

# AF technology

## Benefits

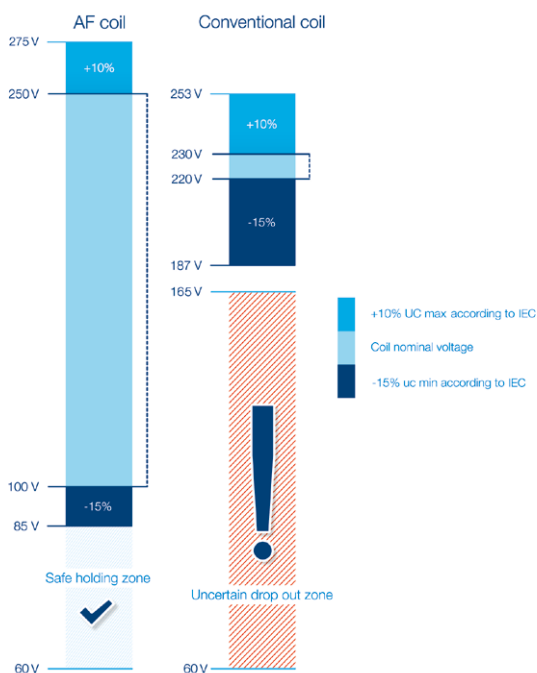


### Reliable in all networks

The electronic system within the AF contactor rectifies the AC or DC control circuit voltage to a DC control voltage that is applied on the coil. The contactor is safely operated in an always optimized condition making it virtually noise free.

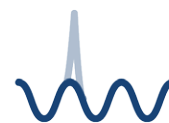
### Four coils for the entire voltage range

The AF contactor features both AC and DC support. With the complete AF contactor range, functionality is improved. Still, the total number of product variants compared to a conventional range is reduced by 90 %. Only four coils are required to cover 24 V AC, 20 V DC - 500 V AC / DC.



### Wide control voltage range

With conventional contactor technology, different contactors were needed for different network voltages. Thanks to the wide operating range of the AF contactor it can operate just as well in Europe as in Asia or North America. The core coil of the AF contactor range covers 100-250 V AC / DC 50/60 Hz.



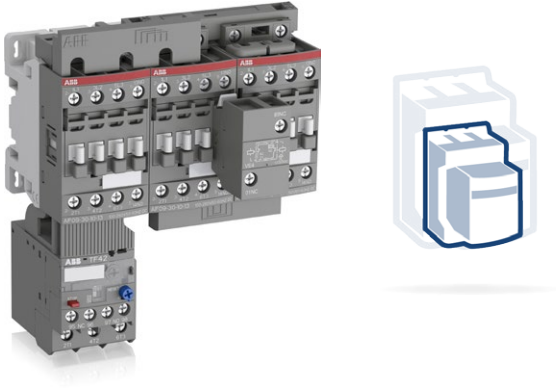
### Built-in surge suppression

With conventional contactor technology it is recommended to use an external surge suppressor, an accessory that could cost as much as half the contactor itself. With the AF technology the surges are handled by the contactor itself and the surge never reaches the control circuit. Neither the surge suppressor nor the actual surge has to be considered anymore. One less product and one less complication to worry about.

# Contactors and motor protection

## Advanced but simple

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### The AF contactor is compact

The AF contactor is compact in size and has had its width reduced by up to 30 % thanks to an 80 % reduction of the coil's energy consumption.



### The AF contactor is flexible

AF09 ... AF370 is perfect for motor starting applications and for solutions where space is limited. Interlocked reversing pairs require no spacing between contactors meaning you can fit more functionality into cabinets or other small enclosures.



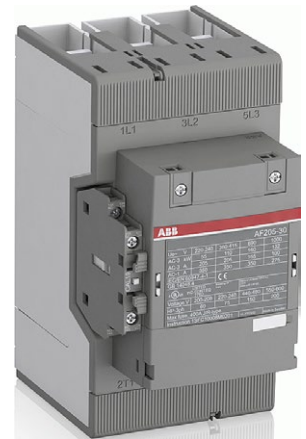
### Coil terminal access in the front

The AF contactor has its coil terminals accessible from the front. The cables or bars do not have to be disconnected in order to perform voltage measurement or servicing work.



