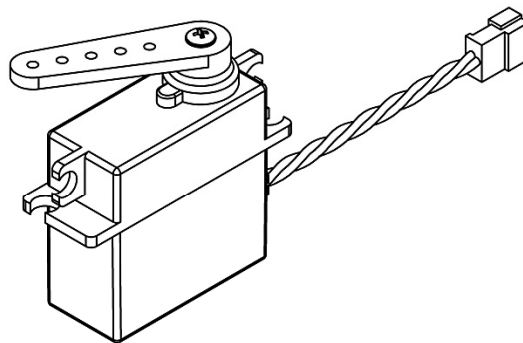


# DA 13

## Technical Specification



DA 13-05-32  
DA 13-05-60

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## 1. General Description

Approved 13 mm actuators with all steel gear train for highest possible robustness and minimized wear off.  
Fully programmable using our programming tool (available as accessory).  
Integrated lug mounts for horizontal and vertical fixation allow fast and neat installation.

### **DA 13-05-32**

High speed version for applications requiring intermittent very fast response (no load speed > 600°/sec!) and that have low continuous load requirements.

### **DA 13-05-60**

Proven power version for applications in which the higher positioning force of 30 Ncm is required.  
The DA 13 is used successfully in micro UAVs, robotic and medical technology applications like motorized apertures in X-ray lenses or shutter control for X-ray devices.

