

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 Standard Series

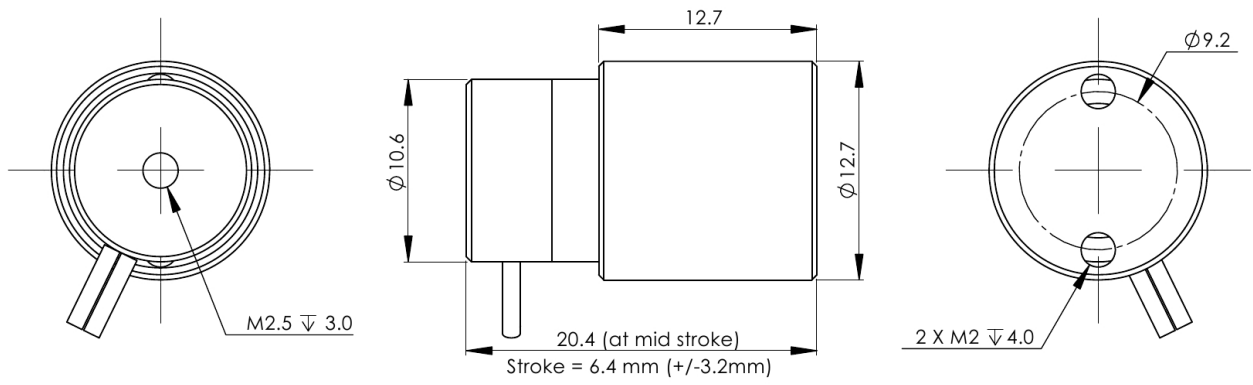
Model	Units	AVM12-6.4	AVM19-5	AVM 20-10	AVM24-5	AVM24-10
Stroke	mm	6.4	5	10	5	10
Force sensitivity (at mid stroke)	N/A	0.57	1.75	2.00	3.00	3.90
Back EMF constant	V/(m/s)	0.57	1.75	2.00	3.00	3.90
Continuous force (at 100 °C) ^①	N	0.91	1.75	1.56	2.10	2.65
Peak force	N	3.53	7.88	7.60	11.40	14.82
Resistance ^②	ohms	1.13	2.23	3.59	3.09	5.86
Inductance ^②	mH	0.09	0.27	0.50	0.51	1.23
Voltage at peak force	V	7.01	10.04	13.64	11.7	22.3
Continuous current (coil at 100 °C)	A	1.60	1.00	0.78	0.70	0.68
Peak current	A	6.20	4.50	3.80	3.80	3.80
Max voltage	Vdc	60	60	60	60	60
Actuator constant	N/Sqrt(W)	0.54	1.17	1.06	1.71	1.61
Continuous power	W	2.89	2.23	2.18	1.51	2.71
Electrical time constant	ms	0.08	0.12	0.14	0.17	0.21
Mechanical time constant	ms	17.39	6.55	9.87	4.12	6.36
Clearance of coil	mm	0.35	0.40	0.50	0.50	0.50
Power at peak force	W	43.44	45.16	51.84	44.62	84.62
Thermal dissipation constant	W/°C	0.039	0.030	0.029	0.020	0.036
Max coil temperature	°C	100	100	100	100	100
Coil assembly mass	g	5.0	9.0	11.0	12.0	16.5
Core assembly mass	g	7.3	23.8	45.1	29.7	45.0

Model	Units	AVM 30-15	AVM 40-20	AVM 60-25	AVM 90-30
Stroke	mm	15	20	25	30
Force sensitivity (at mid stroke)	N/A	7.35	12.90	17.00	22.50
Back EMF constant	V/(m/s)	7.35	12.90	17.00	22.50
Continuous force (at 100 °C) ^①	N	4.63	9.93	26.35	89.10
Peak force	N	29.40	58.05	119.00	315.00
Resistance ^②	ohms	10.22	12.10	5.37	2.70
Inductance ^②	mH	2.63	5.12	3.73	3.20
Voltage at peak force	V	40.88	54.45	37.59	37.8
Continuous current (coil at 100 °C)	A	0.63	0.77	1.55	3.96
Peak current	A	4.00	4.50	7.00	14.00
Max voltage	Vdc	60	60	60	120
Actuator constant	N/Sqrt(W)	2.30	3.71	7.34	13.69
Continuous power	W	4.06	7.17	12.90	42.34
Electrical time constant	ms	0.26	0.42	0.69	1.19
Mechanical time constant	ms	6.81	4.87	3.99	4.37
Clearance of coil	mm	0.60	0.60	0.70	0.65
Power at peak force	W	163.52	245.03	263.13	529.20
Thermal dissipation constant	W/°C	0.054	0.096	0.172	0.565
Max coil temperature	°C	100	100	100	100
Coil assembly mass	g	36.0	67.0	215.0	820.0
Core assembly mass	g	95.6	226.2	692.9	1750.0

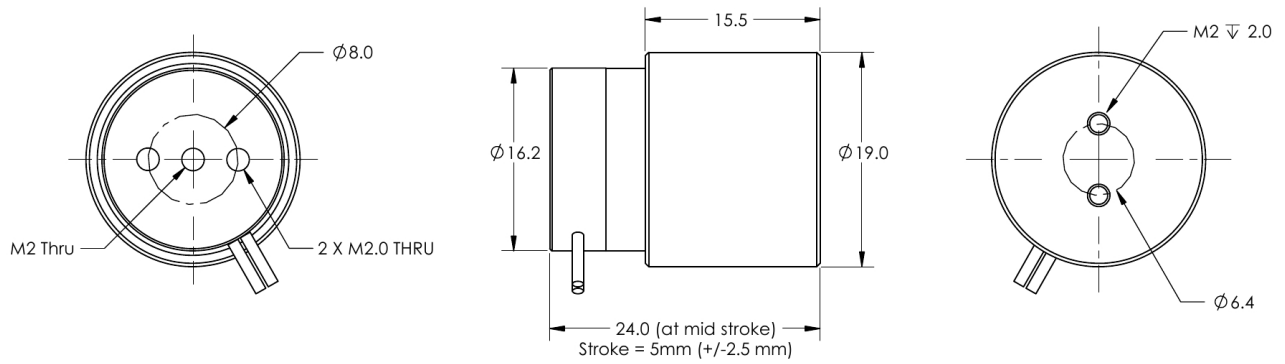
① Continuous force measured without any additional mounting plate or heat sink on coil

