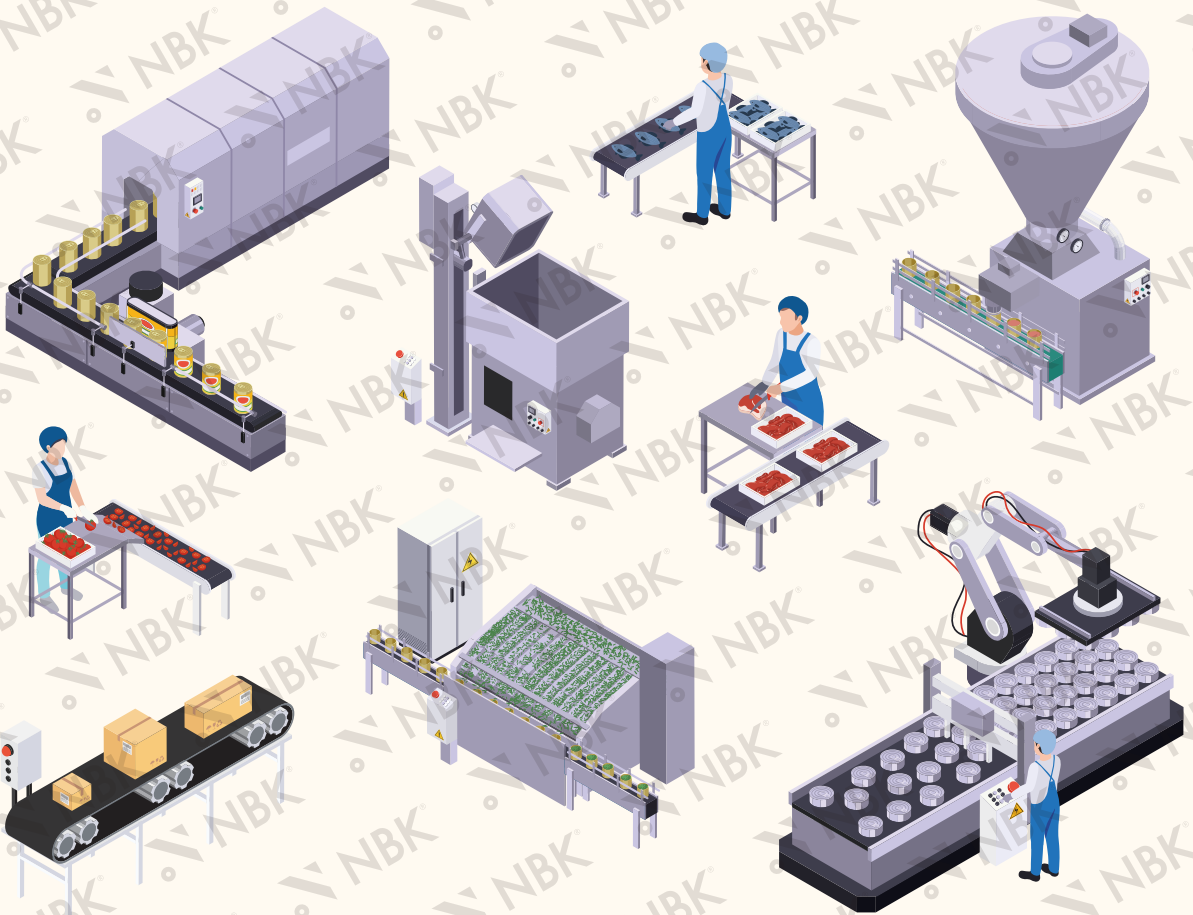




Solutions and Case Studies for Mechanical Designers



in **Food** and **Packaging** Industries

For Food/Packaging Industries

Issue Solutions Case Studies

CONTENTS

This booklet offers lots of information about our technology to provide hints on resolving your issues.

Contact us if you require further help.
We are happy to help solve any problems.

Detailed information on our products can be retrieved from the product number on the NBK website.
The QR codes in each section are also available.

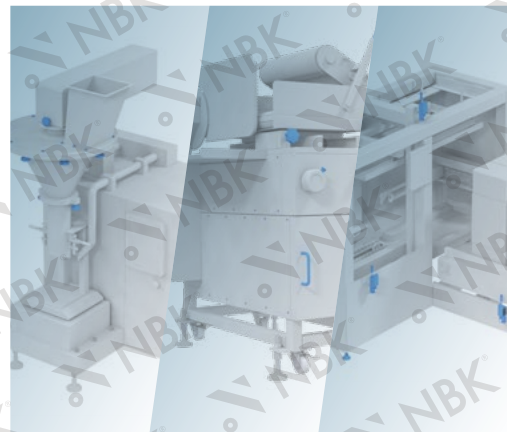
Discover points of interest
based on machines / devices!

Search Issue Solutions and Case Studies by Machine type

» P.2

Presenting issues and solutions related to food machinery, including filling machines, meat and fish processing machines, and cartoners!

- 01 Filling Machines P.4
- 02 Meat and Fish Processing Machines ... P.6
- 03 Cartoners P.8



- 04 Labelers P.10
- 05 Tray Wrappers P.12
- 06 Horizontal Pillow Packaging Machines ... P.14

Solving problems with
food machinery!

NBK Products Introduction

» P.16

Presenting NBK products which provide hints on design and development!

- All Stainless Steel Series P.18
- Captive Series P.20
- Mechatronics Parts MM+I P.22
- Auto-Positioning Units P.24



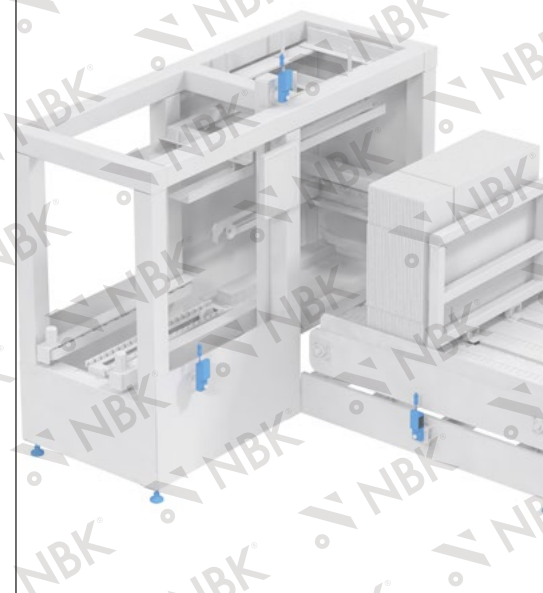
- Easy Positioning Family P.26
- Display Mounting Systems ... P.28
- Universal Design
UDEX® Series P.30
- Machine Elements P.32

Search Issue Solutions and Case Studies by Machine type

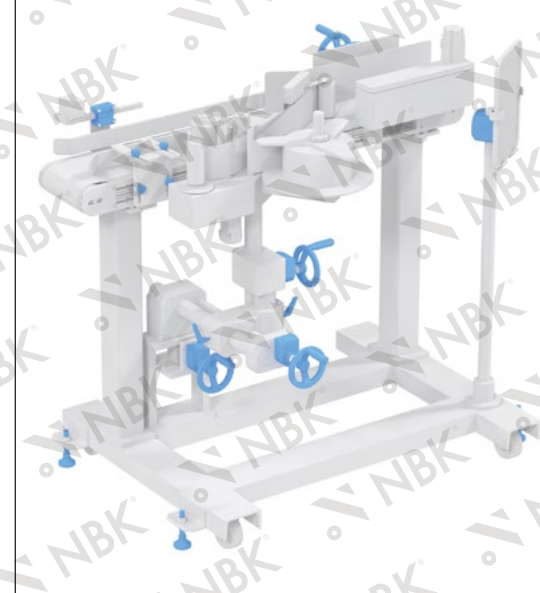
Various issues and solutions for food machinery, including filling machines, meat and fish processing machines, and cartoners faces are presented!



