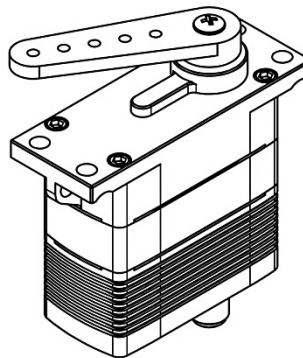


# DA 15

## Technical Specification



DA 15-05-32  
DA 15-05-60

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## 1. General Description

Some customers want to use our servos even under the toughest environmental conditions. Accordingly, they must have enhanced dust and water-resistance characteristics, all steel gear trains and shielded, tightly sealed housings.

The DA 15 actuators, developed to meet these customer requirements, are our solution and enable us to offer a version of our DA 13 series that can withstand even the toughest conditions.

Machined from a solid block of salt water resistant aluminum alloy, the sealed DA 15 cases meet IP 67 standard and provide EMI/RFI shielding. They can be provided with either an integrated M5 round connector system or with a pig tail connector.

There is a power variant and a speed variant available, similar to the DA 13 and DA 14 series. Both versions of the DA 15 actuator are fully programmable and use all steel gears! The cases feature integrated mounting facilities for horizontal and vertical fixing.

## 2. Operating Data

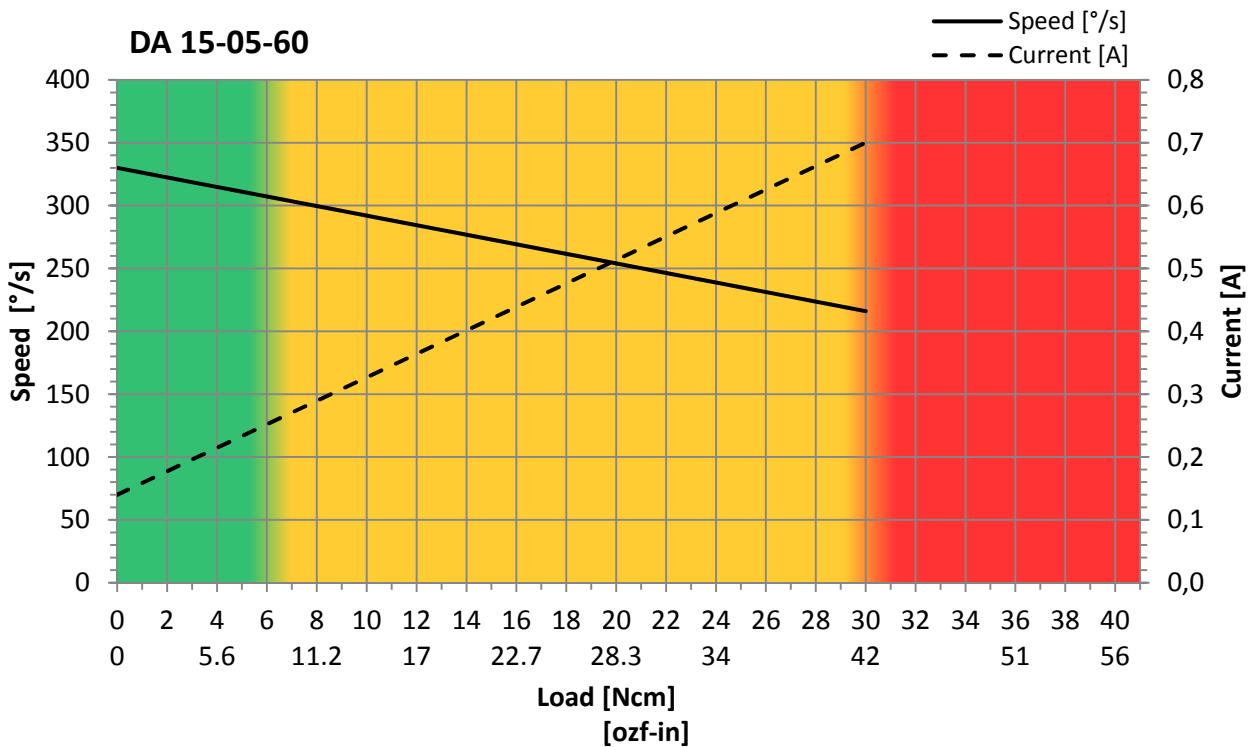
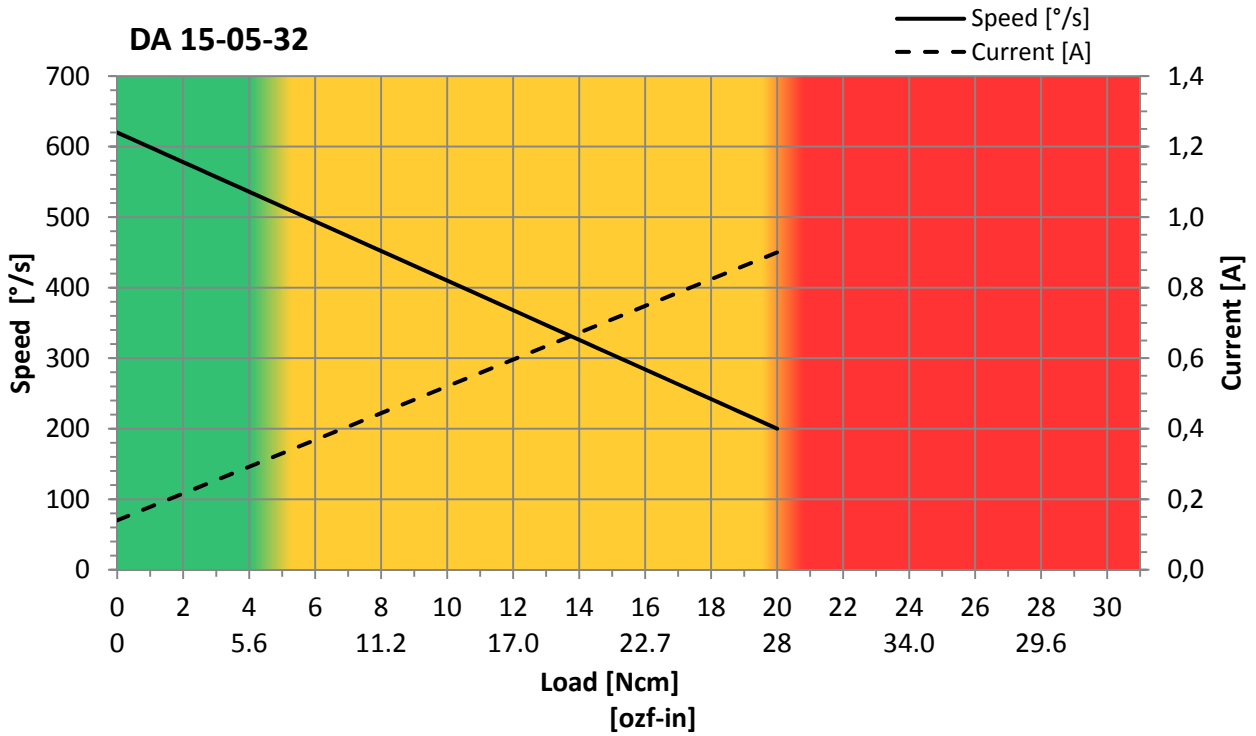
		DA 15-05-32...	DA 15-05-60...
Supply Voltage (rated)		5.0 V DC	
Supply Voltage Range		4.8 ... 5.0 V DC	
Standby Current <sup>1</sup>	at rated voltage	< 0.008 A	
Rated Current <sup>1</sup>	at rated voltage	0.3 A	
Peak Current <sup>1</sup>	at rated voltage	0.9 A	
Rated Torque <sup>1</sup>	at rated speed	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		±45° = 90° total travel	
Max. Travel Angle		±65° = 130° total travel	
Backlash (mechanical)		< 0.5°	
Position Error under Temperature <sup>2</sup>		< ±1.0°	
Operating Temperature Range <sup>3</sup>		-30°C ... +70°C (-22°F ... +158°F)	
Storage Temperature Range		-35°C ... +80°C (-31°F ... +176°F)	

1) Tolerance ±10%

2) -20°C ... +50°C , Δt = 70°C (-4°F ... +122°F , Δt = 126°F)

