

# **DICTAMAT 50 BK-Z**

## **Technical Manual**

You can find the current version of our manual on our website under «Downloads»:  
<https://en.dictator.de/products/door-closing-solutions/door-closers/sliding-door-closer-dictamat50/bk/>

## A) Safety Instructions / Components Included

### 1) Safety Instructions

When installing and using the DICTAMAT 50 BK-Z with revolving toothed belt make sure to observe all information and advice of this manual. During the installation we recommend to wear protective gloves to prevent any risk of getting hurt by sheet edges.

The casing of the spring rope pulley may never be opened as the released spring can cause major injuries. If the spring rope pulley should for some reason no longer work properly the complete device has to be replaced!

It has also to be assured that the spring rope pulley, the radial damper and the idler pulley are protected in order to prevent fingers being trapped (protection cover!).

The closing speed has to be adjusted at the radial damper so that the door can easily be stopped by hand at every position, making sure nobody will be endangered.

### 2) Components Included (Ill. 1)

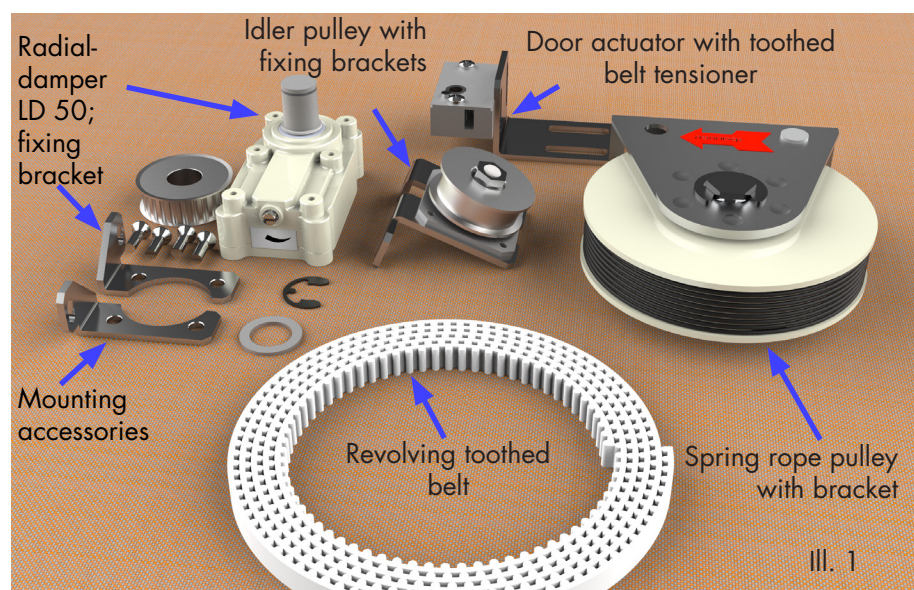
Spring rope pulley (closing force 25 N, 50 N or 80 N) with bracket and 2 m of Kevlar rope

Radial damper with fixing brackets, toothed belt disc and fixing accessories

Idler pulley with fixing brackets, pre-assembled

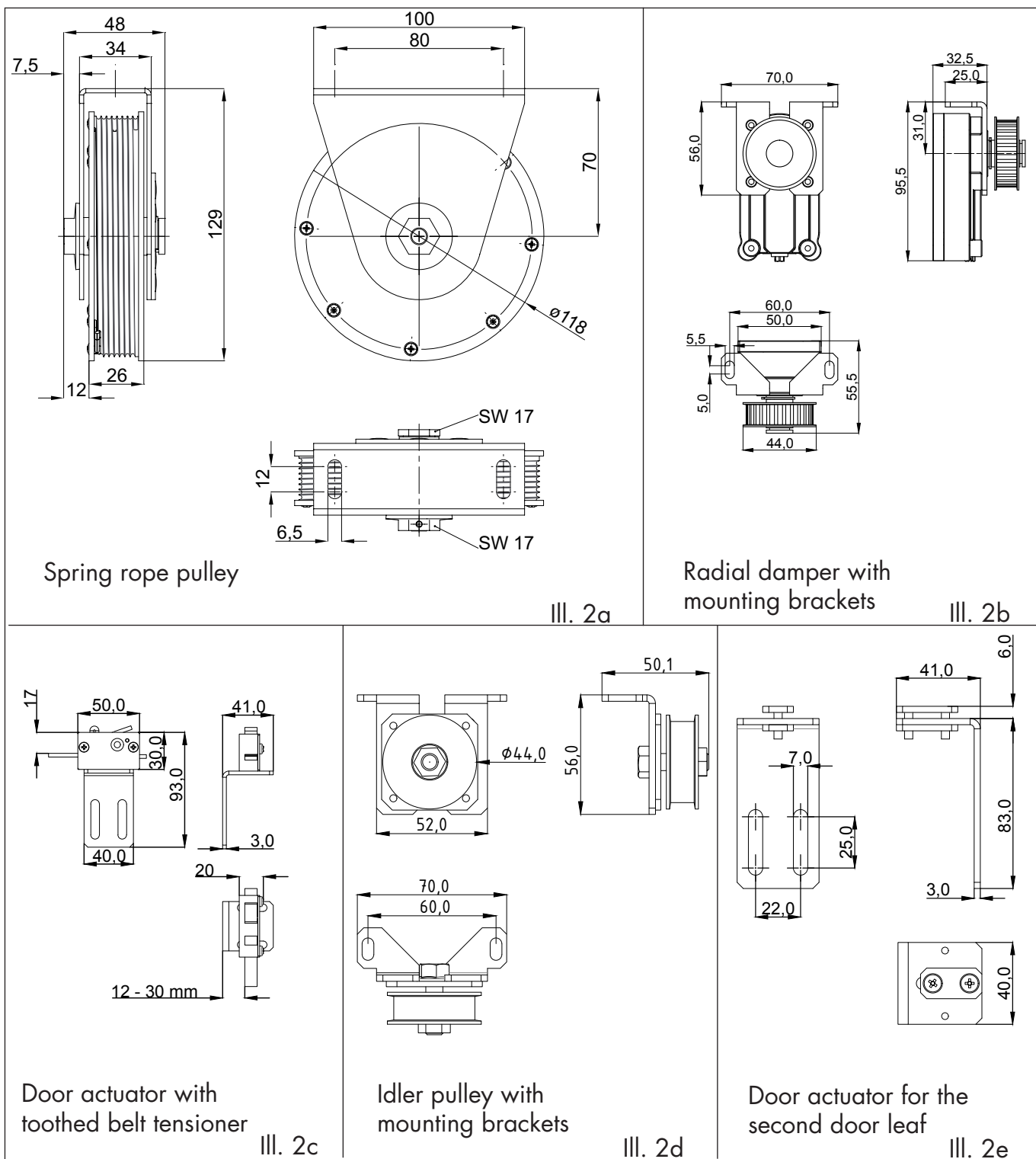
Door actuator with fixing bracket and toothed belt tensioner

