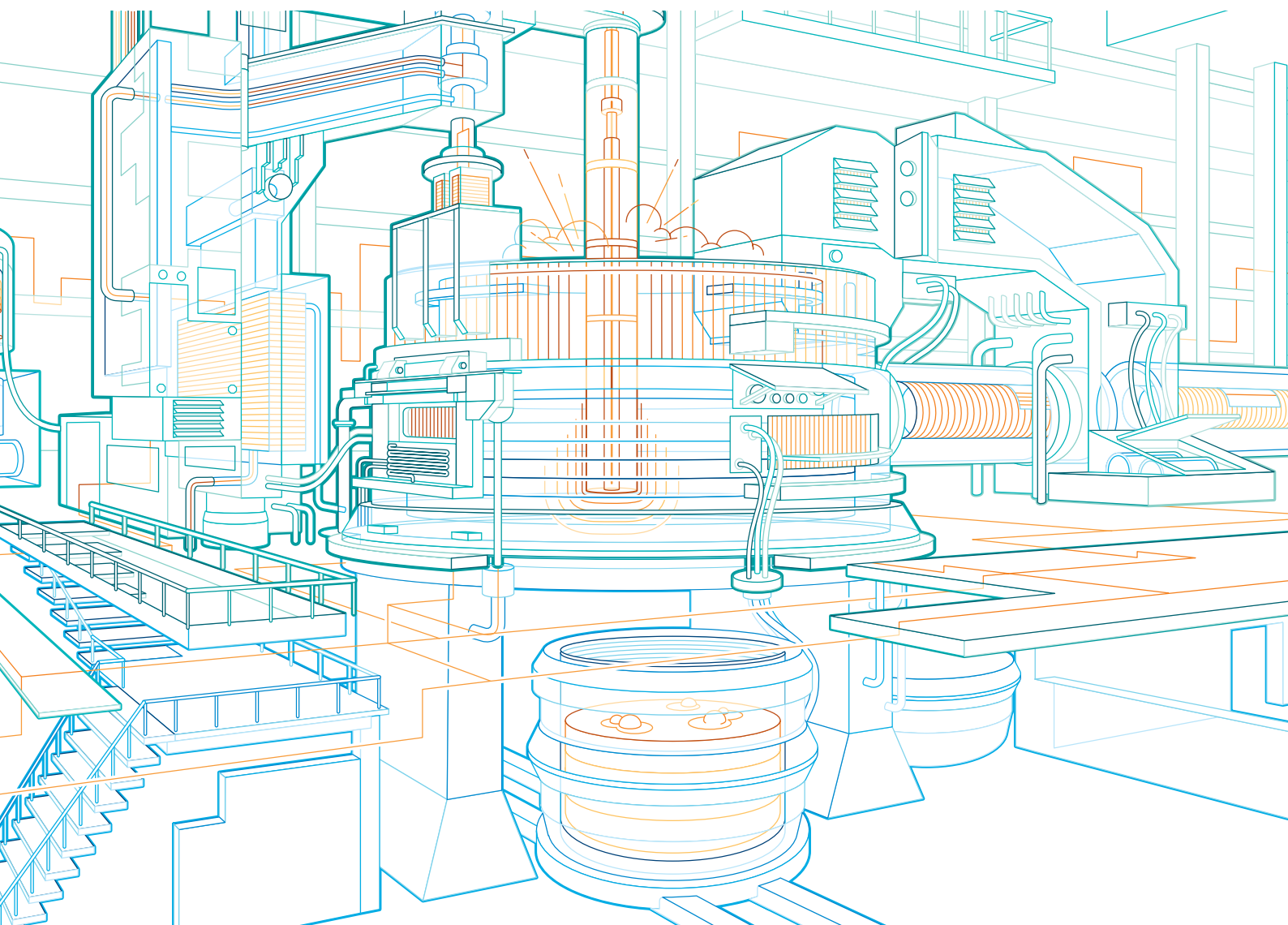

MEDIUM VOLTAGE SERVICE

2017 Life Cycle Management

ABB Italy medium voltage products



Life Cycle process

Product status plan

ABB's products are designed for continuous evolution. It is ABB's goal to protect our customers' investment beyond the life-cycles of the underlying platform products. Life Cycle Management process is split into four steps in order to allow both ABB and the customers to properly manage the transition from Active to Obsolete in a long term way and avoid a too short swap which may generate critical situations.

Scope of this brochure is to provide life cycle status of all products under responsibility of our Service Center:

ABB S.p.A.

ABB SACE Division

Medium Voltage Products

Via Friuli, 4





24044 Dalmine

Italy

Our Service Center is responsible for:

- All designed and manufactured medium voltage product with SACE logo
- Retrofit apparatus for replacing ABB HPA gas insulated circuit breakers and contactors designed and manufactured by ABB Sweden for fitting SafeSix switchgear.

