AF 3-pole contactors

For direct product details information, use product type or order code, ex:

www.abb.com/productdetails/**AF09-30-10-13**
or
www.abb.com/productdetails/**1SBL137001R1310**

3-pole contactors, for motor control and power switching




AC / DC Control supply				Type	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
IEC	AC-3	Rated operational power	220 - 230 - 240 V	kW	2.2	3	4	6.5	9	11	11	15	18.5	22	25
		θ ≤ 60 °C for AF09 ... AF370	380 - 400 V	kW	4	5.5	7.5	11	15	18.5	18.5	22	30	37	45
		θ ≤ 55 °C for AF400 ... AF2650	415 V	kW	4	5.5	9	11	15	18.5	22	30	37	45	55
			440 V	kW	4	5.5	9	15	18.5	22	22	30	37	45	55
			500 V	kW	5.5	7.5	9	15	18.5	22	22	30	37	45	55
			690 V	kW	5.5	7.5	9	15	18.5	22	22	30	37	45	55
			1000 V	kW	—	—	—	—	—	—	—	—	—	35	40
		Rated operational current	380 - 400 V	A	9	12	18	26	32	38	40	53	65	80	96
	AC-1	Rated operational current	θ ≤ 40 °C, 690 V	A	25	28	30	45	50	50	70	100	105	125	130
UL / CSA	1-phase motor rating		120 V	hp	0.75	1	1.5	2	2	2	3	3	5	7.5	7.5
			240 V	hp	1.5	2	3	3	5	5	7.5	10	15	15	20
	3-phase motor rating		200 - 208 V	hp	2	3	5	7.5	10	10	10	15	20	25	30
			220 - 240 V	hp	2	3	5	7.5	10	10	15	20	25	30	30
			440 - 480 V	hp	5	7.5	10	15	20	25	30	40	50	60	60
			550 - 600 V	hp	7.5	10	15	20	25	30	40	50	60	75	75
	General use rating		600 V	A	25	28	30	45	50	50	60	80	90	105	115
NEMA	NEMA Size				00	0	—	1	—	—	2	—	—	3	—

Main accessories

Auxiliary contact blocks	Front mounting	CA4-10 (1 x N.O.) CA4-01 (1 x N.C.)				
	Side mounting	CAL4-11 (1 x N.O. + 1 x N.C.)				
Timers	Electronic	TEF4-ON TEF4-OFF				
Interlocking units	Mechanical	VM4		VM96-4		
	Mechanical / Electrical	VEM4				
Connection sets	For reversing contactors	BER16-4	BER38-4	BER65-4	BER96-4	
Surge suppressors		Built-in surge protection				

Overload relays

Thermal relays	Class 10 (Class 10A for TF140, TA200DU)	TF42 (0.10...38 A)		TF65 (22...67 A)	TF96 (40...96 A)
Electronic relays	Class 10E, 20E, 30E	EF19 (0.10...18.9 A)	EF19 (0.10...18.9 A) EF45 (9...45 A)	EF65 (20...70 A)	EF96 (36...100 A)

Manual motor starters

	Thermal / magnetic protection Class 10	MS116 (0.10...32 A) Ics up to 50 kA for class 10 A		MS165 (10...80 A) Ics up to 100 kA (1)
		MS132 (0.10...32 A) Ics up to 100 kA		
	Magnetic only types	MO132 (0.16...32 A) Ics up to 100 kA		MO165 (16...80 A) Ics up to 100 kA (1)
Accessories	For contactor mounting	BEA16-4	BEA38-4	BEA65-4 (2)

(1) MS165/MO165 are suitable for use with AF09 ... AF30 for North american applications.
(2) BEA65-4 suitable for MS165 and MO165 only.






	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
	30	37	45	55	55	75	90	110	110	132	160	220	—	257	315	—	—	—
	55	75	75	90	110	132	160	200	200	250	315	400	—	475	560	—	—	—
	55	75	75	90	110	132	160	200	220	250	355	425	—	500	630	—	—	—
	75	90	90	110	132	160	160	200	220	250	355	450	—	560	710	—	—	—
	75	90	90	110	132	160	200	250	250	315	400	520	—	560	710	—	—	—
	55	75	90	132	160	200	250	315	315	355	500	600	—	800	1000	—	—	—
	—	—	75	110	132	160	185	200	220	280	355	400	—	—	—	—	—	—
	116	140	146	190	205	265	305	370	400	460	580	750	—	860	1060	—	—	—
	160	200	225	275	350	400	500	600	600	700	800	1050	1260	1350	1650	2050	2650	2850
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	30	40	40	50	60	75	100	125	125	150	200	250	—	—	—	—	—	—
	40	50	50	60	75	100	125	150	150	200	250	300	—	400	450	—	—	—
	75	100	100	125	150	200	250	300	350	400	500	600	—	800	900	—	—	—
	100	125	125	150	200	250	300	350	400	500	600	700	—	1000	1150	—	—	—
	160	200	200	250	300	350	400	520	550	650	750	900	1210	1350	1650	2100	2700	2850
	—	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.)			
	VM19 (for same size contactors)			VM750H VM750V		VM1650H	
	BER140-4	BER205-4	BER370-4	BEM460-30	BEM750-30		

	TF140DU (66...142 A) θ ≤ 55 °C	TA200DU (66...200 A) θ ≤ 55 °C					
	EF146 (54...150 A)	EF205 (63...210 A)	EF370 (115...380 A)	EF460 (150...500 A)	EF750 (250...800 A)	EF1250DU (350...1250 A)	

03

AF09 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated

AF09-30-10

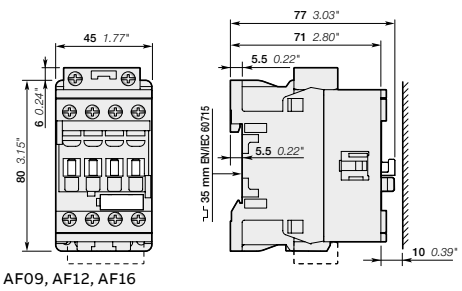
AF26-30-00

AF09 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

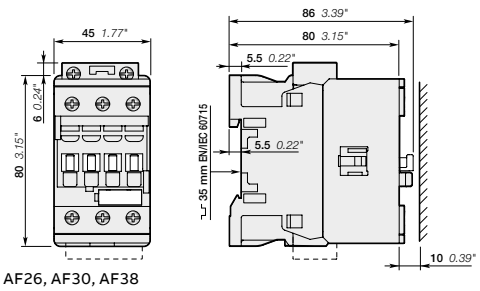
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	24...60	20...60 (1)	1 0	AF09-30-10-11	1SBL137001R1110	0.270
						0 1	AF09-30-01-11	1SBL137001R1101	0.270
				48...130	48...130	1 0	AF09-30-10-12	1SBL137001R1210	0.270
						0 1	AF09-30-01-12	1SBL137001R1201	0.270
				100...250	100...250	1 0	AF09-30-10-13	1SBL137001R1310	0.270
						0 1	AF09-30-01-13	1SBL137001R1301	0.270
				250...500	250...500	1 0	AF09-30-10-14	1SBL137001R1410	0.310
						0 1	AF09-30-01-14	1SBL137001R1401	0.310
5.5	28	7.5	28	24...60	20...60 (1)	1 0	AF12-30-10-11	1SBL157001R1110	0.270
						0 1	AF12-30-01-11	1SBL157001R1101	0.270
				48...130	48...130	1 0	AF12-30-10-12	1SBL157001R1210	0.270
						0 1	AF12-30-01-12	1SBL157001R1201	0.270
				100...250	100...250	1 0	AF12-30-10-13	1SBL157001R1310	0.270
						0 1	AF12-30-01-13	1SBL157001R1301	0.270
				250...500	250...500	1 0	AF12-30-10-14	1SBL157001R1410	0.310
						0 1	AF12-30-01-14	1SBL157001R1401	0.310
7.5	30	10	30	24...60	20...60 (1)	1 0	AF16-30-10-11	1SBL177001R1110	0.270
						0 1	AF16-30-01-11	1SBL177001R1101	0.270
				48...130	48...130	1 0	AF16-30-10-12	1SBL177001R1210	0.270
						0 1	AF16-30-01-12	1SBL177001R1201	0.270
				100...250	100...250	1 0	AF16-30-10-13	1SBL177001R1310	0.270
						0 1	AF16-30-01-13	1SBL177001R1301	0.270
				250...500	250...500	1 0	AF16-30-10-14	1SBL177001R1410	0.310
						0 1	AF16-30-01-14	1SBL177001R1401	0.310
11	45	15	45	24...60	20...60 (1)	0 0	AF26-30-00-11	1SBL237001R1100	0.310
				48...130	48...130	0 0	AF26-30-00-12	1SBL237001R1200	0.310
				100...250	100...250	0 0	AF26-30-00-13	1SBL237001R1300	0.310
				250...500	250...500	0 0	AF26-30-00-14	1SBL237001R1400	0.350
15	50	20	50	24...60	20...60 (1)	0 0	AF30-30-00-11	1SBL277001R1100	0.310
				48...130	48...130	0 0	AF30-30-00-12	1SBL277001R1200	0.310
				100...250	100...250	0 0	AF30-30-00-13	1SBL277001R1300	0.310
				250...500	250...500	0 0	AF30-30-00-14	1SBL277001R1400	0.350
18.5	50	25	50	24...60	20...60 (1)	0 0	AF38-30-00-11	1SBL297001R1100	0.310
				48...130	48...130	0 0	AF38-30-00-12	1SBL297001R1200	0.310
				100...250	100...250	0 0	AF38-30-00-13	1SBL297001R1300	0.310
				250...500	250...500	0 0	AF38-30-00-14	1SBL297001R1400	0.350

(1) AF..-30-..-11 not suitable for direct control by PLC-output.



AF09, AF12, AF16



AF26, AF30, AF38

Main dimensions mm, inches

1SBC101371S0201 - Rev. D

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

24 V DC operated designed for PLC

AF09Z-30-10

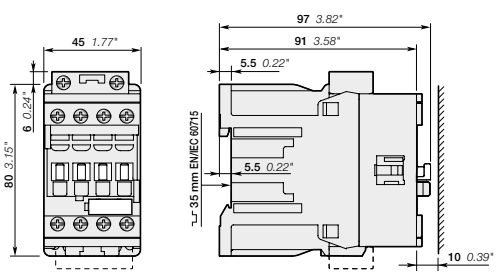
AF26Z-30-00

AF09Z ... AF38Z contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

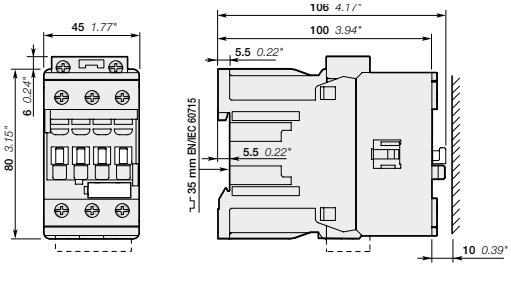
- control circuit: 24 V DC operated with electronic coil interface allowing low holding consumption up to 1.7 W and reduced panel energy consumption
  - allow direct control by PLC-output ≥ 250 mA 24 V DC
  - very distinct closing and opening
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC					Pkg (1 pce)
kW	A	hp	A	V DC				kg
4	25	5	25	24	1 0	AF09Z-30-10-30	1SBL136001R3010	0.430
					0 1	AF09Z-30-01-30	1SBL136001R3001	0.430
5.5	28	7.5	28	24	1 0	AF12Z-30-10-30	1SBL156001R3010	0.430
					0 1	AF12Z-30-01-30	1SBL156001R3001	0.430
7.5	30	10	30	24	1 0	AF16Z-30-10-30	1SBL176001R3010	0.430
					0 1	AF16Z-30-01-30	1SBL176001R3001	0.430
11	45	15	45	24	0 0	AF26Z-30-00-30	1SBL236001R3000	0.480
15	50	20	50	24	0 0	AF30Z-30-00-30	1SBL276001R3000	0.480
18.5	50	25	50	24	0 0	AF38Z-30-00-30	1SBL296001R3000	0.480

Note: AF..Z contactors with DC control voltage 24 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



