A-Line Contactors

The Perfect Match

AXA Power manufactures "Ground Power Units". They supply aircraft with electricity when standing at the airport or during servicing in the hangar.

AXA Power and ABB have been collaborating for many years in developing the best solutions. AXA Power chose the AF contactor from ABB because it was the optimum technical and commercial solution. The design of the AF contactor fits perfectly into the new GPU design because it is a flexible and high quality product.

Service and the possibility to get ABB spare parts world wide, within a short time, were also important factors in AXA Power's choice.

New generation of Contactors from ABB

ABB's A-line contactors are the result of an in-depth analysis of customer requirements. The outcome is a high performance contactor range meeting a wide range of applications.

Optimized mechanical, electrical and aesthetic design

The A-line contactors are compact and are co-ordinated with the ABB moulded case circuit breakers, switch fuses and overload relays. They share the same design characteristics and accessories for the connecting terminals and we provide customers with electrical co-ordination tables according to IEC60974-4-1.

Using our system concept will provide you with the basis of a new generation of low voltage products designed to fit most applications. This is done not only with the aim of continuously improving the products but, above all, of providing designers, panel builders and end users with the best solutions in terms of performance, reliability and flexibility.

Innovation, safety and user friendliness in focus

The new design of the large A-line contactors, with the magnet system placed at the top of the unit and the main contact system at the bottom, gives a number of advantages in safety and user friendliness:

- Easy connection between the contactor and other system components (terminals at the same level)
- All connections to the control circuits are easily accessible from the front (facilitates installation and measurement)
- Not necessary to remove power cables for inspection and maintenance, simply remove the front of the contactor
- Electrical operation of the contactor is impossible when inspecting the contacts since the magnet system is located in the removed front part
- Low, built-in terminals and the option of terminal shrouds give you a touch-safe solution

Technology fit for the future

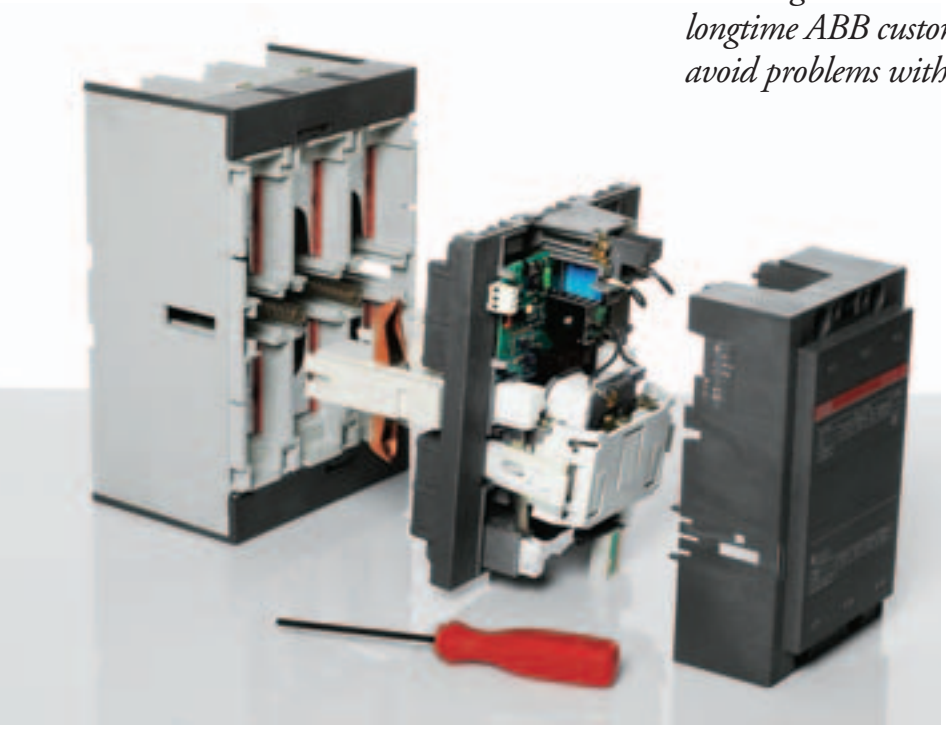
The latest performance improvement is AF contactors with electronic coil interface; available in sizes 50 to 1050 A, AC-3 and 100 to 1650 A, AC-1. The AF contactors have a much wider voltage range for both direct (DC) and alternating (AC) current. Read more about the benefits of this feature on the following pages.

