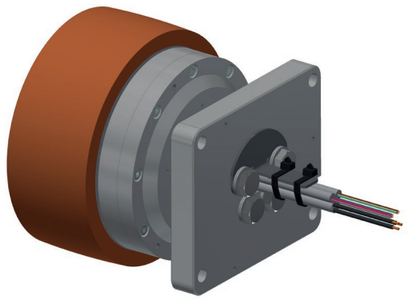
i-Wheel 3213.00-3XXX



Direct drive - Benefits in a nutshell

- No gearbox – no wear
- Much longer service life compared to conventional drive technology with a gear stage
- Excellent running properties with barely perceptible noise level
- Safe operation due to permanent temperature monitoring
- Ultra-compact with extremely high power density
- Easy replacement of the the wheel coating on site possible thanks to the patented Ketterer solution

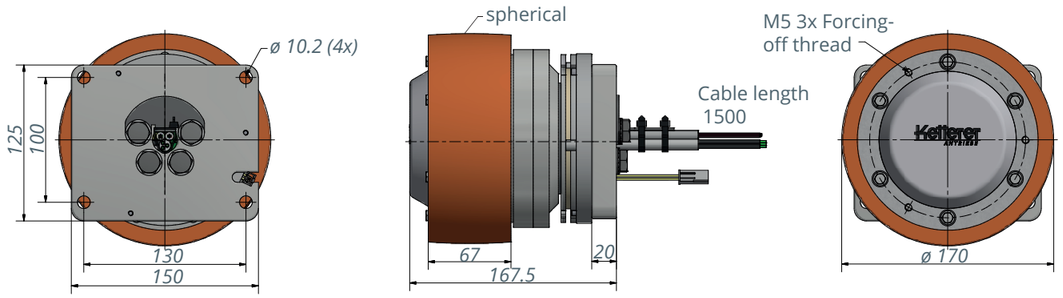
Safety first

- Rotational control system using diverse redundancy
- **PL-d** safety level achievable with suitable controller
- Safe production processes, as there are no risks of contamination from gear oils and greases (no gearbox)

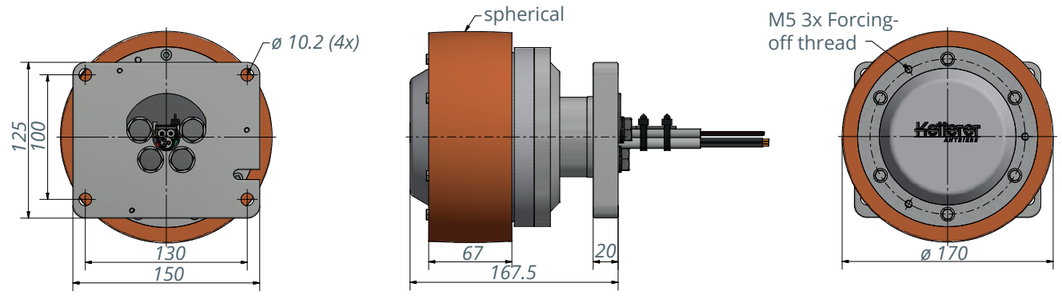
The choice is yours - we implement it

- Encoder optional: BiSS, SSI, TTL incremental (various resolutions)
- Brake optional: Spring-operated brake
- Can be combined with various controllers
- Customer-specific mechanical integration and system connection

