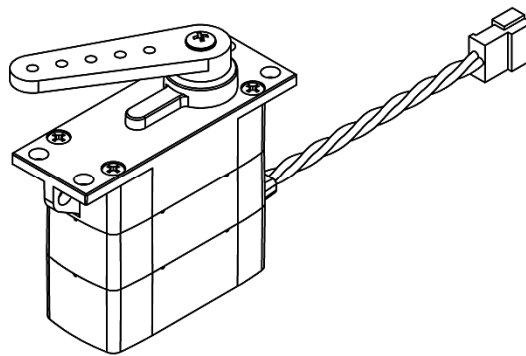


# DA 14

## Technical Specification



DA 14-05-32  
DA 14-05-60

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## 1. General Description

In comparison to the DA 13, the DA 14 offers an improved case design. The DA 14 case is completely sealed and complies with the IP-67 standard (waterproof down to 1 meter /3 feet and dust tight). The usage of a carbon fiber reinforced plastic material increases its mechanical robustness, torsional stiffness and EMI/RFI shielding.

Our fully programmable DA 14 provide all steel gear trains and are available in two case versions: Version A is meant to be directly screwed in place, Version B to be fixed with rubber grommets.

### **DA 14-05-32**

High speed version with reduced gear ratio. Can be used in applications where a fast response (no load speed > 600°/s) is needed at low continuous load requirements.

### **DA 14-05-60**

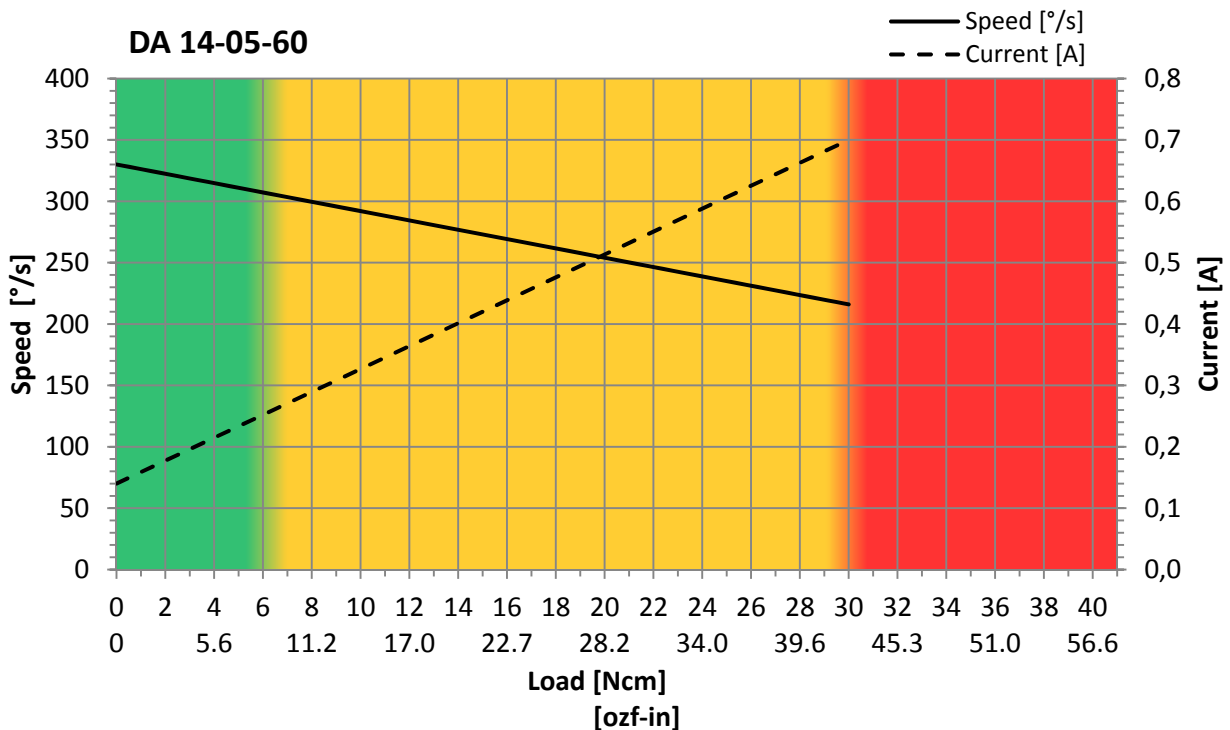
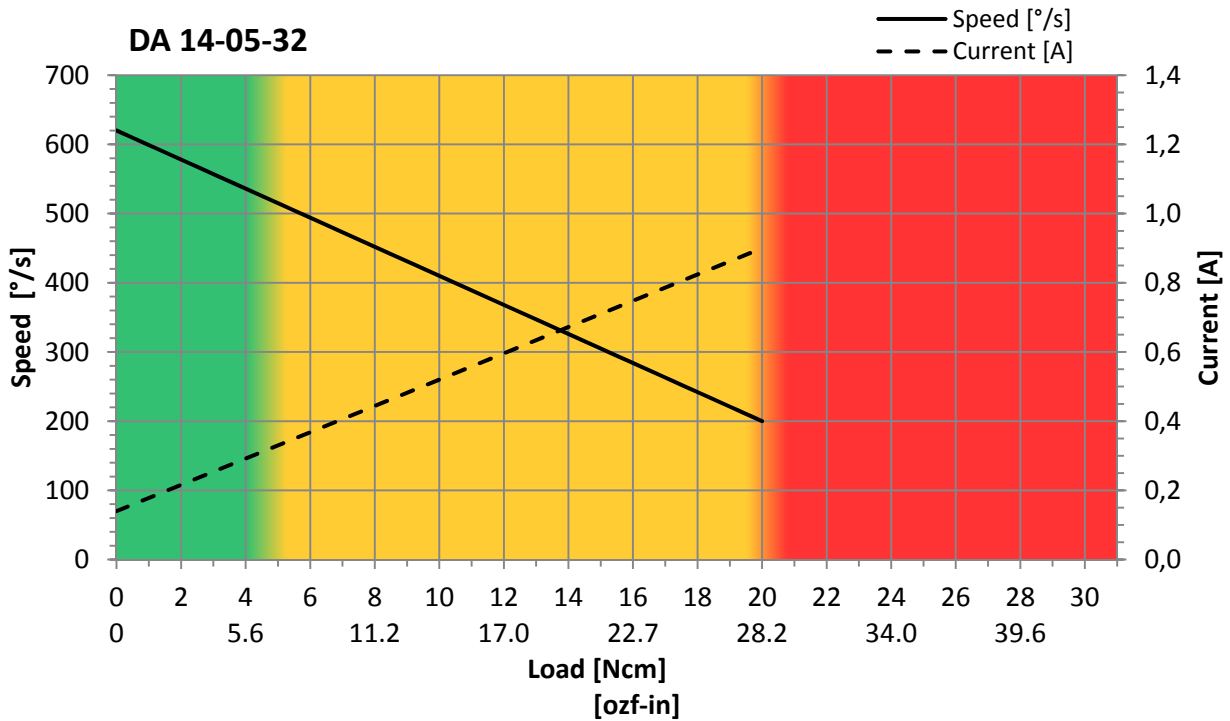
Power version in same case design as our DA 14-05-32.

