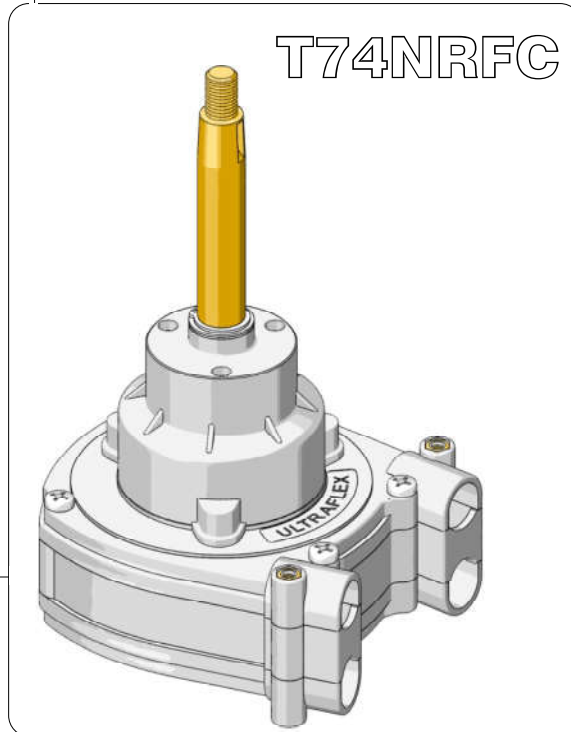
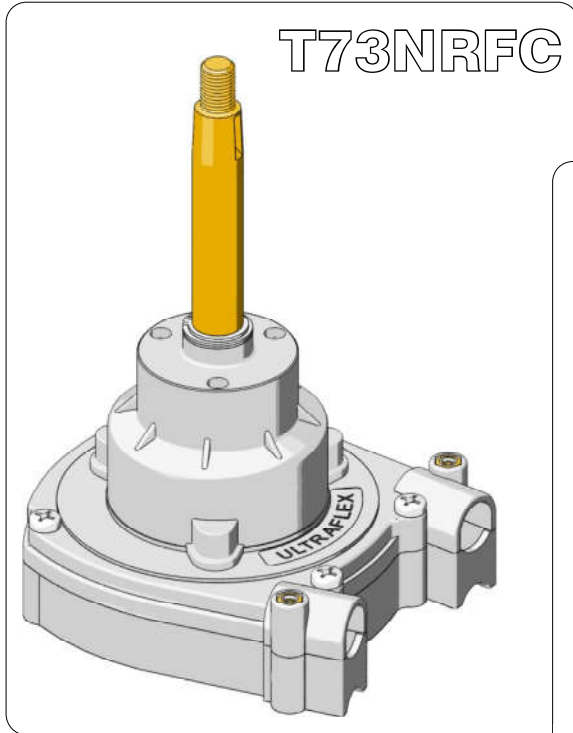


# Installation and maintenance manual

## STEERING SYSTEMS



CE

# WFLUX



PARTNER



(Dr n. 26816/b 07/05/2015)



Dear Customer,

We would like to thank you for choosing an **ULTRAFLEX** SpA product.

**ULTRAFLEX** SpA has been a leader in steering systems for pleasure and professional boats for many years.

All **ULTRAFLEX** SpA products are designed and manufactured to ensure the best performance. To ensure your safety and to maintain a high quality level, **ULTRAFLEX** SpA products are guaranteed only if they are used with original spare parts (see attached document "Application Spare Parts").

**ULTRAFLEX** SpA and Quality Management System is certified CISQ-IQNet by the Italian Shipping Registry (RINA), in conformity with the UNI EN ISO 9001:2008 rule. **ULTRAFLEX** SpA certification No. 6669/02/S (former 420/96).

The quality management system involves all the company resources and processes starting from the design, in order to:

- ensure product quality to the customer;
- maintain and improve the quality standards constantly;
- pursue a continuous process improvement to meet the market needs and to increase the customer satisfaction;
- constantly test the products to verify their conformity with the 2013/53/EU.



"Established in 1989 **UFLEX** USA is a leader in steering and control systems for the marine industry. With full manufacturing capabilities in Sarasota, Florida, **UFLEX** USA can support all sectors of the marine industry regardless of volume and/or product requirements. And, as an affiliate of the **ULTRAFLEX** Group, **UFLEX** USA has tremendous resources to draw upon for new product development in hydraulics, electronics and many other technologies.