AF09Z, AF12Z, AF16Z



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

1SBC100328S0201 - Rev. A

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications

AF09Z-30-10

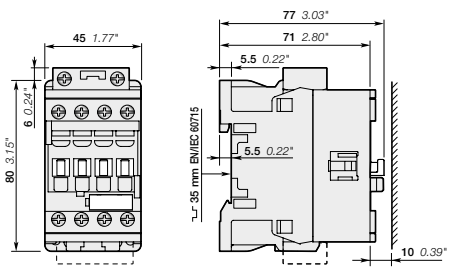
AF26Z-30-00

AF09Z ... AF38Z contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

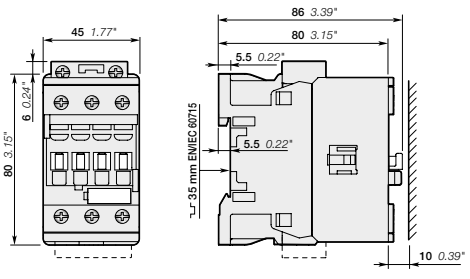
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations
  - allow direct control by PLC-output ≥ 24 V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	-	12...20	1 0	AF09Z-30-10-20	1SBL136001R2010	0.310
						0 1	AF09Z-30-01-20	1SBL136001R2001	0.310
				24...60	20...60	1 0	AF09Z-30-10-21	1SBL136001R2110	0.310
						0 1	AF09Z-30-01-21	1SBL136001R2101	0.310
				48...130	48...130	1 0	AF09Z-30-10-22	1SBL136001R2210	0.310
						0 1	AF09Z-30-01-22	1SBL136001R2201	0.310
				100...250	100...250	1 0	AF09Z-30-10-23	1SBL136001R2310	0.310
						0 1	AF09Z-30-01-23	1SBL136001R2301	0.310
5.5	28	7.5	28	-	12...20	1 0	AF12Z-30-10-20	1SBL156001R2010	0.310
						0 1	AF12Z-30-01-20	1SBL156001R2001	0.310
				24...60	20...60	1 0	AF12Z-30-10-21	1SBL156001R2110	0.310
						0 1	AF12Z-30-01-21	1SBL156001R2101	0.310
				48...130	48...130	1 0	AF12Z-30-10-22	1SBL156001R2210	0.310
						0 1	AF12Z-30-01-22	1SBL156001R2201	0.310
				100...250	100...250	1 0	AF12Z-30-10-23	1SBL156001R2310	0.310
						0 1	AF12Z-30-01-23	1SBL156001R2301	0.310
7.5	30	10	30	-	12...20	1 0	AF16Z-30-10-20	1SBL176001R2010	0.310
						0 1	AF16Z-30-01-20	1SBL176001R2001	0.310
				24...60	20...60	1 0	AF16Z-30-10-21	1SBL176001R2110	0.310
						0 1	AF16Z-30-01-21	1SBL176001R2101	0.310
				48...130	48...130	1 0	AF16Z-30-10-22	1SBL176001R2210	0.310
						0 1	AF16Z-30-01-22	1SBL176001R2201	0.310
				100...250	100...250	1 0	AF16Z-30-10-23	1SBL176001R2310	0.310
						0 1	AF16Z-30-01-23	1SBL176001R2301	0.310
11	45	15	45	-	12...20	0 0	AF26Z-30-00-20	1SBL236001R2000	0.350
				24...60	20...60	0 0	AF26Z-30-00-21	1SBL236001R2100	0.350
				48...130	48...130	0 0	AF26Z-30-00-22	1SBL236001R2200	0.350
				100...250	100...250	0 0	AF26Z-30-00-23	1SBL236001R2300	0.350
15	50	20	50	-	12...20	0 0	AF30Z-30-00-20	1SBL276001R2000	0.350
				24...60	20...60	0 0	AF30Z-30-00-21	1SBL276001R2100	0.350
				48...130	48...130	0 0	AF30Z-30-00-22	1SBL276001R2200	0.350
				100...250	100...250	0 0	AF30Z-30-00-23	1SBL276001R2300	0.350
18.5	50	25	50	-	12...20	0 0	AF38Z-30-00-20	1SBL296001R2000	0.350
				24...60	20...60	0 0	AF38Z-30-00-21	1SBL296001R2100	0.350
				48...130	48...130	0 0	AF38Z-30-00-22	1SBL296001R2200	0.350
				100...250	100...250	0 0	AF38Z-30-00-23	1SBL296001R2300	0.350

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



AF09Z, AF12Z, AF16Z



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

1SBC101372502O1 - Rev. C

AF40 ... AF96 3-pole contactors

18.5 to 45 kW

AC / DC operated

AF40-30-00

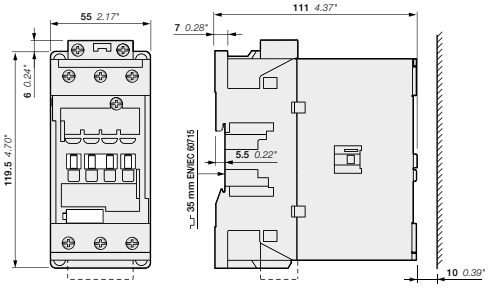
AF80-30-00

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

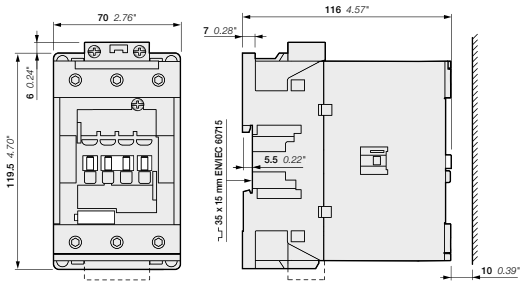
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
18.5	70	30	60	24...60	20...60 (1)	0 0	AF40-30-00-11	1SBL347001R1100	0.970
				48...130	48...130	0 0	AF40-30-00-12	1SBL347001R1200	0.970
				100...250	100...250	0 0	AF40-30-00-13	1SBL347001R1300	0.950
				250...500	250...500	0 0	AF40-30-00-14	1SBL347001R1400	0.950
22	100	40	80	24...60	20...60 (1)	0 0	AF52-30-00-11	1SBL367001R1100	0.970
				48...130	48...130	0 0	AF52-30-00-12	1SBL367001R1200	0.970
				100...250	100...250	0 0	AF52-30-00-13	1SBL367001R1300	0.950
				250...500	250...500	0 0	AF52-30-00-14	1SBL367001R1400	0.950
30	105	50	90	24...60	20...60 (1)	0 0	AF65-30-00-11	1SBL387001R1100	0.970
				48...130	48...130	0 0	AF65-30-00-12	1SBL387001R1200	0.970
				100...250	100...250	0 0	AF65-30-00-13	1SBL387001R1300	0.950
				250...500	250...500	0 0	AF65-30-00-14	1SBL387001R1400	0.950
37	125	60	105	24...60	20...60 (1)	0 0	AF80-30-00-11	1SBL397001R1100	1.220
				48...130	48...130	0 0	AF80-30-00-12	1SBL397001R1200	1.220
				100...250	100...250	0 0	AF80-30-00-13	1SBL397001R1300	1.170
				250...500	250...500	0 0	AF80-30-00-14	1SBL397001R1400	1.170
45	130	60	115	24...60	20...60 (1)	0 0	AF96-30-00-11	1SBL407001R1100	1.220
				48...130	48...130	0 0	AF96-30-00-12	1SBL407001R1200	1.220
				100...250	100...250	0 0	AF96-30-00-13	1SBL407001R1300	1.170
				250...500	250...500	0 0	AF96-30-00-14	1SBL407001R1400	1.170

(1) For control by PLC-output, use RA4 interface relay.



AF40, AF52, AF65



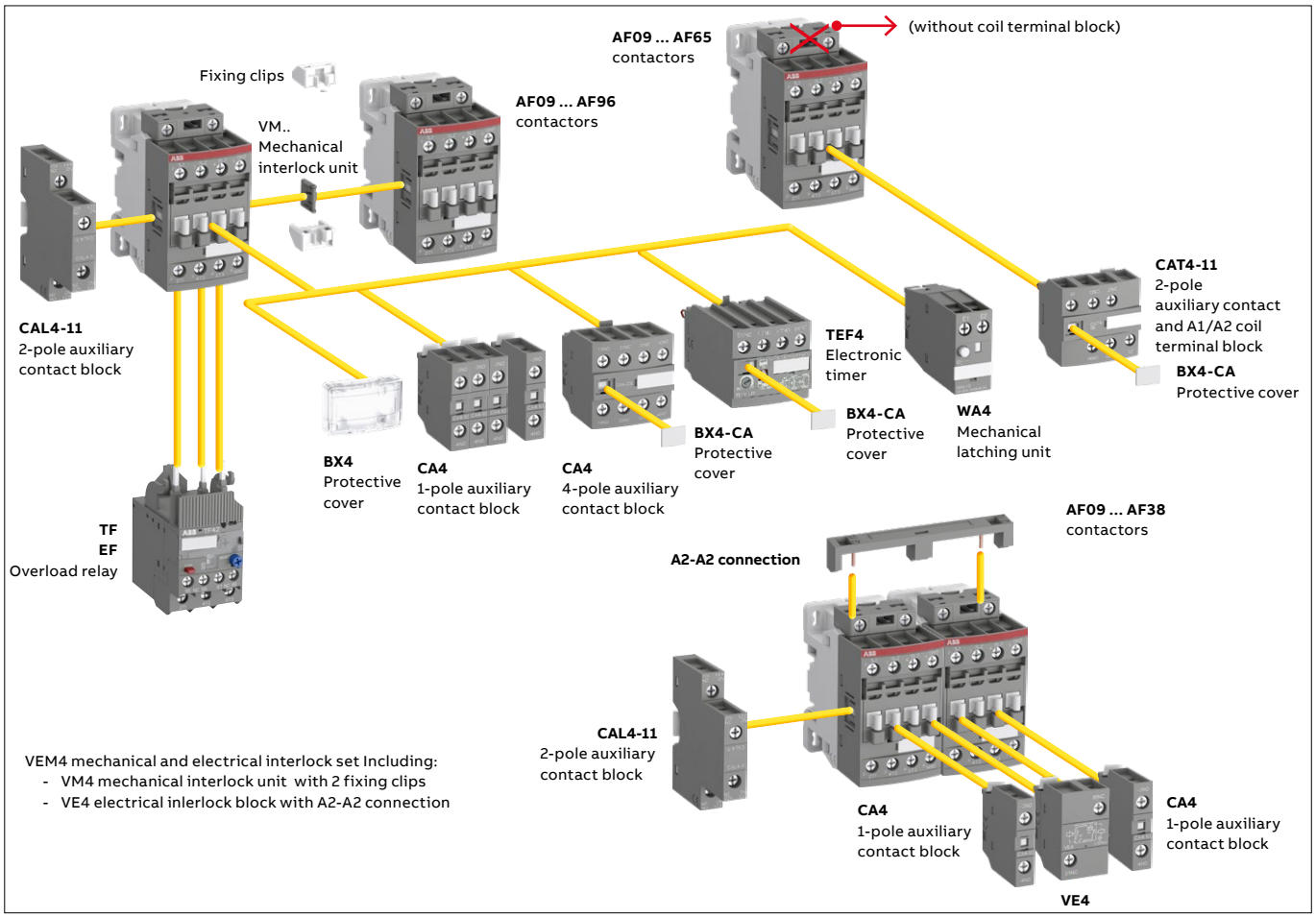
AF80, AF96

Main dimensions mm, inches

1SBC101740S0201 - Rev. B

AF09 ... AF96 3-pole contactors

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories Auxiliary contact blocks			Electronic timer	Mechanical latching unit	Electrical and mechanical interlock set (between 2 contactors)	Side-mounted accessories Auxiliary contact blocks	
			1-pole CA4	2-pole CAT4-11	4-pole CA4	TEF4	WA4 (2)	VEM4	2-pole CAL4-11 Left side	2-pole CAL4-11 Right side
AF09(Z) ... AF38(Z) (1)										
AF09 ... AF16	3 0	0 1	4 max.	or 1	or 1	or 1	or 1	–	+ 1	–
AF09 ... AF16	3 0	1 0	2 max.	or 1	–	or 1	or 1	–	+ 1	+ 1
AF26 ... AF38	3 0	0 0	3 max.	–	–	–	–	+ 1 (3)	+ 1	or 1
AF09Z ... AF38Z 24 V DC designed for PLC - coil 30 (1)										
AF09Z ... AF16Z	3 0	0 1	4 max.	–	or 1	or 1	–	– (3)	or 1	+ 1
AF09Z ... AF16Z	3 0	1 0	2 max.	–	–	or 1	–	– (3)	+ 1	or 1
AF26Z ... AF38Z	3 0	0 0	–	–	–	1	–	–	+ 1	+ 1
AF40 ... AF96										
AF40 ... AF65	3 0	0 0	4 max.	or 1	or 1	or 1	or 1	–	+ 1	+ 1
AF80, AF96	3 0	0 0	4 max.	–	or 1	or 1	or 1	–	+ 1	+ 1

(1) Including add-on and built-in contacts : 4 N.C. auxiliary contacts max on positions 1, 2, 3, 4 and 3 N.C. auxiliary contacts max. on positions 1 ±30°, 5.
(2) Use WA4 for AF09...AF65 and WA4-96 for AF80, AF96.
Accept 1-pole CA4 auxiliary contacts (1 block on each side of the mechanical latch) in respect to the total number of built-in or additional N.C. auxiliary contacts.
For WA4 accessory use with contactor coil 30, please consult your ABB local sales organization.
(3) VEM4 not suitable for AF..Z contactors with DC control voltages 12...20 V DC (coil 20) and 24 V DC (coil 30). Use VM4 side-mounted mechanical interlock unit.

Overload relays fitting details (4)

Contactor types	Thermal overload relays	Electronic overload relays
AF09 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
AF26 ... AF38	TF42 (0.10...38 A)	EF45 (9...45 A)
AF40 ... AF65	TF65 (22...67 A)	EF65 (20...70 A)
AF80, AF96	TF96 (40...96 A)	EF96 (36...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.
(4) Direct mounting - No kit required.

