

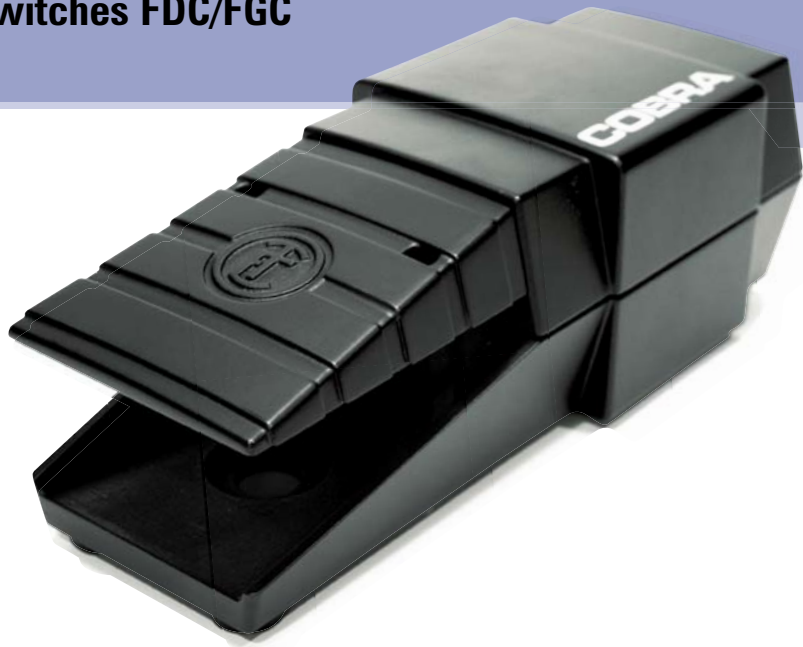
Foot-operated switches



Foot-operated switches

Technical information	160
Foot-operated switches FDC/FGC Cobra	165
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Foot-operated switches WBF/TF	170
Dimensions	171

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Application

The foot-operated switches of series COBRA (FDC and FGC) have been developed for industrial application with high mechanical and electrical withstand. The foot-operated switches are used on wood processing machines, CNC machines, building machines and bending machines.

Design

The COBRA safety foot switches include the two modular components, foot switch and safety cover. The various features of technical performance include the emergency opening of all contacts as well as an pressure point element integrated in the bottom side of the pedal, which immediately shuts off the machinery on quick pushing to the stop of the pedal. The housing design of both components has been defined in such a way that on addition of two or more switches in a row, a compact foot switch block is formed to constitute a single unit. A central innovation and unique feature in the field of industrial safety foot switches is the employment of an extruded aluminium safety cover, which does not break, even on high impact loads and therefore perfectly protects the foot from injuries. The cover is also an additional protection against unintentional operation.

Benefits

- with- or without protection cover
- aluminium extruded safety cover
- 1, 2 and 3 pedal execution
- with cam switch or as contact block execution, optionally with standard or snap-action function
- direct motor control up to 25 A
- special switching sequences available
- multiple pedal executions can be supplied pre-wired
- protection cover can be mounted easily afterwards

The mechanical concept admits two switching types:

Step switching:

(Progressive switching) Pedal is pressed and contacts are closed and stay in closed position even when the pedal is released. Only when the pedal is operated again, contacts are opened and go back into their initial position.

Key switching:

Pedal is pressed. Contacts are closed so long pedal is pressed. When pedal is released, contacts open again.

The execution FDC uses a cam switch of switch size D1 with general control and motor characteristics up to 5.5 kW/400 V in AC-3 directly connected. On many machines it is necessary to activate the safety function with your foot in case of danger. Due to the automatic opening of the contact elements and the autonomous catch-mechanism of the devices, it is also possible to use the foot-switch. Using a cam switch allows a lot of electrical contact functions as control switch and also as motor switch.

As alternative the execution FGC can also be used as a contact block with standard function or snap-action function be incorporated as NO/NC as switching element.



