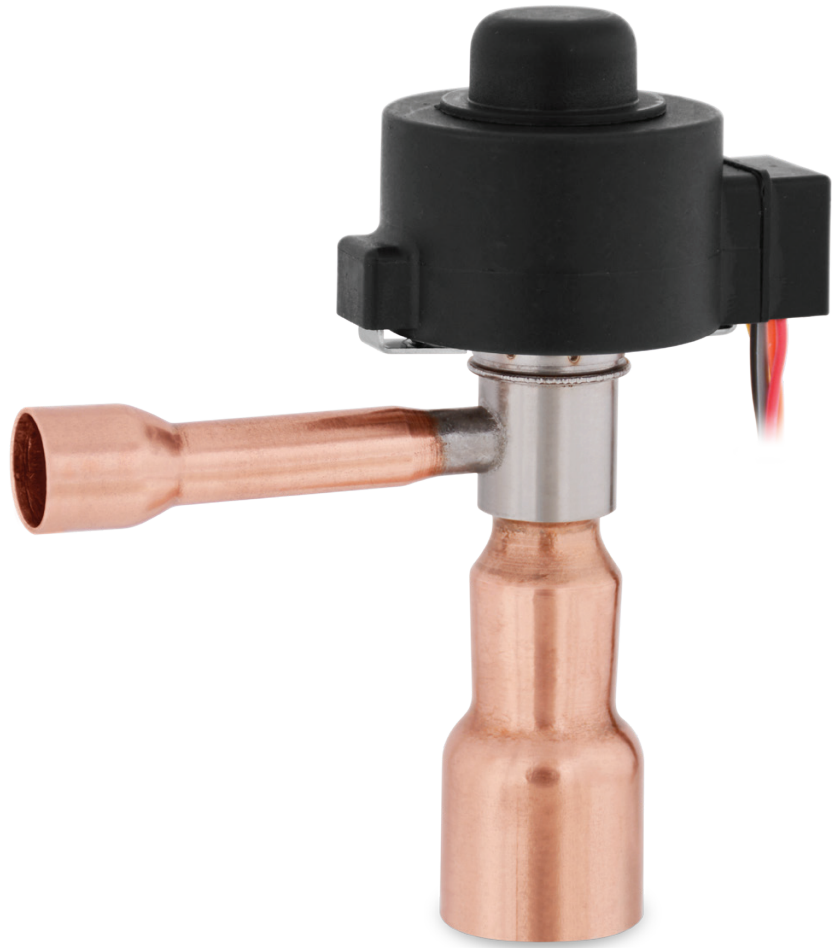


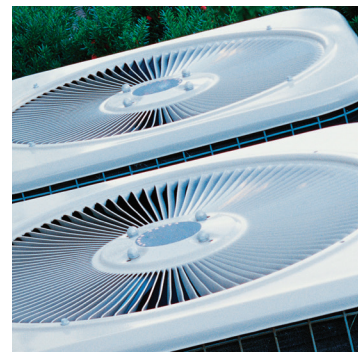


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climate control  
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hydraulics  
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process control  
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# Unipolar Electric Expansion Valve

For Refrigeration and Light Commercial Air Conditioning

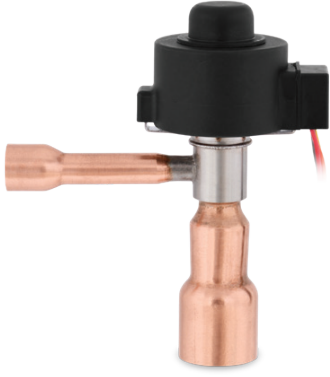


ENGINEERING YOUR SUCCESS.

# Introduction

For Refrigeration and Light Commercial Air Conditioning Applications

The Parker OEV valves are the latest line of unipolar electric expansion valves that will help achieve the optimal balance between performance and cost. The OEV valve family offers 5 port sizes to cover a wide range of capacities.



