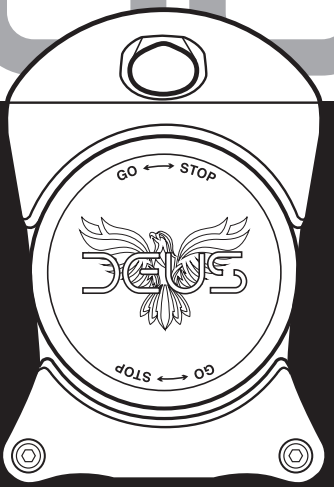
3000



DEUS 3100
DEUS 3200
DEUS 3300
DEUS 3700

DEUS 3000 Series Controlled Descent Devices

•

Instruction Manual

For the most current version of this instruction manual in pdf format visit our website: www.deusrescue.com

DEUS®

⚠ WARNING

FAILURE TO HEED ANY OF THESE WARNINGS MAY RESULT IN SEVERE INJURY OR DEATH.

Activities involving the use of this equipment are inherently dangerous. You are responsible for your own actions and decisions.

Before using this equipment, you must:
- Read and understand this Instruction Manual.
- Get specific training in its proper use.
- Become acquainted with its capabilities and limitations.
- Understand and accept the risks involved.

NFPA CERTIFICATION

DEUS 3100, 3200 and 3300
CONTROLLED DESCENT DEVICES

Meet NFPA 1983 (2012 Edition)

Auxiliary Equipment Requirements, Life Safety Equipment for Emergency Services

"Fire Escape"

Certified by TÜV SÜD, Munich, Germany

Keep this Instruction Manual as part of a permanent record that includes the usage and inspection history for the equipment. Refer to the Instruction Manual before each use. Additional information regarding auxiliary equipment can be found in NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, and NFPA 1983, Standard on Life Safety Rope and Equipment for emergency services, 2012 Edition.

ANSI CERTIFICATION

DEUS 3700
CONTROLLED DESCENT DEVICE

Meets ANSI/ASSE Z359.4 (2007 Edition)

Assisted-Rescue and Self-Rescue Systems, Subsystems and Components

Certified by TÜV SÜD, Munich, Germany

CSA CERTIFICATION

DEUS 3700
CONTROLLED DESCENT DEVICE

Meets CSA Z259.2.3 (2012 Edition)

Safety Standard for Descent Devices

Type 1, Class B

Certified by CSA Group, Toronto, Canada

CE
0123

EN CERTIFICATION

DEUS 3700
CONTROLLED DESCENT DEVICE

Meets EN341 (2011 Edition)

Safety Standard for Rescue Descent Devices

Type 1, Class B

Certified by TÜV SÜD, Munich, Germany

CONTENTS

Please recycle. Printed in USA.

SPECIAL NOTICES

- A DEUS 3000 Series controlled descent device is only part of a complete rescue system.
- All DEUS 3000 Series controlled descent devices have load limitations.
- In some circumstances the DEUS 3000 Series controlled descent devices may be used for two person descent.
- Make sure components of your complete rescue system are compatible.
- Avoid impact loading of your rescue system.
- Pay special attention when attaching connectors and when selecting an anchorage.
- Always wear appropriate gloves when using DEUS controlled descent systems.
- Avoid descending into electrical, thermal, chemical and other hazards.
- All DEUS 3000 Series controlled descent devices and DEUS ropes must be inspected before each use.
- Inspection must be carried out by a competent person.
- Read the Use and Warranty information on page 25 of this Instruction Manual.

DEUS Rescue reserves the right to change the specifications, performance and functionality of its products at any time without prior notice.

RESPONSIBILITIES OF THE USER

- Understand and comply – it is the authorized person's and employer's responsibility to strictly conform to the following warnings:
  - Provide each user with a copy of instructions
  - Be aware of regulations
  - Use only as specified – do not alter
  - User assumes risks of failure to follow instructions
  - Remove immediately from service if equipment fails to pass inspection
  - Be aware of and comply with limitation of user weight
  - Be aware of and comply with limitation of height of use
  - Ensure that all users are trained on proper use, care and maintenance of this equipment.
- Inspect and maintain equipment
- Train and manage persons at height
- Develop a rescue plan
- Continuously assess risks

INTRODUCTION

Congratulations on your selection of a DEUS 3000 Series controlled descent device. DEUS 3000 Series devices represent the most technically advanced, controlled descent devices in the world.

DEUS 3000 Series controlled descent devices have four independent brakes for maximum control, versatility and safety:

1) a disk actuated drum brake operated with the control dial allows you to "stop" or "go" hands free
2) the "always-active" centrifugal brake
3) the self-adjusting hands-free figure eight brake provides redundant security
4) manual rope tailing provides precise control.

Rope runs through DEUS 3000 Series controlled descent devices in either direction. This makes it possible to rescue multiple people, one at a time.

DEUS 3000 Series controlled descent devices are designed for repeated use, which makes them ideal for training.

Intended Use

⚠ **IMPORTANT:** DEUS 3000 Series controlled descent devices are designed for use by professionals. The proper use of these devices are inherently risky. They should only be used by someone who has been property trained. For more information on training, contact DEUS Rescue. These devices must not be used for play, and must not be used by anyone who has not been trained, as it may place the user at risk of serious injury or death.

⚠ **IMPORTANT:** Each DEUS controlled descent device model is certified for use ONLY with specific DEUS-approved ropes – do not experiment with or use any other ropes. The internal brake systems of each model have been calibrated with the particular features of specific DEUS ropes. Use of any other rope risks serious injury.

⚠ **IMPORTANT:** All rescue training from heights should be done using a backup system. The DEUS 7300 controlled descent device is recommended by DEUS Rescue.

⚠ **IMPORTANT:** During rescue training, there should be an additional rescue kit readily available and located nearby that is not part of the equipment being used for the training.

This Instruction Manual

This manual provides care and use instructions for DEUS 3000 Series controlled descent devices. Updates and additional information may be found at www.DEUSrescue.com.

This manual mentions but does not provide care and use instructions for other items of equipment that are essential parts of a vertical rescue system. You should consult the specific instruction manuals provided with each component of your vertical rescue system to know how to safely use that equipment, and the limitations of that equipment.

This manual is intended as a reference and a supplement to training. It does not replace training, which is required for proper use of these devices.

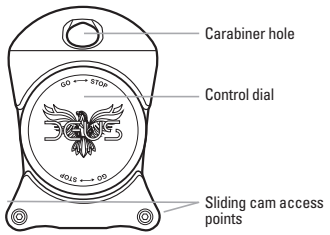
Although we diligently try to update product specifications in literature and at the website in a timely manner, we cannot be responsible for product or specification changes and typographical errors.

