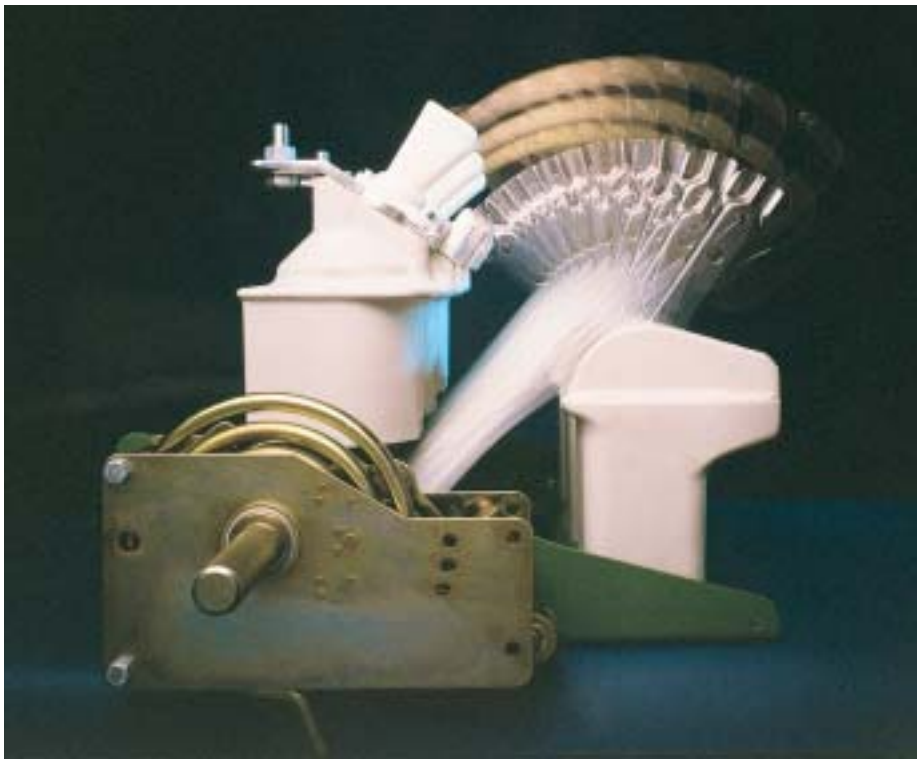
VersaRupter™ 5 - 38 kV Load Interrupter Switch

Technical Guide



NOTICE

Components in this catalog are intended for use by switchgear assemblers engaged in original equipment manufacturing. All sales are subject to ABB Inc., Form 50-000, Conditions of Sales.

While every effort has been made to assure the accuracy of technical specifications, the information in this catalog is subject to change without notice.

VersaRupter

CONTENTS

General Description

5-38 kV VersaRupter

VersaRupter™ is a general purpose, three-pole load interrupter switch that offers switchgear owners and assemblers the advantages of a thoughtful design, advanced interrupting technology and proven, dependable performance. The switch is available to switchgear assemblers as a reliable, easy-to-use building block for metal-enclosed and padmounted switchgear applications in ratings from 5-38 kV.

The standard VersaRupter switch includes a heavy-duty steel frame with stand-off insulators, a unique puffer-type arc extinguishing system, an operating mechanism, and current-carrying components including blade-type interrupters with cast hinges and jaw connectors. Optional accessories include a variety of operating handles and mechanisms, motor operators and controllers, as well as optional auxiliary switches, fuse base, mechanical fuse tripping mechanism, shunt trip devices and grounding switch.

VersaRupter at a Glance...

Applications	Metal-enclosed and padmount switchgear for utility distribution, capacitor switching, and industrial, mining and commercial installations		
Ratings	5-27 kV	200, 600 & 1200 A	40 kA momentary/40 kA fault close
	38 kV	600 A	40 kA momentary/30kA fault close
	15-15.5 kV	600 & 1200 A	61 kA momentary/61kA fault close
Standards	ANSI C37.20.4, C37.22, C.37.72 IEC199, 265 (100 close/open at 630 A), 420, 694 For UL Listings see page 14		
Experience	Over 500,00 switches installed in over 50 countries worldwide Manual operation with choice of direct side drive, front chain or front shaft drive		
Actuators	Optional motor operation, optional shunt trip Left or right side mounting available with all options		
Options	Grounding switch, fuse base, mechanical fuse tripping, auxiliary switches		
Quality	ISO-9001 Complete ANSI design test reports 100% production testing		

Introduction

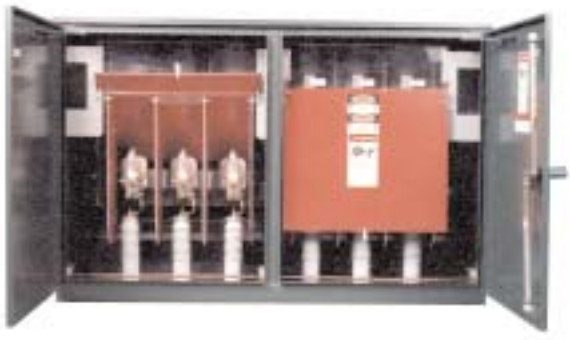
The VersaRupter name reflects an outstanding degree of versatility for a wide range of demanding utility, industrial and commercial switching applications. See Figure 1, page 20 for typical distribution network applications.

VersaRupter is Compact

A key benefit of the advanced puffer technology is the ability to maintain tight phase spacing without the use of side-mounted arc chutes. The result is a switch that is suitable for padmount as well as metal-enclosed applications, and that saves space and installation costs in all ratings from 5 - 38 kV.

VersaRupter is Economical

A modern design is coupled with local manufacturing and global economies of scale to offer a switch that is cost-effective in any application.



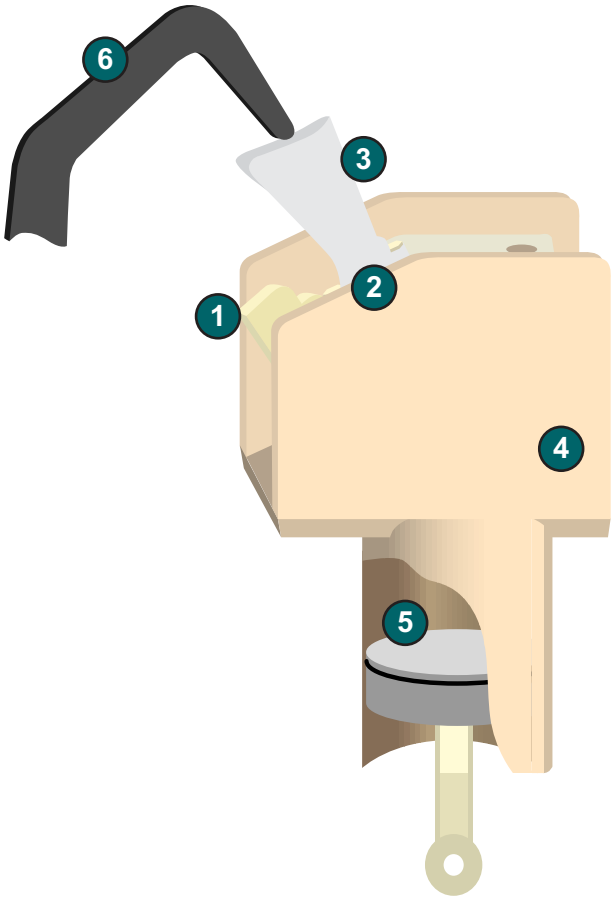
VersaRupter is Flexible

It can be mounted upright or inverted, and manually operated from either side using a choice of side or front-mounted handles. Front handles offer a choice of a chain drive or a shaft drive that uses a universal joint drive. Electric motor operation is also available, along with shunt tripping and a number of other control options.

VersaRupter is Easy To Use

The effectiveness of the arc extinguishing system means inter-phase barriers are not necessary in most installations, saving time and expense during installation.

History



1. Fixed (Main) Contact
2. Arcing Contact
3. Arc Extinguishing Nozzle
4. Support Insulator
5. Piston
6. Arcing Blade

The arc extinguishing system is located at the fixed contact 1 for each phase. The system consists of an arcing contact 2 mounted inside an arc-extinguishing nozzle 3 This nozzle is supported by the same insulator 4 that supports the fixed main current-carrying contact. This insulator also contains a small piston 5. During an opening operation, the arcing blade 6 sequenced to open just after the main current-carrying blades. As the arcing contact opens, the piston forces air through the nozzle, efficiently extinguishing the arc and interrupting the load current. The proprietary nozzle material further enhances the performance of the arc system (see Figure 2 on page 21).