03 Cartoners » P.8



04 Labelers » P.10



01 Filling Machines » P.4



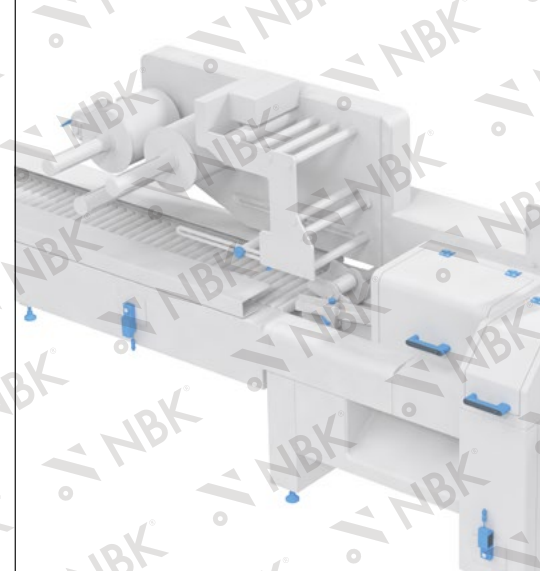
02 Meat and Fish Processing Machines » P.6



05 Tray Wrappers » P.12



06 Horizontal Pillow Packaging Machines » P.14



01 Filling Machines

01

Foreign matter contamination must be prevented

Keep screws from falling into equipment or materials

Screws with structures like this will not fall out of the panel even when removed, because the relief cutting in the threads catches on the screw hole.

HINT Captive Screws 

Other captive products including pulls and knobs are also available.

HINT Captive Pulls 

HINT Captive Knobs 



Learn more about the Captive Series → P.20



02

Cleaning time must be shortened

We offer products with ease of cleaning

The knob and thread parts are machined from a single piece of material, which eliminates joins, so they are easy to clean. Also available in female screw type.

All stainless steel clamp levers without set screw recess are also available.

HINT Stainless Steel Knobs  

HINT Stainless Steel Clamp Levers  



Learn more about the All Stainless Steel Series → P.18

03

Frequent cleaning and rusting parts

We offer components with corrosion resistance

They are made of stainless steel and have a seal structure with an O-ring inside. The use of the attached gasket prevents water and dust from entering the compartment.

HINT Vise Action Latches 

They are equivalent to 316 Stainless Steel, so they are more resistant than 304 Stainless Steel.

HINT Hinges  



Learn more about the All Stainless Steel Series → P.18

02 Meat and Fish Processing Machines

01

Rust-resistant parts are needed

Rust-resistant parts usable even for drive components

All-stainless steel couplings are available.

HINT Slit Couplings **Q** **MSTS** **XSTS-C**



All stainless steel handles, grips, and knobs are available.

HINT Handles **Q** **HSM** **HINT** Grips **Q** **GSS**



HINT Knobs **Q** **KSFS-M-NI**



Learn more about the All Stainless Steel Series → P.18

For frequent changeovers, Auto-Positioning Units are recommended. Main body of the unit is IP65-rated.

HINT Auto-Positioning Units **Q** **EPU**

Learn more about Auto-Positioning Units → P.24



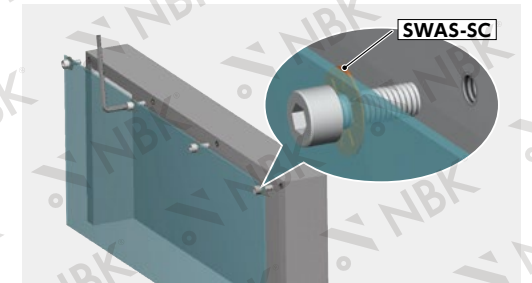
02

Foreign matter contamination must be prevented

Keep screws from falling into equipment or materials

When a screw attached to a cover is removed from the frame, the screw does not fall.

Learn more about the Captive Series → P.20



03

Handle must be positioned quickly

Stainless Steel Indexing Plungers are available

Use the knobs to move the pin in and out to fix the position of the handles quickly. They are made of 316 Stainless Steel, which is suitable for use in frequently cleaned areas.

HINT Indexing Plungers **Q** **PLXS-S-A4**

Learn more about the All Stainless Steel Series → P.18



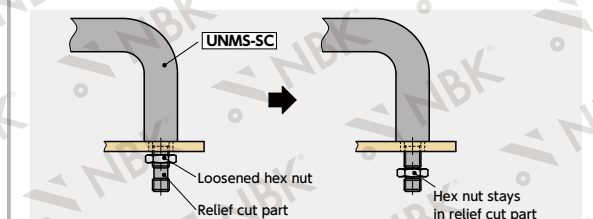
04

Foreign matter contamination must be prevented

Prevent Nut from falling into devices or materials

Since the loosened nuts temporarily remain in the relief cut part, the pull and nuts avoid falling accidentally.

HINT Captive Pulls **Q** **UNMS-SC**



03 Cartoners

01

Changeover processes must be automated without extra design work

Equipment can be automated by mounting a positioning unit instead of the handle

For frequent changeovers, Auto-Positioning Units are recommended. Main body of the unit is IP65-rated.

HINT Auto-Positioning Units 

Learn more about Auto-Positioning Units [➔ P.24](#)



Increases productivity and convenience

Difficult automation made easy!
Greater user satisfaction
when using equipment!

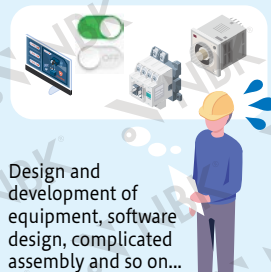
Increasing needs for automation

Given the labor shortage throughout the manufacturing industry, automation and simplification are being called for across various equipment, machinery, and onsite environments. We receive numerous consultations from designers and workers on automation and increased productivity.

Taking the struggle out of automation

Auto-Positioning Units are devices enabling easy automation of the positioning process done with manual handles. Installation can be done just by mounting in place of manual handles, doing away with the design and development processes. This product has been adopted for various equipment and production sites.

Designing from scratch...



Design and development of equipment, software design, complicated assembly and so on...

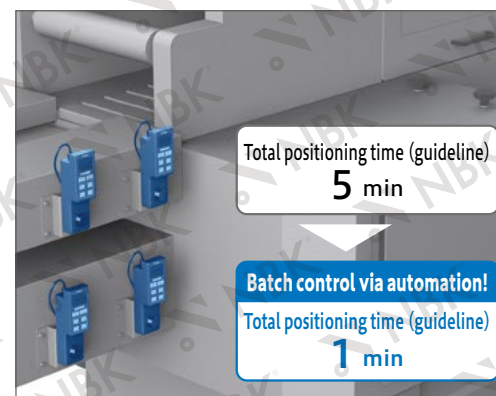
So much trouble!
Months of time and high costs

With Auto-Positioning Units...



Just mount in place of the handle!

Improving production equipment!



02

Clamp Levers available in special places are needed

Select from an abundant lineup

Lever Part Material: Plastic and Steel

Thread Part Material: Steel and Stainless steel

Shape: With Push Button/Integrated Washers/Universal Design

Color: Orange/Black/Blue/Silver/Yellow etc.