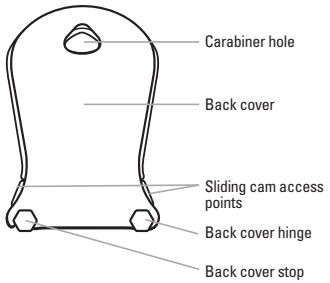
Technical Assistance Contact Information

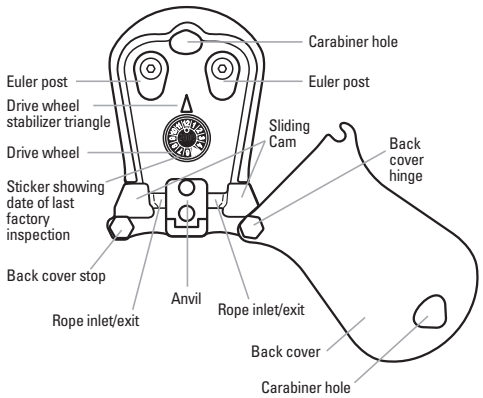
DEUS Customer Service
866-405-3461
service@DEUSrescue.com
www.DEUSrescue.com

DESCRIPTIONS OF THE PARTS OF A VERTICAL RESCUE SYSTEM

Parts of a 3000 Series controlled descent device







A vertical rescue system consists of six interdependent parts: 1) anchorage, 2) anchorage connector, 3) rope, 4) controlled descent device, 5) connectors, and 6) harness. To conduct a rescue after a fall, an additional part – a rescue transfer unit – is also required. The system is only as strong as the weakest part in the system. It is the responsibility of the user to make sure he or she understands all of the parts in the system and how to use those parts.

In this manual, the term "controlled descent device" is used to refer to a piece of hardware, like one of the devices in the DEUS 3000 Series, that is used to control vertical descent during an escape or rescue. A "controlled descent device" is part of a "vertical rescue system." The term "vertical rescue system" is used to describe the system that includes all of the parts listed in the previous paragraph.

⚠ **WARNING:** DEUS Rescue has carefully selected each component of our escape and rescue kits to work in conjunction with DEUS descent devices for optimal efficiency and safety. Substituting any of these components may result in injury or death.

Anchorage – The anchorage needs to be solid, unmovable, unyielding, and unbreakable. Professionals who work at height usually rely on pre-planned anchorages rated to support specific maximum loads, depending on the standard followed, such as ANSI, CSA or EN. (Refer to the appropriate standards for details.) Selection of an appropriate anchorage is critical to performing a safe escape or rescue descent and requires considerable training.

Anchorage connector – The anchorage connector connects the vertical rescue system to the anchorage. Always select an appropriate anchorage connector.

DEUS-approved ropes – DEUS 3000 Series controlled descent devices are designed for use ONLY with DEUS-approved ropes. Use of any other ropes may result in injury or death. Refer to the device's back plate for more information.

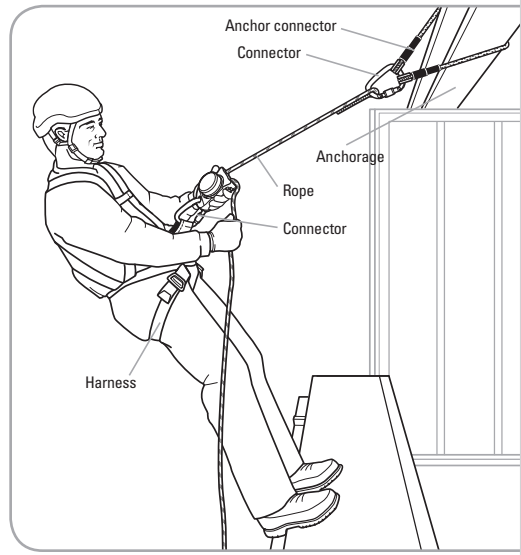
DEUS 3000 Series Controlled Descent Devices – Controlled descent devices control the movement of rope during descent or positioning. The purpose of DEUS 3000 Series controlled descent devices is to control the movement of rope either automatically (hands free) or manually using four independent brakes.

The diagrams at left show the various parts of a DEUS 3000 Series controlled descent device.

Connectors – Connectors can be either hardware like carabiners or software like webbing and rope. The purpose of connectors is to link together the various parts of the system. A vertical rescue system typically requires at least two connectors: one to connect the person to the system, and one to connect the system to a suitable anchorage point.

Harness – The harness is what connects you to the vertical rescue system. The purpose of the harness is to secure you to the system and safely and comfortably distribute load during descent. Your employer will determine which harness is appropriate for your work. Harnesses shall meet the requirements of the appropriate safety standards for your location and industry (e.g., NFPA, ANSI, CSA or EN). Refer to the relevant standards for details.

Rescue Transfer Unit – A rescue transfer unit is a specialized piece of equipment used to raise a person who has fallen and is suspended from a piece of fall-protection equipment in order to transfer the load from the fall-protection device to a rigged and anchored controlled descent device. After the load is transferred to the controlled descent, the unloaded fall-protection device is released so that controlled descent can proceed.



BEFORE EACH USE

Before loading and using a vertical rescue system, check every component of the system, including: 1) anchorage connector, 2) rope, 3) controlled descent device, 4) connectors, 5) harness, and 6) the rescue transfer unit, if your system includes this part. Pre-rigging as much of the system as possible saves time and avoids mistakes. Ensure that every component of your vertical rescue system is safe and ready to use.

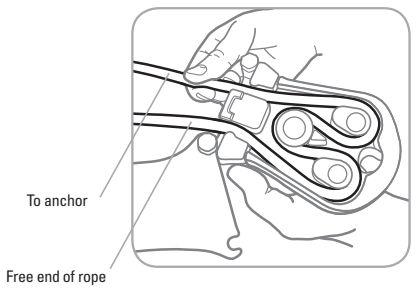
See the section titled "Care and Maintenance" for specific procedures.

⚠**WARNING:** If any of these inspections fail or if you have any doubts about any component of your vertical rescue system, do not use it. Inspection increases the likelihood but does not guarantee having a safe vertical rescue system and inspection offers no additional warranty rights above those contained in this manual.

INSTRUCTIONS FOR RIGGING A DEUS 3000 SERIES CONTROLLED DESCENT DEVICE

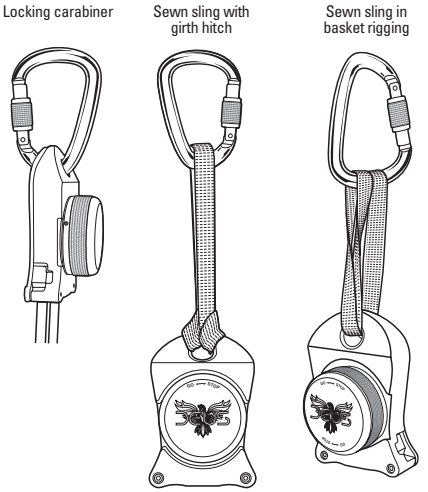
Threading rope into a DEUS 3000 Series controlled descent device

The following drawing shows how to thread rope into a DEUS 3000 Series controlled descent device. If you want to use the manual brake by tailing the free end of the rope, and you want to do that with your right hand, thread rope through the DEUS 3000 Series controlled descent device so that the free end of the rope exits the device on the side nearer to the back cover hinge.



Securing the hinged cover on a DEUS 3000 Series controlled descent device

⚠**WARNING:** After threading rope into the device and before using it, the hinged cover must be secured in the closed position with a rated and suitable closing device. Suitable closing devices include locking carabiners and slings. The following illustrations show approved methods used to secure the hinged cover.

