Specifications

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Standard

The seller's standard conditions of sale set forth in Price Sheet 150 apply, except as modified under the "Warranty Qualifications" section on page 5 and the "Special Warranty Provisions" section on page 6.

Special to this Product

Inclusions

Remote supervisory Vista Underground Distribution Switchgear provides automated switching and fault protection for underground distribution systems. It is available in three styles: UnderCover™ Style, vault-mounted, and pad-mounted. Each style is available with up to six "ways"—bus terminals, switches, and/or fault interrupters in ratings through 38 kV and 25 kA symmetrical. Standard Vista switchgear products ship with sulfur hexafluoride (SF_6) insulating gas. The new optional Vista Green Underground Distribution Switchgear ships with a dielectric gas mixture of carbon dioxide (CO_2) and C4-FN insulating gas instead of SF_6. See Anatomy of the Catalog Number on page 7 for details on how to build Vista and Vista Green switchgear catalog numbers.

The remote supervisory Vista switchgear features load-interrupter switches for switching 600- or 900-ampere main feeders and microprocessor-controlled, resettable, vacuum fault interrupters for switching and protection of 600- or 900-ampere main feeders and 200-, 600-, or 900-ampere taps, laterals, and subloops. These elbow-connected components are enclosed in a submersible gas-insulated, gas-tight (SF_6), or hermetically sealed (CO_2 mix) welded-steel tank, completely protected from the environment.

Because the remote supervisory Vista switchgear is submersible and considerably smaller than traditional air-insulated gear, it can be installed exactly where needed—even subsurface. Aesthetics of the installation are improved, and cost is lowered through reduced trenching and cable runs. Switchgear installed subsurface can be readily operated from grade level.

The three-position (CLOSED-OPEN-GROUNDED) load-interrupter switches may be manually operated or motor operated, and they provide three-pole live switching of 600-ampere three-phase circuits. A visible gap is provided without exposure to medium voltage or the need to manipulate elbows.

The 200-, 600-, and 900-ampere fault interrupters feature resettable vacuum interrupters in series with manually operated three-position (CLOSED-OPEN-GROUND) disconnects for isolation and internal grounding of each phase. Fault interrupters provide three-pole load switching and fault interruption through 25 kA symmetrical or single-pole load switching and fault interruption through 12.5 kA symmetrical. (For other possible ratings, refer to the nearest S&C Sales Office.) Fault interrupters provide protection of 600- or 900-ampere main feeders or 200-(SF_6 models only), 600-, or 900-ampere taps, laterals, or subloops. Fault interruption is initiated by a programmable overcurrent control. For single-pole fault interrupters, the overcurrent control can also be programmed to provide three-pole fault interruption. The total clearing time (from initiation of the fault to total clearing) can be as fast as 43 milliseconds. Three-pole fault interrupters may be fitted with motor operators.

A manual handle is provided for operating load-interrupter switches and fault interrupters. The operating mechanisms function independently of the speed of manual handle operation and are designed to prevent inadvertent operation from the **Closed** position directly to the **Ground** position and vice versa. Operating shafts are padlockable in any position and can also be padlocked to prevent operation to the **Ground** position.

Large windows provide a clear view of the open gap, **Ground** position, and ground bus, allowing the operator to easily confirm the positions of the load-interrupter switches and disconnects of the fault interrupters. Trip indicators for the fault interrupters are readily visible through the windows as well.

Terminals are equipped with 200-ampere bushing wells (SF_6 models only) or 600- or 900-ampere bushings, as specified. Bushing and bushing-well interfaces conform with IEEE Standard 386 and accept all standard insulated connectors and inserts.

In addition, Vista switchgear has been certified as arc-resistant per IEC 62271-200 for fault currents up to 12.5 kA symmetrical for 15 cycles (25 kA symmetrical for units rated 25 kA short circuit). Arc resistance is standard for the pad-mounted and UnderCover Styles. For the vault-mounted style, catalog number suffix "-N" must be specified, in which case a flange will be welded to the pressure-relief device for connection of user-supplied piping to vent exhaust gases out of the vault area.

Overcurrent Control 2.0

Fault interruption is initiated by a programmable overcurrent control housed in a watertight enclosure. The control is programmed by using a USB-A cable that is attached to the USB (or USB-A) port on a personal computer.. The control receives both sensing and control inputs from current transformers. No batteries are needed for the Vista Overcurrent Control 2.0.

Current transformers provide power and input signals. The control features a variety of time-current characteristic (TCC) curves—standard "E," "K," and "T" speed curves, Vista switchgear coordinating-speed tap and main curves, and relay curves per IEEE C37.112-2018 and IEC 60255-151:2009.

Coordinating-speed tap curves are used for fault interrupters feeding subloop taps and are specifically designed to optimize coordination with load-side, weak-link/backup current-limiting fuse combinations and source-side relays with low time-dial settings.. The coordinating-speed main curves are used for fault interrupters on main feeders and have a longer minimum response time and a different shape to coordinate with tap-interrupter curves. Coordinating-speed curves have **Phase-Overcurrent**, **Ground-Protection**, Negative-Sequence **Fault**, and **Sensitive-Earth Fault** settings.

The coordinating-speed tap and main curves, as well as IEEE and IEC relay TCC curves, can be customized using a variety of **Definite-Time Delay** settings. **Ground Protection**, **Negative-Sequence Fault**, and **Sensitive-Earth Fault** settings are also available.

Motor Operators and Sensing

Motor operators provide the basis for automation. The robust Vista switchgear motor operator is available factory installed, or it can be readily installed in the field. It is easily removed for testing of the communication and control equipment without actually operating the gear.

Three-phase voltage sensing and three-phase current sensing are available for motor-operated ways.

Potential Indication with Test Feature

When this optional voltage indication is specified, all routine operating tasks—switching, voltage-testing, and grounding—can be accomplished by a single person without cable handling or exposure to medium voltage. This feature is available with or without provisions for low-voltage phasing. Cable-testing for faults can be performed through the back of a user-supplied elbow or through a user-supplied feedthrough insert, eliminating the need for cable handling or use of parking stands.

Communication and Control Equipment

A user-specified remote terminal unit (RTU) and communication device may be furnished in the low-voltage compartment, providing a completely automated distribution switching and protection package. Contact the nearest S&C Sales Office for details. Alternately, a control unit for use with an RTU by others or a control unit for use without an RTU may be furnished. *One of these three control-equipment packages must be specified when ordering.* See Table 5 on page 18.

Vista Styles

UnderCover Style

When the UnderCover Style is specified, a stainless steel, gas-tight (SF_6) or hermetically sealed (CO_2 mix) tank with submersible wiring is furnished suitable for underground installation. A mild steel or, optionally, stainless steel, low-voltage enclosure is mounted on a customer-supplied pad at grade level. It is connected to the tank with cabling up to 45 feet (13.7 meters) in length.

Vault-Mounted Style

Two versions of this style are available. The wet-vault-mounted style is intended for vaults subject to periodic flooding and includes submersible wiring and electrical components. The dry-vault-mounted style is intended for vaults that *are not* subject to periodic flooding, and it *does not* include submersible wiring and electrical components.

When the wet-vault-mounted style is specified, a stainless steel, gas-tight (SF_6) or hermetically sealed (CO_2 mix) tank is furnished suitable for mounting on the floor or wall of a vault. When the dry-vault-mounted style is specified, a mild steel tank is furnished. The mild steel or, optionally, stainless steel, low-voltage enclosure is mounted on the vault floor or wall. It is connected to the tank with cabling up to 45 feet (13.7 meters) in length.

Pad-Mounted Style

When the pad-mounted style is specified, a mild steel enclosure is furnished and a mild steel low-voltage compartment is mounted on the side of the enclosure. Optionally, stainless steel can be specified for the enclosure, low-voltage enclosure, or both.

The Vista switchgear gas-tight (SF_6) or hermetically sealed (CO_2 mix) tank itself is submersible, but many of the electrical components mounted to the tank are not. Special submersible components and wiring are provided when the UnderCover Style or wet-vault-mounted style is specified. Contact your nearest S&C Sales Office for information on pad-mounted style units with submersible wiring.

Pad-mounted enclosures meet the requirements of ANSI Standard C57.12.28 for enclosure integrity. The top of the enclosure is hinged on both sides for convenient access to the operation and termination compartments. The roof of the enclosure is sloped outward to ensure water flows away from the switchgear. A removable panel provides access to the elbows and cables and is secured by the overlapping padlockable top. A resilient closed-cell gasket on the enclosure bottom flange protects the finish from being scratched during installation and isolates it from the alkalinity of a concrete foundation. Enclosures are protected from corrosion by S&C's Ultradur® II Outdoor Finish.

Low-Voltage Compartment Enclosure

Motor-operator controls are located in the low-voltage compartment. Each motor operator is provided with a control board that includes CLOSE, OPEN, and, optionally, GROUND pushbuttons; SWITCH POSITION indicating lamps; an OPERATION counter; a LAMP TEST button; and a receptacle for the portable remote control station. Up to six control boards can be accommodated, so any or all load-interrupter switches or three-pole fault interrupter ways may be motor operated. A single LOCAL/REMOTE switch is provided for all control boards, permitting an on-site operator to take complete control of the gear.

A 36-Volt, 5 ampere-hour, rechargeable, sealed-starved-electrolyte lead battery pack and 80-Watt temperature-compensated output battery charger are also furnished in the low-voltage compartment. The battery charger features integral load-disconnect circuitry to prevent deep discharge of batteries on loss of ac source, alarms for loss of ac source, battery low voltage and charger overvoltage, and a remote or locally initiated battery-test function. It provides both 36-Vdc and 12-Vdc outputs. The battery charger requires a 120-Vac, 50/60-Hz, or a 240-Vac, 50/60-Hz, external power supply. Internal control power is optionally available.

Connections are provided for the external power input; **Close**, **Open**, and, optionally, **Ground** command inputs; switch-position indication; current and voltage sensors; and battery-test and battery-status outputs.

Exclusions

The purchaser must specify the switchgear style, communication and control equipment, motor-operator package, and any desired optional features to complete the catalog number of the switchgear.

For non-IntelliTeam® SG Automatic Restoration System applications, S&C may be able to furnish and install in the custom communication and control package—or make a provision in the control unit for use with an RTU by others—a user-specified communication device, as indicated in Table 5 on page 18. S&C will need to evaluate the physical and electrical requirements of the communication device and its performance characteristics, and conduct qualification testing to verify its suitability for the desired application. Refer to the nearest S&C Sales Office for pricing and scheduling information. S&C cannot furnish or install any communication device for which the supplier requires S&C to offer Tier I (i.e., "help desk") support.

Communication devices, when specified, do not include an antenna, antenna support, surge protection, or a coaxial feed line. Propagation study, frequency selection, and FCC license application are also to be provided by others.

Warranty Qualifications

The standard warranty contained in the seller's standard conditions of sale (as set forth in Price Sheet 150) does not apply to major components not manufactured by S&C, such as remote terminal units and communication devices, including hardware, software, resolution of protocol-related matters, and notification of upgrades or fixes for those devices.

The seller's standard warranty does not apply to any components not manufactured by S&C that are supplied and installed by the purchaser, nor to the ability of the seller's equipment to work with such components.

Application Notes

Fault Interrupter: Complete ratings for the fault interrupter are shown in Table 1 on page 12. Besides the load-dropping ratings shown, the fault interrupter is capable of interrupting transformer-magnetizing currents associated with the applicable loads as well as line-charging and cable-charging currents typical for distribution systems of these voltage ratings.

The duty-cycle fault-closing rating and ten-time duty-cycle fault-interrupting rating shown for the fault interrupter define, respectively, the level of available three-phase fault current into which the fault interrupter can be closed the designated number of times in the **Closed** or **Grounded** position and subsequently interrupt, with the fault interrupter remaining operable and able to interrupt rated continuous current.

A Note on Single-Pole Switching

In single-pole switching of ungrounded primary three-phase transformers or banks (or single-phase transformers connected line to line), circuit connections or parameters may, in some cases, produce excessive overvoltages. In particular, for the following applications above 22 kV, single-pole switching should be performed only under the conditions stated in italics:

- Switching unloaded or lightly loaded delta-connected or ungrounded primary wye-wye-connected three-phase transformers or banks (or line-to-line connected single-phase transformers), rated 150 kVA or less three-phase, or 50 kVA or less single-phase—or any kVA rating when combined with unloaded cables or lines—where maximum system operating voltage exceeds 22 kV *(Single-pole switching should be performed only if each phase is carrying 5% load or more, or if the transformer or bank is temporarily grounded at the primary neutral during switching.)*

- Switching loaded or unloaded ungrounded primary wye-delta-connected three-phase transformers or banks—alone or combined with unloaded cables or lines—where maximum system operating voltage exceeds 22 kV *(Single-pole switching should be performed only if each phase is carrying 5% load or more and if the lighting-load phase is always switched open first (or switched closed last), or if the transformer or bank is temporarily grounded at the primary neutral during switching.)*

Load-Interrupter Switch: Complete ratings for the load-interrupter switch are shown in Table 1 on page 12. Besides the load-dropping ratings shown, the load-interrupter switch is capable of interrupting transformer-magnetizing currents associated with the applicable loads as well as line-charging and cable-charging currents typical for distribution systems of these voltage ratings. For applications involving load current with high harmonic content (e.g., rectifier load currents), refer to the nearest S&C Sales Office.

The duty-cycle fault-closing rating shown in Table 1 on page 12 for the load-interrupter switch defines the level of available three-phase fault current into which the load-interrupter switch can be closed the designated number of times in the **Closed** or **Grounded** position. The load-interrupter switch remains operable and able to interrupt rated continuous current. The following items should be considered when applying remote supervisory Vista switchgear:

Ungrounded systems: The S&C voltage sensors are connected phase to ground, so they are not intended for use on ungrounded systems. Contact the nearest S&C Sales Office for information on applying remote supervisory Vista switchgear on ungrounded systems.

Uni-grounded and resistance-grounded systems: Uni-grounded and resistance-grounded systems require power to be provided by a phase-to-phase-connected voltage transformer. When the self-powered option (-Y4) is specified, the internal voltage transformer is connected phase to ground. Therefore, power must be supplied by an external source if remote supervisory Vista switchgear is to be applied on a resistively grounded or uni-grounded system. Contact the nearest S&C Sales Office for information on applying remote supervisory Vista switchgear on ungrounded systems.

