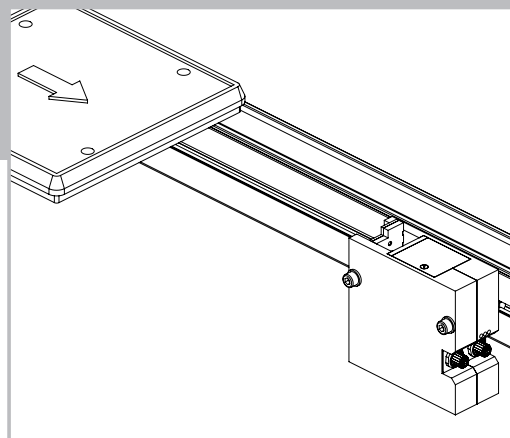


阻尼阻挡器**ELD-190**

Separating stop, damped ELD-190



参数表 **Data Sheet**

编号/No. 44000652
有效起始日期/valid from
2017/08

Der Wörner-Stopper. Das Original.

电动阻尼阻挡器 ELD-190

Separating stop, damped, electrical, ELD-190

功能描述

阻挡器适用于在特定工作位置阻挡一个或多个托盘。阻挡程序进行了阻尼减速处理。使用接近开关识别上下阻挡位置

Functional Description

The separating stop places one or multiple pallets in a defined position and clears them individually for downstream transport. The stopping process is damped for a gentle deceleration. Proximity switches can be used to identify the upper and lower positions of the stop.

作用

- 通过集成的阻尼系统使托盘能够平缓得被阻挡
- 相比无阻尼阻挡器减少95%的碰撞力
- 通过安全碰撞终端位置对托盘进行精确定位，且对终端位置不产生反作用力
- 缓冲力简单且无级调整，应用范围更广
- 通过电磁动力保证更高的效率和更低的运营成本
- 去掉气动系统保证更低的安装费用
- 低噪音
- 通过集成的诊断工具(根据款式进行选择)极易进行调试及维护
- 能够在没有电力的情况下停留在较低的位置

Value

- gentle deceleration and stopping of pallet through integrated damping system
- force of impact reduced by up to 95% in comparison to undamped stoppers
- precise positioning of the pallet through reliable running into the final position and no opposing force in the end position
- wide range of applications thanks to simple and infinitely adjustable damping force
- high efficiency and low operating costs due to electromechanical drive
- low installation costs by eliminating the pneumatic system
- low noise
- simplified commissioning and maintenance through integrated diagnostic tools (depending on model)
- can stay in lower position without electric power

产品类型

升降冲程: 8 mm
2x5-极M12x1接头
塑料阻挡头
按照客户要求的解决方案
各种配件

Product Types

Lowering stroke: 8 mm
2x5-pin M12x1 plug
Plastic stop
Customer-specific solutions
Various accessories

使用范围

最大推进力: 200 N

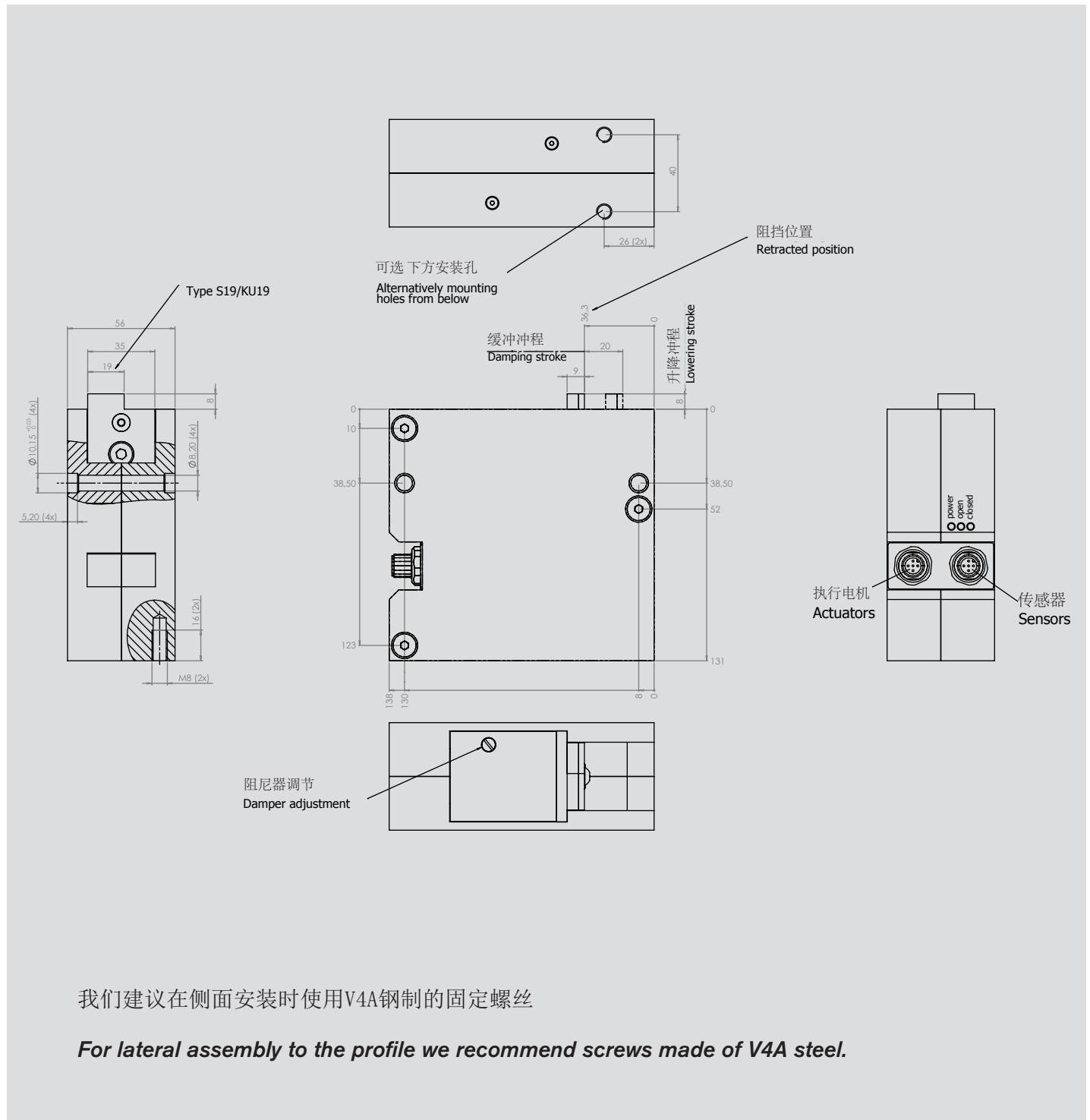
输送速度	托盘重量
6 m/min	3,5 - 190 kg
9 m/min	3,5 - 170 kg
12 m/min	3,5 - 150 kg
18 m/min	3,5 - 80 kg
24 m/min	3,5 - 50 kg
30 m/min	3,5 - 35 kg
36 m/min	3,5 - 25 kg