## Features and Benefits

Unipolar Electric Expansion Valve  
(Type OEV)

- Advanced unipolar electric expansion valves for refrigeration and light commercial air conditioning systems
- Highly engineered bearing design for oil-less applications
- Analogous capacities to respective SER-AA to SER-DS electric expansion valves
- Optimized stator design for maximum corrosion resistance
- Minimal flow restriction construction (15 tons R-410A)
- Innovative needle design for consistency and high life cycles

## Specifications

<b>Drive Type</b>	Direct Drive Step Motor
<b>Motor Type</b>	Unipolar
<b>Flow Path (Expansion)</b>	Side Inlet
<b>Number of Steps</b>	500
<b>Steps to Open</b>	32 +/- 20
<b>Operating Stroke</b>	0.123" (3.125 mm)
<b>Resolution</b>	0.000128" (0.00625 mm)
<b>Step Rate</b>	30 - 80 PPS
<b>Full Motion Transit Time</b>	6.25 sec @ 80 PPS
<b>MOPD</b>	500 PSIG (35Bar) 330 PSIG (23Bar) (OEV-D)
<b>Max. Rated Pressure</b>	700 PSIG (48Bar)
<b>Fluid Temp</b>	-40°F to 160°F (-40°C to 70°C)
<b>Ambient Temp</b>	-40°F to 160°F (-40°C to 70°C)
<b>Moisture / Humidity</b>	≤ 95% RH
<b>Internal Leakage</b>	800 sccm @ 1.0 Mpa
<b>External Leakage</b>	0.10 oz/yr. at 300 PSIG (2.8 g/year at 20 bar)
<b>Rated Voltage</b>	12 VDC +/-10%
<b>Rated Current</b>	Max. 400 mA/winding
<b>Phase Resistance</b>	46 +/- 4 Ohms
<b>Insulation Class</b>	Class E
<b>Compatible Refrigerants</b>	HCFC, HFC, HFO
<b>Compliance/Certification</b>	MH4576, UL 429

## Nomenclature

VALVE				COIL				
OEV	D	S3S4	SP	OEC	150	N	5	SP
Valve Model	Port Size	Connection Size (Inlet x Outlet)	Blank: Bulk Package SP: Individual Package	Stator	Lead Wire Length (cm)	Connector N: Naked M: M12	Number of Pins	Blank: Bulk Package SP: Individual Package
	AA	Blank - 2*2 ODF S3S4 - 3*4 ODF						
	A							
	B C							
D	Blank - 2*2 ODF S3S4 - 3*4 ODF S4S7 - 4*7 ODF							