Toothed belt, length as required



## B) Dimensions

The following dimensioned drawings show the most important dimensions. In case you need further dimensions, we would be happy to provide a AutoCAD drawing - or you contact our technical customer service.



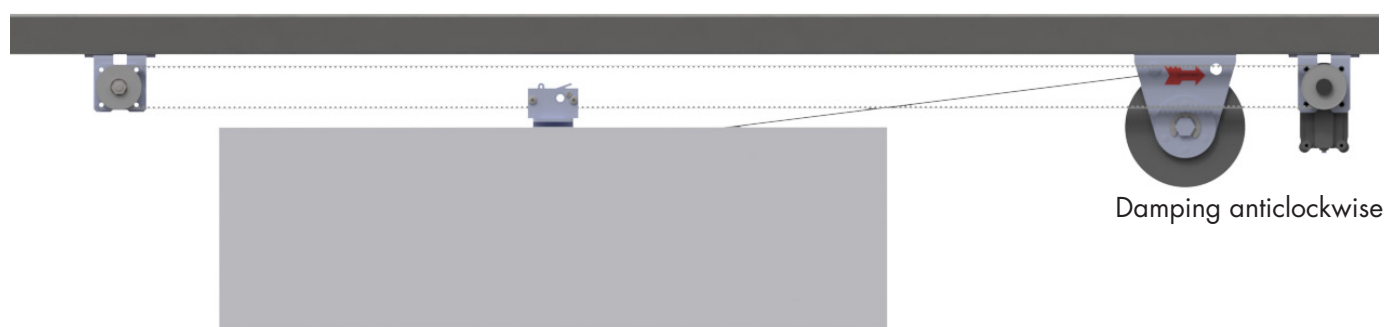
### C) Installation of the DICTAMAT 50 BK-Z

#### 1) Determination of the Installation Position

With the DICTAMAT 50 BK-Z the spring rope pulley can be installed either on the left or right side of the door. Usually the radial damper LD 50 is installed beside the spring rope pulley (see ill. 3a and 3b). In case of space problems there can be exchanged e.g. the positions of the radial damper and the idler pulley.

The **closing direction** determines the position of the spring rope pulley. With a DICTAMAT 50 BK-Z the door always closes towards the spring rope pulley. I.e. when it is mounted on the right, the door closes to the right. The same applies when the spring rope pulley is mounted on the left side of the door.

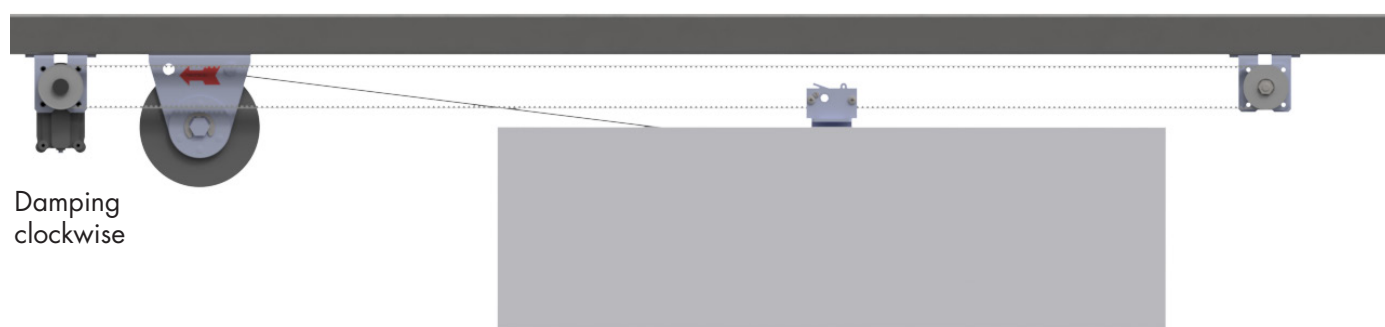
The **damping direction** shown below has to be observed when installing the radial damper according to point C2!



Door closing to the right

Ill. 3a

**IMPORTANT:** When choosing the fixing point of the rope of the spring rope pulley, you have to make sure the working travel of the spring rope pulley allows the complete travel of the door!