HINT Clamp Levers



03

Leveling Adjusters and Levels are needed

Select from an abundant lineup including allowance load, materials and shapes. Anchor-fixing type, with anti-slipping rubber disk, low-friction type, etc. An abundant lineup of levels for incorporating into devices are available.

HINT Leveling Adjusters



HINT Levels



04 Labelers

01

Prevent tightening mistakes

Simple one-touch positioning products are available

Push button operation makes fixing possible with the same force regardless of the operator, with no concerns about forgotten tightening.

HINT Positioning Brackets [Q CUSB-1B](#) [CUSB-2B](#)



Learn more about the Positioning Family → P.26

02

Setup variation must be eliminated

Digital Position Indicators are available

Set them on the feed rotary axis to add a digital feed display. LCD display type and standard Stainless steel hub are available.

HINT Digital Position Indicators

[Q REDTS](#) [RDSS](#)



Learn more about the Positioning Family → P.26

Products that automate the setup are available

Registering the setup positions in advance prevents positioning variation. It is effective against setup errors reducing/preventing reliance on individual skills.

HINT Auto-Positioning Units [Q EPU](#)

Learn more about Auto-Positioning Units → P.24

03

The device must be placed on a slope

Leveling Adjusters that tilts the pad up to 15° are available

They are effective for use on a slope.

HINT Leveling Adjusters

[Q FDM5](#)



07

The axis must be fixed in easily and without damage

Clamp lever with a pad on the screw tip

Tightening the work without any damage is possible. Clamp Levers enable you to tighten without tools. An abundant lineup including brass, and plastic pads is available.

HINT Clamp Levers [Q LDM-PL](#)



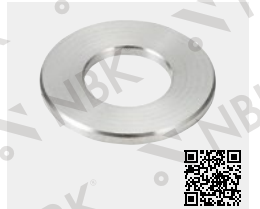
04

Washers for the long hole are needed

Adjusting Washers with a wide variety of outside diameters and thicknesses are available

They are available for securing seating surface on the long hole position and engagement of soft materials with low seating surface pressure such as aluminum and plastic, and for adjustment collars and spacers to reduce cumulative error in assembly.

HINT Adjusting Washers [Q SWAS-AW](#)



05

Specifications must be suited to the height of the operator

Parts which are able to adjust to suitable positions for operators are available

Bracket for simple positioning using vertical axis round pipes/round shafts. Hold the push button to unlock the lock, smoothly move the bracket vertically, and release the push button to fix it in position. It is perfect for frequent repositioning.

HINT Positioning Brackets [Q CUPB](#)

For Aluminum Frame is also available.

HINT Positioning Brackets [Q CUAB-A](#)



Learn more about the Positioning Family → P.26

06

Handles which don't disturb the operator are needed

A product where a grip doesn't stick out is available

The grip normally stays collapsed. Raise the grip for use. If you release the grip, it is collapsed again due to the spring.

HINT Aluminum 2 Spoke Handle [Q HST](#)



05 Tray Wrappers

02

Parts that are compliant with the specifications of the Food and Drug Administration (FDA) are needed

Rubber bumper made of Silicone Rubber is available

Silicone rubber which is compliant with the specifications of the Food and Drug Administration (FDA) is used. It is suitable for shock and vibration absorption of the food machinery.

HINT Rubber Bumper Q FGBDS-S-SI



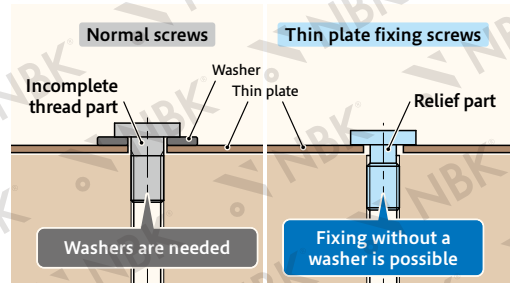
03

Thin plates must be fixed without a washer

The screws that are able to tighten plate thickness from 0.1 mm are available

Thin plate fixing screws have a relief processing at the bottom of the neck to securely fix the thin plates without a washer. Fastening thin plates of 0.1 mm is possible. Reduction of number of parts streamlines assembly.

HINT Thin Plate Fixing Screws Q SSHS-UC



04

Panels that open and close for maintenance must be mounted and removed rapidly

Parts enabling rapid, solid connection of panels are available

Simply rotate the stud by 1/4 turn for rapid, solid, easy connections. No loosening even when subject to violent vibration.

HINT Quick Access Fasteners Q DZUS



01

Width/height adjustment changeovers must be streamlined

Automate manual operation to cut down on labor

This equipment automates handles operated one by one in multiple locations. Batch control of up to 32 units is possible.

HINT Auto-Positioning Units

Q EPU

Learn more about Auto-Positioning Units → P.24



06

Only certain workers should be able to remove screws

Screws requiring dedicated tools for removal are available

Tampering can be prevented by using these screws where only certain workers should be able to remove screws.

HINT Tamper-Resistance Screws Q SRFXS-SET



07

Cover must remain open during maintenance

Hinges retaining at an optional position are available

Hinges retain the door at any position (except for free torque type). The hinges with different retention torque for forward and reverse rotation and with the same torque are available. Selecting a retention torque appropriate for the application including lighter when opening, heavier when closing, or vice versa, will enhance door operability and safety.

HINT Torque Hinges Q E6-TL



Lineup of the type with retention torque in one direction either in forward or reverse rotation is available. The door can be operated smoothly due to less retention torque in one direction.

HINT Torque Hinges Q E6-TW



08

Foreign matter contamination must be prevented

Prevent Nut from falling into devices or materials

Since the loosened nuts temporarily remain in the relief cut part, the pull and nuts avoid falling accidentally.

HINT Captive Pulls

Q UNMS-SC



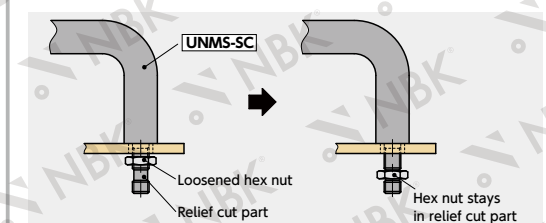
09

Foreign matter contamination must be prevented

Laser engraving service is effective

All symbols and texts are engraved on the NBK handle and knob, etc. with a laser. The service is able to prevent contamination by peeled seals.

HINT Laser engraving service



06 Horizontal Pillow Packaging Machines

01

Changeover position must be clarified

Universal Color Design Knobs are available

Color coding on operating sections clarifies work procedures and indicates hazardous areas to support the color-universal design of machinery and devices.

HINT Plastic Wing Knobs [Q KUWM](#)

HINT Plastic Miniature Knobs [Q KUDFS](#)



Learn more about
Universal Design Series → P.30

02

The device must be stopped until the changeover is completed

Indexing Plungers with sensor are available

They can be set to prevent the equipment operating when the pin is raised by interfacing with the PLC of the device.

HINT Indexing Plungers with Sensor [Q PLXS-SN](#)

Learn more about MM+I → P.22



03

Touch panels and displays must be installed to move toward a paperless plant

Sturdy display mounting systems are available for onsite use

Display mounting systems with freely adjustable angles, mountable on walls, aluminum frames, or round pipes, are recommended for use.

HINT Display Mounting Components

[Q Display Mounting Systems](#)

Learn more about
Display Mounting Systems → P.28



04

Doors must remain open during maintenance

Hinges retaining doors at a certain angle are available

Three types (retaining angles of 80°, 115°, and 150°) are available to keep doors open at specific angles.

