

## **Contents**

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Aluminium Profile Technical Specification

**Deflection Calculations** 

Moment of Inertia, Section Modulus and Mass of MCS System

Choosing the correct MCS System Profile for your application

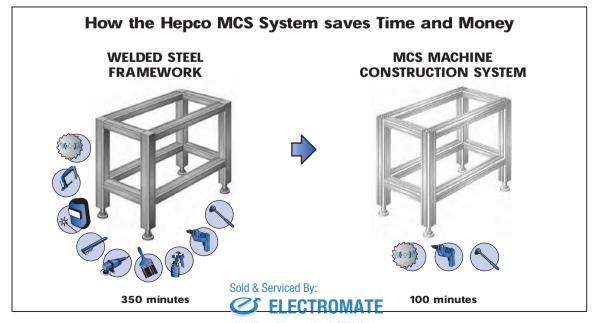
Profile Connection Carrying Capacity

Connection Cross Reference Chart

**Assembly Hints** 

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### Introduction

### Introduction

The **HepcoMotion 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 page 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 Al6063-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

### Symbols used in this Catalogue



Size of profile T-Slot – specify connecting components to suit



Profile End Tapping Size



Components compatible with other systems. Contact Hepco for details.

Sold & Serviced By:

The full range of HepcoMotion production be seen and Marketsite:

# **Application Examples**

## 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



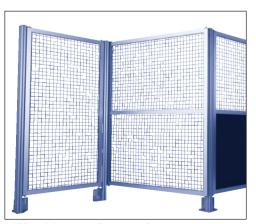
**Exhibition Units** 



Special Purpose Machines



Access Frameworks

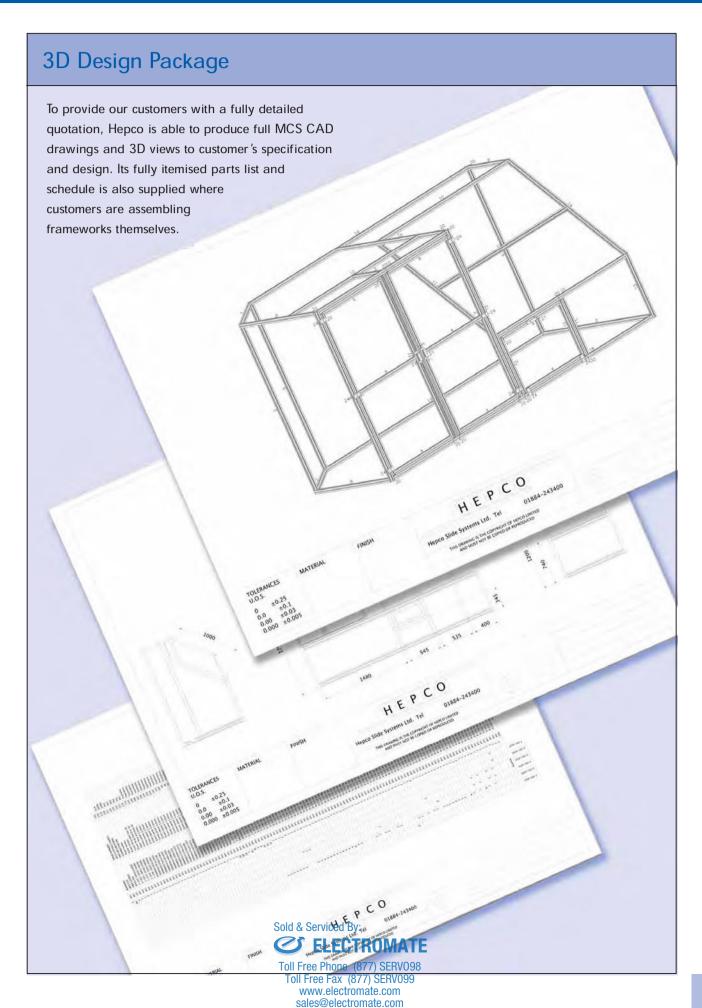


MFS - Machine Fencing System

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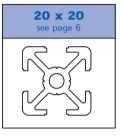


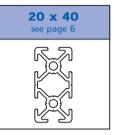
# **CAD Frame Drawings**

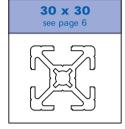


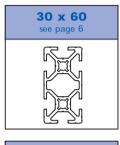
### **Aluminium Profiles**

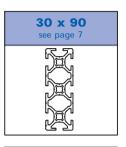
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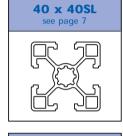


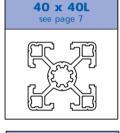


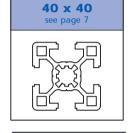


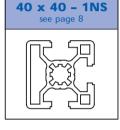


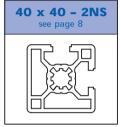






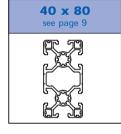


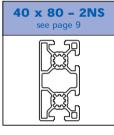


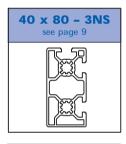


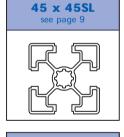


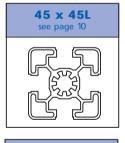


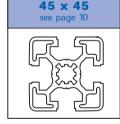


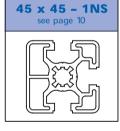






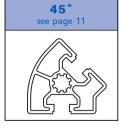


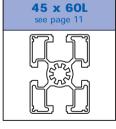


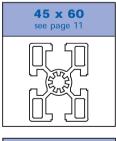


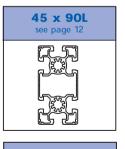


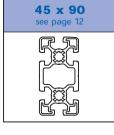


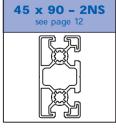


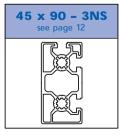


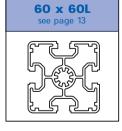


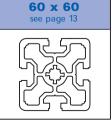








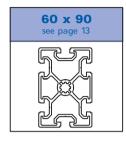


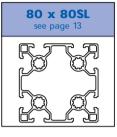


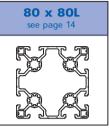
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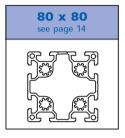


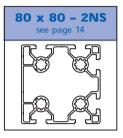
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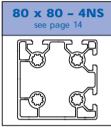


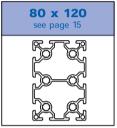


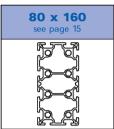


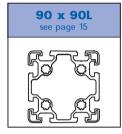


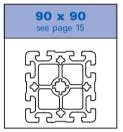












### See specialist section page 41 for other profiles.

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.

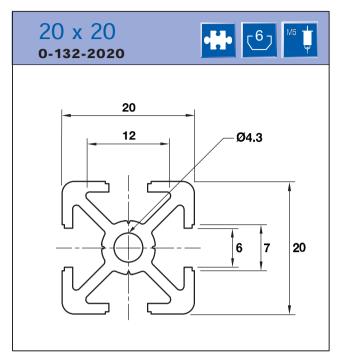
Profiles can also be specially powder coated in a range of colours.

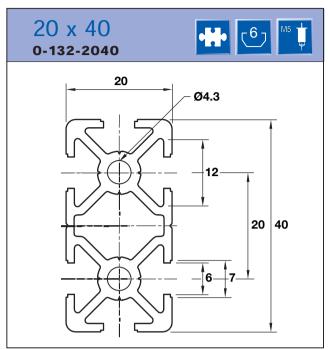
All profiles include T-slots along their length, allowing simple insertion of T-nuts and T-bolts to attach connection brackets or accessories.

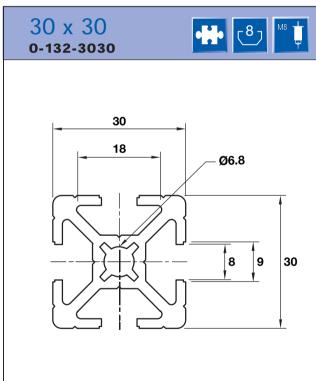
Most sizes of structural profile are available as random 5600mm lengths, with the exception of the 20x20, 20x40 and 90x90 sizes 4000mm. A fast cutting, drilling, machining and tapping service is provided by Hepco, which also includes complete frame assembly to customer's drawings. See page 53 for end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

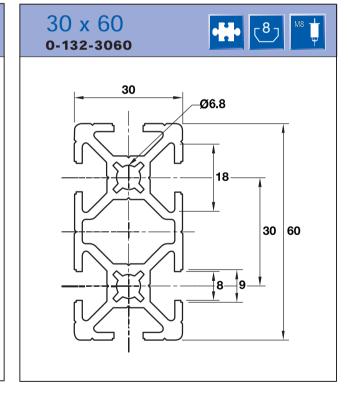
For details of 'Choosing the correct **MCS System profile** for your application' please refer to pages 48 to 49. Complete Technical details may be found on pages 44 to 53.

### **Aluminium Profiles**





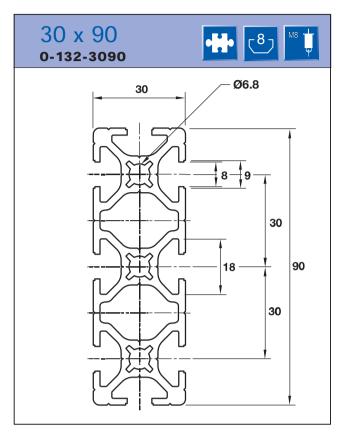


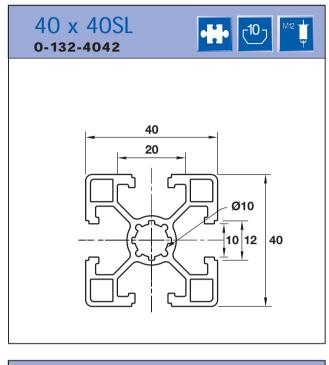


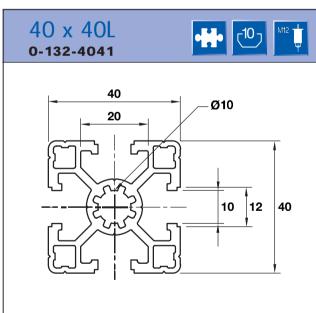
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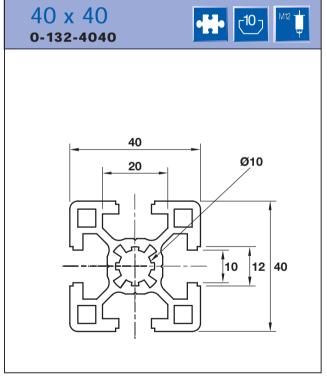
	20 x 20	20 x 40	30 x 30	30 x 60
Max. Length	4000mm	4000mm	5600mm	5600mm
Mass	0.44kg/m	0.77kg/m	0.97kg/m	1.83kg/m
Moment of Inertia (cm <sup>4</sup> )	lxx 0.7	lxx 4.5	lxx 3.4	lxx 23.3
	Sald & Serviced B	By: 1.2	lyy 3.4	lyy 6.1
Section Modulus (cm³)	VSOFLEC	TROWATE <sup>2</sup>	Wxx 2.2	Wxx 7.8
	Wpm FrQe7Phone	(877) SYAYYY981.2	Wyy 2.2	Wyy 4.1

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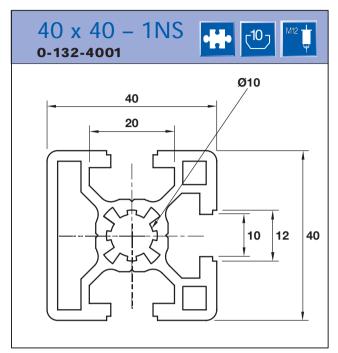


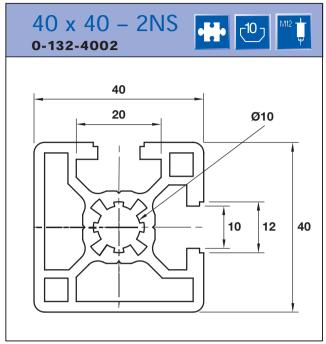


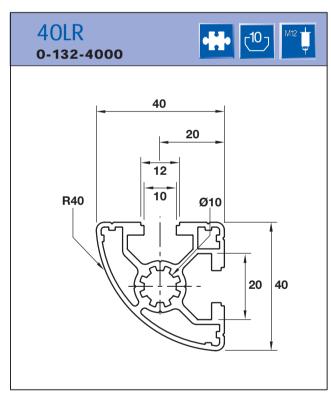


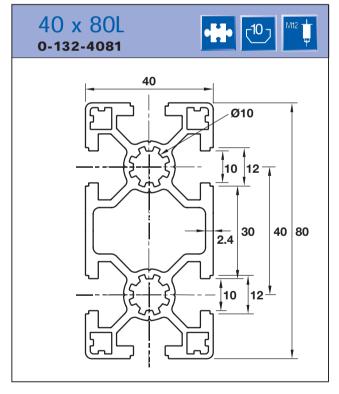
	30 x 90	40 x 40SL	40 x 40L	40 x 40
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	2.57kg/m	1.2kg/m	1.4kg/m	1.9kg/m
Moment of Inertia (cm <sup>4</sup> )	lxx 74.4	lxx 7.2	lxx 8.2	lxx 11.1
	Sold & Serviced B	lyy 7.2	lyy 8.2	lyy 11.1
Section Modulus (cm³)		TROMA**E <sup>3.9</sup>	Wxx 4.1	Wxx 5.6
	TW/YYe6Phone	(877) SERWyg8 3.9	Wyy 4.1	Wyy 5.6

