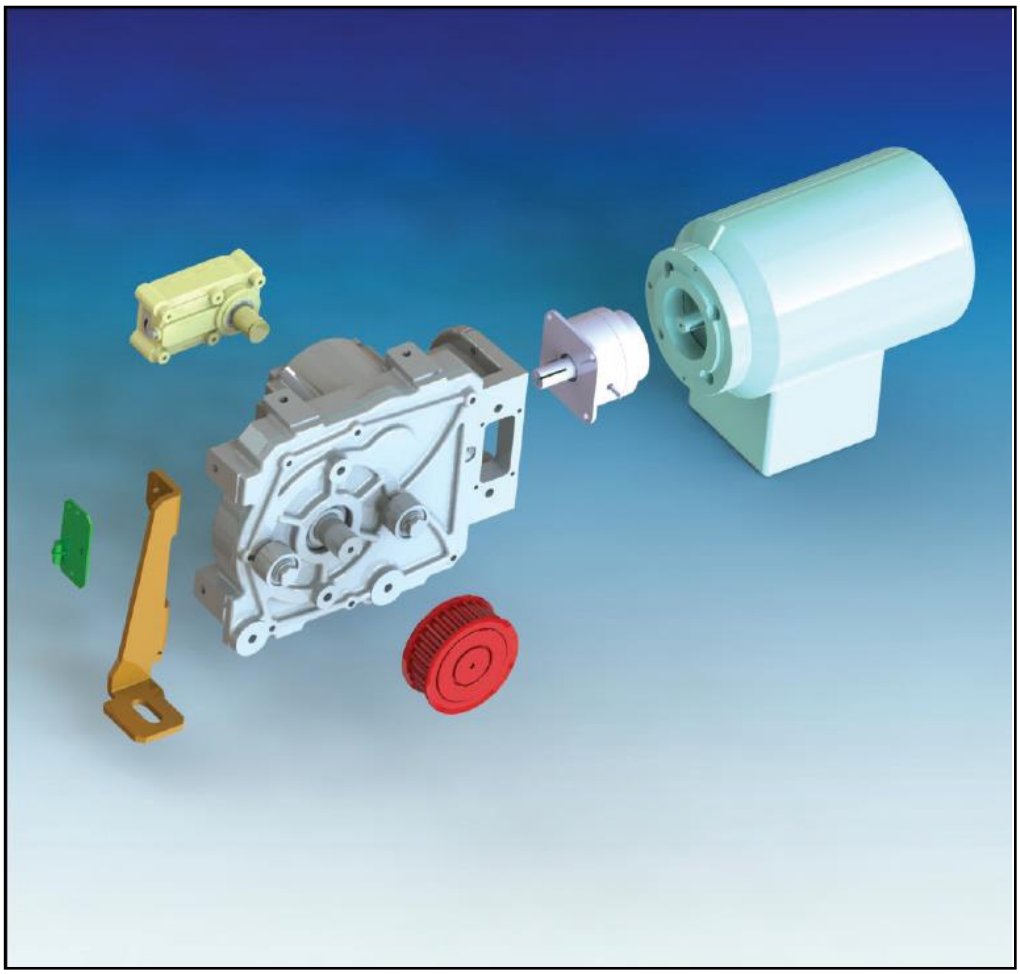
Translation of the Original User Manual

DICTAMAT Move
Drive System



You can find the current version of our manual on our website under» Downloads:«
https://en.dictator.de/products/door-drives-gate-drives/operators-sliding-doors/dictamat-multimove/

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1 How to Read this User Manual

1.1 Target group

This user manual contains all information necessary for the personnel of the engine builder to be able to transport, mount and install the product according to regulations.

Furthermore, this user manual contains information for the operator of the machine into which this product is integrated.

For the requirements regarding the qualification of the personnel, *see 3.5 Responsibilities of the machine builder.*

1.2 Conventions

1.2.1 Symbols and signal words

Label	Meaning
⚠	Calls your attention to the handling and effects of safety information.
⚠ **WARNING**	Indicates a dangerous situation that can result in **severe injury** or **death** if not avoided.
⚠ **ATTENTION**	Indicates a dangerous situation which can result in a **slight** to **medium severe** injury if not avoided.
NOTE:	*Points to possible material damage and other important information in connection with the operating system.*

1.2.2 Format

- Operation modes, operating elements, control inputs and cross references are written in *italics*.
- Control signals and parameters are written in `Courier fonts`.
- <KEYS> on operating elements or the keypad of the display which have to be pressed for input, are written in capital letters and put in squared brackets.