② Measured at 25 °C

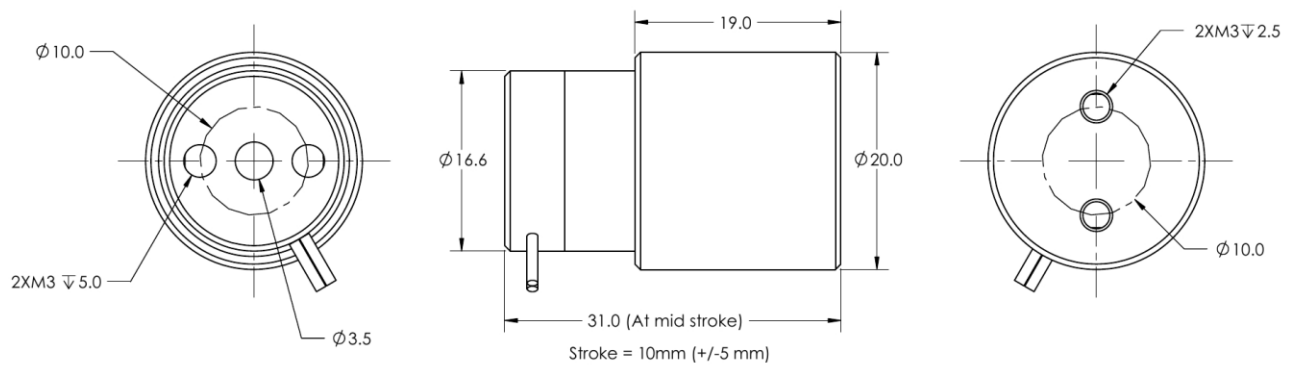
AVM 12-6.4



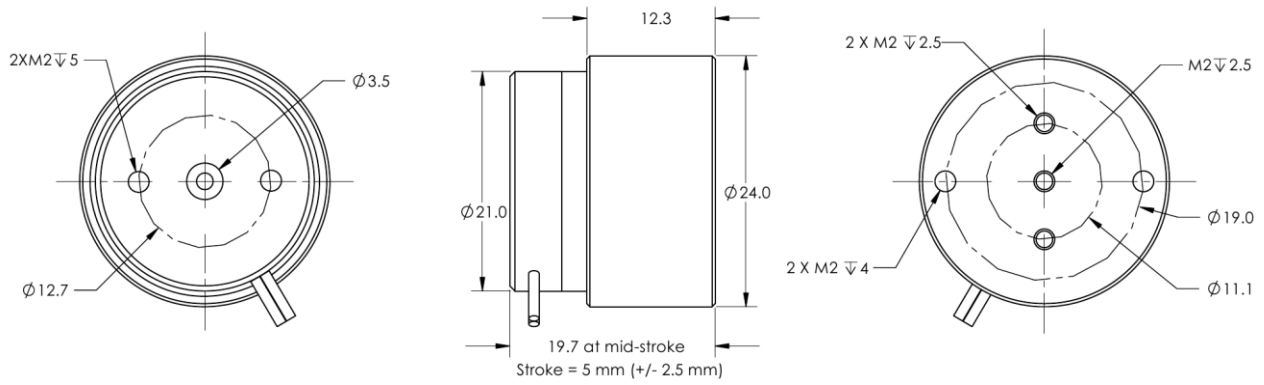
AVM 19-5



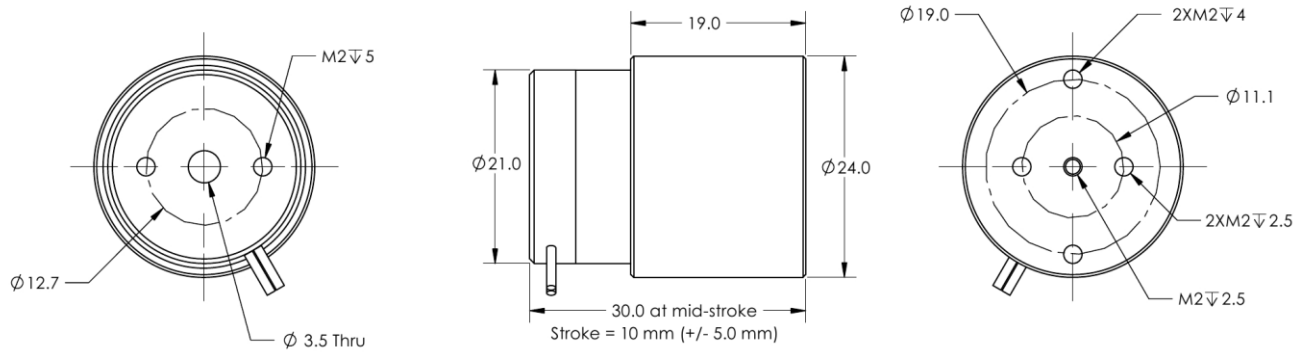
AVM 20-10



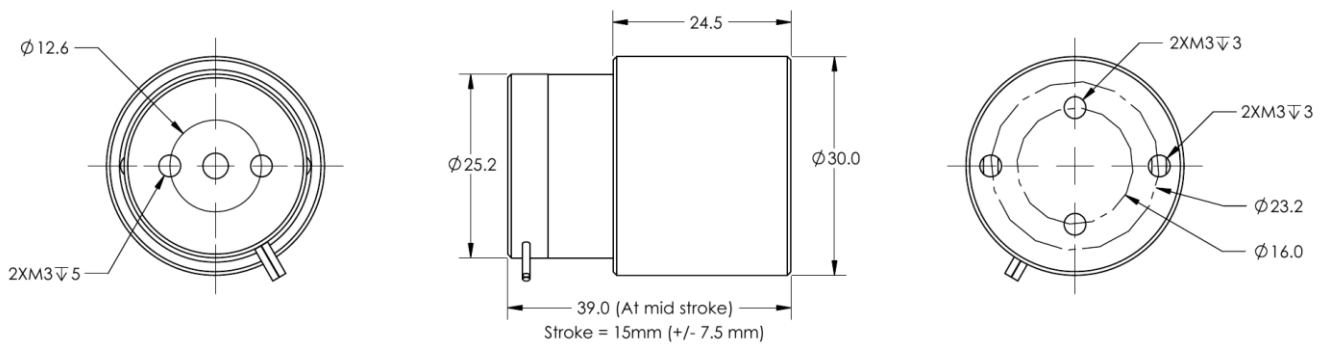
AVM 24-5



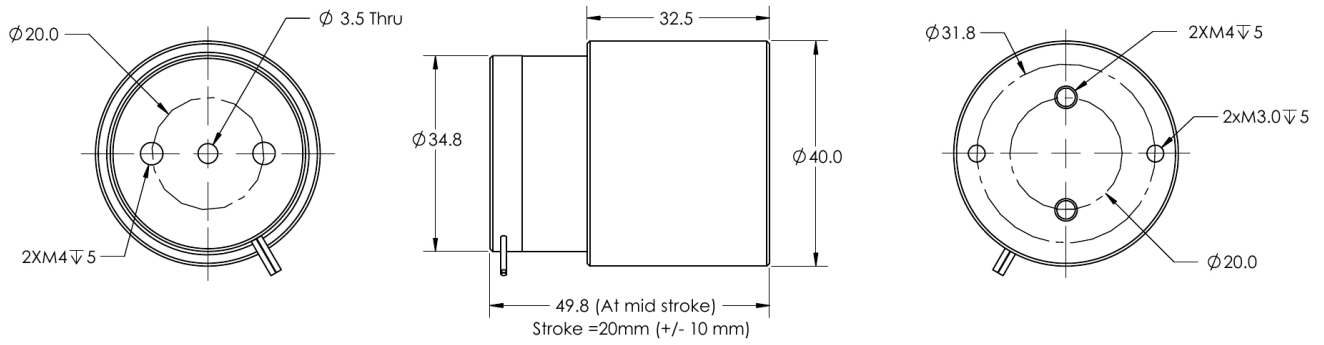
AVM 24-10



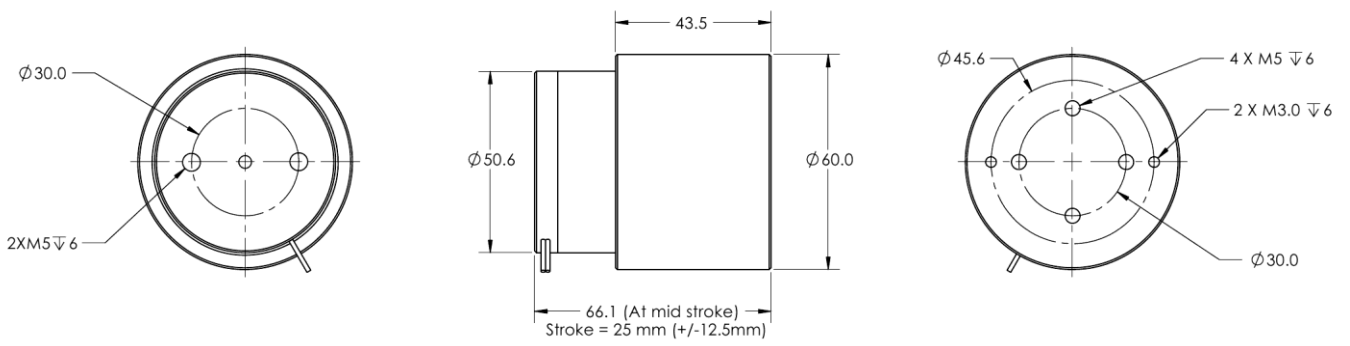
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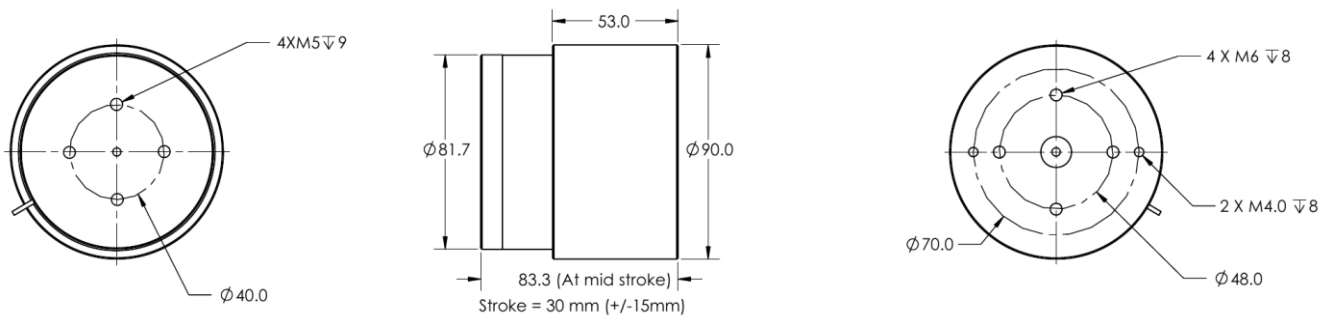
AVM 40-20