1SBC101748S0201 - Rev. A

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated

1SFC101005V0001

AF146-30-00

1SFC101006V0001

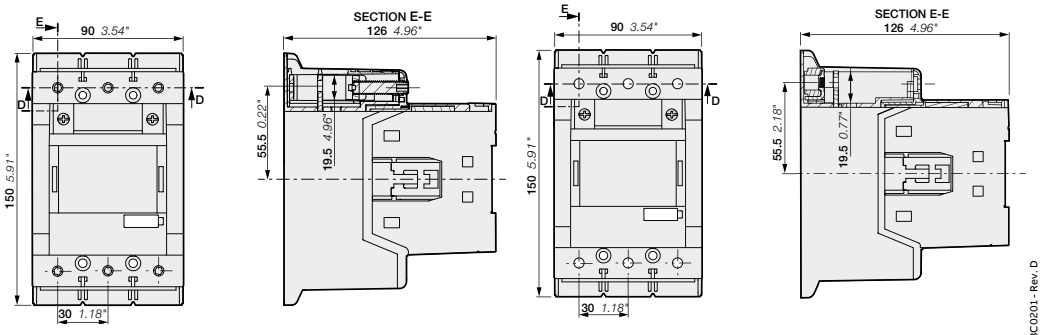
AF146-30-00B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	0 0	AF116-30-00-11	1SFL427001R1100	1.750
				48...130	48...130	0 0	AF116-30-00-12	1SFL427001R1200	1.750
				100...250	100...250	0 0	AF116-30-00-13	1SFL427001R1300	1.750
				250...500	250...500	0 0	AF116-30-00-14	1SFL427001R1400	1.750
75	200	100	200	24...60	20...60	0 0	AF140-30-00-11	1SFL447001R1100	1.750
				48...130	48...130	0 0	AF140-30-00-12	1SFL447001R1200	1.750
				100...250	100...250	0 0	AF140-30-00-13	1SFL447001R1300	1.750
				250...500	250...500	0 0	AF140-30-00-14	1SFL447001R1400	1.750
75	225	100	200	24...60	20...60	0 0	AF146-30-00-11	1SFL467001R1100	1.750
				48...130	48...130	0 0	AF146-30-00-12	1SFL467001R1200	1.750
				100...250	100...250	0 0	AF146-30-00-13	1SFL467001R1300	1.750
				250...500	250...500	0 0	AF146-30-00-14	1SFL467001R1400	1.750
With bar connections									
55	160	75	160	24...60	20...60	0 0	AF116-30-00B-11	1SFL427002R1100	1.500
				48...130	48...130	0 0	AF116-30-00B-12	1SFL427002R1200	1.500
				100...250	100...250	0 0	AF116-30-00B-13	1SFL427002R1300	1.500
				250...500	250...500	0 0	AF116-30-00B-14	1SFL427002R1400	1.500
75	200	100	200	24...60	20...60	0 0	AF140-30-00B-11	1SFL447002R1100	1.500
				48...130	48...130	0 0	AF140-30-00B-12	1SFL447002R1200	1.500
				100...250	100...250	0 0	AF140-30-00B-13	1SFL447002R1300	1.500
				250...500	250...500	0 0	AF140-30-00B-14	1SFL447002R1400	1.500
75	225	100	200	24...60	20...60	0 0	AF146-30-00B-11	1SFL467002R1100	1.500
				48...130	48...130	0 0	AF146-30-00B-12	1SFL467002R1200	1.500
				100...250	100...250	0 0	AF146-30-00B-13	1SFL467002R1300	1.500
				250...500	250...500	0 0	AF146-30-00B-14	1SFL467002R1400	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-00

AF116, AF140, AF146-30-00B

Main dimensions mm, inches

1SFC101088C0201 - Rev. D

AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

AC / DC operated for faster opening utilization

AF146-30-00

AF146-30-00B

AF116 ... AF146 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

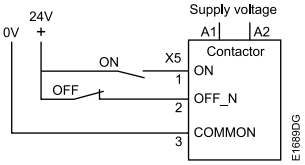
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...500 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

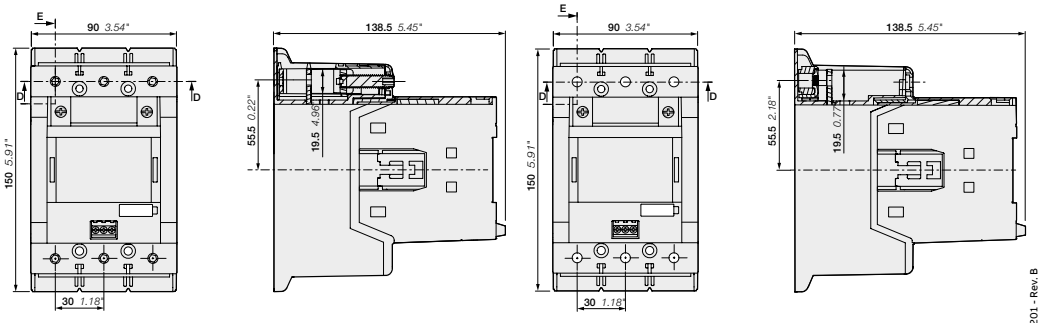
IEC		UL / CSA		Rated control circuit voltage		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current	3-phase motor rating	General use rating	Uc min. ... Uc max.					
	θ ≤ 40 °C								Pkg (1 pce)
400 V		480 V	600 V AC						
AC-3	AC-1								
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	0 0	AF116-30-00-33	1SFL427001R3300	1.750
				250...500	250...500	0 0	AF116-30-00-34	1SFL427001R3400	1.750
75	200	100	200	100...250	100...250	0 0	AF140-30-00-33	1SFL447001R3300	1.750
				250...500	250...500	0 0	AF140-30-00-34	1SFL447001R3400	1.750
75	225	100	200	100...250	100...250	0 0	AF146-30-00-33	1SFL467001R3300	1.750
				250...500	250...500	0 0	AF146-30-00-34	1SFL467001R3400	1.750
With bar connections									
55	160	75	160	100...250	100...250	0 0	AF116-30-00B-33	1SFL427002R3300	1.500
				250...500	250...500	0 0	AF116-30-00B-34	1SFL427002R3400	1.500
75	200	100	200	100...250	100...250	0 0	AF140-30-00B-33	1SFL447002R3300	1.500
				250...500	250...500	0 0	AF140-30-00B-34	1SFL447002R3400	1.500
75	225	100	200	100...250	100...250	0 0	AF146-30-00B-33	1SFL467002R3300	1.500
				250...500	250...500	0 0	AF146-30-00B-34	1SFL467002R3400	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF116 ... AF146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF116, AF140, AF146-30-00

AF116, AF140, AF146-30-00B

Main dimensions mm, inches

AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated

AF205-30-00

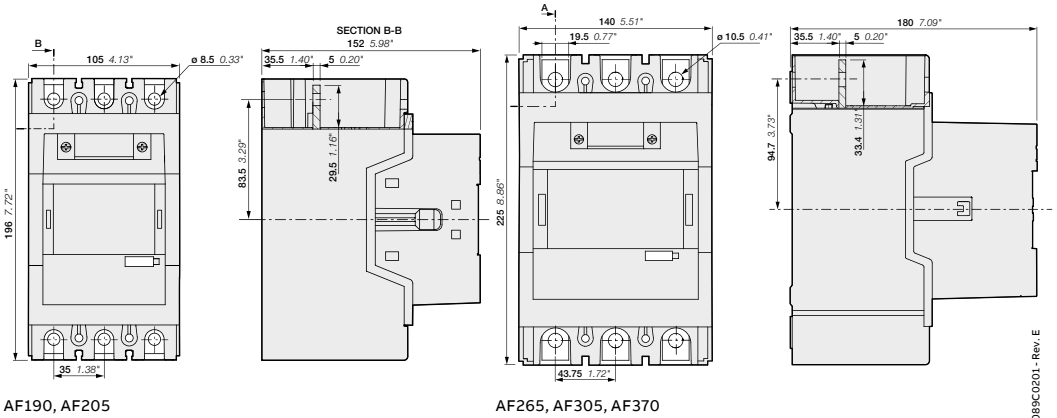
AF370-30-00

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 340 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	0 0	AF190-30-00-11	1SFL487002R1100	3.000
				48...130	48...130	0 0	AF190-30-00-12	1SFL487002R1200	3.000
				100...250	100...250	0 0	AF190-30-00-13	1SFL487002R1300	3.000
				250...500	250...500	0 0	AF190-30-00-14	1SFL487002R1400	3.000
110	350	150	300	24...60	20...60	0 0	AF205-30-00-11	1SFL527002R1100	3.000
				48...130	48...130	0 0	AF205-30-00-12	1SFL527002R1200	3.000
				100...250	100...250	0 0	AF205-30-00-13	1SFL527002R1300	3.000
				250...500	250...500	0 0	AF205-30-00-14	1SFL527002R1400	3.000
132	400	200	350	24...60	20...60	0 0	AF265-30-00-11	1SFL547002R1100	4.605
				48...130	48...130	0 0	AF265-30-00-12	1SFL547002R1200	4.605
				100...250	100...250	0 0	AF265-30-00-13	1SFL547002R1300	4.605
				250...500	250...500	0 0	AF265-30-00-14	1SFL547002R1400	4.605
160	500	250	400	24...60	20...60	0 0	AF305-30-00-11	1SFL587002R1100	4.605
				48...130	48...130	0 0	AF305-30-00-12	1SFL587002R1200	4.605
				100...250	100...250	0 0	AF305-30-00-13	1SFL587002R1300	4.605
				250...500	250...500	0 0	AF305-30-00-14	1SFL587002R1400	4.605
200	600	300	520	24...60	20...60	0 0	AF370-30-00-11	1SFL607002R1100	4.605
				48...130	48...130	0 0	AF370-30-00-12	1SFL607002R1200	4.605
				100...250	100...250	0 0	AF370-30-00-13	1SFL607002R1300	4.605
				250...500	250...500	0 0	AF370-30-00-14	1SFL607002R1400	4.605

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

03

AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

AC / DC operated for faster utilization

AF205-30-00

AF370-30-00

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 340 V DC. These contactors are of the block type design with 3 main poles.

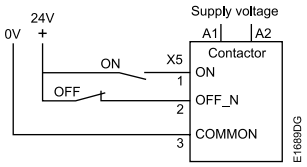
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

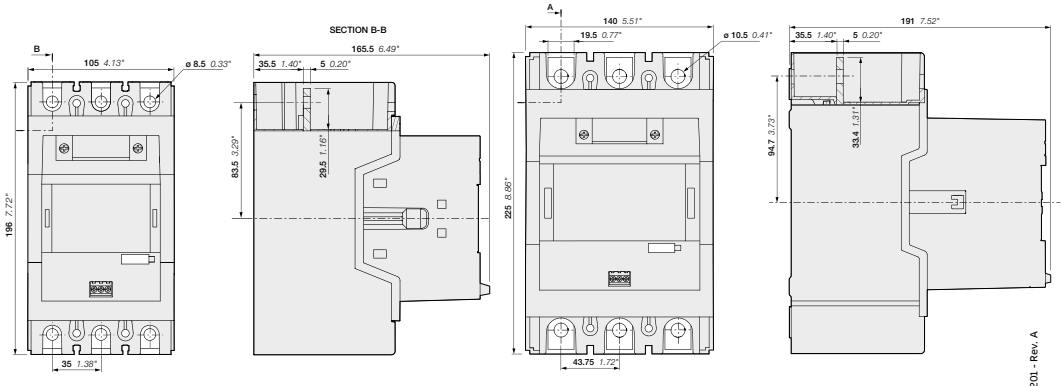
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	0 0	AF190-30-00-33	1SFL487002R3300	3.000
				250...500	250...500	0 0	AF190-30-00-34	1SFL487002R3400	3.000
110	350	150	300	100...250	100...250	0 0	AF205-30-00-33	1SFL527002R3300	3.000
				250...500	250...500	0 0	AF205-30-00-34	1SFL527002R3400	3.000
132	400	200	350	100...250	100...250	0 0	AF265-30-00-33	1SFL547002R3300	4.605
				250...500	250...500	0 0	AF265-30-00-34	1SFL547002R3400	4.605
160	500	250	400	100...250	100...250	0 0	AF305-30-00-33	1SFL587002R3300	4.605
				250...500	250...500	0 0	AF305-30-00-34	1SFL587002R3400	4.605
200	600	300	520	100...250	100...250	0 0	AF370-30-00-33	1SFL607002R3300	4.605
				250...500	250...500	0 0	AF370-30-00-34	1SFL607002R3400	4.605

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF190 ... AF370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF190, AF205

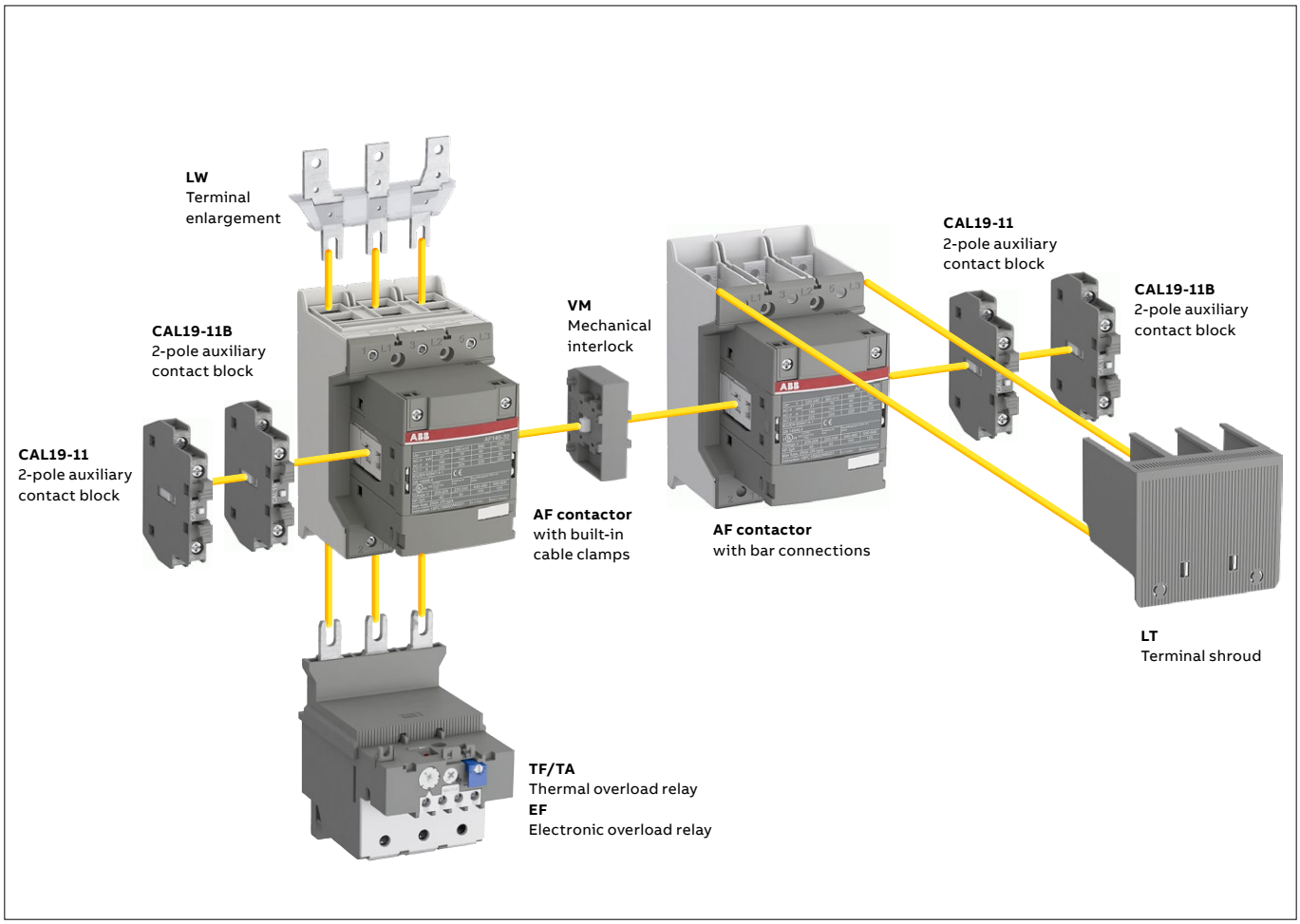
AF265, AF305, AF370

Main dimensions mm, inches

1SFC101165C0201 - Rev. A

AF116 ... AF370 3-pole contactors

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11 (3)	CAL19-11B	
AF116 ... AF370	3 0	0 0	2 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	3 0	0 0	2 x CAL19-11 (1)	+ 2 x CAL19-11B (1)	+ VM... (2)