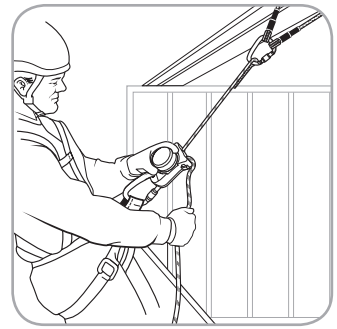


Direction of rope travel

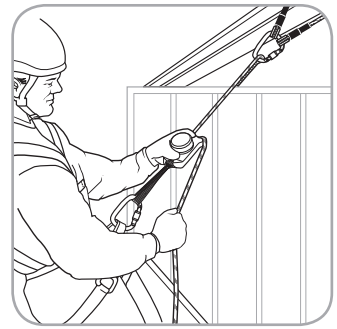
After threading rope through a DEUS 3000 Series controlled descent device, descent can be done from either side of the rope because all of the brakes in the device work equally in both directions.

"Escape" rigging of a DEUS 3000 Series controlled descent device

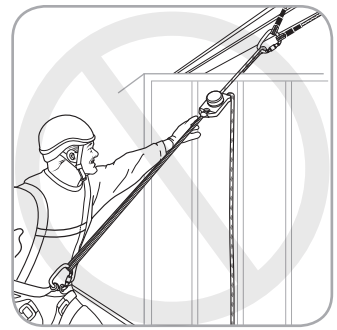
"Escape" rigging means that the DEUS 3000 Series controlled descent device is set up for the user to escape or perform a self-rescue from a situation at an elevated position. It means the descent device is attached to the harness of the person using it with a suitable connector so that the user can control the descent device while descending. When using "escape" rigging, it is important to position the descent device within easy reach of the person using it. The illustrations at right show "escape" rigging of a DEUS 3000 Series controlled descent device.



"Escape" rigging using a carabiner as the connector.



"Escape" rigging using a sewn sling and carabiner as the connectors.

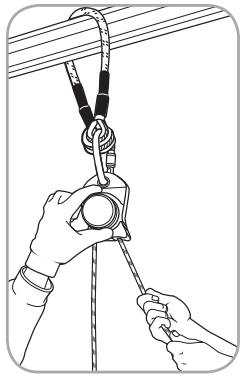


"Escape" rigging with a carabiner and sewn sling that is too long, putting the descent device out of reach of the user.

"Rescue" rigging of a DEUS 3000 Series controlled descent device

"Rescue" rigging means that the DEUS 3000 Series controlled descent device is set up for the rescuer to perform one or more assisted-rescues. This means the descent device is not attached directly to the harness of the person descending. Instead, the descent device is attached to the anchorage with a connector so that the rescuer is in control of the descent device while the person being rescued is descending. The person being rescued is then attached to one end of the rope.

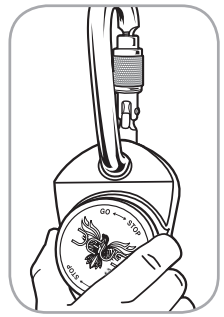
When using "rescue" rigging, a high anchor point is preferred over a low anchor point because it is safer and more convenient. A high anchor point limits the chance of shock load when the system is loaded with the person being rescued. When forced by circumstance to use a low anchor point, the rescuer must take special care to avoid impact loading the system as the person being rescued is loaded onto the system.



"Rescue" rigging

UNDERSTANDING AND USING THE FOUR INDEPENDENT BRAKES IN DEUS 3000 SERIES CONTROLLED DESCENT DEVICES

Disk actuated drum brake



The control dial on the DEUS 3000 Series controlled descent device is used to set and control descent speed using the integral disk actuated drum brake. The control dial affects the braking force applied by the disk actuated drum brake and the hands-free figure eight brake. The control dial is marked with "go" and "stop" indicators. Turning the control dial clockwise slows and then stops descent. Turning the control dial counterclockwise initiates descent and then increases descent speed. The control dial can be turned and descent speed adjusted before or during descent. Once set, the control dial will maintain its position, which means that DEUS 3000 Series controlled descent devices work hands-free in both the "stop" and "go" modes. This drawing shows how to use the control dial to control the disk actuated drum brake.

The control dial is designed to require only two-finger turning – it is not necessary or advised to over-tighten control dial.

Centrifugal brake

The centrifugal brake located inside the control dial of DEUS 3000 Series controlled descent devices is always active and operates without involvement by the user. Its role is to guard against free-fall. When descent speed is slow, the centrifugal brake is not engaged. As descent speed increases, the centrifugal brake gradually applies braking force to limit descent speed. Within the load limits of DEUS 3100, 3200 and 3300 controlled descent devices, the centrifugal brake is designed to limit descent speed to about 3 meters per second. The DEUS 3700 controlled descent device is designed to limit descent speed to less than 2 meters per second.

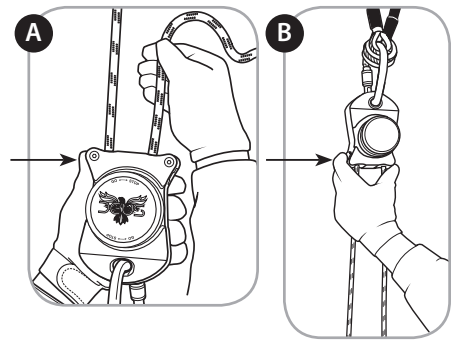
Figure eight brake

The self-adjusting figure eight brake operates automatically. The functional parts of the figure eight brake are the two Euler posts, the sliding cam and the anvil. The sliding cam automatically applies tension to the free end of the rope to activate the figure eight brake based on the load applied to the device.

It is possible to manually reduce the amount of braking done by the figure eight brake during descent to increase descent speed. This can be done in two ways:

Center the sliding cam

During descent, the side of the sliding cam nearest the loaded side of the rope will protrude slightly from the frame of the DEUS 3000 Series controlled descent device. Pressing on the protruding end of the sliding cam will reduce the tension applied by the sliding cam to the free end of the rope. This decreases braking done by the figure eight, which then increases descent speed. Releasing the sliding cam will automatically resume normal descent. In the drawing below, figure A shows how to center the sliding cam when using "escape" rigging. Drawing B shows how to center the sliding cam when using "rescue" rigging.



Rotate the frame of the DEUS 3000 Series controlled descent device

During descent, grasp the frame of the DEUS 3000 Series controlled descent device and apply rotational torque that would align the centerline of the device with the load-bearing side of the rope. The frame will not noticeably move, but the effect of the torque will reduce the tension applied to the free end of the rope by the sliding cam, which will increase descent speed. Releasing the frame will automatically resume normal descent. The drawings at right illustrate how to apply torque to the frame of the DEUS 3000 Series controlled descent device to increase descent speed in special conditions.

