

## 1.1. Servo Motor Sizes

The following servomotors are available

Servo Type	Max. Torque Nm	Max. Torque ft.lb
Small	4	3
Large	25	18
UNIC05	40	30
UNIC10	98	72
UNIC20	196	145
UNIC40	392	289

The load that the servomotor is used to drive should not exceed the maximum torque rating of the servomotor. With Autoflame supplied valves, the correct servomotor size is already specified by Autoflame.

To correctly size an Autoflame servomotors for use with a third party valves or dampers, the torque required to drive that valve or damper should be checked, this in order to select a servomotor with sufficient torque to drive the damper reliably. Please check the manufacturer's specifications for that valve or damper to check the torque requirements.

If this is unknown or the data is not available, then it is necessary to check the torque required to drive the valve/damper using a torque meter. The torque should be measured when the valve/damper is fully loaded. For example, for an air damper, that will be when the fan motor / VSD is driven at maximum speed. It is recommended that a nominal 20% is added to the measured torque value to determine the type of servomotor required for the application. This nominal 20% takes into account any factors such as dust, rust, and lack of lubrication experienced between service intervals which can make the valve/damper require more torque.

$$\text{Servomotor Torque} = \text{Measured torque at max. load} \times 1.2$$

For example if the measured torque to drive an air damper at full load is 19Nm;

$$\text{Servomotor Torque} = 19 \times 1.2 = 22.8\text{Nm}$$

Therefore a large servomotor may be selected for this damper.

### 3. LARGE SERVO MOTOR

Large servomotors provide a maximum torque of up to 25Nm, they are extremely durable and can be used for variety of applications including controlling air dampers, gas and oil fuel valves, FGR, feedwater valves and many other applications.

Large servomotors are available in metal (powder coated mild steel) housing as well as an option for high impact Acrylonitrile Butadiene Styrene (ABS). ATEX approved version is also available for hazardous environments where the use of explosion proof equipment is required.

Housing	Voltage - AC	Frequency	Supplied Wiring Glands	Part #
Polycarbonate	230V	50/60Hz	2x PG11 Glands	MM10400
Polycarbonate	230V	50/60Hz	1x PG11 - 1/2" NPSM & 1x Blanking Plug	MM10400/NPSM
Polycarbonate	110V	50/60Hz	2x PG11 Glands	MM10400/A
Polycarbonate	24V	50/60Hz	1x PG11 - 1/2" NPSM & 1x Blanking Plug	MM10400/D
Metal	230V	50/60Hz	2x PG11 Glands	MM10004
Metal	230V	50/60Hz	1x PG11 - 1/2" NPSM & 1x Blanking Plug	MM10004/NPSM
Metal	110V	50/60Hz	2x PG11 Glands	MM10004/A
Metal	24V	50/60Hz	1x PG11 - 1/2" NPSM & 1x Blanking Plug	MM10004/D

