



BIRD™



PRODUCT NO. 74201001

BELT INSTALLATION + ROTATION DEVICE



PREVENTIVE MAINTENANCE AND SAFETY

SAFETY INSTRUCTIONS

PLEASE READ THE DIRECTIONS BELOW TO LEARN HOW TO PROPERLY USE AND CARE FOR YOUR CASE AND DEVICE.

Serious accidents with fatal physical injuries can occur when using extremely strong magnetic clamps if they are improperly used and/or maintained. Please observe all safety instructions in this operation manual and contact the manufacturer if you have any questions.

- **NEVER** engage the drive while the BIRD™ devices are still attached to the sheave/sprocket
- **NEVER** switch the BIRD on when not applied to a metal surface
- **NEVER** modify the BIRD or use the BIRD if damaged or missing parts
- **NEVER** leave the BIRD hanging unattended
- **NEVER** use the BIRD without having been properly instructed
- **NEVER** use if you have not read and understood these operating instructions completely
- **NEVER** operate the BIRD in temperatures higher than 60°C (140°F)
- **NEVER** expose to corrosive substance

- **ALWAYS** follow the instructions in this operation manual
- **ALWAYS** instruct new operators in the safe use of the BIRD™
- **ALWAYS** activate the BIRD completely when in use
- **ALWAYS** activate the BIRD on metallic, ferromagnetic materials and use as much magnetic contact area as possible
- **ALWAYS** try to use on level surfaces
- **ALWAYS** check the magnetic holding force by shaking after activating the BIRD
- **ALWAYS** clean the magnetic contact area and keep it clear of dirt, grease, and metal chips
- **ALWAYS** set the BIRD down gently to prevent damage to the magnetic contact area
- **ALWAYS** inspect the magnetic surface and the entire BIRD for damage
- **ALWAYS** maintain a clean work environment
- **ALWAYS** store in a dry place

IMPORTANT

People with cardiac pacemakers or other medical appliances should not use the BIRD until they have consulted with their physician.

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The purpose of the Gates Belt Installation + Rotation Device (BIRD™) is to minimise finger and hand injuries due to hands getting caught in pinch points during routine installation and maintenance. While a drive is shut down and locked out, the BIRD safely facilitates a rotational inspection of a drive.



PROPER USE

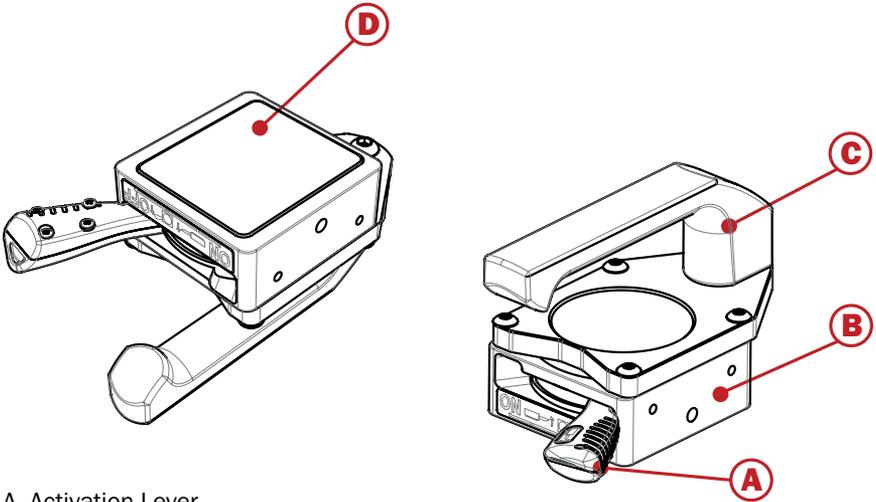
The Belt Installation + Rotation Device (BIRD™) is a switchable magnetic clamp equipped with permanent magnets and is designed for attachment (by hand) to metallic sheaves and sprockets. The BIRD may only be used to rotate metallic sheaves and sprockets. Proper use includes adherence to the start-up, operating, environment and maintenance conditions specified by Gates. The user bears sole responsibility for understanding this operating manual as well as for the proper use and maintenance of the BIRD. Please contact Gates Product Application Support if you have any questions prior to using this device.

