



Electrical & Automation

THE NEW-AGE SUSTAINABLE SOLUTION



AIR INSULATED SWITCHGEAR
Compact | Reliable | Safe



ABOUT US

Lauritz Knudsen Electrical & Automation, formerly known as L&T Switchgear, is a leading player in the electrical industry owing to its 70+ years of strong legacy and commitment to the nation's growth. The brand is dedicated to providing a wide range of electrical and automation products and solutions to vital sectors of the economy, including industries, utilities, infrastructure, buildings, and agriculture. Our extensive portfolio includes low-voltage and medium-voltage switchgear, automation solutions, tailored software, and services.

With manufacturing operations in Ahmednagar, Vadodara, and Coimbatore, we adhere to global standards of excellence. Our operations are supported by well-equipped, in-house design and development centers, as well as tooling facilities, ensuring precision in manufacturing.

We proudly operate six Switchgear Training Centers (STCs) across Pune, Lucknow, Coonoor, Vadodara, Delhi, and Kolkata. These centers offer tailor-made classroom courses and lab learning experiences for technicians, customers, engineers, professionals, and students.

With a deep national presence and one of the largest electrical distribution networks, comprising over 1500 partners across the country, we are committed to driving excellence and delivering superior products and solutions that power India's growth journey.

VH - Air Insulated Switchgear

VH-AIS is the result of decades of experience in offering environment-friendly vacuum technology for arc-quenching in highly reliable and safe air insulation, with minimal maintenance, compact space solutions and ease of user management.

VH - AIS comprises metal-clad medium voltage switchgear assemblies from 3.3 to 36kV. We offer the most compact switchgear up to a fault level of 50kA, 3s for 12kV & 31.5kA, 3s for 36kV system.

VH - AIS is well designed to function satisfactorily even in the most adverse environmental conditions, owing to its robust construction and high performance.

Your indoor switching system is absolutely safe and protected with VH - AIS, for wide applications ranging from industries to infrastructure sectors. It adheres to the latest IEC standards.

IEC62271-100

High Voltage Circuit Breakers (1 kV - 52 kV)

IEC62271-200

High Voltage Metal Enclosed Switchgear (1 kV - 52 kV)

IEC62271-102

High Voltage Disconnectors & Earthing Switches

IEC62271-106

High Voltage Contactors (for Controllers & Motor Starters)



Safety

Honored protector

VH - AIS is a robust metal-clad switchgear, divided into four distinct compartments (busbar, circuit breaker, cable and low voltage equipment) segregated by earthed metal panels, to assure your protection against electric shock.



Extreme independence of environment

VH - AIS gives you protection against access to hazardous parts and solid foreign bodies and is designed & engineered to perform satisfactorily in harsh and corrosive environment with dust and pollution.



Touch protective

The earthed metallic, spring operated shutters ensure protection against accidental contact even when the breaker is isolated or withdrawn.

The independent operation and padlocking of the busbar & cable shutters enhances safety during maintenance.



Arc proof - Integral safety

The successful verification of internal arc classification, IAC A (F,L,R), for our switchgear ensures the highest possible degree of protection to operating personnel and switchgear vicinity.

How?

VH-AIS incorporates independent pressure relief flaps for each compartment and completely separated gas duct.

In the unlikely event of an internal arc fault, the gases are expelled at the top of the cubicle, as far from the operator as possible, for improved safety.



Our type-tested VH - AIS also accomplishes the provisions of internal Arc fault withstand test as per IEC 62271-200 in all aspects.

Criterion	VH-AIS
Correctly secured doors and covers do not open	✓
No enclosure fragmentation during the test period	✓
No holes in accessible sides up to a height of 2m during an arc	✓
Indicators do not ignite due to hot gases caused by the arc	✓
Earth connections remain intact for the safety of operator	✓



A world of Safety interlocks

VH - AIS comprises a set of complete electrical interlocking in grouping with intelligent & strong mechanical interlocks to prevent any accidental erroneous operation, resulting in a safer environment for both plant and personnel.