HINT Door Positioning Hinges [Q C6](#)



05

Door locking status must be confirmed visually

Pulls with integrated LED are available

An LED integrated into the pulls allows you to see when the door is locked.

HINT Plastic Pulls (With Switch and LED) [Q UPIF-MSL](#)

Learn more about MM+I → P.22



06

Setup time must be shortened

Simply replacing the existing handles can automate the setup time

Replacing the existing handles is easy. Batch control of up to 32 units is possible, shortening the setup time.

HINT Auto-Positioning Units [Q EPU](#)

Learn more about Auto-Positioning Units → P.24



Solving problems with food machinery
and packaging and packing machinery!

NBK Products Introduction

We introduce NBK products
which provide hints on design and development.



All Stainless Steel Series

From Machine Elements to Drive Components >> P.18



Captive Series

For CE Marking compatibility and measures
against contamination by foreign matters >> P.20



Easy Positioning Family

Reducing positioning time and burdens >> P.26



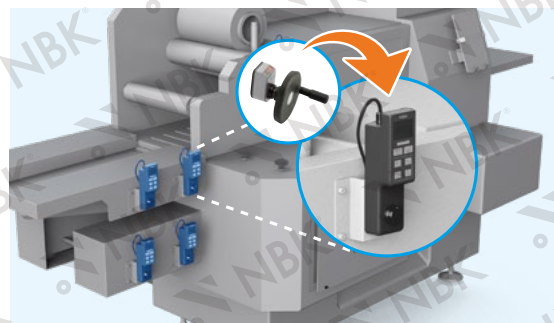
Display Mounting Systems

Display Mounting Systems with
sturdiness and high shock resistance >> P.28



Mechatronics Parts MM+

Contribution to labor-saving and automaton >> P.22



Auto-positioning Units

Automated positioning is dramatically improved! >> P.24



Universal Design UDEX® Series

Supporting the user-friendly machine design >> P.30



Machine Elements

The product lineup and develop capacity of
a specialist manufacturer >> P.32

All Stainless Steel Series

From Machine Elements to Drive Components!
Abundant Lineup of a specialist manufacturer

NBK manufactures internal parts in stainless steel, and its products have been adopted widely in the food manufacturing industry, which pays extreme attention to rusting.

Advantages of Stainless Steel Products

High Sanitation

They have a smooth surface and are resistant to bacteria and dirt to keep clean, so they are perfect for food machinery.

High Corrosion Resistance

Stainless steel has high corrosion resistance and suppresses corrosion caused by acids, alkalis, salts, and other foods and cleaning agents.

High Strength

Since stainless steel has high strength and is resistant to abrasion and impact, it can be used for long periods.

Machine Elements

Clamp Levers



Cam levers



Knobs



Pulls



Indexing Plungers



Lock Pins



Plungers



Clamping Screws



Grub Screws



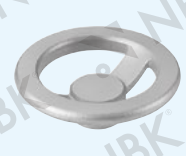
Screw Adaptors



Hinges



Handles



Grips



Leveling Elements



Leveling Adjusters



Cross Clampers



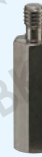
Roller Chain Bolts



Turn Buckles



Hexagon Posts



Set Collars



Indexing Mechanisms



Special Screws

Ball Rollers



Hex Socket Head Cap Screw - High Intensity Stainless Steel



Duplex Stainless Steel Hex Head Bolts



Coupling

Slit Type



Disk Type



Bellows Type

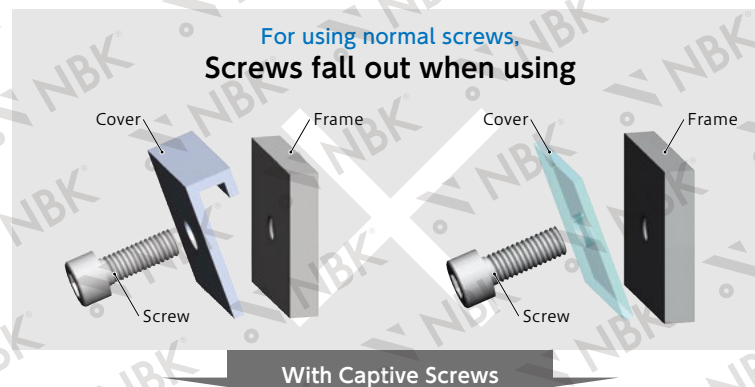


Captive Series

Perfect for CE Marking
compatibility and measures against
contamination by foreign matters



NBK has standardized products for fall prevention of machine parts categories. Use NBK's Captive Series for food machinery, packaging machinery and chemical manufacturing equipment that require CE Marking compatibility and measures against contamination.



Screws can't fall out of the cover



CE Marking

CE Marking (CE Mark) is a mark demonstrating that the manufacturer is in compliance with the EC Directive for products such as machinery and equipment. Products that are exported or distributed to EU member states must comply with the EC Directive. Therefore, in order to circulate the products in EU member states, CE Marking is required to demonstrate that they comply with the EC Directive. According to the "EU Machinery Directive Annex 1" of "Machinery Directive (2006/42/EC)" in the EC Directive, screws that secure a protective cover or inspection cover of equipment and devices must not fall out of the cover when it is removed.

Excerpt from "EU Machinery Directive Annex 1"

1.4.2 Special requirements for guards

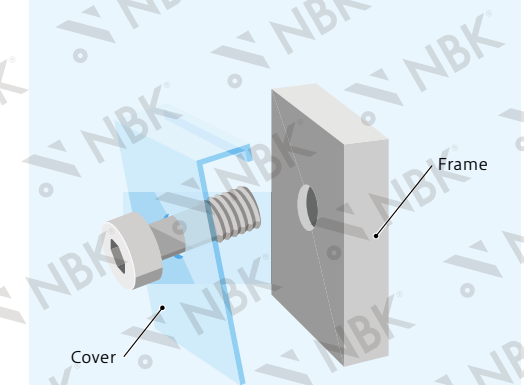
Item 1.4.2.1 Fixed guards

Fixed guards must be fixed by systems that can be opened or removed only with tools. Their fixing systems must remain attached to the guards or to the machinery when the guards are removed. Where possible, guards must be incapable of remaining in place without their fixings.

1.1.1 Definitions

(f) 'guard' means a part of the machinery used specifically to provide protection by means of a physical barrier.

NBK Captive Series Types and Features



Captive Screws

Even when the screw is removed from the frame, the captive screw does not fall out of the cover because it catches on the cover screw hole. Extensive line up of hex socket head cap screws, hex head bolts, pan head machine screws, etc.



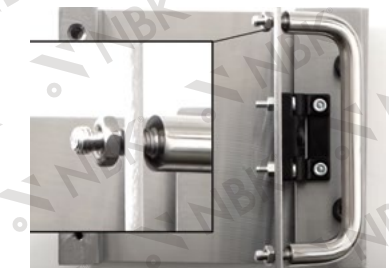
Captive Knobs

Even when the screw is removed from the frame, the captive knob does not fall out of the cover because it catches on the cover screw hole.



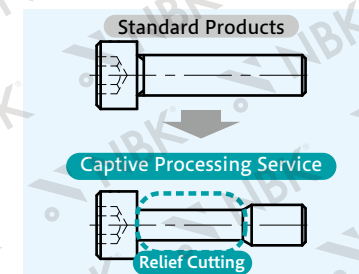
Captive Pulls

Since the loosened nuts temporarily remain in the relief cut part, the pull and nuts avoid falling accidentally.



Captive Processing Service

e-nedzi.com products (special screws) are provided with relief cut, giving fallout prevention functions.



