

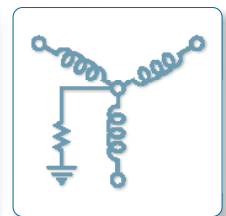
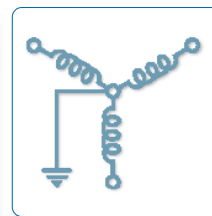
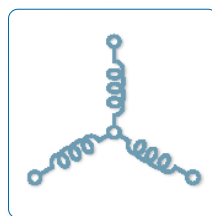
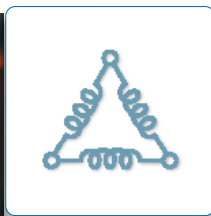


Unparalleled Protection



ZORC

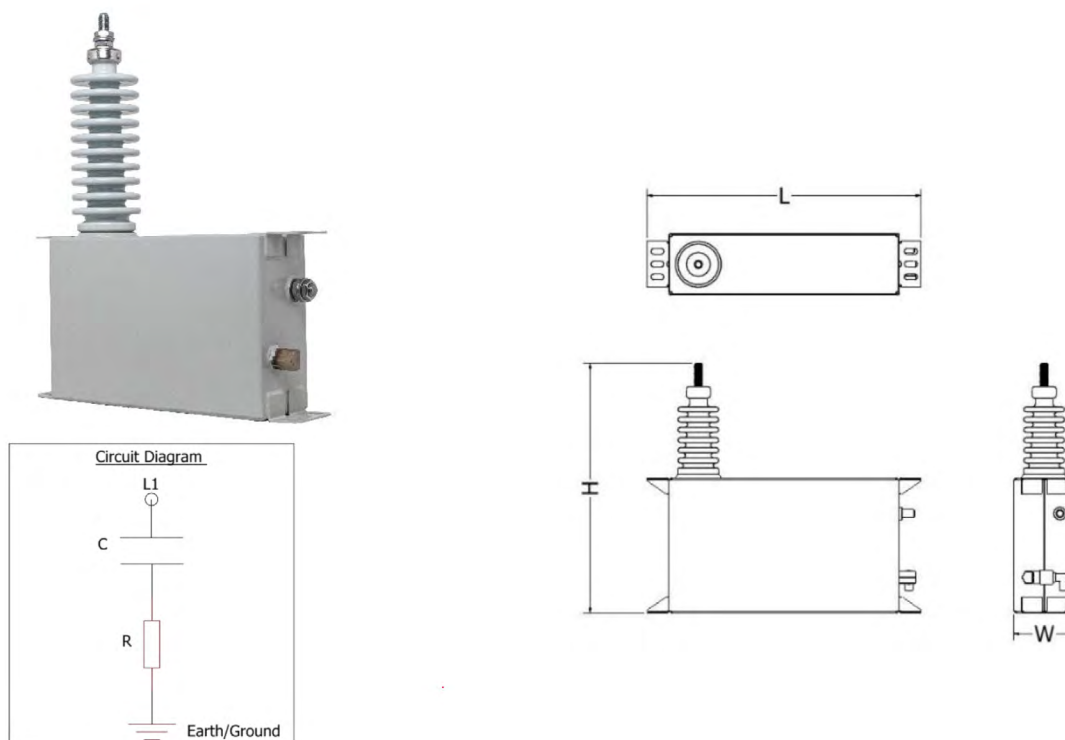
Technical Specifications RC ZORC Range



Strike Technologies 2025 RC ZORC® RANGE
TECHNICAL SPECIFICATION SHEET
Rev. 20022026

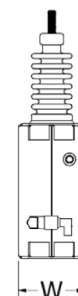
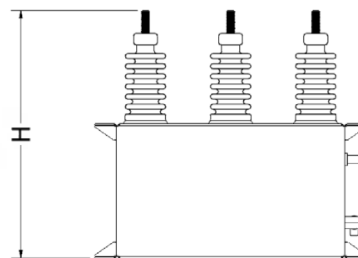
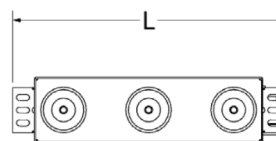
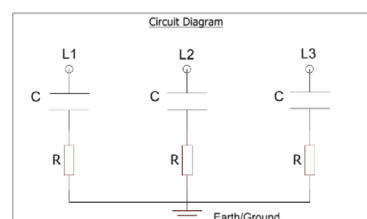
SINGLE PHASE RC ZORC