Enclosure with flat-type cover

A cam switch insert with max. 4 contacts can be integrated in this enclosure size. For example 2 NO + 2 NC or 3 or 4 polar on-off switches with step or key switching are standard switching functions. The switching element can be incorporated with standard or snap-action function as NO/NC.



IP 65

Enclosure with high cover

The enclosure with high cover allows switching functions with max. 8 contacts respectively 4 contact chambers. Key and step function is possible as control and motor switches.



IP 65

Details for ordering



Single-pedal footswitch

All single-pedal COBRA footswitches are supplied without safety-cover. The safety-cover can be ordered separated if needed. The safety cover can later on be easily fixed with 2 screws on the COBRA footswitch (see page 164).

Cover-Set 1 pedal footswitch Content:
safety-cover and screws Reference No.:
305052 Designation: FG10U1

Designs



Enclosure with safety cover

The safety cover protects against unintentional operation or falling parts. A switch insert with max. 8 contacts respectively 4 contact chambers can be integrated in this enclosure size. The switching element can be incorporated with standard or snap-action function as NO/NC.



Enclosure with safety cover double-pedal

The safety covers protect against unintentional operation or falling parts. It also prevents the possibility of pressing both pedals with one foot at the same time. A switch insert with max. 8 contacts respectively 4 contact chambers can be integrated in this enclosure size. The switching element can be incorporated with standard or snap-action function as NO/NC.

Details for ordering



Double-pedal footswitch

For ordering a double-pedal footswitch please choose 2 of the corresponding single-pedal footswitches with the requested switching-program.

In order to be able to combine both single-pedal footswitches with each other you will need the cover-set for double-pedal footswitch. You will just have to screw both single-pedal footswitch into the double-pedal cover-set.

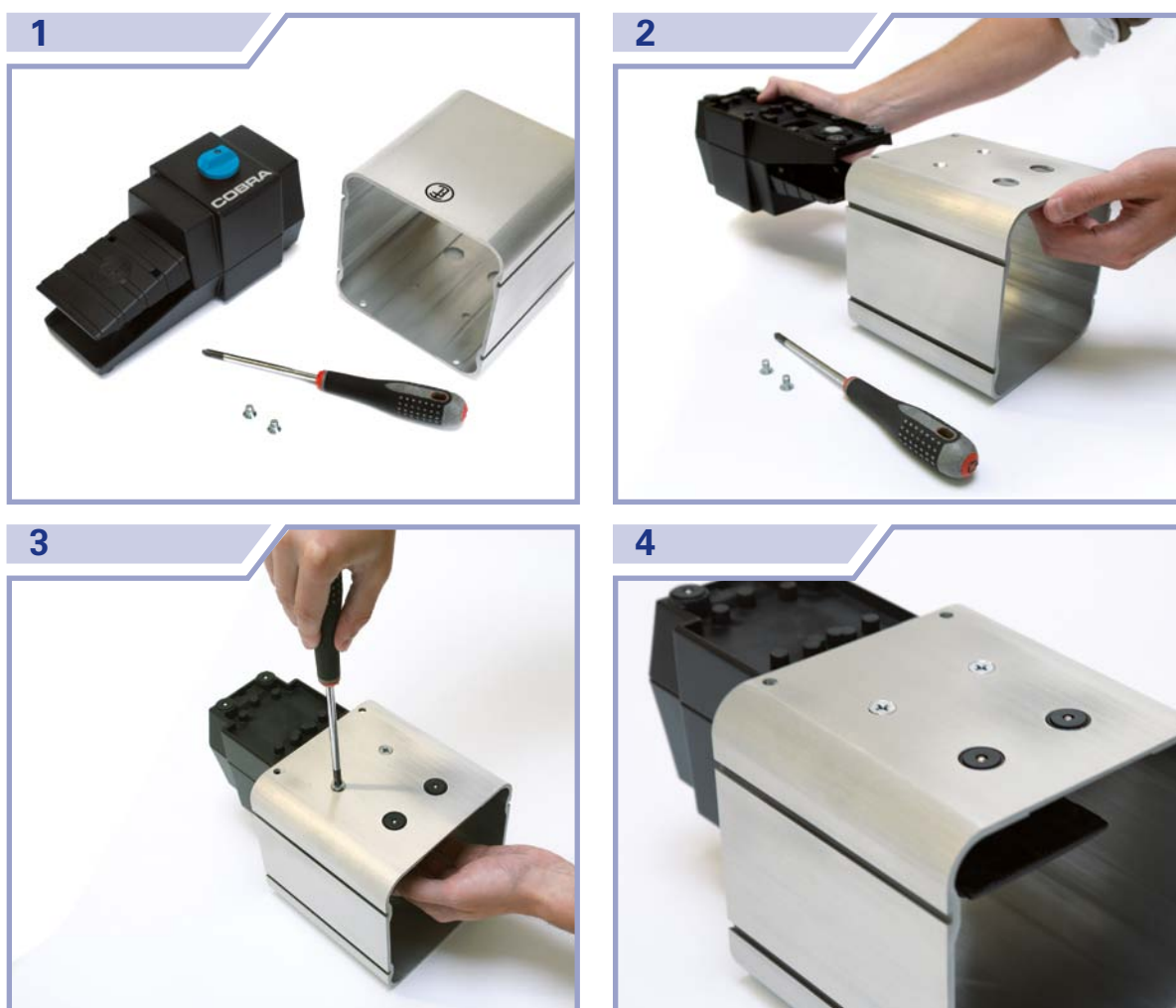
Remarks: double-pedal footswitch can only be supplied with safety-covers.