(1) Total number of auxiliary contact blocks for the two contactors.
(2) Interlock type, according to the contactor ratings (see "Accessories").
(3) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF116 ... AF140	TF140DU (66...142 A)	EF146 (54...150 A)
AF146	–	EF146 (54...150 A)
AF190, AF205	TA200DU (66...200 A)	EF205 (63...210 A)
AF265 ... AF370	–	EF370 (115...380 A)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.
(1) Direct mounting - No kit required.

1SFC101135C0201 - Rev. A

AF26 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

1SBC101003V0014

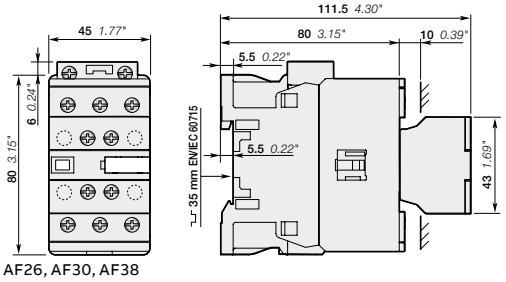
AF26-30-11

AF26 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
11	45	15	45	24...60	20...60 (1)	1 1	AF26-30-11-11	1SBL237001R1111	0.350
				48...130	48...130	1 1	AF26-30-11-12	1SBL237001R1211	0.350
				100...250	100...250	1 1	AF26-30-11-13	1SBL237001R1311	0.350
				250...500	250...500	1 1	AF26-30-11-14	1SBL237001R1411	0.390
15	50	20	50	24...60	20...60 (1)	1 1	AF30-30-11-11	1SBL277001R1111	0.350
				48...130	48...130	1 1	AF30-30-11-12	1SBL277001R1211	0.350
				100...250	100...250	1 1	AF30-30-11-13	1SBL277001R1311	0.350
				250...500	250...500	1 1	AF30-30-11-14	1SBL277001R1411	0.390
18.5	50	25	50	24...60	20...60 (1)	1 1	AF38-30-11-11	1SBL297001R1111	0.350
				48...130	48...130	1 1	AF38-30-11-12	1SBL297001R1211	0.350
				100...250	100...250	1 1	AF38-30-11-13	1SBL297001R1311	0.350
				250...500	250...500	1 1	AF38-30-11-14	1SBL297001R1411	0.390

(1) AF..-30-..-11 not suitable for direct control by PLC-output.



AF26, AF30, AF38

Main dimensions mm, inches

AF26Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications with 1 N.O. + 1 N.C. contacts

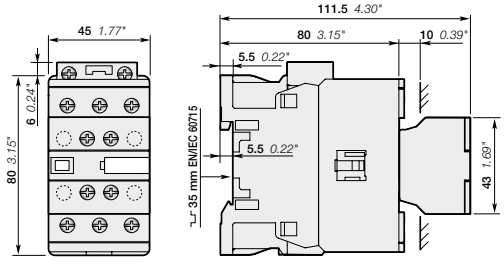
AF26Z-30-11

AF26Z ... AF38Z contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations, allow direct control by PLC-output ≥ 24 V DC 500 mA, reduced panel energy consumption, very distinct closing and opening,
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
11	45	15	45	-	12...20	1 1	AF26Z-30-11-20	1SBL236001R2011	0.390
				24...60	20...60	1 1	AF26Z-30-11-21	1SBL236001R2111	0.390
				48...130	48...130	1 1	AF26Z-30-11-22	1SBL236001R2211	0.390
				100...250	100...250	1 1	AF26Z-30-11-23	1SBL236001R2311	0.390
15	50	20	50	-	12...20	1 1	AF30Z-30-11-20	1SBL276001R2011	0.390
				24...60	20...60	1 1	AF30Z-30-11-21	1SBL276001R2111	0.390
				48...130	48...130	1 1	AF30Z-30-11-22	1SBL276001R2211	0.390
				100...250	100...250	1 1	AF30Z-30-11-23	1SBL276001R2311	0.390
18.5	50	25	50	-	12...20	1 1	AF38Z-30-11-20	1SBL296001R2011	0.390
				24...60	20...60	1 1	AF38Z-30-11-21	1SBL296001R2111	0.390
				48...130	48...130	1 1	AF38Z-30-11-22	1SBL296001R2211	0.390
				100...250	100...250	1 1	AF38Z-30-11-23	1SBL296001R2311	0.390

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole

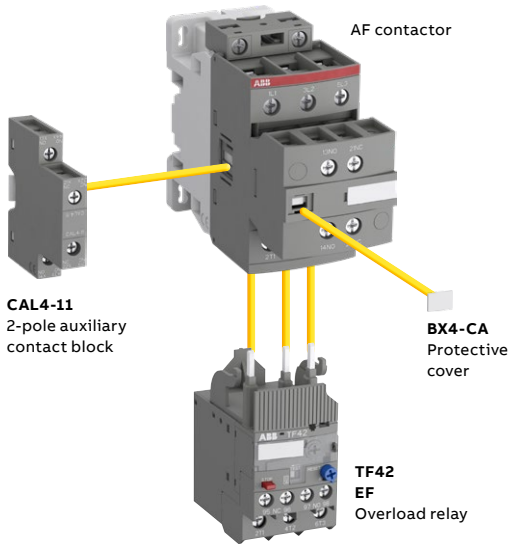


AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

AF26 ... AF38 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Built-in auxiliary contacts	Side-mounted accessories Mechanical interlock unit (between 2 contactors) VM4	Auxiliary contact blocks 2-pole CAL4-11 Left side	Right side
AF26 ... AF38	3 0	1 1	1	+ 1	or 1
			–	+ 1	+ 1

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF26 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
		EF45 (9...45 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.
(1) Direct mounting - No kit required.

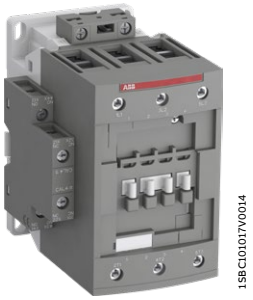
1SBC101750S0201 - Rev. B

AF40 ... AF96 3-pole contactors

18.5 to 30 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

AF40-30-11



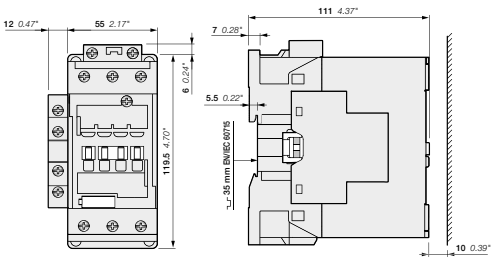
AF80-30-11

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

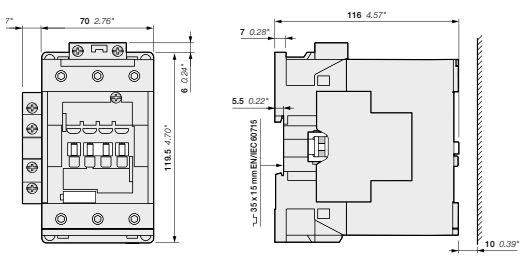
- with 1 N.O. + 1 N.C. side mounted auxiliary contact block
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
185	70	30	60	24...60	20...60 (1)	1 1	AF40-30-11-11	1SBL347001R1111	1.010
				48...130	48...130	1 1	AF40-30-11-12	1SBL347001R1211	1.010
				100...250	100...250	1 1	AF40-30-11-13	1SBL347001R1311	0.990
				250...500	250...500	1 1	AF40-30-11-14	1SBL347001R1411	0.990
22	100	40	80	24...60	20...60 (1)	1 1	AF52-30-11-11	1SBL367001R1111	1.010
				48...130	48...130	1 1	AF52-30-11-12	1SBL367001R1211	1.010
				100...250	100...250	1 1	AF52-30-11-13	1SBL367001R1311	0.990
				250...500	250...500	1 1	AF52-30-11-14	1SBL367001R1411	0.990
30	105	50	90	24...60	20...60 (1)	1 1	AF65-30-11-11	1SBL387001R1111	1.010
				48...130	48...130	1 1	AF65-30-11-12	1SBL387001R1211	1.010
				100...250	100...250	1 1	AF65-30-11-13	1SBL387001R1311	0.990
				250...500	250...500	1 1	AF65-30-11-14	1SBL387001R1411	0.990
37	125	60	105	24...60	20...60 (1)	1 1	AF80-30-11-11	1SBL397001R1111	1.260
				48...130	48...130	1 1	AF80-30-11-12	1SBL397001R1211	1.260
				100...250	100...250	1 1	AF80-30-11-13	1SBL397001R1311	1.210
				250...500	250...500	1 1	AF80-30-11-14	1SBL397001R1411	1.210
45	130	60	115	24...60	20...60 (1)	1 1	AF96-30-11-11	1SBL407001R1111	1.260
				48...130	48...130	1 1	AF96-30-11-12	1SBL407001R1211	1.260
				100...250	100...250	1 1	AF96-30-11-13	1SBL407001R1311	1.210
				250...500	250...500	1 1	AF96-30-11-14	1SBL407001R1411	1.210

(1) For control by PLC-output, use RA4 interface relay.



AF40, AF52, AF65-30-11-..



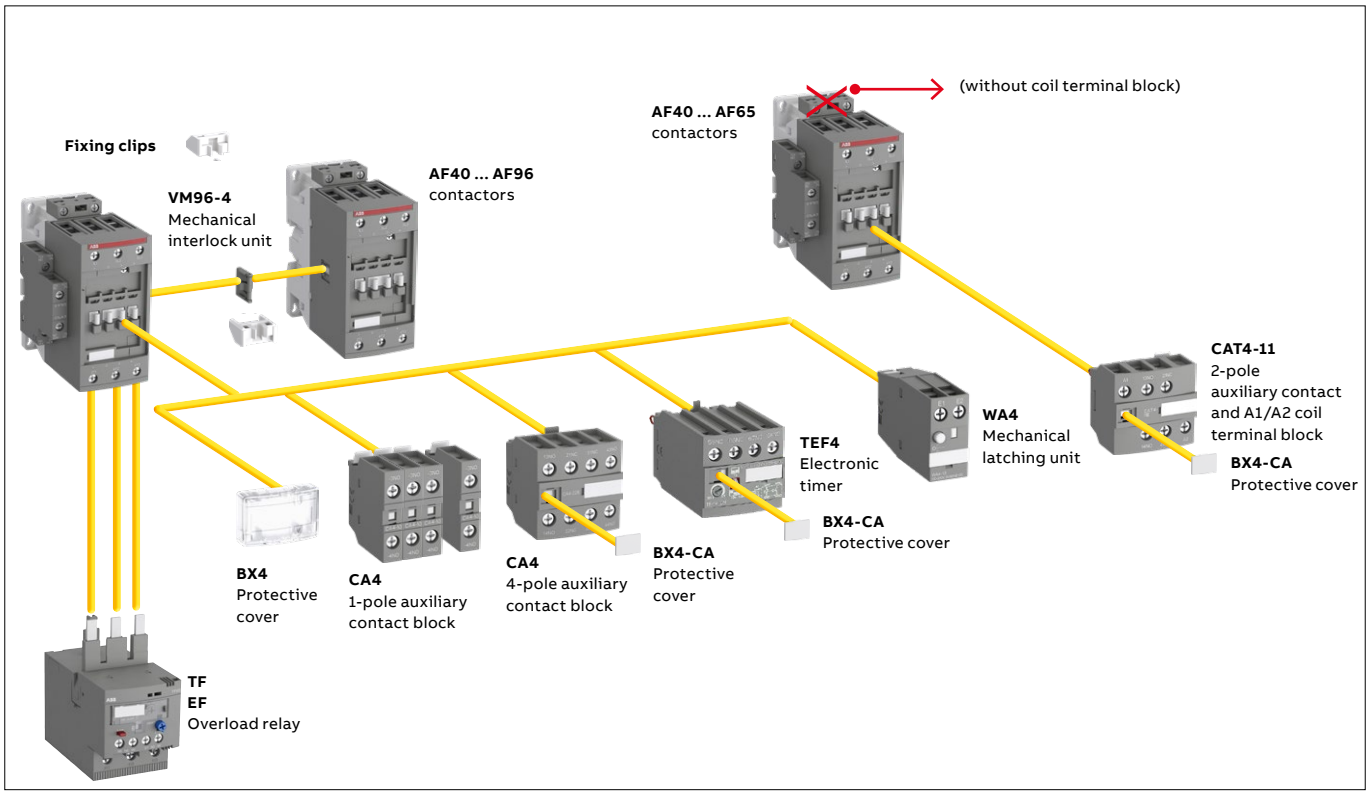
AF80, AF96-30-11-..

