

# VD motor.

VD-49.15-K1



- 3-phase external rotor motor with EC technology
- High poled motor structure for optimum power density
- Basic motor with electronic module K1 for operation on external control electronics
- Very good synchronization characteristics
- Robust mechanical design in IP 54 for industrial applications
- Long lifetime by using precision ball bearings
- Insulation class E
- Electrical connection via cable

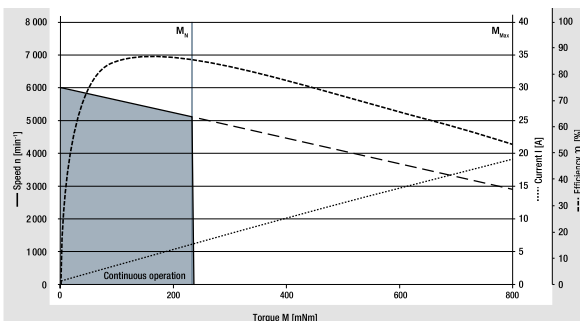
Nominal data			
Type		VD-49.15-K1-B00	VD-49.15-K1-D00
Nominal voltage ( $U_N$ )	V DC	24	48
Nominal speed ( $n_N$ )*	rpm	4 500	5 300
Nominal torque ( $M_N$ )*	mNm	235	245
Nominal current ( $I_N$ )*	A	6.10	3.40
Nominal output power ( $P_N$ )*	W	110	135
Starting torque ( $M_{max}$ )	mNm	1 150	1 300
Permissible peak current ( $I_{max}$ )**	A	30.0	18.5
Speed at no-load operation ( $n_0$ )	rpm		6 000
No-load current ( $I_0$ )	A	0.47	0.36
Recommended speed control range	rpm		0 ... 6 000
Rotor moment of inertia ( $J_R$ )	kgm <sup>2</sup> x10 <sup>-6</sup>		108
Motor constant ( $K_E$ )	mVs/rad	41.0	80.7
Connection resistance ( $R_V$ )	$\Omega$	0.23	0.62
Connection inductance ( $L_V$ )	mH	0.17	0.62
Overload protection		To be implemented via the control electronics	
Permissible ambient temperature range ( $T_U$ )	$^{\circ}\text{C}$	0 ... +40	
Weight	kg	0.59	
Order no. (cable type)***	IP 54	937 4915 000	937 4915 001

Subject to alterations

\* At  $T_U$  max. 40 $^{\circ}\text{C}$   
 \*\* Permissible time for peak current: max. 1 sec. – to be repeated only after complete cool down  
 \*\*\* Classification of protection class refers to installed state with sealing on the flange side

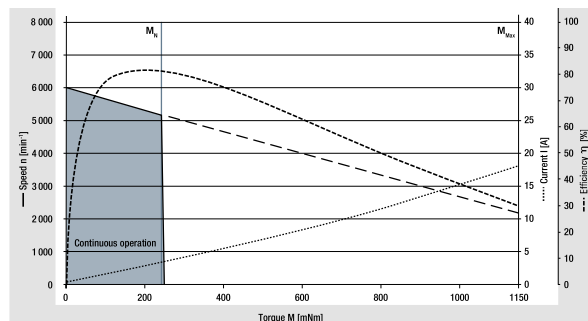
## Characteristic curve

VD-49.15-K1-B00 (at 25 $^{\circ}\text{C}$ )



<sup>1)</sup> Nominal data, see table

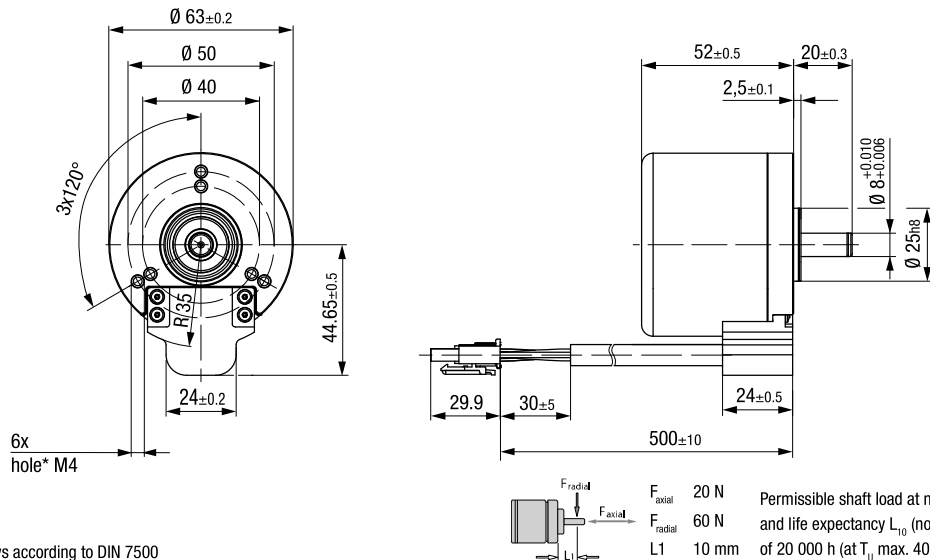
VD-49.15-K1-D00 (at 25 $^{\circ}\text{C}$ )



<sup>1)</sup> Nominal data, see table

Technical drawing

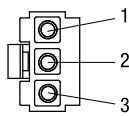
All dimensions in mm



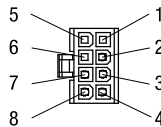
\* For thread-rolling screws according to DIN 7500