The durable VersaRupter switch is also known for superior quality and proven reliability. Over 500,000 switches in this family are installed worldwide in more than 50 countries, in a broad range of environments from the North Sea to the deserts of the Equator. The VersaRupter is made of materials selected to provide this superior durability and performance (see Figure 3 on page 21). The chassis is fabricated from heavy gauge steel with welded construction. The chassis is phosphate treated and painted with baked-on, corrosion-resistant water base paint. The primary contacts are copper and are insulated from the chassis with high strength, high temperature insulators designed with excess phase-to-phase creepage distance and minimum footprint. Current carrying components are designed to withstand the specific rated continuous and momentary current loads. The arc extinguishing system utilizes a high-grade thermoplastic material with excellent dielectric properties. The complete switch has been type tested on multiple occasions, with independent agencies witnessing the tests.

VersaRupter meets the requirements of applicable ANSI and IEC standards. The ability to meet the rigorous requirements of these multiple standards provides switchgear assemblers with outstanding assurance of a quality product, as well as flexibility and economy of design from using a single switch for local and global switchgear applications. The switch is also available with UL Listing in select 5-15.5 kV ratings.

Most VersaRupter switches are manufactured locally in a factory certified to ISO-9001 and ISO-14000 standards. Local assembly and technical support assures responsive customer service and prompt, on-time delivery of the world's leading load interrupter switch.

Standard Features

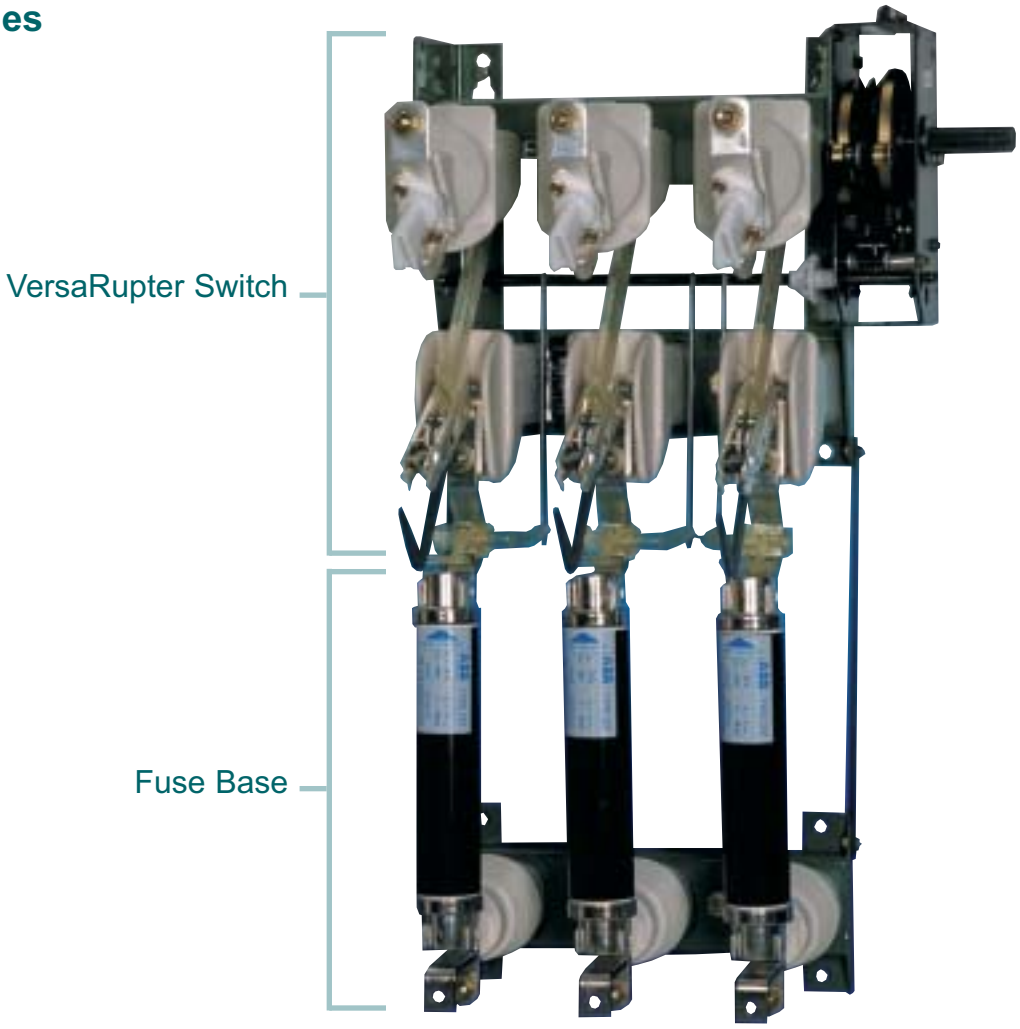
The VersaRupter is a three-pole, single throw load break switch available in ratings from 4.76 through 38 kV. Continuous and interrupting currents of 200, 600 and 1200 amps are available in ratings through 27 kV, and these switches are provided with 40 kA momentary and fault closing capability. The 38 kV switch has 600 amp continuous and interrupting current ratings, and momentary and fault close ratings of 40 kA and 30 kA respectively. The VersaRupter load break switch is also available in 15 kV and 15.5 kV, 61 kA rating in 95 kV and 110 kV BIL respectively.

The basic load break switch includes the steel chassis, molded insulators, current-carrying parts, arc blades and chambers, and a snap action or stored energy operating mechanism.

A number of options are available, including a choice of snap action or stored energy operating mechanisms, handle systems, interlocks, fuse bases, and control features. Grounding switches are also available.

VersaRupter switch (open position) with K-Mechanism (snap action)

Fused Switches



Fuse Options

Optional current limiting fuses provide the ability to interrupt short circuit currents. A choice of fuse mounting kits or fuse bases are available. Both options include mounting clips, and are available for installation on the upper or lower side of the switch. Fuse mounting kits are compatible with UL Listed type CL-14 fuses. Fuse bases are compatible with IEC type CEF and CLF fuses. Contact the factory for availability of mounting kits and clips for other types of fuses. The VersaRupter fuse base can also incorporate optional automatic mechanical switch tripping. When a fuse operates, a plunger actuates a mechanical linkage that trips a stored energy operating mechanism. The mechanical fuse tripping option requires the use of a stored energy type “A- Mechanism” (shown). An auxiliary switch option (not shown) is also available to provide an indication or alarm when the fuses are opened.

Operating Mechanisms

The VersaRupter is available with a choice of snap action and stored energy types of operating mechanisms for a wide variety of applications.

K-Mechanisms (Snap Action)

The K-Mechanism is a single spring, snap action device. The switch opens or closes by charging the spring past dead center, using one of the manual operating handles. The K-Mechanism also interfaces with an optional motor operator for automatic opening or closing.

A-Mechanisms

The A-Mechanism is a dual spring, stored energy device that is well-suited for remote tripping applications. The opening spring is charged and latched by an operating handle (direct or chain drive), or by a motor operator. The switch is then opened by any of several methods:

- movement of the operating handle
- motor operator
- electrical signal to a shunt trip device
- mechanical fuse tripping linkage

KS-Mechanisms (Snap Action with Latching)

The KS-mechanism is a single spring, snap action device with a type S latching system. This mechanism operates in the same manner as the standard K-Mechanism, however, the switch is latched in the open or closed position. The single spring is used for charging the device. When the mechanism is latched, the switch is ready for release by a shunt trip or mechanical fuse tripping linkage. The KS-Mechanism is also well suited for remote trip applications. Note: Motor operator options are not available for use with this mechanism.

Motor Operators

Motor operators enable automatic remote opening and closing of all VersaRupter mechanisms, and spring charging for types A and KS mechanisms. Motor operators do not interfere with manual operation (except KS-Mechanism). Several styles of motor operators provide flexible mounting configurations.