3) Low Temperature Modification (-60°C / -76°F) on request

### 3. Performance



**Operation Mode:**

■ Continuous

■ Short Time  
< 10s , 60s cool down

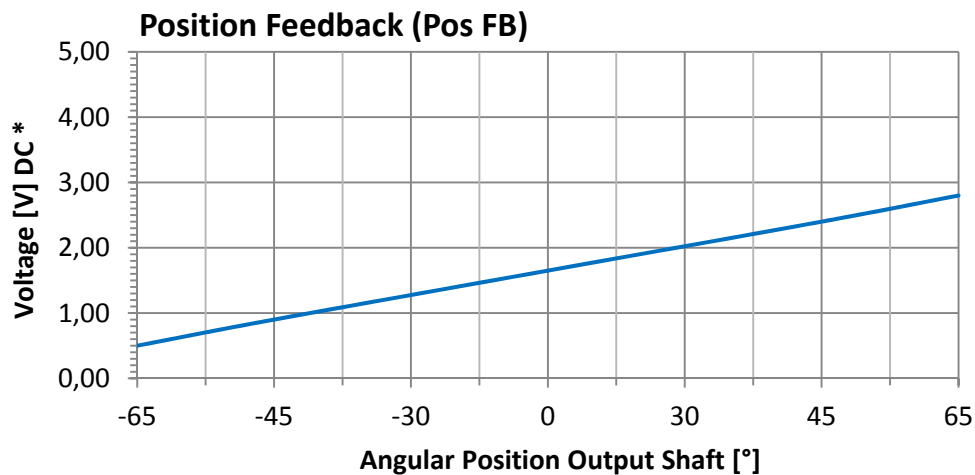
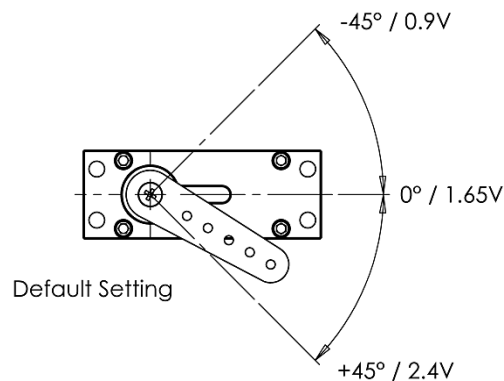
■ Overload  
< 1s , 60s cool down

## 4. Command Signal

	DA 15-05-32...	DA 15-05-60...
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

