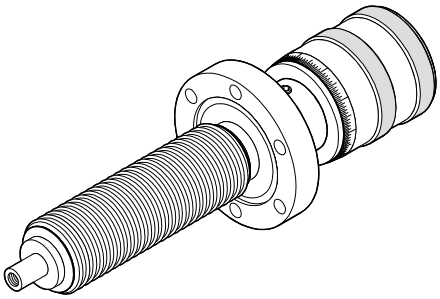
# Linear feedthrough

DN 40 CF-R

FPU040-Z



Operating Manual
incl. Manufacturer's Declaration

rina15e1 (0004)

## Validity

This document applies to products with part number 214-336.

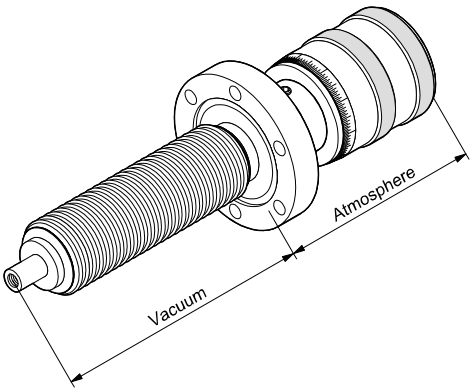
We reserve the right to make technical changes without prior notice.

## Intended Use

The FPU040-Z all metal linear feedthrough is used for transferring linear motions into vacuum systems.

## Functional Principle

The rotary movements performed at atmosphere are transferred to the vacuum system as longitudinal movements.




# Safety

## Symbols Used

**DANGER**

Information on preventing any kind of physical injury.

**WARNING**

Information on preventing extensive equipment and environmental damage.

**Caution**

Information on correct handling or use. Disregard can lead to malfunctions or minor equipment damage.

## Personnel Qualifications

**Skilled personnel**

All work described in this document may only be carried out by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

## General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for all work you are going to do and consider the safety instructions in this document.
- Before beginning to work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Communicate the safety instructions to all other users.

## Liability and Warranty

Inficon assumes no liability and the warranty becomes null and void if the end-user or third parties

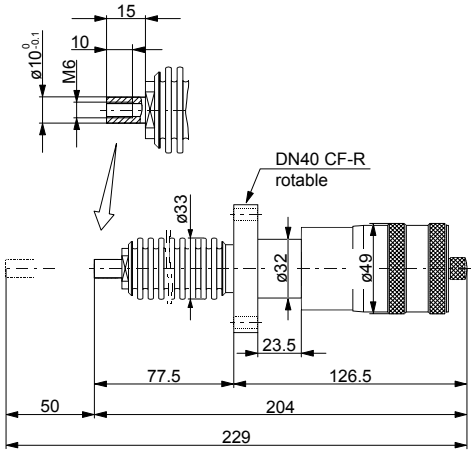
- disregard the information in this document
- use the product in a non-conforming manner
- make any kind of changes (modifications, alterations etc.) to the product
- use the product with accessories not listed in the corresponding product documentation.

The end-user assumes the responsibility in conjunction with the process media used.

# Technical Data

| | |
|---|---|
| Connection flange | DN 40 CF-R |
| Shaft connection | M6×10 mm or ø$10^{0}_{-0.1}$ × 15 mm |
| Mounting orientation | any |
| Tightness | $1\times10^{-10}$ mbar l/s |
| Pressure range | $1\times10^{-9}$ mbar ... ... 2 bar (absolute) |
| Service life | 10,000 cycles |
| Stroke | 50 mm |
| Stroke per revolution | 1 mm |
| Scale graduation | 0.005 mm |
| Accuracy of micrometer | 2 µm |
| Shaft load | |
| radial, at maximum displacement | 100 N |
| axial, to vacuum | 440 N |
| axial, to atmosphere | 500 N |
| torsion | 0.5 Nm |
| Temperatures | |
| operation (static, dynamic) | 100 °C |
| bakeout | |
| feedthrough | 300 °C |
| micrometer screw / piston | 100 °C |
| storage | –15 °C ... +60 °C |
| Materials | |
| feedthrough, bellows | stainless steel, nonmagnetic |
| knob | Al alloy |
| Weight | 1 kg |

**Dimensions**



# Installation

## Vacuum Connection

**Caution**

Caution: vacuum component

Dirt and damages impair the function of the vacuum component.

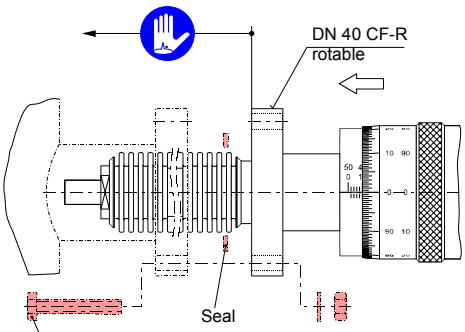
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

**Caution**

Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate.

Always wear clean, lint-free gloves and use clean tools when working in this area.