Parameters						
Product Code (Standard)	Machine	M1-7.2kV-RC	M1-11kV-RC	M1-13.8kV-RC	M1-15kV-RC	M1-22kV-RC
Product Code (Pressure Switch)	Machine	M1-S-7.2kV-RC	M1-S-11kV-RC	M1-S-13.8kV-RC	M1-S-15kV-RC	M1-S-22kV-RC
Rated Voltage Un (L-L)	kV	7.2	11	13.8	15	22
Voltage Range (L-L)	kV	4.2 – 7.6	7.9 – 11.6	11.6 – 14	14 - 17	17 – 24
Rated Frequency	Hz	50/60	50/60	50/60	50/60	50/60
Impulse Voltage BIL Rating	kV	95	95	95	150	170
Rated Capacitance per Phase	μF	0.2	0.2	0.2	0.15	0.2
Capacitance Tolerance	%	-5/ +10	-5/ +10	-5/ +10	-5/ +10	-5/ +10
Resistance per Phase	Ω	30	30	30	30	30
Ambient Working Temperature	°C	-25/D Max 55	-25/D Max 55	-25/D Max 55	-25/D Max 55	-25/D Max 55
	°F	-13/D Max 131	-13/D Max 131	-13/D Max 131	-13/D Max 131	-13/D Max 131
Cold Start Temperature (Minimum)	°C (°F)	-40 (-40)	-40 (-40)	-40 (-40)	-40 (-40)	-40 (-40)
THD (V)	Refer to Harmonic Voltage Effect on Page 11					
Dielectric Type		All-Film	All-Film	All-Film	All-Film	All-Film
Bushing Type		BHWS1	BHWS1	BHWS1	BHWS3	BHWS5
Phase(s) & Connection	1-IE					
Bushing Quantity		1	1	1	1	1
Approximate Mass	kg	18	21	24	16	33
	lb	39.68	46.30	52.91	35.27	72.75
Overall Dimension (L x H x W)	mm	429 x 444 x 139	536 x 489 x 106	536 x 509 x 131	429 x 522 x 106	430 x 762 x 139
	inch	16.89x17.48x5.47	21.1x19.25x4.17	21.1x20.03x5.15	16.89x20.55x4.17	16.93x30x5.47
ZnO		NO				