For maximum safety, all operations are performed from the front with the door closed, with highly reliable fool-proof interlocks:

- › For rack-in of VCB or VCU, connection of the LV plug is mandatory.
- › VCB or VCU can be racked-in and withdrawn only in OFF condition.
- › VCB or VCU can be closed only in Test or Service position.

Earth Switch Interlock

- › Earth switch can be closed only when VCB or VCU is in Test position.
- › VCB or VCU can be racked in only when Earth switch is in open condition.

Earthing Truck Interlock

- › The Bus / Cable circuit can be earthed with the earthing truck only when there is no voltage on Bus / Cable.



Customized Rear Door Interlock

- › Rear compartment door opens only when the VCB or VCU is in test position with earth switch closed.

The VH - AIS comes with a host of safety interlocks. Additional interlocking can be engineered to your requirements.



Trusted busbar zone

Generous and optimum clearances for main busbars and connectors warrant unmatched safety for you.

Supports and insulation materials are flame resistant, track resistant and non-hygroscopic exhibiting outstanding electrical properties.

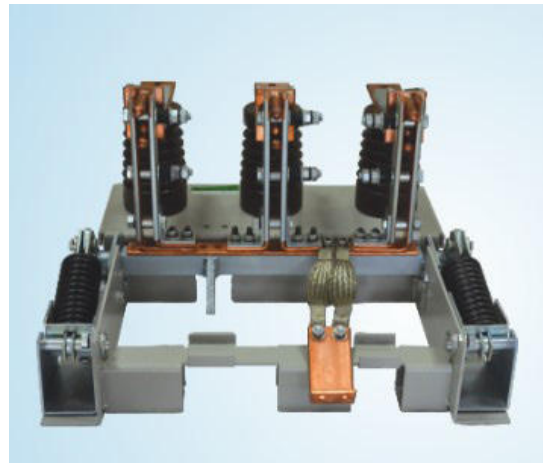


Earthing Switch

Safeguarding of operating personnel is achieved by providing make-proof earthing switch for cable, as well as busbar compartments.

You have an option to select an integral earthing switch or a separate earthing truck.

The switch is tested to make and carry the rated short-circuit current for 3s.



Safety First



Reliability

Unmatched structural integrity

Our cubicles are made of high-grade 'pickled & oiled' mild steel sheets, cut and folded on numerically controlled machines, making the enclosure sturdy and reliable.



Surface protector

The 9-tank pre-treatment paint process along with powder coating with robotic paint applicator ensures that your cubicle has a long lasting, high-gloss finish and is optimally protected against corrosion and weathering.



Infinite cycles

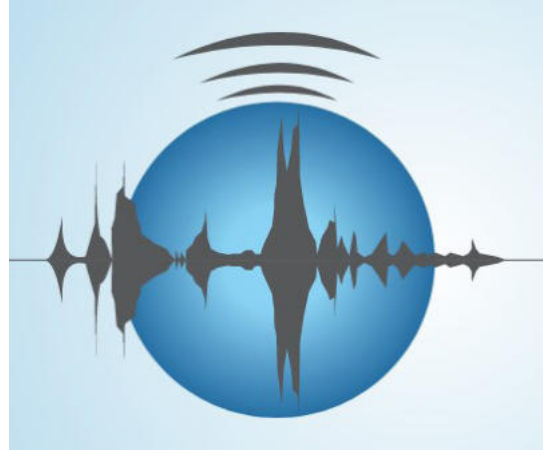
Our Vacuum Circuit Breakers require minimal maintenance and have a design life of 20 years or 10,000 mechanical operations.

For motor switching applications, you can rely on our vacuum contactors with a capacity of up to 3 million mechanical operations.



Dynamic driver

Our AIS systems are seismically qualified. They are enhanced for rigidity and tested for stable operation in earthquake prone areas up to Zone V as per latest codes & standards.



A Global validation

VH - AIS is completely type-test-verified at reputed international third-party laboratories to assure you best-in-class products.



