



Design Appraisal Document

Lloyd's Register EMEA
Global Machinery Team
Global Technology Centre, Hampshire House,
Hampshire Corporate Park
Southampton SO53 3RY

Date
24 June 2026

Please quote this reference number on all future communications
GED/MCH/RDC/TSO/26-060770

MACHINERY GENERAL DESIGN APPRAISAL

MANUFACTURER:	PRECIMA MAGNETTECHNIK GMBH
SUBJECT:	SPRING LOADED BRAKES
G.A. REGISTRATION:	ROT.21.M.007
SIZE / TYPES :	FDX 26
	FDX 30
	FDX 40

Valid Until 23 JUNE 2031

This Design Appraisal Document cancels and supersedes Document No. RTS-ENG-210876, Issue No. 0, dated 8th June 2021

1. The Document(s) listed in paragraph 1 of the appendix have been examined for compliance with the **Code for Lifting Appliances in a Marine Environment, July 2020, Chapter 9** and will be approved, as indicated, in accordance with the following conditions:

A. Spring Loaded Brakes Details

Brake Size / Brake Type		FDX 26
Nominal Torque	[Nm]	250
Brake Holding Torque	[Nm]	375
Friction Coefficient (Brake Holding)	[-]	0.34
Friction Coefficient (Dynamic Braking)	[-]	0.38
Operating temperature	[°C]	-40/+40

Brake Size / Brake Type		FDX 30
Nominal Torque	[Nm]	500
Brake Holding Torque	[Nm]	850
Friction Coefficient (Brake Holding)	[-]	0.34
Friction Coefficient (Dynamic Braking)	[-]	0.38
Operating temperature	[°C]	-40 / +40

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Brake Size / Brake Type		FDX 40
Nominal Torque	[Nm]	1000
Brake Holding Torque	[Nm]	1500
Friction Coefficient (Brake Holding)	[-]	0.34
Friction Coefficient (Dynamic Braking)	[-]	0.38
Operating temperature	[°C]	-40 / +40

2. Comments

2.1 The brakes are eligible for either Certified LR Lifting Appliance as defined per the Code, Chapter 1, section 1.2 and Chapter 13, Table 13.2.1 or LR Classed Lifting Appliances as defined per the Code, Chapter 1, section 1.3, and Chapter 13, Table 13.3.1. Material requirements and certification as per applicable table. Further, the selected steel grades are to provide adequate assurance against brittle fracture taking design temperature into account and in general the Charpy-V impact requirements

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2.2 Testing shall be performed as per Chapter 9, Section 6.1.1. Details to the attending Surveyor's satisfaction.

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2.3 It has been understood that toothed rotor/ hub material is AISI 430F with material yield properties not less than 450MPa. This has to be to attending surveyors' satisfaction.

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2.4 The expected coefficient of friction is exceeding 0.3, hence, as per Chapter 9, Section 3.8.5. details of proof of friction coefficients exceeding this value are to be submitted for consideration to attending Surveyors satisfactions.

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2.5 The approval of the spring-loaded brakes has been based on maximum clamping force as per calculation documents in paragraph A. The performance of the brake in the actual installation has not been considered with this appraisal, and it needs to be demonstrated during testing.

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2.6 The brake performance may be tested at the shop or during final commissioning.

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2.7 The approval has been based on load and boundary conditions from Calculation reports from Appendix 2 of this document.

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2.8 The design fatigue aspects have not been considered with this appraisal.

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Engineering Technical Team Lead Machinery
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Appendix

The documents listed below have been examined art. No. 777-02513

Document No.	Rev.	Title	Status	Date
FDX 026.0417.007	1	SPRING LOADED BRAKE FDX 26	SI	24-Jun-2026
M100-011	4	SPRING LOADED BRAKE	SI	24-Jun-2026
M100-013	2	SPRING LOADED BRAKE	SI	24-Jun-2026

1. The documents listed below have been considered together with the submitted documents in the appraisal

Document No.	Rev.	Title
FDX 26 LR HT (6230) contoured	-	CALCULATION
FDX 26...40 (standard) Fastening calculation	-	CALCULATION
FDX 26 LR Feather key calculation	-	CALCULATION
FDX 30 (standard) Feather key calculation	-	CALCULATION
FDX 40 (standard) Feather key calculation	-	CALCULATION
FDX 26...40 (standard) Hollow screw calculation	-	CALCULATION
FDX 26...40 (standard) Rotor calculation	-	CALCULATION
FDX 26 HS (R218) uncontoured	-	CALCULATION
FDX 30 HS (R218) uncontoured	-	CALCULATION
FDX 40 HS (R218) uncontoured	-	CALCULATION
FDX 26 (standard) Feather key calculation	-	CALCULATION
FDX 26 HT (6230) contoured	-	CALCULATION
FDX 26 LR Fastening calculation	-	CALCULATION
FDX 26 LR Hollow screw calculation	-	CALCULATION
FDX 26 LR Rotor calculation	-	CALCULATION

Appraisal Status Key

AQS Manufacturer	Comments to be resolved at the manufacturing site
SI	Retained as supporting documentation for information only

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