

Medium voltage service

OneFit Circuit breaker retrofit

Concept

Retrofit breakers are normally used to replace phased out devices by current production versions. They are mechanically and electrically engineered to adapt to the existing solution on site. ABB Service experts conduct site audits on existing installations to assess the condition of the equipment, recommend the proper solution and support the right investment decision. Circuit breaker retrofit is a cost-effective switchgear modernization solution. The result is a noticeable improvement on reliability, safety, maintenance and performances. ABB is a full system provider, from the proposal and design, through the manufacturing and testing, up to the installation and commissioning. Both ABB and non-ABB installed base can be addressed.

The following technical solutions are available:

- Conversion
- Roll-in replacement
- Retrofit
 - Hard-bus retrofit
 - Cradle-in cradle

OneFit is the latest ABB hard-bus retrofit design concept, embedding an integrally safe plug-in technology to easily connect the new breaker to a wide range of existing panels.



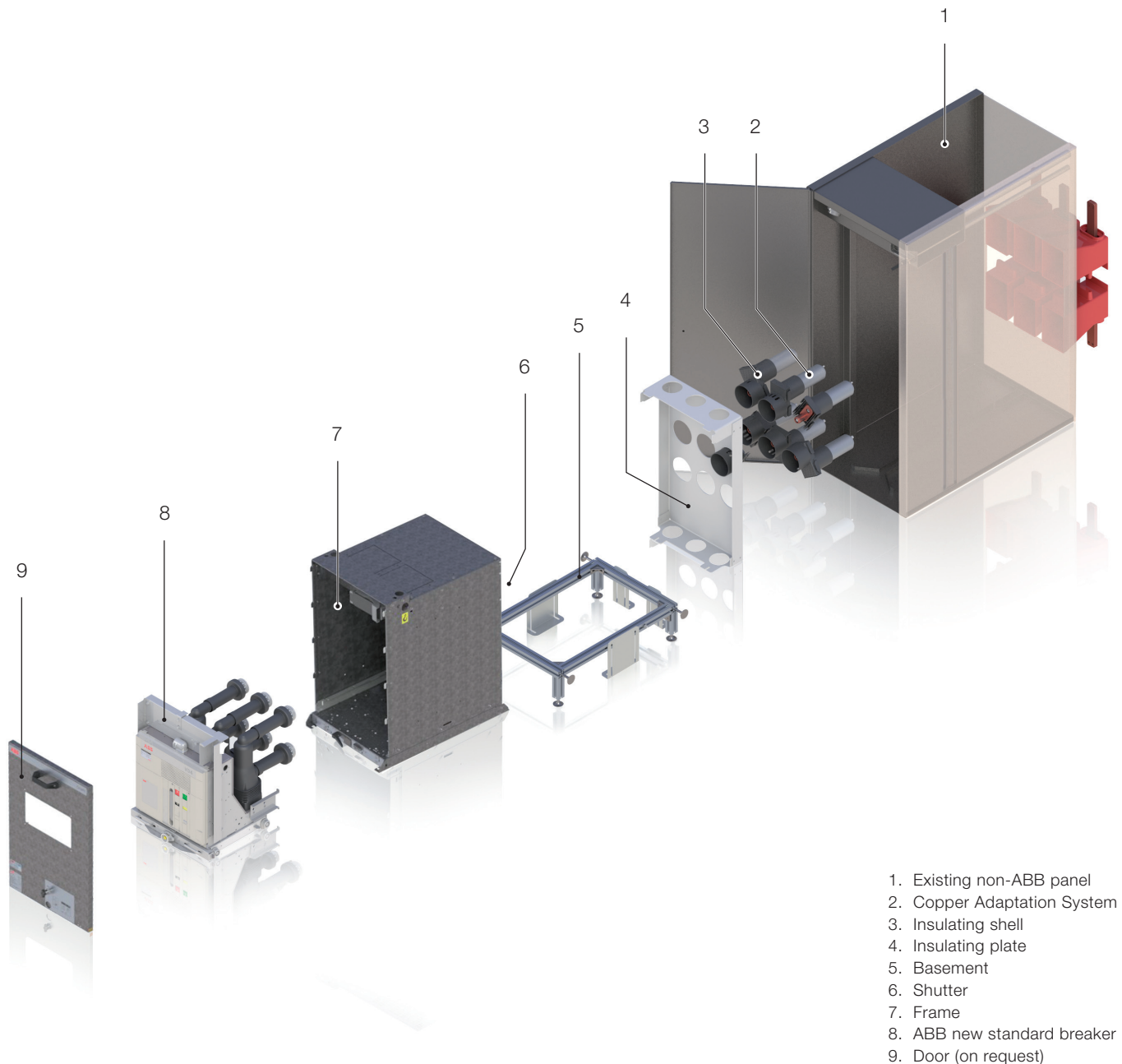
Switchgear renewal with OneFit

Retrofill is a modernization process including the replacement of the circuit breaker and some of the functional components of the power compartments. It is applicable where the existing switchgear frame is in serviceable condition. This product family includes a range of solutions supporting the switchgear upgrade when additional constraints are in place:

