

Motion Without Limits™

**HepcoMotion®**

**PROFILE  
DRIVEN UNIT**

**PDU2**

Compact Linear Transmission

**bwC**<sup>®</sup>  
BishopWisecarver

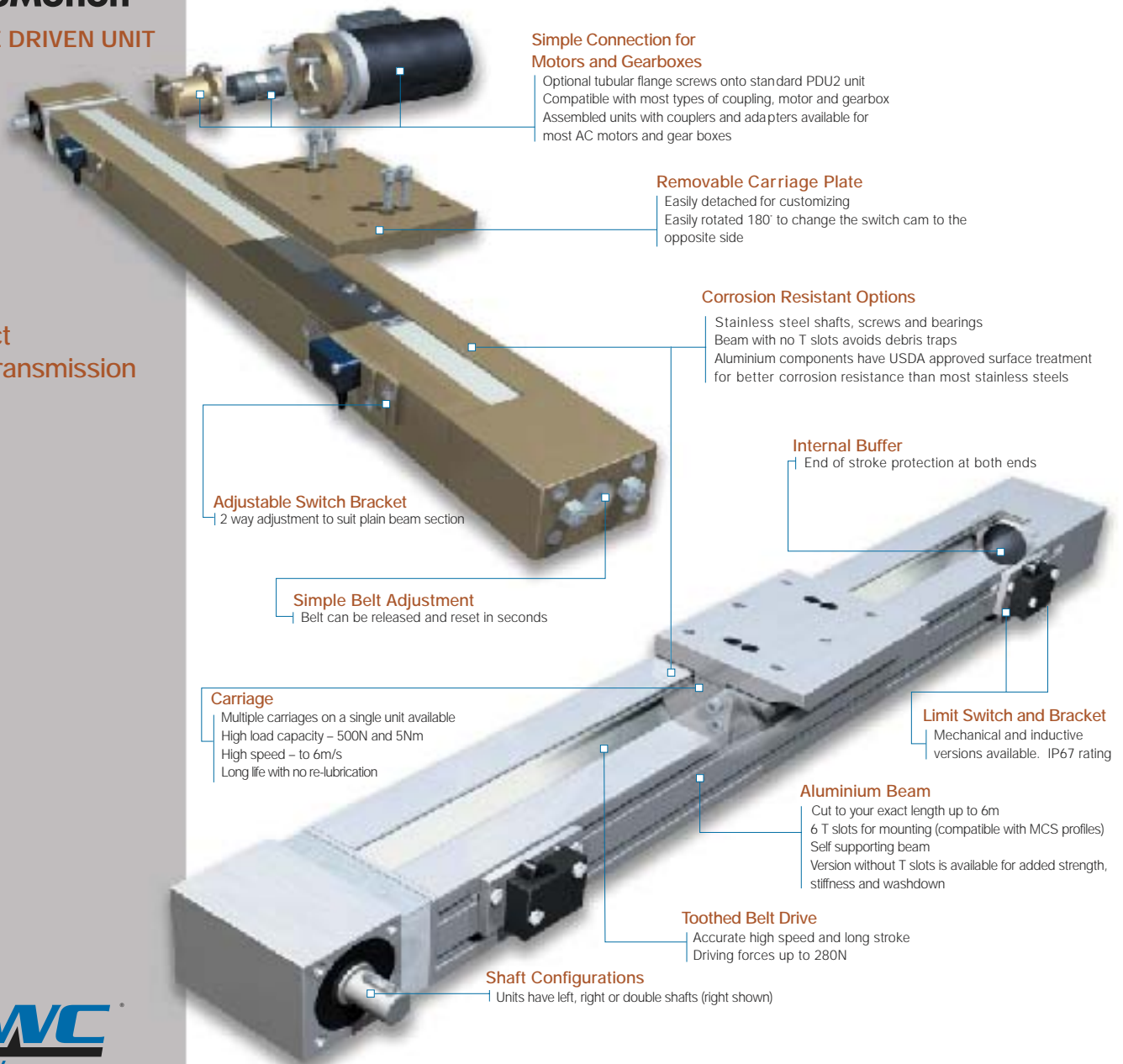
# HepcoMotion®

## PROFILE DRIVEN UNIT

## PDU2

### Compact

### Linear Transmission



#### Simple Connection for Motors and Gearboxes

Optional tubular flange screws onto standard PDU2 unit  
Compatible with most types of coupling, motor and gearbox  
Assembled units with couplers and adapters available for most AC motors and gear boxes

#### Removable Carriage Plate

Easily detached for customizing  
Easily rotated 180° to change the switch cam to the opposite side

