

Schneider MVnex

AUTHORISED PARTNER · CERTIFICATE 20260520JXHL

Medium-Voltage Metal-Clad Switchgear

12 / 24 kV · up to 3150 A / 40 kA · IEC 62271-200



MVnex Medium-Voltage Metal-Clad Switchgear

12 / 24 kV · up to 3150 A / 40 kA · IEC 62271-200

Overview

MVnex is indoor metal-clad switchgear for medium-voltage substations — protection, monitoring and control of MV distribution in public networks, industry and commercial buildings. Three things drive the design: continuity of supply, ease of installation and maintenance, and the safety of the person standing in front of the cabinet.

The range runs from the standard 12 kV cabinet at 3150 A / 40 kA through a 24 kV version to the 550 mm and 500 mm compact cabinets, and all of them splice together in one lineup.

The Range

MVnex 12 kV	Standard · 12 kV · 3150 A · 40 kA · 800 / 1000 mm wide
MVnex 24 kV	24 kV · 3150 A · 40 kA · for 24 kV and high-altitude 12 kV projects
MVnex 550	Compact · 12 kV · centrally installed handcart · 550 mm wide
MVnex 500	Ultra-compact · 12 kV · fixed pattern · 500 mm wide
MVnex Smart	Online monitoring, protection and digital O&M

Reference Standards

Design basis

- IEC 62271-200 / GB/T 3906-2020 — AC metal-enclosed switchgear, 1 kV to 52 kV
- IEC 62271-1 / GB/T 11022 — Common specifications for high-voltage switchgear
- IEC 62271-100 / GB/T 1984 — High-voltage alternating-current circuit-breakers
- IEC 62271-106 / GB/T 14808 — AC contactors and contactor-based controllers
- IEC 60529 / GB/T 4208 — Degrees of protection provided by enclosures

Normal Service Conditions

Installation	Indoor
Ambient air temperature	-15 °C to +40 °C, 24 h mean ≤ +35 °C
Altitude	≤ 1000 m
Relative humidity	Daily mean ≤ 95 %, monthly mean ≤ 90 %

* Above 1000 m the insulation level is corrected to the site altitude. At higher ambient temperatures the current-carrying capacity is derated and extra cooling is needed. Where condensation or corrosion is expected, the measures are agreed before manufacture.

Applications

- Buildings and infrastructure · data centers
- Electric power systems · petroleum and petrochemical
- Light industry and electronics · trams, bridges, tunnels and cranes

Authorised Schneider Electric partner

MVnex is a Schneider Electric design. Schneider Electric (China) Co., Ltd. has authorised Jiangxi HARRL Group Co., Ltd. as a Technology and Business Partner for MVnex Intelligent Medium Voltage Switchgear. The certificate is reproduced on the last spread of this manual.