3213.00-3XX1 with brake



3213.00-3XX2 without brake

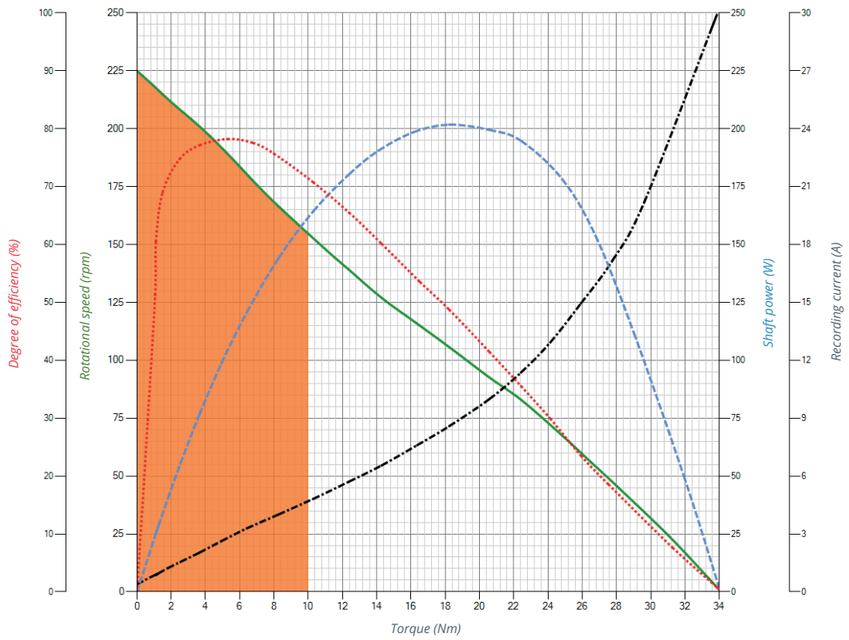


3213.00-3XXX i-Wheel-A-170-168	
Rated voltage	48 VDC
Rated current[1)]	4.7 A
Rated torque[1)]	10 Nm
Rated speed[1)]	154 rpm
Max. speed at rated torque[1)]	5 km/h
Shaft power (output)[1)]	161 W
Idle running speed[2)]	225 rpm
No-load current[2)]	0.4 A
Achievable max. speed[2)]	up to 7 km/h
Max. efficiency[2)]	78 %
Standstill torque[2)]	34 Nm
Starting current at idle speed[2)]	29 A
Torque constant[2)]	2.1 Nm/A
Speed constant[2)]	4.7 rpm/V
Terminal resistance (phase to phase)	1.75 Ohm
Terminal inductance	15 mH

1) Max. ambient temperature = 40 °C, controller-specific
2) At the nominal point (TU = 20°C), controller-specific
3) Radial and axial forces apply to the nominal service life L10h = 20,000h according to DIN ISO 281

3213.00-3XXX i-Wheel-A-170-168	
Rotor inertia	26,850 kg*mm^2
Max. radial axle load F[3)]	7,500 N
Max. axial axle load F[3)]	2,500 N
Number of magnets poles	32
Interconnection of the motor	L62S4
Encoder type in standard	Digital Halls + TTL magnetic incremental ABZ
Encoder resolution	4,096 crp
Material of the coating	Blickle Besthane 92 ±3 Shore A

Braking torque	30 Nm
Power supply brake	24 VDC / 21.5 W
Power consumption brake	7 W through PWM Power reduction
Weight incl. brake	17.6 kg



Brake:

1	+24 V	PIN1
2	GND	PIN2

Motor phases:
igus CF77.UL.25.04.D (4G2.5)

U = 1
V = 2
W = 3

The PE conductor is not connected

Hall sensors:
igus CF240.PUR.01.08 (8x0.14)C

1	+5 V	red
2	GND	blue
3	H1	white
4	H2	brown
5	H3	green

Output signal: 3 square-wave signals
The hall signals have a phase shift of 120° to each other.
Power supply: 5V ± 5%
Input current: typ. 40 mA

Encoder:
igus CF240.PUR.01.08 (8x0.14)C

1	+5 V	red
2	GND	blue
3	A	gray
4	A-	pink
5	B	green
6	B-	yellow
7	Z	white
8	Z-	brown

Differential output signal:
3 square-wave signals (RS422)
Channel A, B (90° phase shift) and Index Z
Accuracy: ± 0.5°
Power supply: 5V ± 5%
Input current: typ. 35 mA