

Technical Data Sheet

Explosion Proof Switchgear Range

CDPD149
Issue 5

Explosion Proof - Zone 1, 2, 21 and 22 EXe

The 'EXZ1' range of enclosed switch-disconnectors are supplied in Exe enclosures manufactured from glass reinforced polyester sealing to IP65 ensuring the product will withstand being installed in the harshest of industrial environments.

The operating handles come standard in Red/Yellow and can be padlocked in the 'Off' position. All lids are mechanically interlocked with the isolating switch and are removable in the 'On' position only. If you would require a black handle instead please replace R in the Cat. No. with a B e.g. EXZ1SDB02530. Available in ratings from 25A- 180A the isolating switch interiors are supplied in either 3 or 4 pole formats complete with 1 N/O (Early break) & 1 N/C (Late make) auxiliary contacts. Optional Brass Earthing Plates are available on request to enable armoured cables to be earth bonded within the insulated enclosure a selection of pre-drilled earthing plates are available for each enclosure size.

Certification

All items have been approved with 'ATEX' (CML 15ATEX1197X) and 'IECEX' (IECEX CML 15.0093X) certificates for use in Zones 1, 2, 21 & 22. The equipment is designed and tested to comply with the following:-

- EN 60079-0 Electrical Atmospheres, Part 0 : Equipment- General requirements.
- EN 60079-1 Electrical Atmospheres, Part 1 : Equipment protection by flameproof enclosures 'd'.
- EN 60079-7 Electrical Atmospheres, Part 7 : Equipment protection by increased safety 'e'.
- EN 60947-1 Low-Voltage switch gear and controlgear- Part 1: general rules.
- EN 60947-3 Low-Voltage switch gear and controlgear- Part 3: switches, disconnectors, switch-disconnectors and fuse combination units.
- EN 60529 Degrees of protection provided by enclosures. (IP Code)

Image	Rating	Format	Cat. No.	Optional Brass Earthing Plate Cat. No.	Encl. Size	IP Rating	Equipment Marking	Min & Max Temp.
	25A	3P+Aux	EXZ1SDR02530	EXEP0254	A	IP65	25A  II2GD Ex de IIC T6 Gb Ex tb IIIC T80°C Db	-40°C to +40°C
		4P+Aux	EXZ1SDR02540				25A  II2GD Ex de IIC T5 Gb Ex tb IIIC T95°C Db	-40°C to +55°C
	40A	3P+Aux	EXZ1SDR04030	EXEP0404	B	IP65	40A  II2GD Ex de IIC T6 Gb Ex tb IIIC T80°C Db	-40°C to +40°C
		4P+Aux	EXZ1SDR04040				40A  II2GD Ex de IIC T5 Gb Ex tb IIIC T95°C Db	-40°C to +55°C
	80A	3P+Aux	EXZ1SDR08030	EXEP0804	C	IP65	80A  II2GD Ex de IIC T6 Gb Ex tb IIIC T80°C Db	-40°C to +40°C
		4P+Aux	EXZ1SDR08040				80A  II2GD Ex de IIC T5 Gb Ex tb IIIC T95°C Db	-40°C to +55°C
	180A	3P+Aux	EXZ1SDR18030	EXEP1804	D	IP65	180A  II2GD Ex de IIC T5 Gb Ex tb IIIC T95°C Db	-40°C to +40°C
		4P+Aux	EXZ1SDR18040				180A  II2GD Ex de IIC T4 Gb Ex tb IIIC T130°C Db	-40°C to +55°C

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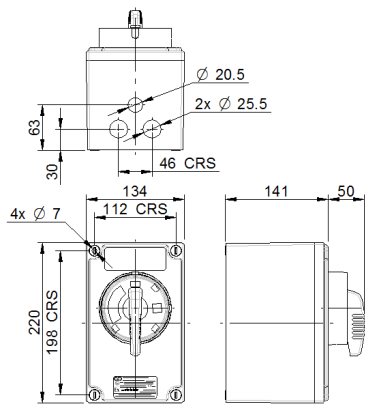
Technical Specification - Zone 1, 2, 21 and 22 EXe

