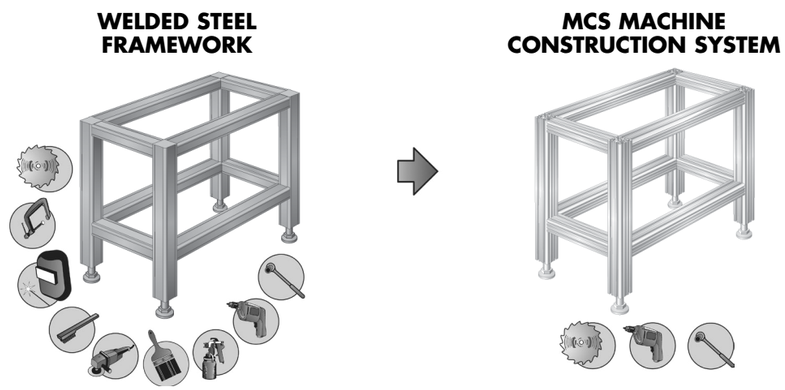
HepcoMotion®
ADVANCED LINEAR SOLUTIONS

MCS
MACHINE CONSTRUCTION SYSTEMS

Contents

How the Hepco MCS System saves time and money



Introduction

The **Hepco**Motion **MCS** System offers an extensive range of aluminium profile sections plus all the connecting elements and accessories the designer could need. These modular components allow an almost infinite possibility of frames to be constructed for use in industrial machinery, guarding, storage and display applications.

The latest addition to the product range is **Hepco's MFS** – Machine Fencing System (see 📖35). Fully compatible with the MCS ranges it provides economical barriers around machine installations such as gantries, pick and place equipment, floor mounted robot systems or any areas where the exclusion of personnel is required.

Profile machining and frame assembly to customer's drawings is carried out by Hepco with fast deliveries. Alternatively, specific cut or random lengths can be supplied to customers enabling construction of their own system. Frame design and specification is aided by the use of the **MCS CAD 3D** files, available in .dwg and .dxf formats.

Aluminium profiles are manufactured from AI6063-T5 to very close tolerances, and clear coat anodised to a depth of 10 microns, ensuring that frames are both accurate and resistant to scratching or corrosion. All manufacture is covered by full ISO 9001 certification.

The MCS System is particularly effective at replacing traditional welded steel structures at lower overall cost due to the massive time saving involved. Flexibility is increased compared to welded structures, since all elements are re-usable and additions can easily be made to existing designs at any time. Many of the brackets and connecting elements in the MCS System can be used with no machining involved, for maximum simplicity.

Hepco's extensive range of linear systems can also be mounted directly onto the MCS Profile sections and can be pre assembled in our factory to ensure parallelism. Additional accessories including sliding door systems, locks, etc., are available on request.

A full range of polycarbonate panels, clear and coloured, compressed foam panels in various colours as well as welded wire mesh panels – self coloured or powder coated – are available to complete your framework design.

Please contact our Technical Sales Team on 01884 257000 for further details.

Symbols used in this Catalogue

8	Size of profile T-Slot – specify connecting components to suit
M8	Profile End Tapping Size
	Components compatible with other systems. Contact Hepco for details.

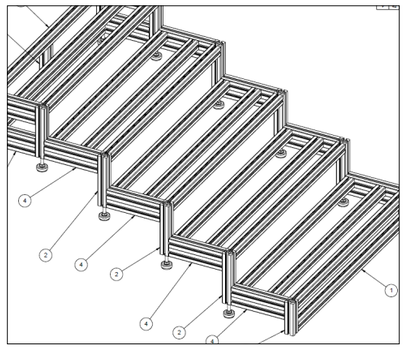
The full range of HepcoMotion products can be seen on our website: **www.HepcoMotion.com**

Areas of Application

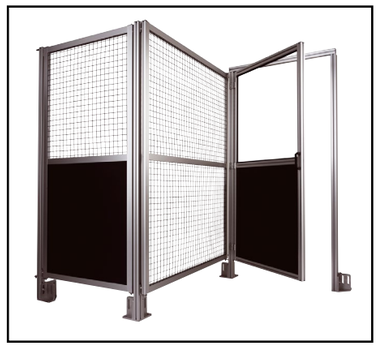
- Special Purpose Machines
- Work Benches
- Robotic and Manipulating Systems
- Machine Guards/Protective Frameworks
- Fencing and Enclosures
- Assembly and Packaging Machinery
- Exhibition Display Units
- Shelving Systems

Exhibition Units

Special Purpose Machines



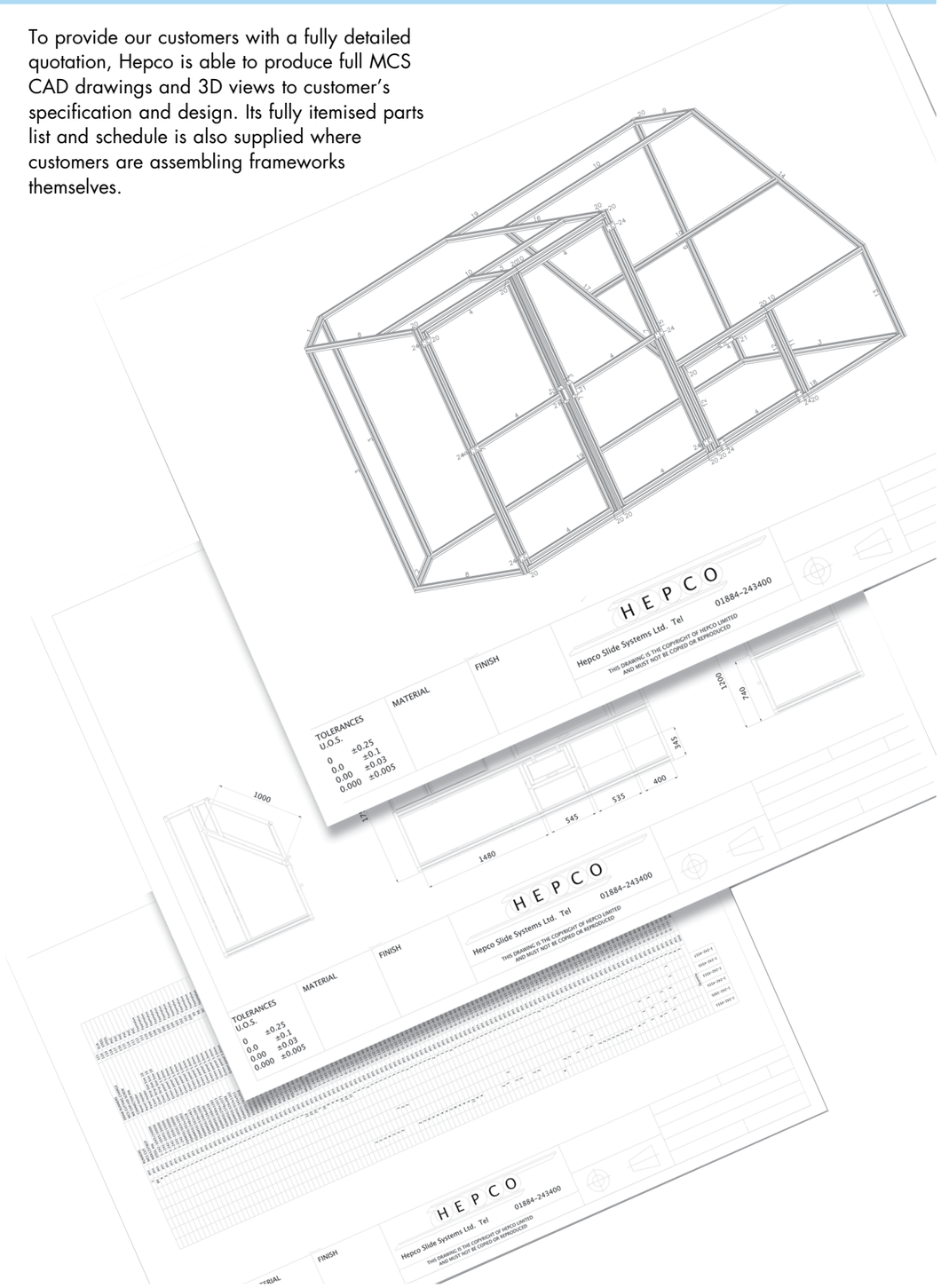
Access Frameworks



MFS – Machine Fencing System

3D Design Package

To provide our customers with a fully detailed quotation, Hepco is able to produce full MCS CAD drawings and 3D views to customer's specification and design. Its fully itemised parts list and schedule is also supplied where customers are assembling frameworks themselves.



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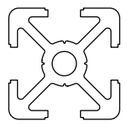
see 📖6



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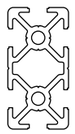

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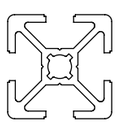
see 📖6



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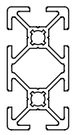

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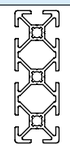
see 📖7



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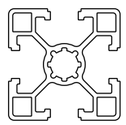

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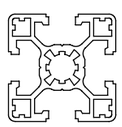

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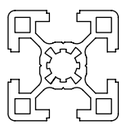

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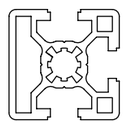

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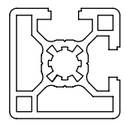

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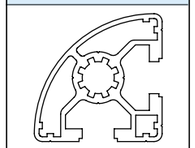

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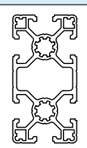

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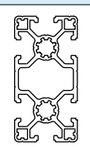

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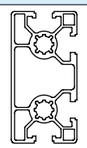

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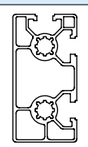

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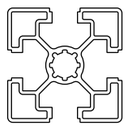

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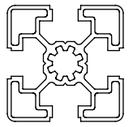

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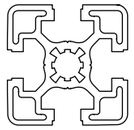

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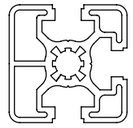

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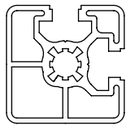
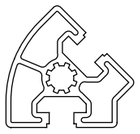


45LR
see 📖11

45°
see 📖11



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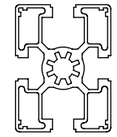

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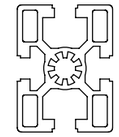

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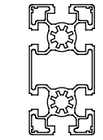

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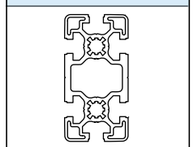

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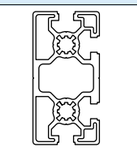

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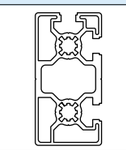

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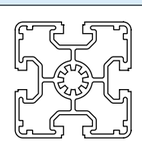

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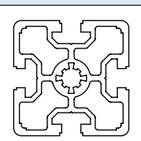

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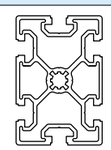

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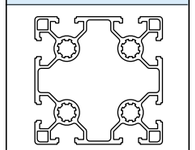

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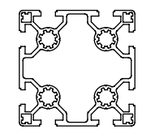

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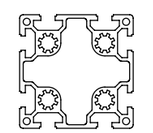

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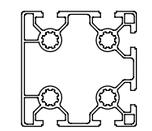

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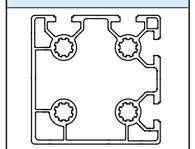

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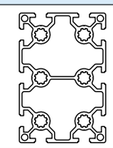

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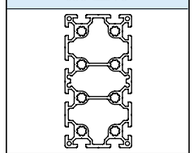

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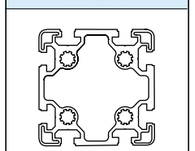
see 📖15



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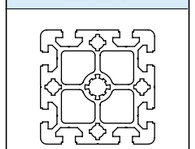


See specialist section 📖41 for other profiles.

These structural aluminium profiles are precision extruded using high quality Al6063-T5 material. They are then clear-coat anodised to a thickness of 10 microns, resulting in an accurate, hard-wearing basis for all types of frame construction.

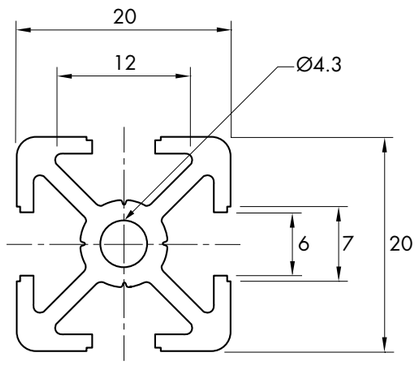
Profiles can also be specially powder coated in a range of colours.

All profiles include T-slots along their length, allowing simple insertion of T-nuts and T-bolts to attach connection brackets or accessories.

Most sizes of structural profile are available as random 5600mm lengths, with the exception of the 20x20, 20x40 and 90x90 sizes 4000mm. A fast cutting, drilling, machining and tapping service is provided by Hepco, which also includes complete frame assembly to customer's drawings. See 📖53 for end machining details.

For details of choosing the correct **MCS System profile** for your application' please refer to 📖48 to 49. Complete technical details may be found on 📖44 to 53.

20 x 20
0-132-2020



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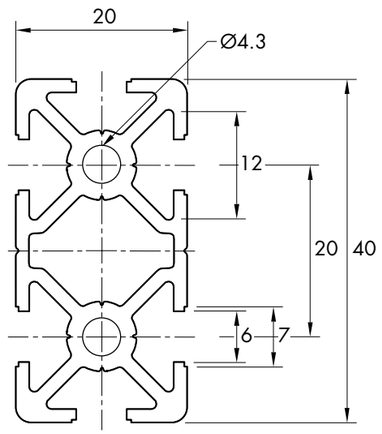

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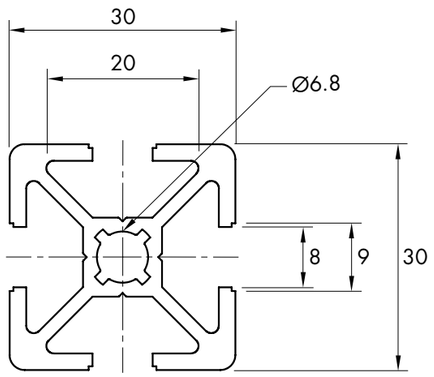

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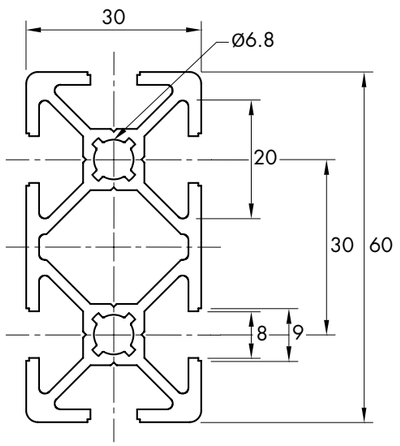


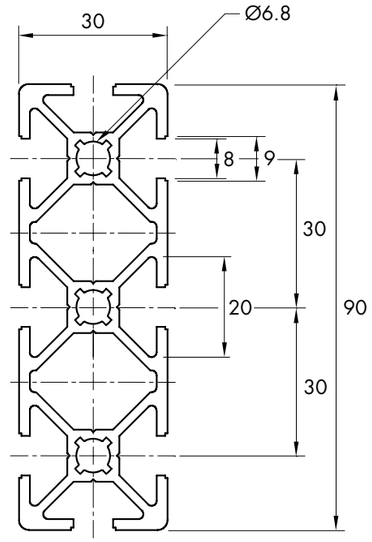
Technical Data

	20 x 20	20 x 40	30 x 30	30 x 60
Max. Length	4000mm	4000mm	5600mm	5600mm
Mass	0.43kg/m	0.76kg/m	0.87kg/m	1.53kg/m
Moment of Inertia (cm⁴)	Ixx 0.65	Ixx 4.5	Ixx 3.2	Ixx 20.9
	Iyy 0.65	Iyy 1.2	Iyy 3.2	Iyy 5.9
Section Modulus (cm³)	Wxx 0.65	Wxx 2.2	Wxx 2.1	Wxx 6.9
	Wyy 0.65	Wyy 1.2	Wyy 2.1	Wyy 3.9

Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

30 x 90
0-132-3090



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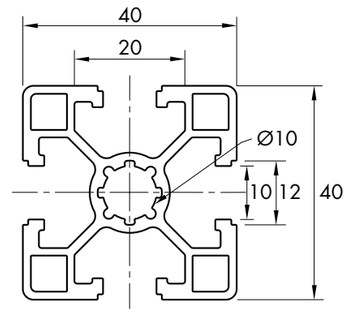

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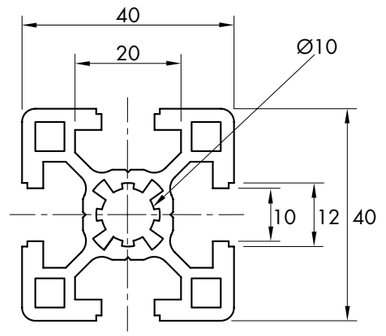
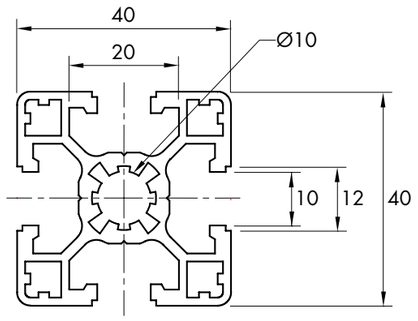


40 x 40L
0-132-4041



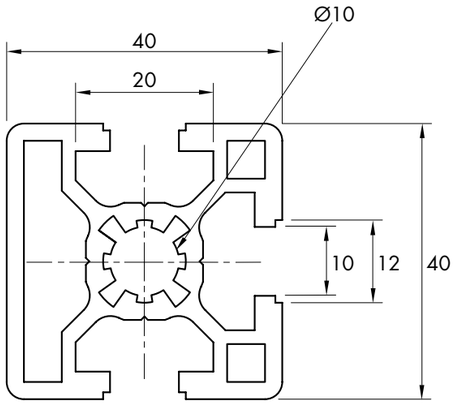
Technical Data

	30 x 90	40 x 40SL	40 x 40L	40 x 40
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	2.19kg/m	1.3kg/m	1.4kg/m	1.7kg/m
Moment of Inertia (cm⁴)	Ixx 64.1	Ixx 7.8	Ixx 8.4	Ixx 10.2
	Iyy 8.5	Iyy 7.8	Iyy 8.4	Iyy 10.2
Section Modulus (cm³)	Wxx 14.2	Wxx 3.9	Wxx 4.2	Wxx 5.1
	Wyy 5.7	Wyy 3.9	Wyy 4.2	Wyy 5.1

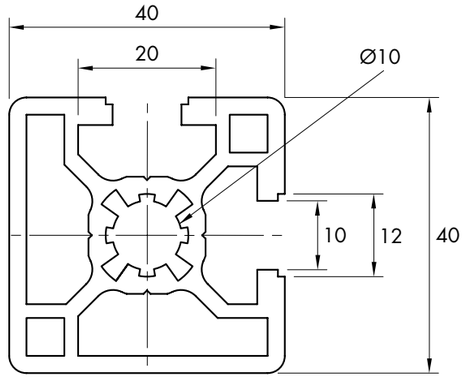
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

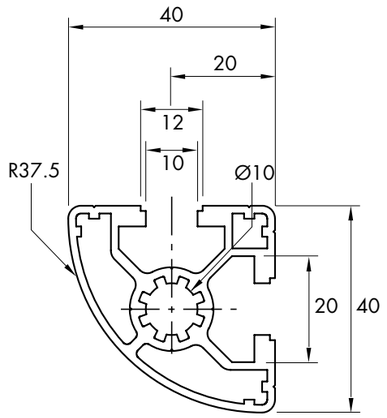
40 x 40 – 1NS
0-132-4001



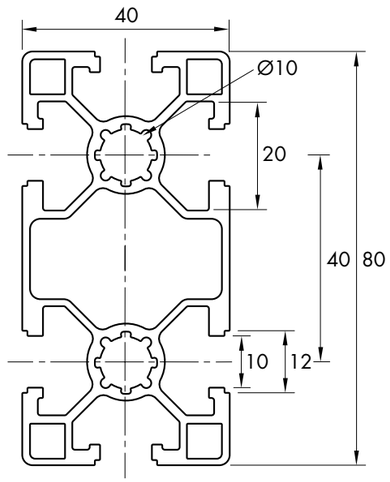
40 x 40 – 2NS
0-132-4002



40LR
0-132-4000



40 x 80L
0-132-4081



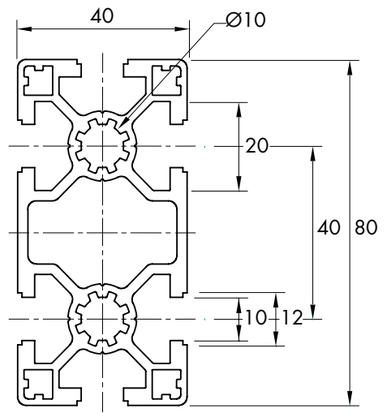
Technical Data

	40 x 40 – 1NS	40 x 40 – 2NS	40LR	40 x 80L
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.7kg/m	1.7kg/m	1.2kg/m	2.1kg/m
Moment of Inertia (cm⁴)	Ixx 9.9	Ixx 10.3	Ixx 6.0	Ixx 52.6
	Iyy 10.3	Iyy 10.3	Iyy 6.0	Iyy 14.3
Section Modulus (cm³)	Wxx 4.9	Wxx 5.1	Wxx 2.6	Wxx 13.15
	Wyy 5.15	Wyy 5.1	Wyy 2.6	Wyy 7.15

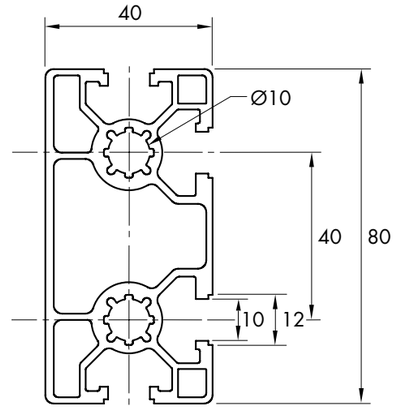
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

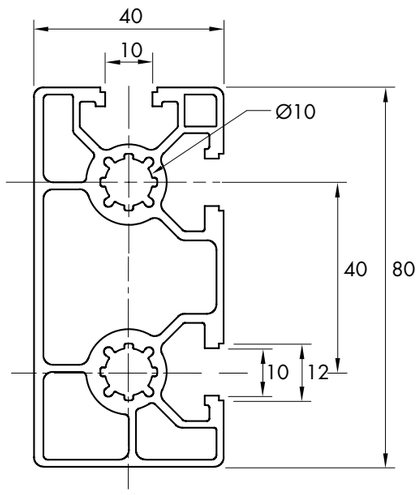
40 x 80
0-132-4080



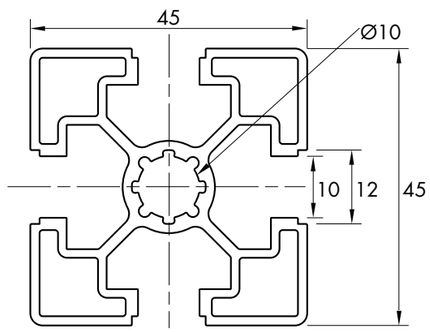
40 x 80 – 2NS
0-132-4082



40 x 80 – 3NS
0-132-4083



45 x 45SL
0-132-4547



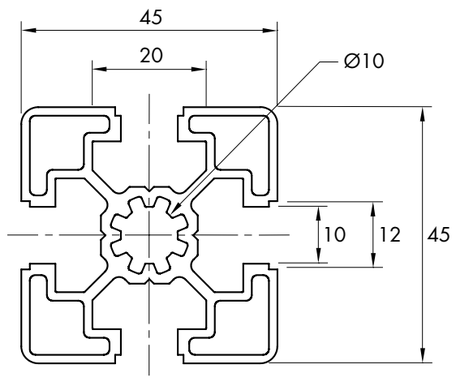
Technical Data

	40 x 80	40 x 80 – 2NS	40 x 80 – 3NS	45 x 45SL
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	2.6kg/m	2.35kg/m	2.32kg/m	1.4kg/m
Moment of Inertia (cm⁴)	Ixx 61.4	Ixx 55.8	Ixx 54.5	Ixx 10.1
	Iyy 17.0	Iyy 15.2	Iyy 14.8	Iyy 10.1
Section Modulus (cm³)	Wxx 15.3	Wxx 13.9	Wxx 13.6	Wxx 4.5
	Wyy 8.5	Wyy 7.6	Wyy 7.4	Wyy 4.5