DEVICE DESCRIPTION

The BIRD™ is a specially designed, tightly compacted device, which creates a magnetic field that develops an incredible attractive force on ferromagnetic materials. The BIRD is switchable (ON/OFF) by means of a 60° manual activation lever (A). When switched and locked into the ON position, internal permanent magnets generate a powerful magnetic field into the magnetic contact area (D) and hold a metallic sheave/sprocket with incredible force. To deactivate the magnetic clamp, first lift the activation lever at its far end upwards to disengage the lever from its locking notch and return by 60° into the OFF position.

NOTE: Care must be taken because the activation lever can quickly/strongly spring back to the OFF position when working on thin materials.

A strong and stable handle (C) made of aluminum is attached to the upper side of the BIRD.



A. Activation Lever

B. Magnetic Base

C. Handle

D. Magnetic Contact Area

Be sure to read the operation instructions completely before using the BIRD for the first time.

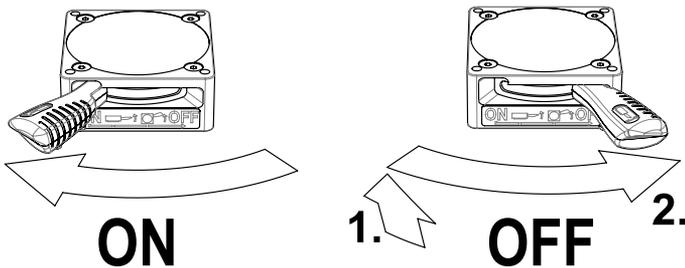
START-UP

Check the condition of the BIRD™ for any damage that it may have incurred during transport and previous utilisation. If you find any problems, please contact Gates.

1. Follow all safety instructions. Clean the sheave/sprocket in the area of attachment and the magnetic contact area of the BIRD (see Surface Quality).

CAUTION: At the beginning of the application, watch for any deformation of the sheave/sprocket to the magnetic contact area when activating the BIRD. If a small distance (air gap) is present between the magnetic contact area and the sheave/sprocket, the Magnetic Clamp will not reach the full holding force and could detach itself. Please check for any air gap developing at the edges of the magnetic contact area and reduce this gap as much as possible.

2. Make sure the BIRD™ is deactivated and in the “OFF” position (2). Applying the BIRD in the “ON” position can result in the magnet quickly attaching itself to the sheave/sprocket with a large force, resulting in a pinch point. To switch the BIRD™ to the “ON” position, simply rotate the handle to the left; the handle will spring into the locking notch. To switch the bird to the “OFF” position, lift the handle slightly (1) removing it from the locking notch, and rotate the handle to the right (2)



3. Place the BIRD™ so that magnetic contact area covers the widest flat surface face of the sheave/sprocket.

NOTE: Although the magnetic clamp of the BIRD is in the “OFF” position, it still has a slight magnetic pre-tensioning in order to avoid inadvertent slippage or dropping of the BIRD, and/or the sheave/sprocket. This pre-tension also allows for ease of positioning the BIRD to the sheave/sprocket.

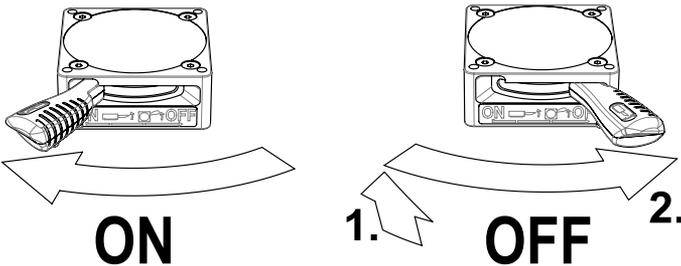
IMPORTANT

DO NOT allow other ferromagnetic materials within 3 inches of any exposed ACTIVATED magnetic contact area. Serious injury could occur from instantaneous magnetic attraction!