The document is updated once per year according to the latest announced shifts. Special care of the obsolete products is taken in order to support the customers either with spare parts or retrofit solutions with active equipment.

Status	Name	Product	Type	Current status start date	Next shift
Active  Equipment: available  Spare parts: available	ADVAC	Circuit-breaker	Vacuum	-	-
	AMVAC	Circuit-breaker	Vacuum	-	-
	DCBreak	Circuit-breaker	Magnetic-air	-	-
	DS1	Capacitor switch	Dry-air	-	-
	GSec	Switch	SF6	-	-
	HD4 ⁽¹⁾	Circuit-breaker	SF6	-	-
	HD4/SEV-HD4/ESB	Circuit-breaker	SF6	-	01/01/2018
	HySec	Multifunction apparatus	SF6-Vacuum	-	-
	PowerCube/PowerBloc 36/40,5kV	Enclosures	AIS	-	-
	PR521	Relay	Digital	-	-
	S-HD4, EM-L-HD4, EM-U-HD4	Service trucks	SF6	-	01/01/2018
	UniGear ZS1	Switchgear	AIS	-	-
	UniSec	Switchgear	AIS	-	-
	UniSwitch version for France	Switchgear	AIS	-	-
	VD4 ⁽²⁾	Circuit-breaker	Vacuum	-	-
	VD4G	Circuit-breaker	Vacuum	-	-
	VM1	Circuit-breaker	Vacuum	-	-
	VM1/ZT8	Circuit-breaker	Vacuum	-	01/01/2018
	Vmax ⁽³⁾	Circuit-breaker	Vacuum	-	-
	VSC	Contactors	Vacuum	-	-
Classic  Equipment: available  Spare parts: available	HD4/C	Circuit-breaker	SF6	01/09/2011	-
	HD4/UniAir-HD4/US	Circuit-breaker	SF6	01/01/2017	-
	HD4/UniMix	Circuit-breaker	SF6	01/01/2016	-
	SHS2	Switch	SF6	01/07/2014	01/01/2018
	UniMix	Switchgear	AIS	01/09/2012	01/01/2018
	UniSwitch 24	Switchgear	AIS	01/09/2012	-
	UniSwitch version for Belgium	Switchgear	AIS	01/01/2017	-
	V-Contact V	Contactors	Vacuum	01/09/2011	-
	VD4/C	Circuit-breaker	Vacuum	01/09/2011	-
	VD4/UniAir-VD4/US	Circuit-breaker	Vacuum	01/01/2017	-
	VD4/UniMix	Circuit-breaker	Vacuum	01/01/2016	-

Notes:

1) All variants with exception of HD4/C, HD4/UniMix, HD4/UniAir and HD4/US which are Classic

2) All variants with exception of VD4/C, VD4/UniMix, VD4/UniAir and VD4/US which are Classic

3) All variants with exception of Vmax/RU which is Limited

Status	Name	Product	Type	Current status start date	Next shift
Limited	BEU21	Switchgear	GIS	-	01/07/2018
	CBE	Enclosures	AIS	01/02/2010	-
	eVD4	Circuit-breaker	Vacuum	01/01/2017	
	HD4/BE, HX for BEU21	Circuit-breaker	SF6	-	-
	UniAir	Switchgear	AIS	01/01/2014	-
	UniMotor ⁽¹⁾	Switchgear	AIS	-	-
	UniMotor enclosure ⁽¹⁾	Enclosures	AIS	01/09/2011	-
	UniSafe	Switchgear	AIS	01/01/2006	-
	Univer C	Switchgear	AIS	-	-
	Univer G12	Switchgear	AIS	-	-
	Vmax/RU	Circuit-breaker	Vacuum	01/01/2016	-
Obsolete	BEU2	Switchgear	GIS	-	-
	BEU3	Switchgear	GIS	01/07/2015	-
	CBF	Enclosures	AIS	01/07/2016	
	CSF1	Switchgear	RMU	-	-
	CSF2	Switchgear	RMU	-	-
	CSFU	Switchgear	RMU	-	-
	DIARC ⁽²⁾	Circuit-breaker	Magnetic-air	-	-
	eVM1	Circuit-breaker	Vacuum	01/01/2013	-
	HA/BEU for BEU2 and BEU3	Circuit-breaker	SF6	01/07/2015	-
	HA1-2-3	Circuit-breaker	SF6	31/03/1999	-
	HAD	Circuit-breaker	SF6	-	-
	HAR	Circuit-breaker	SF6	-	-
	H-Breaking	Circuit-breaker	SF6	-	-
	HM1	Circuit-breaker	SF6	01/01/2013	-
	Normal AT	Switchgear	AIS	-	-
	PR511	Relay	Digital	-	-
	PR512	Relay	Digital	01/01/2013	-
	REF542	Relay	Digital	01/01/2010	-
	REF542plus 1.x	Relay	Digital	-	-
	RG	Circuit-breaker	Minimum oil	-	-
	RGE	Circuit-breaker	Minimum oil	-	-
	RM	Circuit-breaker	Minimum oil	-	-
	S5	Relay	Digital	-	-
	SCU	Relay	Digital	01/01/2010	-
	SFA	Circuit-breaker	SF6	-	-
	SFE	Circuit-breaker	SF6	-	-
	SRC	Contactor	SF6	01/04/2012	-
	UniArc	Switchgear	AIS	01/07/2015	-
	UniSwitch 36	Switchgear	AIS	-	-
	Univer G36	Switchgear	AIS	01/07/2015	-
	VRB	Circuit-breaker	Vacuum	-	-
	VRC	Contactor	Vacuum	31/03/1999	-
	ZS1 ⁽³⁾	Switchgear	AIS	01/07/2015	-

