HVAC drives
ACH580
ABB HVAC drives

Overview

**HVAC drive – ACH580 family**

**Key features**

**Simple to select, install and use**
All the essentials – such as chokes, EMC filters, cable clamps, certified BACnet communication, and enclosures from UL (NEMA) Type 1 to UL (NEMA) Type 12 – are a standard part of the drive, simplifying selection, installation, and commissioning.

**Motor control options to meet your application needs**
ACH580 drives can be integrated with several types of AC motors, even high-efficiency permanent magnet (PM), synchronous reluctance (SynRM) and EC Titanium motors. Using these motors can reduce your energy costs.

**Intelligent microprocessor controlled bypass**
The E-Clipse System recognizes drive faults, welded or mechanically jammed contactors, open contactor coils, and single phase power conditions, taking appropriate actions for each scenario. In the event of a fault, the E-Clipse System uses a set of contactors to bypass the drive and keep the application running.

**Improved safety**
Built-in safety functionality, such as override mode, enables your system to override all non-essential faults during emergencies to maintain air quality in fire exit paths.

**Secure the flow of water**
The ACH580 variable frequency drives (VFDs) deliver innovative pumping features for the HVAC industry. Features such as flow calculation, soft pipe fill and multipump control, enhance the system’s performance and reliability.
**E-Clipse Bypass – ACH580-BxR**

**Key features**
- Integrated E-Clipse Bypass
- Bypass with full BACnet control and I/O pass through
- UL (NEMA) Type 1, 12 or 3R enclosures
- Input disconnect switch or circuit breaker
- Interlocked switch (padlockable in the OFF position)
- Electronic motor overload protection

**Main benefits**
- Enclosure suitable for installation in any environment
- Built-in redundancy (E-Clipse Bypass) while retaining full remote control
- Extended power range

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**Drive packaged with disconnect – ACH580-PxR**

**Key features**
- UL (NEMA) Type 1, 12 or 3R enclosures
- Input disconnect switch or circuit breaker
- Interlocked switch (padlockable in the OFF position)

**Main benefits**
- No need for external disconnect
- Easy to order and install

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**Wall-mounted drive – ACH580-01**

**Key features**
- UL (NEMA) Type 1 or 12
- NEMA 12 footprint same as NEMA 1
- Coated printed circuit boards

**Main benefits**
- Proven VFD technology
- Simple to use
- HVAC-specific features

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**Vertical E-Clipse Bypass – ACH580-VxR**

**Key features**
- Integrated vertical E-Clipse Bypass
- Double contactor bypass
- Bypass with full BACnet control
- UL (NEMA) Type 1
- Input disconnect switch or circuit breaker
- Interlocked switch (padlockable in the OFF position)
- Electronic motor overload protection

**Main benefits**
- Slim design to save wall space

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**Ultra-low harmonic drive – ACH580-31**

**Key features**
- UL (NEMA) Type 1 or 12
- Active front end technology (clean power network)
- THDi < 3% at drive terminals
- Unity power factor
- Industry-leading user interfaces

**Main benefits**
- Optimal harmonic and power quality solution
- Savings in total cost of ownership
- Full voltage at motor terminals
- Back-up generator optimized
- Packaged and E-Clipse Bypass variants available on request
## Drive electrical ratings

### Light duty

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1. ACH580-01-271A-6 power rating: The power rating is as per NEC Table 42.1. However, the drive can be used for a typical 4-pole motor rated to 300 hp meeting NEMA MG 1.

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### Ratings

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1. ACH580-01-271A-6 power rating: The power rating is as per NEC Table 42.1. However, the drive can be used for a typical 4-pole motor rated to 300 hp meeting NEMA MG 1.

**Ratings are according to the standard UL (NEC) table, please check with local ABB representative for specific sizing requirements.

**cULus certification only.

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Making every BTU count
Comfort. It’s something we take for granted in the buildings in which we live and work. But comfort requires efficient systems to control heating, ventilation, and air conditioning (HVAC) to ensure the air we breathe is pure and the temperature is comfortable.

Up-time
Continuity of operation with a full offering for every critical cooling requirement. Solutions tailored for peace of mind operations, including the most extensive range of bypass options.

Uninterrupted reliability
Ensuring good indoor air quality is an important guarantee for patient safety and safeguarding medical equipment from the damaging effects of harmonics.

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Option compatibility

<table>
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<th>Construction</th>
<th>Option</th>
<th>Option code</th>
<th>Description</th>
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<td>Indoor use primarily to provide a degree of protection against limited amounts of falling dirt.</td>
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<td>UL (NEMA) 12</td>
<td>+B056</td>
<td>Indoor use primarily to provide a degree of protection against circulating dust, falling dirt and dripping non-corrosive liquids. Does not protect against contamination from salt-laden air.</td>
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<tr>
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<td>UL (NEMA) 3R</td>
<td>+B058</td>
<td>Outdoor use primarily to provide a degree of protection against falling dirt, rain, sleet, snow.</td>
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<td>Service switch</td>
<td>+F267</td>
<td>Provides a means to manually disconnect power to the drive.</td>
</tr>
<tr>
<td></td>
<td>Line reactor</td>
<td>+E213</td>
<td>A line reactor provides additional line-side impedance for power conditioning. In some applications, the line reactor will prevent intrusive drive trips and slightly reduce overall harmonic current.</td>
</tr>
</tbody>
</table>

Adding these options may change the dimensions of the enclosure. Contact ABB for available configurations.

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Shared features of the ABB all-compatible drives portfolio

- The Drivetune smartphone app together with the Bluetooth-enabled control panel allow you to set up and commission the drive remotely from a safe and comfortable location, using the same primary settings menu that is available on the drive’s control panel.
- The IoT Panel for ABB Ability™ remote monitoring ABB drives, operational KPIs and much more.
ACH580 drive family
Leading the way in HVAC drives

**HVAC control panel with primary settings**
- Primary settings make commissioning the drive easier than ever
- The optional Bluetooth-enabled control panel allows easy smartphone connection and remote support capability
- Easily available USB interface for PC and tool connection
- Help button for problem solving

**HVAC communication protocols**
- The most common HVAC communication protocols – BACnet MS/TP, Johnson Controls N2 and Modbus RTU – are standard
- BACnet/IP with an internal option

**Ingress protection**
- ACH580 drives are available in different UL/NEMA classes – check the “Option compatibility” section for details

**Suitable for various HVAC applications**
- Suitable not only for variable-torque applications such as fans and pumps, but also for basic constant torque applications such as compressors
- Support for induction, permanent magnet and synchronous reluctance motors

**Reliability and quality**
- All units are tested under full load at maximum allowed ambient temperature to verify quality
- Printed circuit boards have an extra coating to protect against humid and harsh environments

**Harmonic mitigation options**
- The ACH580-01 has optimized DC chokes standard for harmonic mitigation
- Compliant with IEC/EN61000-3-12
- The ACH580-31 ultra-low harmonic drive results in harmonic current as low as 3 percent at the input terminals of the drive, meeting even the most stringent IEEE519 requirements
ABB Inc.
Motion
Saint-Laurent, QC
Canada

For more information, please contact your local ABB representative or visit new.abb.com/drives/low-voltage-ac/industry-specific-drives/ach580