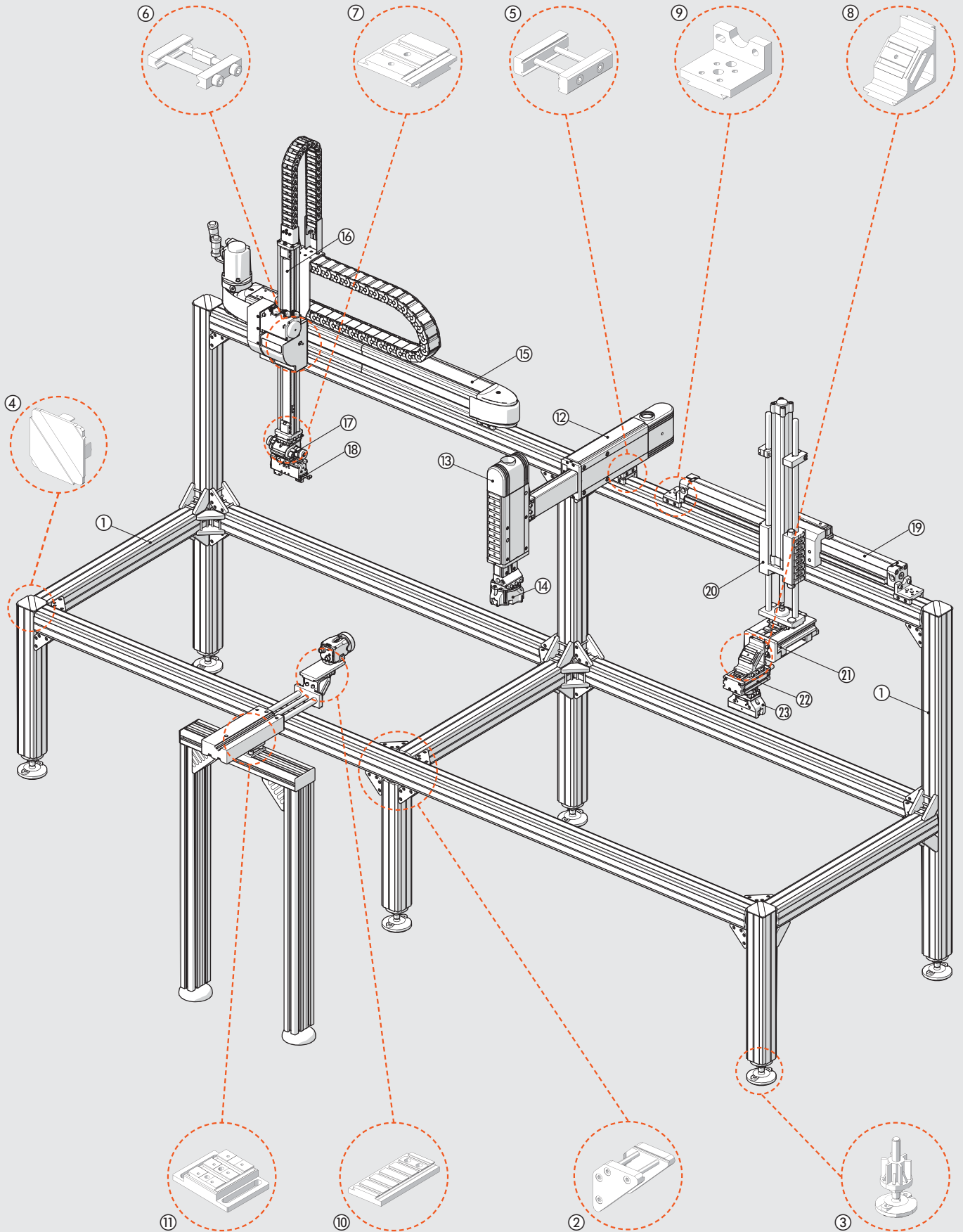


THE V-LOCK WORLD

ACTUATORS

V-LOCK GENERAL INTRODUCTION



The V-Lock system can be used to create pneumatic and/or electrical automation systems for a wide range of applications, from simple to more complex ones.

- ① Quick-Set dovetail fixing PROFILES, which can be cut up using a standard die-cutter and do not require any particular machining; no threaded holes or pinholes are required. Dovetail fixing elements can withstand greater loads than those with T-grooves.
- ② BRACKETS for fixing Quick-set profiles.
- ③ Articulated FOOTS with 90mm adjustment length.
- ④ Plastic CAP for profiles.
- ⑤ QS FIXING ELEMENTS for the coupling of V-Lock profiles and/or components (no need for V-Lock transverse grooves).
- ⑥ K FIXING ELEMENTS for V-Lock couplings, using the transverse grooves of V-Lock components. They feature high precision, repeatability and space saving.
- ⑦ Parallel or crosswise ADAPTORS for the coupling of V-Lock components, e.g. rotated by 90 degrees.
- ⑧ BRACKETS for fixing at a 45° or 90° angle, longitudinal, transversal, cross.
- ⑨ Various V-Lock fixing ACCESSORIES: feet, flanges, etc.
- ⑩ V-Lock TRANSFORMERS fixed to any component (a video camera in the photo) converts it into a V-Lock component.
- ⑪ PROFILE ADAPTORS to secure any types of profile (Bosch®, Item® ecc.) available from the trade into V-Lock components.
- ⑫ Pneumatically-controlled LINEAR UNITS SERIES LEPK, featuring high precision and rigidity, long life, adjustable strokes, cushioned end stop, 2 or 3 positions.
- ⑬ LINEAR UNITS SERIES LEPK FOR VERTICAL MOUNTING, featuring weight balance of the slide and the applied mass.
- ⑭ 3-JAW GRIPPERS.
- ⑮ ELECTRIC AXES SERIES ELEKTRO with a toothed belt, a ball circulation screw, various guide and drive systems. The figure shows an electric axis in the Elektro SHAK 340 series.
- ⑯ ELECTRIC AXIS FOR VERTICAL APPLICATIONS. The figure shows an electric axis in the Elektro SVAK series.
- ⑰ Pneumatically-controlled PRECISION ROTARY ACTUATORS. The figure shows a DAPK actuator with 2 adjustable angles.
- ⑱ PRECISION GRIPPERS. The figure shows a parallel long-stroke two-jaw gripper in the GPLK series.
- ⑲ RODLESS CYLINDERS with a V-Lock ball circulation guide.
- ⑳ V-Lock GUIDE UNIT for ISO 15552 pneumatic cylinders or Elektro ISO 15552 electric cylinders.
- ㉑ SLIDES. The figure shows an S14K compact precision slide.
- ㉒ R3K pneumatic ROTARY ACTUATORS, with an adjustable angle, mechanical stop or hydraulic internal or external shock-absorbers.
- ㉓ GRIPPERS with two parallel jaws, two hinged jaws, toggle joint and three jaws.

EXAMPLES OF APPLICATION



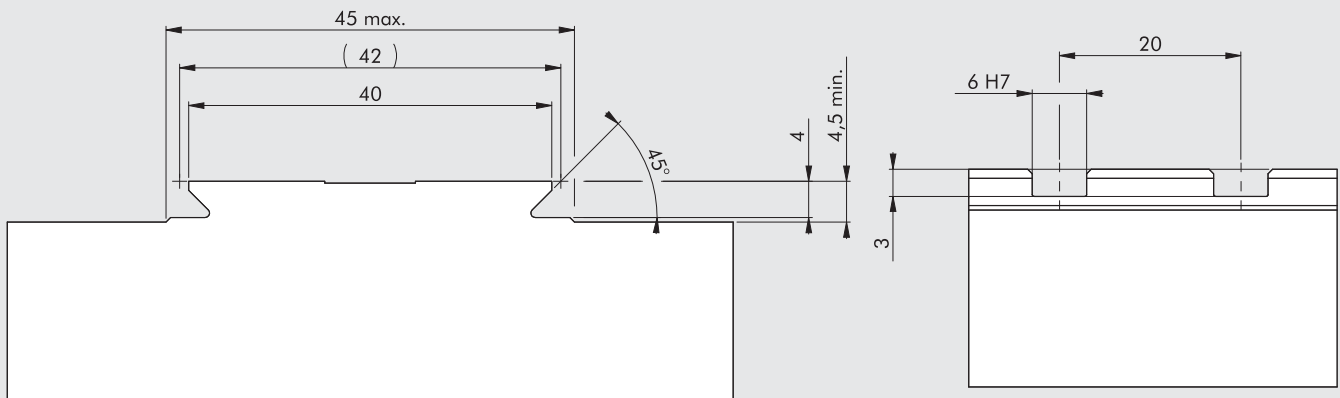


ACTUATORS

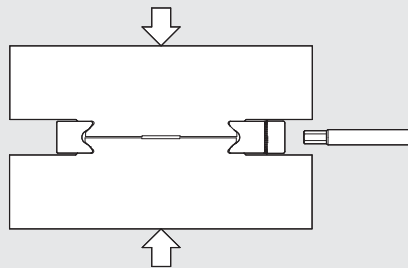
V-Lock GENERAL INTRODUCTION

The V-Lock system is a range of components for automation, fixing elements and accessories featuring a standard modular connecting system, easy assembly, rapid configuration, and the option of either precise repeatable connections or an adjustable mounting position.