Factory specialist

The performance of your assemblies is guaranteed by carrying out the following checks as our routine factory test plan:

- › Electrical tests
- › Visual Checks
- › Measurement Checks
- › Mechanical tests
- › Physical tests



Convenience

Smart addition

Panel coupling at site is made simple and safe through easily accessible bus bar connections and links.



More space. More capability.

The cable termination height is well above floor level, and generous space is provided for terminating power cables. This ensures a higher bending radius and reduces tension on the terminals.



Stay connected

Our Vacuum Circuit Breakers and Contactor Units are truck-mounted, the movement of which is interlocked with the door to make it very convenient for your operators.



Ergonomic

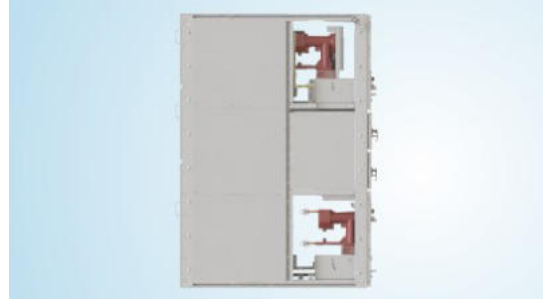
VH-AIS comes with a single-handle for opening and closing the breaker door, eliminating fasteners. This makes the operation quick and easy.



Minimum Footprint. Optimum Utilisation.

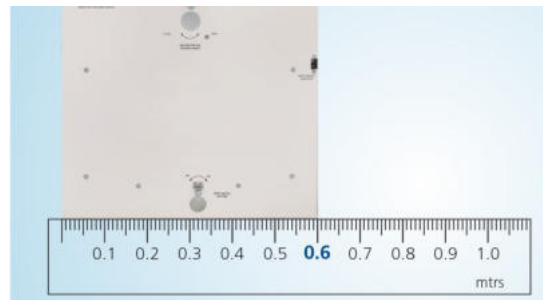
VH - AIS can accommodate 2 VCBs / VCUs in a single vertical section, thereby saving space.

Also, Bus PT and Line PT can be offered in a two-tier arrangement.



Maximize your space

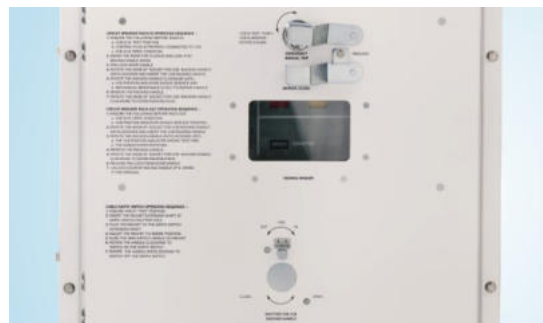
VH - AIS is characterized by a reduced width which offers savings on space and civil costs. Even with panels as slim as 600mm, it offers spacious compartments allowing easy access for installation and maintenance.



Visual appeal

The detailed instructions about operations & interlocks are screen printed on the VCB compartment door for convenience.

Moreover, the front viewing window shows a clear visual display of circuit breaker position, ON/OFF condition, spring charged / discharged and earthing switch status.