所有数据适用于当运输设备与托盘之间的摩擦系数为 $\mu = 0,07$ 且为钢制阻挡头的情况，其为试验结果并在持久测试中被证实

Scope of application

Max. propelling force: 200 N	
Conveying speed	Pallet weight
6 m/min	3.5 - 190 kg
9 m/min	3.5 - 170 kg
12 m/min	3.5 - 150 kg
18 m/min	3.5 - 80 kg
24 m/min	3.5 - 50 kg
30 m/min	3.5 - 35 kg
36 m/min	3.5 - 25 kg

All specifications apply for a coefficient of friction between means of conveyance and pallet of $\mu = 0.07$ and a steel stop. They are experimentally determined and confirmed in endurance and fatigue tests.

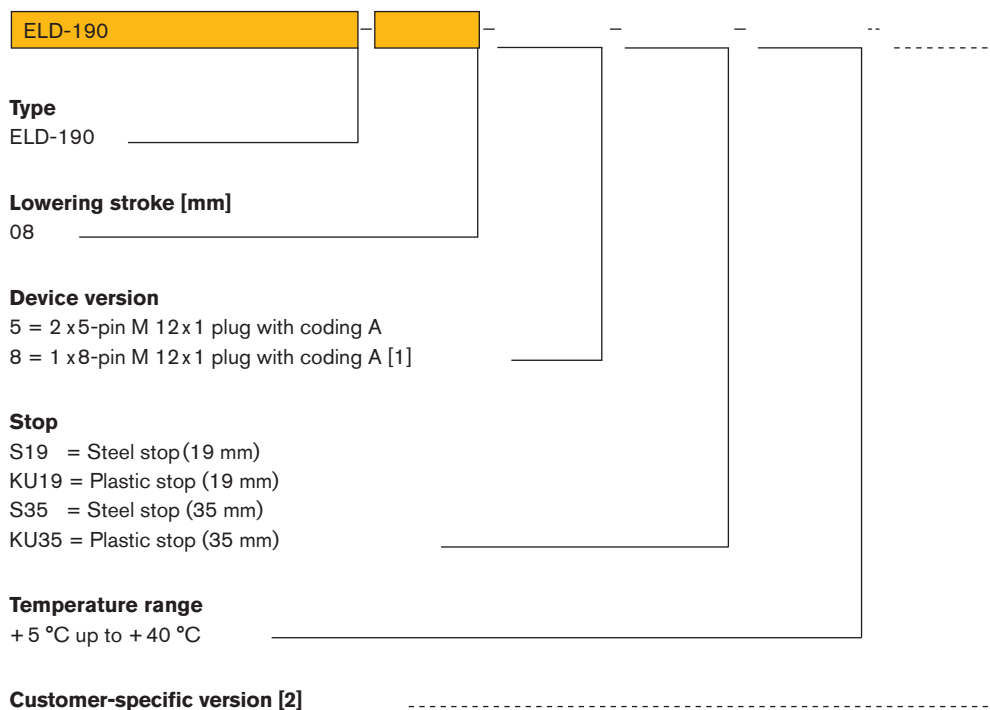


ELD-190					
类型	ELD-190				
升降冲程[mm]	08				
接头类型	5 = 2 x 5极 M 12x1接头, 编码为A 8 = 1 x 8极 M 12x1接头, 编码为A [1]				
阻挡头类型	S19 = 钢制阻挡架(19 mm) KU19 = 塑料阻挡架(19 mm) S35 = 钢制阻挡架(35 mm) KU35 = 塑料阻挡架(35 mm)				
温度范围	+ 5 °C至+ 40 °C				
客户定制[2]					