AVM 60-25



AVM 90-30



AVM High Force Series **(Patented Design)**

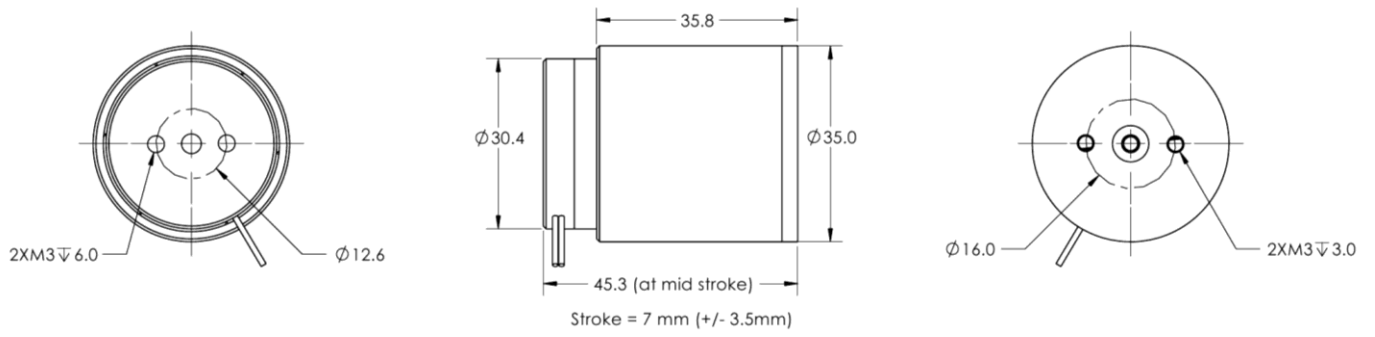
Model	Units	AVM35-HF-7	AVM 40-HF-6.5	AVM 50-HF-10	AVM60-HF-10
Stroke	mm	7	6.5	10	10
Force sensitivity (at mid stroke)	N/A	16.00	20.70	28.00	32.00
Back EMF constant	V/(m/s)	16.00	20.70	28.00	32.00
Continuous force (at 100 °C) ^①	N	14.40	16.56	33.60	51.20
Peak force	N	72.00	93.15	140.00	224.00
Resistance ^②	ohms	9.80	11.31	8.64	5.91
Inductance ^②	mH	3.60	4.47	5.30	4.01
Voltage at peak force	V	44.10	50.90	43.20	41.4
Continuous current (coil at 100 °C)	A	0.90	0.80	1.20	1.60
Peak current	A	4.50	4.50	5.00	7.00
Max voltage	Vdc	60	60	60	60
Actuator constant	N/Sqrt(W)	5.11	6.16	9.53	13.16
Continuous power	W	7.14	7.24	12.44	15.13
Electrical time constant	ms	0.37	0.40	0.61	0.68
Mechanical time constant	ms	2.03	1.79	1.63	1.36
Clearance of coil	mm	0.50	0.60	0.60	0.70
Power at peak force	W	198.45	229.03	216.00	289.59
Thermal dissipation constant	W/°C	0.095	0.097	0.166	0.202
Max coil temperature	°C	100	100	100	100
Coil assembly mass	g	53.0	68.0	148.0	236.5
Core assembly mass	g	146.8	218.7	553.0	997.0

Model	Units	AVM 90-HF-10	AVM 100-HF-10	AVM 130-HF-25	AVM250-HF-20
Stroke	mm	10	10	25	20
Force sensitivity (at mid stroke)	N/A	43.62	55.00	54.60	168.40
Back EMF constant	V/(m/s)	43.62	55.00	54.60	168.40
Continuous force (at 100 °C) ^①	N	152.67	192.50	360.36	1111.44
Peak force	N	610.68	770.00	764.40	4715.20
Resistance ^②	ohms	2.90	3.20	1.48	3.70
Inductance ^②	mH	3.59	4.12	1.70	5.00
Voltage at peak force	V	40.60	44.80	20.72	103.6
Continuous current (coil at 100 °C)	A	3.50	3.50	6.60	6.60
Peak current	A	14.00	14.00	14.00	28.00
Max voltage	Vdc	120	120	120	120
Actuator constant	N/Sqrt(W)	25.61	30.75	44.88	87.55
Continuous power	W	35.53	39.20	64.47	161.17
Electrical time constant	ms	1.24	1.29	1.15	1.35
Mechanical time constant	ms	1.46	1.18	0.77	0.77
Clearance of coil	mm	0.65	0.65	0.55	0.90
Power at peak force	W	568.40	627.20	290.08	2900.80
Thermal dissipation constant	W/°C	0.474	0.523	0.860	2.149
Max coil temperature	°C	100	100	100	100
Coil assembly mass	g	960.0	1117.0	1550.0	5900.0
Core assembly mass	g	2400.0	3300.0	9300.0	27200.0

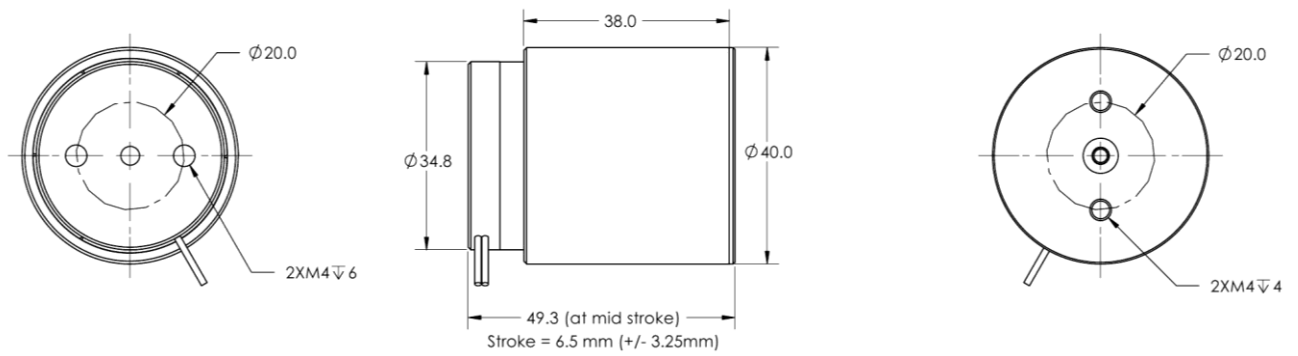
① Continuous force measured without any additional mounting plate or heat sink on coil