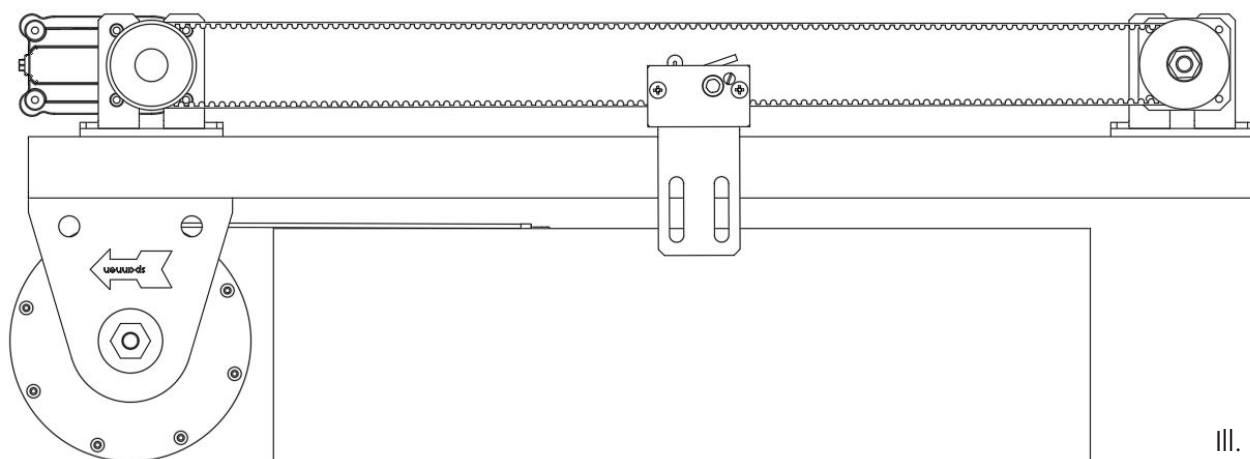
Door closing to the left

Ill. 3b

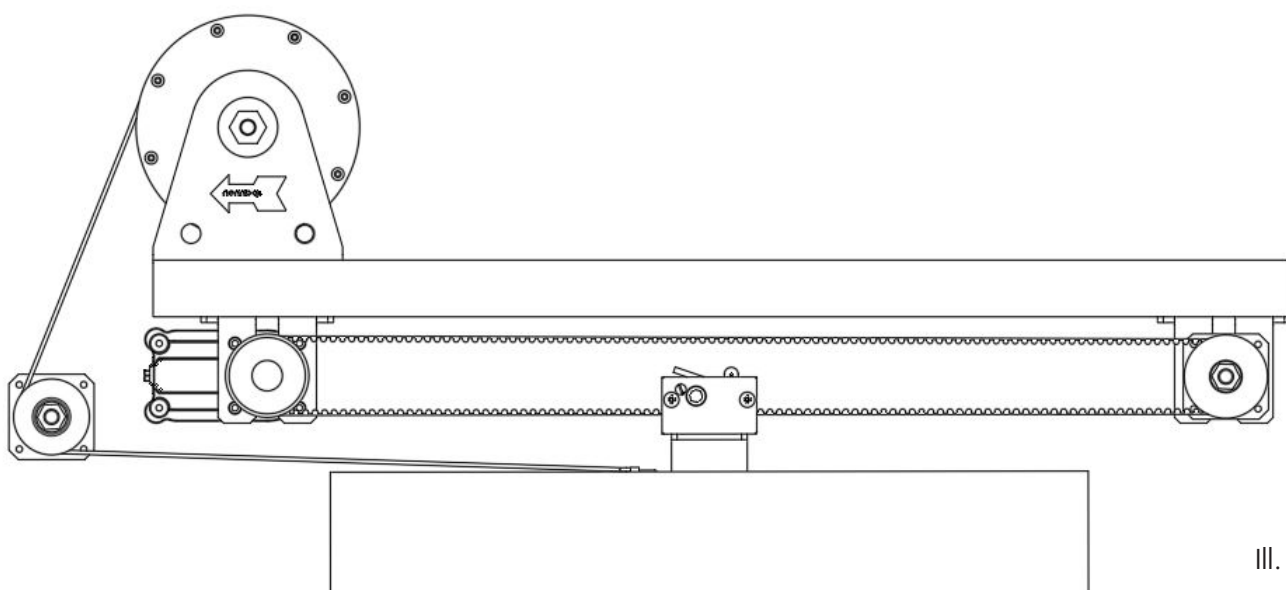
## C) Installation of the DICTAMAT 50 BK-Z - cont.

### 1) Determination of the Installation Position - cont.

In addition to the installation positions shown on the previous page, it is also possible to fix the toothed belt above the rail. Depending on the structural conditions on site also other installation positions are possible. The only thing you have to pay attention to is that all components of the DICTAMAT 50 BK-Z are properly arranged to each other.

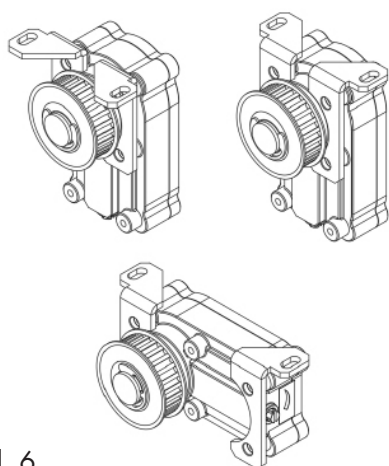


Depending on the mounting situation it is also possible to fix the spring rope pulley above the revolving system. For this type of installation you need an extra idler pulley (part no. 701011) for the rope. This is not included in the standard delivery. Please keep in mind that the shown installation positions are just examples which may vary according to the structural conditions.



## C) Installation of the DICTAMAT 50 BK-Z - cont.

### 2) Assembling and Installing the Radial Damper, Determining the Damping Direction



The radial damper LD 50 offers many different possibilities of installation, depending on the available space.

