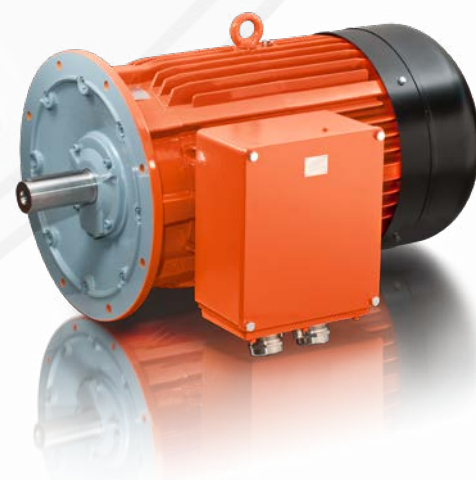


Explosion-proof motors



EMOD Motoren GmbH

Elektromotorenfabrik

Zur Kuppe 1

36364 Bad Salzschlirf

Deutschland

Fon: +49 6648 51-0

info@emod-motoren.de

www.emod-motoren.de

emod®
M O T O R E N

(1) **Zertifikat**

(2) **über die Mitteilung der Qualitätssicherung Produktion**

(3) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen – **Richtlinie 2014/34/EU**

(4) Nummer des Zertifikats:

TPS 23 ATEX Q 041624 0009

Ausgabe 00

(5) Produktkategorie: Elektromotoren und elektrische Antriebssysteme:
Gerätegruppe II, Kategorie 2G und 2D, EPLs Gb und Db, in den Zündschutzarten „e“, „d“ und „t“;
Kabel- und Leitungseinführungen:
Gerätegruppe II, Kategorie 1D und 2G, EPLs Da und Gb, in den Zündschutzarten „d“, „e“ und „t“

(6) Hersteller: Emod Motoren GmbH

(7) Anschrift: Zur Kuppe 1
36364 Bad Salzschlirf
DEUTSCHLAND

Isarstr. 3,
36043 Fulda
DEUTSCHLAND

(8) TÜV SÜD Product Service GmbH, Benannte Stelle Nr. 0123 nach Artikel 18 der Richtlinie des Rates der Europäischen Gemeinschaft vom 26. Februar 2016 (2014/34/EU), bescheinigt, dass der Hersteller ein Qualitätssicherungssystem für das Produkt unterhält, das dem Anhang IV dieser Richtlinie genügt.

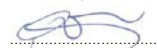
(9) Dieses Zertifikat basiert auf dem Auditbericht Nr. 713311343, ausgestellt am 14.12.2023 und ist gültig bis 16.12.2026.

Das Zertifikat kann zurückgezogen werden, wenn der Hersteller die Anforderungen des Anhangs IV nicht mehr erfüllt. Dieses Qualitätssicherungssystem entspricht den Anforderungen von Modul D, Anhang IV der Richtlinie und erfüllt auch die Anforderungen von Modul E, Anhang VII.

Die Ergebnisse der Überwachungsaudits des Qualitätssicherungssystems werden Bestandteil dieses Zertifikates.

(10) Gemäß 16 (3) der Richtlinie 2014/34/EU ist hinter der CE-Kennzeichnung die Kennnummer 0123 der TÜV Product Service GmbH als die benannte Stelle anzugeben, die in der Produktionsüberwachungsphase tätig wird.

Zertifizierstelle Explosionsschutz
Ridlerstraße 65, 80339 München


Dipl.-Ing. Ulrich Jacobs
CRT-MUC-QM-TC

München, 15.12.2023

CE
0123

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Zertifikate über die Mitteilung der Qualitätssicherung Produktion ohne Unterschrift haben keine Gültigkeit.