1.2.3 Terms and abbreviations

Term / Abbreviation	**Explanation**
Driving medium	Toothed belt/chain/toothed rack
Dead-man operation (control system without latch)	The sliding element moves only when a key (OPEN/CLOSE) is being pressed. As soon as the key is released, the movement will stop according to EN 12453.
Operating system	Operator including the control system and driving medium for the horizontal movement of sliding elements
Sliding elements	All horizontally moved masses such as e.g. doors, windows, blinds, etc.
Impulse operation	A single and short pressing of the key will start the movement of the sliding element.
Emergency service	The emergency service can be activated to keep the sliding element in operative condition when the safety devices have broken down. The sliding element moves only when a key (OPEN/CLOSE) is being pressed. As soon as the key is released, the movement will stop according to EN 12453. All safety devices are ignored.
Teach-in run	Determining of the final positions. Only necessary for initial operation.
Dynamic run	Learning of the forces, acceleration values and speeds. Necessary for initial operation and after modifications of the installation.
Reference run	Seeking the physical limit stop CLOSE as a reference for positions and distances. Necessary after a power cut.
Emergency-STOP	Stopping and reversing the sliding element when the safety devices recognize an obstacle or when the input "EMERGENCY-STOP" is being activated.

Term / Abbreviation	Explanation
Software-Emergency-STOP	Stopping and reversing the sliding element when an obstacle is detected by touching the sliding element (the retardation or acceleration of the sliding element when hitting the obstacle will exceeded or fall below the speed learned during the dynamic run and the sliding element is stopped and reversed).

1.3 Contents and structure of the manual

1.3.1 Integral parts of the user manual

This user manual consists of the following A4 lever arch files (loose-leaf):

Part	Contents
1	Brief instruction
2	Safety notices
3	General part
4	Customer-specific part (mounting, control system and data of the installation)

1.3.2 Referenced documents

Data provided by the customer (questionnaire, drawings, functional description, etc…), declarations of incorporation

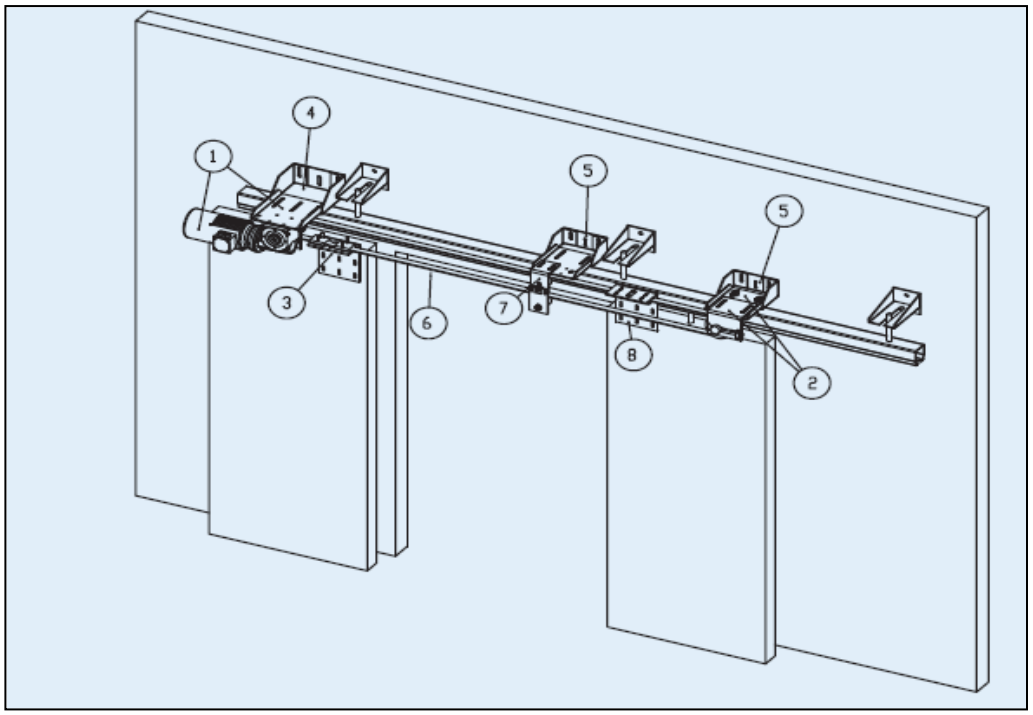
2 The Operating System

2.1 Components included

NOTE:
*Connection cables for the power supply of the control system and a main switch possibly having to be installed, operating and safety elements form **not** part of the standard components.*

- Operator with cable set to the control system
- Standard mounting brackets
- Idler pulley
- Belt fixing device(s)
- Driving medium (toothed belt, chain)
- User manual

2.2 Main components



1	Door operator with U-bracket	5	Wall bracket for idler pulley (optional)
2	Idler pulley with U-bracket	6	Toothed belt
3	Belt fixing device	7	Supporting roller with U- bracket (optional)
4	Wall bracket for door operator (optional)	8	Belt fixing device for 2nd door leaf (optional)

2.3 Mode of operation and functioning

The operating system has been designed according to the newest European standards and is controlled by two digital signal processors monitoring each other. The centrepiece of the DICTAMAT *Move* operating system is the modular structured gearbox which is absolutely smooth-running during a power failure, but nevertheless meets all the demands of the relevant standards.