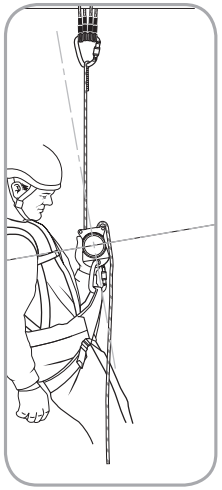
These techniques to reduce the amount of braking done by the figure eight brake can be used in four different circumstances:

a) To increase descent speed

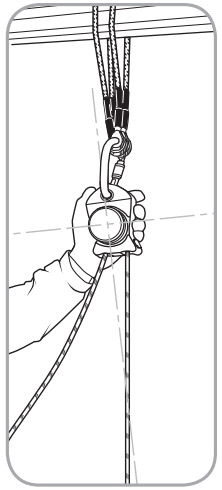
Increased descent speed may be desired when the person descending is lightweight, when descent is at an angle other than vertical, or in special situations. The increased speed that occurs in these circumstances carries increased risk of injury or death upon landing. It is the responsibility of the user to determine if increased speed is prudent.

b) To initiate descent with very light loads

As a safety feature, DEUS 3000 Series controlled descent devices are designed so that hands-free descent will not occur if the load is less than 40 kg (90 lbs). Because of this safety feature, the DEUS 3000 Series is not designed for use in "escape" mode by anyone weighing less than 40 kg (90 lbs). However, DEUS 3000 Series devices can be used to rescue individuals weighing less than 40 kg (90 lbs) when rigged in "rescue" mode. When rigged in "rescue" mode and the load is below the minimum necessary to initiate hands-free descent, descent can be initiated by decreasing the braking effect of the figure eight brake.

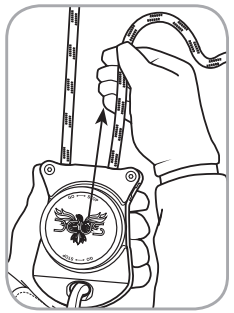


In "escape" rigging, rotate the frame to release rope tension in order to back away from an anchor or to increase descent speed.



Rotate the frame in "rescue" rigging to initiate descent with light loads or to increase descent speed.

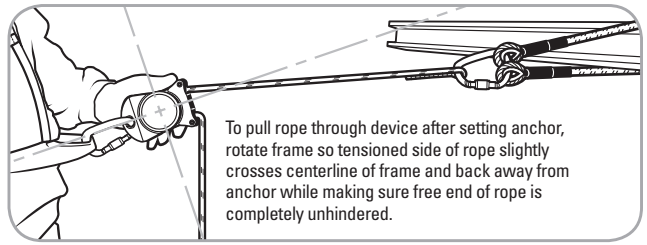
c) To manually pull rope through the device.



To manually pull rope through a DEUS 3000 Series controlled descent device, it is first necessary to turn the control dial to the full "go" position to release the disk actuated drum brake. Then, making sure that both ends of the rope are parallel to the centerline of the frame of the device, pull on the side of the rope you want to lengthen. Be sure to slightly cross the centerline of the frame of the device while pulling. This drawing illustrates how to align the ropes to manually pull rope through the device.

d) To enable horizontal travel after setting an anchor

To travel horizontally after setting an anchor (such as to move across a room with the descent device after securing the anchorage connector to the anchorage), position the DEUS 3000 Series controlled descent device so that both sides of the rope in the device are parallel to the centerline of the frame of the device. Then, while backing away from the anchor, rotate the frame slightly so that the tensioned side of the rope slightly crosses the centerline of the device. The following drawing illustrates how to travel horizontally with a DEUS 3000 Series controlled descent device.

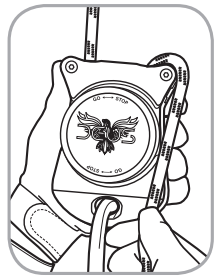


To pull rope through device after setting anchor, rotate frame so tensioned side of rope slightly crosses centerline of frame and back away from anchor while making sure free end of rope is completely unhindered.

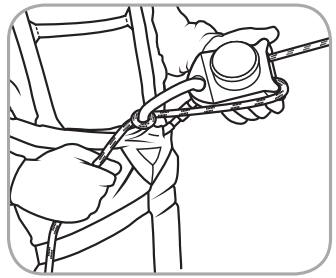
Manual brake

⚠**WARNING:** Gloves should always be worn by the person doing manual braking.

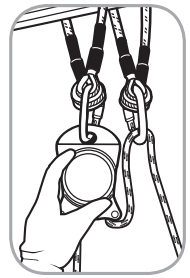
The free end of the rope entering a DEUS 3000 Series controlled descent device can be used to manually brake and control descent speed. This manual braking technique operates independent of all three other brakes in DEUS 3000 Series controlled descent devices. Manual braking is done by bending the free end of the rope around an object before it enters the DEUS 3000 Series controlled descent device. The following drawings show three ways to engage manual braking:



Bend the free end of the rope around the frame of the device to do manual braking. Keep the rope on the frame rather than the back cover.



To manually brake heavy loads in "escape" rigging, loop the free end of the rope through the connecting carabiner to increase friction and improve control.

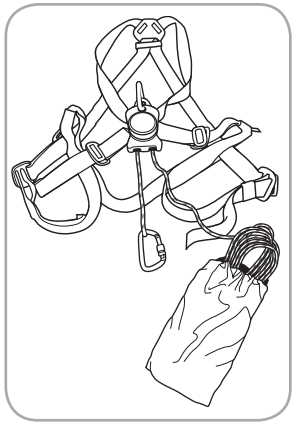


To manually brake heavy loads in "rescue" rigging, loop the free end of the rope through an extra carabiner rigged in parallel with the anchorage connector carabiner to increase friction and improve control.

USES AND OPERATING PROCEDURES

Escape

DEUS Rescue strongly recommends carrying your personal DEUS 3000 Series descent device pre-rigged for "escape" and ready to use. Pre-rigging decreases the time necessary to escape in case of emergency, decreases the number of steps to execute, and decreases the chance of making mistakes. Pre-rigging includes:



a) Threading the rope through the device

b) Closing and securing the back cover of the DEUS 3000 Series controlled descent device with a carabiner or webbing sling

c) Connecting the controlled descent device to the appropriate attachment loop on your harness with a locking carabiner, making sure the carabiner is locked

d) Connecting the anchorage connector of your choice to an appropriate end-termination on the rope

e) Stowing the rope in a bag so that it will deploy smoothly

f) Verifying that the control dial on your DEUS 3000 Series is in the braking mode of your choice. We strongly recommend that you preset the control dial to the same braking mode that you use in training.

The basic procedure to "escape" with a pre-rigged DEUS 3000 Series controlled descent device follows these steps:

a) Locate a suitable anchor point that will support your working load.

b) Connect anchorage

c) Move to the point of egress

d) Make sure there is no slack in the rope between the anchor and you

e) Carefully manage the transition from unloaded to loaded rope so as not to impact load the rope or the descent device

f) Descend under manual or automatic control using the DEUS 3000 Series controlled descent device to control your descent velocity

In an escape, the objective is to get to the ground safely and as quickly as possible. Once on the ground, immediately disconnect yourself from the rope and move to a safe place.

Self-rescue after a fall

⚠**WARNING:** Performing a self-rescue from height requires advanced levels of training and should only be attempted by individuals trained to perform such tasks.

Personnel at height should always use approved fall-protection gear. When a worker falls and is suspended from his fall-protection equipment, he or she can wait to be rescued, or he or she can perform a self-rescue using a DEUS 3000 Series controlled descent device. Suspension trauma can occur in as little as a few minutes after a fall, and it is at times difficult for a rescuer to respond and perform a rescue within that time. Therefore, a self-rescue is preferred over waiting to be rescued.

⚠**WARNING:** The technique used to transfer load from loaded fall-protection equipment to a DEUS 3000 Series controlled descent device requires expert instruction.