Safety cover

The prescriptions of different trade associations specify in many cases to use a complementary protection against any unintentional operation. The execution with safety cover protects the pedal against any unintentional operation and falling parts.

A destruction of the safety cover is impossible when operating under realistic conditions.



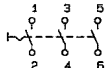

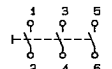

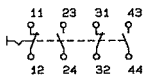

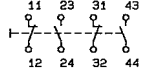
Description of mounting the safety cover



Cover-Set single-pedal footswitch Content: safety-cover and screws Reference No.: 305052 Designation: FG10U1

Cover-Set double-pedal footswitch Content: 2 safety-covers combined with each other and screws Reference No.: 305053 Designation: FG10U2

Foot-operated switches single-pedal

Circuit diagram	Rated permanent current I _u	switching capacity and Utilization categorie	 IP 65 Standard execution without safety cover	
			Type	Ref. No.
	25	AC-15 6 A/230 V~	FDC A2U-G	305 059
	On-off switches, 2 poles – Progressive switching			
	25	AC-3 5,5 kW/400 V~	FDC AU-G	305 060
	On-off switches, 3 poles – Progressive switching			
	25	AC-15 6 A/230 V~	FDC A2T-G	305 061
	On-off switches, 2 poles – Key switching			
	25	AC-4 2,2 ¹⁾ kW/400 V~	FDC AT-G	305 062
	On-off switches, 3 poles – Key switching			
	25	AC-15 6 A/230 V~	FDC 11U-G	305 063
	Change-over switches 1 NO/1 NC – Progressive switching			
	25	AC-15 6 A/230 V~	FDC 22U-G	305 065
	Change-over switches 2 NO/2 NC – Progressive switching			
	25	AC-15 6 A/230 V~	FDC 11T-G	305 064
	Change-over switches 1 NO/1 NC – Key switching			
	25	AC-15 6 A/230 V~	FDC 22T-G	305 066
	Change-over switches 2 NO/2 NC – Key switching			

Motor switches

Control switches –
Master units

1) AC-4 Key switching 2,2 kW/400 V


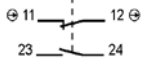
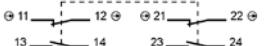
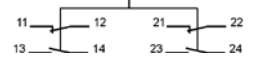
Dimensions page 171

