



## AVM Series

### Voice Coil Actuators



Direct drive, zero cogging, zero backlash voice coil motors



Low coil mass with very fast response and bandwidth



No contact between coil and core movement  
(no wear and tear)



Smooth motion at low speeds with limitless resolution  
(depends on feedback device)

# AVM Series Voice Coil Actuators

## AVM Standard Series

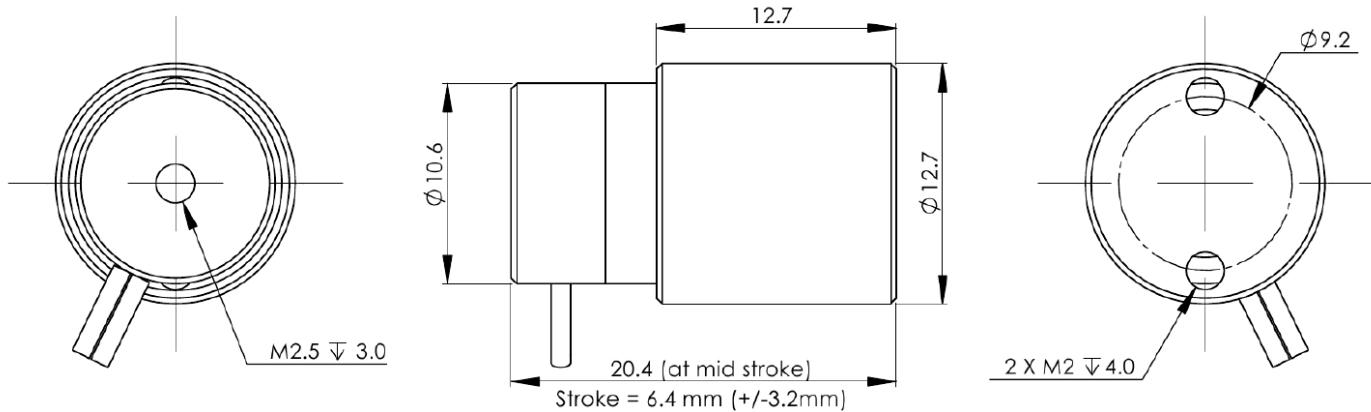
Model	Unit	AVM12-6.4	AVM19-5	AVM20-10	AVM24-5	AVM24-10	AVM30-15	AVM40-20	AVM60-25	AVM90-30
Stroke	mm	6.4	5	10	5	10	15	20	25	30
Force sensitivity (at mid stroke)	N/A	0.57	1.75	2.00	3.00	3.90	7.35	12.90	17.00	22.50
Back EMF constant	V/m/s	0.57	1.75	2.00	3.00	3.90	7.35	12.90	17.00	22.50
Continuous force (at 100 °C) <sup>1</sup>	N	0.91	1.75	1.56	2.10	2.65	4.63	9.93	26.35	89.10
Peak force	N	3.53	7.88	7.60	11.40	14.82	29.40	58.05	119.00	315.00
Resistance <sup>2</sup>	ohms	1.13	2.23	3.59	3.09	5.86	10.22	12.10	5.37	2.70
Inductance <sup>2</sup>	mH	0.09	0.27	0.50	0.51	1.23	2.63	5.12	3.73	3.20
Voltage at peak force	V	7.01	10.04	13.64	11.7	22.3	40.88	54.45	37.59	37.8
Continuous current (coil at 100 °C)	A	1.6	1.00	0.78	0.70	0.68	0.63	0.77	1.55	3.96
Peak current	A	6.20	4.50	3.80	3.80	3.80	4.00	4.50	7.00	14.00
Max. voltage	VDC	60	60	60	60	60	60	60	60	120
Actuator constant	N/SqRt (W)	0.54	1.17	1.06	1.71	1.61	2.30	3.71	7.34	13.69
Continuous power	W	2.89	2.23	2.18	1.51	2.71	4.06	7.17	12.90	42.34
Electrical time constant	ms	0.08	0.12	0.14	0.17	0.21	0.26	0.42	0.69	1.19
Mechanical time constant	ms	17.39	6.55	9.87	4.12	6.36	6.81	4.87	3.99	4.37
Coil clearance	mm	0.35	0.40	0.50	0.50	0.50	0.60	0.60	0.70	0.65
Power at peak force	W	43.44	45.16	51.84	44.62	84.62	163.52	245.03	263.13	529.20
Thermal dissipation constant	W/°C	0.039	0.030	0.029	0.020	0.036	0.054	0.096	0.172	0.565
Max coil temperature	°C	100	100	100	100	100	100	100	100	100
Coil assembly mass	g	5.0	9.0	11.0	12.0	16.5	36.0	67.0	215.0	820.0
Core assembly mass	g	7.3	23.8	45.1	29.7	45.0	95.6	226.2	692.9	1750