### **Aluminium Profiles**

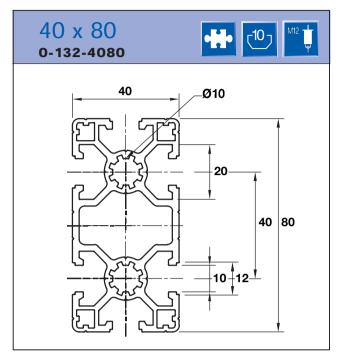


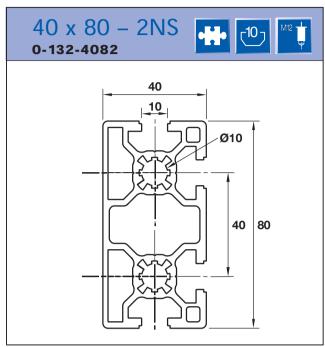


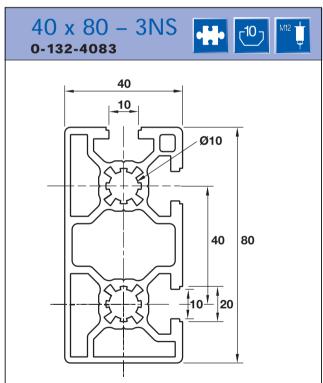


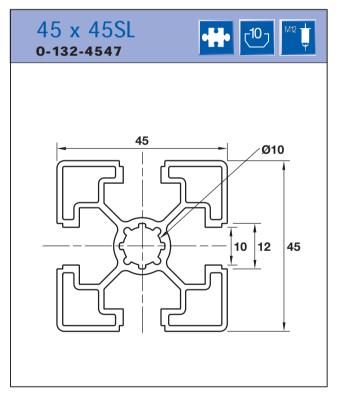


	40 x 40 - 1NS	40 x 40 - 2NS	40LR	40 x 80L
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.7kg/m	1.7kg/m	1.2kg/m	2.1kg/m
Moment of Inertia (cm <sup>4</sup> )	lxx 10.2	lxx 10.2	lxx 6.0	lxx 51.2
	lyy 9.8	erviced By: lyy 10.2	lyy 6.0	lyy 14.2
Section Modulus (cm³)	Wxx 315	ELECTROWATE1	Wxx 2.4	Wxx 25.6
	Wyy 1419Fre	e Phone (877) <b>MAY</b> 009 <b>5</b> .1	Wyy 2.4	Wyy 3.6



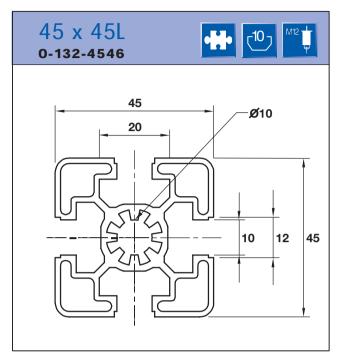


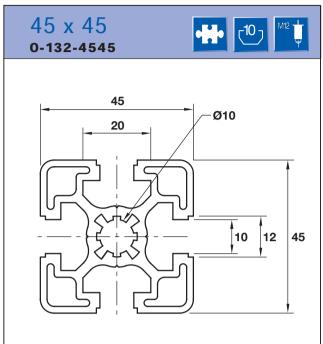


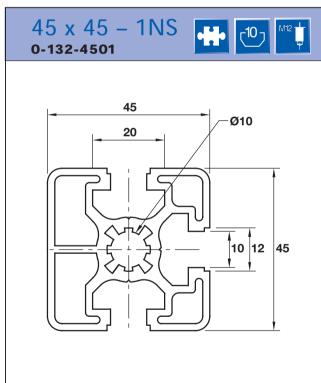


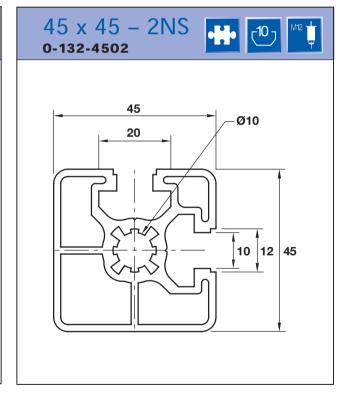
	40 x 80	40 x 80 - 2NS	40 x 80 - 3NS	45 x 45SL
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	2.62kg/m	2.8kg/m	2.8kg/m	1.4kg/m
Moment of Inertia (cm <sup>4</sup> )	lxx 61.2	lxx 67.1	lxx 65.8	lxx 10.0
	lyy 17.0	ced By: lyy 18.3	lyy 18.0	lyy 10.0
Section Modulus (cm³)	Wx 5.3	FCTROWAT 16.7	Wxx 16.45	Wxx 4.4
	Wyyoll 8ree Pr	none (877) SMYVV989.15	Wyy 9.0	Wyy 4.4

### **Aluminium Profiles**





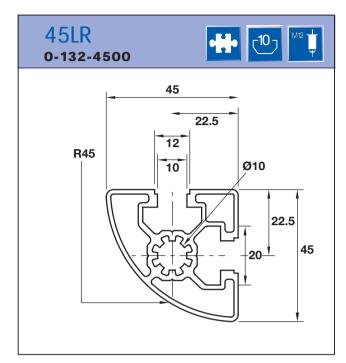


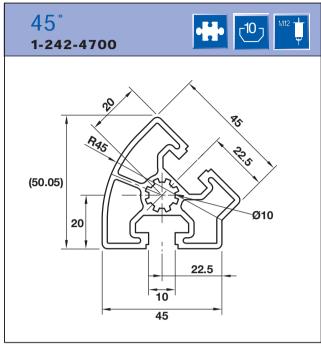


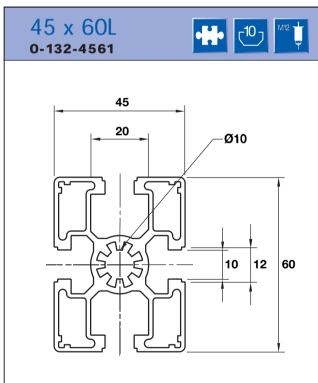
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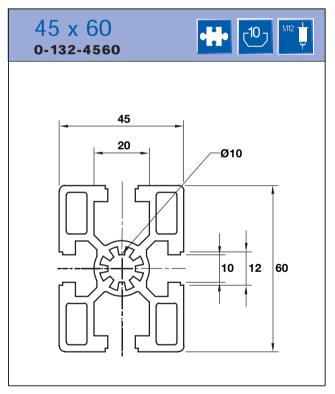
	45 x 45L	45 x 45	45 x 45 - 1NS	45 x 45 - 2NS
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.5kg/m	1.9kg/m	1.9kg/m	1.8kg/m
Moment of Inertia (cm⁴)	lxx 10.4	lxx 13.4	lxx 13.0	lxx 12.7
	lyy 10.4 Sold & Service	ed By: lyy 13.4	lyy 13.0	lyy 12.7
Section Modulus (cm³)		ECTROMATE.	Wxx 5.9	Wxx 5.6
	Wyy Toff- Gree Pho	one (87%) XXERV 98	Wyy 5.9	Wyy 5.6

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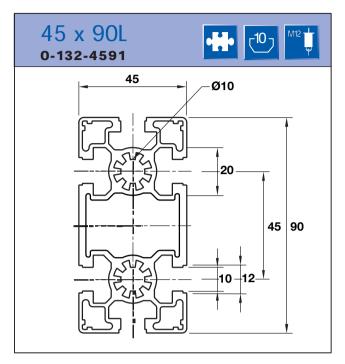


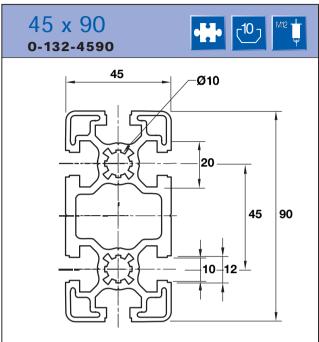
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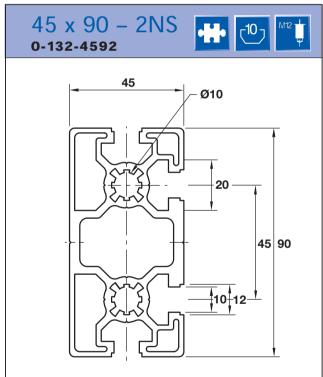
	45LR	45°	45 x 60L	45 x 60
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.3kg/m	2.6kg/m	2.15kg/m	2.8kg/m
Moment of Inertia (cm <sup>4</sup> )	lxx 7.6	lxx 10.4	lxx 24.0	lxx 34.2
	Sold & Serviced By:	lyy 9.6	lyy 15.1	lyy 21.6
Section Modulus (cm³)	P <sup>4</sup> FCT	ROMATE <sup>4.0</sup>	Wxx 8.0	Wxx 11.4
	TMMYre3 Phone (8)	77) SKKXXXX983.96	Wyy 6.7	Wyy 9.6

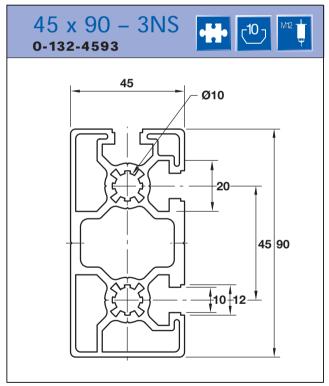
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### **Aluminium Profiles**

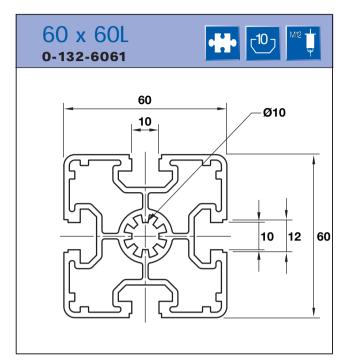


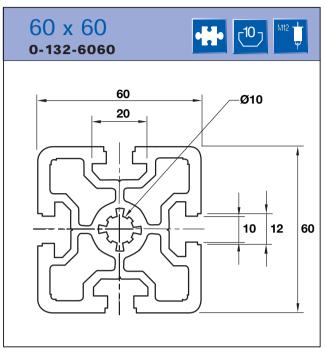


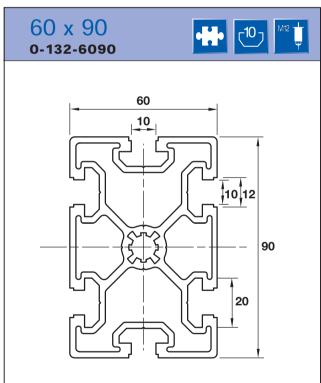


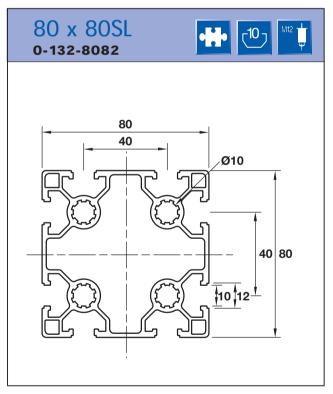


	45 x 90L	45 x 90	45 x 90 - 2NS	45 x 90 - 3NS
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	3.15kg/m	3.6kg/m	3.4kg/m	3.4kg/m
Moment of Inertia (cm⁴)	lxx 92.6	lxx 100.0	lxx 96.0	lxx 94.0
	lyy 22.1 <sub>Sold &amp; 5</sub>	Serviced Byy 28.5	lyy 29.0	lyy 28.0
Section Modulus (cm³)		ELECTROPPATE	Wxx 21.3	Wxx 20.9
	Wyy 9.8 Toll Fro	ee Phone (877) \$27098	Wyy 12.9	Wyy 12.4