② Measured at 25 °C

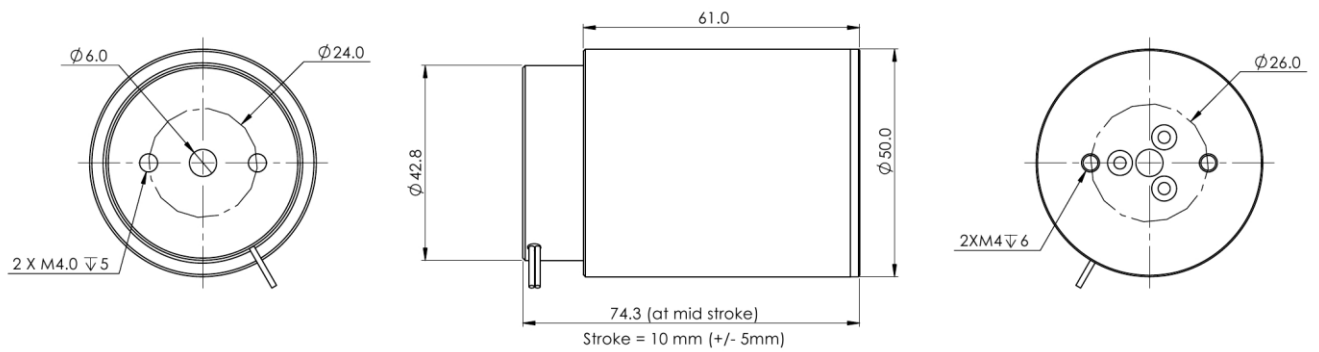
AVM 35-HF-7



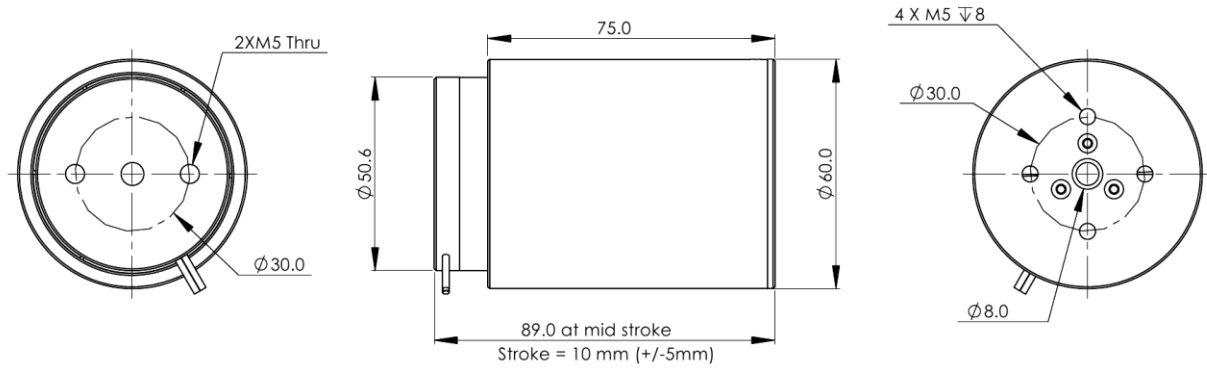
AVM 40-HF-6.5



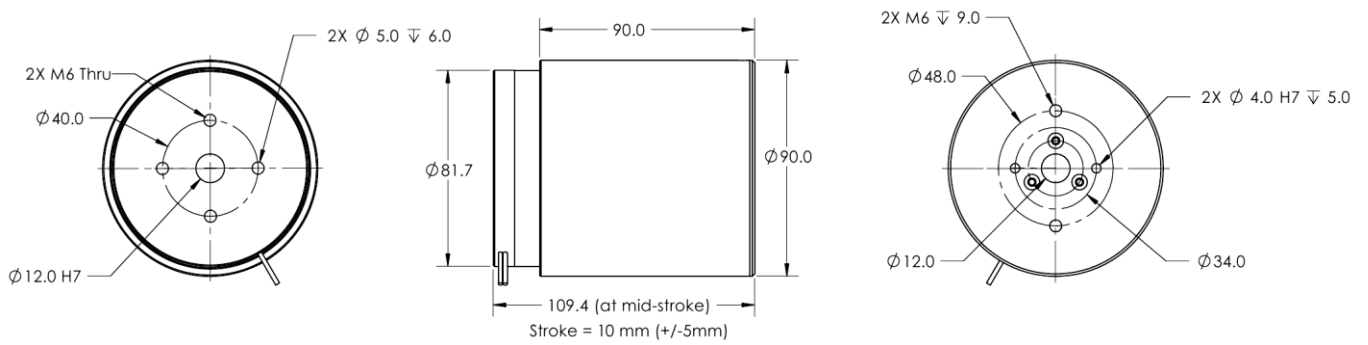
AVM 50-HF-10



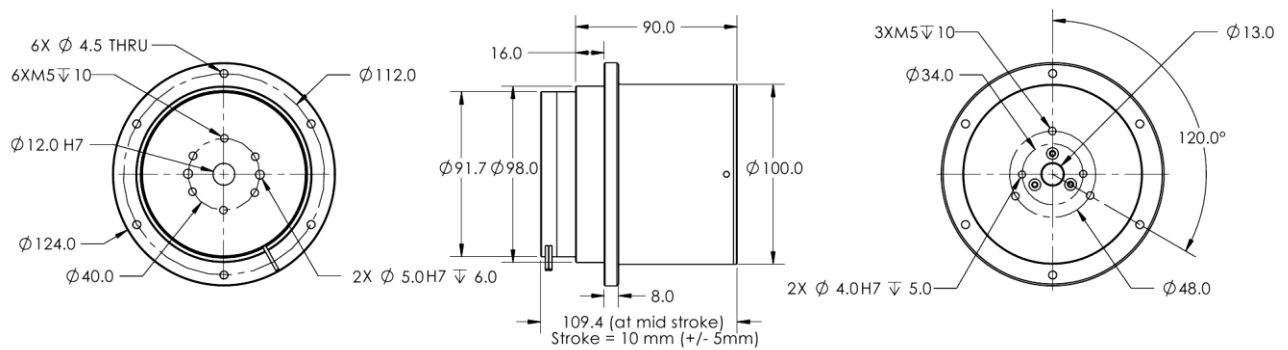
AVM 60-HF-10



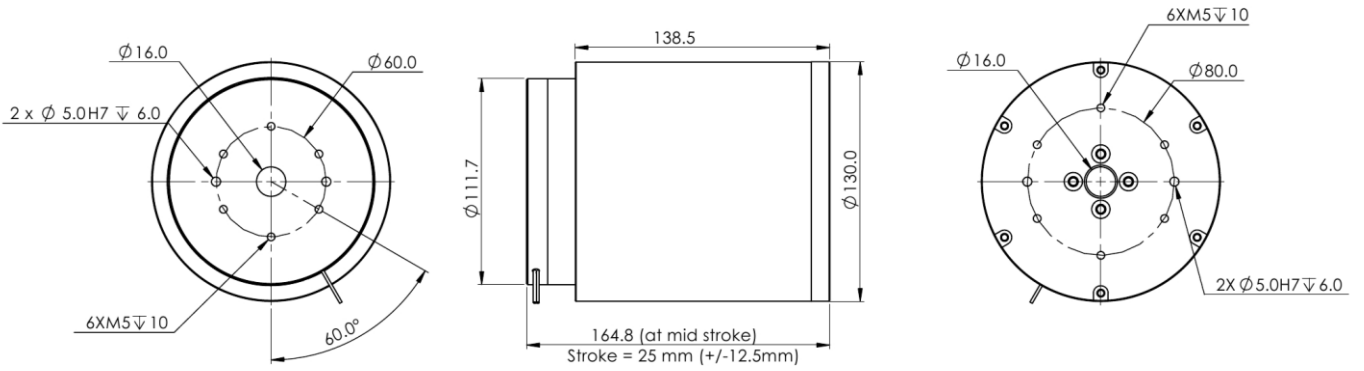
AVM 90-HF-10



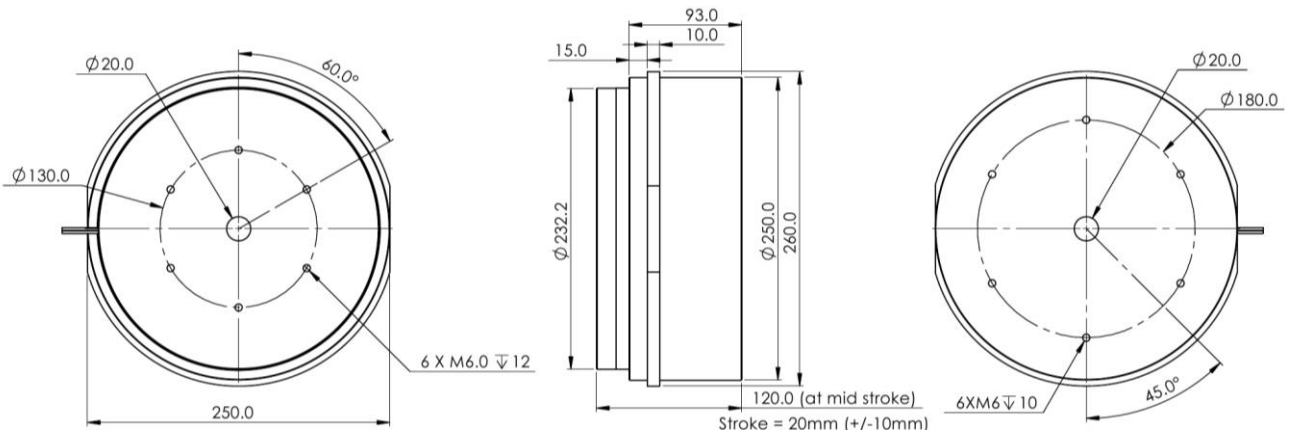
AVM 100-HF-10



AVM 130-HF-25



AVM 250-HF-20



AVM Special Models

Model	Units	AVM14-HF-4-C19	AVM14-10-C56	AVM 20-HF-6-C28
Stroke	mm	4	10	6
Force sensitivity (at mid stroke)	N/A	1.88	0.82	4.74
Back EMF constant	V/(m/s)	1.88	0.82	4.74
Continuous force (at 100 °C) ^①	N	2.44	0.98	5.69
Peak force	N	7.33	2.95	17.06
Resistance ^②	ohms	1.93	2.24	4.85
Inductance ^②	mH	0.14	0.24	0.56
Voltage at peak force	V	7.53	8.06	17.46
Continuous current (coil at 100 °C)	A	1.30	1.20	1.20
Peak current	A	3.90	3.60	3.60
Max voltage	Vdc	60	60	60
Actuator constant	N/Sqrt(W)	1.35	0.55	2.15
Continuous power	W	3.26	3.23	6.98
Electrical time constant	ms	0.073	0.107	0.115
Mechanical time constant	ms	3.822	10.019	2.914
Clearance of coil	mm	0.35	0.35	0.50
Power at peak force	W	29.36	29.03	62.86
Thermal dissipation constant	W/°C	0.043	0.043	0.093
Max coil temperature	°C	100	100	100
Coil assembly mass	g	7.0	3.0	13.5
Core assembly mass	g	13.7	13.6	47.5

Model	Units	AVM24-HF-5-C13	AVM 30-7-C60	AVM35-HF-15-C22
Stroke	mm	5	7	15
Force sensitivity (at mid stroke)	N/A	8.40	6.20	24.70
Back EMF constant	V/(m/s)	8.40	6.20	24.70
Continuous force (at 100 °C) ^①	N	5.88	5.64	19.76
Peak force	N	31.92	24.80	98.80
Resistance ^②	ohms	8.24	5.50	16.60
Inductance ^②	mH	1.69	1.52	7.11
Voltage at peak force	V	31.31	22.00	66.40
Continuous current (coil at 100 °C)	A	0.70	0.91	0.80
Peak current	A	3.80	4.00	4.00
Max voltage	Vdc	60	60	60
Actuator constant	N/Sqrt(W)	2.93	2.64	6.06
Continuous power	W	4.04	4.55	8.50
Electrical time constant	ms	0.205	0.276	0.428
Mechanical time constant	ms	2.511	2.189	2.196
Clearance of coil	mm	0.50	0.60	0.50
Power at peak force	W	118.99	88.00	265.60
Thermal dissipation constant	W/°C	0.054	0.061	0.113
Max coil temperature	°C	100	100	100
Coil assembly mass	g	21.5	15.3	80.7
Core assembly mass	g	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

Model	Units	AVM35-HF-8-C35	AVM35-HF-10-C31	AVM 40-20-C18
Stroke	mm	8	10	20
Force sensitivity (at mid stroke)	N/A	34.29	20.90	10.53
Back EMF constant	V/(m/s)	34.29	20.90	10.53
Continuous force (at 100 °C) ^①	N	27.43	16.72	8.11
Peak force	N	137.16	83.60	47.39
Resistance ^②	ohms	16.89	12.02	11.00
Inductance ^②	mH	6.89	4.96	6.22
Voltage at peak force	V	67.56	48.08	49.50
Continuous current (coil at 100 °C)	A	0.80	0.80	0.77
Peak current	A	4.00	4.00	4.50
Max voltage	Vdc	60	60	60
Actuator constant	N/Sqrt(W)	8.34	6.03	3.17
Continuous power	W	8.65	6.15	6.52
Electrical time constant	ms	0.408	0.413	0.565
Mechanical time constant	ms	1.224	2.146	6.448
Clearance of coil	mm	0.50	0.50	0.60
Power at peak force	W	270.24	192.32	222.75
Thermal dissipation constant	W/°C	0.115	0.082	0.087
Max coil temperature	°C	100	100	100
Coil assembly mass	g	85.2	78.0	65.0
Core assembly mass	g	371.4	285.7	205.0