## 2. Operating Data

		DA 14-05-32...	DA 14-05-60...
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°	
Operating Temperature Range <sup>4</sup>		-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)
- 4) Low Temperature Modification (-60°C / -76°F) on request

### 3. Performance



**Operation Mode:**

■ Continuous

■ Short Time  
< 10s , 60s cool down

■ Overload  
< 1s , 60s cool down

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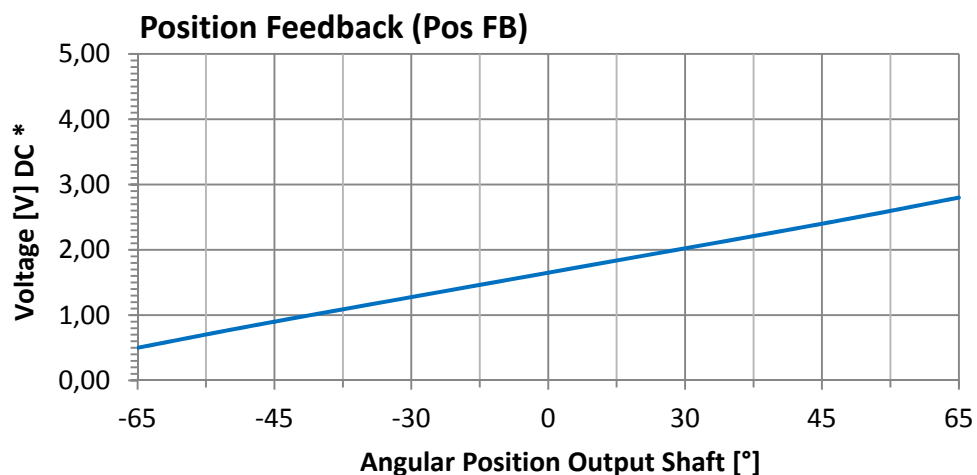
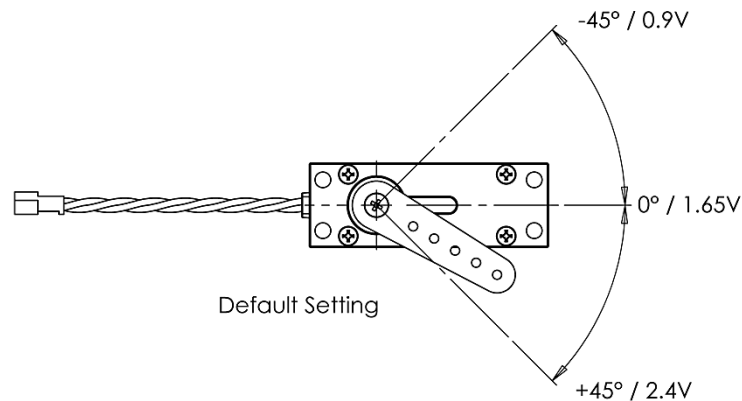
Revision: B

