TECHNICAL SPECIFICATIONS

Kg			Kg	Kg
Carring capacity	Rope Diameter	N° Rope Falls	1st Threshold	2st Threshold

Kg.	Kg.		
3st Threshold	4st Threshold	Type	Number

Date

Production manager

MANUTENANCE

DANFOS
SAFETY LIFTING EQUIPMENT

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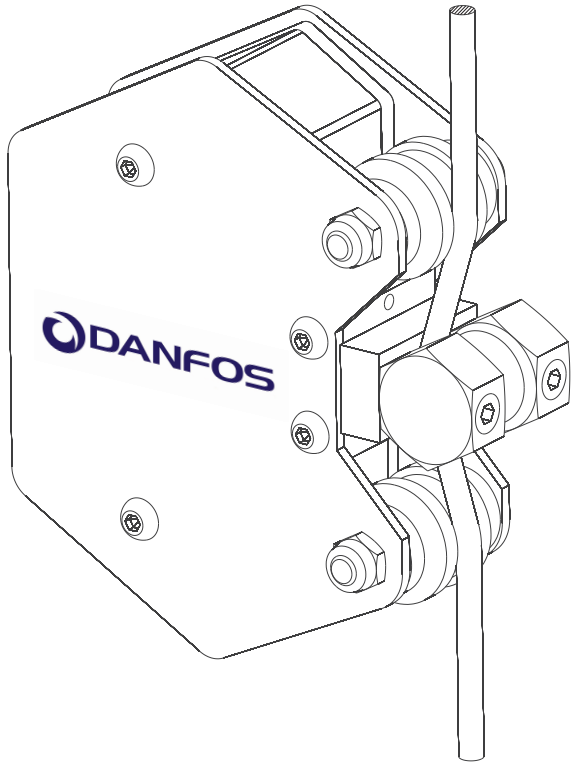
USER'S AND MAINTENANCE MANUAL



Fail-safe tensiometric load limiter

DANFOS
SAFETY LIFTING EQUIPMENT

INDEX

5. CALIBRATION

For practical reasons and to facilitate the activation phase of the lifting system, the load limiter is calibrated at our laboratory. Calibration is based on the technical specifications of the system which are furnished by the client and subsequently recorded on the EC certificate.
Considering the dynamic aspects which regulate the operation of a lifting system, we strongly suggest that definitive regulation with a real load be carried out at the time of installation.
Activate the elevating movement at the lowest possible speed. If the motor does not work, release the command button and take off the rubber plug (fig. 1-2), with an Allen wrench, partially unscrew the calibration screw (fig. 3) until the motor starts.

Fig.1

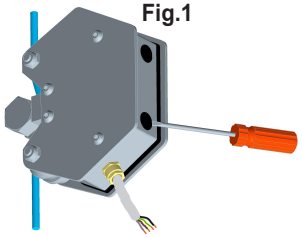


Fig.2

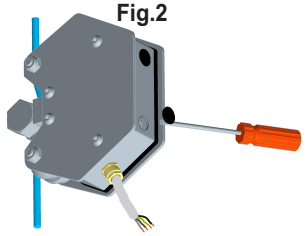
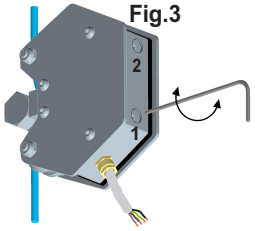


Fig.3



At this point carry out operation with a nominal load and tighten the provided calibration screw (fig. 3) until the motor stops
Attn: In the case of the 2S limiters with double contact, the operation must be carried out on both screws 1 and 2 (fig.3). This operation must be carried out on the 3S limiters with three contacts and on the 4S limiters with four contacts as well.

6. WARRANTY

DANFOS guarantees its limiters for a period of 12 months from delivery date. The warranty covers the repair or substitution of any and all parts which, upon careful examination, are determined defective. The warranty does not cover parts which are subject to wear. In the case of tampering or of repairs performed outside of our laboratory, the warranty is nullified.

7. REPLACEMENT PARTS

Replacement parts are not foreseen.

8. MAINTENANCE

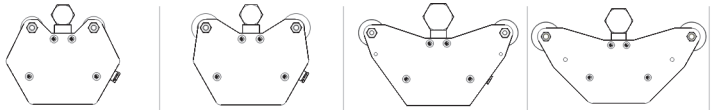
DANFOS limiters require no regular maintenance. Correct functioning can be checked when periodical verification of the system is performed.