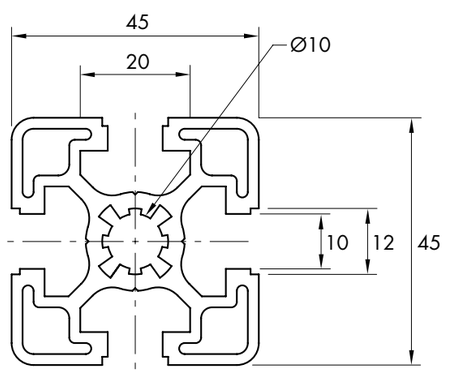
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

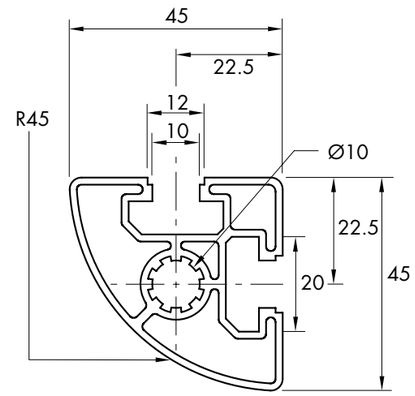
45 x 45L
0-132-4546



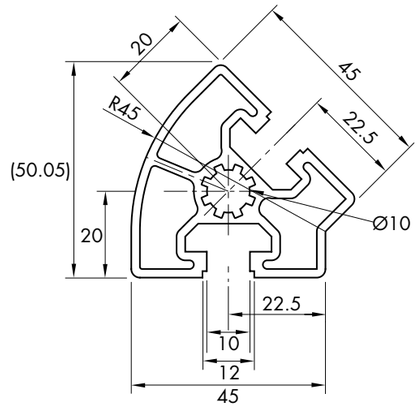
45 x 45
0-132-4545



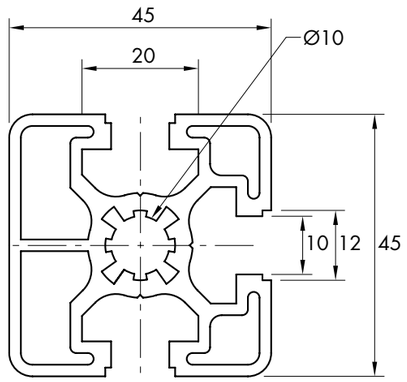
45LR
0-132-4500



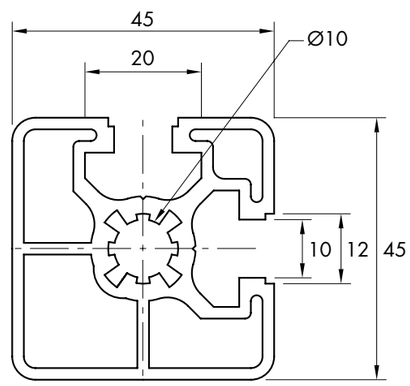
45°
1-242-4700



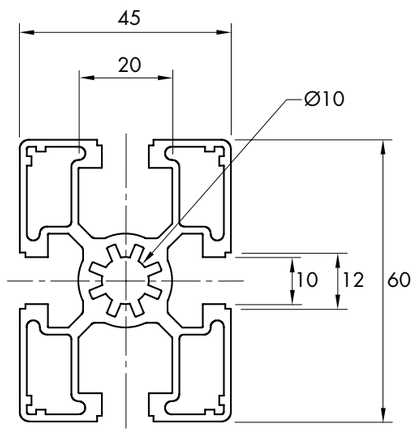
45 x 45 – 1NS
0-132-4501



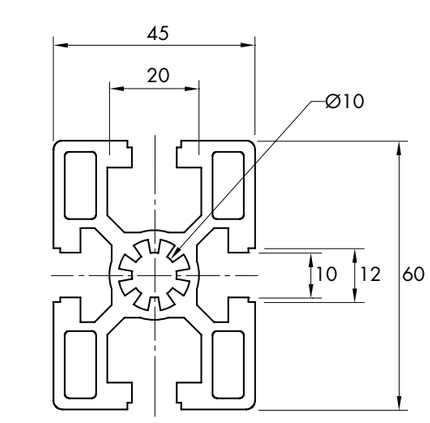
45 x 45 – 2NS
0-132-4502



45 x 60L
0-132-4561



45 x 60
0-132-4560



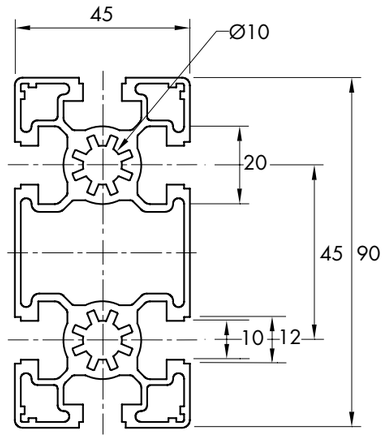
Technical Data

	45 x 45L	45 x 45	45 x 45 – 1NS	45 x 45 – 2NS
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.5kg/m	1.9kg/m	1.9kg/m	1.8kg/m
Moment of Inertia (cm⁴)	Ixx 10.4	Ixx 14.0	Ixx 13.0	Ixx 12.9
	Iyy 10.4	Iyy 14.0	Iyy 13.5	Iyy 12.9
Section Modulus (cm³)	Wxx 4.6	Wxx 6.2	Wxx 5.8	Wxx 5.7
	Wyy 4.6	Wyy 6.2	Wyy 6.0	Wyy 5.7

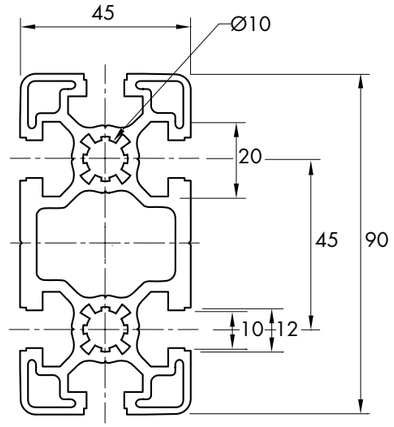
Technical Data

	45LR	45°	45 x 60L	45 x 60
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.2kg/m	1.5kg/m	2.1kg/m	2.8kg/m
Moment of Inertia (cm⁴)	Ixx 7.2	Ixx 9.6	Ixx 24.3	Ixx 35.0
	Iyy 7.2	Iyy 10.4	Iyy 15.3	Iyy 22.0
Section Modulus (cm³)	Wxx 2.8	Wxx 4.1	Wxx 8.1	Wxx 11.6
	Wyy 2.8	Wyy 4.7	Wyy 6.8	Wyy 9.8

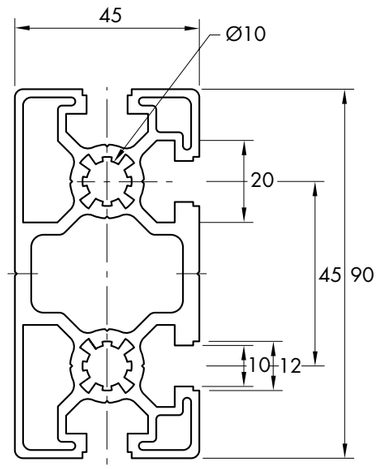
45 x 90L
0-132-4591



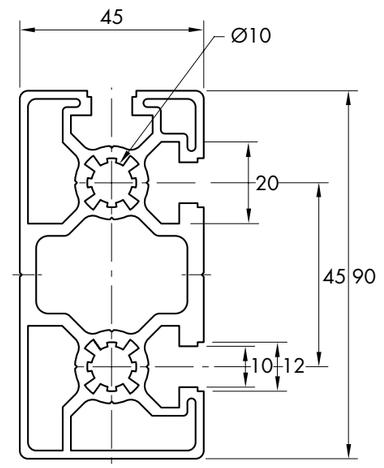
45 x 90
0-132-4590



45 x 90 – 2NS
0-132-4592



45 x 90 – 3NS
0-132-4593



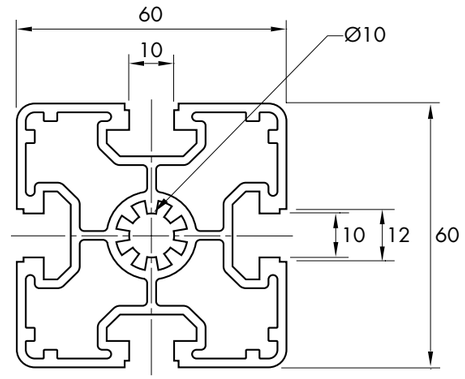
Technical Data

	45 x 90L	45 x 90	45 x 90 – 2NS	45 x 90 – 3NS
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	3.13kg/m	3.6kg/m	3.4kg/m	3.4kg/m
Moment of Inertia (cm⁴)	Ixx 93.6	Ixx 100.9	Ixx 96.3	Ixx 94.4
	Iyy 22.0	Iyy 29.4	Iyy 27.6	Iyy 27.3
Section Modulus (cm³)	Wxx 20.8	Wxx 22.4	Wxx 21.4	Wxx 21.0
	Wyy 9.8	Wyy 13.0	Wyy 12.3	Wyy 12.1

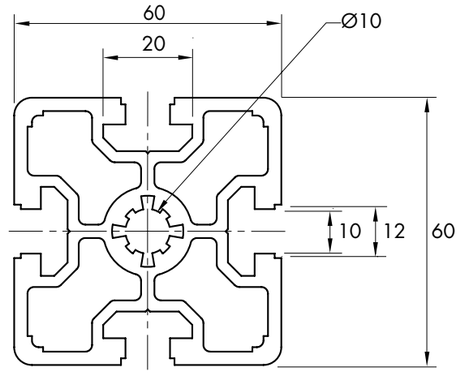
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

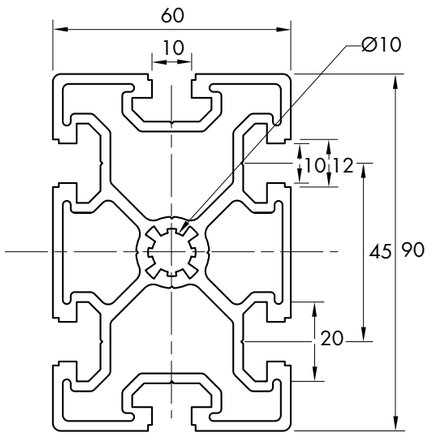
60 x 60L
0-132-6061



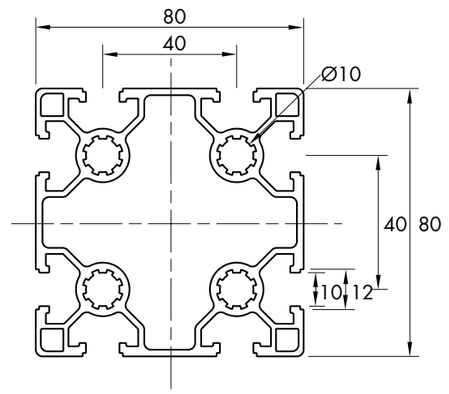
60 x 60
0-132-6060



60 x 90
0-132-6090



80 x 80SL
0-132-8082



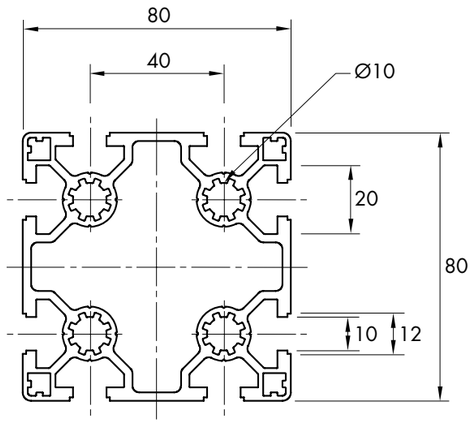
Technical Data

	60 x 60L	60 x 60	60 x 90	80 x 80SL
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	2.9kg/m	3.6kg/m	4.4kg/m	3.6kg/m
Moment of Inertia (cm⁴)	Ixx 37.0	Ixx 47	Ixx 129.2	Ixx 97.6
	Iyy 37.0	Iyy 47	Iyy 59.8	Iyy 97.6
Section Modulus (cm³)	Wxx 12.3	Wxx 15.7	Wxx 28.7	Wxx 24.4
	Wyy 12.3	Wyy 15.7	Wyy 19.9	Wyy 24.4

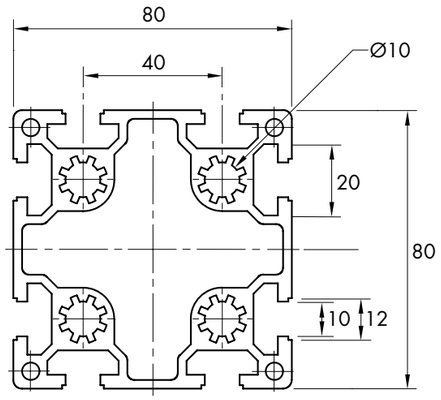
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

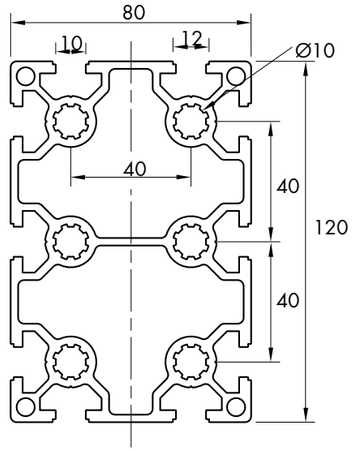
80 x 80L
0-132-8081



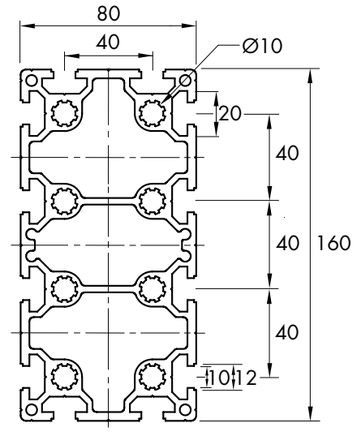
80 x 80
0-132-8080



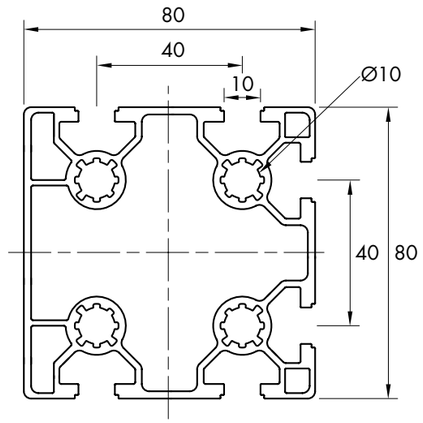
80 x 120
0-132-80120



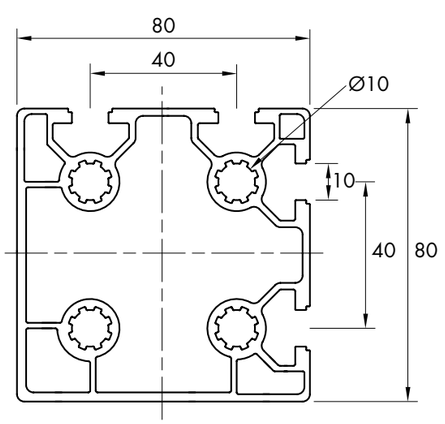
80 x 160
0-132-80160



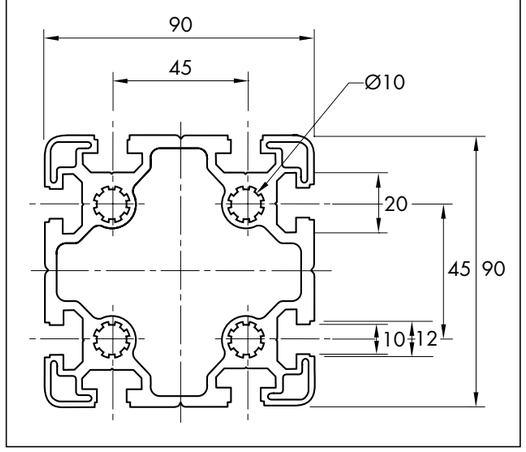
80 x 80 – 2NS
0-132-8001



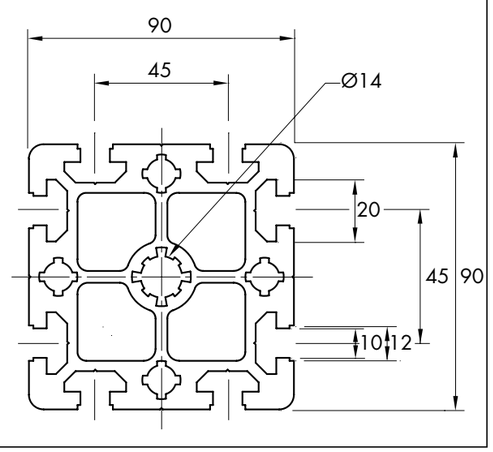
80 x 80 – 4NS
0-132-8002



90 x 90L
0-132-9091



90 x 90
0-132-9090



Technical Data

	80 x 80L	80 x 80	80 x 80 – 2NS	80 x 80 – 4NS
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	4.1kg/m	4.7kg/m	3.7kg/m	3.7kg/m
Moment of Inertia (cm⁴)	Ixx 110.7	Ixx 124.4	Ixx 102	Ixx 104
	Iyy 110.7	Iyy 124.4	Iyy 100	Iyy 104
Section Modulus (cm³)	Wxx 27.7	Wxx 31.1	Wxx 25.5	Wxx 26
	Wyy 27.7	Wyy 31.1	Wyy 25	Wyy 26

Technical Data

	80 x 120	80 x 160	90 x 90L	90 x 90
Max. Length	5600mm	5600mm	5600mm	4000mm
Mass	6.4kg/m	9.1kg/m	5.6kg/m	9.3kg/m
Moment of Inertia (cm⁴)	Ixx 362	Ixx 893	Ixx 193	Ixx 285
	Iyy 176	Iyy 262	Iyy 193	Iyy 285
Section Modulus (cm³)	Wxx 60	Wxx 111	Wxx 42.9	Wxx 63
	Wyy 44	Wyy 65.5	Wyy 42.9	Wyy 63

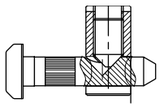
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 🕮1

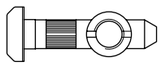
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 🕮1

Flexi Connector (A)
see 17

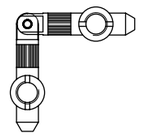


Flexi Connector (B)
see 17

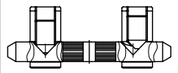


Flexi Angle Connector
see 17

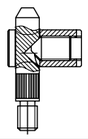
Flexi Mitre Connector
see 17



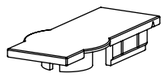
Flexi Straight Connector
see 17



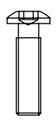
Flexi Threaded Connector
see 17



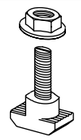
Flexi Connector End Cap
see 17



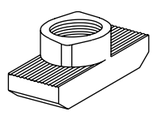
Connection Screw
see 18



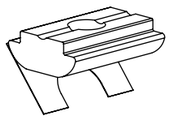
T-Bolt & Flange Nut
see 18



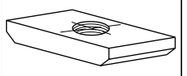
T-Nut
see 19



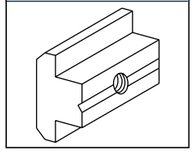
Sprung Loaded T-Nut
see 19



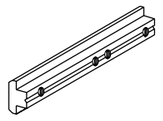
Angled Nut
see 19



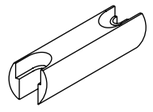
Slot Block
see 20



Connector Link Set
see 20



Bolt Connector Set
see 20



Bracket 17 x 25
see 20

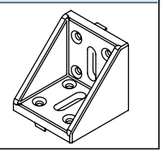
Bracket 20 x 28
see 21

Bracket 36 x 36
see 21

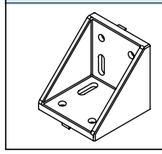
Bracket 42 x 43
see 21

Bracket 42 x 88
see 21

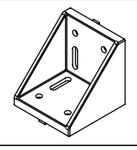
Bracket 57 x 57
see 22



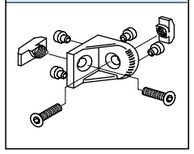
Bracket 75 x 75
see 22



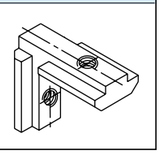
Bracket 88 x 88
see 22



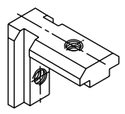
Angle Bracket
see 22



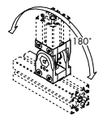
Interior Bracket (A)
see 23



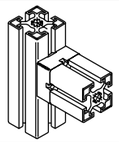
Interior Bracket (B)
see 23



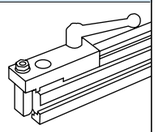
Knuckle Joints
see 23



End Connector Set
see 24



Flexi Connector Drill Jig
see 24



Flexi Connectors

For maximum versatility, profile position adjustment and speedy assembly simply drill dimension 'C' to suit the relevant profile with 15.1mm Ø drill available from Hepco, Part No. **1-243-5556**.

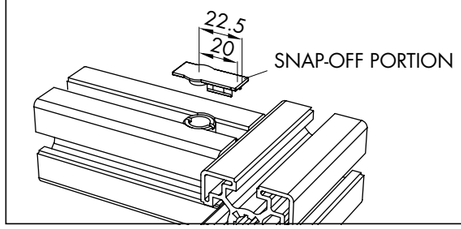
Please note:
(40) refers to profiles of cross-sections 40, 80 & 160mm,
(45) refers to profiles of cross-section 45, 60 & 90mm.

Materials are zinc plated SM20C steel.

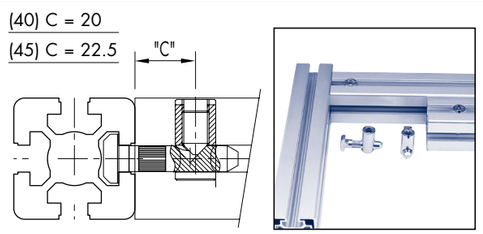
Two Position 90° and 45° Drilling Jig available (see 24).

