

ISMD Series: 15 kV Draw-Out Circuit Breakers

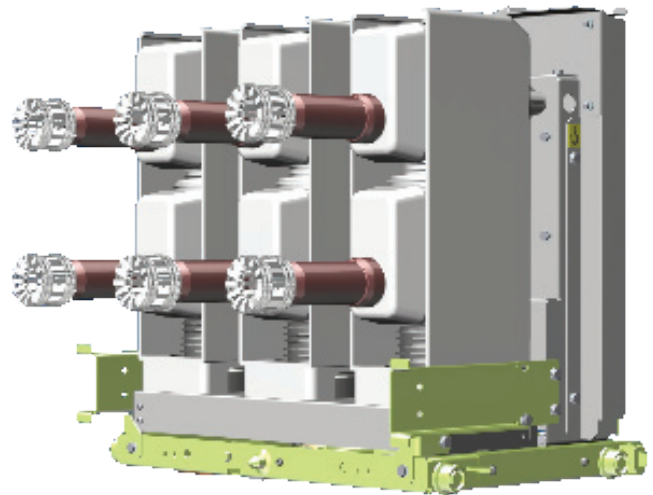
The Tavrida ISMD series of draw out circuit breakers are compact, lightweight solutions for high frequency switching operations.

Utilizing the latest advancements in magnetic actuator design and vacuum technology, the ISMD requires virtually no maintenance. 30,000 full load close-open operations are achieved without any service required to the switching module.

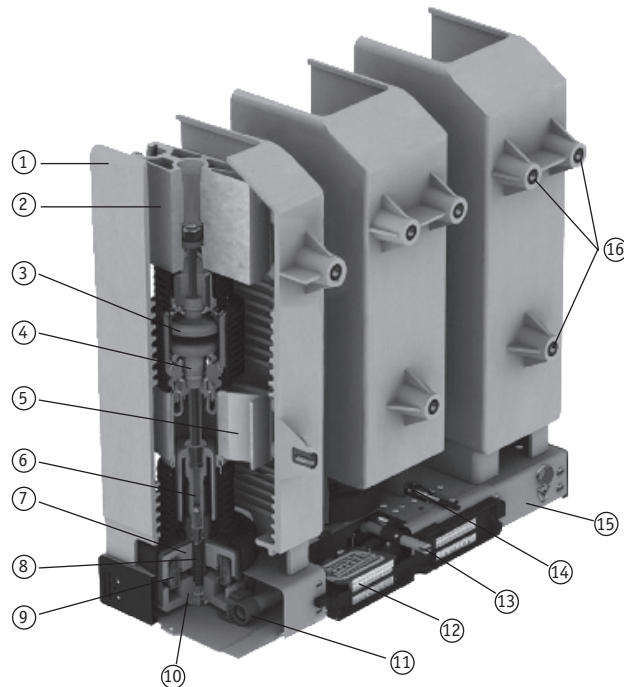
Cable connection ensures reliable mating of the auxiliary circuits, designed to exceed IEC and ANSI requirements for racking.

The ISMD was designed from the ground up for compact metal clad switchgear where no maintenance and high reliability is paramount. The fast trip HD breaker element is a magnetic-actuator driven device, resulting in high switching frequency capability and fast breaking times.

The ISMD series is available to work with arc flash relays. In standard applications the breaker can clear a fault in 2.2 cycles; with specific controls, this can be reduced to as low as one cycle to further enhance arc flash mitigation.



ISM Series: Breaker Design

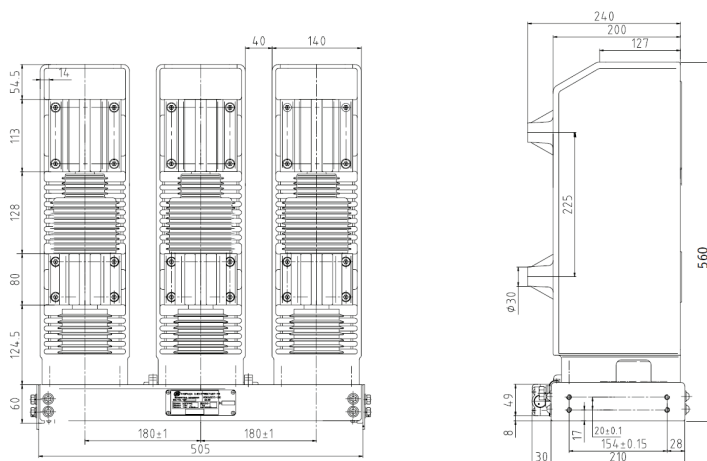


1. Support insulator
2. Upper terminal
3. Vacuum interrupter
4. Movable contact with bellows
5. Lower terminal
6. Pulling insulator
7. Actuator stator
8. Opening and contact pressure springs
9. Actuator coil
10. Armature
11. Synchronizing shaft
12. Auxiliary contacts
13. Interlocking shaft
14. Main contacts position indicator link
15. Frame
16. Fixing points

The ISMD series draw outs are built with the advanced Tavrída HD series breaker element. Driven by three magnetic actuators at the base (9), the HD breaker is capable of 30,000 close - open operations at full load.

Standing only 21" high, and only 9" deep, the HD series handle currents as high as 2000A continuous and 31.5kA interrupting. The exceptional shell-type design (1) insulates the phases from each other, while the direct linear connection of the interrupter to the actuators (6) delivers a break time of less than 3 cycles standard, with 1 cycle break for special applications.

