NETHER LOCKS
safety systems

Process interlocking

Process interlocking prevents human error by guiding the operator through a predefined operating sequence. Interlocks are based on the principle of the exchange of unique keys, that only allow the right valves to be operated in the correct, predefined order.
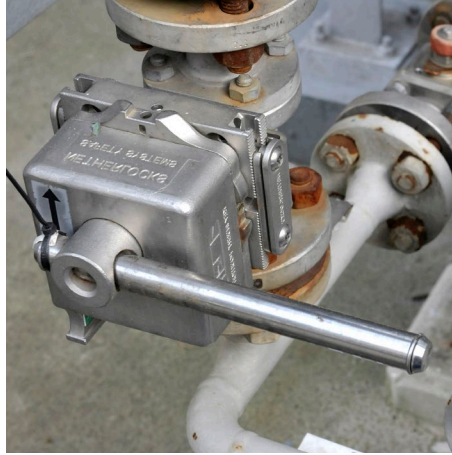
Ninety Degree Lock (NDL)

The NDL fits any type of 90 degree valve, such as ball valves, butterfly valves and plug valves. Keys are only released in fully open or fully closed position. A new stainless steel, sliding lever replaces the original valve lever. No periodic maintenance is required.

www.netherlocks.com

Reliability matters
■ Process interlocking ⬡ Valve positioning ▶ Partial stroke testing ● Valve operation

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NDL features

> Permanently mounted on the valve
> No grease or other lubrication required
> Ingress protection of key slots by self sealing weather strips
> Single key in lock, in open or locked closed position
> Double key lock, in open or locked closed position
> Minimum of components to make internal mechanism less vulnerable
> Second safety; integrated second safety to prevent unlocking with an unauthorized object other than the designated linear key

Mounting

> No alterations to host valve required
> Custom made bracket and adaptor for mounting to the valve
> Original nut is used if possible
> Can be mounted in a live plant

NDL can be mounted on each size of valve, however to a maximum stem diameter of 40 mm. Above that size, a customized interlock is provided. For valves with a lever above 730 mm a gearbox is recommended.

Keys

> Linear keys
> Uniquely coded
> Key codes are registered, for easy replacement and to avoid use of duplicate keys
> Spare keys available
> Master keys available
> Coloured tagplates

Master key and master key cabinet

One key to fit all locks in an area, process, division (group key) or every single lock (master key). Available in separate, powder coated steel cabinet. The cabinet is lockable to prevent unauthorized use and has a glass window that can be broken in case of emergency.

Q-card commissioning keys

Allows the locks to be opened or closed regardless of the sequence, e.g. during pressure testing. After testing the Q-card will be replaced by the properly coded key. One Q-card for each key position is installed in our factory and cannot be re-used once removed. There is no need for master keys or spares during installation and testing, which could jeopardize the plant safety at a later stage.

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Total linear concept

Netherlocks has eliminated nearly all rotating movements from the lock designs. Keys are inserted linearly and the internal locking mechanism consists only of linear moving components. This reduces internal wear and tear and makes the mechanism less vulnerable for dirt and and. Lubrication with grease is not required.

> No wear and tear
> No grease
> Less vulnerable to sand and dirt

General provisions

Required technical information

Upon order, Netherlocks can only commence the production of interlocks after the following information has been provided:

> Text and color details for key and lock tagging
> Key sequence details (process position)
> End user, location and unit information, for key code check and registration
> Valve topwork details

Netherlocks can assist with obtaining valve topwork details from the valve suppliers. Our service team is also available to measure these dimensions in the field or warehouse.

Country of origin

Netherlocks interlocking systems are designed, engineered, manufactured, assembled and tested in The Netherlands.