## 4. Command Signal

	DA 14-05-32...	DA 14-05-60...
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  $\pm 5\%$

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## 5. Materials and Protective Features

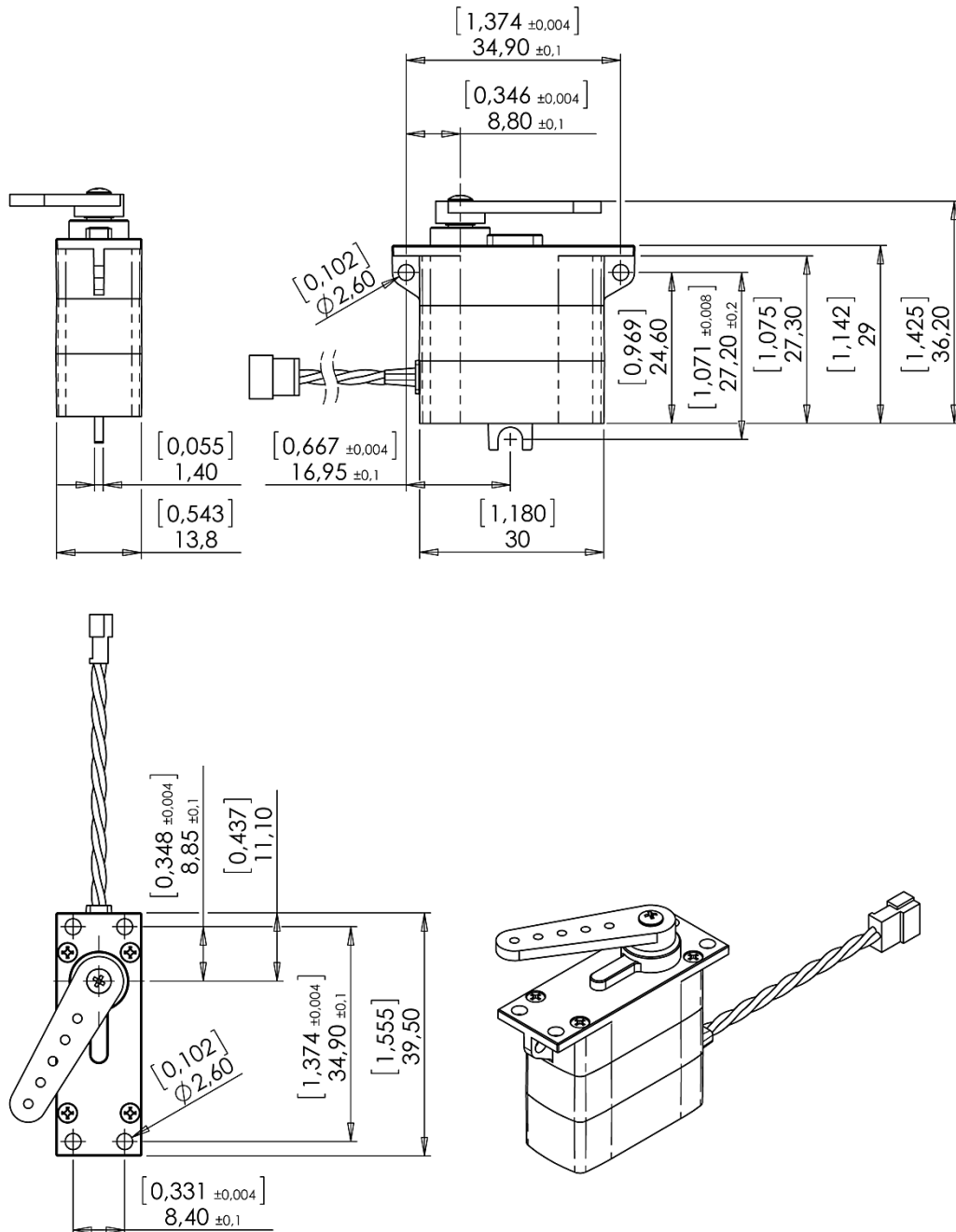
Case	Carbon Fiber Reinforced POM
Splash Water Resistance	IP 67 , waterproof to 1m depth
Salt Water Resistance	Case Material
EMI / RFI Shielding	Case Shielded
Motor	Brushed DC Motor
Gear Set	Hardened Steel
Position Sensor	Precision Potentiometer
Position Feedback	Optional
MIL specified electrical Connector	Optional
Shielded Connecting Cable	Optional