Cover-Set single-pedal footswitch Content: safety-cover and screws Reference No.: 305052 Designation: FG10U1

Cover-Set double-pedal footswitch Content: 2 safety-covers combined with each other and screws Reference No.: 305053 Designation: FG10U2

Foot-operated switches FGC with contact block

Foot-operated switches single-pedal

Circuit diagram	Rated permanent current I_n	switching capacity Utilization categorie AC-15/230 V ~		
			IP 65 Standard execution without safety cover	
	A	A	Type	Ref. No.
Control switches 	10	6	FGC 1ÖS-G	305 116
	Change-over switches 1 NO/1 NC – Key switching with standard function			
	10	6	FGC 2ÖS-G	305 117
			FGC 2ÖS-G	305 117
	Change-over switches 2 NO/2 NC – Key switching with standard function			
			FGC 2ÖSJX-G	305 235
	Change-over switches 2 NO/2 NC – Key switching with snap-action function			

Cover-Set single-pedal footswitch Content: safety-cover and screws Reference No.: 305052 Designation: FG10U1

Cover-Set double-pedal footswitch Content: 2 safety-covers combined with each other and screws Reference No.: 305053 Designation: FG10U2

Foot-operated switches FP

Potentiometer foot-operated switches one-pedal

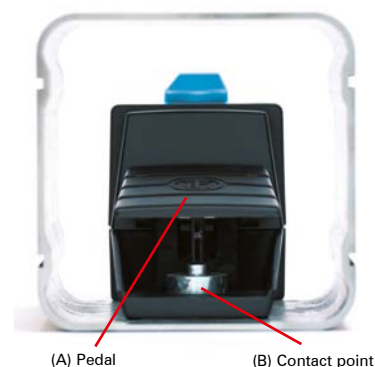
Circuit diagram	Rated resistance value			
		Execution without safety cover		
	kΩ	Type	Ref. No.	
foot-operated controller 	5	FPC 5KLIN-FG10-P-SSS	308 389	
	10	FPC 10KLIN-FG10-P-SSS	307 290	
	500	FPC 500KLIN-FG10-P-SSS	307 436	
foot-operated controller with micro switch 	5	FPC A1/5KLIN-FG10-P-SSS	308 830	
	10	FPC A1/10KLIN-FG10-P-SSS	307 088	
	500	FPC A1/500KLIN-FG10-P-SSS	307 434	

Safety foot-operated switches

In case of danger when the pedal is pressed over the standard switching position the contacts are switched off. Only after releasing the safety locking device the pedal can be operated again.

Operational sequence

1. The pedal (A) is in the upper position and is not operated. The contacts are open, the machine is not working.
2. The contacts will be closed when pushing down the pedal (A) until the contact point (B) is realized –the machine is working.
3. In case of danger or emergency, the pedal is pushed over the with stand of the contact point. The contacts are opened and the machine stops immediately. The switch is mechanically locked so the machine can not be started again.
4. The lockout of the locked contact goes through the turnknob (C). First after the lockout, the contacts are released and the standard function can start again.



(C) Lockout turnknob





Circuit diagram	Rated permanent current I_n	switching capacity and Utilization categorie	IP 65	
			Execution with lockout turnknob and contact point	
	A		Type	Ref. No.
	25	AC-4 2,2 kW/400 V~	FDC AR-G	305 110
	On-off switch, 3 poles – Key switching, with emergency-stop			
	25	AC-15 6A/230 V~	FDC K1R-G	305 111
	Control switch with 1 pulsed contact and 1 sealed contact – Key switching, with emergency stop			
	25	AC-15 6A/230 V~	FDC K2R-G	305 112
	Control switch with 2 pulsed contacts and 2 sealed contacts – Key switching, with emergency stop			

Further switching functions on request



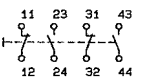
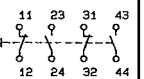
Motor switches

Control switches – Master units for contactor control

Double-pedal

Circuit diagram Pedal 1	Circuit diagram Pedal 2	Rated permanent current I_n	Max. switching capacity Utilization categorie AC-3/400 V	 IP 65 Execution with lockout turnknob and contact point	
		A	kW	Type	Ref. No.



