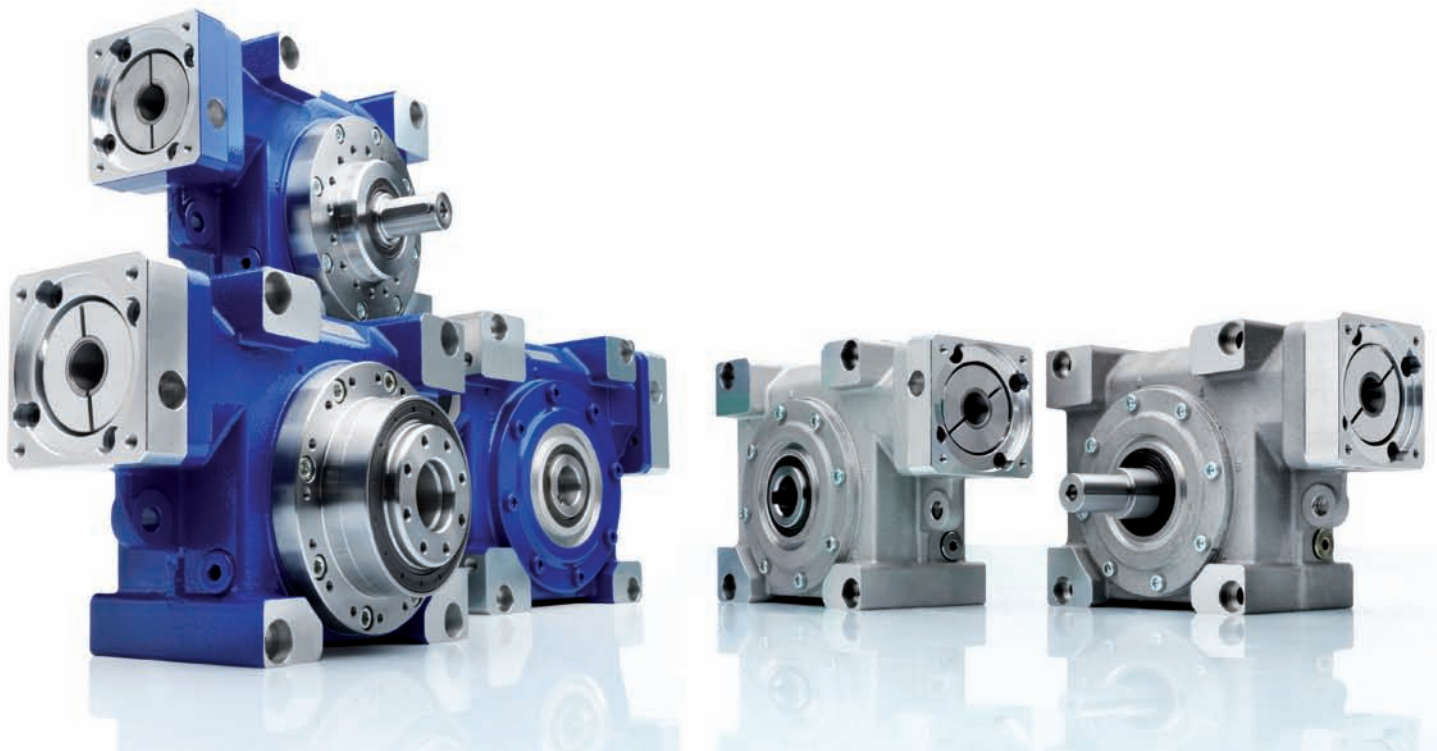


**V-Drive<sup>®</sup>/V-Drive<sup>®</sup> economy** – The new generation of servo worm gearbox

The servo worm gearhead with solid shaft, hollow shaft and hollow shaft flange outputs (V-Drive<sup>®</sup> shown below with non-standard 2K lacquer paint)



**V-Drive<sup>®</sup>**

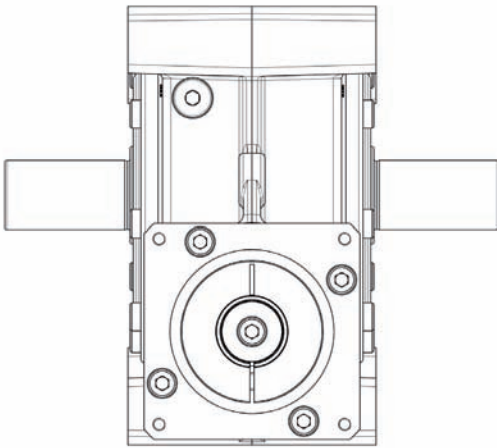
Specifications \ Version	VDS <sup>+</sup> /VDT <sup>+</sup> /VDH <sup>+</sup> / VDS economy/VDH economy		
	+	++	+++
Positioning accuracy		██████████	
Rigidity		VDT <sup>+</sup> ██████████	
		VDS <sup>+</sup> /VDH <sup>+</sup> ██████████	
Smooth-running		██████████	
Speed capacity		██████████	
Power density		██████████	
Max. axial/radial forces		██████████	



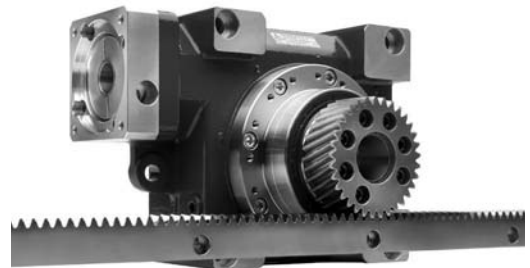
Shrink disc



Couplings



Shaft on both sides



Rack / Pinion

## Options

VDS+, VDH+, VDT+ version  
VDS economy, VDH economy version  
Washdown version  
Food-grade grease   
Shaft on both sides  
 $i > 40$  (on request)

## Accessories

Rack / Pinion (see page 310)  
Shrink disc (see page 342)  
Couplings (see page 342)

# V-Drive®

## A unique technology

Our new range of servo worm gear – the V-Drive® – offers unique variety for applications.

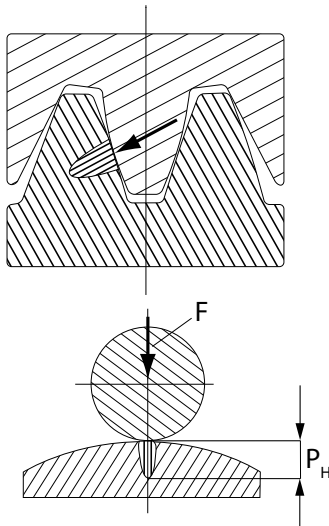
Through manufacturing process innovations, we are bringing the servo worm gear to a new level and offering two versions, the V-Drive+® and V-Drive® economy – to provide exceptional servo solutions.

Optimized hollow-flank teeth provide for constant positioning accuracy and low backlash, along with up to 50% more torque.

The V-Drive+® boasts 97% efficiency, the highest for servo worm gears on the market.

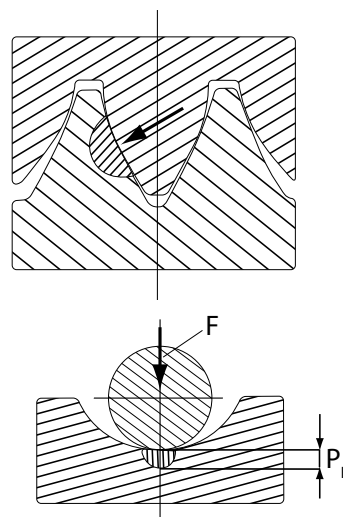
Our commitment to you is 100% delivery satisfaction along with the optional WITTENSTEIN alpha 72-hour delivery service.

### Involute teeth



- High surface pressure = increased wear (pitting)
- Smaller tooth root thickness

### Hollow-flank teeth with V-Drive®



- Low surface pressure = reduced wear (no pitting)
- Larger tooth root thickness = high load and overload capacity

# A new design philosophy

## for servo worm gears

To meet the needs for a variety of applications requiring servo worm gears, WITTENSTEIN alpha has developed a revolutionary new design philosophy. (V-Drive<sup>+</sup>® shown below with non-standard 2K lacquer paint)

The transmittable torque is arranged into two types:

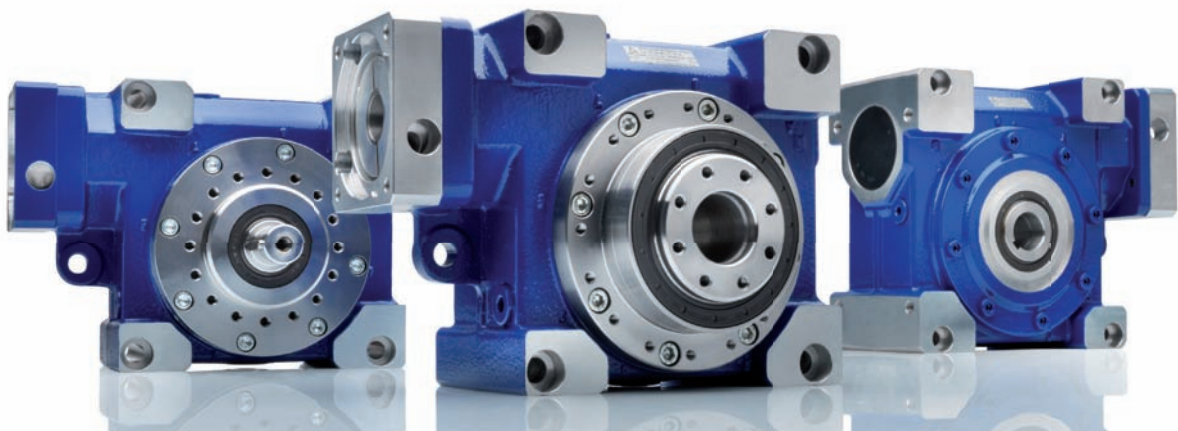
### **T<sub>2Max</sub>**

T<sub>2Max</sub> means the maximum torque which can be transmitted by the gearbox.

This value can be chosen for applications that can accept a slight increase in backlash over time.

### **T<sub>2Servo</sub>**

T<sub>2Servo</sub> is a special value for precision applications in which a minimum backlash must be guaranteed over the life of the gearbox. The increase in backlash seen in other worm gears is less due to the optimized hollow flank teeth.



# V-Drive+®

## The plus stands for torque

With continuously high positioning accuracy and low backlash of <3 arcmin, the V-Drive+® sets new standards for servo worm gears. These outstanding characteristics create an optimal symbiosis between power and precision. (V-Drive+® shown below with non-standard 2K lacquer paint)

**VDT+**  
shaft flange

**VDS+**  
shaft, smooth/  
keyed/  
involute

The following output options  
are available:

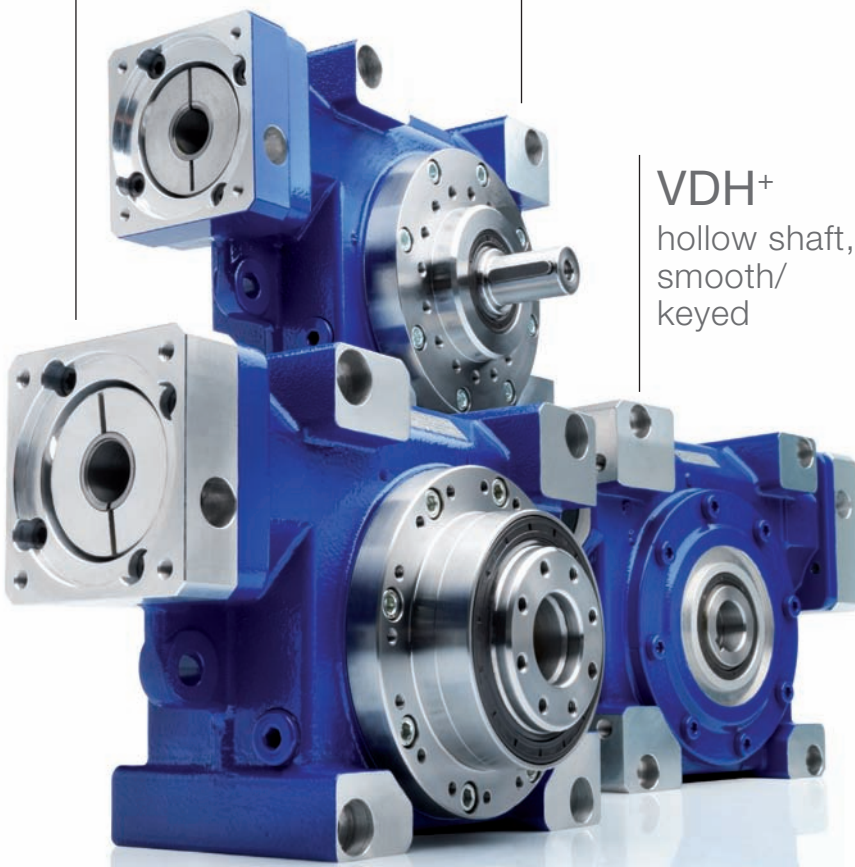
- VDH (hollow shaft, smooth/keyed)
- VDS (shaft, smooth/keyed/involute)
- VDT (shaft flange)

Sizes 050, 063, 080, 100

**VDH+**  
hollow shaft,  
smooth/  
keyed

**Features:**

Ratio 4, 7, 10, 16, 28, 40  
Torsional backlash < 3 arcmin  
Efficiency of up to 97%



Revolutionary teeth technology for 50% more torque!

# V-Drive® economy

Highest quality with maximum results

With the V-Drive® economy, an economical solution has been created for low-duty applications. WITTENSTEIN quality combined with optimized hollow-flank teeth provides more torque and power density than comparable products.