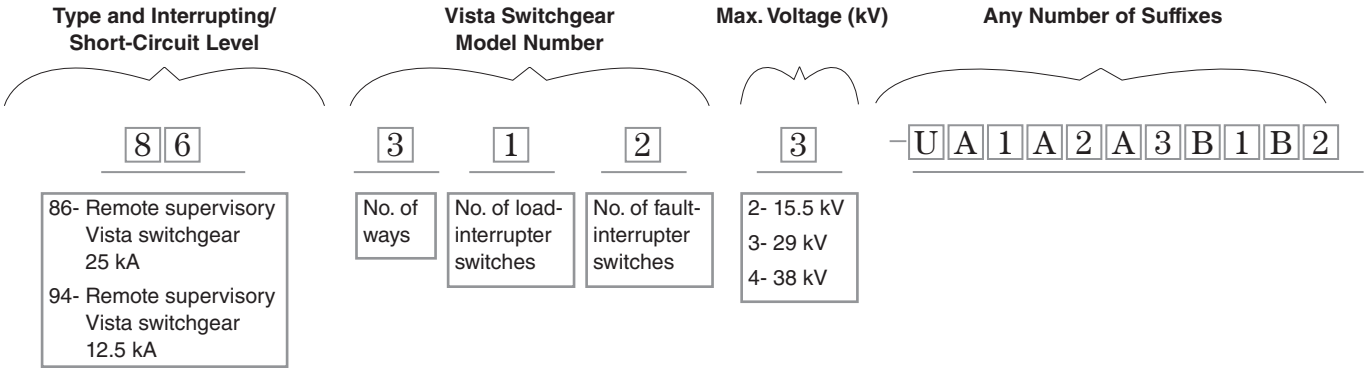
Special Warranty Provisions

The standard warranty contained in the seller's standard conditions of sale, as set forth in Price Sheets 150 and 181, applies only to remote supervisory Vista Underground Distribution Switchgear and its associated options. The Vista Overcurrent Control 2.0 shall have the following warranty provisions: the first and second paragraphs of Price Sheet 150 warranty are replaced with the following:

(1) General: The seller warrants to the immediate purchaser or end user for a period of 10 years from the date of shipment that the equipment delivered will be of the kind and quality specified in the contract description and will be free of defects of workmanship and material. Should any failure to conform to this warranty appear under proper and normal use within 10 years after the date of shipment, the seller agrees, upon prompt notification thereof and confirmation that the equipment has been stored, installed, operated, and maintained in accordance with recommendations of the seller and standard industry practice, to correct the nonconformity either by repairing any damaged or defective parts of the equipment or (at the seller's option) by shipment of necessary replacement parts. The seller's warranty does not apply to any equipment that has been disassembled, repaired, or altered by anyone other than the seller. This limited warranty is granted only to the immediate purchaser or, if the equipment is purchased by a third party for installation in third-party equipment, the end user of the equipment. The seller's duty to perform under any warranty may be delayed, at the seller's sole option, until the seller has been paid in full for all goods purchased by the immediate purchaser. No such delay shall extend the warranty period.

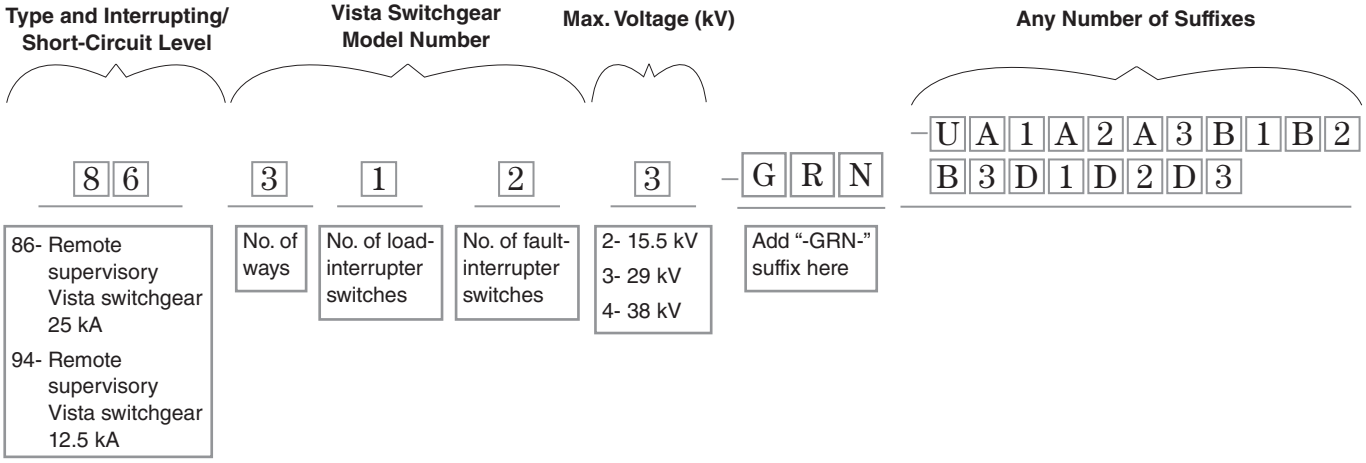
The seller further warrants to the immediate purchaser or end user that for a period of two years from the date of shipment, the software will perform substantially in accordance with the then-current release of specifications if properly used in accordance with the procedures described in the seller's instructions. The seller's liability regarding any of the software is expressly limited to exercising its reasonable efforts in supplying or replacing any media found to be physically defective or in correcting defects in the software during the warranty period. The seller does not warrant the use of the software will be uninterrupted or error-free.

Vista Switchgear



Note: The catalog number created above represents an UnderCover Style remote supervisory Vista switchgear unit, 25 kA, with a total of three ways that includes one load-interrupter switch and two fault-interrupter switches for a 29-kV application. All three ways will have the motor-operator package, three-phase current sensing, and three-phase voltage sensing.

Vista Green Switchgear



Note: The catalog number created above represents an UnderCover Style remote supervisory Vista Green switchgear (CO_2 mix) unit, 25 kA, with a total of three ways that includes one load-interrupter switch and two fault-interrupter switches for a 29-kV application. All three ways will have the motor-operator package, three-phase current sensing, and three-phase voltage sensing.

Vista or Vista Green Switchgear Example

Complete these steps to identify the base catalog number, the appropriate options, and the product accessories needed for a complete order:

STEP 1. Obtain the appropriate model number and the base catalog number from Table 2 on page 13 through 15.

Model Number: 4 2 2

Catalog Number: 9 4 4 2 2 2

STEP 2. **Insulating Gas.** To order the new CO_2 mix insulating gas, add "-GRN-" after the base catalog number. (To order SF_6 insulating gas, skip this step and proceed to Step 3.)

Suffix: –G R N–

STEP 3. Select the appropriate switchgear-style suffix from Table 3 on page 16.

Switchgear-Style Suffix: P 4

STEP 4. ***For 12.5-kA-rated models with one or more fault interrupters***: Add a suffix designation to the catalog number indicating the desired number of three-pole and single-pole fault interrupters, selected from Table 4 on page 17.

Note: This step is not applicable to models using the CO_2 mix gas or models rated 25 kA short circuit.

Fault-Interrupter Suffix: T 1

STEP 5. Select the appropriate communication and control-equipment suffix from Table 5 on page 18.

Communication and Control Equipment Suffix: Y 6

STEP 6. If internal control power is desired, specify suffix "-Y4." See Table 6 on page 18.

Internal Control Power Suffix: Y 4

STEP 7. Add suffix designations to the catalog number indicating the optional features desired, selected from Table 7 on page 19 through 23. (Add as many suffixes as required.)

Suffixes: L 2 ☐☐☐

STEP 10. Voltage-Sensing Suffix. Using this table, "X" the motor-operated ways to be furnished with three-phase voltage sensors. To determine the voltage-sensing suffix, write the selected way numbers after "-D." See Table 9 on page 24.

Voltage-Sensor-Equipped Way

D1	*D2*	*D3*	*D4*	*D5*	*D6*
X		X			

Voltage-Sensing Suffix:

D 1 D 3 ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Note: At this point, the catalog number for the Vista switchgear unit is complete. The next steps using Table 10 and Table 12 on page 25 are for product accessories and touch-up kit components that would be separate line items on the order. Contact S&C for additional available options.

STEP 11. Obtain catalog numbers for any accessories from Table 10 on page 25 and apply as a separate line item on the order.

Catalog Number:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

STEP 12. Include touch-up kit components from Table 12 on page 25.

Catalog Number: ☐ ☐ ☐ ☐ ☐ ☐ ☐

Example: The catalog number for a pad-mounted remote supervisory Vista switchgear unit, 12.5 kA, 15.5 kV, with four ways: (2) load interrupters and (2) fault interrupters. The enclosure and low-voltage enclosure will be an olive green-finished mild steel. The second way will be (3) single-pole fault interrupters. It will have a control unit without a remote terminal unit, an internal control power, potential indication with a test feature, and provisions for low-voltage phasing. Ways one and three will have motor operators with current and voltage sensing:

STEP 13. List the complete catalog number, including suffixes:

9 4 4 2 2 2 – P 4 T 1 Y 6 Y 4

L 2 A 1 A 3 B 1 B 3 D 1 D 3

Note: To select and configure 40-kA Vista loadbreak switches, manual, source-transfer, or solid dielectric products, see the appropriate specification bulletin for those products.

Vista or Vista Green Switchgear

Complete these steps to identify the base catalog number, the appropriate options, and the product accessories needed for a complete order:

STEP 1. Obtain the appropriate model number and the base catalog number from Table 2 on page 13 through 15.

Model Number: ☐☐☐

Catalog Number: ☐☐☐☐☐☐

STEP 2. **Insulating Gas.** To order the new CO_2 mix insulating gas, add "-GRN-" after the base catalog number. (To order SF_6 insulating gas, skip this step and proceed to Step 3.)

Suffix: –GRN–

STEP 3. Select the appropriate switchgear-style suffix from Table 3 on page 16.

Switchgear-Style Suffix: ☐☐

STEP 4. ***For 12.5-kA-rated models with one or more fault interrupters***: Add a suffix designation to the catalog number indicating the desired number of three-pole and single-pole fault interrupters, selected from Table 4 on page 17.

Note: This step is not applicable to models using the CO_2 mix gas or models rated 25 kA short circuit.

Fault-Interrupter Suffix: ☐☐

STEP 5. Select the appropriate communication and control-equipment suffix from Table 5 on page 18.

Communication and Control Equipment Suffix: ☐☐

STEP 6. If internal control power is desired, specify suffix "-Y4." See Table 6 on page 18.

Internal Control Power Suffix: ☐☐

STEP 7. Add suffix designations to the catalog number indicating the optional features desired, selected from Table 7 on page 19 through 23. (Add as many suffixes as required.)

Suffixes:

_____

_____

_____

STEP 8. **Motor Operator Suffix**. Using this table, "X" the load-interrupter switch ways and/or three-phase fault interrupter ways to be furnished with motor operators. To determine the motor operator suffix, write "A" and the selected way number for each way for which a motor operator is specified. See Table 8 on page 24.

Motor-Operated Way

A1	*A2*	*A3*	*A4*	*A5*	*A6*
☐	☐	☐	☐	☐	☐

Motor Operating Suffix:

☐☐☐☐☐☐☐☐☐☐☐☐

STEP 9. **Current-Sensing Suffix.** Using this table, "X" the motor-operated ways to be furnished with three-phase current sensors. To determine the current-sensing suffix, write the selected way numbers after "-B." See Table 9 on page 24.

Current-Sensing-Equipped Way

B1	*B2*	*B3*	*B4*	*B5*	*B6*
☐	☐	☐	☐	☐	☐

Current-Sensing Suffix:

☐☐☐☐☐☐☐☐☐☐☐☐

STEP 10. Voltage-Sensing Suffix. Using this table, "X" the motor-operated ways to be furnished with three-phase voltage sensors. To determine the voltage-sensing suffix, write the selected way numbers after "-D." See Table 9 on page 24.

Voltage-Sensor-Equipped Way

D1	*D2*	*D3*	*D4*	*D5*	*D6*
☐	☐	☐	☐	☐	☐

Voltage-Sensing Suffix:

☐☐☐☐☐☐☐☐☐☐☐☐

Note: At this point, the catalog number for the Vista switchgear unit is complete. The next steps using Table 10 and Table 12 on page 25 are for product accessories and touch-up kit components that would be separate line items on the order. Contact S&C for additional available options.

STEP 11. Obtain catalog numbers for any accessories from Table 10 on page 25 and apply as a separate line item on the order.

Catalog Number:

_____

_____

_____

STEP 12. Include touch-up kit components from Table 12 on page 25.

Catalog Number: ☐☐☐☐–☐☐☐

STEP 13. List the complete catalog number, including suffixes:

_____

_____

_____

Note: To select and configure 40-kA Vista loadbreak switches, manual, source-transfer, or solid dielectric products, see the appropriate specification bulletin for those products.

Table 1. 50/60-Hz ANSI Ratings—IEC Ratings in Parentheses①

50/60-Hz ANSI Ratings—IEC Ratings in Parentheses①											
kV			Amperes, RMS								
					Fault Interrupter				Load-Interrupter Switch		
System Class	Max.	BIL	Main Bus Cont. Current	Short-Circuit, Sym.	Cont., Load Dropping, and Load Splitting②	10-Time Duty-Cycle Fault-Closing, Sym.		10-Time Duty-Cycle Fault-Interr., Sym.	Cont., Load Dropping, and Load Splitting②	10-Time Duty-Cycle Fault-Closing, Sym.③	Mom. and One-Second, Sym.
						Into Closed Position	Into Grounded Position				
15.5 (12)	15.5 (15.5)	95 (95)	600 (630)●	12 500 (12 500)	200 (200)■	12 500 (12 500)	12 500 (12 500)	12 500 (12 500)	600 (630)▼	16 000 (16 000)	12 500 (12 500)
				25 000 (25 000)	600 (630)▲	25 000 (25 000)	◆	25 000 (25 000)	600 (630)□	◆	25 000 (25 000)
27 (24)	29 (29)	125 (125)	600 (630)●	12 500 (12 500)	200 (200)■	12 500 (12 500)	12 500 (12 500)	12 500 (12 500)	600 (630)▼	16 000 (16 000)	12 500 (12 500)
				25 000 (25 000)	600 (630)▲	25 000 (25 000)	◆	25 000 (25 000)	600 (630)□	◆	25 000 (25 000)
38 (36)	38 (38)	150 (150)	600 (630)●	12 500 (12 500)	200 (200)■	12 500 (12 500)	12 500 (12 500)	12 500 (12 500)	600 (630)▼	16 000 (16 000)	12 500 (12 500)
				25 000 (25 000)	600 (630)▲	25 000 (25 000)	◆	25 000 (25 000)	600 (630)□	◆	25 000 (25 000)

① Refer to the nearest S&C Sales Office for other possible ratings.