Model	Units	AVM 40-HF-6.4-C11-A	AVM 50-HF-10-C15-A	AVM 50-HF-10-C34-A
Stroke	mm	6.4	10	10
Force sensitivity (at mid stroke)	N/A	14.20	21.00	31.31
Back EMF constant	V/(m/s)	14.20	21.00	31.31
Continuous force (at 100 °C) ^①	N	18.18	25.20	37.57
Peak force	N	99.40	105.00	156.55
Resistance ^②	ohms	5.42	7.80	7.80
Inductance ^②	mH	1.38	5.30	5.30
Voltage at peak force	V	37.94	39.00	39.00
Continuous current (coil at 100 °C)	A	1.28	1.20	1.20
Peak current	A	7.00	5.00	5.00
Max voltage	Vdc	60	60	60
Actuator constant	N/Sqrt(W)	6.10	7.52	11.21
Continuous power	W	8.88	11.23	11.23
Electrical time constant	ms	0.255	0.679	0.679
Mechanical time constant	ms	1.317	2.512	1.146
Clearance of coil	mm	0.50	0.60	0.60
Power at peak force	W	265.58	195.00	195.00
Thermal dissipation constant	W/°C	0.118	0.150	0.150
Max coil temperature	°C	100	100	100
Coil assembly mass	g	49.0	142.0	144.0
Core assembly mass	g	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

Model	Units	AVM 75-HF-25-C12	AVM75-38-C39	AVM 80-12-C8
Stroke	mm	25	38	12
Force sensitivity (at mid stroke)	N/A	33.70	13.72	21.40
Back EMF constant	V/(m/s)	33.70	13.72	21.40
Continuous force (at 100 °C) ^①	N	124.69	45.26	33.71
Peak force	N	572.90	192.02	192.60
Resistance ^②	ohms	2.72	2.35	6.36
Inductance ^②	mH	2.88	1.89	1.62
Voltage at peak force	V	46.24	32.90	57.24
Continuous current (coil at 100 °C)	A	3.70	3.30	1.58
Peak current	A	17.00	14.00	9.00
Max voltage	Vdc	60	60	60
Actuator constant	N/Sqrt(W)	20.43	8.95	8.49
Continuous power	W	37.24	25.59	15.78
Electrical time constant	ms	1.059	0.804	0.255
Mechanical time constant	ms	1.700	6.671	1.722
Clearance of coil	mm	0.50	0.50	0.60
Power at peak force	W	786.08	460.60	515.16
Thermal dissipation constant	W/°C	0.496	0.341	0.210
Max coil temperature	°C	100	100	100
Coil assembly mass	g	710.0	534.0	124.0
Core assembly mass	g	1940.0	1277.0	1262.4

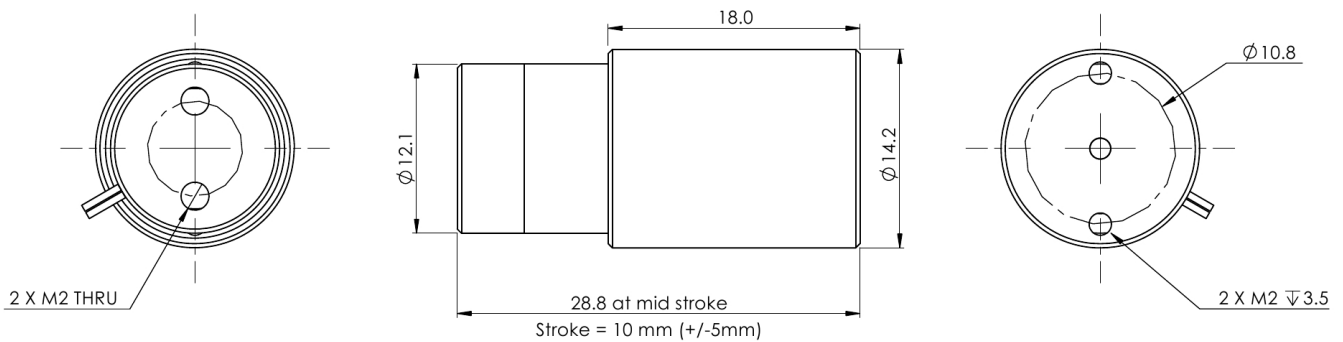
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Stroke	mm	30	5	10
Force sensitivity (at mid stroke)	N/A	14.47	15.78	46.40
Back EMF constant	V/(m/s)	14.47	15.78	46.40
Continuous force (at 100 °C) ^①	N	57.30	62.49	162.40
Peak force	N	202.60	220.92	487.20
Resistance ^②	ohms	2.9	1.21	0.88
Inductance ^②	mH	6.61	0.75	0.82
Voltage at peak force	V	40.60	16.94	9.24
Continuous current (coil at 100 °C)	A	4.0	3.96	3.50
Peak current	A	14.0	14.00	10.50
Max voltage	Vdc	120	120	120
Actuator constant	N/Sqrt(W)	8.50	14.35	49.46
Continuous power	W	45.48	18.97	10.78
Electrical time constant	ms	2.3	0.620	0.932
Mechanical time constant	ms	10.4	2.076	0.441
Clearance of coil	mm	0.65	0.65	0.55
Power at peak force	W	568.40	237.16	97.02
Thermal dissipation constant	W/°C	0.606	0.253	0.144
Max coil temperature	°C	100	100	100
Coil assembly mass	g	751.2	427.2	1080.0
Core assembly mass	g	1135.1	1514.6	5300.0

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

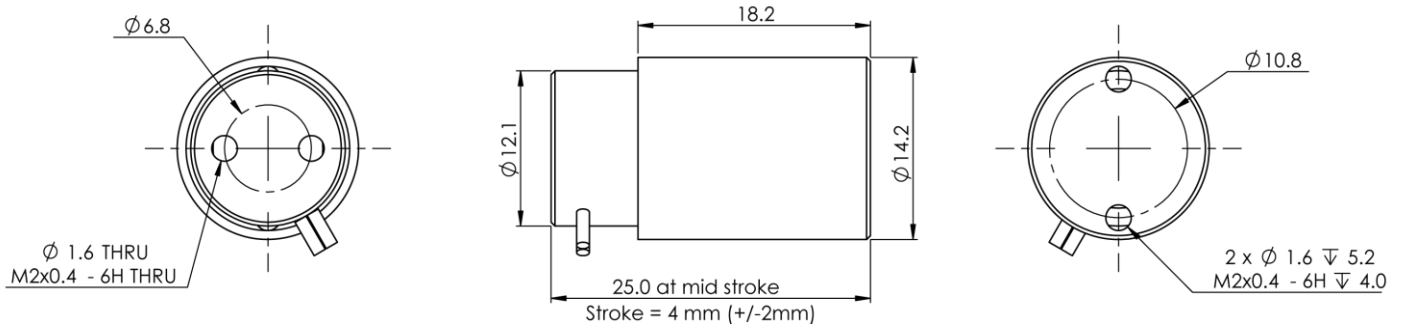
② Measured at 25 °C

Model	Units	AVM 150-HF-20-C53
Stroke	mm	20
Force sensitivity (at mid stroke)	N/A	97.63
Back EMF constant	V/(m/s)	97.63
Continuous force (at 100 °C) ^①	N	585.77
Peak force	N	1757.30
Resistance ^②	ohms	4.40
Inductance ^②	mH	2.60
Voltage at peak force	V	79.20
Continuous current (coil at 100 °C)	A	6.00
Peak current	A	18.00
Max voltage	Vdc	120
Actuator constant	N/Sqrt(W)	46.54
Continuous power	W	158.40
Electrical time constant	ms	0.591
Mechanical time constant	ms	0.692
Clearance of coil	mm	0.75
Power at peak force	W	1425.60
Thermal dissipation constant	W/°C	2.112
Max coil temperature	°C	100
Coil assembly mass	g	1500.0
Core assembly mass	g	12700.0