Unlike the other components used with machinery and equipment, all V-Lock components have a 40 mm-wide dovetail in the coupling surfaces that extends the entire length of the component. There are precision-cut transversal grooves in the component that are 6^{H7} wide and have a 20 mm pitch.

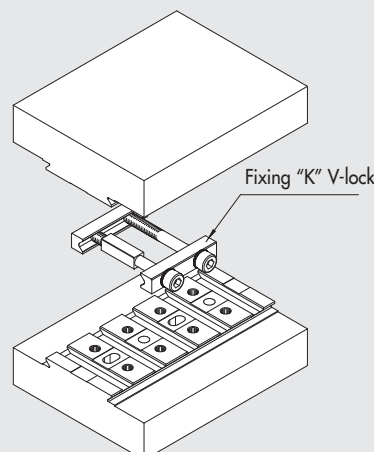


To connect two components, merely bring them into contact and tighten the M5 screws in the fixing elements, transversal to the body of the component. This system makes the assembly, disassembly and reconfiguration of numerous multiple components very quick and easy. Despite this, the parts are connected in a perfectly stable and precise manner.



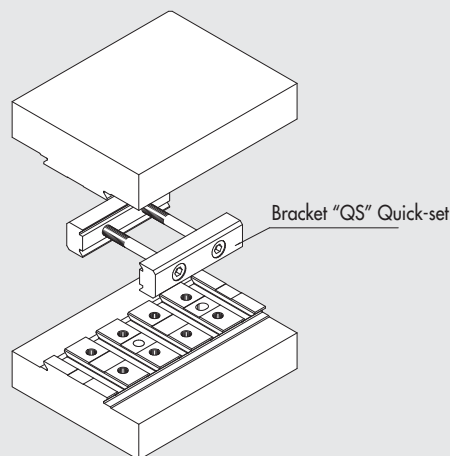
There are two types of fixing element for connecting V-Lock components, type K for highly compact, precise and repeatable fixing, and type QS to give a flexible system that can be regulated at the mounting stage.

When using K elements, insert the hollow square key (6^{H8}) in one of the transversal grooves (6^{H7}) and the M5 screw in the adjacent free-passage slot. This means the components will always be in the original position when the coupling is disassembled or reassembled.



If you require mechanical adjustment of the position at the assembly stage, it is preferable to use QS elements, which form part of the Montech® Quick-set system.

The distance between components allows free passage of the M5 screws, which do not affect the relative position of the components, which remain apart. The assembly position must be regulated whenever the components are disassembled.

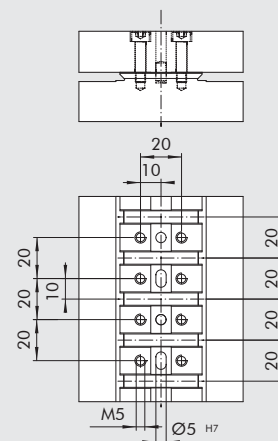
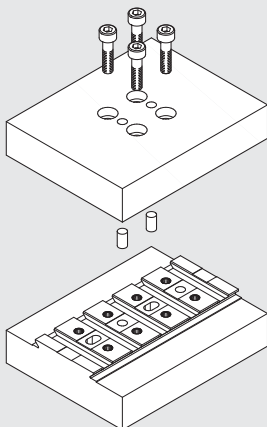


The V-Lock system comes with a series of modules and accessories designed to allow free spatial positioning of the components. The range includes cross adaptors, 45° and 90° squares, which are described in detail in the catalogue.

V-Lock components can be connected to Quick-set profiles by Montech® using QS fixing elements because the dovetails in the two systems are the same.

V-Lock components can also be connected to all the main extruded profiles with a slot centre distance of 40 mm or 45 mm. There is also a universal adaptor for the longitudinal assembly of V-Lock components and one for transversal assembly.

Where physically possible, all the faces of V-Lock components have a series of M5 threaded holes, pitch 20 x 20 mm, and holes for Ø 5 pins to allow standard mounting of external elements on V-Lock components.



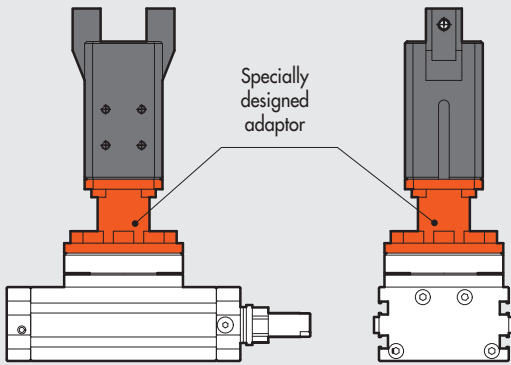
This standard and universal modular system makes the designer's work easier because it is not necessary to design adaptors, flanges, brackets and so on, and he can concentrate on the heart of the problem, namely the design of the machine.

Likewise, the person who assembles the components is provided with a complete kit that is quick and easy to use, so the machine can be assembled, set up and reconfigured in a very short time.

In short, with the V-Lock system you can:

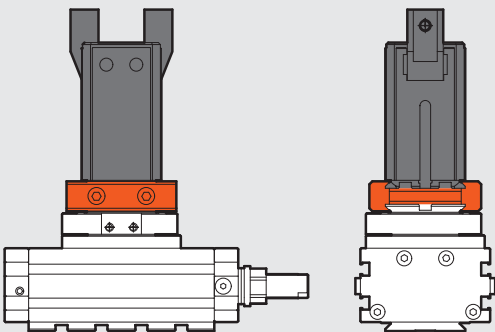
- connect anything to anything: grippers, slides, rotary actuators or guide units, or even aluminium structures of any make
- have any spatial orientation
- make a simple quick-to-lock connection that is accessible from all sides
- avoid adaptor plates between components
- obtain an extremely robust connection that can withstand high loads and vibration
- construct a system with precision to the hundredth of a millimetre and repeatable, so that when a component is removed for maintenance, it can be repositioned accurately.

NON-MODULAR SYSTEM



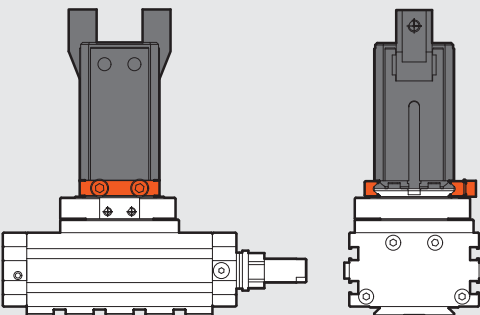
Adaptors have to be designed, produced and assembled.

Quick-set SYSTEM (Montech®)



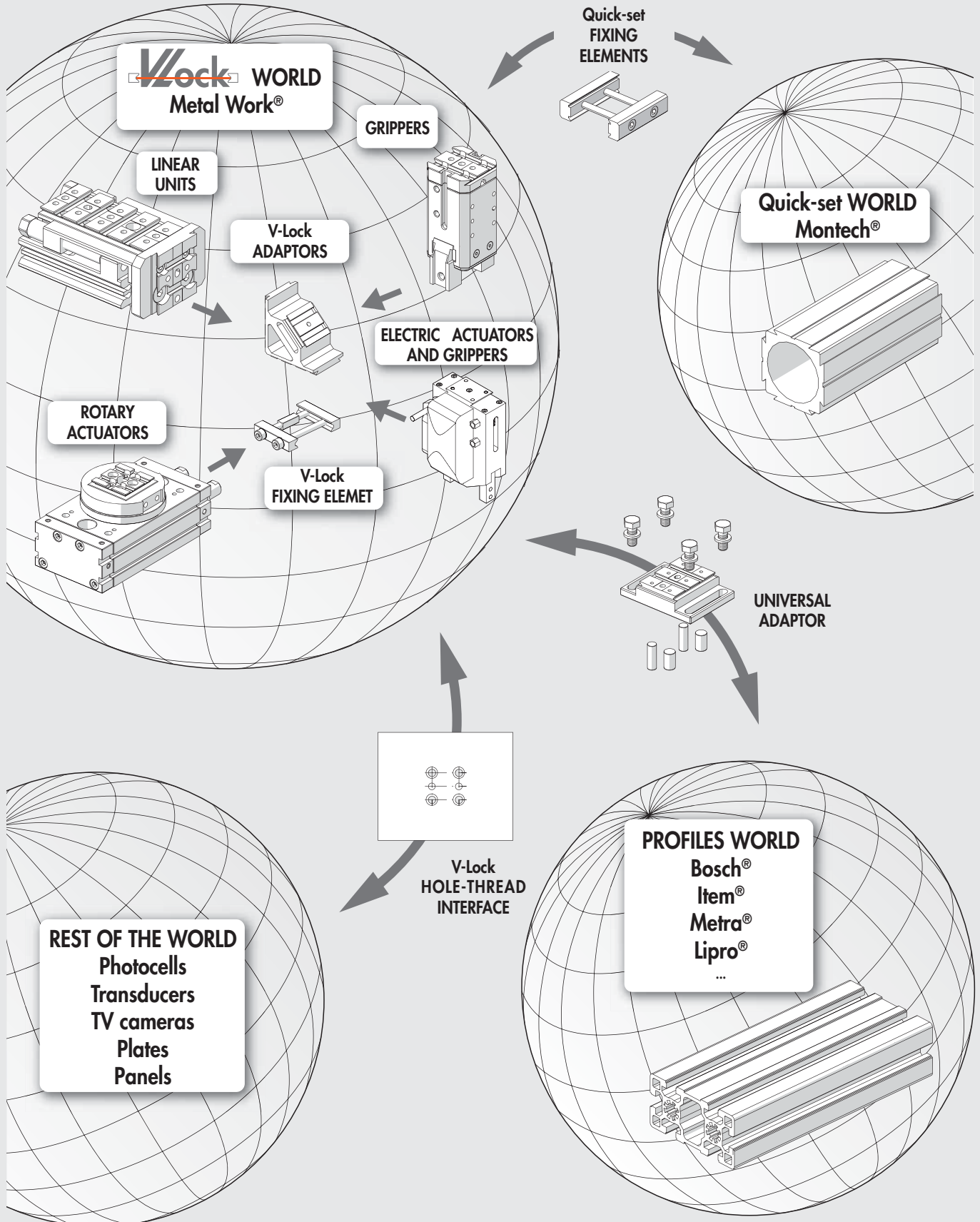
- ① ✓ No adaptors required
- ② ✓ High rigidity
- ③ ✓ Longitudinally adjustable position
- ④ /
- ⑤ /
- ⑥ /
- ⑦ ✓ Rapid assembly
- ⑧ ✓ Easy access to fastening screws