9. STORAGE

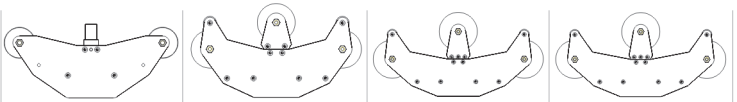
DANFOS limiters must be stored in a closed, dry area at temperatures of between -25° and +80° C.

2.3 FAIL-SAFE FEATURE- **patent protected.**
All DANFOS limiters are assembled using a particular device which, in the case of micro-switch failure, ensures the mechanical aperture of the electrical circuit and blocks the lifting function so that the safety of your lifting system is always guaranteed and under control.

2.4 TECHNICAL SPECIFICATIONS



MODEL	LC1	LC2	LC4	LC7
CALIBRATION Kg	100 - 1200	100 - 2500	150 - 4500	400 - 8000
ROPE DIAMETER	6 - 9	10 - 15	16 - 18	19 - 24
WEIGHT Kg	5	6	7	8



MODEL	LC12	LCM2	LCM5	LCM7
CALIBRATION Kg	800 - 15000	150 - 2500	250 - 5000	1000 - 12000
ROPE DIAMETER	25 - 30	10 - 13	14 - 18	20 - 32
WEIGHT Kg	9	13	17	21

For design details and the dimensions of the various models of the load limiter please consult the website listed in the **PRODUCTS** section.

- fail-safe electromechanical operation
- micro-switch which detects when the limit is reached
- operating sensitivity on bench calibration figure ±1%.
- Dacromet320 protective treatment and galvanization
- DU type dry shaft slide bearing
- OR type gaskets
- Insulation class DIN 40050 IP65
- Operating temperature range –25°C + 80°C
- Maximum electrical load 15A 250V.
- Electrical cable FROR 450/750V sect.4G 1,5 mm. length mt.2 (CEI 20-20 CEI 20-22/2).

3. SAFETY FEATURES

3.1INSTRUCTIONS FOR THE INSTALLER AND MAINTENANCE PERSONNEL - When installing, adhere to the indications of the Protection and Safety Service safety plan, particularly regarding the use of approved ladders, scaffolding or platforms and the use of the personal protective gear cited in current safety regulations

3.2 RESIDUAL RISK - Despite the technical solutions adopted during design and production of the product, risks for the installer and for maintenance personnel remain, mostly due to the presence of electrical current and to the environment in which the installer is working.
Risk of falls from heights for operators during installation and maintenance, due to the use of unsuitable instruments or due to the lack of the prescribed personal protective gear.
Risk of electrocution when electrical connections are carried out on the machine without having first shut off the electrical power.

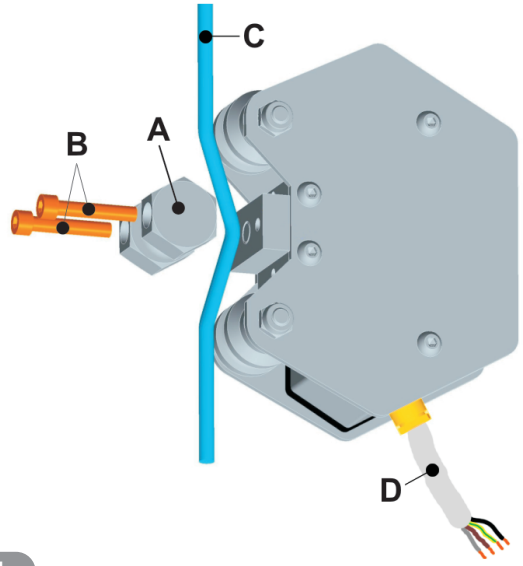
3.3 OPERATING CONDITIONS – DANFOS - load limiters have been designed with IP65 contact protection and can, therefore, be operated both indoors and outdoors.

3.4 NON INTENDED USES - Do not, in any circumstances, install standard DANFOS in environments classified as at risk for explosion (ATEX).

4. INSTALLATION AND ACTIVATION

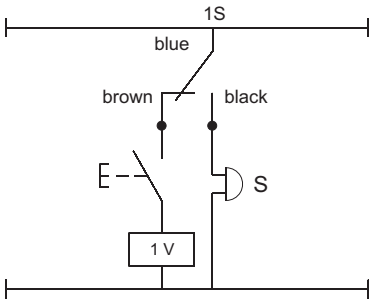
DANFOS limiters must be anchored to the wire rope in proximity of the fixed head or on one of the two branches of the balancing pulley. It is anchored directly to the wire rope without clamps or supports and without interrupting the rope.