Diese Bescheinigung darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung von TÜV SÜD Product Service GmbH. Das Dokument wird intern unter der folgenden Nummer verwaltet: EX2A 041624 0009 Rev. 00

TÜV SÜD Product Service GmbH • Zertifizierstelle • Ridlerstraße 65 • 80339 München • Deutschland

TÜV®

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

(1) **EU-TYPE EXAMINATION CERTIFICATE – Translation**

(2) Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

(3) EU-type examination certificate number **IBExU05ATEX1029**; Issue 1

(4) Product: **Three-phase motors with squirrel cage**
the type series EEV Z21_25XXXI to EEV Z21_225XXXI

(5) Manufacturer: Emod Motoren GmbH

(6) Address: Zur Kuppe 1
36364 Bad Salzschlirf
Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-19-3-0209.

(9) Compliance with the essential health and safety requirements has been assured by compliance with EN 60079-0:2012+A11:2012 and EN 60079-31:2014 except in respect of those requirements listed in item (18) of the schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

(11) This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following

CE II 2D Ex Ib IIC T123 °C Db

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlweg 7
09599 Freiberg, GERMANY

By order

Dipl.-Ing. Witamowski

Tel: +49 (0) 37 31 7 38 05 0
Fax: +49 (0) 37 31 7 38 05 10

Confidentiality: Although registration is not required, certificates may only be circulated in any way or at any time without the express written consent of IBExU.

Freiberg, 2019-02-27



[1] EU-TYPE EXAMINATION CERTIFICATE - TRANSLATION



- [2] Equipment and protective systems intended for use in potentially explosive atmospheres, directive 2014/34/EU
- [3] EU-Type Examination Certificate Number IBExU22ATEX1113 X | Issue 0
- [4] Equipment: Three-phase Submersible Motor
Type: EExd-DPM...225...
- [5] Manufacturer: Emod Motoren GmbH
- [6] Address: Zur Kuppe 1
36364 Bad Salzschlief
GERMANY
- [7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- [8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential test report IB-21-3-0178/7.
- [9] Compliance with the essential health and safety requirements has been assured by compliance with:
EN IEC 60079-0:2018 EN 60079-1:2014
Except in respect of those requirements listed at item [16] of the schedule.
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.
- [11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

II 2G Ex db IIB T4 or T3 Gb

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlweg 7
09599 Freiberg, GERMANY

Phone: +49 (0)3731 3805-0
Fax: +49 (0)3731 3805-10

By order

Dr.-Ing. P. Cimala



Certificates without seal and signature are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2023-07-27

FBX0610011

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IBExU22ATEX1113 X(0)



Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut



[1] EU-Baumusterprüfbescheinigung

- [2] Geräte oder Schutzkleinere zur Verwendung in explosionsgefährdeten Bereichen - Richtlinie 2014/34/EU
- [3] EU-Baumusterprüfbescheinigungsnummer: PTB 03 ATEX 3022 Ausgabe: 1
- [4] Produkt: Drehstrom- oder Einphasenmotor des Typs EEx"1132"
- [5] Hersteller: Emod Motoren GmbH
- [6] Anschrift: Zur Kuppe 1, 36364 Bad Salzschlief, Deutschland
- [7] Die Bauart dieses Produkts sowie die verschiedenen zu dessen Ausführungen sind in der Anlage und den dem aufgeführten Unterlagen zu dieser Baumusterprüfbescheinigung festgelegt.
- [8] Die Physikalisch-Technische Bundesanstalt (notifizierter Stelle Nr. 0122 gemäß Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014) bescheinigt, dass dieses Produkt mit den geltenden Sicherheits- und Gesundheitsanforderungen für die Konstruktion und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang I der Richtlinie erfüllt.
- Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfprotokoll PTB Ex 19-38128 festgehalten.
- [9] Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:
EN 60079-0:2012+A1:2013, EN 60079-1:2015+A1:2018, EN 60079-1:2014,
EN 60079-5:2015
- [10] Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Produkts in der Anlage zu dieser Bescheinigung hingewiesen.
- [11] Diese EU-Baumusterprüfbescheinigung berechtigt nicht zur Konzeption und Prüfung des festgelegten Produkts gemäß Richtlinie 2014/34/EU. Weitere Anforderungen an die Konzeption und Prüfung des Produkts sind dem Hersteller auf dem Markt. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.
- [12] Die Kennzeichnung des Produkts muss die folgenden Angaben enthalten:

II 2G Ex db IIB T4 - T4 Gb

Konformitätsbewertungsverfahren: Sektor Explosionsschutz

Im Auftrag

Dr.-Ing. C. Lehmann

Braunschweig, 3. Juli 2019

230610001

Seite 1/5

EU-Baumusterprüfbescheinigung ist eine öffentliche Urkunde, die die Konformität des Produkts mit den Anforderungen der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 bescheinigt. Diese EU-Baumusterprüfbescheinigung darf nicht für andere Zwecke als die, die in der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 festgelegt sind, verwendet werden. Die Angaben des Herstellers sind die Grundlage für die Konformitätsbewertung. Die Angaben des Herstellers sind die Grundlage für die Konformitätsbewertung. Die Angaben des Herstellers sind die Grundlage für die Konformitätsbewertung.



IECEx Certificate
of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx IBE 24 0032X Page 1 of 3 Certificate history:

Status: Current Issue No: 0

Date of Issue: 2025-02-14

Applicant: EMOD Motoren GmbH
Zur Kuppe 1
Bad Salzschlief 36364
Germany

Equipment: Three-phase submersible motor type EExd-DPM...225...

Optional accessory:

Type of Protection: Flameproof enclosure

Marking: Ex db IIB T4 Gb

Approved for issue on behalf of the IECEx
Certification Body:

Dr.-Ing. Peter Cimala

Position:

Deputy Head of department Certification Body

Signature:
(for printed version)

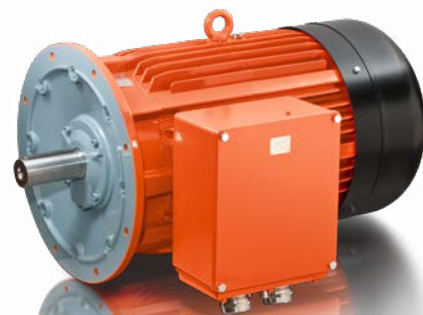
Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:
IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlweg 7
09599 Freiberg
Germany

IBExU



General explanations on explosion protection

The division of Ex-areas into zones is the responsibility of the operator and is carried out in accordance with national regulations. Assistance is provided by IEC 60079-10-1 for gases and vapours and IEC 60079-10-2 for dusts. If there are special cases or doubts about the definition of hazardous areas, experts must be consulted.

Potentially explosive atmospheres due to gas, vapours and mists

Zone 0: A place in which an explosive atmosphere consisting of a mixture of air and gas, vapour or mist is present continuously, for long periods or frequently. Rotating electrical machines are not used here.

Zone 1: A place in which an explosive atmosphere consisting of gases, vapours or mists is likely to occur occasionally. The equipment used here must not become an ignition source during normal operation or if a fault occurs.

Zone 2: A place in which an explosive atmosphere consisting of gases, vapours or mists is not likely to occur. If it does occur, it is likely to occur only rarely and for a short period of time. The equipment used here must not be a source of ignition during normal operation, but it will be tolerated in the event of a fault.

Potentially explosive areas due to dust

Zone 20: A place in which combustible dust in the form of a cloud is present continuously or frequently in sufficient quantity during normal operation to form an explosive concentration of combustible dust in admixture with air and/or where dust deposits of indeterminate or excessive thickness may be formed.

Zone 21: An area not assigned to Zone 20 in which combustible dust in the form of a cloud is occasionally present in sufficient quantity during normal operation to form an explosive concentration of combustible dust in admixture with air.

Zone 22: An area, which is not assigned to Zone 21, in which combustible dust can rarely occur as a cloud and only exists for a short time or in which under abnormal conditions accumulations or deposits of combustible dust can lead to an explosive concentration of combustible dust in mixture with air.

