

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

Switch insert

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



IP 65

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.



IP 65

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.

Dimensions page 172

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

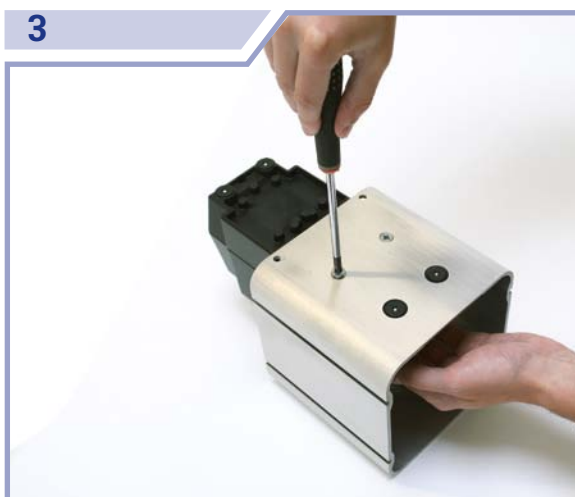
Mounting safety cover

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

| Schaltbild Circuit diagram | Bemessungsdauerstrom I _u Rated permanent current I _u | Schaltleistung und Gebrauchskategorie switching capacity and Utilization categorie | IP 65 Standard-Ausführung ohne Schutzabdeckung Standard execution without safety cover | Typ Type | Best.-Nr. Ref. No. |
|-------------------------------|---|---|---|-------------|---|
| | A | | | | |
| | 25 | AC-15 6 A/230 V~ | FDC A2U-G | 305 059 | Motorschalter Motor switches |
| | Ein-Ausschalter, 2-polig – Rastend On-off switches, 2 poles – Progressive switching | | | | |
| | 25 | AC-3 5,5 kW/400 V~ | FDC AU-G | 305 060 | Motorschalter Motor switches |
| | Ein-Ausschalter, 3-polig – Rastend On-off switches, 3 poles – Progressive switching | | | | |
| | 25 | AC-15 6 A/230 V~ | FDC A2T-G | 305 061 | Motorschalter Motor switches |
| | Ein-Ausschalter, 2-polig – Tastend On-off switches, 2 poles – Key switching | | | | |
| | 25 | AC-4 2,2 ¹⁾ kW/400 V~ | FDC AT-G | 305 062 | Motorschalter Motor switches |
| | Ein-Ausschalter, 3-polig – Tastend On-off switches, 3 poles – Key switching | | | | |
| | 25 | AC-15 6 A/230 V~ | FDC 11U-G | 305 063 | Steuerschalter – Befehlsgeräte Control switches – Master units |
| | Umschalter 1 Schließer/1 Öffner – Rastend Change-over switches 1 NO/1 NC – Progressive switching | | | | |
| | 25 | AC-15 6 A/230 V~ | FDC 22U-G | 305 065 | Steuerschalter – Befehlsgeräte Control switches – Master units |
| | Umschalter 2 Schließer/2 Öffner – Rastend Change-over switches 2 NO/2 NC – Progressive switching | | | | |
| | 25 | AC-15 6 A/230 V~ | FDC 11T-G | 305 064 | Steuerschalter – Befehlsgeräte Control switches – Master units |
| | Umschalter 1 Schließer/1 Öffner – Tastend Change-over switches 1 NO/1 NC – Key switching | | | | |
| | 25 | AC-15 6 A/230 V~ | FDC 22T-G | 305 066 | Steuerschalter – Befehlsgeräte Control switches – Master units |
| | Umschalter 2 Schließer/2 Öffner – Tastend Change-over switches 2 NO/2 NC – Key switching | | | | |

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

Maßzeichnungen Seite 171
Dimensions page 171


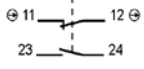
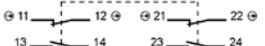

Cover-Set single-pedal footswitch
Content: safety-cover and screws
Reference No.: 305052
Designation: FG10U1