When performing a self-rescue, it is necessary to transfer load from the fall-protection equipment to a DEUS 3000 Series controlled descent device rigged in parallel with the fall-protection equipment. Once the load is transferred, disconnect from the fall-protection equipment and descend in "escape" mode.

Rescue

⚠**WARNING:** Performing a rescue at height requires advanced levels of training and should only be attempted by individuals trained to perform such tasks.

Rescues are done when one or more people rescue one or more other people. Rescues are performed with the DEUS 3000 Series controlled descent device rigged in "rescue" mode.

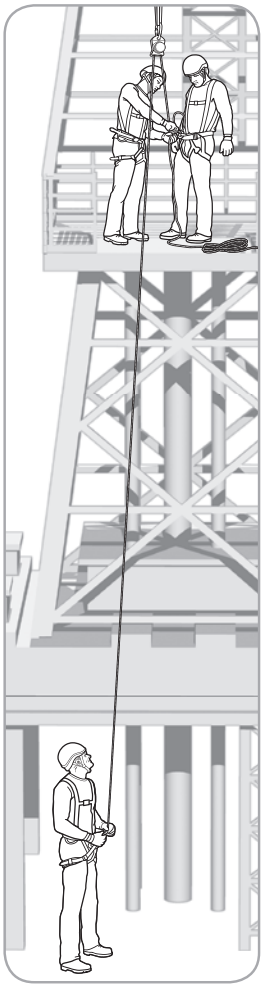
Rescue after a fall

When performing a rescue after a fall, it is necessary to transfer load from the fall-protection equipment to a DEUS 3000 Series controlled descent device rigged in parallel with the fall-protection equipment. The DEUS RTU is ideal for this task. Once the load is transferred, disconnect from the fall-protection equipment and descend in "rescue" mode. The technique used to transfer load from fall-protection equipment to a DEUS 3000 Series controlled descent device requires expert instruction by a qualified trainer.

Rescuing one person or multiple people

The rigging to rescue one person or multiple people using a DEUS 3000 Series controlled descent device is identical. (See drawing at right.) When possible, rig the descent device to a high anchor point rather than a low anchor point to avoid impact loading the system. Put a harness on the first person to be rescued and connect a rope end coming from the DEUS 3000 Series controlled descent device to the first person's harness. Making sure there is no rope slack in the system, ease the person being rescued into the descent so the system is not impact loaded and allow the person to descend under automatic or manual control.

If there is another person to be rescued, put a harness on the next person and connect the person to the other side of the rope coming from the DEUS 3000 Series controlled descent device. Depending on the vertical distance of the rescue and the length of the rope available, it may be necessary to tie a knot (a butterfly knot or figure eight is suggested) in the rope at the appropriate place to effectively shorten the rope. (Make certain the person to be rescued is attached to the knot.) When the first person



being rescued has completed the descent and is off the rope, ease the next person being rescued into the descent (making sure there is no rope slack in the system) so the system is not impact loaded and allow the person to descend under either automatic or manual control. Repeat this procedure as necessary being careful to monitor the temperature of the descent device.

Vertical work positioning

Because DEUS 3000 Series controlled descent devices can be operated hands-free in both "stop" and "go" modes, they can be used for vertical work positioning, which then allows you to work hands-free.

Either "escape" or "rescue" rigging can be used for vertical work positioning. Use "escape" rigging when working alone. When working with a partner, use either "escape" or "rescue" rigging.

Vertical work positioning is not the same as an emergency escape. For best control when using a DEUS 3000 Series controlled descent device for vertical work positioning, descend under manual control by manually tailing the free end of the rope.

When using a DEUS 3000 Series controlled descent device for vertical work positioning in "escape" mode, use this procedure:

a) Rig for "escape" by securing your DEUS 3000 Series controlled descent device to your harness with a suitable connector.

b) Connect your anchorage connector to a suitable anchorage. It is especially important to use edge protection for the rope when using your vertical rescue system for vertical positioning.

c) Descend to the place where you want to stop and work, and then turn the control dial to the "stop" position to maintain your vertical position, hands free. You will get the most control and the best result if you descend under manual control by tailing the rope.

d) When work is completed, re-initiate descent by applying the manual rope tailing brake, turn the control dial to the "go" position, and begin descending. If you need to stop to work again at a lower position, repeat the procedure.

When using a DEUS 3000 Series controlled descent device for vertical work positioning in "rescue" mode, use this procedure:

a) Rig for "rescue" by connecting your device to a suitable anchorage. It is especially important to use edge protection for the rope when using your vertical rescue system for vertical positioning.

b) Secure one end of the rope to your harness with a suitable connector.

c) Have your partner control your descent to the place where you want to stop and work, and then turn the control dial to the "stop" position to maintain your vertical position, hands free. Your partner will have the best control and achieve the most precise result if he controls your descent manually by tailing the rope.

d) When work is completed, have your partner re-initiate descent by applying the manual rope tailing brake, turn the control dial to the "go" position, and begin descending. If you need to stop to work again at a lower position, repeat the procedure.

When working at height, it is advisable to use a backup safety line whenever possible, such as a DEUS 7300 Back-Up Belay Kit.

Travel restraint

DEUS 3000 Series controlled descent devices can be used for travel restraint, meaning that they can be used to prevent you from getting near a place where you could fall.

⚠**WARNING:** DEUS 3000 Series controlled descent devices are not to be used as fall-protection systems.

Either "escape" or "rescue" rigging can be used for travel restraint. Use "escape" rigging when working alone. Use either "escape" or "rescue" rigging when working with a partner.

When using a DEUS 3000 Series controlled descent device for travel restraint in "escape" mode, use this procedure:

a) Rig for "escape" by securing your DEUS 3000 Series controlled descent device to your harness with a suitable connector.

b) Connect your anchorage connector to a suitable anchor point.

c) With the control dial in the "go" position, manually pull rope through the device to establish a "safe working perimeter," and then turn the control dial to the "stop" position.

d) Readjust as necessary to maintain a "safe working perimeter."

When using a DEUS 3000 Series controlled descent device for travel restraint in "rescue" mode, use this procedure:

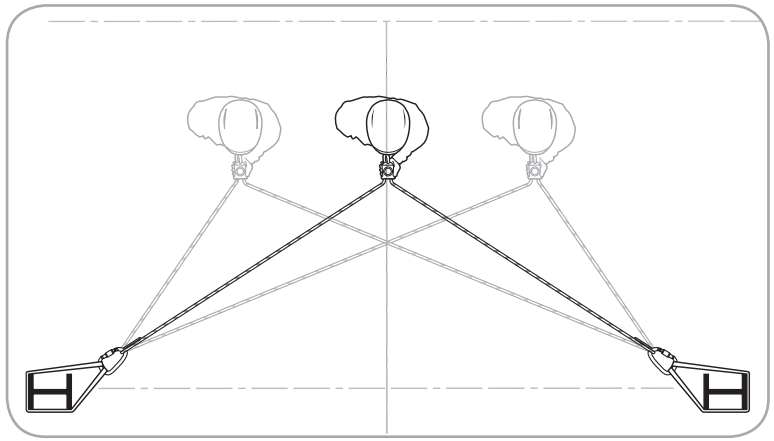
a) Rig for "rescue" by connecting your anchorage connector to a suitable anchorage.

b) Secure one end of the rope to your harness with a suitable connector.

c) With the control dial in the "go" position, have your partner manually pull rope through the device to establish a "safe working perimeter," and then have your partner turn the control dial to the "stop" position.

d) Readjust as necessary to maintain a "safe working perimeter."

