

# Technical Data Sheet

## Explosion Proof Switchgear Range



CDPD149  
Issue 4

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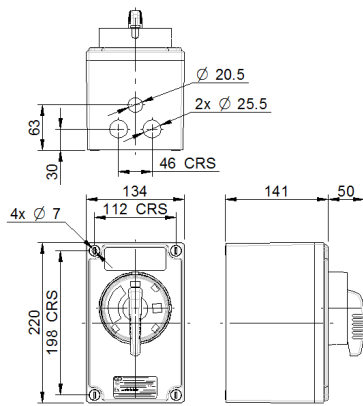
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Technical Specification - Zone 1, 2, 21 and 22 EXe  
Data supplied against tests to IEC/BS EN 60947-3

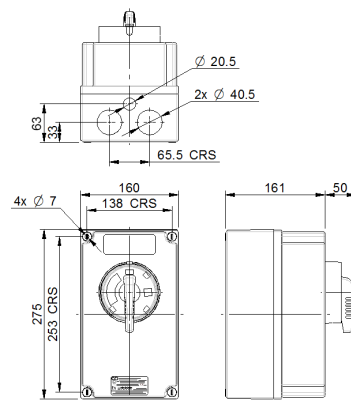
Zone 1, 2, 21 and 22 EX 'e'									
Application	Sym.	Unit	Category	Main Contacts				Aux. Contacts	
				25A	40A	80A	180A	Category	Aux.
Rated thermal current	$I_{the}$	A		25	40	80	180		10
Rated insulation voltage	$U_i$	V		690	690	690	690		690
Rated current	-	A	AC3 (230V)	25	40	80	180	AC15 (250V)	10
			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 <sup>2</sup>	-	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

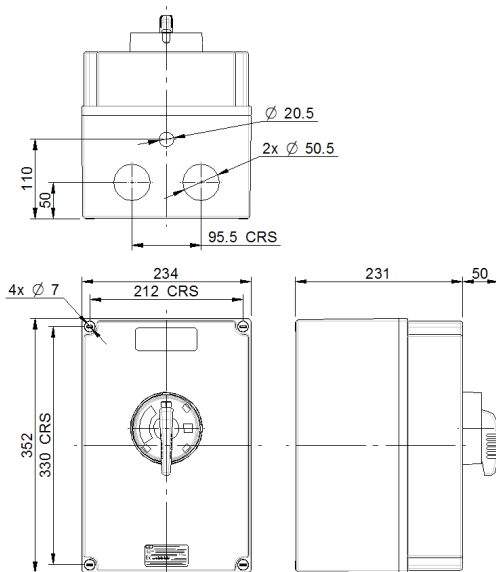
Enclosure A



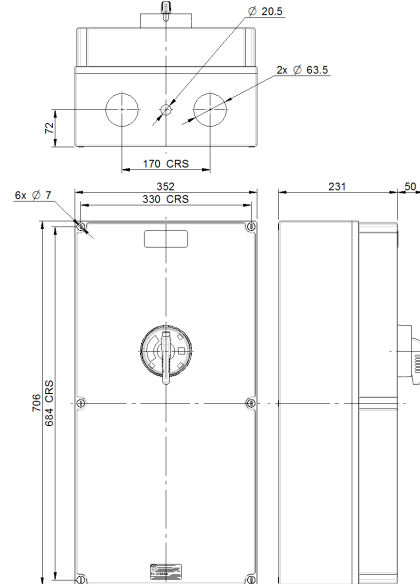
Enclosure B



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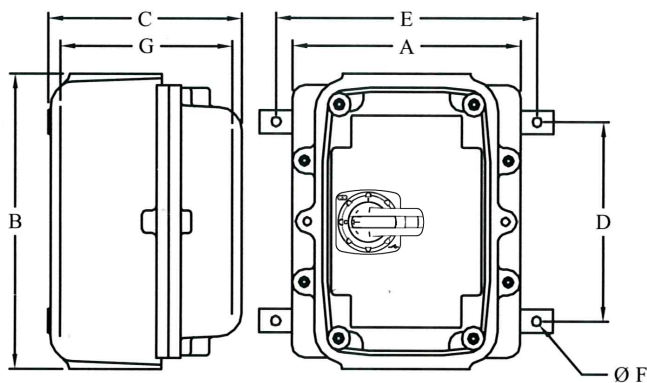
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Technical Specification - Zone 1, 2, 21 and 22 EXd  
Data supplied against tests to IEC/BS EN 60947-3