- other parts than the breaker (shutters, interlocks, etc.) need to be replaced;
- the original panel design does not allow to meet today required features and Standards.

OneFit is composed by a frame hosting the new circuit breaker. It is connected to the existing switchgear bushings by an additional power circuit, that acts also as inner interface with the new breaker. This solution balances the need for a retrofill solution with reasonably limited site works and linked outage.

OneFit solution is in accordance to latest IEC, ANSI and GB Standards.



1. Existing non-ABB panel
2. Copper Adaptation System
3. Insulating shell
4. Insulating plate
5. Basement
6. Shutter
7. Frame
8. ABB new standard breaker
9. Door (on request)

Packages

Keep the original standard ... increase the



OneFit



OneFit Safety

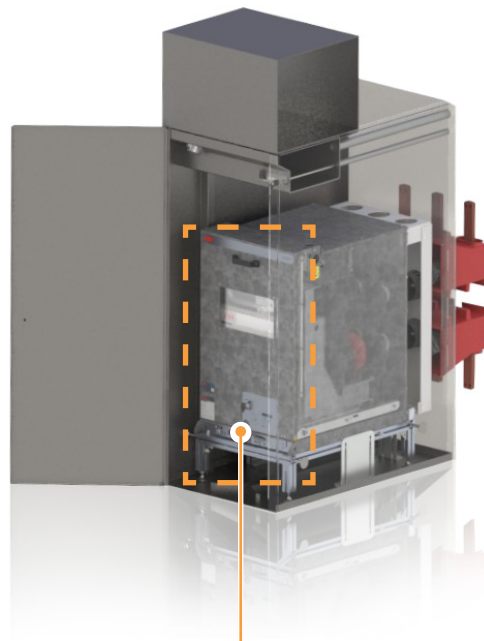
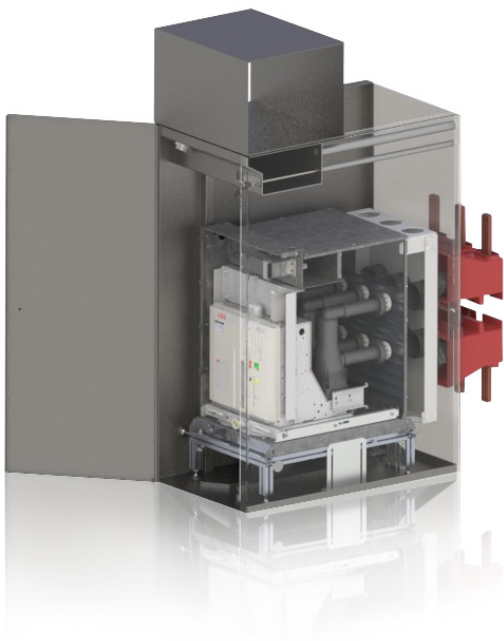


The true retrofit solution

New apparatus racking system, integrated metallic isolating shutter and state of the art interlocking system

Personnel protection increase

Added features overcome the existing equipment design constraints, providing closed-door operational mode avoiding accidental electrical contact injuries.