1. Continuous force measured without any additional mounting plate or heat sink on coil

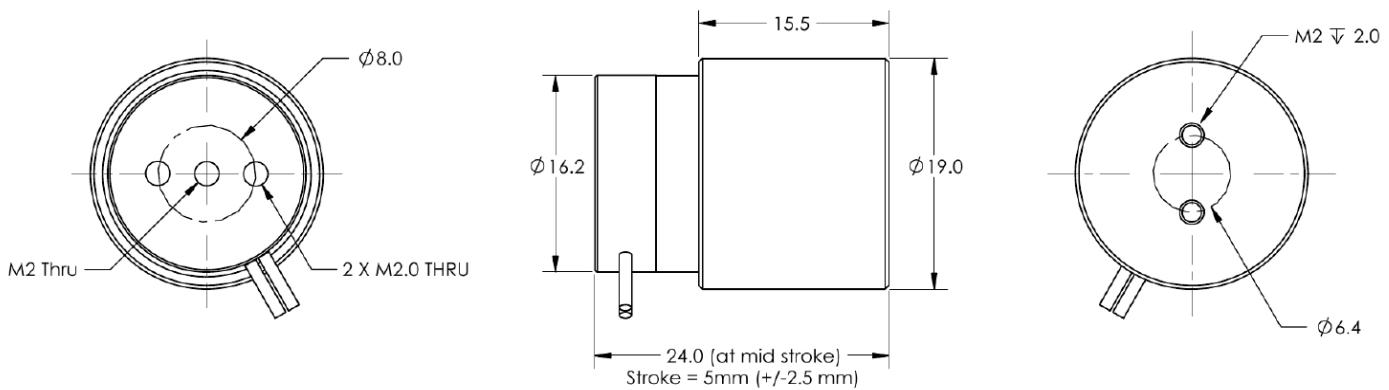
2. Measured at 25°C

## OUTLINE Dimensions (mm)

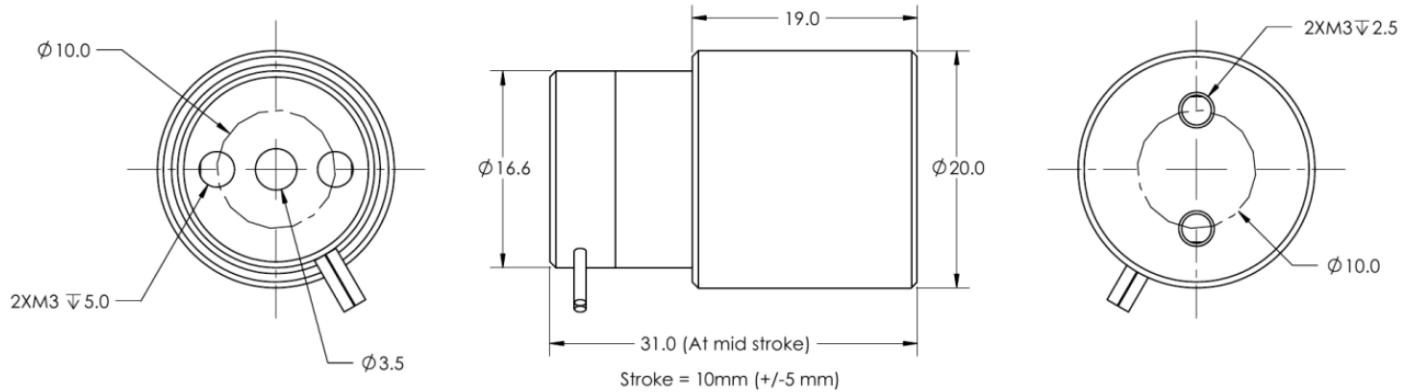
AVM12-6.4

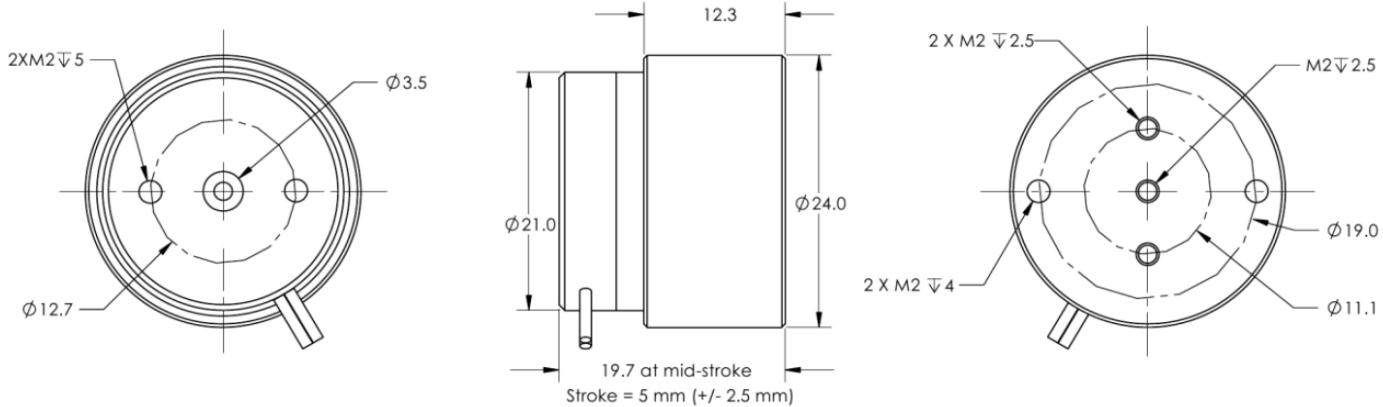
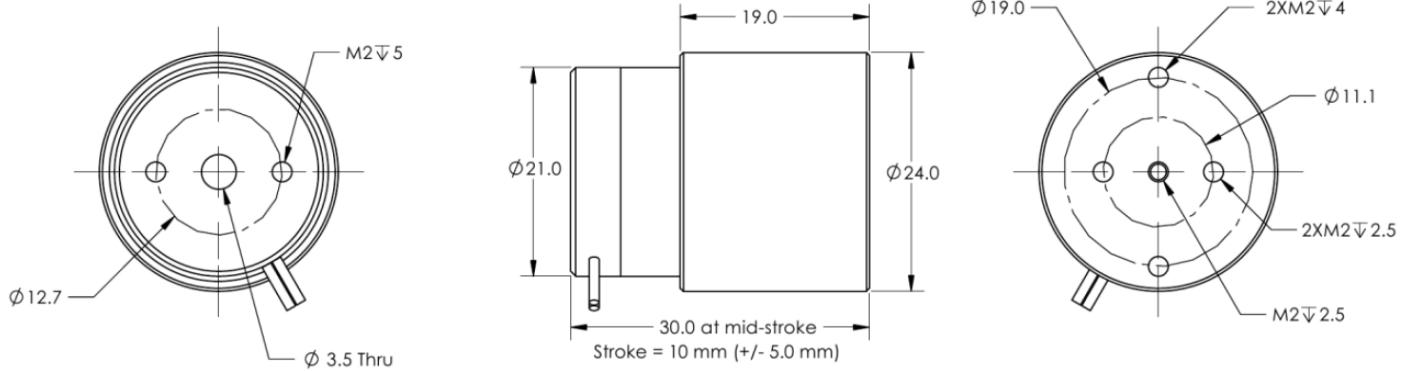
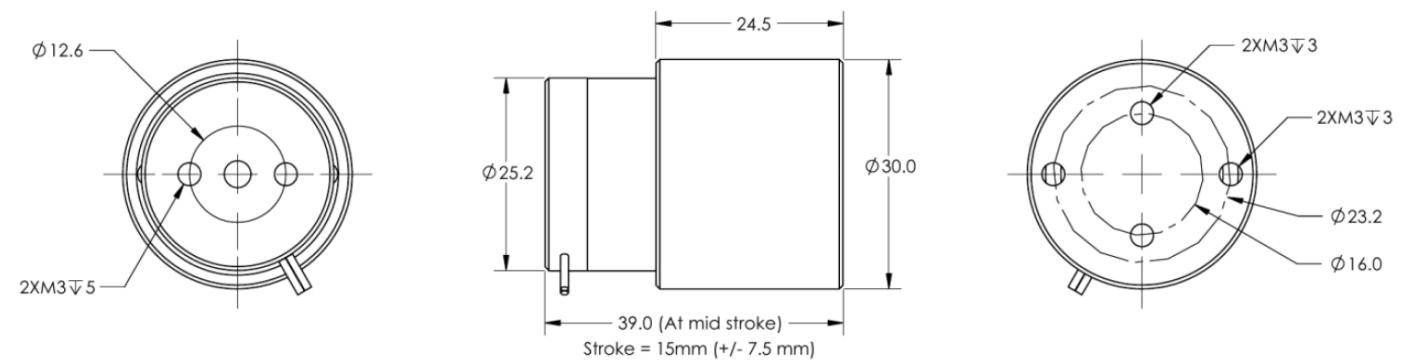


