

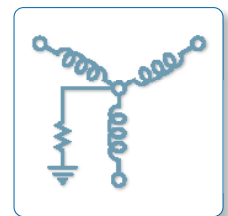
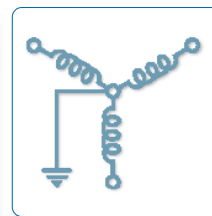
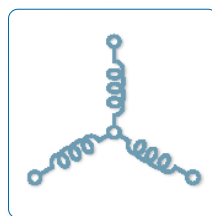
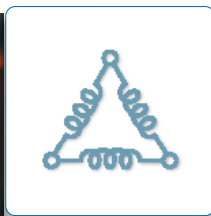


Unparalleled Protection



ZORC

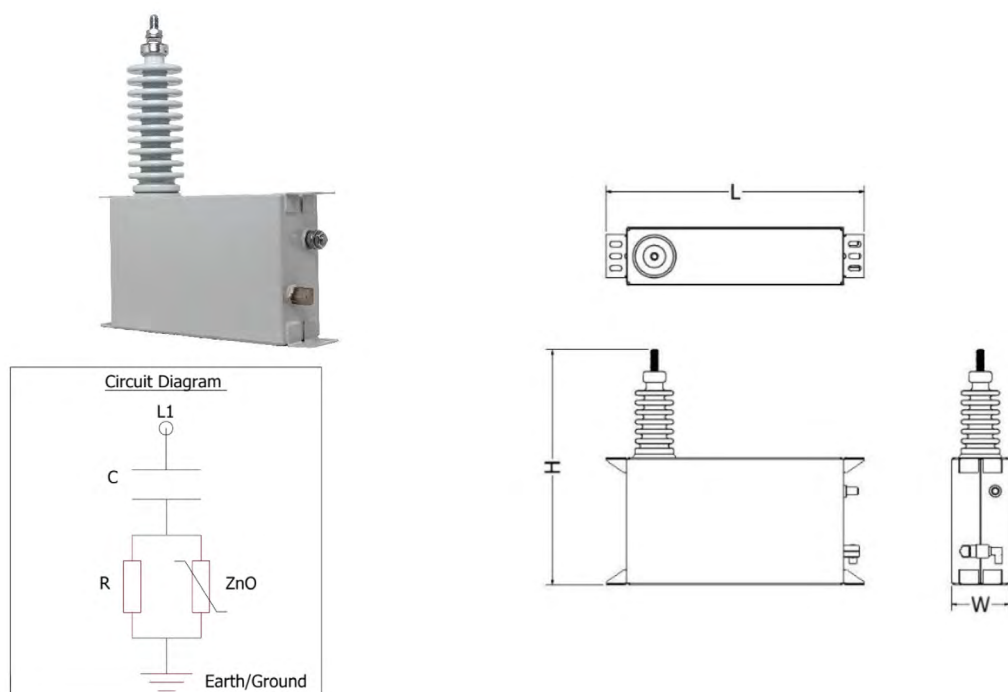
Technical Specifications Standard Range



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

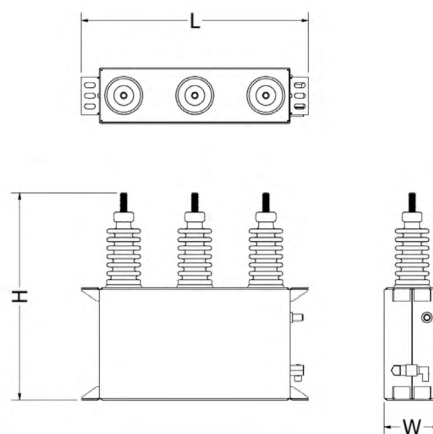
SINGLE PHASE STANDARD ZORC

Parameters						
Product Code (Standard)	Machine	M1-7.2kV	M1-11kV	M1-13.8kV	M1-15kV	M1-22kV
Product Code (Pressure Switch)	Machine	M1-S-7.2kV	M1-S-11kV	M1-S-13.8kV	M1-S-15kV	M1-S-22kV
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 9					
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		YES				



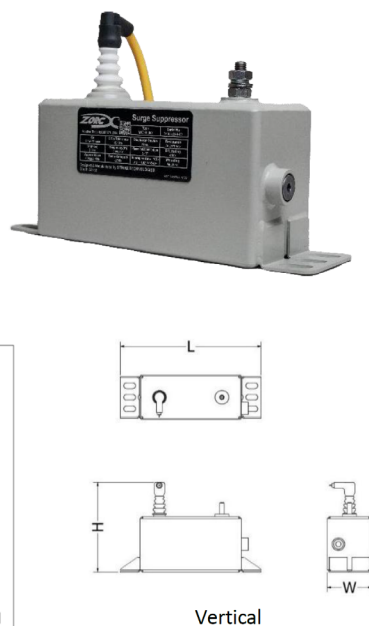
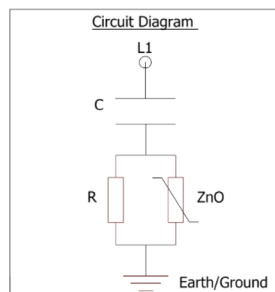
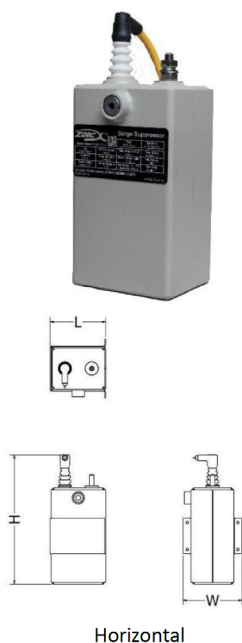
THREE PHASE STANDARD ZORC