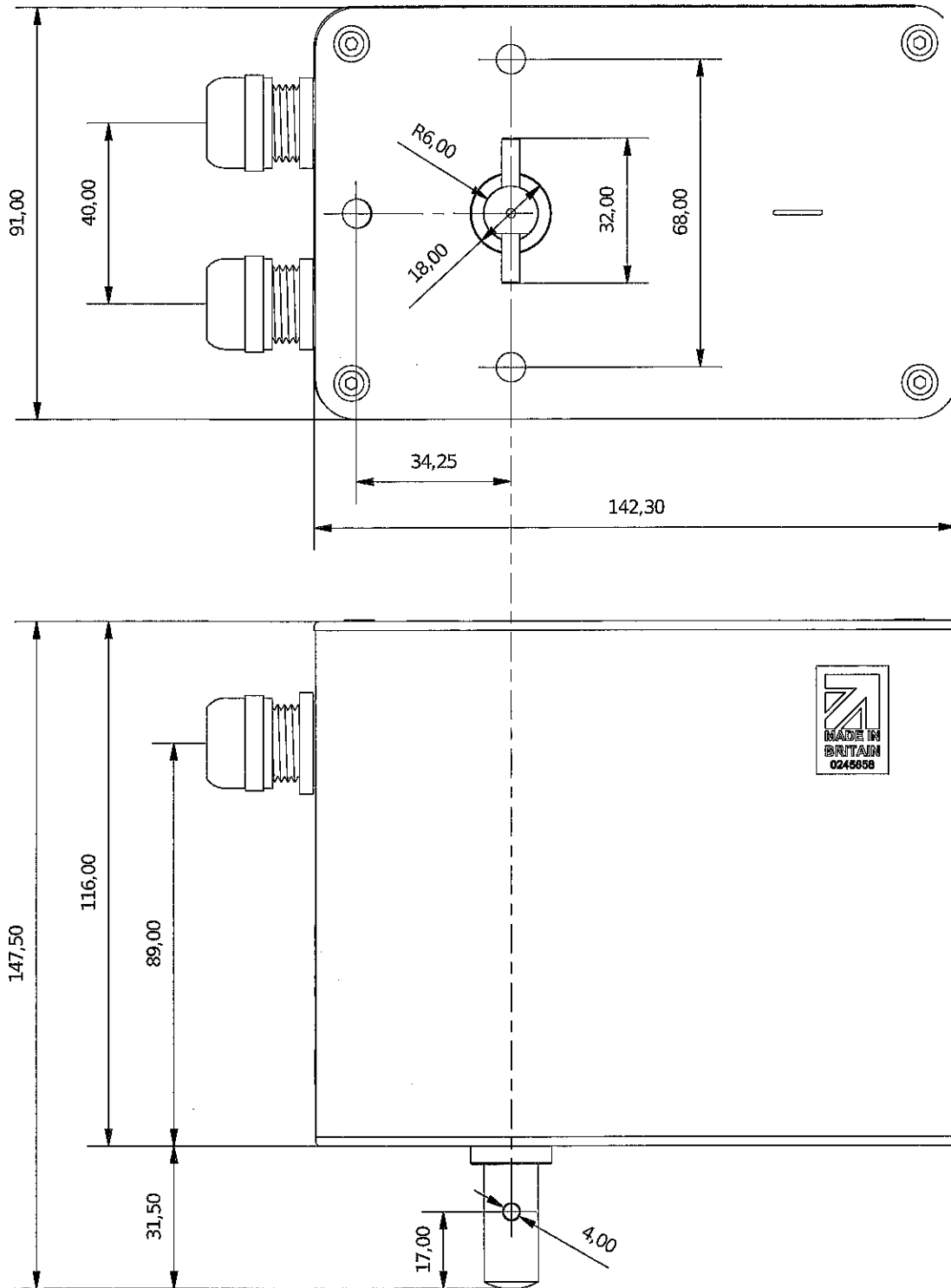
#### 3.1. Specifications

Supply voltage	AC - Dependant on part number
Output torque at shaft	25Nm (18ft lbs)
Rotation angle	360°
Operation angle	-6° to 96°
Accuracy	Up to 0.1°, 900 positions available
Max. rated power	9W
Min. operation temperature	0°C (32° F)
Max. operation temperature	60° C (140° F)
Ingress Protection rating	IP65, NEMA4
Mounting angle	360°
Positioning	MM drive
Drive motor	Synchronous
Housing material (polycarbonate)	High Impact Polycarbonate
Housing material (metal version)	Mild steel CR4 with Interpon 700 Industrial Powder Coat
Gear material	708M40T mild steel
Plates material	Aluminium
Screws material	Stainless Steel
Dimension (LxWxH)	See relevant drawing
Wiring connection (230V)	PG11 gland
Wiring connection (24V, 110V)	½" conduit adaptor and blanking plug
Lid screws	4 x M4x10 Stainless steel socket head
Lid screw torque	0.2 to 0.4 Nm
Body mounting screws	2 x M5x25 Stainless socket head
Body mounting torque	1.2 – 2.6Nm
Shipped Weight (Polycarbonate)	1.75 kgs. (3.85 lbs)
Shipped Weight (Metal version)	1.85 kgs. (4.1 lbs)