MVnex 12 kV — Sectional View

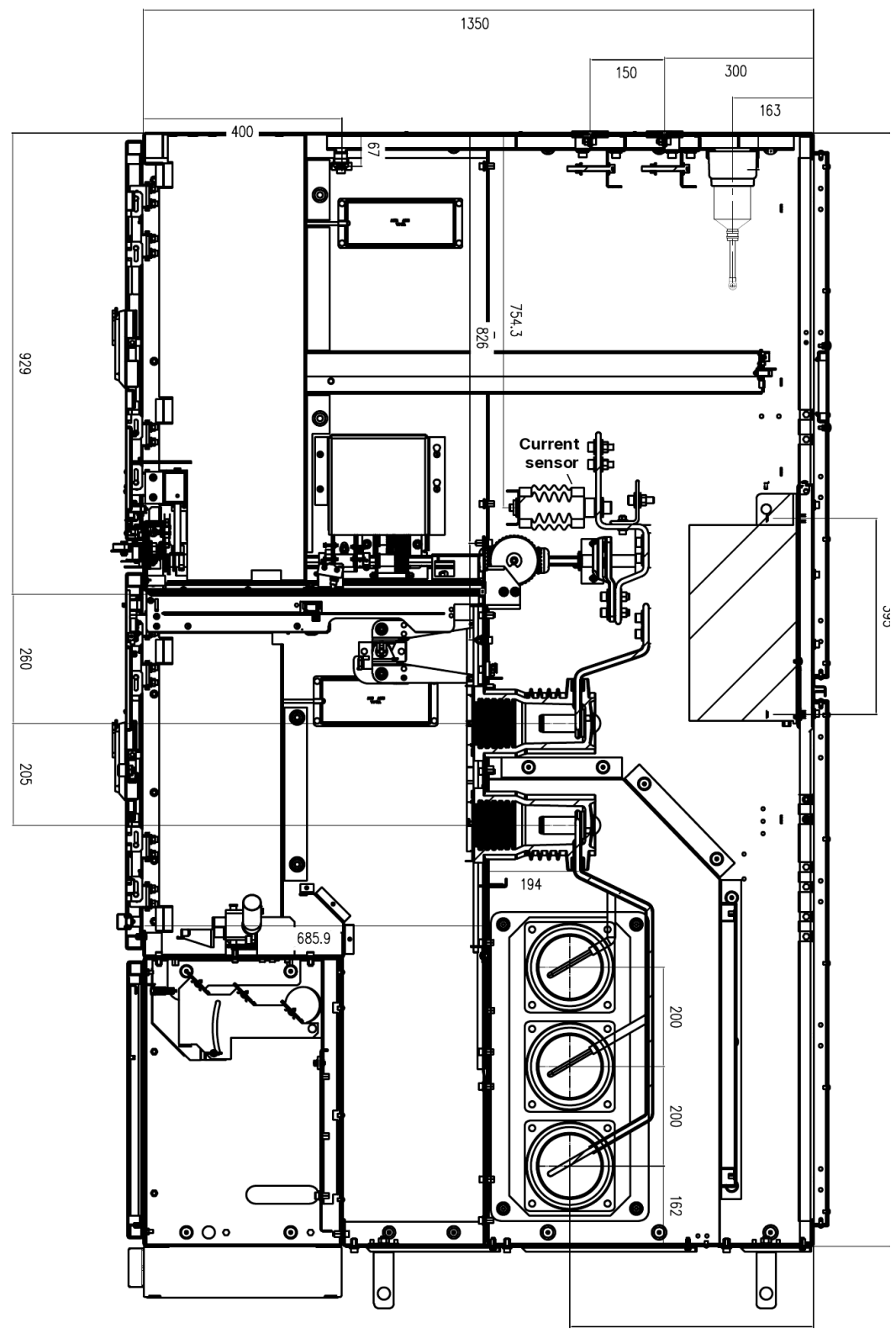


Fig. 1 — Section through the cabinet; the front of the cabinet is on the left, the cable compartment at the bottom

Four Independent Compartments

Metal-clad to IEC 62271-200

- **Low-voltage compartment** — protection, measurement and control; the current sensor is fitted on the sleeve outside the breaker contact arm, covering 25 – 4000 A with one device
- **Circuit-breaker compartment** — withdrawable vacuum circuit-breaker or vacuum contactor on a common chassis that carries the interlocks
- **Busbar compartment** — rectangular flat busbar, no wearing parts and no special maintenance under normal service; inter-cabinet partitions, insulated busbar and insulated connectors are options
- **Cable compartment** — reached from the front or the rear, cable or busbar connection, incoming from the top or the bottom, with the voltage and current transformers

Enclosure and Interlocks

- Aluminium-zinc coated and electro-galvanised steel sheet, epoxy powder coated; fire-retardant insulating components
- Earthing switch with short-circuit making capacity; LV plug connects the breaker control circuit to the low-voltage compartment
- Interlocks cover cable-compartment access, breaker racking in and out, earthing-switch operation and door opening
- Every compartment has its own upward pressure-relief flap

Two ways to operate the earthing switch

The earthing switch is supplied with or without an operating box, so the cabinet suits both a station where operations are logged at the panel and one where the switch is worked directly. State which you want with the enquiry.

Rated Parameters

MVnex 12 kV and MVnex 24 kV

Parameter	Unit	MVnex 12 kV	MVnex 24 kV
Rated voltage	kV	12	24
Rated power-frequency withstand voltage, 1 min	kV	42	65
Rated lightning impulse withstand voltage, 1.2 / 50	kV	75	125
Rated frequency	Hz	50	50
Rated current, busbar and circuit-breaker	A	630 / 1250 / 1600 / 2000 / 2500 / 3150	630 / 1250 / 1600 / 2000 / 2500 / 3150
Rated current, contactor *	A	400	—
Rated short-circuit breaking current	kA	20 / 25 / 31.5 / 40	25 / 31.5 / 40
Rated short-time withstand current, 4 s	kA	20 / 25 / 31.5 / 40	25 / 31.5 / 40
Rated peak withstand current	kA	50 / 63 / 80 / 100	63 / 80 / 100
Earthing switch short-time withstand, 4 s *	kA	40	31.5
Internal arc — design criteria **	kA / s	IAC A FLR 40 / 1	IAC A FLR 31.5 / 1
Degree of protection, enclosure	—	IP4X	IP4X
Degree of protection, between compartments	—	IP2X	IP2X
Cabinet W × D × H	mm	800 / 1000 × 1400 / 1600 × 2300	800 / 1000 × 1860 × 2400

* Rows marked * are the standard build and are confirmed on the project scheme drawing.
** Internal arc figures are the design criteria the cabinet is engineered to, stated as IAC A FLR — accessibility type A, arc-tested faces front, lateral and rear. Every cabinet is routine tested in our works before shipment.