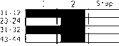

Control switches –
Master units

1 NO/1 NC	1 NO/1 NC	25	6	FD 11T/11T-GU	3199 1015
		Pedal 1: 1 NO/1 NC – Key switching Pedal 2: 1 NO/1 NC – Key switching			
2 NO/2 NC	2 NO/2 NC	25	6	FD 22T/22T-GU	3199 1038
		Pedal 1: 2 NO/2 NC – Key switching Pedal 2: 2 NO/2 NC – Key switching			

Further switching functions on request

Dimensions page 172

Safety foot-operated switches double-pedal

Circuit diagram Pedal 1	Circuit diagram Pedal 2	Rated permanent current I_n	Max. switching capacity Utilization categorie AC-3/400 V	 IP 65 Execution with lockout turnknob and contact point	
		A	kW	Type	Ref. No.
		25	AC-15 6 A/230 V	FD K2R/K2R-GU	3199 0860
Pedal 1: Control switch with 2 pulsed contacts and 2 sealed contacts – Key switching, with emergency stop Pedal 2: Control switch with 2 pulsed contacts and 2 sealed contacts – Key switching, with emergency stop					

Control switches –
Master units



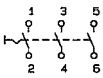
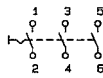
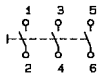
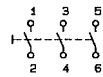
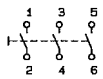
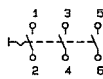
Function safety foot-operated switches on page 172

Fußschalter FD

Foot-operated switches FD

Art.

Double-pedal

Circuit diagram Pedal 1	Circuit diagram Pedal 2	Rated permanent current I_u	Max. switching capacity Utilization categorie AC-3/400 V	<div></div> <div>IP 65</div> <div>Execution with lockout turnknob and contact point</div>	
<div></div>	A	kW	Type	Ref. No.	
<div></div> <div></div>	25	5,5	FD AU/AU-GU	3199 1048	
P Pedal 1: On-off switches, 3 poles – Progressive switching Pedal 2: On-off switches, 3 poles – Progressive switching					
<div></div> <div></div>	25	5,5 ¹⁾	FD AT/AT-GU	3199 1050	
Pedal 1: On-off switches, 3 poles – Key switching Pedal 2: On-off switches, 3 poles – Key switching					
<div></div> <div></div>	25	5,5 ¹⁾	FD AT/AU-GU	3199 1052	
Pedal 1: On-off switches, 3 poles – Key switching Pedal 2: On-off switches, 3 poles – Progressive switching					
0 - L	0 - R	25	2.2	FD WT-GU	3199 1054
Pedal 1: Counterclockwise rotation – Key switching Pedal 2: Clockwise rotation – Key switching					

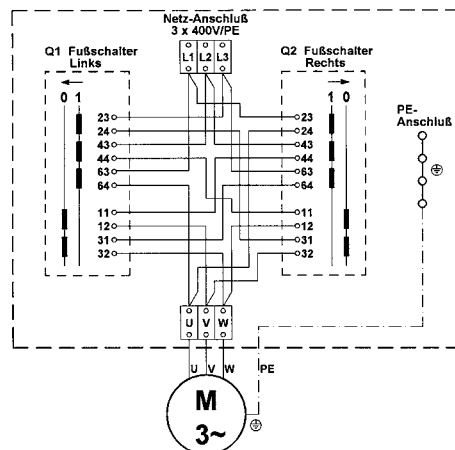
Motor switches –
On-off switches

Motor switches –
Reversing switches


1) AC-4 Key switching 2,2 kW/400 V

Further switching functions on request



Circuit diagram
Reversing switches






Single-pedal

Circuit diagram	Rated permanent current I_n	Max. switching capacity		
			Foot-operated switch	
	A	AC-3/400 V KW	Type	Ref. No.