The A1 and A2 style motor operators can be installed on the right front or left front of a VersaRupter enclosure, or adjacent to the left or right side of the main operating shaft. The A1 and A2 motor can open and close the switch with both A and K mechanisms when the operator is mounted to the front of the cell. The device fits switches with both A and K mechanisms and is connected by a universal joint.

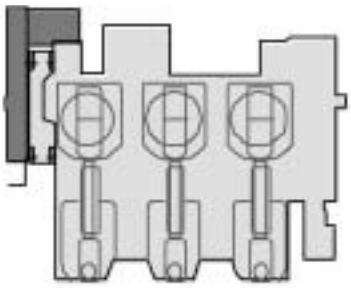
The NM operator (shown) can be operated by local pushbutton or by remote control. The design of the motor operator also allows for manual switch operation. The NM operator can be mounted conveniently without interfering with control cables or connectors.

NM Motor Operator Characteristics

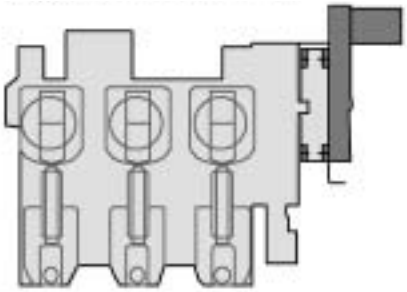
VOLTAGE	AC/DC	24 V ±10%	48 V ±10%	60 V ±10%	110 V ±10%	220 V ±10%
Current, I	A	3	3	0.8	0.8	0.4
Power consumption	W	70	140	45	85	90
Operating time	sec.	~4	~2	~8	~4	~4
Operating temperature	°C	-40 to +55	-40 to +55	-40 to +55	-40 to +55	-40 to +55
Signalling time	sec.	0.5 - 2.0	0.3 - 1.0	1.0 - 4.0	0.5 - 2.0	0.5 - 2.0
Weight	kg	6	6	6	6	6

Examples of Mounting Alternatives

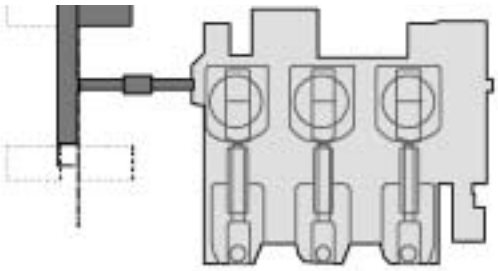
A



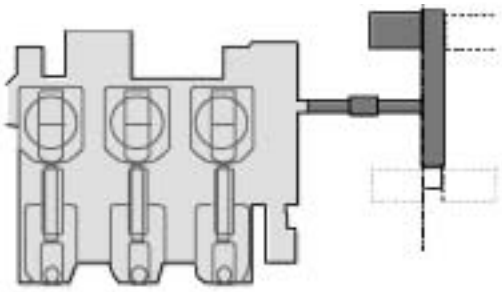
B



C



D



The NM operator can be directly mounted on the VersaRupter main operating shaft (ALT. A & B), or adjacent to the right or left side of the shaft (ALT. C & D). The NM Operator automatically synchronizes to the proper position upon actuation of the mechanism. Shaft extensions are available for left side or adjacent cell mounting.

Motor Controllers

Remote mounted controllers are available for the A1 and NM style motor operators. The A2 style motor operator includes a self-contained controller. A complete range of AC and DC control voltages are available for motor operation.

Operating Handles

The wide choice of manual operating handles assures complete flexibility for a variety of installations and mounting arrangements. In addition to compatibility with direct side-drive handles, VersaRupter can be operated from the left or right front with a choice of chain drives or type HE operating shafts with universal joints.

Fixed Mount

Removable

Manual Handles

A Manual Operator Handle is available for shaft-mounted direct operation of the VersaRupter from either side. The handles are available for fixed-mount or removable applications. The left side handle requires a left-hand shaft extension. Padlocking is available with the fixed mount handle.

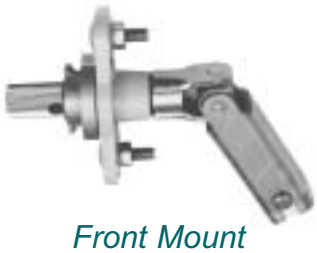
Chain Drive Handle

Chain Drive Handles mount at the front of the enclosure on the right or left side. The handle case contains a sprocket connected by a chain drive to another sprocket mounted on the main shaft. This arrangement provides flexibility in handle mounting angle for various enclosure designs and switch positions. The handle has provisions for key interlocking.

Type HE Operator

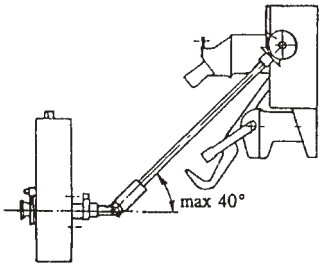
This assembly provides front-mounted direct drive connection to the switch main shaft. The HE Operator is recommended for front-mounted manual or motor operator configurations. A bevel gear (upper photo) is provided for connection to the switch shaft, and a universal joint (lower photo) linkage is provided at the handle. The switchgear assembler provides a shaft that connects the bevel gear with the universal joint. By allowing for varying shaft lengths, the switchgear assembler can define the ultimate position and distance to customize the enclosure. The type HE Operator is available in a (locking) coupled style for manual operation, and a de-coupled style for motor operation.

Bevel Gear



Front Mount Universal Joint

Assembly with Shaft



Front Mounted Motor with HE Operator

Other Handle Accessories

Spline Tubes

Optional Spline Tubes provide the ability to create shaft extensions, customize operator handles, or link the mechanical actuation of switches together. Two lengths are available.

Shaft Extension

Optional Shaft Extensions are available for left-hand operation, or for adjacent mounting of Motor Operators or Manual Operator Handles. Some shaft extensions may be grooved for cutoff to the precise required length.

Mechanical Door Interlock

Mechanical Door Interlocks are available to prevent opening the enclosure door when the switch is closed. Standard and Offset versions of the Mechanical Door Interlock accommodate different door designs.

Grounding Switches - Type E

Type E Grounding Switches are available for grounding the hinged side of the VersaRupter in a two-step operation. When the VersaRupter is open, a mechanical interlock enables the ground switch to be closed using a separate manual operator. The mechanical interlock prevents the VersaRupter from being closed while the Grounding Switch is closed.

Grounding Switches mount to the switch chassis and fuse base. The grounding switch is spring-loaded and provides a direct path to ground when the switch and/or fuse is opened. The grounding switch springs rotate three blade contacts, which engage the pivot side primary connections. This device is typically used to direct residual energy stored in the load side of the circuit to ground.

Mechanical Interlock

Mechanical Interlock between VersaRupter and grounding switch prevents simultaneous closing of grounding switch and VersaRupter.

A Number of Control Options...

Shunt Trip

Shunt Trip operation is available for local push button or remote trip applications. This device utilizes a solenoid to actuate the "A" or "KS" mechanism trip latch. The Shunt Trip is available in a complete range of AC and DC control voltages. Use of the shunt trip requires an auxiliary switch (below) to assure momentary actuation of the shunt trip coil.

Auxiliary Switch

The optional Auxiliary Switch is available with six or eight contacts, configured with an even number of normally open and normally closed contacts. The Auxiliary Switch is mounted to the chassis and changes state when the VersaRupter or grounding switch is opened or closed.

Fuse Auxiliary Switch

An optional Fuse Auxiliary Switch is available to indicate an open fuse condition. This switch has two contacts, one normally open and one normally closed, and is actuated by the tie rod linkage connected to the fuse base.