## Capacity - Tons

Valve Model	Evaporator Temp (°F)	Refrigerant															
		R-410A								R-507							
		Pressure Drop Across Valve (psid)															
		80	120	160	200	240	280	320	360	75	100	125	150	175	200	225	250
OEV-AA	40	0.59	0.72	0.83	0.93	1.02	1.10	1.18	1.25	0.39	0.45	0.50	0.55	0.60	0.64	0.68	0.71
	20	0.57	0.70	0.81	0.91	0.99	1.07	1.15	1.22	0.37	0.43	0.48	0.52	0.56	0.60	0.64	0.67
	0	0.56	0.68	0.79	0.88	0.97	1.04	1.12	1.18	0.35	0.40	0.45	0.49	0.53	0.57	0.60	0.64
	-20	0.54	0.66	0.76	0.85	0.93	1.01	1.08	1.14	0.32	0.38	0.42	0.46	0.50	0.53	0.56	0.59
	-40	0.52	0.64	0.73	0.82	0.90	0.97	1.04	1.10	0.30	0.35	0.39	0.43	0.46	0.49	0.52	0.55
OEV-A	40	1.52	1.86	2.15	2.40	2.63	2.84	3.04	3.23	1.01	1.16	1.30	1.43	1.54	1.65	1.75	1.84
	20	1.48	1.82	2.10	2.35	2.57	2.78	2.97	3.15	0.95	1.10	1.23	1.35	1.46	1.56	1.65	1.74
	0	1.44	1.77	2.04	2.28	2.50	2.70	2.88	3.06	0.90	1.04	1.16	1.27	1.37	1.47	1.56	1.64
	-20	1.39	1.70	1.97	2.20	2.41	2.60	2.78	2.95	0.84	0.97	1.08	1.19	1.28	1.37	1.45	1.53
	-40	1.34	1.64	1.90	2.12	2.32	2.51	2.68	2.85	0.78	0.90	1.01	1.10	1.19	1.27	1.35	1.42
OEV-B	40	2.11	2.58	2.98	3.33	3.65	3.95	4.22	4.47	1.40	1.61	1.80	1.98	2.14	2.28	2.42	2.55
	20	2.06	2.52	2.91	3.25	3.56	3.85	4.12	4.36	1.32	1.53	1.71	1.87	2.02	2.16	2.29	2.42
	0	2.00	2.45	2.83	3.16	3.46	3.74	4.00	4.24	1.25	1.44	1.61	1.76	1.91	2.04	2.16	2.28
	-20	1.93	2.36	2.73	3.05	3.34	3.61	3.86	4.10	1.16	1.34	1.50	1.65	1.78	1.90	2.02	2.12
	-40	1.86	2.28	2.63	2.94	3.22	3.48	3.72	3.95	1.08	1.25	1.40	1.53	1.65	1.77	1.87	1.98
OEV-C	40	5.20	6.37	7.35	8.22	9.01	9.73	10.4	11.0	3.45	3.98	4.45	4.87	5.26	5.63	5.97	6.29
	20	5.07	6.21	7.17	8.02	8.79	9.49	10.1	10.8	3.26	3.77	4.21	4.61	4.98	5.33	5.65	5.96
	0	4.93	6.04	6.97	7.79	8.54	9.22	9.86	10.5	3.08	3.55	3.97	4.35	4.70	5.02	5.33	5.62
	-20	4.76	5.83	6.73	7.53	8.24	8.90	9.52	10.1	2.87	3.31	3.70	4.06	4.38	4.69	4.97	5.24
	-40	4.59	5.62	6.49	7.26	7.95	8.58	9.18	9.73	2.67	3.08	3.44	3.77	4.08	4.36	4.62	4.87
OEV-D	40	10.8	13.2	15.3	17.1	18.7	20.2	—	—	7.17	8.28	9.25	10.1	10.9	11.7	12.4	13.1
	20	10.6	12.9	14.9	16.7	18.3	19.7	—	—	6.79	7.84	8.76	9.60	10.4	11.1	11.8	12.4
	0	10.3	12.6	14.5	16.2	17.8	19.2	—	—	6.40	7.39	8.26	9.05	9.77	10.4	11.1	11.7
	-20	9.90	12.1	14.0	15.7	17.1	18.5	—	—	5.97	6.89	7.70	8.44	9.12	9.75	10.3	10.9
	-40	9.55	11.7	13.5	15.1	16.5	17.9	—	—	5.55	6.41	7.17	7.85	8.48	9.06	9.61	10.1

## Correction Factors - (°F)

REFRIGERANT	Liquid Temperature Correction Factor, (°F)														
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140
R-22	1.57	1.51	1.46	1.40	1.34	1.29	1.23	1.18	1.12	1.06	1.00	0.94	0.88	0.82	0.76
R-134a	1.69	1.63	1.56	1.49	1.42	1.35	1.28	1.21	1.14	1.07	1.00	0.93	0.86	0.78	0.71
R-404A	2.01	1.92	1.82	1.72	1.62	1.52	1.42	1.32	1.22	1.11	1.00	0.89	0.78	0.66	0.54
R-407A	1.78	1.70	1.63	1.55	1.48	1.40	1.32	1.24	1.16	1.08	1.00	0.92	0.83	0.75	0.66
R-407C	1.72	1.65	1.58	1.51	1.44	1.37	1.30	1.22	1.15	1.08	1.00	0.92	0.85	0.77	0.69
R-407F	1.72	1.65	1.58	1.51	1.44	1.37	1.30	1.23	1.15	1.08	1.00	0.92	0.84	0.76	0.68
R-410A	1.77	1.70	1.62	1.55	1.48	1.40	1.32	1.25	1.17	1.09	1.00	0.92	0.83	0.73	0.63
R-507A	2.05	1.95	1.85	1.75	1.64	1.54	1.44	1.33	1.22	1.11	1.00	0.89	0.77	0.65	0.52