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

| | | | | | |
|---|--|---|-------------|---|---|
| Schaltbild Circuit diagram | Bemessungsdauerstrom I_u Rated permanent current I_u | Schaltvermögen Gebrauchskategorie AC-15/230 V~ switching capacity Utilization categorie AC-15/230 V~ | IP 65 |  | |
| | | | | | Standard-Ausführung ohne Schutzabdeckung Standard execution without safety cover |
| | A | A | Typ | Type | Best.-Nr. Ref. No. |
|  | 10 | 6 | FGC 1ÖS-G | | 305 116 |
| | Umschalter 1 Schließer/1 Öffner – Tastend mit Schleichschaltung Change-over switches 1 NO/1 NC – Key switching with standard function | | | | |
|  | 10 | 6 | FGC 2ÖS-G | | 305 117 |
| | Umschalter 2 Schließer/2 Öffner – Tastend mit Schleichschaltung Change-over switches 2 NO/2 NC – Key switching with standard function | | | | |
|  | 10 | 6 | FGC 2ÖSJX-G | | 305 235 |
| | Umschalter 2 Schließer/2 Öffner – Tastend mit Sprunschaltung Change-over switches 2 NO/2 NC – Key switching with snap-action function | | | | |

Steuerschalter
Control switches

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

| | | | | |
|---|--|--|---|---------|
| Schaltbild Circuit diagram | Nennwiderstandwert Rated resistance value |  | Ausführung ohne Schutzabdeckung Execution without safety cover | |
| | | | Typ | Type |
|  | 5 | FPC 5KLIN-FG10-P-SSS | | 308 389 |
| | 10 | FPC 10KLIN-FG10-P-SSS | | 307 290 |
| | 500 | FPC 500KLIN-FG10-P-SSS | | 307 436 |
|  | 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 |

Potentiometer-Fußregler
foot-operated controller

Potentiometer-Fußregler mit Mikro-Schalter
foot-operated controller with micro switch

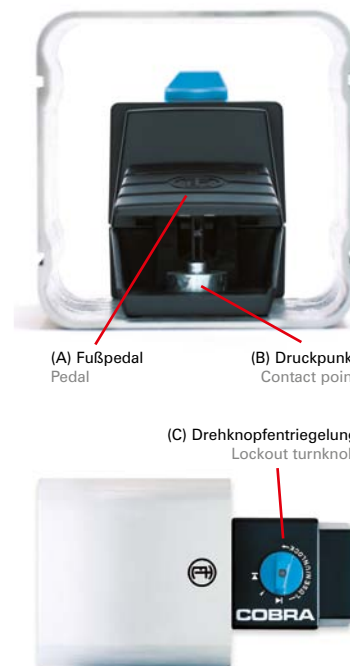
Safety foot-operated switches


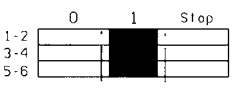
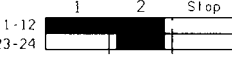
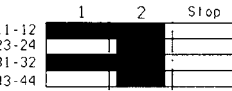
In case of danger when the pedal is pressed over the standard switching position the contacts are switched off. Only after releasing the safety locking device the pedal can be operated again.

Funktionsablauf

Operational sequence

- Das Fußpedal (A) ist in der oberen Stellung und nicht betätigt. Die Schaltkontakte sind offen, die Maschine ist nicht in Betrieb.
The pedal (A) is in the upper position and is not operated. The contacts are open, the machine is not working.
- Durch das Herunterdrücken des Fußpedals (A) bis zum spürbaren Druckpunkt (B) werden die Schaltkontakte geschlossen – die Maschine ist in Betrieb.
The contacts will be closed when pushing down the pedal (A) until the contact point (B) is realized – the machine is working.
- Bei Gefahr oder in einer Notsituation wird das Fußpedal über den Widerstand des Druckpunktes hinaus weiter gedrückt. Die Kontakte werden geöffnet und es erfolgt der sofortige Stop der Maschine. Der Schalter wird mechanisch verriegelt, dadurch ist ein Wiederanlaufen der Maschine ausgeschlossen.
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.
- Die Entriegelung des gesperrten Schalters erfolgt über den Drehknopf (C). Erst nach der Entriegelung werden die Schaltkontakte freigegeben und der Funktionsablauf kann von vorne beginnen.
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.