Interlocked door

personal safety ... renew the switchgear



OneFit Safety Plus



OneFit eSafety Plus

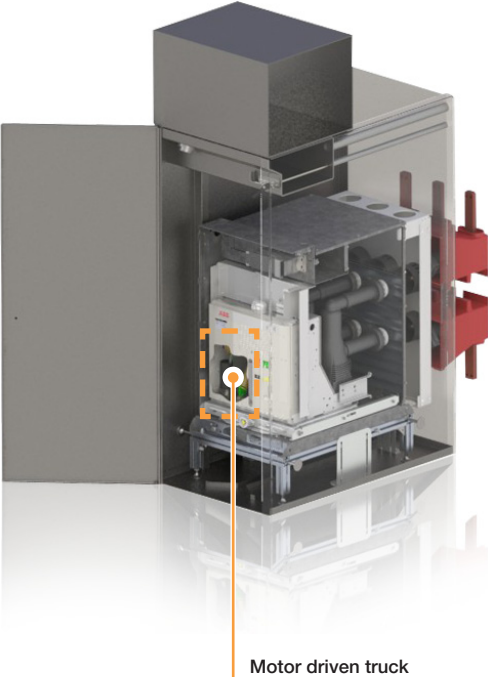


A new operational safety level

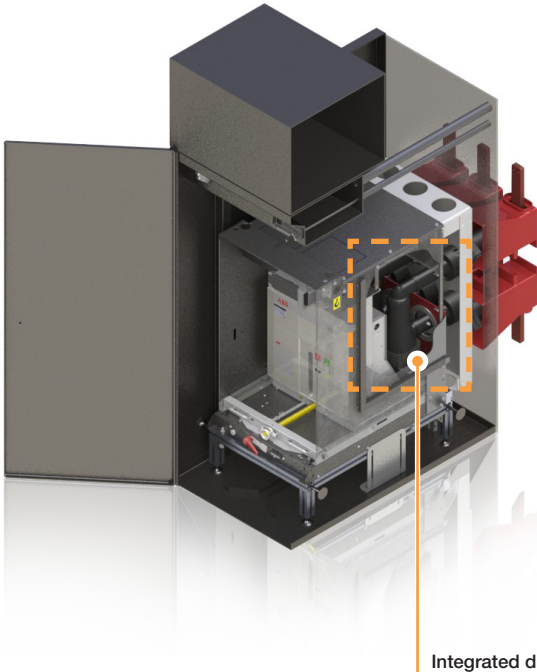
Embedded remote racking provides a safer operating environment for personnel through the proven method of adding distance between the operator and arc flash incident energy at the switchgear site, bringing operation of power equipment to a new level of safety.

Integral equipment revamping

The integration of protection relay and measuring sensors gives a new life to switchgear, combining all the benefits of the previous packages with an integral equipment revamping.