Order with Ball End Allen Key, Part No. **1-243 5555**

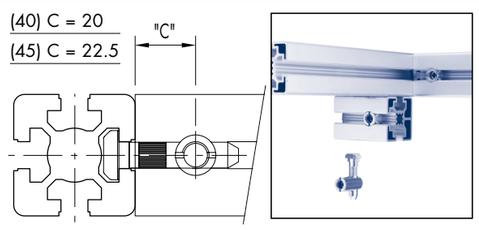
Flexi T Connector end cap – for all versions
1-243-0048



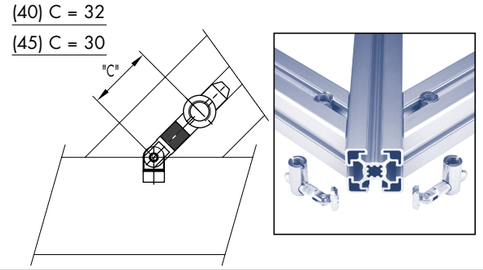
Flexi T Connector (A)
(40) 1-242-4549 (45)1-242-4550



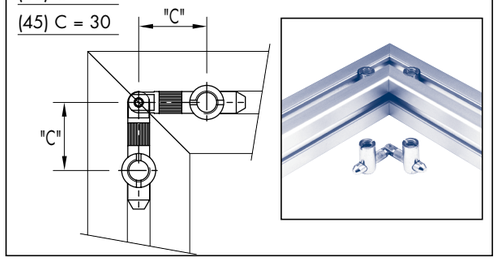
Flexi T Connector (B)
(40) 1-242-4551 (45)1-242-4552



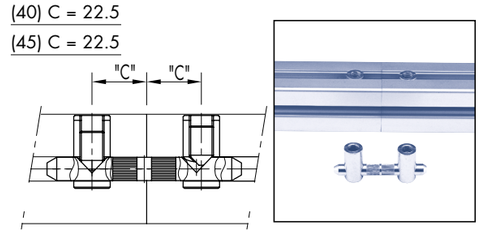
Flexi Angle Connector
(40) 1-242-4553 (45)1-242-4554



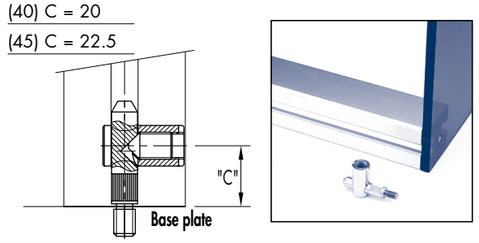
Flexi Mitre Connector
(40) 1-242-4555 (45)1-242-4556



Flexi Straight Connector
(40) 1-242-4557 (45)1-242-4558



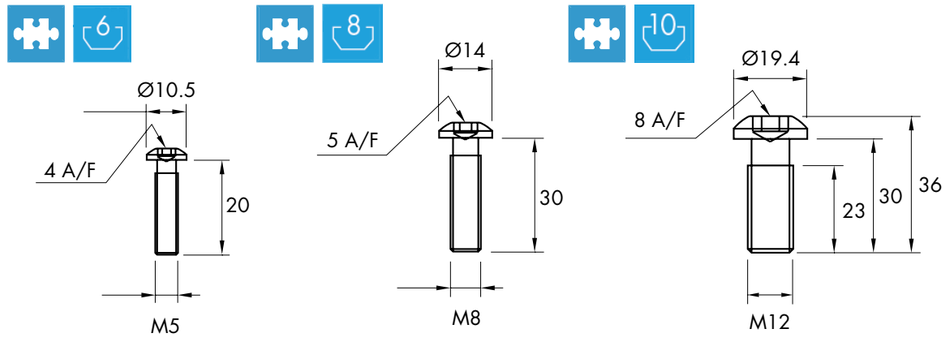
Flexi Threaded Connector
(40) 1-242-4559 (45)1-242-4560



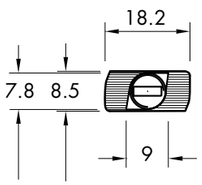
Connection Screw

1-242-1033 M5 x 20
1-242-1034 M8 x 30
1-242-1005 M12 x 30

New self tapping screw for all 10mm T-slot connections
1-242-1011 S12x30

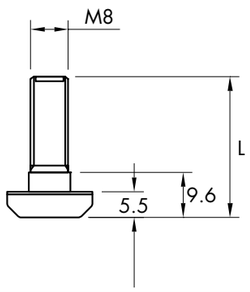


T-Bolt & Flange Nut



T-Bolt
1-242-1009 M8 x 25L
1-242-1000 M8 x 30L
1-242-1010 M8 x 38L
1-242-1006 M8 x 45L

Flange Nut
1-242-1101 M8 x 12 A/F
1-242-1100 M8 x 14 A/F



Max. Plate Thickness
using the following T-Bolts and Flange Nuts:

	12 A/F*	14 A/F*
M8x25L	5.5mm	3.5mm
M8x30L	10.5mm	8.5mm
M8x45L	25.5mm	23.5mm

* Dimension difference of 2mm is due to differing T-Slot dimensions between profile sizes

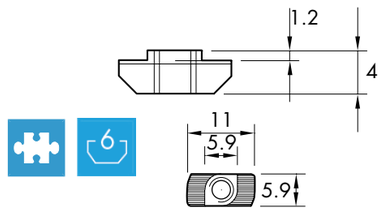
Technical Data

	Connection Screw		T-Bolt & Flange Nut
Material	Steel EN3B		Steel EN3B
Finish	Zinc Plated		Zinc Plated
Mass	**1-242-1033**	0.01kg/ea	**1-242-1009** 0.01kg/ea
	1-242-1034	0.01kg/ea	**1-242-1000** 0.01kg/ea
	1-242-1005	0.01kg/ea	**1-242-1010** 0.02kg/ea
	1-242-1011	0.02kg/ea	**1-242-1006** 0.02kg/ea

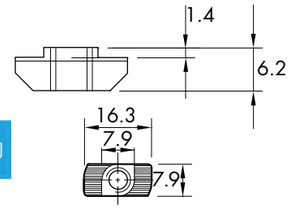
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

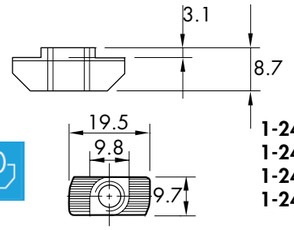
T-Nuts



1-242-1022 M3 (slot 6)
1-242-1023 M4 (slot 6)

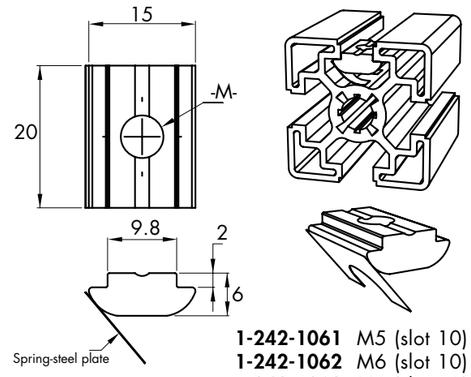


1-242-1024 M4 (slot 8)
1-242-1025 M5 (slot 8)
1-242-1026 M6 (slot 8)



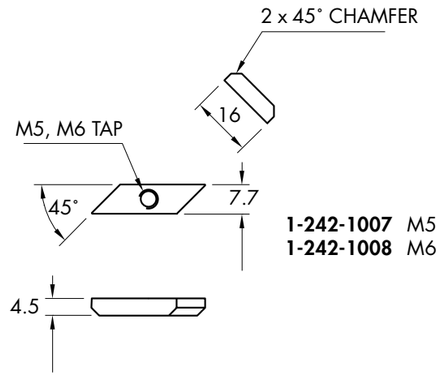
1-242-1029 M4 (slot 10)
1-242-1030 M5 (slot 10)
1-242-1001 M6 (slot 10)
1-242-1002 M8 (slot 10)

Sprung Loaded T-Nuts



1-242-1061 M5 (slot 10)
1-242-1062 M6 (slot 10)
1-242-1063 M8 (slot 10)

Angled Nut



1-242-1007 M5
1-242-1008 M6

Technical Data

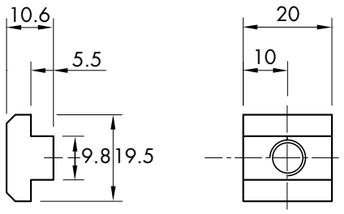
	6 T-Nut	8 T-Nut	10 T-Nut	Sprung Loaded T-Nuts	Angled Nut
Material	Steel EN3B	Steel EN3B	Steel EN3B	Steel EN3B	SteelEN3B
Finish	Zinc Plated	Zinc Plated	Zinc Plated	Zinc Plated	Zinc Plated
Mass	0.002kg/ea	0.004kg/ea	0.007kg/ea	0.013kg/ea	0.002kg/ea

Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

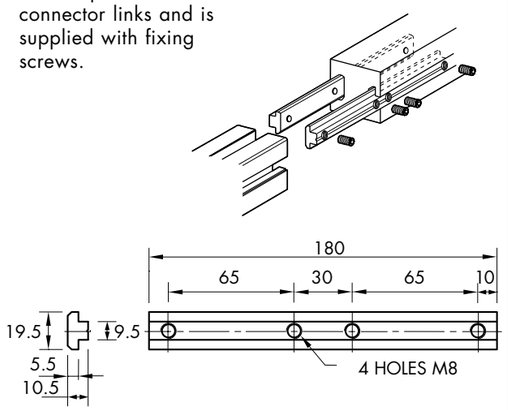
Slot Block

1-242-1031 M5 (slot 10)
1-242-1013 M6 (slot 10)
1-242-1032 M8 (slot 10)



Connector Link Set
1-242-1020 S

Set comprises two connector links and is supplied with fixing screws.

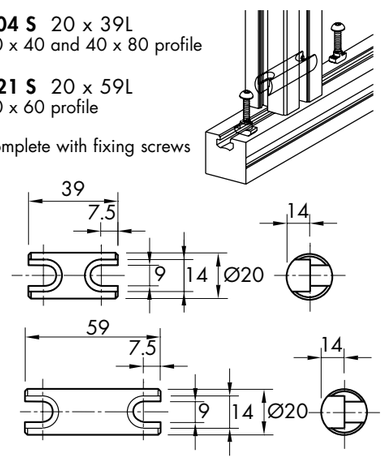


Bolt Connector Set

1-242-1004 S 20 x 39L
Use with 40 x 40 and 40 x 80 profile

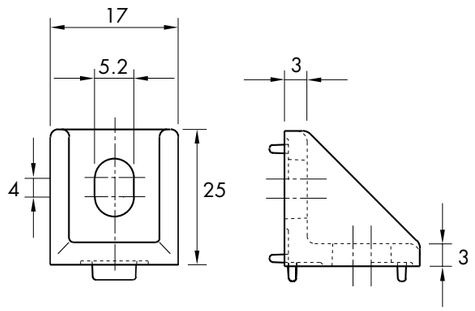
1-242-2021 S 20 x 59L
Use with 60 x 60 profile

Supplied complete with fixing screws and T-Nuts



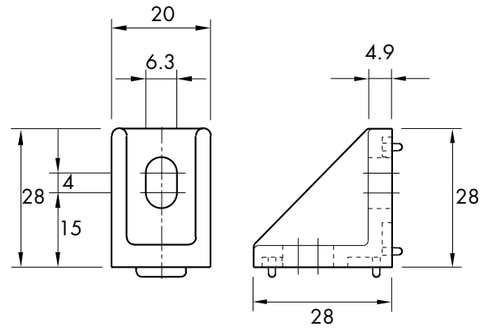
Bracket 17 x 25
1-242-1725

Note: Customer to supply 2 of M4 x 10, 10Nm cap head screw and use with M4 T-Nut 1-242-1023



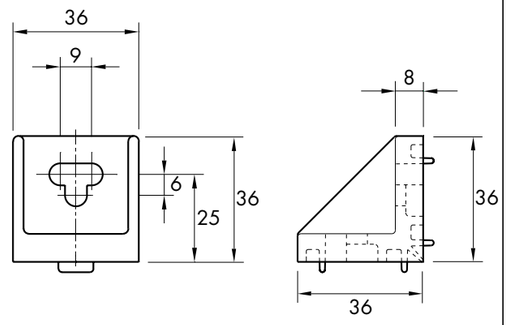
Bracket 20 x 28
1-242-2028

Note: Customer to supply 2 of M6 x 10, 10 Nm cap head screw and use with T-Nut 1-242-1026



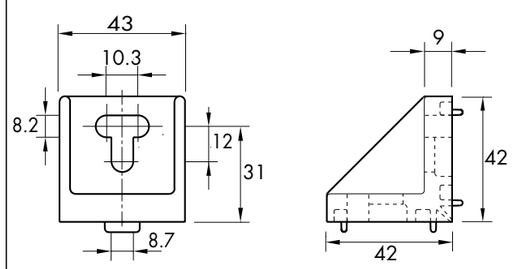
Bracket 36 x 36
1-242-3636

Note: Use with T-Bolt M8 x 25L 1-242-1009 and Flange Nut M8 x 12 A/F 1-242-1101



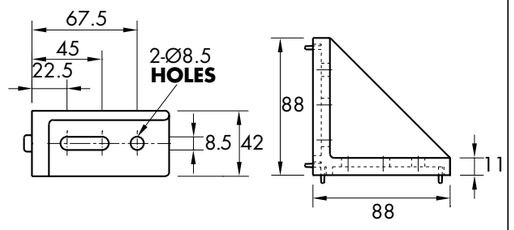
Bracket 42 x 43
1-242-4243

Note: Use with T-Bolt M8 x 30L 1-242-1000 and Flange Nut M8 x 12 A/F 1-242-1101



Bracket 42 x 88
1-242-4288

Note: Use with T-Bolt M8 x 30L 1-242-1000 and Flange Nut M8 x 12 A/F 1-242-1101



Technical Data

	Slot Block	Connector Link Set	Bolt Connector Set	Bracket 17x25
Material	Steel EN3B	Steel EN3B	Steel EN3B	Aluminium
Finish	Zinc Plated	Zinc Plated	Zinc Plated	None
Mass	0.02kg/ea	0.38kg/ea	39L 0.05kg/ea	0.02kg/ea
			59L 0.10kg/ea	

Technical Data

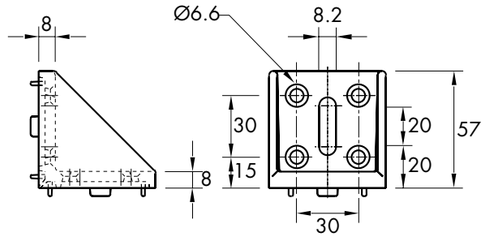
Bracket	20 x 28	36 x 36	42 x 43	42 x 88
Material	Aluminium	Aluminium	Aluminium	Aluminium
Finish	None	None	None	None
Mass	0.02kg/ea	0.04kg/ea	0.06kg/ea	0.15kg/ea

Profile Connections

Bracket 57 x 57
1-242-5757

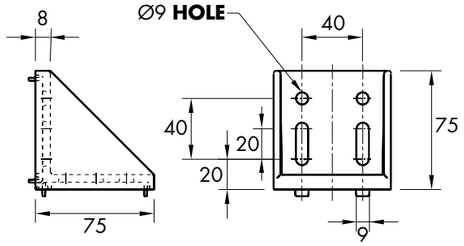
Note:
60 x 60 profile
Use with T-Bolt M8 x 30L 1-242-1000
and Flange Nut M8 x 12 A/F 1-242-1101

30x60 profile
Customer to supply 8 of M6 x 16,
10Nm csk head screw and use with T-Nut 1-242-1026

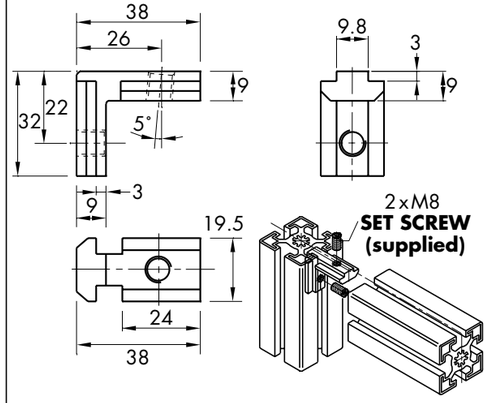


Bracket 75 x 75
1-242-7575

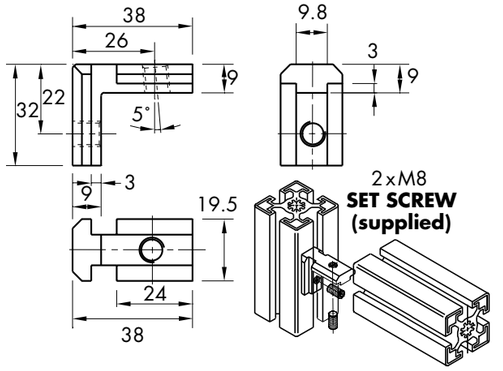
Note: Use with T-Bolt M8 x 30L 1-242-1000
and Flange Nut M8 x 12 A/F 1-242-1101



Interior Bracket (A)
1-242-1039

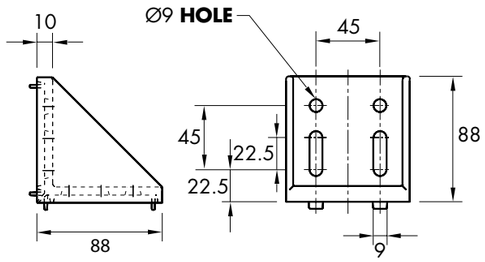


Interior Bracket (B)
1-242-1040



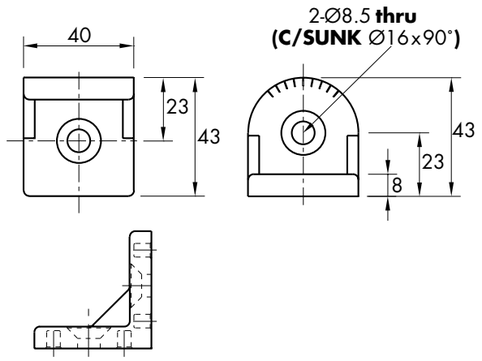
Bracket 88 x 88
1-242-8888

Note: Use with T-Bolt M8 x 30L 1-242-1000
and Flange Nut M8 x 12 A/F 1-242-1101



Angle Bracket
1-242-1018S

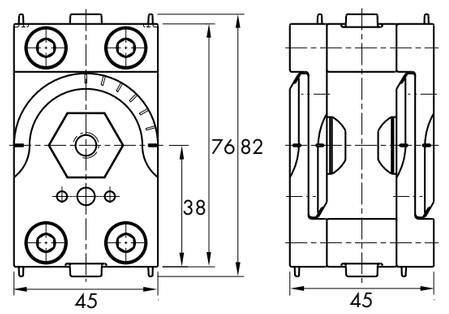
Supplied as a set with fixing screws and T-Nuts



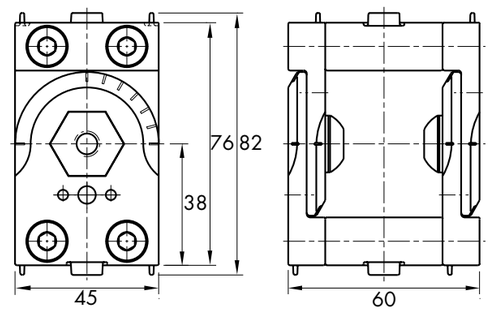
Knuckle Joints

Supplied as a set with all fixings required.

1-242-4548 For use with 45 x 45



1-242-4570 For use with 45 x 60



Technical Data

Bracket	57 x 57	75 x 75	88 x 88	Angle Bracket
Material	Aluminium	Aluminium	Aluminium	Zinc Die-cast
Finish	None	None	None	None
Mass	0.12kg/ea	0.25kg/ea	0.30kg/ea	0.10kg/ea

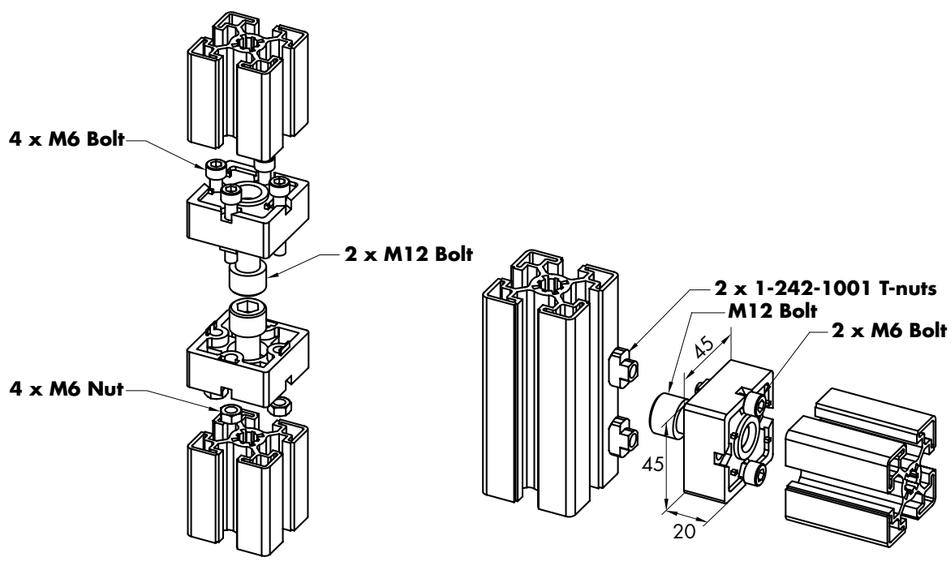
Technical Data

Bracket	Interior (B)	Interior (A)	Knuckle Joints
Material	Zinc Die-cast	Zinc Die-cast	Zinc Die-cast
Finish	None	None	None
Mass	0.06kg/ea	0.06kg/ea	**1-242-4548** 0.54kg/set
			1-242-4570 0.62kg/set

End Connector Set
1-242-4547S

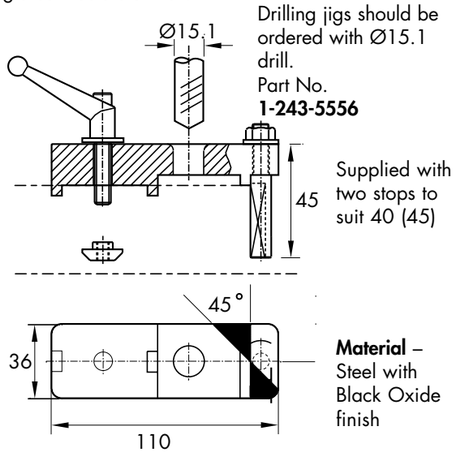
Supplied in two parts with fixing screws. Location tabs may be easily removed where required.

Material – Die-cast Zinc
Mass – 0.45kg/set



Flexi Connector Drilling Jig 45° ends
1-242-4561

For speedy drilling when using mitre connectors or angle connectors at 45°.



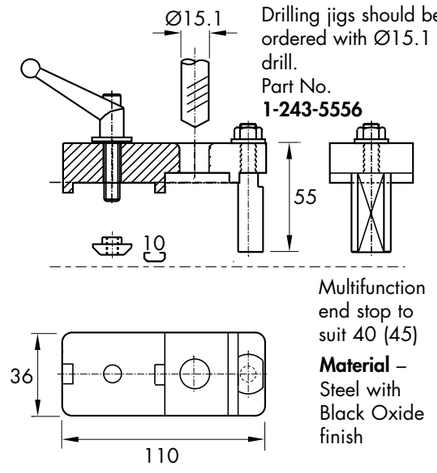
Drilling jigs should be ordered with Ø15.1 drill.
Part No.
1-243-5556

Supplied with two stops to suit 40 (45)

Material – Steel with Black Oxide finish

Flexi Connector Drilling Jig 90° ends
1-242-4562

For speedy drilling for all 90° joint connectors.