## 6. Dimensions

Case Dimensions Case Design „A“	29.0 mm x 39.5 mm x 13.8 mm $\pm 0.2$ mm (1.142 in x 1.555 in x 0.543 in $\pm 0,008$ in)
Case Dimensions Case Design „B“	29.5 mm x 38.0 mm x 13.8 mm $\pm 0.2$ mm (1.161 in x 1.496 in x 0.543 in $\pm 0,008$ in)
Weight	20g (0.70oz) $\pm 10\%$

## 6.1. Installation Dimensions

Case Design "A"  
 DA 14-05-\_\_\_.A...



Not to scale

Dimensions: [in] , mm

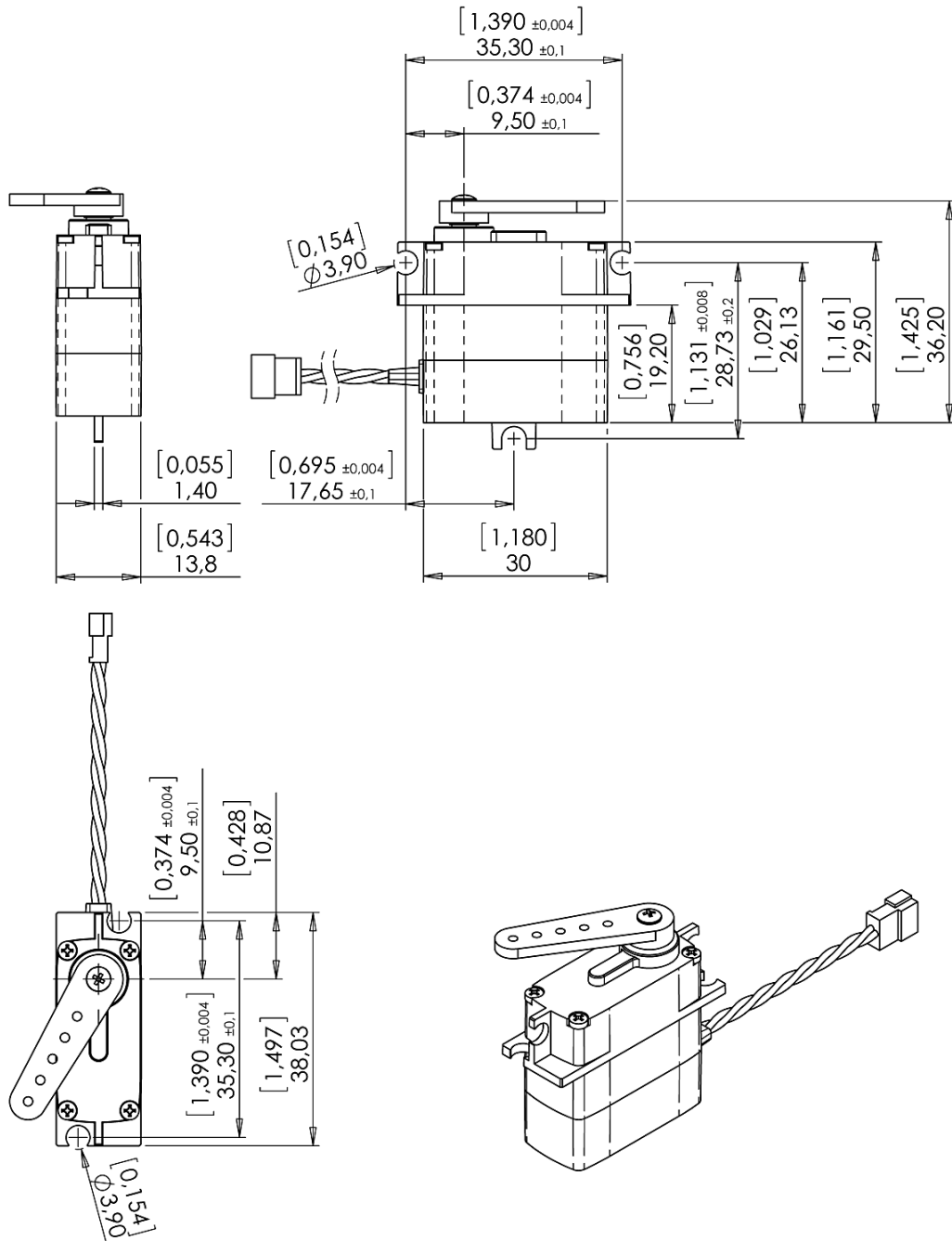
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## 6.2. Installation Dimensions

Case Design "B"  
 DA 14-05-\_\_\_.B...