② Parallel or loop switching (Fault interrupters and load-interrupter switches can switch the magnetizing current of transformers associated with the load-dropping rating. Unloaded cable switching rating: 10 amperes at 15.5 kV and 20 amperes at 29 kV and 38 kV.)

③ Applicable to fault closing into **Closed** or **Grounded** position.

● 1200 (1200) amperes when switchgear is furnished with optional copper bus, catalog number suffix "-Z5."

■ 600 (630) amperes when switchgear is furnished with optional 600-ampere bushings at fault-interrupter terminals, catalog number suffix "-M2" or "-M3" (600-ampere bushings are supplied as standard for Vista Green switchgear).

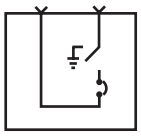
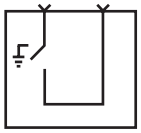
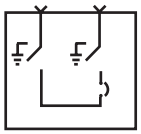
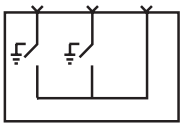
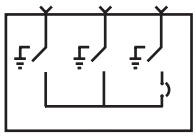
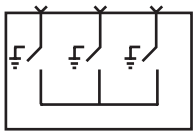
▲ 900 (900) amperes when switchgear is furnished with optional 900-ampere fault interrupters, catalog number suffix "-Q1" through "-Q6," plus optional copper bus, catalog number suffix "-Z5" (SF_6 and 15.5-kV 25-kA Vista Green switchgear models only).

◆ 25,000 (25,000) amperes symmetrical three-time duty-cycle fault-closing rating; 16,000 (16,000) amperes symmetrical 10-time duty-cycle fault-closing rating.

▼ 200 (200) amperes when switchgear is furnished with optional 200-ampere bushing wells at load-interrupter switch terminals, catalog number suffix "-M4" (SF_6 switchgear models only).

□ 900 (900) amperes when switchgear is furnished with optional 900-ampere load-interrupter switches, catalog number suffix "-K1" through "-K6," plus optional copper bus, catalog number suffix "-Z5" (Vista SF_6 and 15.5-kV 25-kA Vista Green switchgear models only).

Table 2. Three-Phase Units

Model①	One-Line Diagram②	Ratings③			Catalog Number	Net Weight, Lbs. (Kg)④
		kV		Short-Circuit Amperes, RMS, Sym.		
		Max.	BIL			
201		15.5	95	12 500	942012	550 (250)
				25 000	862012	550 (250)
		29	125	12 500	942013	550 (250)
				25 000	862013	550 (250)
		38	150	12 500	942014	800 (363)
				25 000	862014	800 (363)
210		15.5	95	12 500	942102	550 (250)
				25 000	862102	550 (250)
		29	125	12 500	942103	550 (250)
				25 000	862103	550 (250)
		38	150	12 500	942104	800 (363)
				25 000	862104	800 (363)
211		15.5	95	12 500	942112	550 (250)
				25 000	862112	550 (250)
		29	125	12 500	942113	550 (250)
				25 000	862113	550 (250)
		38	150	12 500	942114	800 (363)
				25 000	862114	800 (363)
320		15.5	95	12 500	943202	825 (374)
				25 000	863202	825 (374)
		29	125	12 500	943203	825 (374)
				25 000	863203	825 (374)
		38	150	12 500	943204	1075 (488)
				25 000	863204	1075 (488)
321		15.5	95	12 500	943212	825 (374)
				25 000	863212	825 (374)
		29	125	12 500	943213	825 (374)
				25 000	863213	825 (374)
		38	150	12 500	943214	1075 (488)
				25 000	943214	1075 (488)
330		15.5	95	12 500	943302	825 (374)
				25 000	863302	825 (374)
		29	125	12 500	943303	825 (374)
				25 000	863303	825 (374)
		38	150	12 500	943304	1075 (488)
				25 000	863304	1075 (488)

① The model number defines the total number of ways, the number of load-interrupter switch ways, and the number of fault-interrupter ways. For example, a Model 431 has "4" ways in total, of which "3" are load-interrupter switch ways and "1" is a fault-interrupter way.

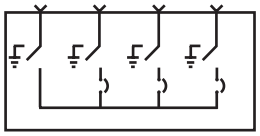
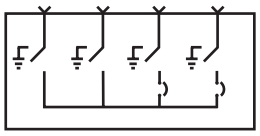
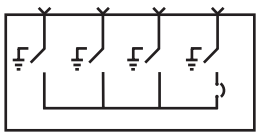
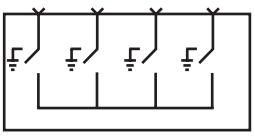
② Refer to your nearest S&C Sales Office for other possible configurations.

③ Refer to Table 1 on page 12 for continuous, load-dropping, interrupting, and momentary ratings. For complete live-switching ratings for load-interrupter switches and fault interrupters as applied in Vista Underground Distribution Switchgear, refer to the "Application Notes" section on page 5.

④ Welded-steel tank, including components and insulating gas.

TABLE CONTINUED ►

Table 2. Three-Phase Units—Continued

Model①	One-Line Diagram②	Ratings③			Catalog Number	Net Weight, Lbs. (Kg)④
		kV		Short-Circuit Amperes, RMS, Sym.		
		Max.	BIL			
413		15.5	95	12 500	944132	1100 (499)
				25 000	864132	1100 (499)
		29	125	12 500	944133	1100 (499)
				25 000	864133	1100 (499)
		38	150	12 500	944134	1350 (612
				25 000	864134	1350 (612)
422		15.5	95	12 500	944222	1100 (499))
				25 000	864222	1100 (499)
		29	125	12 500	944223	1100 (499)
				25 000	864223	1100 (499)
		38	150	12 500	944224	1350 (612)
				25 000	864224	1350 (612)
431		15.5	95	12 500	944312	1100 (499)
				25 000	864312	1100 (499
		29	125	12 500	944313	1100 (499)
				25 000	864313	1100 (499)
		38	150	12 500	944314	1350 (612)
				25 000	864314	1350 (612)
440		15.5	95	12 500	944402	1100 (499)
				25 000	864402	1100 (499)
		29	125	12 500	944403	1100 (499)
				25 000	864403	1100 (499)
		38	150	12 500	944404	1350 (612)
				25 000	864404	1350 (612)

① The model number defines the total number of ways, the number of load-interrupter switch ways, and the number of fault-interrupter ways. For example, a Model 431 has "4" ways in total, of which "3" are load-interrupter switch ways and "1" is a fault-interrupter way.

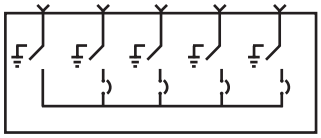
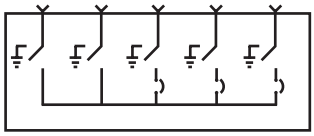
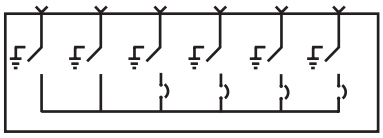
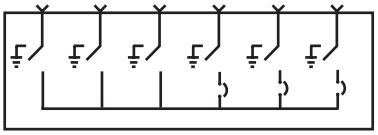
② Refer to your nearest S&C Sales Office for other possible configurations.

③ Refer to Table 1 on page 12 for continuous, load-dropping, interrupting, and momentary ratings. For complete live-switching ratings for load-interrupter switches and fault interrupters as applied in Vista Underground Distribution Switchgear, refer to the "Application Notes" section on page 5.

④ Welded-steel tank, including components and insulating gas.

TABLE CONTINUED ▶

Table 2. Three-Phase Units—Continued

Model①	One-Line Diagram②	Ratings③			Catalog Number	Net Weight, Lbs. (Kg)④
		kV		Short-Circuit Amperes, RMS, Sym.		
		Max.	BIL			
514		15.5	95	12 500	945142	1100 (499)
				25 000	865142	1100 (499)
		29	125	12 500	945143	1100 (499)
				25 000	865143	1100 (499)
		38	150	12 500	945144	1350 (612)
				25 000	865144	1350 (612)
523		15.5	95	12 500	865232	1100 (499)
				25 000	865232	1100 (499)
		29	125	12 500	945233	1100 (499)
				25 000	865233	1100 (499)
		38	150	12 500	945234	1350 (612)
				25 000	865234	1350 (612)
624		15.5	95	12 500	946242	1375 (624)
				25 000	866242	1375 (624)
		29	125	12 500	946243	1375 (624)
				25 000	866243	1375 (624)
		38	150	12 500	946244	1625 (737)
				25 000	866244	1625 (737)
633		15.5	95	12 500	946332	1650 (748)
				25 000	866332	1650 (748)
		29	125	12 500	946333	1650 (748)
				25 000	866333	1650 (748)
		38	150	12 500	946334	1900 (862)
				25 000	866334	1900 (862)

① The model number defines the total number of ways, the number of load-interrupter switch ways, and the number of fault-interrupter ways. For example, a Model 431 has "4" ways in total, of which "3" are load-interrupter switch ways and "1" is a fault-interrupter way.

② Refer to your nearest S&C Sales Office for other possible configurations.

③ Refer to Table 1 on page 12 for continuous, load-dropping, interrupting, and momentary ratings. For complete live-switching ratings for load-interrupter switches and fault interrupters as applied in Vista Underground Distribution Switchgear, refer to the "Application Notes" section on page 5.

④ Welded-steel tank, including components and insulating gas.

Table 3. Switchgear Styles

Item				Suffix to be Added to Switchgear Catalog Number	Applicable to Models	Net Weight, Lbs. (Kg)①
UnderCover Style. Includes stainless steel tank, submersible wiring, and 25-foot (762-cm) submersible control cable for attachment to olive green finish mild steel low-voltage enclosure				-U	201, 210, 211	●
					320, 321, 330	
					413, 422, 431, 440	
					514, 523	
					624, 633	
Dry-vault mounted style. Includes mild steel tank and 25-foot (762-cm) control cable for attachment to olive green finish mild steel low-voltage enclosure. Does not include submersible wiring				-V3	All models	■
Wet-vault mounted style. Includes stainless steel tank, submersible wiring, and 25-foot (762-cm) submersible control cable for attachment to olive green finish mild steel low-voltage enclosure				-V4	All models	
Pad-mounted style. Includes pad-mounted enclosure for mounting switchgear with integral low-voltage compartment on a pad	Two-way unit	Mild-steel outer enclosure and low-voltage compartment	Olive-green finish	-P2	201, 210, 211	534▲ (242)
			Light gray finish	-P7	201, 210, 211	
		Stainless steel outer enclosure and low-voltage compartment	Olive-green finish	-P12	201, 210, 211	
			Light gray finish	-P17	201, 210, 211	
	Three- or four-way unit	Mild-steel outer enclosure and low-voltage compartment	Olive-green finish	-P4	320, 321, 330, 413, 422, 431, 440	693▲ (314)
			Light gray finish	-P9	320, 321, 330, 413, 422, 431, 440	
		Stainless steel outer enclosure and low-voltage compartment	Olive-green finish	-P14	320, 321, 330, 413, 422, 431, 440	
			Light gray finish	-P19	320, 321, 330, 413, 422, 431, 440	
	Five- or six-way unit	Mild-steel outer enclosure and low-voltage compartment	Olive-green finish	-P6	514, 523, 624, 633	986▲ (447)
			Light gray finish	-P11	514, 523, 624, 633	
		Stainless steel outer enclosure and low-voltage compartment	Olive-green finish	-P16	514, 523, 624, 633	
			Light gray finish	-P21	514, 523, 624, 633	

① When internal control power, catalog number suffix "-Y4," is specified, the size and weight of the tank and outer enclosure may increase on two-way units rated 12.5 kA short-circuit and four-way units. An appropriate dimensional drawing will be furnished.

● Weight of low-voltage enclosure (less components) is 185 pounds (83.9 kg).

■ Weight of low-voltage enclosure (less components) is 174 pounds (78.9 kg).

▲ Weight includes outer enclosure, base spacer, and empty low-voltage compartment.

Table 4. Single-Pole or Three-Pole Fault Interrupting ①②③

Item	Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Single-pole manual fault interrupter on all fault-interrupting ways④	-T0	12.5-kA-rated models with 1 or more fault interrupters
Three-pole manual fault interrupter on one fault-interrupting way (single-pole manual fault interrupter on all other fault-interrupting ways)④	-T1	12.5-kA-rated models with 1 or more fault interrupters
Three-pole manual fault interrupter on two fault-interrupting ways (single-pole manual fault interrupter on all other fault-interrupting ways)④	-T2	12.5-kA-rated models with 2 or more fault interrupters
Three-pole manual fault interrupter on three fault-interrupting ways (single-pole manual fault interrupter on all other fault-interrupting ways)④	-T3	12.5-kA-rated models with 3 or more fault interrupters
Three-pole manual fault interrupter on four fault-interrupting ways (single-pole manual fault interrupter on all other fault-interrupting ways)④	-T4	12.5-kA-rated models with 4 or more fault interrupters
Three-pole manual fault interrupter on five fault-interrupting ways (single-pole manual fault interrupter on all other fault-interrupting ways)④	-T5	12.5-kA-rated models with 5 or more fault interrupters
Three-pole manual fault interrupter on six fault-interrupting ways	-T6	12.5-kA-rated models with 6 or more fault interrupters

① Not applicable to models rated 25 kA short circuit. All 25 kA-rated models include three-pole manual fault interrupters.

② Refer to the nearest S&C Sales Office for other possible configurations.

③ For standard models, components are in the following order (from left to right) when facing the operating side of the gear: load switches, bus taps, three-pole fault interrupters, and single-pole fault interrupters.

④ Motor operators are not available for single-pole fault-interrupting ways.

Table 5. Communication and Control Equipment—One Suffix Must Be Specified

Item	Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Custom communication and control package. Includes pushbuttons for local control of motor operators, LED-position indicators, operation counter, battery charger, and battery packs. Also includes user-specified remote terminal unit (RTU) and user-specified communication device. Requires user-supplied 120-Volt 50/60-Hz ac external power source for battery charger. Other voltages are available upon request	●	All
Control unit for use with RTU by others. Includes pushbuttons for local control of motor operators, LED-position indicators, operation counter, battery charger, and battery packs. Also includes provisions for mounting user-supplied, user-installed RTU and communication device in low-voltage enclosure or compartment. Requires user-supplied 120-Volt 50/60-Hz ac external power source for battery charger. Other voltages are available upon request	-Y3	All
Control unit for use without RTU. Includes pushbuttons for local control of motor operators, LED-position indicators, operation counter, battery charger, and battery packs. Requires user-supplied 120-volt 50/60-Hz ac external power source for battery charger. Other voltages are available upon request	-Y6	All

● Refer to your nearest S&C Sales Office.