#### **1. Step:** Fixing the mounting brackets to the radial damper

- Determine at which position the brackets shall be screwed to the radial damper.

Possible mounting positions: horizontal or vertical

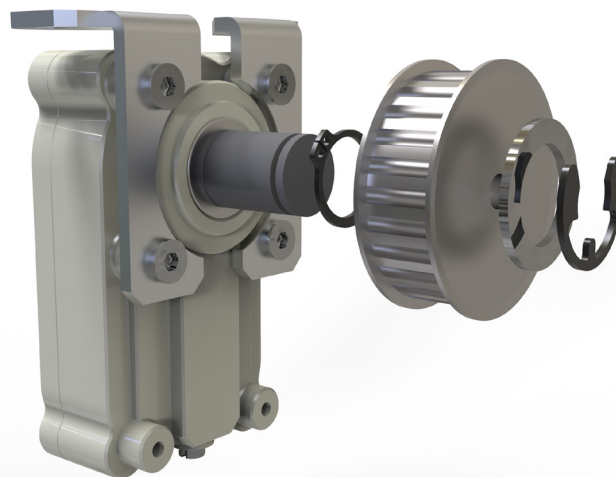
The adjacent illustrations show some examples.

In case the included brackets should not be enough, there are additional fixing accessories available.

- Screw the brackets to the radial damper (4 screws TORX T20 are included, max. tightening torque 2 Nm).

#### **2. Step:** Fixing of the toothed belt disc

- Deciding on the damping direction (the default toothed belt disc has a freewheel in one direction)
- Check in which direction the toothed belt disc damps (just put it on the axis and test)
- After having decided on the damping direction (= rotating direction of the damper during closing), fix the toothed belt disc on the axis of the radial damper according to the illustration 7. Keep also in mind the illustrations 3a and 3b.

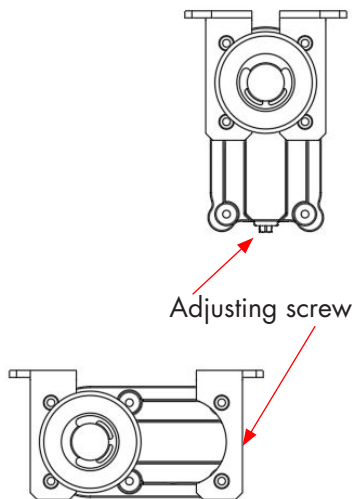


III. 7



## C) Installation of the DICTAMAT 50 BK-Z - cont.

### 3) Installation



Ill. 8

Generally the spring rope pulley and the radial damper are installed below the rail either on the right or left rail end. Depending on the type of rail it is sufficient to fix the brackets with M5 screws and nuts. If necessary you can place some washers in the rail.

Further possibilities are the installation on the wall or ceiling. Usually spring rope pulley and radial damper are installed beside each other (see ill. 3a and 3b of point C1).

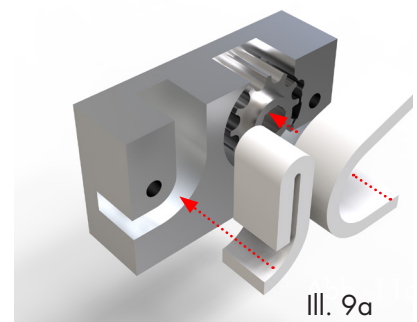
The idler pulley is then installed on the opposite side of the door. Please make sure the revolving belt runs exactly parallel to the door. The door actuator with belt tensioner is fixed more or less at the middle of the door.

If you prefer it, you can exchange the position of the radial damper and the idler pulley.

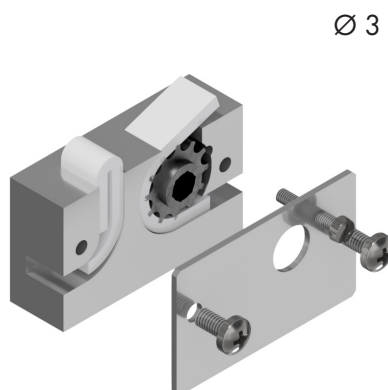
**IMPORTANT:** During installation please make sure that the adjusting screw of the radial damper stays accessible once mounted (see ill. 8).

### 4) Placing and Tensioning the Toothed Belt

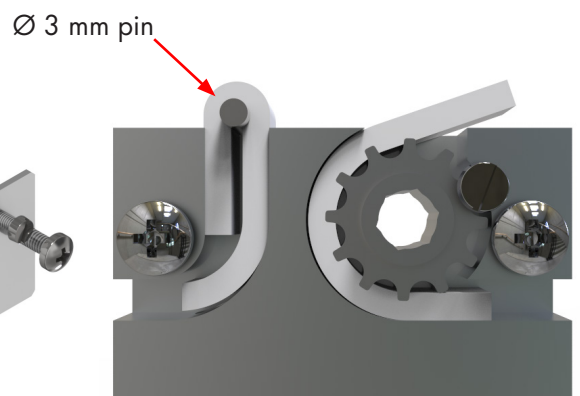
Place the ends of the toothed belt in the casing of the door actuator with belt tensioner (see adjacent ill. 9a). For this purpose loosen all screws as shown in ill. 9b and open the tensioner. On the left side you can jam the loose end by means of a  $\varnothing 3$  mm pin. You have to fold over the belt and return the loose end into the tensioner. Now place the 3 mm pin between both sides of the toothed belt (see ill. 9c).