[1] 应要求提供
[2] 按需分配

我们建议在阻挡头区域搭配使用钢制产品及塑料产品
这样能够实现较小的摩擦力并且因此减少设备及装置的负载

举例：在阻挡器上搭配使用一个塑料托盘和一个钢制阻挡头

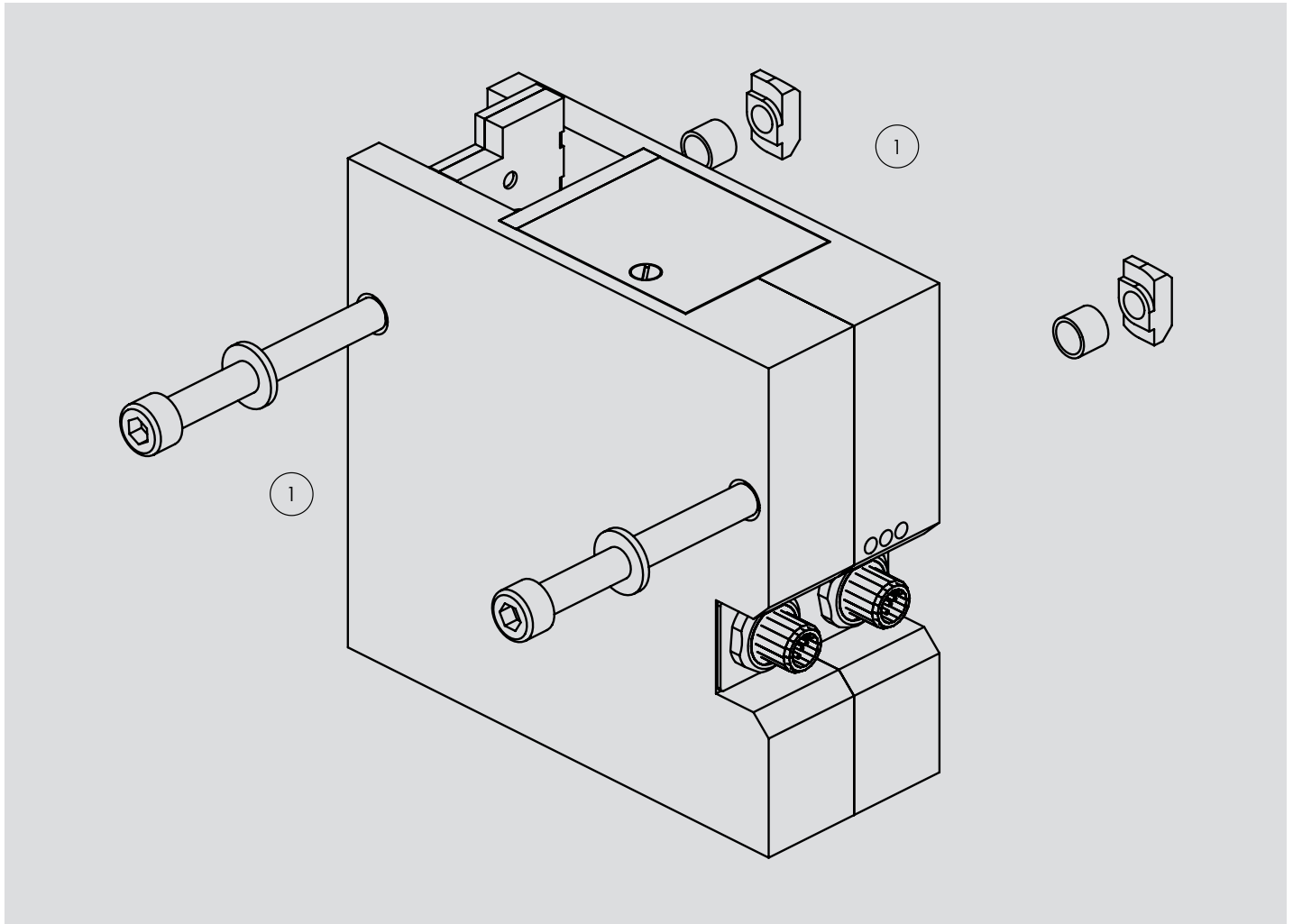


[1] on request

[2] assigned correspondingly

At the stopping point we recommend the material combination steel/plastic. This will reduce the friction between pallet and stop plate, hence reducing the load on the stopper as well as on the conveyor.

For example: A combination of a plastic pallet with a steel stop plate.



项目号	产品名称	描述	订单号
[1]	固定组件		44000649

我们建议在侧面安装时使用V4A钢制的固定螺丝

Item no.	Product name	Description	Order no.
[1]	Assembly kit		44000649

For lateral assembly to the profile we recommend screws made of V4A steel.

警告

安装、投产、保养及维修之前要注意查看参数表。该工作必须由经过培训和指导的专业人员进行

电气连接必须符合国家相关规定

维修及保养之前必须关闭电源(主开关等)。此外还要采取必要的措施以避免不可预知的重启，例如主开关显示警示标志“维修”等

常规用途

将运行托盘上一个或多个工件阻挡在预定位置

- 阻挡器可用于传输系统中的多个托盘
- 阻挡器不可以与预定的运输方向反向运行
- 阻挡器不能在有爆炸危险的区域使用
- 阻挡器不能作为安全开关使用
- 按照安装位置使用适合的防护措施，以便在运行及维护过程中避免链条被夹住。如有必要，请询问阻挡头的位置

质保

如果阻挡器由于使用不当及未按照说明擅自操作而损坏，生产商不承担任何质保及赔偿责任。未使用原装备件，生产商不承担质保。请确保使用合适的包装用于运输本产品

环境保护

更换配件时，请妥善处理

Warnings

Before installation, commissioning, maintenance and repair data sheet must be observed. The work must be performed only by trained, instructed personal.

Electrical connections must comply with the respective national regulations.

The power supply must always be switched off (main switch, etc.) before maintenance and repair work. In addition, measures are needed to prevent unintentional restart, for example to put a warning sign „repair work“ at the main switch.

Intended use

Stopping one or more accumulated pallets at a defined stop position.

- *The separating stop is designed to separate pallets in transfer systems.*
- *The separating stop must not be used against the intended conveying direction.*
- *The separating stop must not be used in locations exposed to the danger of explosions.*
- *The separating stop must not be used as a safety switch.*
- *Depending on the installation situation, suitable protective measures have to be taken to prevent extremities from any damage. If necessary, the position of the stop is to be queried.*

Warranty

In no event can the manufacturer accept warranty claims or liability for damages arising from improper use of the separating stop or from intervention in the appliance other than described in this data sheet. The manufacturer can accept no warranty claims if non-original spare parts have been used. For the transport of the unit is to ensure a suitable packaging.

Environmental protection

Always dispose of changed parts in the correct manner when replacement work is completed.

推进力 F_R

推进力为运输设备与托盘(推动力)之间的摩擦力,其取决于摩擦系数 μ ,托盘重量 m 以及重力加速度 g

$$F_R = \mu \times m \times g$$

如果有多个托盘堆积,则必须计算其数量: $F_R = n \times \mu \times m \times g$

摩擦系数 μ 反映了运输设备与托盘之间的摩擦情况

举例:

传送带/皮带:	$\mu = 0.2$ 至 0.3
塑料环链:	$\mu = 0.3$ 至 0.5
挡板辊链:	$\mu = 0.01$ 至 0.03

减速度 F_V

减速度能够延迟托盘的停滞。采用简化的均匀延迟运动情况下,其由缓冲力 $F_D = \frac{m \times v^2}{2 \times s}$ (其中 v 为输送速度, s 为缓冲冲程)和缓冲过程中的推进力共同确定:

$$F_V = \frac{m \times v^2}{2 \times s} + \mu \times m \times g$$

阻挡位设置

设置阻挡位的时候,我们建议将两个基本功能(阻止和削弱)分开设置

基本功能: 阻止

参数表里说明了阻挡器的使用范围。使用此表格,您能够很轻松知道,计划使用的阻挡器是否能在必要的输送速度情况下阻挡计划重量的托盘。使用参数外的摩擦系数及组合的情况下,请注意输送速度和托盘重量是否实际和必要。如果推进力 F_R 占了减速度 F_V 很大部分,即系统中存在很高的摩擦力,则此表也是适用的。可以使用上面的公式,您可以初步估算该近似值

必须大于最小推进力 F_{Rmin} , 确保停止器能够到达终端位置

基本功能: 削弱

参数表里说明了最大推进力,能够在长期运行时确保降低阻挡器的速度。系统里的推进力必须小于说明的推动力。请您注意,其它重量的托盘也可以在不同的摩擦系数下被降速。使用上述表格,您可以使用其它摩擦系数换算我们给出的最大推进力

Propelling force F_R

The propelling force is the friction force between the conveyor equipment and the pallet. It is a function of the coefficient of friction μ , the weight of the pallet m and acceleration due to gravity g :

$$F_R = \mu \times m \times g$$

If more than one pallet is accumulated, their number n must be taken in to account: $F_R = n \times \mu \times m \times g$

The coefficient of friction μ characterizes the friction between conveyor and pallet.