M6 × 35 (6 pieces)
Required torque = 10 Nm

| Seal | | Ordering number |
|---|---|---|
| Copper | (10 pieces) | 213-372 |
| Copper, silver plated | (10 pieces) | 213-382 |
| FPM | ( 5 pieces) | 213-392 |

## Installing the Process Dependent Component

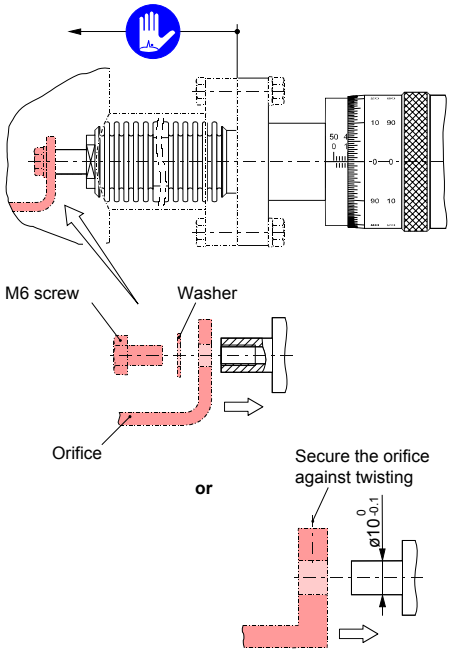
(e.g. orifice)

**Caution**

Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate.

Always wear clean, lint-free gloves and use clean tools when working in this area.




# Operation

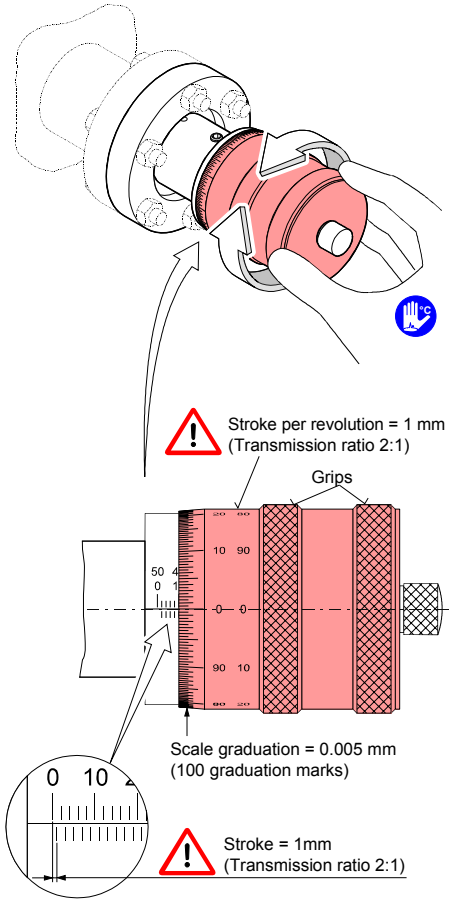
The linear feedthrough is ready for installation as soon as it has been installed.

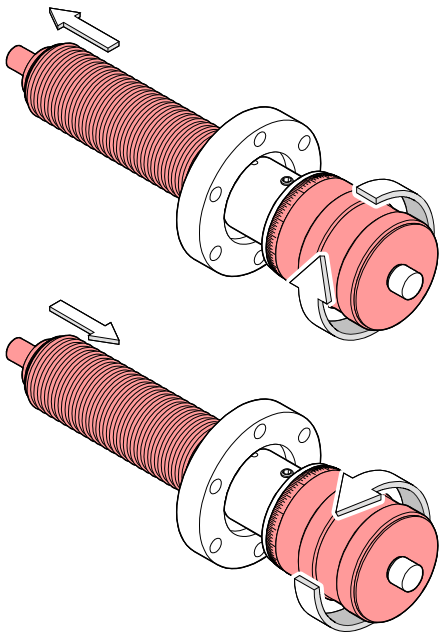
**DANGER**

Caution: hot surface

Touching the hot surface (> 55 °C) can cause burns (→ "Technical data").

Wear protective gloves.



## Deinstallation

**DANGER**

Caution: contaminated parts

Contaminated parts can be detrimental to health and environment.

Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

**Caution**

Caution: vacuum component

Dirt and damages impair the function of the vacuum component.

When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

**Caution**

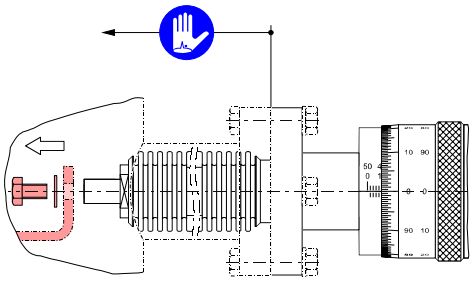
Caution: dirt sensitive area

Touching the product or parts thereof with one's bare hands increases the desorption rate.