AVM19-5

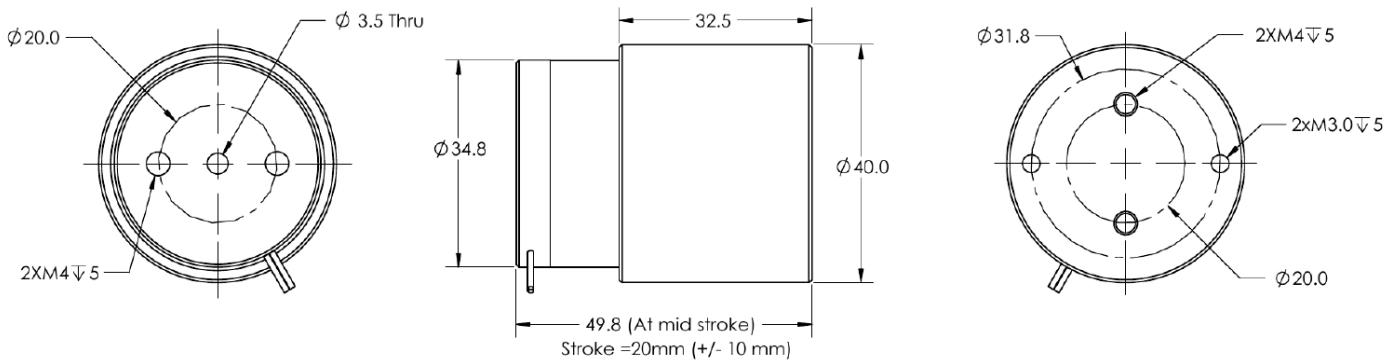


AVM20-10

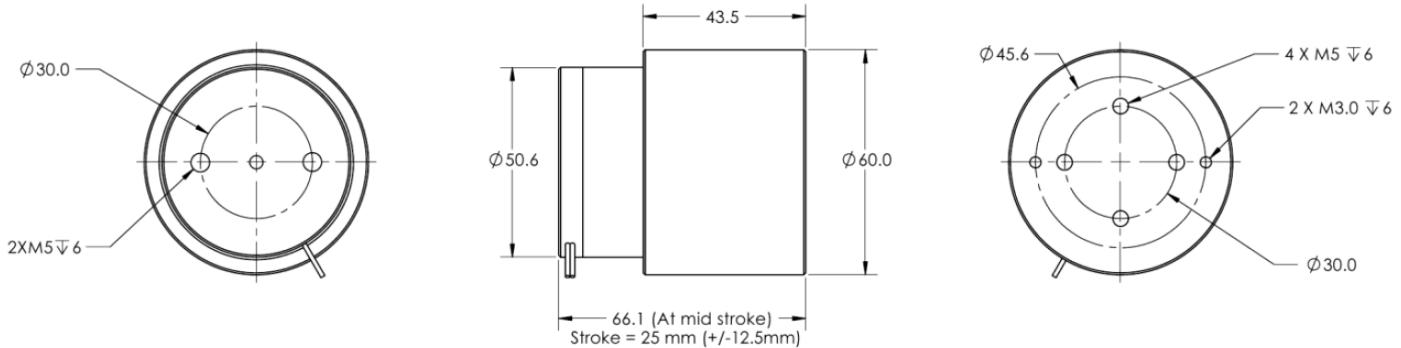


**AVM24-5**

**AVM24-10**

**AVM30-15**


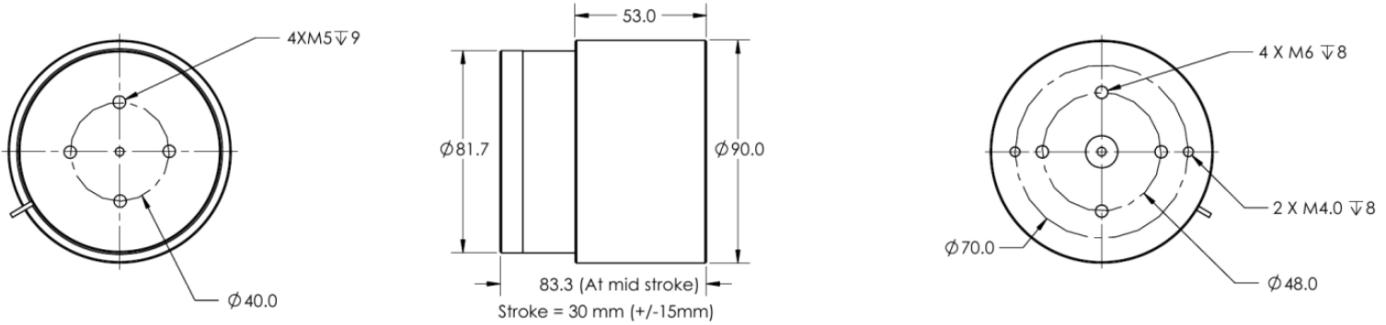
### AVM40-20



### AVM60-25



### AVM90-30



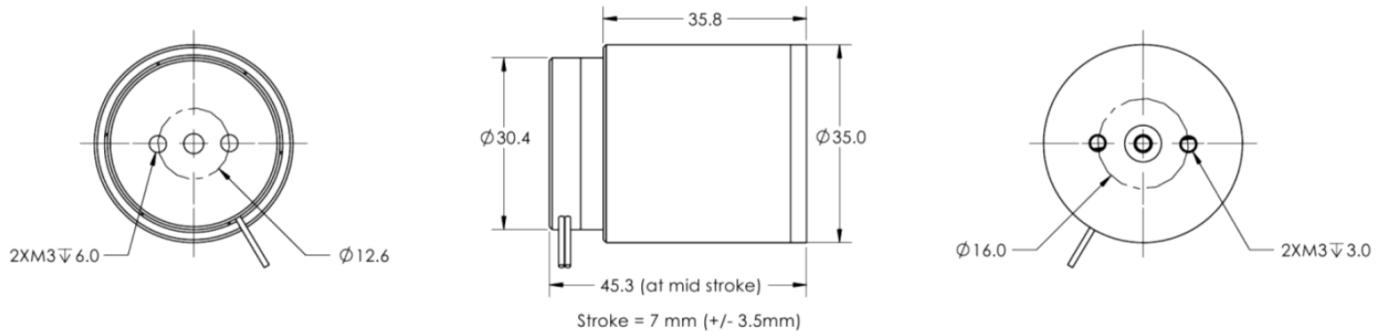
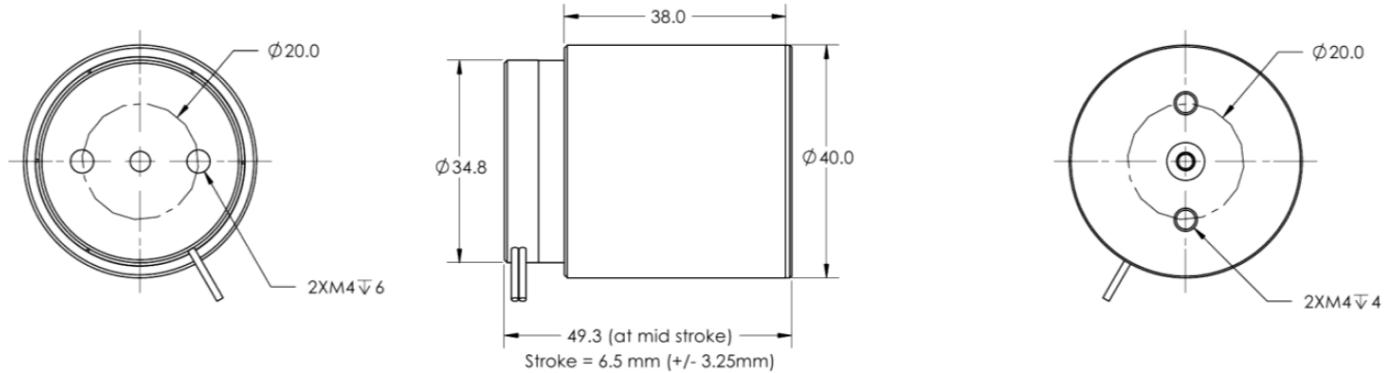
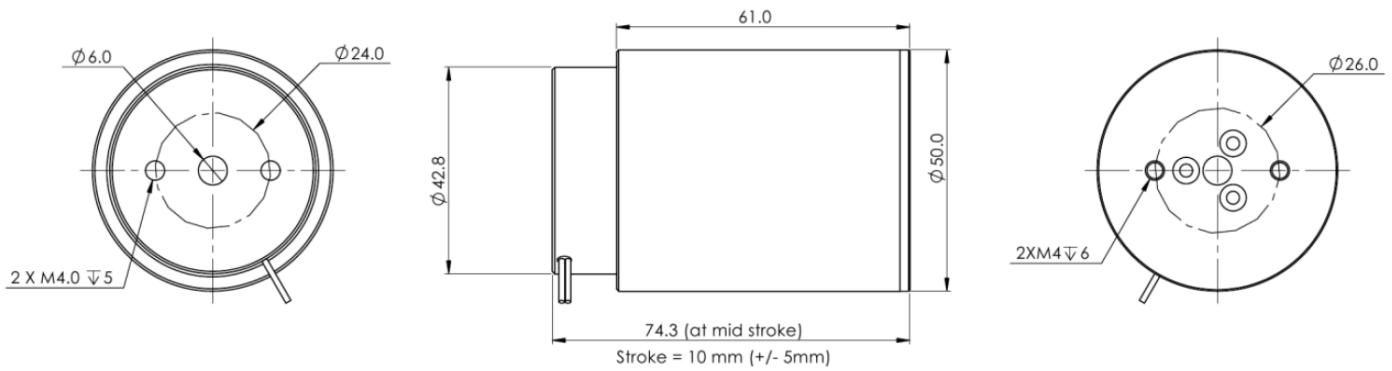
## AVM-High Force Series

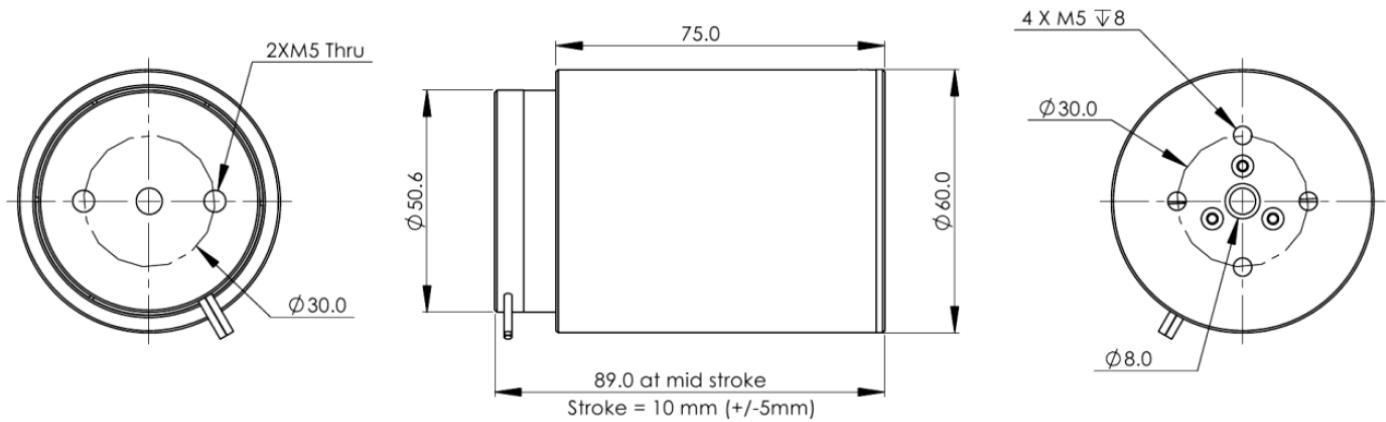
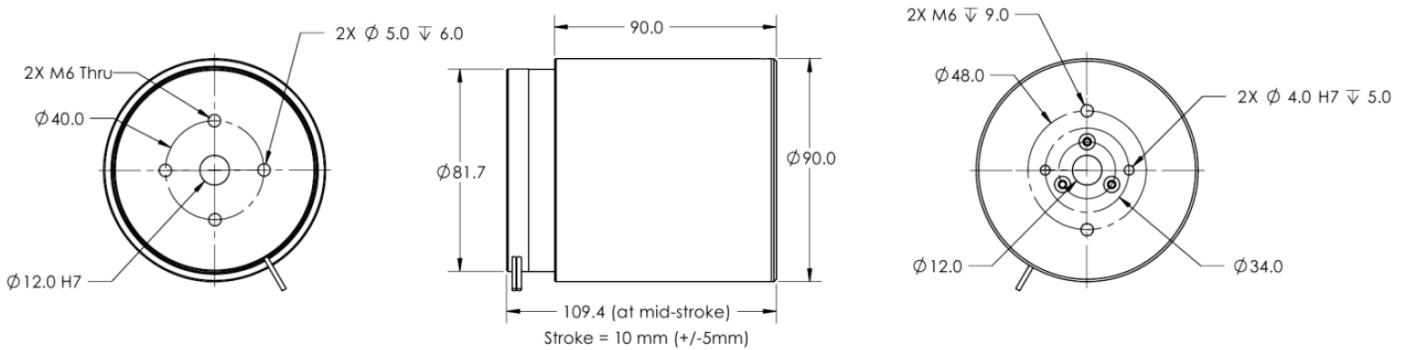
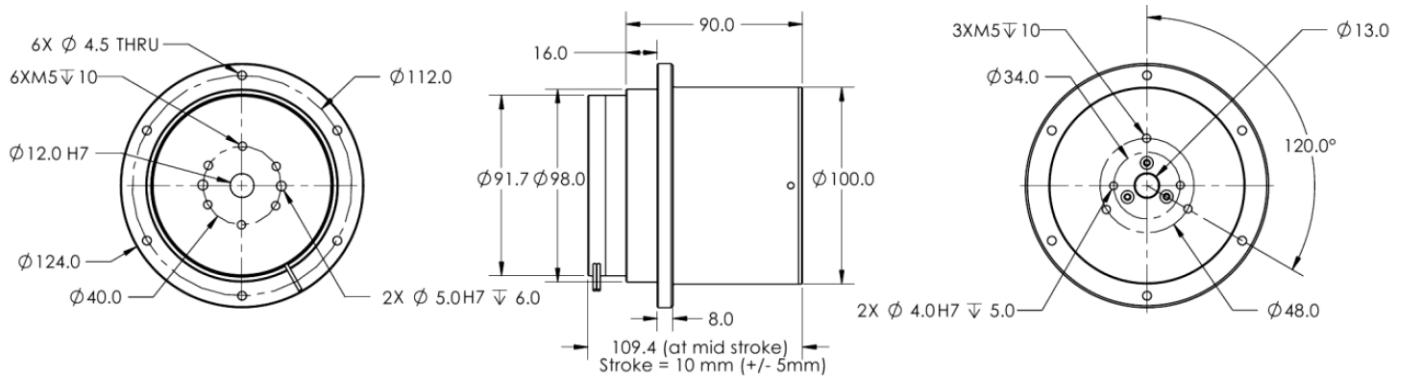
Model	Units	AVM35-HF-7	AVM40-HF-6.5	AVM50-HF-10	AVM60-HF-10	AVM90-HF-10	AVM100-HF-10	AVM130-HF-25	AVM250-HF-20
Stroke	mm	7	6.5	10	10	10	10	25	20
Force sensitivity (at mid stroke)	N/A	16.00	20.70	28.00	32.00	43.62	55.00	54.60	168.40
Back EMF constant	V/m/s	16.00	20.70	28.00	32.00	43.62	55.00	54.60	168.40
Continuous force (at 100 °C) <sup>1</sup>	N	14.40	16.56	33.60	51.20	152.67	192.50	360.36	1111.44
Peak force	N	72.00	93.15	140.00	224.00	610.68	770.00	764.40	4715.20
Resistance <sup>2</sup>	ohms	9.80	11.31	8.64	5.91	2.90	3.20	1.48	3.70
Inductance <sup>2</sup>	mH	3.60	4.47	5.30	4.01	3.59	4.12	1.70	5.00
Voltage at peak force	V	44.10	50.90	43.20	41.40	40.60	44.80	20.72	103.6
Continuous current (coil at 100 °C)*	A	0.90	0.80	1.20	1.60	3.50	3.50	6.60	6.60
Peak current	A	4.50	4.50	5.00	7.00	14.00	14.00	14.00	28.00
Max. voltage	VDC	60	60	60	60	120	120	120	120
Actuator constant	N/SqRt (W)	5.11	6.16	9.53	13.16	25.61	30.75	44.88	87.55
Continuous power (at 100 °C)*	W	7.14	7.24	12.44	15.13	35.53	39.20	64.47	161.17
Electrical time constant	ms	0.37	0.40	0.61	0.68	1.24	1.29	1.15	1.35
Mechanical time constant	ms	2.03	1.79	1.63	1.36	1.46	1.18	0.77	0.77
Coil clearance	mm	0.50	0.60	0.60	0.70	0.65	0.65	0.55	0.90
Power at peak force	W	198.45	229.03	216.00	289.59	568.40	670.20	290.08	2900.80
Thermal dissipation constant	W/°C	0.095	0.097	0.166	0.202	0.474	0.523	0.860	2.149
Max coil temperature	°C	100	100	100	100	100	100	100	100
Coil assembly mass	g	53.0	68.0	148.0	236.5	960.0	1117.0	1550.0	5900.0
Core assembly mass	g	146.8	218.7	553.0	997.0	2400.0	3300.0	9300.0	27200.0