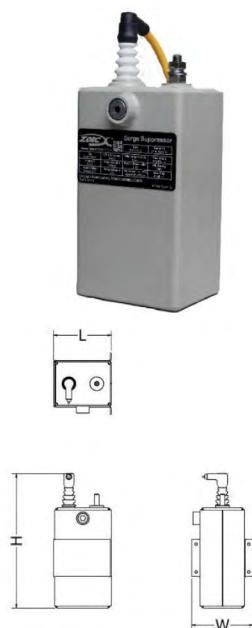
THREE PHASE RC ZORC

Parameters							
Product Code (Standard)	Machine Panel	M3/P3-3kV- RC	M3/P3-4.16kV- RC	M3/P3-6kV-RC	M3/P3-7.2kV- RC	M3/P3-11kV- RC	M3/P3-13.8kV- RC
Product Code (Pressure Switch)	Machine Panel	M3/P3-S-3kV- RC	M3/P3-S-4.16kV-RC	M3/P3-S-6kV- RC	M3/P3-S-7.2kV-RC	M3/P3-S-11kV- RC	M3/P3-S-13.8kV- RC
Rated Voltage Un (L-L)	kV	3.3	4.16	6.6	7.2	11	13.8
Voltage Range (L-L)	kV	2.2 - 3.6	3.6 – 4.6	4.6-6.8	6.8 – 7.6	7.9 – 11.6	11.6 – 13.8
Rated Frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60
Impulse Voltage BIL Rating	kV	95	95	95	95	95	95
Rated Capacitance per Phase	μF	0.2	0.2	0.2	0.2	0.2	0.2
Capacitance Tolerance	%	-5/ +10	-5/ +10	-5/ +10	-5/ +10	-5/ +10	-5/ +10
Resistance per Phase	Ω	30	30	30	30	30	30
Ambient Working Temperature	°C	"-25/D Max 55"	"-25/D Max 55"	"-25/D Max 55"	"-25/D Max 55"	"-25/D Max 55"	"-25/D Max 55"
	°F	"-13/D Max 131"	"-13/D Max 131"	"-13/D Max 131"	"-13/D Max 131"	"-13/D Max 131"	"-13/D Max 131"
Cold Start Temperature (Minimum)	°C (°F)	-40(-40)	-40(-40)	-40(-40)	-40(-40)	-40(-40)	-40(-40)
THD (V)	Refer to Harmonic Voltage Effect on Page 11						
Dielectric Type		All-Film	All-Film	All-Film	All-Film	All-Film	All-Film
Bushing Type		BHWS1	BHWS1	BHWS1	BHWS1	BHWS1	BHWS1
Phase(s) & Connection	3-YE						
Terminal to Terminal Clearance	mm	63.5	63.5	63.5	63.5	121	121
	inch	2.5	2.5	2.5	2.5	4.8	4.8
"Terminal to Terminal Pitch"	mm	110.5	110.5	110.5	110.5	168	168
	inch	4.4	4.4	4.4	4.4	6.6	6.6
Bushing Quantity		3	3	3	3	3	3
Approximate Mass	kg	21	21	21	21	26	29
	lb	46.30	46.30	46.30	46.30	57.32	63.93
Overall Dimension (L x H x W)	mm	429 x 444 x 139				536 x 489 x 106	536 x 509 x 131
	inch	16.89 x 17.48 x 5.47				21.1x19.25x4.17	21.1x20.03x4.76
ZnO		NO					

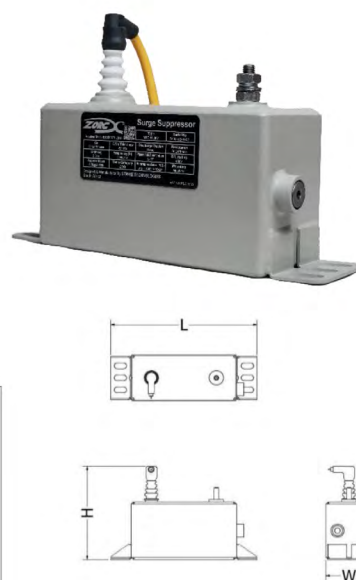
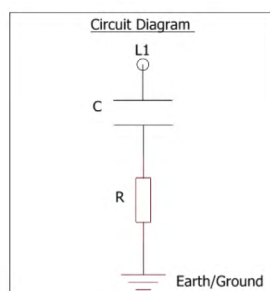