Notes:

- 1) Replacement of enclosure manufactured after 1985 is available
- 2) Circuit breakers manufactured before 1984 include asbestos components inside the arc-chutes
- 3) ZS1 switchgear is different from UniGear ZS1 which is active

Spare parts and retrofit solution availability

Products details

Spare parts have been categorized into groups as per the following:

- Poles: assembly parts in which main interruptive components are installed in
- Mechanism: operating mechanism which drives the interruptive parts
- Auxiliary equipment: LV equipment onboard the operating mechanism (spring charging motor, coils, magnets, contacts, etc.)
- Tulip contacts: moving contacts onboard the apparatus arms
- Complete device: for those products which cannot be split into sub-assemblies
- Monoblocs: spouts, shutters and branches
- Earthing switch: earthing switch and relevant accessories

- Line disconnecter: line disconnecter and relevant accessories
- LV compartment devices: protection relay, auxiliary relays, MCB and terminal board

The following charts give an overview of the currently available spare parts in our stock and retrofit solutions for replacing phased-out equipment with active products. Spare parts in "Not ensured" status could become "Not available" during the year depending on requests. Please contact ABB for checking availability. See relevant 2017 Life Cycle Management for marine application.

Obsolete apparatus and relay			Active products		Spare parts				
Name	Product	Type	Retrofit solution	Poles	Mechanism	Auxiliary equipment	Tulip contacts	Complete device	
DIARC ^{(1) (3)}	Circuit-breaker	Magnetic-air	HD4, VD4						
eVM1	Circuit-breaker	Vacuum	VM1+met.&prot.						
HA/BEU	Circuit-breaker	SF6	HD4/BEU available only for HA3/BEU 24/36kV 1250A 25/32KA						
HA1-2-3	Circuit-breaker	SF6	HD4, VD4						
HAD	Circuit-breaker	SF6	HD4, VD4						
HAR	Circuit-breaker	SF6	HD4, VD4						
H-Breaking	Circuit-breaker	SF6	HD4, VD4						
HM1	Circuit-breaker	SF6	n.a						
PR511 ⁽²⁾	Relay	Digital	PR521, REF601						
PR512 ⁽²⁾	Relay	Digital	REF601, REJ603						
REF542 ⁽²⁾	Relay	Digital	REF542plus release 3.0, Relion® family						
REF542plus release 1.x ⁽²⁾	Relay	Digital	REF542plus release 3,0, Relion® family						

Notes:

1) Arc chambers are not available

2) Replacement with site adaptations

3) AE mechanism and its components are not available

	Not available
	Not ensured
	Available
	Not applicable

Obsolete switchgears			Active products	Spare parts				
Name	Product	Type	Replacement solution	Monoblocs	Earthing switch	Line disconnector	LV compartment devices	Circuit breaker or retrofit solution (*)
BEU2 ⁽⁵⁾	Switchgear	GIS	ZX family					
BEU3 ⁽⁵⁾⁽⁶⁾	Switchgear	GIS	ZX family					
CSF1 ⁽⁵⁾⁽⁶⁾	Switchgear	RMU	SafeRing, SafePlus					
CSF2 ⁽⁵⁾⁽⁶⁾	Switchgear	RMU	SafeRing, SafePlus					
CSFU ⁽⁵⁾⁽⁶⁾	Switchgear	RMU	SafeRing, SafePlus					
Normal AT ⁽⁵⁾	Switchgear	AIS	UniSec					
UniArc ⁽⁵⁾	Switchgear	AIS	UniGear/UniSec					
UniSwitch 36 ⁽⁵⁾	Switchgear	AIS	UniGear					
UniVer G36 ⁽⁵⁾	Switchgear	AIS	UniGear ZS2					
ZS1 ⁽⁵⁾	Switchgear	AIS	UniGear ZS1					
Notes:								
5) Replacement with site adaptations					Not available			
6) Line disconnector and earthing switch are included in the inox compartment					Not ensured			
(*) Please refer to previous tables for checking availability of circuit breakers and relevant spare parts or retrofit solutions					Available			
					Not applicable			