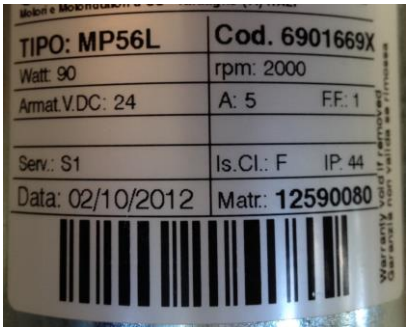
The position control is realized by an encoder with extremely high resolution. This allows an absolutely exact positioning of the sliding element.

Usually the power is transmitted by a toothed belt, but it is also possible to use a chain, rack, etc.

2.4 Safety systems

The operating system DICTAMAT *Move* meets the high safety demands of the EN 13241 standard, part 1 and its subordinated standards EN 12453 and EN ISO 13849-1. One of them being, that the sliding element stops after an extremely short distance when having recognized an obstacle. In case of a power cut when the element is moving, the short-term power supply of the electromagnetic brake of the operator is backed up by supervised capacitors.

2.5 Explanation of the device’s marking

Rating plate of the motor 	Rating plate with ▪ motor rating ▪ nominal speed rpm ▪ voltage ▪ type of protection ▪ serial number ▪ date of manufacture
Rating plate of the operating system 	Rating plate with ▪ system number ▪ system name* *Structure of the system name: ▪ name of the operator ▪ tension ▪ power ▪ power transmission ▪ dimensioning of the gearbox

3 Safety

⚠
The personnel of the machine builder has to carefully and completely read and understand this user manual before they start to mount and put into operation the operating system. This user manual contains all important information necessary to prevent personal and material damage, to guarantee a trouble-free operation and not to affect the environment.

- Carefully observe all safety advices and other advices, demands and information given in this user manual.
  Besides the advice in this manual, the generally accepted safety and accident prevention regulations have to be followed.
- Carefully keep this user manual during installation and initial operation within striking distance of the machine.
- Observing this user manual is the condition for a trouble-free operation and the settlement of possible legal warranty claims. Defects due to not obeying the user manual void any warranty claims. The manufacturer or distributor will assume no liability for subsequent damages and for damages to property or persons due to wrong operation or not obeying the safety notes.
- The limit values given in the technical data must never be exceeded.

3.1 How to act in case of an emergency

(1) Should the situation arise, stop the movement:
Trip the EMERGENCY-STOP.

(2) Switch the machine to neutral:
Switch off the *mains switch* of the machine.

(3) Provide a safeguard to prevent the machine being reclosed unintentionally.

(4) Request all people to leave the dangerous area.

(5) Secure the dangerous area.

(6) Inform the responsible superior.

(7) Rescue injured persons from the dangerous area if this is possible without endangering yourself.

3.2 Intended use

The operating system has specially been designed for mounting on horizontally moved sliding elements (without incline) and may only be used for such applications. The weight and the dimensions must not exceed the values given by the customer.

- The operating system may only be mounted on sliding elements which meet the relevant standards.
- The control system may only be put into operation when the machine (the complete installation) into which the operating system is integrated, meets all legal demands.
- The operating system may only then be used according to the intended use
  - when the machine builder has satisfied all demands regarding the safety of the operating system that are still open, *see 3.4 Responsibilities of the machine builder*.
  - when the machine (the complete installation) into which the operating system is integrated, meets all the legal demands.
  - when all the protective devices which the machine builder has planned together with the operating system, have been installed correctly and function properly.
  - after the personnel of the user has received an initial training by the engine builder.

- Personnel who will have to use or work with/on the operating system has to have the qualification necessary for the respective task, *see 3.5 Qualification of the personnel requirements.*

3.3 Foreseeable use

The operating system must not be altered or modified in any way. This operating system may not or only after consulting be used on vertically moved sliding elements (lifting gates, sectional doors). The operating system must not be used on private garage doors, sectional doors and swiveling doors. The limits (weight, dimensions) given by the customer must not be exceeded.

3.4 Responsibilities of the machine builder

According to the Machinery Directive (2006/42/EG) the fitter who motorizes a sliding element is subject to the same responsibilities as the machine builder and therefore has to do the following:

Issue the technical documentation which has to include the documents mentioned in the annex VII of the machinery directive.

Issue an EC declaration of conformity in accordance to annex II and attach it to the machine.

According to article 16 of the machinery directive apply the CE label to the automated sliding element.

3.4.1 Technical demands

- Connection of the power supply of the control system and the possibly to be installed main switch in accordance with the relevant standards by a qualified electrical technician, including acceptance test and necessary measurements.
- In case of installations with a stationary mains connection, an all-phase main circuit breaker with corresponding pre-fusing (fault current breaker, overload protection) has to be provided.
- Compliance with the maximum admissible parameters (mass, speed, travel distances) specified in the technical data.
- Control of the smooth operation of the sliding element before mounting the door operator. It must be possible to move the sliding element with the forces specified in the technical data of the operator.
- The sliding element must have on both sides sufficiently strong mechanical final stopping devices.
- The noise emission of the operating system (without considering the complete installation) is less than 70 dBa. After having installed the operating system in the installation, a sound measurement has to be performed. If necessary, suitable noise control measures have to be taken.
- Installation of all necessary safety elements in accordance with DIN EN 12453 including the measurements of the force prescribed according to EN 12445.
- Making sure there is a protective guard for moved or rotating parts of the system (up to a height of 2.5 m above the floor).
- Sufficient stability of the fixing points of the operator components.
- Making sure that all parts provided on site (sliding element, rail, supply lines) comply with the applicable standards.