The following output options are available:

- VDH (hollow shaft, smooth/keyed)
- VDS (shaft, smooth/keyed)

Sizes 050, 063

## Features:

Ratio 7, 10, 16, 28, 40

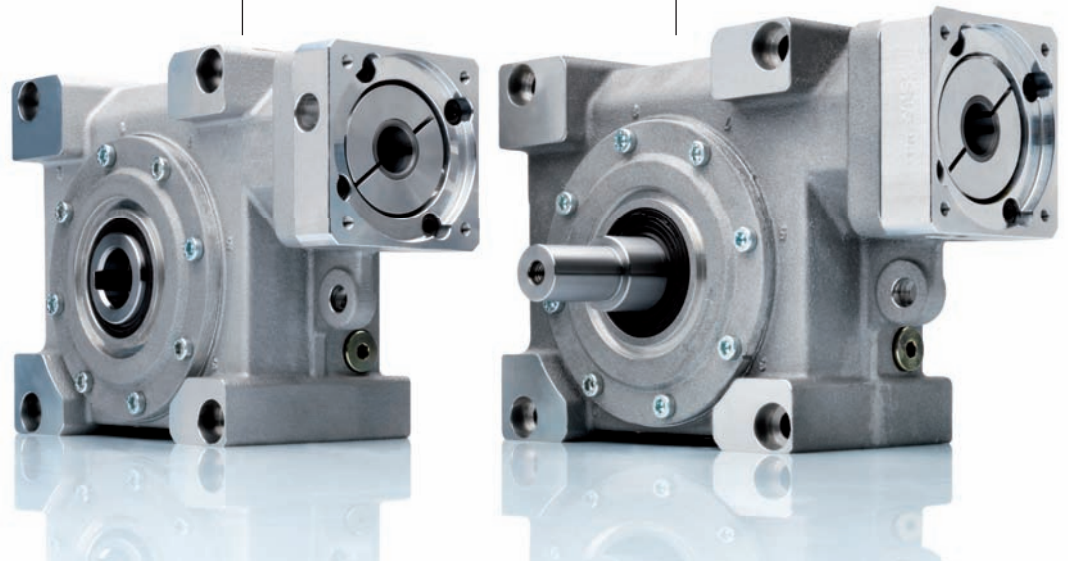
Torsional backlash < 8 arcmin

## VDH economy

hollow shaft  
smooth/keyed

## VDS economy

shaft  
smooth/keyed



Optimal performance for low-duty applications!

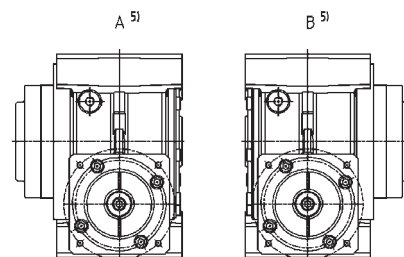
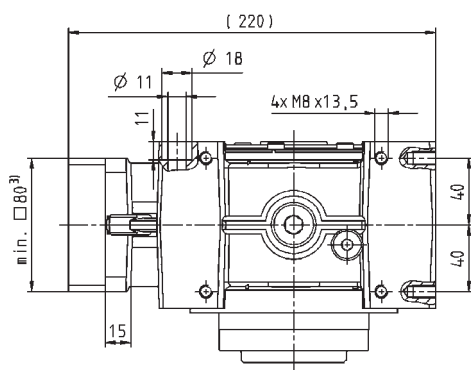
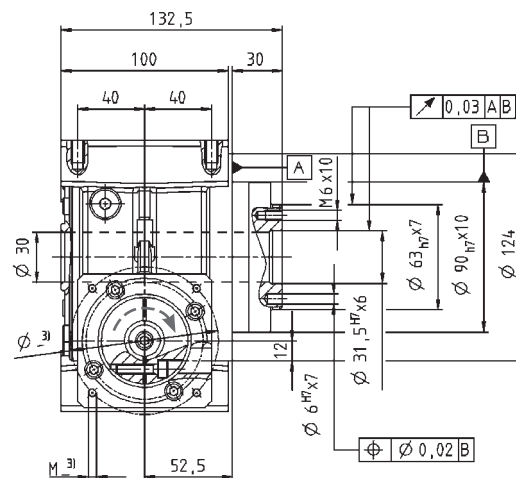
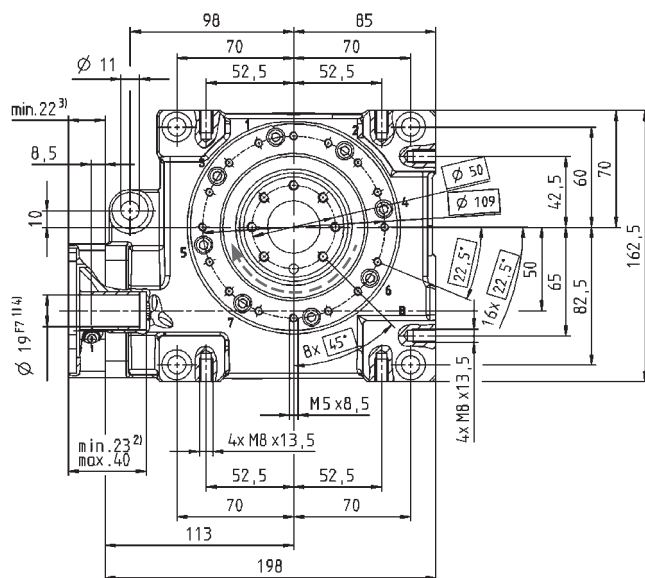


# VDT+ 050 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	124	132	148	154	165	158
		in.lb	1097	1168	1310	1363	1460	1398
	$T_{2Servo}$	Nm	54	71	74	81	90	74
		in.lb	478	628	655	717	797	655
$\eta$	%		92	89	86	82	72	64
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	124	130	136	140	151	142
		in.lb	1097	1151	1204	1239	1336	1257
	$T_{2Servo}$	Nm	58	76	80	88	97	81
		in.lb	513	673	708	779	858	717
$\eta$	%		94	91	89	85	77	69
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	88	106	112	120	134	122
		in.lb	779	938	991	1062	1186	1080
	$T_{2Servo}$	Nm	60	78	82	89	99	83
		in.lb	531	690	726	788	876	735
$\eta$	%		95	93	91	88	75	75
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	72	86	95	106	112	108
		in.lb	637	761	841	938	991	956
	$T_{2Servo}$	Nm	59	77	81	88	97	81
		in.lb	522	681	717	779	858	717
$\eta$	%		96	94	93	90	83	78
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	62	77	83	92	102	95
		in.lb	549	681	735	814	903	841
	$T_{2Servo}$	Nm	58	76	79	87	96	80
		in.lb	513	673	699	770	850	708
$\eta$	%		96	95	93	91	85	80
Emergency stop torque	$T_{2Not}$	Nm	230	242	242	250	262	236
		in.lb	2036	2142	2142	2213	2319	2089
Max. input speed	$n_{1Max}$	rpm	6000					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_1=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	1,3	1,2	1,2	1,1	1	0,9
		in.lb	11,5	10,6	10,6	9,7	8,9	8,0
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	17					
		in lb/arcmin	150					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	5000					
		lb <sub>f</sub>	1125					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	3800					
		lb <sub>f</sub>	855					
Max. tilting moment	$M_{2KMMax}$	Nm	409					
		in.lb	3620					
Tilting rigidity	$C_{2K}$	Nm/arcmin	504					
		in lb/arcmin	4460					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	8,8					
		lb <sub>m</sub>	19,4					
Operating noise <small>(with <math>n_1=3000</math> rpm no load)</small>	$L_{PA}$	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 <small>(relates to the drive)</small>	$J_1$	kgcm <sup>2</sup>	2,59	2,12	1,98	1,86	1,82	1,86
		10 <sup>-3</sup> in lb s <sup>2</sup>	2,29	1,87	1,75	1,64	1,61	1,65

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



Non-tolerated dimensions  $\pm 1$  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

Motor mounting according to operating manual



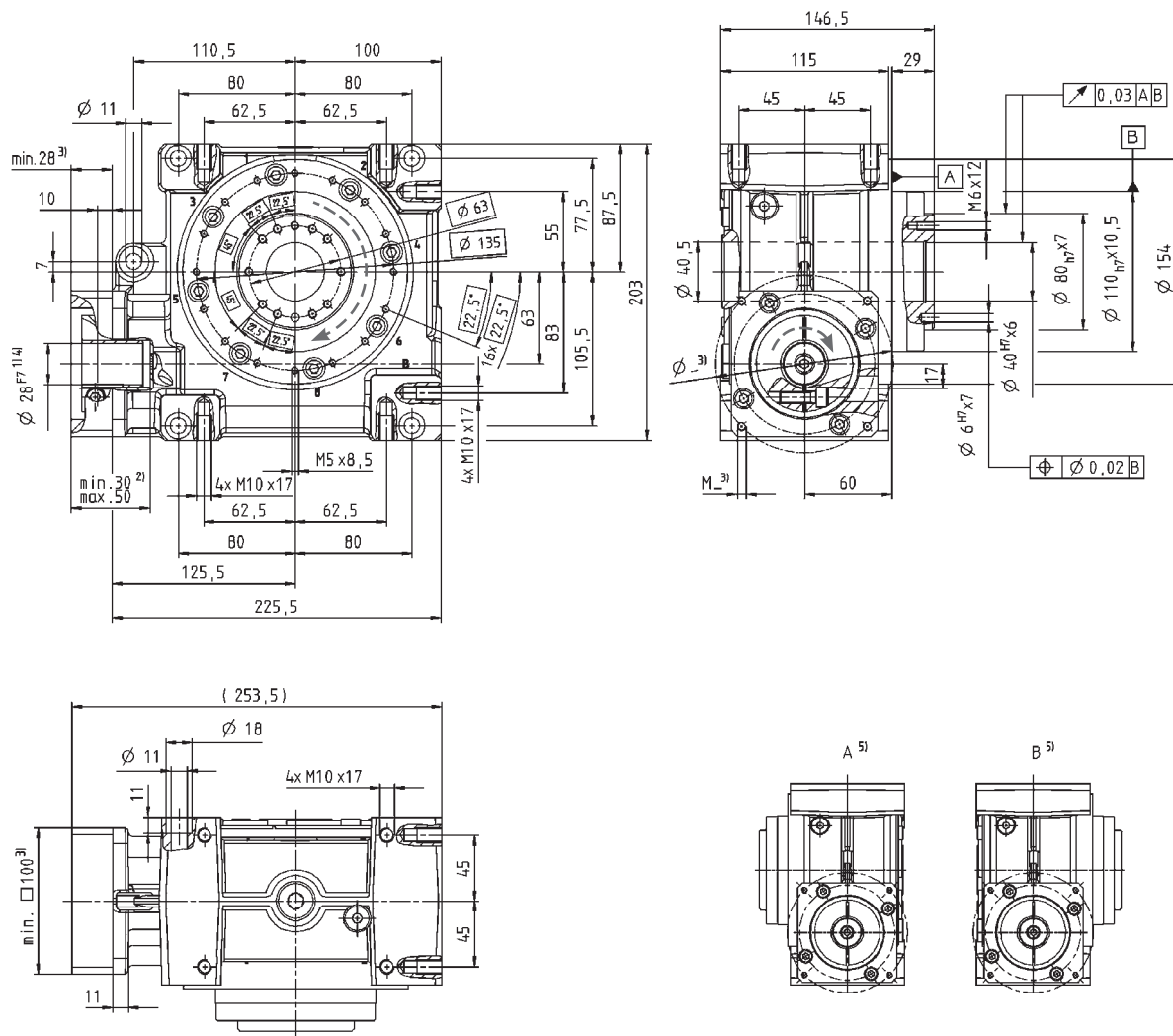


# VDT+ 063 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	302	314	315	320	328	324
		in.lb	2673	2779	2788	2832	2903	2867
	$T_{2Servo}$	Nm	198	210	225	221	229	226
		in.lb	1752	1859	1991	1956	2027	2000
	$\eta$	%	93	91	88	83	74	68
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	264	284	290	298	304	301
		in.lb	2336	2513	2567	2637	2690	2664
	$T_{2Servo}$	Nm	192	228	240	238	245	241
		in.lb	1699	2018	2124	2106	2168	2133
	$\eta$	%	94	93	91	86	78	73
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	202	243	262	271	282	278
		in.lb	1788	2151	2319	2398	2496	2460
	$T_{2Servo}$	Nm	174	212	230	238	248	243
		in.lb	1540	1876	2036	2106	2195	2151
	$\eta$	%	96	94	93	89	83	78
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	164	190	202	209	235	231
		in.lb	1451	1682	1788	1850	2080	2044
	$T_{2Servo}$	Nm	128	166	184	209	198	194
		in.lb	1133	1469	1628	1850	1752	1717
	$\eta$	%	96	95	94	91	85	81
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	128	148	164	175	201	198
		in.lb	1133	1310	1451	1549	1779	1752
	$T_{2Servo}$	Nm	104	132	152	175	165	162
		in.lb	920	1168	1345	1549	1460	1434
	$\eta$	%	97	96	94	92	86	83
Emergency stop torque	$T_{2Not}$	Nm	460	484	491	494	518	447
in.lb		4071	4283	4345	4372	4584	3956	
Max. input speed	$n_{1Max}$	rpm	4500					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_1=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	2,1	1,9	1,8	1,7	1,6	1,4
		in.lb	18,6	16,8	15,9	15,0	14,2	12,4
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	50					
		in. lb/arcmin	443					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	8250					
		lb <sub>f</sub>	1856					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	6000					
		lb <sub>f</sub>	1350					
Max. tilting moment	$M_{2KMMax}$	Nm	843					
		in.lb	7461					
Tilting rigidity	$C_{2K}$	Nm/arcmin	603					
		in. lb/arcmin	5337					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	14,5					
		lb <sub>m</sub>	32					
Operating noise <small>(with <math>n_1=3000</math> rpm no load)</small>	$L_{PA}$	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 <small>(relates to the drive)</small>	$J_1$	kgcm <sup>2</sup>	7,45	6,02	5,65	5,49	5,42	5,36
		10 <sup>-3</sup> in lb s <sup>2</sup>	6,60	5,33	5,00	4,86	4,80	4,75

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



- Non-tolerated dimensions  $\pm 1$  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