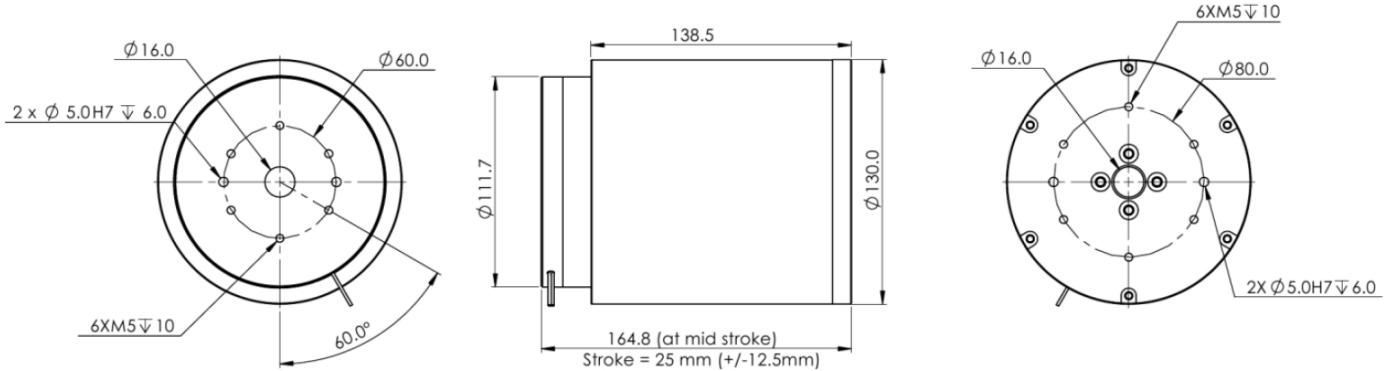
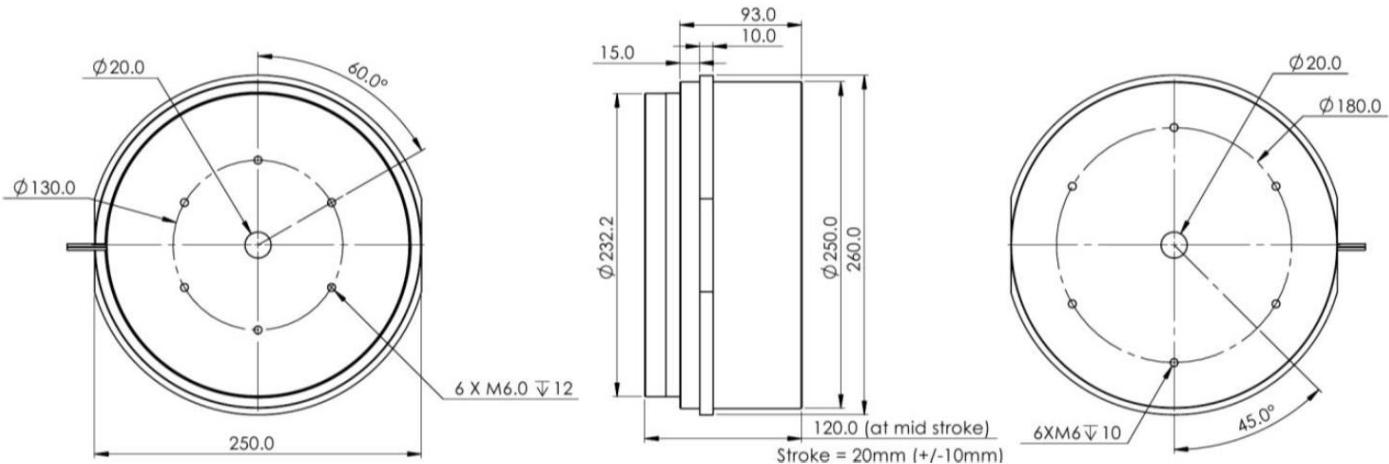
1. Continuous force measured without any additional mounting plate or heat sink on coil

2. Measured at 25°C

## OUTLINE Dimensions (mm)

**AVM35-HF-7**

**AVM40-HF-6.5**

**AVM50-HF-10**


**AVM60-HF-10**

**AVM90-HF-10**

**AVM100-HF-10**


**AVM130-HF-25**

**AVM250-HF-20**


## AVM-Special Models

Model	Units	AVM14-HF-4-C19	AVM14-10-C56	AVM20-HF-6-C28	AVM24-HF-5-C13	AVM30-7-C60	AVM35-HF-15-C22
Stroke	mm	4	10	6	5	7	15
Force sensitivity (at mid stroke)	N/A	1.88	0.82	4.74	8.40	6.20	24.70
Back EMF constant	V/m/s	1.88	0.82	4.74	8.40	6.20	24.70
Continuous force (at 100 °C) <sup>1</sup>	N	2.44	0.98	5.69	5.88	5.64	19.76
Peak force	N	7.33	2.95	17.06	31.92	24.80	98.80
Resistance <sup>2</sup>	ohms	1.93	2.24	4.85	8.24	5.50	16.60
Inductance <sup>2</sup>	mH	0.14	0.24	0.56	1.69	1.52	7.11
Voltage at peak force	V	7.53	8.06	17.46	31.31	22.00	66.40
Continuous current (coil at 100 °C)*	A	1.30	1.20	1.20	0.70	0.91	0.80
Peak current	A	3.90	3.60	3.60	3.80	4.00	4.00
Max. voltage	VDC	60	60	60	60	60	60
Actuator constant	N/SqRt (W)	1.35	0.55	2.15	2.93	2.64	6.06
Continuous power (at 100 °C)*	W	3.26	3.23	6.98	4.04	4.55	8.50
Electrical time constant	ms	0.073	0.107	0.115	0.205	0.276	0.428
Mechanical time constant	ms	3.822	10.019	2.914	2.511	2.189	2.196
Coil clearance	mm	0.35	0.35	0.50	0.50	0.60	0.50
Power at peak force	W	29.36	29.03	62.86	118.99	88.00	265.60
Thermal dissipation constant	W/°C	0.043	0.043	0.093	0.054	0.061	0.113
Max coil temperature	°C	100	100	100	100	100	100
Coil assembly mass	g	7.0	3.0	13.5	21.5	15.3	80.7
Core assembly mass	g	13.7	13.6	47.5	82.0	86.2	261.0