Data supplied against tests to IEC/BS EN 60947-3

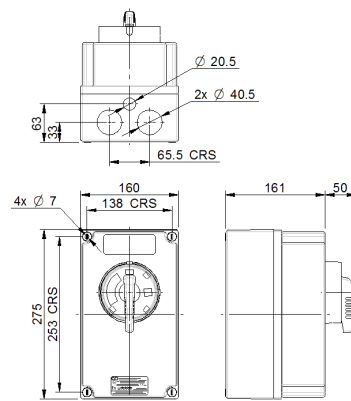
Zone 1, 2, 21 and 22 EX 'e'									
Application	Sym.	Unit	Category	Main Contacts				Aux. Contacts	
				25A	40A	80A	180A	Category	Aux.
Rated thermal current	I_{the}	A		25	40	80	180		10
Rated insulation voltage	U_i	V		690	690	690	690		690
Rated current	-	A	AC3 (230V)	25	40	80	180	AC15 (250V)	10
			AC3 (400V)	25	40	80	180	AC15 (400V)	8
			AC3 (500V)	20	40	80	150	DC13 (24V)	8
			AC3 (690V)	16	32	63	125	DC13 (250V)	1
Terminal Capacity		mm ²	-	2x4	2x10	2x25	2x95		2x1.5
Tightening Torque (Nm)			-	2.5	2.5	3.5	8.5		2.5
Terminal Type	-								

Zone 1, 2, 21 and 22 EXe Dimensions

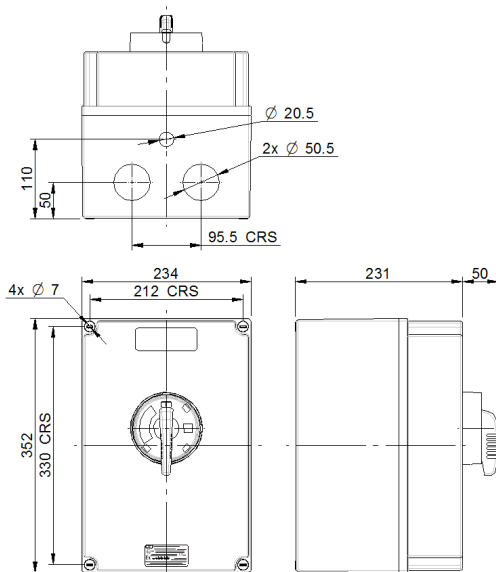
Enclosure A



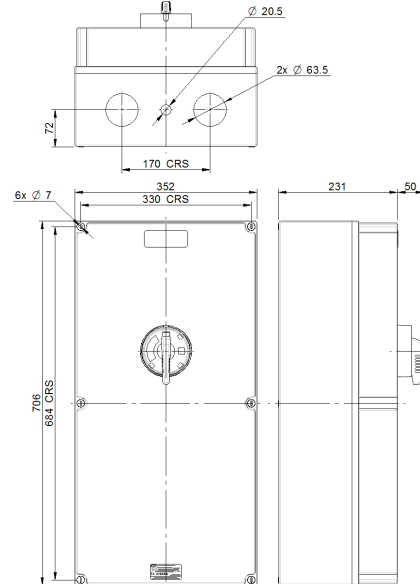
Enclosure B



Enclosure C



Enclosure D



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Explosion Proof - Zone 1, 2, 21 and 22 EXd

A range of Switch-Disconnectors housed in IP65 heavy duty cast enclosures- ATEX certified for use in Cat II, Zones 1, 2, 21 & 22 environments.

Construction

High quality heavy duty cast enclosures are used throughout the range. (Cast Iron 16A- 63A, Cast Aluminium 80A- 250A). The enclosures are supplied with large cable entries which can be fitted with approved reducers to suit individual cable requirements. Specific entry requirements can be accommodated- please specify when ordering.