Innovative product design and unparalleled dedication to quality customer service and products continue to be cornerstone of **UFLEX** USA's growth. Today our products can be found as originally installed equipment on many of the most widely known and respected boat brands in the world. Aftermarket parts can be sourced from trained and experienced distributor network throughout North and South America.

Our dedication to providing the highest quality products and service is only matched by our commitment to developing new products employing the latest materials and technology to enhance our customer's boating experience. From steering wheels to sophisticated electronic controls, **UFLEX** USA has everything you need to make sure that your boat looks and perform it's best for many, many years."

**UFLEX USA**

Sarasota, FL 34243 - 6442 Parkland Drive

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## MANUAL USE AND SYMBOLS USED

THE INSTALLATION AND MAINTENANCE MANUAL is the document given with the product from its sale to its replacement and discharge. The manual is an important part of the product itself.

It is necessary to read carefully the manual, before ANY ACTIVITY involving the product, handling and unloading included.

In this manual the following symbols are used to ensure the user safety and to guarantee the correct operation of the product:

 **DANGER**



Immediate hazards which CAUSE severe personal injury or death.

 **WARNING**



Denotes that a hazard exists which can result in injury or death if proper precautions are not taken.

 **CAUTION**



Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components or to the environment.

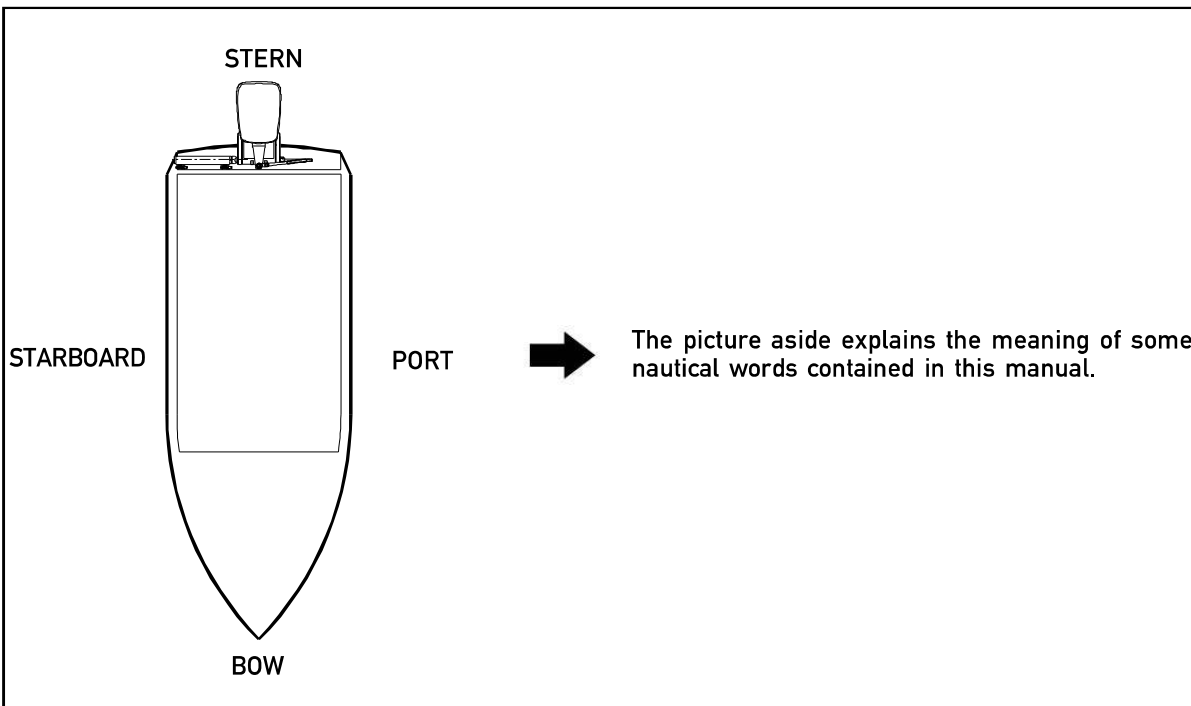
**NOTICE**



Important information for the correct installation and for maintenance, that does not cause any damage.