Ratings

SYSTEM RATING kV NOMINAL	VersaRupter Load Break Switch Ratings							SNAP ACTION CATALOG NUMBER	STORED ENERGY CATALOG NUMBER
	VOLTAGE			CURRENT					
	Rated Max. Voltage (kV)	Rated Dielectric BIL Imp. (kV)	Low Frequency Withstand (kV)	Rated Cont. Current (Amperes)	Load Interrupt Capacity (Amperes)	Rated Mom. Cur. Asym. RMS (kA)	Fault Close Cur. A. Asym. RMS (kA)		
4.73 (Pole spacing: 5.9 inches)	8.25	75	26	200 600 1200	200 600 1200	40	40	244-040-502 244-040-506 244-040-510	245-864-501 245-864-502 245-864-503
12.0 thru 13.8 (Pole spacing: 6.69 inches)	15	95	36	200 600 1200	200 600 1200	40	40	244-041-502 244-041-506 244-041-510	245-864-504 245-864-505 245-864-506
12.0 thru 16.8 (Pole spacing: 9.25 inches)	17	110	50	200 600 1200	200 600 1200	40	40	244-042-502 244-042-506 244-042-510	245-864-507 245-864-508 245-864-511
22.9 thru 24.9 (Pole spacing: 10.8 inches)	27	125	60	200 600 1200	200 600 1200	40	40	244-043-502 244-043-506 244-043-510	245-864-513 245-864-514 245-864-517
34.5 (Pole spacing: 14.1 inches)	38	150	80	600 800	600 800	40	30	244-005-501 244-005-502	245-864-519 245-864-520
13.8 (Pole spacing: 9.25 inches)	15*	95	36	600 1200	600 1200	61	61	245-881-506 245-881-510	245-881-514 245-881-515
14.4 (Pole spacing: 9.25 inches)	15.5*	110	50	600 1200	600 1200	61	61	245-881-522 245-881-526	245-881-530 245-881-531

UL Recognized VersaRupter Load Break Switches

SYSTEM RATING kV NOMINAL	Rated Max. Voltage (kV)	Rated Cont. Current- (Amps)	CATALOG NUMBER
5 kV (Pole spacing: 5.9 inches)	5	200 600	244-040-512 244-040-515
15 kV (Pole spacing: 6.69 inches)	15	200 600	244-041-512 244-041-515

***All 61kA VersaRupter UL and CSA approved**

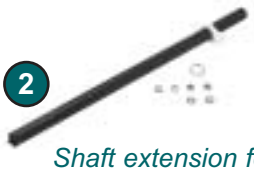
UL Recognized VersaRupter Switch Ratings

5 kV Switches		15 kV Switches	
Rated Max. kV	5	Rated Max. kV.	15
Rated Dielectric BIL Impulse (kV)	60	Rated Dielectric BIL Impulse (kV)	95
Low Frequency Withstand (kV)	19	Low Frequency Withstand (kV)	36
Rated Mom. kA Asym. ms.	40	Rated Mom. kA Asym. ms.	40
Fault Closing kA Asym. ms	40	Fault Closing kA Asym. ms	40

Example of Mounting of Switch with Fuse Base and Accessories

1

Auxiliary switch

2

Shaft extension for left-hand operation

3

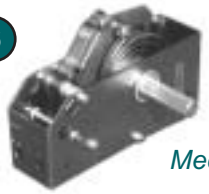
Mechanical interlocking

4

Grounding switch type E

5

Motor controller

6

Mechanism

7

HE-operation - upper part

8

Operator handle

9

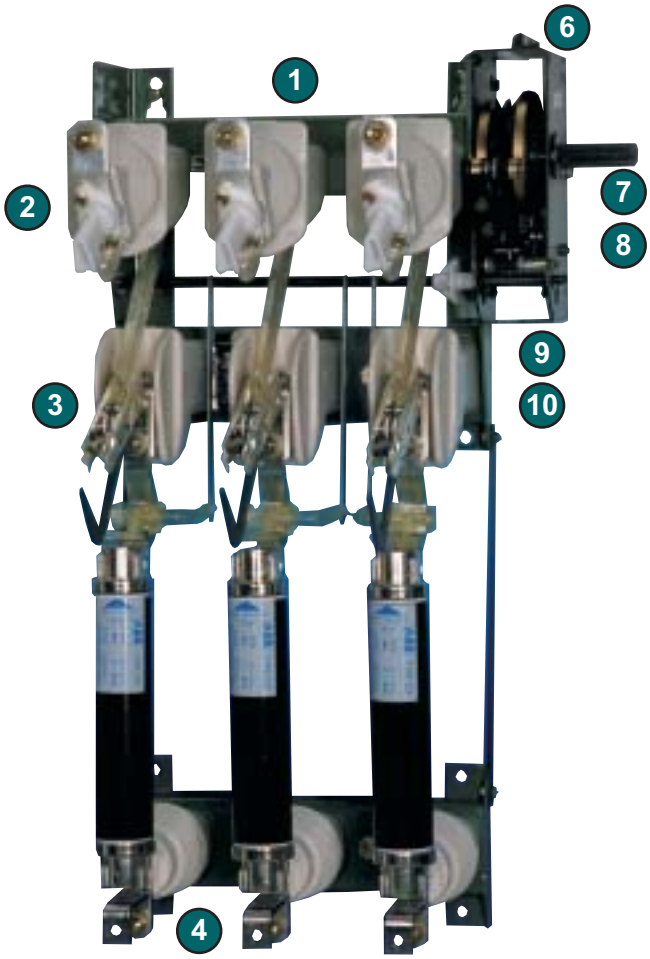
Auxiliary switch at open fuse

10

Shunt trip

11

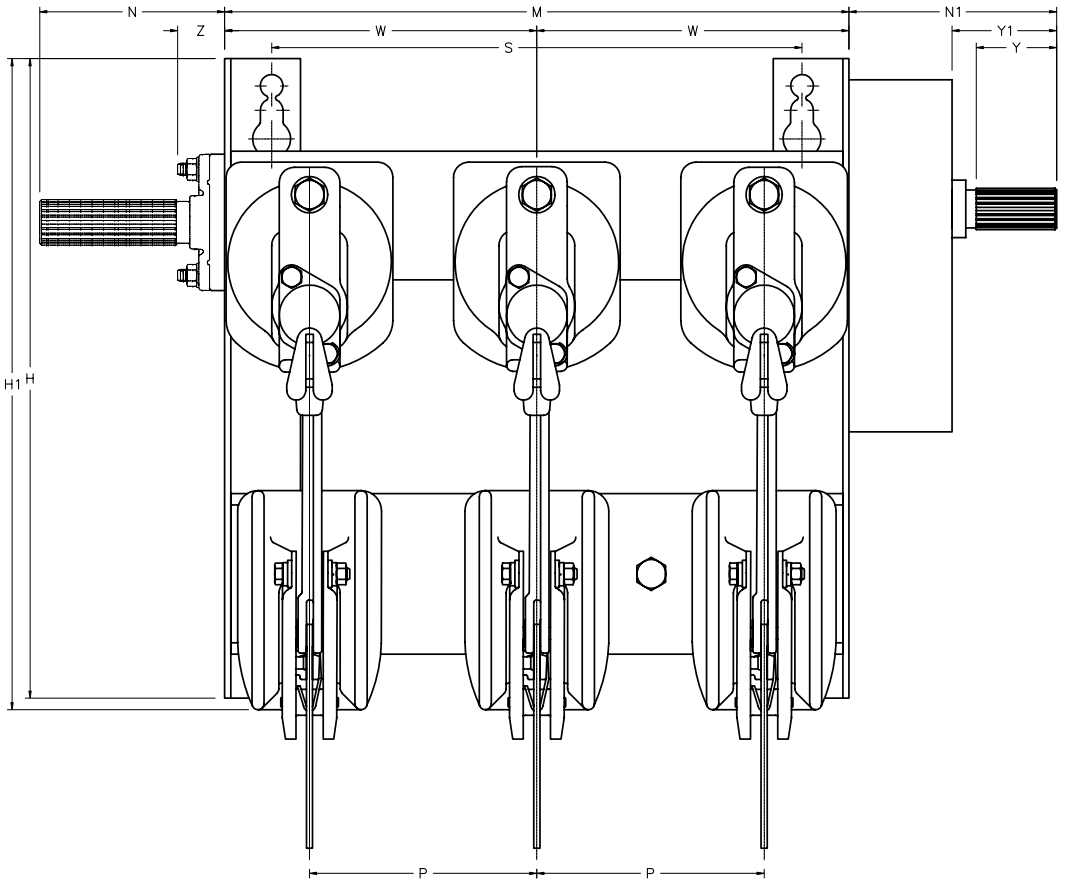
HE-operation - lower part (mounted in cell front)