Motor mounting according to operating manual

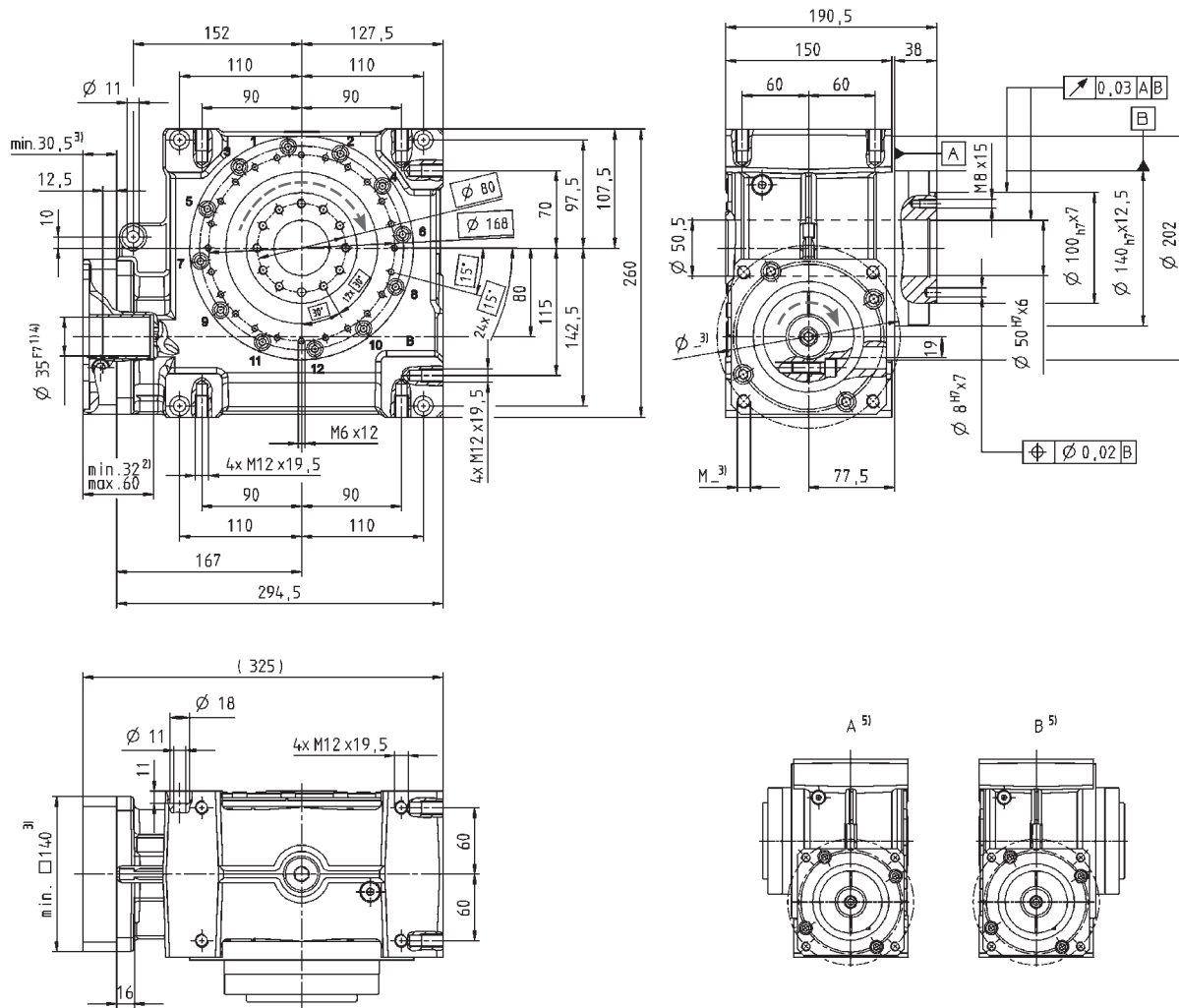


# VDT+ 080 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	578	646	672	702	785	676
		in.lb	5115	5717	5947	6213	6947	5983
	$T_{2Servo}$	Nm	469	601	613	677	764	631
		in.lb	4151	5319	5425	5991	6761	5584
	$\eta$	%	94	92	89	86	77	70
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	514	602	588	656	698	613
		in.lb	4549	5328	5204	5806	6177	5425
	$T_{2Servo}$	Nm	491	574	561	625	665	584
		in.lb	4345	5080	4965	5531	5885	5168
	$\eta$	%	95	93	91	88	81	74
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	350	435	431	500	536	470
		in.lb	3098	3850	3814	4425	4744	4160
	$T_{2Servo}$	Nm	335	415	411	476	511	448
		in.lb	2965	3673	3637	4213	4522	3965
	$\eta$	%	96	95	93	89	84	79
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	259	336	334	400	433	380
		in.lb	2292	2974	2956	3540	3832	3363
	$T_{2Servo}$	Nm	247	320	319	381	413	362
		in.lb	2186	2832	2823	3372	3655	3204
	$\eta$	%	97	96	94	92	86	81
$n_{IN}=3500$ rpm	$T_{2Max}$	Nm	227	299	300	362	394	346
		in.lb	2009	2646	2655	3204	3487	3062
	$T_{2Servo}$	Nm	217	285	286	345	376	330
		in.lb	1920	2522	2531	3053	3328	2921
	$\eta$	%	97	96	94	92	87	82
Emergency stop torque	$T_{2Not}$	Nm	938	993	963	1005	1064	941
in.lb		8301	8788	8523	8894	9416	8328	
Max. input speed	$n_{1Max}$	rpm	4000					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_1=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	3,6	3,5	3,4	3,2	3	2,8
		in.lb	31,9	31,0	30,1	28,3	26,6	24,8
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{121}$	Nm/arcmin	113					
		in. lb/arcmin	1000					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	13900					
		lb <sub>f</sub>	3128					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	9000					
		lb <sub>f</sub>	2025					
Max. tilting moment	$M_{2KMMax}$	Nm	1544					
		in.lb	13664					
Tilting rigidity	$C_{2K}$	Nm/arcmin	1178					
		in. lb/arcmin	10425					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	31					
		lb <sub>m</sub>	68,5					
Operating noise <small>(with <math>n_1=3000</math> rpm no load)</small>	$L_{PA}$	dB(A)	≤ 66					
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 <small>(relates to the drive)</small>	$J_1$	kgcm <sup>2</sup>	23,99	18,64	18,23	16,54	16,32	16,94
		10 <sup>-3</sup> in lb s <sup>2</sup>	21,23	16,49	16,13	14,64	14,44	14,99

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



- Non-tolerated dimensions  $\pm 1$  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

Motor mounting according to operating manual



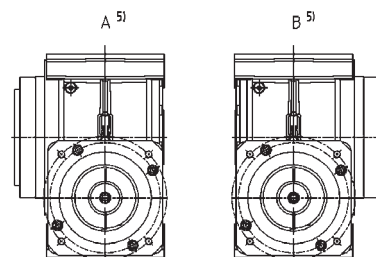
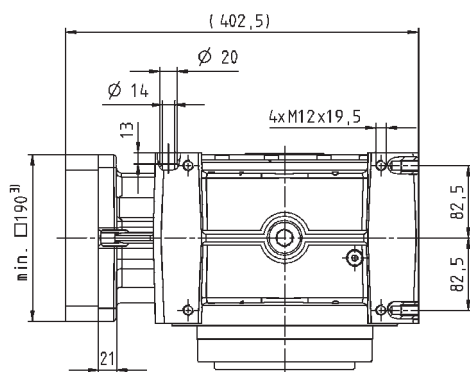
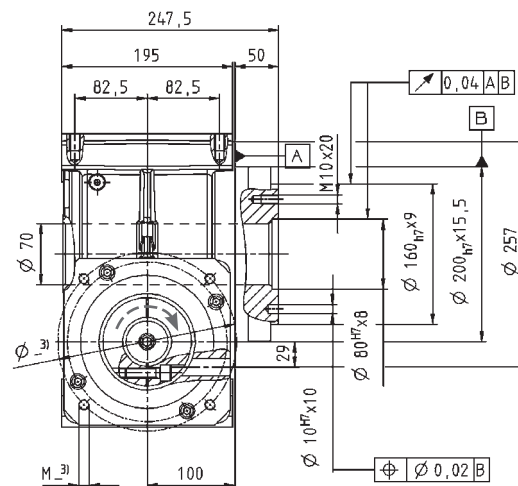
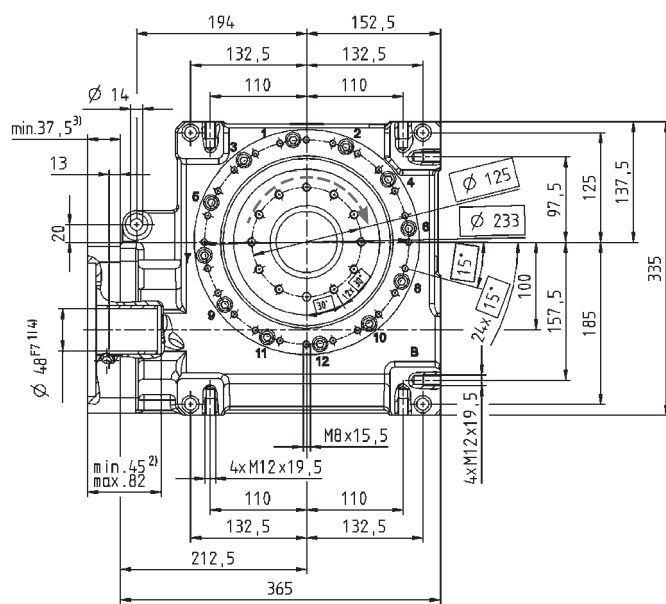
# VDT+ 100 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	1184	1336	1377	1392	1505	1376
		in.lb	10478	11824	12186	12319	13319	12178
	$T_{2Servo}$	Nm	1155	1304	1343	1359	1469	1343
		in.lb	10222	11540	11886	12027	13001	11886
$\eta$	%		95	93	91	87	80	76
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	905	1070	1122	1140	1251	1162
		in.lb	8009	9470	9930	10089	11071	10284
	$T_{2Servo}$	Nm	883	1044	1095	1113	1221	1134
		in.lb	7815	9239	9691	9850	10806	10036
$\eta$	%		95	94	92	88	82	79
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	595	748	807	830	930	883
		in.lb	5266	6620	7142	7346	8231	7815
	$T_{2Servo}$	Nm	581	730	788	810	908	862
		in.lb	5142	6461	6974	7169	8036	7629
$\eta$	%		96	95	94	91	86	82
$n_{IN}=3000$ rpm <sup>c)</sup>	$T_{2Max}$	Nm	430	564	621	644	735	709
		in.lb	3806	4991	5496	5699	6505	6275
	$T_{2Servo}$	Nm	420	551	606	629	718	692
		in.lb	3717	4876	5363	5567	6354	6124
$\eta$	%		97	96	95	92	87	84
$n_{IN}=3500$ rpm	$T_{2Max}$	Nm	-	-	-	-	-	-
		in.lb	-	-	-	-	-	-
	$\eta$	%		-	-	-	-	-
Emergency stop torque	$T_{2Not}$	Nm	1819	1932	1940	1955	2073	1856
		in.lb	16098	17098	17169	17302	18346	16426
Max. input speed	$n_{1Max}$	rpm	3500					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_1=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	9,8	8,1	7,4	6,7	5,8	5
		in.lb	86,7	71,7	65,5	59,3	51,3	44,3
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	213					
		in. lb/arcmin	1885					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	19500					
		lb <sub>f</sub>	4388					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	14000					
		lb <sub>f</sub>	3150					
Max. tilting moment	$M_{2KMMax}$	Nm	3059					
		in.lb	27072					
Tilting rigidity	$C_{2K}$	Nm/arcmin	2309					
		in. lb/arcmin	20435					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	62					
		lb <sub>m</sub>	137					
Operating noise <small>(with <math>n_1=3000</math> rpm no load)</small>	$L_{PA}$	dB(A)	≤ 70					
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 <small>(relates to the drive)</small>	$J_1$	kgcm <sup>2</sup>	83,51	64,27	59,95	59,40	56,32	56,49
		10 <sup>-3</sup> in lb s <sup>2</sup>	73,90	56,88	53,06	52,56	49,85	50,00

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange

<sup>c)</sup> Reduced by 20% in S1 operation



Non-tolerated dimensions  $\pm 1$  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

 Motor mounting according to operating manual



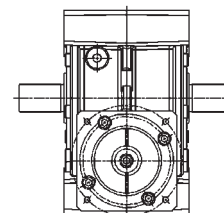
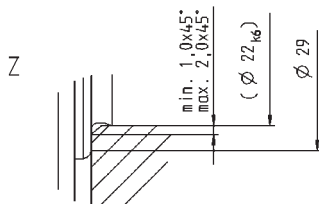
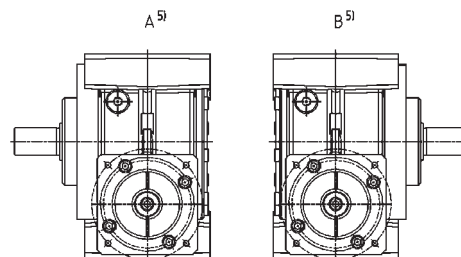
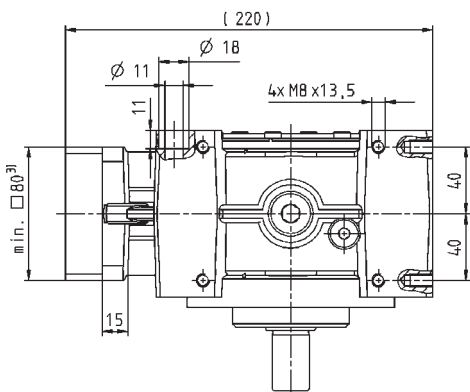
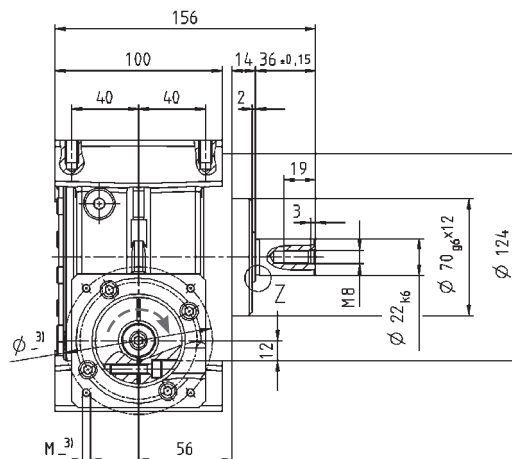
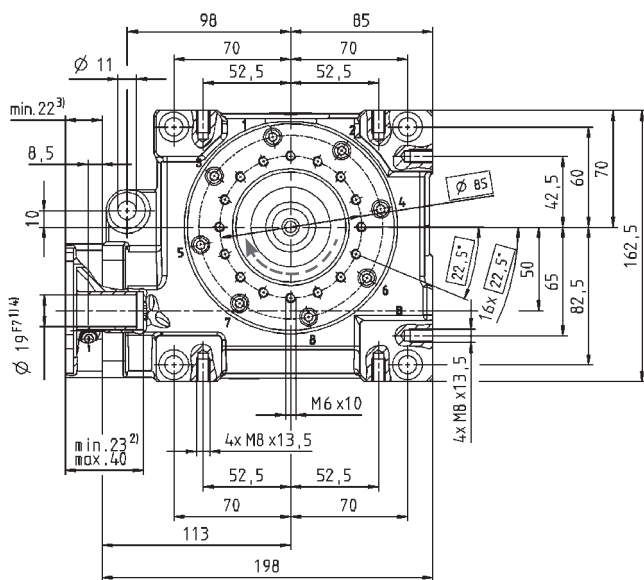


