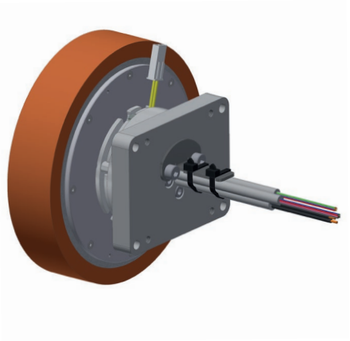
i-Wheel 3213.00-1XXX



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

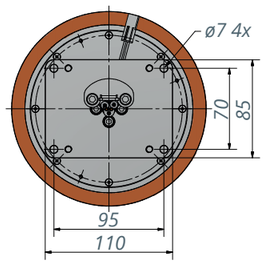
Safety first

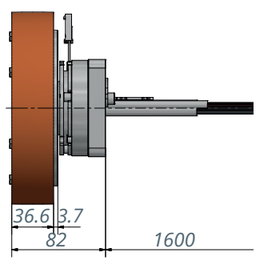
- Rotational control system using diverse redundancy
- **PL-d** safety level achievable with suitable controller
- Safe production processes, as there are no risks of contamination from gear oils and greases (no gearbox)

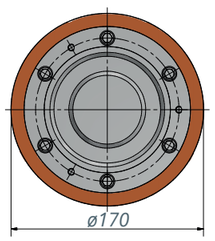
The choice is yours - we implement it

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

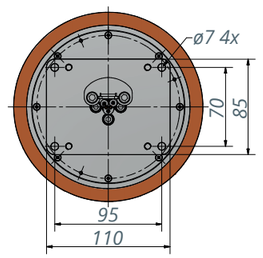
3213.00-1XX1 with brake

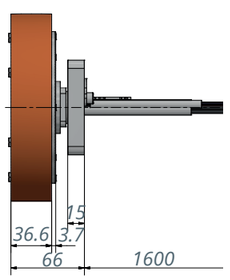


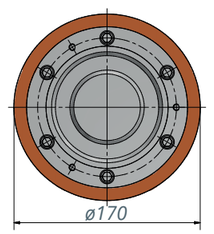




3213.00-1XX2 without brake





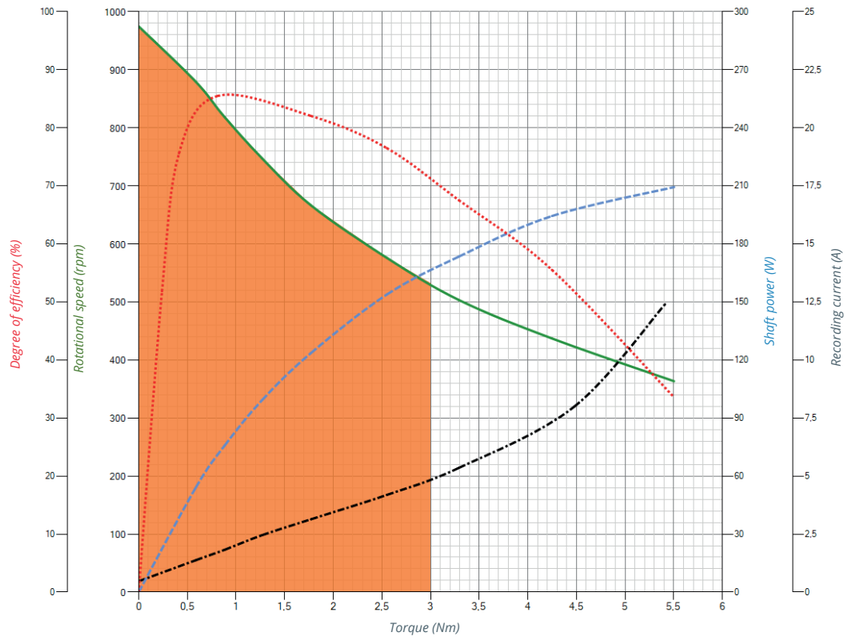


3213.00-1XXX i-Wheel-A-170	
Rated voltage	48 VDC
Rated current[1)]	5 A
Rated torque[1)]	3 Nm
Rated speed[1)]	530 rpm
Max. speed at rated torque[1)]	17 km/h
Shaft power (output)[1)]	165 W
Idle running speed[2)]	975 rpm
No-load current[2)]	0.5 A
Achievable max. speed[2)]	up to 31 km/h
Max. efficiency[2)]	88,6 %
Standstill torque[2)]	5.4 Nm
Starting current at idle speed[2)]	12,4 A
Torque constant[2)]	0.6 Nm/A
Speed constant[2)]	11 rpm/V
Terminal resistance (phase to phase)	0.65 Ohm
Terminal inductance	3.7 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

3213.00-1XXX i-Wheel-A-170	
Rotor inertia	2,900 kg*mm²
Max. radial axle load F[3)]	800 N
Max. axial axle load F[3)]	200 N
Number of magnets poles	32
Interconnection of the motor	L63S4
Encoder type in standard	Digital Halls + TTL magnetic incremental ABZ
Encoder resolution	4.096 cpr
Material of the coating	Blickle Besthane 92 ±3 Shore A

Braking torque	5 Nm
Power supply brake	24 VDC / 17,6 W
Power consumption brake	7 W through PWM Power reduction
Weight incl. brake	4,5 kg



Brake:

1	+24 V	PIN 1
2	GND	PIN 2

Motor phases:
Alpahwire 6716 AWG16

U = red
V = black
W = yellow

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
6	PT1000	gray
7	PT1000	pink

Hall 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 encoder 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