Motor switches

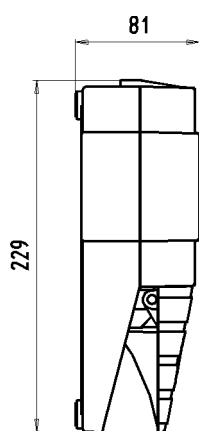
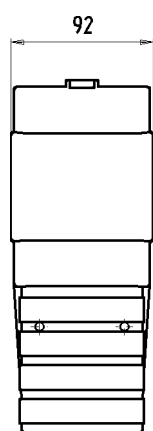
	25	11 kW	WBF	151 306
	Reversing switch			
	10	AC-4/400 V 3 kW	WBFT	151 307
	Reversing switch – Key switching			

Control switches – Master units

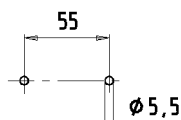
Circuit diagram	Rated permanent current I_n	Max. switching capacity		
			Foot-operated switch alu cast flat-type	
	A	AC-15/230 V A	Type	Ref. No.
2 NO	10	6	TF 2S	141 321
	On-off switch, 2 poles, 2 NO – Key switching			
1 NO/1 NC	10	6	TF6	141 311
	Change-over switch 1 NO/1 NC – Key switching			

Dimensions page 173

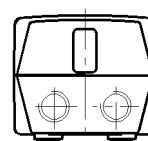
Enclosure with flat-type cover



Drilling
Bottom



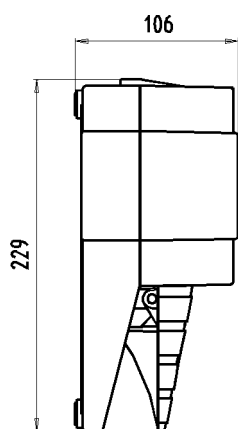
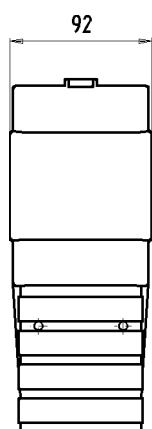
Drilling plan



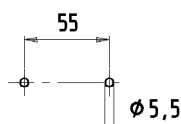
2 x M 20

Dimensions in mm

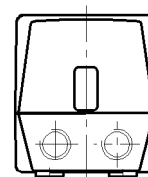
Enclosure with high cover



Drilling
Bottom



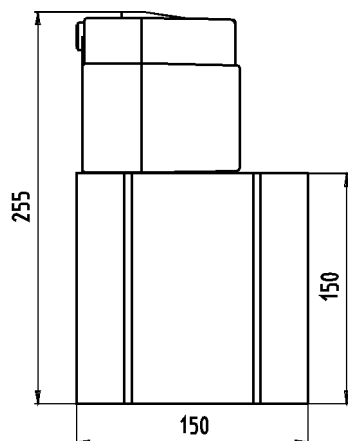
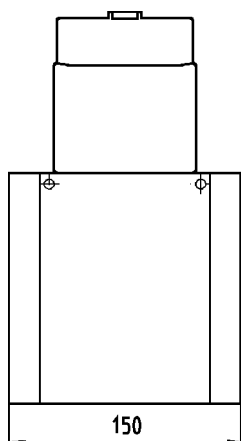
Drilling plan