Table 6. Internal Control Power①②

Item	Suffix to be Added to Base Catalog Number	Applicable to Models
Internal control power. A voltage transformer is mounted inside the Vista switchgear tank	-Y4	All, through 6 ways

① If internal control power is not specified, user must supply 120-Vac control power to low-voltage enclosure.

② May increase the size and weight of the tank and outer enclosure on two-way units rated 12.5 kV short-circuit and four-way units. An appropriate dimensional drawing will be furnished.

Table 7. Optional Features

Item			Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Stainless steel tank for dry-vault-mounted style or pad-mounted style switchgear			-S	All models
Olive-green finish stainless steel low-voltage enclosure for UnderCover Style or vault-mounted style switchgear			-E	
Auxiliary contacts. Standard form Open/Close contact switches.①	All load-interrupter switches②	With wire routed to the outside of the tank and to a low-voltage control enclosure for customer connections	-C11●	All models
		With wires routed to terminal blocks mounted in an enclosure for customer connection (The terminal block enclosure is typically mounted on the side of the Vista switchgear tank near the overcurrent relay enclosure)	-C12■	Pad-mounted and dry-vault style models
	All fault interrupters③④⑤	With wire routed to the outside of the tank and to a low-voltage control enclosure for customer connections	-C21●	All models
		With wires routed to terminal blocks mounted in an enclosure for customer connection (The terminal block enclosure is typically mounted on the side of the Vista switchgear tank near the overcurrent relay enclosure)	-C22■	Pad-mounted and dry-vault style models
Mounting provisions for fault indicators for each load-Interrupter switch, fault interrupter switch, or both. Accommodates three-phase indicator with single-phase sensors.	For each load-interrupter switch	With viewing window in pad-mounted enclosure	-F2	All models except 201, 302, 303, 404, 505, and 606
	For each fault-interrupter switch	With viewing window in pad-mounted enclosure	-F4	All models except 210, 220, 320, 330, 440, 530, 540, 550, 660
Ground position pushbutton control. Provides local motor operation to and from the **Ground** position. Remote operation is accomplished via SCADA or a hard-wired connection⑥			-G	All models
Control cable for UnderCover Style or wet-vault-mounted style switchgear. 25-foot (762-cm) length is standard. Connects Vista switchgear tank to low-voltage enclosure		35-foot length (1067 cm)	-J35	All models with catalog number suffix "-U" or "-V4"
		45-foot length (1372 cm)	-J45	
Control cable for dry-vault-mounted style switchgear. 25-foot (762-cm) length is standard. Connects Vista switchgear tank to low-voltage enclosure		35-foot length (1067 cm)	-H35	All models with catalog number suffix "-V3"
		45-foot length (1372 cm)	-H45	

① If auxiliary contacts are specified for both load-interrupter switches and fault interrupters, both options must have the same termination style.

② Provides verification of **Closed/Open/Grounded** blade position.

③ On three-pole fault interrupters, auxiliary contacts provide indication of **Closed/Open/Grounded** blade position, as well as trip indication.

④ Not available with single-pole fault interrupters (catalog option "-T0") for 15-kV 12.5-kA models with catalog numbers ending in "R1."

⑤ For single pole fault interrupters, on Vista switchgear models rated 29 kV and 38 kV, auxiliary contacts only provide trip indication.

⑥ Applies to all motor-operated ways in the gear.

● Not available with option "-R2," "-C12," or "-C22."

■ Not available with option "-R11," "-C11," or "-C21."

TABLE CONTINUED ►

Table 7. Optional Features—Continued

Item		Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Potential indication with test feature. Includes LCD display to indicate presence of voltage on each phase, and solar panel to supply power for testing of complete voltage-indication circuit and phasing circuit (if furnished). One potential indicator is provided for each bus-terminal, load-interrupter switch, and fault-interrupter way	*With* provisions for low-voltage phasing	-L2	All models
Spanish labels		-L51	All models
International crating⑦		-L71	All models
900-ampere load-interrupter switch⑧⑨⑩⑪ on:	Way 1	-K1	All models rated 25 kA (Vista SF6 and 15.5-kV 25-kA Vista Green switchgear models only)
	Way 2	-K2	
	Way 3	-K3	
	Way 4	-K4	
	Way 5	-K5	
	Way 6	-K6	
900-ampere fault interrupter⑧⑨⑩⑪⑫⑬ on:	Way 1	-Q1	
	Way 2	-Q2	
	Way 3	-Q3	
	Way 4	-Q4	
	Way 5	-Q5	
	Way 6	-Q6	
600-A bushings without studs, for load-interrupter switch and bus terminals (in lieu of standard 600-A bushings with package of studs)		-M1	All models rated12.5 kA
600-A bushings without studs, for load-interrupter switch, fault interrupter, and bus terminals (in lieu of standard 600-A bushings with package of studs)⑭			All models (SF_6 and CO_2 mix) are rated 25 kA
600-A bushings, at fault-interrupter terminals (in lieu of 200-A bushing wells)	Without studs	-M2	All SF_6 models are rated 12.5 kA except Models 210, 220, 320, 330, and 440
	With package of studs	-M3	
200-A bushing wells at load-interrupter switch and bus terminals (in lieu of 600-A bushings with package of studs)		-M4	All SF_6 models rated 12.5 kA except Model 201▲

⑦ Wood products used in the packaging are either hardwood or certified by the wood supplier as having been "heat treated (kiln dried) to a core temperature of 133°F (56°C) for a minimum of 30 minutes."

⑧ 900-ampere cable connectors must be used.

⑨ If piggybacked cable connectors are desired, refer to the nearest S&C Sales Office.

⑩ Copper bus, catalog number suffix "-Z5," must be specified if 900-ampere load-interrupter switches and/or 900-ampere fault interrupters are specified.

⑪ If any "-K" or "-Q" are selected, any bus tap ways and terminal are also rated 900 amperes.

⑫ Changes internal CT ratios from 660:1 to 1320:1.

⑬ If multiple 900-ampere rated fault interrupting ways are desired they must be specified adjacent to one another. Contact the local S&C Sales Office for details.

⑭ Bushings are rated 900 amperes on ways furnished with 900-ampere load-interrupter switches (catalog number suffix "-K1" through "-K6") and/or 900-ampere fault interrupters (catalog number suffix "-Q1" through "-Q6").

▲ Model 201 is furnished with 200-ampere bushing wells at bus terminals as standard (SF_6 models only).

TABLE CONTINUED ►

Table 7. Optional Features—Continued

Item		Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Arc resistance for vault-mounted style (arc resistance is standard for pad-mounted and UnderCover Styles), per IEC 62271-200, for arcs occurring internal to the tank (15 cycles, 12 kA symmetrical for 12.5 kA-rated models and 15 cycles, 25 kA symmetrical for 25 kA-rated models)		-N	All models with catalog number suffix "-V3" or "-V4"
Two-hole ground pads, one per way, located below bushings or bushing wells (in lieu of standard one ground pad per tank)		-O	All models
Remote low-pressure alarm—includes internal contact for remote low-pressure indication, with wiring to outside of tank	With wire routed to the outside of the tank and to a low-voltage control enclosure for customer connections	-R11◆	All pad-mounted and dry-vault-mounted styles
		-R12◆	All UnderCover and wet-vault-mounted styles
	With wires routed to terminal blocks mounted in an enclosure for customer connection (The terminal block enclosure is typically mounted on the side of the Vista switchgear tank near the overcurrent relay enclosure)	-R2▼	All pad-mounted and dry-vault-mounted styles
External trip provisions. Allows three-pole tripping of single-pole or three-pole fault interrupters via a trip signal from a remote location or an external relay. Requires a 110/120-Vac 50/60-Hz control power source⑮⑯	In addition to standard overcurrent control for all fault interrupters	-R31	All pad-mounted and dry-vault-mounted styles
		-R32	All UnderCover and wet-vault-mounted styles
	In lieu of standard overcurrent control and current transformers for all fault interrupters	-R41	All pad-mounted and dry-vault-mounted styles
		-R42	All UnderCover and wet-vault-mounted styles
External trip provisions. Allows three-pole tripping of single-pole or three-pole fault interrupters via a trip signal from a remote location or an external relay. Requires a 220/240-Vac 50/60-Hz control power source⑯	In addition to standard overcurrent control for all fault interrupters	-R33	All pad-mounted and dry-vault-mounted styles
		-R34	All UnderCover and wet-vault-mounted styles
	In lieu of standard overcurrent control and current transformers for all fault interrupters	-R43	All pad-mounted and dry-vault-mounted styles
		-R44	All UnderCover and wet-vault-mounted styles

◆ Not available with option "-C12" or "C22."

▼ Not available with option "-C11" or "-C21."

⑮ The user-supplied trip-initiating signal must be a momentary contact. Refer to the nearest S&C Sales Office if an application requires the use of a latching contact.

⑯ The external trip board can be powered by a user-supplied 120-Vac 50/60-Hz control power source, 120 Vac 50/60 Hz supplied by a voltage transformer internal to the tank (option suffix "-Y4"), or 36 Vdc supplied by the battery charger.

TABLE CONTINUED ►

Table 7. Optional Features—Continued

Item				Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Base spacers. Includes a mild steel or stainless steel base spacer color-matched to enclosure with integral tank supports	15.5 kV 29 kV 38 kV	6-inch (152-mm) base spacer for enclosure and tank	Mild steel	-W1	Pad-mounted style enclosures (mild steel) "-P2," "-P4," "-P6," "-P7," "-P9," "-P11"
			Stainless steel	-W11	Pad-mounted style enclosures (mild and stainless steel) "-P2," "-P4," "-P6," "-P7," "-P9," "-P11," "-P12," "-P14," "-P16," "-P17," "-P19," "-P21"
	15.5 kV 29 kV 38 kV	12-inch (305-mm) base spacer for enclosure and tank	Mild steel	-W3	Pad-mounted style enclosures (mild steel) "-P2," "-P4," "-P6," "-P7," "-P9," "-P11"
			Stainless steel	-W13	Pad-mounted style enclosures (mild and stainless steel) "-P2," "-P4," "-P6," "-P7," "-P9," "-P11," "-P12," "-P14," "-P16," "-P17," "-P19," "-P21"
	15.5 kV 29 kV 38 kV	18-inch (457-mm) base spacer for enclosure and tank	Mild steel	-W5	Pad-mounted style enclosures (mild steel) "-P2," "-P4," "-P6," "-P7," "-P9," "-P11"
			Stainless steel	-W15	Pad-mounted style enclosures (mild and stainless steel) "-P2," "-P4," "-P6," "-P7," "-P9," "-P11," "-P12," "-P14," "-P16," "-P17," "-P19," "-P21"

TABLE CONTINUED ►

Table 7. Optional Features—Continued

Item		Suffix to be Added to Switchgear Catalog Number	Applicable to Models
Key interlocks. Locks load-interrupter switch or three-pole fault interrupter (catalog number suffix "-T1" through "-T6") in the open position⑰⑱	Way 1	-X1	Any in which Way 1 is a load-interrupter switch or three-pole fault interrupter
	Way 2	-X2	Any in which Way 2 is a load-interrupter switch or three-pole fault interrupter
	Way 3	-X3	Any in which Way 3 is a load-interrupter switch or three-pole fault interrupter
	Way 4	-X4	Any in which Way 4 is a load-interrupter switch or three-pole fault interrupter
	Way 5	-X5	Any in which Way 5 is a load-interrupter switch or three-pole fault interrupter
	Way 6	-X6	Any in which Way 6 is a load-interrupter switch or three-pole fault interrupter
Provisions for future key interlocks. Includes welded mounting blocks and locking shaft position indicators for future installation of key interlocks on load-interrupter switches or three-pole fault interrupters⑰ ⑱⑲	Way 1	-X19	Any in which Way 1 is a load-interrupter switch or three-pole fault interrupter
	Way 2	-X29	Any in which Way 2 is a load-interrupter switch or three-pole fault interrupter
	Way 3	-X39	Any in which Way 3 is a load-interrupter switch or three-pole fault interrupter
	Way 4	-X49	Any in which Way 4 is a load-interrupter switch or three-pole fault interrupter
	Way 5	-X59	Any in which Way 5 is a load-interrupter switch or three-pole fault interrupter
	Way 6	-X69	Any in which Way 6 is a load-interrupter switch or three-pole fault interrupter
Copper Bus⑳		-Z5	All models

⑰ Motor operators can not be retrofitted onto ways with key interlocks.

⑱ The portable motor operator accessory cannot be used on ways with key interlock mounting provisions or key interlocks. Permanent-style motor operators for remote supervisory Vista switchgear cannot be retrofitted onto ways with key interlocks or key interlock mounting provisions.

⑲ Key interlock mounting provisions cannot be added after shipment. Only switchgear with ordered key interlock mounting provisions can be field equipped with key interlocks.

⑳ Main bus can be rated up to 1200 amperes when catalog number suffix "-Z5" is specified.

Table 8. Motor Operator Options—Option Suffix "-A"

Item	Total Number of Motor-Operated Ways on the Gear①②
Motor-operator package. Includes motor operator for use on load-interrupter switch way or three-pole fault-interrupter way; motor-operator control board with CLOSE, OPEN, and, optionally, GROUND pushbuttons; push-to-test indicator lamps; operation counter; and connector for portable remote-control station. There is only one LOCAL/REMOTE switch for the entire gear. Also includes connections for the user-supplied external control power; **Close**, **Open**, and, optionally, **Ground** command inputs; and switch-position indication	1
	2
	3
	4
	5
	6

① Refer to the "How to Order" section on page 8.

② Each motor operator weighs 24.5 pounds (11.1 kg).

Table 9. Sensing Options for Motor-Operated Ways

Item	Total Number of Motor-Operated Ways on the Gear
Three-phase current sensing—option suffix "-B"①② includes three current sensors for each way selected	1
	2
	3
	4
	5
	6
Three-phase voltage sensing—option suffix "-D"①③ includes three-phase line-to-ground voltage sensing for each way selected	1
	2
	3
	4
	5
	6

① Refer to the "How to Order" section on page 8.

② Current sensor ratio is 600:5.

③ Refer to the nearest S&C Sales Office for specifications on the voltage sensing circuit.