All load switching interiors are supplied as either 3P+N (switched neutral) or 6P and have AC23A ratings to BS EN 60947-3. Auxiliary contacts are available for applications such as SCADA packages. Finish- RAL 7035 Two pack grey epoxy coating over etching primer.

Image	Rating	Format	Cat. No.	IP Rating	External Earth	Supplied Bottom Entries*	Encl. Size	Encl. Material	Temperature Class	
									40°C	60°C
	16A	3P+N+2E/B	DGC0164EBZ1	IP65	M6	3 x M20	G21	Cast Iron	T6	T5
	25A	3P+N+2E/B	DGC0254EBZ1	IP65	M6	4 x M20	G21	Cast Iron	T6	T5
	20A	6P + 2E/B	DGC0206EBZ1	IP65	M6	2 x M25 + 1 x M20	G21	Cast Iron	T6	T5
	40A	3P+N+2E/B	DGC0404EBZ1	IP65	M8	2 x M25 + 1 x M20	G22	Cast Iron	T6	T5
		6P + 2E/B	DGC0406EBZ1	IP65						
63A	3P+N+2E/B	DGC0634EBZ1	IP65	M8	2 x M25 + 1 x M20	G22	Cast Iron	T6	T5	
	80A	3P+N+2E/B	DGC0804EBZ1	IP65	M8	3 x M32 + 1 x M20	G24	Cast Aluminium	T6	T6
	100A	3P+N+2E/B	DGC1004EBZ1	IP65	M8	3 x M32 + 1 x M20	G25	Cast Aluminium	T6	T6
	125A	3P+N+2E/B	DGC1254EBZ1	IP65	M8	3 x M40 + 1 x M20	G25	Cast Aluminium	T6	T6
	160A	3P+N+2E/B	DGC1604EBZ1	IP65	M8	3 x M40 + 1 x M20	G25	Cast Aluminium	T6	T6
	200A	3P+N+2E/B	DGC2004EBZ1	IP65	M10	3 x M50 + 1 x M20	G28	Cast Aluminium	T6	T6
	250A	3P+N+2E/B	DGC2504EBZ1	IP65	M10	3 x M50 + 1 x M20	G28	Cast Aluminium	T6	T6

* Other entry configurations available on request.

Certification and Approvals

- Certification Code Ex II 2 GD Ex d IIB
 Ex tD A21 IP6X
- Certification No. ITS 09 ATEX 16433X, ITS 09 ATEX 16436U
- Certification standard EN 60079-0, EN 60079-1, EN 61241-0 & EN 61241-1

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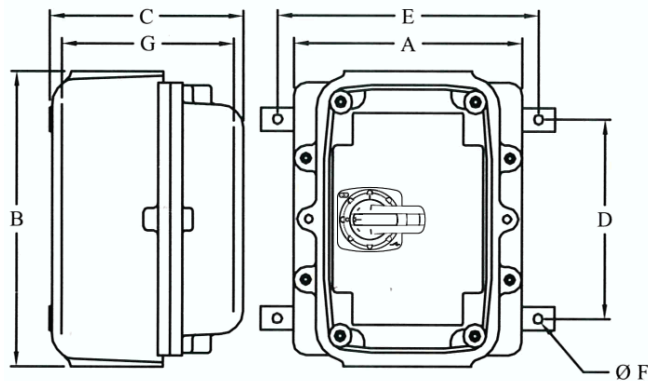
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Technical Specification - Zone 1, 2, 21 and 22 EXd
Data supplied against tests to IEC/BS EN 60947-3