Equipment category and equipment protection level (EPL)

Electrical equipment intended for use in explosive atmospheres is divided into equipment categories according to its level of protection. In addition to the equipment categories according to Directive RL2014/34/EU, the Equipment Protection Level (EPL) according to EN 60079-0 also defines the basic suitability of the equipment for a corresponding zone. Depending on the probability of the occurrence of an explosive atmosphere (zone), different safety requirements are placed on the equipment used.

Category 1 (G/D) / EPL (Ga/Da) comprises devices which are designed in such a way that they can be operated in accordance with the parameters specified by the manufacturer and guarantee a very high degree of safety. Devices in this category must guarantee the required level of safety even in the event of very rare device malfunctions and therefore have explosion protection measures so that

- in the event of the failure of one protective device, at least one second independent protective device ensures the necessary safety, or
- the necessary safety is ensured in the event of two independent failures.

Category 2 (G/D) / EPL (Gb/Db) includes equipment designed to operate in accordance with the parameters specified by the manufacturer and to ensure a high level of safety. The explosion protection measures for equipment in this category ensure the required level of safety even in the event of frequent equipment malfunctions or fault conditions which are usually to be expected.

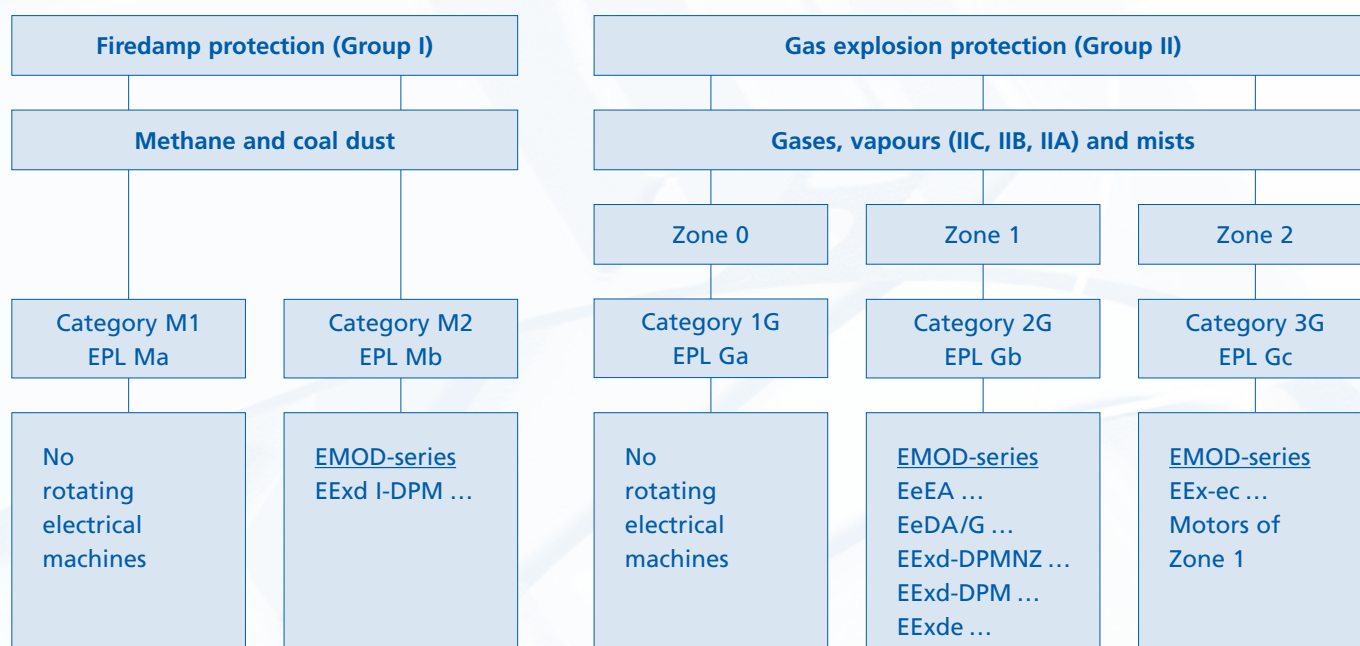
Category 3 (G/D) / EPL (Gc/Dc) includes equipment designed to operate in accordance with the parameters specified by the manufacturer and to provide a normal level of safety. Equipment in this category ensures the required level of safety during normal operation.