ABB's latest addition to the large AF contactors are AF 1350 and AF 1650, which are modern and compact 3-pole contactors for heavy duty industrial applications. They are designed for carrying and switching both inductive (AC3) and non inductive (AC1) loads. High mechanical and electrical endurance make them suitable also for motor applications.

Another advantage of the large AF contactors (AF 400 to AF1650) is the inputs for controlling the contactors with low voltage signals, from a PLC for instance. This simplifies the installation and wiring.

Safe and easy installation and operation.

MacGregor, world leading marine crane manufacturer and longtime ABB customer, changed from A to AF contactors to avoid problems with voltage drops in their crane applications.



AF contactor with electronic coil interface. The electronics optimize the switching operations (closing, holding and opening) of the contactor. This reduces problems with humming, contact chattering and welding.

AF Contactors with improved functionality

AF contactors with coil interface – new technology gives a competitive edge to the A-line contactors.

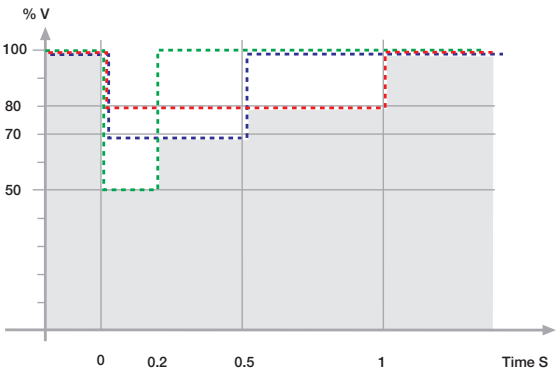
The solution to problems with voltage variations

The AF contactors with electronically controlled coils are insensitive to normal voltage drops caused by excessive loads, short-circuits, weak networks and other common reasons. Voltage drops can cause problems with contact chattering and welding and, in the worst case, a fire. The AF contactors solve your problems and minimize the need for maintenance of the contactors.

Meets a new electrical power standard

In order to minimize problems with voltage drops a new standard has been issued. ABB's AF contactors conform to the new SEMI-F47-0200 standard, a specification for semiconductor processing equipment to ensure voltage sag immunity. To meet these standards the contactor has to withstand voltage drops in the network as indicated below:

- Down to 50 % of nominal voltage for 0.2 sec
- Down to 70 % of nominal voltage for 0.5 sec
- Down to 80 % of nominal voltage for 1 sec



Wide voltage range – less inventory

The AF contactor with electronic coil covers a wider voltage range than conventional contactors. With just three coils we cover the range that previously needed some 30 different coils (24-60 V DC, 48-130 V and 100-250 V AC/DC). This enables customers to stock fewer coils than with conventional contactors. A wide control voltage range that is both AC and DC operated means added value for OEMs and panel builders because the same contactor can be used in most industries, world-wide.

Low power consumption

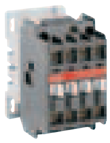
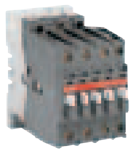
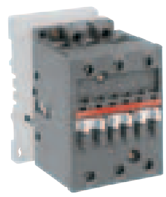
Another advantage of the electronic coil is that the power consumption during contactor operation is reduced to one fourth relative to conventional contactors which is beneficial for the user and for the environment. The electronic coil interface supplies just enough current to close the contacts and then reduces the current to that required to keep them closed even if the control circuit voltage varies within certain limits. Thanks to the lower power consumption customers have the advantages of:

- energy savings
- less heat generation
- possibility to downsize the control transformer

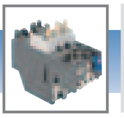
The AF contactors are particularly useful in the most demanding installations, like the process industry, where the power network can experience momentary interruptions or variations in voltage, typically when a large motor is starting. This would cause a conventional contactor to open and make again immediately when the voltage stabilizes; it can cause the contacts to weld together and the results can be hazardous and damaging to equipment and, of course, can involve costly production stoppages.

A comprehensive product portfolio

To complement the large A contactors ABB offers a range of accessories including overload relays, auxiliary contact blocks, surge suppressors and mechanical interlocks. ABB also offers contactors for special applications such as capacitor switching and 4-pole contactors to further advance our range.