Because DEUS 3000 Series controlled descent devices operate reversibly, both ends of the rope can be anchored when the device is used with "escape" rigging for travel restraint. Anchoring both rope ends provides an additional degree of versatility and provides additional refinement to how travel is restrained. The following drawing shows a DEUS 3000 Series controlled descent device used for travel restraint using "escape" rigging.



LIMITATIONS, RATINGS AND WARNINGS

Training

⚠ **IMPORTANT:** Training is required before use of any DEUS 3000 Series controlled descent device. Continued training with a DEUS 3000 Series controlled descent device is also necessary to ensure proper use during emergency situations. DEUS offers replacement rope for repeated training. DEUS Rescue always recommends use of a backup belay for training. For more information on training contact DEUS Rescue.

Ratings and certifications

The DEUS 3100, 3200 and 3300 controlled descent devices have been certified by TÜV Süd in Munich, Germany, to meet the NFPA 1983 (2012 ED) "Fire Escape" safety standard. The DEUS 3700 controlled descent device has been certified by TÜV Süd in Munich, Germany, to meet ANSI Z359.4 (2007 ED) and EN341 Type 1, Class B (2011 ED) standards for rescue descent devices. The DEUS 3700 has also been certified by CSA Group in Toronto, Canada, to meet the CSA Z259.2.3 (2012 ED) Type 1, Class B standard for controlled descent devices.

The table below shows weight, height and temperature ratings for each model in the DEUS 3000 Series, according to ANSI, CSA, EN and NFPA standards.

Descent velocity

Within the specified load rating of the DEUS 3100, 3200 and 3300 controlled descent devices, the descent velocity will range from very slow at very low loads up to 3 meters per second at maximum load. Within the specified load rating of the DEUS 3700 controlled descent device, the descent velocity will range from very slow at very low loads up to 2 meters per second at maximum load.

2-person rescue descent (DEUS 3700 only)

ANSI, CSA, and EN safety standards limit the maximum descent rate of controlled descent devices to 2 meters per second. The DEUS 3700 controlled descent device was designed and tested to descend within this maximum allowable speed under a wide variety of circumstances – including extreme temperature and moisture conditions. Based on the results of extensive internal and third-party testing, we concluded that the safest maximum working load for the DEUS 3700 controlled descent device is 140 kg (310 lbs) for optimal performance.

Under some circumstances it may not be possible to restrict the working load for a one-person self-rescue or two-person assisted-rescue to 140 kg (310 lbs). In some cases, extra personal protective equipment and tools can add over 45 kg (100 lbs) of weight during a rescue operation. For this reason, we have conducted extensive testing of the DEUS 3700 controlled descent device to measure performance under loads in excess of 140 kg (310 lbs). Based on this testing, we conclude that the DEUS 3700 controlled descent device can be relied upon for stable performance at loads up to 200 kg (440 lbs).

However, recognize that the hands-free, automatic descent rate of the DEUS 3700 under increased loads will likely exceed the limit of 2 meters per second recommended by ANSI, CSA, and EN safety standards. In fact, the hands-free, automatic descent rate of the DEUS 3700 under 200 kg (440 lbs) of load is 2.2 meters per second. Therefore, we recommend maintaining control of the DEUS 3700 by manually tailing the free end of the rope to further limit the rate of descent, or simply turning the speed control dial for hands-free descent.

DEVICE	3100	3200	3300	3700		
	NFPA 1983 (2012 ED) "Fire Escape"	NFPA 1983 (2012 ED) "Fire Escape"	NFPA 1983 (2012 ED) "Fire Escape"	ANSI Z359.4 (2007 ED)	CSA Z259.2.3 (2012 ED) Type 1, Class B	EN341 (2011 ED) Type 1, Class B
Min. Weight	40 kg (88 lbs)	40 kg (88 lbs)	40 kg (88 lbs)	59 kg (130 lbs)	40 kg (88 lbs)	40 kg (88 lbs)
Max. Weight	140 kg (310 lbs)	140 kg (310 lbs)	140 kg (310 lbs)	140 kg (310 lbs)	125 kg (275 lbs)	125 kg (275 lbs)
Max. Height	30 m (100 ft)	60 m (200 ft)	106 m (350 ft)	180 m (590 ft)	180 m (590 ft)	180 m (590 ft)
Min. Temp	-20° C	-20° C	-20° C	-20° C	-20° C	-20° C

Always safeguard against impact loading components of a fall arrest or rescue descent system. When using the DEUS 3700 controlled descent device – especially at loads in excess of 140 kg (310 lbs) - minimize the risk of impact loading by making sure that there is no slack in your rope or any other component when loading the system. Please see page 20, "Major fall & impact loading", for more information on this safety precaution.

Ropes (read and understand all of these WARNINGS)

DEUS 3000 Series controlled descent devices may only be used with DEUS-approved ropes. Use of any other rope is specifically forbidden and may lead to loss of control, severe injury or death.

All life safety ropes should be inspected before and after each use, and on a quarterly basis, and logged accordingly. If any imperfections are found, the rope should be taken out of service. Also, if a rope has been subject to shock load, fall arrest, or used in an emergency rescue situation, the rope should be retired from service.

All ropes can be cut, and ropes are especially susceptible to cutting when under load and bent over sharp or abrasive objects. Avoid bending ropes over sharp edges or objects, and use edge-protection.

Dirty ropes can be cut by the dirt in the rope, especially when the rope is under tension. Keep your rope clean. Avoid letting ropes touch the ground, avoid stepping on ropes, avoid dragging ropes, and avoid contaminating ropes.

In long descents where the free end of the rope is hanging and unsupported, the weight of the free end of the rope acts as a brake that can slow or stop descent. This happens with all descent devices. To moderate this effect, you may have to physically lift the free end of the rope to initiate and maintain descent.

All ropes experience a condition called "sheath slippage." Too little sheath slippage makes a rope extremely stiff and unusable. Too much sheath slippage allows the sheath to bunch up and jam in the controlled descent device.

Sheath slippage is exacerbated when the rope is subjected to sudden stops inside the controlled descent device. To prevent jams caused by sheath slippage in your DEUS 3000 Series controlled descent device, avoid using the control dial for sudden stops. Instead, if you anticipate stopping midway during descent, use the manual tailing brake to control descent and to stop descent. Once stopped, turn the control dial to the "stop" position to maintain vertical position hands free. To re-initiate descent after stopping, apply the manual tailing brake before turning the control dial to the "go" position. Ropes become stiffer and harder to work with the more they are used. This happens because the fiber-twist and braid-angle put into a rope to make it easy to work with are gradually straightened out as a rope is used. Stiff rope will affect performance of a DEUS 3000 Series controlled descent device by making it harder to pull rope through the device and making descents slower. When a rope becomes stiff and difficult to use, replace it.

Rope will experience wear when used in a DEUS 3000 Series controlled descent device. Surface fibers in the mantle (outside sheath) will fray and individual surface fibers in the mantle will melt and become hard under high load and high heat. When a rope looks and feels heavily used, replace it.

