

# VD motor.

## VD-49.15-K1

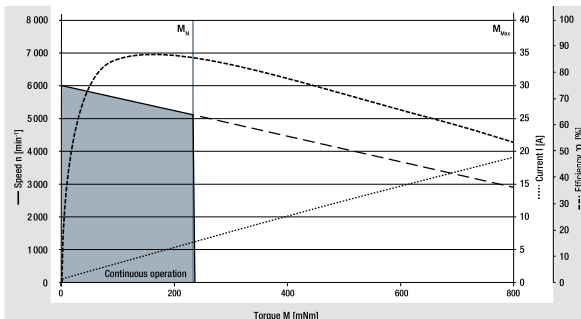


- 3-phase external rotor motor with EC technology
- High poled motor structure for optimum power density
- Basic motor with electronic module K1 for operation on external control electronics
- Very good synchronization characteristics
- Robust mechanical design in IP 54 for industrial applications
- 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 <sub>N</sub> )	V DC	24	48
Nominal speed (n <sub>N</sub> )*	rpm	4 500	5 300
Nominal torque (M <sub>N</sub> )*	mNm	235	245
Nominal current (I <sub>N</sub> )*	A	6.10	3.40
Nominal output power (P <sub>N</sub> )*	W	110	135
Starting torque (M <sub>max</sub> )	mNm	1 150	1 300
Permissible peak current (I <sub>max</sub> )**	A	30.0	18.5
Speed at no-load operation (n <sub>L</sub> )	rpm	6 000	
No-load current (I <sub>L</sub> )	A	0.47	0.36
Recommended speed control range	rpm	0 ... 6 000	
Rotor moment of inertia (J <sub>R</sub> )	kgm <sup>2</sup> x10 <sup>-6</sup>	108	
Motor constant (K <sub>E</sub> )	mVs/rad	41.0	80.7
Connection resistance (R <sub>V</sub> )	Ω	0.23	0.62
Connection inductance (L <sub>V</sub> )	mH	0.17	0.62
Overload protection		To be implemented via the control electronics	
Permissible ambient temperature range (T <sub>U</sub> )	°C	0 ... +40	
Weight	kg	0.59	
Order no. (cable type)***	IP 54	937 4915 000	937 4915 001
Subject to alterations	* At T <sub>U</sub> 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		

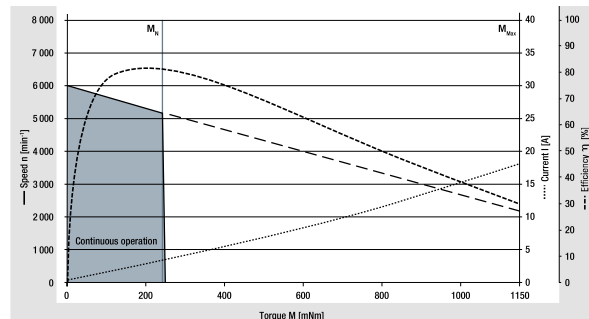
### Characteristic curve

VD-49.15-K1-B00 (at 25°C)



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

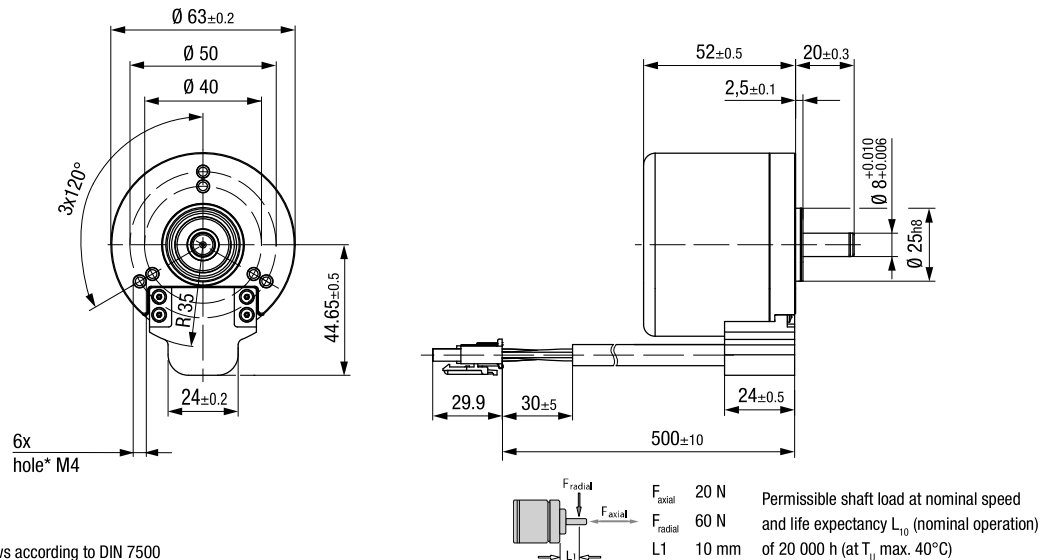
VD-49.15-K1-D00 (at 25°C)



