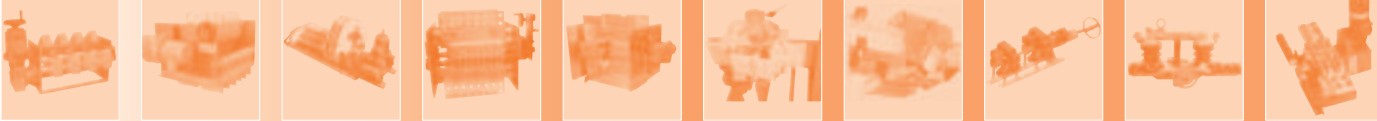


High-Power Switches



Product Data



HIGH-POWER SWITCHGEAR WE CAN CREATE A SOLUTION THAT'S BOTH EFFECTIVE AND COST-EFFECTIVE

So whether your needs are simple or complex, you can rely on Ferraz Shawmut to deliver the best solution.



The Ferraz Shawmut facility dedicated to High-Power Switchgear located in Provins near Paris

To learn more, call us. We'll show you all the ways we're your circuit protection resource.

Equally important, we possess the ability to listen. An ability that enables us to truly understand your needs, so we can create a high-power solution that's both effective and cost-effective.



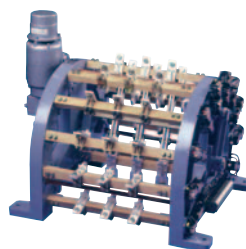
A CADD-equipped laboratory for product development, simulation and qualification

FOULLERET, BERG AND SOULÉ THREE BRANDS FOR SWITCH APPLICATIONS

When industry-leading company worldwide have a special challenge, they call Ferraz Shawmut. Why? Because we've pioneered more technological advances in high-power switches than all of our competitors combine.

DC and AC switches designed to handle high current/low voltage and high voltage/low current applications, including:

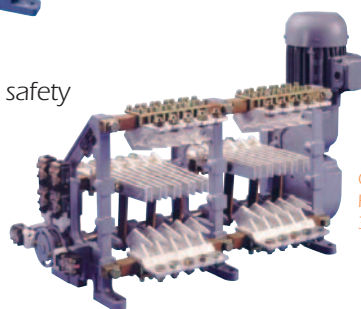
- rectifier output disconnect switches
- change-over disconnect switches
- change-over grounding disconnect switches
- polarity-reversing disconnect switches
- distribution panel disconnect switches
- low-voltage disconnect switches
- medium-voltage disconnect switches
- grounding switches
- mobile and stationary shorting switches
- Pure silver-to-silver contacts for the best connection
- a visible disconnect that eliminates guesswork and increases safety
- Self-cleaning contacts for minimal maintenance
- Aluminum or copper, bolted or welded connections
- Various methods of operation-manual, electric or pneumatic
- Mechanical or electrical open-switch locks
- Multiple contacts, with spring-loaded arc-quenching chambers independent from the main contacts
- Outdoor enclosures resistant to corrosive environments



Change-over disconnect switch
HUVS 3-pole
3600 V - 1 kA
Test Lab Application



Disconnect Switches
HAS 24 kV, single pole, 25 kA
Power Plant Application



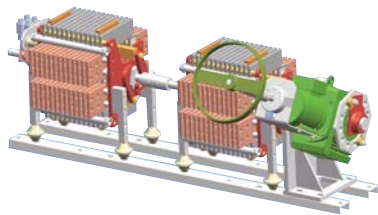
Change-over disconnect switches
HUVS 2-pole Pos 1-0-2
3600 V 8 kA

CHEMICAL AND METAL PROCESS A RANGE OF SWITCHES FROM TRANSFORMER TO CELL

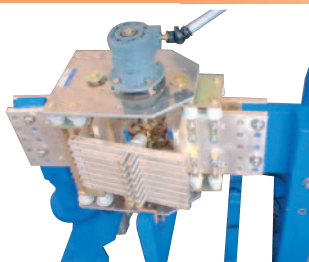
High-power chemical processes, like electroplating and the electrolysis of chlorine, fluorine and magnesium, require disconnect switches that can handle 300 kA plus.

Ferraz Shawmut offers these as well as a range of other types of switches, to cover the entire line from transformer to cell. In fact, we were the first to create multiple products for specific applications. Switches are available for flexible or fixed connections-copper or aluminum, bolted or welded. They include:

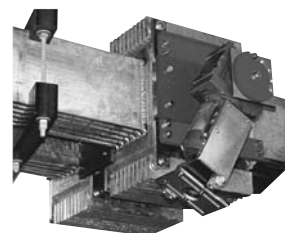
- Medium-voltage transformer disconnect switches
- Rectifier output disconnect switches
- Mobile and stationary shorting switches
- polarity-reversing disconnect switches for electroplating.
- a deformable disconnect switch that can move on three axes to allow for bus bar expansion, eliminating the need for expensive flexible connections
- a proven air-cooled switch for aluminum smelting-the first of its kind
- the first input loadbreak disconnect switch for "choppers" - DC-to-DC converters
- the first loadbreak switch and rotating current transfer unit for copper foil processes
- the first dual-shell switching system for DC arc furnaces



High-current disconnectors
 MBD (Multi-blade disconnectors) range
 2000V DC—5000 to 60000A
 Single-pole/Double-pole/Change-over
 Aluminum or copper terminals



High-current disconnectors
 NORD range
 1500V DC—14 kA to 140 kA
 Single-pole/Double-pole/Change-over
 Aluminum or copper terminals