Captive Washers for Pulls

Being constructed of a single piece of material improves the appearance of the pulls and eliminates fallout.



Captive Washers

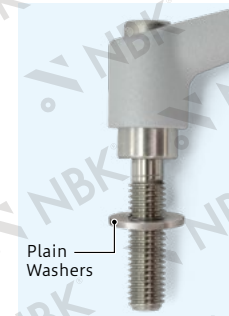
Prevents screw fall-off and loss simply by assembling it onto a commercially available screw.



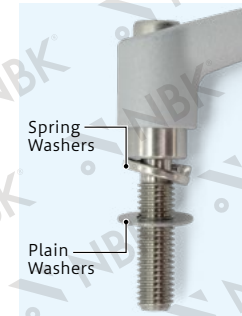
Clamp Levers with Integrated Washer

Clamp lever with washer built-in. For assembling to equipment, washer assembly is not required, keeping washers from falling out. Three types of washers are now available as standard. Select according to the usage application.

Integrated Plain Washer Type



Integrated Spring Washer Type



Integrated Washer Type for Long Holes



Learn more about Captive Series
on Web ▶



Mechatronics Parts MM+I

Machine elements are integrated with sensors, switches, etc. in contribution to labor-saving and automation



What is “MM+ I”? It means parts which enable contact between humans (Man) and machines (Machine), such as levers, pulls, and handles, realizing good communication. NBK collectively calls them **Man&Machine Elements**. Mechatronics components adding electronic elements or intelligence (Intelligence) such as sensing, monitoring, and switching to these components. They are “MM+I” (Man&Machine Elements with Intelligence) Series. NBK’s “MM+I” Series contributes to reinforced safety, reduction of time on design and installation, standardized and automated work, prevention of human error, and so on.



For customers who want to simplify design

Various parts and wiring are aggregated in a pull!



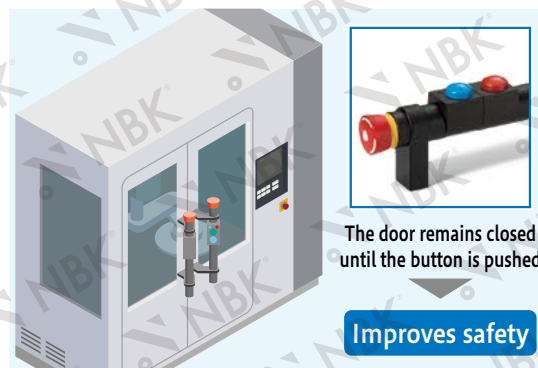
→ Pulls that integrate pulls, switches, and LED to simplify design and installation are available.

→ Plastic Pulls (With Switch and LED) **UPIF-MSL**

→ Pulls with pneumatic valve are also available. Switch on the pull switches airflow. Pull control and airflow switching are possible with one hand.

→ Plastic Pulls (With Pneumatic Valves) **UPVF**

For customers who need reduction of near miss



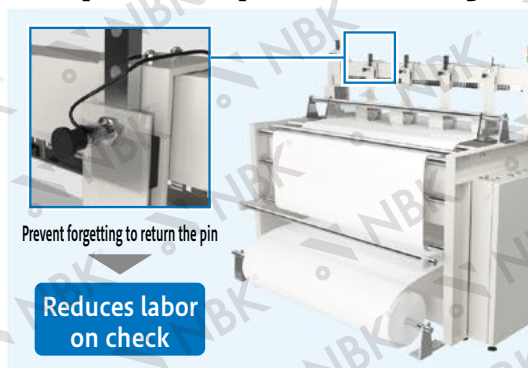
→ Pulls that integrate pulls, switches, and emergency button to simplify design and installation are available.

→ Aluminum Pulls (With Switch) **UZAF-SW** **UZBF-SW**

→ The switch contacts when the door is opened. It is available for safety switching and monitoring of doors and covers of devices and safety fences.

→ Hinges with Safety Switch **HNSW**

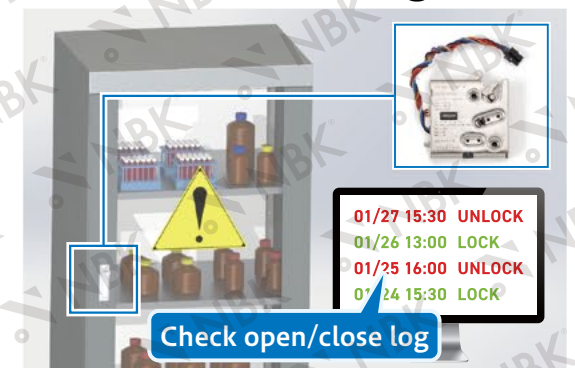
For customers who need improved productivity



→ Interfacing with the sensor and machine prevents operation of the machine if the pin of the Indexing Plunger is not still returned after setup is completed. Transmitting the sensor signals to LED lamps to visualize the positioning status is also possible. It is available for positioning the blade of a cutting machine.

→ Indexing Plungers (With Sensor) **PLXS-SN** **PLYS-SN**

For customers who need device log



→ This latch is able to unlock the cam with electric signals. Attaching it to door of a cabinet for hazardous chemicals and valuables allows you to see the open/close log.

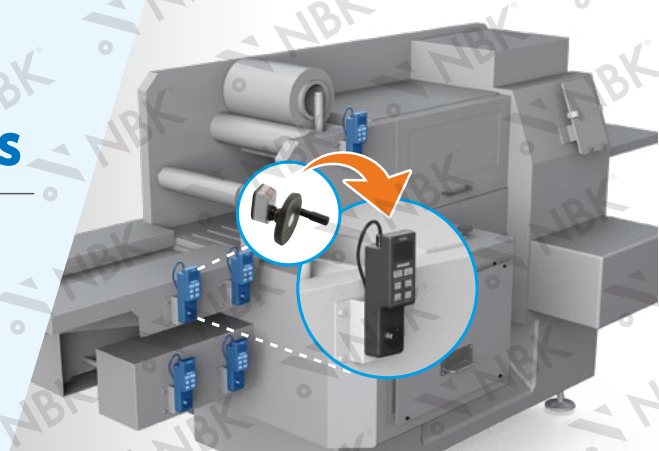
→ Electric Machine Rotation Latches **R4-EM-8** Suitable for use outside **R4-EM-7**

→ It allows you to take a log of positioning status. It also visualizes the operating status of the device.

→ Indexing Plungers (With Sensor) **PLXS-SN** **PLYS-SN**

Auto-Positioning Units

Dramatically improving positioning efficiency of food machinery and packaging and packing machinery!

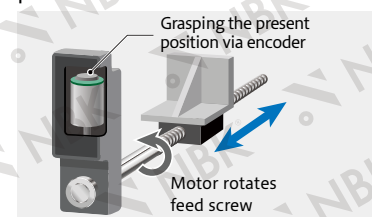


Automating the changeover process without extra design work!

This device is able to achieve automation by simply mounting instead of the handle

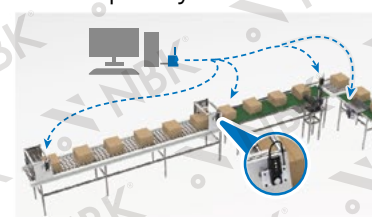
Automates positioning

The built-in motor rotates the feed screw and stops at the target position via the encoder.



Maximum 32 unit batch control

Batch control of up to 32 units is possible, and each can also be moved separately.



Multiple setup patterns can be registered

The dedicated software enables numerical setting for up to 1,000 setups*.



*EPC-100: Max. 1,000
EPC-200-CC, EPC-210-EIP: Max. 100

Easily replaces handles

Just replace the installed operation handle. Complex installation is not required.