# VDS+ 050 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	124	132	148	154	165	158
		in.lb	1097	1168	1310	1363	1460	1398
	$T_{2Servo}$	Nm	54	71	74	81	90	74
		in.lb	478	628	655	717	797	655
$\eta$	%		92	89	86	82	72	64
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	124	130	136	140	151	142
		in.lb	1097	1151	1204	1239	1336	1257
	$T_{2Servo}$	Nm	58	76	80	88	97	81
		in.lb	513	673	708	779	858	717
$\eta$	%		94	91	89	85	77	69
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	88	106	112	120	134	122
		in.lb	779	938	991	1062	1186	1080
	$T_{2Servo}$	Nm	60	78	82	89	99	83
		in.lb	531	690	726	788	876	735
$\eta$	%		95	93	91	88	75	75
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	72	86	95	106	112	108
		in.lb	637	761	841	938	991	956
	$T_{2Servo}$	Nm	59	77	81	88	97	81
		in.lb	522	681	717	779	858	717
$\eta$	%		96	94	93	90	83	78
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	62	77	83	92	102	95
		in.lb	549	681	735	814	903	841
	$T_{2Servo}$	Nm	58	76	79	87	96	80
		in.lb	513	673	699	770	850	708
$\eta$	%		96	95	93	91	85	80
Emergency stop torque	$T_{2Not}$	Nm	230	242	242	250	262	236
		in.lb	2036	2142	2142	2213	2319	2089
Max. input speed	$n_{1Max}$	rpm	6000					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_{IN}=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	1,3	1,2	1,2	1,1	1	0,9
		in.lb	11,5	10,6	10,6	9,7	8,9	8,0
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	8					
		in. lb/arcmin	71					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	5000					
		lb <sub>f</sub>	1125					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	3800					
		lb <sub>f</sub>	855					
Max. tilting moment	$M_{2KMMax}$	Nm	409					
		in.lb	3620					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	8,5					
		lb <sub>m</sub>	18,8					
Operating noise <small>(with <math>n_{IN}=3000</math> rpm no load)</small>	$L_{PA}$	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 <small>(relates to the drive)</small>	$J_t$	kgcm <sup>2</sup>	2,27	2,03	1,94	1,84	1,81	1,86
		10 <sup>-3</sup> in lb s <sup>2</sup>	2,01	1,80	1,72	1,63	1,60	1,64

<sup>a)</sup> Idling torques decrease during operation

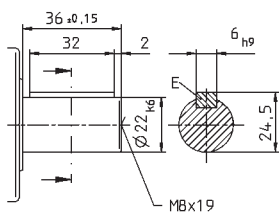
<sup>b)</sup> Refers to center of the output shaft or flange



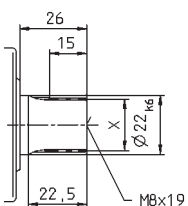
Optional dual-shaft output. Drawings available upon request. Involute gearing is not possible.

### Alternatives: Output shaft variants

Keywayed output shaft in mm  
E = key as per DIN 6885, sheet 1, form A



Involute gearing DIN 5480 in mm  
X = W 22 x 1.25 x 30 x 16 x 6m



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

⚠ Motor mounting according to operating manual



# VDS+ 063 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	302	314	315	320	328	324
		in.lb	2673	2779	2788	2832	2903	2867
	$T_{2Servo}$	Nm	198	210	225	221	229	226
		in.lb	1752	1859	1991	1956	2027	2000
	$\eta$	%	93	91	88	83	74	68
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	264	284	290	298	304	301
		in.lb	2336	2513	2567	2637	2690	2664
	$T_{2Servo}$	Nm	192	228	240	238	245	241
		in.lb	1699	2018	2124	2106	2168	2133
	$\eta$	%	94	93	91	86	78	73
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	202	243	262	271	282	278
		in.lb	1788	2151	2319	2398	2496	2460
	$T_{2Servo}$	Nm	174	212	230	238	248	243
		in.lb	1540	1876	2036	2106	2195	2151
	$\eta$	%	96	94	93	89	83	78
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	164	190	202	209	235	231
		in.lb	1451	1682	1788	1850	2080	2044
	$T_{2Servo}$	Nm	128	166	184	209	198	194
		in.lb	1133	1469	1628	1850	1752	1717
	$\eta$	%	96	95	94	91	85	81
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	128	148	164	175	201	198
		in.lb	1133	1310	1451	1549	1779	1752
	$T_{2Servo}$	Nm	104	132	152	175	165	162
		in.lb	920	1168	1345	1549	1460	1434
	$\eta$	%	97	96	94	92	86	83
Emergency stop torque	$T_{2Not}$	Nm	460	484	491	494	518	447
in.lb		4071	4283	4345	4372	4584	3956	
Max. input speed	$n_{1Max}$	rpm	4500					
Mean no load running torque <sup>a)</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	2,1	1,9	1,8	1,7	1,6	1,4
		in.lb	18,6	16,8	15,9	15,0	14,2	12,4
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	28					
		in. lb/arcmin	248					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	8250					
		lb <sub>f</sub>	1856					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	6000					
		lb <sub>f</sub>	1350					
Max. tilting moment	$M_{2KMMax}$	Nm	843					
		in.lb	7461					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	15					
		lb <sub>m</sub>	33,2					
Operating noise (with $n_{IN}=3000$ 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)	$J_t$	kgcm <sup>2</sup>	6,72	5,79	5,54	5,44	5,41	5,35
		10 <sup>-3</sup> in lb s <sup>2</sup>	5,95	5,12	4,90	4,82	4,78	4,74

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange

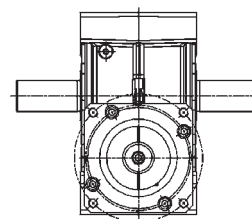
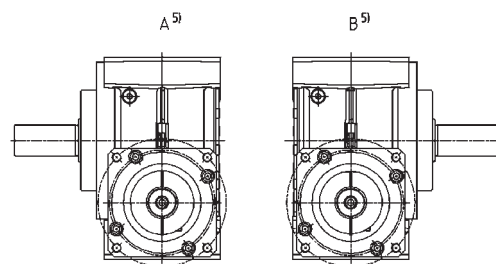
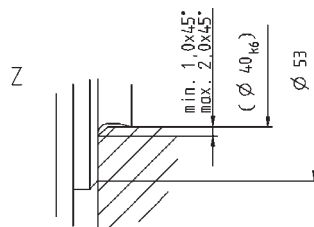
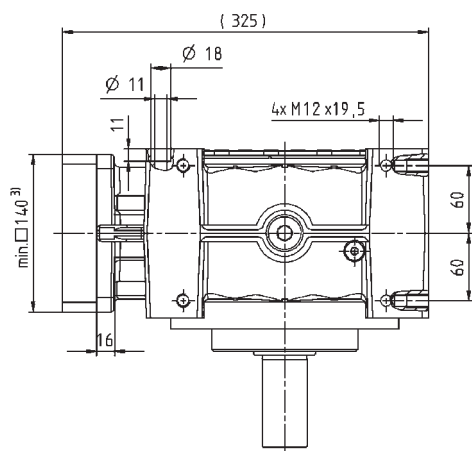
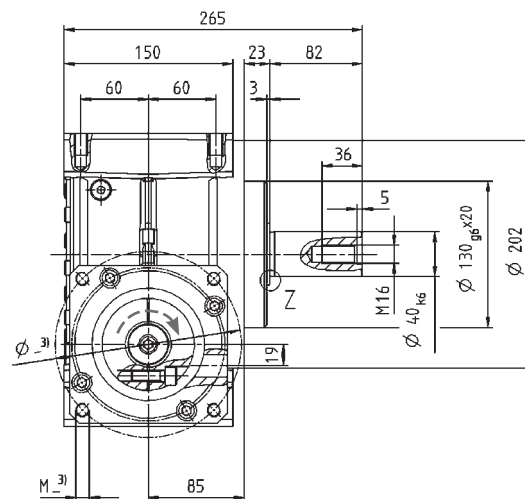
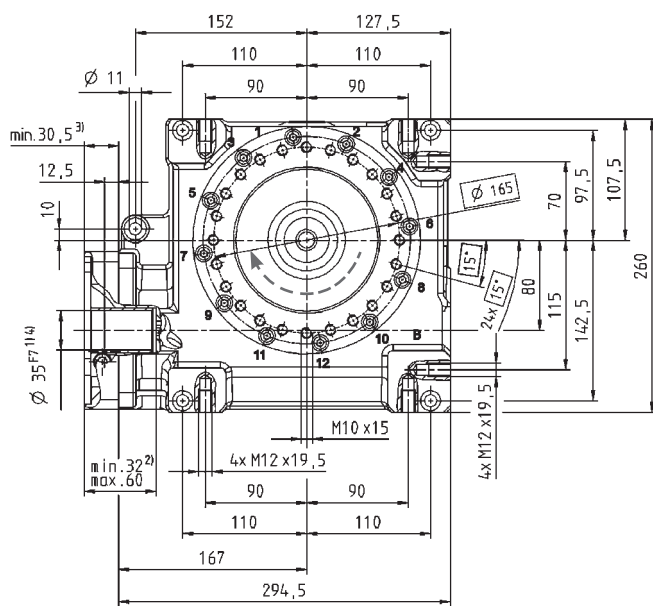


# VDS+ 080 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	578	646	672	702	785	676
		in.lb	5115	5717	5947	6213	6947	5983
	$T_{2Servo}$	Nm	469	601	613	677	764	631
		in.lb	4151	5319	5425	5991	6761	5584
	$\eta$	%	94	92	89	86	77	70
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	514	602	588	656	698	613
		in.lb	4549	5328	5204	5806	6177	5425
	$T_{2Servo}$	Nm	491	574	561	625	665	584
		in.lb	4345	5080	4965	5531	5885	5168
	$\eta$	%	95	93	91	88	81	74
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	350	435	431	500	536	470
		in.lb	3098	3850	3814	4425	4744	4160
	$T_{2Servo}$	Nm	335	415	411	476	511	448
		in.lb	2965	3673	3637	4213	4522	3965
	$\eta$	%	96	95	93	89	84	79
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	259	336	334	400	433	380
		in.lb	2292	2974	2956	3540	3832	3363
	$T_{2Servo}$	Nm	247	320	319	381	413	362
		in.lb	2186	2832	2823	3372	3655	3204
	$\eta$	%	97	96	94	92	86	81
$n_{IN}=3500$ rpm	$T_{2Max}$	Nm	227	299	300	362	394	346
		in.lb	2009	2646	2655	3204	3487	3062
	$T_{2Servo}$	Nm	217	285	286	345	376	330
		in.lb	1920	2522	2531	3053	3328	2921
	$\eta$	%	97	96	94	92	87	82
Emergency stop torque	$T_{2Not}$	Nm	938	993	963	1005	1064	941
		in.lb						
Max. input speed	$n_{1Max}$	rpm	4000					
Mean no load running torque <sup>a)</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	3,6	3,5	3,4	3,2	3	2,8
		in.lb	31,9	31,0	30,1	28,3	26,6	24,8
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{121}$	Nm/arcmin	78					
		in lb/arcmin	690					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	13900					
		lb <sub>f</sub>	3128					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	9000					
		lb <sub>f</sub>	2025					
Max. tilting moment	$M_{2KMMax}$	Nm	1544					
		in.lb	13664					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	32					
		lb <sub>m</sub>	70,7					
Operating noise (with $n_{IN}=3000$ rpm no load)	$L_{PA}$	dB(A)	≤ 66					
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)	$J_t$	kgcm <sup>2</sup>	20,74	17,57	17,70	16,34	16,25	16,91
		10 <sup>-3</sup> in lb s <sup>2</sup>	18,36	15,55	15,67	14,46	14,38	14,96

<sup>a)</sup> Idling torques decrease during operation

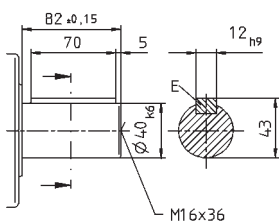
<sup>b)</sup> Refers to center of the output shaft or flange



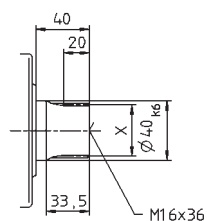
Optional dual-shaft output. Drawings available upon request.  
Involute gearing is not possible.

### Alternatives: Output shaft variants

Keywayed output shaft in mm  
E = key as per DIN 6885, sheet 1, form A



Involute gearing DIN 5480  
X = W 40 x 2 x 30 x 18 x 6m



Non-tolerated dimensions  $\pm 1$  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