## 2. Operating Data

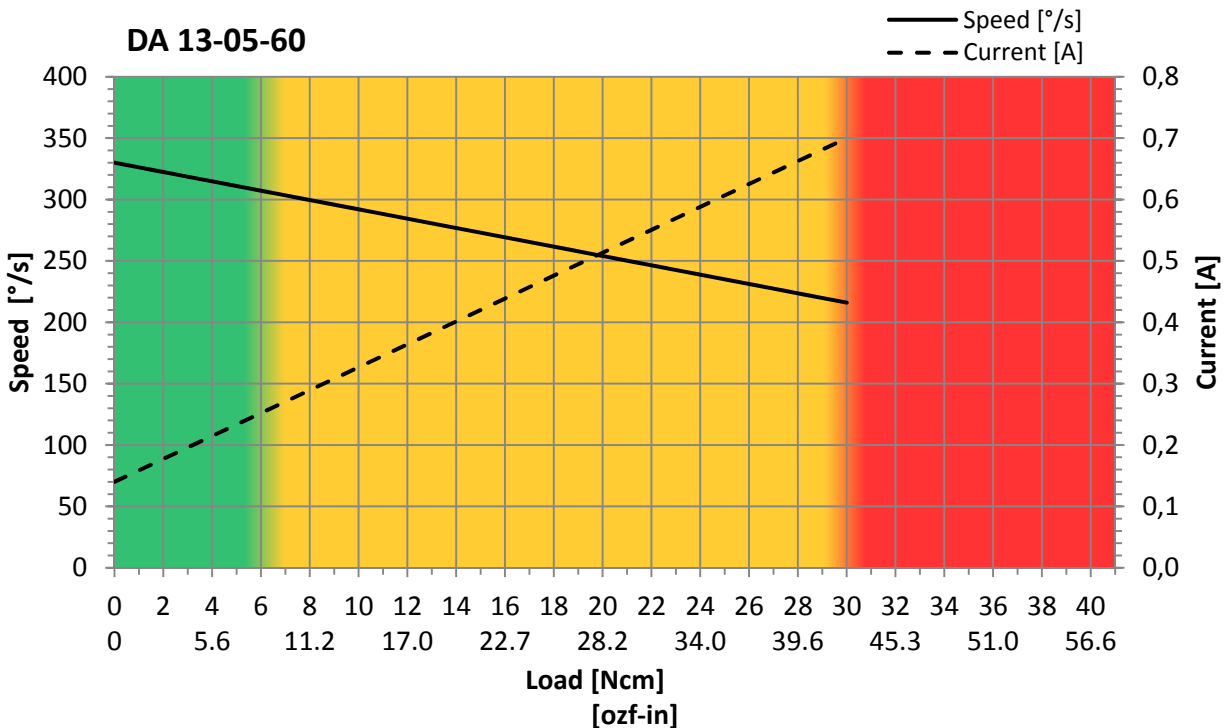
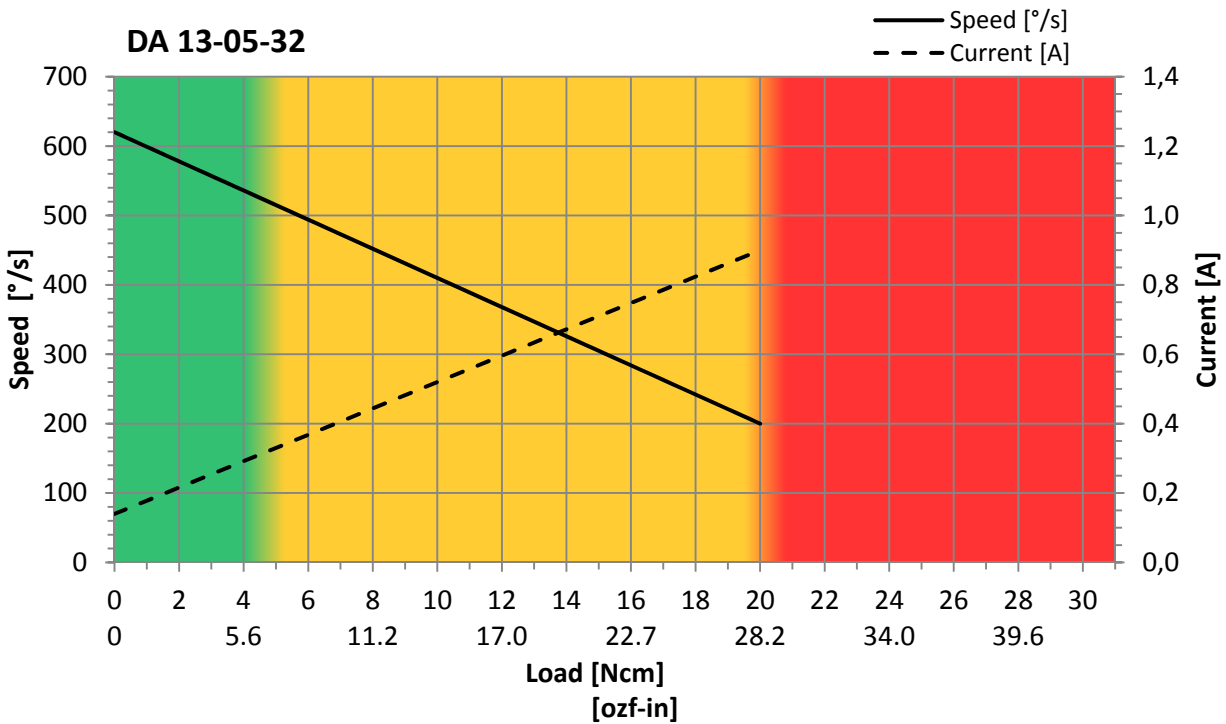
		DA 13-05-32...	DA 13-05-60...
Supply Voltage (rated)		5.0 V DC	
Supply Voltage Range		4.8 ... 5.0 V DC	
Standby Current <sup>1</sup>	at rated voltage	< 0.008 A	
Rated Current <sup>1</sup>	at rated voltage	0.3 A	
Peak Current <sup>1</sup>	at rated voltage	0.9 A	
Rated Torque <sup>1</sup>	at rated speed	4.5 Ncm (6.3 ozf-in)	6.3 Ncm (8.8 ozf-in)
Peak Torque <sup>1</sup>	at rated voltage	20 Ncm (28 ozf-in)	30 Ncm (42 ozf-in)
No Load Speed <sup>1</sup>	at rated voltage	620 °/s	330 °/s
Rated Speed <sup>1</sup>	at rated torque	540 °/s	310 °/s
Default Travel Angle		±55° = 110° total travel	
Max. Travel Angle <sup>2</sup>		±65° = 130° total travel	
Backlash (mechanical)		< 0.9°	
Position Error under Temperature <sup>3</sup>		< ±1.0°	
Operating Temperature Range		-30°C ... +70°C (-22°F ... +158°F)	
Storage Temperature Range		-35°C ... +80°C (-31°F ... +176°F)	