Knots tied in rope, webbing and slings can dramatically reduce strength and cause premature wear. Any kind of end-termination on a rope – knots, sewn eyes, swagged fittings, spliced eyes – reduces strength. In general, the strength reduction due to an end-termination is a function of the compression in the rope and the sharpness of the bend in the rope. It is not uncommon for strength to be reduced by 50% due to the end-termination.

Rope, sewn slings, lanyards, energy absorbers and harnesses are vulnerable to wear. Frequent contact with dirty, abrasive and sharp surfaces, particularly at connection points to anchors and other hardware, accelerates rope wear.

Wet, cold, frozen and hot conditions

Wet or frozen rope, in general, creates more friction than dry rope. Therefore, wet or frozen rope will usually cause descent to be considerably slower than dry rope.

Hot conditions, and especially when the descent device has been laying in the sun, cause descents to begin with the descent device at an elevated temperature. An elevated starting temperature means the heat generated during descent will cause the descent device to get hotter quicker. See the following section about "Heat".

Heat

Heat is a natural consequence of controlled descent. The potential energy stored in a body at height is converted to heat as it descends. The total amount of heat generated during a descent is determined by the load (kg/lbs) and the descent distance (height). Descent speed affects the rate of heat generated, but not the total amount of heat generated.

Some of the heat generated during descent increases the temperature of the rope, some increases the temperature of the descent device, and some increases the temperature of your glove if you are holding onto the free end of the rope.

To limit and manage the heat generated during descent, do these things:

a) Always wear leather or heat resistant gloves.

b) Lighten the load by getting rid of excess gear.

c) Descend slowly and under manual control by tailing the free end of the rope with your gloved hand to give heat an opportunity to radiate from the controlled descent device.

d) Use a DEUS heat-resistant rope for descents longer than 30 meters / 100 feet.

e) Do not exceed load and vertical distance ratings of the controlled descent device.

Major fall and impact loading

⚠**WARNING:** Impact loading and major falls place tremendous stress on all of the components in a vertical rescue system, stress that can damage equipment and make it unsafe to use. Do not continue to use a DEUS 3000 Series descent device or other components of the system with which this device was used after a major fall or a major impact (fall of the device or impact on the device). Even though no external signs may be visible, a deformation may restrict its operation or internal damage may have occurred, thus reducing its strength. Call DEUS Rescue to make arrangements for a factory inspection of your DEUS 3000 Series descent device if subjected to a major fall or impact loading. Do not hesitate to contact DEUS Rescue in case of doubt.

Descent path

⚠**WARNING:** Use care in selecting the vertical descent path used during an escape or rescue. Regardless of descent velocity, landing on or encountering dangerous objects during descent can cause serious injury.

Pinch hazard

⚠**WARNING:** Be careful not to wrap loaded end of rope around hand or fingers prior to initiating descent. Do not put hand under loaded rope going over an edge prior to initiating descent. Do not wrap free end of rope around hand. Do not grab loops of rope. All of these things can result in dangerous pinching hazards.

CARE AND MAINTENANCE

⚠**WARNING:** If any of these inspections fail or if you have any doubts about any component of your vertical rescue system, do not use it. Inspection and maintenance increase the likelihood but do not guarantee having a safe vertical rescue system. Inspection and maintenance offer no additional warranty rights above those contained in this manual. Keep all inspection and maintenance documentation and records.

Before each use

⚠ **IMPORTANT:** Check every component of your vertical rescue system, including: 1) harness, 2) connectors, 3) controlled descent device, 4) rope, 5) anchorage connector, 6) anchorage, and 7) rescue transfer unit (if your system contains this component). Only you can ensure that every component of your vertical rescue system is safe and ready to use.

Checking a DEUS 3000 Series descent device before use

1) Check the rope path and the entire drive wheel to make sure it is smooth and does not have any burrs that could snag or interfere with rope. (Tracing the rope path with your finger is a good way check the rope path.)

2) Check the condition of the Drive Wheel Stabilizer Triangle. If this part has been marked or damaged by deflection of the Drive Wheel, it indicates the device was subjected to an impact load. Retire the device and return it to DEUS Rescue for factory service.

3) Check the main body to be sure all bolts are tight.

4) Check that the sliding cam slides back and forth easily and smoothly.

5) Check that the control dial rotates smoothly and easily between the full-stop and full-open positions, and that it stops at each end.

6) With the control dial in the full-stop position, check that the drive wheel does not turn by hand.

7) With the control dial in the full-go position, check that the drive wheel turns freely by hand.

8) Check that the back cover opens and closes smoothly, that when it is closed it lies smooth and flat against the main body, and that it fully traps and contains the rope within the rope path.

9) Check the main body to ensure it has not suffered any bends or cracks. Especially check the carabiner attachment hole.

10) With rope properly threaded through the descent device, the back cover closed and secured with a carabiner, and the control dial in the full "go" position, verify that rope can be easily pulled through the device when the tensioned side of the rope crosses the centerline of the descent device.

Your DEUS 3000 Series controlled descent device will provide years of service if you take good care of it. Inspect it before and after each use. Keep it clean (wipe it free of dirt with a wet cloth and mild solution of water and detergent, then rinse lightly and let air dry). Store it in a closed bag in a clean, dry place.

Checking a DEUS rope before use

⚠ **IMPORTANT:** Ropes degrade whether they are used or not. Therefore, a rope should be checked before each use. It is the responsibility of the user to decide if a rope is safe to use. If you have doubts, do not use the rope. Check:

1) The mantle (outside covering) of the rope by performing a visual and tactile inspection. Check for frayed fibers, cuts, abrasion, fibers pulled from the braid, and dirt. UV degradation from sunlight will cause rope fibers to become brittle and disintegrate. All of these things indicate wear or damage.

2) The kern (core) of the rope by performing a tactile inspection. Run the rope through your fingers checking for soft spots that indicate damage to the core fibers.

3) Knots and end-terminations on the rope by performing a visual and tactile inspection. Look for cuts, abrasion, excessive tightening of knots, broken stitches in sewn eyes, and dirt. All of these things indicate wear or damage.

Checking connections before use

⚠ **IMPORTANT:** Connections like carabiners and sewn webbing slings can be used to attach any of the DEUS 3000 Series controlled descent devices to a harness. Check your connections before each use. It is the user's responsibility to decide if a connection is safe to use. If you have doubts, do not use the connection. Check:

1) Cracks, bends or gates that do not close properly in mechanical connectors, and springs in auto-locking connectors. Make sure auto-locking connectors do, in fact, auto-lock.

2) Broken stitches, cuts, abrasion and dirt in sewn webbing slings.

Checking a harness before use

⚠ **IMPORTANT:** Harnesses degrade whether they are used or not. Therefore, a harness should be checked before each use. It is the responsibility of the user to decide if a harness is safe to use. If you have doubts, consult the harness manufacturer's user instructions.

Checking an anchorage connector before use

⚠ **IMPORTANT:** DEUS 3000 Series controlled descent devices may be used with appropriate anchorage connectors. It is the user's responsibility to select an anchorage connector appropriate for use. Anchorage connectors can be subjected to impact loads when used and can fail without warning. Check your anchorage connector before each use. It is the responsibility of the user to decide if an anchorage connector is safe to use. If you have doubts, do not use the anchorage connector.