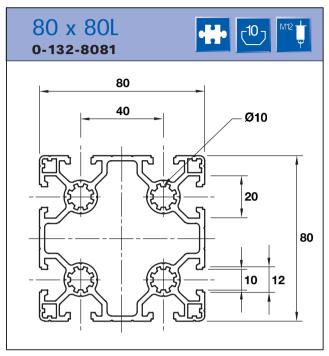


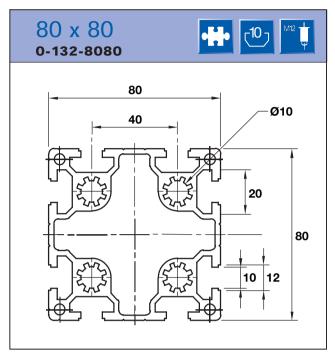


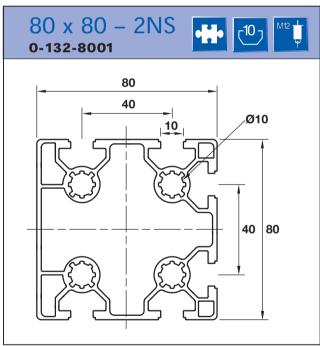


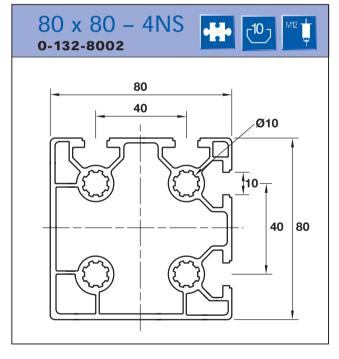
	60 x 60L	60 x 60	60 x 90	80 x 80SL
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	2.88kg/m	3.7kg/m	4.35kg/m	3.6kg/m
Moment of Inertia (cm⁴)	lxx 37.0	lxx 47	lxx 128.4	lxx 11.1
	Sold & Serviced By:	lyy 47	lyy 60.1	lyy 11.1
Section Modulus (cm³)	VES 12 PECT		Wxx 28.5	Wxx 5.6
	Wyy Free Phone (8	77) S <b>M</b> MM98 <sup>15.7</sup>	Wyy 20.0	Wyy 5.6

### **Aluminium Profiles**





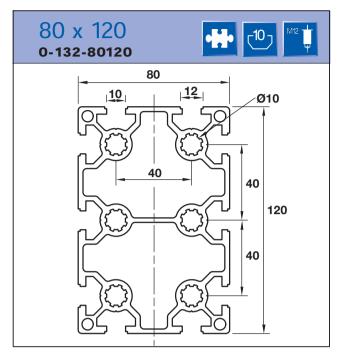


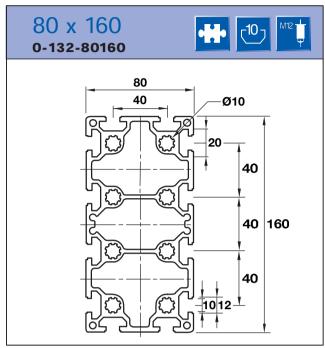


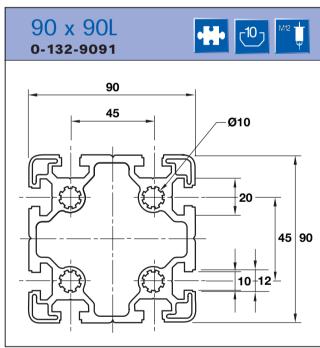
### **Technical Data**

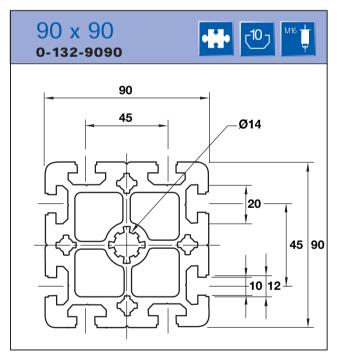
	80 x 80L	80 x 80	80 x 80 - 2NS	80 x 80 - 4NS
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	4.1kg/m	4.94kg/m	3.7kg/m	3.7kg/m
Moment of Inertia (cm⁴)	lxx 110.4	lxx 132.5	lxx 100	lxx 104
	lyy <sub>Sold</sub> 8 Service	ced By: 132.5	lyy 102	lyy 104
Section Modulus (cm³)		ECTKONBATE	Wxx 25	Wxx 26
	Wyyroff Fee Ph	one (877)/SERV 198	Wyy 25	Wyy 26

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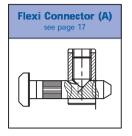


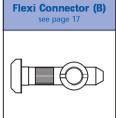




	80 x 120	80 x 160	90 x 90L	90 x 90
Max. Length	5600mm	5600mm	5600mm	4000mm
Mass	6.4kg/m	9.1kg/m	5.6kg/m	9.3kg/m
Moment of Inertia (cm⁴)	lxx 362	lxx 890	lxx 190	lxx 285
	Sold & Serviced By	lyy 262	lyy 190	lyy 285
Section Modulus (cm³)		ROWATE <sup>111</sup>	Wxx 42	Wxx 63
	My Pree Phone (	877) SERWyy8 65	Wyy 42	Wyy 63

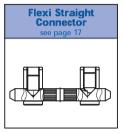
### **Profile Connections**

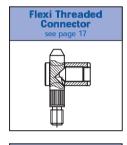


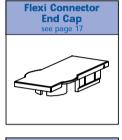




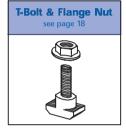


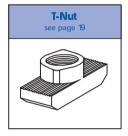






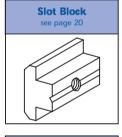




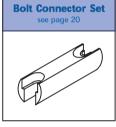


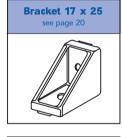






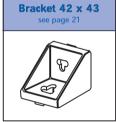








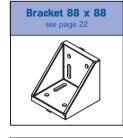


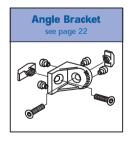


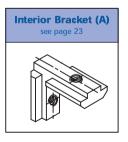


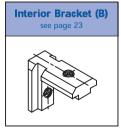


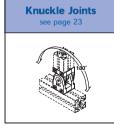




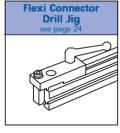












Sold & Serviced By:

ELECTROMATE

Toll Free Phone (877) SERVIO98

### Flexi Connectors

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

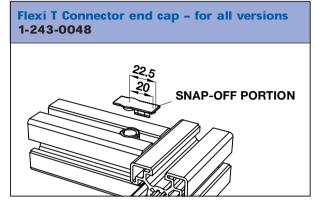
#### Please note:

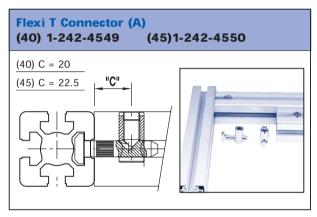
(40) refers to profiles of cross-sections 40, 80 & 160mm, (45) refers to profiles of cross-section 45, 60 & 90mm.

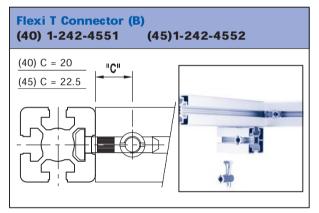
Materials are zinc plated SM20C steel.

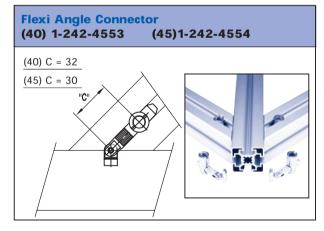
Two Position 90° and 45° Drilling Jig available (see page 24).

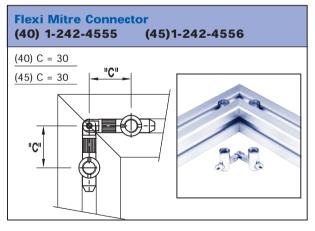
Order with Ball End Allen Key, Part No. 1-243-5555

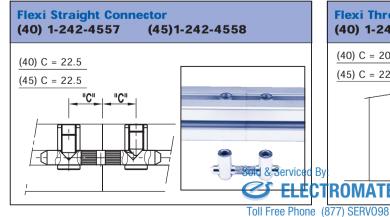


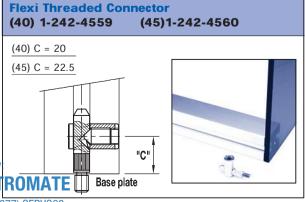




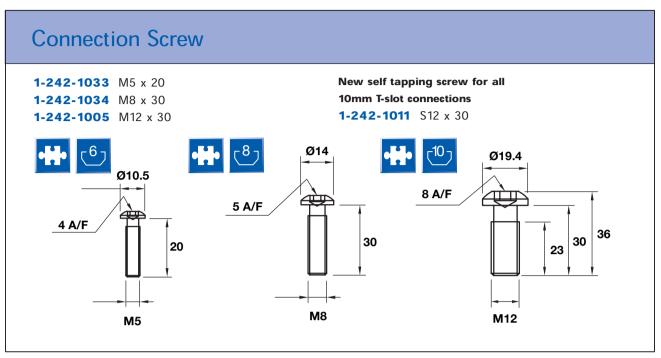


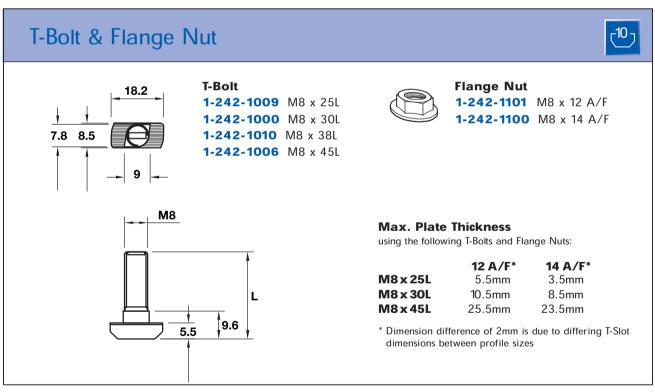




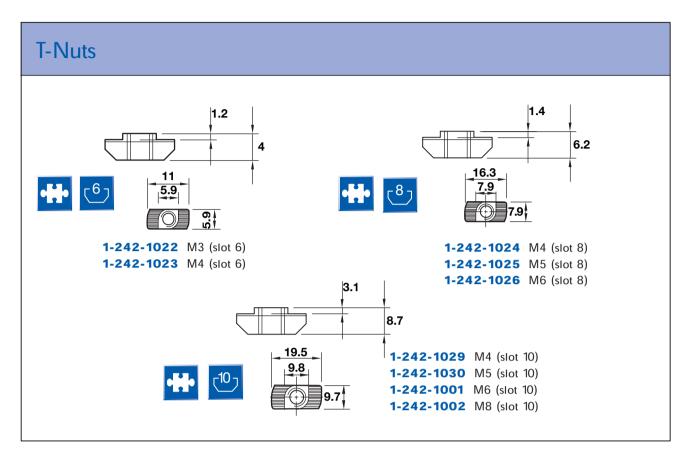


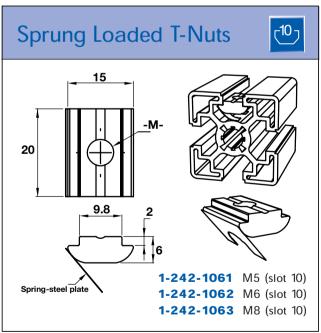
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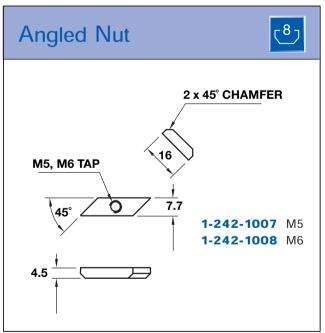




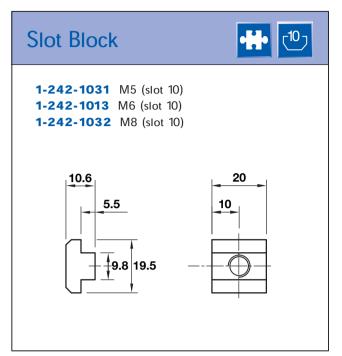
	Connection Screw	T-Bolt & Flange Nut
Material	Steel EN3B	Steel EN3B
Finish	Zinc Plated	Zinc Plated
Mass	<b>1-242-1033</b> 0.01kg/ea	<b>1-242-1009</b> 0.01kg/ea
	1-242-1034 0.01kg/ea	<b>1-242-1000</b> 0.01kg/ea
	1-242-1003 0 01kp/eTROMATE	<b>1-242-1010</b> 0.02kg/ea
	1-242-1011 FQ-02kg/e-877) SERV098	<b>1-242-1006</b> 0.02kg/ea

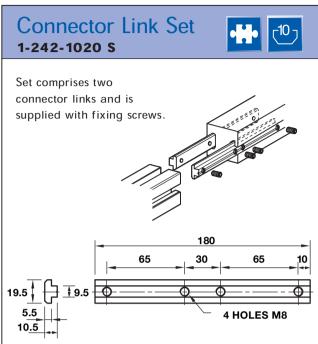


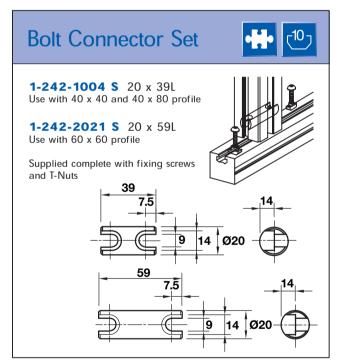


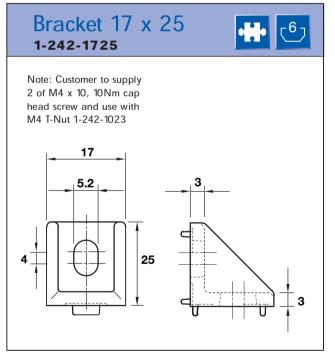


	T-Nut	T-Nut	T-Nut	Sprung Loaded T-Nuts	Angled Nut
Material	Steel EN3B	Steel EN3B	Steel EN3B	Steel EN3B	Steel EN3B
Finish	Zinc Plated	Sold & Serviced B Zinc Plated	y: Zinc Plated	Zinc Plated	Zinc Plated
Mass	0.002kg/ea	0.004kg/ea Toll Free Phone	0.007kg/ea (877) SERVO98	0.013kg/ea	0.002kg/ea



