



# DET NORSKE VERITAS

## EC-TYPE EXAMINATION CERTIFICATE

[2] **EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC**

[3] EC-Type Examination Certificate Number: **DNV 13 ATEX 2450X**

[4] Equipment or Protective System: **Ex d motors**

[5] Applicant – Manufacturer or Authorized representative: **HIGEN MOTOR CO., LTD.**

[6] Address: **74-5, SEONGSAN-DONG, CHANGWON-SI  
KOREA**

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] DNV, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential reports listed in section 14.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN 60079-0: 2009 and EN 60079-1: 2007**

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

[12] The marking of the equipment or protective system shall include the following:

 II 2 G Ex d IIB T5/T6 Gb -20°C ≤ Ta ≤ +50°C

Høvik, 2013-03-26  
for Det Norske Veritas AS

for Geir Hørthe  
Certification Manager



Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate. Ref.: [www.dnv.com/digitalsignatures](http://www.dnv.com/digitalsignatures)

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.





[13]

## Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** DNV 13 ATEX 2450X

### Certificate History

Revision	Description	Report no.	Issue date
-	Original certificate	2013-9121	2013-03-26

[15] **Description of Equipment or Protective System**

Three-phase one speed ac squirrel cage induction motor intended to be used with a variable speed drive. The temperature limitation is based on the torque limiting capacity of the drive and temperature sensing elements in the windings. Cooling by an external blower. The windings are of class F insulation.

Duty Types: TEFC(S1 and S3~S9) , TENV(S2 30min.) , TEAO(S1)

TEFC: External fan is attached to the shaft end for the circulation of air around the enclosure.

TENV: Cooling without using a fan. (Duty Type:S2 30min.)

TEAO: Cooling air is blown over the totally enclosed motor surface by a separately fan.

Motors without fan can deliver same output power provided installation is according to IC418.

(Direct driven fan motors without cooling fan on the motor.)

### The 2 pole to 8 poles protection types and motors rating

Type Identification	Ex code	IP	Operation mode and T classification	Electrical Data	Rpm
DB3D 355L	Ex d IIB	55	(S1 – S9)T5 or (S1 - S2)T6	200-690V 50/60Hz 150 – 315kW	1000 - 1800

### Nomenclature

D	C	3	D	355	L	04	B30	FC	380	/	60
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩		⑩

1<sup>st</sup>; D: Flameproof

2<sup>nd</sup>; B:IIB

3<sup>rd</sup>; three phase 1 speed

4<sup>th</sup>; terminal box protection type, D:Ex d

5<sup>th</sup>; frame number

6<sup>th</sup>; core length

7<sup>th</sup>; number of poles, 04: 4poles, 06: 6poles

8<sup>th</sup>; mounting, B3, B5, B35, V1, V3, V5, V6

9<sup>th</sup>; ventilation, FC:TEFC, NV:TENV, AO:TEAO

10<sup>th</sup>; voltage & frequency

[16] **Project No.:** PRJC-224371-2010-PRC-KOR

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**Descriptive Documents**

Number	Title	Rev.	Date
4682EHCV01	Motor Assembly 355L IIB(1/2)	0	2012.06.15
4682EHCV01	Motor Assembly 355L IIB(2/2)	1	2013.01.07
2242EV0001	Parts list 355L IIB	0	2012.06.15
3844EZ0027	Labelling 355L IIB	1	2013.02.19
3210E2V001	Frame 355L Horizontal	1	2013.02.19
4810E2V001	Bracket 355Fr.	0	2012.06.15
3550E2V001	Bearing Cover-IN.	0	2012.06.15
3550E2V002	Bearing Cover-OUT.	0	2012.06.15
5220KH4013	Grease Valve	0	2012.06.15
3740KH4003	Protector	0	2012.06.15
4370E3V001	Shaft	0	2012.06.15
3040E3V001	Terminal Base	0	2012.06.15
3550E3V001	Terminal Cover	0	2012.06.15
4830E3V001	Support Base Assy	0	2012.06.15
3060E3V001	Support Base	0	2012.06.15
4830E3V002	Bushing Cable	0	2012.06.15
5900KH3004	Fan Inside	0	2012.06.15
5900KH3034	Fan 4Pole-60Hz	0	2012.06.15
5900KH3041	Fan 4Pole-50Hz	0	2012.06.15
5900KH3035	Fan 6Pole-50,60Hz	0	2012.06.15
3550KH2044	Fan Cover	0	2012.06.15

**Routine test**

Each enclosure must be routine pressure tested with for 60 seconds according to clause 16 of EN/IEC 60079-1.

ITEM	Overpressure kPa
DB3D frame	1 849
DB3D terminal box	1 114

**[17] Special Conditions for Safe Use**

Repairs of the flameproof joints must be made in compliance with the structural specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 1 and 2 of EN/IEC 60079-1.

The tensile strength of the fastener elements of each part of the flame proof casing must be at least equal to 1220N/mm<sup>2</sup>.

**[18] Essential Health and Safety Requirements**

See part 9 of this certificate

END OF CERTIFICATE

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