V-Lock System (Metal Work®)



- ① ✓ No adaptors required
- ② ✓ Improved rigidity
- ③ /
- ④ ✓ Accurate positioning using a key
- ⑤ ✓ Positioning repeatability after disassembly
- ⑥ ✓ Reduced overall dimensions
- ⑦ ✓ Rapid assembly
- ⑧ ✓ Easy access to fastening screws

THE V-Lock WORLD CAN BE COMBINED WITH OTHER WORLDS OF AUTOMATION



ACTUATORS
 V-Lock GENERAL INTRODUCTION

V-LOCK FIXING ELEMENTS

Metal Work products in the V-Lock series can be connected using either type K fixing system or QS fixing system, by Montech® Quick-Set.

Both modular systems are complementary and interchangeable.

The V-Lock system guarantees accurate and repeatable positioning, even longitudinally. A hollow key can be inserted in the transverse grooves in the dovetails in the components (f8/H7 coupling).

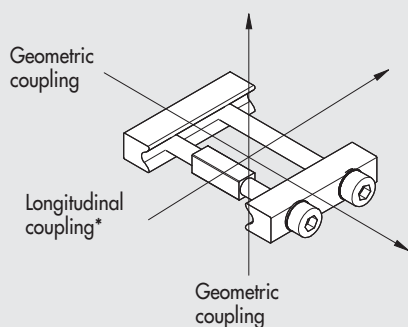
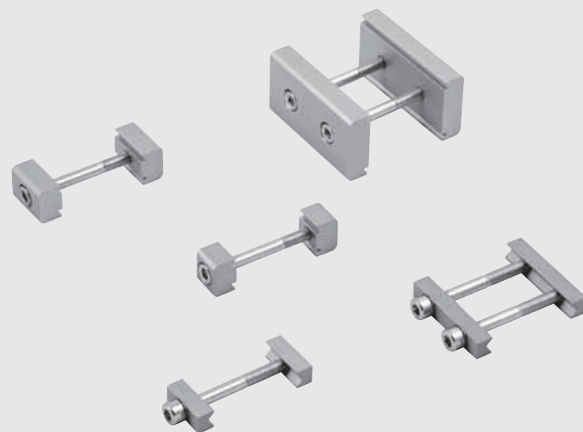
Components connected using K elements are slightly detached from each other (minimum 0.4 mm distance between the adjacent surfaces of two components) to allow self-centring during assembly.

QS fixing elements allow longitudinal adjustment during assembly, without limiting the fitter to a particular position. Here, too, the components are detached, but by more compared to the K system - 8 mm or 22 mm, depending on the connecting element chosen.

Both systems give rapid and accurate couplings that are very sturdy and vibration-resistant due to the dovetail joint and do not require specially designed adaptors.

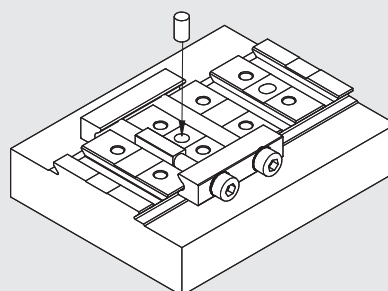
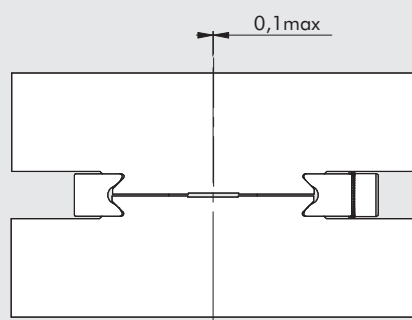
The screws all remain accessible, so the components are easy to disassemble.

For very high loads there is a 6 mm solid square key with f8 tolerance (see accessories) that can be positioned between the free grooves in adjacent V-Lock elements.



* Resistance to the reciprocal displacement of two components with a 6 Nm screw torque.

Tests conducted with intact and undamaged elements.

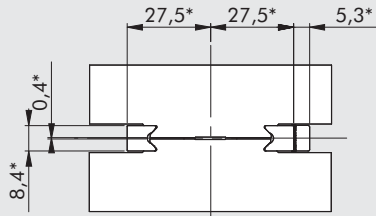


The V-Lock system allows transversal self-centring of the components. If the K blocks are mounted correctly, the alignment error is less than 0.1 mm.

If greater precision is required, one or two $\varnothing 5$ pins can be inserted in the slots provided.

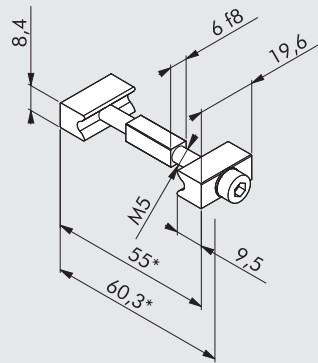
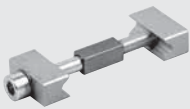
K FIXING ELEMENT

STANDARD TRANSVERSE DIMENSIONS



*dimensions with element fixed

K FIXING ELEMENT WITH ONE SCREW, CODE W0950005051K

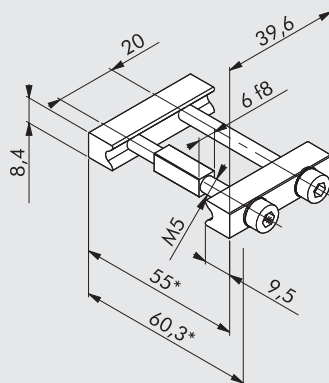
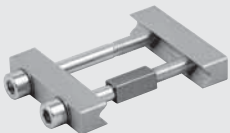


*dimensions with element fixed

Short fixing element for low stress.

Resistance to longitudinal displacement	750 N
Recommended screw torque	6 Nm
Parallelism of locked surfaces	±0.02 mm
Material	Anodized aluminium
Weight	0.020 kg

K FIXING ELEMENT WITH TWO SCREWS, CODE W0950005052K

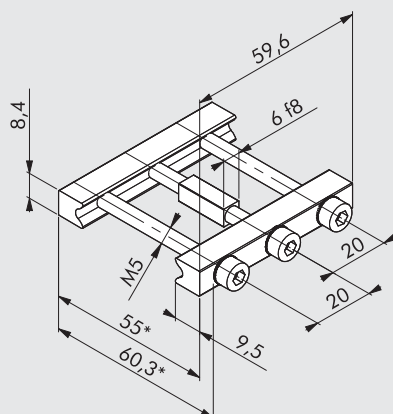
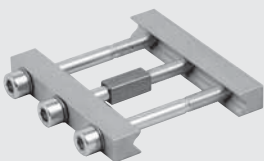


*dimensions with element fixed

Fixing element for high stress.

Resistance to longitudinal displacement	3000 N
Recommended screw torque	6 Nm
Parallelism of locked surfaces	±0.02 mm
Material	Anodized aluminium
Weight	0.037 kg

K FIXING ELEMENT WITH THREE SCREWS, CODE W0950005053K

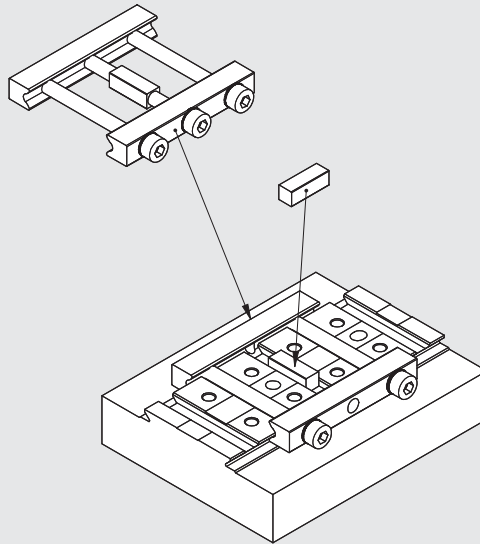


*dimensions with element fixed

Fixing element for very high stress.