Reliability matters

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NDL data sheet

DIMENSIONS

	Dimension
Length (mm)	133
Width (mm)	115
Height (mm)	107
Mass of lock (kg)*	2.9
Lever sizes (mm)	230, 330, 430, 530, 630, 730**

* Without bracket, adaptor and hand wheel

** Above 730 mm, gearbox operation is recommended

CERTIFICATES

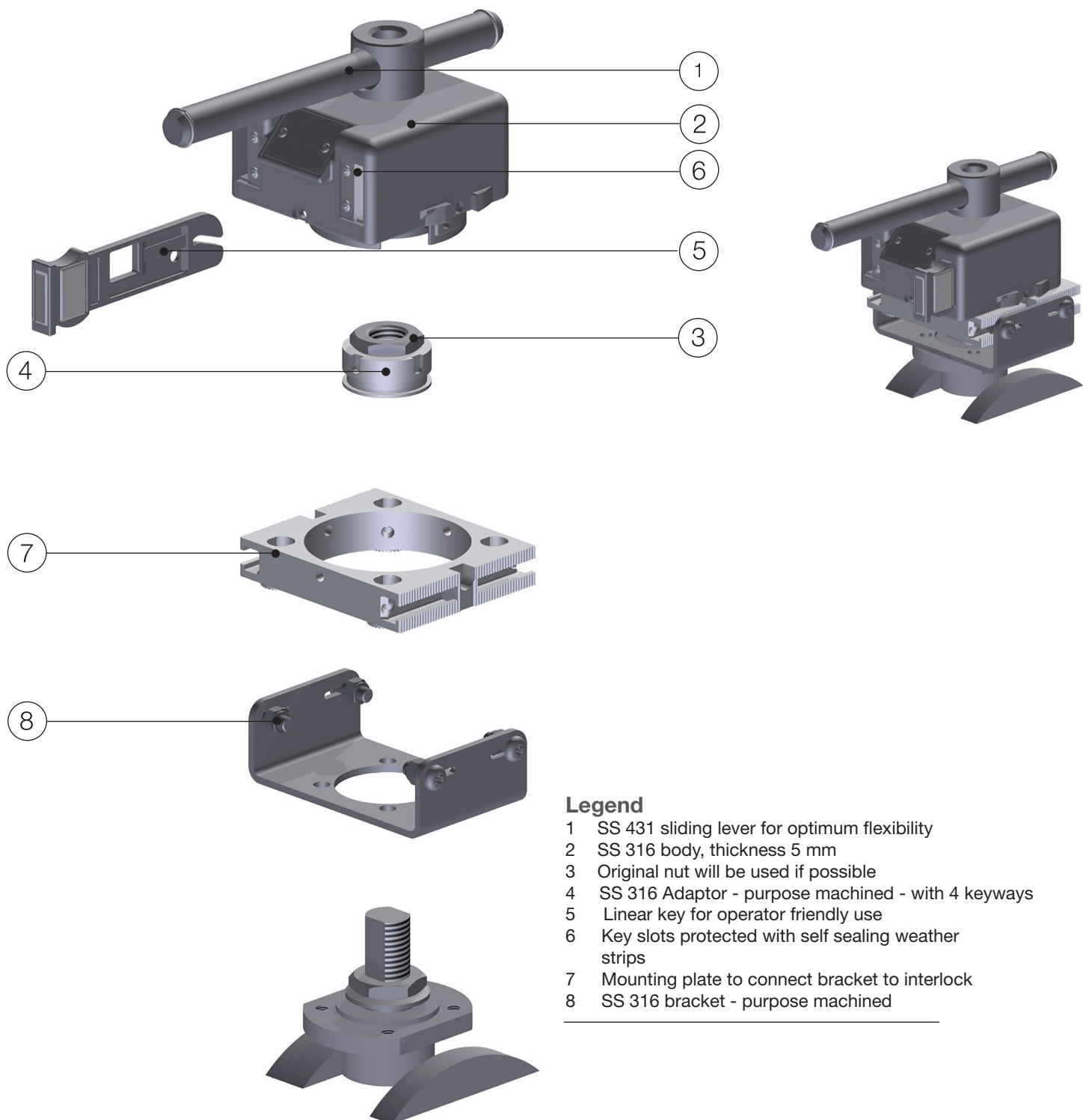|	Certificate
Material certificate	* 2.1
ISO	9001-2000
TUV	TUV SUD Product Service GmbH
ATEX	CE Ex II 2 GD EEx IIC T6
Fire Test	API 607 / ISO 10497

* Other certificates available on request.