Ill. 9a



Ill. 9b

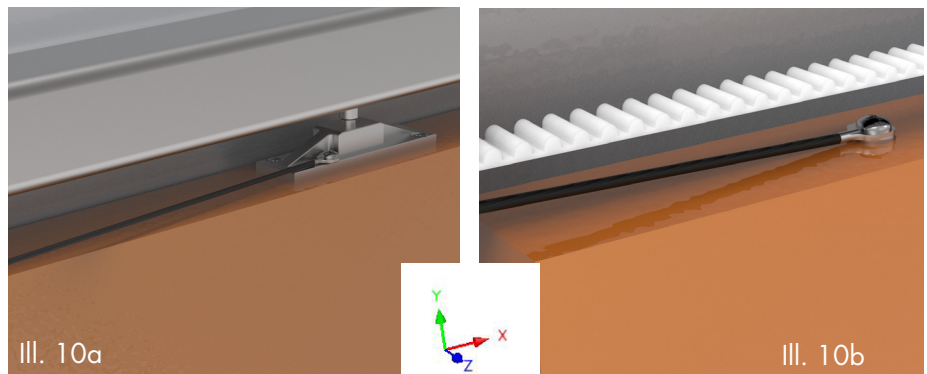


Ill. 9c

### C) Installation of the DICTAMAT 50 BK-Z - cont.

#### 5) Placing and Fixing the Kevlar Rope of the Spring Rope Pulley

Depending on the installation (ill. 3a and 3b), the Kevlar rope is either directly fixed to the door or a wheel hanger, as shown in ill.10a or 10b. To reduce friction on the wheel hanger, please make sure that the rope of the spring rope pulley always pulls straight and the wheel hangers don't become wedged. The optimum would be if the rope was aligned with the X axis of the door.

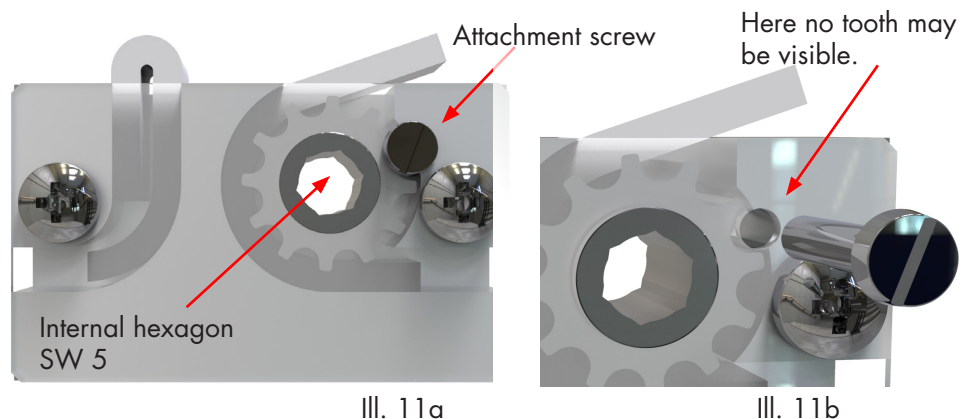


#### 6) Tensioning of the Revolving Toothed Belt

Before finally tensioning the revolving toothed belt, you have to check again whether the toothed belt is perfectly aligned. If necessary, once more align the LD 50 radial damper, the idler pulley and the door actuator by means of the oblong holes.

For tensioning the toothed belt the belt tensioner may be open or closed. But you have to make sure that the attachment screw (see ill. 11a) has been removed before.

The toothed belt is tensioned by means of the internal hexagon SW 5. Turn it until the toothed belt has the desired tension. The tension shouldn't be either too soft or too strong. With a too soft tension the toothed belt still sags. Is it tensioned too much, this causes high friction which will reduce the closing force. When you have achieved the desired tension, make sure no tooth is visible in the hole (see ill. 11b). Now screw in the attachment screw.





## D) Installation of the DICTAMAT 50 BK-Z on Double-Leaf Doors

### 1) Requirements

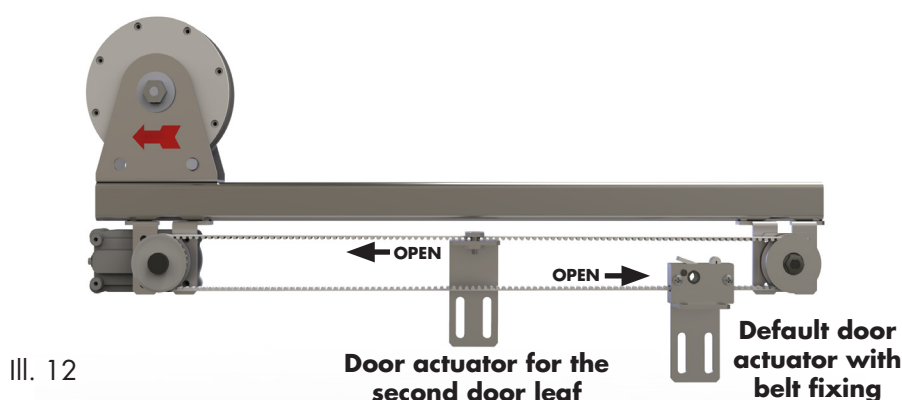
With a DICTAMAT 50 BK-Z you can also move double-leaf doors.

Requirements:

- Simultaneous opening/closing of both door leafs (central closing!)
- Both leafs have the same dimensions.
- The force according to point E1 is sufficient for the double-leaf door.

