Report EU-type examination

Report belonging to EU-type examination certificate number	:	NL22-400-1002-295-02
Date of issue of original certificate	:	07-09-2022
Certificate applies to	:	Safety component
Revision number / date	:	Original
Requirements	:	Lifts Directive 2014/33/EU Standards: EN 81-20:2020, EN 81-50:2020
Project number	:	P210167

1. General specifications

Description of the product	:	Brake as Ascending Car Overspeed Protection (ACOP), and as Unintended Car Movement Protection (UCMP) means
Trademark	:	Shenyang Bluelight Drive Technology Co. Ltd.
Type no.	:	BLS
Name and address of the manufacturer	:	Shenyang Bluelight Drive Technology Co. Ltd. No.37 Shiji Road, Hunnan New District, Shenyang City, 110179, P.R. China.
Laboratory	:	None
Address of examined component	:	SISE laboratory No.1032, Honggang Road, Luohu District, Shenzhen, 518029, P.R. China
Date of examination	:	August 2022
Examination performed by	:	A.Santoe, A. van den Burg, M. Issa

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2. Description safety component

The Shenyang Bluelight Drive BLS, 2x2000 Nm is a brake that consist of two independent electro-mechanical block brakes, which fulfils the requirements for lift brakes according to clause 5.9.2.2.2 of EN81-20:2020. The brake is mounted to a Shenyang Bluelight Drive WYT-L gearless machine. The brake is directly connected to the traction sheave by a drive shaft through spline connection. The connections are proven to have built in redundancy. The brake has two sets of two coils in the housing allowing separate electrical opening of the two brake halves. The brakes are also used as holding brakes during normal operation of the lift. The brake material is glued to the brake shoes and the shoes are bolted to the base.

ACOP
The Ascending Car Overspeed Protection shall be actuated by a governor overspeed contact, or an equivalent EU-type tested device according to EN 81-20 clause 5.6.6.10 which was no part of this investigation.

UCMP
The brake can be used as braking element for Unintended Car Movement Protections according to clause 5.6.7 of EN 81-20:2020.
The brake torque for each type is pre-determined in the factory by application of a fixed amount of guided compression springs. The torque is indicated on a label attached 2 nds3-3( )8(o)-

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BRAKE DATA

Manufacturer	Shenyang Bluelight Drive Technology
Type	BLS
Number of friction surfaces	2
Number of brake springs	2 x 22
Air gap between brake disc and brake shoe [mm]	0.30-0.40
Allowed range of tripping speed	48 - 240 rpm / 0.5 2.5 m/s
Nominal torque	2 x 2000 Nm
Exciting / holding voltage [VDC]	110 / 110
t-10 (average value)	85 msec
t-90 (average value)	176 msec
t-50 ((t10+t90)/2)	130 msec
tb (t90-t10) rounded up value	100 msec

TRACTION MACHINE APPLICATION DATA

Shenyang Bluelight Drive Technology	WYT-L
Q=Nominal capacity range [kg]	320-2000
P=Car mass range [kg]	386-3400
System mass range [kg]	900-7800
Max. rated motor torque [Nm]	1310
Roping factor	2:1
Traction sheave diameter [mm]	400
Bolted connection traction sheave -brake disc	8 x M12

See annex 1 for a general overview of the product.

3. Examinations and tests

The examination covered a check whether compliance with the Lifts Directive 2014/33/EU is met, based on the harmonized product standards EN81-20:2020 and EN81-50:2020. The examination included:

- Examination of the technical file (See annex 2).
- Check of performed calculations according to EN 81-20 and EN 81-50.
- Examination of the representative model to establish conformity with the technical file.
- Inspections and tests to check compliance with the essential requirements of the EN 81-50 clause 5.7 and 5.8 at Shenzhen Institute of Special Equipment, Inspection and Research, Guangdong station Of Elevator Quality Supervision and Test (SISE).
- Tests to verify the required monitoring according to clause 5.6.7.3 of EN 81-20.
  The machine was placed on a test stand with a coupling to an intermediate shaft with a torque meter. On the other side of this intermediate shaft is an electric driving motor with overrated power to the shaft. The torque is stored as a function of time with a digital oscilloscope.
  The torque meter was calibrated in advance by an ISO 17025 accredited laboratory.

The test stand is provided with additional flywheels that can be coupled to the setup but the inertia of the test stand on its own was found to be more than the maximum inertia for the application range defined for the ACOP for these traction machines.
The electromotor is run with high torque at the highest speed anticipated before

calculated based on the maximum tripping speed of the applied overspeed governor, which overspeed tripping contact activates the brake as ACOP. After constant speed is reached, the brake holding voltage is cut and the brake set is applied until the machine has come to a full stop, while the electromotor continues giving the unbalance torque calculated from the maximum allowed unbalance for the applicable machine. This test is done 10 times with the complete brake.
The results of the torque measurement has been recorded and studied. From these results the dynamic torque and the reaction times t_{10} and t_{90} have been established. Also the functioning of the monitoring contacts has been tested. Immediately after each test the temperature of the brake housing and brake discs was checked.
The test has been performed with brake contactors on the DC side. DC values for each brake are mentioned in chapter 2 of this report. The power to the brake shall always be interrupted on DC side to ensure the specified delay times.

4. Results

4.1. Calculations

Calculations of the maximum torque of the machine/system and brake torque were checked and found in order.
Brake clutch surface pressure calculations and brake spring calculations were checked and found in order.
The strength calculations of connecting bolts between the brake disc and traction sheave were checked and found in order.

