depend on the motor.
4) Smaller motor shaft diameter is compensated by a bushing with a minimum thickness of 1 mm. Motor shaft diameters up to 19 mm available – please contact WITTENSTEIN alpha
5) Output side

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual

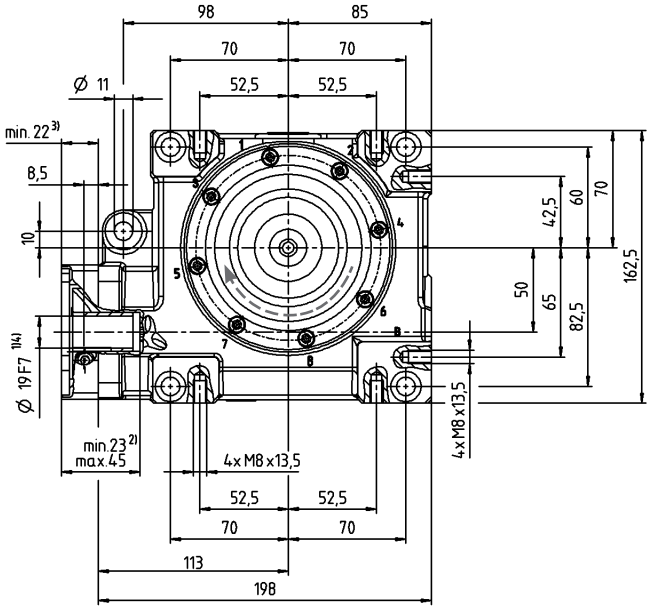
VDS value 050 1-stage

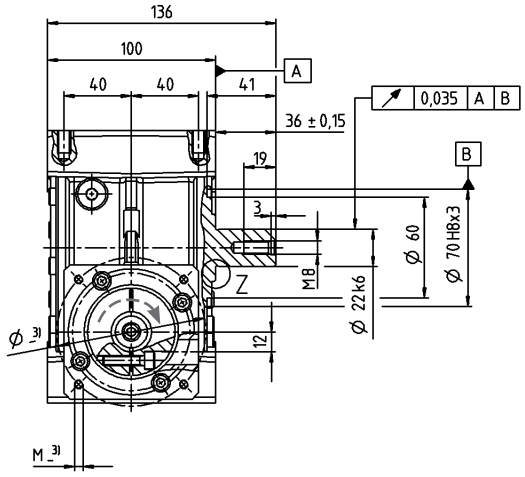
				1-stage					
Ratio			***i***	**4**	**7**	**10**	**16**	**28**	**40**
n_{1N}=500 rpm			T_{2Max}	Nm	–	150	153	157	167	141
				in.lb	–	1328	1354	1389	1478	1248
			T_{2Servo}	Nm	–	62	64	70	78	64
				in.lb	–	549	566	620	690	566
			η	%	–	89	86	82	72	64
n_{1N}=1000 rpm			T_{2Max}	Nm	–	127	130	146	155	112
				in.lb	–	1124	1151	1292	1372	991
			T_{2Servo}	Nm	–	66	70	76	84	70
				in.lb	–	584	620	673	743	620
			η	%	–	91	89	85	77	69
n_{1N}=2000 rpm			T_{2Max}	Nm	–	104	109	124	132	115
				in.lb	–	920	965	1097	1168	1018
			T_{2Servo}	Nm	–	68	71	77	86	72
				in.lb	–	602	628	681	761	637
			η	%	–	93	91	88	75	75
n_{1N}=3000 rpm			T_{2Max}	Nm	–	90	94	107	119	101
				in.lb	–	797	832	947	1053	894
			T_{2Servo}	Nm	–	67	70	76	84	70
				in.lb	–	593	620	673	743	620
			η	%	–	94	93	90	83	78
n_{1N}=4000 rpm			T_{2Max}	Nm	–	77	82	97	105	91
				in.lb	–	681	726	858	929	805
			T_{2Servo}	Nm	–	64	69	75	83	69
				in.lb	–	566	611	664	735	611
			η	%	–	95	93	91	85	80
Emergency stop torque			T_{2Not}	Nm	–	242	242	250	262	236
				in.lb	–	2142	2142	2213	2319	2089
Max. input speed			n_{1Max}	rpm	6000					
Mean no load running torque [a] (With n_1=3000 min^{-1} and 20° C gear temperature)			T_{012}	Nm	–	2.2	1.6	1.5	1.2	1.1
				in.lb	–	19.5	14.2	13.3	10.6	9.7
Max. torsional backlash			j_t	arcmin	≤ 6					
Torsional rigidity			C_{t21}	Nm/arcmin	8					
				in.lb/arcmin	71					
Max. axial force [b]			F_{2AMax}	N	5000					
				lb_f	1125					
Max. radial force [b]			F_{2RMax}	N	3800					
				lb_f	855					
Max. tilting moment			M_{2KMax}	Nm	409					
				in.lb	3620					
Service life (For calculation see "Information")			L_h	h	> 20000					
Weight incl. standardadapter plate			m	kg	7,7					
				lb_m	17,0					
Operating noise (with n_1 = 3000 rpm no load)			L_{PA}	dB(A)	≤ 62					
Max. permitted housing temperature				°C	+90					
				F	194					
Ambient temperature				°C	-15 to +40					
				F	5 to 104					
Lubrication					Synthetic transmission oil					
Paint					None					
Direction of rotation					See drawing					
Protection class					IP 65					
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	E	19	J_1	kgcm²	–	2,01	1,93	1,84	1,81	1,86
				10^{-3} in.lb.s²	–	1,78	1,71	1,63	1,60	1,64