Table 10. Accessories

Item		Catalog Number
Shotgun clamp stick for use with separable connectors	6-foot-5½-inch (197 cm) length	9933-150
	8-foot-5½-inch (258 cm) length	9933-151
Heavy canvas storage bag for shotgun clamp stick	6-foot-6-inch (198 cm) length	9933-152
	8-foot-6-inch (259 cm) length	9933-153
Portable remote control for permanent motor operator. Requires one of the control cables listed below:		TA-2424
Portable motor operator. For operation of load-interrupter switches and single- or three-pole fault interrupters from a remote location. Includes carrying case and 50-foot (1524-cm) length control cable with remote controls. Power supplied by:	User-furnished 24-Volt battery and battery charger	38320R1
	S&C-furnished 24-Volt battery and battery charger	38322R1
	S&C-furnished ac input power supply	38323R1
25-foot (762 cm) length control cable for portable remote control for permanent motor operator		9931-615
50-foot (1524 cm) length control cable for portable remote control for permanent motor operator		9931-616
One 5 ampere-hour 12-Vdc battery with leads and connectors		QCUA-5601-1
Two 5 ampere-hour 12-Vdc batteries with leads and connectors		QCUA-5601-2
Three 5 ampere-hour 12-Vdc batteries with leads and connectors (this item used with Vista switchgear control rack and battery charger catalog number 360091)		QCUA-5601-3
Pentahead socket, for ½-inch (13 mm) drive		9931-074

Table 11. Vista Overcurrent Control Replacement Parts

Item	Catalog Number
Vista Overcurrent Control 2.0 connection cable. For connecting the control to the user PC for programming and status information. This 2-meter (6.6-foot)-long cable includes a USB Type A-to-Type A connection.	TR-11887

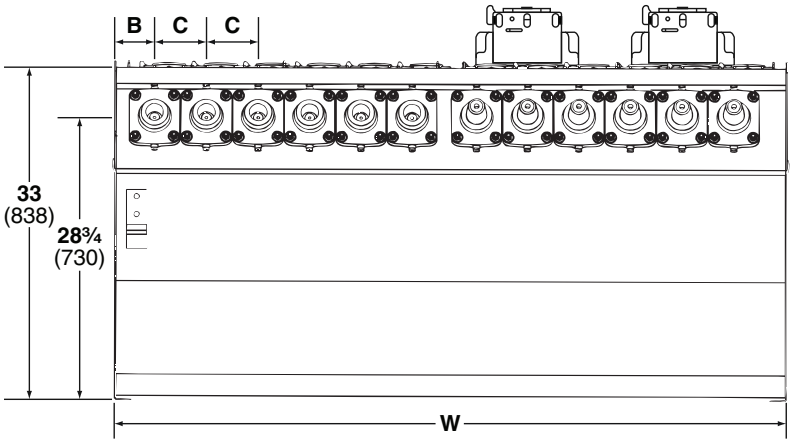
Table 12. Touch-Up Kit Components—Aerosol Coatings in 12-ounce Cans

Item	Catalog Number
S&C light gray outdoor finish	9999-080
S&C olive green (Munsell 7GY3.29/1.5) outdoor finish	9999-058
S&C red-oxide primer	9999-061

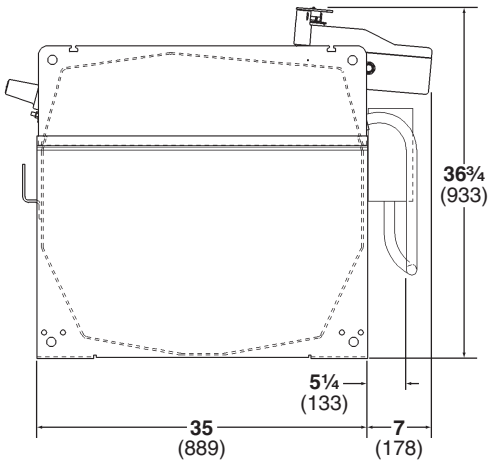
Vista Underground Distribution Switchgear Tank

(Model 422 rated 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)

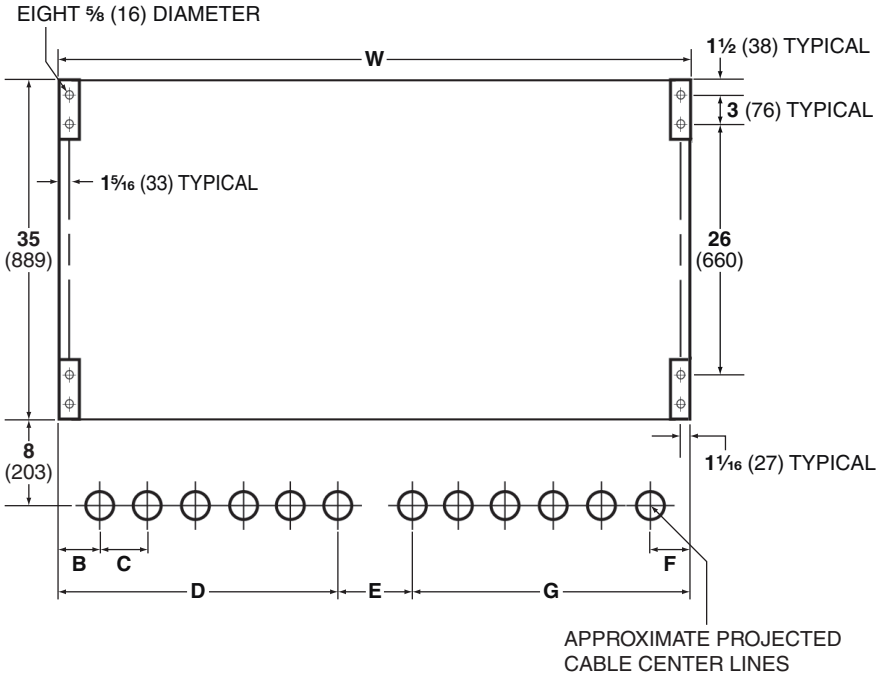
Dimensions in inches (mm)



TERMINATION VIEW



SIDE VIEW



ANCHOR BOLT PLAN

Vista Underground Distribution Switchgear Tank

(Model 422 rated 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)—Continued

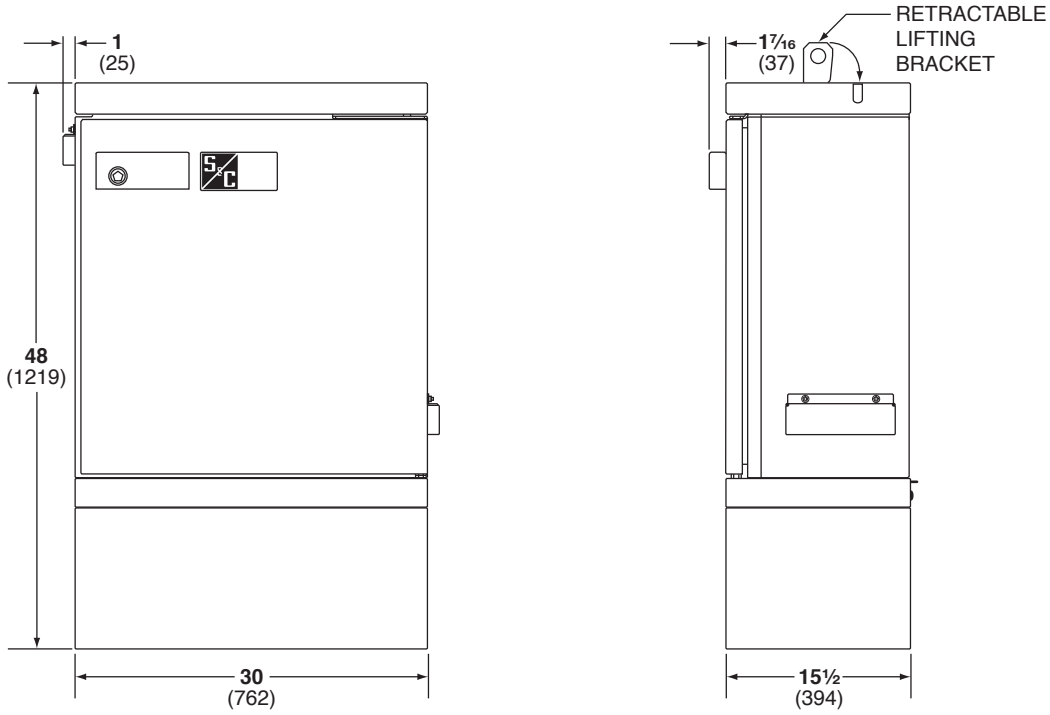
Dimensions in inches (mm)

Model	Ratings		B	C	D①	E①	F	G①	W
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.							
201 210 211	15.5	12 500	3 15/16 (100)	5 (127)	NA	NA	3 15/16 (100)	NA	32 7/16 (824)
		25 000	26 11/16 (678)	5 (127)	NA	NA	3 15/16 (100)	NA	55 9/16 (1411)
	29	12 500	3 15/16 (100)	5 (127)	NA	NA	3 15/16 (100)	NA	32 7/16 (824)
		25 000	22 1/16 (560)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	55 9/16 (1411)
	38	12 500	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	38 5/16 (973)
		25 000	22 1/16 (560)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	55 9/16 (1411)
320 321 330	15.5	12 500	3 15/16 (100)	5 (127)	NA	NA	3 15/16 (100)	NA	47 13/16 (1214)
		25 000	11 11/16 (297)	5 (127)	NA	NA	3 15/16 (100)	NA	55 9/16 (1411)
	29	12 500	3 15/16 (100)	5 (127)	NA	NA	3 15/16 (100)	NA	47 13/16 (1214)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	55 9/16 (1411)
	38	12 500	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	55 9/16 (1411)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	55 9/16 (1411)
413 422 431 440	15.5	12 500	3 15/16 (100)	5 (127)	28 15/16 (735)	7 5/8 (194)	3 15/16 (100)	28 15/16 (735)	65 7/16 (1662)
		25 000	3 15/16 (100)	5 (127)	28 15/16 (735)	7 5/8 (194)	3 15/16 (100)	28 15/16 (735)	65 7/16 (1662)
	29	12 500	3 15/16 (100)	5 (127)	28 15/16 (735)	7 5/8 (194)	3 15/16 (100)	28 15/16 (735)	65 7/16 (1662)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	72 13/16 (1849)
	38	12 500	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	72 13/16 (1849)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	72 13/16 (1849)
514 523	15.5	12 500	3 15/16 (100)	5 (127)	28 15/16 (735)	7 5/8 (194)	3 15/16 (100)	43 15/16 (1116)	80 7/16 (2043)
		25 000	3 15/16 (100)	5 (127)	28 15/16 (735)	7 5/8 (194)	3 15/16 (100)	43 15/16 (1116)	80 7/16 (2043)
	29	12 500	3 15/16 (100)	5 (127)	28 15/16 (735)	7 5/8 (194)	3 15/16 (100)	43 15/16 (1116)	80 7/16 (2043)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	90 1/16 (2288)
	38	12 500	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	90 1/16 (2288)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	90 1/16 (2288)
624 633	15.5	12 500	3 15/16 (100)	5 (127)	43 15/16 (1116)	7 5/8 (194)	3 15/16 (100)	43 15/16 (1116)	95 7/16 (2424)
		25 000	3 15/16 (100)	5 (127)	43 15/16 (1116)	7 5/8 (194)	3 15/16 (100)	43 15/16 (1116)	95 7/16 (2424)
	29	12 500	3 15/16 (100)	5 (127)	43 15/16 (1116)	7 5/8 (194)	3 15/16 (100)	43 15/16 (1116)	95 7/16 (2424)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	107 5/16 (2726)
	38	12 500	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	107 5/16 (2726)
		25 000	4 13/16 (122)	5 3/4 (146)	NA	NA	4 13/16 (122)	NA	107 5/16 (2726)

① All four-, five-, and six-way units rated 15.5 kV and 29 kV, 12.5 kA, include an extra 2 5/8-inch (67-mm) gap between ways two and three (four-way units) or between ways three and four (five- and six-way units).

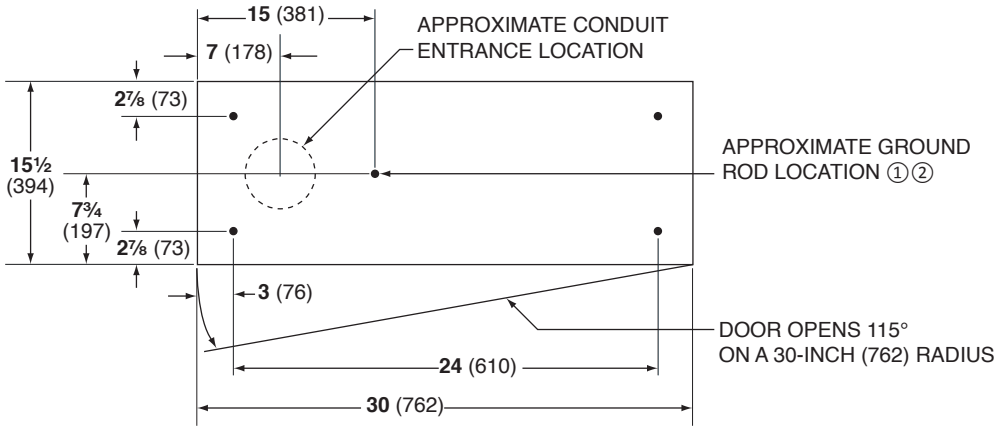
UnderCover™ Style Switchgear Low-Voltage Enclosure

Dimensions in inches (mm)



FRONT VIEW

SIDE VIEW



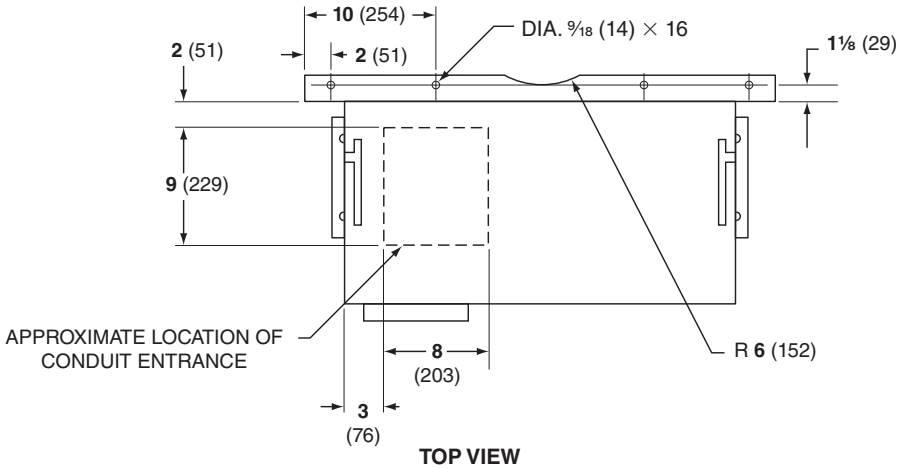
ANCHOR BOLT PLAN

① Attach earth ground cable between the ground lug inside the low-voltage enclosure and the ground rod by using copper cable of 4/0 or greater and less than 10 feet (305 cm) in length.