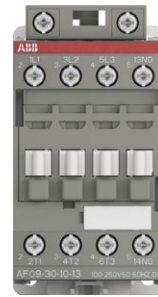
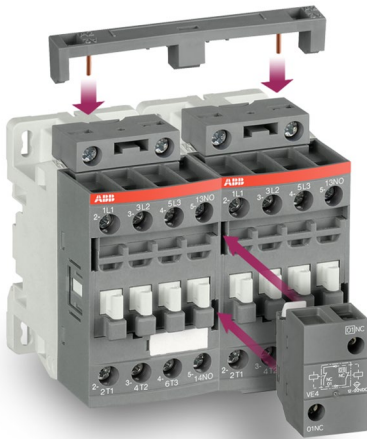
### More functionality without adding width

The AF116 ... AF2650 can take up to 2 side mounted auxiliary contact blocks without adding to its width and are delivered with 1 N.O. + 1 N.C. as standard.

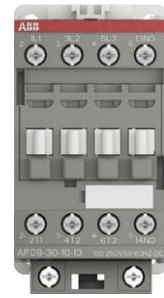


# Contactors and motor protection

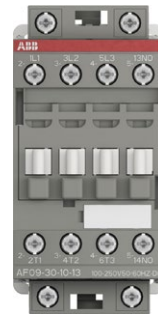
## Mechanical features



Top-mounted



Bottom-mounted



Additional LDC4  
coil terminal block



Front-mounted

### Easy-to-use accessories

Contactors up to 96 A offer free choice of coil terminal access and can take side and front mounted auxiliary contact blocks. All the accessories: Coil connection terminals, mechanical and electrical interlocks and electronic timers are easily connected through the snap-to-connect function.



### Safe control circuit with:

- Mirror contact according to IEC 60947-4-1
- Mechanically linked contacts according to IEC 60947-5-1
- Sealable and transparent protective covers on AF09 ... AF96 and overload relays TF/EF

# 3-pole contactors

# Mini contactors

# Contactors for motor control and

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IEC (1)	AC-3 Rated operational power	$\theta \leq 60^\circ\text{C}$ (2), 400 V	kW	4	5.5
UL/CSA	3-phase motor rating	480 V	hp	3	5
AC / DC Control supply		Type	—	—	—
AC Control supply		Type	B6	B7	—
DC Control supply		Type	BC6	BC7	—
IEC	AC-3 Rated operational current	$\theta \leq 60^\circ\text{C}$ (2), 400 V	A	8.5	11.5
	AC-1 Rated operational current	$\theta \leq 40^\circ\text{C}$ , 690 V	A	20 (400 V)	20 (400 V)
UL/CSA	General use rating	600 V	A	12 (300 V)	16
NEMA	NEMA Size			—	—

4	5.5	7.5	4	5.5	7.5	11	15	18.5
5	7.5	10	5	7.5	10	15	20	25
—	—	—	AF09	AF12	AF16	AF26	AF30	AF38
AS09	AS12	AS16	AF09	AF12	AF16	AF26	AF30	AF38
ASL09	ASL12	ASL16	AF09	AF12	AF16	AF26	AF30	AF38
9	12	15.5	9	12	18	26	32	38
22	24	24	25	28	30	45	50	50
20	20	20	25	28	30	45	50	50
00	00	0	00	0	—	1	—	—

(1) 1000 V IEC ratings available for AF80, AF96 and AF146 ... AF2650 contactors.  
 (2)  $\theta \leq 55^\circ\text{C}$  for mini contactors and AF400 ... AF2650 contactors.