1) Tolerance ±10%

2) Programming Tool # 985.1 required

3) -20°C ... +50°C , Δt = 70°C (-4°F ... +122°F , Δt = 126°F)

### 3. Performance



**Operation Mode:**

■ Continuous

■ Short Time  
< 10s , 60s cool down

■ Overload  
< 1s , 60s cool down

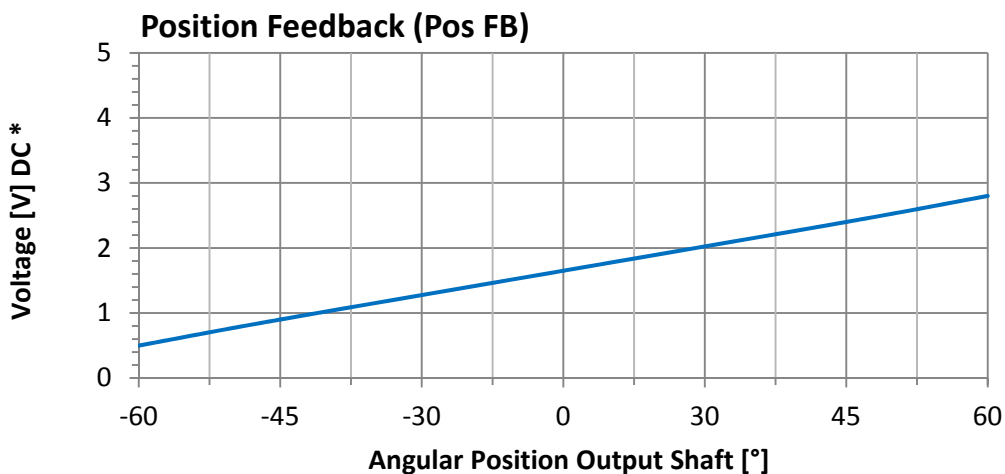
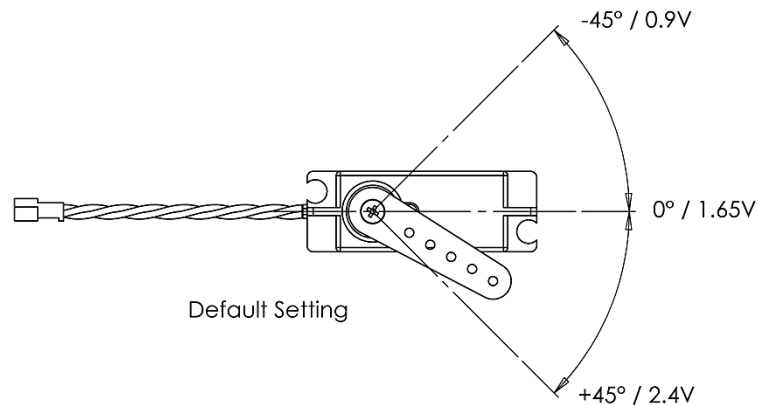
[Content is subject to change without notice](#)

## 4. Command Signal

	DA 13-05-32...	DA 13-05-60...
Signal Voltage	TTL-Level HIGH: min. 2.2V , max. 5.0V TTL-Level LOW: min. 0.0V , max. 0.8V	
Frame Rate	7... 20 ms	
Valid Pulse Lengths	0.8 ... 2.2 ms	
Pulse Length for Position Left / Center / Right	1.0 / 1.5 / 2.0 ms	
Resolution	< 1 $\mu$ s	

### 4.1. Position Feedback Signal

The Position Feedback signal (Pos FB) is an analog output signal with a voltage value which is directly related to the output shaft's angular position. Reference is Supply Ground (GND).