SINGLE PHASE RC COMPACT ZORC

Parameters				
Product Code (Standard)	Machine	M1C-H-3kV-RC	M1C-H-4.16kV-RC	M1C-H-6kV-RC
		M1C-V-3kV-RC	M1C-V-4.16kV-RC	M1C-V-6kV-RC
Rated Voltage Un (L-L)	kV	3.3	4.16	6.6
Voltage Range (L-L)	kV	2.2 - 3.6	3.6 - 4.6	4.6 - 6.64
Rated Frequency	Hz	50/60	50/60	50/60
Impulse Voltage BIL Rating	kV	45	45	45
Rated Capacitance per Phase	μF	0.1	0.1	0.1
Capacitance Tolerance	%	-5/ +10	-5/ +10	-5/ +10
Resistance per Phase	Ω	30	30	30
Ambient Working Temperature	°C	"-25/D Max 55"	"-25/D Max 55"	"-25/D Max 55"
	°F	"-13/D Max 131"	"-13/D Max 131"	"-13/D Max 131"
Cold Start Temperature (Minimum)	°C (°F)	-40(-40)	-40(-40)	-40(-40)
THD (V)		Refer to Harmonic Voltage Effect on Page 11		
Dielectric Type		All-Film	All-Film	All-Film
Bushing Type		AL60	AL60	AL60
Phase(s) & Connection		1-IE		
Bushing Quantity		1	1	1
Approximate Mass	kg(V)	4.5		
	kg(H)	4.5		
	lb(V)	9.92		
	lb(H)	9.92		
Overall Dimensions (L x H x W)	mm(V)	122 x 289 x 132		
	mm(H)	304 x 194 x 96		
	inch(V)	5.3 x 0.9 x 11.2		
	inch(H)	11.9 x 7.4 x 0.4		
ZnO		NO		



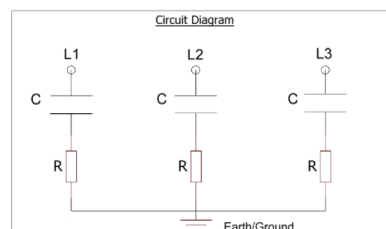
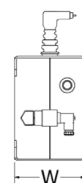
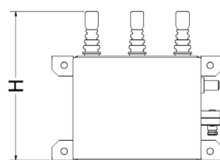
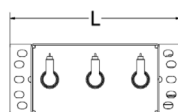
Horizontal



Vertical

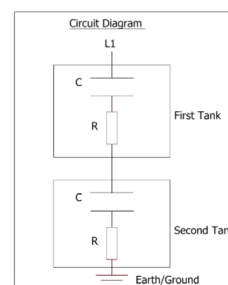
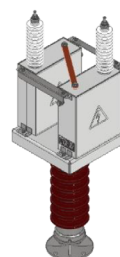
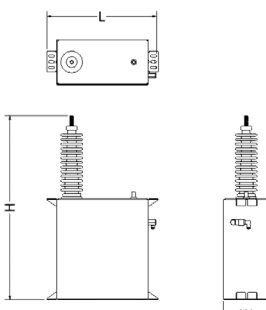
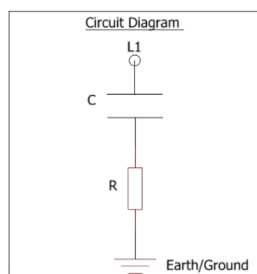
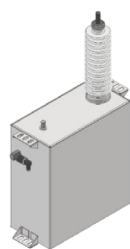
THREE PHASE RC COMPACT ZORC

Parameters				
Product Code (Standard)	Machine	M3C-3kV-RC	M3C-4.16kV-RC	M3C-6kV-RC
Product Code (Pressure Switch)	Machine	M3C-S-3kV-RC	M3C-S-4.16kV-RC	M3C-S-6kV-RC
Rated Voltage Un (L-L)	kV	3.3	4.16	6.6
Voltage Range (L-L)	kV	2.2-3.6	3.6 -4.6	4.6-6.64
Rated Frequency	Hz	50/60	50/60	50/60
Impulse Voltage BIL Rating	kV	45	45	45
Rated Capacitance per Phase	μF	0.1	0.1	0.1
Capacitance Tolerance	%	-5/ +10	-5/ +10	-5/ +10
Resistance per Phase	Ω	30	30	30
Ambient Working Temperature	°C	"-25/D Max 55"	"-25/D Max 55"	"-25/D Max 55"
	°F	"-13/D Max 131"	"-13/D Max 131"	"-13/D Max 131"
Cold Start Temperature (Minimum)	°C (°F)	-40 (-40)	-40 (-40)	-40 (-40)
THD (V)		Refer to Harmonic Voltage Effect on Page 11		
Dielectric Type		All-Film	All-Film	All-Film
Bushing Type		AL60	AL60	AL60
Phase(s) & Connection		3-YE		
Bushing Quantity		3	3	3
Terminal to Terminal Clearance	mm	53	53	53
	inch	2.1	2.1	2.1
Terminal to Terminal Pitch	mm	75	75	75
	inch	3	3	3
Bushing Quantity		3	3	3
Approximate Mass	kg	7		
	lb	15.43		
Overall Dimensions (L x H x W)	mm	281 x 246 x 117		
	inch	11.06 x 9.69 x 4.61		
ZnO		YES		



