

TP-C3 Motor Operator

TP-C3 Standard Features

- Permanent magnet motor
- Torque-relief decoupler
- Weatherproof, dustproof, and rustproof NEMA 3R aluminum enclosure
- Padlockable stainless steel enclosure handle
- Removable conduit entrance plate
- Electrically interlocked handcrank for manual operation
- Local/remote control switch
- Conveniently located stop button
- Dynamic braking for electrical stop
- Fused control and motor circuit
- Surge protection
- Thermostatically controlled 250-watt heater
- Easy-access limit and auxiliary switch contacts
- 4/0 ground strap for vertical pipe



TP-C3 Application

The Cleaveland/Price TP-C3 is a high-torque motor control mechanism designed to operate disconnect switches requiring a torsional drive. The TP-C3 enables remote control of the disconnect switch, as well as local electrical and manual operation. Manual operation is by handcrank or optional swing handle.

The TP-C3 is available with a 20,000 or 30,000 in.-lb. torque rating for 120VAC, 120VDC, or 250VAC power input. It can be supplied as a constant speed operator or supplied with an optional variable speed control module.

The TP-C3 can be customized to meet customer specific requirements.

CP CLEAVELAND/PRICE INC.

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TP-C3 Operation

External Features

- A** Provision for swing handle operation
- B** Torque-relief decoupler for 2" IPS vertical operating pipe
- C** Provision for padlocking in open and closed positions, coupled and decoupled
- D** External mechanical stop
- E** Powder-coated aluminum enclosure rated NEMA 3R
- F** Stainless steel door hinges
- G** Stainless steel handle hardware
- H** Gasketed door
- I** Grounding provision
- J** Removable conduit plate

Motor

The operator is powered by a maintenance-free, permanent magnet motor. Motor overload protection is provided by a fuse. A circuit breaker and thermal overload relay are available as options.

Control Features

- A** Local/remote switch
- B** Conveniently located stop button
- C** Sealed-in momentary toggle switch for local Close-Open operation
- D** Interlocked shutter cover that prevents the motor from being energized during manual hand-cranking operation
- E** Auxiliary switch contacts

A photograph showing the interior of the operator's control panel. The panel is dark-colored with various electrical components. A red 'CP' logo is visible at the top. Below it, there's a 'REMOTE' section with a 'LOCAL' switch (labeled A) and a 'CLOSE' button (labeled C). To the left, there's a 'FOR MANUAL CRANKING' section with a 'CLOSE' button (labeled D) and an 'OPEN' button (labeled B). At the bottom right, there are auxiliary switch contacts (labeled E) with terminals numbered 1, 2, 3, and 4. The panel is secured with yellow screws.

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A photograph showing the interior of the operator's control panel. The panel is dark-colored with several components labeled with red letters A through E. Label A points to a 'REMOTE' switch with 'LOCAL' and 'REMOTE' positions. Label B points to a red 'STOP' button. Label C points to a 'CLOSE' and 'OPEN' momentary toggle switch. Label D points to a 'FOR MANUAL CRANKING' shutter cover with 'CLOSE' and 'OPEN' positions. Label E points to a terminal block with wires connected to it. The panel also features a 'C.P. CLEVELAND / PRICE INC.' logo and a 'CLOSE' label.

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- A photograph showing the interior of the operator's control panel. The panel is dark-colored with several components labeled with red letters. Label A points to a 'REMOTE' switch with 'LOCAL' and 'CLOSE' indicators. Label B points to a red emergency stop button. Label C points to a 'CLOSE OPEN' toggle switch. Label D points to a 'FOR MANUAL CRANKING' interlocked shutter cover with 'CLOSED' and 'OPEN' markings. Label E points to a terminal block with wires connected to it. The Cleveland Price logo is visible at the top left of the panel.

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A photograph of the internal control panel of the TP-C3 operator. The panel is dark grey or black. At the top left, there's a red "CP" logo. Below it, a label reads "FOR MANUAL CRANKING - Lift Shutter Insert Crank". To the right of this, there's a "REMOTE" section with a "LOCAL" switch (labeled A) and a "CLOSE OPEN" toggle switch (labeled C). Below the "CLOSE OPEN" switch is a "STOP" button (labeled B). Further down, there's a "CLOSE OPEN" toggle switch (labeled D) which is part of an interlocked shutter cover. At the bottom right, there are auxiliary switch contacts (labeled E) mounted on a terminal block. The panel has yellow push-button covers on the sides.