Routine Tests

Every cabinet, before it ships

- Power-frequency withstand voltage on the main circuit and on the auxiliary circuits
- Main circuit resistance measurement
- Mechanical operation and interlock check, earthing switch included
- Wiring check against the scheme drawing, and functional test of protection and control

Key Components

Generic descriptions — the make is confirmed at order

Circuit-breaker	Solid-sealed-pole indoor vacuum circuit-breaker
Contactor	Solid-sealed-pole vacuum contactor, 12 kV
Earthing switch	Quick-make mechanism with short-circuit making capacity
Current transformer	Cast-resin, multi-ratio, metering and protection cores
Voltage transformer	Cast-resin, with primary fuse
Surge arrester	Metal-oxide, gapless

Platform Features

- Maximum parameters 12 kV · 3150 A · 40 kA; seismic design grade 8 (AG3)
- Circuit-breaker, contactor and special cabinet types on one platform
- Earthing switch position visible through a sight glass; opening and closing state readable without opening a door
- Compact mechanism; all current-carrying copper parts in low-resistance material

Why the arc figures are written this way

HARRL states internal arc performance as the criteria the cabinet is designed and built to, not as a certified classification. Routine tests on every cabinet are documented and shipped with the switchgear.

Options

- Insulated main busbar and insulated connectors
- Partitions between cabinets in the busbar compartment
- Motorised racking and remote electrical operation
- Anti-condensation heaters and cabinet lighting

MVnex 12 kV — Outline and Installation Dimensions

Cabinet Dimensions

MVnex 12 kV

Width	800 mm or 1000 mm, per configuration
Depth	1400 mm or 1600 mm
Height	2300 mm
Door heights, front	804 / 758 / 558 mm (LV · breaker · cable)
Base fixing centres	440 mm across × 1250 mm along
Cable entry	3 × Ø 110 mm in the base plate

Electrical Features

- Withdrawable circuit-breaker or contactor; the chassis is common to both
- Earthing switch rated 40 kA / 4 s, with short-circuit making capacity
- Main busbar and branch rated 630 A to 3150 A on the same cabinet width
- Cabinets of different widths splice into one lineup without a transition panel

Which width to order

800 mm covers ratings to 2000 A; 1000 mm is used from 2500 A up and wherever the cable termination or the CT arrangement needs the room. Depth follows the cable compartment: 1400 mm standard, 1600 mm for larger cable bundles.

Reading the Drawings

- Fig. 2 and Fig. 3 are the 800 mm cabinet; the 1000 mm cabinet is the same height and depth
- The three door heights add up with the frame to the 2300 mm overall height
- Base fixing holes and the cable entry openings are on Fig. 7 of the installation spread

