



Type Approval Certificate

This is to certify that the undernoted products have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER	ELECTRO ADDA S.p.A. Via Nazionale, 8 23883 Beverate di Brivio (LC) Italy
PLACE OF PRODUCTION	ELECTRO ADDA S.p.A. Via Nazionale, 8 23883 Beverate di Brivio (LC) Italy
DESCRIPTION	Three Phases Asynchronous Brake Motors (DC Brake)
TYPE	FECCL (DC BRAKE)
APPLICATION	Marine, Offshore and Industrial use.
SPECIFIED STANDARDS	IEC 60034-1:2010 IEC 60034-2-1:2014 (IEC 60034-30:2008) IEC 60034-30-1:2014 Lloyd's Register Rules and Regulation for the Classification of Ships, 2018 - Part 6, Chapter 2, Section 9

Certificate No.	19/00009
Issue Date	25 February 2019
Expiry Date	24 February 2024
Sheet	1 of 4



Luigi Benedetti
25 February 2019

Marine and Offshore
Trieste Technical Support Office
Senior Specialist - Electrotechnical Systems

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RATINGS

Rated Power [kW]: 0.75 ÷ 200
 Rated Voltage [V]: 220 ÷ 690
 Rated Frequency [Hz]: 50 / 60
 or Frequency Converter Fed

Brake Type Precima FDW Series (IP66)
 Precima FDX Series (IP67)

Working Brake [Nm] 10 ÷ 1000
 Holding Brake [Nm] 15 ÷ 1500

Shaft Height [mm]: 80 ÷ 315
 Poles Number: 2 – 4 – 6
 Insulation Class: F
 Degree of Protection IP55, IP56 + IP65
 Duty Type S1
 Frame A – Aluminium ; S - Steel
 Shields Aluminium or Cast Iron

RANGE

As per Manufacturer's Data Sheet and Frame/Brake Table:

FRAME	BRAKE	WORKING BRAKE	HOLDING BRAKE
80	FDW10	10 Nm	15 Nm
90S -90L	FWD13	20 Nm	30 Nm
100L -112MT	FWD13	20 Nm	30 Nm
112M	FWD15	40 Nm	60 Nm
112M	FWD17	60 Nm	90 Nm
132S - 132M	FWD17	60 Nm	90 Nm
160MT	FWD20	100 Nm	150 Nm
160M - 160L	FWD23	150 Nm	225 Nm
180MT - 180LT	FWD23	150 Nm	225 Nm
180L	FWD26	250 Nm	375 Nm

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200LT	FWD26	250 Nm	375 Nm
200L	FDX26	250 Nm	375 Nm
225ST - 225MT	FDX26	250 Nm	375 Nm
225M	FDX30	500 Nm	850 Nm
250MT	FDX30	500 Nm	850 Nm
250M	FDX30	500 Nm	850 Nm
280ST - 280MT	FDX30	500 Nm	850 Nm
315M	FDX40	1000 Nm	1500 Nm

Permissible deviations of braking torque:

- Working brake: -30% (new) // ±20% (run-in)
- Holding brake: ±20% (new) // -10% / +30% (run-in)

OTHER CONDITIONS

- Temperature Rise for Lloyd's Register application have to be within insulation class F limits, as per Lloyd's Register Rules and Regulation for the Classification of Ships, 2015 - Part 6, Chapter 2, Section 9.
- Temperature Rise for Power Frequency applications satisfies class B limits, except for C2A 225 MT 2 poles, within class F limit.
- Motors suitable for Inverted-Fed application, without any needs of power de-rating. Temperature Rise within class F limits.
- Motors rated 100 kW and above intended for Lloyd's Register application have to satisfy the additional requirements as specified in the LR Rules and Regulation for the Classification of Ships, Part 6, Chapter 2.


"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."


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The Design Appraisal Document No. 19/00009 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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