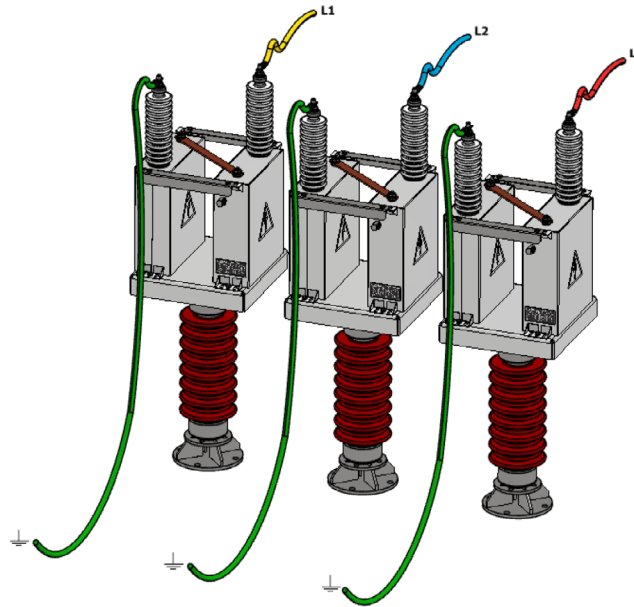
SINGLE PHASE ZORC RC SUPPRESSOR

Parameters			
Product Code (Standard)	Machine	M1C-25kV-RC	M1-25kV/40kV-RC
Product Code (Pressure Switch)	Machine	M1C-S-25kV-RC	N/A
Rated Voltage Un (L-L)	kV	25	40
Voltage Range (L-L)	kV	22.5 – 25.5	22.5 - 40
Rated Frequency	Hz	50/60	50/60
Impulse Voltage BIL Rating	kV	170	170
Rated Capacitance per Phase	μF	0.2	0.2
Capacitance Tolerance	%	-5/ +10	-5/ +10
Resistance per Phase	Ω	30	30
Ambient Working Temperature	°C	"-25/D Max 55"	"25/D Max 55"
	°F	"-13/D Max 131"	"-13/D Max 131"
Cold Start Temperature (Minimum)	°C (°F)	-40(-40)	-40(-40)
THD (V)		Refer to Harmonic Voltage Effect on Page 11	
Dielectric Type		All-Film	All-Film
Bushing Type		BHWS5	BHWS5
Phase(s) & Connection		1-IE	
Bushing Quantity		1	2
Post Insulator Quantity		N/A	1
Approximate Mass	kg	50	115.26
	lb	110.2	254.105
Overall Dimensions (L x H x W)	mm	486 x 802 x 198	440 x 1526 x 440
	inch	19.13 x 31.57 x 7.79	17.32 x 60.08 x 17.32
ZnO		NO	
		Single Tank Data	
Rated Capacitance per Tank		N/A	0.4
Resistance per Tank		N/A	15
Bushing Quantity		N/A	1
Approximate Mass	kg	N/A	30
	lb	N/A	66.1
Overall Dimensions (L x H x W)	mm	N/A	430x762x139
	inch	N/A	16.93x30x5.47



SINGLE PHASE ZORC RC SUPPRESSOR

(M1-25kV/40kV-RC Two Tank Configuration)



NOTE: Any Bushing may be used for a Phase or Earth/Ground connection.

