

ABB MOTION SERVICES

Modernization services for drives

Extending the lifetime of your equipment



- ABB's modernization services offers retrofits, upgrades and replacement solutions for both ABB and non-ABB drives
- In this catalog we present the detailed offering of ABB's modernization services for drives

Modernization extends the reliability of your drive over its lifetime, by providing risk management for aging equipment within your business operations.

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Securing the reliability and continuity of your operations

Are you aware of the support available for your critical drive assets?

Even the most reliable pieces of equipment will eventually experience a failure. This is when having access to the necessary support – operation ready spares and qualified technicians – is critical, to ensure that these failures have a minimal impact on operational security. Unfortunately, when equipment with limited support does fail, it can be disastrous: the operator suffers extended unplanned downtime, requiring an extensive search for ready to operate equivalents and other band-aid solutions.

We provide ongoing support, so we don't let you down

All ABB products are covered by an extensive lifecycle management model, which ensures managed transitions throughout the lifecycle of equipment. This provides flexibility to maintain operational continuity within budgetary restrictions. The lifecycle management model includes notice of any upcoming lifecycle transitions, helping you to avoid any surprises. Multiple solutions are available to manage support requirements, providing the opportunity for operational improvements.





Modernization services – a proactive approach

ABB's modernization services offers an alternative method to manage your equipment. By proactively targeting equipment to be serviced and maintained, you can potentially reduce your overall costs. Upgrades, retrofits, replacements, and even upgrades on non-ABB equipment are possible options which can secure operational security.

What about when my equipment becomes obsolete?

It's never too late to have the conversation! Even when equipment enters the stage of its lifecycle where it begins to become obsolete, there are multiple potential modernization services available. These services enable you to return drive equipment back to its original reliability, potentially increasing its performance and providing greater flexibility with new features.

How do I find the right solution for my equipment?

You understand your equipment and needs of your business. We can ensure that you have multiple options to manage the reliability of your equipment. We can offer expert advice on the practicalities of the modernization of equipment, as well as the implementation and future operation of different solutions. We work with you as a partner, to optimize the solution based on your budgetary requirements.

Why ABB?

ABB supports you through the whole process of managing the lifecycle of your assets. If you are focused on operational excellence, performance improvement, or working with constrained resources, we will work with you to find a solution. Whether it's optimizing the maintenance schedule to avoid lengthy breaks in operation, or applying our extensive knowledge of your installed products to reduce installation and commissioning costs, ABB is ready to help you deliver on your goals.

- **Secure operational continuity**
by extending the lifetime of your drive system
- **Manage component obsolescence**
with modernization solutions
- **Improve usability and safety**
with new features
- **Secure reliability and improve performance**
with proven technology
- **Identify emerging equipment problems**
before they happen

Your reliable partner in drive modernizations

Is reliability your biggest worry? Are you wondering how you can afford the investment required? At ABB, we work with you to find the optimal solutions to modernize your drive equipment. We seek to understand you and your business, and can offer flexible solutions to solve the challenges you face with aging drives.



"As an Automation manager I have to keep my equipment running whilst controlling my costs. When I do my job as promised, I build trust with my managers."

With ABB's modernization services, you can select the right services to suit your budget. The extensive ABB lifecycle model allows you to plan your modernization actions and execute your plan at the optimal moment.



"As an Operations Manager my ultimate goal is to reduce unexpected shutdowns, and maintain reliability. This helps the company to achieve our production goals, and helps me to do my job well."

By retrofitting and upgrading the drive system at the right time, you can guarantee operational continuity, extending the lifetime of your system, and potentially even introducing process improvements.



"For me as a maintenance engineer, it is important that the installation is fast, uncomplicated, and proceeds according to plan. This allows me to finish my job as planned and get home on time."

ABB's modernization services offer a fast and efficient way to upgrade your equipment with the latest technology. Together we select the best solution to modernize your drive based on your maintenance strategy, resources and existing equipment.