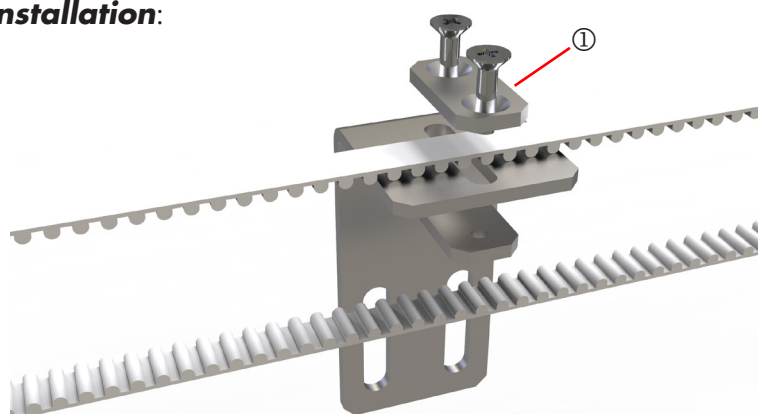
### 2) Fixing of the Second Door Leaf

For double-leaf doors you need just one additional component: the door actuator for the second door leaf, part no. 701012 (zinc-plated).



**Function:** The door actuator for the second door leaf is fixed to the other part (upper or lower, ill. 12) of the belt so that the second door leaf is moved automatically by the revolving belt.

**Installation:**



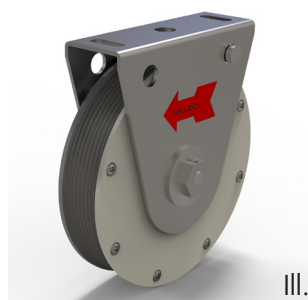
Fix the door actuator for the second door leaf (III. 13) approximately in centre of the second door leaf. The position has to be chosen so that the clamping plate is at the height of the revolving belt it has to be attached to.

Unscrew the clamping plate ① and position the toothed belt so that it is placed between the two screws. Now put back the clamping plate and tighten it.

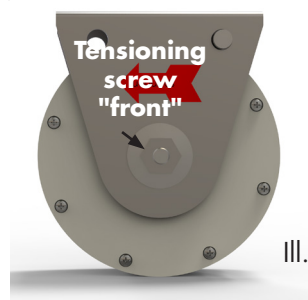
**IMPORTANT:** The door actuator for the second door leaf has to be the last to be mounted, when the belt is already tensioned.

## E) Adjustment of the Closing Force and Speed

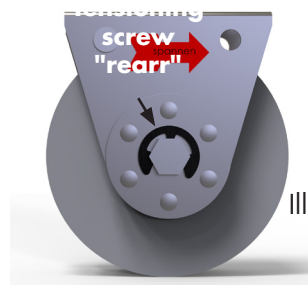
### 1) Adjustment of the Closing Force on the Spring Rope Pulley



Ill. 14a



Ill. 14b



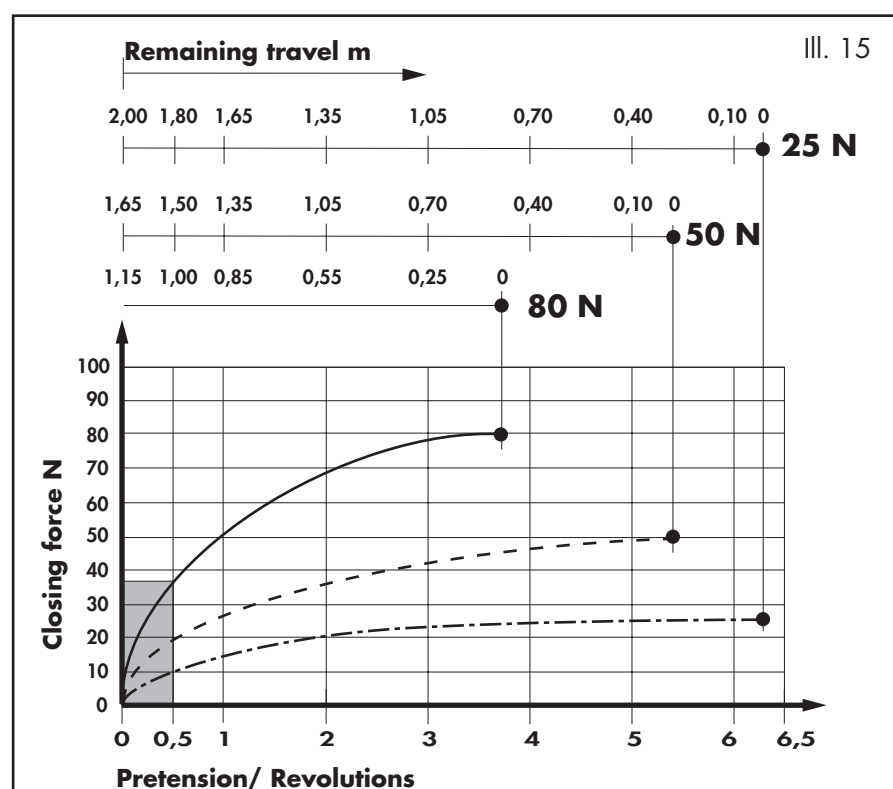
Ill. 14c

**Open** the door **completely** (max. opening 1.5 m). There have to be left at least 1.5 windings of rope on the spring rope pulley. The spring is pretensioned by the tensioning screw SW 17 that is accessible from both sides in the direction of the arrows "spannen" = tensioning (ill. 14a - 14c). Maximum pretension: 2, 4 respectively 5 revolutions depending on the used spring rope pulley (see table below)!