Lyfe cycle services

Tailor-made services for every life cycle stage

The whole world of ABB services hereby represented is at your disposal for making the best use of ABB medium voltage assets at every life cycle stage:

Active

- Long-term support thanks to Power Care customer support agreements
- Extended warranty application
- Worldwide Service competence, ready for prompt actuation
- Certified ABB spare parts ready in stock to guarantee their availability throughout the product life time (Active, Classic and Limited stages)

Classic

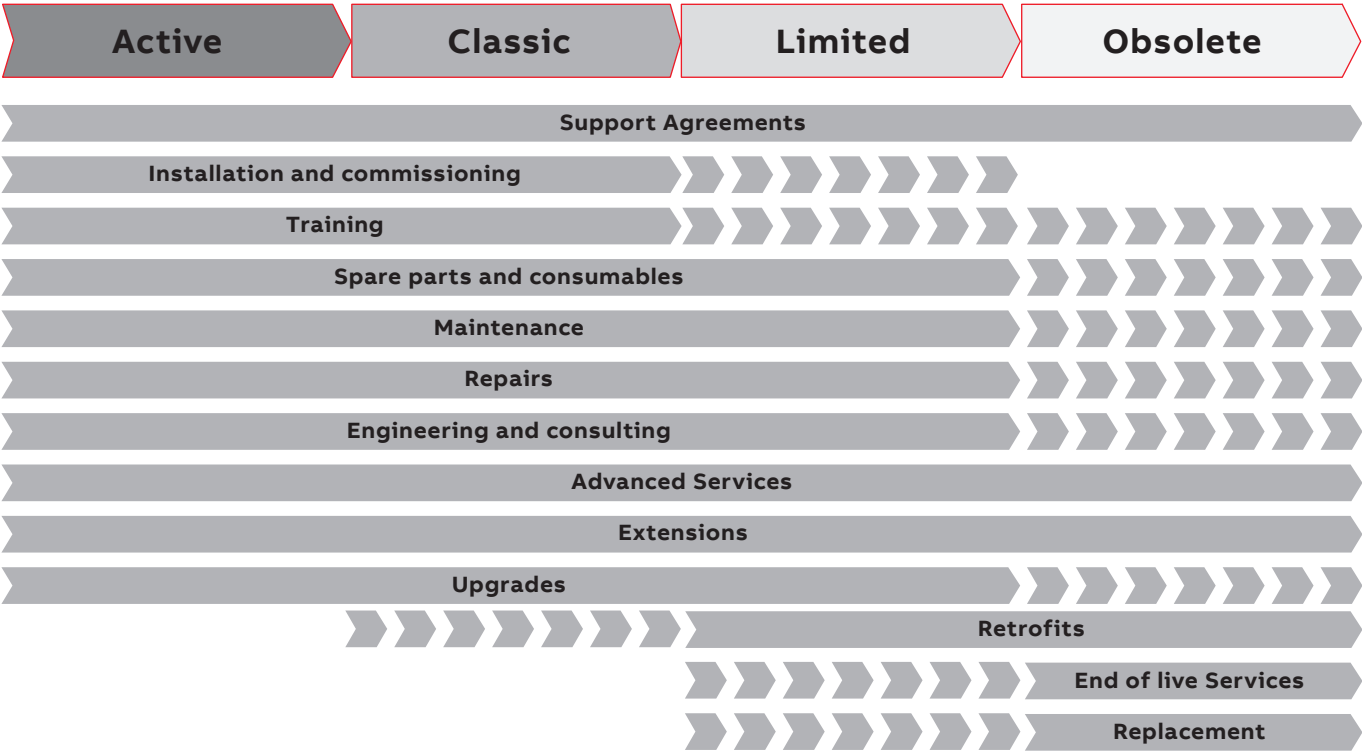
- “Last Buy” opportunity of complete equipment
- Good chance to obtain spare parts as per active products conditions
- Best time to keep equipment healthy via Power Care customer support agreements
- Call for training with wide coverage thanks to worldwide footprint still available.

Limited

- Spare parts fully available
- Retrofit solutions can already be applied
- Power Care customer support agreements designed to keep the service experience as per active products

Obsolete

- Spare parts could be still accessible on request.
- Retrofit solutions are usually available. The use of active products allows a new life to be given to the plants.
- Our consultancy services are always available for supporting cost-effective and optimized investments. Special care is given to obtain a soft shift to new applications and solutions.



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