"As a Factory Manager I want to maximize the profitability of our operation, to maintain the success of our business in the years to come."

If a drive is not supported it could have dramatic consequences on a plant's operation and profitability. With ABB's modernization services you can secure a plant's future productivity and profitability with optimized and targeted investment.

Supporting you throughout the entire lifecycle

The ABB life cycle management model provides you with information about the support that your drive can receive. The model helps you to choose various modernization and lifetime extending solutions, as every ABB product has a defined lifecycle. This means lifecycle changes are known years in advance. Therefore, ABB can help you select the best timing for modernization actions, based on the model of your drive.



In the **Active** phase your drive has the full range of life cycle services available, covering installation and commissioning, training, spare parts, maintenance, repairs, engineering, consulting and digital services.

Examples of Active products

- ACS580
- ACS880
- ACS2000
- ACS6080
- DCS880

In the **Classic** phase the full range of lifecycle services are available covering installation and commissioning, training, spare parts, maintenance, repairs, engineering, consulting and digital services, whilst product enhancements may be available through modernization solutions.

Examples of Classic products

- ACS5000 Generation 1
- ACS800-07 Single Drives
- ACS1000 (Generation 1)
- ACS6000 (Generation 1)
- DCS600 modules upgraded by DCS800-R00

When your drive reaches the **Limited** phase, a more limited range of lifecycle services are available, with the limited stock of available spare parts, whilst product enhancements may be available through **modernization solutions**, which will bring the drives back to Active or Classic life cycle phase.


Examples of Limited products

- ACS6000c air-cooled (AMC3)
- DCS500B modules
- ACS600 air-cooled Multidrives
- ACS1000 Generation 1

In the **Obsolete** phase, only replacement and end-of life services are available. With **modernization solutions** your drive can be brought back to the **Active** or **Classic** phase of its lifecycle, ensuring the full availability of lifecycle services and ensuring operational continuity.

Examples of Obsolete products

- ACS607 single drives
- ACV700
- Sami Star
- Tyrak Midi II

A full-page photograph showing two industrial workers in a factory setting. They are wearing hard hats, safety glasses, and work clothes. One worker is in the foreground, looking up at a large blue industrial machine. The other worker is slightly behind him, also looking up. The machine has large blue pipes and complex mechanical parts. The lighting is industrial, with a bright light source visible in the upper right corner.

—
An ABB expert will help you
to determine the life cycle
of your drive and find
the best solution to fit
your needs.

Offering four options to modernize your drive

ABB can offer four different options to modernize your drive. Selecting the best option for you depends on your own processes, how the drives are used, as well as the types of drive that are in operation.

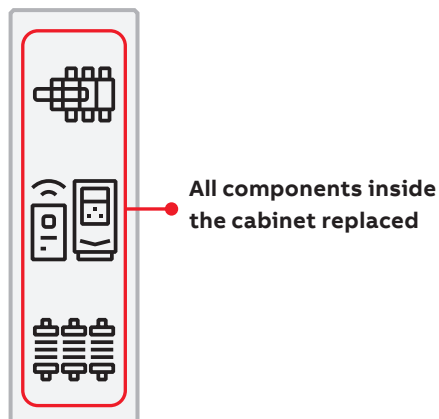
Retrofitting can be an option used to modernize Low Voltage Drives, whereas Medium Voltage drives can be upgraded. For DC Drives and non-ABB equipment, both solutions are available. Replacement of drives is available for all drive types.

Fast project delivery – with our expertise, we can guarantee the best possible timeframe for modernization, and one that suits your schedule.

1 Drive retrofit

Bringing the old (Classic, Limited, Obsolete) drive back to the Active phase of its lifecycle, without changing the cabinet and existing motor and control cabling.