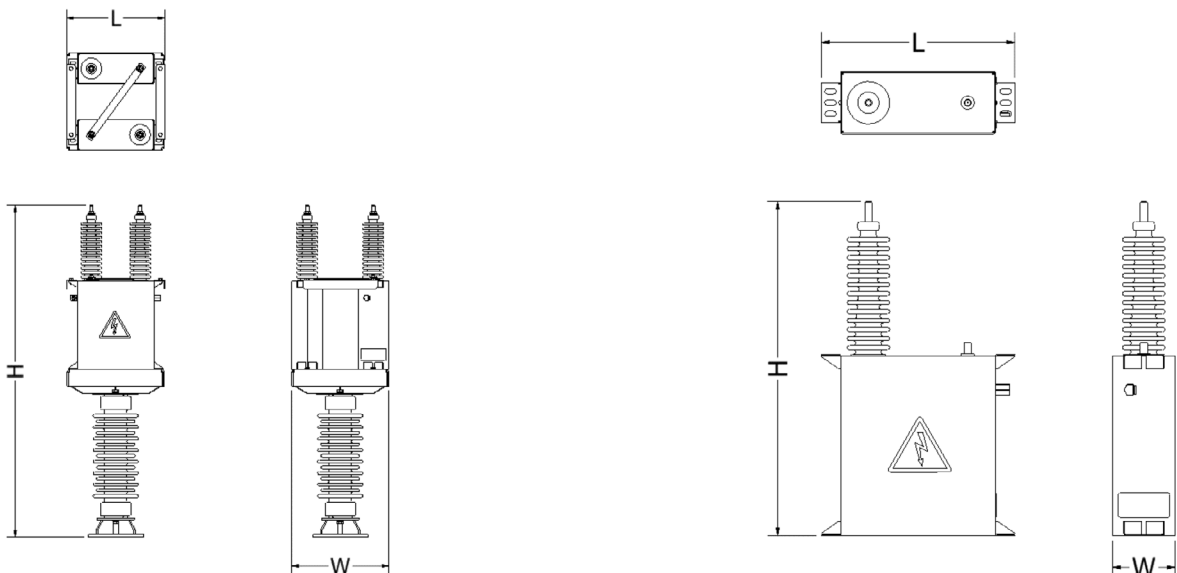
CAUTION:

Sufficient creepage and clearance distances to be provided between individual phases according to the overvoltage category, pollution degree and other local regulations.

The following components must be considered live (half the Phase to Ground/Earth voltage) under normal operating conditions:

- Square Base Plate, RC Tanks, Angle Brackets and Copper Bar.

No electrical connection allowed between the aforementioned components of the different phases.



BUSHING SPECIFICATIONS

Parameters						
Bushing Type	Machine	AL60	BHWS1	BHWS3	BHWS5	
Insulator BIL (Terminal to Tank)	kV	45	95	150	170	
AC Withstand Wet	kV	13 (1min)	38 (1min)	50 (1min)	70 (1min)	
AC Withstand Dry	kV	21 (1min)	70 (min)	85 (min)	100 (1min)	
Impulse Voltage (1.2uS/50uS) (Both Polarities)	kV	(+)45	(+)96	(+)150	(+)200	
	kV	(-)45	(-)96	(-)149	(-)180	
Arc Distance	mm	45	160	240	300	
	inch	1.77	6.3	9.45	11.8	
Creepage to Earth/Ground	mm	60	380	620	820	
	inch	2.36	15	24.4	32.3	
Max Torque	N.m	2.5	20	20	20	
	Ft.lb	1.84	14.75	14.75	14.75	