Motor driven truck

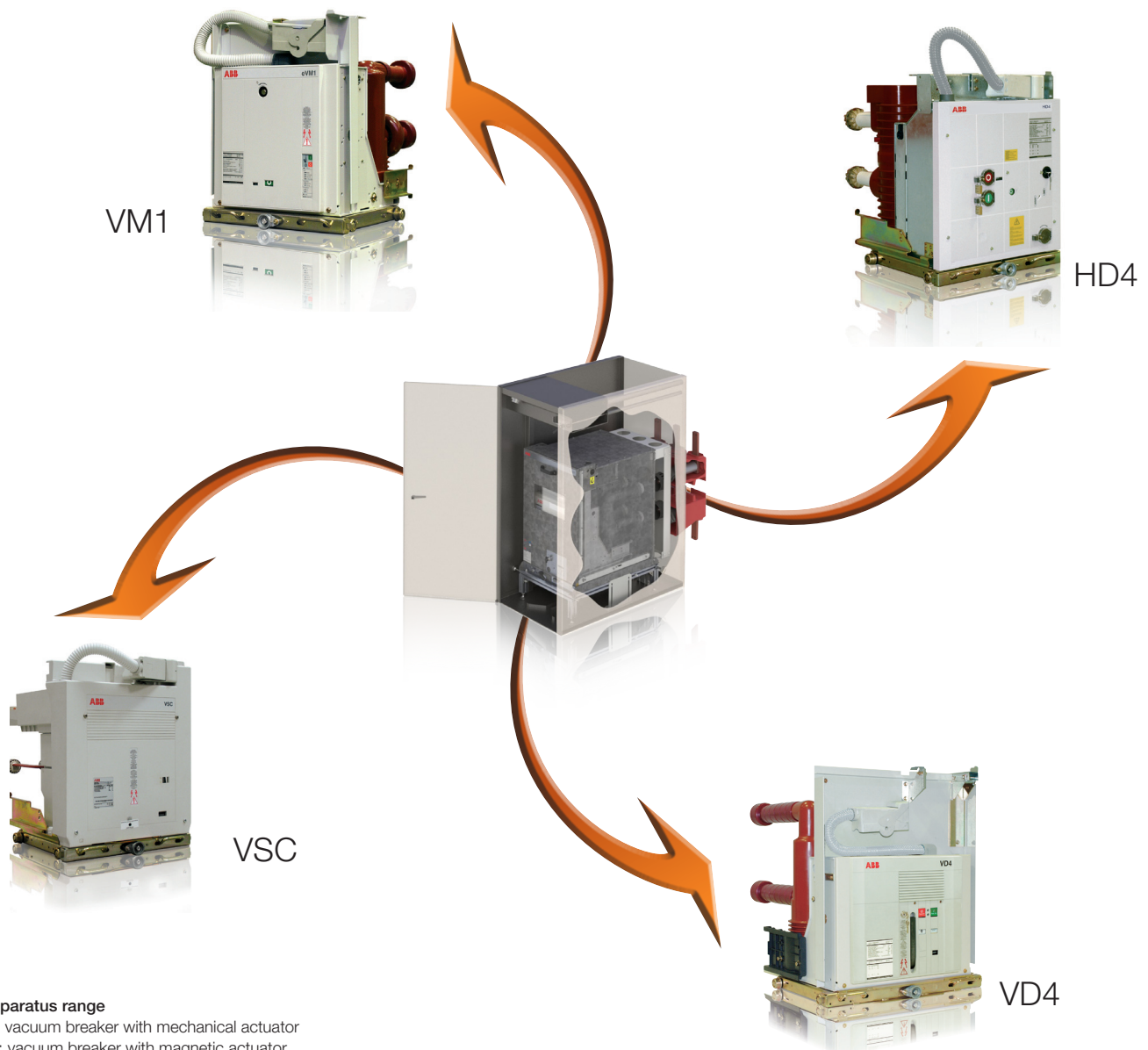


Integrated digital sensors

Benefits

Operational aspects:

- the new apparatus embeds standard spare parts with all the benefits in terms of availability and delivery terms
- equipment and spare parts are interchangeable with new ABB extension panels and additional switchgear
- plant standardization: revamping of different original manufactured panels using same standard ABB apparatus
- same operational interface and maintenance approach for the equipment installed in OneFit and new ABB panels



Full apparatus range

- VD4: vacuum breaker with mechanical actuator
- VM1: vacuum breaker with magnetic actuator
- HD4: SF6 gas breaker with mechanical actuator
- VSC: fused vacuum contactor

Modernization process:

- OneFit balances the need for a retrofill solution with reasonably limited site works and linked outage, thus avoiding any side impact (infrastructure modification and loss of production)
- short term assets management can be included in the maintenance budget (Opex Operating Expenditure) by using OneFit while the long term strategy can focus on the full switchgear replacement (Capex, CAPital EXpenditure)
- proposed apparatus are standard breakers, so they can be reused without any modification in future ABB replacement switchgear, providing an optimized investment to next substation renewal

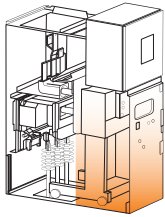


Same breaker in OneFit and new UniGear panels

Switchgear upgrade

Features included in each OneFit packages and additional options

Personnel protection increase



New metallic partition shutter

Increased dielectric properties thanks to new insulating arrangement

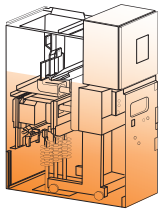
Loss of service continuity category in accordance to IEC Standards: upgrade of existing LSC-1 and LSC-2A switchgear to LSC-2B PM (busbar, circuit-breaker and cable compartments are physically and electrically segregated with metallic partitions and shutters)

New apparatus racking system with standard interlocks

Apparatus racking in and out with closed door

Motorized apparatus racking in and out for all vacuum apparatus

Equipment revamping with integrated sensors and protection relay

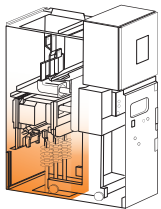


Remote control and new advanced protection relay

Integrated current sensors with no heat dissipation

Voltage sensors unaffected by ferroresonance risk

Earthing switch functionality modernization

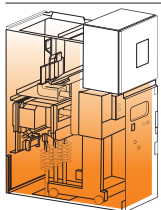


New interlocking functionalities

Cable testing truck

Earthing truck, also with making capability

New internal arc safety level



Relay retrofitting with Relion® family embedding arc detection inputs

Switchgear upgrade with REA arc flash mitigation relay

Integration of the arc protection system UFES (Ultra Fast Earthing Switch)