Checking an anchor point before use

⚠ **IMPORTANT:** It is easy to overlook checking fixed anchor points. Periodic inspections and tests of fixed anchor points should be performed. Testing impromptu anchor points before trusting your life to them is critically important. It is the user's responsibility to decide if an anchor point is appropriate and safe to use.

Every year

⚠ **IMPORTANT:** Each DEUS 3000 Series controlled descent device should be inspected annually by a qualified technician and a log kept of the inspection.

If problems are noted, the qualified technician (or user) should remove the unit from service and send the unit to DEUS Rescue or a DEUS-Certified Maintenance Center for inspection and repair.

Depending on the amount and level of use, it may be necessary to inspect the device more frequently than annually. If the control dial becomes difficult to turn with two fingers, have your qualified technician perform the annual inspection.

Each DEUS rope should be inspected annually by a qualified technician and a log kept of the inspection. This inspection is the same as the "Before each use" inspection. If the technician determines that a rope is unsafe to use, it must be retired from service and replaced with a new DEUS rope.

For a list of DEUS-Certified Maintenance Centers, please contact DEUS Rescue or visit www.DEUSrescue.com.

Every three years

⚠ **IMPORTANT:** To maintain your warranty, each DEUS 3000 Series controlled descent device must be returned to a DEUS-Certified Maintenance Center every three years for factory inspection, testing, maintenance and replacement or repair of worn parts. A DEUS-Certified Maintenance Center will charge for inspection, repair, replacement parts and return shipping and handling. Factory recertification will include replacement of the date sticker on the drive wheel.

Every five years

⚠ **IMPORTANT:** Ropes must be replaced at least every five years whether they have been used or not.

GENERAL INFORMATION

Maximum lifetime of a DEUS 3000 Series descent device

⚠ **IMPORTANT:** The lifetime of a DEUS 3000 Series descent device depends on the load and descent distance it supports, the intensity and frequency of use, the environment to which it is exposed, the environment in which it is used, how the device is maintained, and where and how the device is stored.

In extreme cases, the lifetime of the product can be reduced to one single use through exposure to chemicals, extreme temperatures, sharp edges, major fall or load, crushing, etc.

Certain environmental elements will considerably accelerate wear: salt, sand, snow, ice, moisture, chemicals, extreme cold, extreme heat, etc. (This list is not exhaustive.)

Important notices

⚠ **IMPORTANT:** Specific training is required before use of rescue equipment.

Read this notice carefully. Keep all instructions and information on the proper use and field application of the DEUS 3000 Series descent device and other components of the system with which it is used. Only the techniques shown in this manual are recommended. All other uses are excluded and may result in injury or death. Many types of misuse exist; it is not possible to enumerate or even imagine all of them. In case of doubt or difficulty in understanding, contact DEUS Rescue.

Working and performing a rescue at height are dangerous. Getting appropriate training, and then practicing techniques and methods, is critical to your safety and are your and your employer's responsibility.

Any person using DEUS Rescue products in any manner assumes all risk and accepts full responsibility for any damage or injury, including death. If you are not able or not in a position to assume this responsibility or to take this risk, do not use the DEUS descent device or its accessories.

Checking is safety

⚠ **IMPORTANT:** Do not hesitate to retire a DEUS Rescue product showing signs of wear which might affect its strength or restrict its proper operation. For your safety, a 3-level checking schedule is prudent:

Before and after each use, it is necessary to check the condition of the product and every component of the system with which it is used. It is highly recommended that a buddy check your gear before using it in a descent.

During use check that carabiners are locked closed, all connections are secure, rope has edge protection, and the temperature of the descent device is not hot enough to damage rope.

A more thorough inspection must be carried out by a qualified technician at least every twelve (12) months.

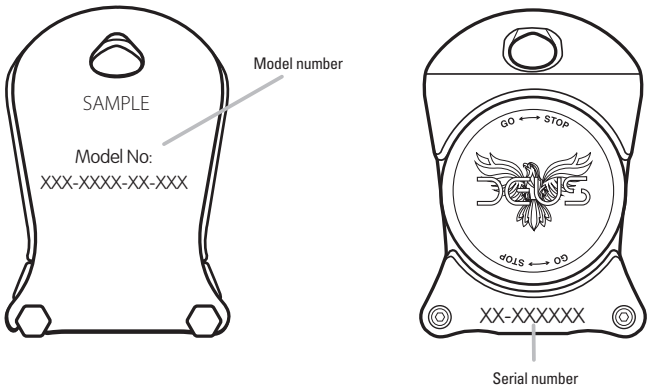
Log usage

⚠ **IMPORTANT:** Create a log like the one shown on the next page to log usage. Log usage of each DEUS controlled descent device using the table. Factory service is required when the device has accumulated 7.5 million joules of energy, or every three years, whichever occurs first. The sample log on the next page shows the calculation for descent energy so you can track this.

DEUS Equipment Usage Log							
DEUS Model: DEUS Serial Number: Date placed in service:							
A. Date	B. Name	C. Comment	D. Load (kg)	E. Descent distance (meters)	F. Number of descents	G. Descent energy (joules) (DxExFx10)	H. Cumulative total descent energy (joules)

The Model Number on your DEUS 3000 Series controlled descent device is located on the hinged back panel; the Serial Number is located just below the control dial on the frame.

It is preferable to issue a personal DEUS Rescue 3000 Series controlled descent device to each person who may need one.



Use

⚠ **IMPORTANT:** DEUS equipment must only be used by persons trained in its proper use.

During training and practice with descent devices, a back-up belay should always be used. DEUS Rescue recommends the DEUS 7300 Back-Up Belay.

Verify that the DEUS Rescue equipment you are using is compatible with the other components of your rescue/safety system.

To prolong the life of DEUS equipment, care is necessary when transporting as well as when using it. If DEUS equipment is subjected to extreme conditions during storage, transportation or use, inspect it thoroughly. If you have any doubts about the condition of the DEUS equipment or the other components of the system with which it is used, do not use the equipment. Contact DEUS Rescue to return the equipment for factory inspection and reconditioning.

Warranty

All DEUS equipment, including 3000 Series descent devices, carries certain warranties. Warranty terms for each product may vary, and warranties and limitations are subject to state laws. Contact DEUS Rescue for information on the warranty terms for a particular product.

To make a warranty claim, contact DEUS Rescue (see page 5) or visit www.DEUSrescue.com for claim procedures.

Replacement if used in an emergency rescue

Use of any rescue equipment in an emergency scenario can result in undetectable damage to ropes, anchorage connectors, and internal hardware components. If your DEUS 3000 Series descent device is used in an emergency rescue situation, the descent device must be removed from service and inspected by a DEUS-Certified Maintenance Center. Your DEUS 3000 Series descent device will be replaced at no cost with documented proof of emergency use and documentation of regular inspections. For more information please contact DEUS Rescue.

Modifications or alterations

Any modification, addition to or repair of the equipment other than authorized by DEUS Rescue is prohibited due to the risk of impairing the function of the equipment. This restriction extends to both DEUS controlled descent devices and to the ropes that are used with them.

Product obsolescence

There are many reasons why a product may be judged obsolete and thus retired before the end of its actual lifetime. Examples include but are not limited to: changes in applicable standards, regulations, legislation, development of new techniques, and incompatibility with other equipment.

DEUS®

D E U S • R E S C U E

Boulder, Colorado USA

For questions or
comments, contact
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