3.4.2 Demands on the user information for the operator of the machine

It is the machine builder’s responsibility

- to amend the information in this user manual according to the results of his risk assessment and the safety measures taken by him
- and to decide which of the information contained in this user manual is relevant for the operator of the machine and has to be passed on to him.

3.5 Demands on the qualification of the personnel

3.5.1 Who may what?

- The operating system may only be built into the machine, connected and put into operation by instructed and qualified persons.
  - Only a qualified electrical technician may work on the electrical system. If there is no such person available, a specialist firm has to be charged with the realization.
- After its installation in the machine, only instructed persons may use the operating system and only qualified persons may maintain it.
  - Only a qualified electrical technician may work on the electrical system. If there is no such person available, a specialist firm has to be charged with the realization.

3.5.2 Definitions of the required skills

- Instructed person
  As an instructed person is regarded somebody who has comprehensively been instructed on the safe use of the machine by the machine builder or the operator of the machine.
- Qualified person
  As a qualified person is regarded somebody who due to his relevant technical (preparatory) training and/or due to his relevant experience can recognize risks and prevent hazards which may occur during his work.
- Qualified electrical technician
  As a qualified electrical technician is regarded somebody who due to his professional training, knowledge and experience and his knowledge of relevant regulations can assess and perform the jobs assigned to him and who independently can recognize possible risks.

3.6 Personal protective equipment

⚠
Always wear safety shoes according to EN ISO 20345, category S1 (A+FO+E) when working with or on the operating system:

- antistatic
- oil and petrol resistant sole
- energy absorption in the heel area
- steel caps.

⚠
Always wear oil resistant work gloves according to EN 388 when performing tasks which require a hand protection.

3.7 Conditions of the surroundings

- Normal industrial surroundings, dry and dust-free
- No hazardous surroundings
- When outside operation, only underneath a cover provided by customer
- Admissible operating temperatures for operation : -15° to +40 °C
- Admissible operating temperatures during transport and storage: -15° to +40 °C
- Admissible air humidity: relative air humidity 20 – 80 % non-condensing.

4 Technical Data

4.1 Dimensions and weights

Packed state	
Dimensions (length x width x height) Control system + operator + accessories	620 x 340 x 270 mm
Weight	max. approx. 30 kg

4.2 Electrical system

Rated input voltage	230 VAC, 50 – 60 Hz
Power consumption	max. 6 A
Secondary output voltage	24 VDC or 28 VDC in case of a version with emergency power
Secondary total load	max. 1 A per output, total max. 2 A
Emergency power capacity	28 VDC, 7 Ah
Output voltage of motor	230/400 VAC (3-phase) or 24 VDC
Power rating of motor	max. 0.37 kW AC / 200 W DC
IP rating	IP 54
Recommended fuse protection	B 16 A

5 In-House Transport, Unpacking

5.1 Safety

- **WARNING**
  Squeezing hazard for hands and feet
  The door operator can topple over and/or fall down during transport. This can result in severe crushing injuries of hands and feet. There can be sharp edges on the operator and the accessories. They can cause lacerations.

  - Wear work gloves.
  - Transport the door operator and the control system only with lifting and transporting devices being sufficiently dimensioned.

5.2 Transporting and unpacking the drive system

(1) Use appropriate means of transport for transporting the door operator and the control system (pallet truck).
(2) When opening the cardboard, don't damage the operator. Use a knife with a short blade.
(3) The electric cables must not be damaged during unpacking.
(4) Dispose properly of the packing material.
(5) Check if the unpacked parts are complete (components included).
(6) Check the unpacked parts for damages, especially the electrical cables.
(7) Lifting of the door operator: In three sides of the casing of the operator are provided M10 threads. To these threads can be fixed suitable sling devices (eyelets) to lift the operator.
(8) In case the door operator should be mounted at a higher height, we recommend using a suitable hoisting platform.