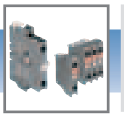





Types	**3-Pole**	**A 9**	**A 12**	**A 16**	**A 26**	**A 30**	**A 40**	**A/AF 50**	**A/AF 63**	**A/AF75**	**A/AF95**	**A/AF 110**
Power rating AC-3, 220-240 V	**IEC**	2.2 kW	3 kW	4 kW	6.5 kW	9 kW	11 kW	15 kW	18.5 kW	22 kW	25 kW	30 kW
380-400 V		4 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW
690 V		5.5 kW	7.5 kW	9 kW	15 kW	18.5 kW	22 kW	30 kW	37 kW	40 kW	55 kW	75 kW
Rated current AC-1, 40 °C		25 A	27 A	30 A	45 A	55 A	60 A	100 A	115 A	125 A	145 A	160 A
Power 220-240 V	**UL**	2 hp	3 hp	5 hp	10 hp	10 hp	15 hp	20 hp	25hp	30 hp	30 hp	40 hp
440-480 V		5 hp	7.5 hp	10 hp	20 hp	25 hp	30 hp	40 hp	60 hp	60 hp	60 hp	75 hp
600 V		7.5 hp	10 hp	15 hp	25 hp	30 hp	40 hp	50 hp	75 hp	75 hp	75 hp	100 hp
General use rating		21 A	25 A	30 A	40 A	50 A	60 A	80 A	90 A	105 A	125 A	140 A



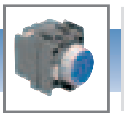
Thermal/Electronic overload relay

TA25DU	0.10...**0.16** 0.16...**0.25** 0.25...**0.4**	0.4 ...**0.63** 0.63 ...**1.0** 1.0 ...**1.4** 1.3 ...**1.8** 1.7 ...**2.4**	2.2...**3.1** 2.8...**4.0** 3.5...**5.0** 4.5...**6.5** 6.0...**8.5**	7.5...**11** 10 ...**14** 13 ...**19** 18 ...**25** 24 ...**32**	TA42DU 22...**32** 29...**42**	TA75DU 29...**42** 36...**52** 45...**63** 60...**80**	TA80DU 60...**80**	TA110DU 65...**90** 80...**110**



Auxiliary contact block

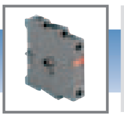
Front Mounting 1 x NO CA5-10 1 x NC CA5-01
Side Mounting 1 NO + 1 NC CAL5-11 CAL18-11



Timer

Pneumatic
0.1 ... 40 s TP40
10 ... 180 s TP180

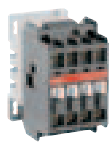
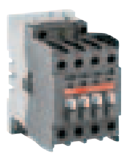
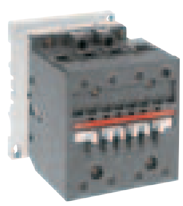
Electronic
TE5S



Interlock

Mechanical and electrical VE5-1

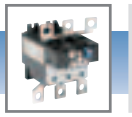
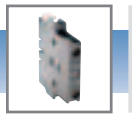
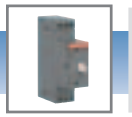
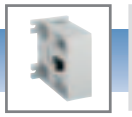
Mechanical and electrical VE5-2

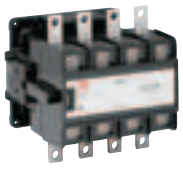
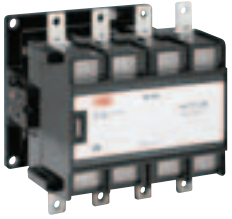




Types	**4-Pole**	**A9**	**A16**	**A26**	**A45**	**A50**	**A75**
Rated current AC-1, 40 °C	**IEC**	25 A	30 A	45 A	70 A	100 A	125 A
General use rating	**UL**	21 A	30 A	40 A	80 A	80 A	105 A





3-Pole	A/AF145	A/AF 185	A/AF 210	A/AF 260	A/AF300	AF 400	AF 460	AF 580	AF 750	AF1350	AF1650
	45 kW	55 kW	59 kW	80 kW	90 kW	110 kW	132 kW	160 kW	220 kW	257 kW	315 kW
	75 kW	90 kW	110 kW	140 kW	160 kW	200 kW	250 kW	315 kW	400 kW	475 kW	560 kW
	110 kW	132 kW	160 kW	200 kW	250 kW	315 kW	355 kW	500 kW	600 kW	–	–
	250 A	275 A	350 A	400 A	500 A	600 A	700 A	800 A	1050 A	1350 A	1650 A
	50 hp	60 hp	75 hp	100 hp	100 hp	150 hp	200 hp	250 hp	300 hp	400 hp	450 hp
	100 hp	125 hp	150 hp	200 hp	250 hp	350 hp	400 hp	500 hp	600 hp	800 hp	900 hp
	125 hp	150 hp	200 hp	250 hp	300 hp	400 hp	500 hp	600 hp	700 hp	1000 hp	1150 hp
	230 A	250 A	300 A	350 A	400 A	550 A	650 A	750 A	900 A	1350 A	1650 A
	TA200DU	130 ... **175** 150 ... **200**	TA450DU	165 ... **235** 220 ... **310**		E500DU	150 ... **500**	E800DU	250 ... **800**	E1250DU	375 ... **1250**
	E200DU	60 ... **200**	E320DU	100 ... **320**							
	Side Mounting 1 NO + 1 NC CAL18-11										
	Electronic TE5S										
	Mechanical VM300H					Mechanical VM750H				Mechanical VM1650H	