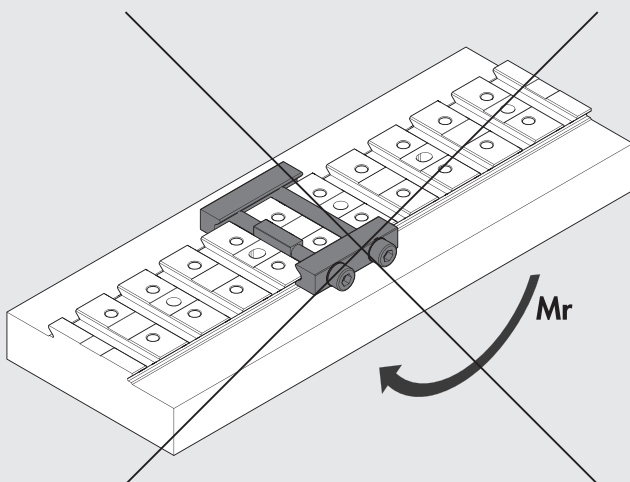
Resistance to longitudinal displacement	5000 N
Recommended screw torque	6 Nm
Parallelism of locked surfaces	±0.02 mm
Material	Anodized aluminium
Weight	0.055 kg

For applications with high impacts, accelerations and masses, the resistance of the coupling system can be increased by inserting a solid key (code W0950005151K) instead of a screw and hollow key.

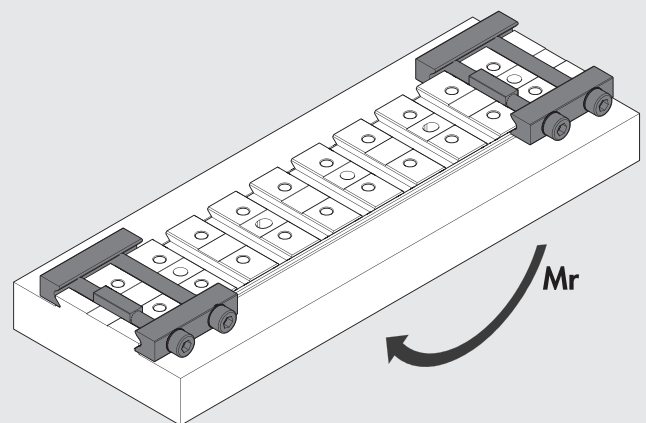


The number and size of fixing elements depend on the specific application. Under operating conditions of high speed, pressure and load, we recommend installing two elements with two screws as spaced as possible from each other.

NO

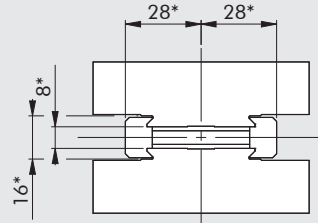


YES



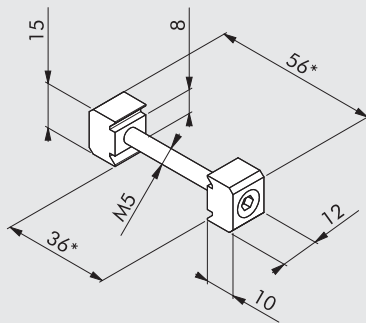
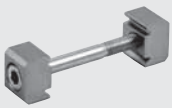
FIXING ELEMENT QS

QS HEIGHT 8 mm: STANDARD TRANSVERSE DIMENSIONS



*dimensions with element fixed

QS 12-8 (SLL-12-40) FIXING ELEMENT, CODE W0950005000K

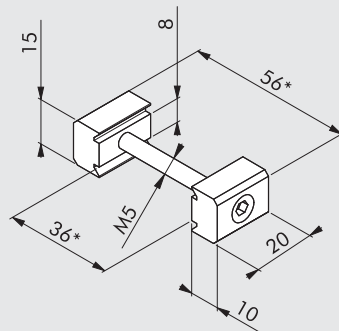
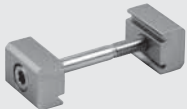


*dimensions with element fixed

Short fixing element for low stress.

Resistance to longitudinal displacement	750 N
Recommended screw torque	6 Nm
Parallelism of locked surfaces	±0.02 mm
Material	Anodized aluminium
Weight	0.016 kg

QS 20-8 (SLL-20-40) FIXING ELEMENT, CODE W0950005001K

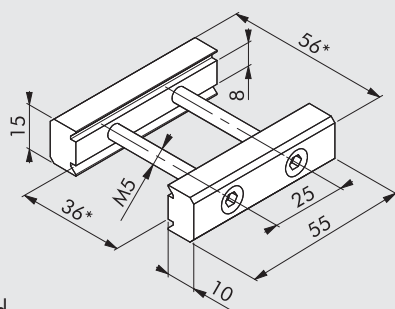
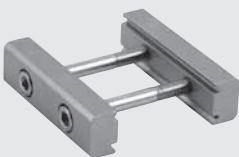


*dimensions with element fixed

Short fixing element for medium stress.

Resistance to longitudinal displacement	1350 N
Recommended screw torque	6 Nm
Parallelism of locked surfaces	±0.02 mm
Material	Anodized aluminium
Weight	0.020 kg

QS 55-8 (SLL-55-40) FIXING ELEMENT, CODE W0950005003K



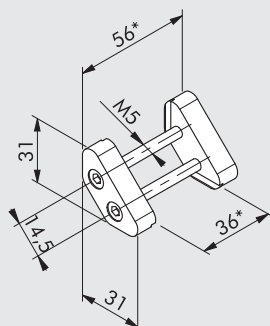
*dimensions with element fixed

Fixing element for high stress.

Resistance to longitudinal displacement	3000 N
Recommended screw torque	6 Nm
Parallelism of locked surfaces	±0.02 mm
Material	Anodized aluminium
Weight	0.055 kg

FIXING BRACKETS FOR PROFILES

EV-2-40 FIXING BRACKET, CODE W0950005811K

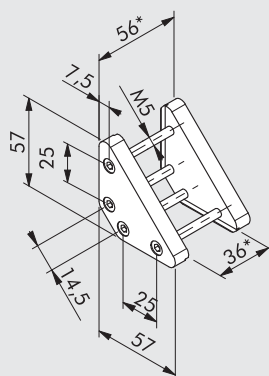


Angled attachment for 90° connections for use in reduced load applications.

Resistance to longitudinal displacement	1800 N
Recommended screw torque	6 Nm
Locking groove orthogonality (referred to a 19 mm length)	±0.02 mm
Material	Anodized aluminium
Weight	0.050 kg

*dimensions with element fixed

EV-3-40 FIXING BRACKET, CODE W0950005812K

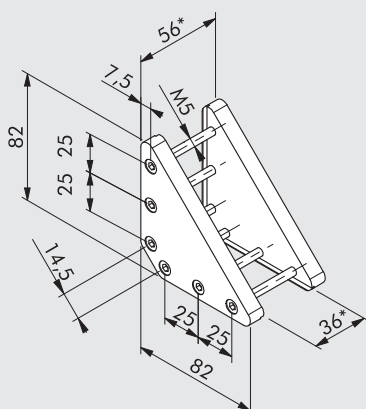


Angled attachment for 90° connections for use in medium load applications.

Resistance to longitudinal displacement	3000 N
Recommended screw torque	6 Nm
Locking groove orthogonality (referred to a 45 mm length)	±0.03 mm
Material	Anodized aluminium
Weight	0.130 kg

*dimensions with element fixed

EV-4-40 FIXING BRACKET, CODE W0950005813K



Angled attachment for 90° connections in high load applications.