Releasing: in case the spring had been tensioned too much, the pretension can again be reduced by turning the tensioning screw against the direction of the arrow.

| DICTAMAT 50 BK,<br>25 N |      | 50 N    |      | 80 N    |      |
|-------------------------|------|---------|------|---------|------|
| Travel                  | Rev. | Travel  | Rev. | Travel  | Rev. |
| 1800 mm                 | 0,5  | 1500 mm | 0,5  | 1000 mm | 0,5  |
| 1650 mm                 | 1    | 1350 mm | 1    | 850 mm  | 1    |
| 1350 mm                 | 2    | 1050 mm | 2    | 550 mm  | 2    |
| 1050 mm                 | 3    | 730 mm  | 3    |         |      |
| 700 mm                  | 4    | 400 mm  | 4    |         |      |
| 400 mm                  | 5    |         |      |         |      |

The diagram below (ill. 15) indicates the closing force of the spring rope pulley in relation to the pretension and the door width.



## E) Adjustment of the Closing Force and Speed - cont.

### 2) Adjustment of the Closing Speed

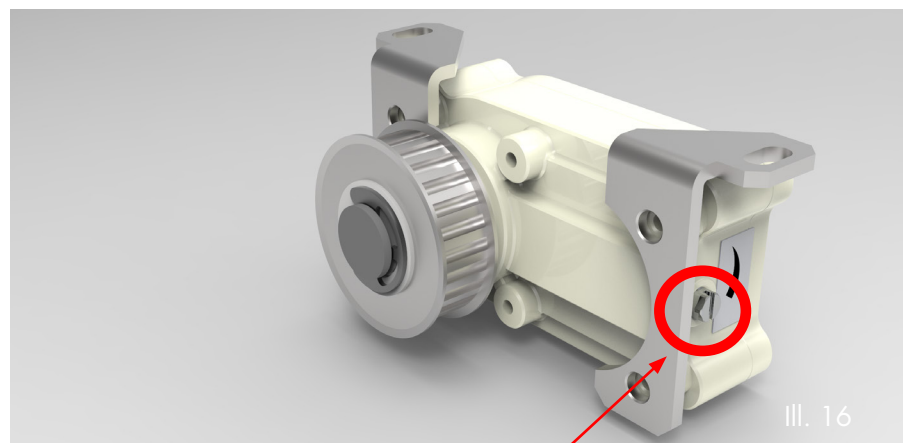
In order to adjust the closing speed open the door completely.

Now adjust the closing speed during the closing of the door by turning the adjustment screw at the radial damper (Allen key 5.5 mm or slotted screw driver) (see ill. 16).

|                           |                             |
|---------------------------|-----------------------------|
| Turning it clockwise:     | reduces the closing speed   |
| Turning it anticlockwise: | increases the closing speed |

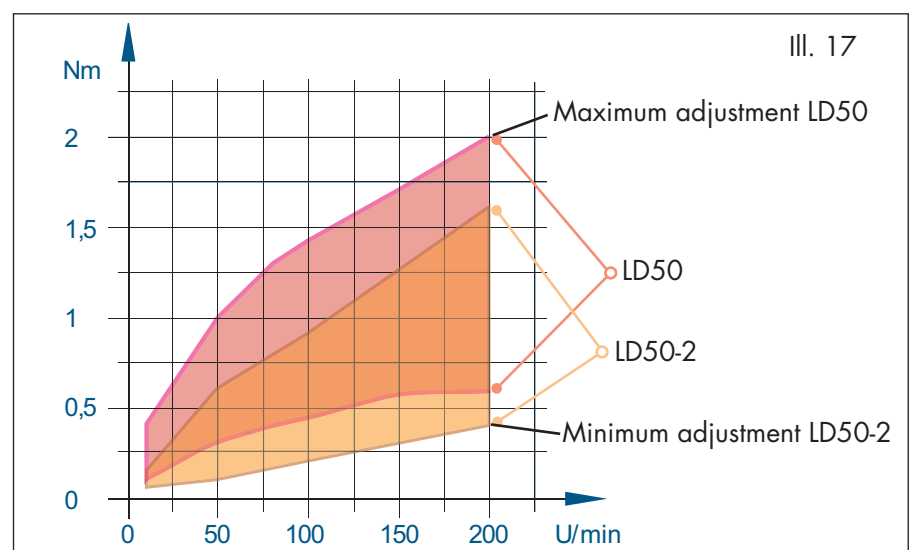
Now check whether the spring closes the door out of any open position independent from how far it had been opened. If necessary increase the tension of the spring or reduce the damping.

**IMPORTANT:** Pretension the spring only when the door is completely open!



Adjustment screw for the closing speed

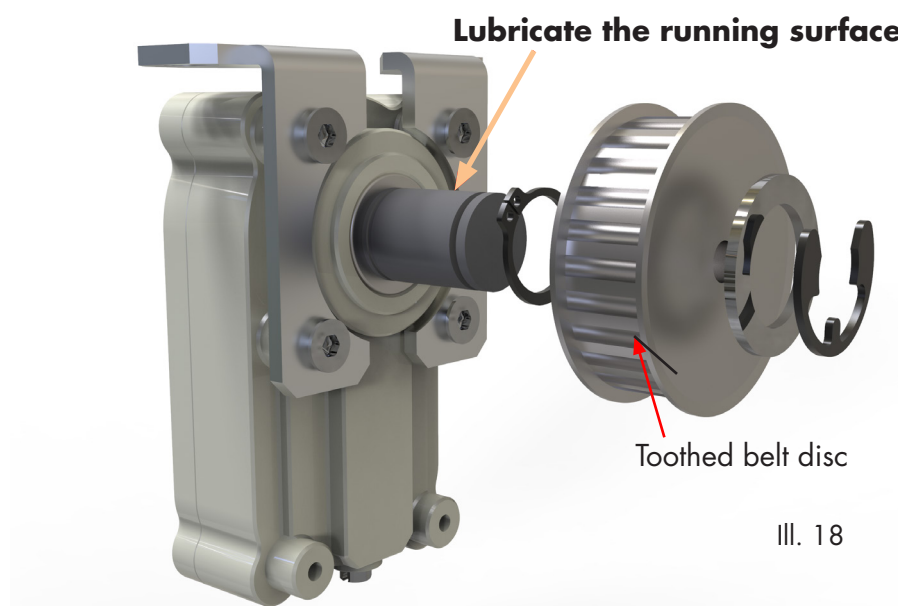
### Damping Force



## F) Maintenance, Servicing

Annually or at the latest after 30.000 movements:

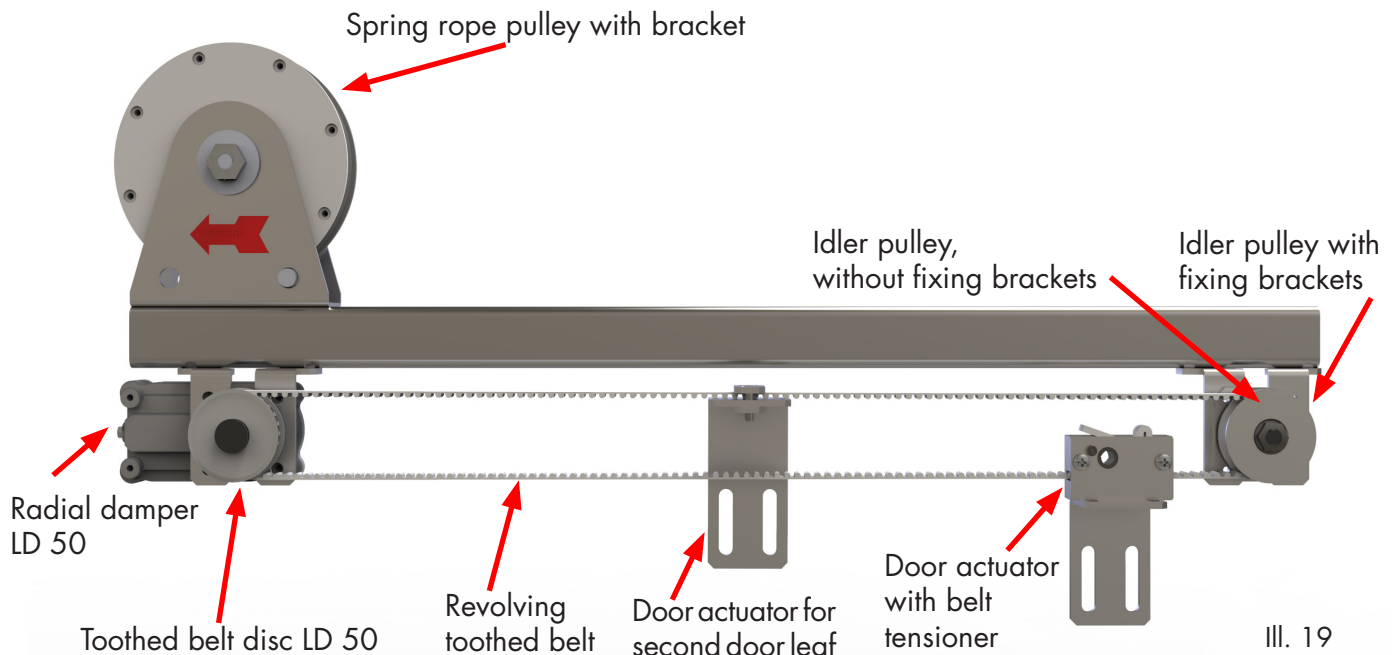
1. Check the door for damages and its smooth operation.
2. Check the fittings for damages and wearing: rail, wheel hanger, door handle etc.
3. Check the secure fixing of all door and operator fittings.
4. Toothed belt, toothed belt disc and idler pulley have to be replaced at the latest after 50.000 movements.
5. Check the complete toothed belt and the toothed belt disc for damages and wearing.
6. Check the freewheel of the toothed belt disc for smooth operation and running noises.
7. Lubricate just the running surface of the freewheel of the toothed belt disc with vaseline (ill. 18). For this purpose reduce the belt tension, partly pull off the toothed belt disc and put some vaseline on the shaft.



8. Check the tension of the toothed belt.
9. Check the closing speed and force and, if necessary, adjust it. Too fast doors represent a risk of getting injured.
10. All damaged and worn parts have to be replaced as fast as possible by original spare parts.

## G) List of Spare Parts

Below you will find the individual spare parts and their part numbers.



|   | Part no. |
|---|----------|
| Radial damper LD 50, without bracket, without belt disc       | 244045   |
| Toothed belt disc Z26-HTD5M                                   | 244203   |
| Door actuator with toothed belt tensioner, zinc-plated steel  | 701010   |
| Door actuator for second door leaf, zinc-plated steel         | 701012   |
| Idler pulley with fixing brackets, zinc-plated steel          | 701011   |
| Idler pulley with fixing brackets, AISI 304                   | 701053   |
| Idler pulley without fixing brackets                          | 701051   |
| Toothed belt HDT5, 10 mm wide, per m                          | 710502   |
| Spring rope pulley 25 N with sliding hub, bracket zinc-plated | 070102   |
| Spring rope pulley 50 N with sliding hub, bracket zinc-plated | 070093   |
| Spring rope pulley 80 N with sliding hub, bracket zinc-plated | 070094   |
| Spring rope pulley 25 N with sliding hub, bracket AISI 304    | 070103   |
| Spring rope pulley 50 N with sliding hub, bracket AISI 304    | 070098   |
| Spring rope pulley 80 N with sliding hub, bracket AISI 304    | 070099   |
| Rope for spring rope pulley                                   | 700058   |