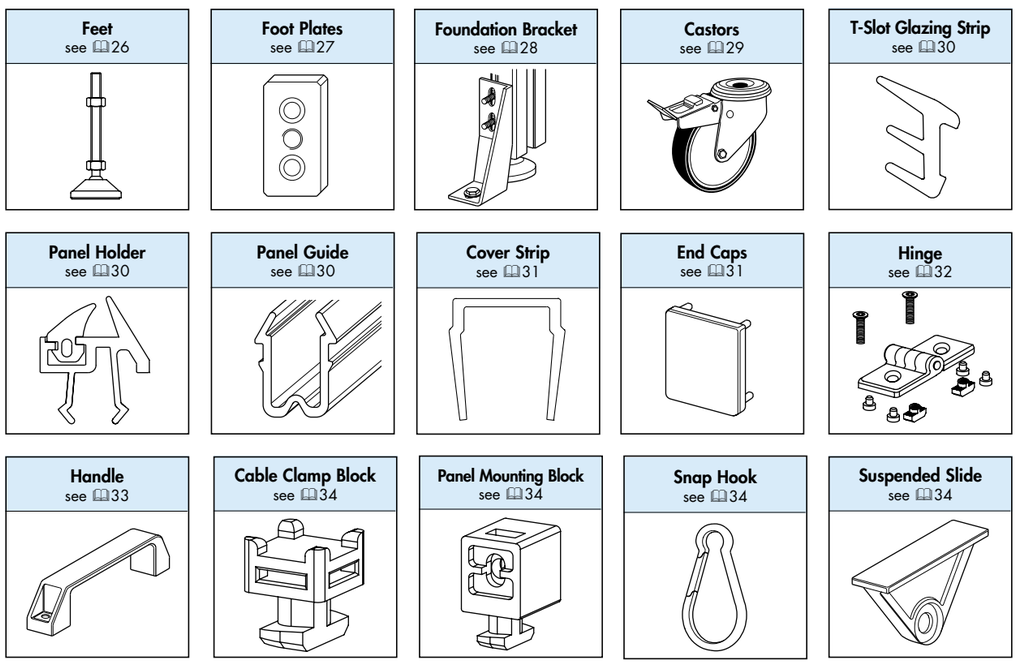


Drilling jigs should be ordered with Ø15.1 drill.
Part No.
1-243-5556

Multifunction end stop to suit 40 (45)

Material – Steel with Black Oxide finish

Accessories



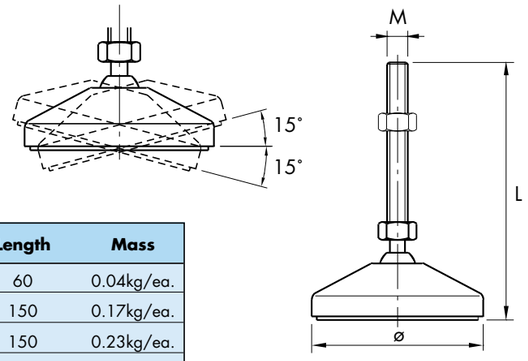
A extensive range of accessories for the **MCS System** provides professional frame finishing, allows sliding and hinged door hanging, suspension of work tools, adjustable feet for non-level floors, and location of glazing panels.

These components are precision formed using PVC, ABS plastic, or coated steel for a hard-wearing and aesthetically-pleasing result.

Hepco also offers a range of hard-wearing Castors to suit the **MCS Machine Construction System** – details of these are on 🕮29. Castors for more specialist uses can be easily sourced by Hepco – ask us for details if any of the standard range is not suitable for a particular application.

Foot

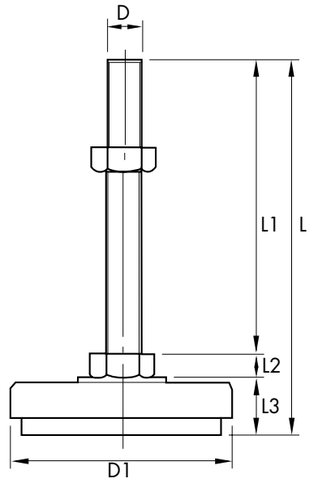
Adjustable height with 15° of movement allows for uneven floor surfaces.
Profile end requires tapping.



Part No.	Tap Size	Diameter	Length	Mass
1-243-0030	M8	40	60	0.04kg/ea.
1-243-0050	M12	60	150	0.17kg/ea.
1-243-0051	M12	100	150	0.23kg/ea.
1-243-0040	M16	60	150	0.28kg/ea.
1-243-0041	M16	100	150	0.33kg/ea.

Steel Foot – cushioning type

Part No.	D	D1	L	L1	L2	L3	Mass
1-243-0020	8	40	63	40	6	17	0.85kg/ea.
1-243-0021	12	48	152	125	8	19	0.15kg/ea.
1-243-0022	16	61	155	125	10	20	0.2kg/ea.

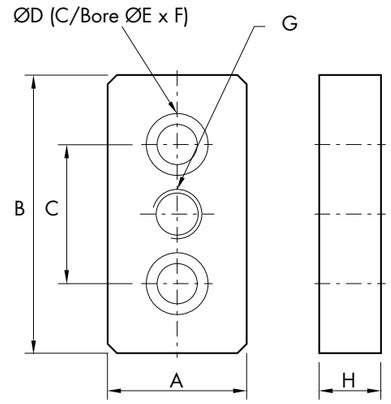


Technical Data

	Foot	Steel Foot
Material	Plastic and Steel	Steel and Rubber
Finish	Steel/Zinc Plated	Plated

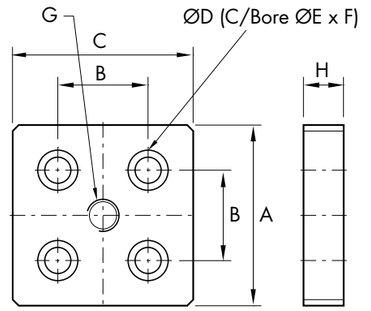
Foot Plates

Allows assembly of Foot on rectangular profiles, which have no central fixing hole.



Part No.	Recommended for	A	B	C	D	E	F	G	H	Mass kg
1-243-0114	20x40	20	40	20	5.5	9.5	5.4	M8	8	0.05
1-243-0115	30x60	30	60	30	9	14	8.6	M8	12	0.17
1-243-0116	40x80	40	80	40	13	20	13	M16	20	0.5
1-243-0112	45x90	45	90	45	13	20	13	M16	20	0.5

Allows assembly of Foot on square profiles, which have no central fixing hole.



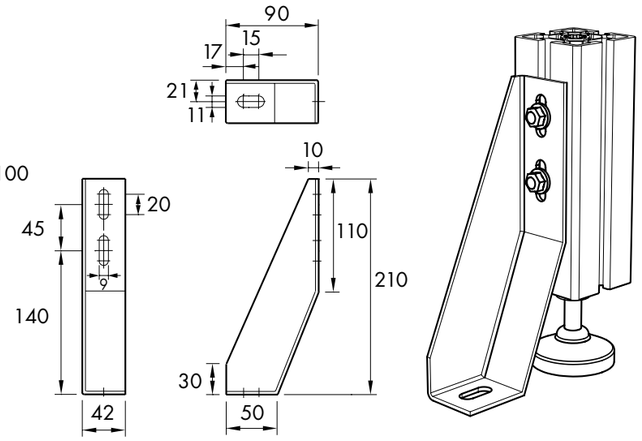
Part No.	Recommended for	A	B	C	D	E	F	G	H	Mass kg
1-243-0117	80x80	80	40	80	14	20	13	M16	20	1.0
1-243-0113	90x90L	90	45	90	13	20	13	M16	20	1.0

Technical Data

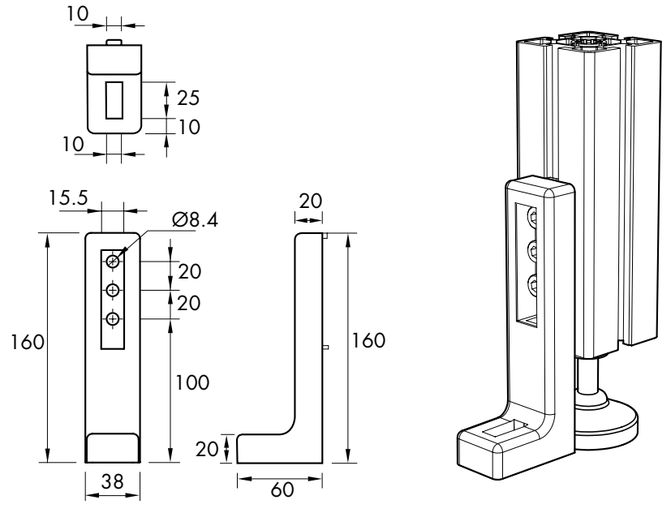
	Rectangular Foot Profile	Square Foot Profile
Material	Steel EN32	Steel EN32
Finish	Black Oxide	Black Oxide

Foundation Bracket
1-242-1019

Rigidly fixes a frame to the floor – use in conjunction with foot to allow levelling before fixing.
Order with:
2 of M8 x 25L T-Bolt 1-242-1009
2 of M8 x 14 A/F Flange Nut 1-242-1100
Customer to supply floor fixing bolt.



Floor Bracket
1-242-1019 F



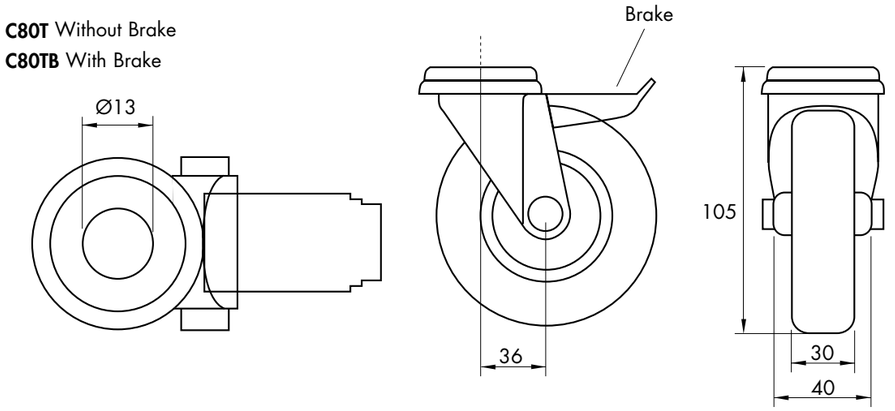
Technical Data

	Foundation Bracket	Floor Bracket
Material	Steel EN32	Zinc Die-cast
Finish	Black Oxide	Black Powder Coated
Mass	0.44kg/ea	0.46kg/ea

Castors

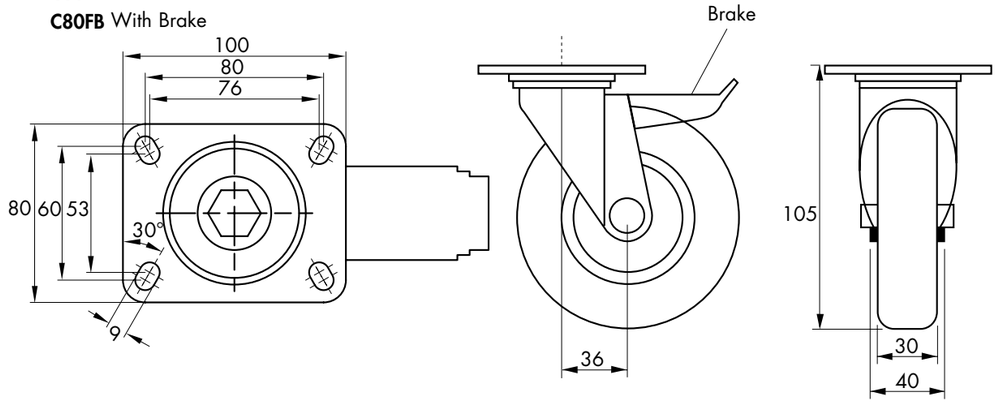
Swivel type. Through hole fixing makes these castors suitable for end fixing into profiles from 40x40L to 90x90L (using M12 cap head fixing screw). Other castors for profiles outside this range available on request, or see the flange fixing type below.

C80T Without Brake
C80TB With Brake



Swivel type. Flange plate fixing allows inboard mounting using the 9mm slots provided.

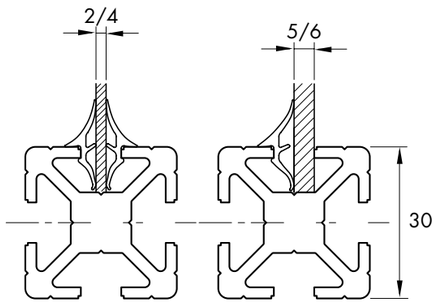
C80F Without Brake
C80FB With Brake



Technical Data

Castors	C80T/TB	C80F/FB
Body	Zinc Plated Steel	Zinc Plated Steel
Wheel	Nylon	Nylon
Tyre	Polyurethane	Polyurethane
Wheel Diameter	80mm	80mm
Load Capacity	90kg/ea	90kg/ea
Mass	0.65kg/ea	0.65kg/ea

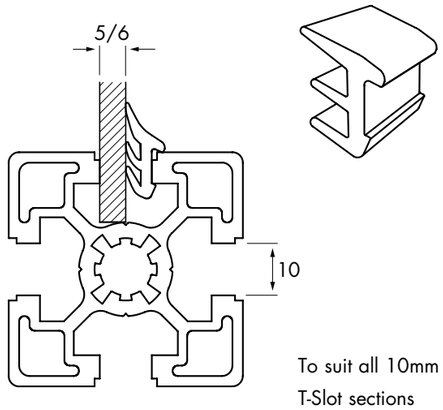
8mm T-Slot Glazing Strip
1-242-1056



2 Strips for panels 2mm to 4mm

1 Strip for panels 5mm to 6mm

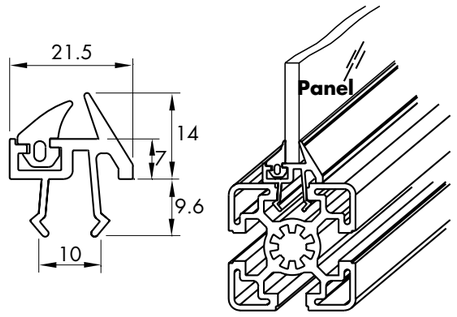
10mm T-Slot Glazing Strip
1-242-1058



To suit all 10mm T-Slot sections

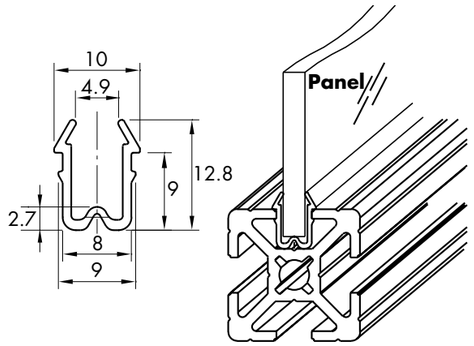
Panel Holder
1-242-1045

For use in profiles with slot size 10. The two part holder can be inserted into a pre-assembled frame and allows 5mm panels to be inserted/removed in situ. Supplied in 3m random length.



Panel Guide
1-242-1049

For use in profiles with slot size 8. Requires panel and panel guide to be fitted during assembly of the structural frame. Supplied in 3m random length.



Technical Data

	T-Slot Glazing Strip	Panel Holder	Panel Guide
Material	Rubber	PVC/Rubber	ABS Plastic
Finish	Black	Black	Black
Mass	–	–	–
Max. Length	Cut to length	3000mm	3000mm

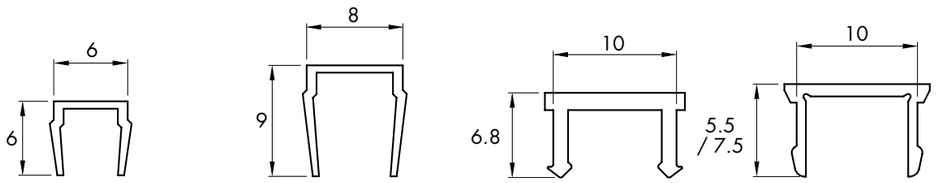
Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

Cover Strip

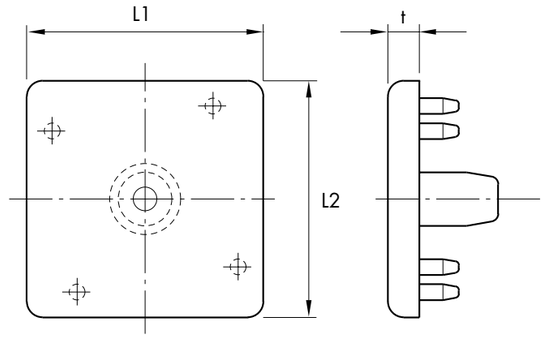
Improves the appearance of the finished frames, protects T-slots from contamination and secures electrical cable. Push fit. Supplied in 3m random lengths.
New Aluminium strips for 10mm slots.

		Aluminium
6	**1-242-1037** For slot size 6	
8	**1-242-1038** For slot size 8	
10	**1-242-1016** For slot size 10	**1-242-1054(40)** For slot size 10
		1-242-1055(45) For slot size 10



End Caps

For use with Structural Profile Sections. Push fit.



L1 x L2	t	Part No.
20 x 20	3	**1-243-4049**
20 x 40	3	**1-243-4050**
30 x 30	4	**1-243-4047**
30 x 60	4	**1-243-4051**
30 x 90	4	**1-243-4056**
40 x 40	4	**1-243-4041**
40 x 80	4	**1-243-4052**
40LR	4	**1-243-4053**
45 x 45	4	**1-243-4042**
45 x 60	4	**1-243-4043**
45 x 90	4	**1-243-4044**
45LR	4	**1-243-4054**
60 x 60	4	**1-243-4045**
80 x 80	4	**1-243-4055**
80 x 160	4	**1-243-4055x2**
90 x 90	4	**1-243-4046**

Technical Data

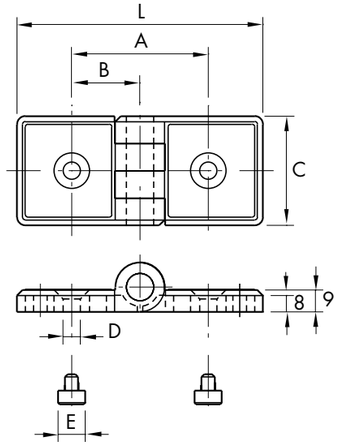
	Cover Strip	End Caps
Material	Aluminium or PVC	ABS Plastic
Finish	Anodized/Black (other colours available)	Black
Max. Length	3000mm	–
Mass	0.04kg/m	–
Mass	Aluminium 0.06kg/m	–

Component files can be downloaded from Hepco's website **www.HepcoMotion.com**

For key reference see 📖1

Hinge (Plastic)

Supplied individually or as a set complete with all relevant T-Nuts, screws and fixings. To order the set append part no. with an 'S'.



1-243-4048 (S)
To hinge size 30 profiles (fixed type)

1-243-4545 (S)
To hinge size 45 profiles (fixed type)

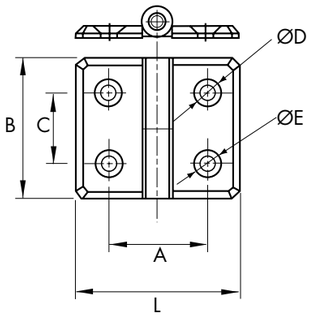
1-243-4060 (S)
To hinge size 30 profile to a size 45 profile (fixed type)

(S): Complete with fixings

Part No.	L	A	B	C	øD	øE
1-243-4048	61	35	17.5	40	6.2	8
1-243-4545	90	50	25	40	6.2	10
1-243-4560	74.5	42.5	17.5/25	40	6.2	8/10

Hinge (Die-cast)

All hinges supplied as a set complete with standard fixings.



1-243-6074 (S) R/H 40x40
1-243-6073 (S) L/H 40x40
To hinge size 40 (lift off type see example 📖37)

1-243-7006 (S) R/H 45x45
1-243-7005 (S) L/H 45x45
To hinge size 45 (lift off type see example 📖37)

1-243-6070 (S)
To hinge size 40 (fixed type)

1-243-8085 (S)
To hinge size 45 (fixed type)

Part No.	L	A	B	C	øD	øE
1-243-6073(S)	70	42	60	30	12	6.2
1-243-6074(S)	70	42	60	30	12	6.2
1-243-7005(S)	80	47	60	30	12	6.2
1-243-7006(S)	80	47	60	30	12	6.2
1-243-6070(S)	70	42	60	30	12	6.2
1-243-8085(S)	80	47	60	30	12	6.2

Technical Data

	Hinge	Hinge 40	Hinge 45	Hinge Lift Off
Material	Nylon	Zinc Die-cast	Zinc Die-cast	Zinc Die-cast
Finish	Black	Chrome Plated	Chrome Plated	Chrome Plated
Mass	0.08kg/ea	0.13kg/ea	0.13kg/ea	0.13kg/ea

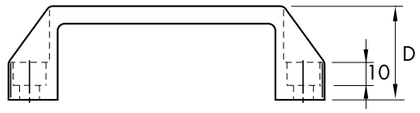
Handle (Plastic)

1-243-0033 1-243-0034

For profiles with slot size 8 and 10
For slot 8 profile, order with: 2 off M6 T-Nut 1-242-1026
For slot 10 profile, order with: 2 off M8 T-Nut 1-242-1002

Customer to supply 2 off M6 or M8 10Nm cap head fixing screw and suitable washers.

1-243-0033 135L
1-243-0034 146L

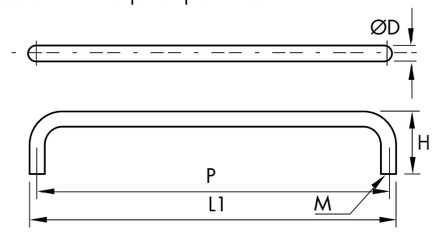


Part No.	A	B	C	D	E
1-243-0033 135L	135	117	26	40	Ø8 hole Ø14 C/BORE
1-243-0034 146L	146	126	32	45	Ø8 hole Ø14 C/BORE

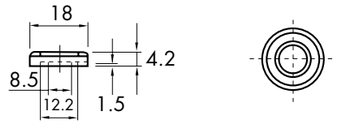
Stainless Steel Roundbar Handles

1-243-0052 1-243-0053

2x washers required per handle.



1-243-0054 Washer



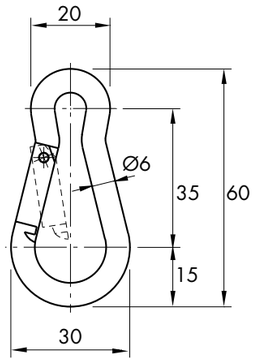
Part No.	L1	H	P	ØD	M
1-243-0052	168	51	156	12	2 x M6
1-243-0053	137	51	125	12	2 x M6

Technical Data

	Handle	Stainless Steel Roundbar Handles
Material	ABS Plastic	Stainless Steel
Finish	Black	–
Mass	0.04kg/ea	

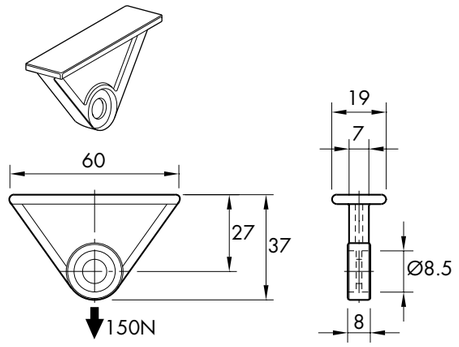
Snap Hook
1-242-1015

Use with Suspended Slide - see right.



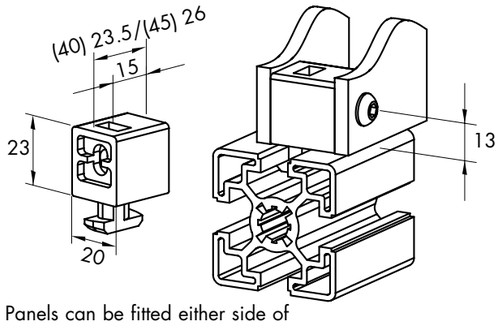
Suspended Slide
1-242-1014

Slides in size 10 T-slots to suspend hand tools above a work table. Generally used with Snap Hook – see left.



Panel Mounting Block
(40) 1-242-1050
(45) 1-242-1051

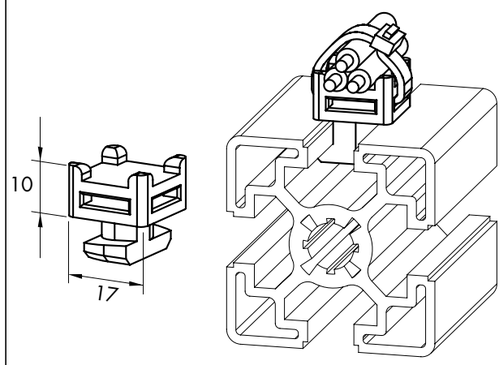
For direct mounting of various thickness panels. Quick 90° release allows for assembly or re-positioning of block in Profile T-slot. Simply drill 6mm ø hole in panel to suit. Comes complete with retained M6 hexagon nut.



Panels can be fitted either side of blocks as dotted lines indicate.