6 Mounting, Installation

6.1 Dimensions and fixing

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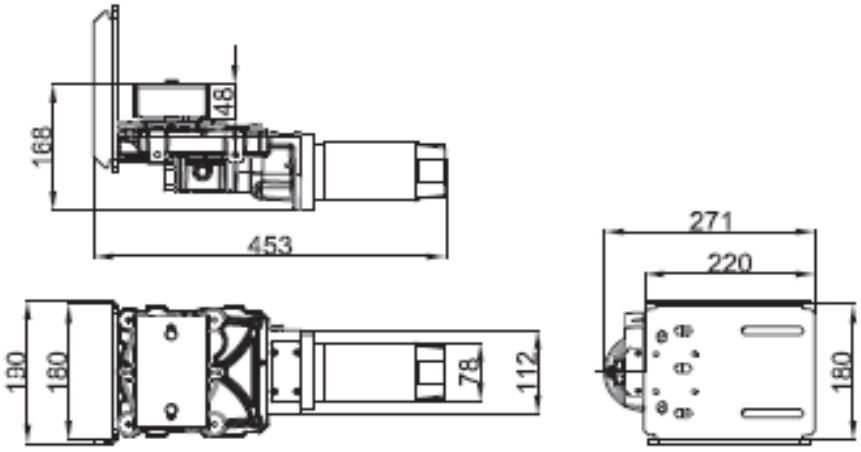
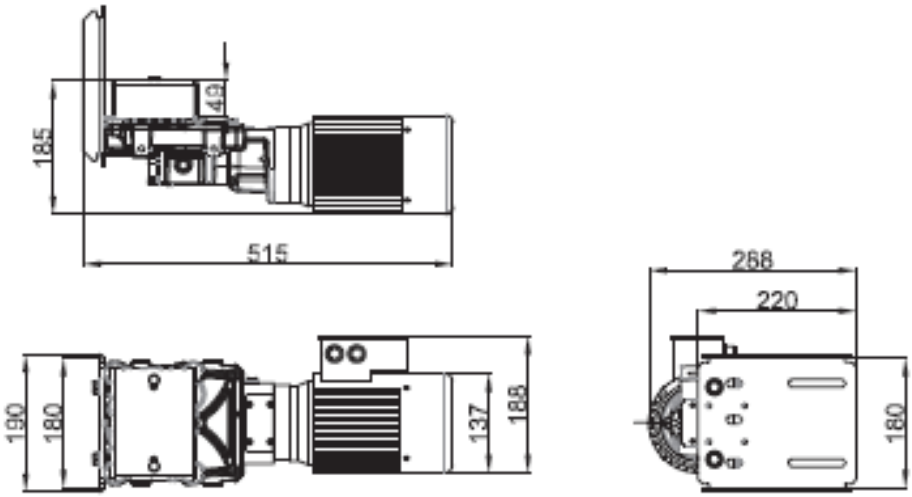
part no. 740005



AC: part no. 740060



6.2 Safety

⚠ WARNING
Severe injuries due to unexpected starting or failure of safety devices

- All safety functions of the complete installation have to be realized by the machine builder of the superior machine, *see 3.4, Responsibilities of the machine builder*.
- Wear work gloves and protective goggles.
- Only perform installation work when the electrical power supply is switched off.

⚠ WARNING
Injury hazards due to malfunction of the machine
The faulty installation of the operating system can result in a later malfunction of the machine and thereby cause severe injuries.

- Observe the following installation specification:
  - Sufficient fixing of all operator components incl. the accessories (belt fixing device, driving medium, idler pulley)
  - Avoid damaging the cables during mounting.
  - Before placing into operation, check if the admissible range of supply voltage of the devices coincides with the local supply voltage.

⚠ WARNING
Squeezing and shearing of extremities
When mounting the operating system extremities can be squeezed or sheared between the single components and the fixing points.

- When installing the operating system, never reach between the single components and the fixing points.

⚠ WARNING
Risk of injury by stored energy
A wrong mounting of the toothed belt can result in injuries due to the rupture of the tensioned toothed belt.

- Observe the following installation specification:
  - Sufficient fixing of the belt in the clamping jaws
  - Don’t exceed the maximum tension.

⚠ WARNING
Risk of injury by falling parts
Insufficient fixing of the operator and accessories can result in injuries.

- Observe the indicated tightening torques of the fixing screws.
- Sufficient stability of the fixing points
- Sufficient dimensioning of the fixing elements provided by the customer

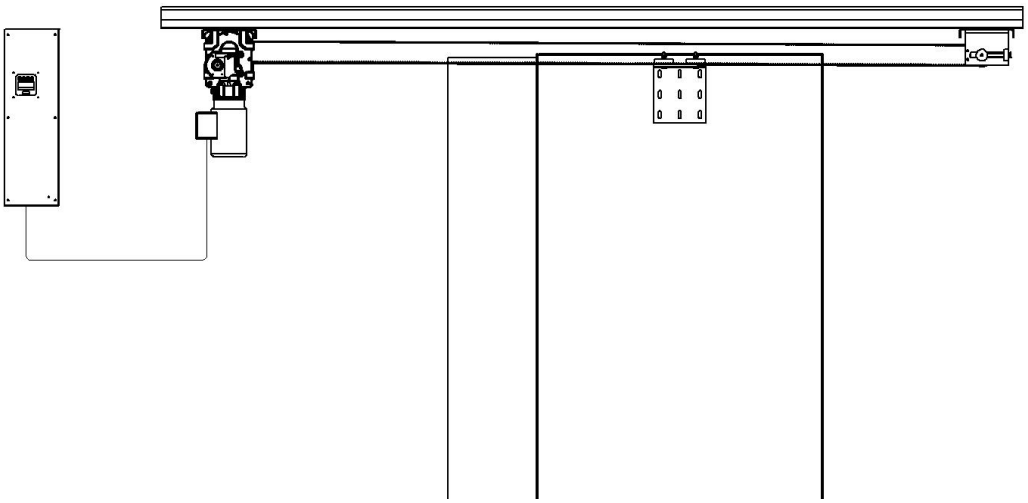
NOTE:
Serious damage of machinery parts
The control systems can fail due to external objects or inappropriate ambient conditions and produce malfunctions.