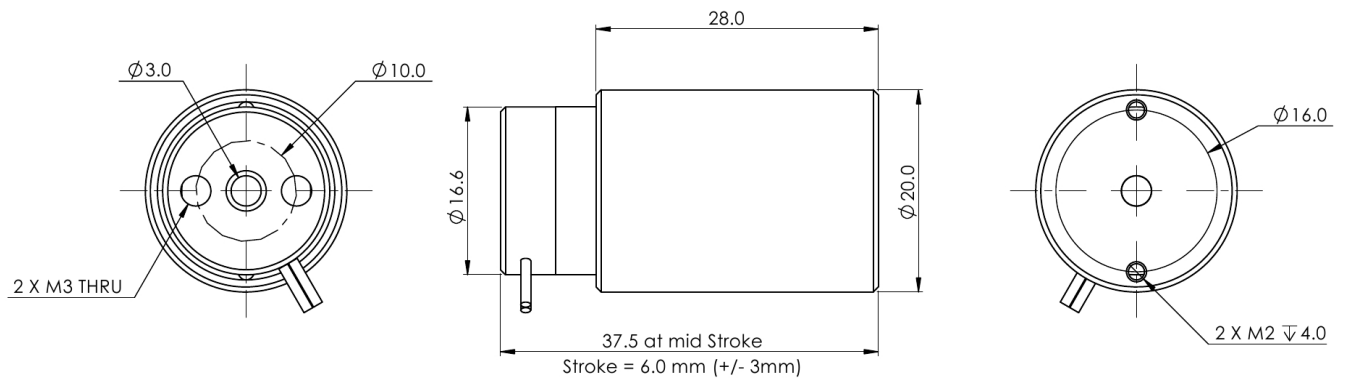
AVM 14-10-C56



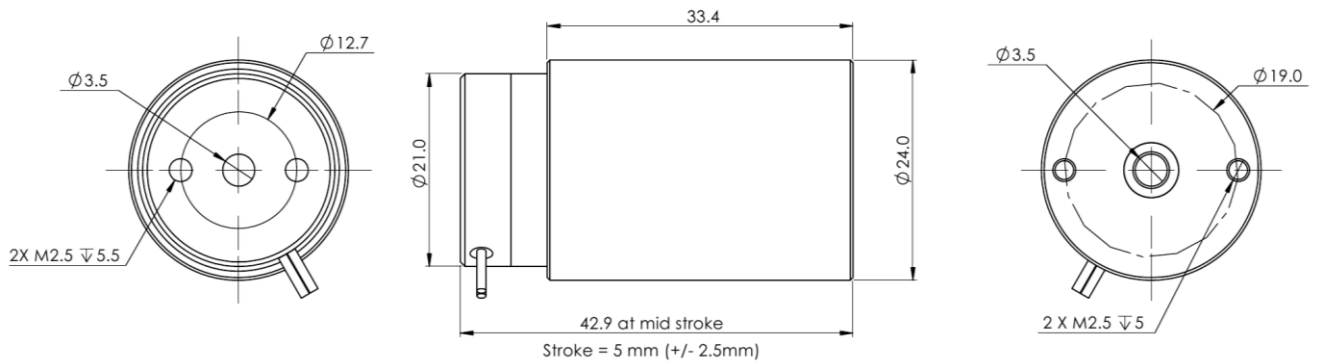
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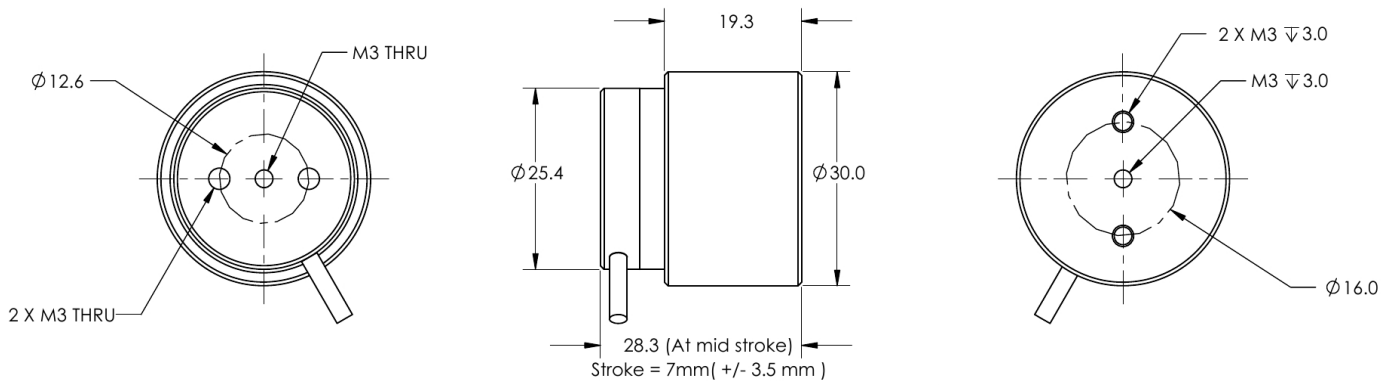
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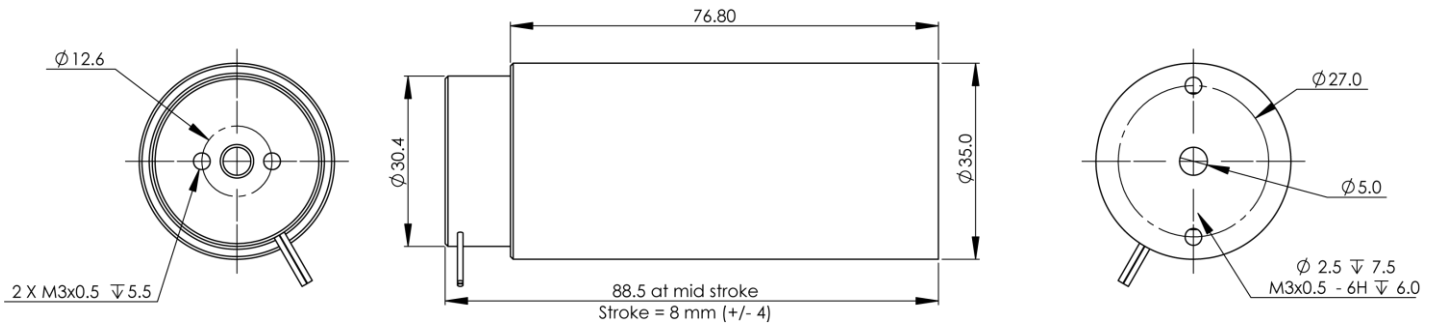
AVM 24-HF-5-C13