Main dimensions mm, inches

1SBC100487S0201 - Rev. A

AF40 ... AF96 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories Auxiliary contact blocks			Electronic timer	Mechanical latching unit (1)	Side-mounted accessories Mechanical interlock set (between 2 contactors)		Auxiliary contact blocks	
			1-pole CA4	2-pole CAT4-11	4-pole CA4	TEF4	WA4	VM96-4		2-pole CAL4-11 Left side	Right side
AF40 ... AF65	3 0	1 1	4 max.	or 1	or 1	or 1	or 1	+ 1		–	–
			4 max.	or 1	or 1	or 1	or 1	–	+	–	1
AF80, AF96	3 0	1 1	4 max.	–	or 1	or 1	or 1	+ 1		–	–
			4 max.	–	or 1	or 1	or 1	–	+	–	1

(1) Use WA4 for AF09...AF65 and WA4-96 for AF80, AF96.
Accept 1-pole CA4 auxiliary contacts on each side of the mechanical latch.

Overload relays fitting details (2)

Contactor types	Thermal overload relays	Electronic overload relays
AF40 ... AF65	TF65 (22...67 A)	EF65 (20...70 A)
AF80, AF96	TF96 (40...96 A)	EF96 (36...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.
(2) Direct mounting - No kit required.

1SBC100495S0201 - Rev. B

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

1SFC101001V001

AF146-30-11

1SFC101008V0001

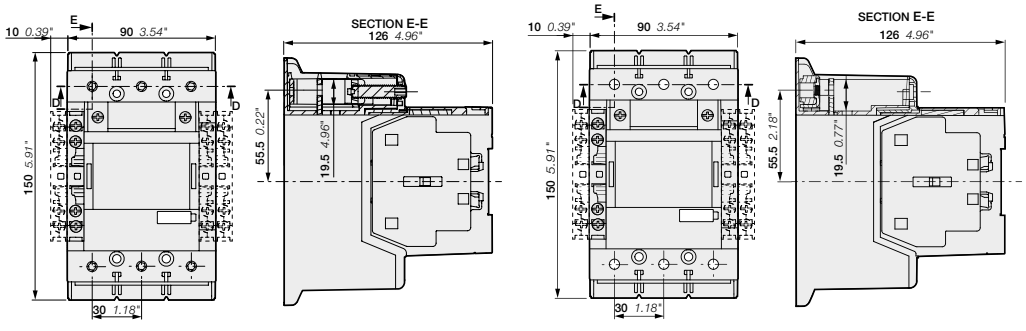
AF146-30-11B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current θ ≤ 40 °C	3-phase motor rating	General use rating						Pkg (1 pce)
400 V AC-3	AC-1	480 V	600 V AC						
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	1 1	AF116-30-11-11	1SFL427001R1111	1.750
				48...130	48...130	1 1	AF116-30-11-12	1SFL427001R1211	1.750
				100...250	100...250	1 1	AF116-30-11-13	1SFL427001R1311	1.750
				250...500	250...500	1 1	AF116-30-11-14	1SFL427001R1411	1.750
75	200	100	200	24...60	20...60	1 1	AF140-30-11-11	1SFL447001R1111	1.750
				48...130	48...130	1 1	AF140-30-11-12	1SFL447001R1211	1.750
				100...250	100...250	1 1	AF140-30-11-13	1SFL447001R1311	1.750
				250...500	250...500	1 1	AF140-30-11-14	1SFL447001R1411	1.750
75	225	100	200	24...60	20...60	1 1	AF146-30-11-11	1SFL467001R1111	1.750
				48...130	48...130	1 1	AF146-30-11-12	1SFL467001R1211	1.750
				100...250	100...250	1 1	AF146-30-11-13	1SFL467001R1311	1.750
				250...500	250...500	1 1	AF146-30-11-14	1SFL467001R1411	1.750
With bar connections									
55	160	75	160	24...60	20...60	1 1	AF116-30-11B-11	1SFL427002R1111	1.500
				48...130	48...130	1 1	AF116-30-11B-12	1SFL427002R1211	1.500
				100...250	100...250	1 1	AF116-30-11B-13	1SFL427002R1311	1.500
				250...500	250...500	1 1	AF116-30-11B-14	1SFL427002R1411	1.500
75	200	100	200	24...60	20...60	1 1	AF140-30-11B-11	1SFL447002R1111	1.500
				48...130	48...130	1 1	AF140-30-11B-12	1SFL447002R1211	1.500
				100...250	100...250	1 1	AF140-30-11B-13	1SFL447002R1311	1.500
				250...500	250...500	1 1	AF140-30-11B-14	1SFL447002R1411	1.500
75	225	100	200	24...60	20...60	1 1	AF146-30-11B-11	1SFL467002R1111	1.500
				48...130	48...130	1 1	AF146-30-11B-12	1SFL467002R1211	1.500
				100...250	100...250	1 1	AF146-30-11B-13	1SFL467002R1311	1.500
				250...500	250...500	1 1	AF146-30-11B-14	1SFL467002R1411	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-11

AF116, AF140, AF146-30-11B

Main dimensions mm, inches

1SFC101090C0201 - Rev. E

03

AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts for faster opening utilization

AF146-30-11

AF146-30-11B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

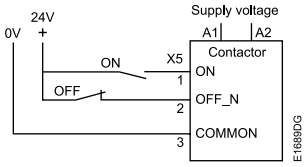
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

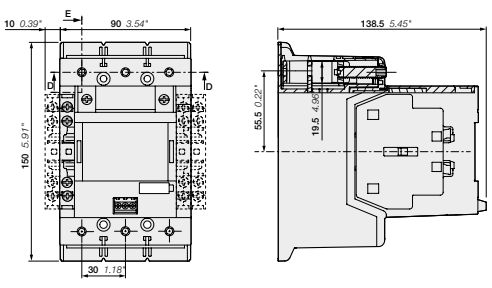
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current θ ≤ 40 °C	3-phase motor rating	General use rating						Pkg (1 pce)
400 V		480 V	600 V AC						
AC-3	AC-1								
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	1 1	AF116-30-11-33	1SFL427001R3311	1.750
				250...500	250...500	1 1	AF116-30-11-34	1SFL427001R3411	1.750
75	200	100	200	100...250	100...250	1 1	AF140-30-11-33	1SFL447001R3311	1.750
				250...500	250...500	1 1	AF140-30-11-34	1SFL447001R3411	1.750
75	225	100	200	100...250	100...250	1 1	AF146-30-11-33	1SFL467001R3311	1.750
				250...500	250...500	1 1	AF146-30-11-34	1SFL467001R3411	1.750
With bar connections									
55	160	75	160	100...250	100...250	1 1	AF116-30-11B-33	1SFL427002R3311	1.500
				250...500	250...500	1 1	AF116-30-11B-34	1SFL427002R3411	1.500
75	200	100	200	100...250	100...250	1 1	AF140-30-11B-33	1SFL447002R3311	1.500
				250...500	250...500	1 1	AF140-30-11B-34	1SFL447002R3411	1.500
75	225	100	200	100...250	100...250	1 1	AF146-30-11B-33	1SFL467002R3311	1.500
				250...500	250...500	1 1	AF146-30-11B-34	1SFL467002R3411	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

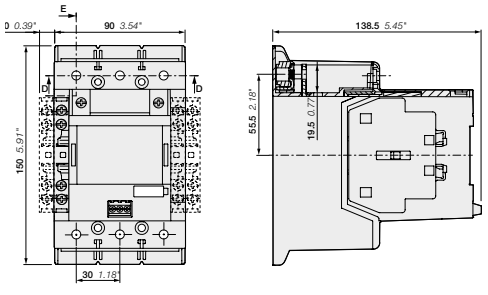
AF116 ... AF146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF116, AF140, AF146-30-11



AF116, AF140, AF146-30-11B

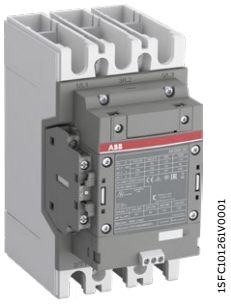
Main dimensions mm, inches

1SFC101166C0201 - Rev. B

AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



1SFC101261V0001

AF205-30-11

1SFC101258V0001

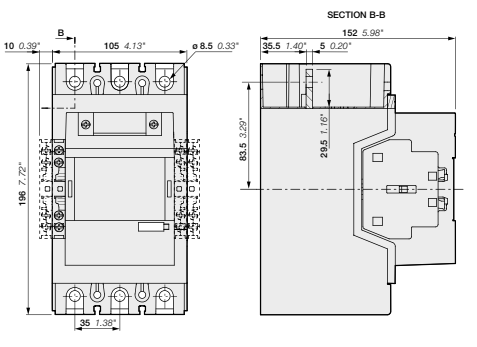
AF370-30-11

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

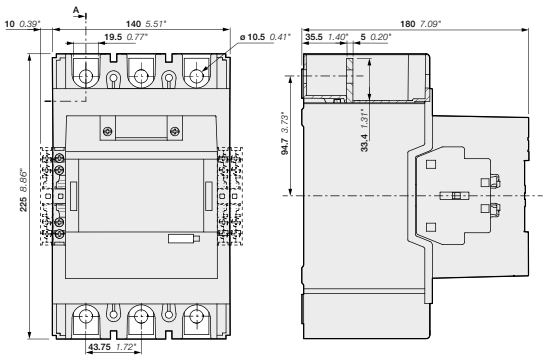
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	1 1	AF190-30-11-11	1SFL487002R1111	3.000
				48...130	48...130	1 1	AF190-30-11-12	1SFL487002R1211	3.000
				100...250	100...250	1 1	AF190-30-11-13	1SFL487002R1311	3.000
				250...500	250...500	1 1	AF190-30-11-14	1SFL487002R1411	3.000
110	350	150	300	24...60	20...60	1 1	AF205-30-11-11	1SFL527002R1111	3.000
				48...130	48...130	1 1	AF205-30-11-12	1SFL527002R1211	3.000
				100...250	100...250	1 1	AF205-30-11-13	1SFL527002R1311	3.000
				250...500	250...500	1 1	AF205-30-11-14	1SFL527002R1411	3.000
132	400	200	350	24...60	20...60	1 1	AF265-30-11-11	1SFL547002R1111	4.640
				48...130	48...130	1 1	AF265-30-11-12	1SFL547002R1211	4.640
				100...250	100...250	1 1	AF265-30-11-13	1SFL547002R1311	4.640
				250...500	250...500	1 1	AF265-30-11-14	1SFL547002R1411	4.640
160	500	250	400	24...60	20...60	1 1	AF305-30-11-11	1SFL587002R1111	4.640
				48...130	48...130	1 1	AF305-30-11-12	1SFL587002R1211	4.640
				100...250	100...250	1 1	AF305-30-11-13	1SFL587002R1311	4.640
				250...500	250...500	1 1	AF305-30-11-14	1SFL587002R1411	4.640
200	600	300	520	24...60	20...60	1 1	AF370-30-11-11	1SFL607002R1111	4.640
				48...130	48...130	1 1	AF370-30-11-12	1SFL607002R1211	4.640
				100...250	100...250	1 1	AF370-30-11-13	1SFL607002R1311	4.640
				250...500	250...500	1 1	AF370-30-11-14	1SFL607002R1411	4.640

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF190, AF205



AF265, AF305, AF370

Main dimensions mm, inches

1SFC101091C0201 - Rev. E

03

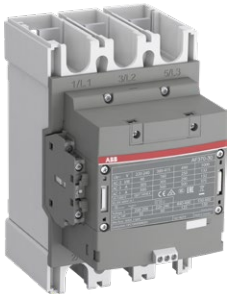
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts for faster opening utilization

1SFC101261V0001

AF205-30-11



1SFC101258V0001

AF370-30-11

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

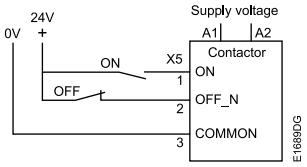
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

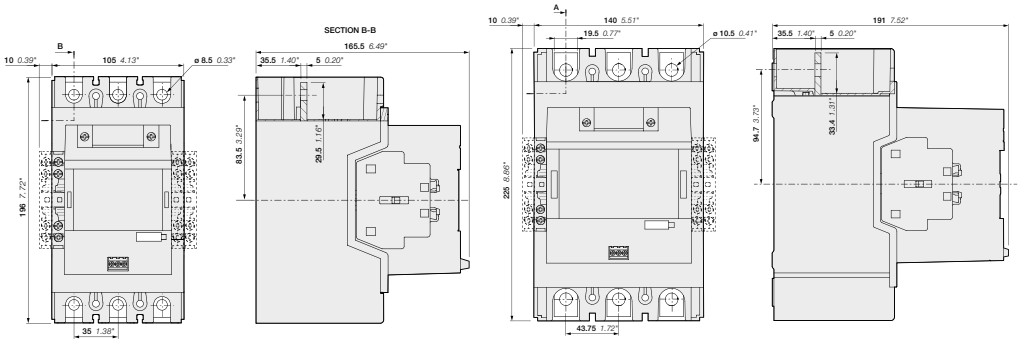
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	1 1	AF190-30-11-33	1SFL487002R3311	3.000
				250...500	250...500	1 1	AF190-30-11-34	1SFL487002R3411	3.000
110	350	150	300	100...250	100...250	1 1	AF205-30-11-33	1SFL527002R3311	3.000
				250...500	250...500	1 1	AF205-30-11-34	1SFL527002R3411	3.000
132	400	200	350	100...250	100...250	1 1	AF265-30-11-33	1SFL547002R3311	4.640
				250...500	250...500	1 1	AF265-30-11-34	1SFL547002R3411	4.640
160	500	250	400	100...250	100...250	1 1	AF305-30-11-33	1SFL587002R3311	4.640
				250...500	250...500	1 1	AF305-30-11-34	1SFL587002R3411	4.640
200	600	300	520	100...250	100...250	1 1	AF370-30-11-33	1SFL607002R3311	4.640
				250...500	250...500	1 1	AF370-30-11-34	1SFL607002R3411	4.640