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The image shows the internal control panel of the TP-C3 operator. It features a 'REMOTE' switch (A) with 'LOCAL' and 'REMOTE' positions. A 'STOP' button (B) is located below it. A 'CLOSE' button (C) is also present. A 'FOR MANUAL CRANKING' label (D) is visible, indicating the manual operation area. Auxiliary switch contacts (E) are shown at the bottom right. The panel is mounted on a metal frame with yellow and white indicator lights.

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Variable Speed Control Module

High kV switches may draw a very large arc when opening or closing in the presence of magnetizing or line-charging current, or due to coupling capacitance with higher voltage parallel lines. Typically, users want to minimize the amount of arcing time when operating a switch to prevent a phase-to-phase fault.

To accomplish this, the switch blade should move swiftly while arcing occurs. However, near the end of blade-closing travel, the speed should be reduced to prevent the switch blade from bouncing due to impact with the breakjaw. When opening, the speed of the blade should be reduced to avoid damage from excessive force on the hinge at the end of travel.

Cleaveland/Price offers a variable speed control module that enables the user to set the blade speed for the desired operating effect when closing and opening a switch. The module divides the blade motion into nine programmable zones and the speed can be set for each zone in each direction.

Throughout the operating sequence, the full torque rating of the motor operator is maintained regardless of the speed setting.



Drive Mechanism

A combination chain drive and wormgear are used to drive the output shaft. The chain-driven wormgear mechanism is superior to spur gear mechanisms during heavy ice duty.

Braking

The TP-C3 uses an innovative dynamic braking system to provide ultra-precise, repeatable, service-free braking action.

Control Circuit

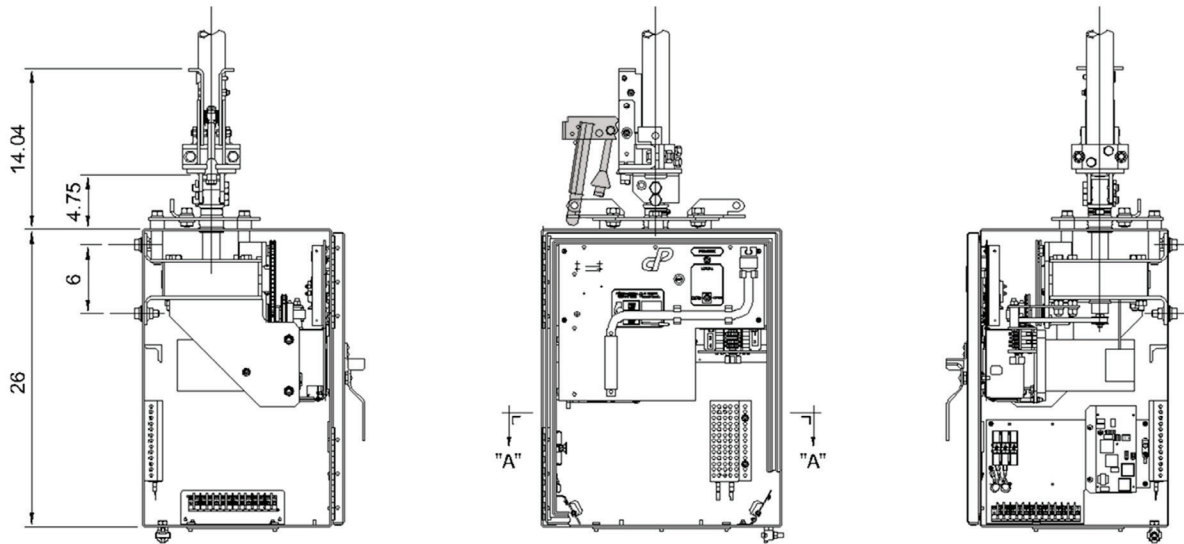
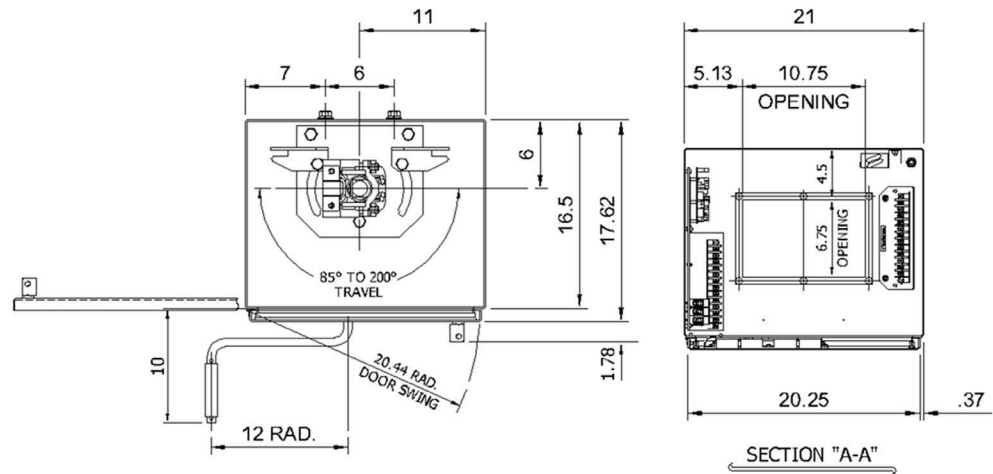
The TP-C3 utilizes an advanced design control circuit. The control circuit provides a sealed-in feature, as well as electrically interlocked directional relays. The circuit is intrinsically safe, with no possibility of two contacts closing at the same time.