Zone 1, 2, 21 and 22 EX d														
Application	Sym.	Unit	Category	16A	20A	25A	40A	40A	63A	80A	100A	125A	160A	250A
Format	-	-	-	3P	6P	3P	3P	6P	3P	3P	3P	3P	3P	3P
Enclosure	-	-	-	G21	G21	G21	G22	G22	G22	G24	G25	G25	G25	G28
Rated thermal current	I_{the}	A	-	16	20	25	40	40	63	80	100	125	160	250
Rated Insulation voltage	U_i	V	-	690	690	690	690	690	690	690	750	750	750	1000
Rated impulse voltage	U_{imp}	kV	-	6.0	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	12.0	12.0
Rated operational power (3 phase AC)	-	kW	380/440V- AC23	7.5	7.5	11	15	18.5	25.0	30.0	37.0	45.0	75.0	132.0
			500V- AC23	9.0	7.5	15	15.0	15	30.0	37.0	-	-	-	-
			690V- AC23	9.0	7.5	15	15.0	15	30.0	30.0	37.0	45.0	75.0	200.0
Rated short time withstand current (1 sec)	I_{cw}	A	-	400	250	500	600	800	1300	1400	2500	2500	5000	8000
Max. fuse size for short circuit protection (gG characteristic)	I_n	A	10kA	35	20	35	40	40	80	80	-	-	-	-
			25kA	32	16	32	32	35	63	63	-	-	-	-
			50kA	32	-	32	32	-	63	63	-	-	-	-
Connecting capacity	-	-	Terminal type											
	-	mm ²	Flexible cable	6.0	2x2.5	6.0	6.0	2x6.0	16.0	16.0	-	-	-	-
	-	mm ²	Rigid cable	10.0	2x2.5	10.0	10.0	2x10	25.0	25.0	-	-	-	-
	-	mm	Stud Cu palm width	-	-	-	-	-	-	-	8x20	8x20	8x20	10x30
	-	Nm	Tightening torque	1.2	1.2	1.2	1.2	1.2	1.2	1.2	10	10	10	30

Zone 1, 2, 21 and 22 EXd Dimensions

Enclosures G21- G28



N.B. Enclosures can be close coupled at either end (to special order)

- A Enclosure Width
- B Enclosure Height
- C Enclosure Depth
- D Fixing Centre Height
- E Fixing Centre Width
- F Fixing Hole Diameter
- G Internal Depth from Base Plate

Encl.	Material	A	B	C	D	E	F	G
G21	Fe	180	155	145	130	195	7.0	100
G22	Fe	205	220	156	160	230	9.0	117
G24	Al	321	361	228	291	320	11.0	179
G25	Al	366	406	218	250	370	11.0	177
G28	Al	586	690	294	480	580	14.0	216

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General Description

Craig & Derricott has been manufacturing enclosed switchgear for more than 75 years. Available in die-cast aluminium or hinged door sheet steel enclosures, this range covers 20A to 630A ratings. All units allow for the fitting of up to three padlocks in the 'Off' position and are inclusive of fixings outside of the enclosure seal area, unit are also fitted with an external earth point. The enclosures are finished using a low smoke and fume powder coat paint and are supplied as standard in Light Grey RAL 7035 or as an option Red RAL 3020.

Zone 22 explained

From July 2006 the onus was placed upon companies to ensure that all equipment within their organisations is suitable for the environment in which it is being used. This was aimed particularly at areas where there may be a possibility of a combustible atmosphere being present, even for short periods i.e., Less than 10 hours/year.

People normally think of such atmospheres as being gases, mists, or vapours, however there are various industries where a conductive or non-conductive dust mixed with air in the right proportion can become explosive. It is these areas where the Craig & Derricott ATEX Group II (Zone 22) equipment can be used to help you comply with Health & Safety regulations.

Typical industries where such atmospheres may be generated:-

- Grain Mills
- Powder Coating Plant
- Textiles
- Chemicals
- Cargo Handling
- Woodworking
- Pharmaceuticals
- Waste Processing

There are different degrees of protection against explosive dusts, and Zone 22 is defined as:-

"A place in which an explosive atmosphere, in the form of a cloud of combustible dust in air, is not likely to occur in normal operation but, if it does occur, will persist for a short period only."