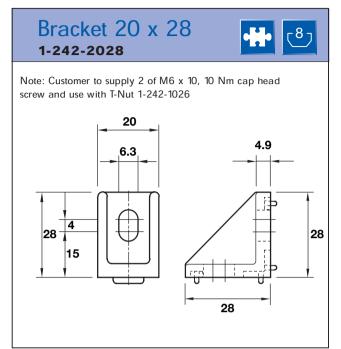


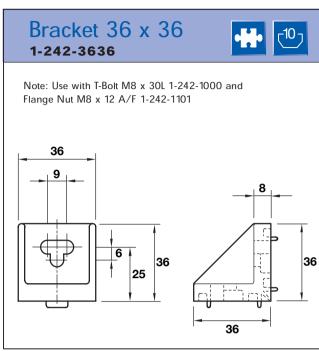


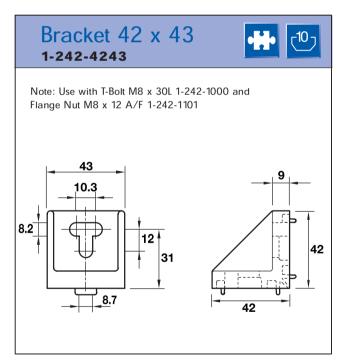


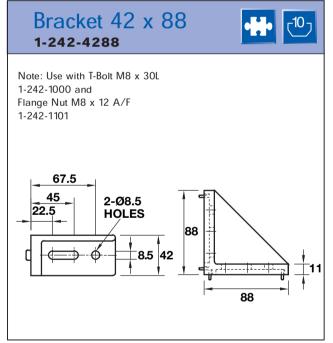
	Slot Block	Connector Link Set	Bolt Connector Set	Bracket 17x25
Material	Steel EN3B	Steel EN3B	Steel EN3B	Aluminium
Finish	Zinc Plated	Zinc Plated	Zinc Plated	None
Mass	0.02kg/ea	0.38kg/ea	39L 0.05kg/ea	0.02kg/ea
		Sold & Serviced By:	59L 0.10kg/ea	







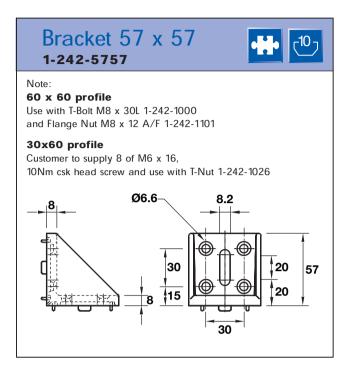


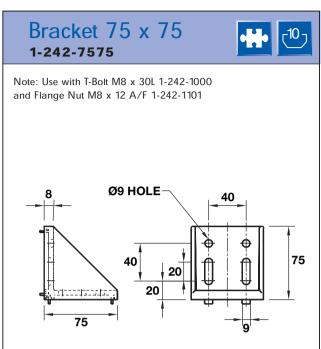


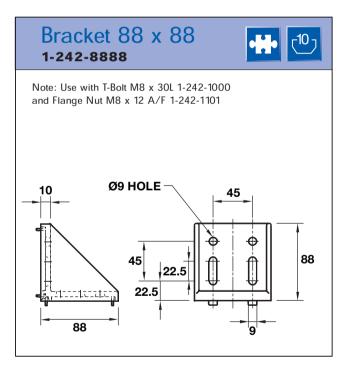
### **Technical Data**

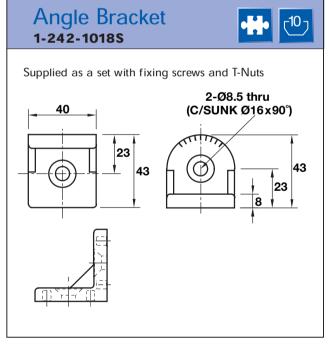
Bracket	20 x 28	36 x 36	42 x 43	42 x 88
Material	Aluminium	Aluminium	Aluminium	Aluminium
Finish	None	None	None	None
Mass	0.02kg/ea	0.04kg/ea	0.06kg/ea	0.15kg/ea

Sold & Serviced By: **ELECTROMATE** 







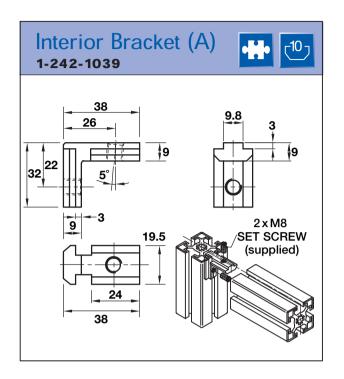


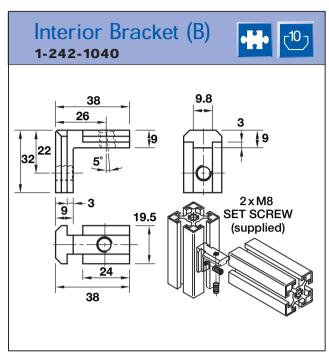
### **Technical Data**

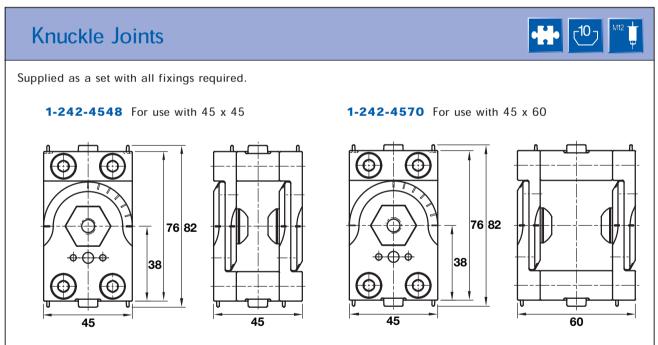
Bracket	57 x 57	75 x 75	88 x 88	Angle Bracket
Material	Aluminium	Aluminium	Aluminium	Zinc Die-cast
Finish	None	None	None	None
Mass	0.12kg/ea	0.25kg/ea	0.30kg/ea	0.10kg/ea

Sold & Serviced By:

ELECTROMATE

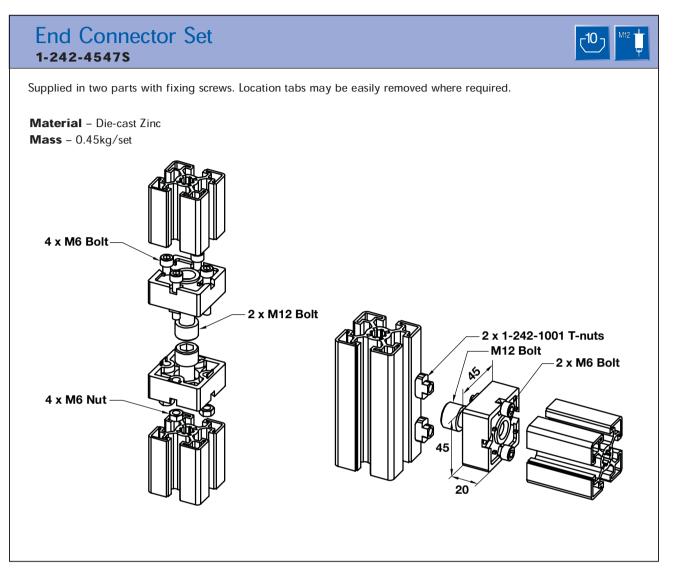


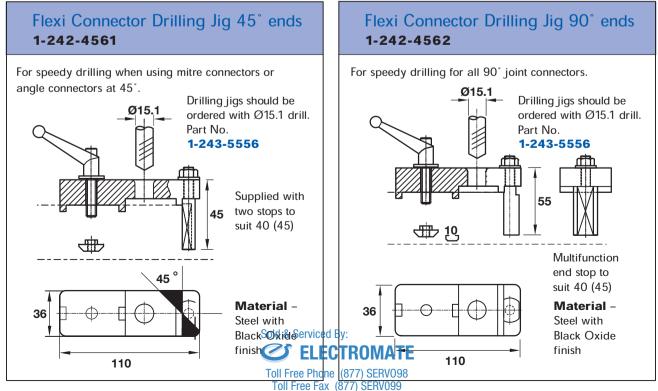




Bracket	Interior (B)	Interior (A)	Knuckle Joints
Material	Zinc Die-cast	Zinc Die-cast	Zinc Die-cast
Finish	None	None	None
Mass	0.06kg/ea	0.06kg/ea	<b>1-242-4548</b> 0.54kg/set
	Sold & Service	<b>1-242-4570</b> 0.62kg/set	



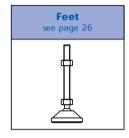


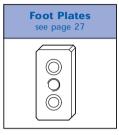


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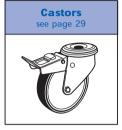
sales@electromate.com

### Accessories

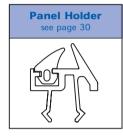


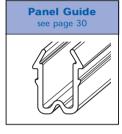








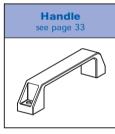


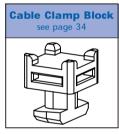


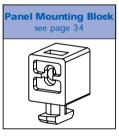


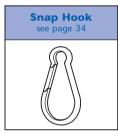










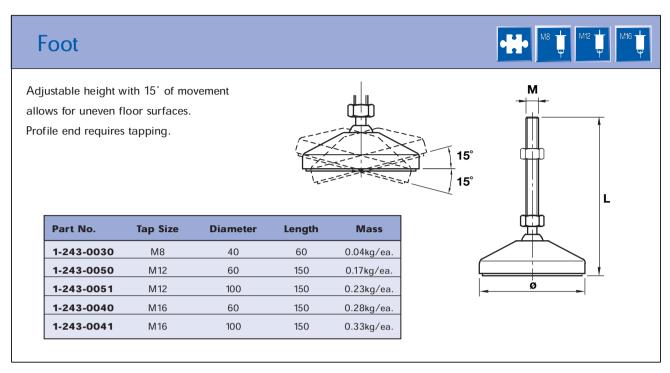


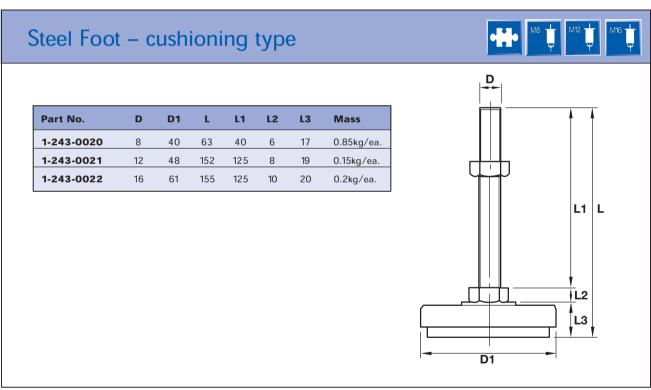


A extensive range of accessories for the **MCS System** provides professional frame finishing, allows sliding and hinged door hanging, suspension of work tools, adjustable feet for non-level floors, and location of glazing panels.

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 page 29. Castors forting to be easily sourced by Hepco – ask us for details if any of the standard range is not call a be for a policition.





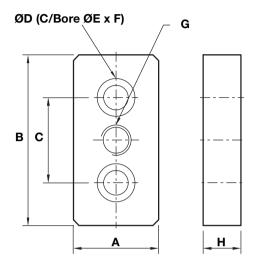
	Foot	Steel Foot
Material	Plastic and Steel	Steel and Rubber
Finish	Steel/Zinc Plated	Plated



# **Foot Plates**

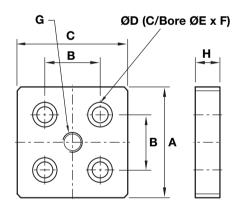


Allows assembly of Foot on rectangular profiles, which have no central fixing hole.



Part No.	Recommended for	Α	В	С	D	E	F	G	Н	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

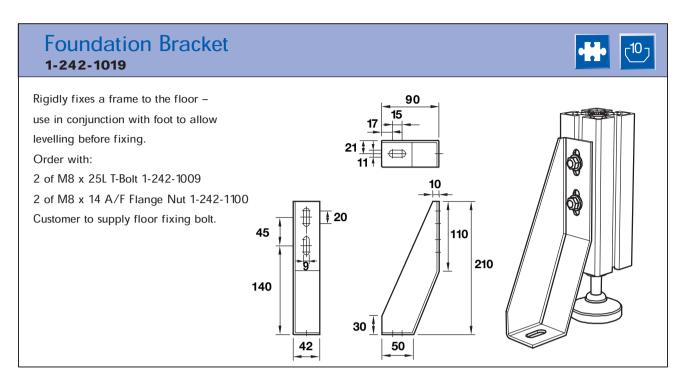
Allows assembly of Foot on square profiles, which have no central fixing hole.