Examples:

Belt/band:	$\mu = 0.2$ to 0.3
Plastic modular belt:	$\mu = 0.3$ to 0.5
Accumulation roller chain:	$\mu = 0.01$ to 0.03

Deceleration force F_V

The deceleration force is required to decelerate the pallet to a halt. Under the simplifying assumption of a uniformly decelerated motion, it consists of the damping force $F_D = \frac{m \times v^2}{2 \times s}$ (whereas v is the conveying speed and s is the damping stroke) and the propelling force that is also effective during the damping process:

$$F_V = \frac{m \times v^2}{2 \times s} + \mu \times m \times g$$

Configuration of a stopping point

When configuring the stopping point, we recommend to consider the two basic functions (Stopping and Lowering) seperately.

Basic function: Stopping

The scope of application of the various stoppers is indicated in the data sheets. Using these tables, it is easy to determine whether the intended stopper is able to damp the expected pallet weight at your required conveyor speed.

Please note that other combinations of the conveyor speed and pallet weight parameters are possible, or may indeed be required, at different coefficients of friction. This is true, in particular, when the propelling force F_R accounts for a high proportion of the deceleration force F_V , i.e. in systems with high levels of friction. You can obtain an initial estimation of these values using the formula above. The minimum propelling force F_{Rmin} must be exceeded so that the stop plate reliably reaches its end position.

Basic function: Lowering

The data sheets indicate the maximum propelling force against which the stopper can reliably lower during long-term operation. The propelling force in your system must be less than the specified value. Please note that other pallet weights can be reliably lowered at different coefficients of friction. Using the formula above, you can easily convert the maximum propelling force specified by us for other coefficients of friction.

阻挡器通过端口X1 Pin 2进行控制。端口对逻辑位置“0”和“1”进行响应。逻辑位置“1”打开阻尼阻挡器，到达逻辑位置“0”的时候将关闭阻挡器。在每个位置将进行三次尝试，以便到达其它的终端位置。如果没有到达终端位置，则阻挡器会进入错误模式15秒钟。15秒钟后阻挡器会自动恢复运行状态。然后将通过内部传感器检测终端位置。

停止点的配置

为了试设备长期可靠运行，不得超过最大推进力

最大推进力 $F_{R\max}$ 200 N

使用范围

输送速度	托盘重量
6 m/min	3,5 - 190 kg
9 m/min	3,5 - 170 kg
12 m/min	3,5 - 150 kg
18 m/min	3,5 - 80 kg
24 m/min	3,5 - 50 kg
30 m/min	3,5 - 35 kg
36 m/min	3,5 - 25 kg

下沉时间

0,25秒(推进力200 N, 托盘上使用钢制阻挡头)

上升时间

0,3秒

周期

最少3秒

设备初始化时间

最多6秒

电子接头

2 x 5极 M12 x1接头，编码为A

如果您对于下沉时间有不同要求并且希望达到尽可能大的推进力，请您与我们商讨。我们可以在确定的范围内，通过修改设计方案进行更改

维护工作

无需进行维护工作。阻挡头区域必须保证干净且无杂质，以确保托盘能够精确定位

重量

2,1 kg

所有技术参数适用于运输设备与托盘之间摩擦系数 $\mu = 0,07$ 以及钢制阻挡头，其为试验结果并在持久测试中被证实

The separating stop is controlled over the input X1 Pin 2. The input responds on the logic states "0" and "1". The logic state "1" opens the separating stop, the logic state "0" closes the separating stop. Three attempts per state are made to reach the other stop position. If the separating stop does not reach the other stop position within that time it goes into the error mode for 15 seconds. After 15 seconds the separator automatically returns into the operating mode. The respective end position is sensed by means of internal sensors.

Configuration of a stopping point

To allow for a reliable long-term operation of the stopper, the maximum propelling force must not be exceeded.

Maximum propelling force $F_{R\max}$ 200 N

Scope of application

Conveying speed	Pallet weight
6 m/min	3.5 - 190 kg
9 m/min	3.5 - 170 kg
12 m/min	3.5 - 150 kg
18 m/min	3.5 - 80 kg
24 m/min	3.5 - 50 kg
30 m/min	3.5 - 35 kg
36 m/min	3.5 - 25 kg

Time for lowering

0.25 seconds (propelling force 200 N, steel stop at the pallet)

Time for raising

0.3 seconds

Cycle time

min. 3 seconds

Time to initialize stopper

max. 6 seconds

Electrical connection

2 x 5-pin M12x1 plug with coding A

Should you have other requirements with regards to the time to lower the stop or to the maximum propelling force, please contact us. We can – within certain limits – influence that by changing the product's design.

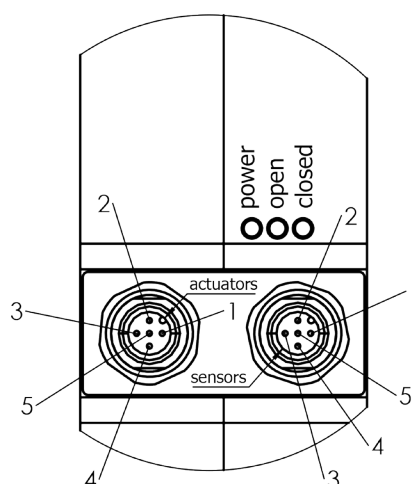
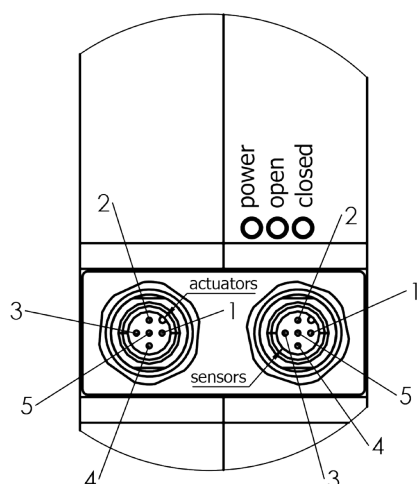
Maintenance

No maintenance is required. The area around the stop must be clean and free of flakes to allow for an exact positioning of the pallet.

Product Weight

2.1 kg

All specifications apply for a coefficient of friction between means of conveyance and pallet of $\mu = 0.07$ and a steel stop plate. They are experimentally determined and confirmed in endurance and fatigue tests.