Dedicated software free of charge

With free-of-charge control software, the automated system can easily be mounted.

Dust-proof and waterproof supported (IP65)*

Achieved Degrees of Protection IP65*. Usable even in environments exposed to dust or water.

*EPU-210, EPU-220

Wireless communication supported*

Signals from the transceiver to each unit are transmitted wirelessly*. Cable wiring is not required.

*EPU-220, EPU-100

Unit Lineup

	Rated Torque (Standard)	Rated Torque (For using High Torque Adapters)	Wired Connection	Wireless Connection	Display	Using as a single unit	IP Degrees of Protection	External Size (Excluding power cable/projection)
EPU-210	0.8 N · m	2.7 N · m*1/ 5.4 N · m*2	○	×	○	○*3	IP65	45 mm × 150 mm × 45 mm
EPU-220	0.8 N · m	2.7 N · m*1/ 5.4 N · m*2	○	○	×	×	IP65	45 mm × 150 mm × 45 mm
EPU-100	0.765 N · m	-	○	○	×	×	-	42 mm × 70 mm × 115 mm

*1:For using in combination with High Torque Adapter EOAT-200-4 *2:For using in combination with High Torque Adapter EOAT-200-8

*3:Usable without PC, PLC, or EPC-200-CC, EPC-210-EIP, or EPC-100 transceivers

System Configuration

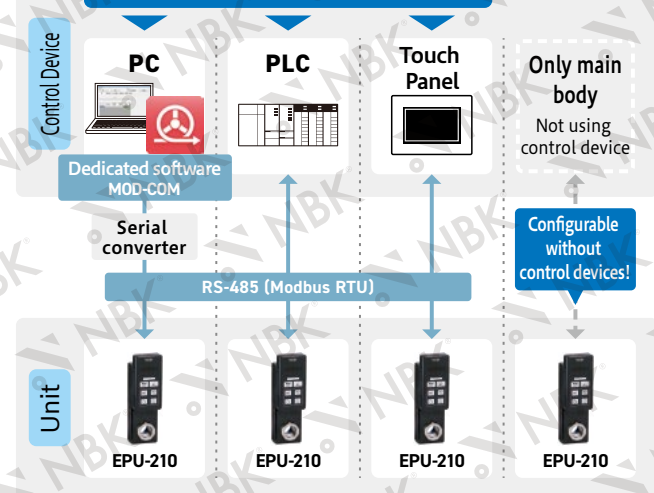
Control from PC and PLC or only main body is available. It is easily integrated into various systems.

— : Wired Connection
--- : Wireless Connection

- *1: Only initial setting uses EPU-COM with a PC. The EPC-200-CC transceiver can be connected with a PLC through CC-Link. The EPC-210-EIP transceiver can be connected with a PLC through EtherNet/IP™.
- *2: When using wireless connection EPU-100 and wired connection EPU-220 together, the transceiver is either EPC-200-CC or EPC-210-EIP.

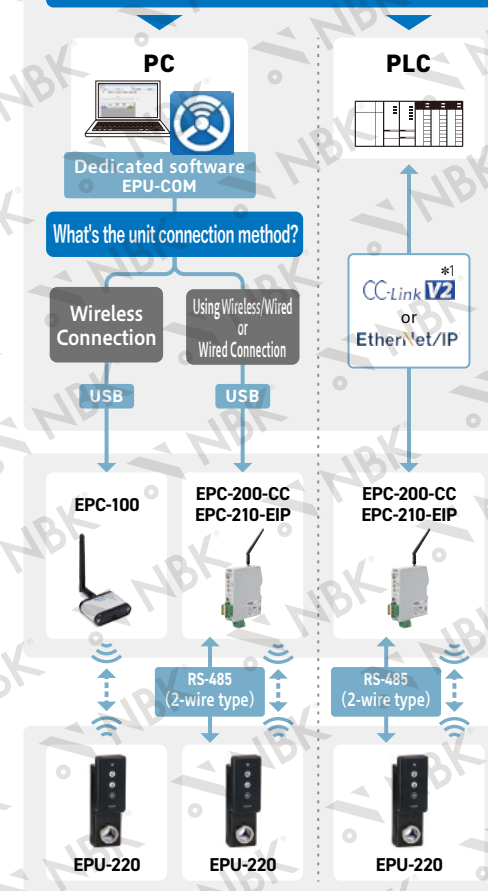
For using EPU-210

What's the control method?



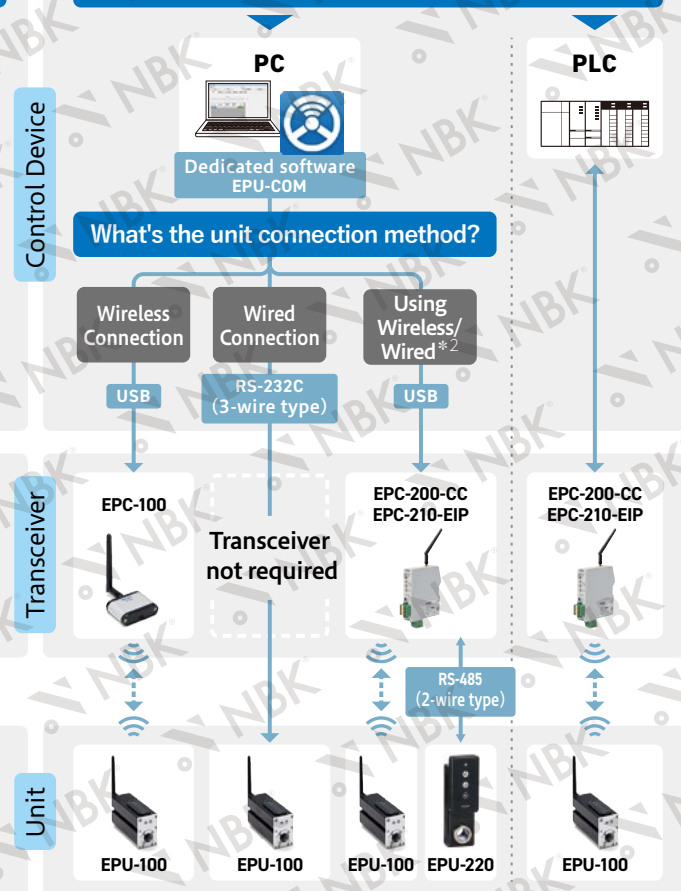
For using EPU-220

What's the control method?



For using EPU-100

What's the control method?



Easy Positioning Family

Products that help reduce positioning time and burdens are presented!



Positioning Brackets

Simple one-touch positioning

These allow for positioning with one touch. Push button operation makes fixing possible with the same force regardless of the operator, with no concerns about forgotten tightening.

- For Aluminum Frame and Round Pipe
- For Square Shafts and Long Holes

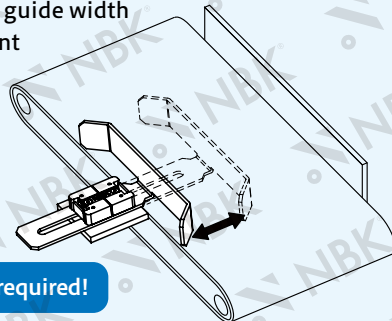
Clamp levers with washers for long holes are also available.

Learn more → P.35



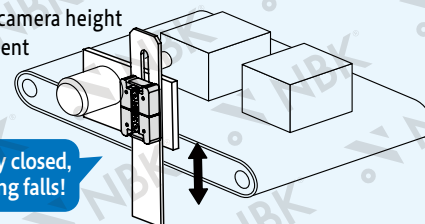
Recommended applications

- Conveyor guide width adjustment



No tools required!