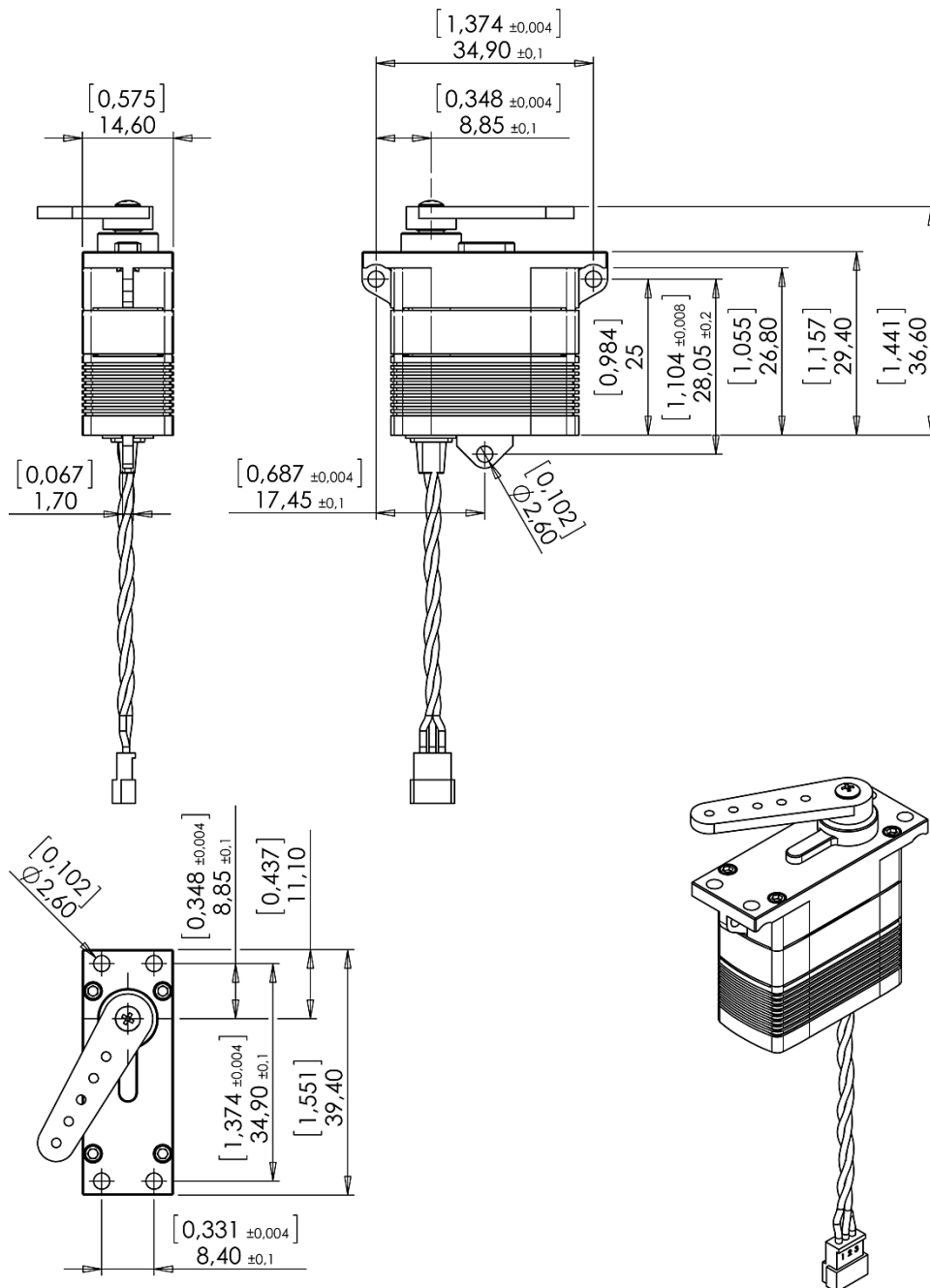
Case	Saltwater resistant Aluminum Alloy
Splash Water Resistance	IP 67 , waterproof to 1m depth
Salt Water Resistance	Case Material
EMI / RFI Shielding	Case Shielding
Motor	Brushed DC Motor
Gear Set	Hardened Steel
Position Sensor	Precision Potentiometer
Position Feedback	Optional
MIL specified electrical Connector	Optional
Shielded Connecting Cable	Optional
Industrial Standard M5 electrical Connector	Optional

## 6. Dimensions

Case Dimensions	29.4 mm x 39.4 mm x 14.6 mm $\pm 0.2$ mm (1.157 in x 1.551 in x 0.575 in $\pm 0.008$ in)
Weight	26 g (0.91 oz) $\pm 10\%$

