

<b>Product Certificate Number</b>	<b>20908-CER</b>
<b>Applicant</b>	TGB Group c/ L'Alsina, parcela 37, Nave 3. Polígono Industrial La Masia 08798 Sant Cugat Sesgarrigues. Barcelona, Spain
<b>Models</b>	TVR200
<b>Type of generating unit</b>	Spin system for solar tracker
<b>Technical Data</b>	See page 2
<b>Network connection code/Standard</b>	<b>IEC 62817: 2014 + A1:2017</b> Photovoltaic systems – Design qualification of solar trackers. Chapter 8.5 Environmental testing.
<p>Having assessed the report number: 20065-TR performed by CERE based on the requirements of the EN ISO/IEC 17025: 2017.</p> <p>The above-mentioned generating unit complies with the requirements of the:</p> <p><b>IEC 62817: 2014+ A1:2017</b> Photovoltaic systems – Design qualification of solar trackers. Chapter 8.5 Environmental testing.</p> <p>This certification is according the CERE internal process PET-CERE-09 Rev 30 based on the requirements of the EN ISO/IEC 17065:2012. For this certification process the conformity assessment activities were based on:</p> <ul style="list-style-type: none"> <li>• Testing of production samples selected by CERE.</li> <li>• Audit of quality system according ISO 9001 with certificate number: 12 100 42716 TMS issued by a certification body accredited according EN ISO/IEC 17021.</li> <li>• Inspection of the manufacturing process.</li> </ul>	
<p>Madrid, July 06, 2021. This certificate is valid until July 06, 2024</p> <p style="text-align: right;">Miguel Martínez Lavin Certification Manager</p>	

**Technical data**

Female connector - SP2110/S3  
Supplied by electrical control supplier

SP21 Series  
Wire Definition:  
pin 1 motor -  
pin 2 motor +  
pin 3 Ground

Motor	
XD033*	
Voltage (VDC)	24
Current (A)	<1
Speed (rpm)	1.57 ± 8%
Torque (Nm)	320
Current (A)	<6.25
Speed (rpm)	1.2 ± 8%
Max. Torque (Nm)	410

\*DC motor able to work at short-time movements for regular operation. Eventually, DC motor could work at continuous operation for 7 minutes maximum.

Motorized Drive	
TVR200-Z16-RM + XD033	
Rated output torque	5120Nm
Rated output speed	0.03 rpm (±8%)
Max. output torque	6560Nm
Speed at Max. torque	0.023 rpm (±8%)

NOTE: THIS SLEWING DRIVE IS ONLY ABLE TO TURN 120° DUE TO THE MECHANICAL STOP ON THE UPPER PART OF THE DRIVE

MAIN PERFORMANCE PARAMETERS	
GEAR RATIO	40:1
EFFICIENCY	45% ±5%
SELF-LOCKING GEAR	YES
BACKLASH CLEARANCE	<0.20°
NOMINAL TORQUE	9.600kNm
MAXIMUM TORQUE	7.000kNm

NOTE: ALL MAIN DATA ARE MEASURED IN ACCORDANCE WITH ISO 10816. ALL DIMENSIONS UNLESS SPECIFIED OTHERWISE ARE IN MILLIMETERS.

TGB GROUP	
www.tgbenergies.com	
REV	DESCRIPTION
A	First Design
B	Drive Design Updated
C	Drive Design Updated
D	Drive Design Updated
E	Note Added and speed at max torque

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Sales Drawing	
NUM. PIECES	1
SCALE	A3
WEIGHT (kg)	55.73

**Variant models:**

Spin system:

TVR 200-Z1	TVR 200-Z14	TVR 200-Z24	TVR 200-Z35
TVR 200-Z2	TVR 200-Z15	TVR 200-Z25	TVR 200-Z36
TVR 200-Z5	TVR 200-Z16	TVR 200-Z26	TVR 200-Z37
TVR 200-Z7	TVR 200-Z17	TVR 200-Z30	TVR210-Z31
TVR 200-Z8	TVR 200-Z18	TVR 200-Z31	TVR210-Z30
TVR 200-Z11	TVR 200-Z19	TVR 200-Z32	
TVR 200-Z12	TVR 200-Z20	TVR 200-Z33	
TVR 200-Z13	TVR 200-Z21	TVR 200-Z34	

Motor DC

XD015	XD032	XD037	XD043	XD050
XD017	XD033	XD038	XD045	XD051
XD020	XD033-G	XD040	XD046	XD053
XD028	XD034	XD040.B	XD047	XD053-G
XD030	XD036	XD041	XD049	XD055

Motor AC

XA009.AS	XA099	XA176
XA058	XA118	XA184
XA062	XA129	XA196.AS
XA072	XA130	XA211
XA083	XA131	
XA095	XA146	

The sample selected to test was representative of the production. The sample was selected in:

TGB Group  
c/ L'Alsina, parcela 37, Nave 3.  
Polígono Industrial La Masia  
08798 Sant Cugat Sesgarrigues.  
Barcelona, Spain

Sample Report Number:

20065-TM

The inspection of manufacturing process was performed in:  
On July 06, 2021

TGB Group  
c/ L'Alsina, parcela 37, Nave 3.  
Polígono Industrial La Masia  
08798 Sant Cugat Sesgarrigues.  
Barcelona, Spain

Inspection Report Number:

20066-21-1-IF

#### RECORD OF CHANGES

Revision	Modification / Changes	Date
0	Initial version / Update of certificate 20065-CER-E1	06/07/2021