\* Tolerance  $\pm$ 5%

Content is subject to change without notice

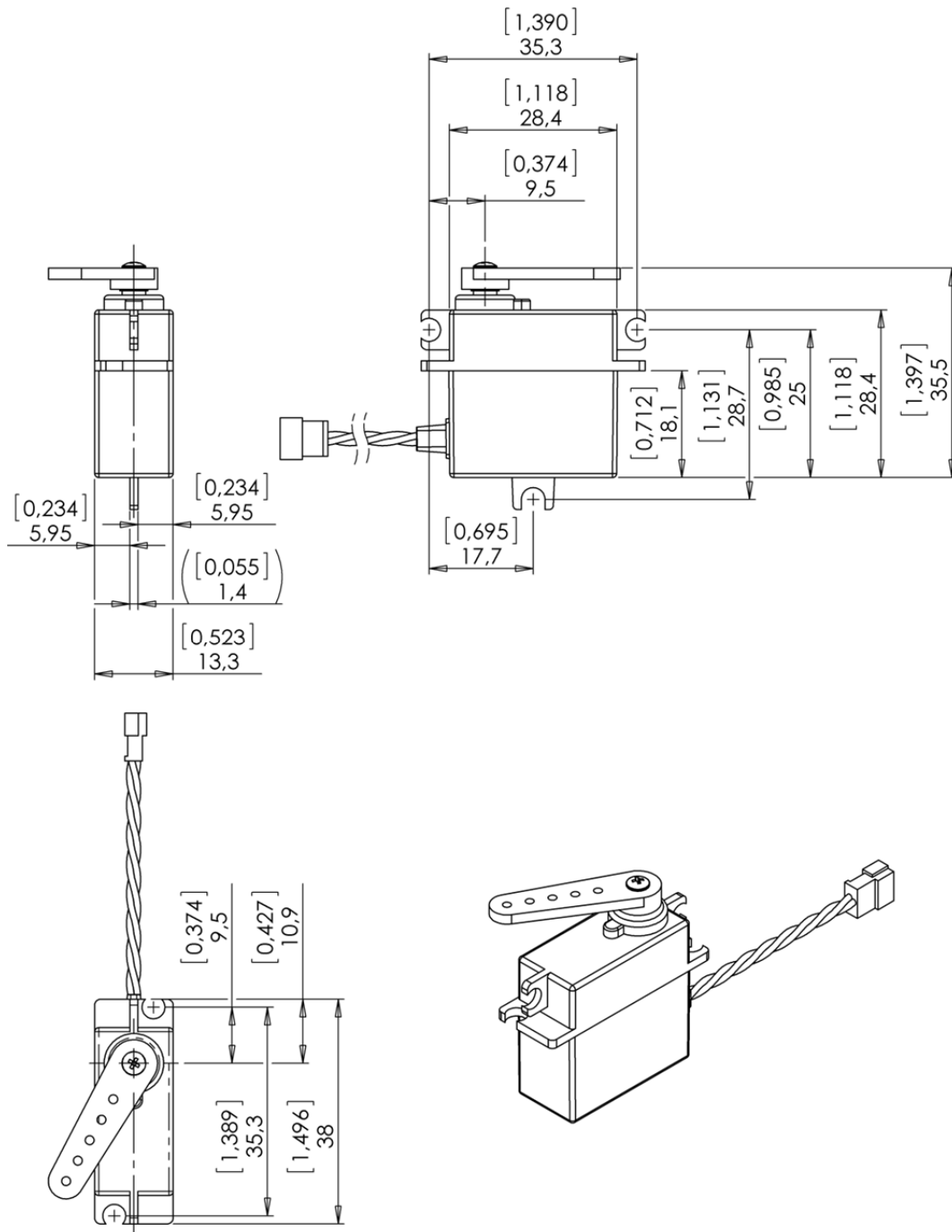
## 5. Materials and Protective Features

Case	POM, Chrome plated bottom case part
Splash Water Resistance	not available
Salt Water Resistance	not available
EMI / RFI Shielding	not available
Motor	Brushed DC Motor
Gear Set	Hardened Steel
Position Sensor	Precision Potentiometer
Position Feedback	Optional
MIL specified electrical Connector	Optional
Shielded Connecting Cable	Optional

## 6. Dimensions

Case Dimensions according to DIN ISO 2768-1c	28.4 mm x 38.0 mm x 13.3 mm (1.122 in x 1.496 in x 0.512 in)
Weight	19g (0.67oz) ±10%