4.2. Measurements

The tests on the test bench showed that the measured torque of the brake was significantly higher than the calculated torque by the manufacturer and that the brake is capable of absorbing sufficient kinetic energy.

After the final examination the product and the technical file were found in accordance with the requirements.

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5. Conditions

Additional to or in deviation of the applicable demands in the considered requirements / standards (see certificate and/or page 1 of this report), the following conditions shall be taken into account:

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Buikslotermeerplein

- The brake must be interrupted at the DC side of the brake connection to ensure the specified delay times t_{10} and t_{90}.
- The components are according to the descriptions of chapter 2 in this report.

6. Conclusions

Based upon the results of the EU-type examination Liftinstituut B.V. issues an EU-type examination certificate.

The EU-type examination certificate is only valid for products which are in conformity with the same specifications as the type certified product. The certificate is issued based on the requirements that are valid at the date of issue. In case of changes of the product specifications, changes in the requirements or changes in the state of the art the certificate holder shall request Liftinstituut B.V. to reconsider the validity of the certificate.

7. CE marking and EU Declaration of conformity

Every safety component that is placed on the market in complete conformity with the examined type must be provided with a CE marking according to article 18 of the Lift directive 2014/33/EU under consideration that conformity with eventually other applicable Directives is proven. Also, every safety component must be accompanied by an EU declaration of conformity according to annex II of the Directive in which the name, address and Notified Body identification number of Liftinstituut B.V. must be included as well as the number of the EU-type examination certificate.

An EU type-certified safety component shall be random checked e.g. according to annex IX of the Lift directive 2014/33/EU before these safety components may be CE-marked and

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Prepared by:

André van den Burg
Product Specialist Certification

Certification decision by:

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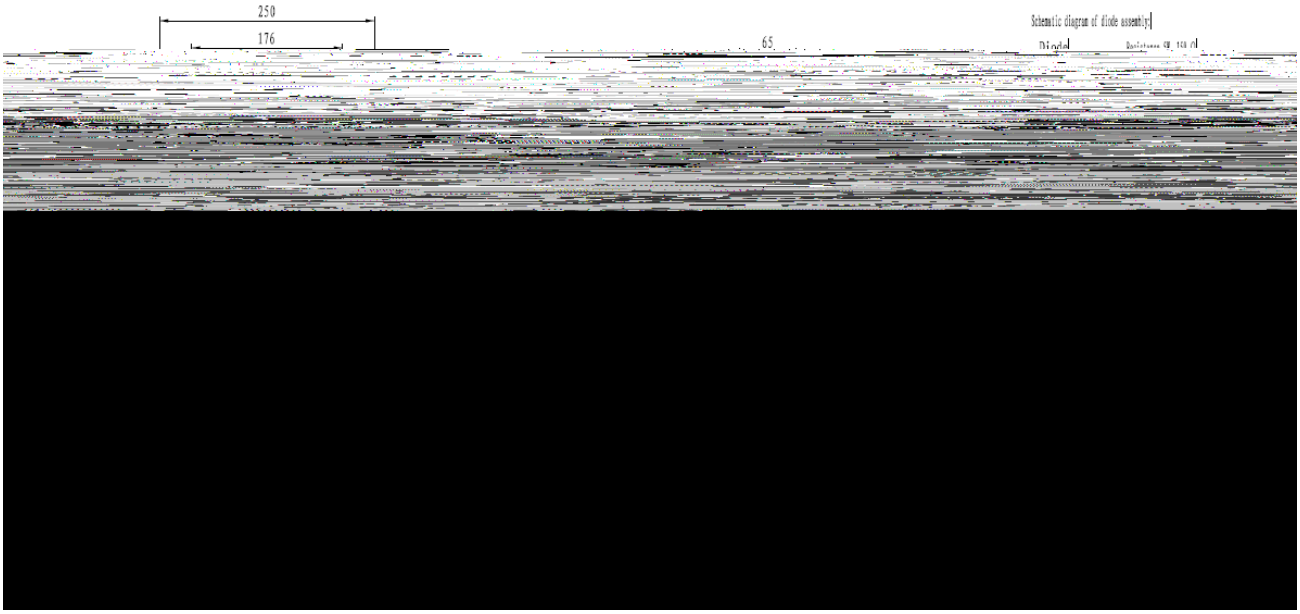
Annexes

Annex 1. Outline drawing of BLS, 2x2000 Nm brake



Annex 2. Documents of the Technical File which were subject of the examination

Title	document number	date
Instruction Manual	SYLG-JS-A-003 A5	08/2022
Brake calucation	WYT L Brake braking torque calculation	28/12/2021
Bearing calucation	WYT L bearing calucation	28/12/2021
Main axis calucation	WYT-L Shaft Check	28/12/2021
Drawing- brake assembly	WYT-LE.5	29-06-2021
Drawing- armature	WYT-LE.5-2 V1 WYT-LE.5-3 V1	29/06/2021
Drawing- spring	WYT-LE.5-4	29/06/2021
Drawing- Coil	WYT-LE.5-5	29/06/2021
Drawing- brake disk	WYT-LE.6-1	29/06/2021
Drawing- brake band	WYT-LE.6-2	29/06/2021

Annex 3. Reviewed deviations from the standards

No deviation from harmonized standard.

Annex 4. Revision of the certificate and its report

Rev.:	Date	Summary of revision
	07-09-2022	Original