The symbol aside indicates all the operations which must be carried out by qualified or skilled staff, in order to avoid hazards. We recommend training the staff in charge of the product installation and checking their knowledge.



## INTRODUCTION

This installation and maintenance manual represents an important part of the product and must be available to the people in charge of its use and maintenance.

The user must know the content of this manual.

**UFLEX USA** declines all responsibility for possible mistakes in this manual due to printing errors.

Apart from the essential features of the described product, **UFLEX USA** reserves the right to make those modifications, such as descriptions, details and illustrations, that are considered to be suitable for its improvement, or for design or sales requirements, at any moment and without being obliged to update this publication.

ALL RIGHTS ARE RESERVED. Publishing rights, trademarks, part numbers and photographs of **UFLEX USA** products contained in this manual are **UFLEX USA** property.

Great care has been taken in collecting and checking the documentation contained in this manual to make it as complete and comprehensible as possible. Nothing contained in this manual can be interpreted as warranty either expressed or implied - including, not in a restricted way, the suitability warranty for any special purpose. Nothing contained in this manual can be interpreted as a modification or confirmation of the terms of any purchase contract.

### **⚠ WARNING**

To ensure the correct product and component operation, the product must be installed by qualified staff. In case of part damage or malfunction, please contact the qualified staff or our Technical Assistance Service.

### TECHNICAL ASSISTANCE SERVICE

#### North - South - Central America:

##### **UFLEX USA**

6442 Parkland Drive

Sarasota, FL 34243

Tel: +1.941.351.2628

Fax: +1.941.360.9171

Email: [uflex@uflexusa.com](mailto:uflex@uflexusa.com)

[www.uflexusa.com](http://www.uflexusa.com)

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Email: [ut@uflexgroup.it](mailto:ut@uflexgroup.it)

[www.uflexgroup.it](http://www.uflexgroup.it)

## WARRANTY

- 1. Two Year Limited Warranty.** **UFLEX USA**, Inc. warrants that all products manufactured by **UFLEX USA**, Inc. or **ULTRAFLEX S.p.A.** and sold by **UFLEX USA** to the retail purchaser ("Purchaser") that for two (2) years after the date of manufacture to be free from defects due to material or workmanship, subject to the exclusions below. Improper installation **AVOIDS** this warranty. Installation should only be attempted by a trained and qualified technician.
- 2. Exclusions.** This limited warranty does not cover and does not extend to any of the following:
  - (a) Failure caused by normal wear and tear, climatic conditions, misuse, neglect, lack of proper maintenance, accident, fire or other casualty damage, racing, overloading, negligence, modification, beaching or grounding of vessel, collision, impact, towing, acts of war or hostilities;
  - (b) components not manufactured by **UFLEX USA**, Inc., or its affiliates;
  - (c) cost of removal or reinstallation of any component (including components manufactured by **UFLEX USA**, Inc.) or disassembly or reassembly of the unit containing the component;
  - (d) components not manufactured by **UFLEX USA**, Inc. or **ULTRAFLEX S.p.A.**, whether or not warranted by the other manufacturer;
  - (e) any product which has not been properly installed.