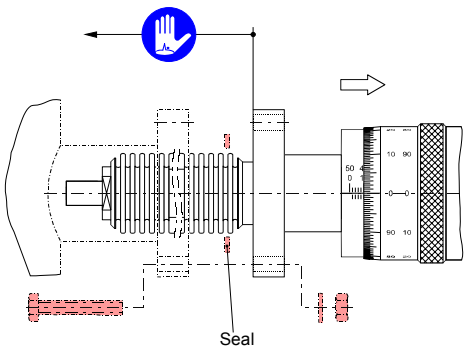
Always wear clean, lint-free gloves and use clean tools when working in this area.

**Procedure**

1. Vent the vacuum system and wait until it has cooled down to < 55 °C.
2. Detach the process dependent component.



3. Detach the vacuum connection.




**Caution**

We recommend using a new seal when re-installing the linear feedthrough (→ "Installation").

## Maintenance

The product requires no maintenance.

## Repair

We recommend returning the product to your nearest Inficon-service center for repair.

Inficon assumes no liability and the warranty becomes null and void if any repair work is carried out by the end-user or third parties.

## Storage

**Caution**

Caution: vacuum component

Inappropriate storage leads to an increase of the desorption rate and/or may result in mechanical damage of the product.

Cover the side of the product which is going to be exposed to the vacuum with grease free aluminum foil. Do not exceed the admissible storage temperature range (→ "Technical Data").

## Returning the Product

**WARNING**

Caution: forwarding contaminated products

Contaminated parts (e.g. radioactive, toxic, caustic or microbiological) can be detrimental to health and environment.

Products returned to Inficon should preferably be free of harmful substances. Adhere to the forwarding regulations of all involved countries and forwarding companies and enclose a duly completed declaration of contamination.

Products that are not clearly declared as "free of harmful substances" are decontaminated at the expense of the customer.

Products not accompanied by a duly completed declaration of contamination are returned to the sender at his own expense.

## Disposal

**DANGER**

Caution: contaminated parts

Contaminated parts can be detrimental to health and environment.

Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

**WARNING**

Caution: substances detrimental to the environment

Products or parts thereof (mechanical and electric components, operating fluids etc.) can be detrimental to the environment.

Dispose of such substances in accordance with the relevant local regulations.

**Separating the components**

After disassembling the product, separate its components according to the following criteria:

- Contaminated components

  Contaminated components (radioactive, toxic, caustic, or biological hazard etc.) must be decontaminated in accordance with the relevant national regulations, separated according to their materials, and recycled.

- Other components

  Such components must be separated according to their materials and recycled.

## Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.
This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

**1 Description of product**

Type _____
Article Number _____
Serial Number _____

**2 Reason for return**

_____
_____
_____

**3 Operating fluid(s) used**

_____
_____

**4 Process related contamination of product:**

| | | |
|---|---|---|
| toxic | no ❑ | yes ❑ |
| corrosive | no ❑ | yes ❑ |
| biological hazard | no ❑ | yes ❑ *) |
| explosive | no ❑ | yes ❑ *) |
| radioactive | no ❑ | yes ❑ *) |
| other harmful substances | no ❑ | yes ❑ |

*) Products thus contaminated will not be accepted without written evidence of decontamination!

The product is free of any substances which are damaging to health yes ❑

**5 Harmful substances, gases and/or by-products**

Please list all substances, gases and by-products which may have come into contact with the product:

| Trade/product name manufacturer | Chemical name (or symbol) | Dangerous material class | Measures in case of spillage | First aid in case of contact |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**6 Legally binding declaration:**

I/we hereby declare that the information on this form is complete and accurate and that I/we will assume any further costs that may arise. The contaminated product will be in accordance with the applicable regulations.

Organization/company _____
Address _____ Post code, place _____
Phone _____ Fax _____
Email _____
Name _____

Data and legally binding signature _____

Company stamp

This form can be downloaded from our website.

Copies:
Original for addressee - 1 copy for accompanying documents - 1 copy for file of sender

## Manufacturer's Declaration

as defined by the Council Directive relating to machinery 98/37/EC, Appendix IIb

We, Inficon, hereby declare that putting the incomplete equipment mentioned below into operation is not permitted until evidence is given that the system into which that incomplete equipment shall be installed is in accordance with the provisions of the EC Council Directive relating to machinery.

# Linear feedthrough

DN 40 CF-R

FPU040-Z

**Part number**

214-336

**Standards**

Harmonized and international/national standards and specifications:

- 89/392/EEC version 93/68/EEC .....
- EN 292-1+EN 292-2 / 9.91 .....

**Signatures**

Inficon AG, Liechtenstein

02 May 2000

Hans-Christoph Gehlhar
Product Management

02 May 2000

Hugo Frei
Product development

INFICON
*Postfach 1000*
*FL–9496 Balzers*
*Liechtenstein*
*Tel +423 / 388 45 67*
*Fax +423 / 388 54 58*
*reachfl@inficon.com*
*www.inficon.com*