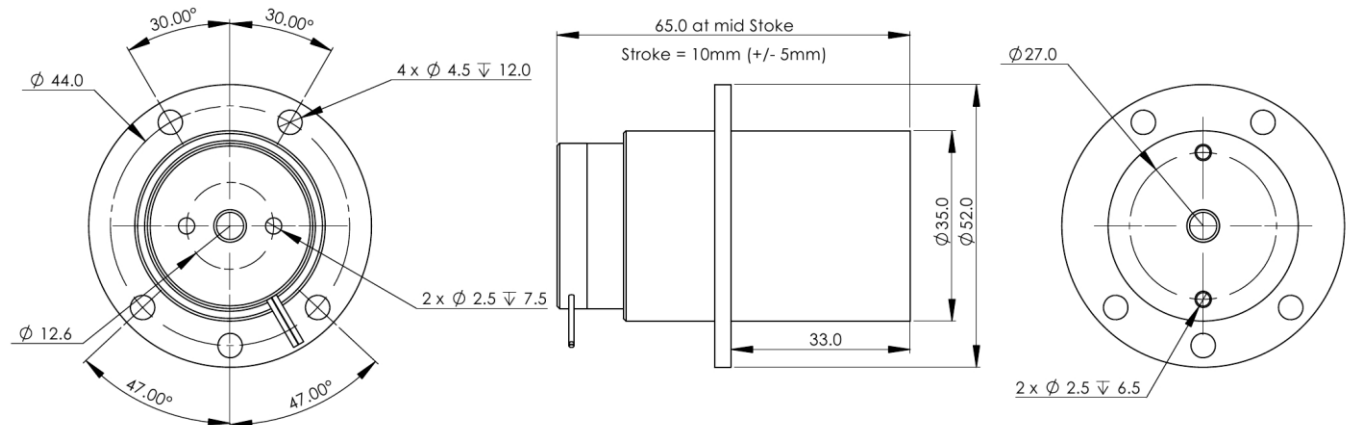
AVM 30-7-C60



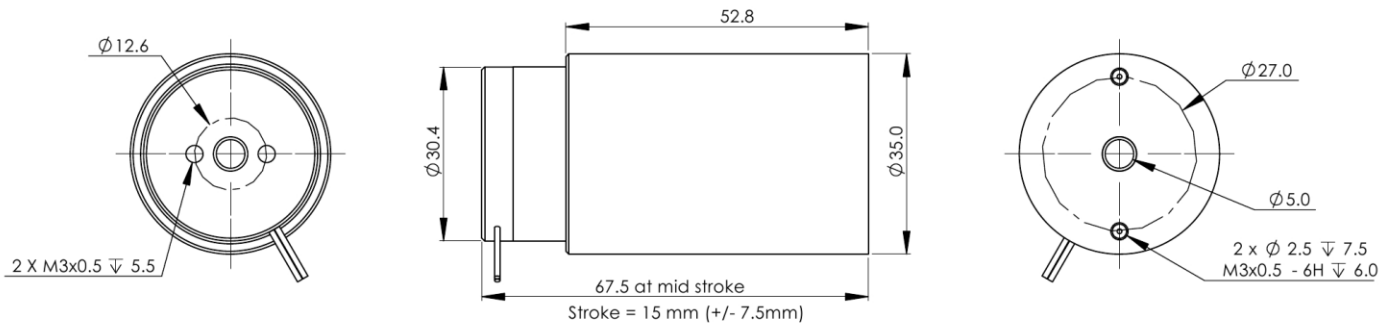
AVM 35-HF-8-C35



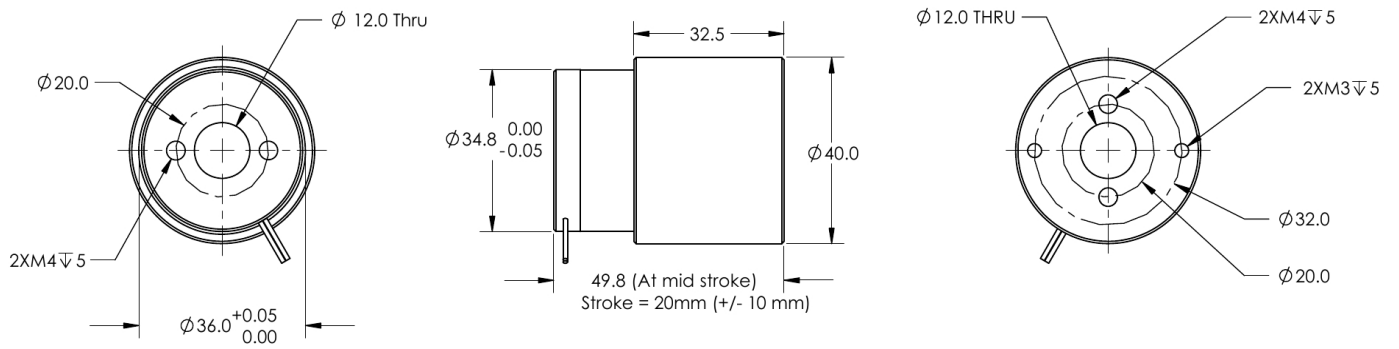
AVM 35-HF-10-C31



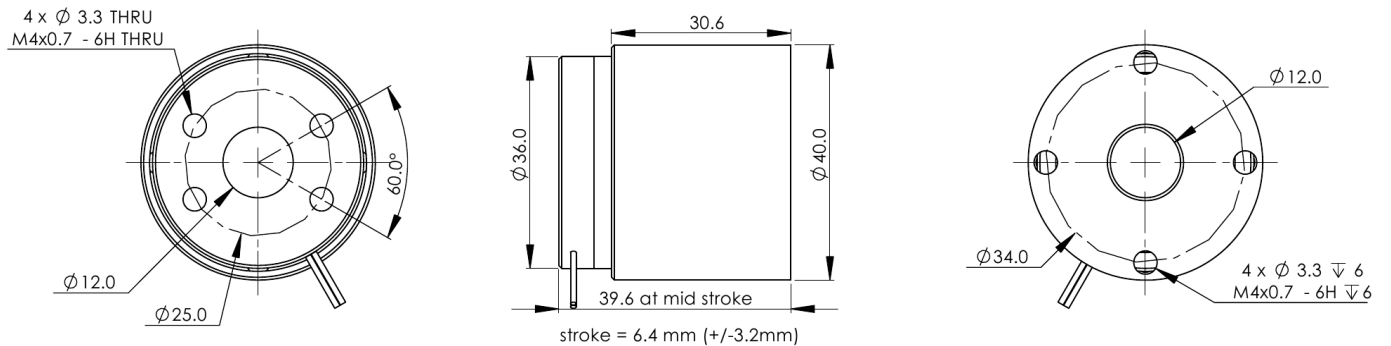
AVM 35-HF-15-C22



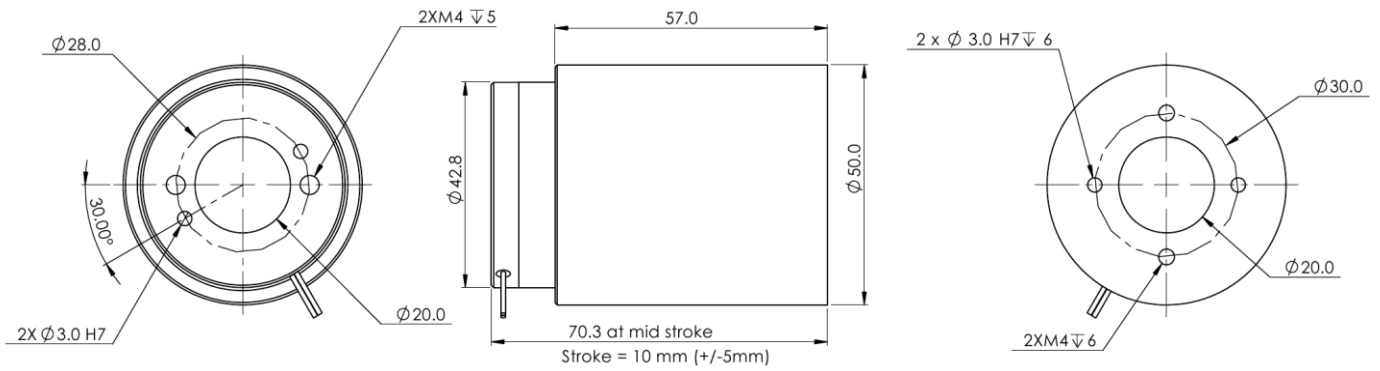
AVM 40-20-C18



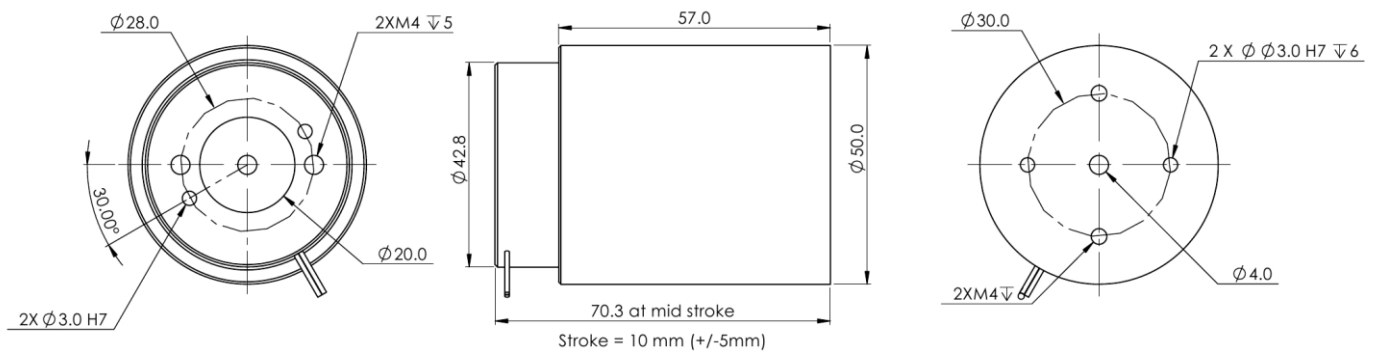
AVM 40-HF-6.4-C11-A



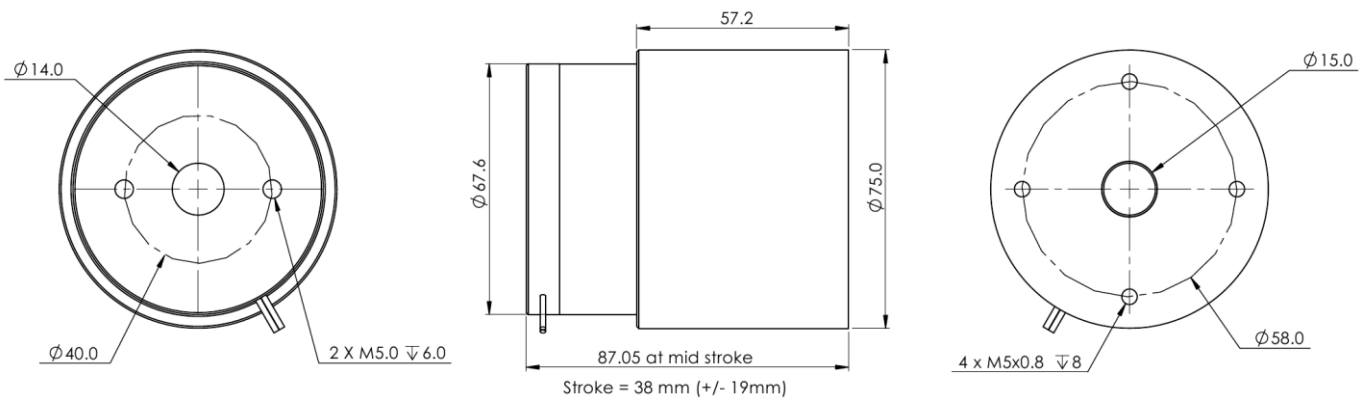
AVM 50-HF-10-C15



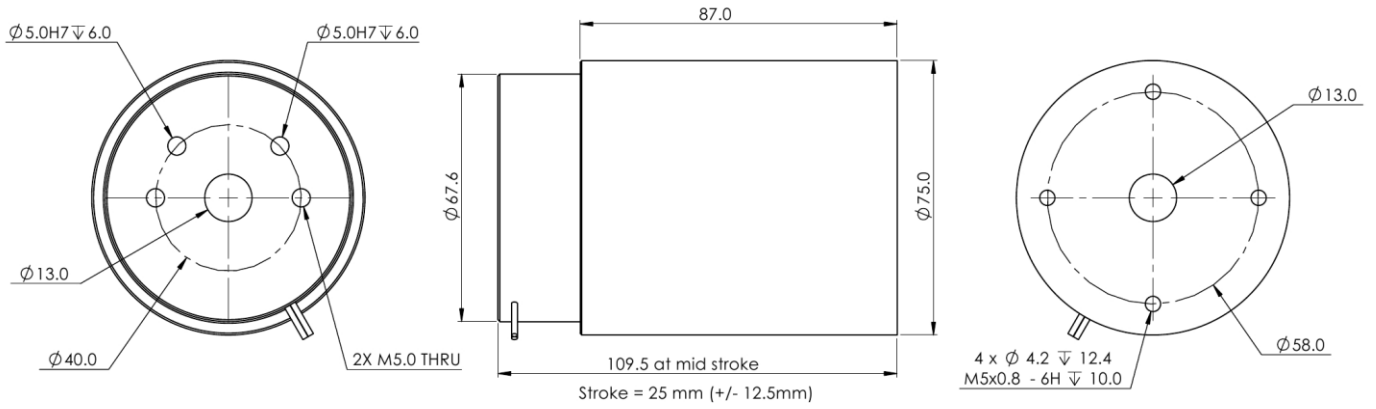
AVM 50-HF-10-C34-A



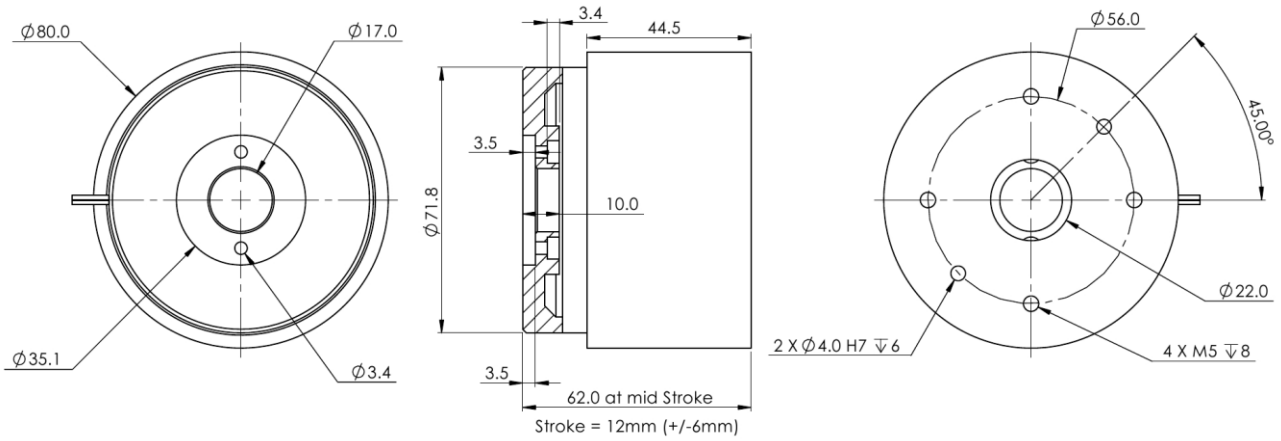
AVM 75-38-C39



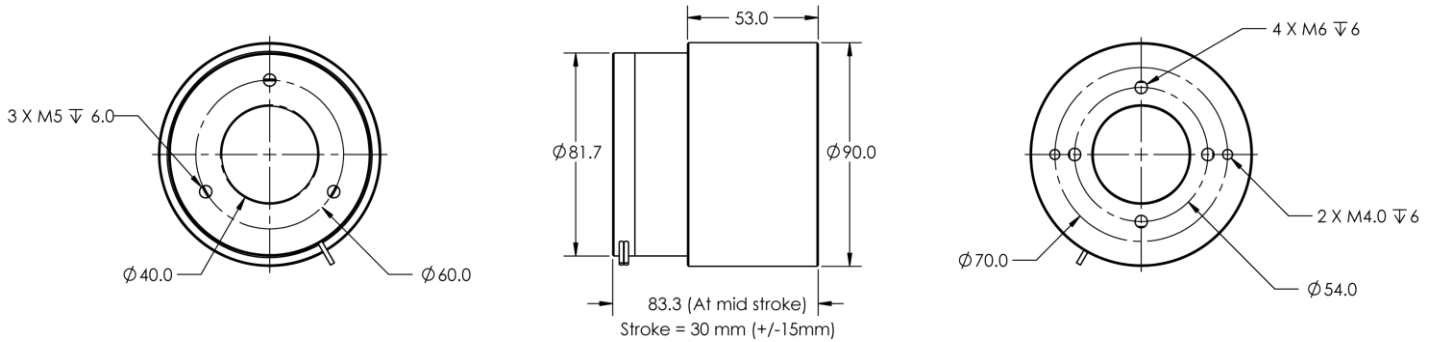