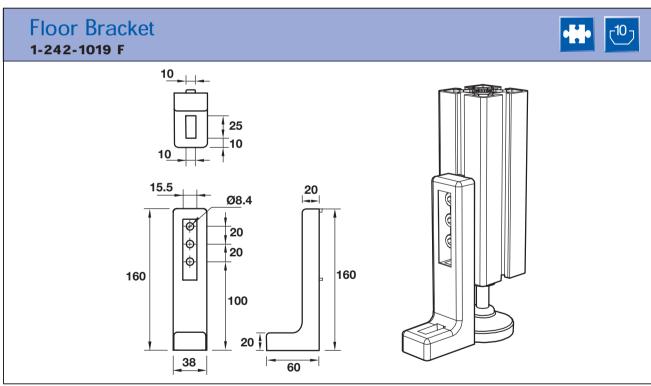


Part No.	Recommended for	Α	В	С	D	E	F	G	н	Mass kg
1-243-0117	80x80	80	40	80	14	20	13	M16	20	1.0
1-243-0113	90x90L	90	45	90	13	20	13	M16	20	1.0

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







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

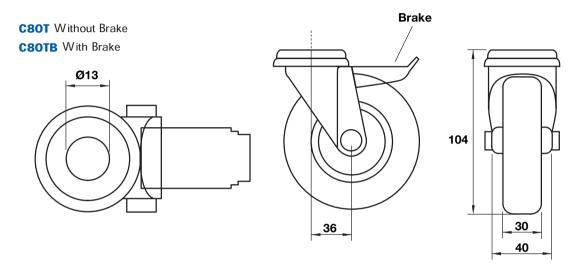


### **Castors**

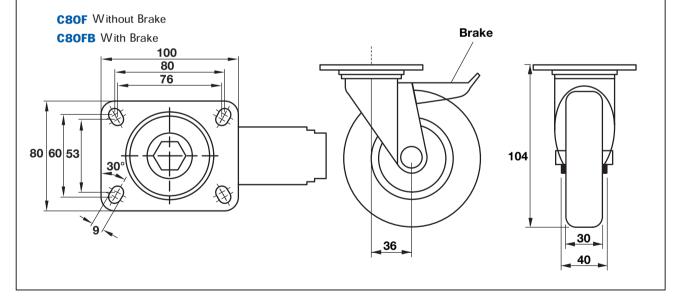




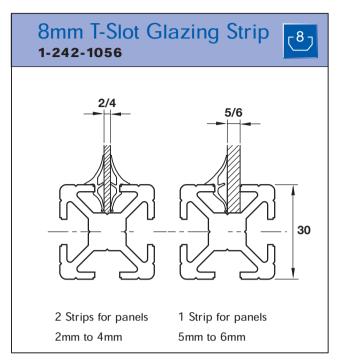
Swivel type. Through hole fixing makes these castors suitable for end fixing into profiles from 40x40L to 90x90L (using M12 cap head fixing screw). Other castors for profiles outside this range available on request, or see the flange fixing type below.

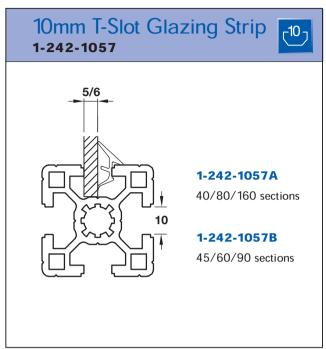


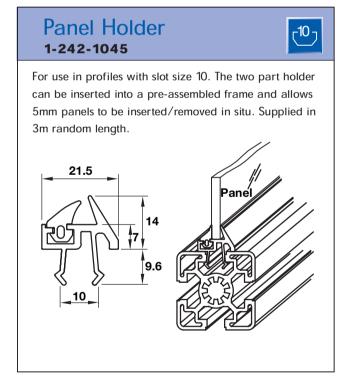
Swivel type. Flange plate fixing allows inboard mounting using the 9mm slots provided.

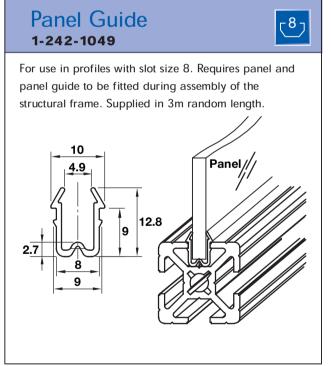


Castors	C80T/TB	C80F/FB
Body	Zinc Plated Steel	Zinc Plated Steel
Wheel	Nylon	Nylon
Tyre	Polyurethane	Polyurethane
Wheel Diameter	Sold & Serviced By:	80mm
Load Capacity	<b>₽ P ECTROMATE</b>	90kg/ea
Mass	0-65K9-64-none (877) SERV098	0.65kg/ea

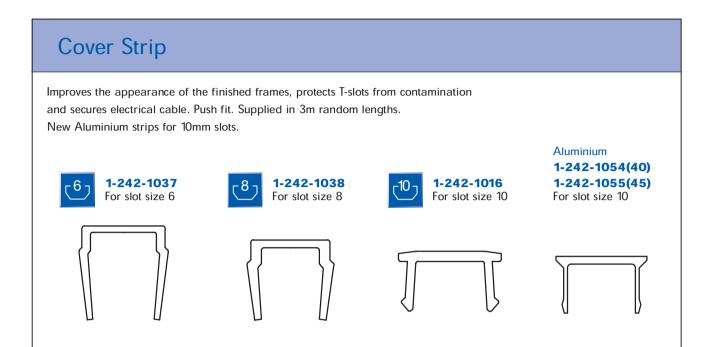


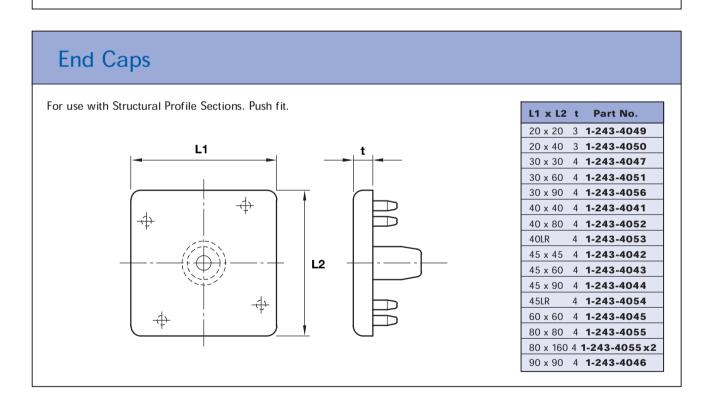






	T-Slot Glazing Strip	Panel Holder	Panel Guide
Material	Rubber	PVC/Rubber	ABS Plastic
Finish	Black Sold & Ser	Black	Black
Mass	3010 & 381	LECTROMA <sup>3000mm</sup>	3000mm
Max. Length	Cut to length	Phone (877) SERVO98	-





	Cover Strip	End Caps
Material	Aluminium or PVC	ABS Plastic
Finish	Anodized/Black (other colours available)	Black
Max. Length	Sold & Serviced By: 3000mm	-
Mass	ELECTROMATE 04kg/m	-
Mass	Toll Free Phone (Alyminium 0.06kg/m	-

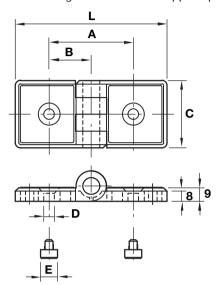
## Hinge (Plastic)







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

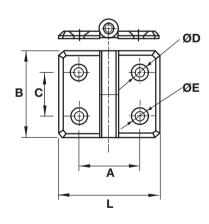
Part No.	L	Α	В	С	øD	ø <b>E</b>
1-243-4048	61	35	17.5	40	6.2	8
1-243-4545	90	50	25	40	6.2	10
1-243-4560	74.5	42.5	17.5/25	40	6.2	8/10

# 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 page 37)

**1-243-7006 (S)** R/H 45x45 **1-243-7005 (S)** L/H 45x45 To hinge size 45 (lift off type see example page 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	В	С	ø <b>D</b>	øΕ
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

	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	S FIOFICE ROMATE	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

1-243-0034 146L

 Part No.
 A
 B
 C
 D
 E

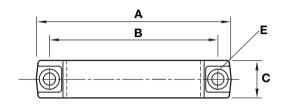
 1-243-0033
 135L
 135
 117
 26
 40
 Ø8 hole Ø14 C/BORE

32

45

Ø8 hole Ø14 C/BORE

146 126





# Stainless Steel Roundbar Handles

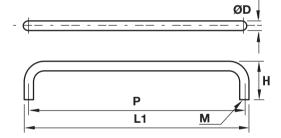
1-243-0052 1-243-0053





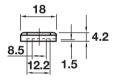


2x washers required per handle.



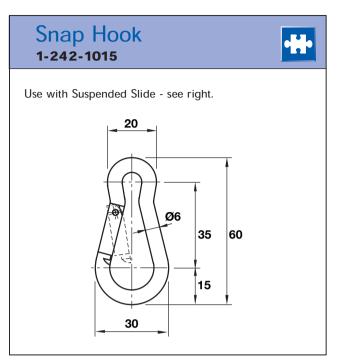
Part No.	L1	Н	Р	ØD	М
1-243-0052	168	51	156	12	2 x M6
1-243-0053	137	51	125	12	2 x M6

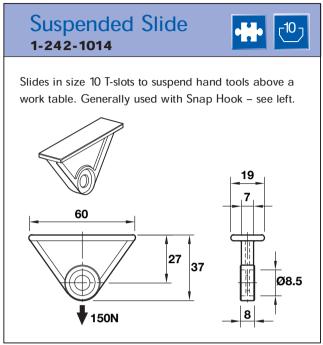
1-243-0054 Washer

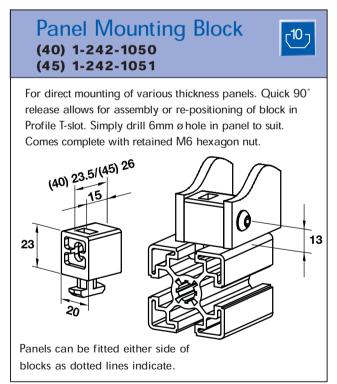


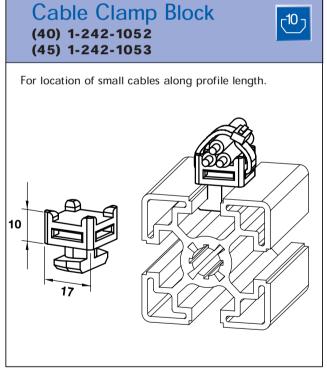


	Handle	Stainless Steel Roundbar Handles
Material	ABS Plastic	Stainless Steel
Finish	Black Sold & Serviced By:	-
Mass	2014 ECTRON	IATE









	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	Sold.on Regyicad	Ву: _	-
		O ELEC	CIRUMATE	

## Machine Fencing System (MFS)



The **HepcoMotion 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 futured equinoments for standard MFS components as well as specific non standard items such as locks, switches and citatistical requirements.



#### End cap

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

**39** 



#### **Two-slot profile**

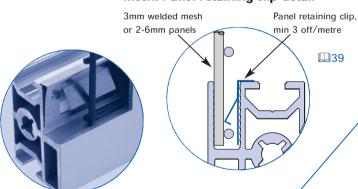
Provides a mid section support either vertical or horizontal to break up large single frames and ensure maximum rigidity to the assembled mesh/panel. \$\to\$38\$



#### 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.

### 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 diperviced By:

The number of clips needed is dependant on the pantager ELECTROMATE

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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

being used.



#### 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. 

\$\omega\$ 10/12



#### **Connection screws**

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



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





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 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.)



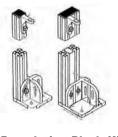
5 and 6mm in clear and coloured versions, including dense foam sheet which is ideal for fencing structures where through visibility is not a requirement.

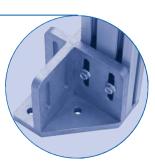


## **Die cast lift off hinge**These plated hinges provide a strong

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.