- *Don't expose electronic parts to humidity, aggressive surroundings and conductive substances in the surroundings.*
- *Make sure that no bore chips, screws or other external parts fall in the components of the system.*
- *Always keep open the vents.*
- *When being mounted the driving wheel and the idler pulley may not rub on surrounding parts.*

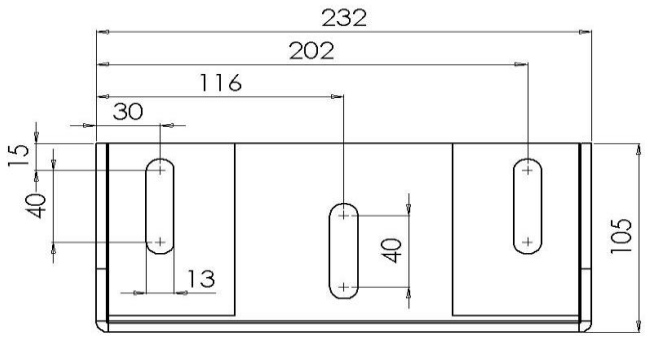
6.3 Mounting of the operating system

(1) Determining the mounting positions of the operator and the accessories.

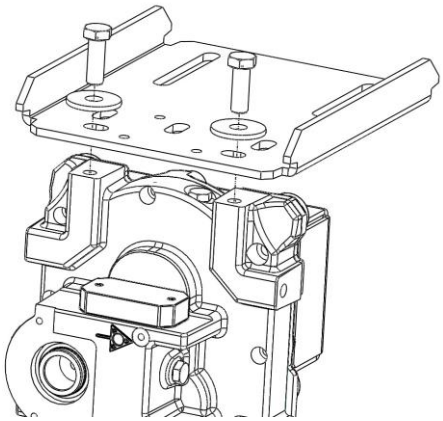
When mounting take into consideration the standard length of 2 m of the connection cable between control system and operator.



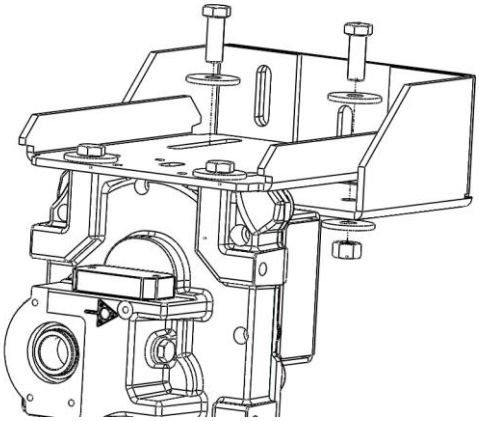
(2) Wall mounting: Fix the wall bracket to the wall, oblong holes for max. M12 screws. Take care of sufficient fixing (minimum 3 screws, see drawing of hole pattern).



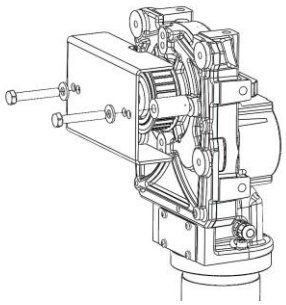
(3) Fix the U-bracket with the included M10 screws to the operator, tightening torque 49 Nm.



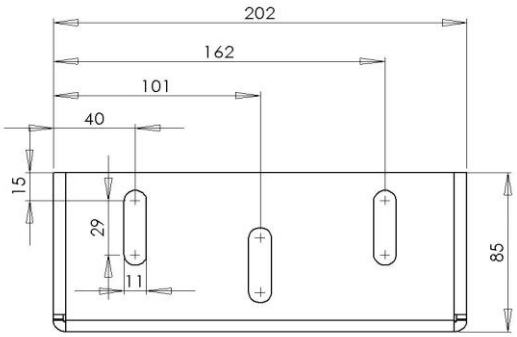
(4) Fix the U-bracket with the operator with the included M10 screws to the wall bracket. Align the operator. Tightening torque 49 Nm.



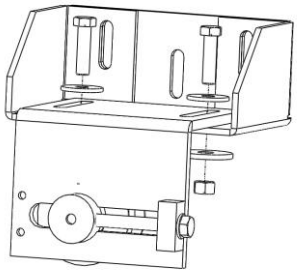
(5) Remove the cover of the driving wheel.