## 6.1. Installation Dimensions

DA 15-05-\_\_\_.ST  
DA 15-05-\_\_\_.OA  
DA 15-05-\_\_\_.SC250



Not to scale

Dimensions: [in] , mm

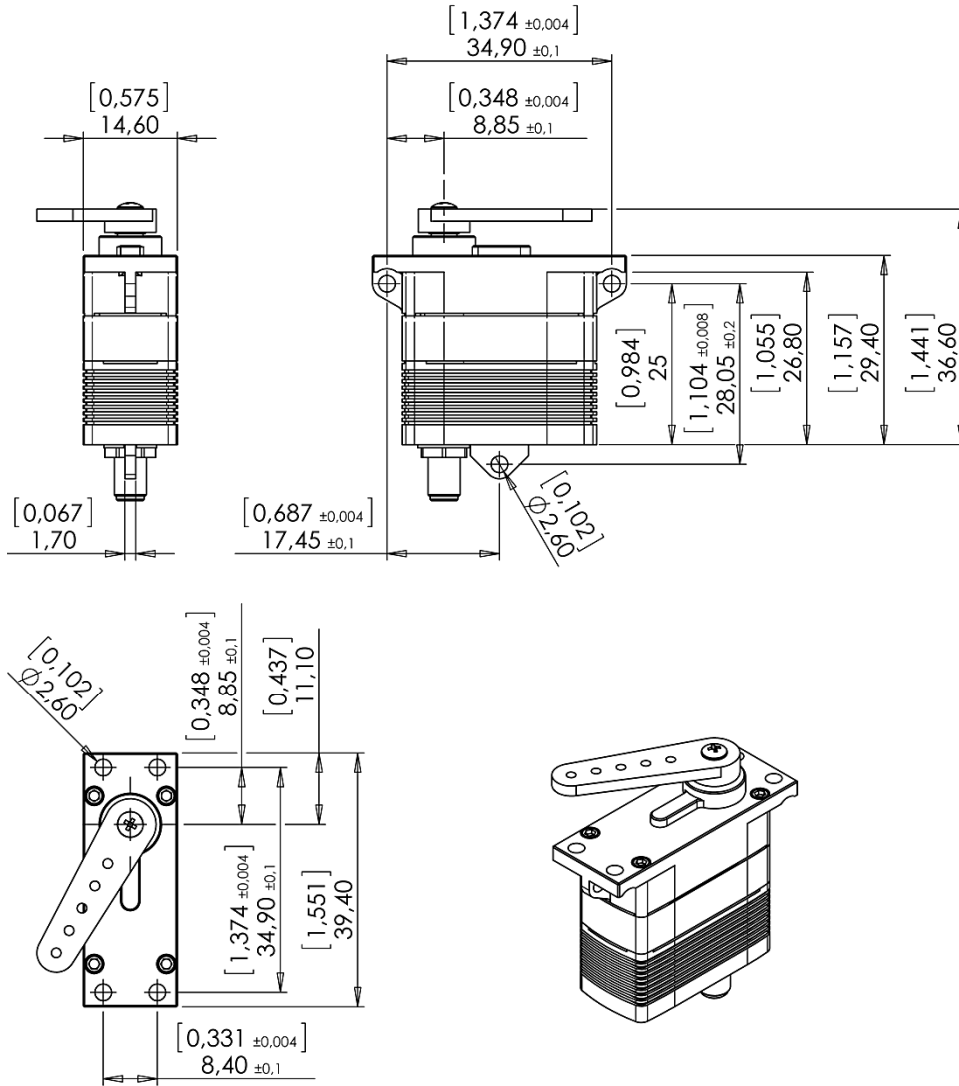
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Revision: B