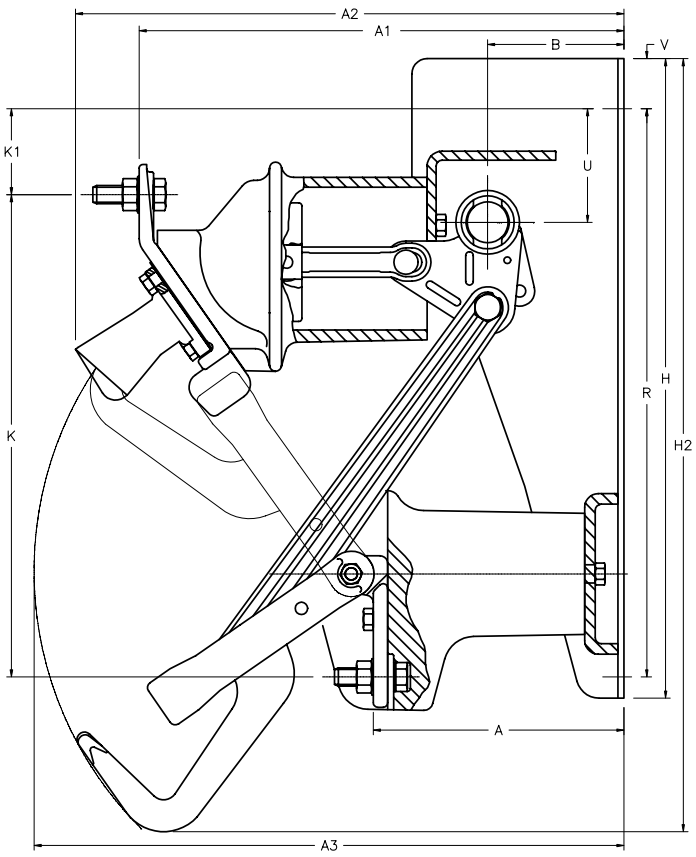


Door Mounted Devices 5 11

CATALOG #(REF)	AMP	BIL KV	MAX V. KV	UNIT	A	A1	A2	A3	B	H	H1	H2	K	K1	M	N	N1	P	R	S	T	T1	T2	U	V	W	Y	Y1	Z
244-040-501,508	200	60	5/8.25	INCH	6.54	12.60	14.25	15.51	3.54	16.61	16.85	20.08	12.50	2.48	16.22	4.80	5.38	5.91	14.76	13.78	0.59	0.98	0.59	2.95	1.30	8.11	2.08	2.69	1.22
244-040-505,514	600			MM	166	320	362	394	90	422	428	510	318	63	412	122	137	150	375	350	15	25	15	75	33	206	53	69	31
244-040-502,512	200	60	5/8.25	INCH	6.54	12.60	14.25	15.51	3.54	16.61	16.85	20.08	12.50	2.48	16.22	4.80	6.46	5.91	14.76	13.78	0.59	0.98	0.59	2.95	1.30	8.11	3.00	3.77	1.22
244-040-506,515	600			MM	166	320	362	394	90	422	428	510	318	63	412	122	164	150	375	350	15	25	15	75	33	206	76	96	31
244-040-503,513	200	60	5/8.25	INCH	6.54	12.60	14.25	15.51	3.54	16.61	16.85	20.08	12.50	2.48	16.22	4.80	7.95	5.91	14.76	13.78	0.59	0.98	0.59	2.95	1.30	8.11	4.63	5.26	1.22
244-040-507,516	600			MM	166	320	362	394	90	422	428	510	318	63	412	122	202	150	375	350	15	25	15	75	33	206	118	134	31

Note: This layout drawing includes optional K–Mechanism and Left Extension. The stored energy mechanism (A–Mechanism) has a standard shaft lenght of 3.5 inches.





DIMENSIONS ARE IN MILLIMETERS

REF	VERSARUPTER
NEXT ASSY	
NEXT ASSY	
	EPL 244–040
ECN No.	

REV 5 — TITLE: OUTLINE DRAWING — 5 KV UL/8.25KV BASIC SW. ASSY.

DATE DRN 2/23/88 | DATE REL | DWG NO. S–20183 | SHEET 1 OF 1

DRN RB | CKD WAH | APP'D MW

ABB Power T&D Company Inc.
FLORENCE, S.C., U.S.A.

REV	DATE	REVISION DESCRIPTION	BY
1	1/31/89	[163]CORRECTED PREVIOUS N1 DIMS	RLB
2	11/12/96	[5689] REDRAWN TO CAD; + ITEMS 508,512–516	RRJ
3	8/11/00	[5825] CATALOG #REF WAS 244–041	WRC
4	2/21/01	[6002] "K" DIMS WERE NUMERICAL; +A1 & A2 DIMS	RRJ
5	7/09/01	[6103] Include A–Mech Dims	LS

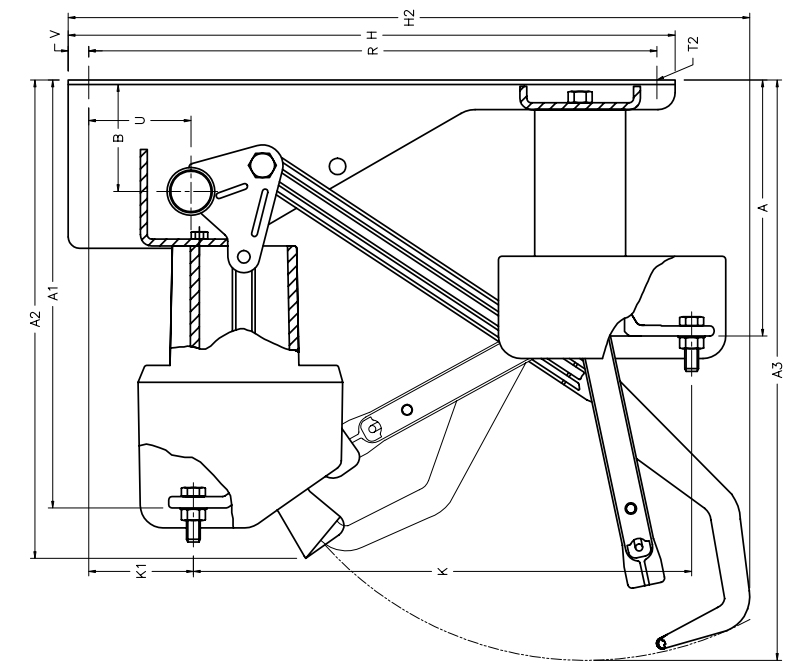
DIMENSIONS IN MILLIMETERS
GENERAL TOLERANCE
UNLESS OTHERWISE SPECIFIED THE FOLLOWING TOLERANCES ARE APPLICABLE

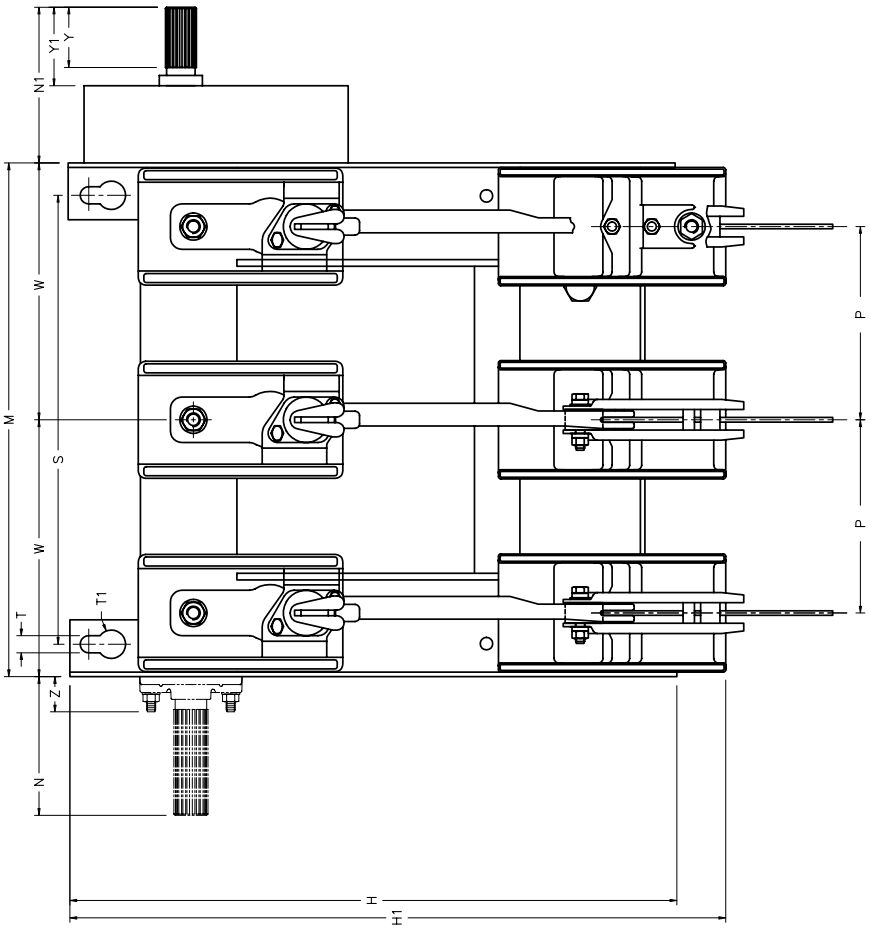
LINEAR	OVER	0.5	6	30	120	315	1000	
	TO	6	30	120	315	1000	2000	
TOL	±	0.1	0.2	0.3	0.5	0.8	1.2	