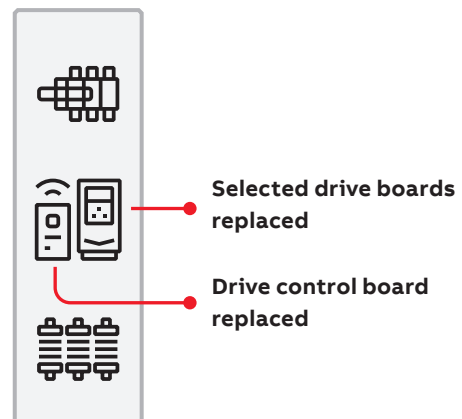
- Cabinet content replaced with the latest technology



2 Drive upgrade

Selected components or drive modules of the older drive platform are replaced. In some cases older power or auxiliary system parts are replaced as well. It is also possible to add features to the drive during the process or update the design of the drive to bring it in-line with the latest product release.

- Components or drive modules are updated with the latest technology





3 Drive replacements

Replacing an old drive with a new ABB product, best suited to your requirements

- Selecting the most suitable replacement solution for an ABB or non-ABB drive
- The whole portfolio of ABB Active drives are available
- New Classic drive modules also available

4 Modernization of non-ABB drives

Non-ABB drives can be modernized to a current and supported ABB drive or ABB control platform.

- Legacy products are modernized with the latest ABB technology
- Shutdown times are optimized
- Each modernization solution is selected to best suit your needs



Whole cabinet replaced



Modernization solution selected on a case-by-case basis

Modernization solutions for your LV AC drives

The ABB LV AC Drive Modernization is a fast and effective way to upgrade installed drives with new technology, bringing immediate performance improvements to a plant or process.

With the modernization solutions, older generation drives, such as Sami Star, ACV700, ACS600 and even ACS800, can easily be modernized to the latest ACS880 technology. Also the modernization is available for non-ABB drives. The Retrofit Service will update the lifecycle of existing Classic, Limited or Obsolete drives, bringing them into the Active phase of the lifecycle. The Module Upgrade service will upgrade the drive module to the latest ACS880 drive platform, without the need to upgrade any other components inside the cabinet. Modular modernization solution combines the benefits of both Retrofit and Module Upgrade service by changing only those components that are essential for your drive. Complete modernization can be done gradually with short maintenance intervals. All these solutions are fully type tested to fulfill the original installation requirements.

Why retrofit

The ABB Retrofit service allows you to replace only essential components and through this bring the drive back to its Active lifecycle phase. This means, that the modernization can be undertaken with a minimum interruption to normal operations, and with investment targeted in the most efficient way possible. The service is also very flexible and can be adapted to coincide with your own scheduled shutdowns. Retrofits don't require major changes to the current infrastructure, as existing cabinet structures can be used. This will minimize the total investment required for a modernization project.

Gradual modernization

If you have a large base of installed drives, the ABB drive modernization can be implemented in phases to avoid lengthy shutdowns.

Optimizing planned downtime

The ABB LV AC drive modernization service can be carried out in line with your own production schedules to minimize the interruption to operations.

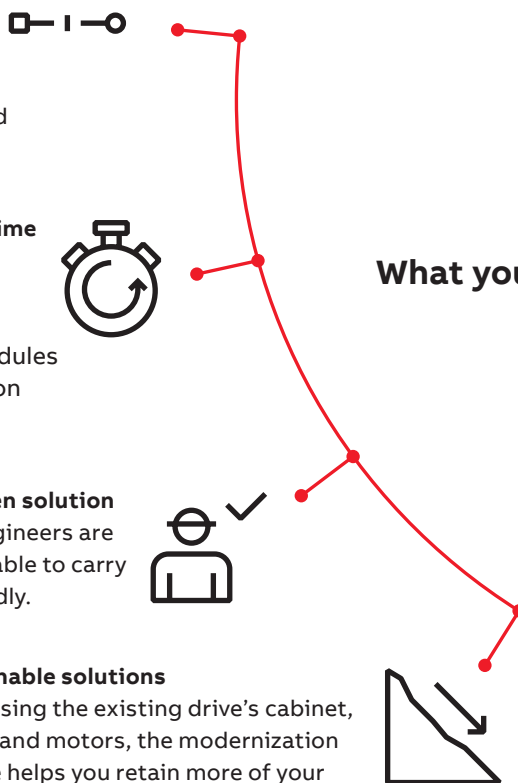
Tested and proven solution

ABB-certified engineers are trained and available to carry out retrofits rapidly.