Category M1 / EPL (Ma) covers equipment which is designed in such a way that it can continue to operate even in the event of rare equipment malfunctions in an explosive atmosphere and therefore features explosion protection measures so that

- in the event of the failure of one protective device, at least one second independent protective device ensures the necessary safety, or
- the necessary safety is ensured in the event of two independent failures.

Category M2 / EPL (Mb) includes equipment designed to operate in accordance with the parameters specified by the manufacturer and to provide a normal level of safety. If an explosive atmosphere occurs, it must be possible to switch off the devices. Equipment in this category ensures the required level of safety during normal operation or foreseeable faults or malfunctions in the time between gas leakage and switch-off, particularly in the case of rough handling and changing environmental influences.

Explosion protection according to directive 2014/34/EU (ATEX)



Power ranges

Firedamp protection (Group I, Category M2, EPL Mb) for use in underground mines

Marking I M2 Ex db I Mb with type examination certificate and declaration of conformity
 Type of protection flameproof enclosure, thermal class F, degree of protection IP 68
 Cooling type IC410 or IC70W

EExdI-DPM 90 ... 315	0.25 ... 315 kW	750–3 000 min ⁻¹
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Gas explosion protection (Group II, Category 2G, EPL Gb) for use in Zone 1

Marking II 2G Ex db eb IIB T3 or T4 Gb with type examination certificate and declaration of conformity
 Type of protection flameproof enclosure / terminal box in increased safety, thermal class F, degree of protection IP 56
 Cooling type IC410 or IC411, Efficiency class IE3 or IE4

EExde-SMOB 250 ... 315	Winch motor	S2 or S1
EExde-SMO/E 250 ... 280	Winch motor or other application	S2 or S1
EExde ... 160 L ...	Winch motor or other application	S2 or S1

Gas explosion protection (Group II, Category 2G, EPL Gb) for use in Zone 1 or according to IECEx

Marking II 2G Ex db IIB T3 or T4 Gb with type examination certificate and declaration of conformity
 or Ex db IIB T4 Gb marking with IECEx Certificate of Conformity
 Type of protection flameproof enclosure, thermal class F, degree of protection IP 68
 Cooling type IC410 or IC70W

EExd-DPM 90 ... 315	0.25 ... 315 kW	750–3 000 min ⁻¹
EExd-DPMNZ 90 ... 112	0.25 ... 5.5 kW	1 000–3 000 min ⁻¹

Gas explosion protection (Group II, Category 2G, EPL Gb) for use in Zone 1

Marking II 2G Ex eb IIC T3 or T4 Gb with type examination certificate and declaration of conformity
 Type of protection increased safety eb, thermal class F, degree of protection IP 55 or IP 65, Efficiency class IE2
 Cooling type IC411

EeDA/G 56 ... 132	0.09 ... 6.8 kW	750–3 000 min ⁻¹
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Gas explosion protection (Group II, Category 3G, EPL Gc) for use in Zone 2

Marking II 3G Ex ec IIC T1 – T6 Gc with declaration of conformity
 Type of protection increased safety ec, thermal class F, degree of protection IP 55 or after consultation, Efficiency class IE2, IE3, or IE4
 Cooling type IC411 or after consultation

EEx-ec 56 ... 450	Power see catalogue 821	Number of poles see catalogue 821
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Other numbers of poles, frequencies, operating modes and powers on request

Explosion protection according to directive 2014/34/EU (ATEX)