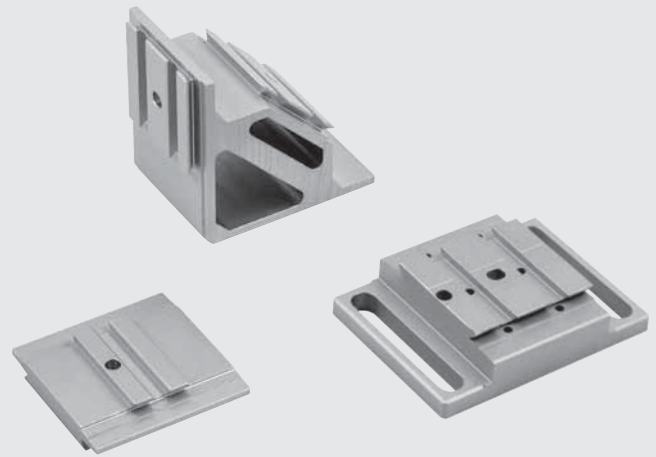
Resistance to longitudinal displacement	4500 N
Recommended screw torque	6 Nm
Locking groove orthogonality (referred to a 70 mm length)	±0.04 mm
Material	Anodized aluminium
Weight	0.250 kg

*dimensions with element fixed

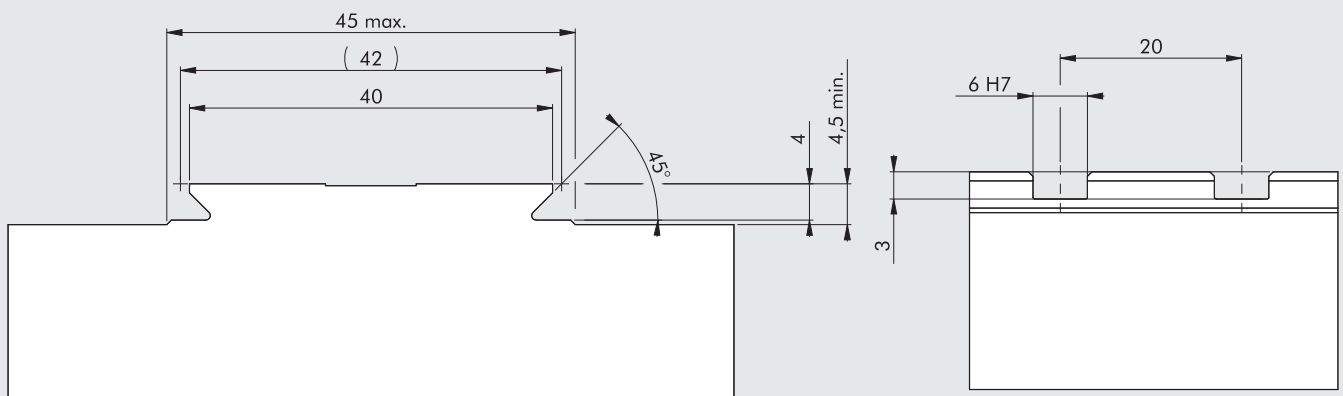
V-Lock adaptors can be used to connect various components quickly and securely when you require a rotated fixing or you need to adapt single-groove elements to multiple-groove elements.

All these adaptors have a 45° dovetail for connection using K and QS fixing elements.

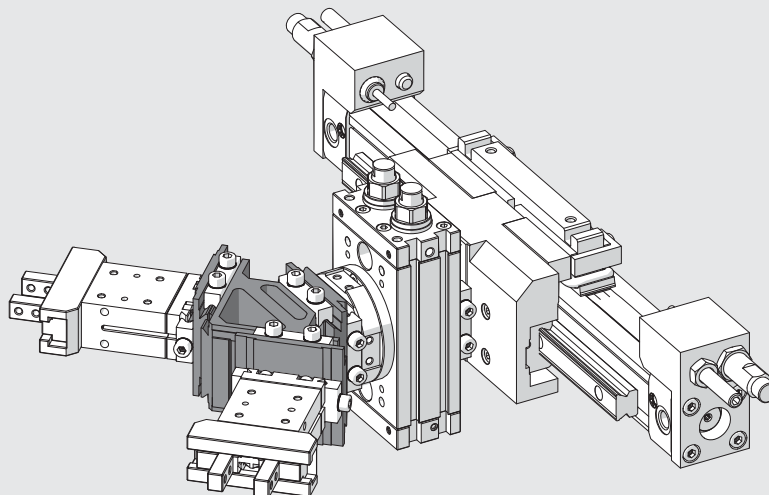
Where possible, pinholes have been drilled in the surfaces for interfacing with other components.



DIMENSIONS OF V-Lock DOVETAIL

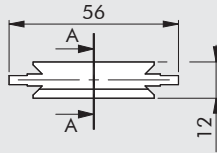
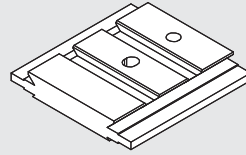
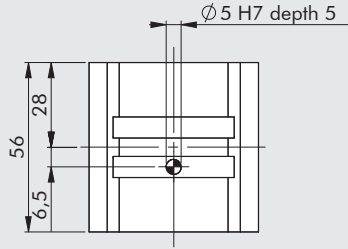
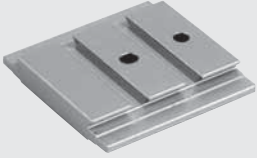


GENERAL APPLICATION OF V-Lock ADAPTORS

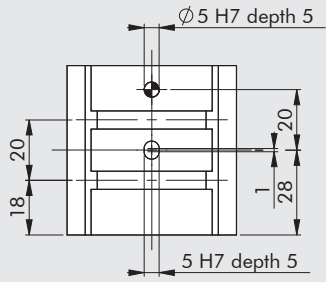
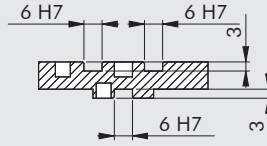


2-1 PARALLEL ADAPTOR, CODE W0950005100K

NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.



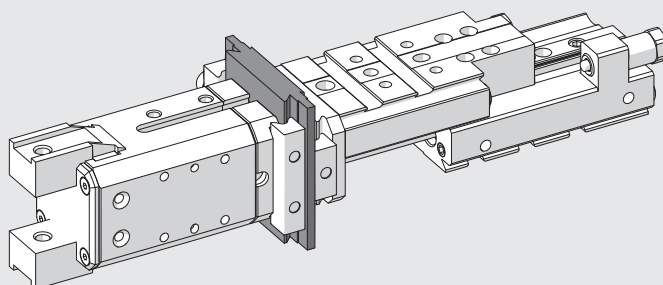
A-A



Adaptor suitable for parallel coupling of two V-Lock components, one with at least two grooves and the other with one groove only.

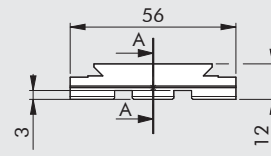
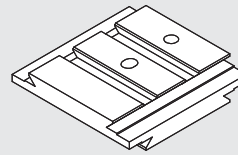
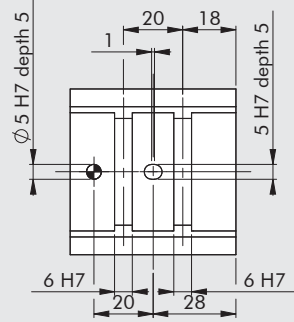
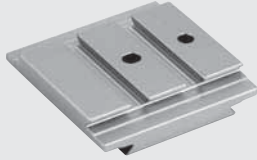
Material	Anodized aluminium
Weight	0.060 kg

EXAMPLE OF APPLICATION

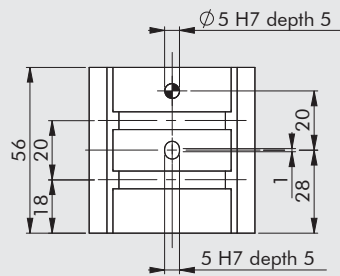
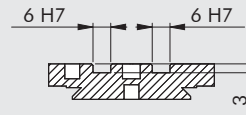


2-2 CROSS ADAPTOR, CODE W0950005110K

NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.



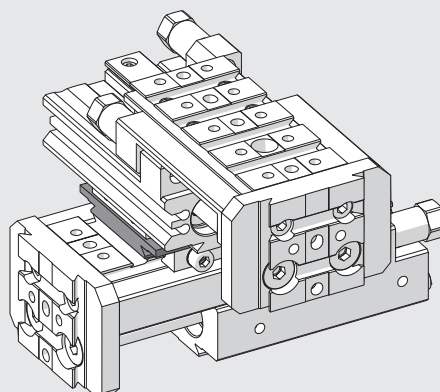
A-A



Adaptor suitable for cross-coupling two V-Lock components, both with at least two grooves.

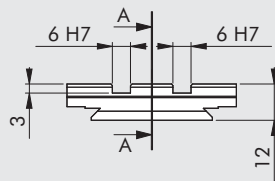
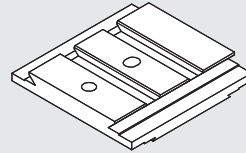
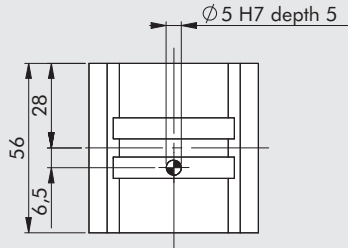
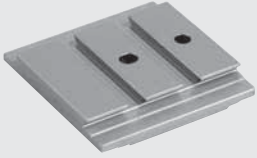
Material	Anodized aluminium
Weight	0.069 kg

EXAMPLE OF APPLICATION

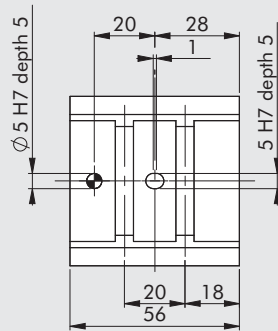
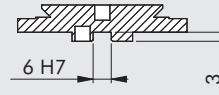


2-1 CROSS ADAPTOR, CODE W0950005120K

NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.