⚠ Motor mounting according to operating manual





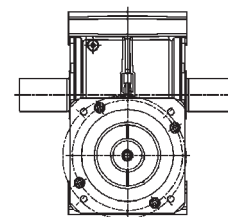
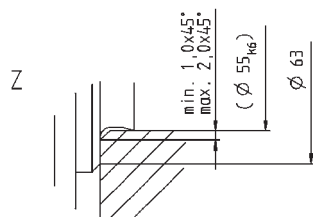
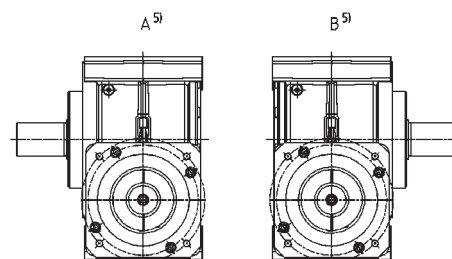
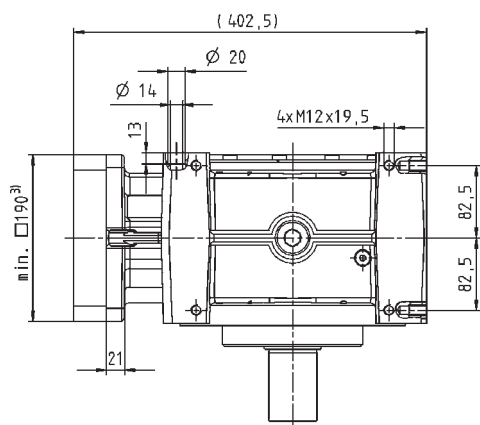
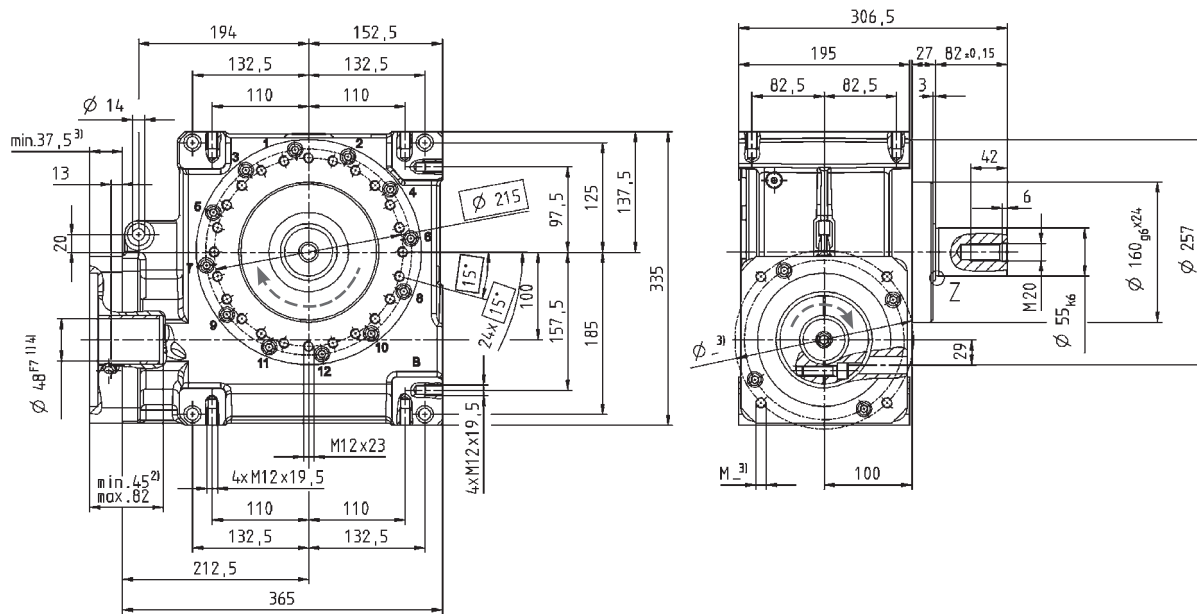
# VDS+ 100 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	1184	1336	1377	1392	1505	1376
		in.lb	10478	11824	12186	12319	13319	12178
	$T_{2Servo}$	Nm	1155	1304	1343	1359	1469	1343
		in.lb	10222	11540	11886	12027	13001	11886
$\eta$	%		95	93	91	87	80	76
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	905	1070	1122	1140	1251	1162
		in.lb	8009	9470	9930	10089	11071	10284
	$T_{2Servo}$	Nm	883	1044	1095	1113	1221	1134
		in.lb	7815	9239	9691	9850	10806	10036
$\eta$	%		95	94	92	88	82	79
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	595	748	807	830	930	883
		in.lb	5266	6620	7142	7346	8231	7815
	$T_{2Servo}$	Nm	581	730	788	810	908	862
		in.lb	5142	6461	6974	7169	8036	7629
$\eta$	%		96	95	94	91	86	82
$n_{IN}=3000$ rpm <sup>ⓐ</sup>	$T_{2Max}$	Nm	430	564	621	644	735	709
		in.lb	3806	4991	5496	5699	6505	6275
	$T_{2Servo}$	Nm	420	551	606	629	718	692
		in.lb	3717	4876	5363	5567	6354	6124
$\eta$	%		97	96	95	92	87	84
$n_{IN}=3500$ rpm	$T_{2Max}$	Nm	-	-	-	-	-	-
		in.lb	-	-	-	-	-	-
	$\eta$	%		-	-	-	-	-
Emergency stop torque	$T_{2Not}$	Nm	1819	1932	1940	1955	2073	1856
		in.lb	16098	17098	17169	17302	18346	16426
Max. input speed	$n_{1Max}$	rpm	3500					
Mean no load running torque <sup>ⓐ</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	9,8	8,1	7,4	6,7	5,8	5
		in.lb	86,7	71,7	65,5	59,3	51,3	44,3
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	153					
		in. lb/arcmin	1354					
Max. axial force <sup>ⓑ</sup>	$F_{2AMax}$	N	19500					
		lb <sub>f</sub>	4388					
Max. radial force <sup>ⓑ</sup>	$F_{2RMMax}$	N	14000					
		lb <sub>f</sub>	3150					
Max. tilting moment	$M_{2KMMax}$	Nm	3059					
		in.lb	27072					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	61					
		lb <sub>m</sub>	134,8					
Operating noise (with $n_{IN}=3000$ rpm no load)	$L_{PA}$	dB(A)	≤ 70					
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)	$J_t$	kgcm <sup>2</sup>	65,59	56,20	54,30	55,17	52,71	53,04
		10 <sup>-3</sup> in lb s <sup>2</sup>	58,05	49,73	48,06	48,83	46,65	46,94

<sup>ⓐ</sup> Idling torques decrease during operation

<sup>ⓑ</sup> Refers to center of the output shaft or flange

<sup>ⓒ</sup> Reduced by 20% in S1 operation

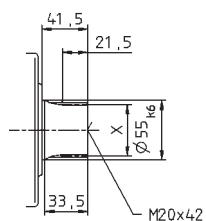
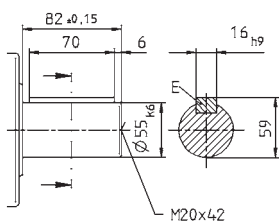


Optional dual-shaft output. Drawings available upon request.  
Involute gearing is not possible.

### Alternatives: Output shaft variants

Keywayed output shaft in mm  
E = key as per DIN 6885, sheet 1, form A

Involute gearing DIN 5480  
X = W 55 x 2 x 30 x 26 x 6 m



Non-tolerated dimensions  $\pm 1$  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

Motor mounting according to operating manual

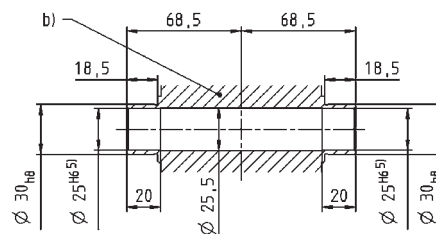
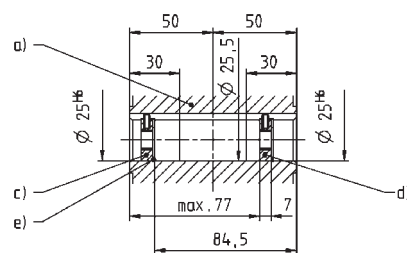
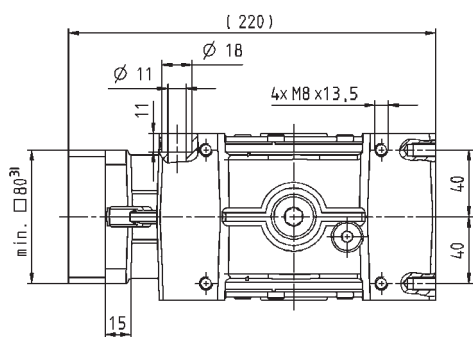
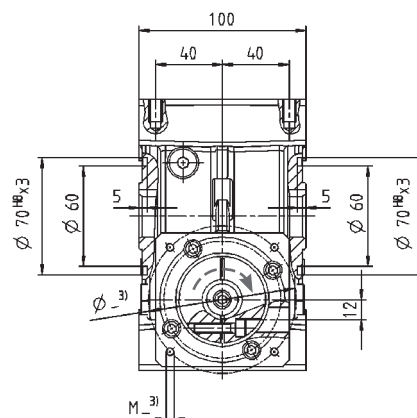
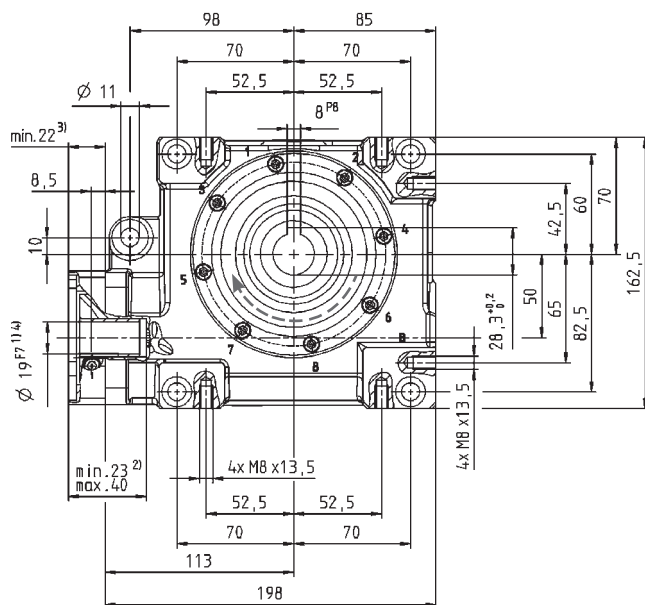


# VDH+ 050 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	124	132	148	154	165	158
		in.lb	1097	1168	1310	1363	1460	1398
	$T_{2Servo}$	Nm	54	71	74	81	90	74
		in.lb	478	628	655	717	797	655
$\eta$	%		92	89	86	82	72	64
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	124	130	136	140	151	142
		in.lb	1097	1151	1204	1239	1336	1257
	$T_{2Servo}$	Nm	58	76	80	88	97	81
		in.lb	513	673	708	779	858	717
$\eta$	%		94	91	89	85	77	69
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	88	106	112	120	134	122
		in.lb	779	938	991	1062	1186	1080
	$T_{2Servo}$	Nm	60	78	82	89	99	83
		in.lb	531	690	726	788	876	735
$\eta$	%		95	93	91	88	75	75
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	72	86	95	106	112	108
		in.lb	637	761	841	938	991	956
	$T_{2Servo}$	Nm	59	77	81	88	97	81
		in.lb	522	681	717	779	858	717
$\eta$	%		96	94	93	90	83	78
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	62	77	83	92	102	95
		in.lb	549	681	735	814	903	841
	$T_{2Servo}$	Nm	58	76	79	87	96	80
		in.lb	513	673	699	770	850	708
$\eta$	%		96	95	93	91	85	80
Emergency stop torque	$T_{2Not}$	Nm	230	242	242	250	262	236
		in.lb	2036	2142	2142	2213	2319	2089
Max. input speed	$n_{1Max}$	rpm	6000					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_{IN}=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	1,3	1,2	1,2	1,1	1	0,9
		in.lb	11,5	10,6	10,6	9,7	8,9	8,0
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	8					
		in. lb/arcmin	71					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	5000					
		lb <sub>f</sub>	1125					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	3800					
		lb <sub>f</sub>	855					
Max. tilting moment	$M_{2KMMax}$	Nm	409					
		in.lb	3620					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	7,4					
		lb <sub>m</sub>	16,4					
Operating noise <small>(with <math>n_{IN}=3000</math> rpm no load)</small>	$L_{PA}$	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 <small>(relates to the drive)</small>	$J_t$	kgcm <sup>2</sup>	2,31	2,02	1,93	1,84	1,81	1,86
		10 <sup>-3</sup> in lb s <sup>2</sup>	2,04	1,79	1,71	1,63	1,60	1,64

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



- 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

Non-tolerated dimensions  $\pm 1$  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.