The HD series simplify interlocking through an integrated manual trip lever at the rear that both blocks the unit electrically as well as mechanically (13). Six NO and six NC contacts (12) are built-in along with a cable connected visual position indicator (pictured below).



ISMD Series: CM1501 Control Modules

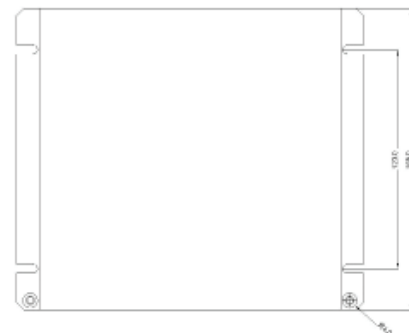
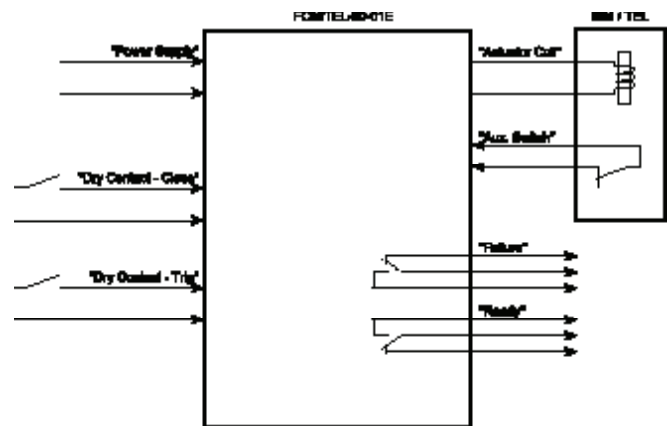

Tavrida circuit breakers are driven exclusively by magnetic actuators, and therefore require a specialized control module to provide trip and close functions.

The Tavrida CM1501 is the control module most commonly used with the ISMD series of draw out breakers.

In new switchgear applications, no trip or close coils are required for Tavrida breakers. Instead, dry contacts are wired to the close and trip inputs of the CM1501 control module, which in turn sends a pulse to the magnetic actuators to drive the breaker contacts.

The CM1501 module continuously monitors the health of both the breaker and the control module itself, providing status indication through LED's mounted on the front and through external signalling relays for remote indication. Any failure or loss of communication with either the position switch of the breaker or the magnetic actuators will block the close command, only allowing the breaker to be tripped until the fault is rectified. Anti-pumping duty is built into the control logic.

For retrofit applications utilizing the ISMD series, the compact size of the CM1501 allows easy integration into the existing low voltage compartment of the switchgear.



Product Specifications: ISMD 210mm Pole Center Series

ISM Type	ISMD-114, 5/15 kV, 1200A and 2000A
Control Module Type	CM1501
Rated data	
Rated voltage (U_r)	to 15 kV
Rated current (I_r)	to 2000 A
Rated power frequency withstand voltage (U_d)	36 kV
Rated lightning impulse withstand voltage (peak) (U_p)	95 kV
Rated short-circuit breaking current (I_{sc})	29 kA @ 15 kV 31.5 kA @ 5 kV
Rated peak withstand current (I_p , close and latch)	to 82 kA
Rated short-time withstand current (I_k)	to 31.5 kA
Rated duration of short circuit (t_k)	4 s
Rated frequency (f_r)	50/60 Hz
Switching performance	
Mechanical life (CO-cycles)	30 000
Operating cycles, rated current (CO-cycles)	30 000
Operating cycles, rated-short circuit breaking current (O-operations)	50
Closing time	52 ms
Opening time, not more than	27 ms
Break time ¹⁾ , not more than	37 ms
Rated operating sequence (CM/TEL...-12-01A)	0-0.1s-CO-10s-CO
Standards	
Design class with regard to severity of service conditions in accordance with IEC 60932	Class 1
International testing standards	IEC 62271-100 , GB 1984-2003, ANSI C37.54
Mechanical vibration withstand capability according to IEC 60271, IEC 60068	Class 4M4
Other data	
Resistance of main circuit	< 22 μ Ohm
Pole center distance	210 mm
Type of driving mechanism	Monostable magnetic actuator
Design, switching capacity of auxiliary contacts	
Number of available auxiliary contacts	5 NO + 6 NC (Contact position) 3 NO + 3 NC (TOC, Test position) 3NO + 3NC (TOC, Connected position)
Rated power frequency test voltage, auxiliary circuits	2 kV
Maximum current for 125 V DC, ohmic load	0.5 A
Maximum current for 125 V DC, inductive load ($t=20$ ms)	0.03 A
Maximum current for 250 V DC, ohmic load	0.25 A
Maximum current for 250 V DC, inductive load ($t=20$ ms)	0.03 A
Maximum current for 125 V AC, ohmic load	5 A
Maximum current for 125 V AC, inductive load ($\cos\phi = 0,3$)	5 A
Maximum current for 250 V AC, ohmic load	5 A
Maximum current for 250 V AC, inductive load ($\cos\phi = 0,3$)	5 A

¹⁾ HD series breakers can be de-rated to 25kA, with applicable control module, for applications that require 1 cycle (16ms) break time. Contact Tavrida Electric NA or your local Tavrida representative for further details.