### 3.2. External View – Metal Housing



### 3.3. Dimensions - Metal Housing

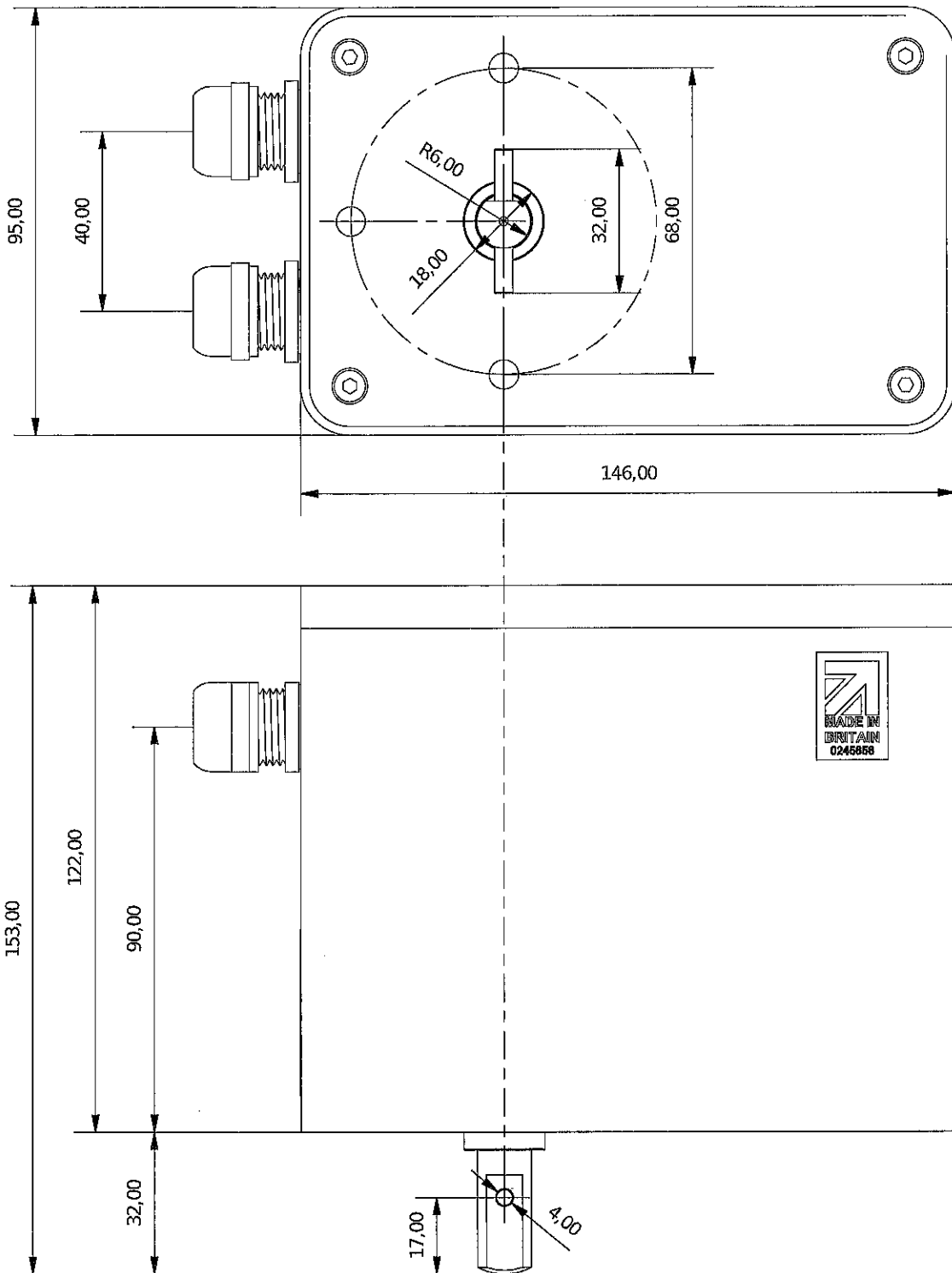


All dimension in millimetres: 1 inch = 25.4 mm

### 3.4. External View – Polycarbonate Housing



### 3.5. Dimensions - Polycarbonate Housing



All dimension in millimetres: 1 inch = 25.4 mm