Dust explosion protection according to RL2014/34/EU and EN60079-0

conductive dusts IIIC, non-conductive dusts IIIB and flammable fluff IIIA

Zone 20	Zone 21	Zone 22	
all dusts	all dusts	all dusts	non-conductive dust
Category 1D EPL Da	Category 2D EPL Db	Category 3D EPL Dc	Category 3D EPL Dc
No rotating electrical machines	EMOD-series (IP 65) EEx-Z21 ... (IIIC) (Housing temperature max. 125°C)	EMOD-series (IP 65) EEx-Z22 ... (IIIC) (Housing temperature 125°C or after consultation) Motors of Zone 21	EMOD-series (IP 55) EEx-Z22 ... (IIIB) (Housing temperature 125°C or after consultation) Motors of Zone 21

Power ranges

Dust explosion protection (Group IIIC, Category 2D, EPL Db) for use in Zone 21

Marking II 2D Ex tb IIIC T125°C Db with type examination certificate and declaration of conformity
Type of protection by enclosure, thermal class F, degree of protection IP 65, Efficiency class IE2 or IE3
Cooling type IC411

EEx-Z21 56 ... 180

0.09 ... 12.8 kW

750–3 000 min⁻¹

Dust explosion protection (Group IIIC, Category 3D, EPL Dc) for use in Zone 22

Marking II 3D Ex tc IIIC T125°C Dc with declaration of conformity
Type of protection by enclosure, thermal class F, degree of protection IP 65, Efficiency class IE2, IE3, or IE4
Cooling type IC411 or after consultation

EEx-Z22 56 ... 450

Power see catalogue 821

Number of poles see catalogue 821

Dust explosion protection (Group IIIB, Category 3D, EPL Dc) for use in Zone 22

Marking II 3D Ex tc IIIB T125°C Dc with declaration of conformity
Type of protection by enclosure, thermal class F, degree of protection IP 55, Efficiency class IE2, IE3, or IE4
Cooling type IC411 or after consultation

EEx-Z22 56 ... 450

Power see catalogue 821

Number of poles see catalogue 821

Other numbers of poles, frequencies, operating modes and powers on request

Ex-zones and required marking of the equipment

Zone	Equipment	Equipment protection level (EPL)	Safety	EUB
0	1G	Ga	very high	yes
1	2G also 1G	Gb also Ga	high	yes
2	3G also 2G, 1G	Gc also Gb, Ga	increased	no
20	1D	Da	very high	yes
21	2D also 1D	Db also Da	high	yes
22	3D also 2D, 1D	Dc also Db, Da	increased	no
continuous use	M1	Ma	very high	yes
switch off in explosive atmospheres	M2 also M1	Mb also Ma	high	yes

Type of protections available from EMOD

Flammable material	Zone	Principle of protection	Type of protection	Marking Standards EN 60079-0	Norms
Gases, vapours and dusts	all		General requirements		EN 60079-0
Gases and vapours	Zone 1	Transmission of an explosion to the outside is prevented	Flame proof enclosure	Ex db	EN 60079-1
		Prevention of sparks, temperature limitation	Increased safety	Ex eb	EN 60079-7
		Transmission of an explosion to the outside is prevented, temperature limitation	Flame proof enclosure (with terminal box in increased safety)	Ex db eb	EN 60079-1 EN 60079-7
		Prevention of sparks, temperature limitation	Increased safety (with capacitor in powder filling)	Ex eb qb	EN 60079-7 EN 60079-5
	Zone 2	Prevention of sparks, temperature limitation	Increased safety	Ex ec	EN 60079-7
Dusts	Zone 21	Protection by housing, temperature limitation	Protection by enclosure	Ex tb	EN 60079-31
	Zone 22	Protection by housing, temperature limitation	Protection by enclosure	Ex tc	EN 60079-31