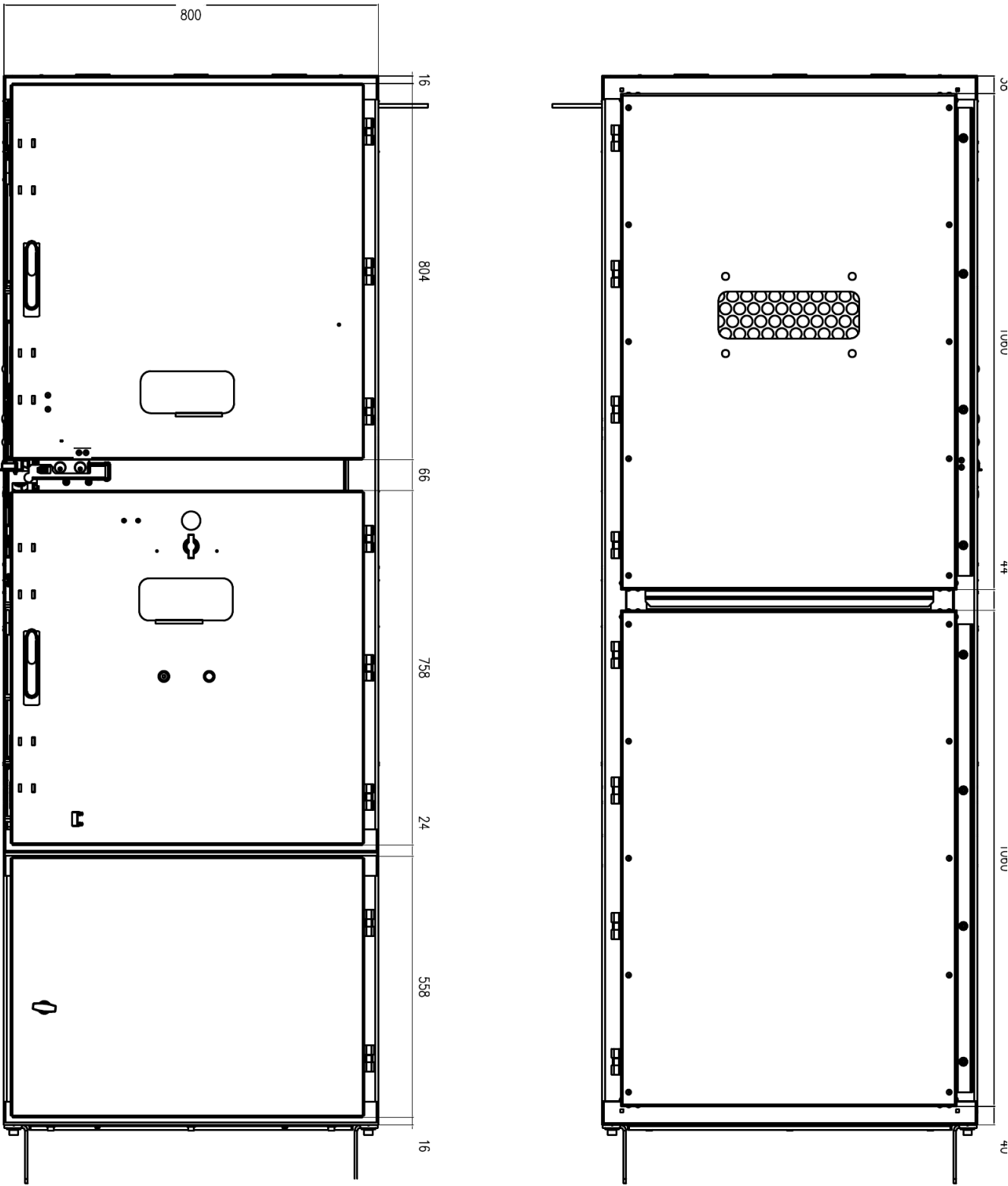


Fig. 2 — Front view

Fig. 3 — Rear view

MVnex 24 kV — Sectional View

MVnex 24 kV — Outline and Installation Dimensions

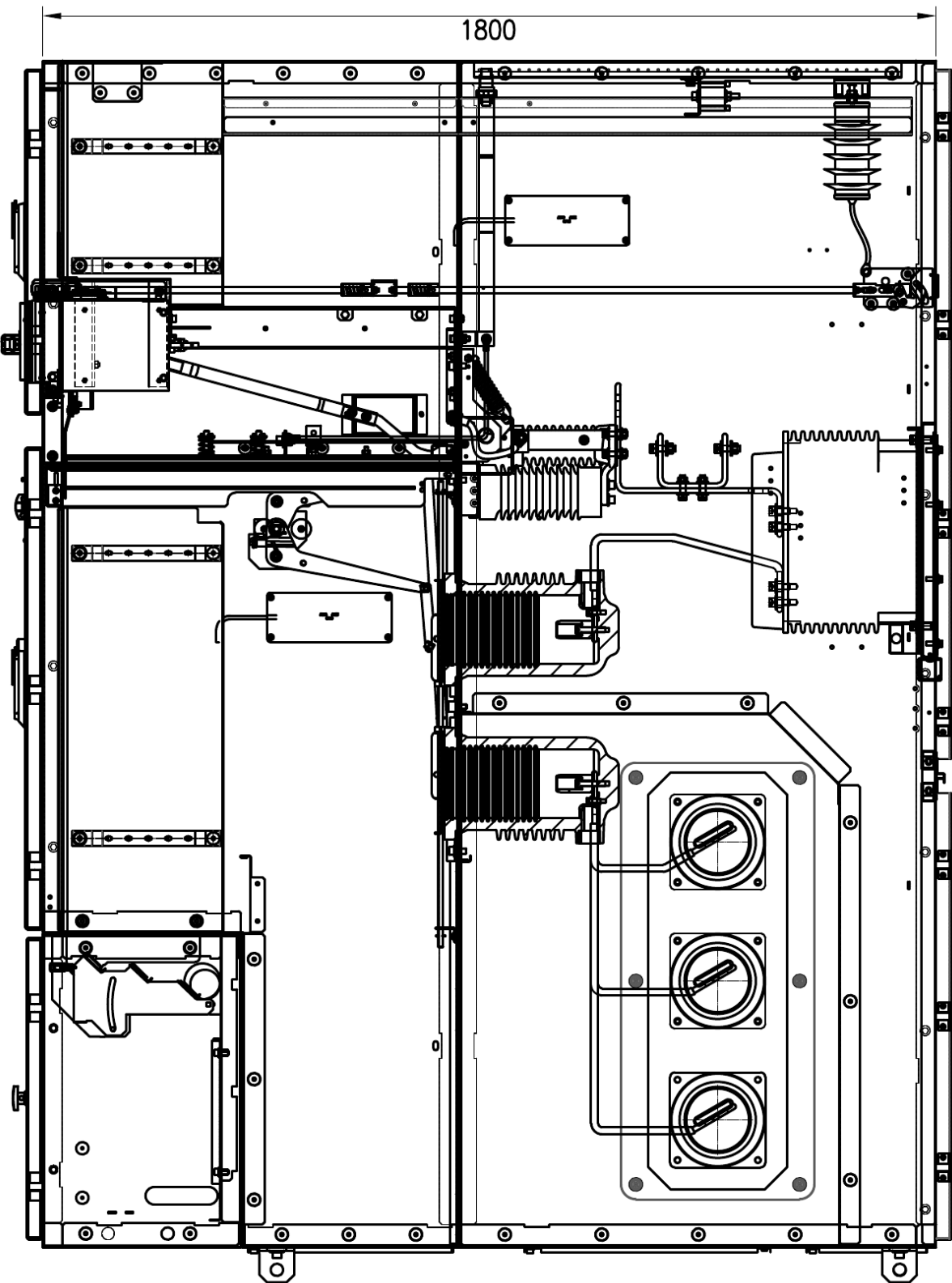


Fig. 4 — Section through the 24 kV cabinet; front of the cabinet on the left

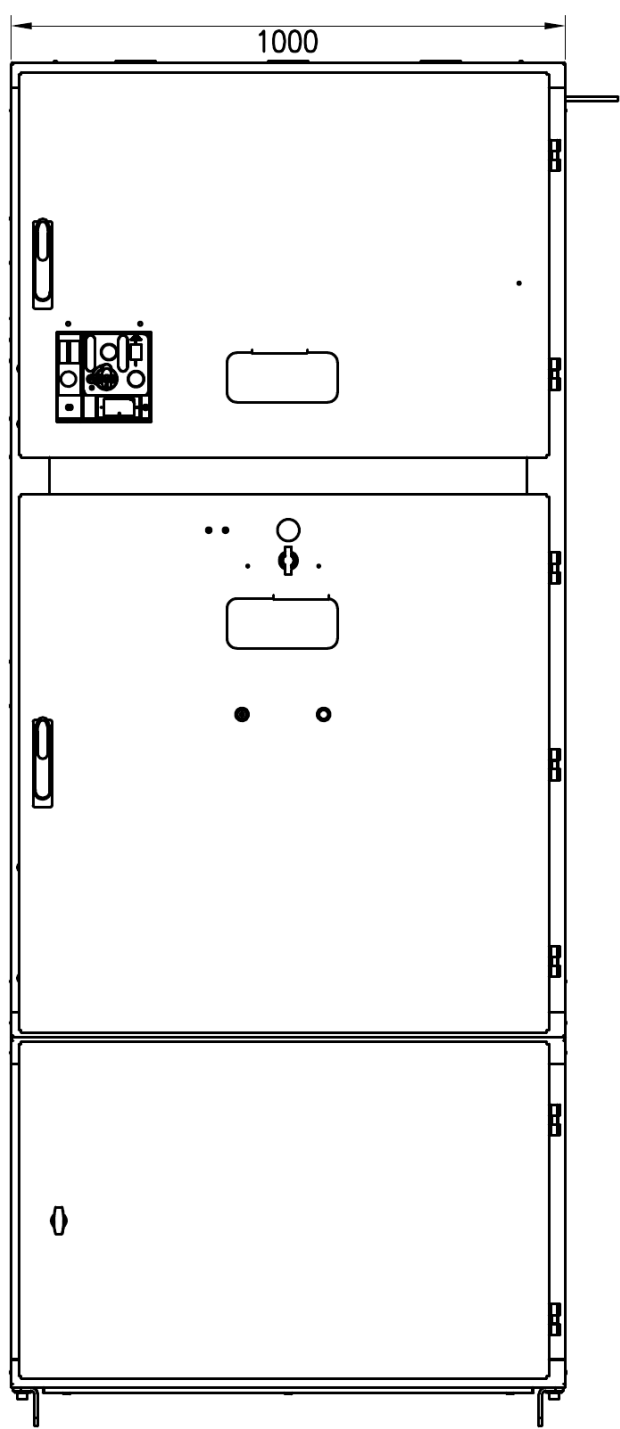


Fig. 5 — Front view

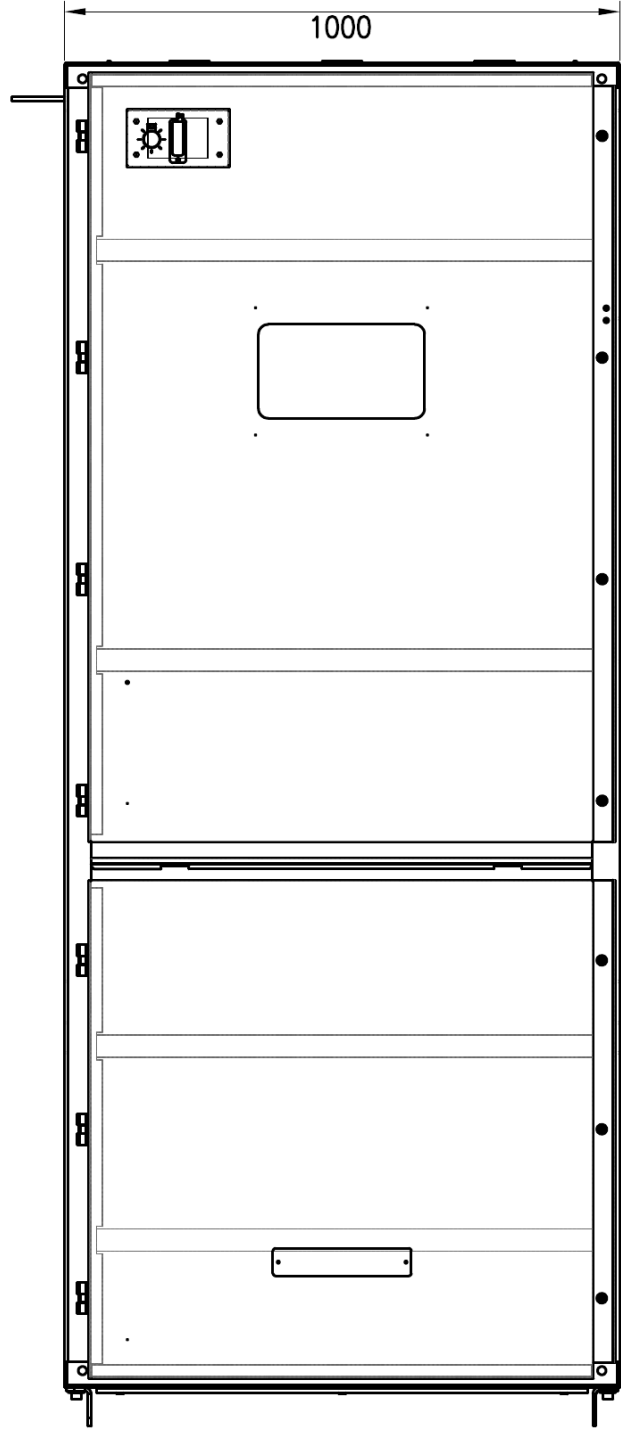


Fig. 6 — Rear view

MVnex 12 kV — Cabinet Types

Cabinet type	Current	Function	Typical primary components
Circuit-breaker incoming / outgoing	630 - 3150 A	Incoming / outgoing	1 VCB · 1 ES · 2 or 3 CT · 1 or 3 VT · 3 arresters
Insulated handcart / direct cable outgoing	630 - 1250 A	Isolation; outgoing	Per scheme
Contactor outgoing	400 A	Incoming / outgoing	1 contactor · 1 ES · 2 or 3 CT · 1 or 3 VT · 3 arresters
Busbar coupling / link	630 - 3150 A	Bus section	1 VCB · 2 or 3 CT
Riser	630 - 3150 A	Riser	2 or 3 VT · 3 arresters