Applicable Regulations / Specifications

- Directive 2014/34/EU ("Manufacturers Directive") Sets out the route equipment manufacturers must take to get their products certified for use in hazardous environments.
- Directive 1999/92/EC ("Users Directive") Defines the classifications for protection zones, and the approach users must take to ensure that the correct equipment is matched to specific hazardous environments.
- UKSI 2016 No. 1107 - The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016

Both of the above is classed as 'ATEX' directives and are concerned solely with ensuring safety in the workplace.

- DSEAR Dangerous Substances and Explosive Atmospheres Regulations 2002.
- BS EN 60079-0 Explosive atmospheres- Part 0: Equipment- General requirements.
- BS EN 60079-31 Explosive atmospheres- Part 31: Equipment dust ignition protection by enclosure "t".
- BS EN 60529 Specification for degrees of protection provided by enclosures. (IP code)
- BS EN 60947-3 Specification for low-voltage switchgear and control gear.
- BS EN 60204-1 Safety of machinery. Electrical equipment of machines- General requirements.

Certification and Approvals

Certification Code

- II 3D
- tc III B T85°C Dc

Certification Standard

BS EN 60079-0, BS EN 60079-31, BS EN 60529, BS EN 60947-3, BS EN 60204-1

Image	Rating	Format	Cat. No.	Encl. Size	Encl. Material	IP Rating	Supplied Bottom Entries
	20A	6P+2/EB	SDDG206EBZ22	A22	Die-Cast Aluminium	IP65	1 x M20 top + 2 x M20 bottom
	25A	3P+2/EB	SDDG253EBZ22	A22	Die-Cast Aluminium	IP65	1 x M20 top + 2 x M20 bottom
	32A	3P+2/EB	SDDG323EBZ22	A22	Die-Cast Aluminium	IP65	1 x M20 top + 2 x M20 bottom
		6P+2/EB	SDDG326EBZ22	B22			2 x M25 + 1 x M20 bottom
	40A	3P+2/EB	SDDG403EBZ22	B22	Die-Cast Aluminium	IP65	2 x M25 + 1 x M20 bottom
		6P+2/EB	SDDG406EBZ22				
63A	3P+2/EB	SDDG633EBZ22	B22	Die-Cast Aluminium	IP65	2 x M25 + 1 x M20 bottom	

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Image	Rating	Format	Cat. No.	Encl. Size	Encl. Material	IP Rating	Encl. Colour
	32A	3P+N	EDG00323NZ22	1	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG00323NLZ22				
		3P+N+E/B	EDG00323NEBZ22				
	63A	3P+N	EDG00633NZ22	1	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG00633NLZ22				
		3P+N+E/B	EDG00633NEBZ22				
		6P	EDG00636Z22				
		6P+2EB Aux	EDG00636EBZ22				
	80A	3P+N	EDG00803NZ22	1	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG00803NLZ22				
		3P+N+E/B	EDG00803NEBZ22				
		6P	EDG00806Z22				
	100A	3P+N	EDG01003NZ22	1	Sheet Steel	IP65	Light Grey RAL 7035
3P+NL		EDG01003NLZ22					
3P+N+E/B		EDG01003NEBZ22					
6P		EDG01006Z22	3				
	125A	3P+N	EDG01253NZ22	2	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG01253NLZ22				
		3P+N+E/B	EDG01253NEBZ22				
		6P	EDG01256Z22				
	160A	3P+N	EDG01603NZ22	2	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG01603NLZ22				
		3P+N+E/B	EDG01603NEBZ22				
		6P	EDG01606Z22				
	200A	3P+N	EDG02003NZ22	4	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG02003NLZ22				
		3P+N+E/B	EDG02003NEBZ22				
	250A	3P+N	EDG02503NZ22	5	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG02503NLZ22				
		3P+N+E/B	EDG02503NEBZ22				
	400A	3P+N	EDG04003NZ22	6	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG04003NLZ22				
		3P+N+E/B	EDG04003NEBZ22				
	630A	3P+N	EDG06303NZ22	7	Sheet Steel	IP65	Light Grey RAL 7035
		3P+NL	EDG06303NLZ22				
		3P+N+E/B	EDG06303NEBZ22				

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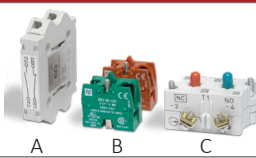

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Accessories

All units are supplied as standard with auxiliary contacts (see table below). Terminal protection is provided on all items for live incoming terminals; spare terminal covers are available for replacement or extending the protection to the outgoing terminals.