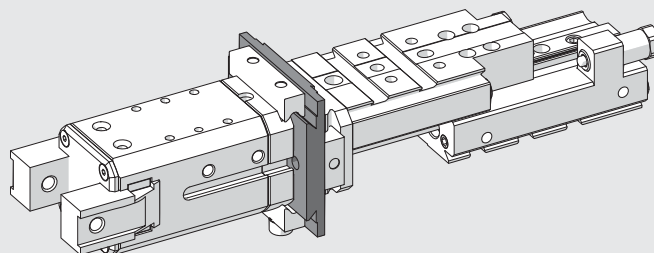
A-A



Adaptor suitable for cross-coupling of two V-Lock components, one with at least two grooves and the other with one groove only.

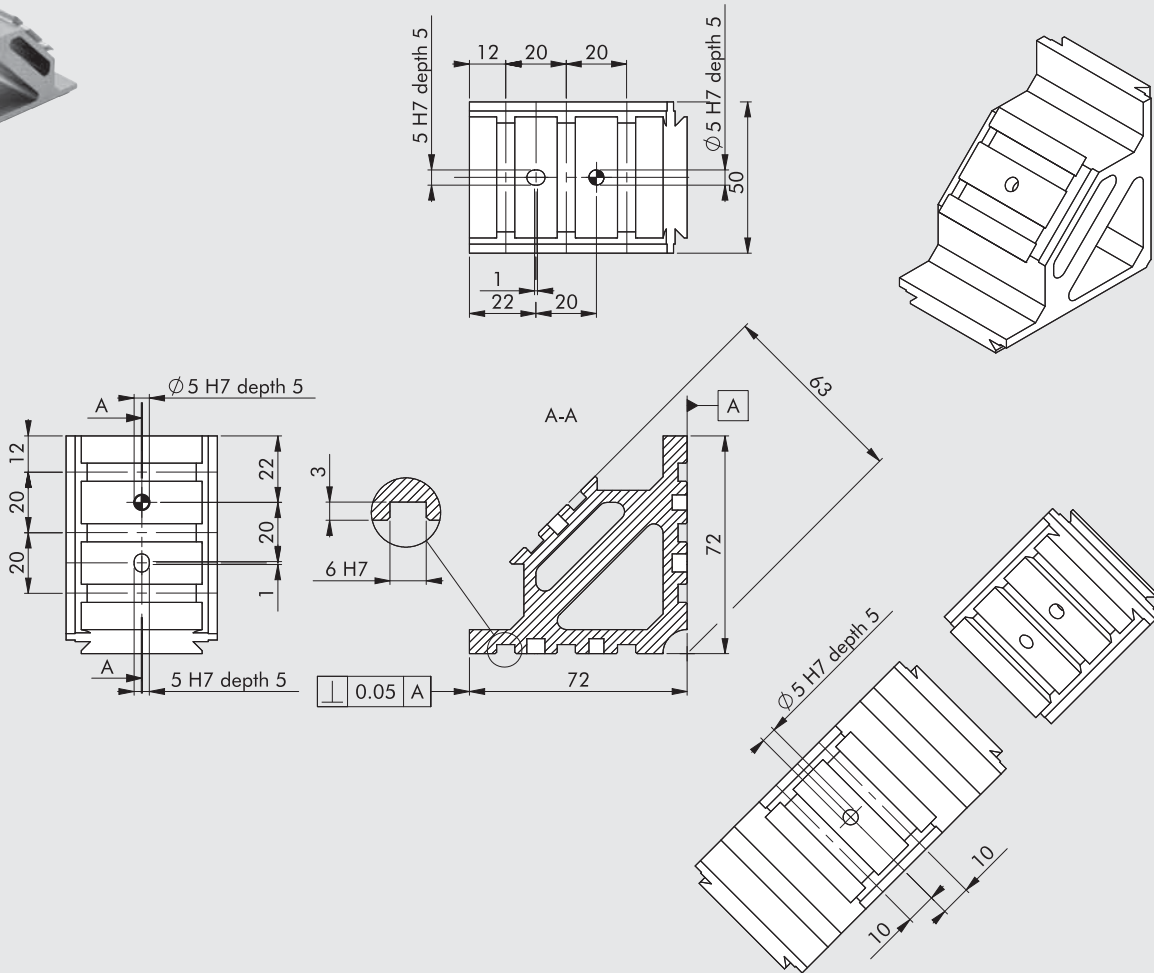
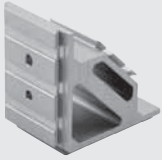
Material Anodized aluminium
 Weight 0.060 kg

EXAMPLE OF APPLICATION



LONGITUDINAL BRACKET, CODE W0950005200K

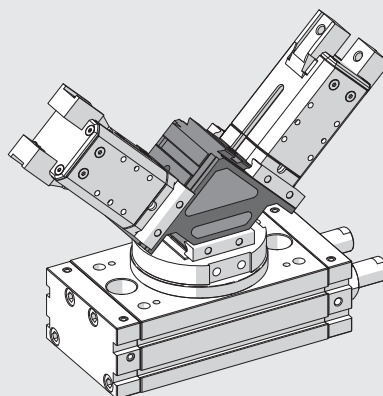
NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.



Adaptor suitable for the rotated coupling of two or three V-Lock components, with two right-angle supporting surfaces and parallel grooves. The third surface is at 45° angle and the grooves are parallel to those in the other two faces.

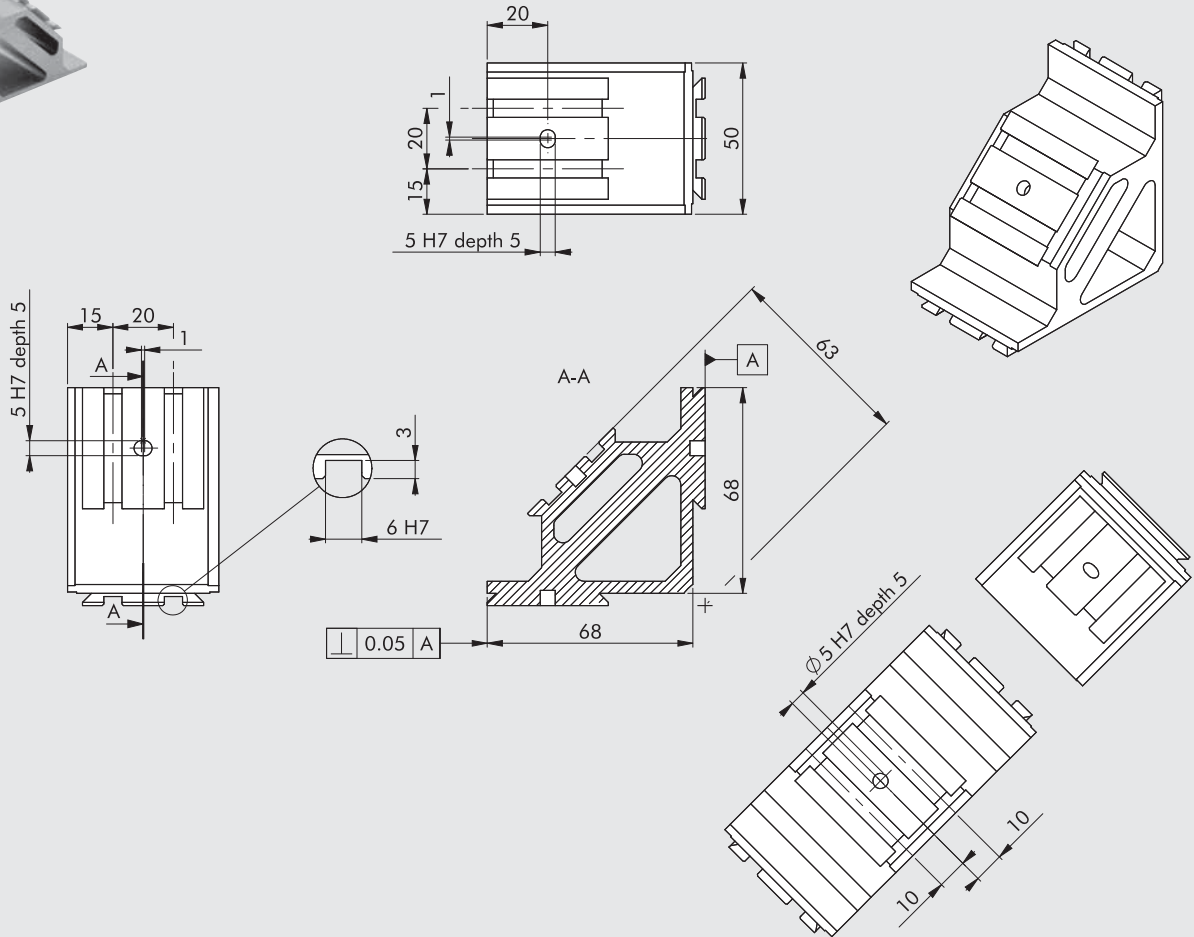
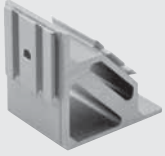
Material Anodized aluminium
Weight 0.235 kg

EXAMPLE OF APPLICATION



TRANSVERSAL BRACKET, CODE W0950005201K

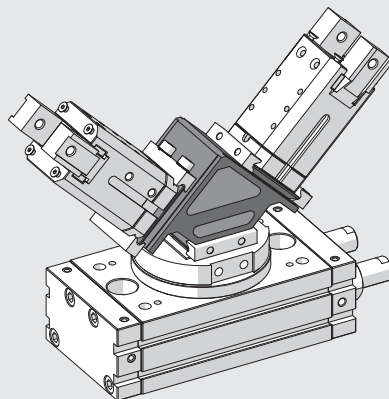
NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.



