# t-Rex 3200 (short version, focus rotational speed)

## I-44-47-L41 S2

### Description

14-pole BLDC motor with high-performance neodymium magnets and three digital Hall sensors to detect the rotor position. The electrical connections are designed as a plug-in system. Additional power electronics are required to operate the motor. Motor design with a hollow shaft is also available upon request. This allows the cables to run through the motor or the implementation of output on both sides.

### Special features

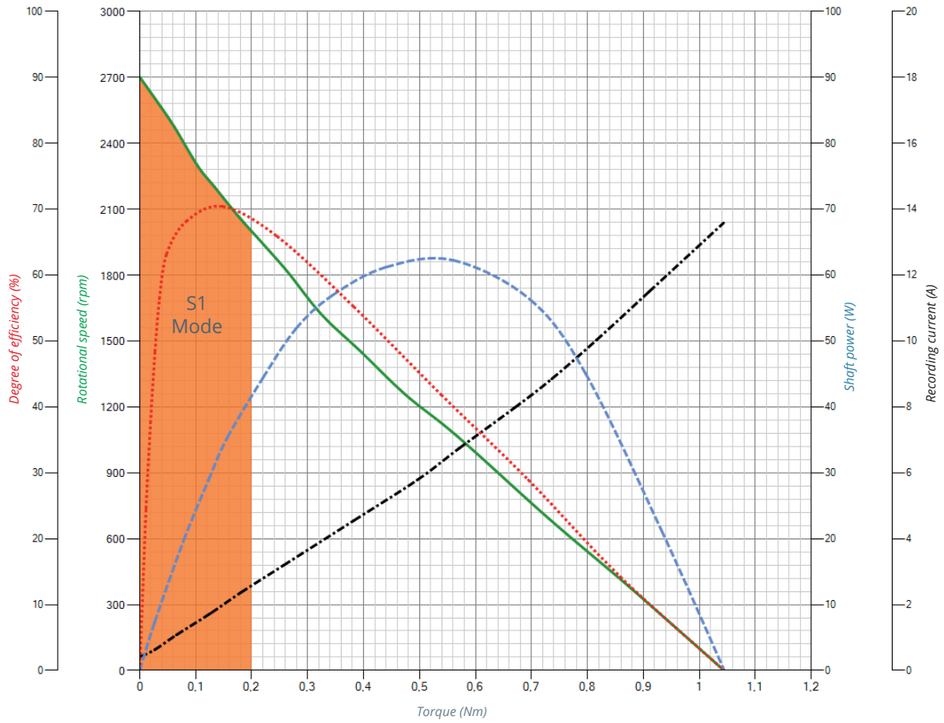
- Designed with **focus on rotational speed**
- Enormous performance density – 3 times stronger than motors of comparable size
- High overload resistance
- Ideally suited as direct drive, or generator for gearless applications
- Special winding upon request
- Design and manufacture of motor to specified operating point is possible

| *t-Rex 3200-I-44-47 L41 S2 DH* | *3200.00-3000* | | |
|---|---|---|---|
| ***Rated voltage*** | 24 VDC | 36 VDC | 48 VDC |
| ***Rated current*** | 2.6 A | 2.6 A | 2.8 A |
| ***Rated torque*** | 0.2 Nm | 0.2 Nm | 0.2 Nm |
| ***Rated speed*** | 2000 rpm | 3187 rpm | 4437 rpm |
| ***Shaft power (output)*** | 42 W | 67 W | 93 W |
| ***Max. efficiency*** | 70 % | 72 % | 72 % |
| ***Idle speed*** | 2702 rpm | 4089 rpm | 5483 rpm |
| ***No-load current*** | 0.4 A | 0.4 A | 0.4 A |
| ***Stall torque*** | 1.0 Nm | 1.3 Nm | 1.5 Nm |
| ***Starting current at idle speed*** | 14 A | 18 A | 20 A |
| ***Torque constant*** | 0.077 Nm/A | 0.073 Nm/A | 0.073 Nm/A |
| ***Speed constant*** | 113 rpm/V | 114 rpm/V | 114 rpm/V |
| ***Motor parameters*** | | | |
| ***Terminal resistance (phase to phase)*** | | 1.09 Ohm | |
| ***Terminal inductance (phase to phase)*** | | 98 mH | |
| ***Rotor inertia*** | | 125 kg* mm² | |
| ***Number of poles*** | | 14 | |
| ***Interconnection of the motor*** | | Star | |
| ***Number of coils per phase*** | | 2 | |
| ***Interconnection of coils*** | | 2 Series | |
| ***Direction of rotation*** | | bidirectional | |

Note: Max. ambient temperature = 40 °C, controller-specific
At the nominal point (TU = 20°C), controller-specific

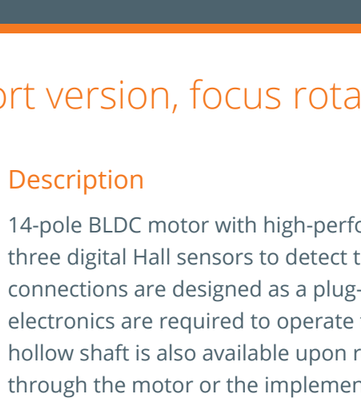
***Motor cable approx. 1.5 m*** | ***Item number: 3200.53-05***

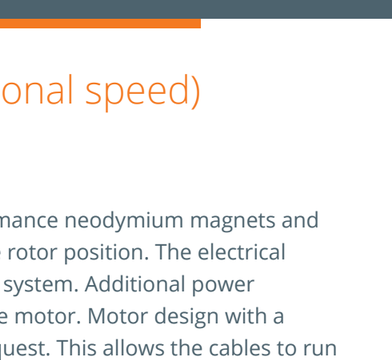
### Motor characteristics at 24 V




3200.00-3000 with shaft



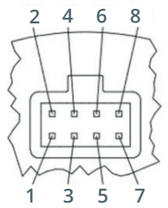

### Digital Hall-sensors

**Supply of sensors**
Voltage range: 4.5 to 5.5 V DC
Optional: voltage regulator for 5 V
Input current: < 70 mA

**Output signals of sensors**
Differential output
(RS422 standard, datasheet AM26 C31-TI)
**Typical voltage range:** 0.2/ 3.4 V @ 20 mA
Output current: max. 20 mA

**Signal structure:** The Hall sensors have a 120° phase shift to each other
Due to the 14-pole design the
**Signal frequency** is seven times higher than the speed

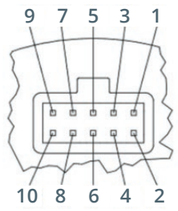
### Hall-sensors




1= H3-
2= H1-
3= 5 V
4= H3+
5= H1+
6= GND
7= H2+
8= H2-

Socket strip RM 2.54 / 8 PIN
W+P 3491-08

### Motor phases




1= U-Phase
2= n.c.
3= U-Phase
4= U-Phase
5= V-Phase
6= V-Phase
7= W-Phase
8= V-Phase
9= W-Phase
10= W-Phase

n.c.= please do not connect
RM 2.54 / 10 PIN
W+P 3491-10