Not to scale

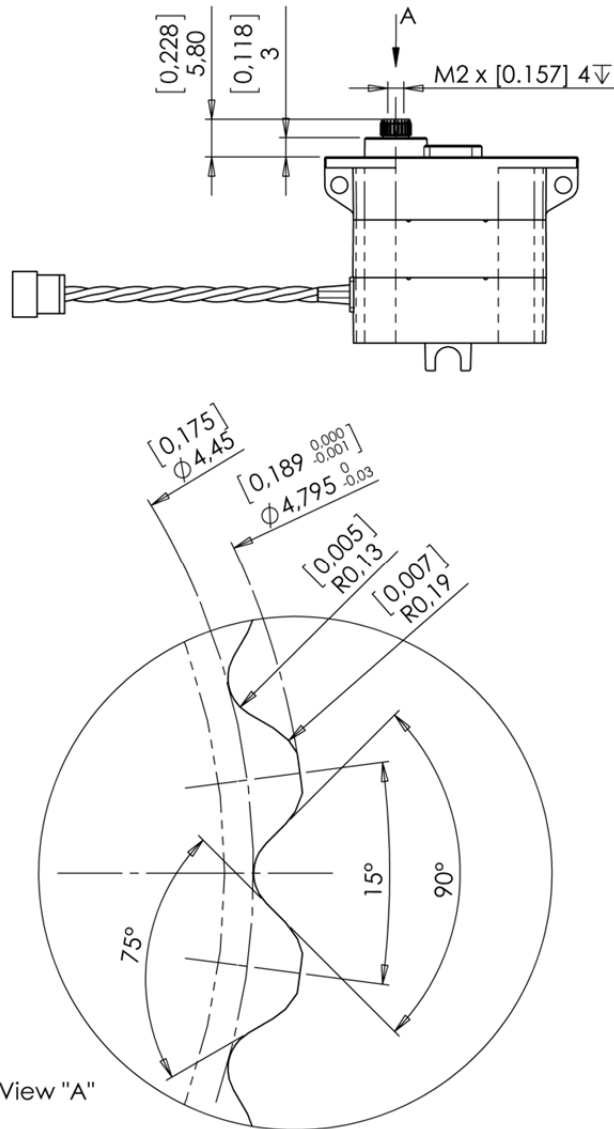
Dimensions: [in] , mm

Content is subject to change without notice

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### 6.3. Output Shaft Spline

Valid for Case Designs "A" and "B"



Not to scale

Dimensions: [in] , mm

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

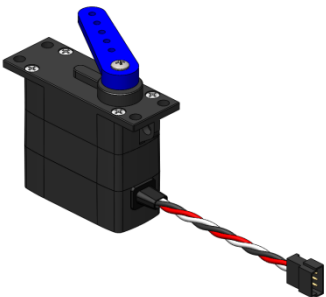

Revision: B

## 7. Electrical Connection Options

Standard Connector

Item # DA 14.05.\_.A.\_ST

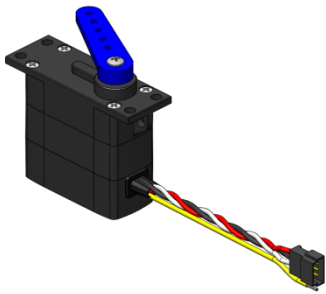
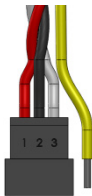
Leads length 45mm (1.77in)

	 <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

Item # DA 14.05.\_.A.P.ST

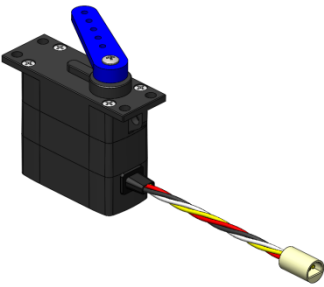

Leads length 45mm (1.77in)

	 <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	

Pin Assignment similar for case design "B".

**MIL specified Connector**  
Leads length 45mm (1.77in) <sup>5</sup>

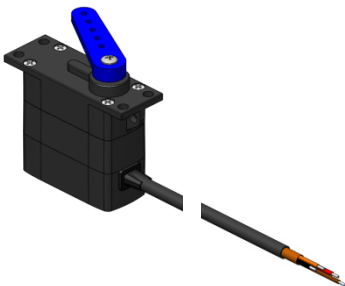

Item # DA 14.05.\_.A.\_.OA

	4 5		<b>MIL specified Connector</b>	
			Manufacturer	Omnetics
			Type	MCS-05 WD
	1 2 3 mating face		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	

5) 150cm (59in) connecting cable with mating connector and open leads included

**Shielded Cable**  
Length 250mm (10in), open leads

Item # DA 14.05.\_.A.\_.SC250

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

Pin Assignment similar for case design "B".