Cable Clamp Block
(40) 1-242-1052
(45) 1-242-1053

For location of small cables along profile length.



Technical Data

	Snap Hook	Suspended Slide	Panel Mounting Block	Cable Clamp Block
Material	EN3B	Nylon	Nylon 66 G13	ABS Plastic
Finish	Zinc Plated	Black	Black	Black
Mass	0.03kg/ea	0.01kg/ea	–	–

Machine Fencing System (MFS)

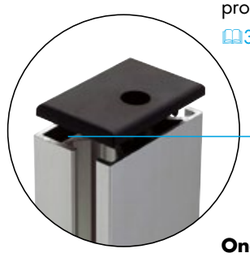
The **Hepco**Motion **MFS Machine Fencing System** compatible with our **MCS** aluminium profile product range enables cost effective barriers to be constructed around machine installations such as gantries, pick and place equipment and floor mounted robot systems.

Conforming to current Industry standards this maintenance free system is easy to construct and offers a lower cost alternative to similar systems.

HepcoMotion's **MFS system** can be supplied as pre-assembled panels to the customer's drawings or as individual components for the customer to machine and assemble in their own workshop. Delivery is fast with all major components carried ex-stock.

We would be pleased to discuss your future requirements for standard **MFS** components as well as specific non standard items such as locks, switches and specialist panel requirements.

Machine Fencing System

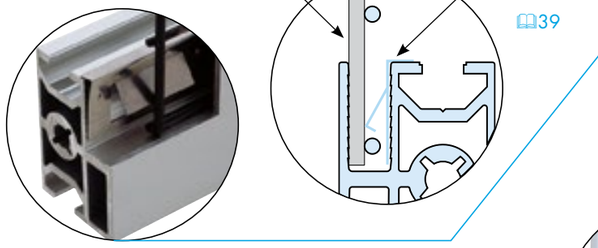


End cap
End caps to close off the slot profiles and vertical profile sections.
📖39

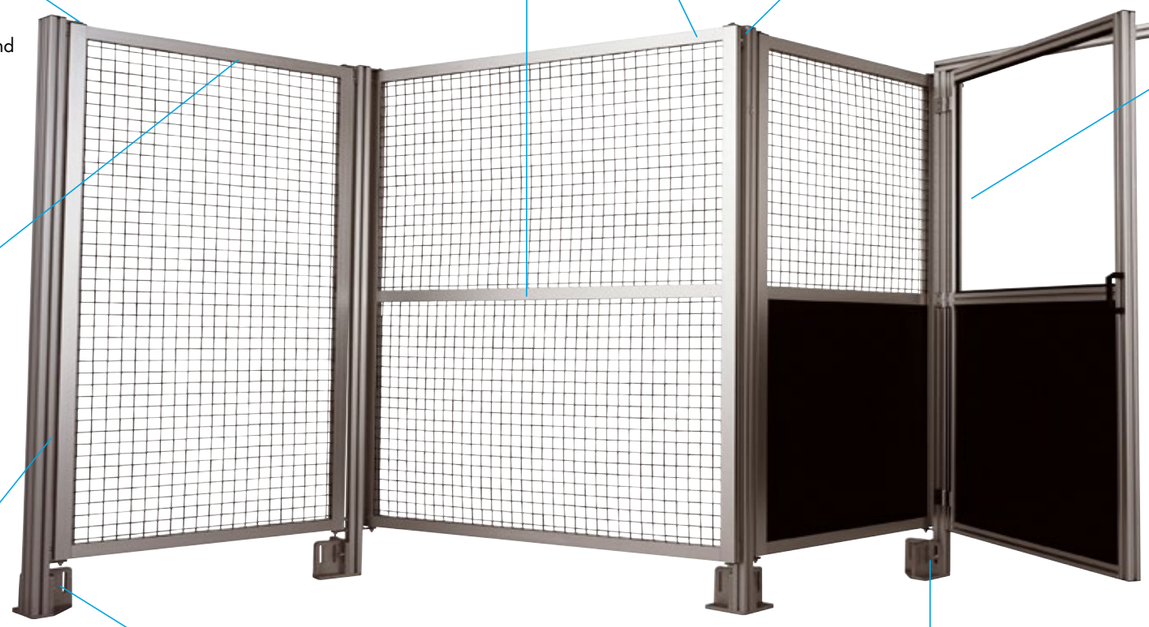
Two-slot profile
Provides a mid section support either vertical or horizontal to break up large single frames and ensure maximum rigidity to the assembled mesh/panel. 📖38

One-slot profile
A light but very rigid section used for the main frame surround. A deep 8mm wide slot allows an extensive range of mesh and panel options to be fitted in combination with the **Panel retaining clip**. An 8mm T-slot allows further attachment of additional accessories should the need arise. 📖38

Mesh/Panel retaining clip detail



Panel retaining clip
This unique fixing clip developed by Hepco will ensure that almost all types of wire mesh sheeting or polycarbonate/steel panels which are fitted within the 8mm slot profiles are securely retained and will not rattle or vibrate. Designed for 2-6mm sheet panels and all 3mm wire mesh, the sprung feet of the clip ensure universal fitting into the profile slot and the location teeth ensure the clips cannot become dislodged. (8mm panels and 4mm wire mesh do not normally require the additional use of these clips.) The number of clips needed is dependant on the panel material being used.

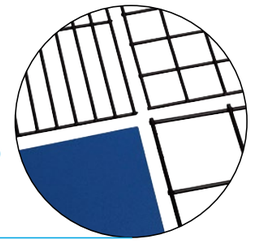


Panel fixing kit
A complete kit of parts for securing the fencing panel to its vertical post support. The lower bracket with its domed location stud is fully adjustable to allow for small misalignments between the vertical posts. Two bolts at the top are all that is necessary to firmly secure the fencing panel in place no matter what size of panel is being used. The swivel action of the panel fixing kit allows panels to be laid out in at any angle not just 90 degrees. 📖39

Vertical post
Utilising the MCS 45 Light and 45/90 Light sections the vertical post is secured into the **Foundation Block** with standard T-Bolts and Nuts. The 45/90 Light provides additional support and rigidity where long unsupported runs are necessary, corners, returns and around door frames. The 10mm T-slot allows the panel mounting kit, hinges etc. to be speedily assembled using standard or sprung loaded T-nuts. 📖10/12

Connection screws
Used to secure **slot profiles** together and provide a strong and hidden 90-degree joint. 📖18

Sliding doors
A range of sliding door movements can be incorporated into the Machine Fencing System with or without a lower support profile. This is especially useful where clear access is required through the enclosure for say forklift trucks etc. 📖40

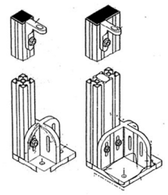


Panel options
HepcoMotion's Machine Fencing System has been developed to allow designers to incorporate an extensive range of standard wire mesh and sheet panel options for almost any industrial situation. Panels up to 8mm thick can be fitted directly into the slot profiles. Special panels can be supplied to customers requirements.

Wire mesh
Wire mesh in Ø3mm standard welded either self-coloured or black powder coated 25mm sq, 40mm sq, 50mm sq and 75 x 13 letterbox. (Non-standard 4mm, woven and special painting is available on request.)

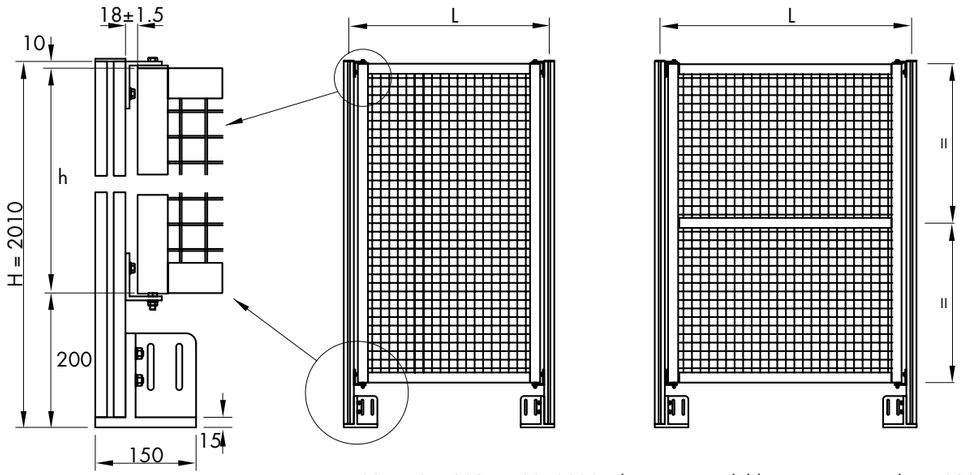
Polycarbonate panels
5 and 6mm in clear and coloured versions, including dense foam sheet which is ideal for fencing structures where through visibility is not a requirement.

Die cast lift off hinge
These plated hinges provide a strong and flexible method of attaching doors or windows and other movable panels within your fencing system. Available in **L/H and R/H Lift off** options as well as a **fixed** version all supplied complete with the necessary fixings to our standard vertical posts. 📖32



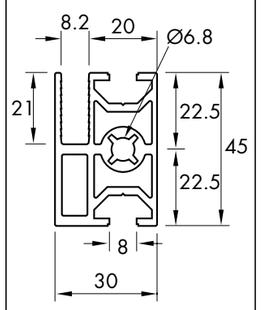
Foundation Block Kit
The foundation block will accept the **45L** and **45/90L Vertical posts** and is universally handed for all mounting requirements. Supplied complete with necessary **T-Bolts and Nuts**. 📖39

MFS Standard Panel sizes

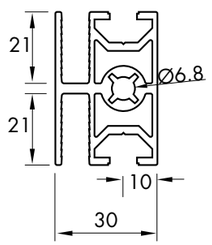


L = 500, 750, 1000, 1500, 2000 other sizes available on request h = 1800

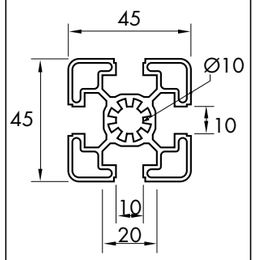
Fencing Profile (1 Slot)
0-133-7001



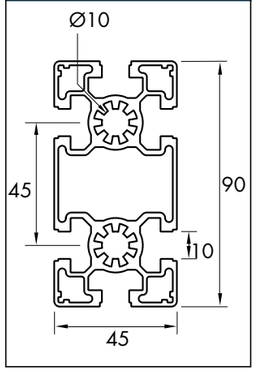
Fencing Profile (2 Slots)
0-133-7002



Profile 45x45L
0-132-4546



Profile 45x90L
0-132-4591

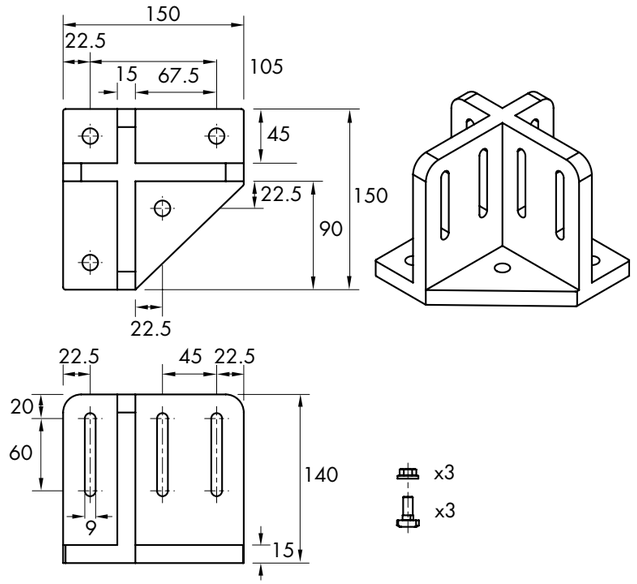


Technical Data

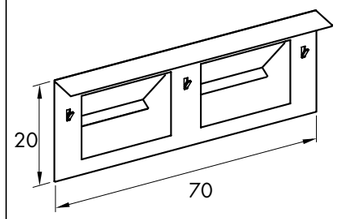
	Fencing Profile (1slot)	Fencing Profile (2 slots)	Profile 45x45L	Profile 45x90L
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.35kg/m	1.3kg/m	1.5g/m	3.15kg/m

Foundation Block Set
1-242-7700 S

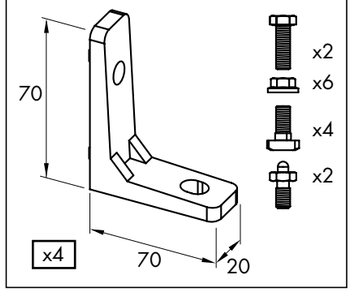
Complete with T-Bolt fixings



Mesh/Panel Retaining Clip
1-243-7003



Fixing Bracket Set
1-243-7001S

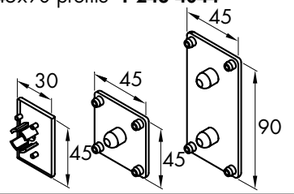


Sponge Retaining Strip
1-242-2510

(Retaining mesh in 45 profiles 10mm T-slot)

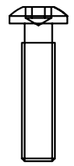
End Caps

Slot profile **1-243-7002**
45x45 profile **1-243-4042**
45x90 profile **1-243-4044**



Connection Screws

Connection screw for slot profiles
1-242-1034 (M8)
Connection screw for
45 & 90 profiles
1-242-1005 (M12)

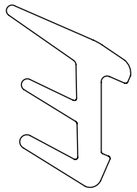


Technical Data

	Foundation Block Set	Fixing Bracket Set
Material	Aluminium	Aluminium
Finish	None	None
Mass	1.9kg	0.3kg/m

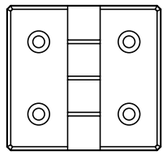
Glazing Strip

See 🕮30



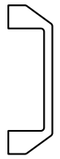
Die Cast Hinges

See 🕮32.
Lift off example 🕮37



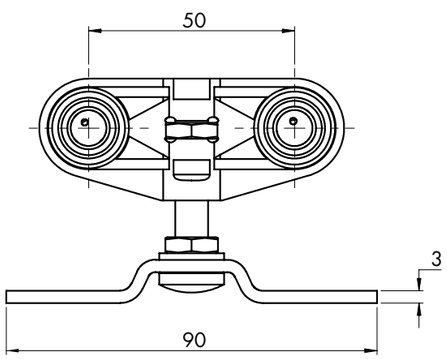
Handle for 45 profiles

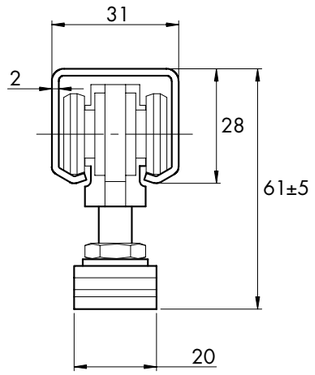
See 🕮33

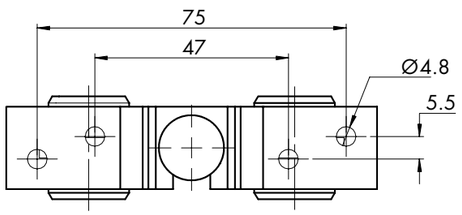


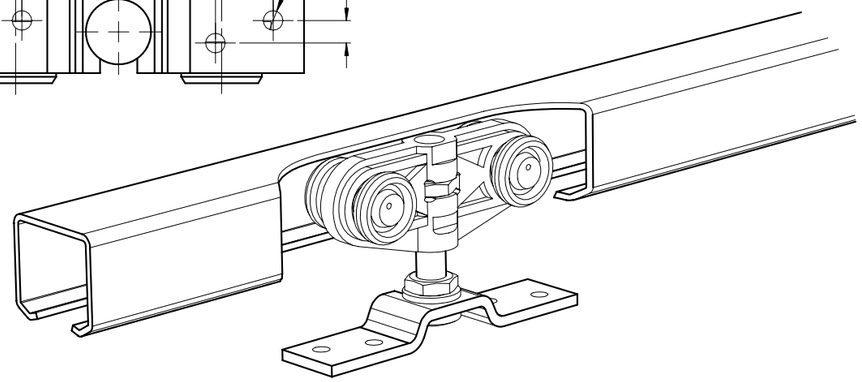
Sliding Door System

10









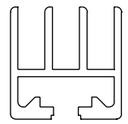
For further details please contact our Technical Sales Team.

For key reference see 🕮1

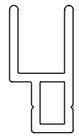
Specialist Sections

Slide Profile
see 🕮42

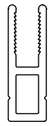
Guide Profile
see 🕮42



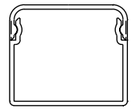
Slot Profile (A)
see 🕮42



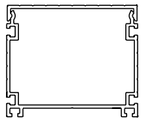
Slot Profile (B)
see 🕮42



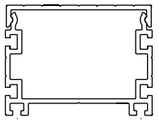
Conduit Duct 40 x 35
see 🕮43



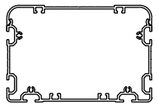
Conduit Duct 80 x 60
see 🕮43



Conduit Duct 100 x 85
see 🕮43



Conduit Duct 180 x 120
see 🕮43



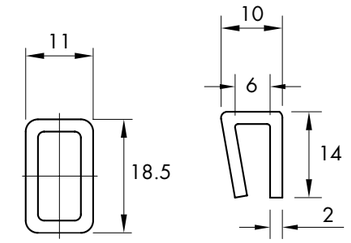
These profiles each have a specialised purpose. They expand and enhance the application of the structural profile sections detailed earlier, and can easily be combined with the structural sections shown previously within this catalogue.

Systems requiring wood, glass or acrylic panelling together with tray and storage bin holding will all benefit from the use of these sections. Additionally, the Conduit Duct Sections are useful to tidily route electrical and pneumatic services. The sliding door system can be customised to individual requirements – please contact our Technical Sales Team for further information.

All specialist profiles are extruded from AI6063-T5 aluminium and clear-coat anodised for a high level of protection. Like the structural sections detailed previously, most of these profiles are available in 5600mm lengths - see the individual profile section for details.

Slide Profiles

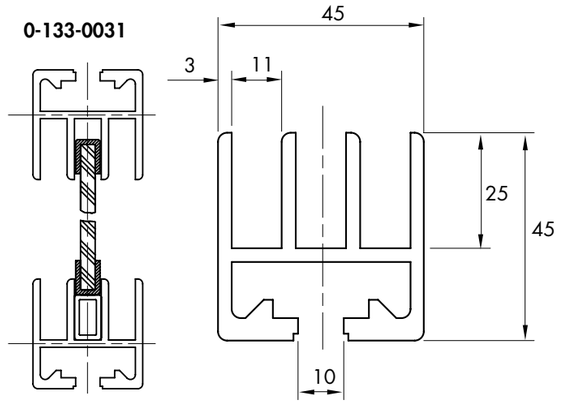
Allows panels to slide inside Guide Profile, supplied in random 3m length.



1-133-0033 **1-133-0032**

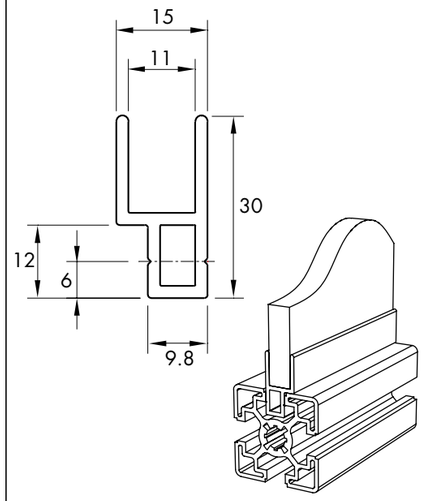
Guide Profiles

0-133-0031



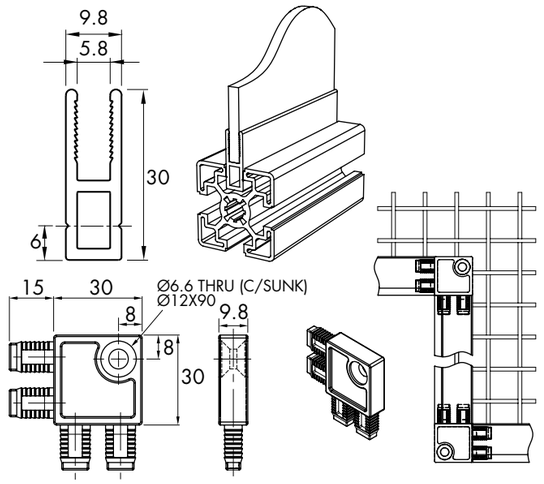
Slot Profile A

1-243-0035



Slot Profile B

0-133-0030



1-243-0032 In Out Corner – Use when assembling a wire cage or sharp panel. Fits into size 10 T-slots.

Technical Data

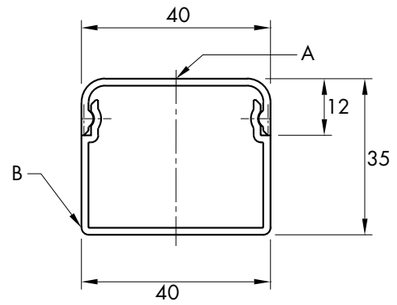
	Guide Profile	Slot Profile A	Slide Profiles	Slot Profile B	In Out Corner
Material	Aluminium	Aluminium	PVC	Aluminium	PVC
Finish	Clear Anodized	Clear Anodized	–	Clear Anodized	–
Max. Length	5600mm	4000mm	3000mm	4000mm	–
Mass	1.9kg/m	0.24kg/m	0.1kg/m	0.37kg/m	–

Conduit Duct

40 x 35

A 0-133-0048
B 0-133-0049

Supplied as a 2 part set. Order both Part No.s to create one complete Conduit Duct.

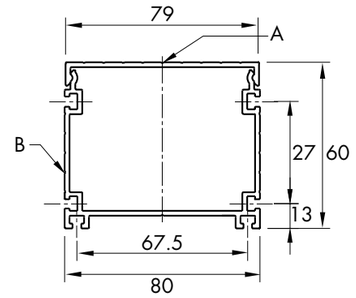


Conduit Duct

80 x 60

A 0-133-8513
B 0-133-8514

Supplied as a 2 part set. Order both Part No.s to create one complete Conduit Duct.
Slots in conduit take a standard M4 nut.

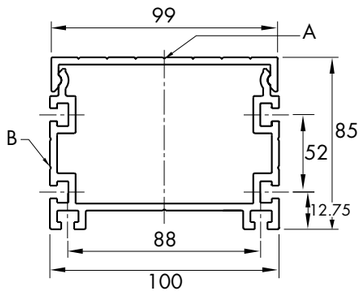


Conduit Duct

100 x 85

A 0-133-8510
B 0-133-8511

Supplied as a 2 part set. Order both Part No.s to create one complete Conduit Duct.
Slots in conduit take a standard M5 nut.

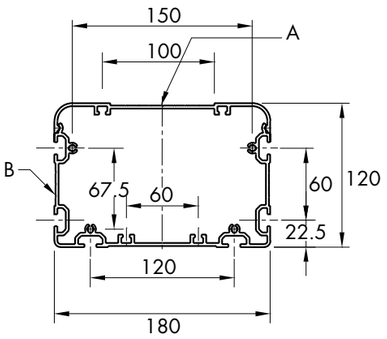


Conduit Duct

180 x 120

A 0-133-0046
B 0-133-0047

Supplied as a 2 part set. Order both Part No.s to create one complete Conduit Duct.



Technical Data

Conduit Duct	40 x 35	80 x 60	100 x 85	180 x 120
Material	AI6063-T5	AI6063-T5	AI6063-T5	AI6063-T5
Finish	Clear Anodized	Clear Anodized	Clear Anodized	Clear Anodized
Max. Length	4000mm	5600mm	5600mm	5600mm
Mass	0.59kg/m	2.4kg/m	2.9kg/m	5.8kg/m

Technical Details

This section of the catalogue contains selection information for both Structural Aluminium Profiles and Profile Connections, plus details of end machining where required.