## Capacity - kW

Valve Type	Evaporator Temp (°C)	Refrigerant															
		R-410A								R-507A							
		Pressure Drop Across Valve (bar)															
		5	8	11	14	17	20	23	26	4	6	8	10	12	14	16	18
OEV-AA	5	1.97	2.49	2.92	3.30	3.63	3.94	4.22	4.49	1.20	1.47	1.70	1.90	2.08	2.25	2.41	2.55
	-10	1.90	2.41	2.82	3.18	3.51	3.81	4.08	4.34	1.12	1.37	1.58	1.76	1.93	2.09	2.23	2.37
	-20	1.85	2.34	2.75	3.10	3.42	3.71	3.97	4.22	1.06	1.29	1.49	1.67	1.83	1.98	2.11	2.24
	-30	1.80	2.27	2.67	3.01	3.31	3.59	3.85	4.10	0.99	1.22	1.40	1.57	1.72	1.86	1.99	2.11
	-40	1.74	2.20	2.57	2.90	3.20	3.47	3.72	3.96	0.93	1.14	1.31	1.47	1.61	1.74	1.86	1.97
OEV-A	5	5.09	6.44	7.55	8.52	9.38	10.2	10.9	11.6	3.11	3.81	4.40	4.92	5.38	5.82	6.22	6.59
	-10	4.92	6.22	7.29	8.23	9.07	9.83	10.5	11.2	2.88	3.53	4.07	4.56	4.99	5.39	5.76	6.11
	-20	4.79	6.05	7.10	8.01	8.83	9.57	10.3	10.9	2.73	3.34	3.86	4.32	4.73	5.11	5.46	5.79
	-30	4.64	5.87	6.89	7.77	8.56	9.28	9.96	10.6	2.57	3.14	3.63	4.06	4.44	4.80	5.13	5.44
	-40	4.48	5.67	6.65	7.50	8.27	8.97	9.62	10.2	2.40	2.94	3.39	3.79	4.15	4.48	4.79	5.09
OEV-B	5	7.06	8.93	10.5	11.8	13.0	14.1	15.1	16.1	4.31	5.28	6.10	6.82	7.47	8.07	8.62	9.15
	-10	6.82	8.63	10.1	11.4	12.6	13.6	14.6	15.6	4.00	4.89	5.65	6.32	6.92	7.48	7.99	8.48
	-20	6.64	8.40	9.85	11.1	12.2	13.3	14.2	15.1	3.79	4.64	5.35	5.99	6.56	7.08	7.57	8.03
	-30	6.44	8.14	9.55	10.8	11.9	12.9	13.8	14.7	3.56	4.36	5.03	5.63	6.16	6.66	7.12	7.55
	-40	6.22	7.87	9.23	10.4	11.5	12.4	13.3	14.2	3.33	4.07	4.70	5.26	5.76	6.22	6.65	7.05
OEV-C	5	17.4	22.0	25.8	29.1	32.1	34.8	37.3	39.7	10.6	13.0	15.0	16.8	18.4	19.9	21.3	22.5
	-10	16.8	21.3	24.9	28.1	31.0	33.6	36.1	38.3	9.85	12.1	13.9	15.6	17.1	18.4	19.7	20.9
	-20	16.4	20.7	24.3	27.4	30.2	32.7	35.1	37.3	9.33	11.4	13.2	14.8	16.2	17.5	18.7	19.8
	-30	15.9	20.1	23.5	26.6	29.3	31.7	34.0	36.2	8.77	10.7	12.4	13.9	15.2	16.4	17.5	18.6
	-40	15.3	19.4	22.7	25.7	28.3	30.7	32.9	35.0	8.20	10.0	11.6	13.0	14.2	15.3	16.4	17.4
OEV-D	5	36.2	45.8	53.7	60.6	66.7	72.4	77.6	82.5	22.1	27.1	31.3	35.0	38.3	41.4	44.2	46.9
	-10	35.0	44.2	51.9	58.5	64.5	69.9	-	-	20.5	25.1	29.0	32.4	35.5	38.3	41.0	43.5
	-20	34.0	43.1	50.5	57.0	62.8	68.1	-	-	19.4	23.8	27.5	30.7	33.6	36.3	38.8	41.2
	-30	33.0	41.8	49.0	55.3	60.9	66.0	-	-	18.3	22.4	25.8	28.9	31.6	34.1	36.5	38.7
	-40	31.9	40.3	47.3	53.4	58.8	63.8	-	-	17.1	20.9	24.1	27.0	29.5	31.9	34.1	36.2