## 6.2. Installation Dimensions

DA 15-05-\_\_\_.C



Not to scale

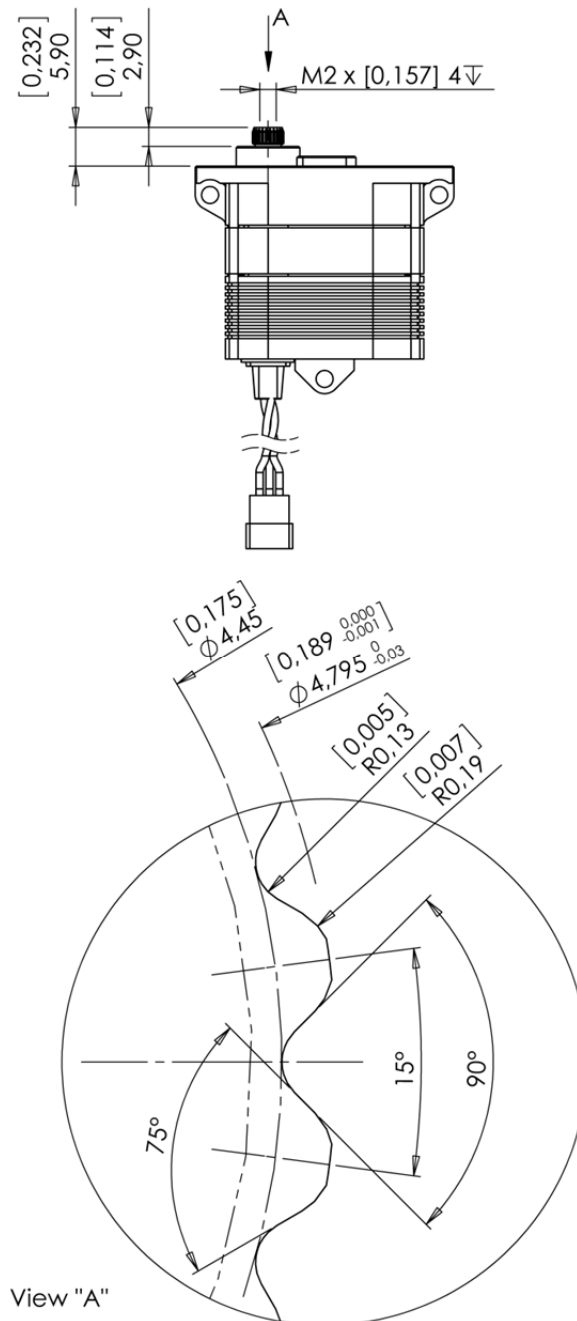
Dimensions: [in] , mm

Content is subject to change without notice

Revision: B

### 6.3. Output Shaft Spline

Valid for all Versions



Not to scale

Dimensions: [in] , mm

Content is subject to change without notice

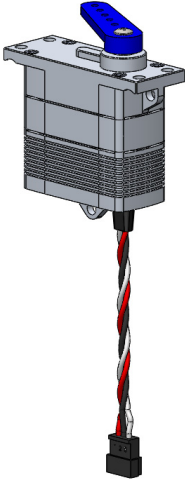

Revision: B

## 7. Electrical Connection Options

Standard Connector

Item # DA 15.05.\_.\_.ST

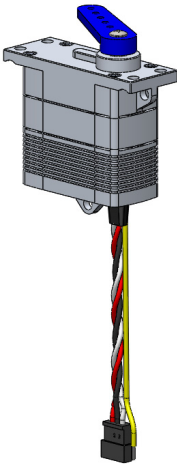
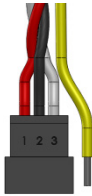
Leads length 45mm (1.77in)

	 <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

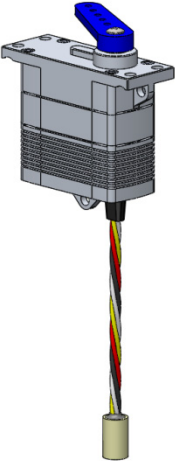

Item # DA 15.05.\_.\_.P.ST

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

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

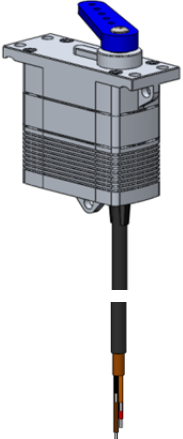

Item # DA 15.05.\_.\_.OA

	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

4) 150cm (59in) connecting cable with mating connector and open leads included

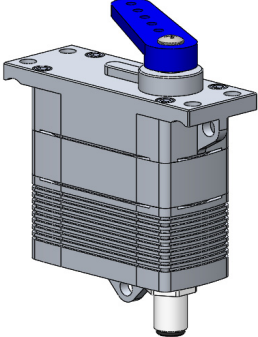

**Shielded Cable**  
Length 250mm (10in), open leads

Item # DA 15.05.\_.\_.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

Industrial Standard M5 electrical Connector <sup>5</sup>

Item # DA 15.05.\_.\_.\_C

	2 4		<b>Industrial Connector</b>	
			Manufacturer	Franz Binder GmbH & Co.
	1 3 mating face		Type	Series 707, No. 09 3111 86 04
			Mating	No. 79 3108 35 04 No. 79 3110 52 04
	<b>Pin Assignment</b>			
	1	Brown	+V DC	Supply Voltage
	2	Black	Pos FB	Position Feedback (optional)
3	White	GND	Supply Ground, Signal Ground	
4	Blue	SIG	Command Signal	

5) 200cm (78in) connecting cable with mating straight connector and open leads included

## 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	1521.31 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
Connecting Cable , 200cm (78in) , 4 lead , 35g (1.235oz) <sup>8</sup>	115.200
Programming Tool	985.1