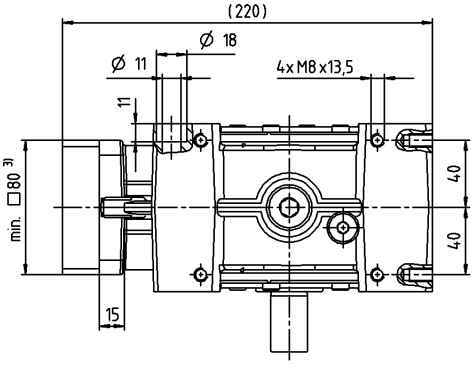
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

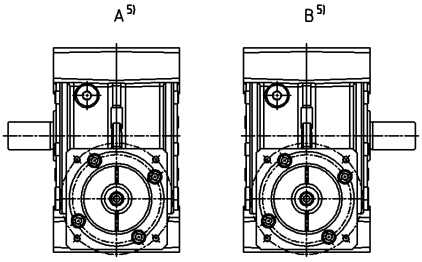
[a] Idling torques decrease during operation

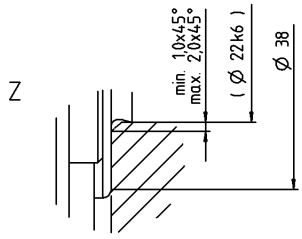
[b] Refers to center of output shaft or flange at n_2 = 300 rpm

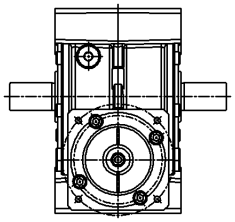










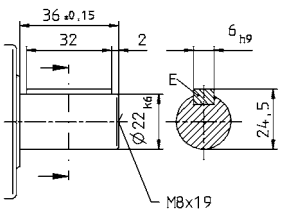


Optional dual-shaft output. Drawings available upon request.