## 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 Case Design „A”	1521.31 incl. Hardware
Aluminum Mounting Frame Case Design „B”	1521.30 incl. Hardware
Extension Lead , 50cm (19in) , 3 lead , 4g (0.141oz) <sup>6</sup>	110.050
Extension Lead , 80cm (31in) , 3 lead , 6g (0.212oz) <sup>6</sup>	110.080
Extension Lead , 100cm (39in) , 3 lead , 8g (0.282oz) <sup>6</sup>	110.100
Extension Lead , 150cm (59in) , 3 lead, 12g (0.423oz) <sup>6</sup>	110.150
Connecting Cable , 150cm (59in) , 3 lead , 12g (0.423oz) <sup>7</sup>	113.150
Connecting Cable , 150cm (59in) , 4 lead , 16g (0.564oz) <sup>7</sup>	114.150
Programming Tool	985.1

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

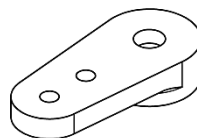
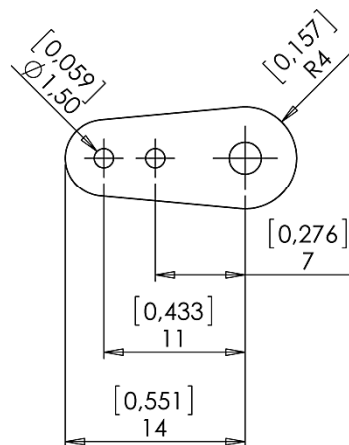
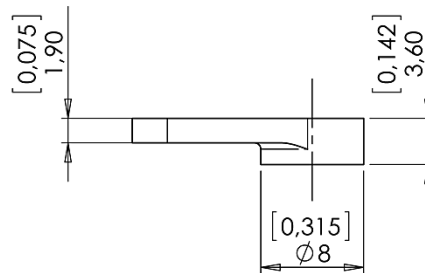
7) Omnetics MCP-05 Connector and open leads

All accessories to be purchased separately.

## 8.1. Aluminum Servo Arm, short

1521.21

Valid for all Versions



Not to scale

Dimensions: [in] , mm

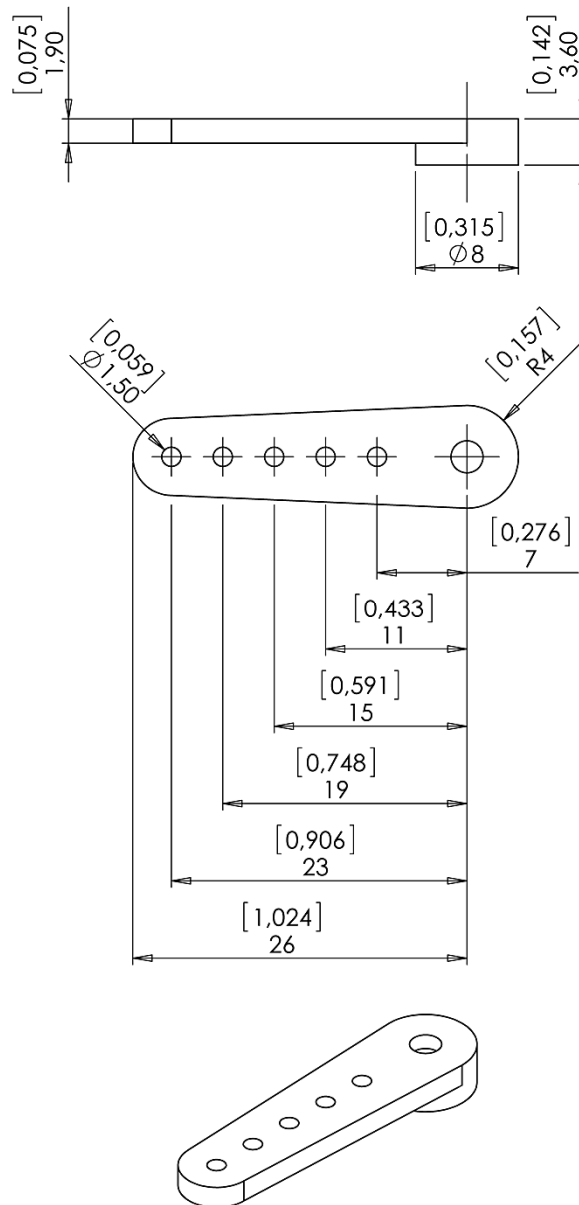
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## 8.2. Aluminum Servo Arm, long