1. Continuous force measured without any additional mounting plate or heat sink on coil

2. Measured at 25°C

## AVM-Special Models

Model	Units	AVM35-HF-8-C35	AVM35-HF-10-C31	AVM 40-20-C18	AVM 40-HF-6.4-C11-A	AVM 50-HF-10-C15-A	AVM 50-HF-10-C34-A
Stroke	mm	8	10	20	6.4	10	10
Force sensitivity (at mid stroke)	N/A	34.29	20.90	10.53	14.20	21.00	31.31
Back EMF constant	V/m/s	34.29	20.90	10.53	14.20	21.00	31.31
Continuous force (at 100 °C) <sup>1</sup>	N	27.43	16.72	8.11	18.18	25.20	37.57
Peak force	N	137.16	83.60	47.39	99.40	105.00	156.55
Resistance <sup>2</sup>	ohms	16.89	12.02	11.00	5.42	7.80	7.80
Inductance <sup>2</sup>	mH	6.89	4.96	6.22	1.38	5.30	5.30
Voltage at peak force	V	67.56	48.08	49.50	37.94	39.00	39.00
Continuous current (coil at 100 °C)*	A	0.80	0.80	0.77	1.28	1.20	1.20
Peak current	A	4.00	4.00	4.50	7.00	5.00	5.00
Max. voltage	VDC	60	60	60	60	60	60
Actuator constant	N/SqRt (W)	8.34	6.03	3.17	6.10	7.52	11.21
Continuous power	W	8.65	6.15	6.52	8.88	11.23	11.23
Electrical time constant	ms	0.408	0.413	0.565	0.255	0.679	0.679
Mechanical time constant	ms	1.224	2.146	6.448	1.317	2.512	1.146
Coil clearance	mm	0.50	0.50	0.60	0.50	0.60	0.60
Power at peak force	W	270.24	192.32	222.75	265.58	195.00	195.00
Thermal dissipation constant	W/°C	0.115	0.082	0.087	0.118	0.150	0.150
Max coil temperature	°C	100	100	100	100	100	100
Coil assembly mass	g	85.2	78.0	65.0	49.0	142.0	144.0
Core assembly mass	g	371.4	285.7	205.0	195.0	482.0	628.0

1. Continuous force measured without any additional mounting plate or heat sink on coil
2. Measured at 25°C

## AVM-Special Models

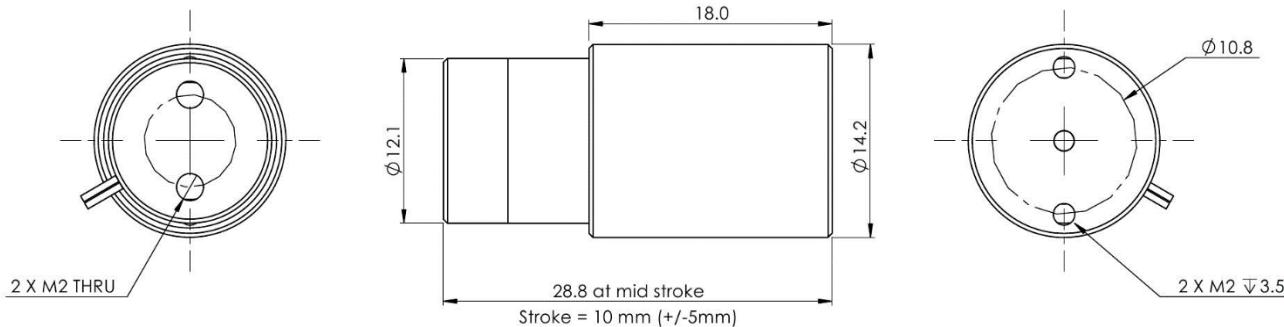
Model	Units	AVM 75-HF-25-C12	AVM75-38-C39	AVM 80-12-C8	AVM 90-30-C77	AVM90-HF-5-C40-A	AVM 130-HF-10-C29-A	AVM 150-HF-20-C53
Stroke	mm	25	38	12	30	5	10	20
Force sensitivity (at mid stroke)	N/A	33.70	13.72	21.40	14.47	15.78	46.40	97.63
Back EMF constant	V/m/s	33.70	13.72	21.40	14.47	15.78	46.40	97.63
Continuous force (at 100 °C) <sup>1</sup>	N	124.69	45.26	33.71	57.30	62.49	162.40	585.77
Peak force	N	572.90	192.02	192.60	202.60	220.92	487.20	1757.30
Resistance <sup>2</sup>	ohms	2.72	2.35	6.36	2.90	1.21	0.88	4.40
Inductance <sup>2</sup>	mH	2.88	1.89	1.62	6.61	0.75	0.82	2.60
Voltage at peak force	V	46.24	32.90	57.24	40.60	16.94	9.24	79.20
Continuous current (coil at 100 °C)*	A	3.70	3.30	1.58	4.00	3.96	3.50	6.00
Peak current	A	17.00	14.00	9.00	14.00	14.00	10.50	18.00
Max. voltage	VDC	60	60	60	120	120	120	120
Actuator constant	N/SqRt (W)	20.43	8.95	8.49	8.50	14.35	49.46	46.54
Continuous power	W	37.24	25.59	15.78	45.48	18.97	10.78	158.40
Electrical time constant	ms	1.059	0.804	0.255	2.300	0.620	0.932	0.591
Mechanical time constant	ms	1.700	6.671	1.722	10.400	2.076	0.441	0.692
Coil clearance	mm	0.50	0.50	0.60	0.65	0.65	0.55	0.75
Power at peak force	W	786.08	460.60	515.16	568.40	237.16	97.02	1425.60
Thermal dissipation constant	W/°C	0.496	0.341	0.210	0.606	0.253	0.144	2.112
Max coil temperature	°C	100	100	100	100	100	100	100
Coil assembly mass	g	710.0	534.0	124.0	751.2	427.2	1080.0	1500.0
Core assembly mass	g	1940.0	1277.0	1262.4	1135.1	1514.6	5300.0	12700.0