连接板促动器X1		连接板传感器X2	
连接	功能	连接	功能
1	-	1	+ 24 V DC
2	接入端口： 打开或关闭阻挡器	2	接出端口： 关闭阻挡器
3	GND	3	-
4	+ 24 V DC	4	接出端口： 打开阻挡器
5	PE (外壳)	5	PE (外壳)

Pin assignment actuators X1		Pin assignment sensors X2	
Pin	Function	Pin	Function
1	-	1	+ 24 V DC
2	Input: open or close separating stop	2	Output: separating stop closed
3	GND	3	-
4	+ 24 V DC	4	Output: separating stop open
5	PE (Case)	5	PE (Case)

端口X1 Pin 2促动器
 打开：“1” - 高等级
 关闭：“0” - 低等级

Input X1 Pin 2 Actuators
 Open: “1”- High-level
 Close: “0”- Low-level

电源连接负载
 功率范围：
 24伏 ± 15 %，反向极性防护至35 V

Electrical power ratings Power supply
 Voltage range :
 24 volts ± 15 %, reverse polarity protection to 35 V

电力损耗
 静态电流: < 0,1 A
 峰值电流: 至2 A

Power consumption
 Stand-by current : < 0.1 A
 Peak current: up to 2 A

接入端口及接出端口
 接入端口: 阻抗约3,3 kΩ
 “1” - 高等级 > 14 V
 “0” - 低等级 < 8 V
 最大接入电压29 V

In- and Outputs
 Input: Impedance approximately 3.3 kΩ
 “1”-High level > 14 V
 “0”-Low level < 8 V
 Max. input voltage 29 V

接出端口(传感器): 高等级 > 19 V (电流为13 mA)
 低等级 < 1 V
 阻抗250 Ω, 最大为22 mA
 根据重量及电源电压进行短路保护
 仅PNP型式, 一般打开模式

Outputs (sensoric): High level > 19 V (at 13 mA)
 Low level < 1 V
 Impedance 250 Ω, at max. 22 mA,
 short circuit proof to ground and supply voltage.
 PNP, NO (normal open) version only

过高的电压会导致持续损伤!
 该设备可以使用西门子品牌的控制器
 (S7, ET 200pro/ET 200pro HF包括F-Switch 142-2BD00-0AB0).

Higher voltages may cause permanent damage!
 The device was released using a PLC of the brand Siemens S7
 (ET 200pro/ET 200pro HF including F-Switch 142-2BD00-0AB0).

“电源”

“电源” LED灯一般运行时总是亮着的
进行初始化及发生错误时，该LED灯会不停闪烁

“打开”

“打开” LED灯在阻挡器下沉时亮起并显示相应的传感器接出端口(X2 Pin 4)。发生错误时该LED灯不会亮起

“关闭”

“关闭” LED灯在阻挡器关闭时亮起并显示相应的传感器接出端口(X2 Pin 2)。发生错误时该LED灯不会亮起

阻挡器在发生错误时的状态

如果低于或高于电源电压(参见电子负载)

- “电源” LED灯闪烁
- 不会发出控制指令
- 在达到一般的运行电压后，阻挡器会自动回到运行状态

阻挡器未达到两个终端位置中的一个位置(例如托盘仍然高于阻挡器)

- “电源” LED灯闪烁
- “打开”及“关闭”LED灯不会亮起
- 传感器接出端口无信号(逻辑状态“0”)
- 阻挡器停顿15秒(对促动器信号无反应)
- 阻挡器在15秒暂停后自动进入运行状态

低于最小周期时间(参见最小周期时间)

- 如果低于平均10秒的周期时间，阻挡器将进入错误模式
- “电源” LED灯闪烁
- “打开”及“关闭”LED灯不会亮起
- 传感器接出端口无信号(逻辑状态“0”)
- 冷却关闭后(时间与上述负载有关)，阻挡器将自动进入运行状态

“Power”

The “Power” LED lights up permanently in normal operation. During initialization and in case of a failure, the LED flashes.

“Open”

The “Open” LED lights up when the stop plate is lowered, and reflects the corresponding sensor output (X2 pin 4). In case of a failure, this LED is off.

“Closed”

The “Closed” LED lights up when the separator is closed, and reflects the corresponding sensor output (X2 pin 2). If an error occurs, this LED is off.

Stopper characteristics in case of an error

Supply voltage too low or too high (see electrical power ratings)

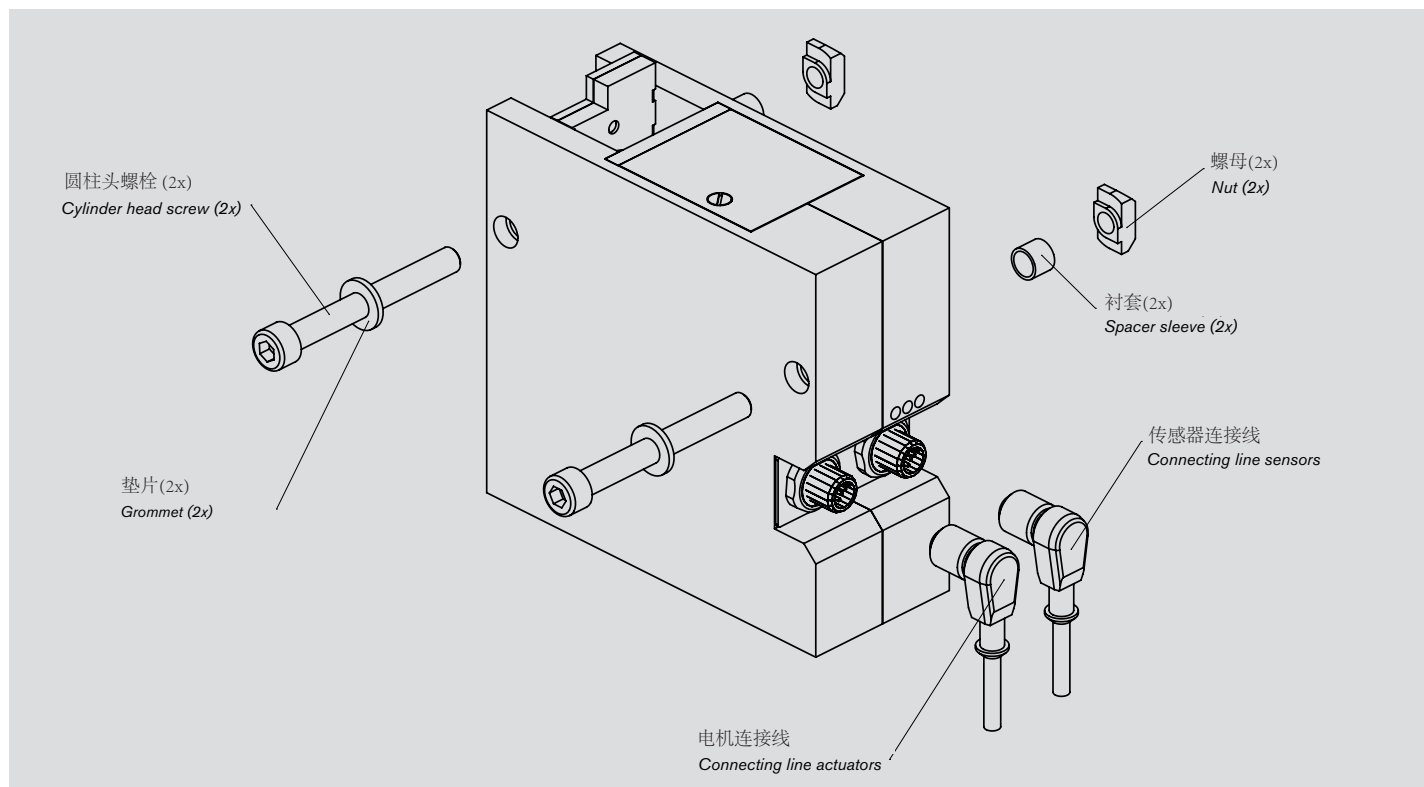
- “Power” LED is flashing
- no control commands are executed
- if operating voltage reaches normal level again, the stopper automatically returns into the normal operating condition