1521.22

Valid for all Versions



Not to scale

Dimensions: [in] , mm

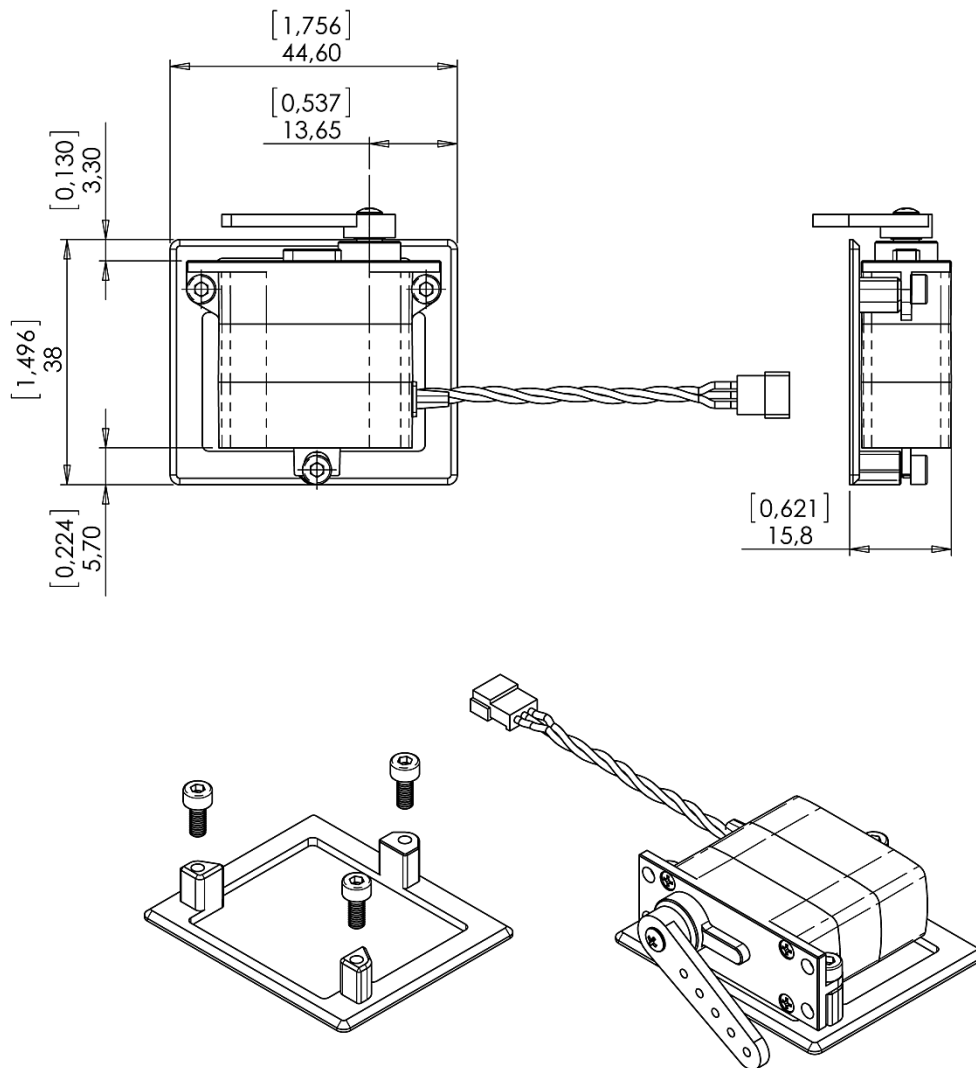
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### 8.3. Aluminum Mounting Frame

1521.31

Valid for Case Design "A"



Mounting Frame shown with installed actuator.