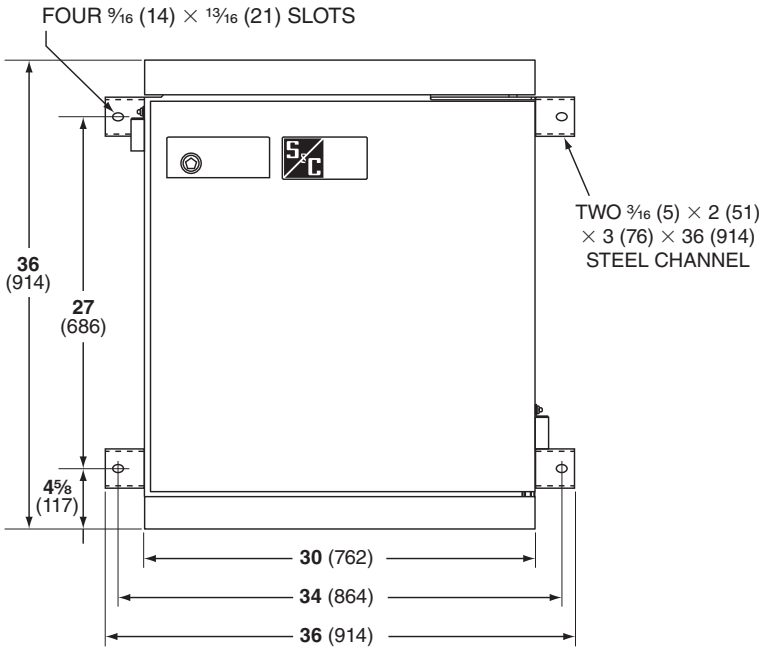
② Ground rod must be 25-ohm impedance or less.

Vault-Mounted Style Switchgear Low-Voltage Enclosure for Both Wall-Mounted and Floor-Mounted Tanks

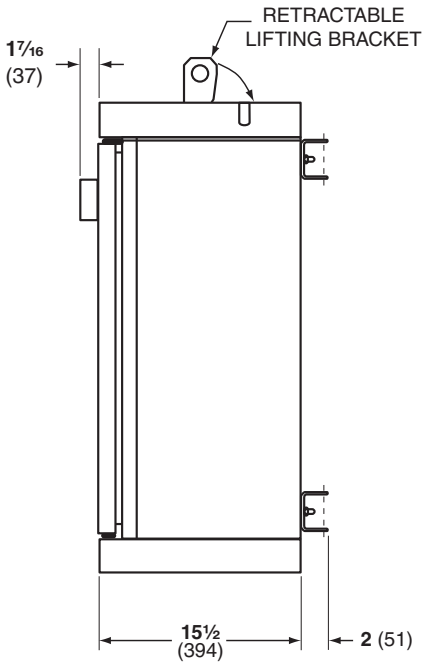
Dimensions in inches (mm)



TOP VIEW



FRONT VIEW

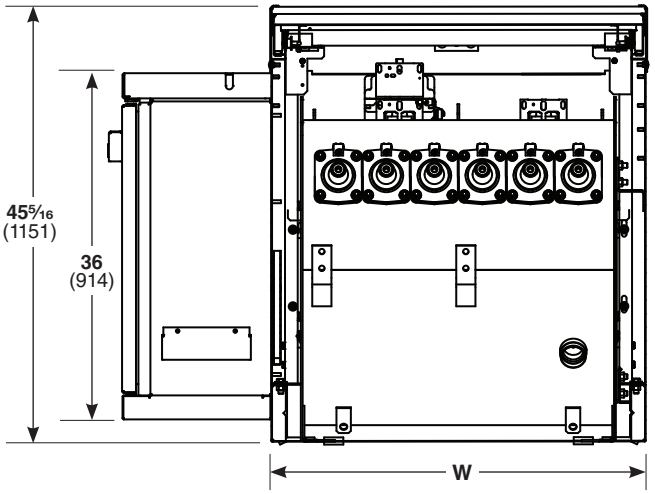


SIDE VIEW

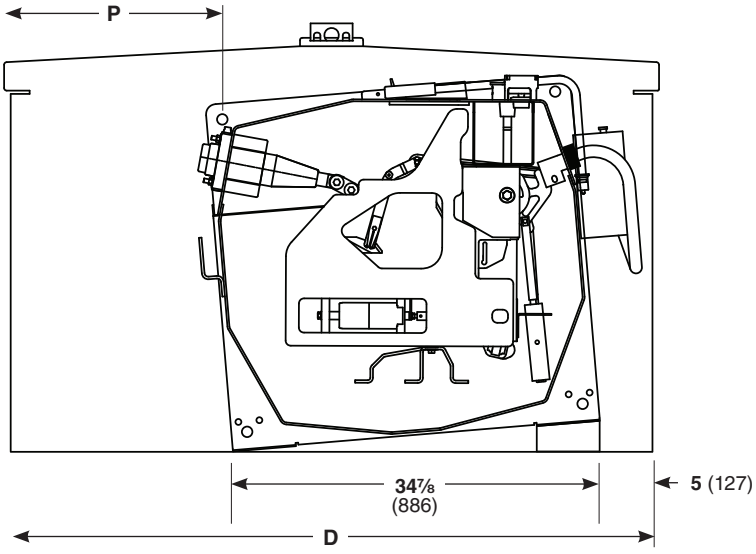
Pad-Mounted Style Switchgear with Low-Voltage Compartment

Models 201, 210, and 211 (Model 201 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)

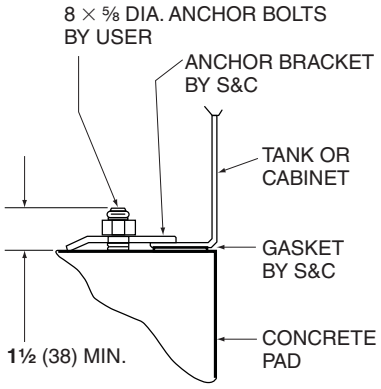
Dimensions in inches (mm)



TERMINATION VIEW

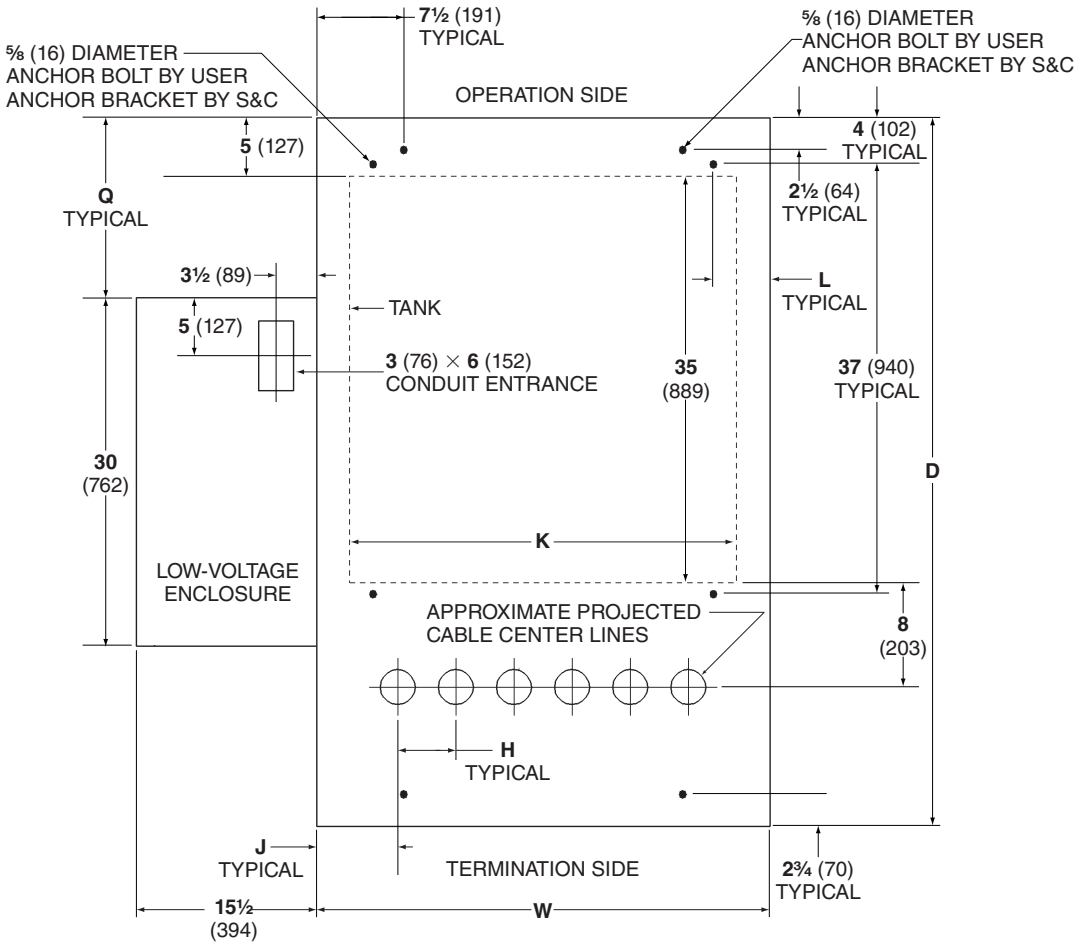


SIDE VIEW



ANCHOR BOLT DETAIL

Dimensions in inches (mm)



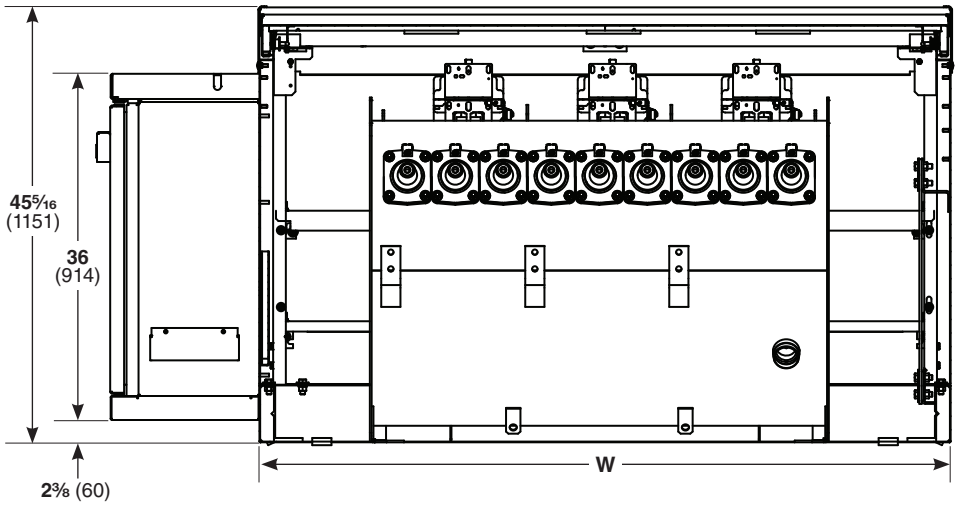
ANCHOR BOLT PLAN

Model	Ratings		D	H	J	K	L	P	Q	W
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.								
201 210 211	15.5	12 500	61 (1549)	5 (127)	7 (178)	32 13/16 (833)	4½ (114)	19½ (495)	15½ (394)	39 (991)
		25 000	65 (1651)	5 (127)	38 3/8 (975)	55 9/16 (1411)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)
	29	12 500	65 (1651)	5 (127)	7 (178)	32 13/16 (833)	4½ (114)	23½ (597)	17½ (445)	39 (991)
		25 000	65 (1651)	5¾ (146)	33¾ (857)	55 9/16 (1411)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)
	38	12 500	65 (1651)	5¾ (146)	7⅝ (194)	381 5/16 (989)	4½ (114)	23½ (597)	17½ (445)	44 (1118)
		25 000	65 (1651)	5¾ (146)	33¾ (857)	55 9/16 (1411)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)

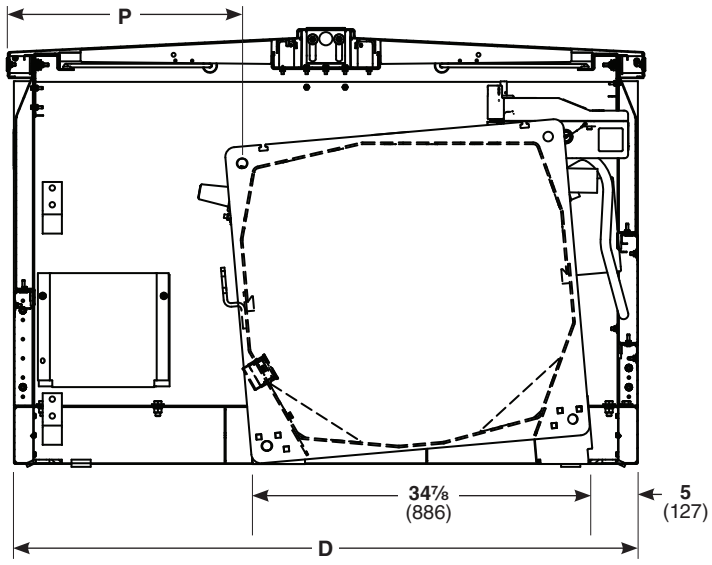
Pad-Mounted Style Switchgear with Low-Voltage Compartment

Models 320, 321, and 330 (Model 321 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)

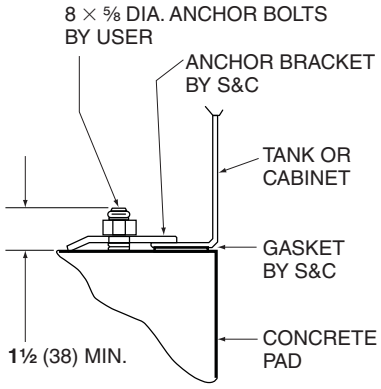
Dimensions in inches (mm)



