

ABB HVAC energy efficiency package
ACH550 variable speed drives
IE3 aluminum motors



Efficiency standards are progressively becoming more strict. Take the guesswork out of selecting the products in your HVAC system. Optimize your motor and drives together to meet your energy savings needs.



EU Directives in energy efficiency

Since 2011 all new motors on the market have had to minimally comply with IE2 efficiency levels. In 2015 any new motors rated 7.5 to 375 kw will have to meet IE3 efficiency levels or IE2 in conjunction with a variable speed drive (VSD). In 2017 this will be expanded to motors down to 0.75 kW. Additionally, beginning in 2015, all fans will need to fulfill total electricity consumption ratings based on Commission Regulation (EC) No 640/2009 of 22 July 2009. This means that that all motor-fan systems will need to become progressively more energy efficient in the coming years.

Optimization of products

Head off the guidelines and regulations by selecting a motor and drive together with packaged energy efficiency levels that are optimized for HVAC applications, based on typical losses for

motors and drives. We have analyzed and tested, through our in-house HVAC experts and based on the motors' loadability, which VSD will meet your needs for standard motor sizes for typical HVAC applications. This helps to ensure that you not only receive the most energy efficient package for the motor you require, but that the maintenance, breakdowns, and faults will be reduced as well.

IE3 aluminum motor and drive

The special aluminum IE3 motor (IEC 60034-30-1. 2014.) is lighter than your standard cast iron motor, but it is structured on the same proven reliable and widely available technology. These motors are IP 55 and meet cooling standard IC 411, insulation class F, and are in rated class B in temperature rise. Even the variant codes and construction details are based on M3AA motors. All details that ensure you are receiving an

IE3 motor that meets and exceeds your standard motor specification.

The variable speed ACH550 drive provides all of the dedicated HVAC protocols and highlights necessary for your HVAC applications. Its two loop controllers will use feedback from the system to run the motor at its optimal level. Aside from the standard, embedded BACnet, the drive will speak any HVAC communication language necessary. Finally, its real time clock, timers and alarms will allow you to schedule and troubleshoot your drive based on your facility's requirements.

Packaged for HVAC applications

The following table displays an optimized pairing of select EU MEPS IE3 aluminum motors and our suggested variable speed drive to meet your energy efficiency needs.

Efficiency package for HVAC applications

Motor nominal power	Motor type	Product code	Foot mounted B3	Flange mounted B5	Speed r/min	Weight kg	Sound pressure level L _{PA} dB	Suggested frequency converter type for no overload pump and fan use*	Motor-drive package efficiency**
3000 r/min = 2 poles 400 V 50 Hz									
0.75	M3AA	80 B	3GAA 081612	-ASJ -BSJ	2881	9.4	60	ACH550-01-02A4-4	76.2%
1.1	M3AA	80 C	3GAA 081613	-ASJ -BSJ	2875	11	60	ACH550-01-03A3-4	77.8%
1.5	M3AA	90 L	3GAA 091612	-ASJ -BSJ	2900	16	60	ACH550-01-03A3-4	80.0%
2.2	M3AA	90 LB	3GAA 091613	-ASJ -BSJ	2880	18	63	ACH550-01-05A4-4	81.4%
3	M3AA	100 LB	3GAA 101612	-ASJ -BSJ	2888	31	62	ACH550-01-06A9-4	83.5%
4	M3AA	112 MB	3GAA 111612	-ASJ -BSJ	2887	35	68	ACH550-01-08A8-4	84.2%
5.5	M3AA	132 SB	3GAA 131612	-ASJ -BSJ	2926	56	73	ACH550-01-012A-4	86.0%
7.5	M3AA	132 SC	3GAA 131613	-ASJ -BSJ	2901	63	73	ACH550-01-015A-4	86.8%
1500 r/min = 4 poles 400 V 50 Hz									
0.75	M3AA	80 E	3GAA 082614	-ASJ -BSJ	1433	13.1	54	ACH550-01-02A4-4	77.6%
1.1	M3AA	90 LB	3GAA 092614	-ASJ -BSJ	1437	17	50	ACH550-01-03A3-4	79.9%
1.5	M3AA	90 LD	3GAA 092615	-ASJ -BSJ	1440	20	50	ACH550-01-04A1-4	81.3%
2.2	M3AA	100 LC	3GAA 102613	-ASJ -BSJ	1452	25	54	ACH550-01-05A4-4	82.9%
3	M3AA	100 LD	3GAA 102614	-ASJ -BSJ	1449	32	63	ACH550-01-06A9-4	84.1%
4	M3AA	112 MB	3GAA 112612	-ASJ -BSJ	1444	34	64	ACH550-01-08A8-4	84.9%
5.5	M3AA	132 M	3GAA 132612	-ASJ -BSJ	1460	48	66	ACH550-01-012A-4	85.9%
7.5	M3AA	132 MA	3GAA 132614	-ASJ -BSJ	1462	59	63	ACH550-01-015A-4	87.6%
1000 r/min = 6 poles 400 V 50 Hz									
0.75	M3AA	90 LB	3GAA 093613	-ASJ -BSJ	930	17	44	ACH550-01-02A4-4	74.0%
1.1	M3AA	90 LD	3GAA 093614	-ASJ -BSJ	931	19	44	ACH550-01-03A3-4	76.1%
1.5	M3AA	100 LC	3GAA 103612	-ASJ -BSJ	962	28	49	ACH550-01-04A1-4	80.6%
2.2	M3AA	112 MB	3GAA 113612	-ASJ -BSJ	949	33	59	ACH550-01-05A4-4	81.3%
3	M3AA	132 S	3GAA 133611	-ASJ -BSJ	969	48	57	ACH550-01-06A9-4	82.5%
4	M3AA	132 MA	3GAA 133612	-ASJ -BSJ	961	60	61	ACH550-01-08A8-4	82.6%
5.5	M3AA	132 MC	3GAA 133614	-ASJ -BSJ	970	64	61	ACH550-01-015A-4	85.2%
7.5	M3AA	160 MLA	3GAA 163051	-ASK -BSK	980	125	59	ACH550-01-015A-4	87.8%

* Consult ABB for motor and drive dimensioning for applications with other load characteristics

** Package efficiency is calculated based on typical losses for motor and drive

For more information contact your local ABB representative or visit:

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