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

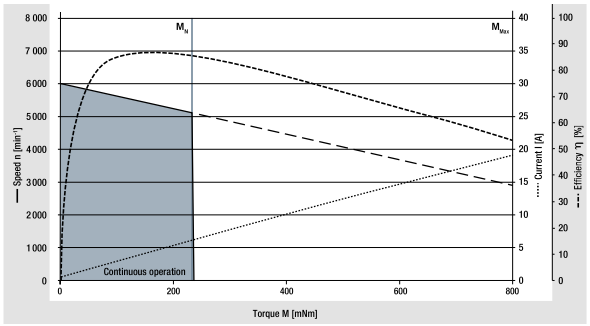
Type		VD-49.15-K1-B00	VD-49.15-K1-D00
Nominal voltage (U_N)	V DC	24	48
Nominal speed (n_N)*	rpm	4 500	5 300
Nominal torque (M_N)*	mNm	235	245
Nominal current (I_N)*	A	6.10	3.40
Nominal output power (P_N)*	W	110	135
Starting torque (M_{max})	mNm	1 150	1 300
Permissible peak current (I_{max})**	A	30.0	18.5
Speed at no-load operation (n_L)	rpm	6 000	
No-load current (I_L)	A	0.47	0.36
Recommended speed control range	rpm	0 ... 6 000	
Rotor moment of inertia (J_R)	kgm² x10⁻⁶	108	
Motor constant (K_E)	mVs/rad	41.0	80.7
Connection resistance (R_V)	Ω	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)	°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°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

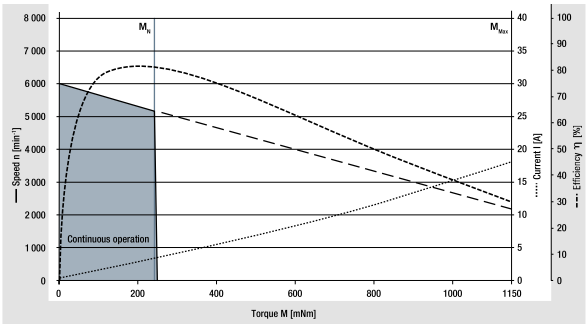
Characteristic curve

VD-49.15-K1-B00 (at 25°C)



¹) Nominal data, see table

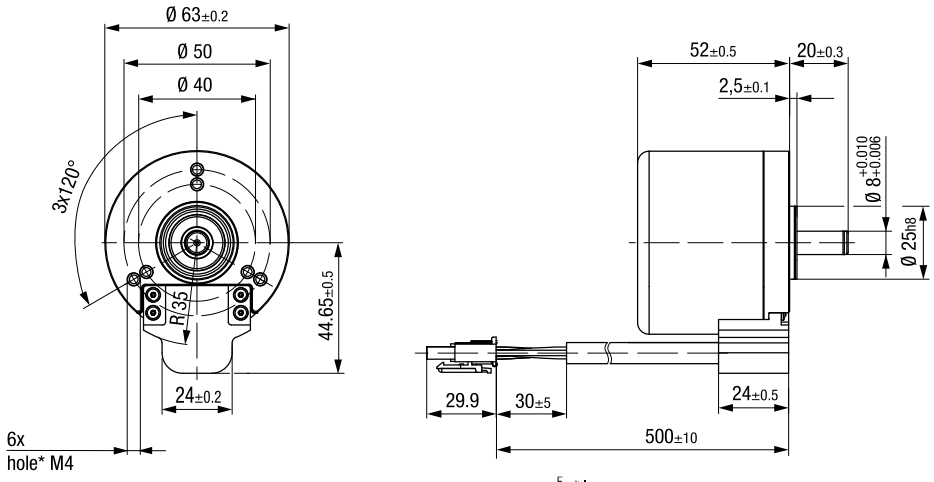
VD-49.15-K1-D00 (at 25°C)

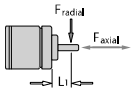


¹) Nominal data, see table

Technical drawing

All dimensions in mm



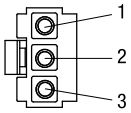


F_{axial}	20 N	Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) of 20 000 h (at T_U max. 40°C)
F_{radial}	60 N	
L1	10 mm	

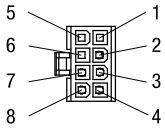
* For thread-rolling screws according to DIN 7500

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

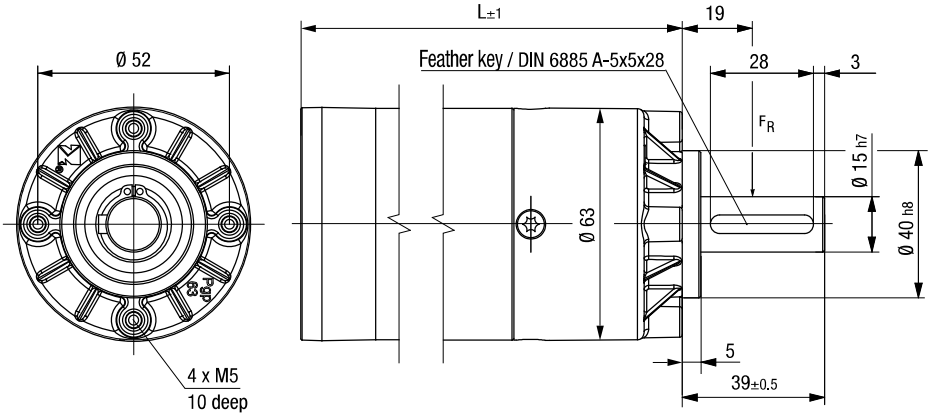
- High torques thanks to large gearing width in the first gear stage
- Good shock resistance due to housing made of case-hardened steel with linear tooth profile in the output stage
- Very quiet running due to helical teeth in the first gear stage
- Planetary wheels made of plastic with optimized sliding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

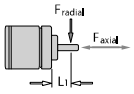
Nominal data

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_1)	rpm	6 000				6 000						
Rated output torque (M_{ab})	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_{max})	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_U)	°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





F_{axial}	500 N	Permissible shaft load at nominal speed and life expectancy L_{10} (nominal operation) and operating factor C_B = 1 (see page 82) of 5 000 h (at T_U 40°C).
F_{radial}	350 N	
L1	19 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

Unikeyic Electronics

Global Electronic Components Distributor

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