## Main accessories

Auxiliary contact blocks	Front mounting	CAF6
	Side mounting	CA6
Timers	Electronic	
Interlocking units (3)	Mechanical	
	Mechanical / Electrical	
Connection sets	For reversing contactors	BSM6-30
Surge suppressors	Varistor (AC/DC)	RV-BC6
	RC type (AC)	
	Transil diode (DC)	RD7

CA3-10 (1 x N.O.)	CA4-10 (1 x N.O.)	
CA3-01 (1 x N.C.)	CA4-01 (1 x N.C.)	
	CAL4-11 (1 x N.O. + 1 x N.C.)	
TEF3-ON	TEF4-ON	
TEF3-OFF	TEF4-OFF	
VM3	VM4	
	VEM4	
BER16C-3	BER16-4	BER38-4
RV5 (24...440 V)	Built-in surge protection	
RC5-1 (24...440 V)		
RT5 (12...264 V)		

(3) See available reversing contactors VB6, VB7 and VAS09 ... VAS16.

## Overload relays

Thermal relays	Class 10 (Class 10A for TF140, TA200DU)	T16 (0.10...16 A)
Electronic relays	Class 10E, 20E, 30E	E16DU (0.10...18.9 A)

T16 (0.10...16 A)	TF42 (0.10...38 A)		
	EF19 (0.10...18.9 A)	EF19 (0.10...18.9 A)	EF45 (9...45 A)

## Manual motor starters

	Thermal / magnetic protection Class 10	MS116 (0.10...32 A) Ics up to 50 kA for class 10A
		MS132 (0.10...32 A) Ics up to 100 kA
	Magnetic only types	MO132 (0.16...32 A)

MS116 (0.10...32 A) Ics up to 50 kA for class 10A	MS165 (4) (10...65 A) Ics up to 100 kA
MS132 (0.10...32 A) Ics up to 100 kA	MS497 (22...100 A) Ics up to 100 kA
MO132 (0.16...32 A) Ics up to 100 kA	MO165 (4) (16...65 A) Ics up to 100 kA

Accessories	For contactor mounting	BEA7/132
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BEA16-3	BEA16-4	BEA38-4
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(4) MS165/MO165 are suitable for use with AF09 ... AF30 for North american applications.  
 (5) BEA65-4 suitable for MS165 and MO165 only.

# power switching



	18.5	22	30	37	45	55	75	75	90	110	132	160	200	200	250	315	400	—	475	560	—	—
	30	40	50	60	60	75	100	100	125	150	200	250	300	350	400	500	600	—	800	900	—	—
	AF40	AF52	AF65	AF80	AF96	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
	AF40	AF52	AF65	AF80	AF96	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
	AF40	AF52	AF65	AF80	AF96	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
	40	53	65	80	96	116	140	146	190	205	265	305	370	400	460	580	750	—	860	1060	—	—
	70	100	105	125	130	160	200	225	275	350	400	500	600	600	700	800	1050	1260	1350	1650	2050	2650
	60	80	90	105	115	160	200	200	250	300	350	400	520	550	650	750	900	1210	1350	1650	2100	2700
	2	—	—	3	—	—	4	—	—	—	5	—	—	—	6	—	7	—	—	8	—	—

		CAL19-11 (1 x N.O. + 1 x N.C.)						CAL18-11 (1 x N.O. + 1 x N.C.)													
VM96-4		VM19 (for same size contactors)						VM750H VM750V						VM1650H							
BER65-4		BER96-4		BER140-4		BER205-4		BER370-4		BEM460-30		BEM750-30									

TF65 (22...67 A)	TF96 (40...96 A)	TF140DU (66...142 A) θ ≤ 55 °C	TA200DU (66...200 A) θ ≤ 55 °C																			
EF65 (20...70 A)	EF96 (36...100 A)	EF146 (54...150 A)	EF205 (63...210 A)	EF370 (115...380 A)	EF460 (150...500 A)	EF750 (250...800 A)	E1250DU (375...1250 A)															

## Short-circuit protection devices

MCCB and switch-fuses

MS5100 (40...100 A) Ics up to 50 kA	MS495 (45...100 A) Ics up to 50 kA
MO5100 (70...100 A) Ics up to 36 kA	MO496 (32...100 A) Ics up to 100 kA
MO495 (63...100 A) Ics up to 50 kA	BEA65-4 (5)