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

## Technical drawing

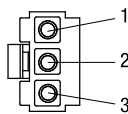
All dimensions in mm



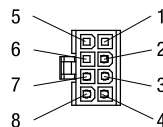
## Electrical connection

### 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)

# Crown gearheads.

EtaCrown® 75



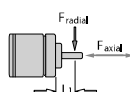
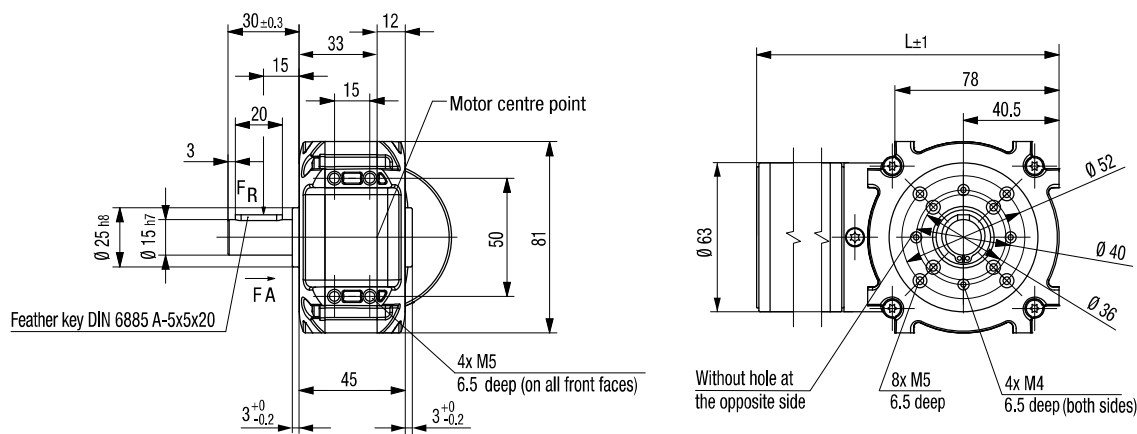
Image of 2-stage gearhead

- Maximum safety in design and operation, as well as optimal vandalism protection; no automatic lock due to high efficiency of the crown wheel technology
- Space-saving installation due to zero offset axle and symmetrical structure
- Flexible application possibilities with various optional shaft outlets and available shaft geometries
- Wide reduction range by means of upstream / downstream planetary stage
- High radial loads due to double ball bearing in the output shaft

Nominal data								
Gearheads		EtaCrown® 75.1			EtaCrown® 75.2			
Reduction ratio		4.10	6.70	10.1	20.3	33.3	60.0	113
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	6.00	5.00	2.43	10.0	10.0	10.0	10.0
Short-term torque (M <sub>max</sub> )	Nm	15.0	12.5	6.08	25.0	25.0	25.0	25.0
Gear play	°	0.55 ... 1.1			0.55 ... 1.1			
Permissible operating temperature (T <sub>o</sub> )	°C	-20 ... +80			-20 ... +80			
Operating mode		S1			S1			
Protection class		IP 50			IP 50			
Weight	kg	0.9			1.3			
Shaft load radial / axial	N	150 / 500	250 / 500	400 / 500	550 / 500	800 / 500	1 100 / 500	1 300 / 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 with left shaft end (W05) / All dimensions in mm



$F_{axial}$  500 N  
 $F_{radial}$  see table  
 $L1$  15 mm

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).

Shaft end, right (W05) (standard)	Shaft end, left (W06)	Shaft end, both sides (W07)	Hollow shaft (W08)
			Hollow shaft Ø 10 mm

## Length of the possible motor / gearhead combinations

Motor / gearhead		L - 1-stage	L - 2-stage
ECI-63.20-K1-E75	mm	197	233
ECI-63.40-K1-E75	mm	217	253
ECI-63.60-K1-E75	mm	237	273
ECI-63.20-K3-E75	mm	210	246
ECI-63.40-K3-E75	mm	230	266
ECI-63.60-K3-E75	mm	250	286
ECI-63.20-K4-E75	mm	210	246
ECI-63.40-K4-E75	mm	230	266
ECI-63.60-K4-E75	mm	250	286
ECI-63.20-K5-E75	mm	203	239
ECI-63.40-K5-E75	mm	223	259
ECI-63.60-K5-E75	mm	243	279

Subject to alterations