Separating does not reach one of the two end positions (e.g. when pallet is still above the separator while stopper is already moving up)

- “Power” LED is flashing
- “Open” and “Closed” LEDs are off
- sensor outputs without signal (logic state “0”)
- separating stop is pausing for 15 seconds (no response to actuator signals)
- separating stop returns automatically into the normal operating condition after 15 s break

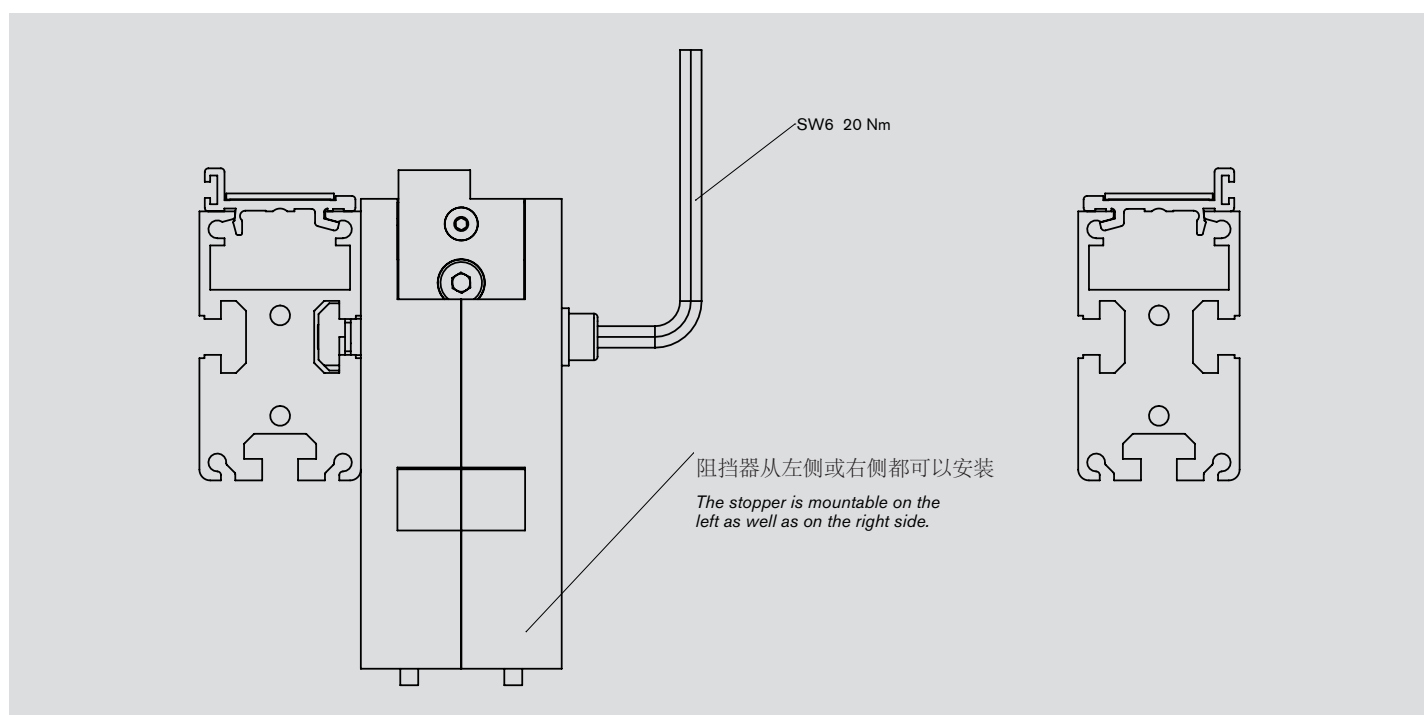
Falling below the minimum cycle time (see min. cycle time)

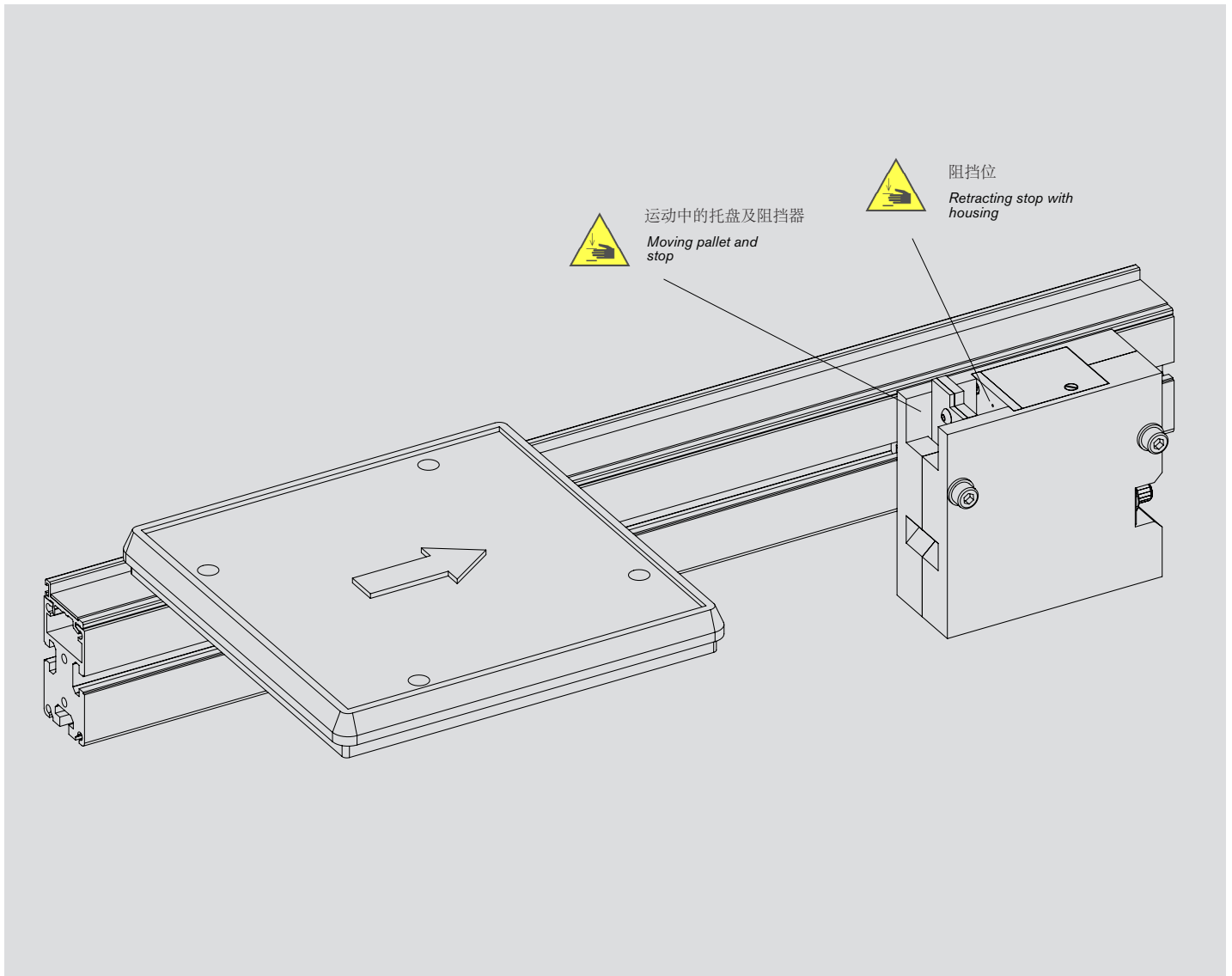
- if the average cycle time (calculated from last 10 cycles) falls below its critical value (see min. cycle time), the separating stop goes into the error mode
- “Power” LED is flashing
- “Open” and “Closed” LEDs are off
- sensor outputs without signal (logic state “0”)
- after cooling off (duration depending on the previous load) the separating stop returns automatically into the normal operating condition