## Correction Factors - (°C)

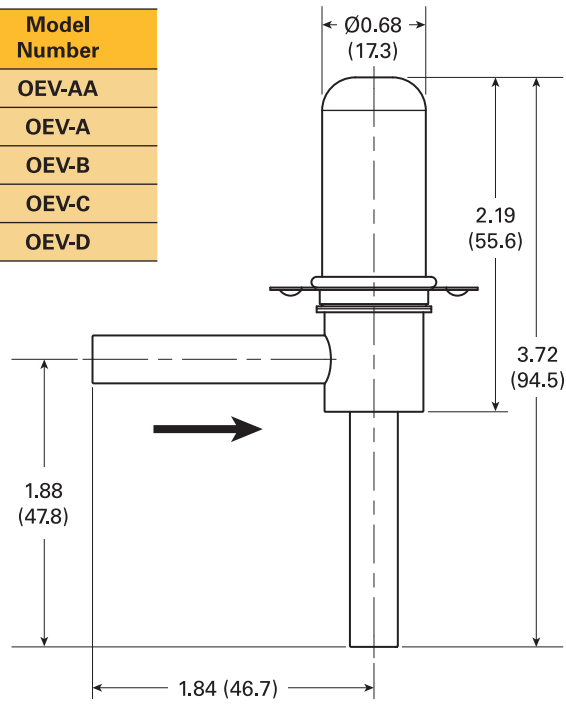
REFRIGERANT	Liquid Temperature Correction Factor, (°C)														
	-18	-12	-7	-1	4	10	16	21	27	32	38	43	49	54	60
R-22	1.57	1.51	1.46	1.40	1.34	1.29	1.23	1.18	1.12	1.06	1.00	0.94	0.88	0.82	0.76
R-134a	1.69	1.63	1.56	1.49	1.42	1.35	1.28	1.21	1.14	1.07	1.00	0.93	0.86	0.78	0.71
R-404A	2.01	1.92	1.82	1.72	1.62	1.52	1.42	1.32	1.22	1.11	1.00	0.89	0.78	0.66	0.54
R-407A	1.78	1.70	1.63	1.55	1.48	1.40	1.32	1.24	1.16	1.08	1.00	0.92	0.83	0.75	0.66
R-407C	1.72	1.65	1.58	1.51	1.44	1.37	1.30	1.22	1.15	1.08	1.00	0.92	0.85	0.77	0.69
R-407F	1.72	1.65	1.58	1.51	1.44	1.37	1.30	1.23	1.15	1.08	1.00	0.92	0.84	0.76	0.68
R-410A	1.77	1.70	1.62	1.55	1.48	1.40	1.32	1.25	1.17	1.09	1.00	0.92	0.83	0.73	0.63
R-507A	2.05	1.95	1.85	1.75	1.64	1.54	1.44	1.33	1.22	1.11	1.00	0.89	0.77	0.65	0.52