Motor mounting according to operating manual

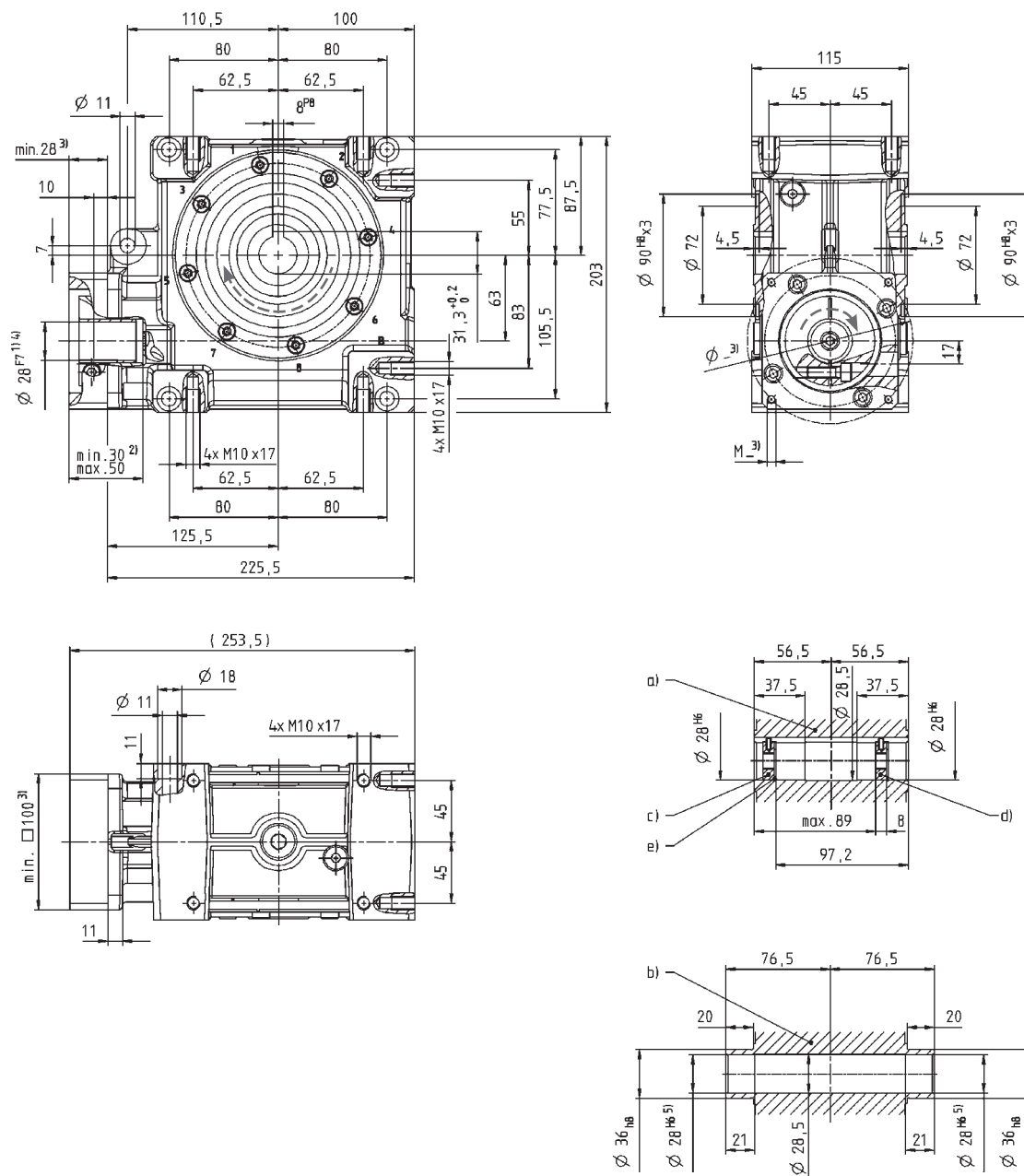


# VDH+ 063 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	302	314	315	320	328	324
		in.lb	2673	2779	2788	2832	2903	2867
	$T_{2Servo}$	Nm	198	210	225	221	229	226
		in.lb	1752	1859	1991	1956	2027	2000
$\eta$	%		93	91	88	83	74	68
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	264	284	290	298	304	301
		in.lb	2336	2513	2567	2637	2690	2664
	$T_{2Servo}$	Nm	192	228	240	238	245	241
		in.lb	1699	2018	2124	2106	2168	2133
$\eta$	%		94	93	91	86	78	73
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	202	243	262	271	282	278
		in.lb	1788	2151	2319	2398	2496	2460
	$T_{2Servo}$	Nm	174	212	230	238	248	243
		in.lb	1540	1876	2036	2106	2195	2151
$\eta$	%		96	94	93	89	83	78
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	164	190	202	209	235	231
		in.lb	1451	1682	1788	1850	2080	2044
	$T_{2Servo}$	Nm	128	166	184	209	198	194
		in.lb	1133	1469	1628	1850	1752	1717
$\eta$	%		96	95	94	91	85	81
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	128	148	164	175	201	198
		in.lb	1133	1310	1451	1549	1779	1752
	$T_{2Servo}$	Nm	104	132	152	175	165	162
		in.lb	920	1168	1345	1549	1460	1434
$\eta$	%		97	96	94	92	86	83
Emergency stop torque	$T_{2Not}$	Nm	460	484	491	494	518	447
in.lb		4071	4283	4345	4372	4584	3956	
Max. input speed	$n_{1Max}$	rpm	4500					
Mean no load running torque <sup>a)</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	2,1	1,9	1,8	1,7	1,6	1,4
		in.lb	18,6	16,8	15,9	15,0	14,2	12,4
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	28					
		in. lb/arcmin	248					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	8250					
		lb <sub>f</sub>	1856					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	6000					
		lb <sub>f</sub>	1350					
Max. tilting moment	$M_{2KMMax}$	Nm	843					
		in.lb	7461					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	12					
		lb <sub>m</sub>	26,5					
Operating noise (with $n_{IN}=3000$ 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)	$J_t$	kgcm <sup>2</sup>	6,68	5,77	5,53	5,44	5,40	5,35
		10 <sup>-3</sup> in lb s <sup>2</sup>	5,91	5,11	4,89	4,81	4,78	4,74

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



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

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual



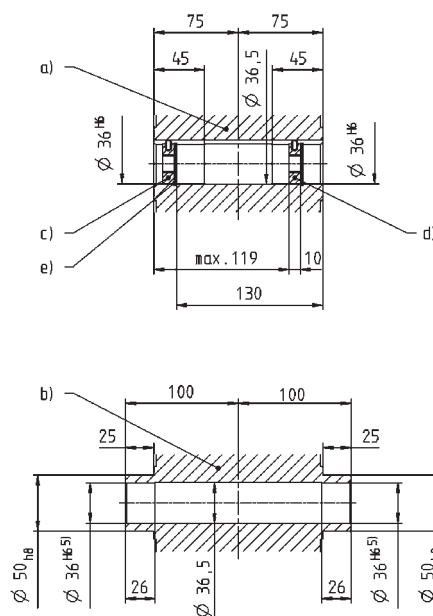
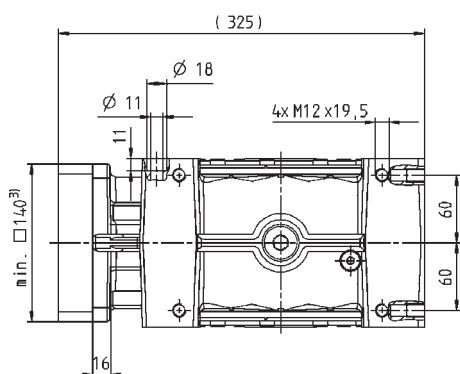
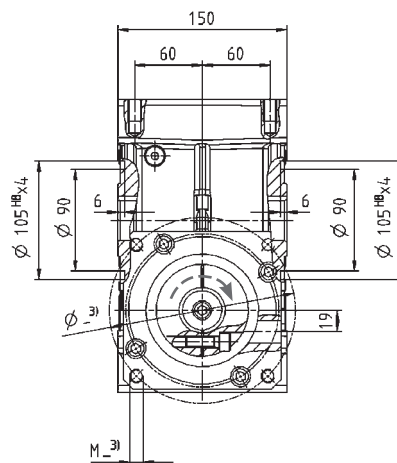
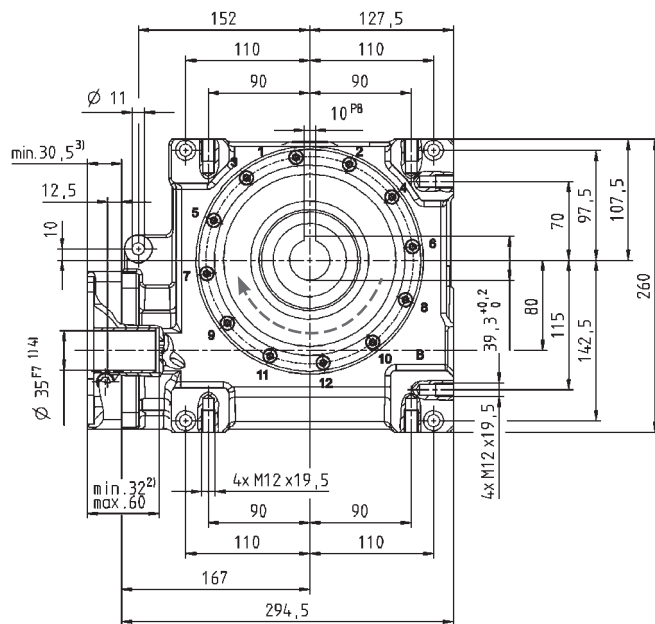


# VDH+ 080 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	578	646	672	702	785	676
		in.lb	5115	5717	5947	6213	6947	5983
	$T_{2Servo}$	Nm	469	601	613	677	764	631
		in.lb	4151	5319	5425	5991	6761	5584
	$\eta$	%	94	92	89	86	77	70
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	514	602	588	656	698	613
		in.lb	4549	5328	5204	5806	6177	5425
	$T_{2Servo}$	Nm	491	574	561	625	665	584
		in.lb	4345	5080	4965	5531	5885	5168
	$\eta$	%	95	93	91	88	81	74
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	350	435	431	500	536	470
		in.lb	3098	3850	3814	4425	4744	4160
	$T_{2Servo}$	Nm	335	415	411	476	511	448
		in.lb	2965	3673	3637	4213	4522	3965
	$\eta$	%	96	95	93	89	84	79
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	259	336	334	400	433	380
		in.lb	2292	2974	2956	3540	3832	3363
	$T_{2Servo}$	Nm	247	320	319	381	413	362
		in.lb	2186	2832	2823	3372	3655	3204
	$\eta$	%	97	96	94	92	86	81
$n_{IN}=3500$ rpm	$T_{2Max}$	Nm	227	299	300	362	394	346
		in.lb	2009	2646	2655	3204	3487	3062
	$T_{2Servo}$	Nm	217	285	286	345	376	330
		in.lb	1920	2522	2531	3053	3328	2921
	$\eta$	%	97	96	94	92	87	82
Emergency stop torque	$T_{2Not}$	Nm	938	993	963	1005	1064	941
in.lb		8301	8788	8523	8894	9416	8328	
Max. input speed	$n_{1Max}$	rpm	4000					
Mean no load running torque <sup>a)</sup> <small>(With <math>n_{IN}=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	3,6	3,5	3,4	3,2	3	2,8
		in.lb	31,9	31,0	30,1	28,3	26,6	24,8
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{121}$	Nm/arcmin	78					
		in lb/arcmin	690					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	13900					
		lb <sub>f</sub>	3128					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	9000					
		lb <sub>f</sub>	2025					
Max. tilting moment	$M_{2KMMax}$	Nm	1544					
		in.lb	13664					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	26					
		lb <sub>m</sub>	57,5					
Operating noise <small>(with <math>n_{IN}=3000</math> rpm no load)</small>	$L_{PA}$	dB(A)	≤ 66					
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 <small>(relates to the drive)</small>	$J_I$	kgcm <sup>2</sup>	21,31	17,76	17,80	16,38	16,27	16,91
		10 <sup>-3</sup> in lb s <sup>2</sup>	18,86	15,72	15,75	14,49	14,40	14,97

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



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

Non-tolerated dimensions  $\pm 1$  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.

Motor mounting according to operating manual



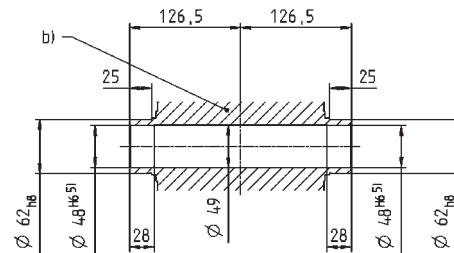
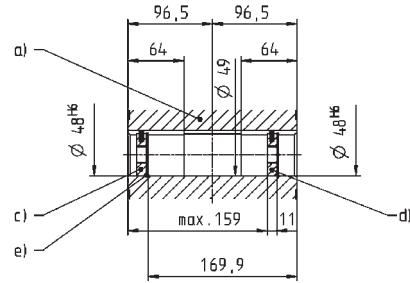
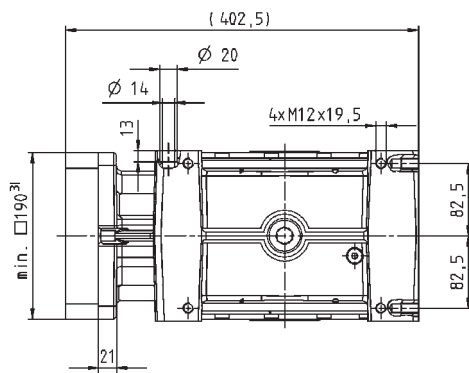
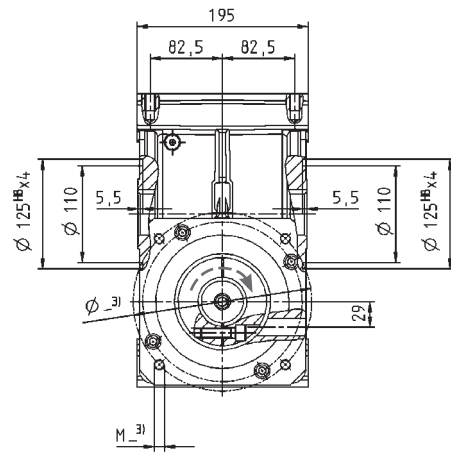
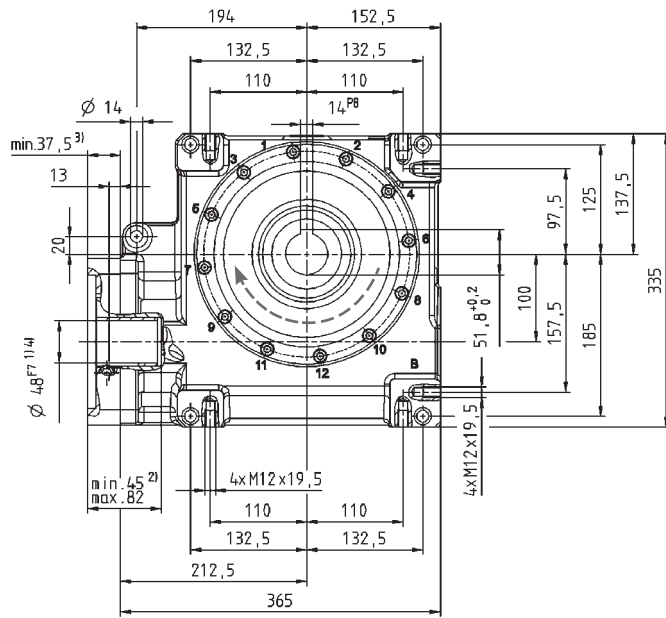
# VDH+ 100 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	1184	1336	1377	1392	1505	1376
		in.lb	10478	11824	12186	12319	13319	12178
	$T_{2Servo}$	Nm	1155	1304	1343	1359	1469	1343
		in.lb	10222	11540	11886	12027	13001	11886
$\eta$	%		95	93	91	87	80	76
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	905	1070	1122	1140	1251	1162
		in.lb	8009	9470	9930	10089	11071	10284
	$T_{2Servo}$	Nm	883	1044	1095	1113	1221	1134
		in.lb	7815	9239	9691	9850	10806	10036
$\eta$	%		95	94	92	88	82	79
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	595	748	807	830	930	883
		in.lb	5266	6620	7142	7346	8231	7815
	$T_{2Servo}$	Nm	581	730	788	810	908	862
		in.lb	5142	6461	6974	7169	8036	7629
$\eta$	%		96	95	94	91	86	82
$n_{IN}=3000$ rpm <sup>ⓐ</sup>	$T_{2Max}$	Nm	430	564	621	644	735	709
		in.lb	3806	4991	5496	5699	6505	6275
	$T_{2Servo}$	Nm	420	551	606	629	718	692
		in.lb	3717	4876	5363	5567	6354	6124
$\eta$	%		97	96	95	92	87	84
$n_{IN}=3500$ rpm	$T_{2Max}$	Nm	-	-	-	-	-	-
		in.lb	-	-	-	-	-	-
	$\eta$	%		-	-	-	-	-
Emergency stop torque	$T_{2Not}$	Nm	1819	1932	1940	1955	2073	1856
		in.lb	16098	17098	17169	17302	18346	16426
Max. input speed	$n_{1Max}$	rpm	3500					
Mean no load running torque <sup>ⓐ</sup> <small>(With <math>n_{IN}=3000</math> min<sup>-1</sup> and 20° C gear temperature)</small>	$T_{012}$	Nm	9,8	8,1	7,4	6,7	5,8	5
		in.lb	86,7	71,7	65,5	59,3	51,3	44,3
Max. torsional backlash	$j_t$	arcmin	≤3					
Torsional rigidity	$C_{t21}$	Nm/arcmin	153					
		in. lb/arcmin	1354					
Max. axial force <sup>ⓑ</sup>	$F_{2AMax}$	N	19500					
		lb <sub>f</sub>	4388					
Max. radial force <sup>ⓑ</sup>	$F_{2RMMax}$	N	14000					
		lb <sub>f</sub>	3150					
Max. tilting moment	$M_{2KMMax}$	Nm	3059					
		in.lb	27072					
Service life <small>(For calculation see "Information")</small>	$L_h$	h	> 20000					
Weight <small>(without motor attachment parts)</small>	$m$	kg	50					
		lb <sub>m</sub>	110,5					
Operating noise <small>(with <math>n_{IN}=3000</math> rpm no load)</small>	$L_{PA}$	dB(A)	≤ 70					
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 <small>(relates to the drive)</small>	$J_t$	kgcm <sup>2</sup>	65,82	56,27	54,34	55,19	52,72	53,04
		10 <sup>-3</sup> in lb s <sup>2</sup>	58,25	49,80	48,09	48,84	46,66	46,94

<sup>ⓐ</sup> Idling torques decrease during operation

<sup>ⓑ</sup> Refers to center of the output shaft or flange

<sup>ⓒ</sup> Reduced by 20% in S1 operation



- a) Hollow shaft, keywaged
- b) Hollow shaft, smooth
- c) End disc for screw M16
- d) End disc as forcing washer for screw M20
- e) Locking ring – DIN 472

Non-tolerated dimensions  $\pm 1$  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.