- 3. Limitations.** THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS SHALL BE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND **UFLEX USA, INC.**'S SOLE AND EXCLUSIVE LIABILITY UNDER THIS WARRANTY. LABOR FOR REPLACEMENT IS NOT INCLUDED. **UFLEX USA, Inc.**'s obligation under this warranty is limited to the repair or replacement (at **UFLEX USA, Inc.**'s sole election) of any covered item found to be defective, when delivered by Purchaser pursuant to written authorization and instructions from **UFLEX USA, Inc.**, shipping prepaid to **UFLEX USA, Inc.**'s plant or other designated repair facility. Repaired or replaced items are warranted as provided herein for the unexpired portion of the applicable warranty period. THIS WARRANTY, AND THE RIGHTS AND REMEDIES UNDER IT, IS EXCLUSIVE AND IS GIVEN IN PLACE OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WHETHER ARISING BY LAW, CUSTOM, CONDUCT OR USAGE OF TRADE. PURCHASER'S REMEDIES SHALL BE LIMITED AS STATED HEREIN AND **UFLEX USA, INC.** SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES OR LOSSES RESULTING FROM DEFECTS. THE RETAIL SELLER IS NOT A CO-WARRANTOR AND IS NOT AUTHORIZED BY **UFLEX USA, INC.** TO AMEND OR MODIFY THIS LIMITED WARRANTY IN ANY MANNER.
- 4. Transferability of Warranty.** This limited warranty may not be transferred to subsequent purchasers.
- 5. Miscellaneous.** **UFLEX USA, Inc.** is an affiliate of **ULTRAFLEX S.p.A.** **UFLEX USA, Inc.**, reserves the right to make changes in the design and construction of its products at any time, without notice and without any obligation to incorporate such changes into products of prior manufacture. This limited warranty applies to new components sold by **UFLEX USA, Inc.**. This limited warranty contains the entire agreements between **UFLEX USA, Inc.** and Purchaser and supersedes all prior agreements, discussions, negotiations, commitments and representations, whether oral or written, between them regarding **UFLEX USA, Inc.**'s warranty. If any provision of this limited warranty, or the application of it, is determined to be invalid or unenforceable for any reason, the remainder of this limited warranty and the application of it shall not be affected.
- 6. Ultron 3000 and PowerC.** The Ultron 3000 and "PowerC - User and Installation Manual" describes activities, operations, technical specifications which must be followed during the installation and/or usage of the product, in order to keep a valid warranty. Descriptions and drawings in that manual are suitable to allow installation and use of the product to skilled persons. In case of doubt and/or for any information, please contact our Technical Service.

All communications and notices from Purchaser regarding this limited warranty should be sent to: **UFLEX USA, INC.**, 6442 Parkland Drive, Sarasota, FL 34243; (941) 351-2628.

## Return policy

Any product that is presumed defective should be reported to **UFLEX USA** within 48 hours of receipt or discovery in the field. Upon notification **UFLEX USA** will attempt to troubleshoot the problem with our customer over the phone. If we are unable to resolve the problem **UFLEX** will issue a Return Goods Authorization number and we require that the product in question be returned to **UFLEX** with all its parts in its original packaging. The product should be returned freight prepaid to:

**UFLEX USA**  
RGA Department - RGA #  
6442 Parkland Drive  
Sarasota, Florida 34243

Upon receipt **UFLEX** will examine the product to determine the cause of the defect. If the product is determined to have a defect in workmanship or material, it will be repaired at our discretion.

Our warranty does not cover labor, towing or other expenses. Further, it does not cover products that have been improperly installed, damaged in installation, misapplied, or misused.

Our products are not intended for use in racing applications.



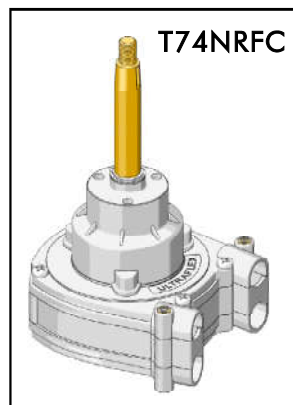
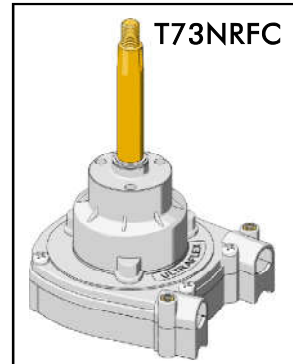
# 1 DESCRIPTION OF THE PRODUCT

## 1.1 Description of the product and warnings for the correct use

T73NRFC and T74NRFC mechanical steering systems are designed to control boats equipped with outboard, inboard or non power assisted stern drive engines. Steering system T73NRFC is used for single cable steering helms, while steering system T74NRFC is used for dual cable steering helms. Both systems must be used with **UFLEX M66** steering cables.

T73NRFC and T74NRFC steering systems use a Planetary Gear Design: three satellite gears rotate on their axis and at the same time rotate around the central helm axis. This allows for equal distribution of engine torque over three points of the central gear, dividing and balancing the system loads. The benefits of this special design are increased system longevity, increased efficiency and less engine feedback compared to single pinion gear helms.

T73NRFC and T74NRFC steering systems are also equipped with a non-reversible system. It is made up of a special patented device which allows the helm shaft to lock until turned by the driver, maintaining the boat direction and neutralizing the feedback loads on the steering cable. The Uflex non-reversible mechanism makes driving a boat safer and easier.