1. Continuous force measured without any additional mounting plate or heat sink on coil

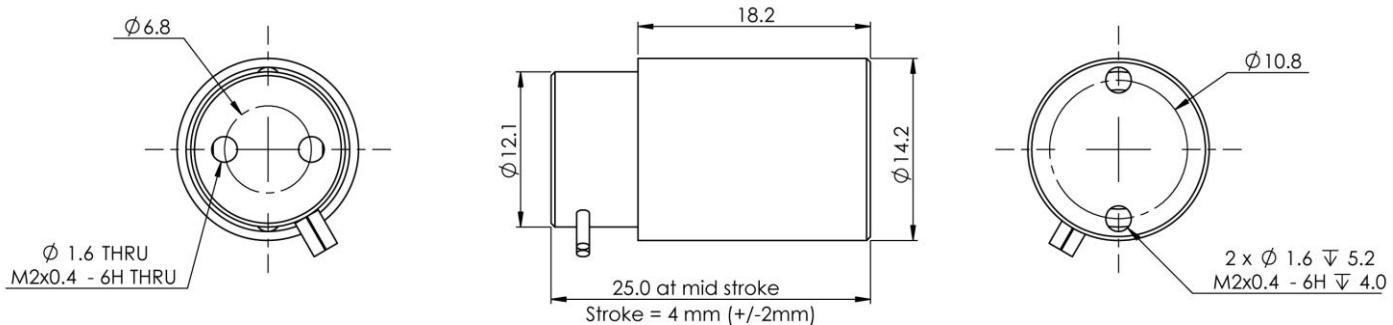
2. Measured at 25°C

## OUTLINE Dimensions (mm)

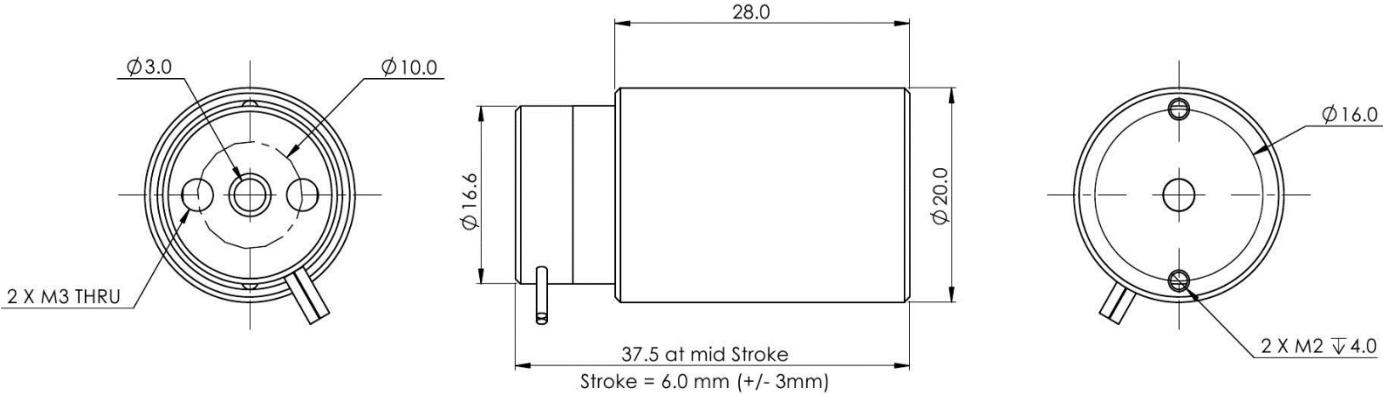
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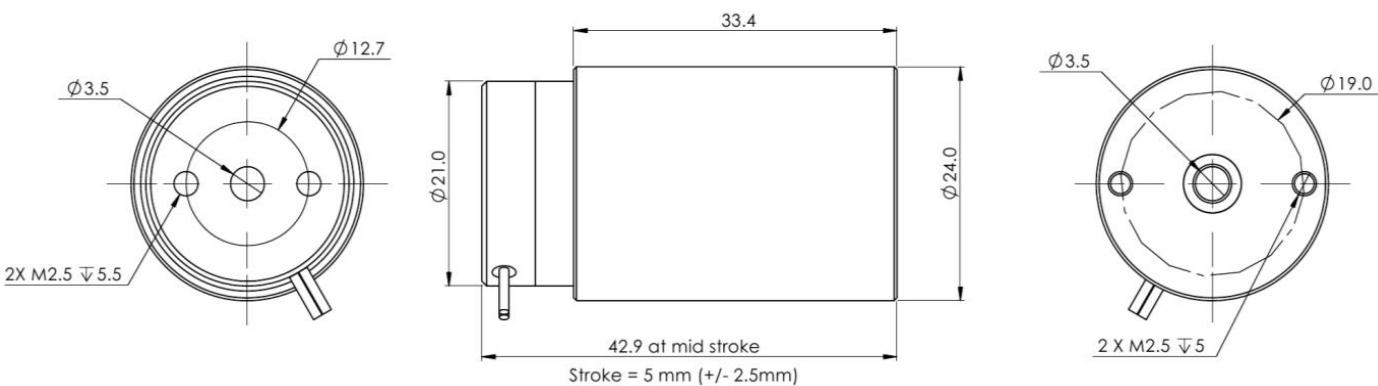
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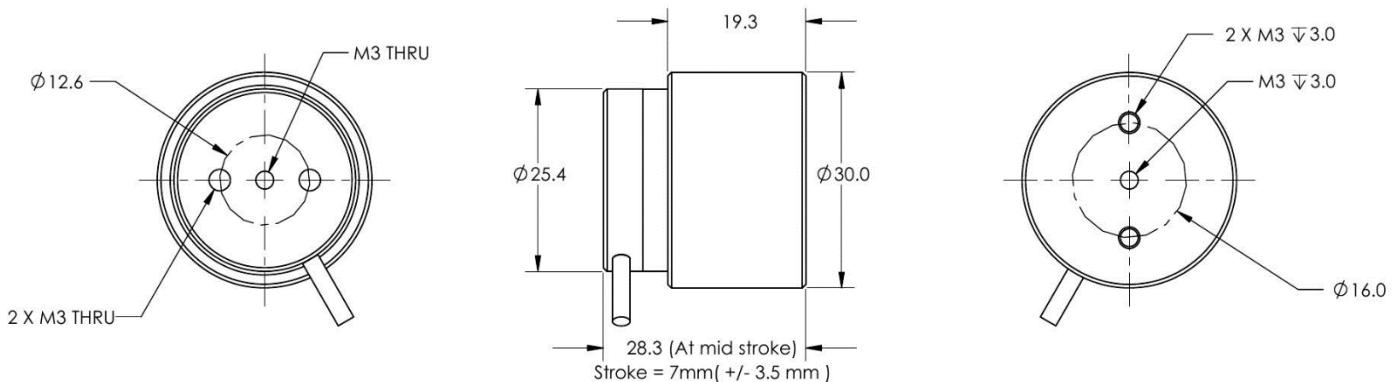
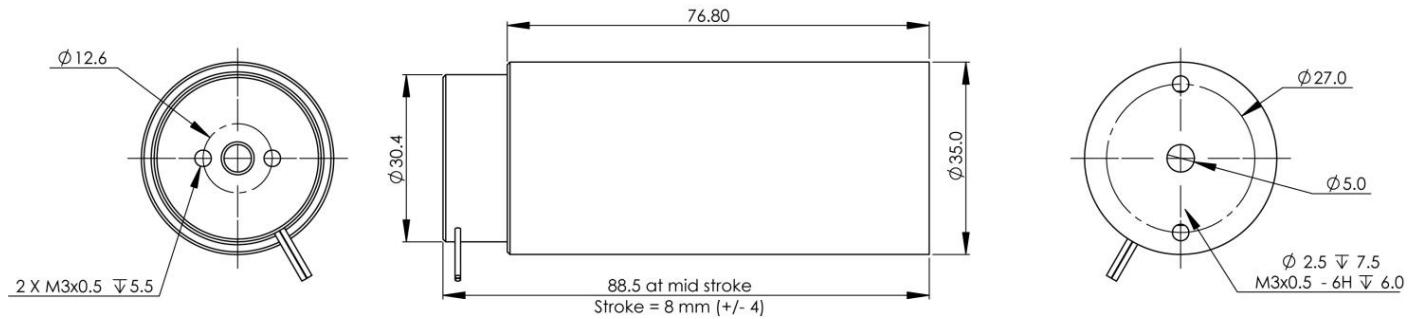
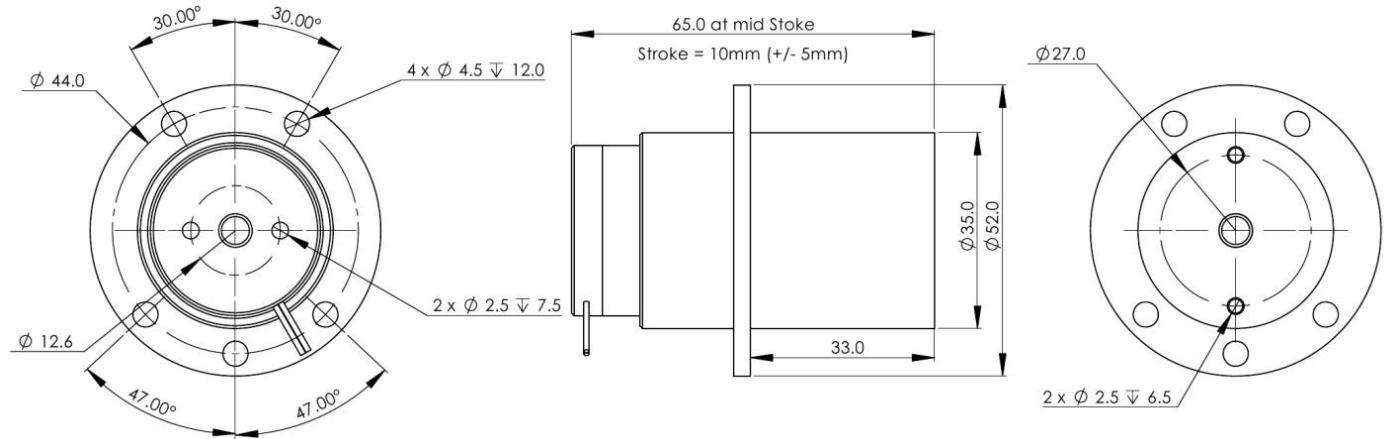