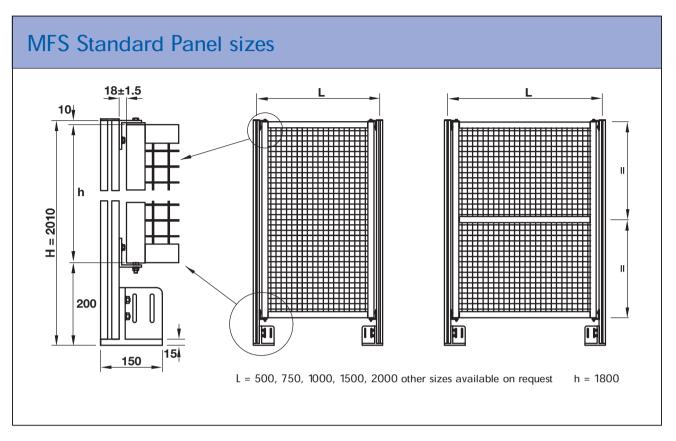


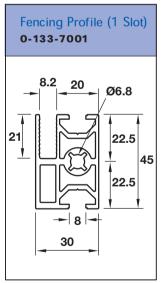
Foundation Block Kit

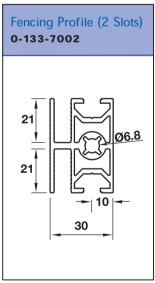
The foundation block will accept the **45L** and **45/90L Vertical posts** and is universally handed for all mounting requirements. Supplied complete with necessary

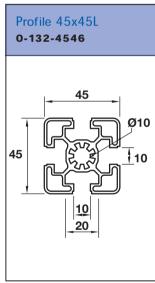
Sold & Serviced By:

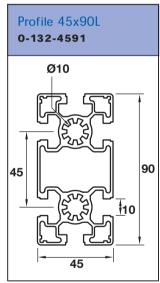










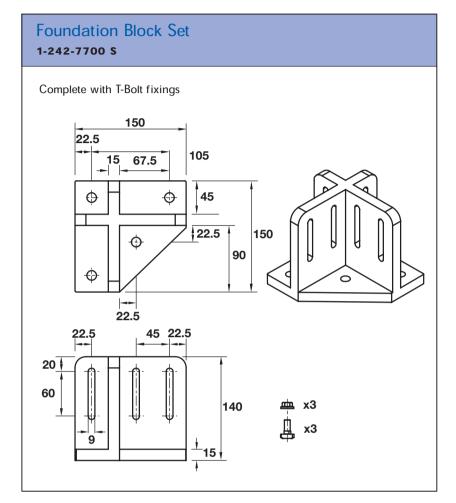


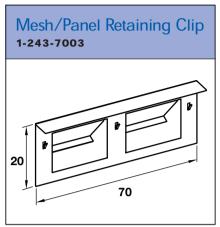
### **Technical Data**

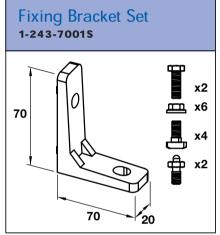
	Fencing Profile (1slot)	Fencing Profile (2 slots)	Profile 45x45L	Profile 45x90L
Max. Length	5600mm	5600mm	5600mm	5600mm
Mass	1.35kg/m	1.3kg/m	1.5g/m	3.15kg/m

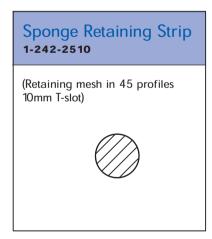


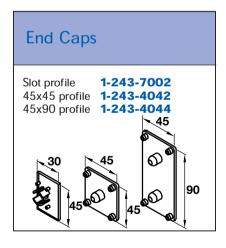
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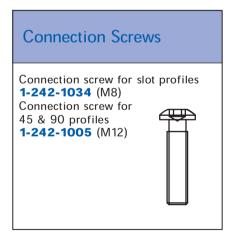






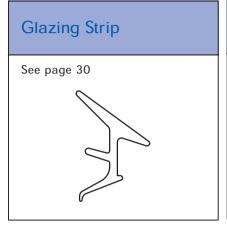


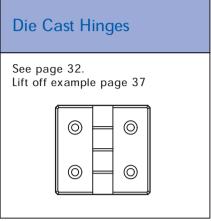


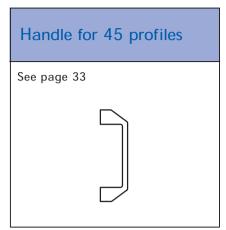


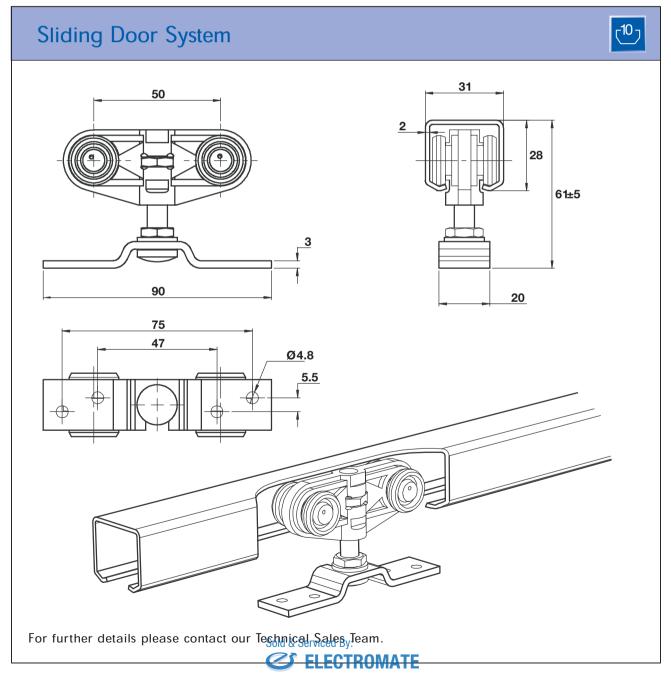
#### **Technical Data**

	Foundation Block Set	Fixing Bracket Set
Material	Aluminium	Aluminium
Finish	None	None
Mass	Sold & Serviced By:  FLECTROMATE  1.9kg/m	0.3kg/m

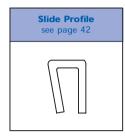




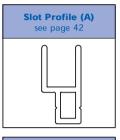


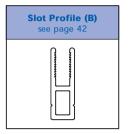


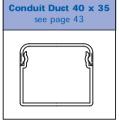
## **Specialist Sections**

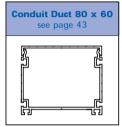


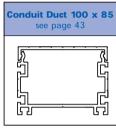














These profiles each have a specialised purpose. They expand and enhance the application of the structural profile sections detailed earlier, and can easily be combined with the structural sections shown previously within this catalogue.

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 Al6063-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.

Sold & Serviced By:

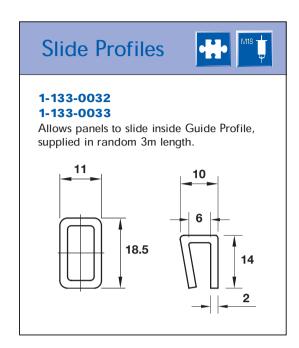
ELECTROMATE

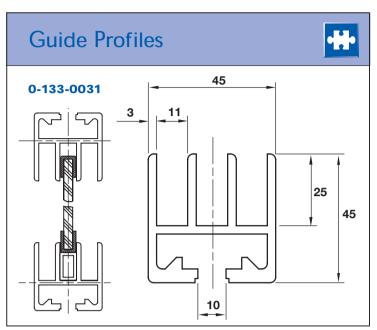
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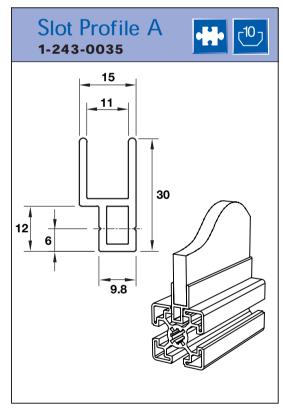
Toll Free Fox (977) SERV000

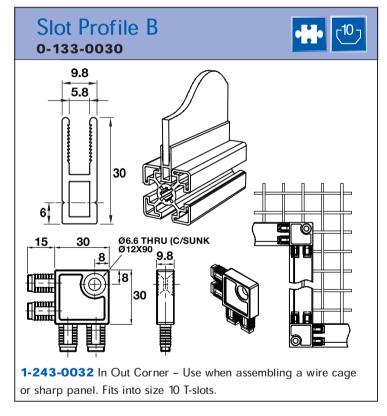
## **Specialist Sections**

### **Aluminium Profiles**









### **Technical Data**

	<b>Guide Profile</b>	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 Sold & Serviced	By: 0.1kg/m	0.37kg/m	-

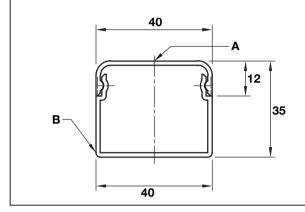


### **Conduit Duct**

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.



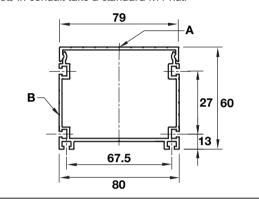
### **Conduit Duct**

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.



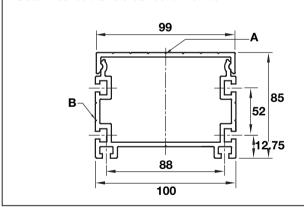
### **Conduit Duct**

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.

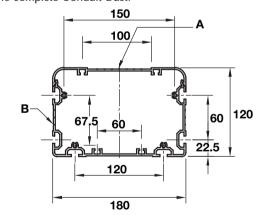


### **Conduit Duct**

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	Al6063-T5	AI6063-T5
Finish	Clear Anodized	Clear Anodized	Clear Anodized	Clear Anodized
Max. Length	4000mm	5600mm	5600mm	5600mm
Mass	0.59kg/m	Sold & Serviced By:	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 Section By:

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 page 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.

give a more approximate deflection . ELECTROMATE

## **Aluminium Profile**

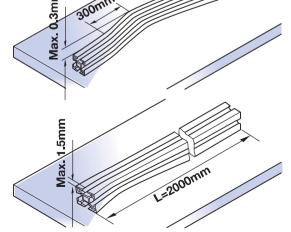
### **Technical Specification**

Material Designation	AIMgSi0.5F25
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 <sup>-6</sup> 1/K (+20+100°C) = 23.8 x 10 <sup>-6</sup> 1/K
Anodizing Process	E6/EV1 Clear
Thickness of Layer	10 µm
Hardness	300 HV

Section faces are parallel within  $\pm 0.1 mm$ 



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



Maximum twist is 1.5mm per 2000mm



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### **Deflection Calculations**

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

### **Deflection of Profile under Static Point Loading:**

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

$$d_2 = \frac{F \times L^3}{48F \times L \times 10^4}$$
 | F | d(mm) 2 | Simply supported

$$d_3 = \underbrace{\frac{F \times L^3}{192F \times L \times 10^4}}_{192F \times L \times 10^4} \underbrace{\frac{F}{200}}_{192F \times 10$$

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

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

$$d_2 = 5 \times 9.81 \times P \times L^4$$

$$384E \times I \times 10^7$$

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

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

 $max<200N/mm^2$ 

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

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

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

 $E = 70 000 \text{N/mm}^2 \text{ (modulus of elasticity)}$ 

L = Unsupported Length (mm)

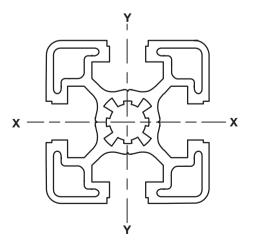
F = Load(N)

I = Moment of Inertia (cm<sup>4</sup>)

D = Deflection of profile (mm)

W = Section Modulus (cm³)

P = Mass of profile (kg/m)



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## **Selection Data**

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

		Inertia (cm4)			Mass (kg/m)
00 - 00	lxx	lyy	Wxx	Wyy	0.44
20 x 20	0.7	0.7	0.7	0.7	0.44
20 x 40	4.5	1.2	2.2	1.2	0.77
30 x 30	3.4	3.4	2.2	2.2	0.97
30 x 60	23.3	6.1	7.8	4.1	1.83
30 x 90	74.4	9.2	16.5	6.1	2.57
40 x 40SL	7.2	7.2	3.9	3.9	1.2
40 x 40L	8.2	8.2	4.1	4.1	1.4
40 x 40	11.1	11.1	5.6	5.6	1.9
40 x 1NS	10.2	9.8	5.1	4.9	1.7
40 x 2NS	10.2	10.2	5.1	5.1	1.7
40LR	6.0	6.0	2.4	2.4	1.18
40 x 80L	51.2	14.2	25.6	3.6	2.1
40 x 80	61.2	17.0	15.3	8.5	2.62
40 x 80 - 21	<b>VS</b> 67.1	18.3	16.7	9.15	2.8
40 x 80 - 3N	<b>VS</b> 65.8	18.0	16.45	9.0	2.8
45 x 45SL	10.0	10.0	4.4	4.4	1.4
45 x 45L	10.4	10.4	4.6	4.6	1.5
45 x 45	13.4	13.4	6.0	6.0	1.9
45 x 1NS	13.0	13.0	5.8	5.9	1.9
45 x 2NS	12.7	12.7	5.6	5.6	1.8
45LR	7.2	7.2	2.8	2.8	1.2
45°	10.4	9.6	4.0	3.96	2.6
45 x 60L	24.0	15.1	8.0	6.7	2.15
45 x 60	34.2	21.6	11.4	9.6	2.8
45 x 90L	92.6	22.1	20.6	9.8	3.15
45 x 90	100	28.5	22.2	12.7	3.6
45 x 90 - 21	<b>VS</b> 96.0	29.0	21.3	12.9	3.4
45 x 90 - 3N	<b>VS</b> 94.0	28.0	20.9	12.4	3.4
60 x 60L	37.0	37.0	12.3	12.3	2.88
60 x 60	47	47	15.7	15.7	3.7
60 x 90	128.4	60.1	28.5	20.0	4.35
80 x 80SL	11.1	11.1	5.6	5.6	3.6
80 x 80L	110.4	110.4	27.6	27.6	4.09
80 x 80	132.5	132.5	33.1	33.1	4.94
80 x 80 - 21	<b>VS</b> 100	102	25	25	3.7
80 x 80 - 4N	<b>VS</b> 104	104	26	26	3.7
80 x 120	362	176	90	29	6.4
80 x 160	890	262	111	65	9.1
90 x 90L	190	190d & Service		42	5.6
90 x 90	285	2 ELI	<b>CTROMATE</b>	63	9.3
		Toll Eron Dho	ne (877) SERV098		