Temperature classes and max. surface temperatures

Ignition temperature			Temperature class	max. surface temp. of the motor	Permissible engine temp. class
450 °C	<	T _{Firing}	T1	450 °C	T1 to T6
450 °C	≥	T _{Firing} > 300 °C	T2	300 °C	T2 to T6
300 °C	≥	T _{Firing} > 200 °C	T3	200 °C	T3 to T6
200 °C	≥	T _{Firing} > 135 °C	T4	135 °C	T4 to T6
135 °C	≥	T _{Firing} > 100 °C	T5	100 °C	T5 to T6
100 °C	≥	T _{Firing} > 85 °C	T6	85 °C	T6

Explosion characteristics of gases and dusts

Substance	T _{Firing} °C	T _{glow} °C
Wood	≥ 410	≥ 200
lignite	≥ 380	≥ 225
Aluminium	≥ 560	≥ 270
Methanol	440	–
Propane	470	–
Methane	595	–

Ex-marking of electrical explosion-proof equipment according to ATEX / IECEx

ATEX	Gas	CE	0123		II	2G	Ex db eb	IIB	T4	Gb	PTB	11 ATEX 1100	X
	Dust	CE	0123		II	2D	Ex tb	IIIC	120 °C	Db	IBExU	12 ATEX 1100	X
	Methane	CE	0123		I	M2	Ex db	I		Mb	EXAM	12 ATEX 1100	X
IECEx	Gas						Ex db	IIB	T4	Gb			
	Gas						Ex ec h	IIIC	T4	Gc			

Atmosphere

CE-mark

Notified body for Ex-Audit

Ex-marking

Group according to RL2014/34/EU

Equipment category according to RL2014/34/EU

Type of protection

Explosion group or dust group

Temperature class or max. surface temperature

Device protection level (EPL) according to EN60079-0

Notified body type examination

Type examination certificate

Special conditions*

* can be used without restriction

X observe special operating conditions

U Equipment with partial certification



Permanent-erregte Synchronmotoren
in höchsten Effizienzklassen
Permanent-magnet three-phase motors
in highest efficiency classes



821 Drehstrommotoren IP 55
in Norm- und Sonderausführungen bis 1700 kW
Three-phase motors, IP 55
in standard and special configurations, up to 1700 kW



822 Drehstrommotoren IP 23
in Norm- und Sonderausführungen bis 1700 kW
Three-phase motors, IP 23
in standard and special configurations, up to 1700 kW

Die EMOD-Baureihen

The EMOD product range

Ob wassergekühlt oder explosionsgeschützt – bei EMOD gibt es für jeden Einsatz den passenden Antrieb. Die verschiedenen Baureihen im Überblick:

Whether water-cooled or explosion-proof – EMOD has the right drive for every application.

A quick look at the various ranges:



824 Topmotoren
Schutzart IP 67 bis 6 kW
Encapsulated motors
degree of protection IP 67, up to 6 kW



825 Tauchmotoren
Schutzart IP 68 bis 1700 kW
Submersible motors
degree of protection IP 68, up to 1700 kW

829 Schiffsmotoren
für Unter- und Oberdeckaufstellung, mit oder ohne Abnahme
Marine motors
for on-deck and below-deck applications, with and without certification



826 Fahr- und Hebezeugmotoren
bis 32/2-polig und regelbar
Crane and hoist drive motors
with pole switching up to 32/2 poles and variable speed



831 Gleichstrommotoren
Schutzart IP 44
DC motors
degree of protection IP 44



836 Drehstrom-Schleifringläufermotoren
Schutzart IP 55
Wound-rotor induction motors
degree of protection IP 55



837 Wassergekühlte Drehstrommotoren
Leistungsbereich 0,75 bis 1700 kW
Water-cooled three-phase motors
rated outputs 0.75 kW to 1700 kW



838 Flachmotoren
Drehzahlen bis 24.000 U/min
Flat motors
rated speeds up to 24,000 rpm



Explosiongeschützte Motoren
Explosion-proof motors