- Sensor/camera height adjustment



Normally closed, preventing falls!

Please visit the NBK website for more details.



- For positioning linear guides and shafts

LinearClamper-Zee

It is perfect for table retention, positioning and chatter prevention. Compact design allows easy integration into the existing systems.



- For numerical management of positioning

Scales

An abundant lineup of scales, including scale plates and stickers, horizontal and vertical types, is available.



Indicators

Set them on the feed rotary axis to add a digital feed display. An abundant lineup of indicators, including stainless steel hubs and LCD displays, is available.

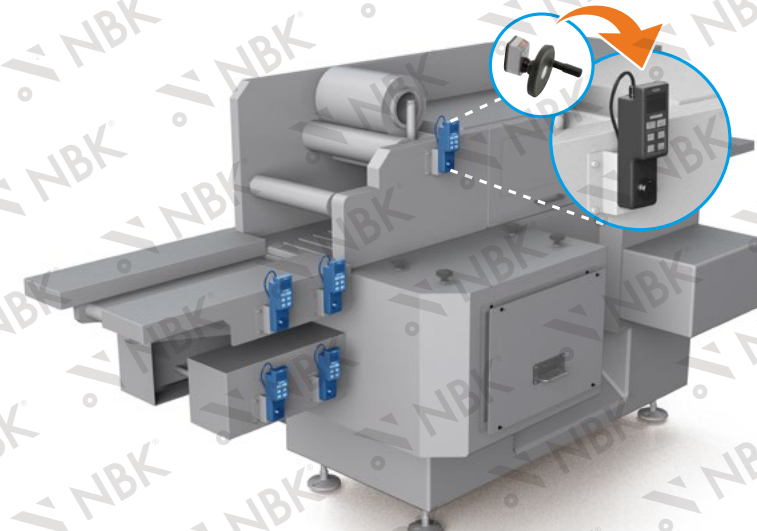
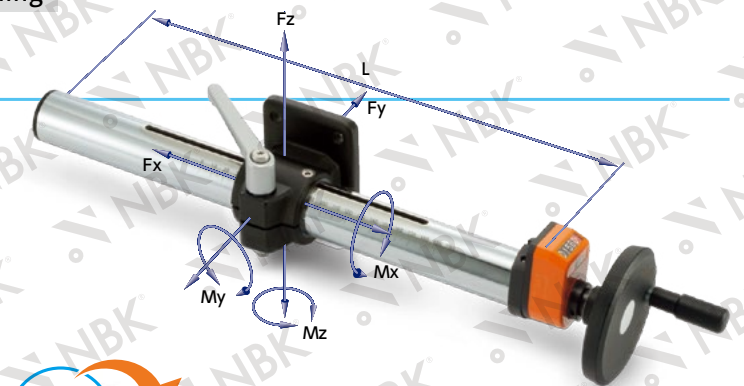


- Liner motion system for positioning

Linear Actuators

Quick and easy positioning

Linear actuators are simple linear motion systems for positioning. Basic configuration is actuator and slider block. Combine handles and digital position indicator as necessary.



- Automated positioning with handles

Auto-Positioning Units

- Automating the changeover processes without extra design work

The units are able to automate positioning with handles during changeover.

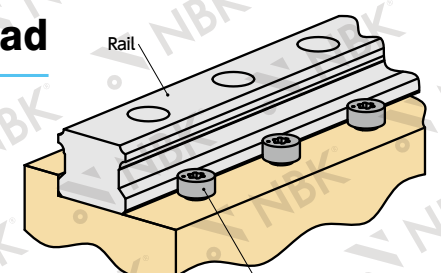
Learn more about Auto-Positioning Units → P.24

- For fixing and positioning linear guideways

Clamping Screw with Eccentric Head

Powerful clamping force with wedge effect

When the screw is tightened, the workpiece is strongly clamped by the head, which is decentered from the shaft center of the screw. The wedge effect creates a large clamping force with low tightening torque.



SLECA
Clamping Screw with Eccentric Head

Display Mounting Systems

Abundant experience of adoption for equipment including semiconductor manufacturing equipment and medical equipment!
Display Device Mounting Systems with sturdiness and high shock resistance



NBK tablet PC holder for production site: Display Mounting Systems

Display device mounting systems commonly referred to as tablet holders and monitor mounts. NBK Display Mounting Systems series enhance load capacity and durability for use on production sites. They are able to attach displays and tablet PCs to devices and equipment, so they have been adopted to machine tools, semiconductor manufacturing equipment, and medical equipment.

Thick-Wall Design for Sturdy Fixing
Thick-walled design with excellent durability. Provides peace of mind even for use at plants.

Customization supported
Custom products can be made to suit the customer's requirements from just 1 piece. Thorough manufacturing experience. Details available here.

Abundant Lineup

You can select products in accordance with your specifications.

Display Devices

Tablet PCs/Displays
Keyboard / Notebook PC

Mounting Surfaces

Round Pipe and Aluminum
Frame Walls/Cover Panels/
Sheet Metal

Adjustment Angle

360° Rotation /
Vertical / Horizontal

Learn more about Display Mounting Systems on Web ▶



For Displays

For Tablet PCs

Adjustment Angle	360° Rotating Type				Fixed Type		1-Axis Type	
	Retaining angle with built-in spring		With Hex Socket Head Cap Screw	With Clamp Levers	With Hex Nuts	Combination		
Mounted Item	Fixing Angle							
Front-Surface Mounting (Aluminum Frames / Wall Surfaces)	DFT-AF	DFK-AF	DFS-AF	DFSN-AF	DFR-AF	DTAR-AF	DTA Combining with various display mounting systems	DTAS-MG
Rear-Surface Mounting (Walls / Cover Panels / Sheet Metal)								
Aluminum Frame End Surfaces	DFT-AA	DFK-AA	DFS-AA	DFSN-AA	DFR-AA	DTAC-AB-A		
Round Pipes	DFT-PB	DFK-PB	DFS-PB	DFSN-PB	DFR-PB	DTAC-PB		

Universal Design UDEX® Series

Supporting user-friendly machine design!

Features of UDEX® Series

UDEX® Series are designed to consider the 7 principles of Universal Design. Designs that pursue "ease of use," "ease of force application," "ease of grip," and "ease of understanding" improve the operability of the machine and support user-friendly machine design. UDEX® Series' sophisticated design is suitable for any machine, making the machines look more beautiful and gentle.

The 7 Principles of Universal Design

Principle 1

Equitable use.

Principle 2

Flexibility in use.

Principle 3

Simple and intuitive.

Principle 4

Perceptible information.

Principle 5

Tolerance for error.

Principle 6

Low physical effort.

Principle 7

Size and space for approach and use.

The 7 Principles of Universal Design were proposed by the Center for Universal Design at North Carolina State University, the birthplace of universal design research in the United States.

Learn more about other use cases and products on Web ▶



Color variations that support the color universal design

UDEX® Series have been certified for color universal design by the Color Universal Design Organization (CUDO), a non-profit organization. It has been certified because it is made in consideration of ease of use for as many people as possible, regardless of individual differences in color vision.

The five colors used for UDEX® Series: ●Silver Gray, ●Black, ●Orange, ●Blue, ●Yellow were selected with consideration of color balance so that as many people as possible, regardless of individual differences in color vision, can easily judge and distinguish each color. The color coding on operating sections clarifies work procedures and indicates hazardous areas to support the color-universal design of machinery and devices.