Measuring	630 - 3150 A	Metering / isolation / busbar	2 or 3 CT · 1 or 3 VT · 3 arresters
Busbar voltage transformer	630 - 1250 A	VT cabinet	2 or 3 VT · 3 arresters
Auxiliary transformer	630 - 1250 A	Load switch / fuse carriage	Per scheme

* Component quantities are the typical maximum for each cabinet family; the exact quantity follows the primary scheme selected. VCB — vacuum circuit-breaker · ES — earthing switch · CT — current transformer · VT — voltage transformer. For cabinet types not listed, ask us.

Protection per Bay

What each cabinet type normally carries

- **Incoming and outgoing** — overcurrent and earth fault, with metering CTs on the same cabinet
- **Transformer feeder** — overcurrent, earth fault and, on larger units, differential protection with the LV side
- **Bus section** — overcurrent, plus interlocking with both incomers
- **Motor feeder (contactor)** — thermal overload, locked rotor and phase unbalance

MVnex 24 kV — Primary Schemes

Incoming / outgoing cabinet	630 - 1250 A
Isolation and incoming / outgoing	630 - 1250 A
Busbar coupling cabinet	630 - 1250 A
VT and busbar cabinet	630 - 1250 A
Isolation and busbar cabinet	630 - 1250 A
VT cabinet / measuring cabinet	630 - 1250 A
Overhead incoming cabinet	630 - 1250 A

How a Lineup Is Put Together

- The scheme drawing is agreed first — cabinet order, ratings, protection and metering per bay
- Cabinet widths are mixed freely in one lineup; the main busbar runs through unchanged
- Incoming from the top or the bottom, on either end of the lineup
- Contactor cabinets sit in the same lineup as breaker cabinets for motor feeders

Send us the single line diagram

Cabinet type, rating and protection per bay all come off it. A lineup quoted from a bay count alone gets re-quoted once the diagram arrives, which helps nobody.