MATERIALS

	Material
Body	SS 316
Bracket & Adaptor	SS 316
Lever	SS 431
Key	SS 316
Tagplate lock	SS 316
Tagplate key	Resopal
Internal components	SS 316

Reliability matters

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NETHERLOCKS
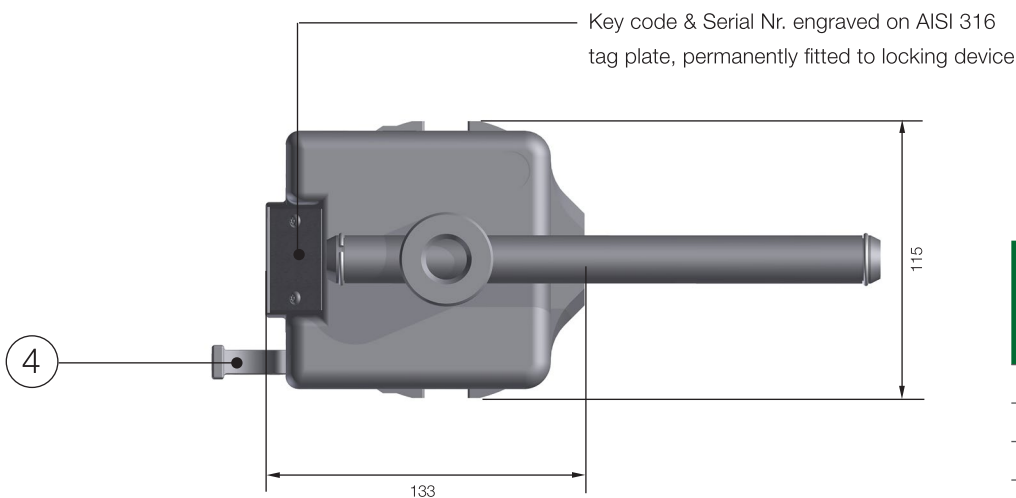safety systems

NDL exploded view

1
2
6

5

3
4

7

8

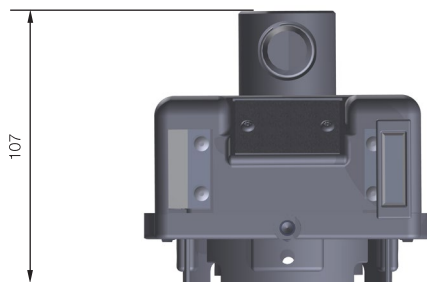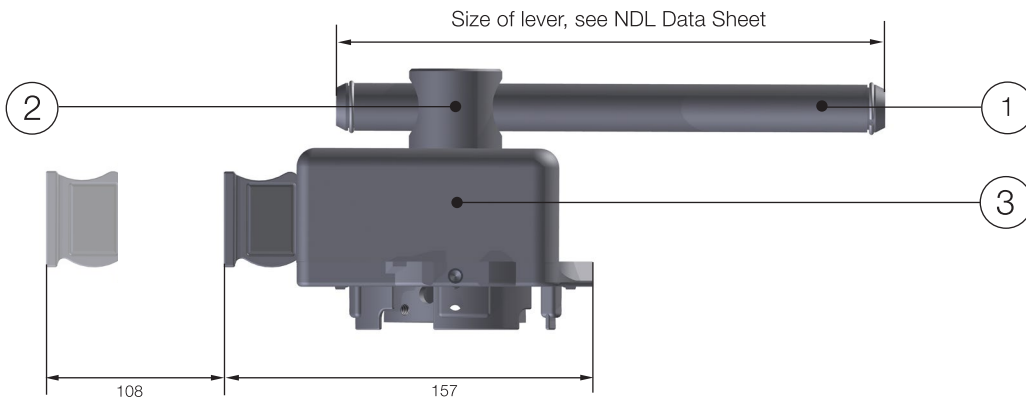**Legend**
1 SS 431 sliding lever for optimum flexibility
2 SS 316 body, thickness 5 mm
3 Original nut will be used if possible
4 SS 316 Adaptor - purpose machined - with 4 keyways
5   Linear key for operator friendly use
6   Key slots protected with self sealing weather
    strips
7 Mounting plate to connect bracket to interlock
8 SS 316 bracket - purpose machined

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NDL GA drawing

Size of lever, see NDL Data Sheet

② ③ ①

108 157

107

Key code & Serial Nr. engraved on AISI 316
tag plate, permanently fitted to locking device

115

④

133

PARTS LIST

Item	Qt		Description
1	1		Lever
2	1		Tube NDL
3	1		Lockbody NDL
4	1/2		Operating key