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF190 ... AF370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF190, AF205

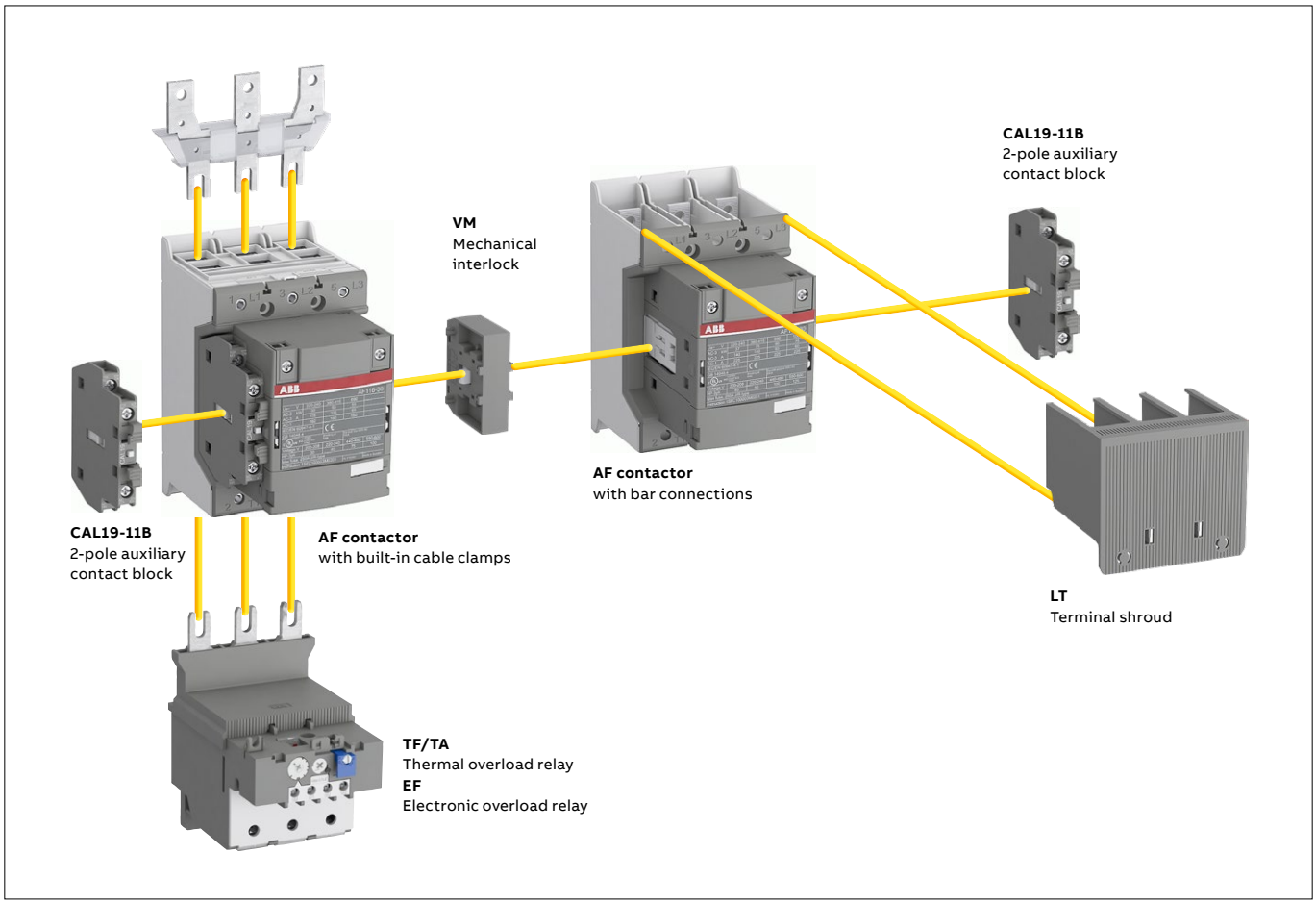
AF265, AF305, AF370

Main dimensions mm, inches

1SFC101167C0201 - Rev. B

AF116 ... AF370 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11 (3)	CAL19-11B (3)	
AF116 ... AF370	3 0	1 1	1 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	3 0	1 1	–	+ 2 x CAL19-11B (1)	+ VM... (2)

(1) Total number of auxiliary contact blocks for the two contactors.
(2) Interlock type, according to the contactor ratings (see "Accessories").
(3) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF116 ... AF140	TF140DU (66...142 A)	EF146 (54...150 A)
AF146	–	EF146 (54...150 A)
AF190, AF205	TA200DU (66...200 A)	EF205 (63...210 A)
AF265 ... AF370	–	EF370 (115...380 A)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.
(1) Direct mounting - No kit required.

1SFC101132C0201- Rev. A

AF400 ... AF750 3-pole contactors

200 to 400 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

1SFC101022V0001

AF460-30-11

1SFC101025V0001

AF750-30-11

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC or 600 V DC (2). These contactors are of the block type design with 3 main poles.

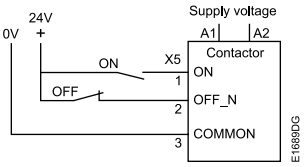
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

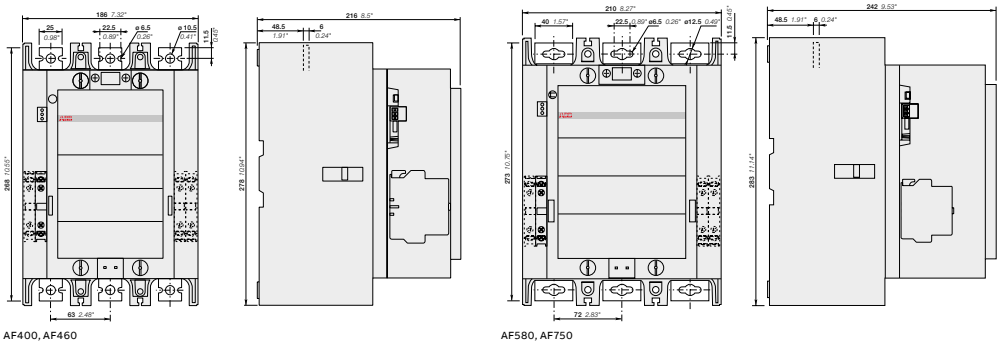
IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
200	600	350	550	-	24...60	1 1	AF400-30-11	1SFL577001R6811 (1)	12.000
				48...130	48...130	1 1	AF400-30-11	1SFL577001R6911	12.000
				100...250	100...250	1 1	AF400-30-11	1SFL577001R7011	12.000
				250...500	250...500	1 1	AF400-30-11	1SFL577001R7111	12.000
250	700	400	650	-	24...60	1 1	AF460-30-11	1SFL597001R6811 (1)	12.000
				48...130	48...130	1 1	AF460-30-11	1SFL597001R6911	12.000
				100...250	100...250	1 1	AF460-30-11	1SFL597001R7011	12.000
				250...500	250...500	1 1	AF460-30-11	1SFL597001R7111	12.000
315	800	500	750	-	24...60	1 1	AF580-30-11	1SFL617001R6811 (1)	15.000
				48...130	48...130	1 1	AF580-30-11	1SFL617001R6911	15.000
				100...250	100...250	1 1	AF580-30-11	1SFL617001R7011	15.000
				250...500	250...500	1 1	AF580-30-11	1SFL617001R7111	15.000
400	1050	600	900	-	24...60	1 1	AF750-30-11	1SFL637001R6811 (1)	15.000
				48...130	48...130	1 1	AF750-30-11	1SFL637001R6911	15.000
				100...250	100...250	1 1	AF750-30-11	1SFL637001R7011	15.000
				250...500	250...500	1 1	AF750-30-11	1SFL637001R7111	15.000

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) Up to 850 V DC for AF580, AF750.

AF400 ... AF750 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF400, AF460 AF580, AF750

Main dimensions mm, inches

1SFC101013C0201 - Rev. A

AF1250 ... AF2850 3-pole contactors

475 to 560 kW and 1260 to 2850 A AC-1

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

1SFC10102V0001

AF1250-30-11

1SFC10103V0001

AF2650-30-11

AF1250 ... AF2050 contactors are mainly used for controlling power circuits up to 1000 V AC or 850 V DC, AF2650 and AF2850 for controlling power up to 1000 V AC. These contactors are of the block type design with 3 main poles.
– control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range

(e.g. 100...250 V AC and DC)

- only 4 coils for AF1250 to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
- only 1 coil for AF1350 ... AF2850 to cover control voltages between 100...250 V 50/60 Hz and 100...250 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).

• built-in surge suppression

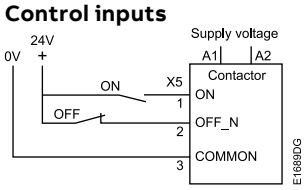
• add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc (1)		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC (2)						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
-	1260	-	1210	-	24...60	1 1	AF1250-30-11	1SFL647001R6811 (1)	16.000
				48...130	48...130	1 1	AF1250-30-11	1SFL647001R6911	16.000
				100...250	100...250	1 1	AF1250-30-11	1SFL647001R7011	16.000
				250...500	250...500	1 1	AF1250-30-11	1SFL647001R7111	16.000
475	1350	800	1350	100...250	100...250	1 1	AF1350-30-11	1SFL657001R7011	34.000
560	1650	900	1650	100...250	100...250	1 1	AF1650-30-11	1SFL677001R7011	35.000
-	2050	-	2100	100...250	100...250	1 1	AF2050-30-11	1SFL707001R7011	35.000
-	2650	-	2700	100...250	100...250	1 1	AF2650-30-11	1SFL667001R7011	45.000
-	2850	-	2850	100...250	100...250	1 1	AF2850-30-11	1SFL687001R7011	45.000

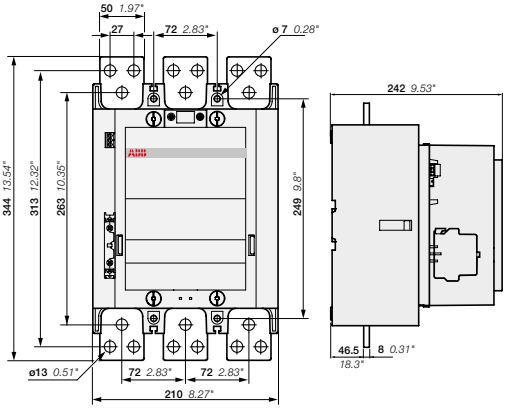
(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.(2) AF2650: Maximum operational voltage = 1000 V according to UL / CSA.

AF1250 ... AF2850 are equipped with low voltage inputs for control, for example by a PLC

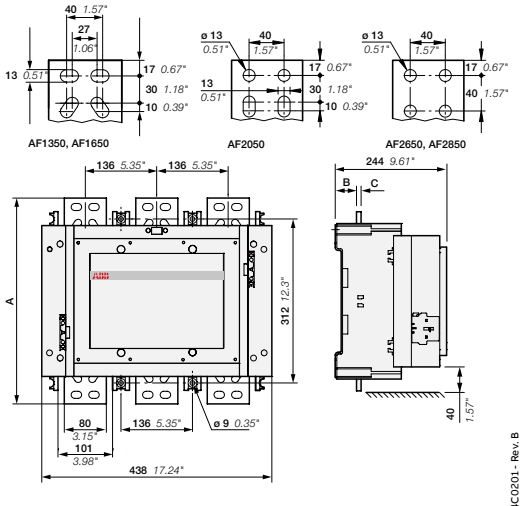
Control inputs



	AF1350, AF1650, AF2050	AF2650, AF2850
A	392 mm / 15.43"	422 mm / 16.61"
B	47 mm / 1.85"	53 mm / 2.09"
C	10 mm / 0.39"	25 mm / 0.98"



AF1250



AF1350, AF1650, AF2050, AF2650, AF2850

Main dimensions mm, inches

03

AF1350T ... AF2850T 3-pole contactors with built-in LVRT

475 to 560 kW and 1350 to 2850 A AC-1

AC operated with 1 N.O. + 1 N.C. auxiliary contacts

1SFC101216V0001

AF2650-30T-11

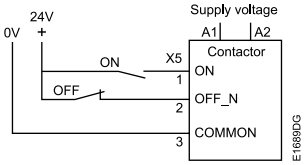
AF1350T .. AF2850T contactors are designed to meet the Low Voltage Ride Through requirements for grid connections withstand voltage drop-outs up to 1 sec without opening. These contactors are often used in grid connected applications where the demand of non interrupted power is required. When controlled through built-in PLC connection the contactor is operated directly without delay function.