MVnex 550 — Compact

Centrally installed handcart switchgear, 550 mm wide

- 550 mm wide — around 40 % less floor area than a conventional cabinet, and it splices directly with the high-current widths
- Full interlocking: no racking under load, no closing onto a closed earthing switch, no entry into a live compartment
- Online monitoring of temperature, partial discharge and mechanical characteristics; remote electrical operation
- Solid-sealed-pole vacuum circuit-breaker on a handcart — commercial and industrial buildings, real estate, data centers

MVnex 500 — Ultra-Compact

Fixed pattern, 500 mm wide

- 500 mm wide — switchroom construction area cut by around 60 %; it can stand against the wall with a 1 m operating aisle in front
- Solid-sealed-pole breakers and three-position switches, position visible through the front sight glass; the mechanical interlocks meet the five-prevention requirements
- Fixed main-circuit connection — no maintenance over the life cycle; a GIS-like structure insulated in air, with no gas to handle
- Splices with the other MVnex widths; suits packaged substations, tram and infrastructure projects

MVnex Smart

Digital operation and maintenance

- **Temperature** — wireless sensors inside the cabinet, no external supply, maintenance-free, read over a standard serial protocol
- **Protection** — microprocessor relay with programmable protection stages, an embedded web page and a mobile app
- **Arc protection** — light-and-current arc detection with fault-point location and breaker-failure backup
- **Asset management** — work orders, live data and alarms, protection-curve verification, cloud platform and mobile O&M

Ratings for the compact cabinets

The 550 and 500 mm cabinets are built around 12 kV, 1250 A and 31.5 kA class equipment. The full rating table for these two, and for MVnex Smart, is issued with the quotation once the scheme is known.

Choosing Between Them

- Room for a standard lineup, and the bays may change later — **MVnex 12 kV**
- Floor area short but the breakers must be withdrawable — **MVnex 550**
- Smallest possible room, fixed configuration accepted — **MVnex 500**
- Unattended or critical installation — add **MVnex Smart** to any of them

Smart can be added later

The monitoring, protection and arc-detection packages sit on the standard cabinet, so a lineup supplied today can take them at a later stage. Say so at the enquiry and the LV compartment and the wiring are prepared for it.