 Motor mounting according to operating manual

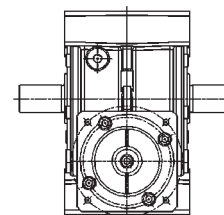
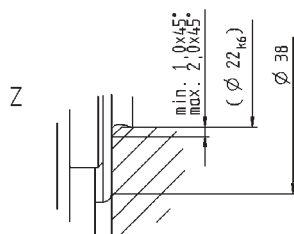
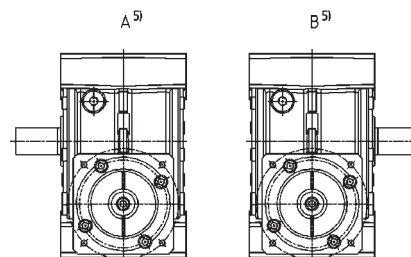
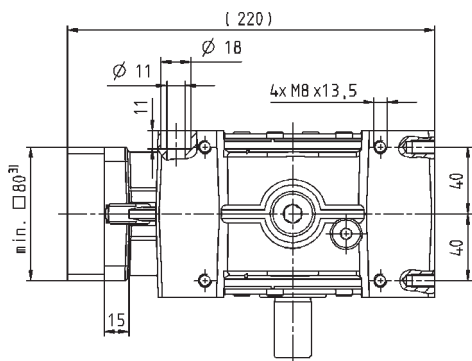
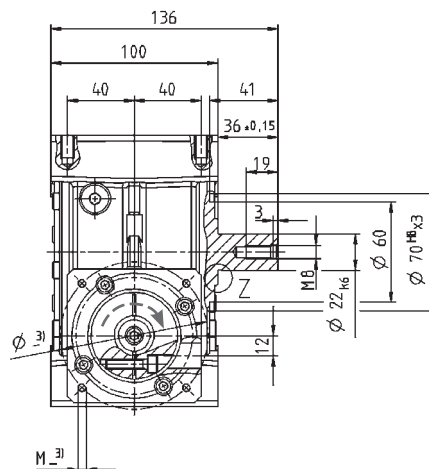
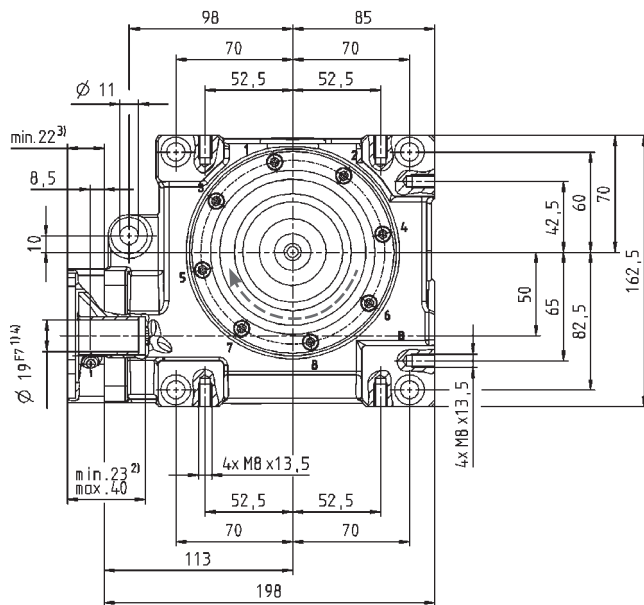


# VDS economy 050 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	–	102	111	118	128	116
		in.lb	–	903	982	1044	1133	1027
	$T_{2Servo}$	Nm	–	62	64	70	78	64
		in.lb	–	549	566	620	690	566
	$\eta$	%	–	89	86	82	72	64
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	–	103	108	114	124	112
		in.lb	–	912	956	1009	1097	991
	$T_{2Servo}$	Nm	–	66	70	76	84	70
		in.lb	–	584	620	673	743	620
	$\eta$	%	–	91	89	85	77	69
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	–	92	97	105	117	103
		in.lb	–	814	858	929	1035	912
	$T_{2Servo}$	Nm	–	68	71	77	86	72
		in.lb	–	602	628	681	761	637
	$\eta$	%	–	93	91	88	75	75
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	–	82	88	97	105	95
		in.lb	–	726	779	858	929	841
	$T_{2Servo}$	Nm	–	67	70	76	84	70
		in.lb	–	593	620	673	743	620
	$\eta$	%	–	94	93	90	83	78
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	–	77	81	90	99	88
		in.lb	–	681	717	797	876	779
	$T_{2Servo}$	Nm	–	64	69	75	83	69
		in.lb	–	566	611	664	735	611
	$\eta$	%	–	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 <sup>a)</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	–	1,2	1,2	1,1	1	0,9
		in.lb	–	10,6	10,6	9,7	8,9	8,0
Max. torsional backlash	$j_t$	arcmin	≤8					
Torsional rigidity	$C_{t21}$	Nm/arcmin	8					
		in lb/arcmin	71					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	5000					
		lb <sub>f</sub>	1125					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	3800					
		lb <sub>f</sub>	855					
Max. tilting moment	$M_{2KMMax}$	Nm	409					
		in.lb	3620					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	7,7					
		lb <sub>m</sub>	17,0					
Operating noise (with $n_{IN}=3000$ 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)	$J_t$	kgcm <sup>2</sup>	–	2,01	1,93	1,84	1,81	1,86
		10 <sup>-3</sup> in lb s <sup>2</sup>	–	1,78	1,71	1,63	1,60	1,64

<sup>a)</sup> Idling torques decrease during operation

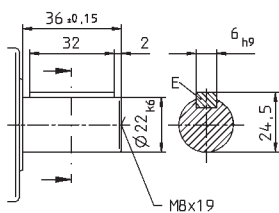
<sup>b)</sup> Refers to center of the output shaft or flange



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

⚠ Motor mounting according to operating manual

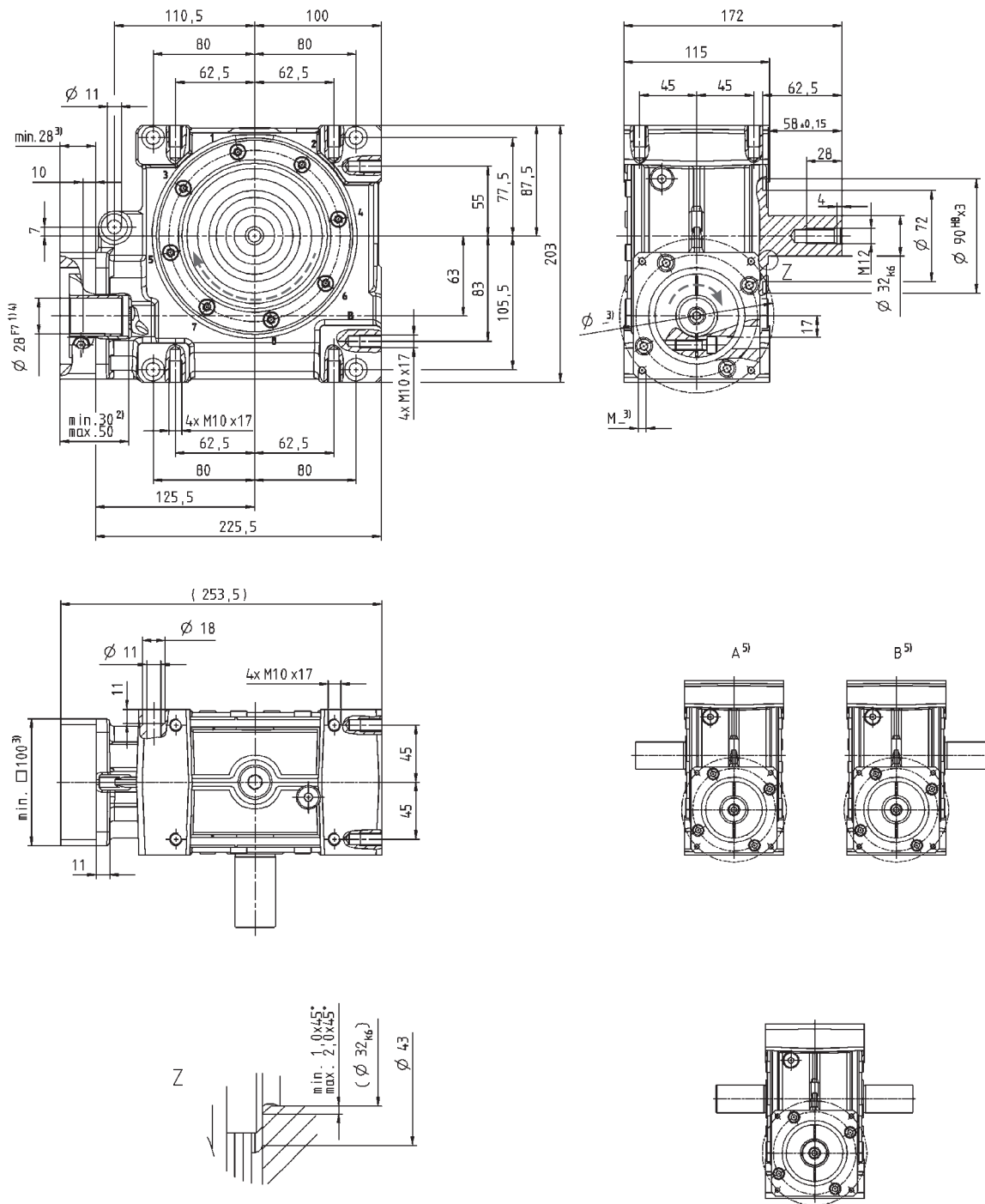


# VDS economy 063 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	–	264	270	279	301	282
		in.lb	–	2336	2390	2469	2664	2496
	$T_{2Servo}$	Nm	–	183	195	198	215	201
		in.lb	–	1620	1726	1752	1903	1779
$\eta$	%		–	91	88	83	74	68
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	–	256	265	276	299	280
		in.lb	–	2266	2345	2443	2646	2478
	$T_{2Servo}$	Nm	–	197	208	212	230	215
		in.lb	–	1743	1841	1876	2036	1903
$\eta$	%		–	93	91	86	78	73
$n_{IN}=2000$ 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
$\eta$	%		–	94	93	89	83	78
$n_{IN}=3000$ 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
$\eta$	%		–	95	94	91	85	81
$n_{IN}=4000$ 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
$\eta$	%		–	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 <sup>a)</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	–	1,9	1,8	1,7	1,6	1,4
		in.lb	–	16,8	15,9	15,0	14,2	12,4
Max. torsional backlash	$j_t$	arcmin	≤8					
Torsional rigidity	$C_{121}$	Nm/arcmin	28					
		in lb/arcmin	248					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	8250					
		lb <sub>f</sub>	1856					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	6000					
		lb <sub>f</sub>	1350					
Max. tilting moment	$M_{2KMMax}$	Nm	843					
		in.lb	7461					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	12,5					
		lb <sub>m</sub>	27,6					
Operating noise (with $n_{IN}=3000$ 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)	$J_t$	kgcm <sup>2</sup>	–	5,78	5,53	5,44	5,40	5,35
		10 <sup>-3</sup> in lb s <sup>2</sup>	–	5,12	4,90	4,82	4,78	4,74

<sup>a)</sup> Idling torques decrease during operation

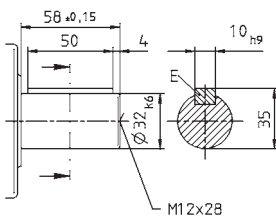
<sup>b)</sup> Refers to center of the output shaft or flange



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

Motor mounting according to operating manual



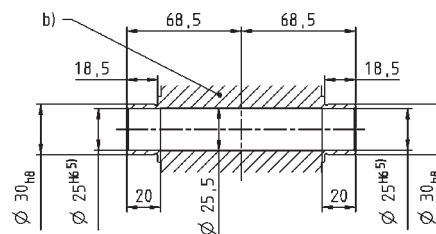
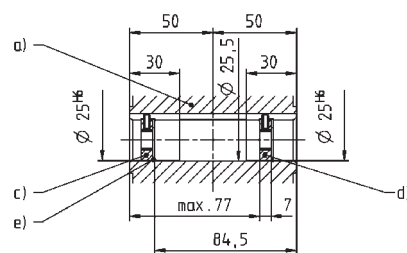
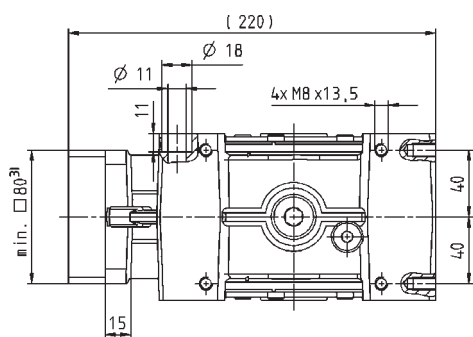
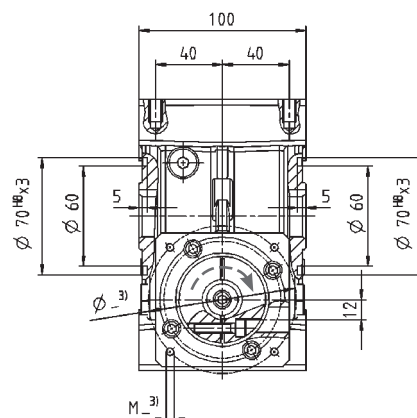
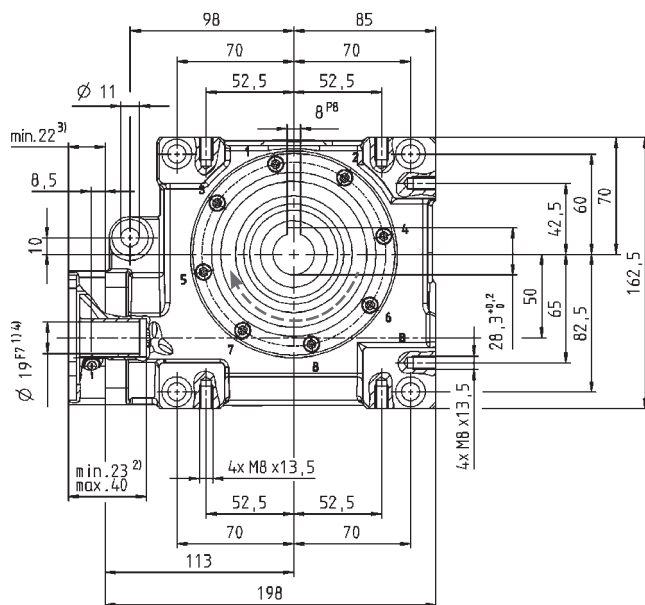