TERMINATION VIEW

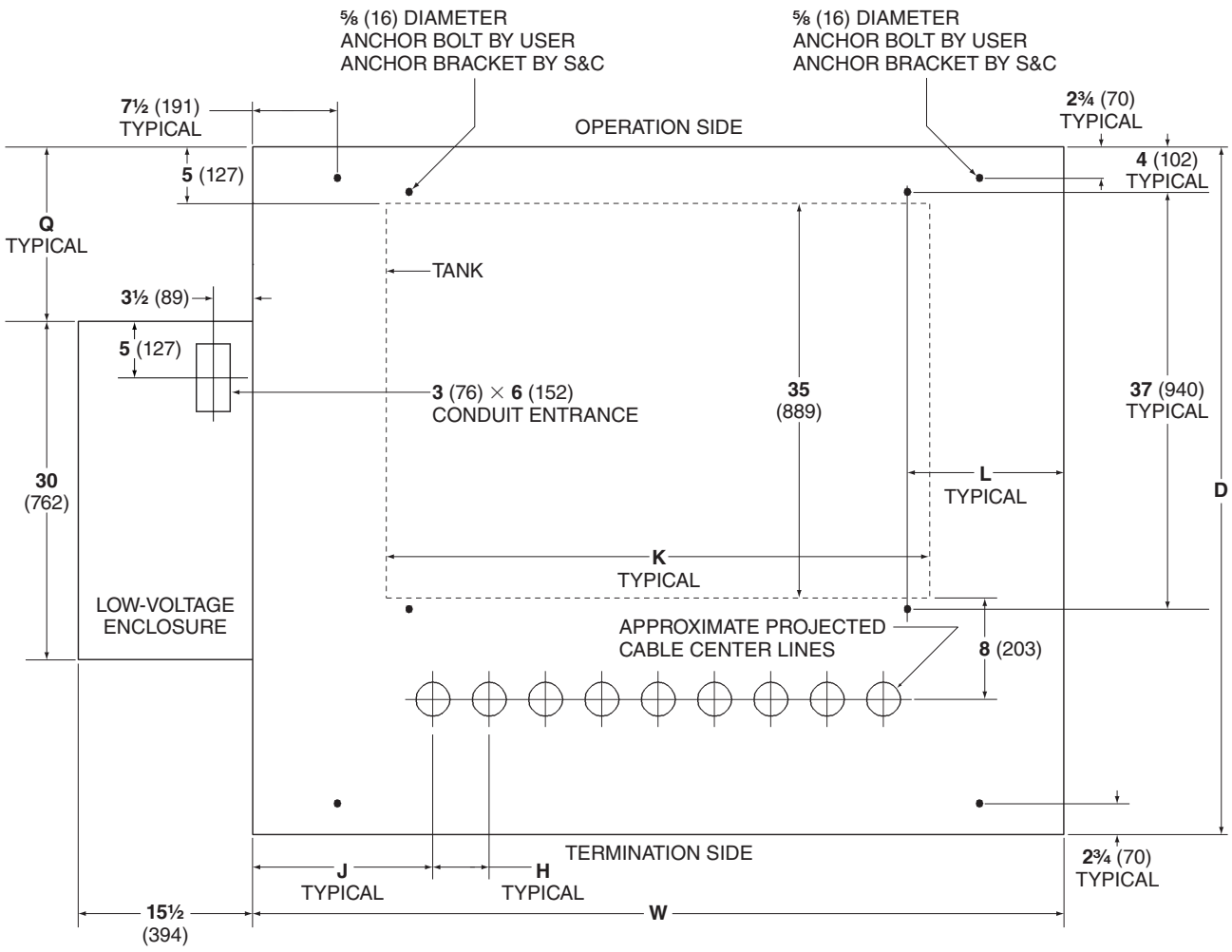


SIDE VIEW



ANCHOR BOLT DETAIL

Dimensions in inches (mm)



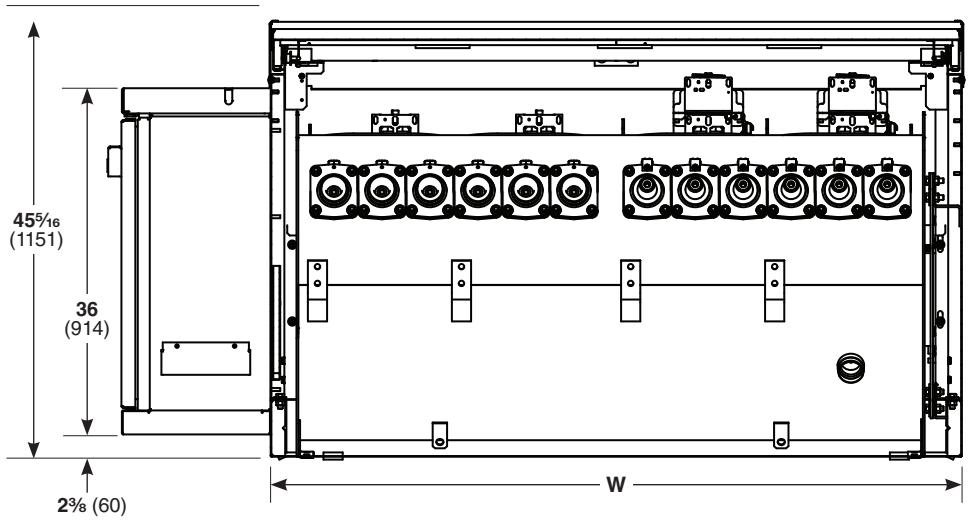
ANCHOR BOLT PLAN

Model	Ratings		D	H	J	K	L	P	Q	W
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.								
320 321 330	15.5	12 500	61 (1549)	5 (127)	16 (406)	47 13/16 (1214)	13½ (343)	19½ (495)	15½ (394)	72 (1829)
		25 000	65 (1651)	5 (127)	233/8 (594)	55 9/16 (1411)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)
	29	12 500	65 (1651)	5 (127)	16 (406)	47 13/16 (1214)	13½ (343)	23½ (597)	17½ (445)	72 (1829)
		25 000	65 (1651)	5¾ (146)	16½ (419)	55⅝ (1413)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)
	38	12 500	65 (1651)	5¾ (146)	16½ (419)	55⅝ (1413)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)
		25 000	65 (1651)	5¾ (146)	16½ (419)	55⅝ (1413)	13⅛ (333)	23½ (597)	17½ (445)	79 (2007)

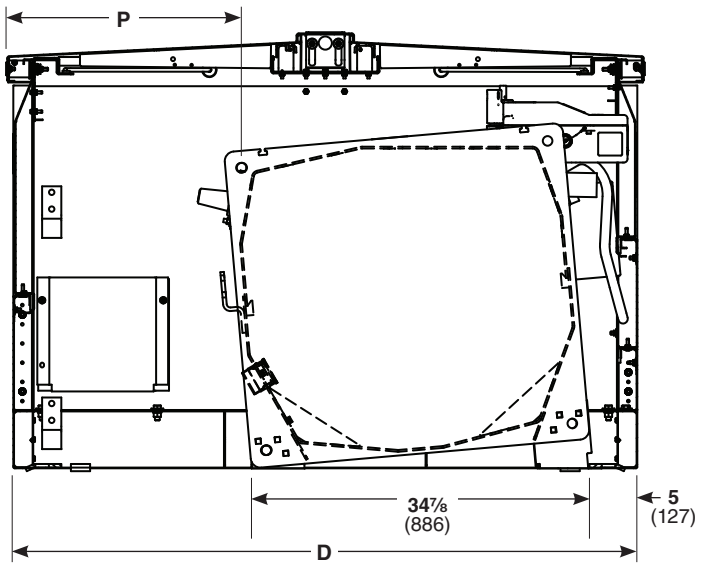
Pad-Mounted Style Switchgear with Low-Voltage Compartment

Models 413, 422, 431, and 440 (Model 422 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)

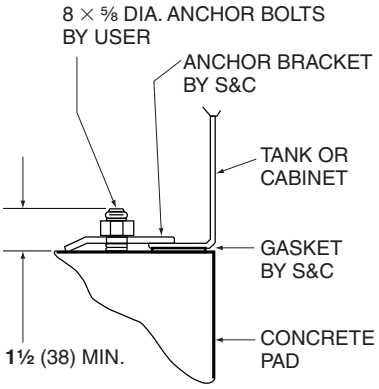
Dimensions in inches (mm)



TERMINATION VIEW

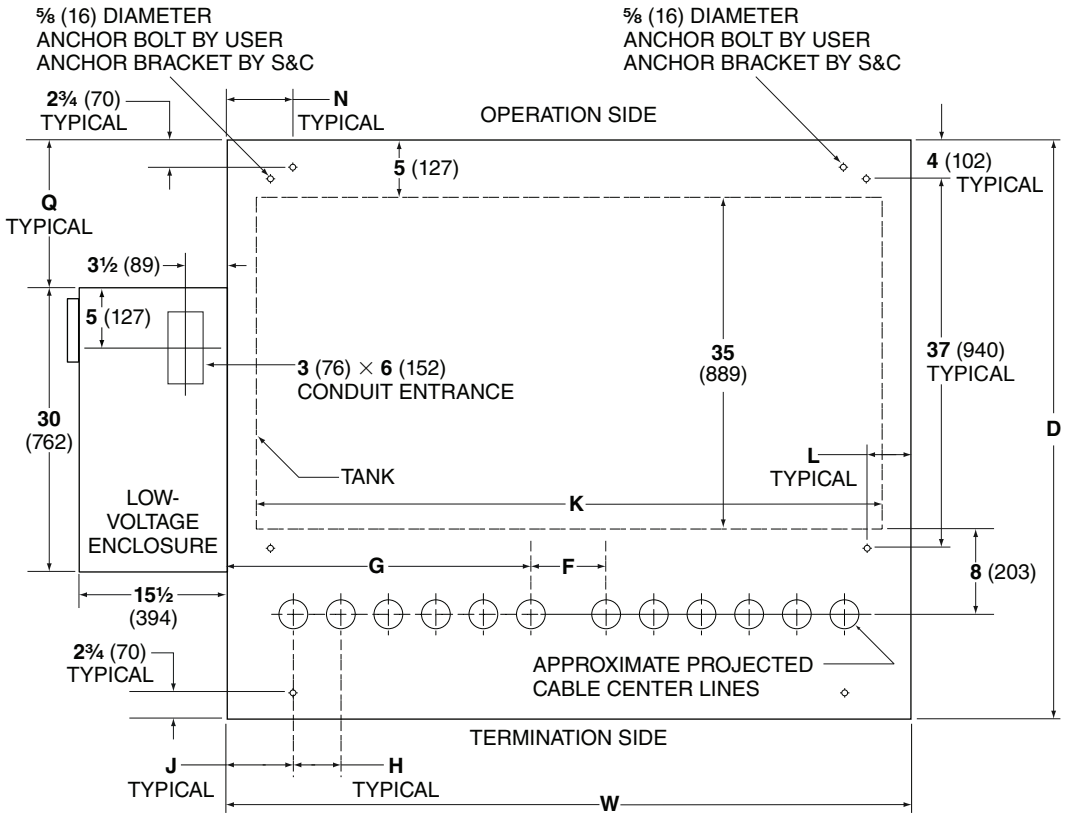


SIDE VIEW



ANCHOR BOLT DETAIL

Dimensions in inches (mm)



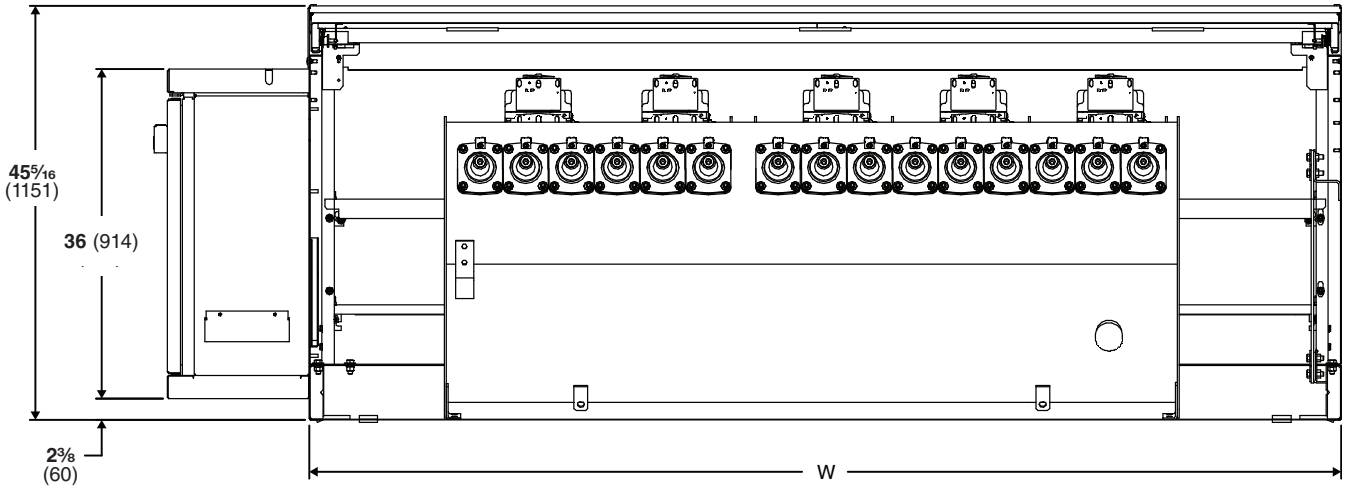
ANCHOR BOLT PLAN

Model	Ratings		D	F	G	H	J	K	L	N	P	Q	W
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.											
413 422 431 440	15.5	12 500	61 (1549)	7⅝ (194)	32³⁄₁₆ (818)	5 (127)	7³⁄₁₆ (183)	65⁷⁄₁₆ (1662)	4⅝ (117)	7½ (191)	19½ (495)	15½ (394)	72 (1829)
		25 000	65 (1651)	7⅝ (194)	32³⁄₁₆ (818)	5 (127)	10¹¹⁄₁₆ (271)	65⁷⁄₁₆ (1662)	8⅛ (206)	11 (279)	23½ (597)	17½ (445)	79 (2007)
	29	12 500	65 (1651)	7⅝ (194)	32³⁄₁₆ (818)	5 (127)	7³⁄₁₆ (183)	65⁷⁄₁₆ (1662)	4⅝ (117)	7½ (191)	23½ (597)	17½ (445)	72 (1829)
		25 000	65 (1651)	NA	NA	5¾ (146)	7⅞ (200)	72¹³⁄₁₆ (1849)	4½ (114)	7½ (191)	23½ (597)	17½ (445)	79 (2007)
	38	12 500	65 (1651)	NA	NA	5¾ (146)	7⅞ (200)	72¹³⁄₁₆ (1849)	4½ (114)	7½ (191)	23½ (597)	17½ (445)	79 (2007)
		25 000	65 (1651)	NA	NA	5¾ (146)	7⅞ (200)	72¹³⁄₁₆ (1849)	4½ (114)	7½ (191)	23½ (597)	17½ (445)	79 (2007)