## 6.1. Installation Dimensions



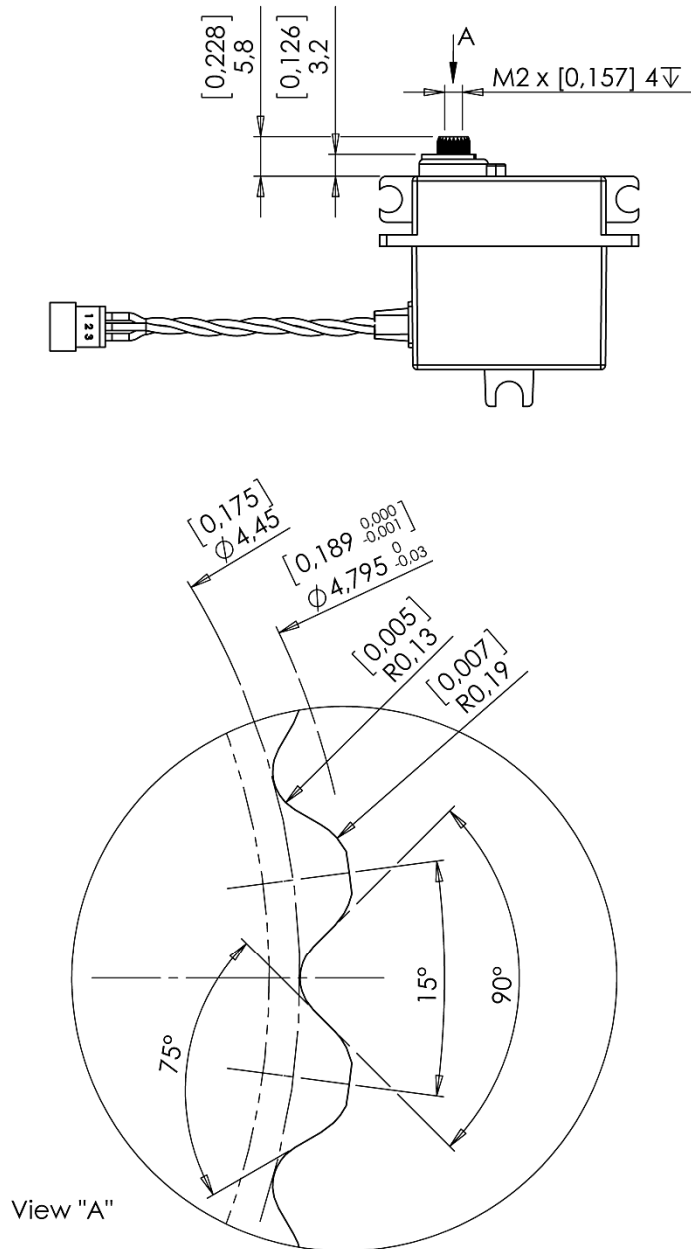
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Dimensions: [in] , mm

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## 6.2. Output Shaft Spline



Not to scale

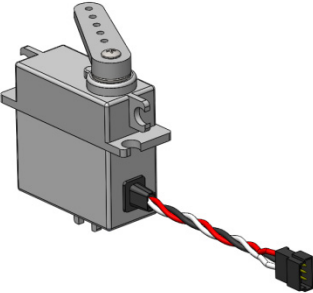

Dimensions: [in] , mm

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## 7. Electrical Connection Options

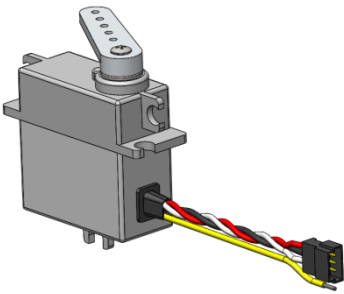
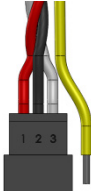
Standard Connector  
Leads length 45mm (1.77in)

Item # DA 13.05.\_.\_.ST

	 <p>1 2 3</p>	<b>Standard Connector</b>		
		Manufacturer	JST	
		Type	ZMR-03	
		Mating	ZHR-3	
	<b>Pin Assignment</b>			
	1	Red	+V DC	Supply Voltage
2	Black	GND	Supply Ground , Signal Ground	
3	White	SIG	Command Signal	