Customize your experience

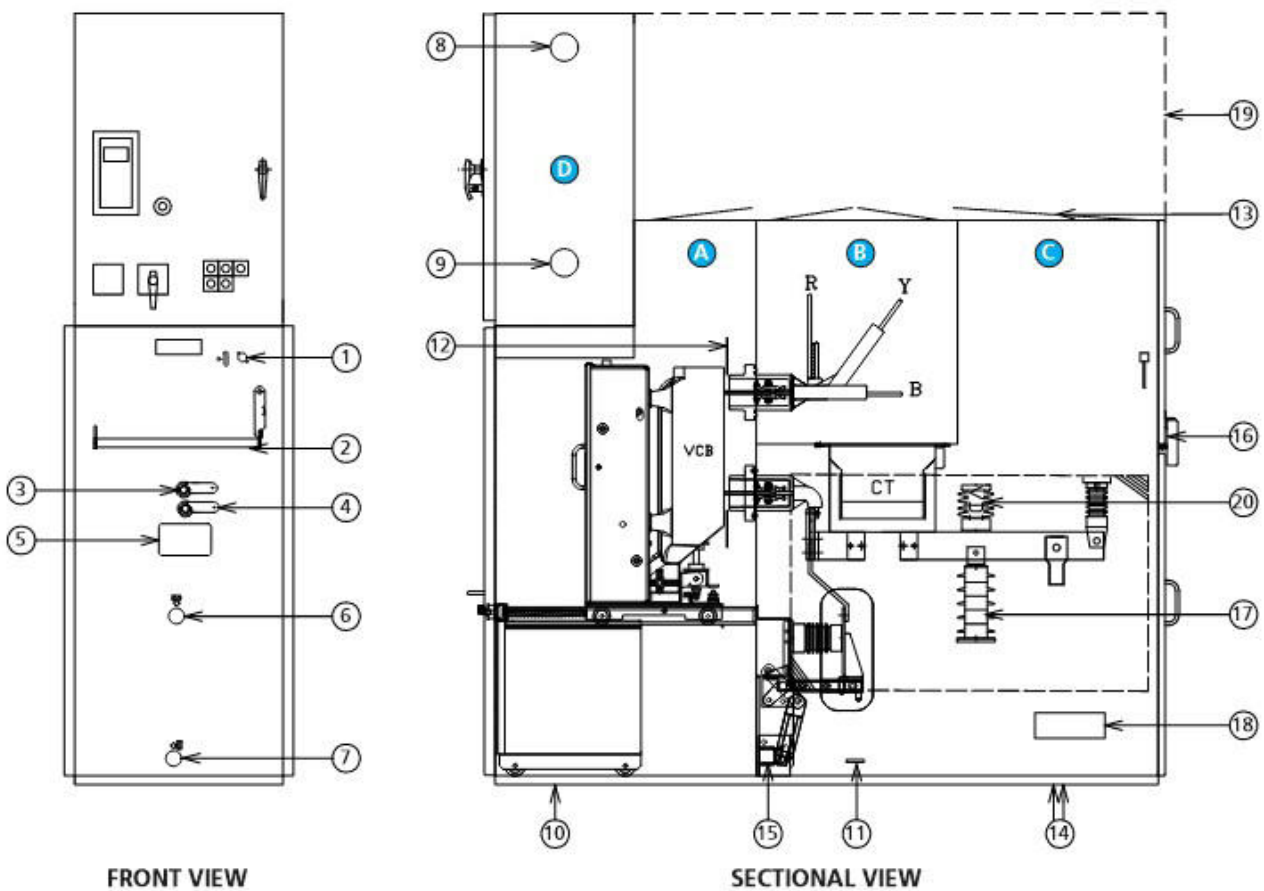
Round-the-clock project management executives and after-sales teams support your installation, commissioning and maintenance needs.



Construction

Typical VH - AIS Arrangement

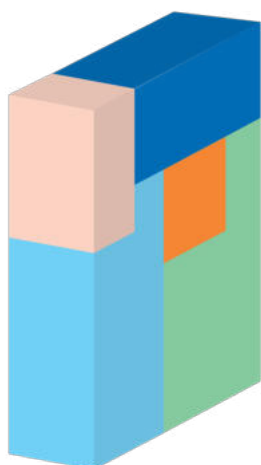
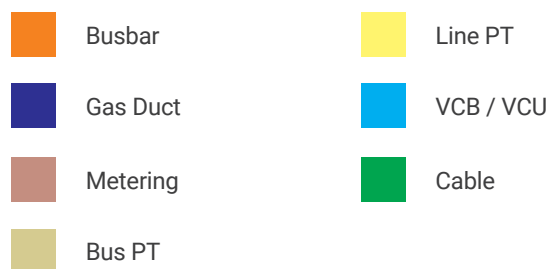
- A - VCB / VCU Compartment
- B - Busbar Compartment
- C - Cable Compartment
- D - Low Voltage Compartment