Parameters							
Product Code (Standard)	Machine	M3-3kV	M3-4.16kV	M3-6kV	M3-7.2kV	M3-11kV	M3-13.8kV
	Panel	P3-3kV	P3-4.16kV	P3-6kV	P3-7.2kV	P3-11kV	P3-13.8kV
Product Code (Pressure Switch)	Machine	M3-S-3kV	M3-S-4.16kV	M3-S-6kV	M3-S-7.2kV	M3-S-11kV	M3-S-13.8kV
	Panel	P3-S-3kV	P3-S-4.16kV	P3-S-6kV	P3-S-7.2kV	P3-S-11kV	P3-S-13.8kV
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 9						
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		YES					



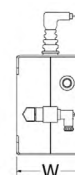
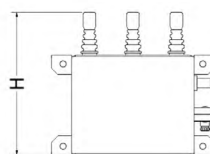
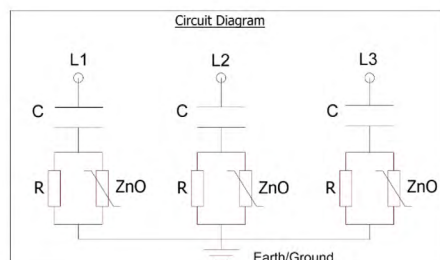
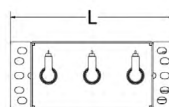
SINGLE PHASE STANDARD COMPACT ZORC

Parameters				
Product Code (Standard)	Machine	M1C-H-3kV	M1C-H-4.16kV	M1C-H-6kV
		M1C-V-3kV	M1C-V-4.16kV	M1C-V-6kV
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 9		
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		YES		



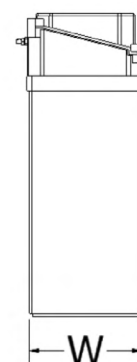
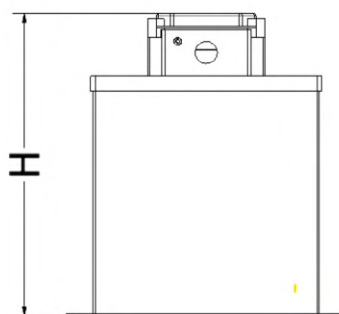
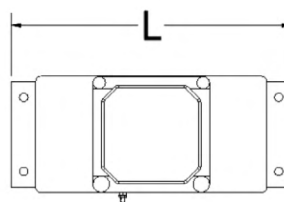
THREE PHASE STANDARD COMPACT ZORC

Parameters				
Product Code (Standard)	Machine	M3C-3kV	M3C-4.16kV	M3C-6kV
Product Code (Pressure Switch)	Machine	M3C-S-3kV	M3C-S-4.16kV	M3C-S-6kV
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 9		
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		



THREE PHASE STANDARD LOW VOLTAGE ZORC

Parameters		Machine	LVZ400	LVZ550	LVZ690	LVZ1100
Product Code		Machine	LVZ400	LVZ550	LVZ690	LVZ1100
Rated Voltage Un (L-L)	kV		0.4	0.55	0.69	1.1
Voltage Range (L-L)	kV		0.38 - 0.44	0.46 – 0.58	0.58 – 0.7	0.8 – 1.1
Rated Frequency	Hz		50/60	50/60	50/60	50/60
Rated Capacitance p er Phase	μF		0.5	0.5	0.5	0.5
Capacitance Tolerance	%		-5/ +10	-5/ +10	-5/ +10	-5/ +10
Resistance per Phase	Ω		22	22	22	22
Ambient Working Temperature	°C		"-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"
Cold Start Temperature (Minimum)	°C (°F)		-40(-40)	-40(-40)	-40(-40)	-40(-40)
THD (V)		Refer to Harmonic Voltage Effect on Page 9				
Dielectric Type			All-Film	All-Film	All-Film	All-Film
Bushing Type		Terminal Housing				
Installation			Panel/Machine	Panel/Machine	Panel/Machine	Panel/Machine
Approximate Mass	kg		3.2			
	lb		7.05			
Overall Dimensions (L x H x W)	mm		255 x 245 x 90			
	inch		10.03 x 9.64 x 3.54			
Earthing / Grounding			"Min 4mm ² to 16mm ² (to Machine Earth) / 0.0062in ² to 0.025in ² (to Machine Ground)"			
Dielectric Fluid (Oil)			None			
Enclosure Material			Mild Steel (Commercial Quality)			
Paint Primer			Powder Coated			
Paint Finish			VP7121 Matt Dust Grey			
Phase(s) & Connection			3-YE			



