

HepcoMotion®

PDU2M

Belt driven unit
for moment loads



HEPCO®
www.HepcoMotion.com

Introduction

The **HepcoMotion® PDU2M** is a new addition to the popular PDU2 range of belt driven linear units.

It shares all of the key features and benefits of the PDU2 but with increased load capacity and stiffness. L_1 load capacity is 50% higher, M_s moment load capacity is 200% higher, and M_s stiffness is improved ten fold.

These improvements make the PDU2M particularly suitable for use in multi-axis systems, as well as in demanding single-axis applications.

The unit is available with a number of carriage designs which allow the quick and easy construction of multi-axis systems with a minimal requirement for brackets and hardware.

The PDU2M unit is essentially a modified PDU2 unit, and many details of the two products are the same. This document should be read in conjunction with the PDU2 catalogue (available at www.HepcoMotion.com/pdu2datauk) to provide full information on the unit.

Carriage

High load capacity - up to 750N and 15Nm
10 times torsional stiffness of PDU2
High speed - Up to 6m/s
Long life with no re-lubrication
Multiple on a single unit available

Internal Buffer

End of stroke protection at both ends.

Hepco Herculane® Wheels

Ultra-high performance wheels mounted on adjustable eccentric studs

Aluminium Beam

Rigid & lightweight
T-slots in underside

Toothed Belt Drive

20AT3 belt gives driving forces up to 280N

Several carriage styles

To suit single axis and multi-axis applications

Limit Switch Cam

Felt wipers

Sweep debris away from the path of the Herculane® wheels

Limit switch & Bracket

Mechanical & Inductive versions available.
IP67 rating.
Switches attach to T-slot under the beam and can be positioned anywhere along it.

Shaft configurations

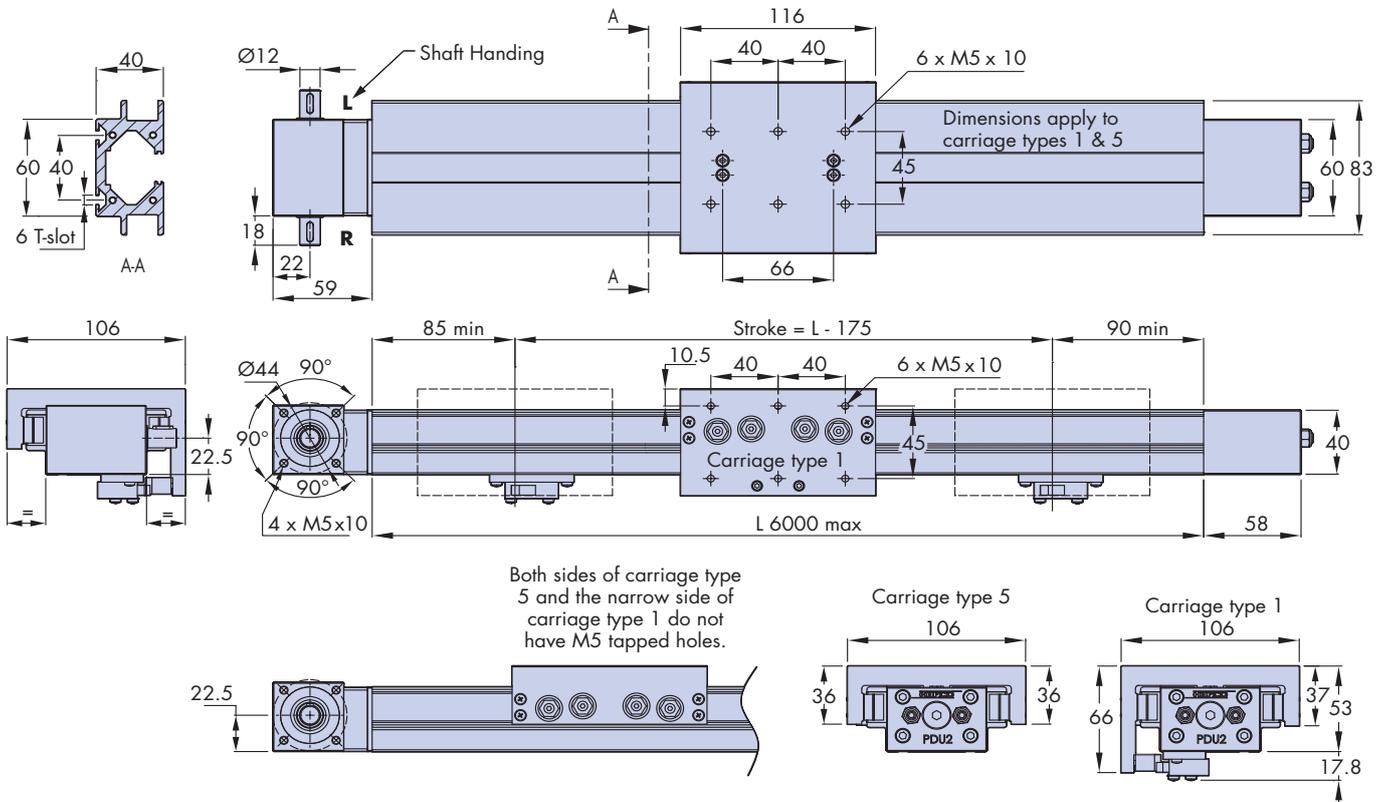
Units have left, right or double shafts (right shown)
All standard PDU2 motor connection kits will fit.