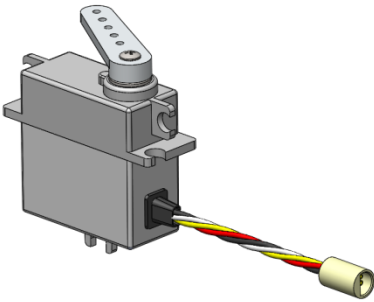

Standard Connector  
Leads length 45mm (1.77in)

Item # DA 13.05.\_.\_.P

	 <p>1 2 3 4</p>	<b>Standard Connector</b>		
		Manufacturer	JST	
		Type	ZMR-03	
		Mating	ZHR-3	
	<b>Pin Assignment</b>			
	1	Red	+V DC	Supply Voltage
2	Black	GND	Supply Ground , Signal Ground	
3	White	SIG	Command Signal	
4	Yellow	Pos FB	Position Feedback	

MIL specified Connector  
Leads length 45mm (1.77in) <sup>4</sup>

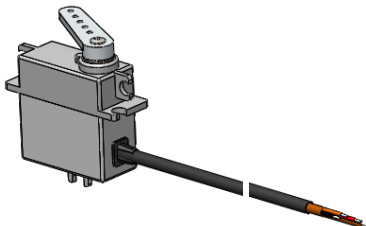

Item # DA 13.05.\_.\_.OA

	4 5		<b>MIL specified Connector</b>	
			Manufacturer	Omnetics
	1 2 3 mating face		Type	MCS-05 WD
			Mating	MCP-05
	<b>Pin Assignment</b>			
	1	Red	+V DC	Supply Voltage
2	Black	GND	Supply Ground , Signal Ground	
3	White	SIG	Command Signal	
4	Yellow	Pos FB	Position Feedback (optional)	
5	-	NC	Not connected	

4) 59in connecting cable with mating connector and open leads included

Shielded Cable  
Cable length 250mm (10in), open leads

Item # DA 13.05.\_.\_.SC250

			<b>Shielded Cable</b>	
			Manufacturer	
			Type	LifYDY-UL 4x0,08mm <sup>2</sup>
	<b>Pin Assignment</b>			
	1	Red	+V DC	Supply Voltage
	2	Black	GND	Supply Ground , Signal Ground
3	Orange	SIG	Command Signal	
4	Brown	Pos FB	Position Feedback (optional)	

## 8. Accessories

Item	Item-No.
Aluminum Servo Arm, short, single sided	1521.21
Aluminum Servo Arm, long, single sided	1521.22
Grommets (3 pcs.)	1521.25
Aluminum Mounting Frame, symmetrical	1521.30 incl. Hardware
Extension Lead , 50cm (19in) , 3 lead , 4g (0.141oz) <sup>5</sup>	110.050
Extension Lead , 80cm (31in) , 3 lead , 6g (0.212oz) <sup>5</sup>	110.080
Extension Lead , 100cm (39in) , 3 lead , 8g (0.282oz) <sup>5</sup>	110.100
Extension Lead , 150cm (59in) , 3 lead, 12g (0.423oz) <sup>5</sup>	110.150
Connecting Cable , 150cm (59in) , 3 lead , 12g (0.423oz) <sup>6</sup>	113.150
Connecting Cable , 150cm (59in) , 4 lead , 16g (0.564oz) <sup>6</sup>	114.150
Programming Tool	985.1

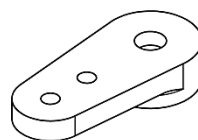
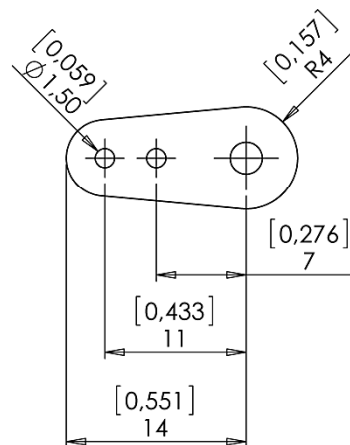
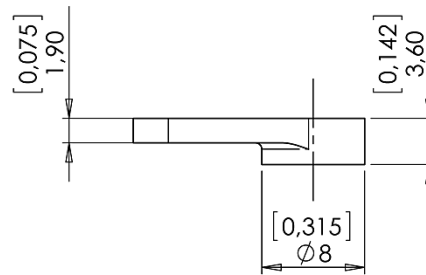
5) JST ZMR-03 , JST ZHR-3 Connectors

6) Omnetics MCP-05 Connector and open leads

All accessories to be purchased separately.