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 <sup>2</sup>	Flexible cable	6.0	2x2.5	6.0	6.0	2x6.0	16.0	16.0	-	-	-	-
	-	mm <sup>2</sup>	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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### Explosion Proof - Zone 22

Craig & Derricott has been manufacturing enclosed switchgear for more than 75 years. Using high quality die cast aluminium and hinged door sheet steel enclosures the range covers 20A - 63A ratings. Other ratings are available on request. All items allow for the fitting of up to three padlocks in the 'Off' position. Units are inclusive of fixings outside of the enclosure seal area and an external earth point.

### Explosion Proof - Zone 22- How it works.

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.

Both of the above are 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

Die cast Aluminium / Sheet Steel

- Certification Code II 3D
- Certification Code tc IIIB 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
		3P+2/EB	SDMG633EBZ22	C22	Sheet Steel		
		6P+2/EB	SDMG636EBZ22	D22			

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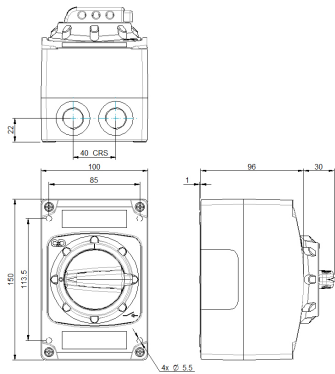
### Technical Specification - Zone 22

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

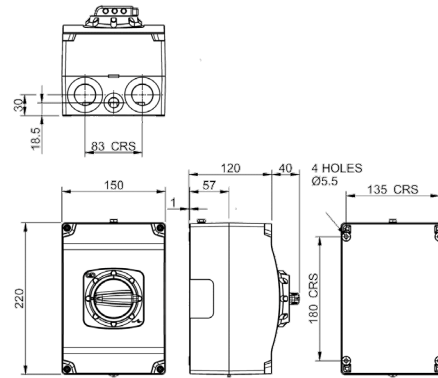
Zone 22									
Application	Sym.	Unit	Category	20A	25A	32A	40A	40A	63A
Format	-	-	-	6P	3P	3P+6P	3P	6P	3P+6P
Rated thermal current	$I_{the}$	A	-	20	25	32	40	40	63
Rated insulation voltage	$U_i$	V	-	690	690	690	690	690	690
Rated impulse voltage	$U_{imp}$	kV	-	6.0	6.0	6.0	6.0	6.0	6.0
Rated operational 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 <sup>2</sup>	Flexible cable	2.5 x 2	6	6	6	6	16
	-	mm <sup>2</sup>	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

### Zone 22 Dimensions

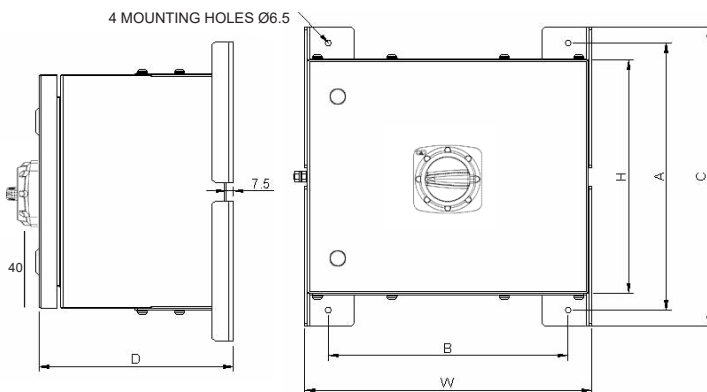
Enclosure A22



Enclosure B22



Enclosure C22 & D22



Encl.	H	W	D	A	B	C
C22	250	256	108	286	206	320
D22	250	306	208	286	256	320