Sustainable solutions

By re-using the existing drive's cabinet, cables and motors, the modernization service helps you retain more of your original investment and modernize more efficiently.

What you get



Four options to modernize your ABB LV AC drive

- The Standard Kit retrofit is delivered with pre-installed sub-assemblies and module.
- In Frame retrofit an integrated frame assembly is inserted to the existing cabinet.
- The module upgrade solution changes the drive module to the latest ACS880 drive.
- The modular modernization solution allows you to flexibly upgrade your drive by changing only those parts that are essential.

ABB experts will help you to select the right option, taking into account the time, space and resources available.

1 Standard kit Retrofit

- Pre-installed sub-assemblies and module
- Flexible configuration on-site

2 Frame Retrofit

- Integrated frame assembly from factory
- Reduced installation time

3 Module upgrade

- New drive module, control board and parts to easily fit to old cabinet
- Simple selection and extremely fast to install

4 Modular modernization

- Change only the drive module and related options
- Add other options based on your needs or upgrade later

The Frame retrofit process of a LV drive



Existing cabinets and cabling are retained



Frame is inserted



Ready assembly

Retrofit types for ABB drives

Product to modernize	Retrofit variant	Drive section	Type code
ACS800 Single drive	ACS800-07 to ACS880U modular modernization	Drive module	ACS880U-07S8
ACS800 Regenerative drive	ACS800-17 to ACS880U modular modernization	Drive module	ACS880U-17S8
ACS800 Low-harmonic drive	ACS800-37 to ACS880U modular modernization	Drive module	ACS880U-37S8
ACS600 Single drive	ACS607 to ACS880U module upgrade	Drive module	ACS880U-07S6
ACS600 Single drive	ACS607 to ACS880 frame retrofit	Drive module	ACS880R-07F6
ACS600 Multidrive	ACS600 to ACS880 standard retrofit	Inverter unit	ACS880R-107S6
ACS600 Multidrive	ACS600 to ACS880 standard retrofit	IGBT supply unit	ACS880R-207S6
ACS600 Multidrive	ACS600 to ACS880 standard retrofit	Diode supply unit	ACS880R-307S6
ACS600 Multidrive	ACS600 to ACS880 standard retrofit	Thyristor supply unit 6-pulse	ACS880R-407S6
ACS600 Multidrive	ACS600 to ACS880 standard retrofit	Thyristor supply unit 12-pulse	ACS880R-807S6
ACS600 Multidrive	ACS600 to ACS880 frame retrofit	Inverter unit	ACS880R-107F6
ACV700/Sami Star	ACV700/Sami Star to ACS880 standard retrofit	Inverter unit	ACS880R-107SS
ACV700/Sami Star	ACV700/Sami Star to ACS880 standard retrofit	Diode supply unit	ACS880R-307SS
ACV700/Sami Star	ACV700/Sami Star to ACS880 standard retrofit	Thyristor supply unit	ACS880R-407SS

Modernization solutions for your MV drives

Would you like to extend the lifetime of your drives and make your existing equipment IoT ready? If so, it is time to upgrade. ABB offers a broad set of upgrade services that can enhance the efficiency and reliability of your drive, bringing it in-line with the latest technology advancements.

Why upgrade

The ABB Upgrade Service unlocks the latest features of MV drives by installing state-of-the-art control systems within proven and existing designs. An engineered solution for upgrading MV drives can help minimize

investment costs, and reduce the downtime required. This upgrade service can also enhance the efficiency and reliability of your drive, bringing it in-line with the latest advancements in technology.