**⚠ WARNING**

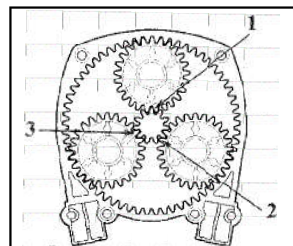
DO NOT USE ON POWER ASSISTED ENGINES.

**⚠ WARNING**

T73NRFC steering system is not to be used on boats equipped with engines that exceed the maximum horsepower rating of the boat and/or the speed of 50 knots (57.5 mph). In case of engines which exceed the speed of 50 knots, it is advisable to use T74NRFC dual steering system.

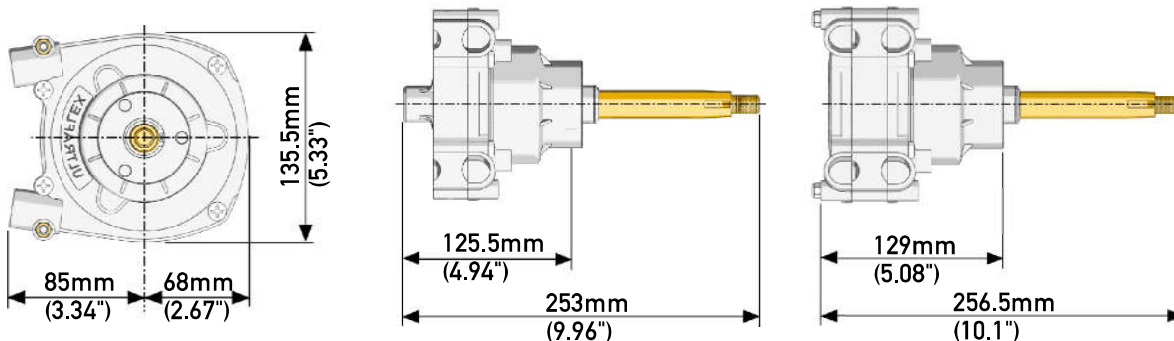
**⚠ DANGER**

DO NOT DISASSEMBLE ANY PART OF THE HELM DURING THE INSTALLATION OF THE CABLE. THE DISASSEMBLY OF THE COMPONENTS CAN GENERALLY CAUSE SERIOUS DAMAGE TO OBJECTS OR PEOPLE. THIS PROCEDURE CAUSES THE WARRANTY LOSS OF THE PRODUCT.



## 1.2 Dimensions

The following pictures show the dimensions of T73NRFC and T74NRFC steering systems.



## 2 TRANSPORT

### 2.1 General warnings

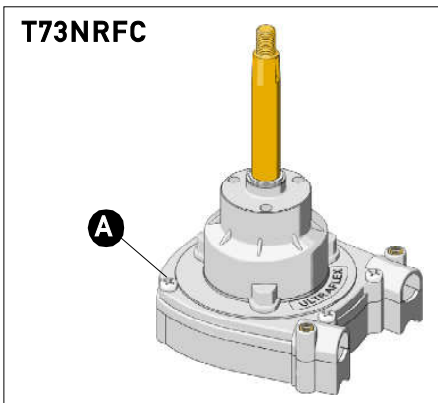
The product weight with its packaging is 2kg (4.4 pounds); therefore, it can be manually handled.

**⚠ WARNING**

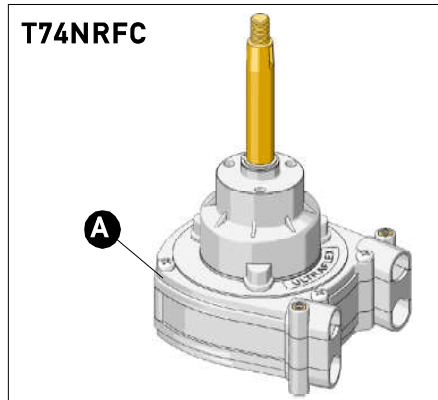
The staff in charge of handling must wear protective gloves and safety shoes.