## 8.1. Aluminum Servo Arm, short

1521.21



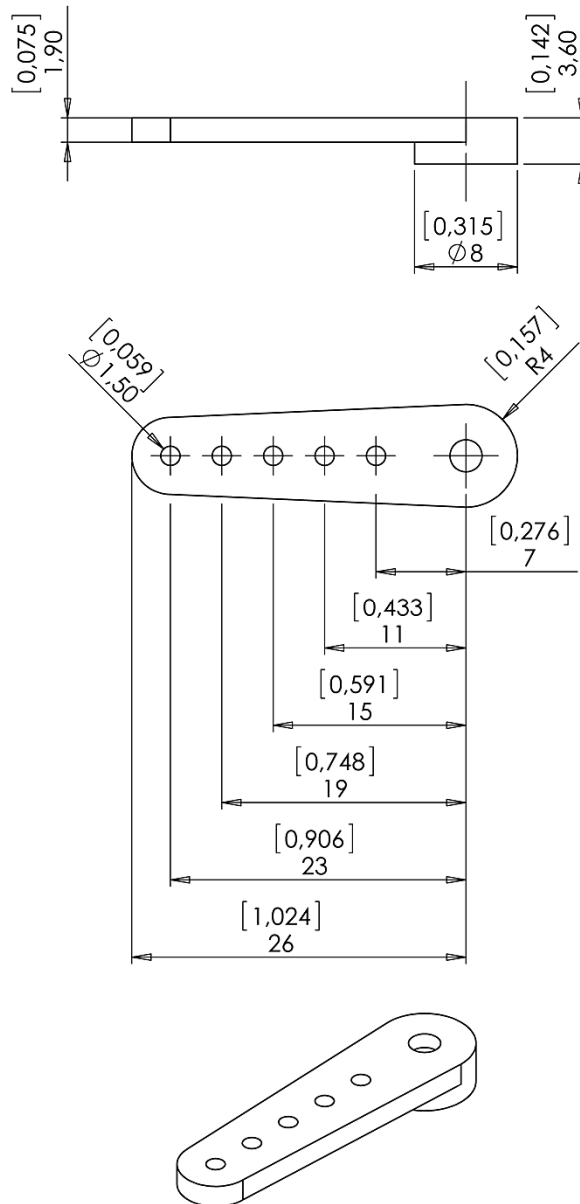
Not to scale

Dimensions: [in] , mm

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## 8.2. Aluminum Servo Arm, long