What you get



Three options to upgrade your MV drive

A modernization service to the newest version of the control platform is an action that drastically improves the operational reliability of the drive bringing up-to-date technology. In terms of CO₂ footprint, a modernization of the existing MV drive is the most sustainable way to extend the lifetime of your asset.

During a modernization of the control, also other components than control HW are upgraded if the availability of a component is not guaranteed anymore. ABB ensures to extend spare part availability and service support by 10 years after the modernization of your drive.

1 Modernization to AMC-34

The AMC control platform is used since 1997 and is well-proven. The AMC-34 main controller is the latest version of this control platform. This modernization solution ensures the life-cycle extension of your drive and improves spare parts availability.

Upgrade examples:

ACS1000 Main Board upgrade (AMC-34)
PSR Cycloconverter control upgrade (AMC-34)

2 Modernization to UCU-26

The UCU control platform with the UCU-26 main controller is the latest achievement for MV drives. This modernization solution drastically improves the operational reliability of your drive at the same time enhancing the drive with the latest technology and bringing it back to the Active life-cycle phase.

Upgrade example:

ACS6000 Modernization with UCU-26

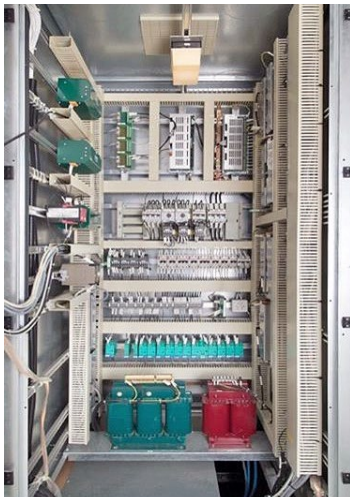
3 Modernization to PEC3

The PEC3 control platform is a powerful control platform for high-end applications which is running on MEGADrive-LCI and PCS6000 WIND converters. The modernization solution enables drive with new features and advances its life-cycle phase.

Upgrade example:

MEGADrive-LCI Control Upgrade PEC3

The Modernization process of an MV drive



Obsolete control technology



Removal of control electronics



Installation of latest technology

Upgrade types for ABB drives

Product to modernize	Old control platform	Control Platform (Main Controller)
ACS6000 (Generation 2)	AMC (AMC34)	UCU (UCU-26)
ACS6000 (Generation 1)	AMC (AMC3 or AMC33)	UCU (UCU-26)
ACS1000 air-cooled (Generation 1)	AMC (AMC3 or AMC33)	AMC (AMC34)
ACS1000 water-cooled (Generation 1)	AMC (AMC3 or AMC33)	AMC (AMC34)
ACS6000c air-cooled *)	AMC (AMC3)	AMC (AMC34)
ACS6000c water-cooled *)	AMC (AMC3 or AMC33)	AMC (AMC34)
PSR CYCLOCONVERTER *)	PSR	AMC (AMC34)
ANALOG CYCLOCONVERTER *)	Analog	AMC (AMC34)
MEGADrive-LCI	PSR	PEC (PEC3)
MEGADrive-LCI	PEC (PEC2)	PEC (PEC3)

*) Non-upgraded drives will not be supported anymore after 31.12.2023

Modernization solutions for your DC drives

Millions of DC drives are being used around the world in every conceivable application, often giving excellent service for many years. Frequently, for various reasons, users want to modernize their drive systems. When modernizing your DC drive system, ABB offers customized packages specifically tailored to your requirements.

Why DC modernization

Thyristor technology used in DC drives is very robust. However, the control electronics and many other components need to be replaced as the drive ages, in order to keep it functioning correctly. The DC modernization service will update the essential components of your

DC drive to bring it in-line with the latest innovations in DC drive control technology, as well as adding modern features to the existing installation. This minimizes downtime, ensuring your investment is deployed as efficiently as possible.