(6) Mounting of the idler pulley:
Wall mounting: Fix the wall bracket to the wall, oblong holes for max. M10 screws. Take care of sufficient fixing (minimum 3 screws, see drawing of hole pattern).



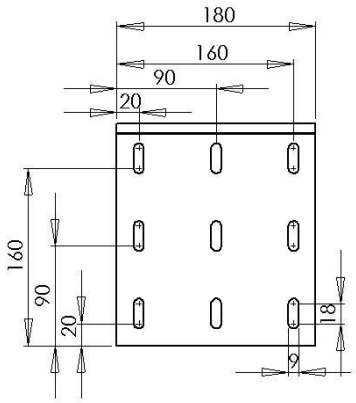
(7) Fix the idler pulley by means of the U-bracket to the wall bracket.
M10 screws, tightening torque 49 Nm



(8) Open and close the sliding element manually once and control whether the wheel hangers strike somewhere.

(9) Mounting of the belt fixing device

- Horizontal position:
  The device should be in an as central position as possible.
- Vertical position:
  The vertical position depends on whether the device shall be connected to the upper or lower part of the toothed belt/chain. Measure the distance between the lower edge of the rail and the toothed belt/chain on the operator and thus determine the position of the upper edge of the belt fixing device. The oblong holes of the fixing bracket allow aligning it exactly. The driving medium may not touch surrounding parts.
  Tighten the fixing device on the sliding element. The customer has to provide fixing material with sufficient stability. The oblong holes are for max. M8 screws (drawing of hole pattern).



- Fix one end of the driving medium on the **right side of the fixing device**. Tighten the clamping plate (wrench size 13, tightening torque 25 Nm).

- Guide the other end of the driving medium over the idler pulley and the driving wheel of the DICTAMAT driving system (or reverse order) back to the other side of the fixing device. Introduce the toothed belt/chain in the **left clamping plate**, tension it manually and tighten the clamping plate (see above).

(10) Check the **alignment of operator, idler pulley and belt/chain tensioner** (the system components have to be in true alignment). If necessary, readjust them. Retighten all screws (for tightening torques see above).

(11) Then loosen the M10 screw in the axis of the idler pulley, tension the **toothed belt/chain** with the lateral screw (wrench size 17) on the idler pulley. Now again tighten the screw in the axis of the idler pulley (SW17, tightening torque 49 Nm).

(12) Fix the removed cover of the driving wheel again to the operator (screws M8, wrench size 13, tightening torque 25 Nm). It is important to ensure that the cover does not rub on the driving medium!

⚠ CAUTION
All moving parts mounted less than 2.5 m above the floor have to be covered with a protective guard. This mainly applies to the driving wheel, the idler pulley and the belt fixing device. This protection has to prevent reliably that fingers or hands can get to the moving parts. The distances specified in DIN 953 have to be observed. The protective guards have to be fixed in a way that you need tools to remove them. The operating system may not be operated without protective guard(s).

7 Troubleshooting

⚠ WARNING
Severe injuries due to unexpected starting
When working on the system when the control system is switched on, the driving system can start unexpectedly and an uncontrolled, dangerous behaviour of machine can happen. This includes the risk of squeezing or gripping by moving parts of the door drive or accessories.

- Before starting working switch the machine to zero potential by switching off the *mains switch* of the control system or permanently open the STOP terminal in the control system (remove the wire from the terminal).
- Secure the control system against accidental switching-on.
- When using a superordinate control system, switch this also in the operation mode "maintenance".
- Remove the protective guard(s) only if absolutely necessary and when the door drive stands still.

⚠ WARNING
Risk of injury due to stored energy
Releasing the tension of the toothed belt in a wrong way may result in injuries by the tensioned toothed belt.

- Before starting to work on the toothed belt or the belt fixing device, release the tension of the belt at the idler pulley (see chapter Mounting of the operating system, 6.3 (11)).
- When tensioning the belt, observe the maximum tension of the belt (see chapter Mounting of the operating system, 6.3 (11)).

- **WARNING**
  Electrical and mechanical risks due to malfunction and failure of safety devices
  - If necessary, stop the movement:
    trip the EMERGENCY-STOP.
  - Switch the machine to neutral by switching off the *mains switch* of the machine.
  - Provide a safeguard to prevent the machine being reclosed unintentionally.
  - Immediately inform the responsible superior.
  - If necessary, secure the dangerous area.
  - Remedy troubles immediately.

8 Maintenance

8.1 Safety

⚠ WARNING
Electrical and mechanical risks due to malfunction and failure of safety devices

- Perform all maintenance work described in this chapter with care and within the period prescribed.
- Perform only maintenance work described in this chapter.
- In case of maintenance work which is not described in this chapter, always contact the DICTATOR customer service or a service center authorized by DICTATOR.
-

⚠ WARNING
Risk of falling
When maintenance work has to be carried out in places which are difficult to access, there is no safe standing of the fitter provided.