AVM 75-HF-25-C12



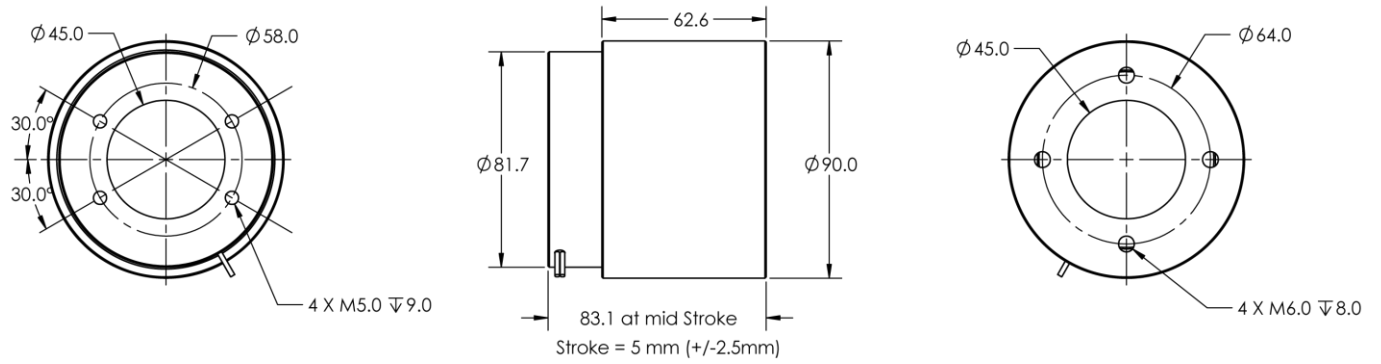
AVM 80-12-C8



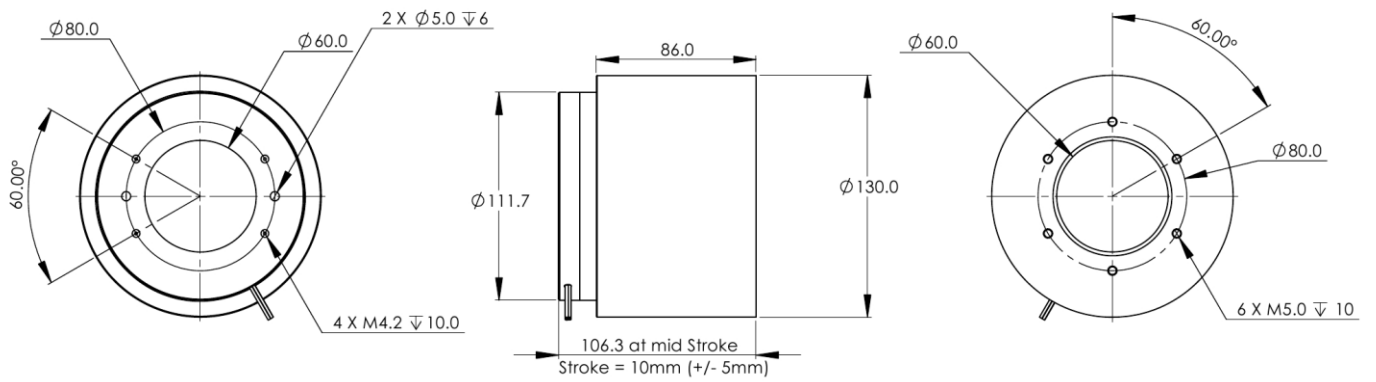
AVM 90-30-C77



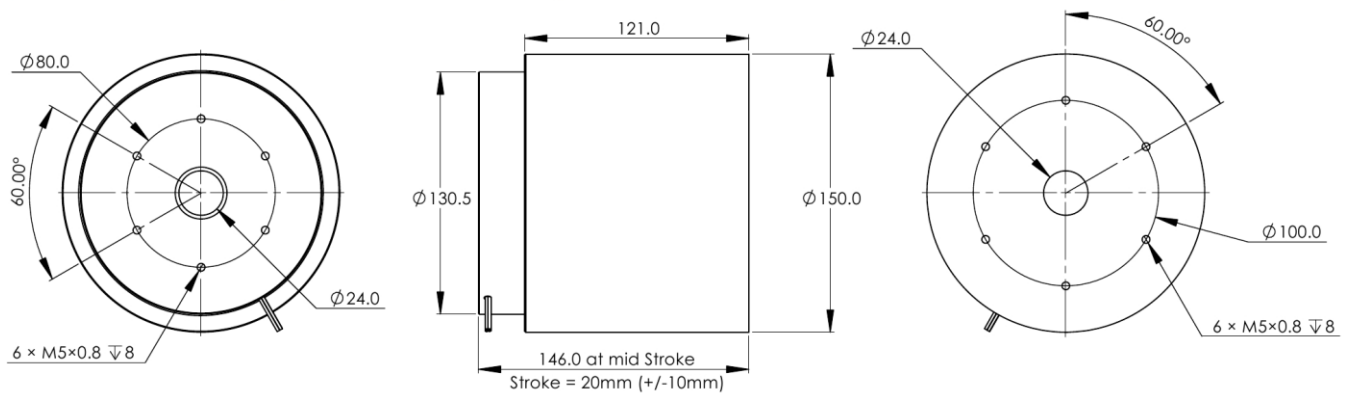
AVM 90-HF-5-C40-A



AVM 130-HF-10-C29-A



AVM 150-HF-20-C53



Part Numbering

Standard Models	
Model & Stroke	Cable Length (m)
AVM 12-6.4	0.5
AVM 19-5	
AVM 20-10	
AVM 24-5	
AVM 24-10	
AVM 30-15	
AVM 40-20	
AVM 60-25	
AVM 90-30	
High Force Models	
Model & Stroke	Cable Length (m)
AVM 35-HF-7	0.5
AVM 40-HF-6.5	
AVM 50-HF-10	
AVM 60-HF-10	
AVM 90-HF-10	
AVM 100-HF-10	
AVM 130-HF-25	
AVM 150-HF-20	

Example: **AVM 30-15-0.5**