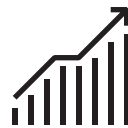
Optimized investment

The new hardware used to modernize your DC drive can be optimized to suit your equipment, improving your cost control. Components with a long lifetime can also be reused, ensuring that a DC drive retrofit is always a cost efficient solution.



Ease of use

With new, modernized designs and technologies, your drive is easy to setup, use, commission, configure, and maintain. The modernized DC drive is designed to maximize the harmony between DC and AC drives. This reduces the training required when handling the different systems and technologies.



Performance improvement

Utilizing digital technology with up-to-date communication interfaces and control performance systems enables increased process productivity, guarantees the quality, and improves the performance of the whole production facility. This reduces the risk of unexpected shutdowns.



Optimized planned downtime

The modernization service can be carried out inline with your own production schedules. A benefit of a modernization, is that the required shutdown time is shorter than for a complete installation of a new system.

What you get

Three options to modernize your DC drive

ABB offers 3 different options to modernize your existing DC drive, depending on its power and drive generation:

- A Control Upgrade with DCS880-R Rebuild kit
- A Control Upgrade with DCS880-U Upgrade kit
- A Replacement with DCS880-S module

An ABB specialist can help you make the right selection using the table below.

1 Control upgrade with DCS880-R Rebuild kit

- Changes to the control platform
- The old thyristor bridges remain

2 Control upgrade with DCS880-U Upgrade kit

Only available for ABB brand DC drives.

- Changes to the control platform
- The old thyristor bridges remain

3 Replacement with DCS880-S module

The control platform and thyristor module are updated.



DCS880-R rebuild kit



DCS880-S

Upgrade types for ABB DC drives

Product to be modernized	20 - <900 A / 1.000 A	1.000 A - 3.000 A	>3.000 A - 20.000 A
ASEA TYRAK 8 ASEA TYRAK L	Replacement with DCS880-S Module	Control upgrade with DCS880-R Rebuild kit	Control upgrade with DCS880-R Rebuild kit
DCS500 / DCV700 DCS500B / DCS600	Replacement with DCS880-S Module	Control upgrade with DCS880-U Upgrade kit	Control upgrade with DCS880-U Upgrade kit

Replacements for your drives

ABB helps you to select the most efficient method for modernizing your existing equipment, and where it is an appropriate solution, can also help replace an old drive with a totally new drive. The old drive can be replaced with a new ABB drive in active or classic production.

Two ways to replace your drive

ABB offers two methods to replace your old drive with an Active or Classic replacement ^{*)}. An Active replacement provides you with a full set of new features. This includes a full set of functional safety features, new drive programming tools, and active product support. When you have a big fleet of classic drives and aren't able to invest in spares or new drive support, or the training of personnel, ABB offers a one-to-one replacement with a similar classic-phase drive. This means your existing drive will not need modifications to the control platform, enabling you to continue your operations as normal.

^{*)} Not available in the US

Replacement with Active

- Replacing any ABB or non-ABB drive with an active ABB drive
- Includes a full set of new features and benefits

Replacement with Classic

- Replacing an ABB drive with similar modules from available Classic products
- Updated version of module features
- One to one replacement to allow for continuous operations





Examples of Active products

- ACS580
- ACS880 AC drives
- ACS6080
- DCS880-S DC drives modules
- DCS880-A drive cabinets



Available Classic products

- ACS800-01 wall mounted AC drives
- ACS800-x04 AC drives modules
- ACS550-01 wall mounted AC drives
- DCS800-S DC drives modules
- DCS800-A drive cabinets

Modernizations for your non-ABB drives

ABB can also modernize non-ABB drives with selected portfolio products. By using ABB's modernization services, you can provide the latest technology for your existing non-ABB legacy drives.