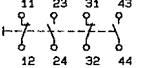
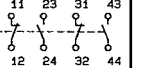


| | | | | | |
|--|---|---|--|--|--|
| Schaltbild Circuit diagram | Bemessungsdauerstrom I_u Rated permanent current I_u | Schaltvermögen und Gebrauchskategorie switching capacity and utilization categorie | IP 65 |  | Weitere Schaltfunktionen auf Anfrage Further switching functions on request |
| | A | | Ausführung mit Drehknopfentriegelung und Druckpunkt Execution with lockout turnknob and contact point | | |
|  | 25 | AC-4 2,2 kW/400 V~ | FDC AR-G | 305 110 | Motorschalter Motor switches |
| Ein-Ausschalter, 3-polig – Tastend, mit Not-Stop On-off switch, 3 poles – Key switching, with emergency-stop | | | | | |
|  | 25 | AC-15 6A/230 V~ | FDC K1R-G | 305 111 | |
| Steuerschalter mit 1 Impuls- und 1 Haltekontakt – Tastend, mit Not-Stop 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 | |
| Steuerschalter mit 2 Impuls- und 2 Haltekontakte – Tastend, mit Not-Stop Control switch with 2 pulsed contacts and 2 sealed contacts – Key switching, with emergency stop | | | | | |

Double-pedal

| | | | | | |
|---|---|---|---|---|-------|
| Schaltbild Pedal 1 Circuit diagram Pedal 1 | Schaltbild Pedal 2 Circuit diagram Pedal 2 | Bemessungsdauerstrom I _u Rated permanent current I _u | Max. Schaltleistung Gebrauchskategorie AC-3/400 V Max. switching capacity Utilization categorie AC-3/400 V |  | IP 65 |
| Ausführung mit Drehknopfriegelung und Druckpunkt Execution with lockout turnknob and contact point | | | | | |
|  | A | kW | Typ Type | Best.-Nr. Ref. No. | |




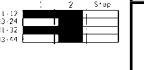
Steuerschalter –
Befehlsgeräte
Control switches –
Master units

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

Weitere Schaltfunktionen auf Anfrage
Further switching functions on request

Maßzeichnungen Seite 172
Dimensions page 172

Safety foot-operated switches double-pedal

| | | | | | |
|--|---|---|---|---|-----------|
| Schaltbild Pedal 1 Circuit diagram Pedal 1 | Schaltbild Pedal 2 Circuit diagram Pedal 2 | Bemessungsdauerstrom I _u Rated permanent current I _u | Max. Schaltleistung Gebrauchskategorie AC-3/400 V Max. switching capacity Utilization categorie AC-3/400 V |  | IP 65 |
| Ausführung mit Drehknopfriegelung und Druckpunkt Execution with lockout turnknob and contact point | | | | | |
|  | A | kW | Typ Type | Best.-Nr. Ref. No. | |
|  |  | 25 | AC-15 6 A/230 V | FD K2R/K2R-GU | 3199 0860 |
| Pedal 1: Steuerschalter mit 2 Impuls- und 2 Haltekontakte – Tastend, mit Not-Stop Pedal 2: Steuerschalter mit 2 Impuls- und 2 Haltekontakte – Tastend, mit Not-Stop 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 | | | | | |

Steuerschalter –
Befehlsgeräte
Control switches –
Master units




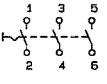
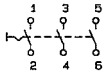
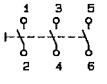
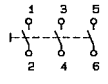
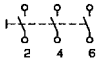
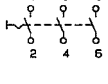
Funktion Sicherheitsfußschalter siehe Seite 172
Function safety foot-operated switches on page 172