Each person has different sense of color. Accordingly, there are more than 5 million people in Japan whose color vision differs from that of the general population due to differences in genetic types and various eye conditions. For example, a D-type colorblind person views the color vision of a general colorblind person (Figure 1) like Figure 2.

Gray	Red	Green	Gray	Red	Green
Blue	Orange	Yellow	Blue	Orange	Yellow

Figure 1: Color vision of a general colorblind person

Figure 2: Color vision of a D-type colorblind person

Color universal design is a design created from the user's perspective so that visual information is conveyed properly to as many people as possible, regardless of individual differences in color vision.

NBK's new proposal

Universal Design UDEX® Series



Laser Engraving Service

Symbols (color names) are engraved to further ensure the color universal design. Indicating the symbols allows more people to understand the visual information. Look here for more information.



This mark indicates that the product has been manufactured with attention to color universal design in order to convey visual information easily to as many people as possible, regardless of any individual differences in color perception; it may be displayed only on the product or facilities authorized by CUDO (NPO).

Machine Elements

The product lineup and engineering capacity that only a specialist manufacturer can provide



NBK's machine elements are made with painstaking attention to their comfort and beauty, as well as their functionality, operability, safety and reliability. The abundant lineup enables diversified needs to be supported. We have a range of high-performance, high-precision machine elements born from fresh ideas and accumulated technologies.

Abundant Lineup

Positioning Brackets



Clamp Levers



Cam levers



Function Levers



Knobs



Pulls



Indexing Plungers



Lock Pins



Plungers



Clamping Screws



Stopper Bolts and Stopper Screws



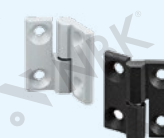
Adjust Bolts and Screw Adaptors



Latches (Catch and Snib)



Hinges



Handles



Grips



Leveling Adjusters (Level Adjusters) and Levels



Rubber Bumpers (Vibration-Resistance Rubber)



Cross Clampers



Ball Joints and Angle Hinge



Structural Components



Hexagon Posts



Linear Actuators



Set Collars



Indicators



Scales



Dials



Manual Stages



Ball Rollers



Compact Powerful Magnet for FA



Display Mounting Systems



Plugs

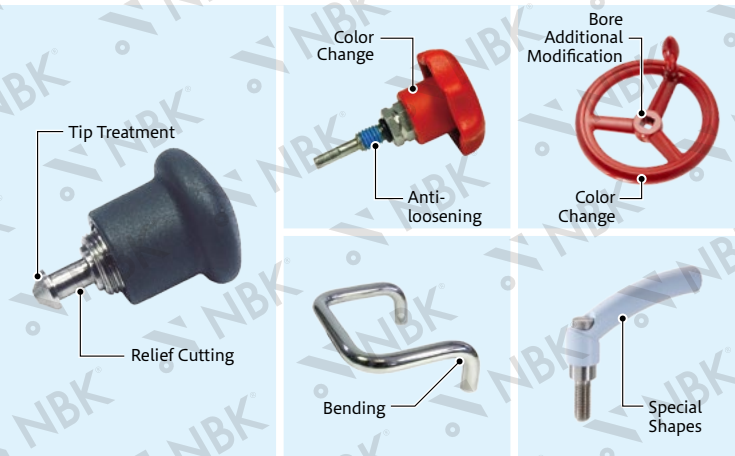


Position Indexing and Angle Adjustment



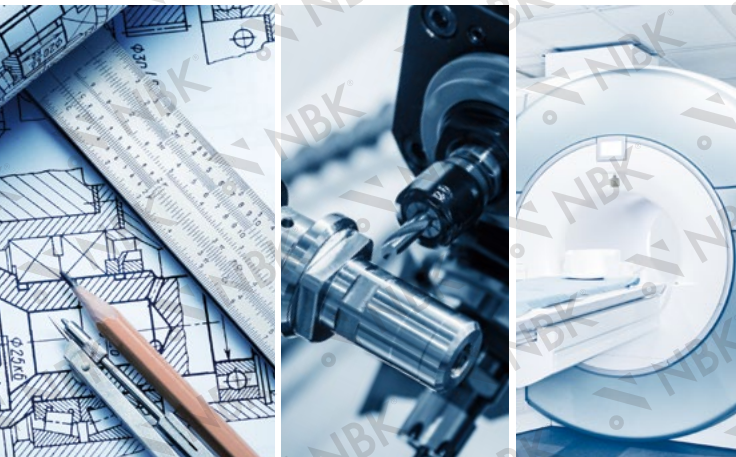
Wide range of customization supported

We provide customization according to the customer's request.



Made-to-order products

Specialist engineers also design and manufacture products from scratch in accordance with customer needs, along with our standard products. We have significant experience with machine tool parts, medical equipment parts, and so on. Feel free to contact our customer service.



Various services are also available!

- ▶ Cleanroom Wash / Cleanroom Packing Service
- ▶ Handle Shaft Hole Processing Service
- ▶ Lever, Knob, and Screw Combination Service
- ▶ Scale Plate / Scale Sticker Cutting Service
- ▶ Vibration Resistant Treatment Service
- ▶ Laser Engraving Service
- ▶ Screw Supply Service

See here for further details...

Please visit the NBK website

Packed with basic information on machine elements and handy design know-how! Certificates for other materials, environments, etc. can also be issued.



🔍 NBK Machine Elements

<https://www.nbk1560.com/en-US/>

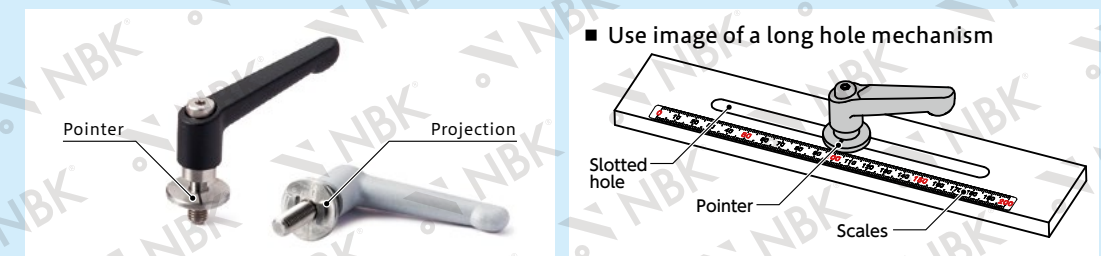
Products manufactured based on customer's needs

Clamp Lever with Built-in Washers (For Long Holes)

Previously, customers marked washers with a laser to indicate positioning. In response to the need that washers with a pointer are preferable, NBK has developed a product with a pointer on the washer and a projection on the washer to prevent the washer from rotating so that the pointer on the top surface always points to the scale.



The pointer engraved on the top surface enables easy position confirmation of the long hole mechanism. The projection on the washer surface prevents the washer from rotating.

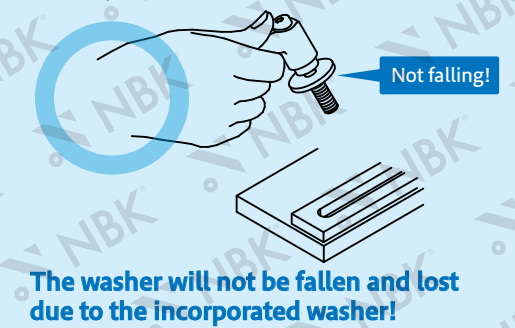


Advantages Perfect for measures against contamination by foreign matters

● Normal Clamp Levers



● Clamp Levers with Built-in Washer



We propose more solutions and new products based on your issues

Please contact us about your issues!



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Since 1560

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