Auxiliary Contacts		
Image	Description	Cat. No.
 <div style="display: flex; justify-content: space-around; font-size: small;"> A B C </div>	Auxiliary Contact for 20A- 200A Switch-Disconnectors (Type A) – 2 Early break	SAUX2EB
	Auxiliary Contact for 250A Switch-Disconnectors (Type C) – 1NO / 1NC (early break)	SAUXKITB
	Auxiliary Contact for 400A- 630A Switch-Disconnectors– 1NO / 1NC (early break)	SAUXKITC
Terminal Covers		
	Individual Terminal Cover for 200A Switch-Disconnectors	STS1
	Individual Terminal Cover for 250A- 400A Switch-Disconnectors	STS2
	Set of 4 Terminal Covers for 630A Switch-Disconnectors (M12 Stud)	STS4

Technical Specification - Zone 22

Data supplied against tests to IEC/BS EN 60947-3

Sheet Steel Hinged Door Range															
Application	Sym.	Unit	Category	32	63		80	100	125	160	200	250	400	630	
				3P	3P	6P	3P	3P	3P	3P	3P	3P	3P	3P	
Rated thermal current	I_{the}	A		32	63	63	80	100	125	160	200	250	400	630	
Rated insulation voltage	U_l	V		690	690	690	690	1000	1000	1000	1000	1000	1000	1000	
Rated impulse voltage	U_{imp}	kV		6	6	6	6	8	8	8	8	12	12	12	
Rated operational current (AC)	I_e	A	400V- AC21A	32	63	63	80	100	125	160	200	250*	400*	630*	
			690V- AC21A	32	63	63	80	100	125	160	200	250	400	630	
			400V- AC22A	-	-	-	-	100	125	160	200	250*	400*	630*	
			690V- AC22A	-	-	-	-	100	125	160	160	250	400	630	
			400V- AC23A	29	48	48	56	105	111	132	132	250*	400*	630*	
			690V- AC23A	17	33	33	33	-	-	-	-	250	350	350	
Rated operational current (DC)	I_e	A	Up to 48V- DC21A	32/1	63/1	63/1	80/1	-	-	-	-	250/2	400/2	630/1	
			220V- DC21A	32/3	63/4	1/1	80/4	-	-	-	-	250/2	400/2	630/2	
			Up to 48V- DC22A	-	-	-	-	-	-	-	-	250/2	400/1	630/1	
			220V- DC22A	-	-	-	-	-	-	-	-	250/2	400/2	630/2	
			Up to 48V- DC23A	-	-	-	-	-	-	-	-	250/2	400/1	630/1	
			220V- DC23A	-	-	-	-	-	-	-	-	250/2	400/2	630/2	
Rated operational power	P_e	kW	400/415V- AC23A	15	25	25	30	59	63	75	75	132	200	315	
			690V- AC23A	15	30	30	30	51	55	55	55	200	315	355	
Short circuit making capacity	I_{cm}	kA	Peak value	1.4	2.9	2.9	3	3.7	4	5	5	35	65	80	
Short circuit withstand (1sec)	I_{cw}	kA	rms value	0.6	1.3	1.3	1.4	2.6	2.8	3	3	8	17	17	
Min. mechanical endurance	-	-	Operations (103)	250	250	500	250	50	50	50	50	16	10	10	
Min. electrical endurance	-	-	415V- at 0.65 pf	-	-	-	-	-	-	-	-	1,000	1,000	500	
Connecting capacity	-	mm ²	Terminal type												
			Min/Max	2.5/10	2.5/25	2.5/25	2.5/25	-/50	-/70	-/70	-/95	120	2 x 150	2 x 185	
			Stud/Cu palm width	-	-	-	-	-	-	-	-	8 x 25	10 x 30	10 x 30	12 x 40
			Tightening torque	1.2	1.2	1.2	1.2	5	5	5	10	30	30	30	50

