

CANADIAN PANORAMA

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

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

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

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

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

HP*		1	1.5	2	3	5	7.5	10	15	20	25
ACH580-01	208/230V	04A6	06A6	07A5	10A6	017A	024A	031A	046A	059A	075A
	460 V	02A1	03A0	03A5	04A8	07A6	012A	014A	023A	027A	034A
	575V			02A7	03A9	06A1	09A0	011A	017A	022A	027A
ACH580-VxR	208/230V	04A6	06A6	07A5	10A6	017A	024A	031A	046A	059A	075A
	460 V	02A1	03A0	03A5	04A8	07A6	012A	014A	023A	027A	034A
	575V			02A7	03A9	06A1	09A0	011A	017A	022A	027A
ACH580-BxR	208/230V	04A6	06A6	07A5	10A6	017A	024A	031A	046A	059A	075A
	460 V	02A1	03A0	03A5	04A8	07A6	012A	014A	023A	027A	034A
	575V			02A7	03A9	06A1	09A0	011A	017A	022A	027A
ACH580-PxR	208/230V	04A6	06A6	07A5	10A6	017A	024A	031A	046A	059A	075A
	460 V	02A1	03A0	03A5	04A8	07A6	012A	014A	023A	027A	034A
	575V			02A7	03A9	06A1	09A0	011A	017A	022A	027A
ACH580-31	460 V					07A6	012A	014A	023A	027A	034A

Light duty

HP*		30	40	50	60	75	100	125	150	200	250	300	350
ACH580-01	208/230V	088A	114A	143A	169A	211A	273A	343A**	396A**				
	460 V	044A	052A	065A	077A	096A	124A	156A	180A	240A	302A	361A	414A
	575V	032A	041A	052A	062A	077A	099A	125A	144A	192A	242A	271A ¹⁾	
ACH580-VxR	208/230V												
	460 V	044A	052A	065A	077A								
	575V	032A	041A	052A	062A	077A							
ACH580-BxR	208/230V	088A	114A	143A	169A	211A	248A						
	460 V	044A	052A	065A	077A	096A	124A	156A	180A	240A	302A	361A	414A
	575V	032A	041A	052A	062A	077A	099A	125A	144A				
ACH580-PxR	208/230V	088A	114A	143A	169A	211A	248A						
	460 V	044A	052A	065A	077A	096A	124A	156A	180A	240A	302A	361A	414A
	575V	032A	041A	052A	062A	077A	099A	125A	144A				
ACH580-31	460 V	044A	052A	065A	077A	096A	124A	156A	180A				

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.

Table 12-11 minimum efficiency standard (EPA efficiency electrical motors) if motor full load current is not more than 271 A.

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

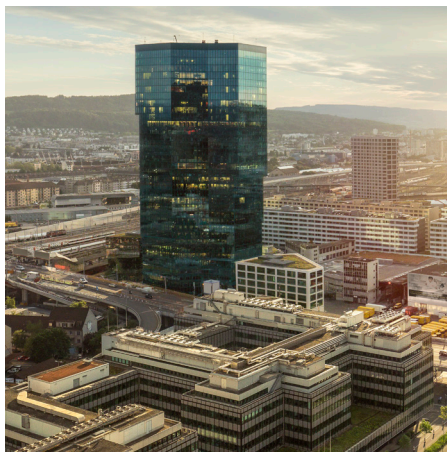
**cULus certification only.



Buildings

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.



Data Centres

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.



Hospitals

Uninterrupted reliability

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



Option compatibility

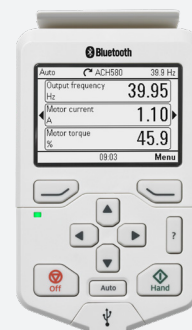
Construction								Option	Option code	Description
01	VCR	VDR	BCR	BDR	PCR	PDR	31			
●	●	●	●	●	●	●	●	UL (NEMA) 1	-	Indoor use primarily to provide a degree of protection against limited amounts of falling dirt.
●			●	●	●	●	●	UL (NEMA) 12	+B056	Indoor use primarily to provide a degree of protection against circulating dust, falling dirt and dripping non-corrosive liquids. Does not protect against contamination from salt-laden air.
			●	●	●	●		UL (NEMA) 3R	+B058	Outdoor use primarily to provide a degree of protection against falling dirt, rain, sleet, snow.
	●	●	●	●				Service switch	+F267	Provides a means to manually disconnect power to the drive.
			●	●	●	●		Line reactor	+E213	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.

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



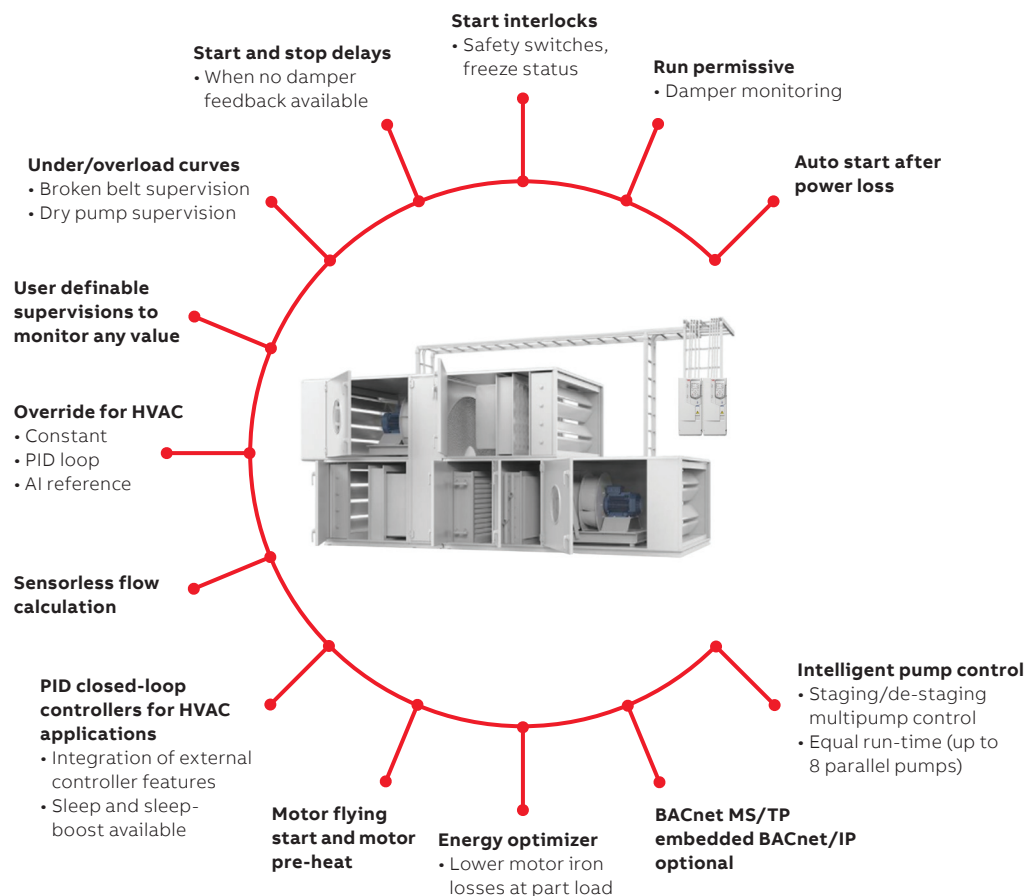
Shared features of the ABB all-compatible drives portfolio

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