#### Corrosion Resistant Options

Stainless steel shafts, screws and bearings  
Beam with no T slots avoids debris traps  
Aluminium components have USDA approved surface treatment for better corrosion resistance than most stainless steels

#### Internal Buffer

End of stroke protection at both ends

#### Adjustable Switch Bracket

2 way adjustment to suit plain beam section

#### Simple Belt Adjustment

Belt can be released and reset in seconds

#### Carriage

Multiple carriages on a single unit available  
High load capacity – 500N and 5Nm  
High speed – to 6m/s  
Long life with no re-lubrication

#### Limit Switch and Bracket

Mechanical and inductive versions available. IP67 rating

#### Aluminium Beam

Cut to your exact length up to 6m  
6 T slots for mounting (compatible with MCS profiles)  
Self supporting beam  
Version without T slots is available for added strength, stiffness and washdown

#### Toothed Belt Drive

Accurate high speed and long stroke  
Driving forces up to 280N

#### Shaft Configurations

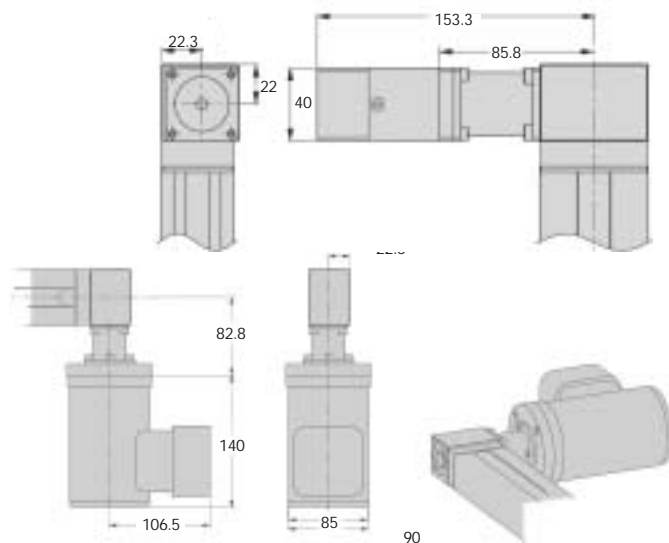
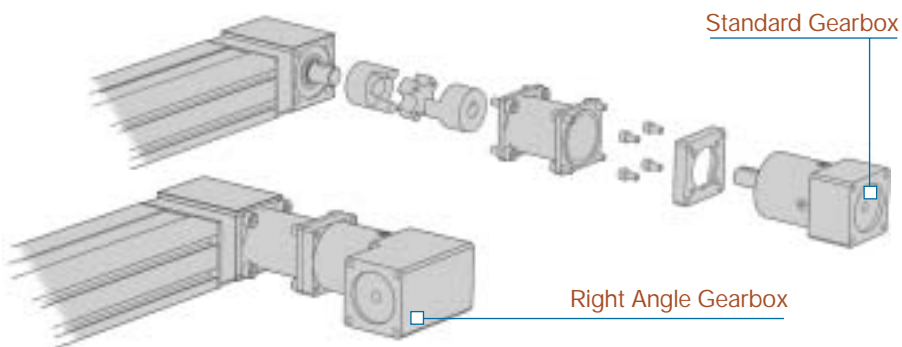
Units have left, right or double shafts (right shown)



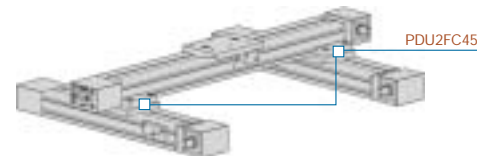
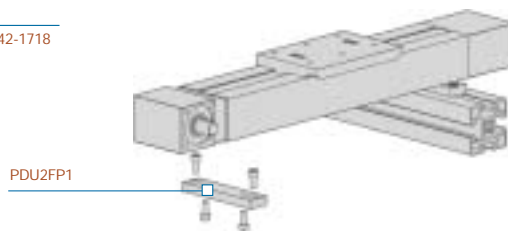
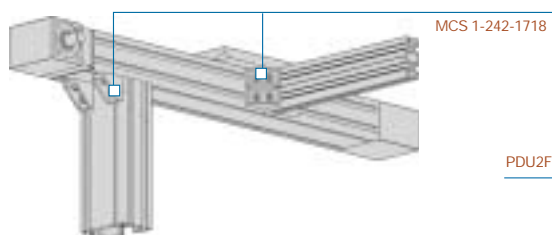
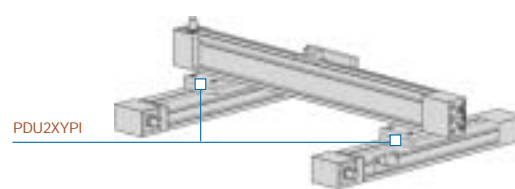
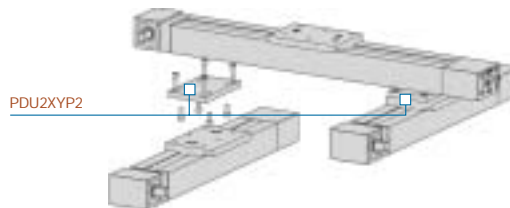
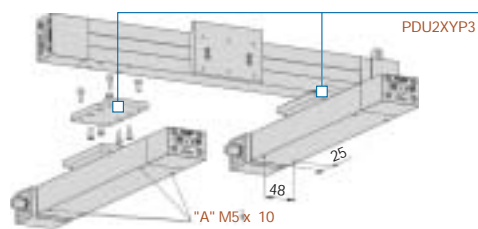
The PDU2 linear transmission unit delivers high performance at low development costs for applications such as food and pharmaceutical packaging. The belt driven units are manufactured to customer's individual length requirements and have a short turn around time.