 Additional options

	OneFit	OneFit Safety	OneFit Safety Plus	OneFit eSafety Plus
	Orange	Orange	Orange	Orange
Gray	Orange	Orange	Orange	Orange
	Orange	Orange	Orange	Orange
Gray	Orange	Orange	Orange	Orange
		Orange	Orange	Orange
Gray	Gray	Gray	Orange	Orange
Gray	Gray	Gray	Gray	Orange
				Orange
Gray	Gray	Gray	Gray	Orange
Gray	Orange	Orange	Orange	Orange
	Gray	Gray	Gray	Gray
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Design process optimization

Data collection

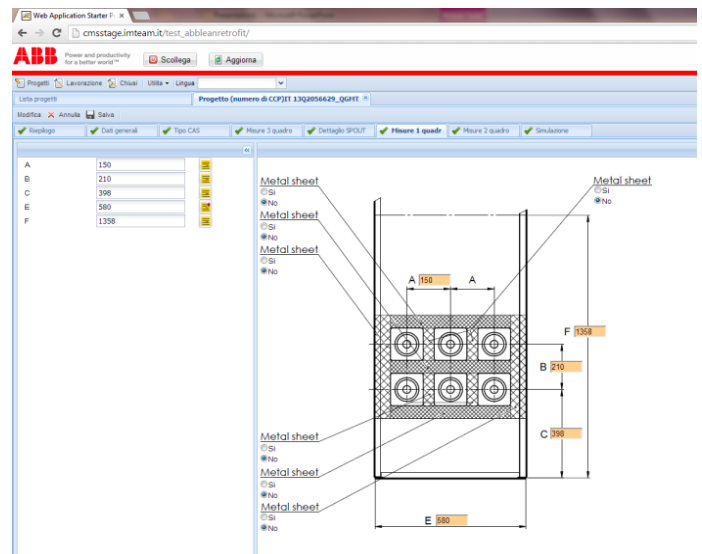
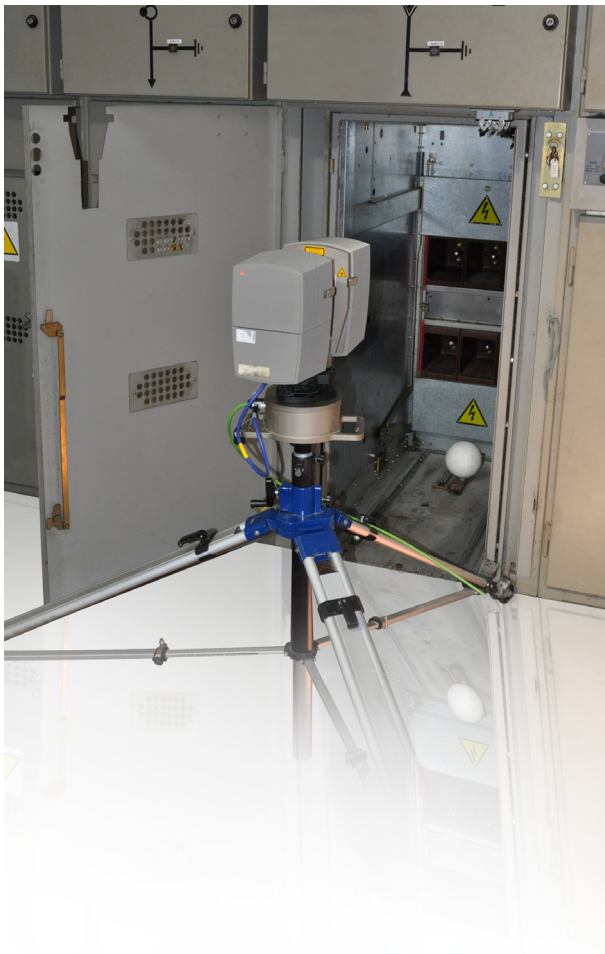


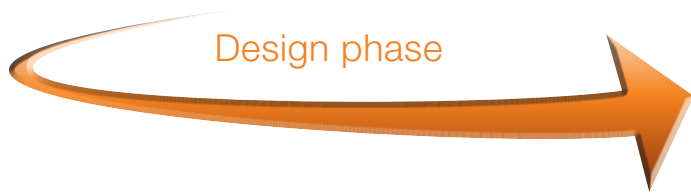
Feasibility study



The existing equipment data collection is performed at site by either the use of conventional instruments or much faster with the support of a 3D scanning system. The need for the original apparatus during the design phase is also not required anymore.