### Selection Data

### 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 page 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:

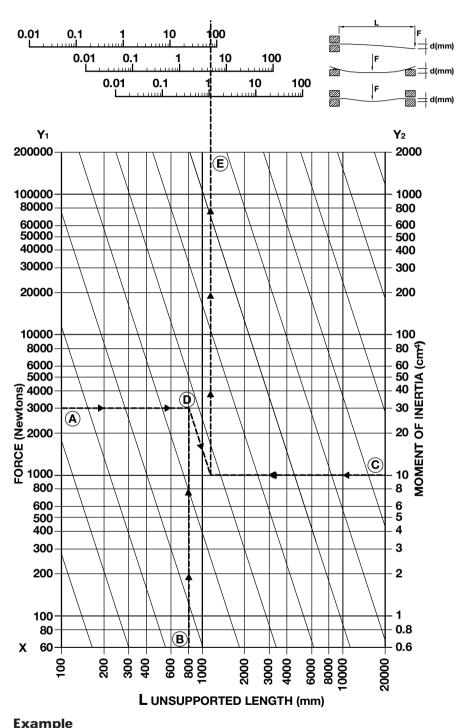
#### C < E < B < D < A

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

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C < E < A < D < B

### **Selection Data**



### **Example**

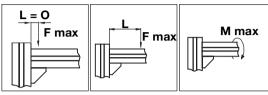
A static point load of 3000N is applied centrally to an MCS System profile which is rigidly supported both ends. The total unsupported length is 800mm. It has been estimated that a  $45\ x\ 45L$  profile will suffice for this application. Using the Moment of Inertia figure for this profile, steps A to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

	Moment of Inertia							
	Ixx cm <sup>4</sup>	lyy cm4						
20 x 20	0.7	0.7						
20 x 40	4.5	1.2						
30 x 30	3.4	3.4						
30 x 60	23.3	6.1						
30 x 90	74.4	9.2						
40 x 40SL	7.2	7.2						
40 x 40L	8.2	8.2						
40 x 40	11.1	11.1						
40 x 1NS	10.2	9.8						
40 x 2NS	10.2	10.2						
40LR	6.0	6.0						
40 x 80L	51.2	14.2						
40 x 80	61.2	17.0						
40 x 80 - 2NS	67.1	18.3						
40 x 80 - 3NS	65.8	18.0						
45 x 45SL	10.0	10.0						
45 x 45L	10.4	10.4						
45 x 45	13.4	13.4						
45 x 1NS	13.0	13.0						
45 x 2NS	12.7	12.7						
45LR	7.2	7.2						
45°	10.4	9.6						
45 x 60L	24.0	15.1						
45 x 60	34.2	21.6						
45 x 90L	92.6	22.1						
45 x 90	100	28.5						
45 x 90 - 2NS	96.0	29.0						
45 x 90 - 3NS	94.0	28.0						
60 x 60L	37.0	37.0						
60 x 60	47	47						
60 x 90	128.4	60.1						
80 x 80SL	11.1	11.1						
80 x 80L	110.4	110.4						
80 x 80	132.5	132.5						
80 x 80 - 2NS	100	102						
80 x 80 - 4NS	104	104						
80 x 120	362	176						
80 x 160	890	262						
90 x 90L	190	190						
90 x 90	285	285						

See page 48

### **Selection Data**

### **Profile Connection Carrying Capacity**



<b>Profile Connections</b>	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	441
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 Sold & S	erviced By: ELECTRON	IATE	

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## **Selection Data**

<b>Profile Connections</b>	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	M.
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	

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### **Selection Data**

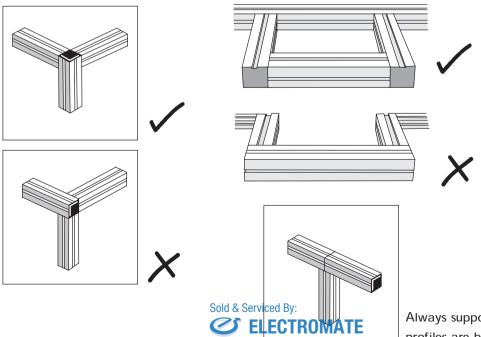
#### **Connection Cross-Reference Chart**

	Flexi Connector	Angle Brackets	Interior Bracket	Bolt Connector	Connection Screw
Flexibility of Usage	****	****	**	**	***
Adjustability	****	****	***	*	*
Frame Stiffness	****	****	**	****	****
Vibration Resistance	****	**	*	****	****
Space Requirement	****	**	****	****	****
Tolerance of Inaccuracy <sup>1</sup>	****	****	****	*	****
Cost Effectiveness <sup>2</sup>	****	****	****	**	****
Aesthetic Finish	****	*	****	****	****

**★★★★** = Highest/Best **★** = Lowest/Worst

### **Assembly Hints**

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



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www.electromate.com sales@electromate.com Always support the joint when profiles are butt-fastened.

<sup>&</sup>lt;sup>1</sup> '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.

<sup>&</sup>lt;sup>2</sup> '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.

### **Machining Details** The following machining can be carried out by Hepco on fast turnaround quotations on request (supply profile part and figure no.) Foot Connection Screw Profile Profile **End Tapping** Access Hole **End Tapping** Fig 2 Fig 3 Fig 1 Ø5 M8 М5 8mm → $6mm \rightarrow$ 25 Ø6 M12 **M8** 10mm\*→ 8mm→ 90 30 15 Ø9.8 M16 M12 \* Exception 10mm→ 0-132-9099 20-30 35 90 **Flexi Fit Connector** All holes through Fig 5 8. 1-242-4554 30 1-242-4555 1-242-4553 Ø15.1 Ø15.1 1-242-4556 22.5 20 1-242-4550 1-242-4552 1-242-4549 1-242-4557 1-242-4551 1-242-4558 1-242-4559 1-242-4560 Sold & Serviced By:

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### 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' slide 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.

#### **Benefits**

- High load capacity with long life
- · Quiet friction-free motion
- · Easy to install and adjust
- · Works in any plane
- Accepts load in all directions
- · Tolerant of debris
- · Tolerant of misalignment
- · 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.

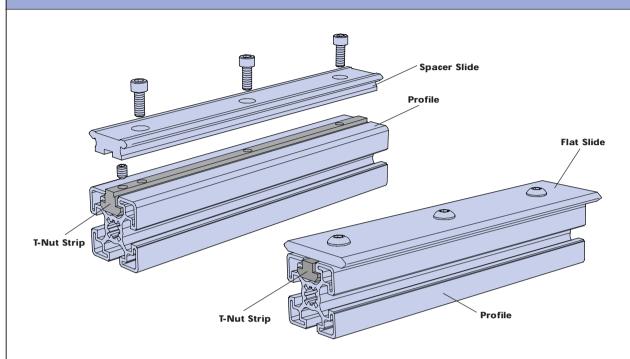
**\$L2** is available in basic GV3 standard carriage format, with fine ground surface finish of stainless steel components for maximum corrosion resistance. Aluminium carriage with U.S.D.A approved surface treatment provides corrosion resistance better than those stainless steels.

HepcoMotion\*

Request the GV3+SL2 catalogue 01884 257000

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### 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 required from the various options illustrated on pages 56 and 57. Note the Slide types, Slide precision grades, Bearing types and Lubrication Devices generally available for each carriage type.

#### Stage 2

(Spacer Slides Ref. pages 58 & 59; Flat slides Ref. pages 60 & 61):

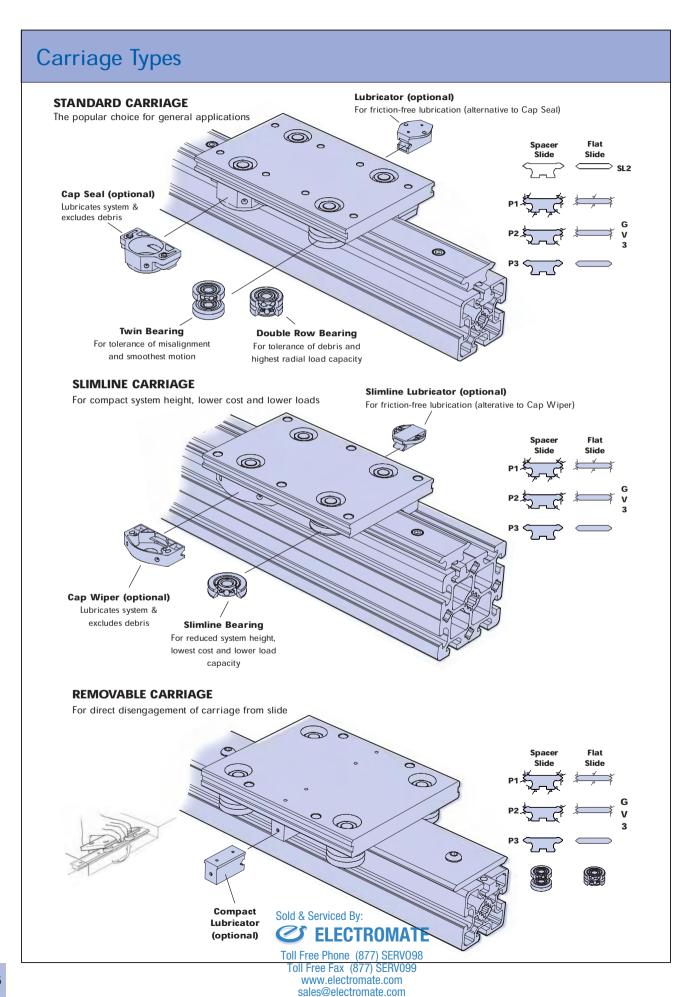
Select the MCS profile required and choose a compatible slide taking account of the slide and bearing type for the chosen carriage, system dimensions, load requirements and specific availability of various options.

#### Stage 3

Refer to ordering details on page 62.



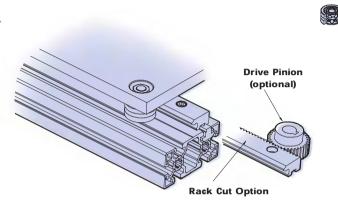
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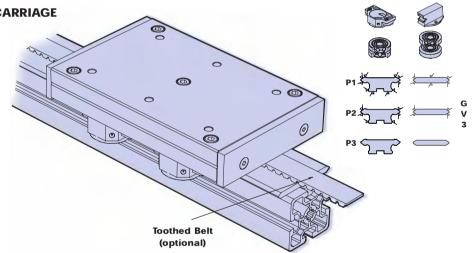
### SINGLE EDGE SLIDE CARRIAGE

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



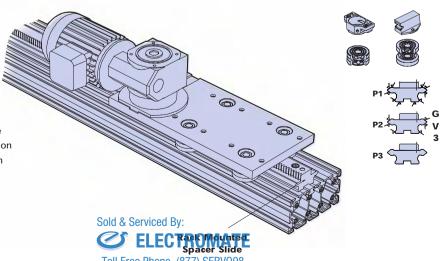
### **BELT DRIVEN CARRIAGE**

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



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# Spacer Slides with MCS Profiles LOAD L1 C LOAD L2 J (Customer to specify) Twin or Double Slimline G (3 Lengths)<sup>(7)</sup> Bearing н 4 or 6 Customer **Mounting Holes**

#### Notes:

☐ GV3 & SL2

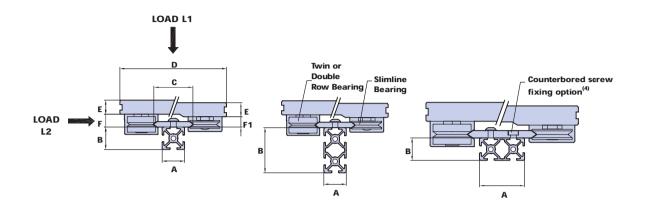
- (1) Slide lengths are available to customers' requirements up to 3956mm. Unlimited lengths can be achieved by butting.
- (2) Hepco Rack Driven Carriage not available, but customers may construct their own using GV3 Pinion GV3 P45.
- (3) Carriage Plate to be constructed by customer.
- (4) Rack Driven Carriage is offset in relation to centre of slide. Length and configuration is to customers requirements **GV3 P49**.
- (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 shortes by length carriages. Belt Driven Carriages are available in 2 lengths only GV3 P46-47.