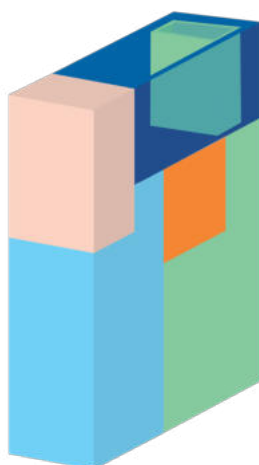
- 01 - Test / Service position Indicator
- 02 - VCB door handle & padlocking
- 03 - Manual trip
- 04 - Manual close
- 05 - Viewing window for VCB ON/OFF & Spring charging status indication
- 06 - VCB Racking slot
- 07 - Earth switch operating slot
- 08 - Routing communication wires
- 09 - Routing Interpanel wires
- 10 - Control cable entry

- 11 - Earth bar
- 12 - VCB safety shutters
- 13 - Pressure relief flaps
- 14 - Power cable entry
- 15 - Earth switch
- 16 - Rear Door Interlock
- 17 - Surge Arrester
- 18 - CBCT
- 19 - Gas Duct
- 20 - Voltage Detecting Insulator

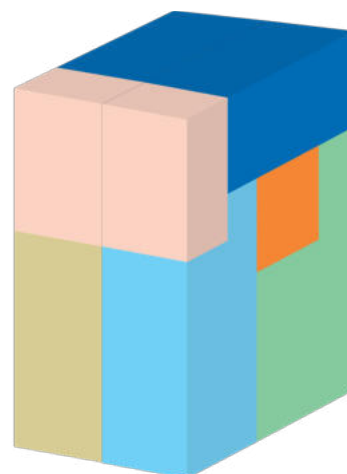
Typical configurations



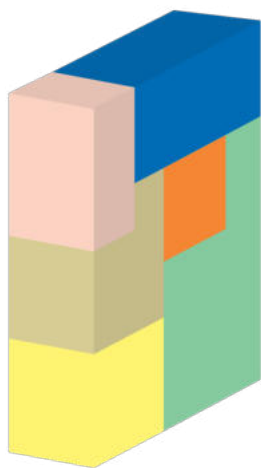
Incomer / outgoing
with bottom cable entry