HepcoMotion patented wheel technology enables the PDU2 to surpass other similar sized units by offering a load capacity of 500N and speeds up to 6m/s. This advanced engineering allows the unit's wheels to run virtually friction-free on the inside surface of the profile without lubrication maintenance. The carriage plate of the PDU2 is designed to accommodate the mounting of a second unit and BWC also offers a full range of options, such as motors, limit switches and MCS aluminum frame systems.

Bishop-Wisecarver provides effective linear motion products for all manufacturing and technical applications. Please contact our product engineers for 2D and 3D CAD files. Our technical staff is available to assist with information specific to your application.

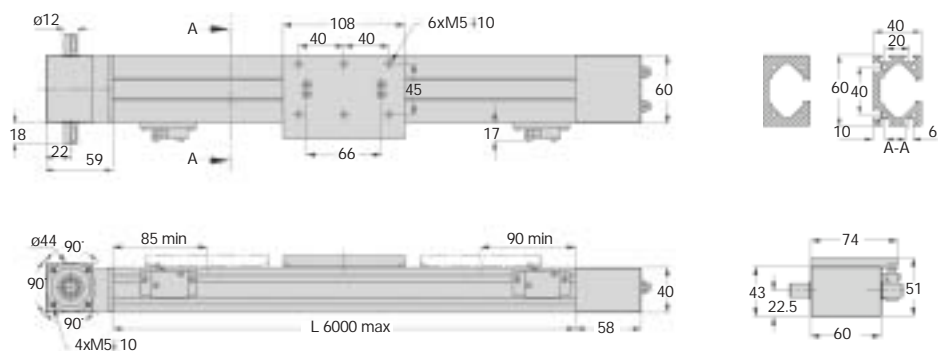


The example shown incorporates an AC inverter motor. This high performance system can deliver a linear force of 145N and speeds over 5m/s. Other motor combinations are available. BWC will supply fitted gearboxes with ratios from 3:1 to 512:1 complete with input flange to suit your motor.



## Dimensions

The main dimensions of the PDU2 are shown in the drawing below. For additional details, please contact BWC for 2D and 3D CAD files.



## Ancillary Components

Limit switch assembly (includes switch, bracket & fixings) = PDU-V3SWA-M (mechanical), PDU-V3SWA-I (inductive).



T nuts: M3 = 1-242-1022; M4 = 1-242-1023



T slot cover (supplied fitted in each of the T slots) = 1-242-1037

## Drive Connections

The PDU2 can be supplied with a motor or gearbox.

Connection kits are available in a wide range of motor faces including IEC C80, C90, C105 and NEMA 23 and 34 are readily available. BWC can also manufacture the components required to fit customers' specific motors and gearboxes.

BWC can supply assorted motors, optional holding brakes, encoders for positioning and inverter drives for power and control.

## Axis Connections

The PDU2 allows easy connections between axes, MCS frames and other machine components.

The configurations shown include part numbers for various brackets.

Please note that tapped holes are required to suit the specific axis connection brackets for plain beam versions, mounting brackets\* and limit switch brackets.

The PDU2 will normally be supplied with these holes already inserted.

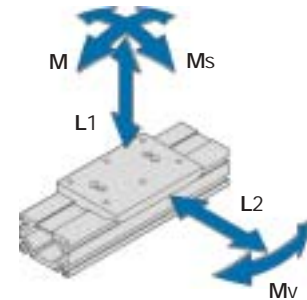
\*Note: Plain beam versions will be supplied with default "A" pattern mounting holes in positions.

### Service Interval Calculations

After extended service, slight play in the carriage may develop. This can be corrected by readjusting the carriage. Adjustment is quick and simple and may be repeated. Adjustment instructions will be supplied with units.