Electrical connection

Supply wire		
No.	Color	Function
1	yellow	Phase W
2	violet	Phase V
3	brown	Phase U



Molex plug no. 39-03-6035



Molex plug no. 39-01-2085

Signal wire		
No.	Color	Function
1	–	–
2	red	+12 V
3	white	Hall B
4	green	Hall A
5	–	–
6	–	–
7	black	GND
8	gray	Hall C

Modular construction kit

Recommended external control electronics	
VTD-XX.XX-K3	Speed (page 34)
VTD-XX.XX-K4S	Position (page 36)
VTD-60.13-K5SB	Position (page 38)

Basic motor



Planetary gearheads

- NoiselessPlus 63 (page 44)
- Performax® 63 (page 46)
- Performax®Plus 63 (page 48)

Crown gearheads

- EtaCrown® 75 (page 50)
- EtaCrown®Plus 63 (page 52)

Spur gearheads

- Compactline 91 (page 56)
- Flatline 85 (page 60)



# Planetary gearheads.

Performax®Plus 63



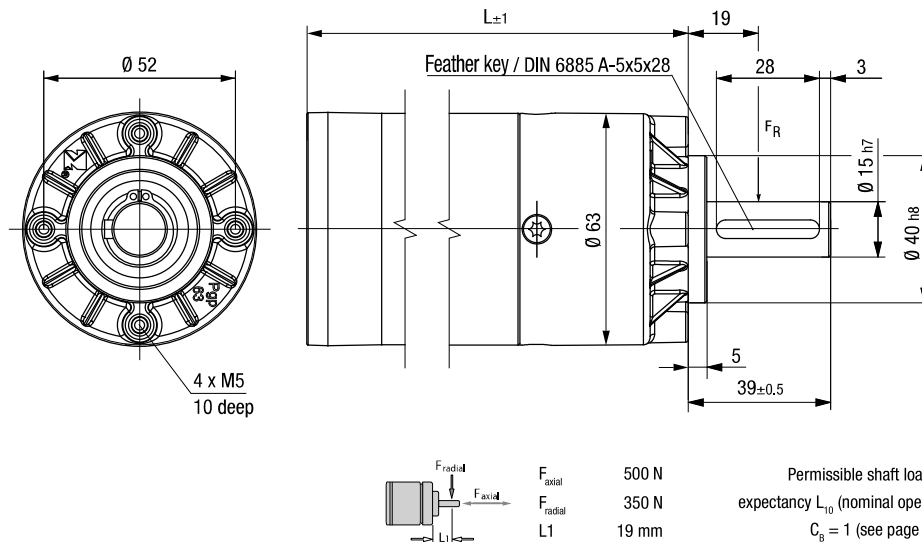
Image of 2-stage gearhead

- High torques thanks to large gearing width in the first gear stage
- Good shock resistance due to housing made of case-hardened steel with linear tooth profile in the output stage
- Very quiet running due to helical teeth in the first gear stage
- Planetary wheels made of plastic with optimized sliding properties in the first stage ensure smooth operation
- Large effective diameter thanks to radial screw connection

Nominal data												
Gearheads		Performax®Plus 63.1					Performax®Plus 63.2					
Reduction ratio		3.20	5.00	9.00	17.0	21.3	30.0	38.3	54.0	72.3	102	204
No. of stages		1					2					
Efficiency		0.90					0.81					
Max. input speed (n <sub>i</sub> )	rpm	6 000					6 000					
Rated output torque (M <sub>ab</sub> )	Nm	6.50	11.9	7.60	4.40	45.2	64.0	28.9	41.0	16.9	23.9	27.4
Short-term torque (M <sub>max</sub> )	Nm	16.3	29.8	19.0	11.0	113	160	72.3	102.5	42.3	59.8	68.5
Gear play	°	0.7 ... 1.2					0.7 ... 1.2					
Permissible operating temperature (T <sub>v</sub> )	°C	-20 ... +80					-20 ... +80					
Operating mode		S1					S1					
Protection class		IP 50					IP 50					
Weight	kg	0.66					1.20					
Shaft load radial / axial	N	350 / 500					350 / 500					
Service life	h	5 000					5 000					
Lubrication		Maintenance-free grease lubrication for life										
Installation position		any										
Subject to alterations		on request										

## Technical drawing

Image of 1-stage gearhead / 2-stage design completely cylindrical / All dimensions in mm



## Length of the possible motor / gearhead combinations

Motor / gearhead		L - 1-stage	L - 2-stage
ECI-63.20-K1-PP63	mm	164	185
ECI-63.40-K1-PP63	mm	184	205
ECI-63.60-K1-PP63	mm	204	225
ECI-63.20-K3-PP63	mm	176	198
ECI-63.40-K3-PP63	mm	196	218
ECI-63.60-K3-PP63	mm	216	238
ECI-63.20-K4-PP63	mm	176	198
ECI-63.40-K4-PP63	mm	196	218
ECI-63.60-K4-PP63	mm	216	238
ECI-63.20-K5-PP63	mm	170	191
ECI-63.40-K5-PP63	mm	190	211
ECI-63.60-K5-PP63	mm	210	231
ECI-80.20-K1-PP63	mm	154	175
ECI-80.40-K1-PP63	mm	174	195
ECI-80.60-K1-PP63	mm	194	215

Subject to alterations

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