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

7) Omnetics MCP-05 Connector and open Leads

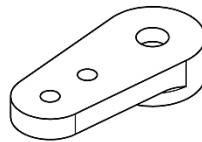
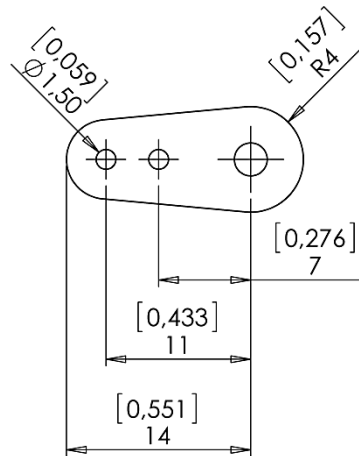
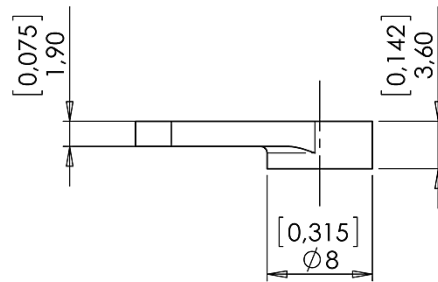
8) Binder Series 707 Straight Connector and open Leads

All accessories to be purchased separately.

## 8.1. Aluminum Servo Arm, short

1521.21

Valid for all Versions



Not to scale

Dimensions: [in] , mm

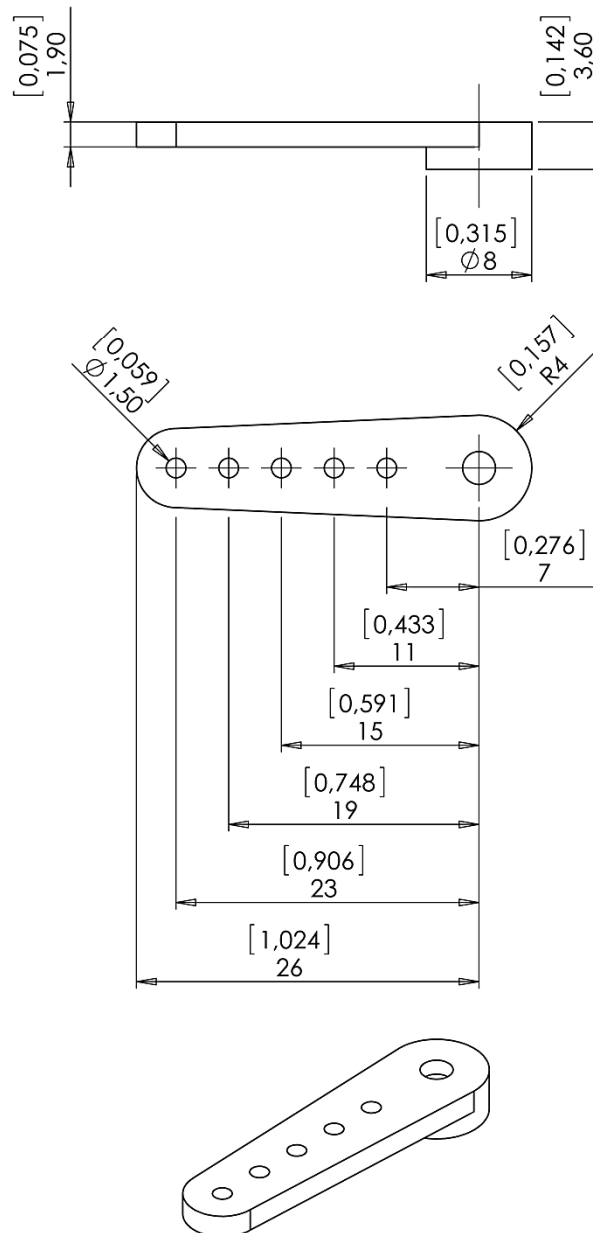
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## 8.2. Aluminum Servo Arm, long