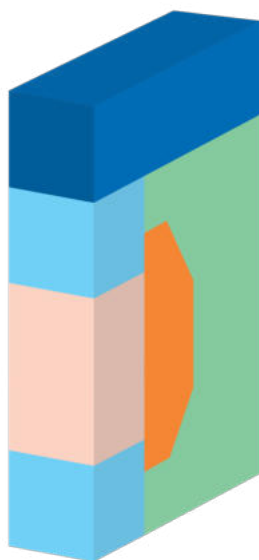
Incomer / outgoing
with top duct entry



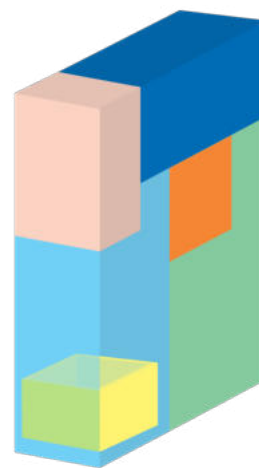
Buscoupler with Bus PT
And Riser Panel



Two tier PT Panel



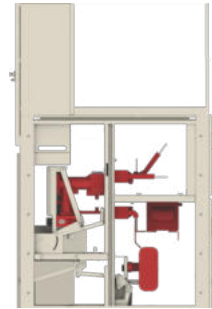
Two tier VCU Panel



Incomer with Line PT

Technical Specifications

7.2 kV AIS with VCU

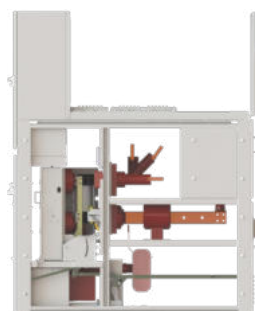


Panel Details	Standards	IEC 62271-200			
	Type Designation	VH1H			
Voltage ratings	Voltage	up to 7.2 kV*			
	Impulse Withstand Voltage	20 kVrms			
	Power Frequency Withstand Voltage	60 kVp			
	Frequency	50 / 60 Hz			
Current ratings	Rated Current	200 - 400 A			
	Short Time Withstand Current	up to 8 kA			
	Short Time Withstand Current (with Fuse)	25 / 40 / 50 kA			
Dimension	Width#	600 mm			
	Depth#	1570 / 1970 mm			
	Height#	2495 mm			
Construction	Partition Class	PM			
	Loss of Service continuity	LSC-2B			
	Degree of protection	IP4X (Higher IP on request)			
	Damage Classification	Type C			
	Internal Arc Classification	A (F, L,R), 40kA, up to 1s			
VCU	IEC Standard	IEC 62271-106			
	VCU Type	Non Latched		Latched	
	Type Designation	VCU7N200	VCU7N400	VCU7L200	VCU7L400
	Opening time	< 35 ms			
	Mechanical Endurance	up to 3 Million		up to 0.3 Million	
	Electrical Endurance	up to 0.3 Million (AC-3)			
	Rated Duties (40% on Load Factor)	Class 300			
	Closing /Tripping Coil	110 / 220 V DC			
	Auxiliary Contacts	3NO+3NC			

2 Tier panel width & depth starts from 800mm & 1970mm respectively

* 12 kV VCU offered on request

12 kV AIS with VCB



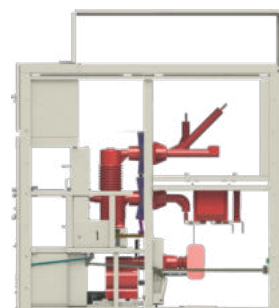
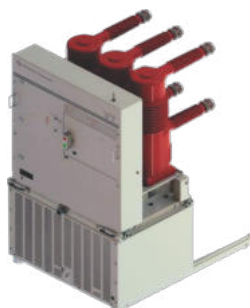
Panel Details	Standards	IEC 62271-200			
	Type Designation	VH1H			
Voltage ratings	Voltage	up to12 kV			
	Power Frequency Withstand Voltage	28 /38* kVrms			
	Impulse Withstand Voltage	75 / 95* kVp			
	Frequency	50 / 60 Hz			
Current ratings	Rated Current	630 / 800 A	1250 A	2000 A	3150 / 4000* A
	Short Time Withstand Current (3s)	25 / 26.3 kA			
		40 / 50 kA			
	Short Circuit Making current	62.5 / 65.75 kAp			
		100 / 125 kAp			
Dimension	Width#	600 mm		800 mm	1000 mm
	Depth #	1570 / 1970 / 2170 / 2270 mm			
	Height	2495 mm			
Construction	Partition Class	PM			
	Loss of Service continuity	LSC-2B			
	Degree of protection	IP4X (Higher IP on request)			
	Internal Arc Classification	A (F, L,R), up to 40 / 50kA , up to 1s			
VCB	IEC Standard	IEC 62271-100			
	Type Designation	VK series			
	Operating Sequence	O-0.3sec-CO-3min-CO			
	Opening time	< 35 ms			
	Break time	< 3 cycles			
	Mechanical Operations	10,000			
	Closing /Tripping Coil	24 / 48 / 110 / 220 V DC			
	Spring charging motor	24 / 48 / 110 / 220 V DC 110 / 240 V AC			
	Auxiliary Contacts	6NO+6NC / 12NO+12NC*			