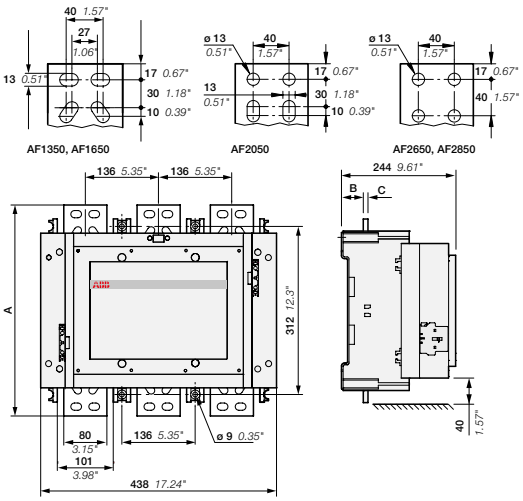
- Control circuit: AC or DC operated with electronic coil interface
  - can withstand voltage drop-outs according to Low Voltage Ride Through requirements
  - equipped with low voltage inputs for direct control by a PLC
  - distinct closing and opening
  - add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC					Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz				kg
475	1350	800	1350	220 ... 240	1 1	AF1350T-30-11 (1)	1SFL657001R9101	34.000
560	1650	900	1650	220 ... 240	1 1	AF1650T-30-11 (1)	1SFL677001R9101	35.000
-	2050	-	2100	220 ... 240	1 1	AF2050T-30-11 (1)	1SFL707001R9101	35.000
-	2650	-	2700	220 ... 240	1 1	AF2650T-30-11 (1)	1SFL667001R9101	45.000
-	2850	-	2850	220 ... 240	1 1	AF2850T-30-11 (1)	1SFL687001R9101	45.000

(1) Types -00 and -22 on request.

Control inputs





AF1350T-30-11, AF1650T-30-11, AF2050T-30-11, AF2650T-30-11, AF2850T-30-10-11

Main dimensions mm, inches

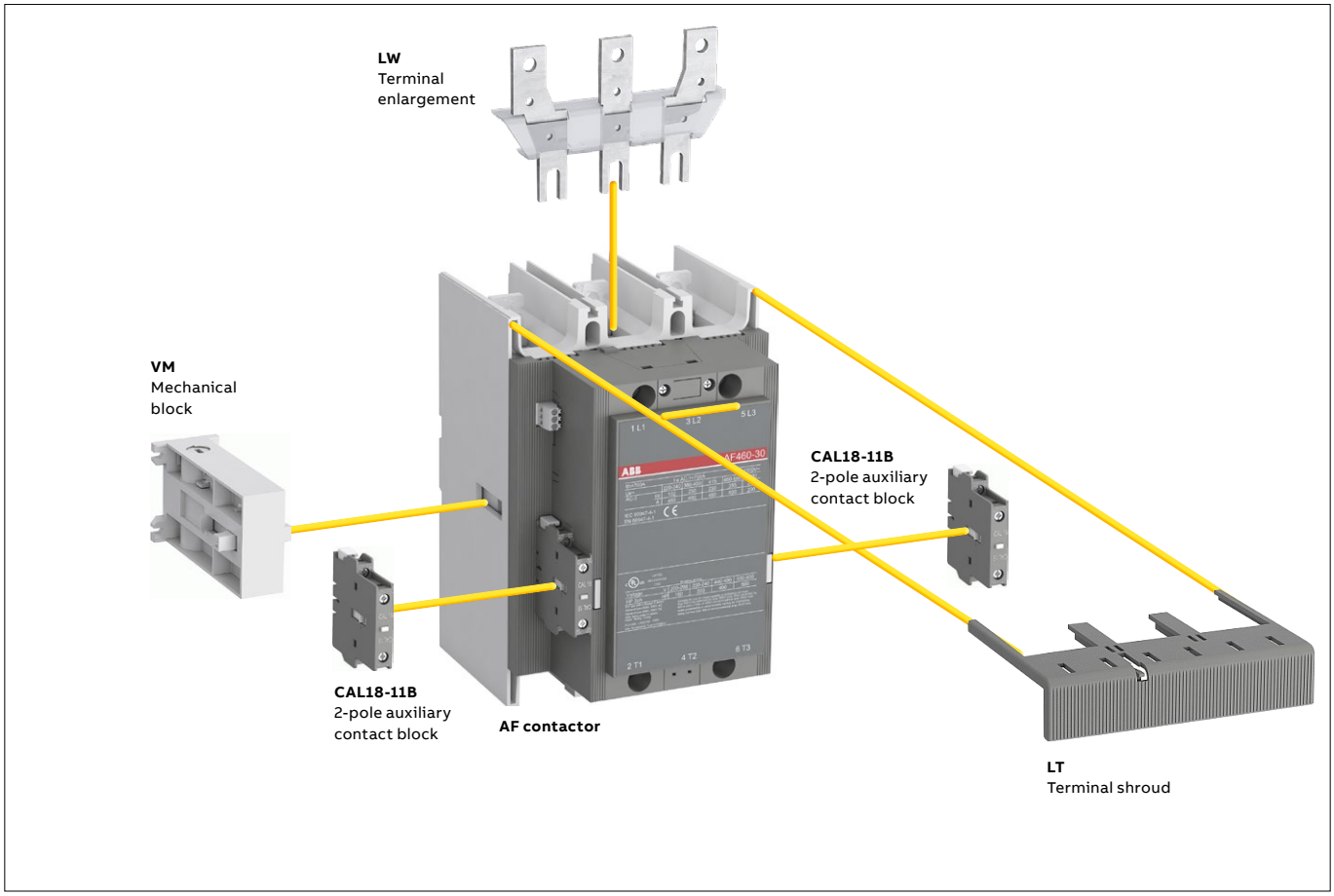
	AF1350, AF1650, AF2050	AF2650, AF2850
A	392 mm / 15.43"	422 mm / 16.61"
B	47 mm / 1.85"	53 mm / 2.09"
C	10 mm / 0.39"	25 mm / 0.98"

1SFC101076D0201 - Rev. A

AF400 ... AF2850 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories

Main accessories (other accessories available)



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks CAL18-11	 CAL18-11B (3)	Mechanical interlock units (between two contactors)
Contactors + auxiliary contact blocks					
AF400 ... AF2850	3 0	1 1	1 x CAL18-11	+ 2 x CAL18-11B	–
Contactors with mechanical interlocking + auxiliary contact blocks					
AF400 ... AF2850	3 0	1 1	2 x CAL18-11 (1)	+ 4 x CAL18-11B (1)	+ VM...H (2)

(1) Total number of auxiliary contact blocks for the two contactors. (2) Interlock type, according to the contactor ratings (see "Accessories").
(3) The CEL18-.. auxiliary contact blocks can replace the CAL18-11 and CAL18-11B. Though, no auxiliary contact block can be mounted outside the CEL18-..

Overload relays fitting details

Contactor types	Thermal overload relays	Electronic overload relays
AF400, AF460	–	EF460 (150...500 A) (1)
AF580, AF750	–	EF750 (250...800 A) (1)
AF1350, AF1650	–	EF1250DU (375...1250 A) (1)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.
(1) Mounting kit required (see "Motor protection").

1SFC101126C0201 - Rev. B

03

AF09 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts

AF09-30-22

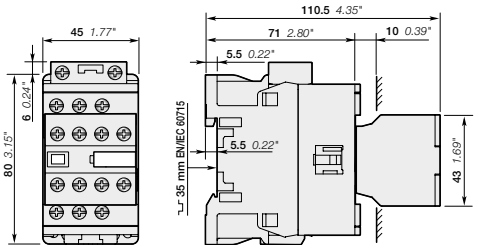
AF26-30-22

AF09 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.			Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC							Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC					kg
4	25	5	25	24...60	20...60	(1)	2 2	AF09-30-22-11	1SBL137001R1122	0.320
				48...130	48...130		2 2	AF09-30-22-12	1SBL137001R1222	0.320
				100...250	100...250		2 2	AF09-30-22-13	1SBL137001R1322	0.320
				250...500	250...500		2 2	AF09-30-22-14	1SBL137001R1422	0.360
5.5	28	7.5	28	24...60	20...60	(1)	2 2	AF12-30-22-11	1SBL157001R1122	0.320
				48...130	48...130		2 2	AF12-30-22-12	1SBL157001R1222	0.320
				100...250	100...250		2 2	AF12-30-22-13	1SBL157001R1322	0.320
				250...500	250...500		2 2	AF12-30-22-14	1SBL157001R1422	0.360
7.5	30	10	30	24...60	20...60	(1)	2 2	AF16-30-22-11	1SBL177001R1122	0.320
				48...130	48...130		2 2	AF16-30-22-12	1SBL177001R1222	0.320
				100...250	100...250		2 2	AF16-30-22-13	1SBL177001R1322	0.320
				250...500	250...500		2 2	AF16-30-22-14	1SBL177001R1422	0.360
11	45	15	45	24...60	20...60	(1)	2 2	AF26-30-22-11	1SBL237001R1122	0.360
				48...130	48...130		2 2	AF26-30-22-12	1SBL237001R1222	0.360
				100...250	100...250		2 2	AF26-30-22-13	1SBL237001R1322	0.360
				250...500	250...500		2 2	AF26-30-22-14	1SBL237001R1422	0.400
15	50	20	50	24...60	20...60	(1)	2 2	AF30-30-22-11	1SBL277001R1122	0.360
				48...130	48...130		2 2	AF30-30-22-12	1SBL277001R1222	0.360
				100...250	100...250		2 2	AF30-30-22-13	1SBL277001R1322	0.360
				250...500	250...500		2 2	AF30-30-22-14	1SBL277001R1422	0.400
18.5	50	25	50	24...60	20...60	(1)	2 2	AF38-30-22-11	1SBL297001R1122	0.360
				48...130	48...130		2 2	AF38-30-22-12	1SBL297001R1222	0.360
				100...250	100...250		2 2	AF38-30-22-13	1SBL297001R1322	0.360
				250...500	250...500		2 2	AF38-30-22-14	1SBL297001R1422	0.400

(1) AF..-30-..-11 not suitable for direct control by PLC-output.



AF09, AF12, AF16

AF26, AF30, AF38

Main dimensions mm, inches

1SBC101373S0201 - Rev. D

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications with 2 N.O. + 2 N.C. auxiliary contacts

AF09Z-30-22

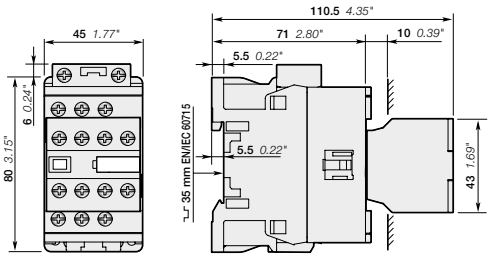
AF26Z-30-22

AF09Z ... AF38Z contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

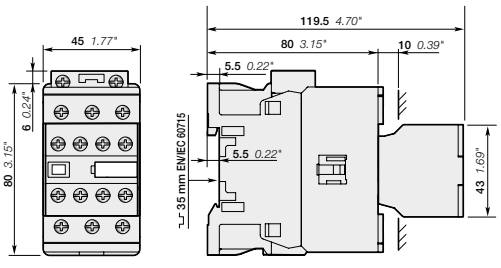
- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations,
  - allow direct control by PLC-output ≥ 24 V DC 500 mA,
  - reduced panel energy consumption,
  - very distinct closing and opening,
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	-	12...20	2 2	AF09Z-30-22-20	1SBL136001R2022	0.360
				24...60	20...60	2 2	AF09Z-30-22-21	1SBL136001R2122	0.360
				48...130	48...130	2 2	AF09Z-30-22-22	1SBL136001R2222	0.360
				100...250	100...250	2 2	AF09Z-30-22-23	1SBL136001R2322	0.360
5.5	28	7.5	28	-	12...20	2 2	AF12Z-30-22-20	1SBL156001R2022	0.360
				24...60	20...60	2 2	AF12Z-30-22-21	1SBL156001R2122	0.360
				48...130	48...130	2 2	AF12Z-30-22-22	1SBL156001R2222	0.360
				100...250	100...250	2 2	AF12Z-30-22-23	1SBL156001R2322	0.360
7.5	30	10	30	-	12...20	2 2	AF16Z-30-22-20	1SBL176001R2022	0.360
				24...60	20...60	2 2	AF16Z-30-22-21	1SBL176001R2122	0.360
				48...130	48...130	2 2	AF16Z-30-22-22	1SBL176001R2222	0.360
				100...250	100...250	2 2	AF16Z-30-22-23	1SBL176001R2322	0.360
11	45	15	45	-	12...20	2 2	AF26Z-30-22-20	1SBL236001R2022	0.400
				24...60	20...60	2 2	AF26Z-30-22-21	1SBL236001R2122	0.400
				48...130	48...130	2 2	AF26Z-30-22-22	1SBL236001R2222	0.400
				100...250	100...250	2 2	AF26Z-30-22-23	1SBL236001R2322	0.400
15	50	20	50	-	12...20	2 2	AF30Z-30-22-20	1SBL276001R2022	0.400
				24...60	20...60	2 2	AF30Z-30-22-21	1SBL276001R2122	0.400
				48...130	48...130	2 2	AF30Z-30-22-22	1SBL276001R2222	0.400
				100...250	100...250	2 2	AF30Z-30-22-23	1SBL276001R2322	0.400
18.5	50	25	50	-	12...20	2 2	AF38Z-30-22-20	1SBL296001R2022	0.400
				24...60	20...60	2 2	AF38Z-30-22-21	1SBL296001R2122	0.400
				48...130	48...130	2 2	AF38Z-30-22-22	1SBL296001R2222	0.400
				100...250	100...250	2 2	AF38Z-30-22-23	1SBL296001R2322	0.400