BUSHING SPECIFICATIONS

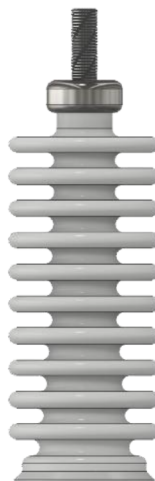
Parameters			AL60	BHWS1	BHWS3	BHWS5
Bushing Type						
"Insulator BIL (Terminal to Tank)"	kV		45	95	150	170
AC Withstand Wet	kV		13 (1min)	38 (1min)	50 (1min)	70 (1min)
AC Withstand Dry	kV		21 (1min)	70 (min)	85 (min)	100 (1min)
Impulse Voltage (1.2uS / 50uS) (Both Polarities)	kV		(+)45	(+)96	(+)150	(+)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 Factory Torqued"	20	20	20
	Ft.lb		"1.84 Factory Torqued"	14.75	14.75	14.75



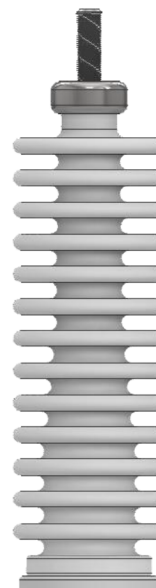
AL60



BHWS1

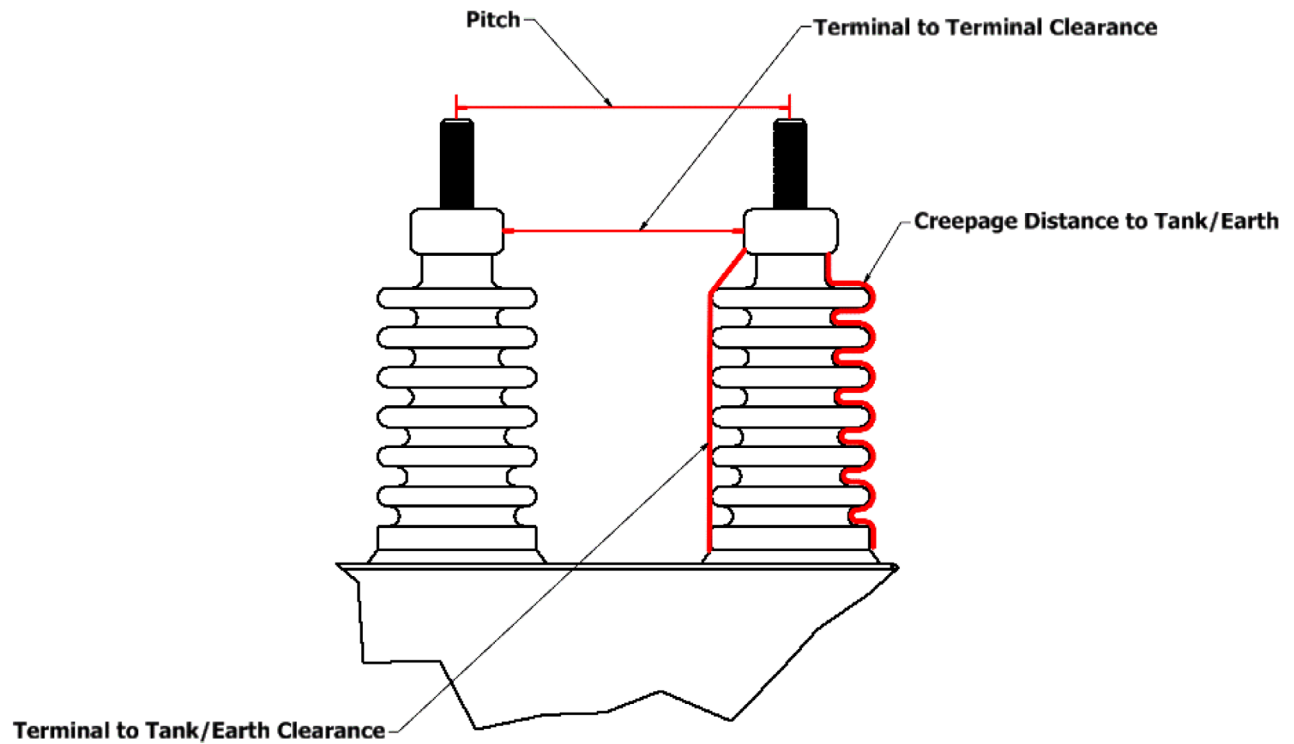


BHWS3



BHWS5

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 °C
 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
NOT Applicable to Three Phase Standard Low Voltage ZORC	



Unparalleled Protection

STANDARD ZORC RANGE
TECHNICAL SPECIFICATION SHEET
Rev. 20022026

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