1521.22

Valid for all Versions



Not to scale

Dimensions: [in] , mm

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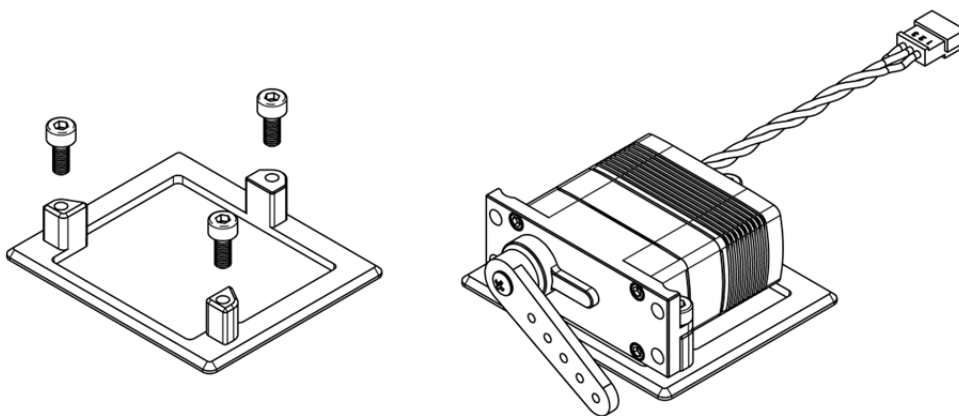
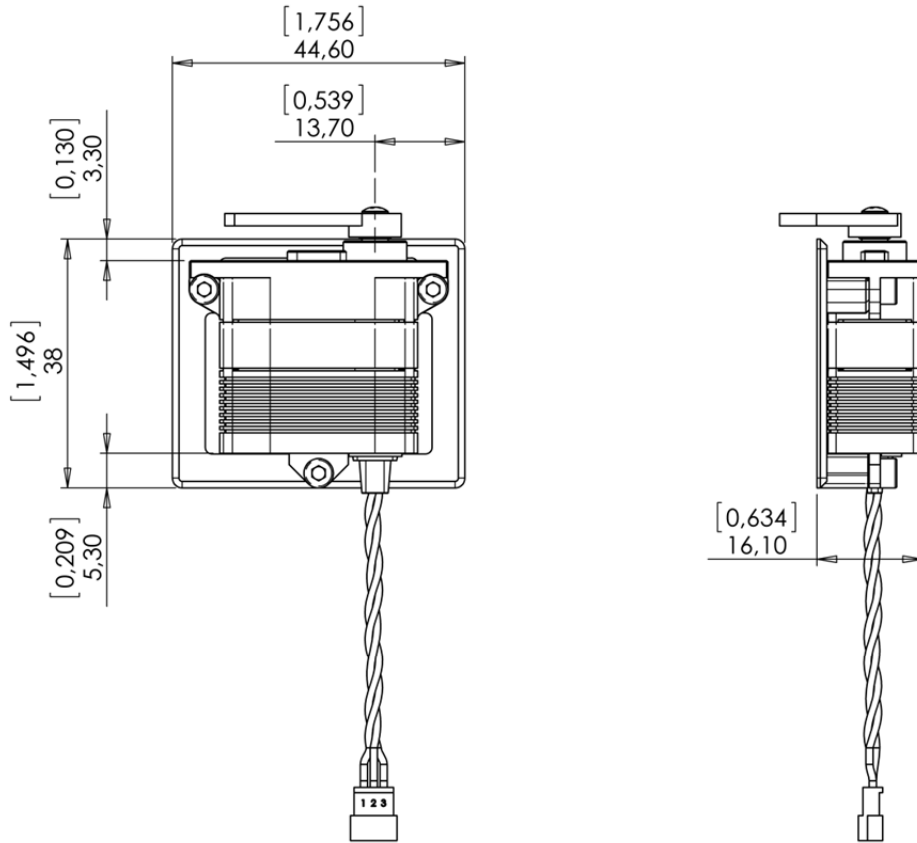
Revision: B



### 8.3. Aluminum Mounting Frame

1521.31

Valid for all Versions



Mounting Frame shown with installed actuator.

Not to scale

Dimensions: [in] , mm

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

Revision: B

## 9. Item Number System

<b>DA</b>	<b>15</b>	<b>.</b>	<b>05</b>	<b>.</b>	<b>32</b>	<b>.</b>	<b>P</b>	<b>.</b>	<b>ST</b>
<b>Servo Class</b>								<b>Electrical Connection</b>	
15mm Class								<b>ST</b> Standard JST Connector	
<b>Supply Voltage</b>								<b>OA</b> MIL spec, 45mm (1.77in) leads	
5V DC		<b>05</b>						<b>SC250</b> Shielded Cable, 250mm (10 in)	
				<b>Servo Type</b>				<b>Position Feedback</b>	
				<b>32</b>		<b>P</b>		integrated	
				<b>60</b>		<b>X</b>		without	



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