The unit shown has a right-handed shaft and a right-handed carriage

Data & Dimensions

The main dimensions of the PDU2M are shown in the drawing below. Further details can be obtained from the 2D and 3D CAD files, available from www.HepcoMotion3dcad.com.

Hepco's Technical Department is on hand to assist with application enquiries or to undertake the design of complete mechanical systems.



The weight of a PDU2M unit in kg = $1.9 + 3.36 \times L$ (where L = beam length in m).

The above drawings show PDU2M units with carriages of type 1 & type 5.

Carriage type 1 is the "general purpose" design. Note that the carriage wraps around the beam and the limit switches are mounted under the beam. This is suitable in applications where the unit spans a gap and is supported at the ends.

Carriage type 5 does not extend below the underside of the beam and thus can be used when the PDU2M beam is supported along its length. This type does not have a switch cam facility.

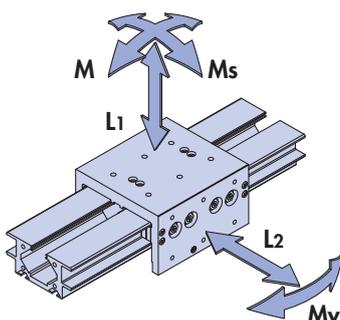
Other carriage types are similar to type 1, and are designed for specific types of multi-axis connection (see next page.)

Service Interval Calculations

After very long service, slight play in the carriage may develop. This can be corrected by re-adjusting the carriage, which will return the unit to its original condition. Adjustment is quick and simple and may be repeated several times.

The table shows the maximum carriage loading, and the calculation below determines the service interval.

Hepco will provide more data and carry out calculations for your application, on request.



Carriage Load Capacity				
L1	L2	Ms	Mv	M
750N	500N	15Nm	14Nm	21Nm

To determine service interval, first calculate the load factor L_f using the equation below.

$$L_f = \frac{L_1}{L_{1(max)}} + \frac{L_2}{L_{2(max)}} + \frac{M_s}{M_{s(max)}} + \frac{M_v}{M_{v(max)}} + \frac{M}{M_{(max)}} \leq 1$$

$$\text{Service Interval (km)} = \frac{5000}{(0.25 + 0.75 \times L_f)} \quad \text{Note: life will be several times this service interval}$$

How to order

The ordering information below is given to assist communication, but you are recommended to discuss your application with Hepco first so that we can help to specify the best unit to suit your needs.

Main Unit

PDU2M L2468 R T DC 2 L

Product range = **PDU2M**

L2468 = beam length in mm (max 6000). Note that stroke length is 175mm shorter.