An important factor in the selection of a structural aluminium profile is the amount of deflection which will be acceptable. This deflection gives rise to a bending stress, which must be less than the maximum allowable figure of 200N/mm². A bending stress greater than this figure is likely to cause the profile to fail. In calculating the correct profile, this maximum bending stress figure should be reduced by a safety factor according to the application characteristics.

Deflection may be calculated either by using Moment of Inertia* and Section Modulus** figures in the formulas relevant to an application, or graphically by following a number of steps using the graph and nomograms provided. It should be noted, however, that the graphical method will give a more approximate deflection figure.

As shown in the Profile Connections section of this catalogue, there are a number of methods available for connecting **MCS** profiles and components together. Each of these methods has a different load-bearing ability and various advantages and disadvantages in terms of ease, speed and flexibility of use. The table on 📖52 will aid the selection of connection methods based on the criteria most relevant to your application.

The end of this section shows details of how to machine **MCS** profiles to accept various connection methods. This machining can be carried out by Hepco on request - contact our Sales Department for full details.

* Moment of Inertia is the ability of a profile to withstand bending.

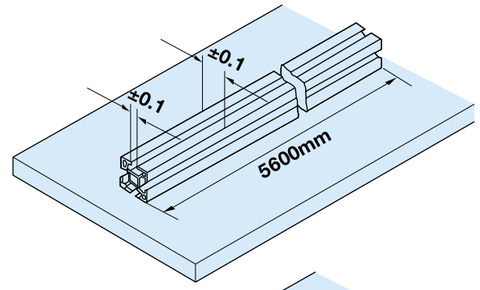
**Section Modulus is a ratio which allows calculation of the stress in a profile created by this bending.

Aluminium Profile

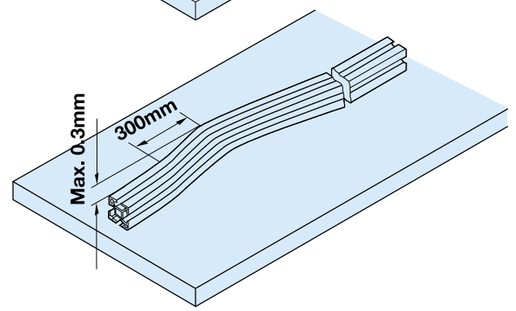
Technical Specification

Material Designation	AlMgSi0.5F25
Material Number	Al6063-T5
Minimum Tensile Strength	250N/mm²
0.2% Proof Stress	160N/mm²
Modulus of Elasticity	70 000N/mm²
Coefficient of Thermal Expansion	(-50...+20°C) = 21.8 x 10^{-6} 1/K (+20...+100°C) = 23.8 x 10^{-6} 1/K
Anodizing Process	E6/EV1 Clear
Thickness of Layer	10 µm
Hardness	300 HV

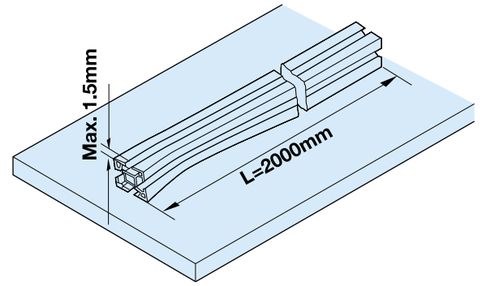
Section faces are parallel within ±0.1mm



Straightness of profile –
maximum deviation of 0.3mm per 300mm



Maximum twist is 1.5mm per 2000mm

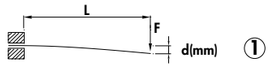


Deflection Calculations

Note: These deflection calculations can be replaced by referring to 'Choosing the Correct MCS system profile for your application' (📖48 and 49), though results achieved graphically will be more approximate.

Deflection of Profile under Static Point Loading:

$$d_1 = \frac{F \times L^3}{3E \times I \times 10^4}$$

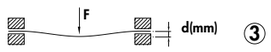


① Cantilever (Rigidly fixed one end)

$$d_2 = \frac{F \times L^3}{48E \times I \times 10^4}$$

② Simply supported

$$d_3 = \frac{F \times L^3}{192E \times I \times 10^4}$$



③ Rigidly fixed both ends

Deflection of profile under its own weight (referring to the diagrams above):

$$d_1 = \frac{9.81 \times P \times L^4}{8E \times I \times 10^7}$$

$$d_2 = 5\,\frac{9.81 \times P \times L^4}{384E \times I \times 10^7}$$

$$d_3 = \frac{9.81 \times P \times L^4}{384E \times I \times 10^7}$$

Maximum allowable bending stress (referring to the diagrams above):

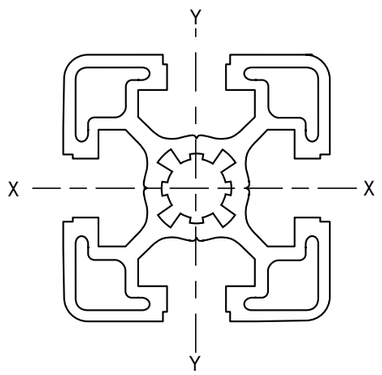
max<200N/mm²

$$s_1 = \frac{F \times L}{W \times 10^3}$$

$$s_2 = \frac{F \times L}{4W \times 10^3}$$

$$s_3 = \frac{F \times L}{8W \times 10^3}$$

E = 70 000N/mm² (modulus of elasticity)
L = Unsupported Length (mm)
F = Load (N)
I = Moment of Inertia (cm⁴)
D = Deflection of profile (mm)
W = Section Modulus (cm³)
P = Mass of profile (kg/m)



Selection Data

Moment of Inertia, Section Modulus and Mass of MCS System Structural Profile Sections

	Moment of Inertia (cm⁴) Ixx	Iyy	Section Modulus (cm³) Wxx	Wyy	Mass (kg/m)
20 x 20	0.65	0.65	0.65	0.65	0.43
20 x 40	4.5	1.2	2.2	1.2	0.76
30 x 30	3.2	3.2	2.1	2.1	0.87
30 x 60	20.9	5.9	6.9	3.9	1.53
30 x 90	64.1	8.5	14.2	5.7	2.19
40 x 40SL	7.8	7.8	3.9	3.9	1.3
40 x 40L	8.4	8.4	4.2	4.2	1.4
40 x 40	10.2	10.2	5.1	5.1	1.7
40 x 1NS	9.9	10.3	4.9	5.15	1.7
40 x 2NS	10.3	10.3	5.1	5.1	1.7
40LR	6.0	6.0	2.6	2.6	1.2
40 x 80L	52.6	14.3	13.15	7.15	2.1
40 x 80	61.4	17.0	15.3	8.5	2.6
40 x 80 – 2NS	55.8	15.2	13.9	7.6	2.35
40 x 80 – 3NS	54.5	14.8	13.6	7.4	2.32
45 x 45SL	10.1	10.1	4.5	4.5	1.4
45 x 45L	10.4	10.4	4.6	4.6	1.5
45 x 45	14.0	14.0	6.2	6.2	1.9
45 x 1NS	13.0	13.5	5.8	6.0	1.9
45 x 2NS	12.9	12.9	5.7	5.7	1.8
45LR	7.2	7.2	2.8	2.8	1.2
45°	9.6	10.4	4.1	4.7	1.5
45 x 60L	24.3	15.3	8.1	6.8	2.1
45 x 60	35.0	22.0	11.6	9.8	2.8
45 x 90L	93.6	22.0	20.8	9.8	3.13
45 x 90	100.9	29.4	22.4	13.0	3.6
45 x 90 – 2NS	96.3	27.6	21.4	12.3	3.4
45 x 90 – 3NS	94.4	27.3	21.0	12.1	3.4
60 x 60L	37.0	37.0	12.3	12.3	2.9
60 x 60	47	47	15.7	15.7	3.6
60 x 90	129.2	59.8	28.7	19.9	4.4
80 x 80SL	97.6	97.6	29.4	24.4	3.6
80 x 80L	110.7	110.7	27.7	27.7	4.1
80 x 80	124.4	124.4	31.1	31.1	4.7
80 x 80 – 2NS	102	100	25.5	25	3.7
80 x 80 – 4NS	104	104	26	26	3.7
80 x 120	362	176	60	44	6.4
80 x 160	893	262	111	65.5	9.1
90 x 90L	193	193	42.9	42.9	5.6
90 x 90	285	285	63	63	9.3

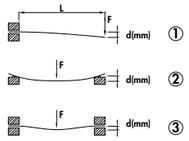
Choosing the correct MCS System Profile for your Application

These instructions will aid the selection of an **MCS** System profile when a point load is applied. Steps A to E refer to paths which should be followed on the diagram opposite. The paths will confirm or deny an estimate of the correct **MCS** System profile for any given application. For calculation of other loading types please refer to the relevant mechanical texts.

The diagram overleaf is a graphic representation of the deflection calculations on 📖46.

It will be necessary to differentiate between the three loading types:

1. Cantilever load (rigidly fixed at one end)
2. Simply supported
3. Rigidly fixed both ends



Procedure for determining the deflection of an MCS System profile when the following details are known:

Applied load, unsupported length, and selected profile size (an estimate will need to be made of the most suitable size at this stage).

A. Find the applied load on the Y1 axis. Draw a horizontal line from that point across the graph.

B. Now find the unsupported length L on the X axis. From this point draw a vertical line upwards through the graph.

C. Find the intended section Moment of Inertia on the Y2 axis (values for MCS System standard sizes are shown in the table to the right of the graph). From this point draw a second horizontal line across the graph.

D. Draw a line through the intersection of the lines A & B, parallel to the diagonal lines running across the graph and intersect this new diagonal with line C.

E. From the point at which line D intersects with line C, draw a vertical line up the graph; this line should cross through the relevant logarithmic scale (load type 1, 2 or 3 above). The deflection for the given loading condition can now be read from the scale.

Steps A to E may also be used in a variety of sequences, depending on the variables shown. See below:

To find the optimum MCS System profile size when maximum deflection, applied load and unsupported length are known, use the following sequence:

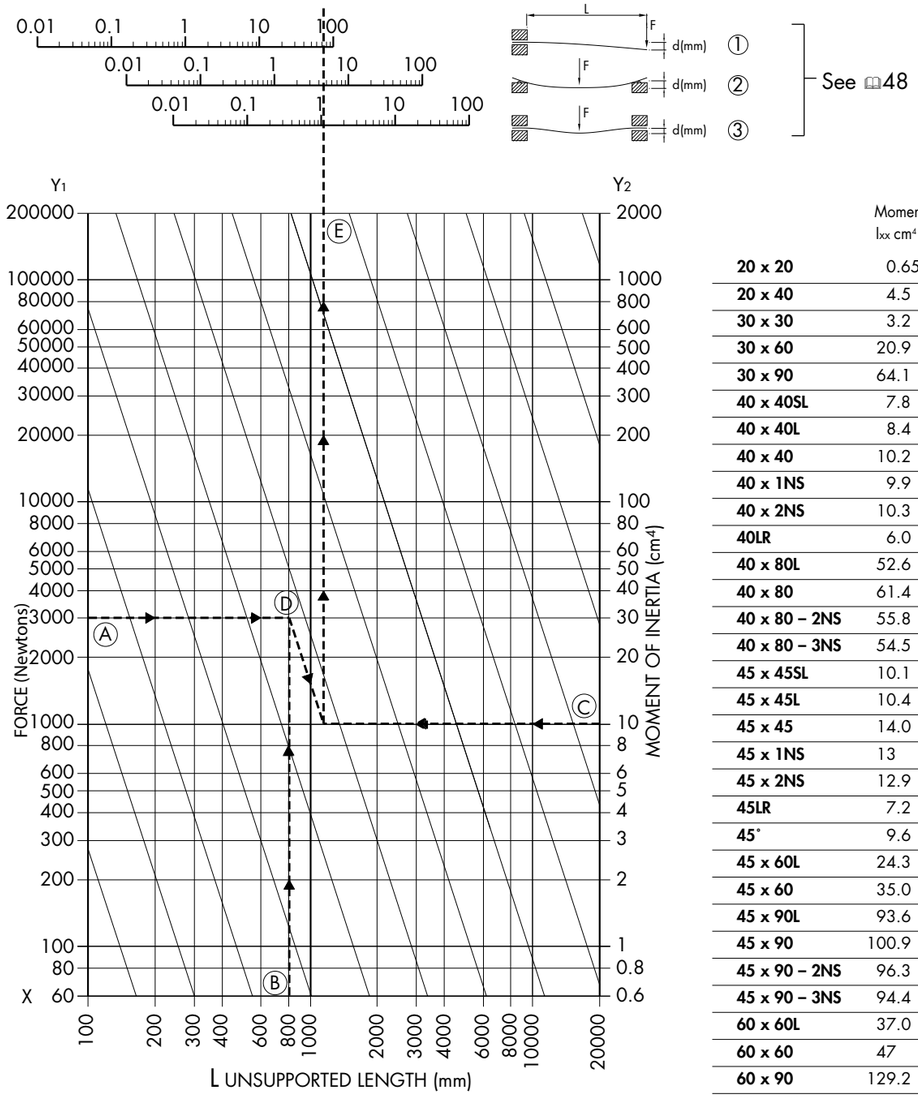
A ‹ B ‹ E ‹ D ‹ C

To find the maximum load for a given profile size, when maximum deflection and unsupported length are known, use:

C ‹ E ‹ B ‹ D ‹ A

To find the maximum unsupported length, for a given profile size, when maximum deflection and applied load are known, use:

C ‹ E ‹ A ‹ D ‹ B

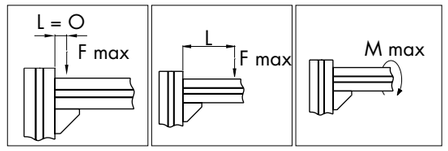


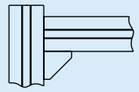
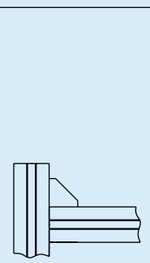
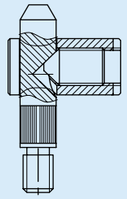
Example

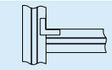
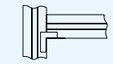
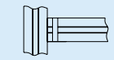
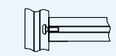
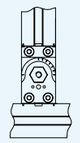
A static point load of 3000N is applied centrally to an **MCS** System profile which is rigidly supported both ends. The total unsupported length is 800mm. It has been estimated that a 45 x 45L profile will suffice for this application. Using the Moment of Inertia figure for this profile, steps A to E are followed in sequence. From nomogram 3 (for rigidly fixed profiles) we can see that deflection will be approximately 1mm, which is deemed to be acceptable for the application.

	Moment of Inertia I_{xx} cm⁴	I_{yy} cm⁴
20 x 20	0.65	0.65
20 x 40	4.5	1.2
30 x 30	3.2	3.2
30 x 60	20.9	5.9
30 x 90	64.1	8.5
40 x 40SL	7.8	7.8
40 x 40L	8.4	8.4
40 x 40	10.2	10.2
40 x 1NS	9.9	10.3
40 x 2NS	10.3	10.3
40LR	6.0	6.0
40 x 80L	52.6	14.3
40 x 80	61.4	17.0
40 x 80 – 2NS	55.8	15.2
40 x 80 – 3NS	54.5	14.8
45 x 45SL	10.1	10.1
45 x 45L	10.4	10.4
45 x 45	14.0	14.0
45 x 1NS	13	13.5
45 x 2NS	12.9	12.9
45LR	7.2	7.2
45˚	9.6	10.4
45 x 60L	24.3	15.3
45 x 60	35.0	22.0
45 x 90L	93.6	22.0
45 x 90	100.9	29.4
45 x 90 – 2NS	96.3	27.6
45 x 90 – 3NS	94.4	27.3
60 x 60L	37.0	37.0
60 x 60	47	47
60 x 90	129.2	59.8
80 x 80SL	97.6	97.6
80 x 80L	110.7	110.7
80 x 80	124.4	124.4
80 x 80 – 2NS	102	100
80 x 80 – 4NS	104	104
80 x 120	362	176
80 x 160	893	262
90 x 90L	193	193
90 x 90	285	285

Profile Connection Carrying Capacity



Profile Connections	Direct Load N	Offset Load (LxF) Nm	Twisting Load Nm	Joint Position
Bracket 17 x 25	400	8	2	
Bracket 20 x 28	1200	25	6	
Bracket 36 x 36	1800	60	10	
Bracket 42 x 43	2000	90	12	
Bracket 42 x 88	4000	180	30	
Bracket 57 x 57	2000	90	12	
Bracket 75 x 75	7000	300	90	
Bracket 88 x 88	7000	350	100	
Angle Bracket	2000	80	12	
Bracket 17 x 25	400	20	2	
Bracket 20 x 28	1200	70	6	
Bracket 36 x 36	1800	145	10	
Bracket 42 x 43	2000	180	12	
Bracket 42 x 88	4000	360	30	
Bracket 57 x 57	2000	180	12	
Bracket 75 x 75	7000	700	90	
Bracket 88 x 88	7000	750	100	
Angle Bracket	2000	120	12	
Flexi T (A)	1500	140		
Flexi T (B)	1500	140		
Flexi Angle	1500	140		
Flexi Mitre	1500	140		
Flexi Straight	1500	140		
Flexi Threaded	1500	140		

Profile Connections	Direct Load N	Offset Load (LxF) Nm	Twisting Load Nm	Joint Position Nm
Interior Bracket	800	80	10	
Interior Bracket	800	8	10	
Bolt Connector 20 x 39L	4000	400	25	
Bolt Connector 20 x 59L	4000	600	50	
Connection Screw M5 x 20	500	20	–	
Connection Screw M8 x 30	1500	80	–	
Connection Screw M12 x 30	3000	200	–	
End Connector Set	3000	200	50	
Knuckle Joint 45 x 45	3000	200	50	
Knuckle Joint 45 x 60	3000	200	50	

Connection Cross-Reference Chart

	Flexi Connector	Angle Brackets	Interior Bracket	Bolt Connector	Connection Screw
Flexibility of Usage	★★★★★	★★★★★	★★	★★	★★★
Adjustability	★★★★★	★★★★★	★★★	★	★
Frame Stiffness	★★★★	★★★★	★★	★★★★★	★★★★★
Vibration Resistance	★★★★	★★	★	★★★★★	★★★★★
Space Requirement	★★★★★	★★	★★★★★	★★★★	★★★★★
Tolerance of Inaccuracy[1]	★★★★★	★★★★★	★★★★	★	★★★★
Cost Effectiveness[2]	★★★★	★★★★★	★★★★	★★	★★★★
Aesthetic Finish	★★★★★	★	★★★★★	★★★★★	★★★★★

★★★★★ = Highest/Best

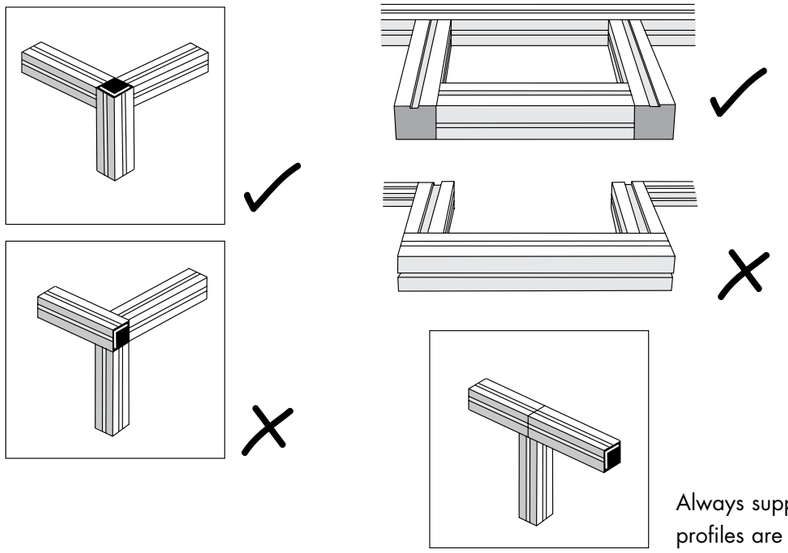
★ = Lowest/Worst

[1] 'Tolerance of Inaccuracy' refers to the time and care needed when building MCS System frames with the various connection methods. For example, Angle Brackets will tolerate low build accuracy, which is quickly and cheaply achieved, whereas Bolt Connectors will not.

[2] 'Cost effectiveness' is a measure not only of component costs, but also takes into account the time required to build various connection methods into MCS System frames.

Assembly Hints

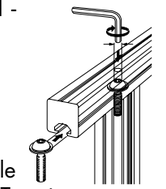
Vertical Profiles should run unbroken from the bottom to the top of a frame, with horizontal profiles assembled to the vertical.



Always support the joint when profiles are butt-fastened.

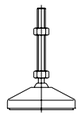
Machining Details

The following machining can be carried out by Hepco on fast turnaround - quotations on request (supply profile part and figure no.)



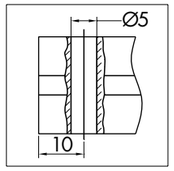
Foot

Profile
End Tapping
Fig 1

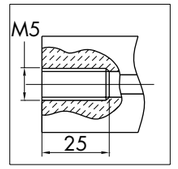


Connection Screw

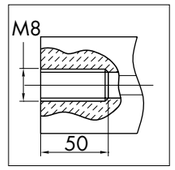
Access Hole
Fig 2



Profile
End Tapping
Fig 3

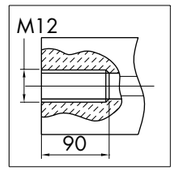


8mm

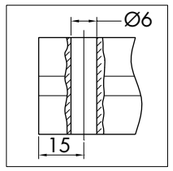


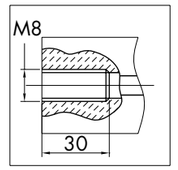
6mm

10mm*

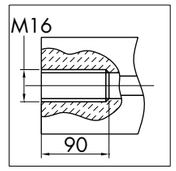


8mm

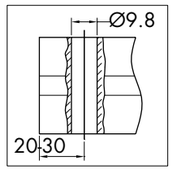


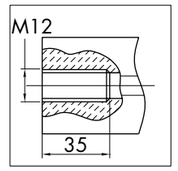


* Exception
0-132-9099

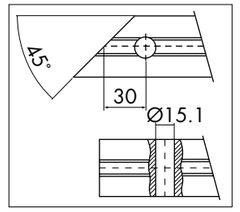


10mm

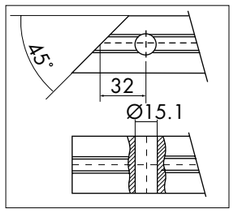




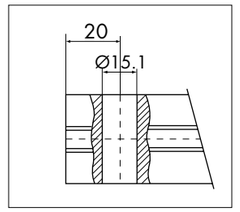
Flexi Fit Connector
All holes through
Fig 5



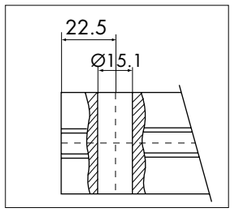
1-242-4554
1-242-4555
1-242-4556



1-242-4553



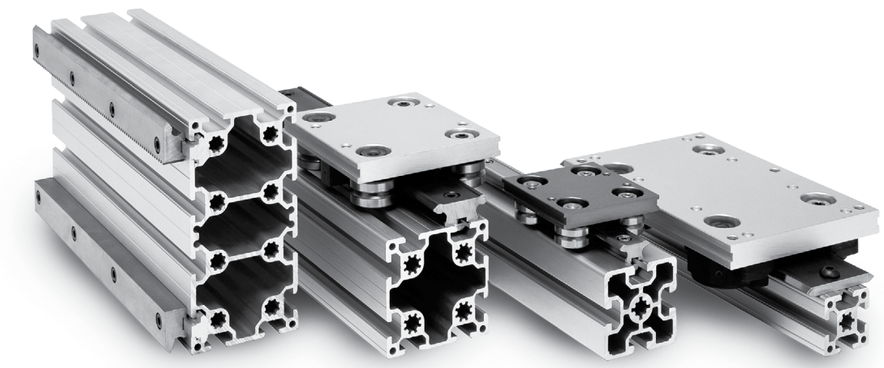
1-242-4549
1-242-4551
1-242-4559



1-242-4550
1-242-4552
1-242-4557
1-242-4558
1-242-4560

MCS Profiles with Linear Guides

Hepco GV3 & SL2 Slide Systems mounted to MCS Profiles



MCS aluminium profiles are available fitted with **Hepco Linear Slide Systems** as complete ready to install units incorporating either carbon chrome **GV3** slides or **SL2** stainless steel slides. Slides with independent fixings are available for customers preferring self assembly.