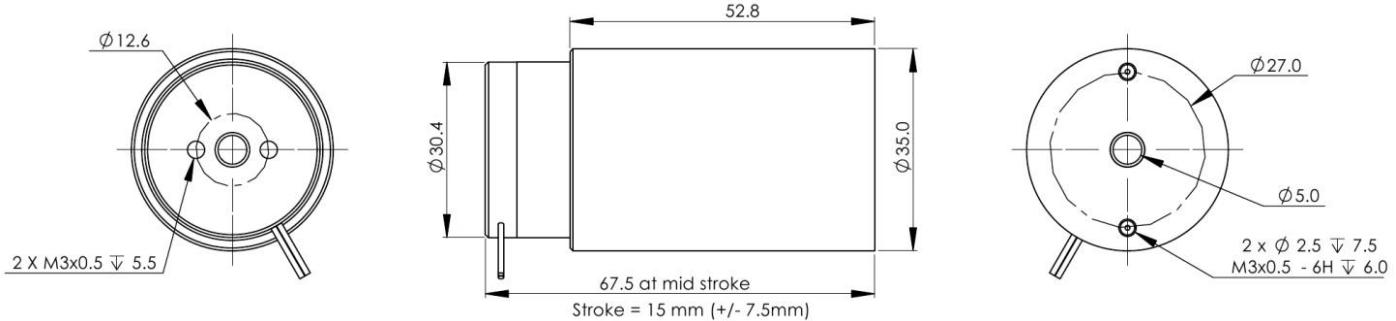
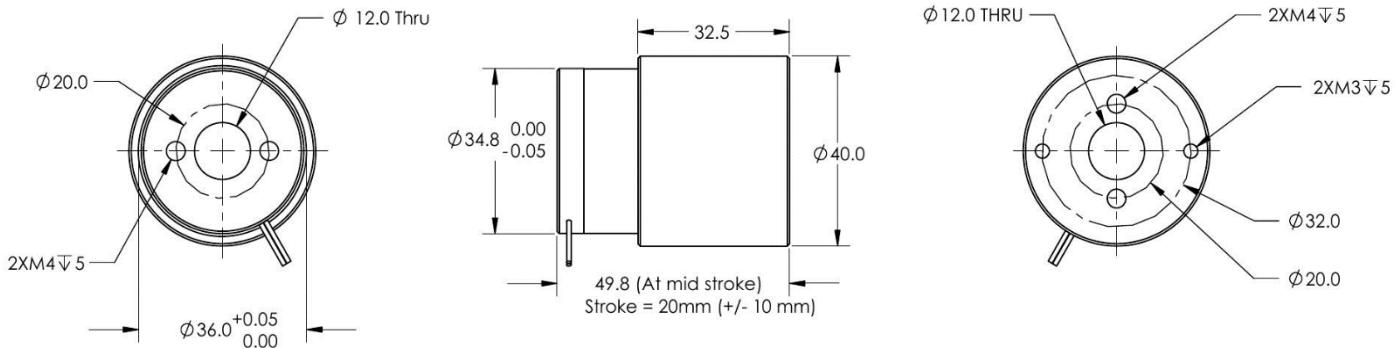
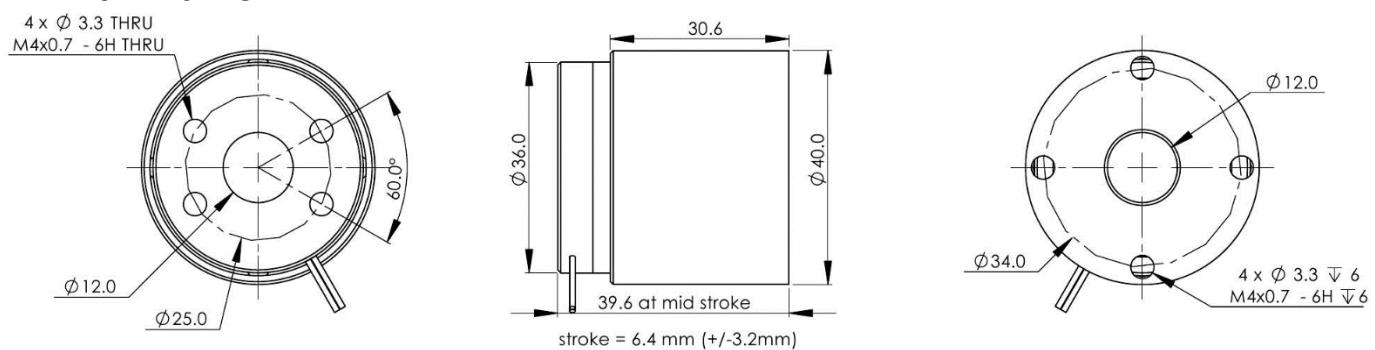
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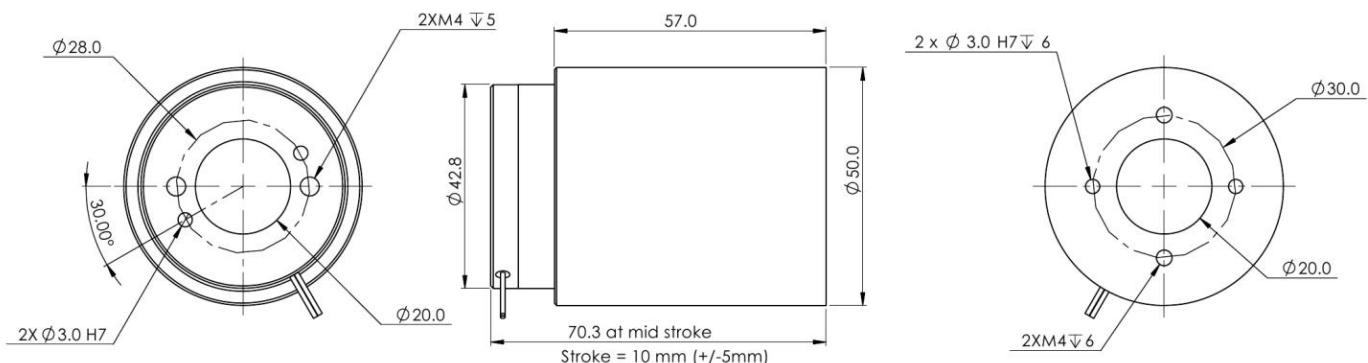
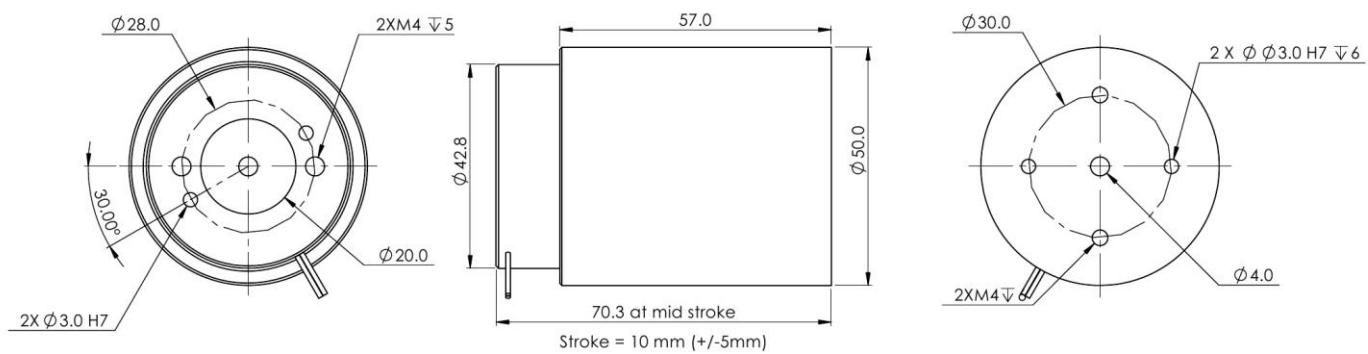
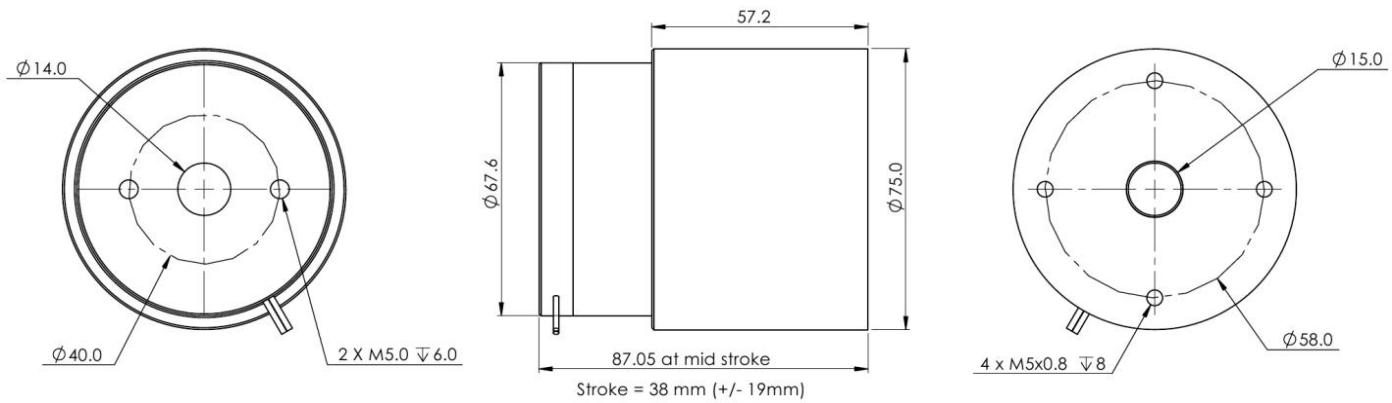