Shaft Handing **R** = right handed, **L** = left handed, **D** = double shaft (see picture below for example)

T = beam with T-slots (this is the only option at present)

DC = (belt) driven carriage (this is the only option at present)

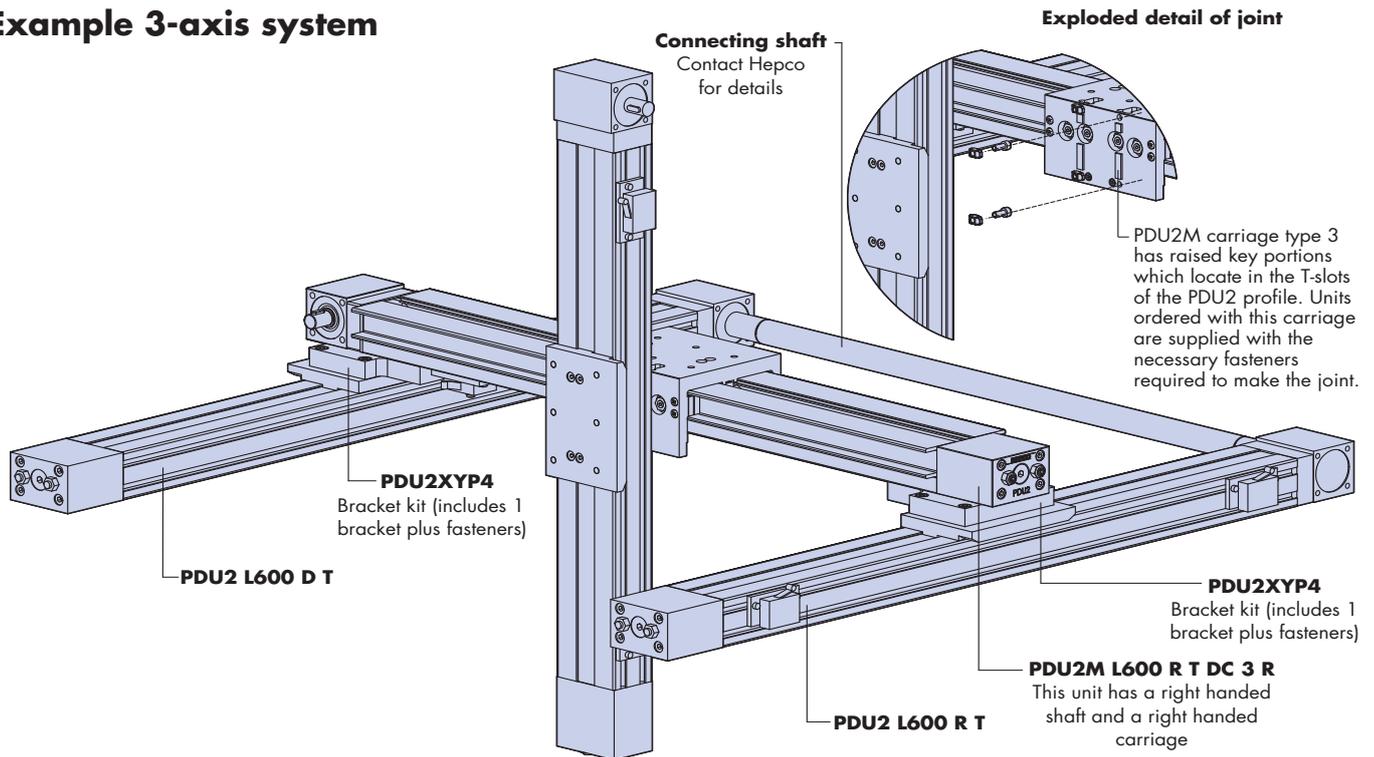
Carriage Type Number: select **1, 2, 3, 4** or **5** (type 3 shown below, types 1 & 5 on previous page)
 (type 2 used to connect PDU2M carriage to PSD80 beam)
 (type 4 used to connect PDU2M carriage to PSD80 carriage, see PSD80 datasheet for more details)

Carriage Handing **R** = right handed, **L** = left handed (see picture below for example)

Ancillary Components

T-nuts, T-slot covers, motor connection kits, gearboxes and limit switches from the PDU2 catalogue (available at www.HepcoMotion.com/pdu2datauk) are compatible with the PDU2M. Other items including motors, drives, axis connection kits, drive shafts and other compatible axes and components are available from Hepco.

Example 3-axis system



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