Base Plate — Fixing and Cable Entry

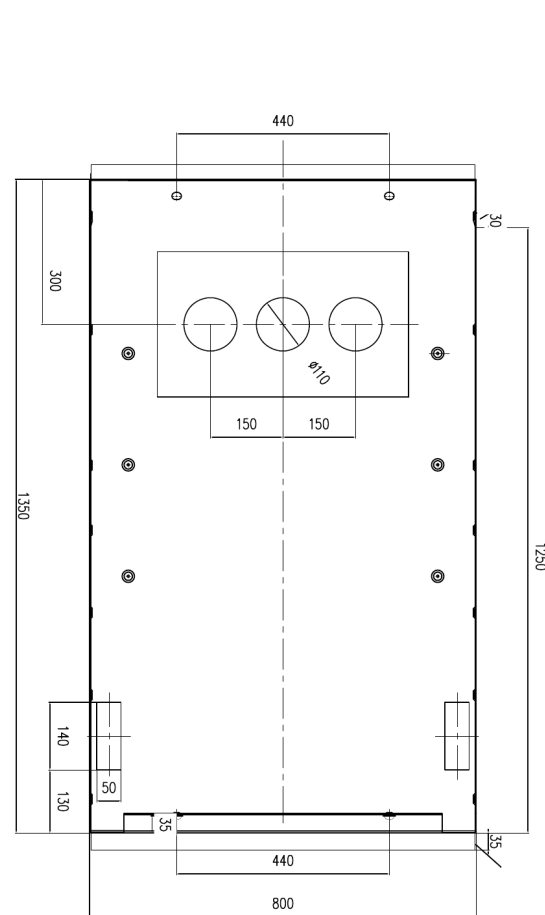


Fig. 7 — MVnex 12 kV, 800 mm cabinet

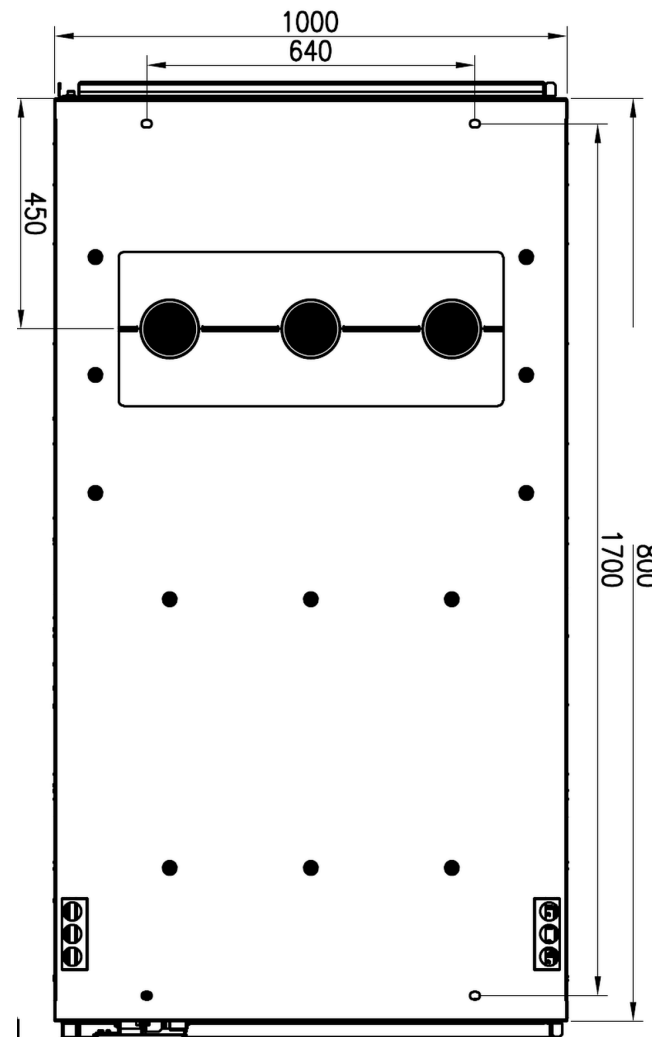


Fig. 8 — MVnex 24 kV, 1000 mm cabinet

Setting Out

- **MVnex 12 kV, 800 mm** — fixing centres 440 mm across × 1250 mm along; three Ø 110 mm cable openings on the centre line
- **MVnex 24 kV, 1000 mm** — fixing centres 640 mm across × 1700 mm along; the cable openings sit 450 mm from the front of the cabinet
- Fig. 7 and Fig. 8 are drawn to the same scale, so the two footprints compare directly
- Drawings for the other widths and depths are issued with the order confirmation

Civil Construction

Foundation framework and clearances

- Leave a maintenance channel between the rear cover or cabinet side and the wall; face-to-face lineups need ≥ 2500 mm between rows
- Foundation frame in pre-processed channel steel: 5# channel with L30 × 30 angle for the 12 kV, 550 and 500 cabinets; 10# channel with L30 × 30 for 24 kV
- Anchor plates every 1 – 1.5 m along the frame
- Power cable trench 800 × 1000 mm; control cable trench 250 × 250 mm with a 5 mm chequer-plate cover
- Levelness and straightness ≤ 1 mm per metre and ≤ 2 mm overall; the frame top sits 3 – 5 mm above the finished floor

What to Specify

- Rated voltage, busbar current and short-circuit rating
- Single line diagram: cabinet order, function and rating of each bay
- Protection, metering and control per bay, and the station supply available
- Cable type and size per bay, and whether cables enter from above or below
- Room dimensions and the incoming side of the lineup

The frame goes in before the cabinets

The foundation frame is supplied with the switchgear and grouted into the floor by the site. Cabinets are set on it and bolted down; getting the frame level to 1 mm per metre is what makes the doors and the racking mechanism work.

Schneider Electric Authorisation Certificate



Authorisation code 20260520JXHL

* The certificate names the company by its registered transliteration, Jiangxi Huanlin Group Co., Ltd. HARRL is the export brand of the same company.

What That Means for Your Project

- The cabinets in this manual are built in HARRL's own works in Nanchang and routine tested there before shipment
- Primary components are selected against the project scheme; the makes are confirmed at order and stated on the scheme drawing

Scope of Supply

Standard	Cabinets, primary equipment, internal wiring, busbar and interconnection
Tested	Routine tests and functional check in our works
Shipped	By cabinet, on pallets, with the foundation frame separate
Documents	Scheme drawing, outline and installation drawing, test records, manual
Not included	Civil works, power and control cables, station battery

Lead time

A standard lineup ships in 4 – 6 weeks; a lineup built to a project single line diagram takes 6 – 8 weeks from drawing approval.

The ownership of the version belongs to Jiangxi HARRL Group Co., Ltd. and all rights are reserved to the extent permitted by law. Due to product development and technical improvements, the actual products sold may differ from those shown in this brochure, and the company reserves the relevant right.



Web: harrlgroup.com

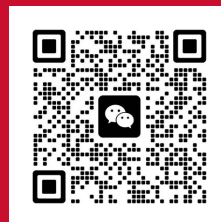
Email: sales@harrlgroup.com

Tel / WhatsApp: +86 183 7998 3771

Address: No. 388 Quanshun Road, Nanchang County,
Nanchang, Jiangxi, China



Scan for WhatsApp



Scan for WeChat