### 2.2 Packaging contents

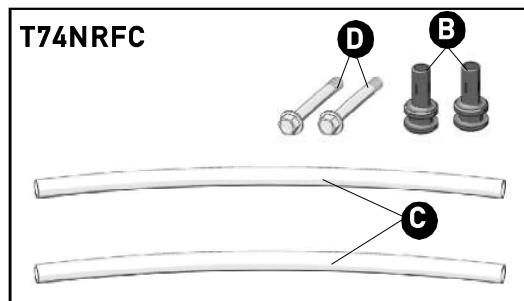
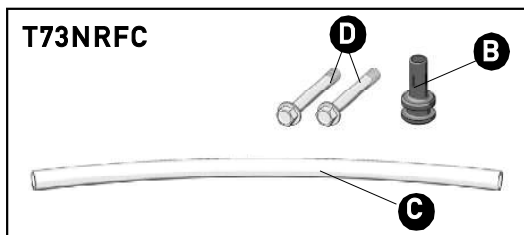
Before using the equipment check that the product has not been damaged during transport or storage. Also make sure that all the standard components are in the packaging (see list). In case of damage, notify the claim to the forwarder and inform the supplier.



REF	T73NRF
A	1 helm
B	1 retrieving bushing
C	1 retrieving pipe
D	2 screws M6



REF	T74NRF
A	1 helm
B	2 retrieving bushings
C	2 retrieving pipes
D	2 screws M6



**⚠ CAUTION**

The packaging must be disposed of according to the existing laws.





# 3 INSTALLATION

## 3.1 Necessary tools



Phillips screwdriver



Open end wrench  
10mm [0.39"]

## 3.2 Helm positioning

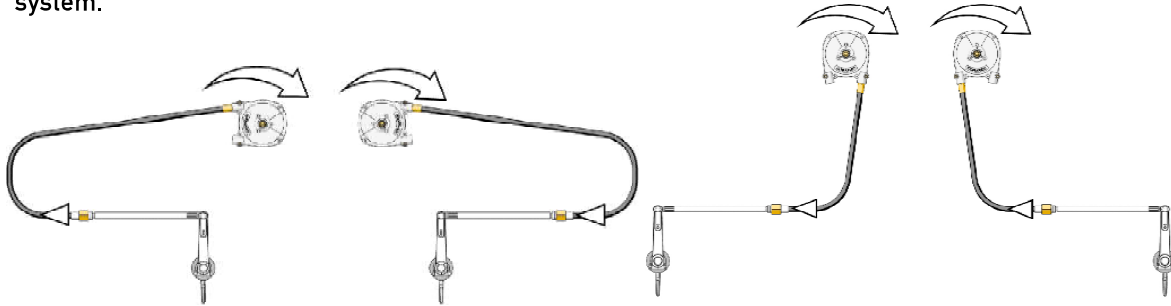


To install the helm on the boat, please refer to the assembly instructions supplied with **UFLEX** X34 and X35 bezel kits.

## 3.3 Connection of the cable to the helm



- 1 Determine the correct entry position of the cable into the helm according to the proper steering system.

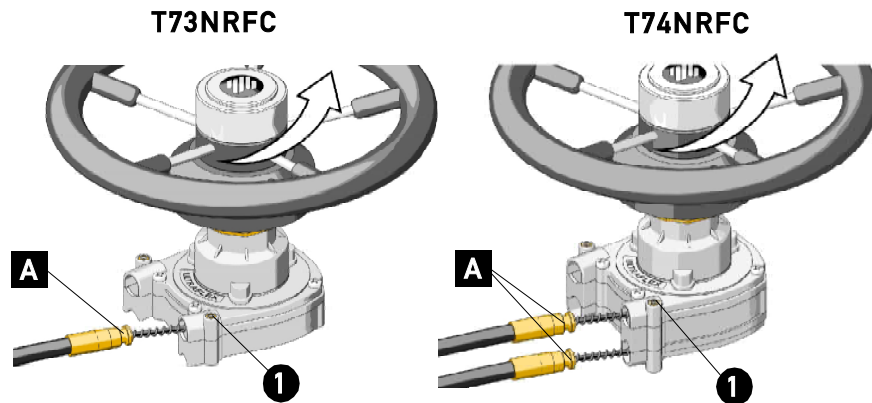


PUSH OR PULL TURNING DIRECTIONS

- 2 Remove protective pipe from cable **UFLEX** M66 and insert the helix cable into the helm.