4-Pole	EK110	EK150	EK175	EK210	EK370	EK550	EK1000
	200 A	250 A	300 A	350 A	550 A	800 A	1000 A
	170 A	200 A	250 A	300 A	420 A	540 A	–

Withdrawable unit in ABB Low Voltage Systems. This concept makes the panels compact, flexible and easy to work with.

Contactor and moulded case circuit breaker

Contactor and electronic overload relay

ABB A-line Contactors for every application

A new range of pre-assembled connection bar kits is the latest addition to ABB's large A-line contactors. They enable ABB to meet the growing demand for a system approach to low voltage motor control and protection components.

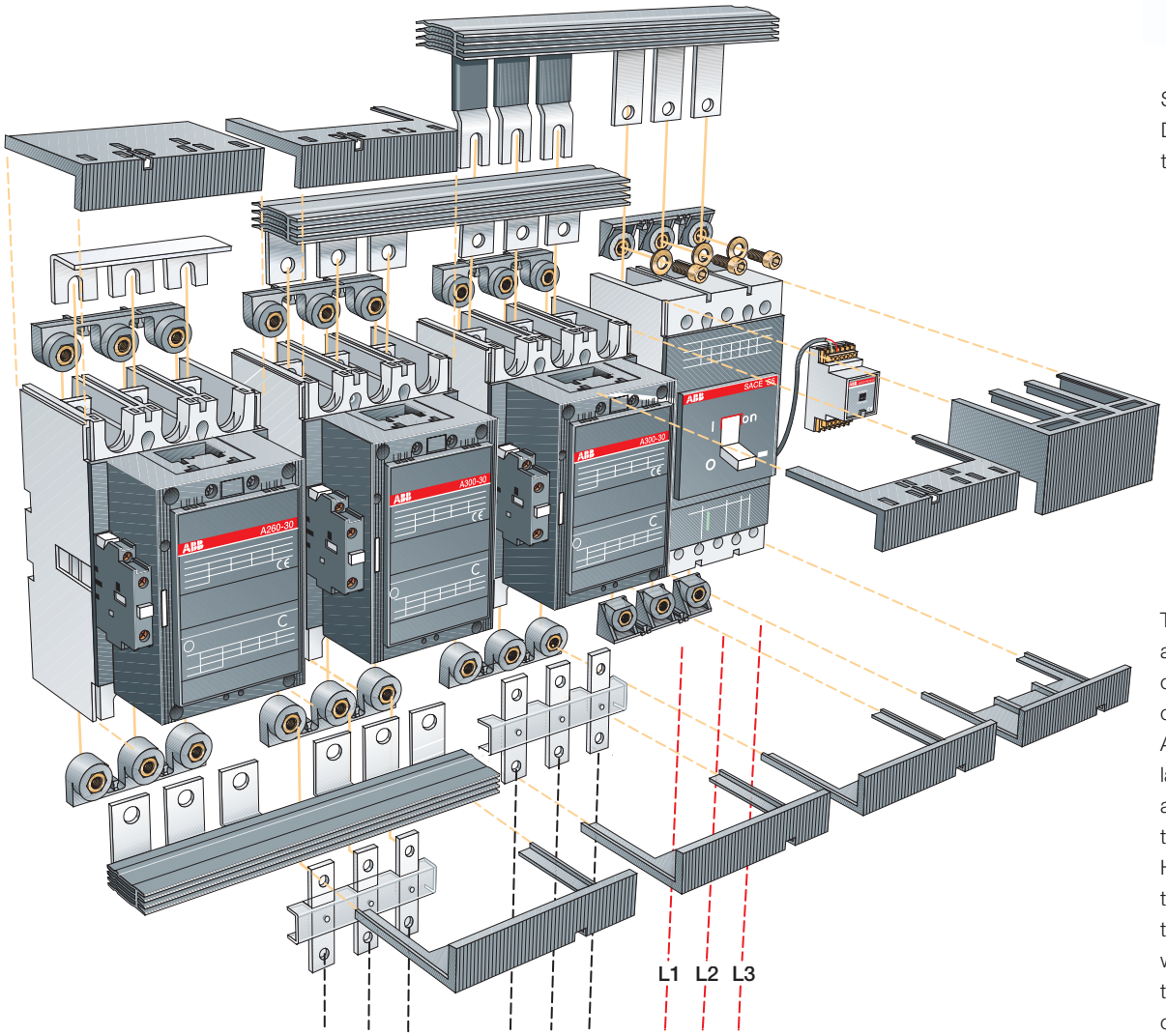
Flexible combinations give you compact and customized solutions