Fußschalter FD

Foot-operated switches FD



Double-pedal

| | | | | | |
|--|---|---|---|---|-----------------------|
| Schaltbild Pedal 1 Circuit diagram Pedal 1 | Schaltbild Pedal 2 Circuit diagram Pedal 2 | Bemessungsdauerstrom I _u Rated permanent current I _u | Max. Schaltleistung Gebrauchskategorie AC-3/400 V Max. switching capacity Utilization category AC-3/400 V |  IP 65 Ausführung mit Drehknopfentriegelung und Druckpunkt Execution with lockout turnknob and contact point | |
|  |  | A | kW | Typ Type | Best.-Nr. Ref. No. |
|  |  | 25 | 5,5 | FD AU/AU-GU | 3199 1048 |
| Pedal 1: Ein-Ausschalter, 3-polig – Rastend Pedal 2: Ein-Ausschalter, 3-polig – Rastend Pedal 1: On-off switches, 3 poles – Progressive switching Pedal 2: On-off switches, 3 poles – Progressive switching | | | | | |
|  |  | 25 | 5,5 ¹⁾ | FD AT/AT-GU | 3199 1050 |
| Pedal 1: Ein-Ausschalter, 3-polig – Tastend Pedal 2: Ein-Ausschalter, 3-polig – Tastend Pedal 1: On-off switches, 3 poles – Key switching Pedal 2: On-off switches, 3 poles – Key switching | | | | | |
|  |  | 25 | 5,5 ¹⁾ | FD AT/AU-GU | 3199 1052 |
| Pedal 1: Ein-Ausschalter, 3-polig – Tastend Pedal 2: Ein-Ausschalter, 3-polig – Rastend 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: Linkslauf – Tastend Pedal 2: Rechtslauf – Tastend Pedal 1: Counterclockwise rotation – Key switching Pedal 2: Clockwise rotation – Key switching | | | | | |

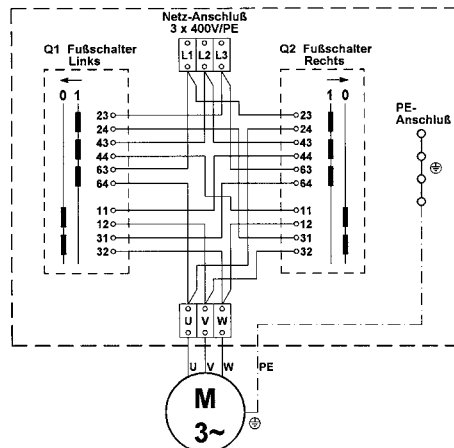
Motorschalter –
Ein-Ausschalter
Motor switches –
On-off switches

Motorschalter –
Wendescharter
Motor switches –
Reversing switches

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

Weitere Schaltfunktionen auf Anfrage
Further switching functions on request


Schaltbild
Wendescharter
Circuit diagram
Reversing switches





Foot-operated switches WBF/TF






Single-pedal

| | | | | |
|-------------------------------|---|--|-------|--|
| Schaltbild Circuit diagram | Bemessungsdauerstrom I _u Rated permanent current I _u | Max. Schaltleistung Max. switching capacity | IP 54 |  Fußschalter Foot-operated switch |
| | | | A | |

Motorschalter
Motor switches

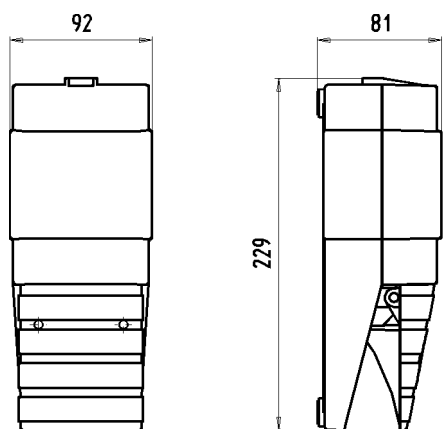
| | | | | |
|---|---|--------------------|------|---------|
|  | 25 | 11 kW | WBF | 151 306 |
| | Wendeschalter Reversing switch | | | |
|  | 10 | AC-4/400 V 3 kW | WBFT | 151 307 |
| | Wendeschalter – Tastend Reversing switch – Key switching | | | |