* offered on request

^ with forced ventilation

50kA Panel width & depth starts from 800mm & 1970mm respectively

36 kV AIS with VCB



Panel Details	Standards	IEC 62271-200		
	Type Designation	VH1H		
Voltage ratings	Voltage	36 kV		
	Power Frequency Withstand Voltage	70 kVrms		
	Impulse Withstand Voltage	170 kVp		
	Frequency	50 / 60 Hz		
Current ratings	Rated Current	800 A	1250 A	2000 / 2500* A
	Short Time Withstand Current (3s)	25 / 31.5 kA		
	Short Circuit Making current	63 / 79 kAp		
Dimension	Width	1000 mm		
	Depth**	2650 / 2950 mm		
	Height***	2500 mm		
Construction	Partition Class	PM		
	Loss of Service continuity	LSC-2B		
	Degree of protection	IP4X (Higher IP on request)		
	Internal Arc Classification	A (F, L,R), 31.5kA , 1s		
VCB	IEC Standard	IEC 62271-100		
	Type Designation	VY series		
	Operating Sequence	O-0.3sec-CO-3min-CO		
	Opening time	< 35 ms		
	Break time	< 3 cycles		
	Mechanical Operations	10,000		
	Closing /Tripping Coil	24 / 48 / 110 / 220 V DC		
	Spring charging motor	24 / 48 / 110 / 220 V DC I 110 / 240 V AC		
	Auxiliary Contacts	6NO+6NC		

* Offered on request.

** Depth may vary with cable size & number of Current Transformer.

*** Height is without gas duct and may change (increase/decrease) depending on LV Components / Relays.

The Perfect Match for your VH - AIS

VH - AIS offers the widest range of electrical solutions up to 36kV. Our In-house design and testing facilities enable us to create customized solutions with type tested switchboard combining

VCBs and VCUs in perfectly matched configuration as per your requirements. We ensure that you achieve the highest level of cost & design optimisation with our VH - AIS.

Vacuum Circuit Breaker

- › VCB Class - E2 | C2 | M2
- › Customized 2 trip coils configuration
- › Common design & safety interlocks up to 36kV
- › Rated current capacity up to 4000A
- › Short circuit breaking capacity up to 50kA
- › Built - in anti-pumping feature
- › User-friendly truck mounted design



Vacuum Contactor Unit

- › Fused Short circuit protection up to 50kA
- › Available in latched & non latched configurations
- › Encapsulated current carrying parts for higher safety
- › Truck mounted design similar to VCBs
- › Suitable for motor starters with numerous switching operations
- › Two VCUs can be accommodated in single panel for optimum space utilisation
- › VCU panels can be coupled with VCB panels owing to



Electrical Standard Products (ESP) Offices

HEAD OFFICE

Lauritz Knudsen Electrical & Automation, A/600, Shil-Mahape Road, TTC Industrial Area, MIDC Thane, Navi Mumbai, 400 710, Maharashtra.