Modernizations for non-ABB LCI drives

Non-ABB LCI drives can be upgraded using the same technology as used in ABB LCI drives. ABB offers three different options to modernize your non-ABB LCI drive:

- A Control Upgrade – upgrading the LCI control with the latest ABB LCI Drive Controller (PEC3)
- Converter Retrofit – together with the control platform, you receive the latest technology with ABB power modules
- A full drive replacement with a new ABB LCI Drive cabinet

Modernizations for non-ABB DC drives

With a DCS880-R Rebuild kit, you can obtain a brand new ABB Control Platform suitable for your old legacy DC Drive.

- Using the old thyristor bridge and accessories but updating the control platform with the latest technology
- Replacing the old converter totally with the new ABB DCS880 DC Drive, guaranteeing lifetime support for years to come

Automation system replacement with new ABB automation

Together with drive modernizations, ABB can help you to replace your existing legacy control platform with a new ABB Automation System such as the AC500 or AC800M. Furthermore, ABB's own classic phase automation systems can be modified so that the communication between the drive and upper level communication systems works fluently after the modernization, minimizing disruption to production.



Drive system engineering consulting

Do you want to see what improvement potential your drive system has? Are you interested in benefiting from the latest technological achievements to optimize your system's efficiency? We offer a wide spectrum of engineering and consulting services that can help take the performance of your drive system to the next level. Be it at the system analysis, setup, optimization, or upgrading phases, our drive system experts can support your team in providing world-class services to ensure that your drives are meeting your needs.

What you get

Performance improvement

- ▶ We are your partner in improving productivity, reliability, safety, cost efficiency, energy efficiency and emissions control. We optimize the usability and availability of your equipment and systems to increase performance and optimize your cost of ownership.

Minimized emissions and optimized costs

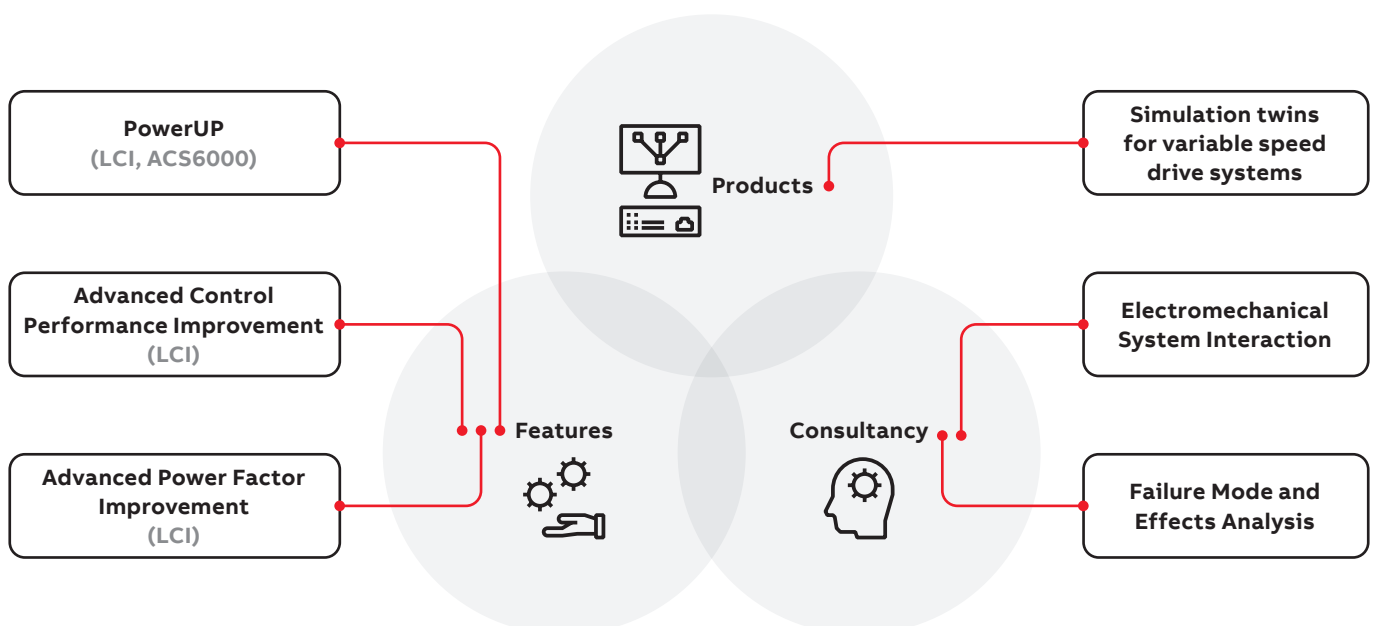
- ▶ Our advanced services help you to reduce CO₂ emissions and better plan your operational expenditure.