ANGULAR						
LENGTH (MM)	OVER	0	10	50	120	400
	TO	10	50	120	400	
TOL	±	1°	0°30'	0°20'	0°10'	

CATALOG #(REF)	AMP	BIL KV	MAX V. KV	UNIT	A	A1	A2	A3	B	H	H1	H2	K	K1	M	N	N1	P	R	S	T	T1	T2	U	V	W	Y	Y1	Z
244-041-501,508	200	95	15.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	17.79	4.80	5.38	6.69	19.69	15.55	0.59	0.98	0.59	3.54	0.71	8.90	2.08	2.69	1.22
				MM	225	375	418	511	98	534	577	600	441	87	452	122	137	170	500	395	15	25	15	90	18	226	53	69	31
244-041-505,514	600																												
244-041-502,512	200	95	15.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	17.79	4.80	6.46	6.69	19.69	15.55	0.59	0.98	0.59	3.54	0.71	8.90	3.00	3.77	1.22
244-041-506,515	600			MM	225	375	418	511	98	534	577	600	441	87	452	122	164	170	500	395	15	25	15	90	18	226	76	96	31
244-041-503,513	200	95	15.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	17.79	4.80	7.95	6.69	19.69	15.55	0.59	0.98	0.59	3.54	0.71	8.90	4.63	5.26	1.22
244-041-507,516	600			MM	225	375	418	511	98	534	577	600	441	87	452	122	202	170	500	395	15	25	15	90	18	226	118	134	31

Note: This layout drawing includes optional K-Mechanism and Left Extension. The stored energy mechanism (A-Mechanism) has a standard shaft lenght of 3.5 inches.





DIMENSIONS ARE IN MILLIMETERS

REV 5 TITLE OUTLINE DRAWING
15 kV UL & BASIC SW. ASSY. W/MECH.
DWG NO. S-20184 SHEET 1 OF 1
DATE 1/31/89 DRN RRJ
DATE REL 2/23/88 CHK WAH
APVD WAH

REV VERSARUPTER

NEXT ASSY
NEXT ASSY

EPL 244-041
ECN No.

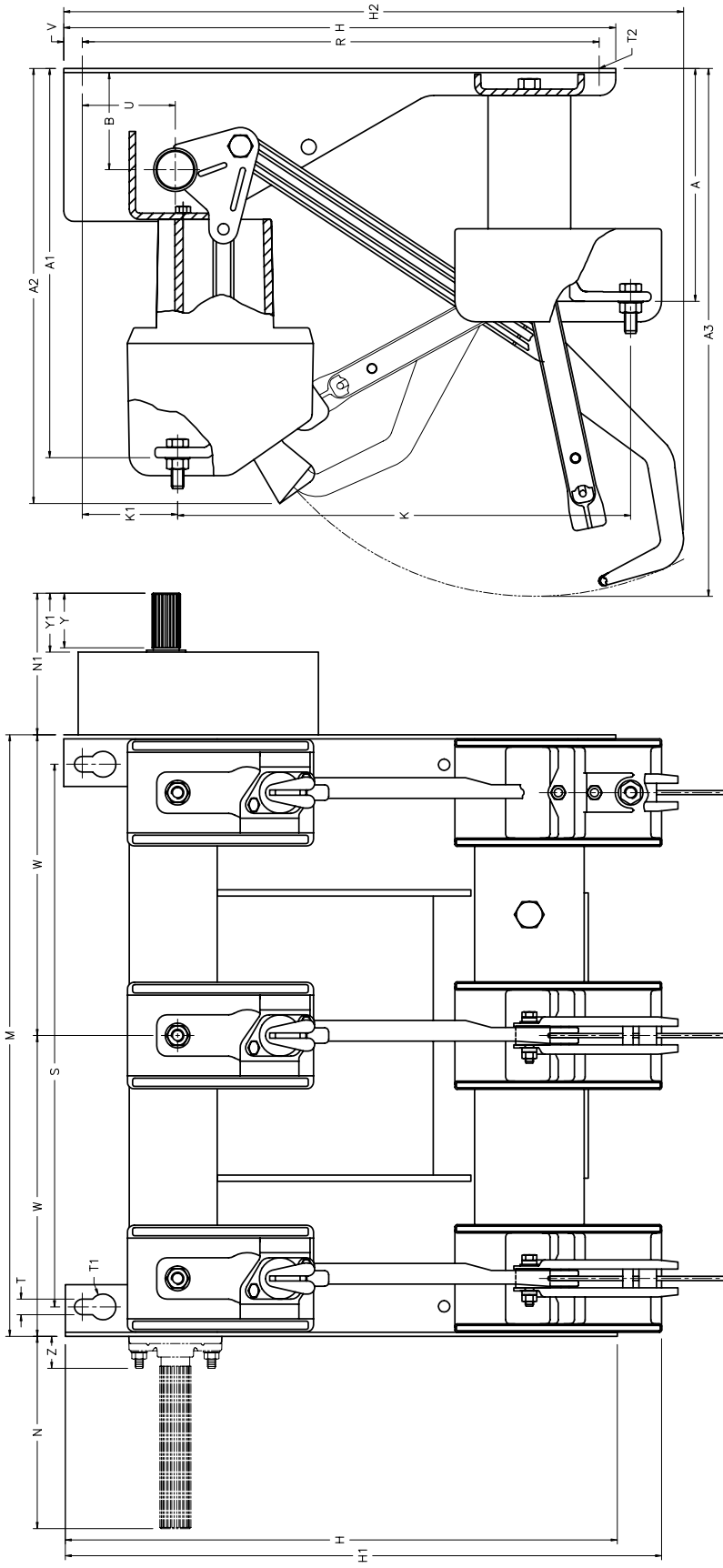
ABB Power T&D Company Inc.
FLORENCE, S.C., U.S.A.

DIMENSIONS IN MILLIMETERS
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWING
UNDER 100 | 100 TO 125 | 125 TO 1000 | 1000 TO 2000 | OVER 2000
TOL. ± 0.1 | 0.2 | 0.3 | 0.5 | 1.0 | 1.5
LENGTH UNDER 6 | 6 TO 18 | 18 TO 120 | OVER 120
TOL. ± 1° | 30' | 15' | 10'

REV	DATE	REVISION DESCRIPTION	BY
1	1/31/89	[163]CORRECTED PREVIOUS N1 DIMS	RJB
2	11/12/96	[5689] +ITEMS 508,512-516;REDRAWN TO CAD	RRJ
3	2/2/01	[5990] "Y1" WAS 2.24,57.3,32.85,4.81 & 122 FOR 501/508, 505/514,502/512,506/515,503/513, & 507/516 RESPECTIVELY ON SHEETS 1 & 2 ONLY	RRJ
4	5/14/01	[6022]Separated the sheet Drawings	LS
5	7/09/01	[6103] Include A-Mech Dim.	LS

CATALOG #(REF)	AMP	BIL KV	MAX V. KV	UNIT	A	A1	A2	A3	B	H	H1	H2	K	K1	M	N	N1	P	R	S	T	T1	T2	U	V	W	Y	Y1	Z
244-042-501	200	110	17.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	22.91	7.32	5.38	9.25	19.69	20.67	0.59	0.98	0.59	3.54	0.71	11.46	2.08	2.69	1.22
244-042-505	600			MM	225	375	418	511	98	534	577	600	441	87	582	186	137	235	500	525	15	25	15	90	18	291	53	69	31
244-042-502	200	110	17.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	22.91	7.32	6.46	9.25	19.69	20.67	0.59	0.98	0.59	3.54	0.71	11.46	3.00	3.77	1.22
244-042-506	600			MM	225	375	418	511	98	534	577	600	441	87	582	186	164	235	500	525	15	25	15	90	18	291	76	96	31
244-042-503	200	110	17.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	22.91	7.32	7.95	9.25	19.69	20.67	0.59	0.98	0.59	3.54	0.71	11.46	4.63	5.26	1.22
244-042-507	600			MM	225	375	418	511	98	534	577	600	441	87	582	186	202	235	500	525	15	25	15	90	18	291	118	134	31

Note: This layout drawing includes optional K–Mechanism and Left Extension. The stored energy mechanism (A–Mechanism) has a standard shaft lenght of 3.5 inches.