- Provide a safe access to the place of maintenance by a ladder or a mounting platform.
- If necessary, secure the fitter with an appropriate fall protection.

⚠ ATTENTION
Risk of burnings on hot surfaces
During operation some components can heat up to 60 °C.
Before maintenance work in these areas, let the machine cool down.

⚠ WARNING
Dangerous electrical voltage
Power packs store electrical energy in capacitors.

- Disconnect the machine from the mains supply.
- Secure the control system against accidental switching-on.
- After having switched off the driving system wait at least 15 minutes until the energy stored in the capacitors has run down.

⚠ WARNING
Severe injuries due to unexpected starting
When working on the system when the control system is switched on, the driving system can start unexpectedly and an uncontrolled, dangerous behaviour of machine can happen. This includes the risk of squeezing or gripping by moving parts of the door drive or accessories.

- Observe the safety indications in the chapter Troubleshooting (9).

⚠ WARNING
Risk of injury due to stored energy
Releasing the tension of the toothed belt in a wrong way may result in injuries by the tensioned toothed belt.

- Before starting to work on the toothed belt or the belt fixing device, release the tension of the belt at the idler pulley (see chapter Mounting of the operating system, 6.3 (11)).
- When tensioning the belt, observe the maximum tension of the belt (see chapter Mounting of the operating system, 6.3 (11)).
- See chapter Troubleshooting, 7

8.2 Inspection and maintenance plan

Installation						
an = as necessary, Err = in case of an error indication on the display, d = daily, m = monthly, ¼ = quarterly, an = annually						
Works to be performed	**an**	**Err**	**d**	**m**	**¼**	**an**
Check the fixing points and the screws						**x**
Check the toothed belt (wear, tension)					**x**	
Check the sliding element and the hardware for damage						**x**
Check the function of the safety elements				**x**		
Check the electrical cables, wires and connections, *see 8.2.1 Control of cables, wires and connections* (In case there is no qualified electrical technician available, a specialist firm has to be charged with the performance).						**x**
Check if there is the safety sign, if it is legible, in a state according to the rules. If necessary, it has to be replaced.						**x**

Cleaning of the drive system: Remove the dust.

Never use for cleaning: direct water jet, high-pressure cleaner, acids or lyes

8.2.1 Checking of cables, wires and connections

(13) Switch off the driving system.
See chapter Troubleshooting.

(14) Check cables, wires and connections for:

- Correct and firm seat.
  If necessary:
  Adjust the seat of cables, wires and connections.
- Tensile load, load caused by objects.
  If necessary:
  Relieve the cables, wires and connections of the load.
- Damages such as cracks, damages of the insulation of the cables etc.
  In case a cable or wire is damaged:
  - Switch the machine to neutral by turning off the *mains switch* of the machine.
  - Provide a safeguard to prevent the machine being reclosed unintentionally.
  - Immediately inform the responsible superior.
  - If necessary, secure the dangerous area.
  - Remedy troubles immediately.

8.3 Wear parts, spares

⚠ WARNING
Electrical and mechanical hazards.

- Only replace spare and wear parts the change of which is described in this user manual.
- Spare and wear parts the change of which is not described in this manual may only be replaced by the DICTATOR service or a service center authorized by DICTATOR.
- For the driving system only original spare parts may be used.

8.3.1 Safety-related wear parts, spares

Component	Supplier	Part no.
Toothed belt	DICTATOR	710490

8.3.2 Other wear parts, spares

Component	Supplier	Part no
Idler pulley ø 64 mm	DICTATOR	790600
Idler pulley ø 100 mm	DICTATOR	790601
Belt fixing device	DICTATOR	790620
Belt fixing device for 2nd door leaf	DICTATOR	790420
Supporting roller	DICTATOR	790410
Wall bracket 0.18 kW	DICTATOR	790400
Wall bracket 0.37 kW	DICTATOR	790401

9 Proper Disposal

9.1 Safety

⚠ WARNING
Dangerous electrical voltage
Power packs store electrical energy in capacitors.

- Disconnect the machine from the mains supply.
- Secure the control system against accidental switching-on.
- Wait for at least 15 minutes after having switched off the machine until the energy stored in the capacitors has run down.

⚠ WARNING
Risk of falling
When maintenance work has to be carried out in places which are difficult to access, there is no safe standing of the fitter provided.

- Provide a safe access to the place of maintenance by a ladder or a mounting platform.
- If necessary, secure the fitter with a safety harness.

⚠ ATTENTION
Risk of burnings on hot surfaces
During operation some components can heat up to 60 °C.
Before maintenance work in these areas, let the machine cool down.

9.2 Proper disposal

Metallic material	Disposal in accordance with the local legal regulations. *NOTE:* *In Germany either local gathering places or certified waste management companies take care of the proper disposal.*
Electric and electronic components	Disposal in accordance with the local legal regulations. *NOTE:* *In Germany local gathering places take care of the proper disposal.*