Operating Specifications

| Rated Voltage | | Min. Operating Voltage | | Max. Operating Voltage | | Torque In-lbs. at Rated Voltage | | Variable Speed Control | | Catalog Number | | Typical Running Current | | Locked Rotor Current | | Operating Time 180° Rotation | |
|---------------|------|------------------------|--------|------------------------|--|---------------------------------|--|------------------------|--|----------------|-------------|-------------------------|-----|----------------------|--|------------------------------|--|
| 125VDC | 90V | 140V | 30,000 | | | | | | | | C11B006G001 | 6A | 70A | | | 11 Sec. | |
| | | | | x | | | | | | | C11B007G001 | | | | | Variable | |
| | | | 20,000 | | | | | | | | C11B006G002 | 6A | 70A | | | 5 Sec. | |
| | | | | x | | | | | | | C11B007G002 | | | | | Variable | |
| 120VAC | 109V | 127V | 30,000 | | | | | | | | C11B006G003 | 5A | 45A | | | 11 Sec. | |
| | | | | x | | | | | | | C11B007G003 | | | | | Variable | |
| | | | 20,000 | | | | | | | | C11B006G004 | 5A | 45A | | | 5 Sec. | |
| | | | | x | | | | | | | C11B007G004 | | | | | Variable | |
| 240VAC | 208V | 254V | 30,000 | | | | | | | | C11B006G005 | 3A | 23A | | | 11 Sec. | |
| | | | | x | | | | | | | C11B007G005 | | | | | Variable | |
| | | | 20,000 | | | | | | | | C11B006G006 | 3A | 23A | | | 5 Sec. | |
| | | | | x | | | | | | | C11B007G006 | | | | | Variable | |

Dimensions

Unit Weight: 150 lbs.



Optional TP-C3 Features

- Variable speed control module
- Operation delay module with delay-in-progress indicator
- Custom control circuit
- Additional auxiliary switch contacts
- Operations counter
- Circuit breaker instead of fuse for motor protection
- Internal grounding bus
- Switch position indicating lights
- Customer specified terminal blocks
- Anti-condensation humidistat
- Enclosure lamp
- Swing handle for ice breaking
- NEMA 4X rated enclosure
- Vertical pipe stops
- Stainless steel enclosure
- Weatherproof external GFI
- Windowed position indicator
- External auxiliary switch assembly
- Other optional features are available. Contact the factory for more information.



Operation Delay Module

When operating locally, a time delay before switch operation gives utility personnel time to go a safe distance from the switch, if necessary. The TP-C3 can be supplied with a time-delay module integrated into the front panel control. The delay can be set from 0 to 99 seconds. An LED indicates when an operation delay is in progress.



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This brochure describes a standard product and does not show variations in design that may be available. Contact the factory for additional details.

Cleveland/Price reserves the right to make changes or improvements to the product shown in this brochure without notice or obligation.