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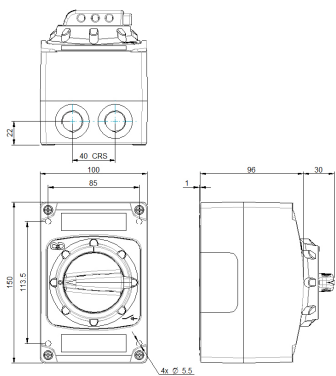
Technical Specification

Data supplied against tests to IEC/BS EN 60947-3. * All AC21, AC22 & AC23 tests carried out at 415V.

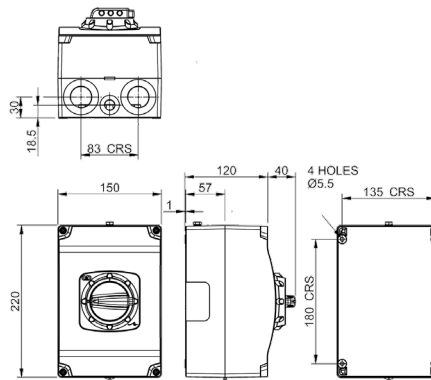
Die-Cast Aluminium Range									
Application	Sym.	Unit	Category	20A	25A	32A	40A	40A	63A
Format	-	-	-	6P	3P	3P+6P	3P	6P	3P+6P
Rated thermal current	I_{the}	A	-	20	25	32	40	40	63
Rated insulation voltage	U_i	V	-	690	690	690	690	690	690
Rated impulse voltage	U_{imp}	kV	-	6.0	6.0	6.0	6.0	6.0	6.0
Rated operational current	I_e	A	400V- AC23A (3 phase AC 50/60Hz)	15	25	32	40	40	54
Rated operational power (3 phase AC)	I_e	kW	230V	-	3.7	4.8	-	-	9.4
	P_e		400V	7.5	11	15	18.5	18.5	25
Rated short time withstand current (1 sec)	I_{cw}	A	-	250	500	600	600	600	1300
Max. fuse size for short circuit protection (gG Characteristic)	-	kA	10kA	20	35	35	40	40	80
			25kA	16	32	32	32	32	63
			50kA	-	32	32	32	32	63
Connecting capacity	-	-	Terminal type						
	-	mm ²	Flexible cable	2.5 x 2	6	6	6	6	16
	-	mm ²	Rigid cable	2.5 x 2	10	10	10	10	25
	-	Nm	Tightening torque	1.0	1.2	1.2	1.2	1.2	1.2

Dimensions

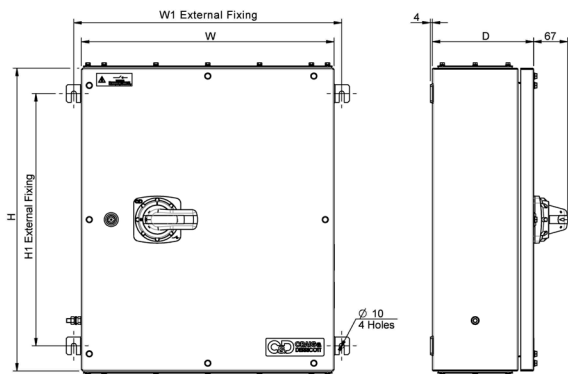
Enclosure A22



Enclosure B22



Enclosure 1- 7



Encl.	H	H1	W	W1	D
1	300	200	300	330	150
2	400	300	300	330	150
3	400	300	400	430	200
4	600	500	400	430	200
5	600	500	500	530	200
6	800	700	600	630	200
7	1000	900	600	630	300



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