Please consult the table below for maximum carriage loading and service interval calculation. BWC will provide additional data and calculations for your application on request.

Carriage Load Capacity				
L1	L2	Ms	Mv	M
500 N	500 N	5 Nm	14 Nm	14 Nm



To determine service interval, first calculate the load factor LF using this equation.

$$LF = \frac{L1}{L1(max)} + \frac{L2}{L2(max)} + \frac{Ms}{Ms(max)} + \frac{Mv}{Mv(max)} + \frac{M}{M(max)} \leq 1$$

$$Service\ Interval(km) = \frac{2500}{(0.1+0.9\ LF)} \quad \text{Note: Life will be several times this interval.}$$

### Technical Specifications

Parameter			
pulley radius	r	(cm)	1.53
max linear force	Fmax	(N)	280
linear move/shaft rev		(mm)	96
weight of whole T slot beam unit		(kg)	0.0022xL+1.4
weight of whole plain beam unit		(kg)	0.0035xL+1.4
mass of carriage	Mc	(kg)	0.48
mass of belt	Mb	(kg/m)	0.046
pulley radius	r	(cm)	1.53
drive efficiency	ηΔ	(-)	0.9
break away friction	Fba	(N)	8N
coefficient of friction	μ	(-)	0.02
moment of inertia of pulley	lp	(kgcm <sup>2</sup> )	0.14
max linear force	Fmax	(N)	280
linear move per shaft rev		(mm)	96
T slot beam moment of inertia	lx-x	(mm <sup>4</sup> )	1.6 x 10 <sup>5</sup>
T slot beam moment of inertia	ly-y	(mm <sup>4</sup> )	3.5 x 10 <sup>5</sup>
Plain beam moment of inertia	lx-x	(mm <sup>4</sup> )	2.2 x 10 <sup>5</sup>
Plain beam moment of inertia	ly-y	(mm <sup>4</sup> )	5.8 x 10 <sup>5</sup>
Buffer impact energy		J/impact	3
Weight of whole T slot beam unit		(kg)	1.4 + 0.0022 x L
Weight of whole plain beam unit		(kg)	1.4 + 0.0035 x L

PRODUCTS :

*BishopWisecarver*

**HepcoMotion®**



DualVee®  
Guide Wheels



HDS  
Heavy Duty Slide System



PRT  
Ring and Track System



HDLS Heavy Duty  
Driven Linear System



LoPro®  
Linear Motion System



SL2  
Corrosion Resistant System



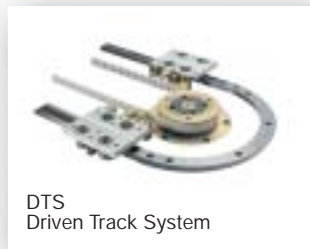
DLS  
Driven Linear System



GV3  
Linear Guidance System



UtiliTrak®



DTS  
Driven Track System



MCS  
Aluminium Profile Sections

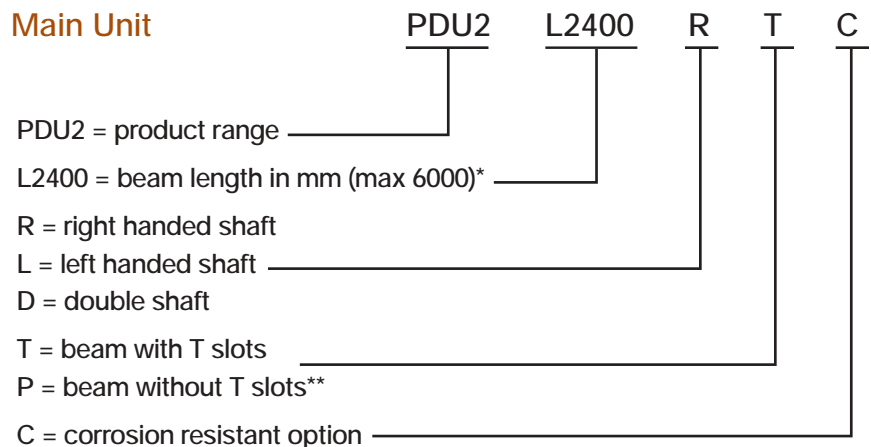


Simple-Select®

**PRODUCT ORDERS**

Please call Bishop-Wisecarver with your specific length requirements and additional ordering assistance. Our technical staff is available to assist with information specific to your application. Lengths available: 300mm to 6000mm.

**Main Unit**



\* Note that stroke length is 175mm shorter.

\*\* Units with plain beams will be supplied with 4xM5 tapped holes in pattern "A" (see inside) unless alternative mounting is specified.



888.580.8272 www.bwc.com



www.HepcoMotion.com