Adaptor suitable for the rotated coupling of two or three V-Lock components, with two supporting surfaces at right angles. The third surface is at 45° angle. All the grooves are parallel.

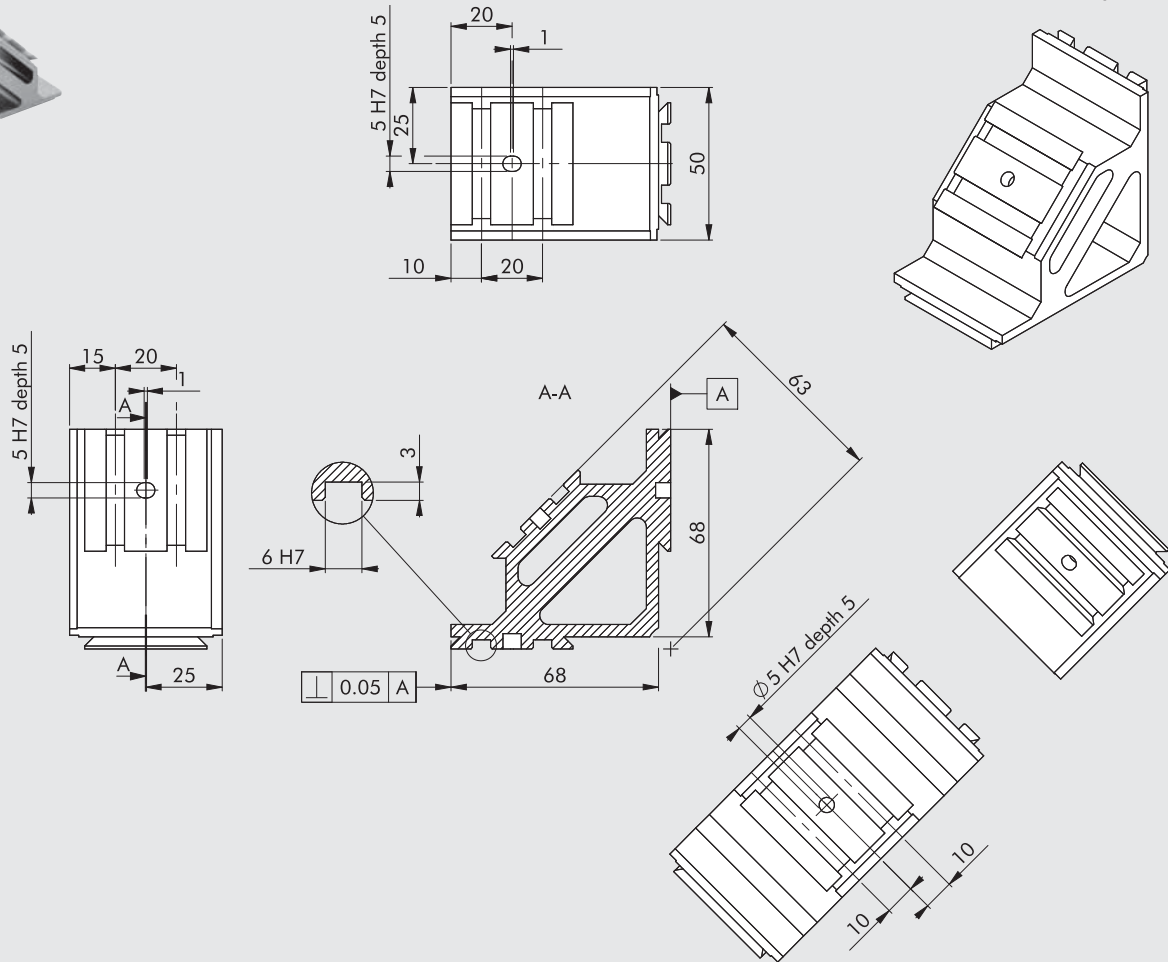
Material	Anodized aluminium
Weight	0.218 kg

EXAMPLE OF APPLICATION



CROSS BRACKET, CODE W0950005202K

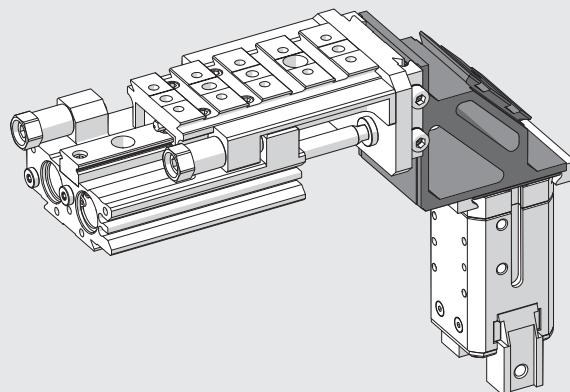
NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.



Adaptor suitable for the rotated coupling of two or three V-Lock components, with two right-angled supporting surfaces and grooves at right angles. The third surface is at 45° angle.

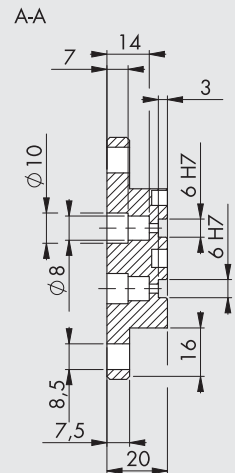
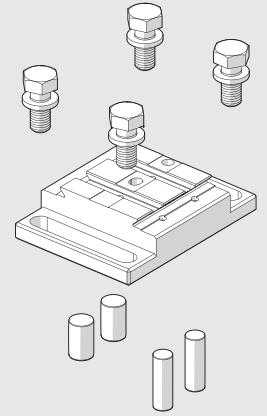
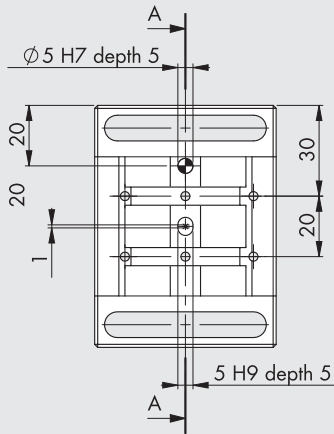
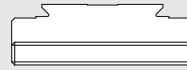
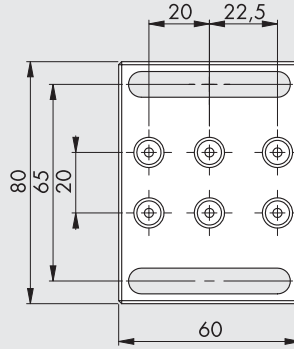
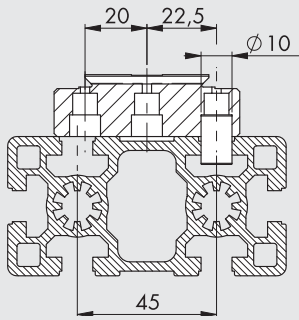
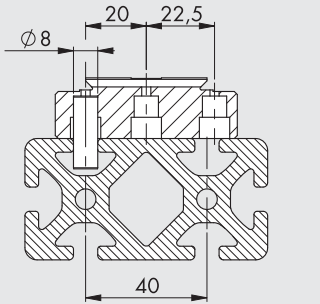
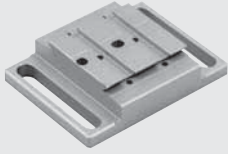
Material	Anodized aluminium
Weight	0.218 kg

EXAMPLE OF APPLICATION



LONGITUDINAL ADAPTOR, CODE 0950008001K

NOTE: For standard dovetail dimensions see chapter V-Lock Adaptors.

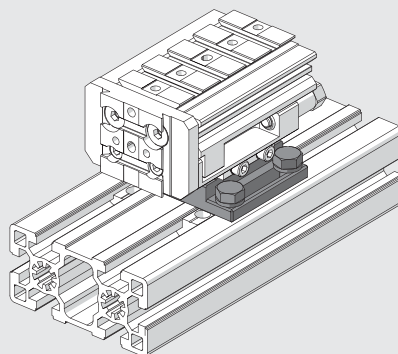


An adaptor for fixing V-Lock components longitudinally onto extruded profiles, with slots with 40 or 45 mm centre distance or 8 or 10 mm width. If the slots have a 40 mm centre distance, insert two pins in the slots 20 mm from the axis of the adaptor and use them as an alignment reference. If the slots have a 45 mm centre distance, use the 22.5 mm pin slots.