4.1 ASSEMBLY:
1. Remove clamp “A” by loosening screws “B”.
2. Apply the device on the tract of rope “C” anchored to the winch, placing the cable between the two pulleys. It is important that the electrical cable “D” come out towards the bottom.
3. Regulate the lifting end stop of the crane so that the block cannot knock against the device, thus avoiding damage to both the device and the cable.
4. Make the electrical connections
5. Proceed with the definitive regulation of the limiter (see chapter 5, figures 1-2-3).

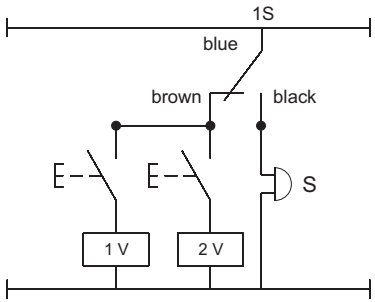


4.2 ELECTRICAL CONNECTION

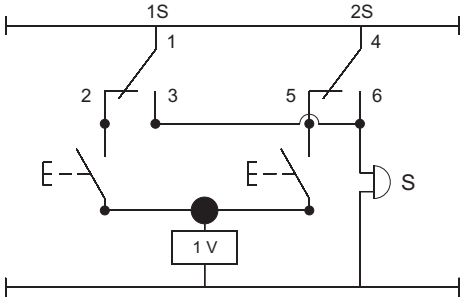
ELETRICAL CONNECTION WITH COMMAND CIRCUIT - DIAGRAM



Pulley with one lifting speed. Control acts only on the lifting function.
Acoustic signal sounds when the block contact is switched on and continues sounding for as long as the condition persists



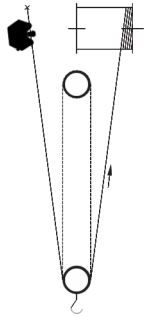
Pulley with two lifting speeds
Control is extended to both speeds. Connection to the command circuit must be carried out only with instant contact relays



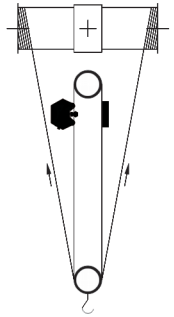
Pulley with two load limit thresholds.
Controls are used through the selector "C" for coupled or single lifting with two spheres of nfluence.

4.3 APPLICATIONS

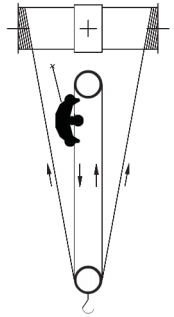
APPLICATION ON PULLEYS OF JIB AND BRIDGE CRANES



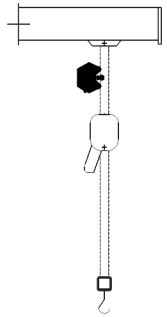
Hoist with rope anchorage.
Model LC



Hoist with balancing pulley.
Counterweight: 6-8 Kg
Modello LC



Hoist with sliding cable suspension cord.
Modello LCM



Hoist with bridge crane, calibration field 100-1000 Kg
Modello LC

1. PRELIMINARY REMARKS

1.1 MANUAL CONTENTS

This manual contains the description of the load limiter, indicates its field of use, describes its technical specifications and furnishes instructions for its installation, use and maintenance. Attached to this document, is the original copy of the EU Declaration of Conformity. Technical data regarding inspection will be recorded on the last page of the manual.

1.2 CONSIGNEE OF THE MANUA

Before installing the load limiter, the manual should be carefully studied by:
- plant manager
- installer
- operator of machinery on which load limiter is installed
- maintenance personnel

The employer must verify the training and qualification of personnel before authorizing involvement in mounting the limiter on the lifting system and must order that the present manual be kept where it can be readily consulted.

1.3 RESPONSIBILITY

DANFOS s.a.s. declines any and all responsibility in the following instances:
- modifications or tampering with the limiter
- uses other than that intended
- power grid defects
- non-compliance with the indications in this manual
- non-compliance with national laws regarding work place safety
- installation by non-qualified personnel.

2. DESCRIPTION

2.1 ELECTROMECHANICAL LOAD LIMITER:

The DANFOS load limiter is electromechanical and is in compliance with the Machinery Regulation 2006/42/CE. It is installed on wire rope lift systems as a safety component, its purpose being to prevent the lifting of loads that are excessive of the system's nominal lifting capacity.

2.2 OPERATION:

When the lifting system is in function and the tension of the hoist cable reaches the calibrated level of the load limiter, an electrical signal is produced. Each model can be set to have up to 4 possible intervention thresholds: the 1st is a warning light or acoustic signal, the 2nd interrupts all maneuvers except the lowering of the load, the 3rd and 4th can be made according to the clients' needs and used at their discretion.