Alternatives: Output shaft variants

Keywayed output shaft in mm

E = key as per DIN 6885, sheet 1, form A



Non-tolerated dimensions ± 1 mm

1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length. Longer motor shafts are adaptable, please contact us.
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) Output side

CAD data is available under www.wittenstein-alpha.com

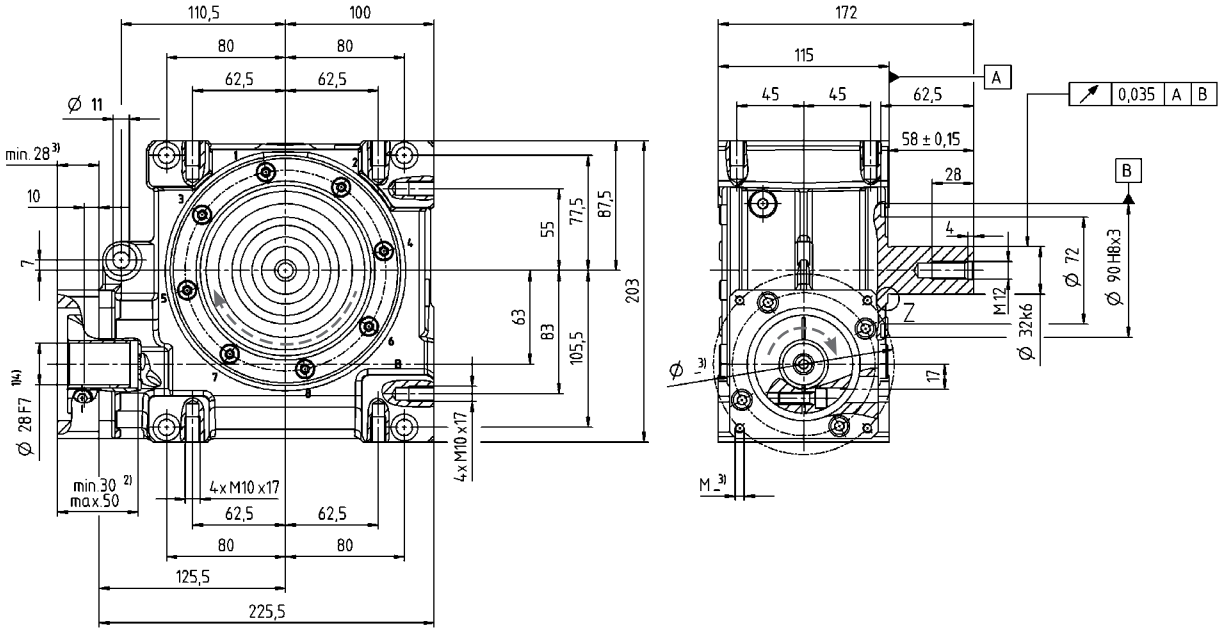
Motor mounting according to operating manual