Motor starting systems using the ABB A-line Contactors offer an exellent solution in terms of compactness and flexibility. This is because of the co-ordinated design characteristics of the contactors, circuit breakers, switch fuses and overload relays Using ABB components together with our pre-assembled connection bars saves you space, assembly material, installation time and minimizes cabling.

All combinations are tested to meet type 1 and type 2 co-ordination requirements (IEC 60974-4-1).

ABB offers co-ordinated solutions for star-delta starters, reversing starters, direct-on-line starters and softstarters, including the connection bars between the contactor and circuit breaker or switch fuse.

Softstarter, wired "Inside Delta" with contactor and thermal overload relay.



This is an example of a co-ordinated starter combination with short-circuit and motor protection. All main terminals on the large A contactors are already well protected at the back of these units. However for total protection ABB also offers terminal shrouds for the whole range with connection bars or with traditional cable connections.

"ITT Flygt, producer of submersible pumps has started to use AF contactors, especially in unstable networks such as on construction sites and in mines. The high quality of the products, local presence, strong partnership and overall high technical competence were the prime criteria for ITT Flygt when choosing ABB as a supplier."

Your business – Our solutions

Reliable, economical and environmentally friendly control products are key. So is intelligent support and information. Wherever you are in the world, choose ABB A-line contactors for the best total solution.

Technical documentation

In accordance with the ABB Industrial^{IT} architecture, A-line contactors and all other ABB Low Voltage Products are supported by comprehensive documentation and information such as mechanical drawings, electrical diagrams, operating instructions and technical data that are specific to every product. Declarations of conformity and certificates are available to customers as electronic files.

Environmental awareness

When developing the A-line contactors, ABB undertook a life-cycle assessment to examine the effects on the environment; from the cradle to the grave.

The power consumption is reduced during operation and the materials used are recyclable. Mainly thermoplastic materials which contain no ozone depleting halogens are used and no cadmium is used in the manufacturing of the contacts.

Data of how the ABB A-line contactors influence the environment during their life cycle is presented in an Environmental Product Declaration with reference to both manufacture and usage.

Your local partner globally

ABB offers support and service on all continents and in more than 100 countries. We also co-operate with an extensive distributor network to guarantee local technical and sales support.

Customer partnership

From more than 100 years experience of low-voltage applictions ABB has acquired broad applications knowledge. Together with our customers we seek long-term co-operation and partnerships. ABB aims to be a reliable partner offering products and services developed and tested according to customer requirements.

Customer focus

For a long time one of ABB's strengths has been its deep expertise in understanding the special requirements of user industries. Another strength has been our world-class products and services. Enhancement of the customer focus of all our activities, Industrial^{IT} and collaborative commercial solutions are vital aspects of ABB's strategy as we move forward.

The contactors described in this brochure are certified to bear the Industrial^{IT} Enabled symbol, a special mark that indicates that the product can easily be integrated into the Industrial^{IT} architecture. This means that all information relating to the contactors is readily available in electronic form.

Automation Technologies

The Automation Technologies division serves customers in the automotive, chemicals, consumer, electronics, life sciences, manufacturing, marine, metals, minerals, paper, petroleum, turbocharging and utility industiels.
Besides strong domain knowledge of the industries we serve, our offer includes Industrial IT-based measurement, control, instrumentation, drives, motors, power electronics, robots, software and a broad range of low-voltage products. Much of this is sold through external channel partners such as distributors, system integrators, contractors and original equipment manufacturers.

Low Voltage Products

The new range of motor control equipment is supported by technical documentation and co-ordination tables. This, together with improved design and more compact units, makes it easier than ever to incorporate our products in your projects.

Interested in more information about:

- ABB Low Voltage Products range?
- Co-ordination tables according to IEC 947-4-1?
- Downloads of catalogues and other documentation?

Please visit **www.abb.com/lowvoltage** or contact your local ABB sales office.

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