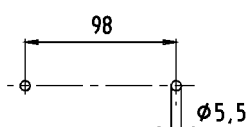
2 x M 20

Dimensions in mm

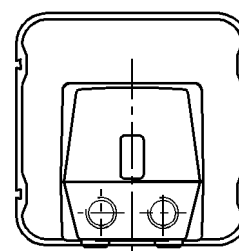
Enclosure with safety cover



Drilling
Bottom



Drilling plan

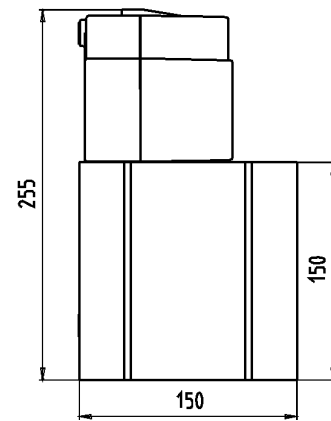
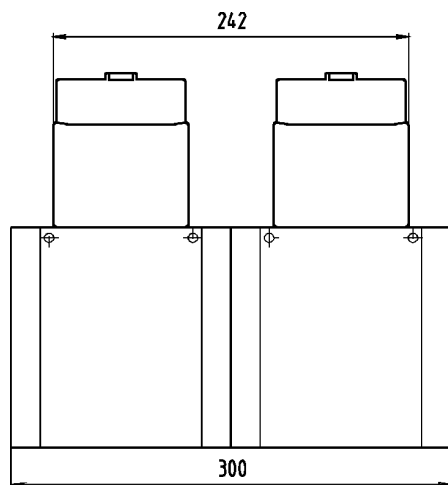


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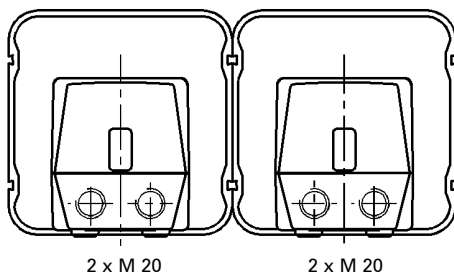
Dimensions in mm

Enclosure with safety cover double-pedal

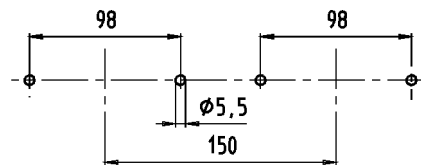
Dimensions in mm



Drilling plan



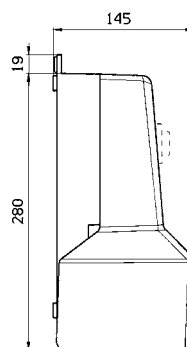
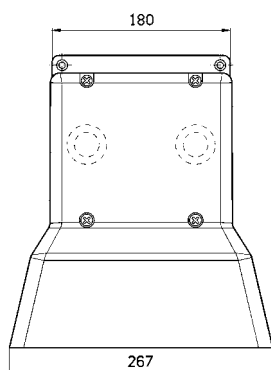
Drilling plan Bottom



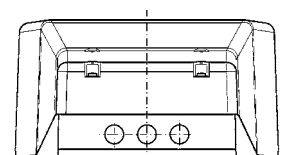
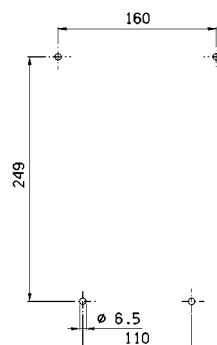
Foot-operated switches FD

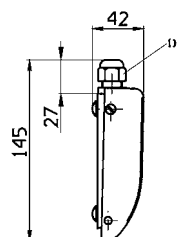
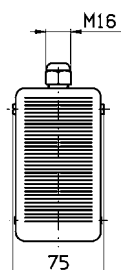
Enclosure with safety cover

Dimensions in mm



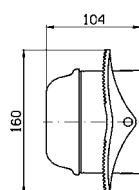
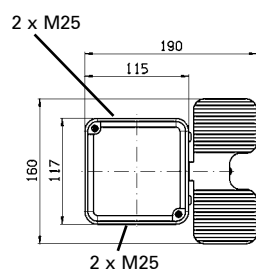
Drilling
Bottom



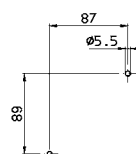


Type
TF1S/1Ö, TF2S, TF6

Dimensions in mm



Drilling
Bottom



Type
WBF, WBFT

Screws included in the delivery.