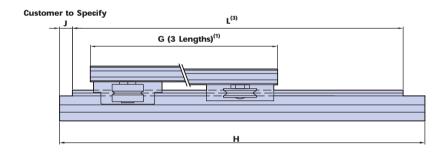
## Compatibility Table Spacer Slides with MCS Profiles

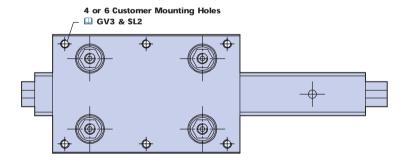
		SLIDE PART NUMBER								_	(5) R	ACK DR	IVE CAR	RIAGE A	VAILBIL	LOAD (C) LUBRICATED			ATED (I	NEWTONS)		
ك	S	GV3	2-3	G۷	3 5 5	-	GV3 🖳	SL2 🖳	2		V	(5) BEL	DRIVE	CARRIA	GE AVAI	LABILITY					Ç.	
Α	В		С		С				С			D	Е	~F	~F1	<b>G</b> <sup>(7)</sup>	L1	L2	L1	L2	L1	L2
		NV	20									64	10	15	14	65 100 140						
20	20			NV	20	R						(2)	(2)	15	-	(2)						
20	40	NV	28									72	11	15	14	75 125 175	760	1200	500	400	400	480
40	20			NV	28	R						(2)	(2)	15	-	(2)						
							NVE					(3)	(3)	15	14	(3)						
		NV	28	NI) /	00	_						72	(2)	15	14	75   125   175 (2)	700	4000	F00	400	400	400
				NV	28	R	NVE					(3)	(3)	15 15	14	(3)	760	1200	500	400	400	480
		NS	25				INVL					80	11.5	19	17	80 135 180						
30	30	140		NS	25	R						(2)	(2)	19	-	(2)	1600	3000	1280	1200	940	1150
30	60							SSNS	25			80	11.5	19		80 130 180	1600	3000	960	960		
30	90	NS	35								1	95	12.5	19	17	100 150 200	4000	0000	4000	4000	0.40	4450
60	30			NS	35	R						(2)	(2)	19	-	(2)	1600	3000	1280	1200	940	1150
90	30						NSE					(3)	(3)	19	17	(3)	1600	3000	1280	1200	940	1150
		NM	44								/	116	14.5	24	21	125 180 225	3600	6000	3200	2800	2000	2400
				NM	44	R				1		(4)	18	24	-	(4)	_					
						Н	NI) 4F	SSNM	44			116	14.5	24	- 01	125 175 225	3600	6000	3000	3000	0000	0400
		NV	28				NME					(3)	(3)	24 15	21 14	75 125 175	3600	6000	3200	2800	2000	2400
		INV	20	NV	28	R						(2)	(2)	15	- 14	75   125   175 (2)	760	1200	500	400	400	480
		NS	25	14.6	20	"						80	11.5	19	17	80 135 180						
		110		NS	25	R						(2)	(2)	19	-	(2)	1600	3000	1280	1200	940	1150
								SSNS	25			80	11.5	19		80 130 180	1600	3000	960	960		
		NS	35								1	95	12.5	19	17	100 150 200						
40	40			NS	35	R						(2)	(2)	19	-	(2)	]					
40	80	NS	50								1	112	14	19	17	110 160 220	1600	3000	1280	1200	940	1150
80	40			NS	50	R						(2)	(2)	19	-	(2)						
80	80						NSE					(3)	(3)	19	17	(3)	_					
80	160	NM	44								/	116	14,5	24	21	125 180 225	3600	6000	3200	2800	2000	2400
160	80			NM	44	R		SSNM	44	<b>√</b>		(4)	18	24	-	125 175 225	2600	6000	2000	2000		
		NM	60					SSINIVI	44		1	116 135	14.5 17	24	21	125 175 225 150 200 280	3600	6000	3000	3000		
		INIVI	- 00	NM	60	R				1	-	(4)	18	24	-	(4)	3600	6000	3200	2800	2000	2400
							NME					(3)	(3)	24	21	(3)	1					
							NLE					(3)	(3)	38.6	33.4	(3)	10000	10000	7200	6400	4240	5200
		NM	76 <sup>(6)</sup>								1	150	18	24	21	170 240 340	2600	6000	3200	2800	2000	2400
				NM	76	R <sup>⊚</sup>				1		(4)	18	24	-	(4)	3600	6000	3200	2000	2000	2400
160	80	NL	76 <sup>(ii)</sup>									185	20	38.6	33.4	200 300 400	10000	10000	7200	6400	4240	5200
				NL	76	R <sup>(6)</sup>				1		(4)	20	38.6	•	(4)						
$\rightarrow$		NIV/	20					SSNL	76∾			185	20	38.6	- 14	200 300 400	8000	10000	6000	6000		
		NV	28	NV	28	R						72	(2)	15 15	14	75   125   175 (2)	760	1200	500	400	400	480
		NS	25	14.0	20	וז						80	11.5	19	17	80 135 180						
				NS	25	R						(2)	(2)	19	-	(2)	1600	3000	1280	1200	940	1150
								SSNS	25			80	11.5	19	-	80 130 180	1600	3000	960	960		
AE.	AE	NS	35								1	95	12.5	19	17	100 150 200						
45 45	45 60			NS	35	R						(2)	(2)	19	-	(2)						
45	90	NS	50								/	112	14	19	17	110 160 220	1600	3000	1280	1200	940	1150
60	45			NS	50	R	1105					(2)	(2)	19	-	(2)	-					
60	60	NILA	4.4				NSE				1	(3)	(3)	19	17	(3)						
90	90	NM	44	NM	44	R				1	<b>√</b>	116	14.5 18	24	21	125 180 225	3600	6000	3200	2800	2000	2400
				IVIVI	44	п		SSNM	44	V		116	14.5	24	-	125 175 225	3600	6000	3000	3000		
		NM	60					2011111	.,		1	135	17	24	21	150 200 280	1000	2000	2000	2330		
				NM	60	R				1		(4)	18	24	-	(4)	3600	6000	3200	2800	2000	2400
							NME					(3)	(3)	24	21	(3)	1					
							NLE					(3)	(3)	38.6	33.4	(3)	10000	10000	7200	6400	4240	5200
		NM	76								1	150	18	24	21	170 240 340	3600	6000	3200	2800	2000	2400
60	45			NM	76	R				1		(4)	18	24	-	(4)	3000	5000	JE00	2000	2000	2400
60	60	NL	76									185	20	38.6	33.4	200 300 400	10000	10000	7200	6400	4240	5200
				NL	76	R		001		1	Щ	(4)	20	38.6	-	(4)						
		1		1				SSNL	.7გ	h	000	185	20	38.6	-	200 300 400	8000	10000	6000	6000		1

Slide hole centres and fixing screves estate types may vary from those specified in the GV3 & SL2 catalogues. There may also be additional and redundant holes.

### 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** P46-47.
- (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 slimling carriage.



## Compatibility Table Flat Slides with MCS Profiles

	<u></u>	SLID	E PAI	RT NUN	/BER		✓ = FITS WITH ALLGRADES OF SLIDE P3 = FITS WITH P3 GRADE SLIDE ONLY X = WILL NOT FIT - = NOT APPLICABLE  D E ~F ~F1 G <sup>(1)</sup>											NAGE (2)	LOAD (C) LUBRICATED (NEWTONS)						
	S	G\	/3(2)	SL	.2	X =	FITS WIT WILL NO NOT APP	TFIT		DE ONLY			ef						BELT DRIVEN CARRIAGE					<b>(</b>	
Α	В		С		С	D	Е	~F	~F1		<b>G</b> <sup>(1)</sup>		1					BELT D	L1	L2	L1	L2	L1	L2	
		٧	28			72	11	9	7.9	75	125	175	1	P3	P3	1	P3	1		760	1200	500	400	400	480
20 20	20 40	S	35			95	12.5	11.4	9.2	100	150	200	1	1	1	1	1	1	1	1600	3000	1280	1200	940	1150
				SSS	35	95	12.5	11.4	-	100	150	200	1	1	1	-	-	-		1600	3000	960	960	-	-
		М	44			116	14.5	14.6	11.4	125	180	225	1	1	P3	1	1	1	1	3600	6000	3280	2800	800	800
30	30			SSM	44	116	14.5	14.6	-	125	175	225	/	1	х	-	-	-		3600	6000	3000	3000	-	-
30 30	60 90	S	50			112	14	11.4	9.2	110	160	220	1	1	1	1	1	1	1	1600	3000	1280	1200	940	1150
				SSS	50	112	14	11.4	-	110	160	220	1	1	1	-	-	-		1600	3000	960	960	-	-
	00	М	76			150	18	14.6	11.4	170	240	340	1	1	1	1	1	1	1	3600	6000	3200	2800	2000	2400
60	30			SSM	76	150	18	14.6	-	170	240	340	1	1	1	-	-	-		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	00	S	50			112	14	11.4	9.2	110	160	220	1	1	P3	1	P3	1	1	1600	3000	1280	1200	940	1150
40	20			SSS	50	112	14	11.4	-	110	160	220	1	1	х	-	-	-		1600	3000	960	960	-	-
		S	50			112	14	11.4	9.2	110	160	220	1	1	P3	1	P3	1	1	1600	3000	1280	1200	940	1150
	0 40			SSS	50	112	14	11.4	-	110	160	220	1	1	×	-	-	-		1600	3000	960	960	-	-
		М	60			135	17	14.6	11.4	150	200	280	1	1	1	1	1	1	1	3600	6000	3200	2800	2000	2400
40				SSM	60	135	17	14.6	-	150	200	280	1	1	1	-	-	-		3600	6000	3000	3000	-	-
40	80	М	76			150	18	14.6	11.4	170	240	340	1	1	1	1	1	1	1	3600	6000	3200	2800	2000	2400
				SSM	76	150	18	14.6	-	170	240	340	1	1	1	-	-	-		3600	6000	3000	3000	-	-
		L	76			185	20	23.6	18.9	200	300	400	1	1	1	1	1	1		10000	10000	7200	6400	4240	5200
				SSL	76	185	20	23.6	-	200	300	400	/	1	1	-	-	-		8000	10000	6000	6000	-	-
		М	60			135	17	14.6	11.4	150	200	280	1	1	1	1	1	1	1	3600	6000	3200	2800	2000	2400
				SSM	60	135	17	14.6	-	150	200	280	1	1	1	-	-	-		3600	6000	3000	3000	-	-
45 45	45 60	М	76			150	18	14.6	11.4	170	240	340	1	1	1	1	1	1	1	3600	6000	3200	2800	2000	2400
45	90			SSM	76	150	18	14.6	-	170	240	340	1	1	1	-	-	-		3600	6000	3000	3000	-	-
		L	76			185	20	23.6	18.9	200	300	400	1	1	1	1	1	1		10000	10000	7200	6400	4240	5200
				SSL	76	185	20	23.6	-	200	300	400	\	1	1	-	-	-		8000	10000	6000	6000	-	-
		М	76			150	18	14.6	11.4	170	240	340	1	1	1	1	1	1	1	3600	6000	3200	2800	2000	2400
60	45			SSM	76	150	18	14.6	-	170	240	340	\	1	1	-	-	-		3600	6000	3000	3000	-	-
60	60	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	/	1	1	-	-	-		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

Slide hole centres and fixing screw sizes and types may vary from those specified in the GV3 & SL2 catalogues. There may be additional and redundant holes.

### **Ordering Details**

8080(L) - 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 (80x80). L designates alternative shape profile.

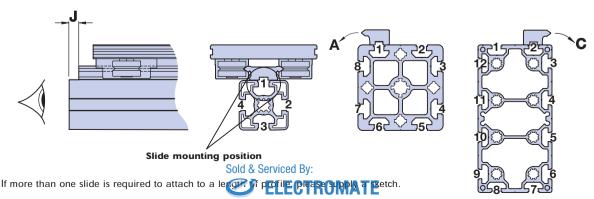
1x - AU4434 - L180 - CS - DR = Carriage reference (example only). Please specify from GV3 or SL2 catalogue according to following procedure:

#### Carriage identification (GV3):

- 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 page 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.

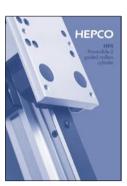


### MCS Profiles with Linear Guides

### **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 exstock availability and standard lengths up to 6m.

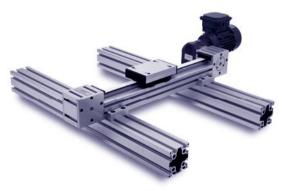
The **HPS** range of pneumatic linear systems is based around an extruded aluminium cylinder ideal for mounting to **MCS**. With the optional addition of **Hepco SH** shock absorbers high speed, long life systems can be achieved.

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.

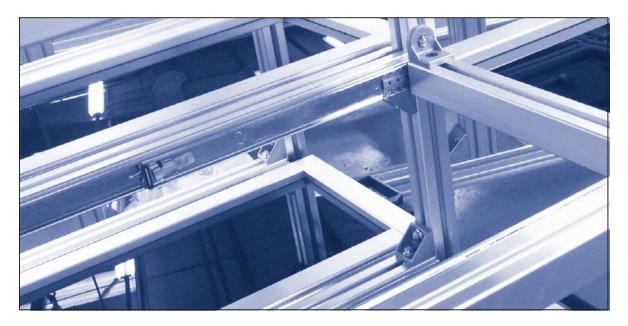
A range of mounting options are available to enable easy connection to **MCS** profiles which, due to their interchangeability with other profiles, makes this the ideal system for retro-fitting machine elements.

#### **Benefits**

- Long system life Low maintenance Sold fight speedy Quiet operation
- Easy secondary machining Robus meta Esystem MATE

### MCS Profiles with Linear Guides

### **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



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## HepcoMotion® Product Range



## BishopWisecarver Product Range

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For further information on HepcoMotion® products – please request our leaflet 'FPL'





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