1521.22



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Dimensions: [in] , mm

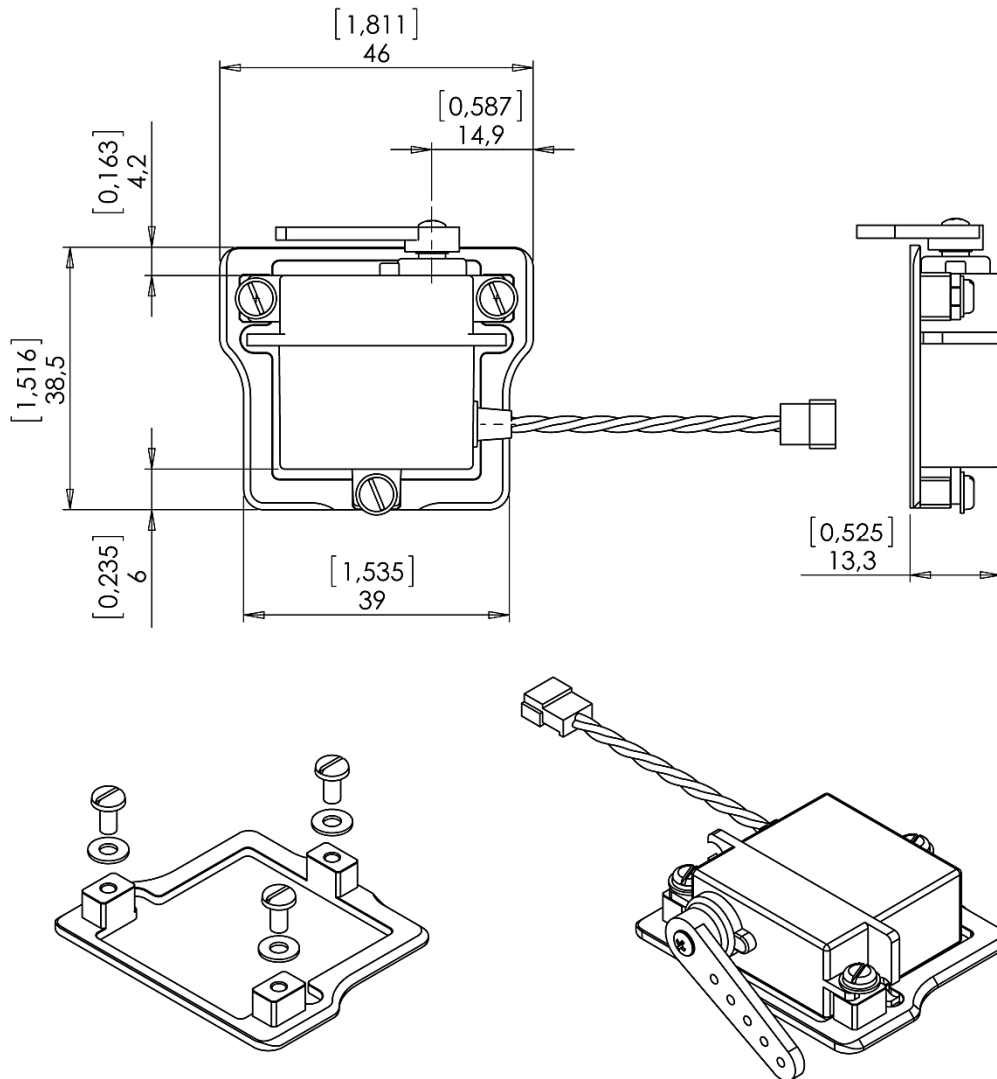
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Date: 02/2016

Revision: D

### 8.3. Aluminum Mounting Frame

1521.30



Mounting Frame shown with installed actuator.

Not to scale

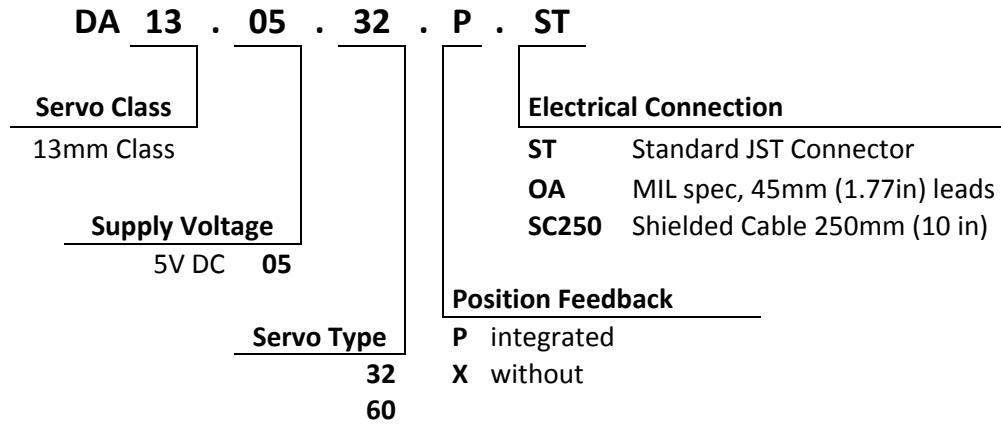
Dimensions: [in] , mm

[Content is subject to change without notice](#)

Date: 02/2016

Revision: D

## 9. Item Number System



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