Taking the best decisions together

- ▶ You know your process best. We have extensive knowledge of drive systems. Combining both leads to the ideal solutions.

Cost transparency

- ▶ Our offering is based on a well-defined phase model with a clear cost model.



Application modernization services

ABB Motion Services is offering a range of tailored modernization solutions, specially designed for diverse industrial applications. The approach is to utilize ABB's cutting edge know-how in powertrains and provide optimal technical solutions to fit specific use cases.

ABB SkiTow Modernization

ABB ACS880 SkiTow Modernization is an infinitely variable speed control with an integrated safety circuit monitoring. This is an energy efficient, environmentally friendly, modernization safety solution for ski lift installations.

With ABB ACS880 SkiTow solution, the speed of the lift can be infinitely adjusted. The lift starts and stops smoothly and in a controlled manner, improving safety. The equipment allows downtime due to weather conditions to be almost completely eliminated. ABB ACS880 SkiTow solution automatically stops the lift more reliably than ever before. A double safety circuit ensures that a single fault in the electrical system does not prevent the lift from stopping automatically.

ABB Crane Modernization

ABB Crane Modernization is an engineered based solution offering to provide port & crane operators with the reliability of the existing crane fleets to ensure that the retrofit is fitted with the latest technology and control system. This solution makes it possible to restore the performance level of the crane to improve the usability and safety of the equipment.

Cranes being in operation for more than 15 to 20 years generally face various issues. Their performance is severely affected by ageing components, the availability of spare parts and relevant service support. Thus, the crane's availability and reliability are affected. ABB Crane Modernization is focused on solving problems through a customized engineered modernization solution that is adapted to the existing crane configuration. The Crane Modernization solution covers a wide range of crane types. This solution is designed to minimize the downtime of your operations and is aimed to give you an up-to-date crane system that is reliable and safe for you today and in the future.

ABB Hydropack. Solution for Mini Hydro Power Generation

Maximizing the production of your hydropower plant is now possible in the most optimal and efficient way with ABB Hydropack solution for Mini Hydro Power Generation. It facilitates increasing profits with customized solutions based on a specific power plant assessment and seamless system integration.

The traditional system needs a minimum water flow to maintain the turbine's nominal speed, and at the same time, it is needed to maintain the synchronous speed to achieve 50 Hz for energy transmission to the network. With the implementation of the ABB Hydropack variable speed solution, the system can generate at extremely low water flow rates and the equivalent hours of the plant's ability to operate is increased.

Slip power recovery system (SPRS) for slip-ring motors

SPRS is a starting and speed control method for slip-ring motors that brings optimum plant performance, energy savings, high plant availability and high efficiency to fans, pumps and mills used throughout the cement industry.

Slip power recovery system (SPRS) is IGBT based technology is utilized to achieve the power saving from high voltage slip-ring motors. SPRS is an alternative method that provides excellent torque and speed control is a slip power recovery system (SPRS) with an ACS880 multidrive. Externally connected to the rotor circuit, the SPRS retrieves power from the rotor and feeds it back to the power system, thereby recovering energy that would have been wasted as heat. Energy consumption is optimized, lowering the application's overall energy consumption and operational costs.



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