The proven Hepco 'V' guide principle, with its one piece edge hardened steel slideway, is the ideal choice for motion guidance in frame construction systems.

Hepco Slide Systems are suitable for running with or without lubrication. Higher loads and longer life can be achieved if lubricated and various devices are available for this purpose. Customers may choose from a number of carriage lengths to provide various sizes of platform for mounting. Carriage plates are constructed in aluminium to minimise inertia.

Request the GV3+SL2 catalogue (01884 257000) or download from the HepcoMotion website: www.HepcoMotion.com

Benefits

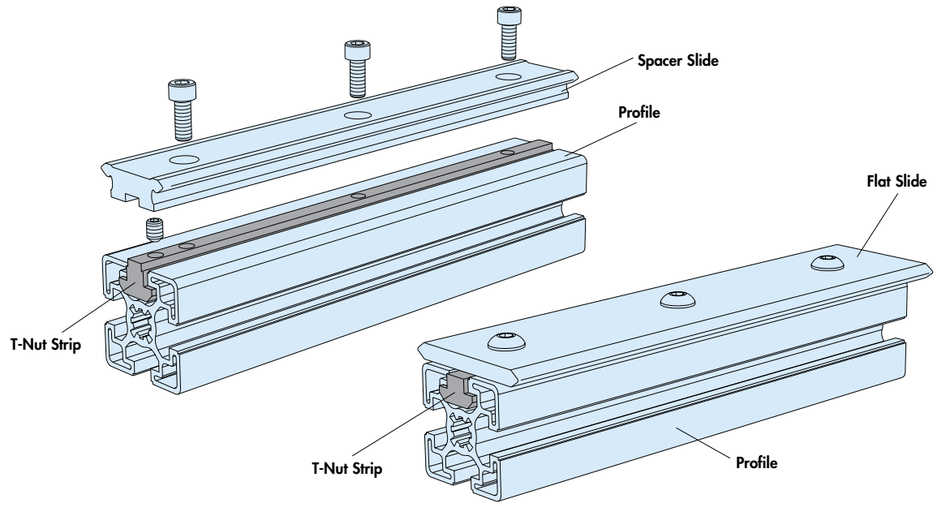
- High load capacity with long life
- Easy to install and adjust
- Accepts load in all directions
- Tolerant of misalignment
- Quiet friction-free motion
- Works in any plane
- Tolerant of debris
- Little or no maintenance

GV3 6 types of carriage cater for most design requirements and 3 grades of slide precision allows selection according to cost/performance requirements.

Numerous sizes and options makes this the most versatile slide system available.

SL2 is available in basic GV3 standard carriage format, with fine ground surface finish of stainless steel components for maximum corrosion resistance. Aluminium carriage with U.S.D.A approved surface treatment provides corrosion resistance better than most stainless steels.

Method of attaching Slides to MCS Profiles



The method of fixing provides location of spacer slide and retention of fixing screw position in the event of disassembly.

Selection Procedure

The information in this catalogue facilitates initial selection of the slide system and provides details of compatibility with MCS profiles. For comprehensive information, full load/life details and some ordering references, it will be necessary to also refer to the GV3 and SL2 catalogues.

Stage 1

Select the type of carriage and linear slide required from the various options in the GV3 catalogue on 📖22 – 25, taking into account the slide and bearing type for the chosen carriage, system dimensions and load requirements. Note the slide types, slide precision grades, bearing types and Lubrication devices generally available for each carriage type.

Stage 2

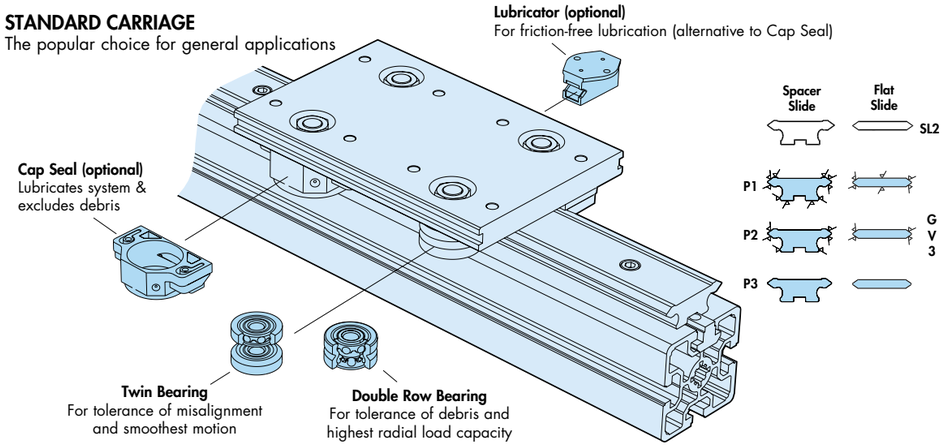
From the compatibility tables on 📖52 & 53 of the GV3 Technical Guide, select an MCS profile to mount the chosen carriage and slide.

Stage 3

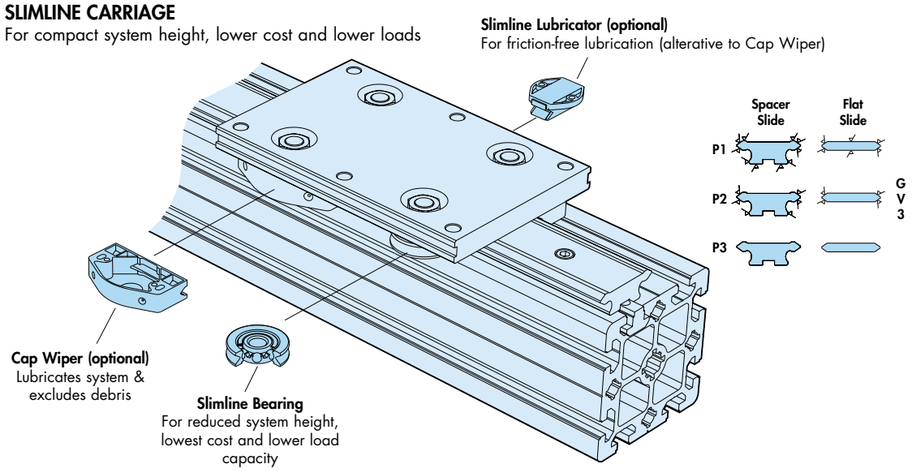
Refer to the ordering details on 📖52 & 53 of the GV3 Technical Guide.

Carriage Types

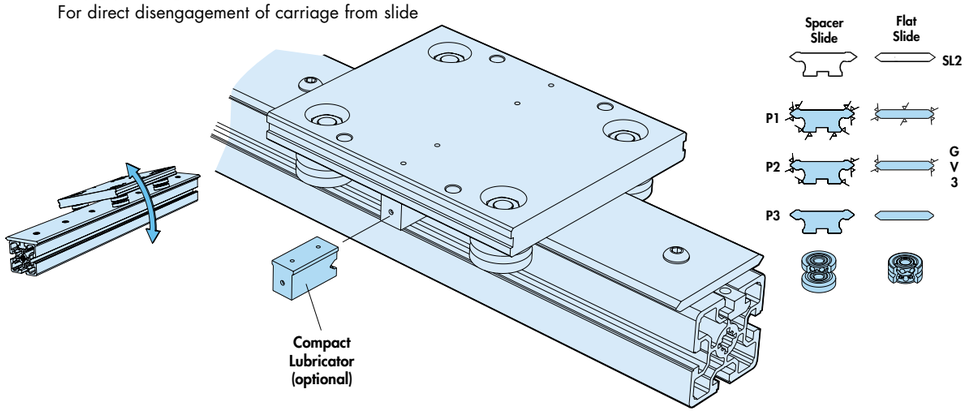
STANDARD CARRIAGE
The popular choice for general applications



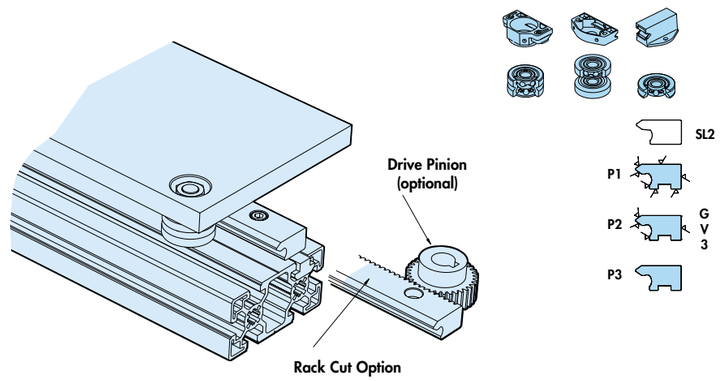
SLIMLINE CARRIAGE
For compact system height, lower cost and lower loads



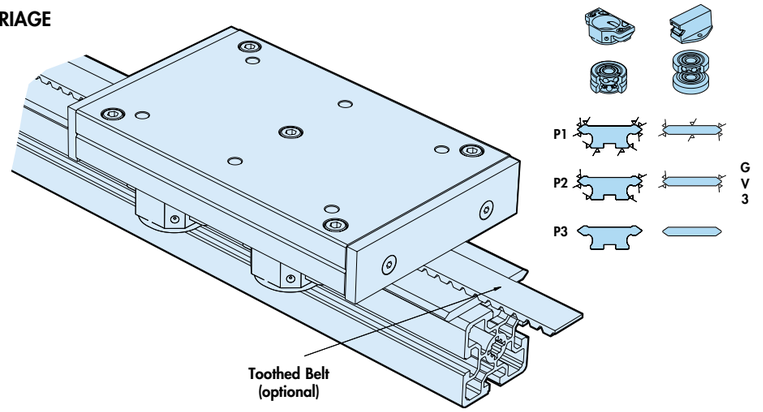
REMOVABLE CARRIAGE
For direct disengagement of carriage from slide



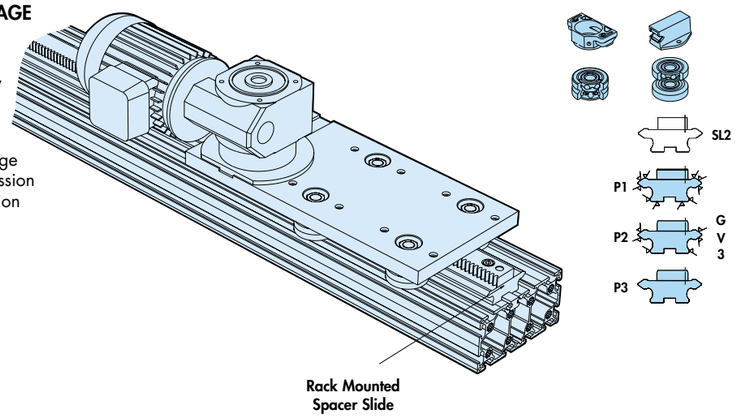
SINGLE EDGE SLIDE CARRIAGE
(customer to construct)
For wide system stability, centre space for drive facility and increased moment load capacity



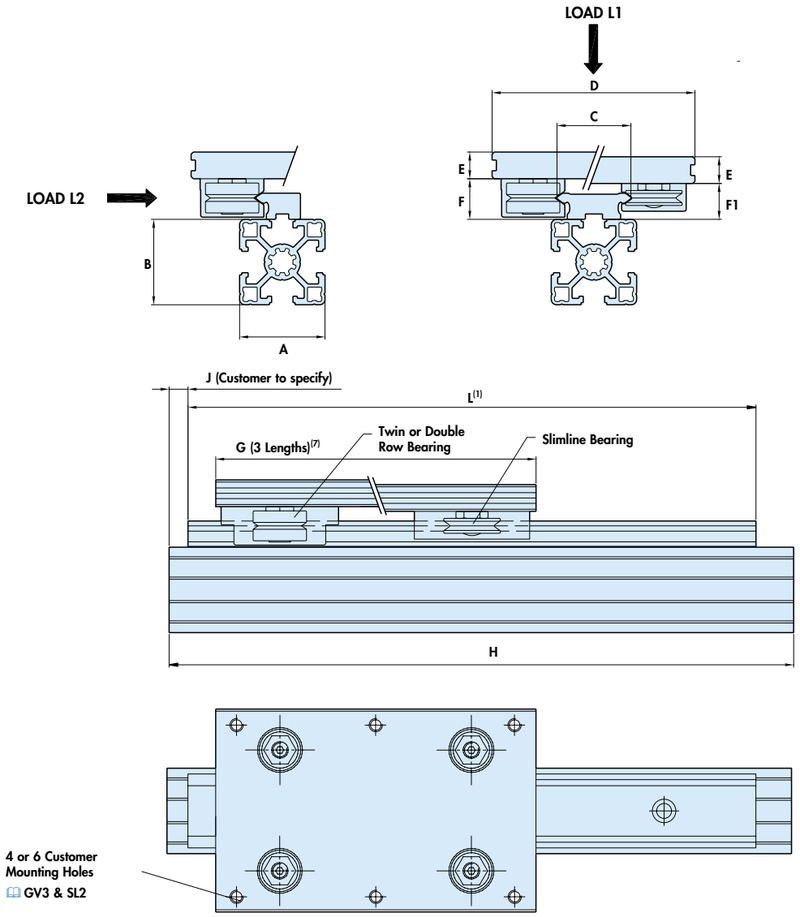
BELT DRIVEN CARRIAGE
Complete with belt tension adjustment facility and removable top plate to aid customising.
For low cost drive facility with high speed capability.



RACK DRIVEN CARRIAGE
Complete with Pinion, Drive Flange with micro-adjustment facility, and Gearbox.
(AC Motor and Speed Controller, optional.)
A complete drive package capable of high transmission forces and good resolution over long lengths



Spacer Slides with MCS Profiles



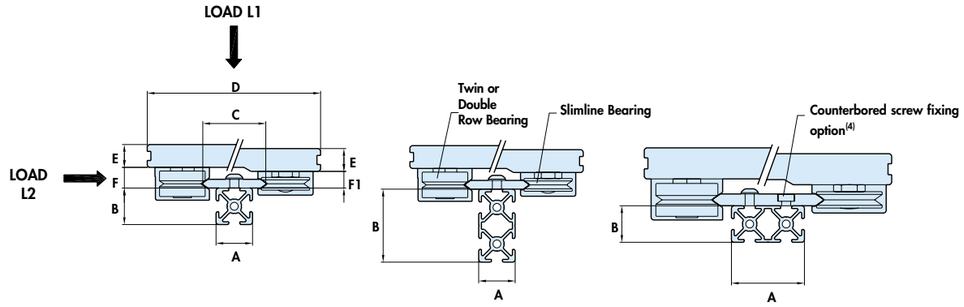
Notes:

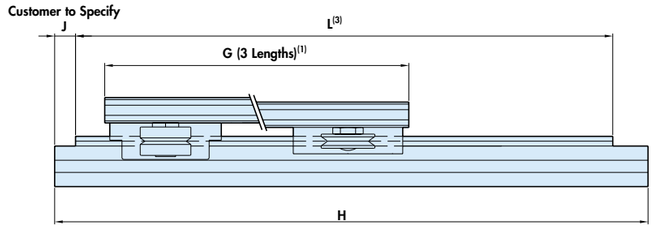
1. Slide lengths are available to customers' requirements up to 3956mm. Unlimited lengths can be achieved by butting.
2. Hepco Rack Driven Carriage not available, but customers may construct their own using GV3 Pinion **GV3📖45**.
3. Carriage Plate to be constructed by customer.
4. Rack Driven Carriage is offset in relation to centre of slide. Length and configuration is to customers requirements **GV3📖49**.
5. All types of carriage with the exception of some sizes of Rack and Belt driven carriages (see table) are available to suit all sizes of double edge GV3 spacer slides.
6. NM76 & NL76 spacer slides can only be attached to the two centre most positions of the 160mm wide face of the 80 x 160 profile.
7. Cap seals/cap wipers are not available for the shortest length carriages. Belt Driven Carriages are available in 2 lengths only **GV3📖46-47**.
8. **Slide hole centres and fixing screw sizes and types may vary from those specified in the GV3 & SL2 catalogues. There may also be additional and redundant holes.**

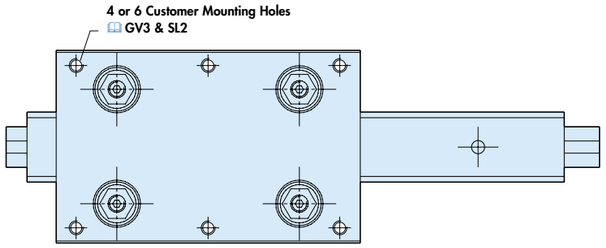
Compatibility Table Spacer Slides with MCS Profiles

		SLIDE PART NUMBER											(5) RACK DRIVE CARRIAGE AVAILABILITY / (5) BELT DRIVE CARRIAGE AVAILABILITY						LOAD (C) LUBRICATED (NEWTONS)					
		GV3		GV3		GV3	SL2		SL2		SL2													
A	B		C		C			C		C					D	E	~F	~F1	G(7)	L1	L2	L1	L2	L1	L2
20	20	NV	20												64	10	15	14	65 100 140	760	1200	500	400	400	480
				NV	20	R									[2]	[2]	15	-	[2]						
20	40	NV	28												72	11	15	14	75 125 175						
				NV	28	R									[2]	[2]	15	-	[2]						
40	20						NVE								[3]	[3]	15	14	[3]						
												SSNVE			[3]	[3]	15	14	[3]						
30	30	NV	28												72	11	15	14	75 125 175	760	1200	500	400	400	480
				NV	28	R									[2]	[2]	15	-	[2]						
30	60						NVE								[3]	[3]	15	14	[3]						
30	90											SSNVE			[3]	[3]	15	14	[3]						
60	30	NS	25												80	11.5	19	17	80 135 180	1600	3000	1280	1200	940	1150
90	30			NS	25	R									[2]	[2]	19	-	[2]						
								SSNS	25						80	11.5	19	-	80 130 180	1600	3000	960	960		
										SSNS	25	R			[2]	[2]	19	-	[2]						
		NS	35											✓	95	12.5	19	17	100 150 200	1600	3000	1280	1200	940	1150
				NS	35	R									[2]	[2]	19	-	[2]						
							NSE								[3]	[3]	19	17	[3]						
												SSNSE			[3]	[3]	19	17	[3]	1600	3000	960	960		
		NM	44											✓	116	14.5	24	21	125 180 225	3600	6000	3200	2800	2000	2400
				NM	44	R							✓		[4]	18	24	-	[4]						
								SSNM	44						116	14.5	24	-	125 175 225	3600	6000	3200	3000		
										SSNM	44	R			[4]	18	24	-	[4]						
							NME								[3]	[3]	24	21	[3]	3600	6000	3200	2800	2000	2400
												SSNME			[3]	[3]	24	21	[3]	3600	6000	3000	3000		
40	40	NV	28												72	11	15	14	75 125 175	760	1200	500	400	400	480
				NV	28	R									[2]	[2]	15	-	[2]						
		NS	25												80	11.5	19	17	80 135 180	1600	3000	1280	1200	940	1150
				NS	25	R									[2]	[2]	19	-	[2]						
								SSNS	25						80	11.5	19	-	80 130 180	1600	3000	960	960		
										SSNS	25	R			[2]	[2]	19	-	[2]						
		NS	35											✓	95	12.5	19	17	100 150 200						
				NS	35	R									[2]	[2]	19	-	[2]						
40	80	NS	50											✓	112	14	19	17	110 160 220	1600	3000	1280	1200	940	1150
40	160			NS	50	R									[2]	[2]	19	-	[2]						
80	40						NSE								[3]	[3]	19	17	[3]						
80	80											SSNSE			[3]	[3]	19	17	[3]	1600	3000	960	960		
80	160	NM	44											✓	116	14.5	24	21	125 180 225	3600	6000	3200	2800	2000	2400
160	80			NM	44	R							✓		[4]	18	24	-	[4]						
								SSNM	44						116	14.5	24	-	125 175 225	3600	6000	3000	3000		
										SSNM	44	R			[4]	18	24	-	[4]						
		NM	60											✓	135	17	24	21	150 200 280						
				NM	60	R							✓		[4]	18	24	-	[4]	3600	6000	3200	2800	2000	2400
							NME								[3]	[3]	24	21	[3]						
												SSNME			[3]	[3]	24	21	[3]	3600	6000	3000	3000		
							NLE								[3]	[3]	38.6	33.4	[3]	10000	10000	7200	6400	4240	5200
												SSNLE			[3]	[3]	38.6	33.4	[3]	8000	10000	6000	6000		
160	80	NM	76(6)											✓	150	18	24	21	170 240 340	3600	6000	3200	2800	2000	2400
				NM	76	R(6)							✓		[4]	18	24	-	[4]						
		NL	76(6)												185	20	38.6	33.4	200 300 400	10000	10000	7200	6400	4240	5200
				NL	76	R(6)							✓		[4]	20	38.6	-	[4]						
								SSNL	76(6)						185	20	38.6	-	200 300 400	8000	10000	6000	6000		
										SSNL	76	R(6)			[4]	20	38.6	-	[4]						
45	45	NV	28												72	11	15	14	75 125 175	760	1200	500	400	400	480
				NV	28	R									[2]	[2]	15	-	[2]						
		NS	25												80	11.5	19	17	80 135 180	1600	3000	1280	1200	940	1150
				NS	25	R									[2]	[2]	19	-	[2]						
								SSNS	25						80	11.5	19	-	80 130 180	1600	3000	960	960		
										SSNS	25	R			[2]	[2]	19	-	[2]						
		NS	35											✓	95	12.5	19	17	100 150 200						
				NS	35	R									[2]	[2]	19	-	[2]						
45	60	NS	50											✓	112	14	19	17	110 160 220	1600	3000	1280	1200	940	1150
45	90			NS	50	R									[2]	[2]	19	-	[2]						
60	45						NSE								[3]	[3]	19	17	[3]						
60	60											SSNSE			[3]	[3]	19	17	[3]	1600	3000	960	960		
90	90	NM	44											✓	116	14.5	24	21	125 180 225	3600	6000	3200	2800	2000	2400
				NM	44	R							✓		[4]	18	24	-	[4]						
								SSNM	44						116	14.5	24	-	125 175 225	3600	6000	3000	3000		
										SSNM	44	R			[4]	18	24	-	[4]						
		NM	60											✓	135	17	24	21	150 200 280						
				NM	60	R							✓		[4]	18	24	-	[4]	3600	6000	3200	2800	2000	2400
							NME								[3]	[3]	24	21	[3]						
												SSNME			[3]	[3]	24	21	[3]	3600	6000	3000	3000		
							NLE								[3]	[3]	38.6	33.4	[3]	10000	10000	7200	6400	4240	5200
												SSNLE			[3]	[3]	38.6	33.4	[3]	8000	10000	6000	6000		
60	45	NM	76											✓	150	18	24	21	170 240 340	3600	6000	3200	2800	2000	2400
60	60			NM	76	R							✓		[4]	18	24	-	[4]						
		NL	76												185	20	38.6	33.4	200 300 400	10000	10000	7200	6400	4240	5200
				NL	76	R							✓		[4]	20	38.6	-	[4]						
								SSNL	76						185	20	38.6	-	200 300 400	8000	10000	6000	6000		
										SSNL	76	R			[4]	20	38.6	-	[4]						

Flat Slides with MCS Profiles







Notes:

1. Cap seals/cap wipers are not available for the shortest length carriages. Belt Driven Carriages are available in 2 lengths only **GV3 46-47**.
2. Standard, Slimline and Removable Carriages are available to suit all sizes of GV3 Flat slides. Some sizes of slide are also available to suit Belt Driven Carriages (see table). On special application, Flat Slides can be fitted with mounted Rack and supplied with Rack Driven Carriages.
3. Slide lengths are available to customers' requirements up to 3956mm. Unlimited lengths can be achieved by butting.
4. The counterbored screw fixing option with low head socket cap screws DIN 6912 will be supplied for double row slide fixing when used with slimline carriage.
5. **Slide hole centres and fixing screw sizes and types may vary from those specified in the GV3 & SL2 catalogues. There may also be additional and redundant holes.**

Compatibility Table Flat Slides with MCS Profiles

SLIDE PART NUMBER																		BELT DRIVEN CARRIAGE (2)	LOAD (C) LUBRICATED (NEWTONS)					
		GV3		SL2																				
A	B		C		C	D	E	~F	~F1	G(1)									L1	L2	L1	L2	L1	L2
20 20	20 40	V	28			72	11	9	7.9	75	125	175	✓	P3	P3	✓	P3	✓		760	1200	500	400	400	480
		S	35			95	12.5	11.4	9.2	100	150	200	✓	✓	✓	✓	✓	✓	✓	1600	3000	1280	1200	940	1150
				SSS	35	95	12.5	11.4	-	100	150	200	✓	✓	✓	-	-	-		1600	3000	960	960	-	-
30 30 30	30 60 90	M	44			116	14.5	14.6	11.4	125	190	225	✓	✓	P3	✓	✓	✓	✓	3600	6000	3280	2800	800	800
				SSM	44	116	14.5	14.6	-	125	175	225	✓	✓	×	-	-	-		3600	6000	3000	3000	-	-
		S	50			112	14	11.4	9.2	110	160	220	✓	✓	✓	✓	✓	✓	✓	1600	3000	1280	1200	940	1150
				SSS	50	112	14	11.4	-	110	160	220	✓	✓	✓	-	-	-		1600	3000	960	960	-	-
60	30	M	76			150	18	14.6	11.4	170	240	340	✓	✓	✓	✓	✓	✓	✓	3600	6000	3200	2800	2000	2400
				SSM	76	150	18	14.6	-	170	240	340	✓	✓	✓	-	-	-		3600	6000	3000	3000	-	-
90	30	L	120			240	24	23.6	18.9	240	360	480	P3	P3	P3	P3	P3	P3		10000	10000	7200	6400	4240	5200
40	20	S	50			112	14	11.4	9.2	110	160	220	✓	✓	P3	✓	P3	✓	✓	1600	3000	1280	1200	940	1150
				SSS	50	112	14	11.4	-	110	160	220	✓	✓	×	-	-	-		1600	3000	960	960	-	-
40 40	40 80	S	50			112	14	11.4	9.2	110	160	220	✓	✓	P3	✓	P3	✓	✓	1600	3000	1280	1200	940	1150
				SSS	50	112	14	11.4	-	110	160	220	✓	✓	×	-	-	-		1600	3000	960	960	-	-
		M	60			135	17	14.6	11.4	150	200	280	✓	✓	✓	✓	✓	✓	✓	3600	6000	3200	2800	2000	2400
				SSM	60	135	17	14.6	-	150	200	280	✓	✓	✓	-	-	-		3600	6000	3000	3000	-	-
		M	76			150	18	14.6	11.4	170	240	340	✓	✓	✓	✓	✓	✓	✓	3600	6000	3200	2800	2000	2400
				SSM	76	150	18	14.6	-	170	240	340	✓	✓	✓	-	-	-		3600	6000	3000	3000	-	-
		L	76			185	20	23.6	18.9	200	300	400	✓	✓	✓	✓	✓	✓		10000	10000	7200	6400	4240	5200
				SSL	76	185	20	23.6	-	200	300	400	✓	✓	✓	-	-	-		8000	10000	6000	6000	-	-
45 45 45	45 60 90	M	60			135	17	14.6	11.4	150	200	280	✓	✓	✓	✓	✓	✓	✓	3600	6000	3200	2800	2000	2400
				SSM	60	135	17	14.6	-	150	200	280	✓	✓	✓	-	-	-		3600	6000	3000	3000	-	-
		M	76			150	18	14.6	11.4	170	240	340	✓	✓	✓	✓	✓	✓	✓	3600	6000	3200	2800	2000	2400
				SSM	76	150	18	14.6	-	170	240	340	✓	✓	✓	-	-	-		3600	6000	3000	3000	-	-
		L	76			185	20	23.6	18.9	200	300	400	✓	✓	✓	✓	✓	✓		10000	10000	7200	6400	4240	5200
				SSL	76	185	20	23.6	-	200	300	400	✓	✓	✓	-	-	-		8000	10000	6000	6000	-	-
60 60	45 60	M	76			150	18	14.6	11.4	170	240	340	✓	✓	✓	✓	✓	✓	✓	3600	6000	3200	2800	2000	2400
				SSM	76	150	18	14.6	-	170	240	340	✓	✓	✓	-	-	-		3600	6000	3000	3000	-	-
		L	76			185	20	23.6	18.9	200	300	400	P3	P3	P3	P3	P3	P3		10000	10000	7200	6400	4240	5200
				SSL	76	185	20	23.6	-	200	300	400	✓	✓	✓	-	-	-		8000	10000	6000	6000	-	-
80 80 80 90 90	40 80 160 45 90	L	120			240	24	23.6	18.9	240	360	480	P3	P3	P3	P3	P3	P3		10000	10000	7200	6400	4240	5200

✓ FITS WITH ALL GRADES OF SLIDES
P3 FITS WITH P3 GRADE SLIDE ONLY
× WILL NOT FIT
– NOT APPLICABLE

Ordering Details

8081 - H2200 - J50 - 2C / NM44 - L806 - P2 - (R) - (C) / 1X - AU4434 -L180 - CS - DR

- Counterbored hole option for flush surface on GV3 Flat Slides.
- Rack mounted to GV3 Spacer Slide (GV3 Flat slide mounting to special order).
- Slide precision grade. Options are P1, P2, & P3. Leave blank for SL2 slide.
- Slide length 'L'.
- Slide section part number.
- Slide mounting position number. 'C' for clockwise or 'A' for anti-clockwise facing of Single edge slide (leave blank for self assembly or if not relevant).
- Slide position 'J' (leave blank for self assembly).
- Profile length 'H' (leave blank if profile not required).
- Profile size. (Using profile part no. e.g. **0-132-8081**)

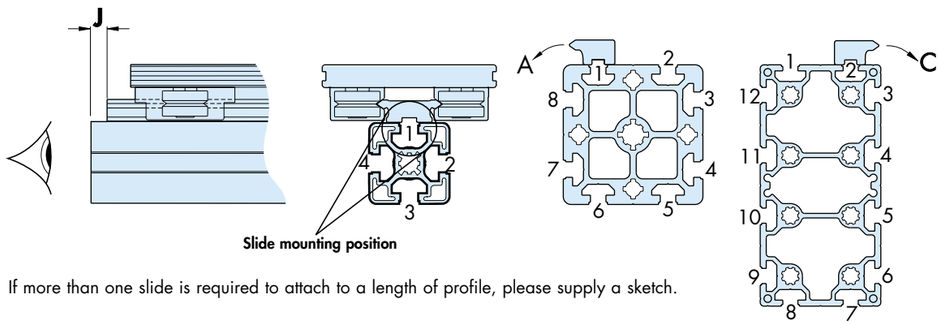
1x - AU4434 - L180 - CS - DR = Carriage reference (example only). Please specify from GV3 or SL2 catalogue according to following procedure:

Carriage identification (GV3):

1. Refer to tables on relevant Carriage page of GV3 catalogue (Standard Carriage, Removable Carriage, Slimline Carrage, Belt Driven Carriage or Rack Driven Carriage).
   N.B The Single Edge Slide Carriage is for construction by the customer, therefore individual Bearings and Lubrication Devices etc. must be selected from the GV3 catalogue.
2. Read off the basic carriage part number in column 1, adjacent to the chosen slide part number in column 2.
3. Determine the full carriage part number to include the options required by following the Ordering Details below the table.

Carriage Identification (SL2):

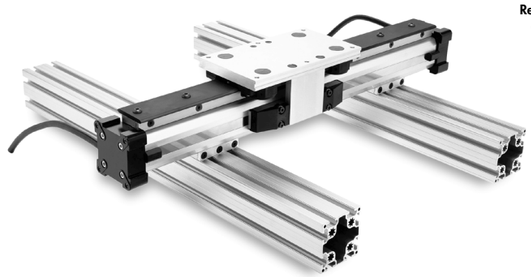
1. Refer to the table on Assembled Systems (see 📖9 of the SL2 catalogue).
2. Identify the basic carriage part number in column 1 according to the chosen slide part number. The slide part number is the last five letters / numbers of the carriage part number.
3. Determine the full carriage part number to include the options required by following the Ordering Details below the table.



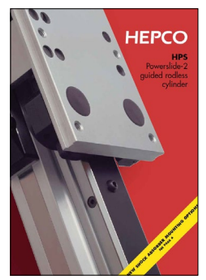
If more than one slide is required to attach to a length of profile, please supply a sketch.

MCS Profiles with Linear Guides

Hepco Powerslide 2 supported on MCS Profile Beams



Request the MCS/HPS catalogue & Mounting document (01884 257000) or download from the HepcoMotion website: www.HepcoMotion.com



High-speed, maintenance free performance are the key benefits of **Hepco's Powerslide 2**, with ex-stock availability and standard lengths up to 6m.

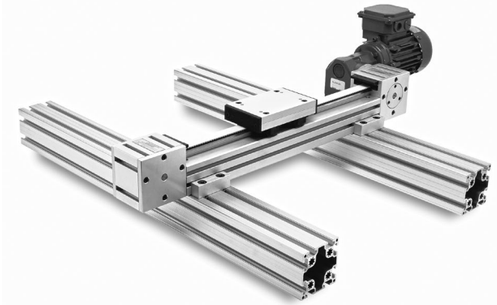
The **HPS** range of pneumatic linear systems is based around an extruded aluminium cylinder ideal for mounting to **MCS**. With the optional addition of **Hepco SH** shock absorbers high speed, long life systems can be achieved.

Mounting to **MCS** profiles whether by the end caps or tailored connectors could not be easier. For further details please contact Hepco's Technical Sales Team.

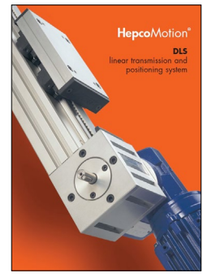
Benefits

- Self supporting • Long life • 10 size combinations • High load • Easy installation
- Corrosion resistant options

Hepco Driven Linear System supported on MCS profile beams



Request the MCS/DLS catalogue & Mounting document (01884 257000) or download from the HepcoMotion website: www.HepcoMotion.com



New fixing options are available in the **MCS** range allowing specifiers to take advantage of the ready to mount high speed Driven Linear System.

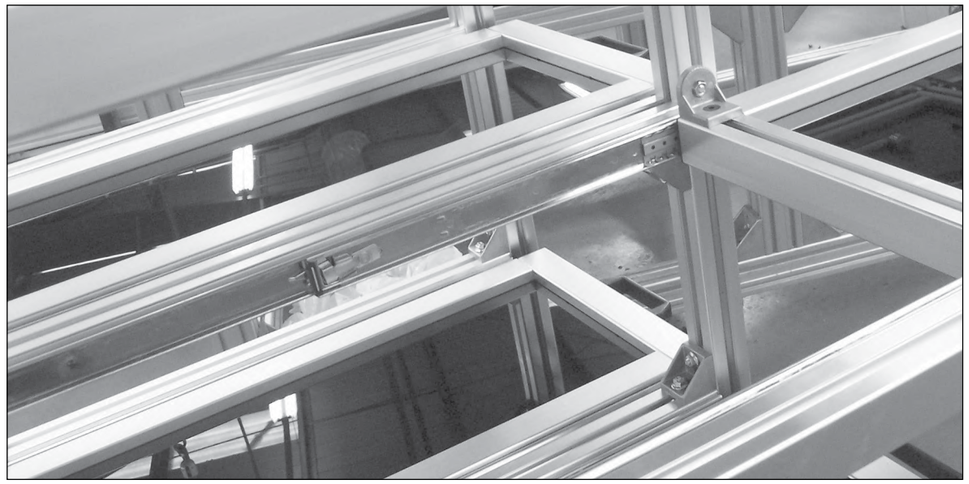
Ideal for simple linear or multi-axis systems, **DLS** incorporates all of the Hepco V-guide benefits of zero maintenance and environmental tolerance, but combines them with a robust belt drive producing speeds of up to 6m/s and standard lengths up to 8m.

A range of mounting options are available to enable easy connection to **MCS** profiles which, due to their interchangeability with other profiles, makes this the ideal system for retro-fitting machine elements.

Benefits

- Long system life • Low maintenance • High speed • Quiet operation
- Easy secondary machining • Robust AC motor system

Hepco HTS Telescopic Ball Bearing Slides mounted to MCS profiles



Hepco HTS telescopic ball bearing slides are manufactured under strict quality control conditions backed by ISO 9002 certification using the highest quality materials and up to date manufacturing processes. These high quality slides are quiet, rigid under extended loads and due to the superior construction offer excellent smooth motion and low friction characteristics across the complete travel length.

Hepco's Telescopic slides are an ideal partner with **MCS** aluminium profile sections enabling simple yet rigid drawers, printer tables, circuit board packs etc to be designed into any Hepco **MCS** frame available. Mounting of the slides is simple utilising Hepco's range of anti rotation T-Nuts.

Features and Benefits

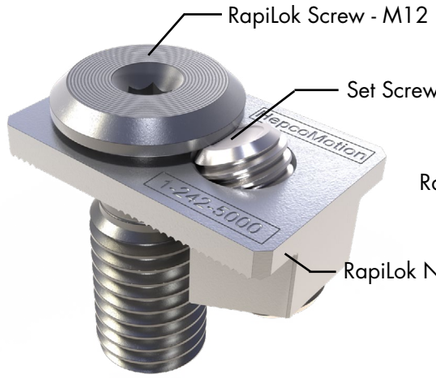
- 5 basic ranges from light to heavy duty up to 280kg/pair
- Range of options available, lock out, lever disconnect etc.
- Standard ranges available from stock
- Rigid member ball bearing slide structure maintains smooth motion over entire travel
- High static capacity from rigid structure with minimal deflection
- Quality cold rolled steel members with slotted mounting holes for quick installation
- Exceptional accuracy from precision pressed slide rails
- 3 member slide series for higher capacity in narrow space

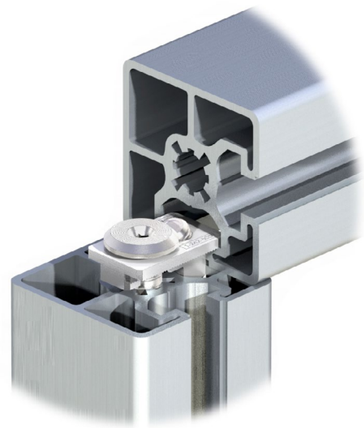
Request the HTS catalogue (01884 257000) or download from the HepcoMotion website: www.HepcoMotion.com

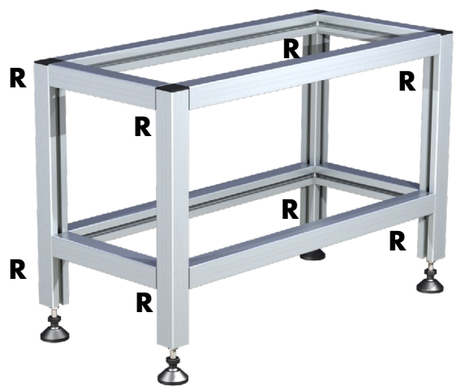
MCS Rapilok

HepcoMotion® RapiLok is a new style of profile connector for use with the MCS aluminium frame and machine construction system, and provides a **quick** and **rigid** joint. Designed for use with Hepco MCS slot 10 profiles*1, to secure two sections of profile mounted at right angles, RapiLok has significant benefits over alternative profile connections.
RapiLok is a **no-drill** connector, profiles require **no machining**, and only one profile needs to be tapped, significantly **reducing costs**, and avoids fiddly assembly associated with brackets, **reducing assembly time**.
The design of RapiLok ensures that the resulting joint is **anti-rotation**, and therefore suitable for twisting loads. Assembly is carried out using a single hexagon key, and takes a matter of **seconds**. Serrated faces on the underside of the nut, grip onto the smooth faces on the MCS profiles, making it the ideal choice in applications where additional loads are applied.
RapiLok is easily **adjustable**, can be used in multiple orientations, and leaves profile T-slots free for panels etc. Visit www.HepcoMotion.com/MCSdatauk and select RapiLok to view a product demo or contact our sales department for a RapiLok sample.

RapiLok

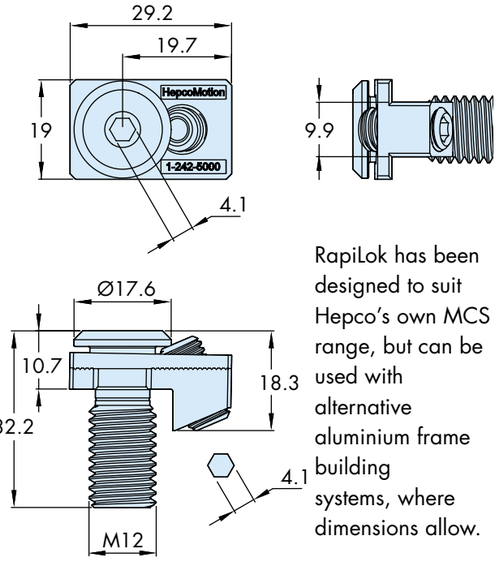






Typical joint detail **R** using RapiLok

Data and Dimensions

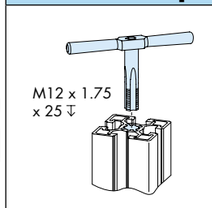


RapiLok has been designed to suit Hepco's own MCS range, but can be used with alternative aluminium frame building systems, where dimensions allow.

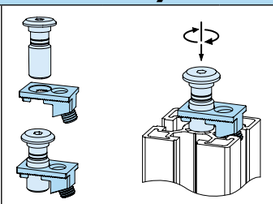
A MCS profile joint constructed with RapiLok has similar capacity compared to other connections, this plus the benefit of anti-rotation makes RapiLok suitable for many applications. As only one profile needs to be tapped, there is no additional machining required making the assembly process quicker and more cost effective.

RapiLok is also adjustable, therefore if requirements change the nut can be loosened, re-positioned and tightened in a matter of seconds.

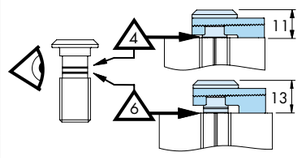
RapiLok Assembly



Tap one end of the MCS profile M12 x 1.75 x 25mm deep.

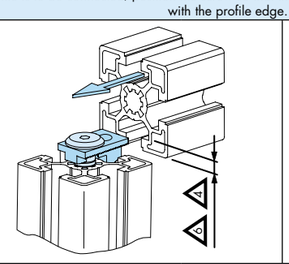


Note the orientation of the nut, and assemble the screw into the nut. Screw into the tapped profile.

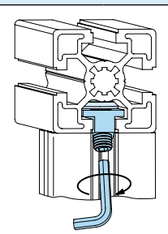


MCS Size	△
40x40, 40,80, 80x80 ...	4
45x45, 45x90, 90x90L ...	6
45x60, 60x60, 90x90 ...	X

The RapiLok screw has two setting marks, as shown above. The first line is for size 40 & 80 family profiles, and the second for 45 & 90 family profiles. Depending on which size profile is to be connected, position the screw so that the corresponding mark is lined up with the profile edge.



Slide the profile over the nut, in the direction shown.



Position the profile and tighten the M8 set screw to 18Nm max.

Rapilok Capacity

RapiLok Mounting Direction	Load Type	Direct N (L=0, F max)	Offset Nm (L, F max)	Twisting Nm (M max)
	Working	1410	114	9
	Max	2170	176	14
	Working	1100	Not Recommended	10
	Max	1690		15

Ordering details

RapiLok fasteners are supplied in packs of 10, complete with a set of assembly instructions. Please order using part number;

1-242-5000-10 -
10 off RapiLok fasteners

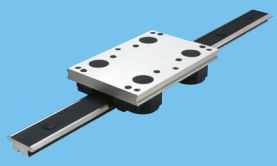
Notes:

1. The RapiLok fastener is not compatible with the following MCS slot 10 profiles; 45x60 (0-132-4560 & 0-132-4561); 60x60 (0-132-6060, 0-132-6061 & 0-132-6090); 90x90 (0-132-9090) and 45° (1-242-4700).

Index

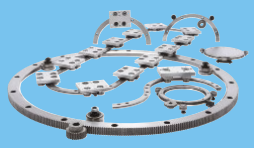
HepcoMotion®

ADVANCED LINEAR SOLUTIONS

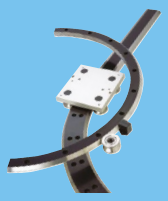


GV3
Linear Guidance and Transmission System

HDS2
Heavy Duty Slide System

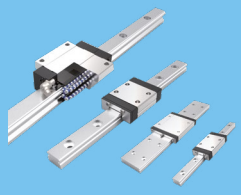


PRT2
Ring Slides and Track System

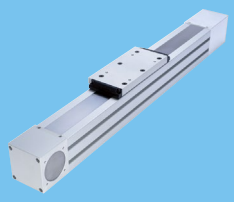


HDRT
Heavy Duty Ring Slides and Track System

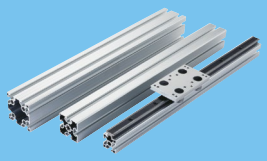
SL2
Stainless Steel Based Slide System



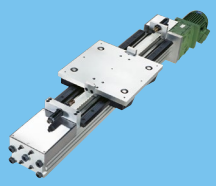
HLG
Hepco Ball Guides



SBD
Sealed Belt Drive

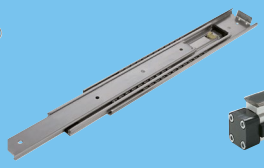


MCS
Aluminium Frame and Machine Construction System

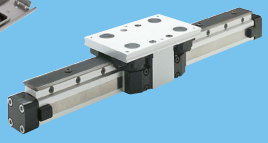


HDLS
Heavy Duty Driven Linear System

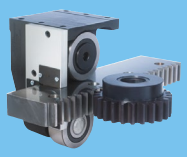
DLS
Linear Transmission and Positioning System



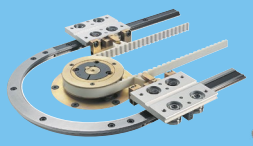
HTS
Telescopic Ball Bearing Slides



HPS
Powerslide-2 Guided Rodless Cylinder



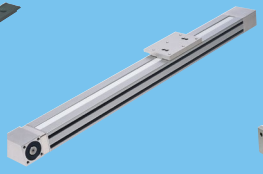
MHD
Heavy Duty Track Roller Guidance System



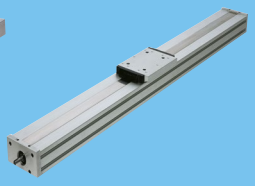
DTS
Driven Track System

Hepco Ball Screws

Simple Select®
Vee Slide Linear Guidance Systems

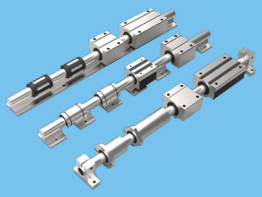


PDU2
Profile Driven Unit



PSD120
Profile Screw Driven Unit

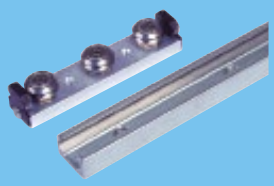
Shaft
Precision Steel and Aluminium Shaft



Ball Bushings
Linear Bearing System

DUALVEE®
Single Edge Slide System

LoPro®
Aluminium Based Slide System



UtiliTrak®
Lightweight U Channel Guideway

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