Not to scale

Dimensions: [in] , mm

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

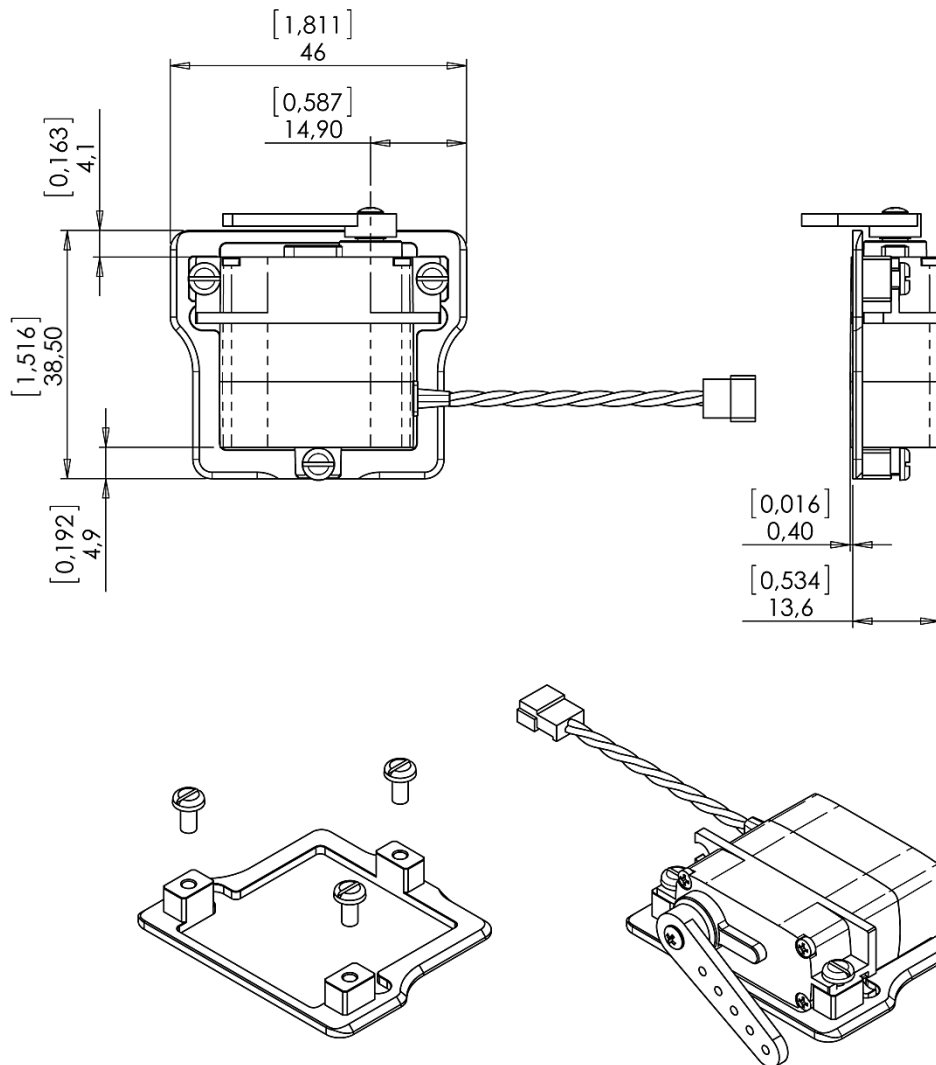
Revision: B



## 8.4. Aluminum Mounting Frame

1521.30

Valid for Case Design "B"



Mounting Frame shown with installed actuator.

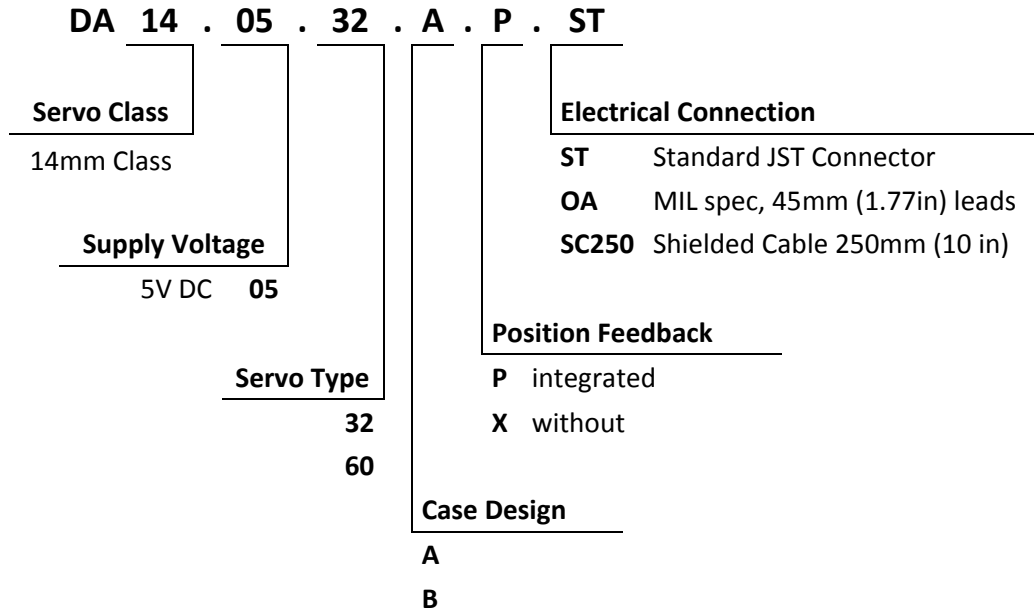
Not to scale

Dimensions: [in] , mm

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## 9. Item Number System



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