Tel: 022-6722 6300 | Fax: 022-6705 1112 | e-mail: CIC@LK-EA.com

BRANCH OFFICES

Lauritz Knudsen Electrical & Automation
C-201, The First Commercial Complex,
B/S Keshavbaug Party Plot, Vastrapur,
Ahmedabad - 380 015
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Shri Daneshwari, 1st Floor,
Plot No. 17, 2nd Cross, Near Old Income
Tax Office Road, Vidyanagar,
Hubballi - 580 021
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
No.10, Fortuna Towers, 2nd Floor,
Rana Pratap Marg, Near NBRI,
Lucknow - 226 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
A06/A07, Second Floor,
Grand Chandra Complex, Frazer Road
Patna - 800 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Wework Central, #36 Infantry Road,
Bengaluru - 560 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
AWFIS Space Solutions, Prestige Phoenix,
4th floor, 1405, Umanagar, Begumpet,
Hyderabad - 500 016
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
El Dorado Building, 3rd Floor, 6,
Venkatraman Street, Chinna Chokkikulam,
Madurai - 625 002
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
UrbanWrk, 5th Floor, Sai Radhe,
Raja Bahadur Mill Road, Behind Hotel
Grand Sheraton, Sangamwadi
Pune - 411 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Workloop Unit-612, 6th Floor,
Esplanade One, Rasulgarh,
Bhubaneswar, Odisha-751010
Phone No: 022 6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Workie, 214 - 2nd Floor,
Apollo Premier, PU-4,
Scheme No. 54, Vijay Nagar Square,
Indore - 452 010
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Bestech Business Park,
Tower - A, 2nd floor, Sector - 66
Mohali - 160059
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Office No. 211 & 212, Pithalia Plaza,
KK Road, Near Fafadih Chowk,
Raipur - 492 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation,
The Executive Centre
Level 8, Olympia Teknos Park
28, SIDCO Industrial Estate, Guindy,
Chennai - 600 032, Tamil Nadu,
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Office No. 430, 4th Floor,
Jaipur Electronic Market, Riddhi Siddhi,
Gopalpura Bypass,
Jaipur - 302 018
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
TC II, Tower B, PRIMA BAY Gate No. 5,
Saki Vihar Road Powai,
Mumbai - 400 072
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation,
DevX 4th Floor, A Wing, Om 9 Square,
150 Ft Ring Road, Near Nana Mava Circle,
Opp Silver Heights,
Rajkot - 360 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Playworkz Coworking Space
43 & 44, 3rd Cross,
Bharathy Colony, Peelamedu,
Coimbatore - 641 004
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
GDR Siddha, Ground Floor, N Road
Bistupur, Opposite St. Mary's Church,
Jamshedpur - 831 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Unnati Building, 2nd Floor,
Automation Campus, A-600, TTC Industrial
Area Shil-Mahape Road, Mahape,
Navi Mumbai - 400 710
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
10th Floor, Titanium Business,
Bhimrad Road, Althan
Surat - 395 017
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
3rd Floor, 1&2 Vijay Park,
Main Chakrata Road, Opp. Anandam,
Near Ballupur chowk,
Dehradun - 248 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Business Communication Centre
2nd Floor, Chiramel Chambers,
Kurusipally Road, Ravipuram,
Kochi - 682 015
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
M1 & M2, Mezzanine Floor,
Himalaya Excellency,
Plot No. C-47, Pratap Nagar Square,
Nagpur - 440 022
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
11th Floor, Block-D, Notus IT Park,
Sarabhai Campus, Bhailal Amin Marg,
Vadodara - 390 023
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Ground Floor, B-27,
Biplab Rashbihari Sarani,
Sector 2A, Bidhan Nagar,
Durgapur - 713 212
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz & Knudsen Electrical & Automation,
207, 2nd floor, Revolution Complex,
Station Road, E Ward,
Next to Pedestrian Bridge,
Kolhapur - 416 001
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation,
3rd floor, Uttam Tower by Viraj Estate,
Sharanpur Road,
Nasik - 422 002
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
Naga Chambers, 3rd Floor, D/No. 12-1-16,
Plot No. 49, Survey No. 1051, Waltair Main Road,
Visakhapatnam - 530 002
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
6th Floor, Exotica Greens, A Block, 191,
R G Baruah Road, Guwahati Central,
Guwahati - 781 005
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
2nd Floor, BN3, Salt Lake, Sector-V,
Kolkata - 700 091
Phone No: 022-6932 7800
e-mail: CIC@LK-EA.com

Lauritz Knudsen Electrical & Automation
A-25, 1st Floor, Imperia Complex,
Mohan Corporate Industrial Estate,
Near Sarita Vihar Metro Station,
Mathura Road,
New Delhi - 110 044
Phone no: 022-6932 7800
e-mail: CIC@LK-EA.com

Product improvement is a continuous process. For the latest information and special application, please contact any of our offices listed here. Product photographs shown for representative purpose only.



Lauritz Knudsen Electrical & Automation, Electrical Standard Product

A/600, Shil-Mahape Road, TTC Industrial Area, MIDC Thane, Navi Mumbai, 400 710, Maharashtra, Phone No: 022-6722 6300 | Web: www.LK-EA.com

Customer Interaction Center (CIC)

Phone no: 022-6932 7800

Web: www.LK-EA.com | e-mail: CIC@LK-EA.com