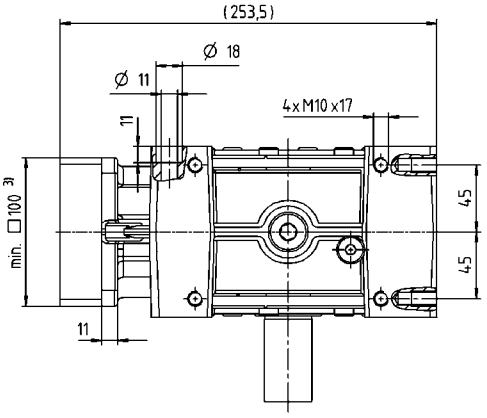
				1-stage					
Ratio			***i***	**4**	**7**	**10**	**16**	**28**	**40**
n_{1N}=500 rpm			T_{2Max}	Nm	–	303	319	331	365	321
				in.lb	–	2682	2823	2929	3230	2841
			T_{2Servo}	Nm	–	183	195	198	215	201
				in.lb	–	1620	1726	1752	1903	1779
			η	%	–	91	88	83	74	68
n_{1N}=1000 rpm			T_{2Max}	Nm	–	269	287	302	337	308
				in.lb	–	2381	2540	2673	2982	2726
			T_{2Servo}	Nm	–	197	208	212	230	215
				in.lb	–	1743	1841	1876	2036	1903
			η	%	–	93	91	86	78	73
n_{1N}=2000 rpm			T_{2Max}	Nm	–	234	252	263	277	269
				in.lb	–	2071	2230	2328	2451	2381
			T_{2Servo}	Nm	–	188	203	212	224	217
				in.lb	–	1664	1797	1876	1982	1920
			η	%	–	94	93	89	83	78
n_{1N}=3000 rpm			T_{2Max}	Nm	–	183	198	209	230	224
				in.lb	–	1620	1752	1850	2036	1982
			T_{2Servo}	Nm	–	145	163	181	182	177
				in.lb	–	1283	1443	1602	1611	1566
			η	%	–	95	94	91	85	81
n_{1N}=4000 rpm			T_{2Max}	Nm	–	146	162	175	196	193
				in.lb	–	1292	1434	1549	1735	1708
			T_{2Servo}	Nm	–	114	134	152	152	149
				in.lb	–	1009	1186	1345	1345	1319
			η	%	–	96	94	92	86	83
Emergency stop torque			T_{2Not}	Nm	–	484	491	494	518	447
				in.lb	–	4283	4345	4372	4584	3956
Max. input speed			n_{1Max}	rpm	4500					
Mean no load running torque [a] (With n_1=3000 min^{-1} and 20° C gear temperature)			T_{012}	Nm	–	3.1	3.0	2.4	2.3	2.2
				in.lb	–	27.4	26.6	21.2	20.4	19.5
Max. torsional backlash			j_t	arcmin	≤ 6					
Torsional rigidity			C_{t21}	Nm/arcmin	28					
				in.lb/arcmin	248					
Max. axial force [b]			F_{2AMax}	N	8250					
				lb_f	1856					
Max. radial force [b]			F_{2RMax}	N	6000					
				lb_f	1350					
Max. tilting moment			M_{2KMax}	Nm	843					
				in.lb	7461					
Service life (For calculation see "Information")			L_h	h	> 20000					
Weight incl. standardadapter plate			m	kg	12,5					
				lb_m	27,6					
Operating noise (with n_1 = 3000 rpm no load)			L_{PA}	dB(A)	≤ 64					
Max. permitted housing temperature				°C	+90					
				F	194					
Ambient temperature				°C	-15 to +40					
				F	5 to 104					
Lubrication					Synthetic transmission oil					
Paint					None					
Direction of rotation					See drawing					
Protection class					IP 65					
Moment of inertia (relates to the drive) Clamping hub diameter [mm]	H	28	J_1	kgcm²	–	5,78	5,53	5,44	5,40	5,35
				10^{-3} in.lb.s²	–	5,12	4,90	4,82	4,78	4,74

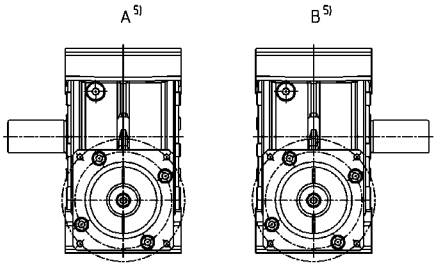
Please contact us for information on the best configuration for S1 conditions of use (continuous operation).

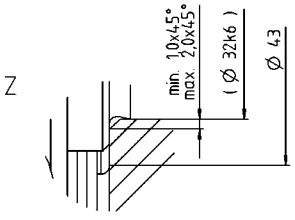
[a] Idling torques decrease during operation

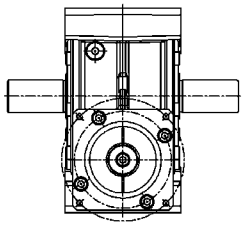
[b] Refers to center of output shaft or flange at n_2 = 300 rpm









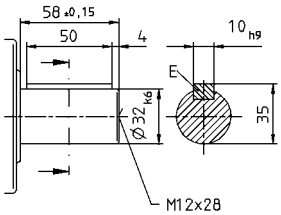


Optional dual-shaft output. Drawings available upon request.

Alternatives: Output shaft variants

Keywayed output shaft in mm

E = key as per DIN 6885, sheet 1, form A



Non-tolerated dimensions ± 1 mm

1) Check motor shaft fit.
2) Min./Max. permissible motor shaft length. Longer motor shafts are adaptable, please contact us.
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) Output side

CAD data is available under www.wittenstein-alpha.com

Motor mounting according to operating manual