Steuerschalter –
Befehlsgeräte
Control switches –
Master units

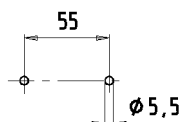
| | | | | |
|---|---|--|--|------------------|
| Schaltbild Circuit diagram | Bemessungsdauerstrom I _u Rated permanent current I _u | Max. Schaltleistung Max. switching capacity |  Fußschalter Alu-Druckguss flach Foot-operated switch alu cast flat-type | |
| | | | A | AC-15/230 V A |
| 2 Schließer 2 NO | 10 | 6 | TF 2S | 141 321 |
|  | Ein-Ausschalter, 2-polig, 2 Schließer – Tastend On-off switch, 2 poles, 2 NO – Key switching | | | |
| 1 Schließer/1 Öffner 1 NO/1 NC | 10 | 6 | TF6 | 141 311 |
|  | 1 Schließer/1 Öffner - Tastend Change-over switch 1 NO/1 NC – Key switching | | | |

Maßzeichnungen Seite 173
Dimensions page 173

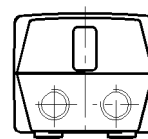
Gehäuse mit flachem Deckel Enclosure with flat-type cover



Bohrbild Drilling
Boden Bottom



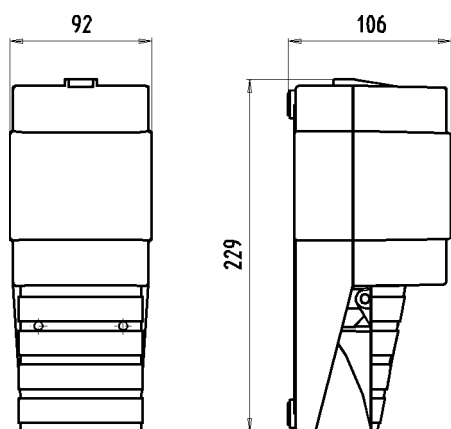
Bohrplan Drilling plan



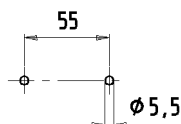
Maße in mm
Dimensions in mm

2 x M 20

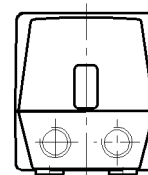
Gehäuse mit hohem Deckel Enclosure with high cover



Bohrbild Drilling
Boden Bottom



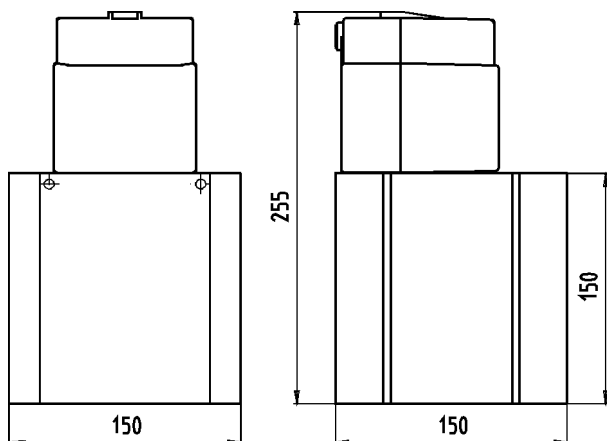
Bohrplan Drilling plan



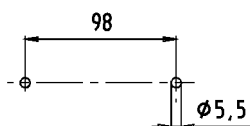
Maße in mm
Dimensions in mm

2 x M 20

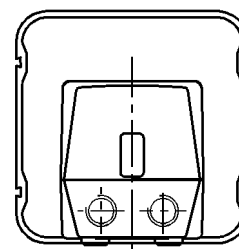
Gehäuse mit Schutzabdeckung Enclosure with safety cover