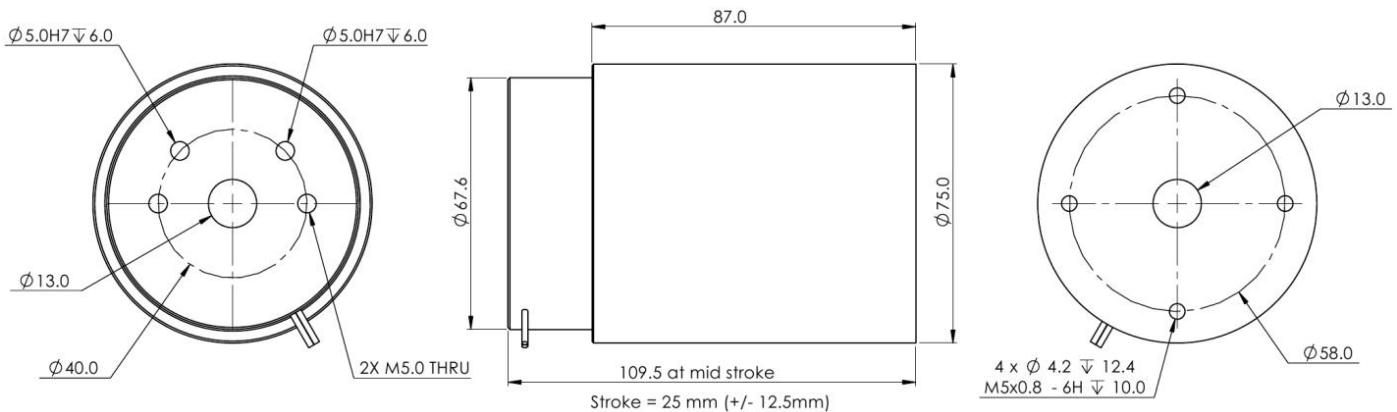
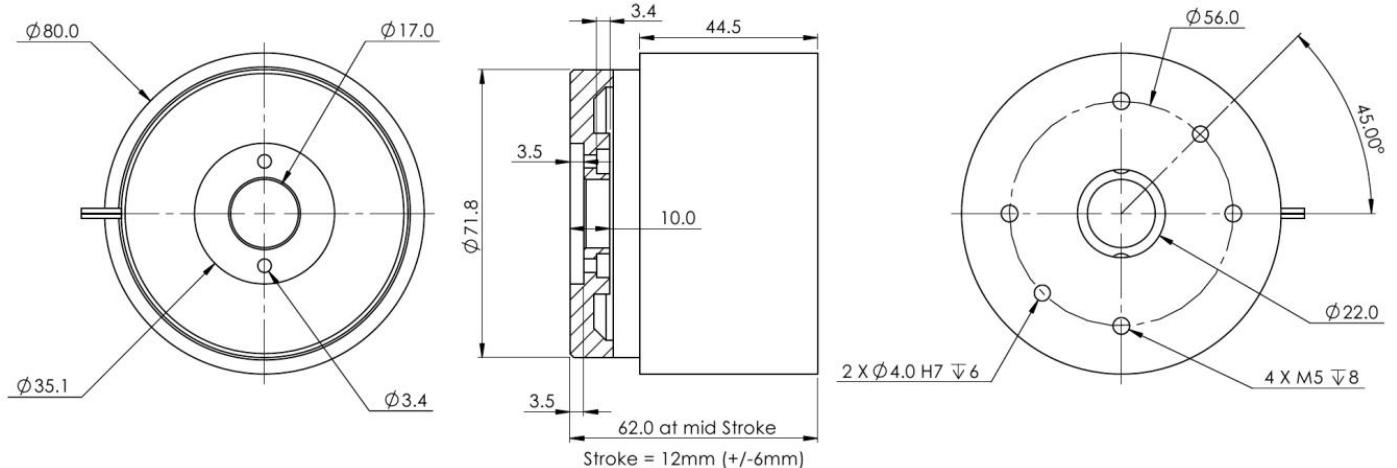
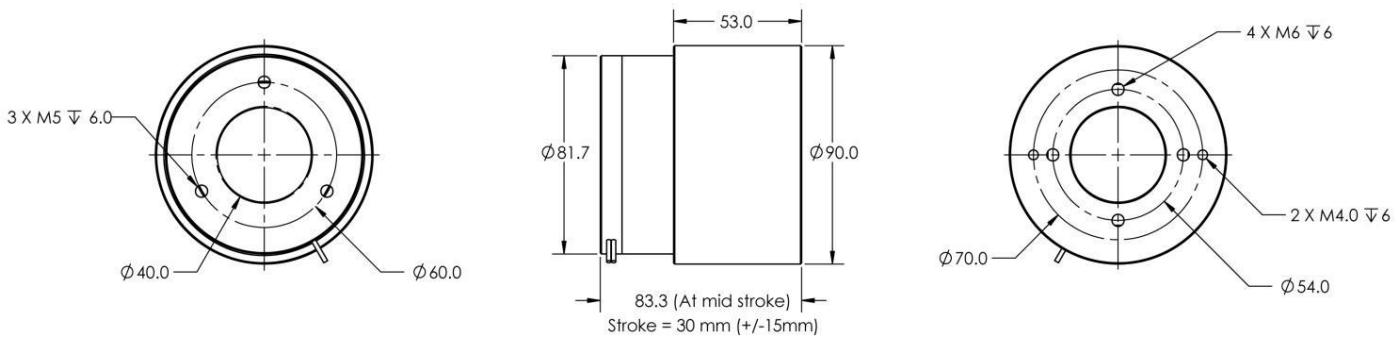
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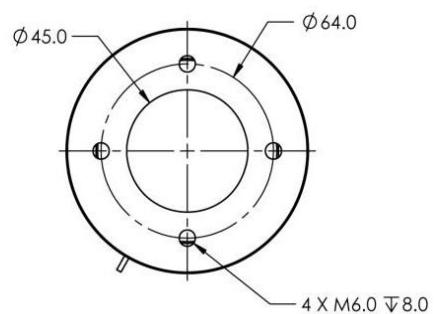
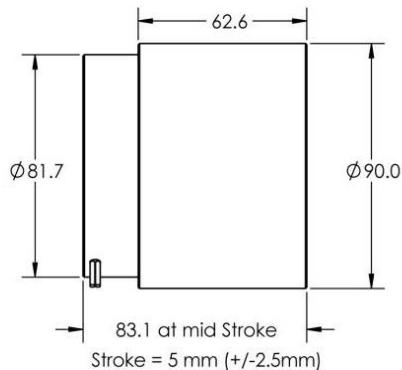
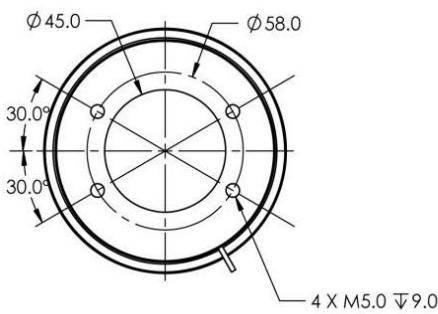
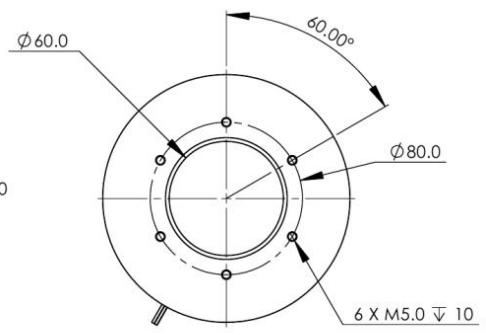
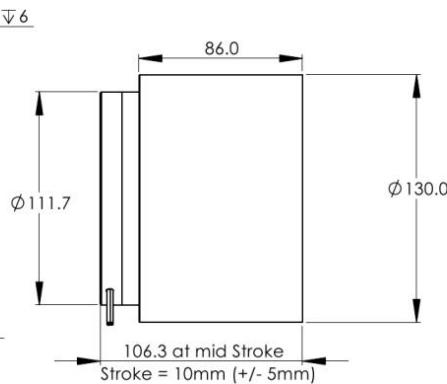
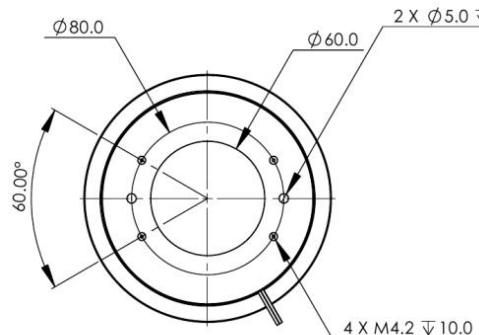
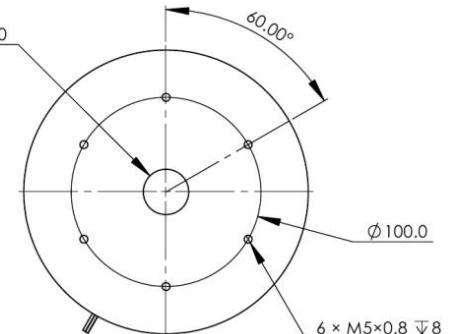
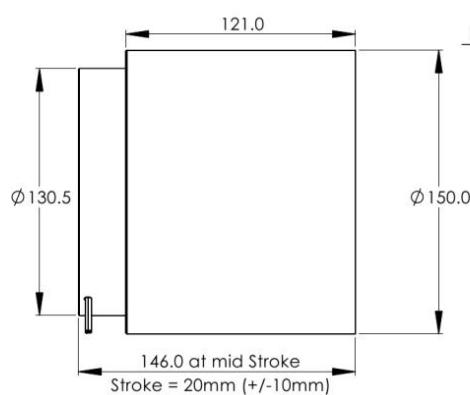
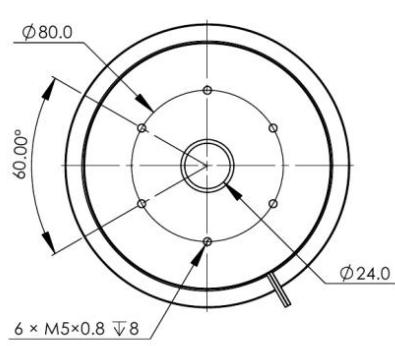


**AVM 30-7-C60**

**AVM 35-HF-8-C35**

**AVM 35-HF-10-C31**


**AVM 35-HF-15-C22**

**AVM 40-20-C18**

**AVM 40-HF-6.4-C11-A**


**AVM 50-HF-10-C15**

**AVM 50-HF-10-C34-A**

**AVM 75-38-C39**


**AVM 75-HF-25-C12**

**AVM 80-12-C8**

**AVM90-30-C77**


**AVM 90-HF-5-C40-A**

**AVM 130-HF-10-C29-A**

**AVM 150-HF-20-C53**


## Part Number Break-down

Model and stroke (mm)	Cable length (m)	Model and stroke (mm)	Cable length (m)
AVM 12-6.4	0.5	AVM 35-HF-7	0.5
AVM 19-5		AVM 40-HF-6.5	
AVM 20-10		AVM 50-HF-10	
AVM 24-10		AVM 60-HF-10	
AVM 24-5		AVM 90-HF-10	
AVM 30-15		AVM 100-HF-10	
AVM 40-20		AVM 130-HF-25	
AVM 60-25		AVM 250-HF-20	
AVM 90-30			

**Part No. Example:** AVM40-20-0.5;      AVM 35-HF-7-0.5

*Note: We also design custom voice coil motors. Please contact us for more details.*