DIMENSIONS ARE IN MILLIMETERS

REF VERSARUPTER

REV 1

TITLE OUTLINE DRAWING
17 KV BASIC SW. ASSY.

DWG NO. S–20348

SHEET 1 OF 1

DATE CHK'D 2/23/88 | DRN RB | CKD WAH | APP'V MW

NEXT ASSY

NEXT ASSY

EPL 244–042

ECN Nos.

ABB Power T&D Company Inc.
FLORENCE, S.C., U.S.A.

THIS DRAWING IS THE PROPERTY OF ABB AND CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION WHICH MUST NOT BE COPIED OR DISCLOSED OTHER THAN AS EXPRESSLY AUTHORIZED BY ABB.

DIMENSIONS IN MILLIMETERS
UNLESS OTHERWISE SPECIFIED, THE FOLLOWING TOLERANCES APPLY:

LINEAR	OVER	0.4	6	30	120	315	1000
	TO	6	30	120	315	1000	2000
TOL.	±	0.1	0.2	0.3	0.5	0.8	1.3

ANGULAR	OVER	0°	10	50	120
	TO	10	50	120	400
TOL.	±	1°	30'MIN	15'	10'

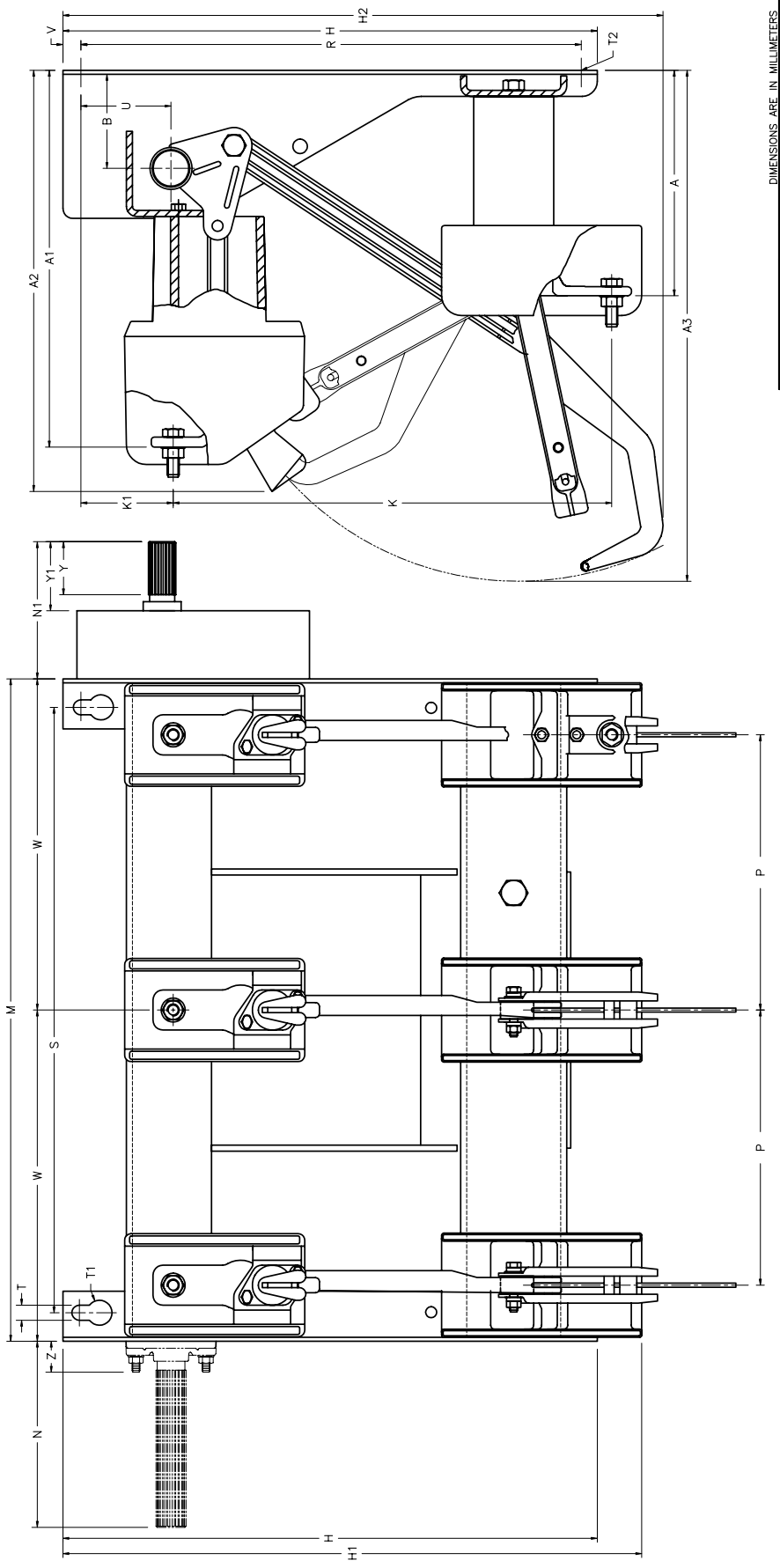
REV	DATE	REVISION DESCRIPTION	BY
1	7/09/01	6103 Include A–mech Dim	LS

REV	DATE	REVISION DESCRIPTION	BY

REV	DATE	REVISION DESCRIPTION	BY

CATALOG #(REF)	AMP	BIL KV	MAX V. KV	UNIT	A	A1	A2	A3	B	H	H1	H2	K	K1	M	N	N1	P	R	S	T	T1	T2	U	V	W	Y	Y1	Z
244-043-501	200	125	27.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	26.06	7.32	5.38	10.83	19.69	23.82	0.59	0.98	0.59	3.54	0.71	13.03	2.08	2.69	1.22
				MM	225	375	418	511	98	534	577	600	441	87	662	186	137	275	500	605	15	25	15	90	18	331	53	69	31
244-043-505	600																												
244-043-502	200	125	27.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	26.06	7.32	6.46	10.83	19.69	23.82	0.59	0.98	0.59	3.54	0.71	13.03	3.00	3.77	1.22
				MM	225	375	418	511	98	534	577	600	441	87	662	186	164	275	500	605	15	25	15	90	18	331	76	96	31
244-043-506	600																												
244-043-503	200	125	27.0	INCH	8.86	14.76	16.46	20.12	3.86	21.02	22.72	23.62	17.36	3.43	26.06	7.32	7.95	10.83	19.69	23.82	0.59	0.98	0.59	3.54	0.71	13.03	4.63	5.26	1.22
				MM	225	375	418	511	98	534	577	600	441	87	662	186	202	275	500	605	15	25	15	90	18	331	118	134	31
244-043-507	600																												

Note: This layout drawing includes optional K–Mechanism and Left Extension. The stored energy mechanism (A–Mechanism) has a standard shaft lenght of 3.5 inches.



DIMENSIONS ARE IN MILLIMETERS

REF VERSARUPTER

REV 1 TITLE OUTLINE DRAWING 27 KV BASIC SW. ASSY.

DWG NO. S-20347

SHEET 1 OF 1

DATE REL. 2/25/88

APP'D MW

DWN RB CHK'D WAH

NEXT ASSY

USED ON ASSY

EPL 244-043

ECN No.

ABB Power T&D Company Inc. FLORENCE, S.C., U.S.A.