# Dimensions - Inches (mm)

## Valve Body

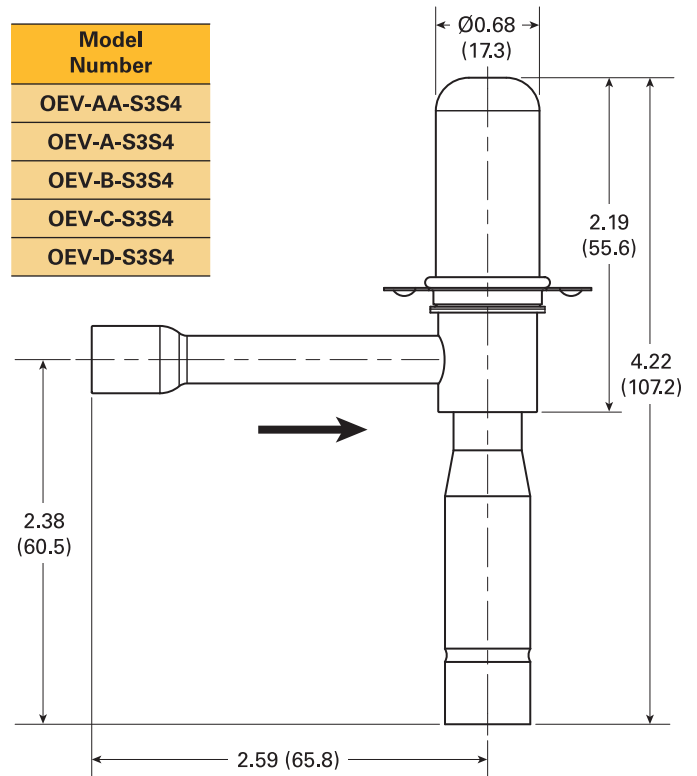
### 1/4 X 1/4 ODF

Model Number
OEV-AA
OEV-A
OEV-B
OEV-C
OEV-D



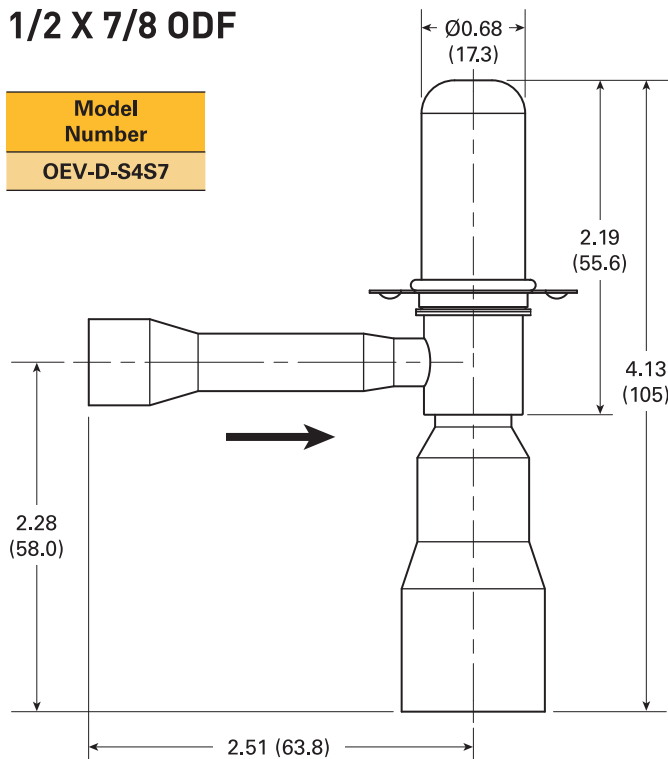
### 3/8 X 1/2 ODF

Model Number
OEV-AA-S3S4
OEV-A-S3S4
OEV-B-S3S4
OEV-C-S3S4
OEV-D-S3S4



### 1/2 X 7/8 ODF

Model Number
OEV-D-S4S7

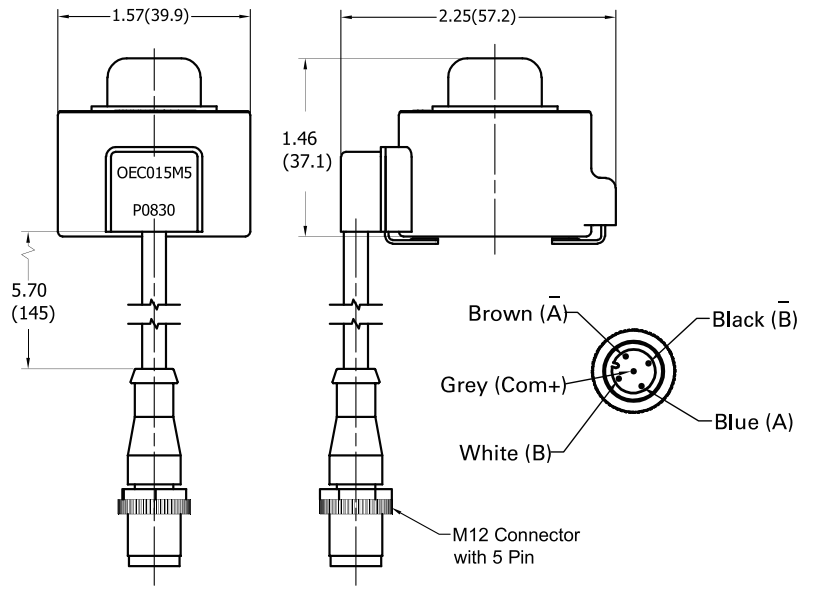
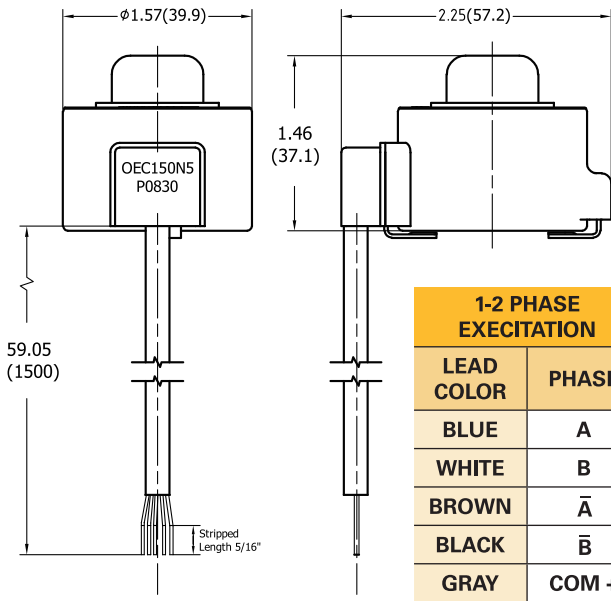


# Dimensions - Inches (mm)

## COIL

## OEC150N5

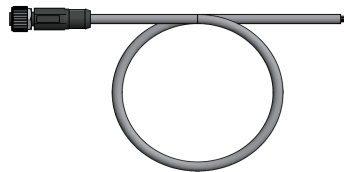
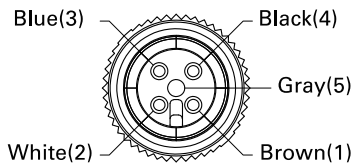
## OEC015M5



Model Number	Terminal	CABLE LENGTH Inches(mm)
OEC150N5	/	59.1 (1500)
OEC015M5	M12	5.9 (150)

\*Note: Terminal and cable length can be specified by customers.

## CABLE



## Dimension

Model Number	Terminal	CABLE LENGTH Inches(mm)
33268-100F	M12	39.4 (1000)
33268-200F		78.7 (2000)
33268-300F		118.1 (3000)
33268-500F		196.9 (5000)
33268-800F		315.0 (8000)

## Specification

Insulation Resistance	DC 250V, 10MΩ MIN., 0.1S
Withstand Voltage	AC 250V 5mA, 0.1S
Temperature Limitation	-40~70°C
IP Grade	IP67
Material Compliance	RoHS



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