4. Place each BIRD device 180° from each other as shown in the illustration below: If the distance between the two sides of the sheave/sprocket is too large, an improper body placement will result. Locate the two BIRD devices at a smaller angle: the main goal of this device is to keep both hands away from a potential pinch point when rotating a belt drive.



5. Rotate the magnetic clamp activation lever by 60° into the “ON” position. Always check to make sure the lever springs into the locking notch.
6. Perform a rotating test: Grab both BIRD™ devices by the handle and wiggle them with your hands. If they do not move, rotate the sheave/sprocket slightly and check for a secure and strong hold of the magnetic contact area.
7. Move the belt drive slowly and smoothly. Bring the drive safely to a stop position and perform the desired maintenance procedure.
8. After the work has been finished and the sheave/sprocket is no longer moving, deactivate the magnetic clamp of the BIRD and remove from the sheave/sprocket. To deactivate the magnetic clamp, first lift the activation lever at its far end upwards to disengage the lever from its locking notch (1) and return by 60° into the “OFF” position (2). Care must be taken because the activation lever can quickly/strongly spring back to the “OFF” position when working on thin materials.



BASIC INFORMATION CONCERNING THE BIRD™

The magnetic contact area is located on the underside of the magnet incorporating multiple magnetic poles which generate the magnetic holding force when activated. The maximum holding force that can be achieved depends upon different factors which are explained below:

MATERIAL

Every material reacts in different ways to the penetration of magnetic field lines. It is up to the user to determine if adequate magnetic holding force is acceptable for the sheave/sprocket rotation.

MATERIAL THICKNESS

The magnetic flux (north to south field lines) of the permanent magnet requires a minimum material thickness to flow completely into and across the material below the magnetic contact area.

SURFACE QUALITY

The maximum holding force of a permanent magnet can be achieved in case of a closed magnetic circuit in which the magnetic field lines can connect up freely between the poles, thus creating a high magnetic flux. In contrast to iron, for example, air has very high resistance to magnetic flux. If an “air gap” (i.e. a space) is formed between the sheave/sprocket and the magnet contact area, the holding force will be reduced. In the same way, paint, rust, scale, surface coatings, grease or similar substances all constitute a space between the sheave/sprocket and magnetic contact area. Furthermore, an increase in surface roughness or unevenness has an adverse effect on the magnetic holding force.

LOAD ALIGNMENT

During the rotation movement ('shear' force), the load-bearing capacity decreases dependent upon the coefficient of friction between the two materials.

MAXIMUM OPERATING TEMPERATURE

The high-power permanent magnets installed in the magnetic clamp will maintain their load-bearing capacity up to a maximum operating temperature of 80°C (176°F). Exceeding this maximum operational temperature may cause irreversible damage.

MAINTENANCE AND INSPECTION OF THE BIRD™

The user is obliged to maintain and service the BIRD in compliance with the specifications in the appearing manual and according to the country-specific standards and regulations.

BEFORE EVERY USE...

- Visually inspect the entire BIRD device for damage
- Clean the magnetic contact area of any contamination (i.e. rust, dirt, metal chips) that would cause unevenness of attachment or an air gap between the sheave/sprocket
- Make sure the activation lever is not bent or the plastic of the activation lever is not cracked make sure the activation lever springs into the locking notch when in the “ON” position
- Inspect the magnetic contact area for any protruding scratches, pressure point deformations, and/or cracks into the magnetic contact area
- Inspect the handle for damage, deformation, cracks or wear and have it replaced if necessary

Unauthorised repairs or modification to the BIRD are not permitted. If you have any questions, please contact Gates Product Application Support.

DRIVE SHUTDOWN AND INSPECTION

- Shut off power, and perform lockout/tagout procedure.
- Place all machine components in a safe position.
- Remove guard, inspect and clean.
- Inspect belt for wear, damage.
- Replace as needed.
- Inspect sheaves or sprockets for wear, alignment.
- Replace if worn.
- Inspect other drive components such as bearings, shafts, motor mounts and take-up rails.
- Inspect static conductive grounding system (if used) and replace components as needed.
- Check belt tension and adjust as needed.
- Recheck pulley alignment.
- Reinstall belt guard.
- Restart drive.
- Look and listen for anything unusual.



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