THIS DRAWING IS THE PROPERTY OF ABB AND CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION WHICH MUST NOT BE DUPLICATED USED OR DISCLOSED OTHER THAN AS EXPRESSLY AUTHORIZED BY ABB.

DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. STANDARD TOLERANCE FOR DECIMAL DIMENSIONS ARE AS FOLLOWS

UNLESS OTHERWISE SPECIFIED	0.5	1	2	3	4	5	6	7	8	9	10
TOL.	±	0.13	0.25	0.5	0.8	1.3	1.5	2.0	2.5	3.0	3.5
ANGULAR TOLERANCE	0 30	30 60	60 90	90 120	120 180						
TOL.	±	1°	0°30'	0°20'	0°10'						

REV	DATE	REVISION DESCRIPTION	BY
1	1/09/01	61031 Include A-Mech Dim	LS

Reference

Distribution Network *Figure 1*

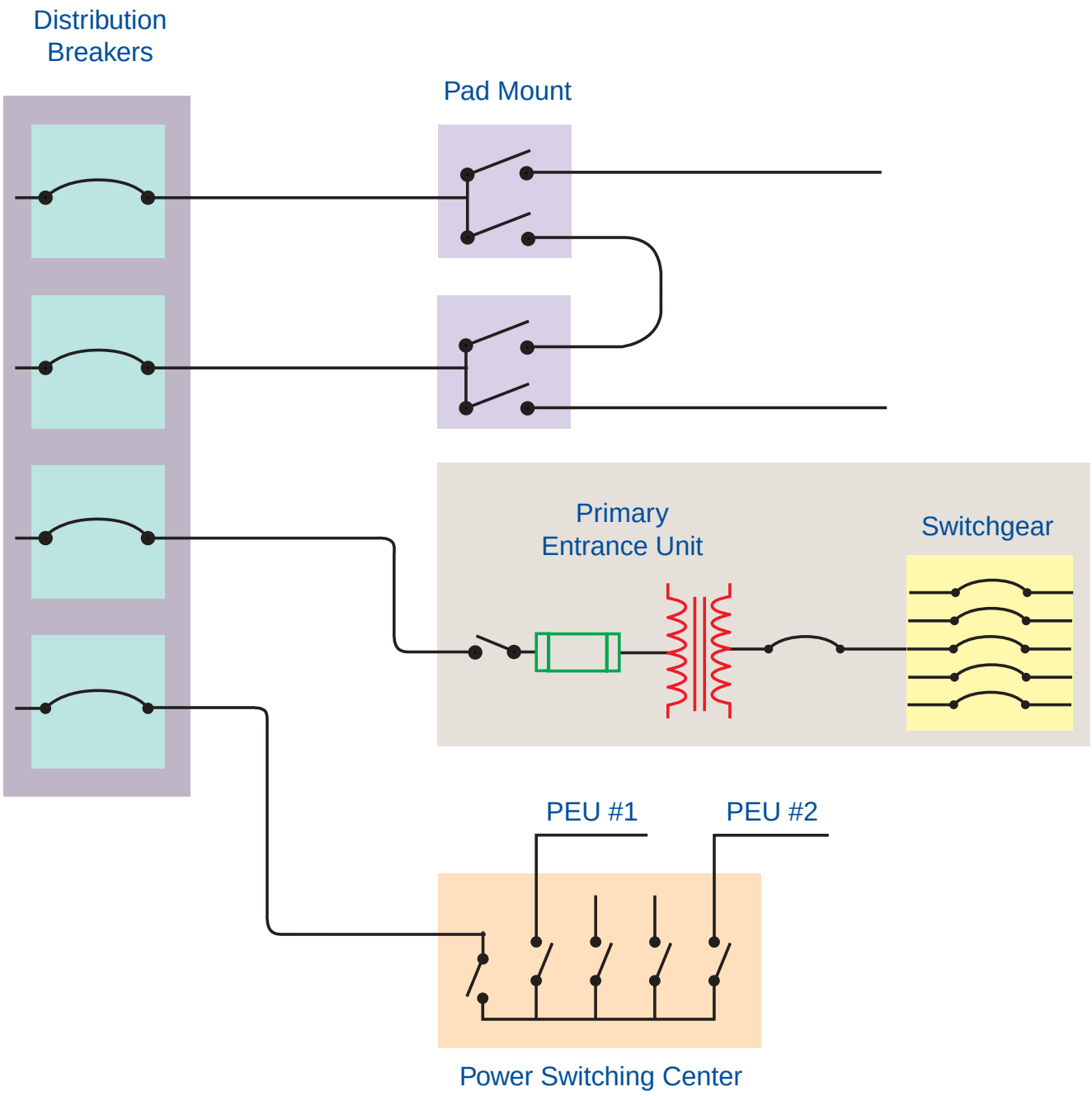
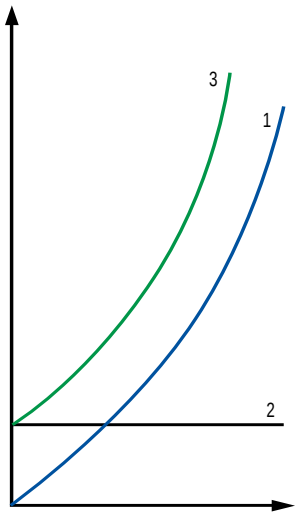


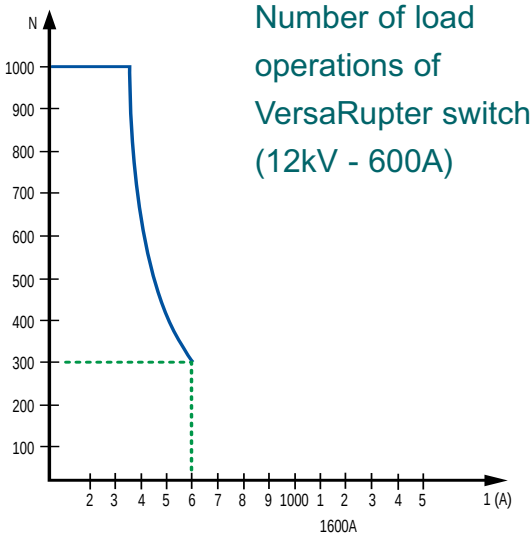
Figure 2

Curve 1 = Gas Blast
Curve 2 = Air Blast
Curve 3 = The resultant extinguishing effect = Curve 1+Curve 2



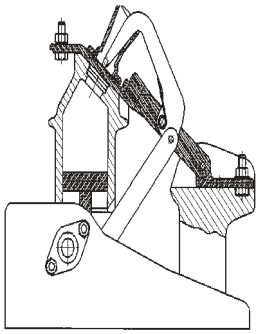
Breaking Current

Figure 3

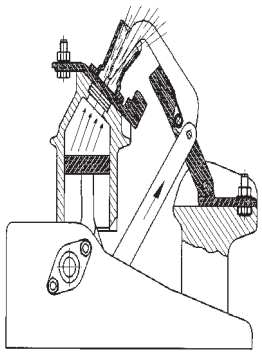


Number of load operations of VersaRupter switch (12kV - 600A)

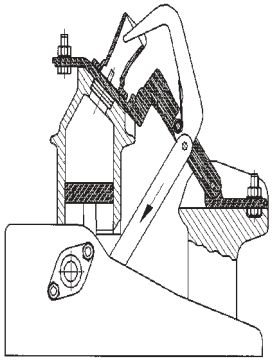
Operating Sequence



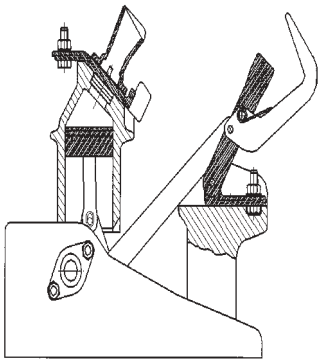
4. Closed position



3. Interrupting sequence



2. Opening sequence



1. In open position

TG 2.2.4.6B February 2002

655 Century Point
Lake Mary, FL 32746
Tel: +1-407-723-2000
1-800-929-7947
Fax: +1-407-732-2161
www.abb.com/mediumvoltage

2300 Mechanicsville Highway
Florence, SC 29501
Tel: +1-843-413-4800
1-800-338-1585
Fax: +1-843-413-4850
www.abb.com/mediumvoltage