The Global Parametric Tool enables ABB users to easily convert the gathered original equipment data into a professional and quick feasibility study.

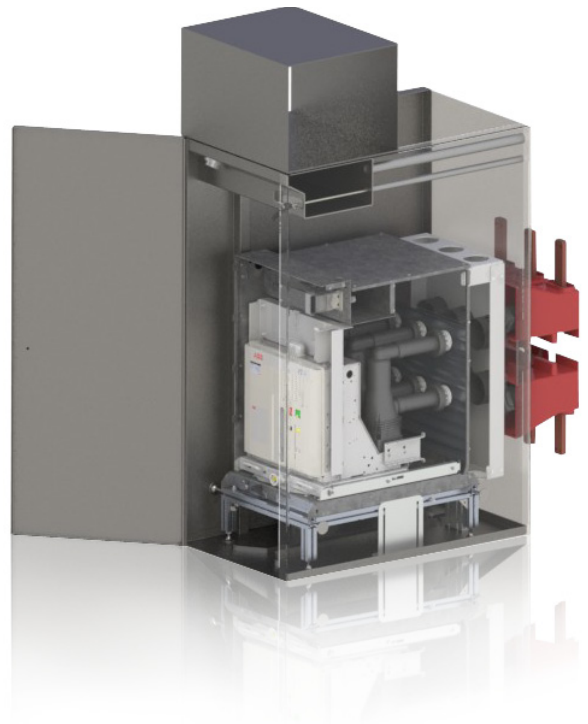
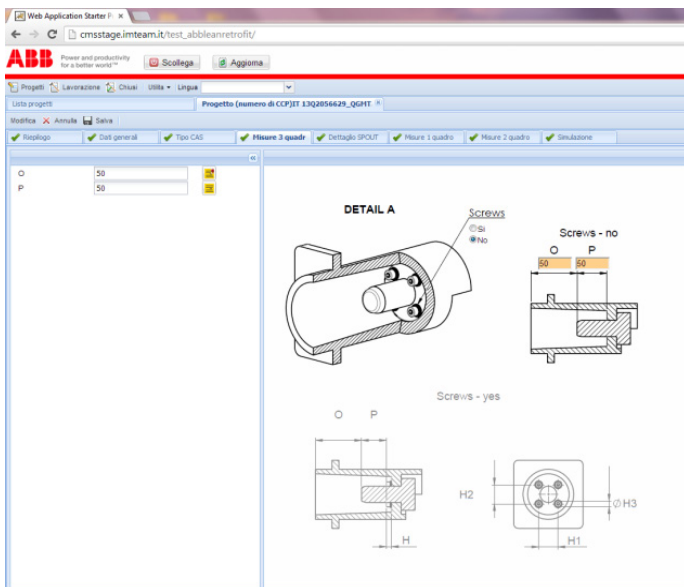




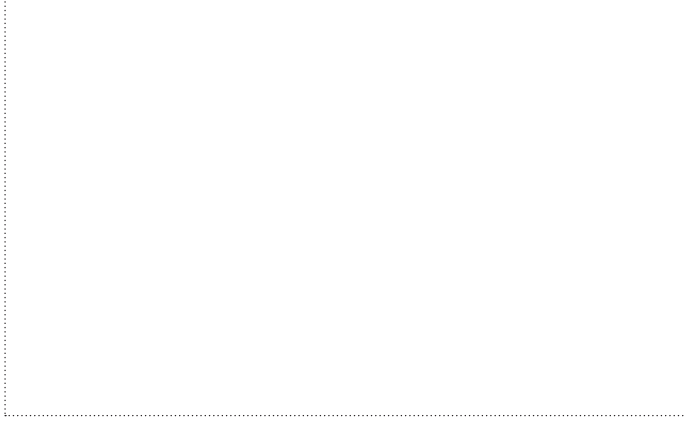
The Global Parametric Tool allows to standardize and optimize the engineering phase. A process which could take weeks of work can now be done in few hours.



A refined output of the Global Parametric Tool enables a fast production implementation and a quick delivery of the complete solution.



Contact us



Your Service sales contact: www.abb.com/contacts
More Service information: www.abb.com/productguide

OneFit webpage:



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