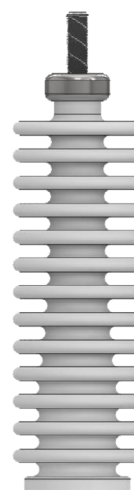
AL60



BHWS1



BHWS3



BHWS5

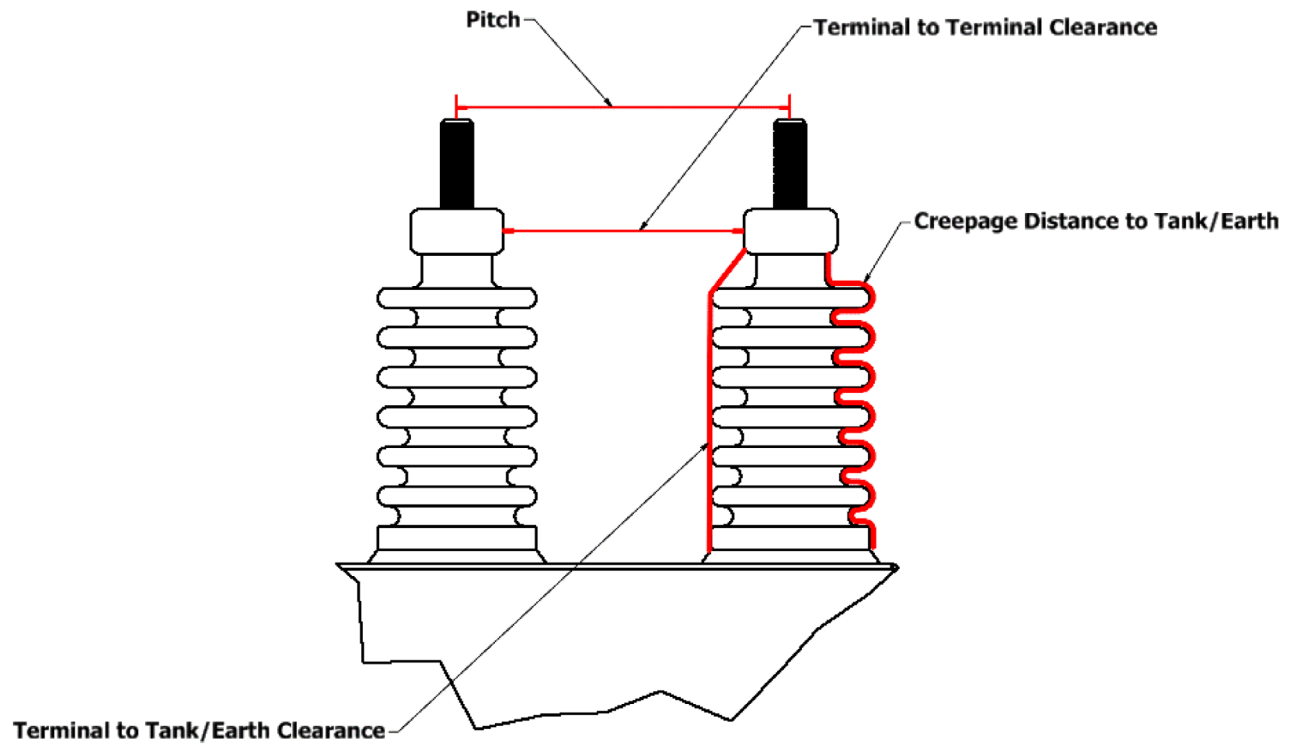
STATION POST INSULATOR

Parameters		
Impulse Voltage BIL Rating	kV	250
AC Withstand Wet	kV	105
AC Withstand Dry	kV	150
Impulse Voltage (1.2uS/50uS) (Both Polarities)	kV	(+)275 & (-)350
Arc Distance	mm	450
	inch	17.7
Creepage to Earth/Ground	mm	1300
	inch	51.2

(M1-25kV/40kV-RC Two Tank Configuration)



CREEPAGE AND CLEARANCE DISTANCE



NOTE:

Clearance Distance

Shortest distance through air between two conductive parts.

Creepage Distance

Shortest path alongside the surface of an insulating material between two conductive parts.

Pitch

Distance between two centers of the bushings.

HARMONIC VOLTAGE EFFECTS

ZORC™ Phase Current and Power Calculator


Version 04v01

This tool provides information on the current flowing through the ZORC as well as the total Watts dissipated in the resistor(s) under normal load condition with measured Voltage harmonic values.