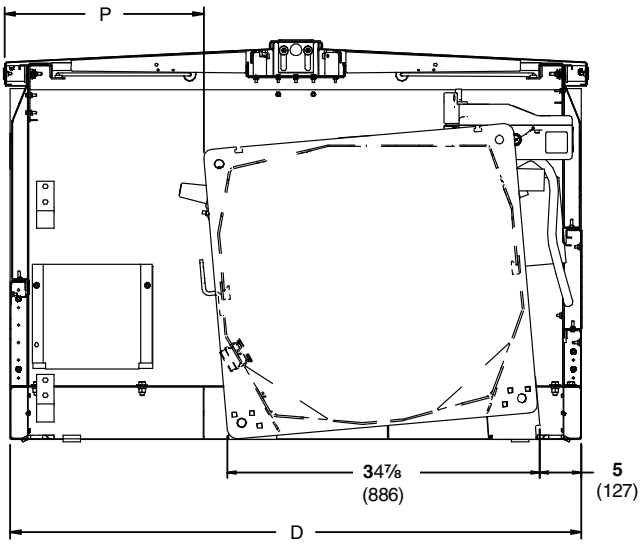
Pad-Mounted Style Switchgear with Low-Voltage Compartment

Models 514 and 523 (Model 514 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)

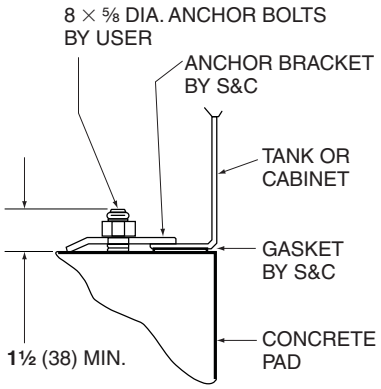
Dimensions in inches (mm)



TERMINATION VIEW



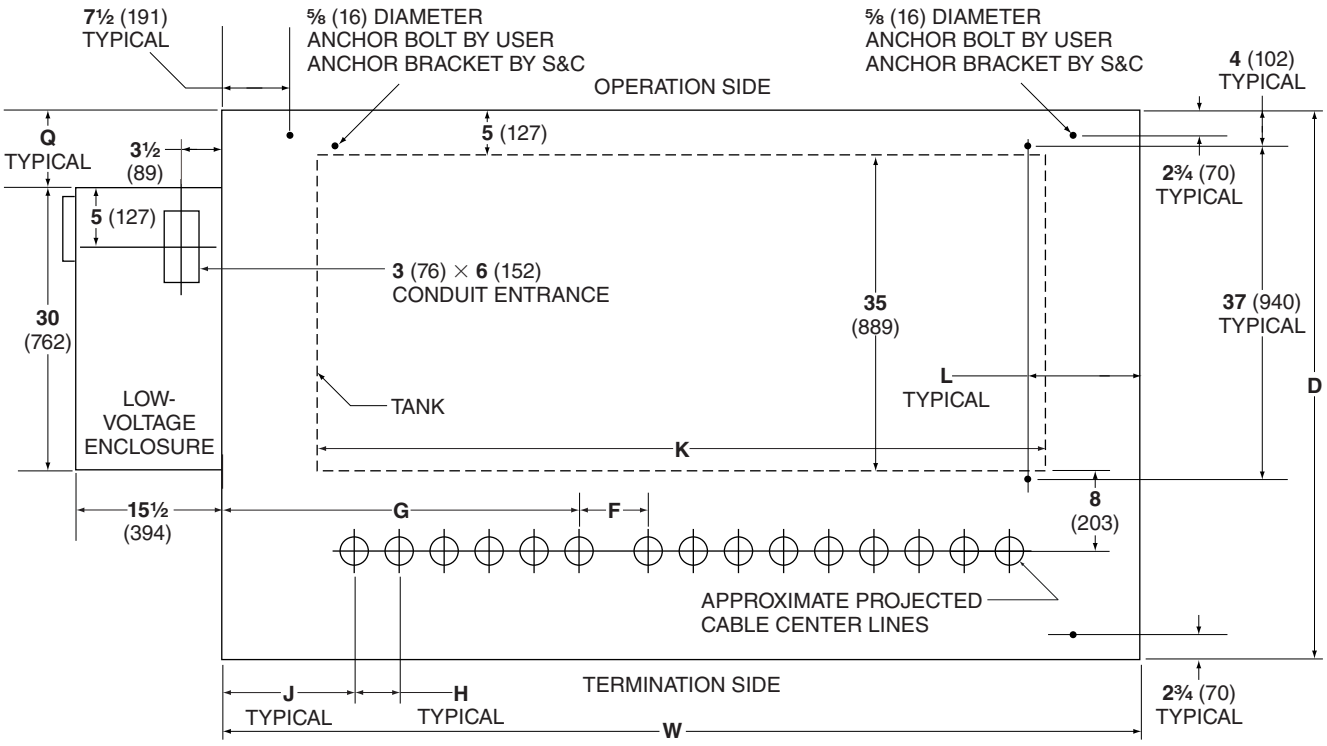
SIDE VIEW



ANCHOR BOLT DETAIL

Model	Ratings		D	F
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.		
514 523	15.5	12 500	61 (1549)	7⅝ (194)
		25 000	65 (1651)	7⅝ (194)
	29	12 500	65 (1651)	7⅝ (194)
		25 000	65 (1651)	NA
	38	12 500	65 (1651)	NA
		25 000	65 (1651)	NA

Dimensions in inches (mm)



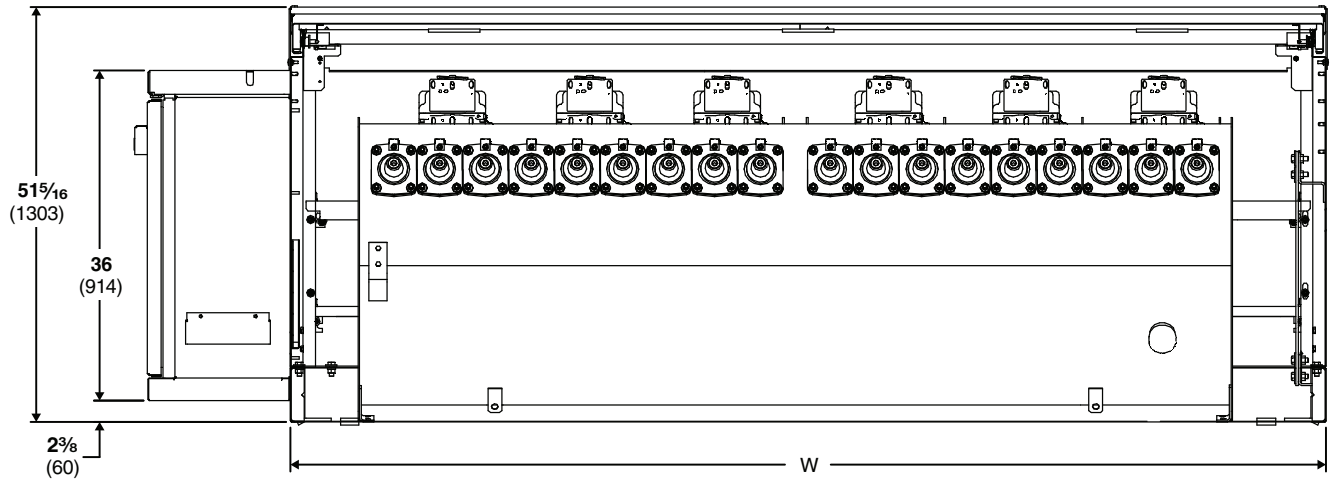
ANCHOR BOLT PLAN

Model	Ratings		G	H	J	K	L	P	Q	W
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.								
514 523	15.5	12 500	39 11/16 (1008)	5 (127)	14 11/16 (373)	80 7/16 (2043)	12⅛ (308)	19½ (495)	15½ (394)	102 (2591)
		25 000	39 11/16 (1008)	5 (127)	14 11/16 (373)	80 7/16 (2043)	12⅛ (308)	23½ (597)	17½ (445)	102 (2591)
	29	12 500	39 11/16 (1008)	5 (127)	14 11/16 (373)	80 7/16 (2043)	12⅛ (308)	23½ (597)	17½ (445)	102 (2591)
		25 000	NA	5¾ (146)	161/4 (413)	901/16 (2288)	12⅞ (327)	23½ (597)	17½ (445)	113 (2870)
	38	12 500	NA	5¾ (146)	161/4 (413)	901/16 (2288)	12⅞ (327)	23½ (597)	17½ (445)	113 (2870)
		25 000	NA	5¾ (146)	161/4 (413)	901/16 (2288)	12⅞ (327)	23½ (597)	17½ (445)	113 (2870)

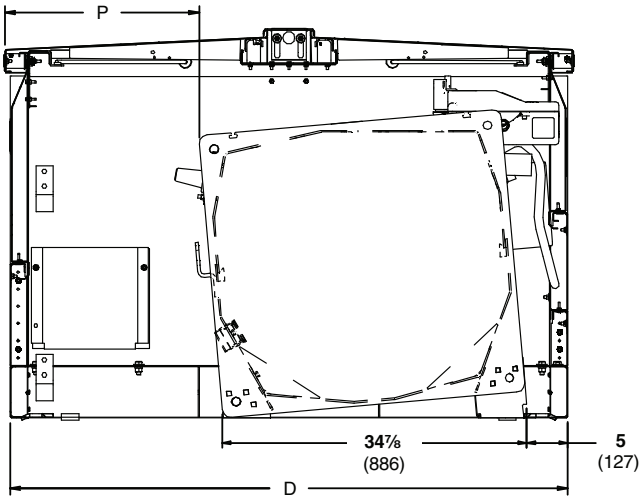
Pad-Mounted Style Switchgear with Low-Voltage Compartment

Models 624 and 633 (Model 624 15.5 kV, 12.5 kA symmetrical shown. All dimensions apply to both Vista SF_6 and Vista Green switchgear.)

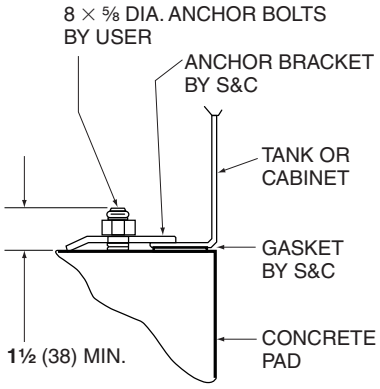
Dimensions in inches (mm)



TERMINATION VIEW

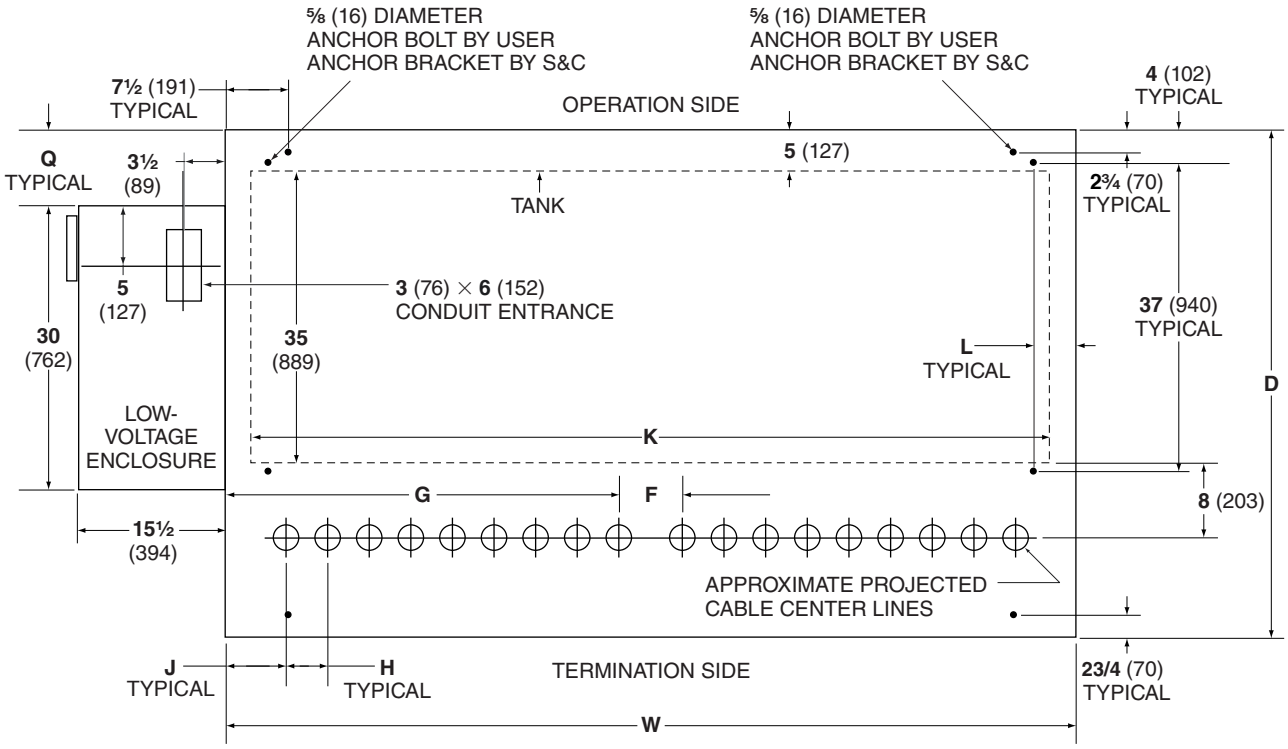


SIDE VIEW



ANCHOR BOLT DETAIL

Dimensions in inches (mm)



ANCHOR BOLT PLAN

Model	Ratings		D	F	G	H	J	K	L	P	Q	W
	kV, Max.	Short-Circuit, Amperes, RMS, Sym.										
624 633	15.5	12 500	61 (1549)	7⅝ (194)	47³⁄₁₆ (1199)	5 (127)	7³⁄₁₆ (183)	95⁷⁄₁₆ (2424)	4⅝ (117)	19½ (495)	9½ (241)	102 (2591)
		25 000	65 (1651)	7⅝ (194)	47³⁄₁₆ (1199)	5 (127)	7³⁄₁₆ (183)	95⁷⁄₁₆ (2424)	4⅝ (117)	23½ (597)	11½ (292)	102 (2591)
	29	12 500	65 (1651)	7⅝ (194)	47³⁄₁₆ (1199)	5 (127)	7³⁄₁₆ (183)	95⁷⁄₁₆ (2424)	4⅝ (117)	23½ (597)	11½ (292)	102 (2591)
		25 000	65 (1651)	NA	NA	5¾ (146)	7⅝ (194)	107⁵⁄₁₆ (2726)	4⅛ (105)	23½ (597)	11½ (292)	113 (2870)
	38	12 500	65 (1651)	NA	NA	5¾ (146)	7⅝ (194)	107⁵⁄₁₆ (2726)	4⅛ (105)	23½ (597)	11½ (292)	113 (2870)
		25 000	65 (1651)	NA	NA	5¾ (146)	7⅝ (194)	107⁵⁄₁₆ (2726)	4⅛ (105)	23½ (597)	11½ (292)	113 (2870)