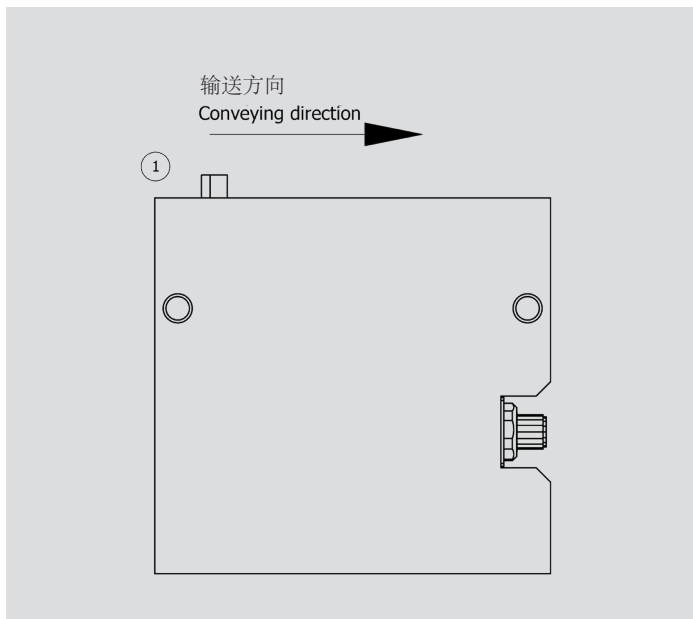


- 将带垫圈的气缸螺丝装入固定孔
- 将两边的支撑套装入沉孔
- 预安装螺母并进行水平校准
- 将阻挡器固定在侧面的T型槽里
- 根据第7页的技术要求连接传感器和促动器
- 我们建议在侧面安装时使用V4A钢制的固定螺丝

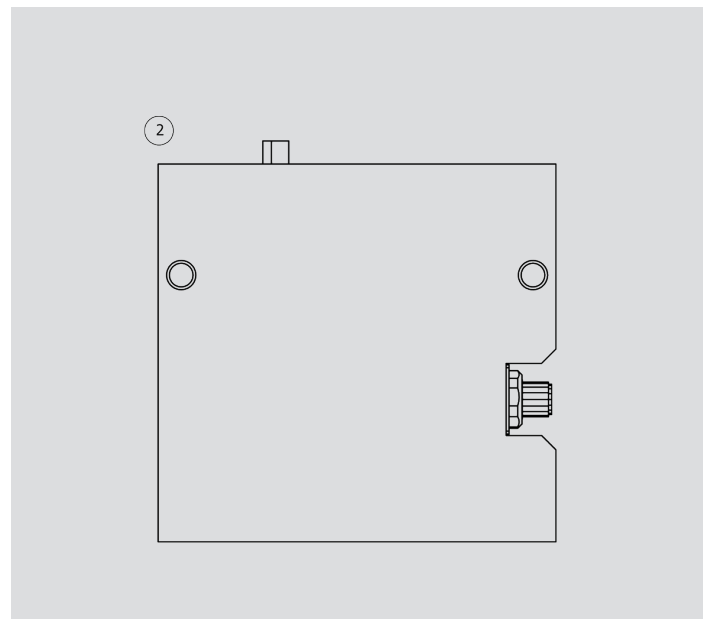
- Put the cylinder head screw with grommet into the mounting hole
- Put the spacer sleeve from the second side into the shouldered hole
- Preassemble the T-nuts, align horizontally
- Mount the separating stop in the T-slot of the profile
- Connection sensors and actuators according to technical datas page 7
- For lateral assembly to the profile we recommend screws made of V4A steel.