Enter Values

ZORC™ Model: ZORC_M3_P3_12kV,13kV

Over Voltage: 110%
 Nominal Voltage: 13800 V_{RMS L-L}
 Nominal Freq: 50 Hz
 Max Ambient: 40
 Unit: °C

Phases: 3
 Resistor: 30 Ω
 Capacitance: 0,2 μF
 Max Ambient: 40,0 °C
 104,0 °F

System Voltage with Over Voltage: 15180 V_{RMS L-L}

System Harmonics			Per Phase Calculations			
Voltage Harmonic Order	% Voltage Harmonic Present	Harmonic Frequency [Hz]	V _{RMS L-L} [V]	Capacitor Impedance [Ω]	Current per Phase [A]	Watt per Phase in Resistor [W]
1	100,0%	50	8764	15915	0,551	9,1
95	2,0%	4750	175	168	1,030	31,8
71	1,1%	3550	96	224	0,426	5,5
55	1,1%	2750	96	289	0,331	3,3
83	1,0%	4150	88	192	0,452	6,1
79	0,9%	3950	79	201	0,387	4,5
53	0,8%	2650	70	300	0,232	1,6
97	0,6%	4850	53	164	0,315	3,0
107	0,5%	5350	44	149	0,289	2,5
77	0,2%	3850	18	207	0,084	0,2
49	0,2%	2450	18	325	0,054	0,1

T_{ZORC} 86,2 °C
 187,1 °F

%THD(V) 3,1%
 Current per Phase 1,502 A
 Watt per Phase 67,7 W

Total Current through ZORC™ 4,5 A
 Total Watt Dissipated in Resistor(s) 203,0 W

DANGER! ZORC operating out of designed parameters.

©Strike Technologies

Example of Temperature effects on a ZORC based on % THD(V)

Harmonics will generate heat within the sealed ZORC tank and this in turn will potentially damage and degrade the capacitor elements, therefore decreasing the life expectancy of the ZORC unit. Excessive harmonic levels could also result in immediate, permanent damage to the ZORC or result in catastrophic failure.

It is advised to measure or simulate the system %THD(V) to evaluate the temperature rise of the ZORC with voltage harmonics present (requiring all the harmonic orders and amplitudes for evaluation). The capacitive component of the ZORC is frequency dependant and higher order harmonics will drastically reduce the capacitive impedance resulting in heat generated internally. A ZORC Phase Current Tool is available upon request to evaluate the temperature rise of the ZORC including ambient temperature effects, overvoltage conditions and system frequency.

Standards	
Quality Management System	ISO 9001: 2015
Overall Manufacturing Compliance	IEC 60871-1: 2014 / ANSI, IEEE 18 / NEMA CP-1 / VDE 0560 part 410 / CIGRÉ 13.02

General	
ZORC® is a Registered Trademark of Strike Tech (Pty) Ltd.	
Hazardous Location Certification	Class 1 Div 2 Certification of ExN (Non-Sparking) Available on 3.3 - 13.8kV Units, Temp Classes T1-T5, SABs 970-1971
Life Expectancy	20 Years on all Models
Warranty	12-Month Factory Warranty
Further Documentation Available	- ZORC Dimensional Drawings - ZORC User Manual - ZORC Pressure Switch Spec - Jarylec 101 MSDS - SAS-60E MSDS"

NOTE: Please Refer to ZORC User Manual for more Information.

ADDITIONAL INFORMATION

Parameters	
Earthing/Grounding	Min 16mm ² to 25mm ² (to Machine Earth) / 0.0248in ² to 0.0387in ² (to Machine Ground)
Dielectric Fluid (Oil)	Jarylec 101 / SAS-60E
Fusing	No Internal Fusing
Enclosure Material	Stainless Steel (SS409) With Thickness of 2mm (0.079inch)
Paint Primer	Aerofin Epoxy Primer Beige (180-0039) Thickness: 40 µm
Paint Finish	Thanacryl Polyurethane Enamel (RAL 7038) Thickness: 80 µm



Unparalleled Protection

STANDARD ZORC RANGE
TECHNICAL SPECIFICATION - RC Range
Rev. 20022026

Phone: 905-673-1553
Toll Free: 1-888-737-4787

Fax: 905-673-8472
support@i-gard.com



www.i-gard.com