Bohrbild Drilling
Boden Bottom



Bohrplan Drilling plan

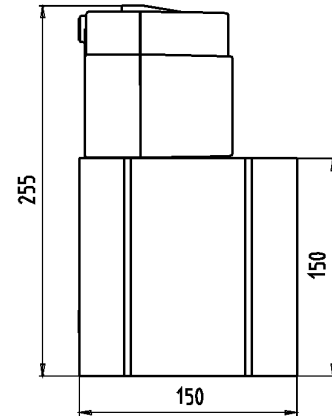
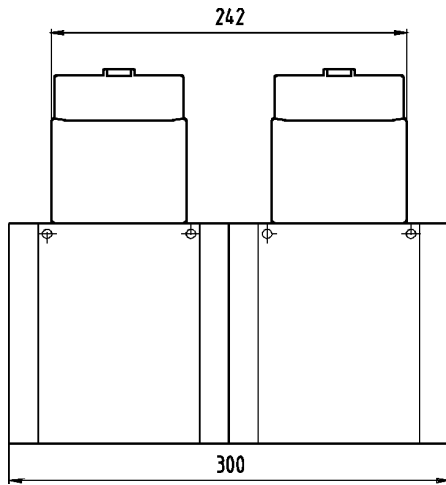


Maße in mm
Dimensions in mm

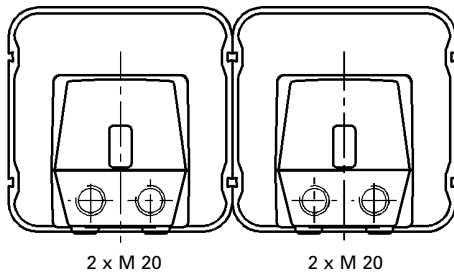
2 x M 20

Gehäuse mit Schutzabdeckung 2-pedalig Enclosure with safety cover double-pedal

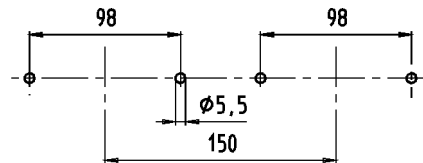
Maße in mm
Dimensions in mm



Bohrplan Drilling plan



Bohrbild Drilling plan
Boden Bottom



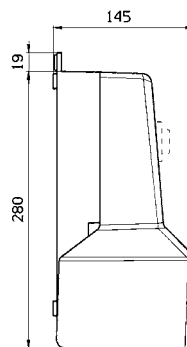
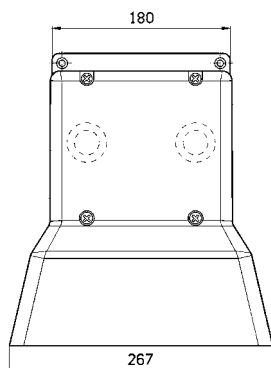
Foot-operated switches FD

Fußschalter 2-pedalig

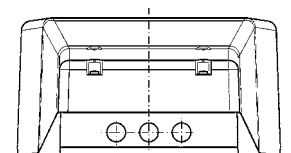
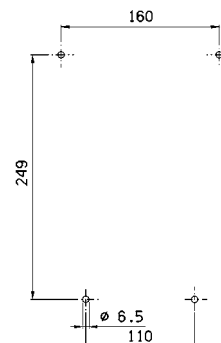
Foot-operated switches double-pedal

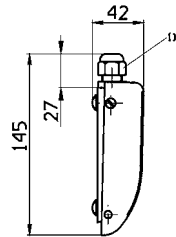
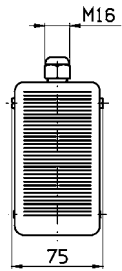
Gehäuse mit Schutzabdeckung Enclosure with safety cover

Maße in mm
Dimensions in mm



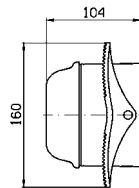
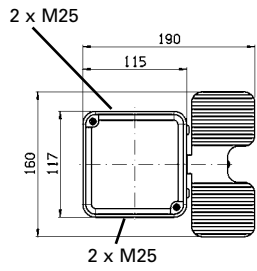
Bohrbild Drilling
Boden Bottom



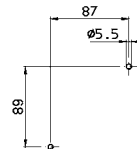


| | |
|--------------------|------|
| Typ | Type |
| TF1S/1Ö, TF2S, TF6 | |

Maße in mm
Dimensions in mm



Bohrbild Drilling
Boden Bottom



| | |
|-----------|------|
| Typ | Type |
| WBF, WBFT | |

¹⁾ Verschraubung im Lieferumfang enthalten.
Screws included in the delivery.