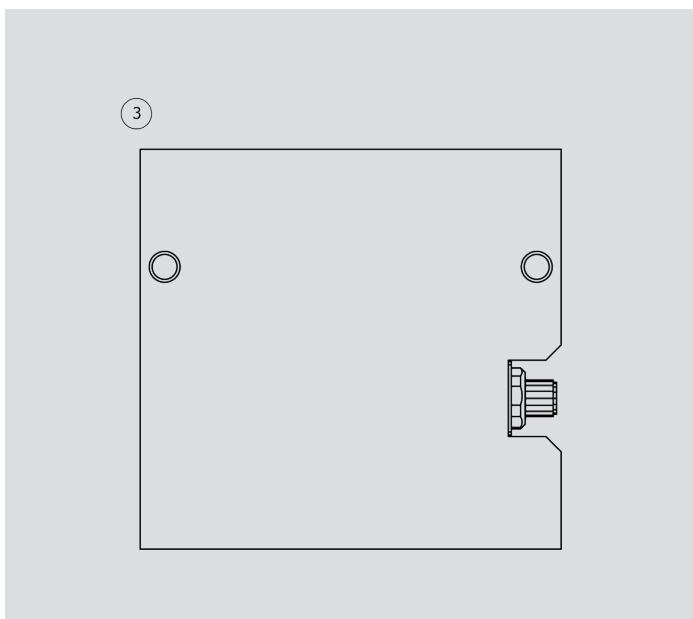




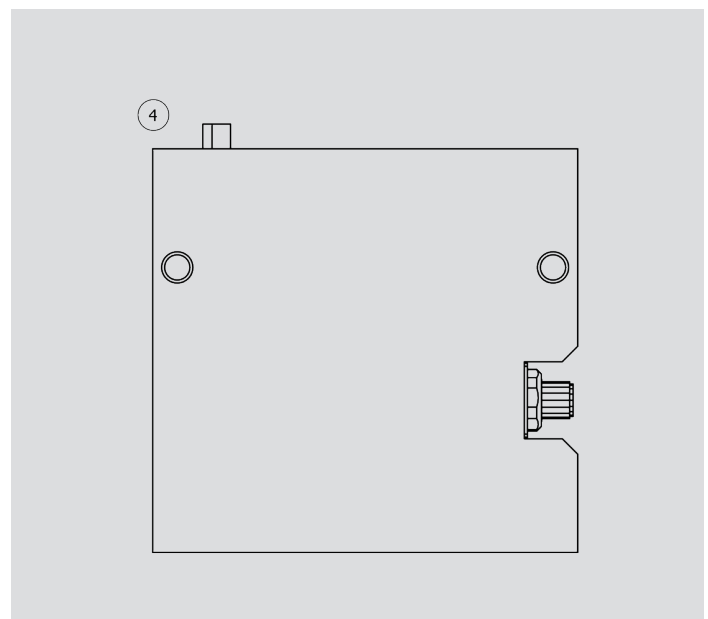
- 阻尼阻挡器在初始位置
- *Damped stopper in its initial position.*



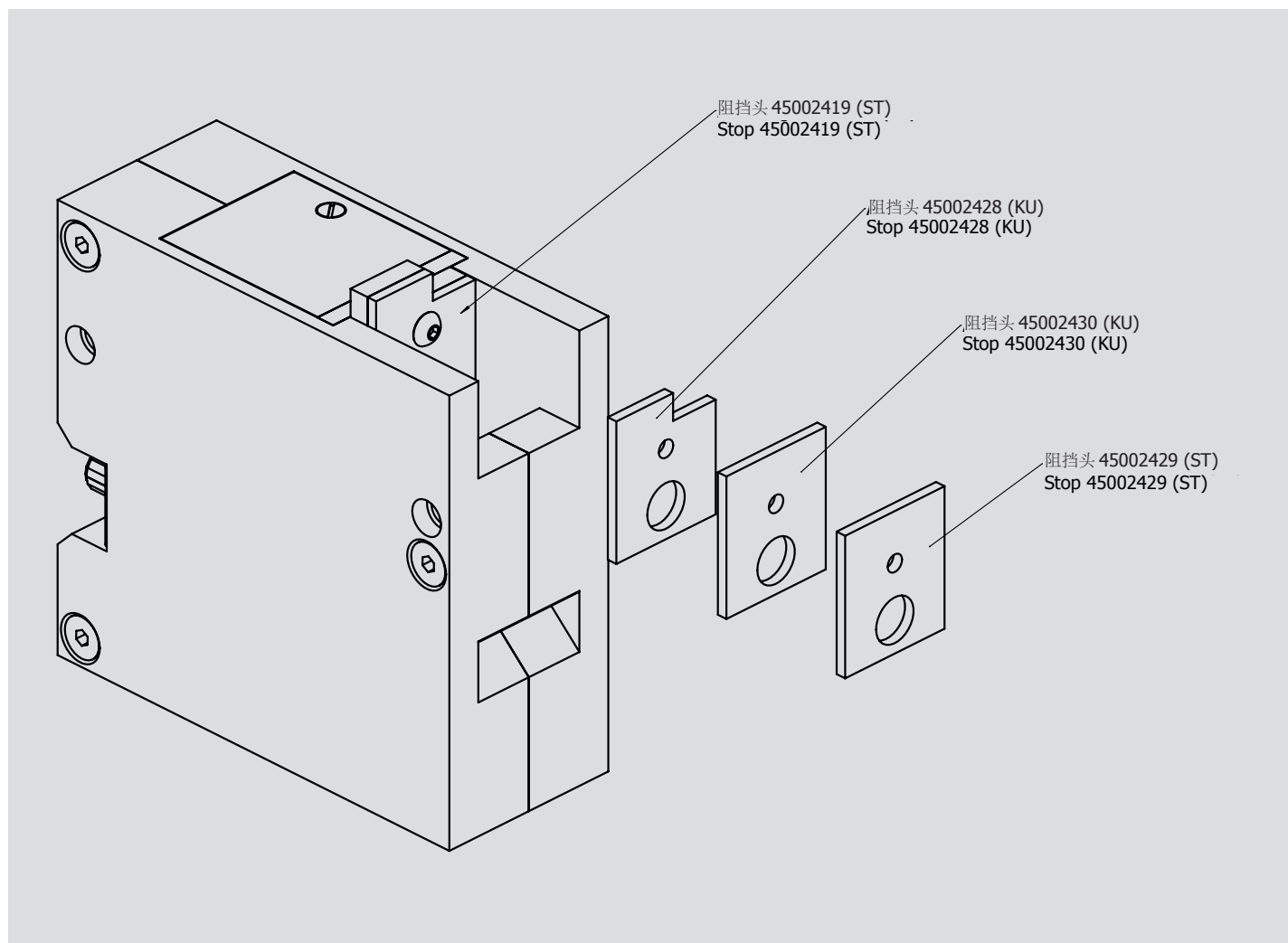
- 阻尼阻挡器阻止托盘运动
- *Damped stopper has stopped the pallet.*



- 向阻尼阻挡器发出下沉指令
- 阻挡头下沉
- *Lowering command to the damped stopper.*
- *Stop plate is lowered.*



- 下沉指令复位
- 阻挡头上升
- 阻尼阻挡器回到接出位置(图1)
- *Resetting of lowering command.*
- *Stop plate is raised upwards.*
- *Damped stopper is back in its initial position (picture 1).*



项目	数量	订购号	备件	备件组成/产品版本	每个密封修理包数量
1	1	45002419	钢制阻挡头		
1	1	45002428	塑料阻挡头		
1	1	45002430	塑料阻挡头		
1	1	45002429	钢制阻挡头		

Item	Quantity	Order-no.	Spare part	Elements of spare part/product version	Quantity per seal repair kit
1	1	45002419	Steel stop		
1	1	45002428	Plastic stop		
1	1	45002430	Plastic stop		
1	1	45002429	Steel stop		

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