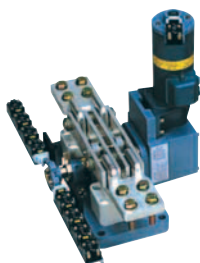


High-current disconnectors
 PBD (Plain bars disconnectors) range
 2000V DC—20 kA to 160 kA
 Single-pole/Double-pole/Change-over
 Aluminum terminals

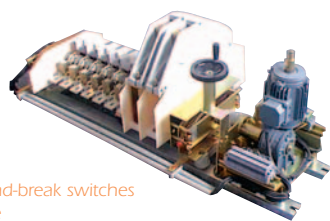
TRACTION

If you've traveled by train anywhere in the world, chances are Ferraz Shawmut's high-power switches were part of your trip. Built to take the vibration and constant punishment of traction applications, our AC and DC switches are found everywhere—from light rail and subway trains to locomotives, from substations and rolling stock to third rails. Customer rely on us for:

- Substation switches
 - DC change-over switches
 - DC grounding switches
 - AC medium-voltage disconnect switches
- Rolling stock switches
 - AC and DC disconnect switches
 - AC and DC change-over switches with several poles and several positions , to handle main, shop, auxiliary and other sources of power
- Track and main yard switches
 - Catenary and third-rail switches
 - Load-break disconnect switches to sectionalize track



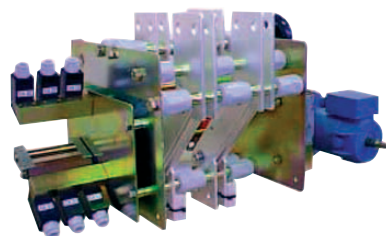
The switches can be operated manually, or they can be motorized and operated locally or remotely, increasing safety and reliability. Another safety feature is a built-in interlock that ensures the position of the switch



DC load-break switches
 IF type
 1000 V DC—800 to 6300 A



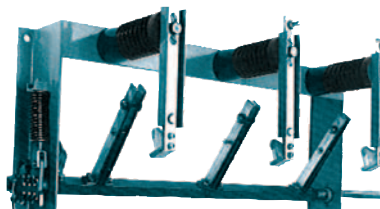
Single pole disconnect
 type HAZ
 100 to 1000 A - 750 V~, 900 V
 1600 to 3150 A - 1000 V~, 1200 V



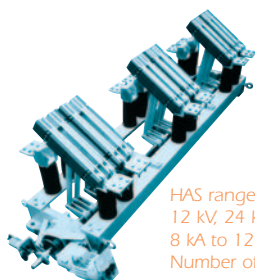
Disconnectors
 Change-over disconnectors
 FA range
 3000 V AC/DC 500 to 8000 A
 0 to 175 Hz

MEDIUM VOLTAGE

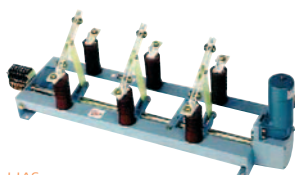
- Distribution panel disconnect switches
- Low-voltage disconnect switches
- Medium-voltage disconnect switches
- Grounding switches
- Mobile and stationary shorting switches



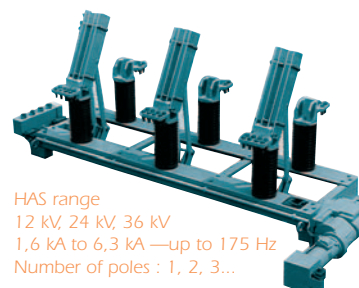
ETM range
 3,6 kV, 12 kV, 24 kV, 36 kV
 Number of poles : 1, 2, 3...



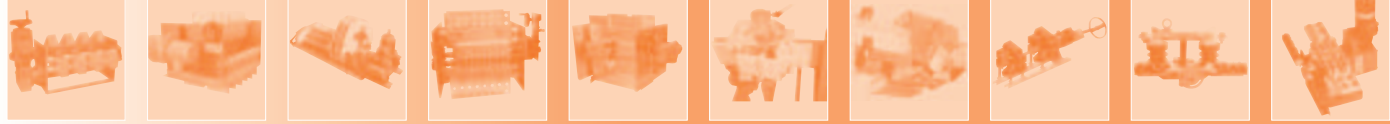
HAS range
 12 kV, 24 kV, 36 kV
 8 kA to 12 kA—up to 175 Hz
 Number of poles : 1, 2, 3...



HAS range
 12 kV, 24 kV, 36 kV
 400 A to 1000 A —up to 175 Hz
 Number of poles : 1, 2, 3...



HAS range
 12 kV, 24 kV, 36 kV
 1,6 kA to 6,3 kA —up to 175 Hz
 Number of poles : 1, 2, 3...



Switch types Main characteristics	page 6 - 11	page 12 - 13	on demand	page 14 - 15	on demand	page 16 - 23
	F/FA	MF	SF*	IF	IFF*	NOR/ NOR-R
DC						
AC ≤ 60Hz						
AC > 60Hz						
UI max (kV)	3.6	3	1	1	3	2
IN max (kA)	8	60	6.3	6.3	3.2	100
Breaking capacity (full load)						
Breaking capacity (small load)						
Multi-poles						
Pole reversing switch						
Deformability (mm)						
Change over						
Auto-cleaning contact						
Terminal copper (bolted)						
Terminal alu (bolted)						

- possible
- possible in certain limits
- possible in special version (development)
- unsuitable
- not possible