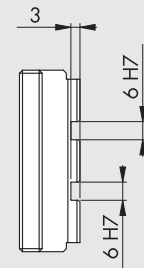
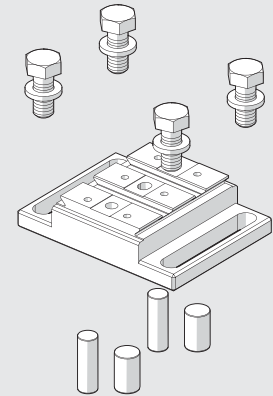
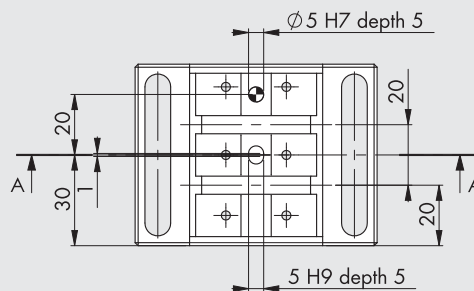
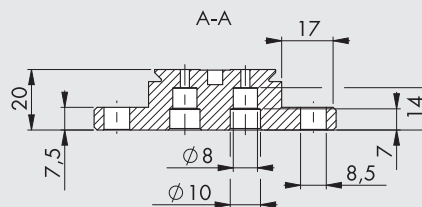
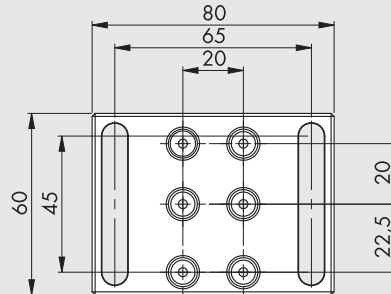
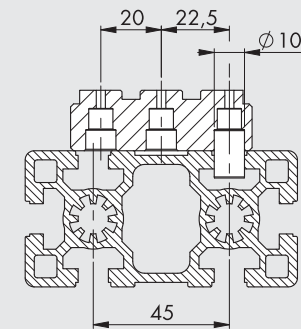
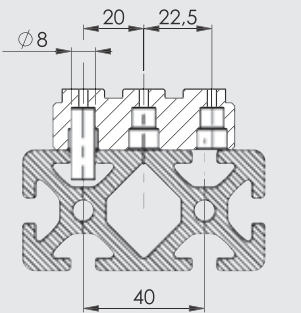
Kit contents:

1 longitudinal adaptor	Material	Anodized aluminium
	Weight	0.164 kg
2 cylindrical pins Ø 10 x 16		
2 cylindrical pins Ø 8 x 24		
4 galvanised M8 x 16 screws		

EXAMPLE OF APPLICATION



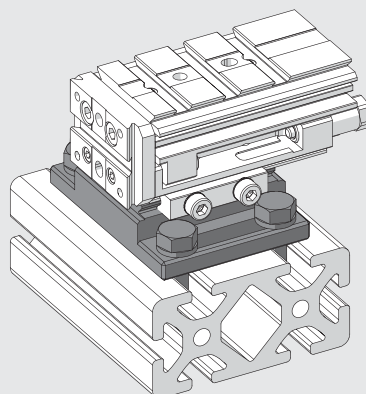
TRANSVERSAL ADAPTOR, CODE 0950008002K

 NOTE: For standard dovetail dimensions see **chapter V-Lock Adaptors**.


An adaptor for fixing V-Lock components transversally onto extruded profiles, with slots with 40 or 45 mm centre distance or 8 or 10 mm width. If the slots have a 40 mm centre distance, insert two pins in the slots 20 mm from the axis of the adaptor and use them as an alignment reference. If the slots have a 45 mm centre distance, use the 22.5 mm pin slots.

Kit contents:

1 transversal adaptor:	Material	Anodized aluminium
	Weight	0.160 kg
2 cylindrical pins $\varnothing 10 \times 16$		
2 cylindrical pins $\varnothing 8 \times 24$		
4 galvanised M8 x 16 screws		

EXAMPLE OF APPLICATION


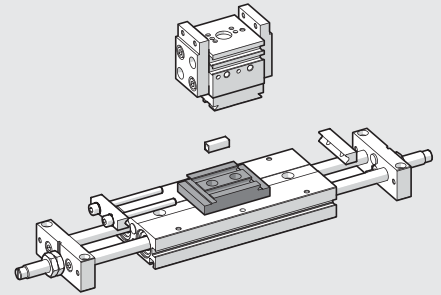
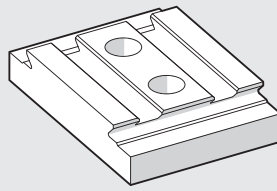
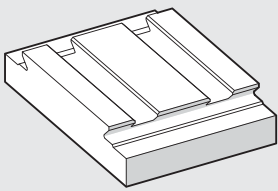
V-Lock TRANSFORMER

V-Lock transformers can be used to connect components other than V-Lock to the system or V-Lock components to other types of frames (e.g. bases, plates and walls). V-Lock transformers can be supplied without fixing screw holes or pinholes. This means that you can create the desired configuration. For other similar adapters, see **chapter V-Lock Gripper accessories**. The example below shows how to transform an S11 slide into a V-Lock slide.

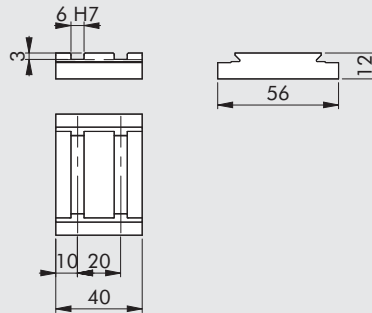
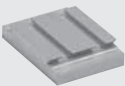
Start from V-Lock transformer

Drill a hole where required

Apply to the component



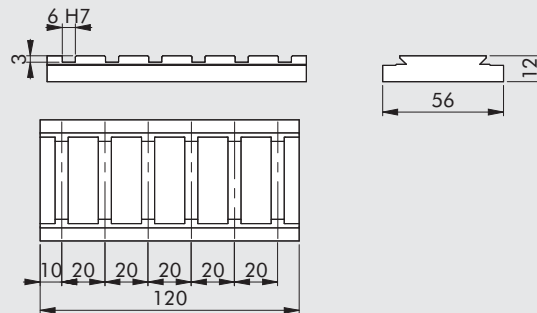
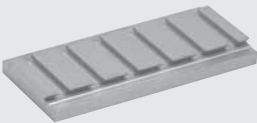
2-GROOVE V-Lock TRANSFORMER, CODE 0950008012K



Weight: 0.060 kg
Material: anodized aluminium

NOTE: For standard dovetail dimensions see **chapter V-Lock Adaptors**.

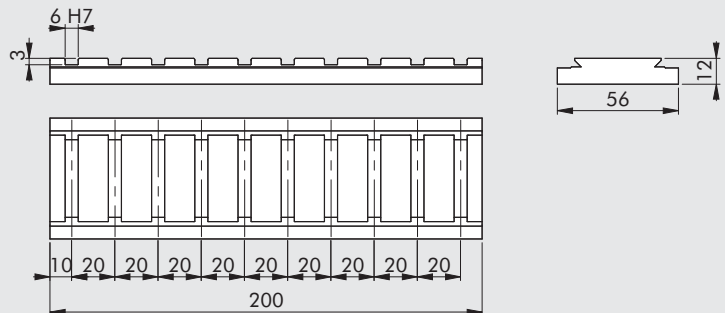
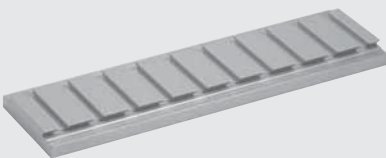
6-GROOVE V-Lock TRANSFORMER, CODE 0950008016K



Weight: 0.181 kg
Material: anodized aluminium

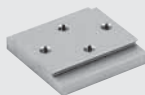
NOTE: For standard dovetail dimensions see **chapter V-Lock Adaptors**.

10-GROOVE V-Lock TRANSFORMER, CODE 0950008020K

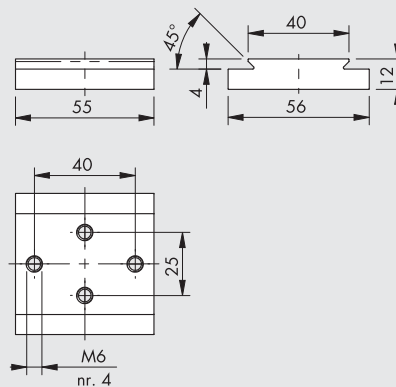
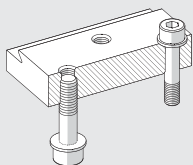


Weight: 0.301 kg
Material: anodized aluminium

NOTE: For standard dovetail dimensions see **chapter V-Lock Adaptors**.

QS TRANSFORMER L = 55, CODE 0950008050K


Fixing from below with M6 screw, or from above with through M5 screw.



Weight: 0.087 kg
 Material: anodized aluminium

NOTES