- 3 Turn the steering wheel so as to "pull" the cable into the helm, aligning the end fitting recess (A) with screw hole (1).



**4** Lock the end fitting with screw (2). Torque: 6 Nm (53 inch lbs).

**T73NRFC**

**T74NRFC**

**5** Slide bushing (3) over the helix cable and introduce it into hole (B) of the helm.

**T73NRFC**

**T74NRFC**

**6** Align bushing (3) recess with hole (C) and lock it by means of screw (4). Torque: 6 Nm (53 inch lbs).

**T73NRFC**

**T74NRFC**

**7** Insert protection pipe (5) on bushing (3).

**T73NRFC**

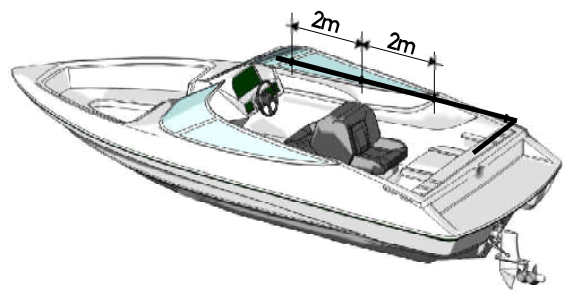
**T74NRFC**

**8** Fix the conduit every 2 m (6"). The conduit must not be fixed to the electric wires. Bulkhead openings require a minimum 38mm (1½") hole diameter.

**⚠ DANGER**  
Prevent any dust or foreign material from contacting the cable end to avoid damages to the helm.

**⚠ DANGER**  
Make sure the conduit does not enter in contact with cutting edges that could damage it.

**⚠ DANGER**  
This control must be carried out before the boat is operated in the water.



**9** Make sure the direction of the steering wheel rotation corresponds to the boat direction.



## 4 SAFETY WARNINGS

This section shows the safety rules which must be followed for the correct equipment operation. We recommend reading carefully this section and also the other manuals supplied with the steering system components.

### 4.1 Safety rules during installation and use

OBSERVE STRICTLY the following safety rules:

**UFLEX** declines all responsibility in case the user does not follow these rules and it is not responsible for negligence while using the system.

#### DANGER

- **DO NOT PUT YOUR HANDS BETWEEN MOVING PARTS.**
- Do not disable the safety devices.
- Do not modify or add devices to the system, without **UFLEX** written authorisation or technical intervention which will prove the modification in the report.
- Do not use this equipment for a purpose different from the one it has been designed for, which is specified in the installation and maintenance manual.
- Do not let unskilled staff perform the installation.

#### WARNING

- During installation, keep the system clean, to prevent any foreign body to damage it. Even the smallest object could cause permanent but not immediately perceivable damages.
- Avoid cable bends 200 mm (8").
- Avoid contact of cables with sharpened edges.
- Avoid contact with sources of heat.

### 4.2 Clothing

#### WARNING

During installation, inspection or maintenance, IT IS STRICTLY FORBIDDEN to wear necklaces, bracelets or clothes which could get caught in the moving parts.



# 5 MAINTENANCE

## 5.1 Routine maintenance

**⚠ WARNING**

Poor installation and maintenance may result in loss of steering and cause property damage and/or personal injury. Maintenance requirements change according to climate, frequency and the use. Inspections are necessary at least every year and must be carried out by specialized marine technicians.

Carry out the following maintenance operations:

- Periodically wash with water and soap the components removing any salt deposit.
- Every month check and if necessary tighten all the nuts fastening the system.

**⚠ DANGER**

**Release or separation of one of the fasteners can cause failure of steering system resulting in property damage, injury or death.**

- Periodically check the absence of corrosion on the metal parts of the cable end fittings and of abrasions on the conduit.
- Replace the damaged parts that could compromise the steering system integrity.

## 5.2 Extraordinary maintenance

**Technical Support**

*For any information or for assistance with unusual applications please contact our technical support staff (See paragraph "Introduction").*

# 6 DISMANTLING

## 6.1 Dismantling

When for any reason, the system is put out of service, it is necessary to follow some rules in order to respect the environment.

Conduits, pipelines, plastic or non-metallic components must be disassembled and disposed of separately.









**UFLEX USA**

Sarasota, FL 34243 - 6442 Parkland Drive