# VDH economy 050 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	–	102	111	118	128	116
		in.lb	–	903	982	1044	1133	1027
	$T_{2Servo}$	Nm	–	62	64	70	78	64
		in.lb	–	549	566	620	690	566
	$\eta$	%	–	89	86	82	72	64
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	–	103	108	114	124	112
		in.lb	–	912	956	1009	1097	991
	$T_{2Servo}$	Nm	–	66	70	76	84	70
		in.lb	–	584	620	673	743	620
	$\eta$	%	–	91	89	85	77	69
$n_{IN}=2000$ rpm	$T_{2Max}$	Nm	–	92	97	105	117	103
		in.lb	–	814	858	929	1035	912
	$T_{2Servo}$	Nm	–	68	71	77	86	72
		in.lb	–	602	628	681	761	637
	$\eta$	%	–	93	91	88	75	75
$n_{IN}=3000$ rpm	$T_{2Max}$	Nm	–	82	88	97	105	95
		in.lb	–	726	779	858	929	841
	$T_{2Servo}$	Nm	–	67	70	76	84	70
		in.lb	–	593	620	673	743	620
	$\eta$	%	–	94	93	90	83	78
$n_{IN}=4000$ rpm	$T_{2Max}$	Nm	–	77	81	90	99	88
		in.lb	–	681	717	797	876	779
	$T_{2Servo}$	Nm	–	64	69	75	83	69
		in.lb	–	566	611	664	735	611
	$\eta$	%	–	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 <sup>a)</sup> (With $n_{IN}=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	–	1,2	1,2	1,1	1	0,9
		in.lb	–	10,6	10,6	9,7	8,9	8,0
Max. torsional backlash	$j_t$	arcmin	≤8					
Torsional rigidity	$C_{t21}$	Nm/arcmin	8					
		in lb/arcmin	71					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	5000					
		lb <sub>f</sub>	1125					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	3800					
		lb <sub>f</sub>	855					
Max. tilting moment	$M_{2KMMax}$	Nm	409					
		in.lb	3620					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	7,4					
		lb <sub>m</sub>	16,4					
Operating noise (with $n_{IN}=3000$ 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)	$J_t$	kgcm <sup>2</sup>	–	2,02	1,93	1,84	1,81	1,86
		10 <sup>-3</sup> in lb s <sup>2</sup>	–	1,79	1,71	1,63	1,60	1,64

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



- 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  $\pm 1$  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.

Motor mounting according to operating manual

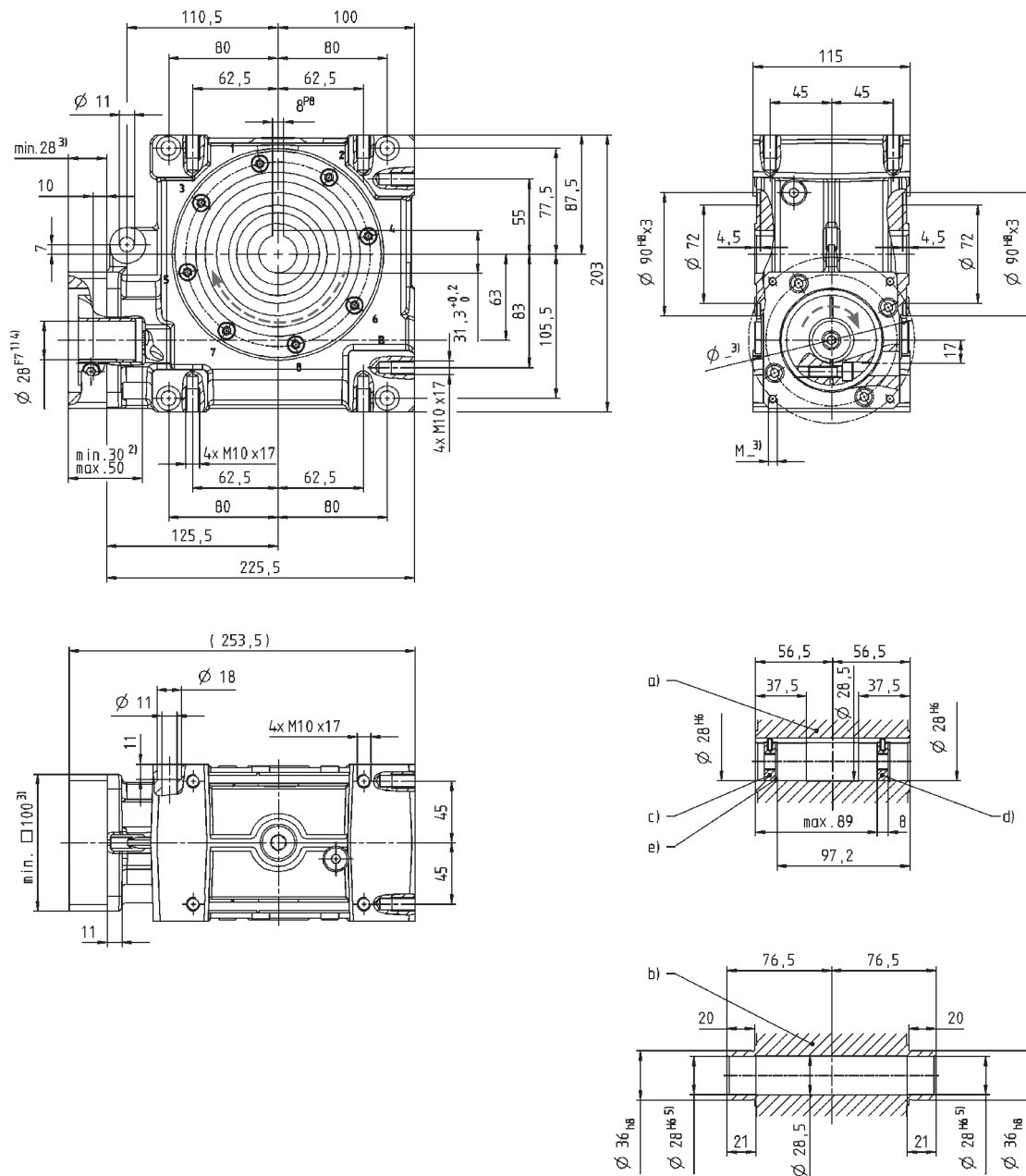


# VDH economy 063 1-stage

			1-stage					
Ratio	<i>i</i>		4	7	10	16	28	40
$n_{IN}=500$ rpm	$T_{2Max}$	Nm	–	264	270	279	301	282
		in.lb	–	2336	2390	2469	2664	2496
	$T_{2Servo}$	Nm	–	183	195	198	215	201
		in.lb	–	1620	1726	1752	1903	1779
$\eta$	%		–	91	88	83	74	68
$n_{IN}=1000$ rpm	$T_{2Max}$	Nm	–	256	265	276	299	280
		in.lb	–	2266	2345	2443	2646	2478
	$T_{2Servo}$	Nm	–	197	208	212	230	215
		in.lb	–	1743	1841	1876	2036	1903
$\eta$	%		–	93	91	86	78	73
$n_{IN}=2000$ 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
$\eta$	%		–	94	93	89	83	78
$n_{IN}=3000$ 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
$\eta$	%		–	95	94	91	85	81
$n_{IN}=4000$ 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
$\eta$	%		–	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 <sup>a)</sup> (With $n_1=3000$ min <sup>-1</sup> and 20° C gear temperature)	$T_{012}$	Nm	–	1,9	1,8	1,7	1,6	1,4
		in.lb	–	16,8	15,9	15,0	14,2	12,4
Max. torsional backlash	$j_t$	arcmin	≤8					
Torsional rigidity	$C_{121}$	Nm/arcmin	28					
		in lb/arcmin	248					
Max. axial force <sup>b)</sup>	$F_{2AMax}$	N	8250					
		lb <sub>f</sub>	1856					
Max. radial force <sup>b)</sup>	$F_{2RMMax}$	N	6000					
		lb <sub>f</sub>	1350					
Max. tilting moment	$M_{2KMMax}$	Nm	843					
		in.lb	7461					
Service life (For calculation see "Information")	$L_h$	h	> 20000					
Weight (without motor attachment parts)	$m$	kg	12					
		lb <sub>m</sub>	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)	$J_t$	kgcm <sup>2</sup>	–	5,77	5,53	5,44	5,40	5,35
		10 <sup>-3</sup> in lb s <sup>2</sup>	–	5,11	4,89	4,81	4,78	4,74

<sup>a)</sup> Idling torques decrease during operation

<sup>b)</sup> Refers to center of the output shaft or flange



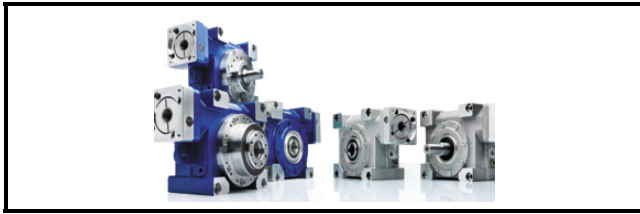
- a) Hollow shaft, keywayed
- b) Hollow shaft, smooth
- c) End disc for screw M10 (on request)
- d) End disc as forcing washer for screw M12 (on request)
- e) Locking ring – DIN 472 (on request)

Non-tolerated dimensions  $\pm 1$  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.

Motor mounting according to operating manual





## alpha V-Drive® - + and economy

V D S 0 6 3 - M F 1 - 1 6 - 0 3 1 - A C 0 / M O T O R

Series ←

VDS - Shaft Output  
VDH - Hollow Shaft Output  
VDT - Flange Output

Frame Size ←

050, 063, 080, 100

Gearhead Variations ←

M - Motor mounting

Gearhead Model ←

F - Standard  
W - Washdown  
L - Food Grade Lubrication

Ratio ←

See "V-Drive Ratios" charts

→ Shrink Discs (VDH only)

0 - None included  
1 - One included  
2 - Two included

→ Mounting Orientation

See catalog for orientations chart

→ Backlash

1 - Standard

→ Clamping Hub Diameter

See "V-Drive Clamping Hubs" chart for code

→ Shaft Design

0 - Smooth Shaft (VDS/VDH) / Flange (VDT)  
1 - Keyed Shaft  
2 - Involute Shaft (VDS)  
8 - Dual sided smooth shaft (VDS/VDSe)  
9 - Dual sided keyed shaft (VDS/VDSe)

### V-Drive Ratios

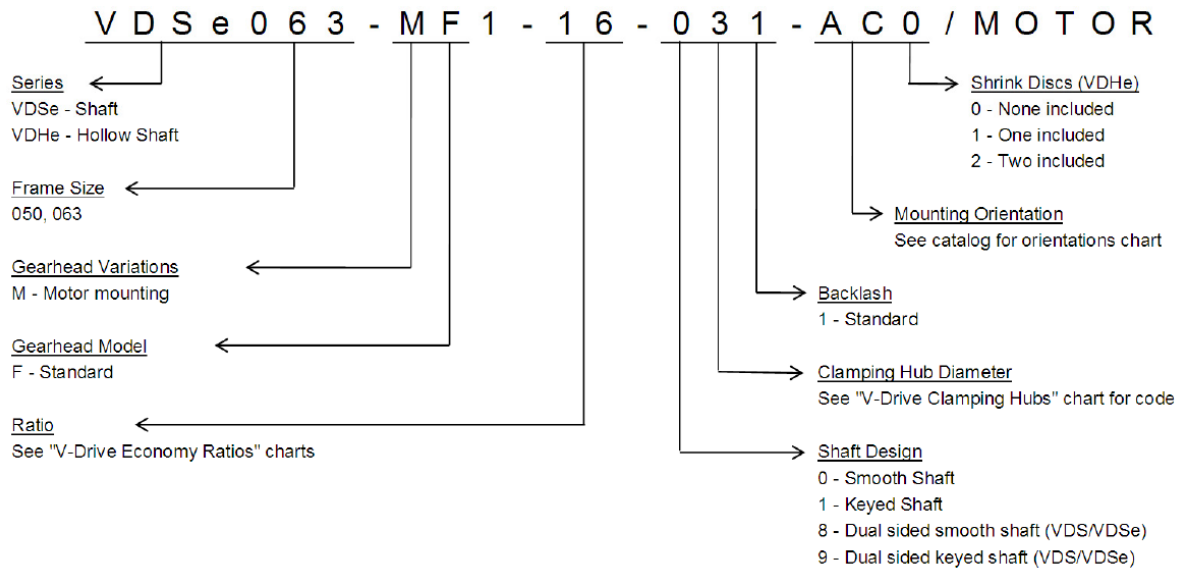
<b>Ratios</b>	4	7	10	16	28	40
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### V-Drive Clamping Hubs

Size	Clamping Hub			
	3	4	5	7
<b>Code</b>	3	4	5	7
<b>Diameter (mm)</b>	19	28	35	48
VD_050	X			
VD_063		X		
VD_080			X	
VD_100				X



alpha V-Drive® - + and economy



**V-Drive Economy Ratios**

<b>Ratios</b>	7	10	16	28	40
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**V-Drive Economy Clamping Hubs**

Size	Clamping Hub			
	3	4	5	7
<b>Code</b>				
<b>Diameter (mm)</b>	19	28	35	48
VD_050	X			
VD_063		X		