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole



AF09Z, AF12Z, AF16Z



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

1SBC101374S0201 - Rev. B

03

AF40 ... AF96 3-pole contactors

18.5 to 30 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts

AF40-30-22

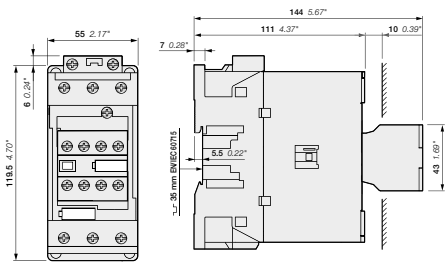
AF80-30-22

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

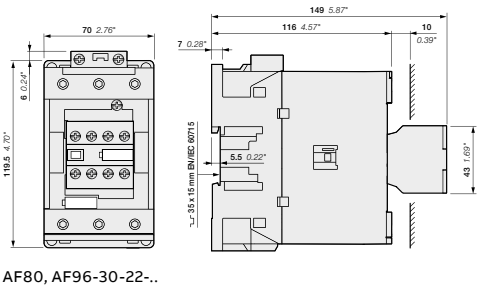
- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
18.5	70	30	60	24...60	20...60 (1)	2 2	AF40-30-22-11	1SBL347001R1122	1.020
				48...130	48...130	2 2	AF40-30-22-12	1SBL347001R1222	1.020
				100...250	100...250	2 2	AF40-30-22-13	1SBL347001R1322	1.000
				250...500	250...500	2 2	AF40-30-22-14	1SBL347001R1422	1.000
22	100	40	80	24...60	20...60 (1)	2 2	AF52-30-22-11	1SBL367001R1122	1.020
				48...130	48...130	2 2	AF52-30-22-12	1SBL367001R1222	1.020
				100...250	100...250	2 2	AF52-30-22-13	1SBL367001R1322	1.000
				250...500	250...500	2 2	AF52-30-22-14	1SBL367001R1422	1.000
30	105	50	90	24...60	20...60 (1)	2 2	AF65-30-22-11	1SBL387001R1122	1.020
				48...130	48...130	2 2	AF65-30-22-12	1SBL387001R1222	1.020
				100...250	100...250	2 2	AF65-30-22-13	1SBL387001R1322	1.000
				250...500	250...500	2 2	AF65-30-22-14	1SBL387001R1422	1.000
37	125	60	105	24...60	20...60 (1)	2 2	AF80-30-22-11	1SBL397001R1122	1.270
				48...130	48...130	2 2	AF80-30-22-12	1SBL397001R1222	1.270
				100...250	100...250	2 2	AF80-30-22-13	1SBL397001R1322	1.220
				250...500	250...500	2 2	AF80-30-22-14	1SBL397001R1422	1.220
45	130	60	115	24...60	20...60 (1)	2 2	AF96-30-22-11	1SBL407001R1122	1.270
				48...130	48...130	2 2	AF96-30-22-12	1SBL407001R1222	1.270
				100...250	100...250	2 2	AF96-30-22-13	1SBL407001R1322	1.220
				250...500	250...500	2 2	AF96-30-22-14	1SBL407001R1422	1.220

(1) For control by PLC-output, use RA4 interface relay.



AF40, AF52, AF65-30-22-..



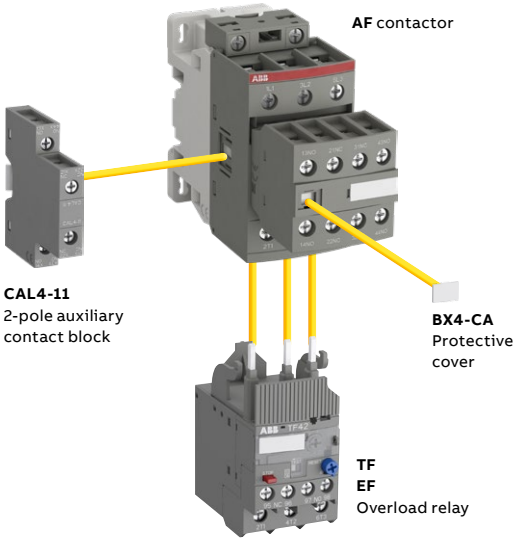
AF80, AF96-30-22-..

Main dimensions mm, inches

1SBC101742S0201 - Rev. A

AF09 ... AF96 3-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Built-in auxiliary contacts	Side-mounted accessories Mechanical interlock unit (between 2 contactors)	Auxiliary contact blocks	
			VM..	2-pole CAL4-11 Left side	Right side
AF09 ... AF38	3 0	2 2	1	+ 1	or 1
AF40 ... AF96	3 0	2 2	1	+ 1	or 1
			–	+ 1	+ 1

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF09 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
AF26 ... AF38	TF42 (0.10...38 A)	EF45 (9...45 A)
AF40 ... AF65	TF65 (22...67 A)	EF65 (20...70 A)
AF80 , AF96	TF96 (40...96 A)	EF96 (36...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.
(1) Direct mounting - No kit required.

1SBC100494S0201 - Rev. B

03

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts

AF146-30-22

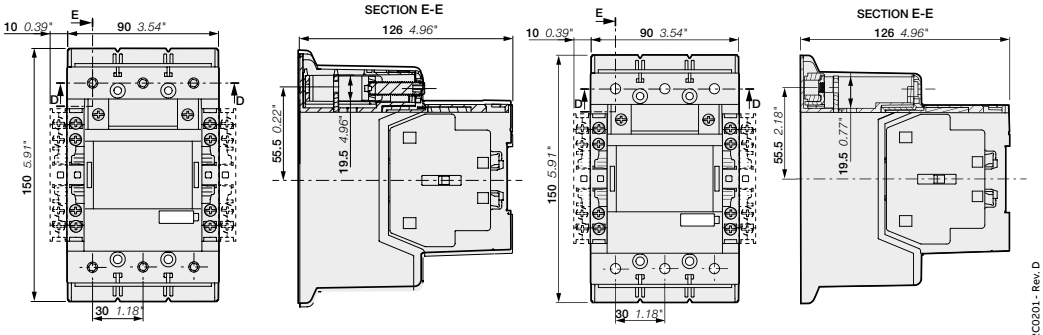
AF146-30-22B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	2 2	AF116-30-22-11	1SFL427001R1122	1.750
				48...130	48...130	2 2	AF116-30-22-12	1SFL427001R1222	1.750
				100...250	100...250	2 2	AF116-30-22-13	1SFL427001R1322	1.750
				250...500	250...500	2 2	AF116-30-22-14	1SFL427001R1422	1.750
75	200	100	200	24...60	20...60	2 2	AF140-30-22-11	1SFL447001R1122	1.750
				48...130	48...130	2 2	AF140-30-22-12	1SFL447001R1222	1.750
				100...250	100...250	2 2	AF140-30-22-13	1SFL447001R1322	1.750
				250...500	250...500	2 2	AF140-30-22-13	1SFL447001R1422	1.750
75	225	100	200	24...60	20...60	2 2	AF146-30-22-11	1SFL467001R1122	1.750
				48...130	48...130	2 2	AF146-30-22-12	1SFL467001R1222	1.750
				100...250	100...250	2 2	AF146-30-22-13	1SFL467001R1322	1.750
				250...500	250...500	2 2	AF146-30-22-14	1SFL467001R1422	1.750
With bar connections									
55	160	75	160	24...60	20...60	2 2	AF116-30-22B-11	1SFL427002R1122	1.500
				48...130	48...130	2 2	AF116-30-22B-12	1SFL427002R1222	1.500
				100...250	100...250	2 2	AF116-30-22B-13	1SFL427002R1322	1.500
				250...500	250...500	2 2	AF116-30-22B-14	1SFL427002R1422	1.500
75	200	100	200	24...60	20...60	2 2	AF140-30-22B-11	1SFL447002R1122	1.500
				48...130	48...130	2 2	AF140-30-22B-12	1SFL447002R1222	1.500
				100...250	100...250	2 2	AF140-30-22B-13	1SFL447002R1322	1.500
				250...500	250...500	2 2	AF140-30-22B-14	1SFL447002R1422	1.500
75	225	100	200	24...60	20...60	2 2	AF146-30-22B-11	1SFL467002R1122	1.500
				48...130	48...130	2 2	AF146-30-22B-12	1SFL467002R1222	1.500
				100...250	100...250	2 2	AF146-30-22B-13	1SFL467002R1322	1.500
				250...500	250...500	2 2	AF146-30-22B-14	1SFL467002R1422	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-22

AF116, AF140, AF146-30-22B

Main dimensions mm, inches

1SFC101092C0201 - Rev. D

AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts for faster opening utilization

1SFC101184V0001

AF146-30-22

1SFC101187V0001

AF146-30-22B

AF116 ... AF146 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

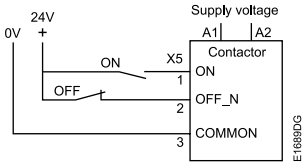
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

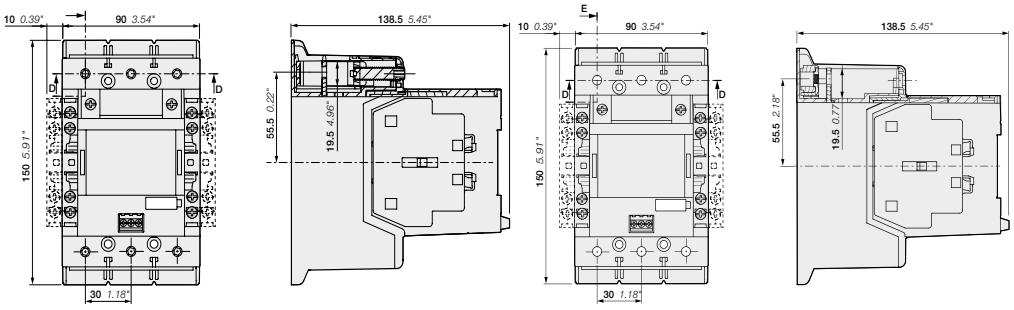
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	2 2	AF116-30-22-33	1SFL427001R3322	1.750
				250...500	250...500	2 2	AF116-30-22-34	1SFL427001R3422	1.750
75	200	100	200	100...250	100...250	2 2	AF140-30-22-33	1SFL447001R3322	1.750
				250...500	250...500	2 2	AF140-30-22-34	1SFL447001R3422	1.750
75	225	100	200	100...250	100...250	2 2	AF146-30-22-33	1SFL467001R3322	1.750
				250...500	250...500	2 2	AF146-30-22-34	1SFL467001R3422	1.750
With bar connections									
55	160	75	160	100...250	100...250	2 2	AF116-30-22B-33	1SFL427002R3322	1.500
				250...500	250...500	2 2	AF116-30-22B-34	1SFL427002R3422	1.500
75	200	100	200	100...250	100...250	2 2	AF140-30-22B-33	1SFL447002R3322	1.500
				250...500	250...500	2 2	AF140-30-22B-34	1SFL447002R3422	1.500
75	225	100	200	100...250	100...250	2 2	AF146-30-22B-33	1SFL467002R3322	1.500
				250...500	250...500	2 2	AF146-30-22B-34	1SFL467002R3422	1.500

For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF116 ... AF146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF116, AF140, AF146-30-22

AF116, AF140, AF146-30-22B

Main dimensions mm, inches

1SFC101168C0201 - Rev. A

03

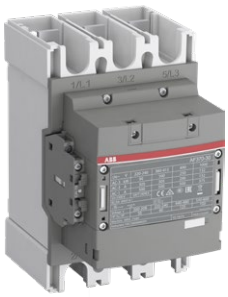
AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts

1SFC101256V0001

AF205-30-22



1SFC101253V0001

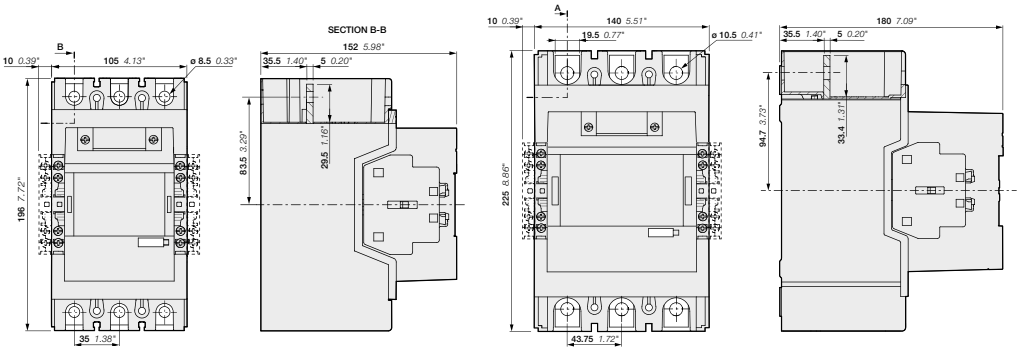
AF370-30-22

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	2 2	AF190-30-22-11	1SFL487002R1122	3.000
				48...130	48...130	2 2	AF190-30-22-12	1SFL487002R1222	3.000
				100...250	100...250	2 2	AF190-30-22-13	1SFL487002R1322	3.000
				250...500	250...500	2 2	AF190-30-22-14	1SFL487002R1422	3.000
110	350	150	300	24...60	20...60	2 2	AF205-30-22-11	1SFL527002R1122	3.000
				48...130	48...130	2 2	AF205-30-22-12	1SFL527002R1222	3.000
				100...250	100...250	2 2	AF205-30-22-13	1SFL527002R1322	3.000
				250...500	250...500	2 2	AF205-30-22-14	1SFL527002R1422	3.000
132	400	200	350	24...60	20...60	2 2	AF265-30-22-11	1SFL547002R1122	4.675
				48...130	48...130	2 2	AF265-30-22-12	1SFL547002R1222	4.675
				100...250	100...250	2 2	AF265-30-22-13	1SFL547002R1322	4.675
				250...500	250...500	2 2	AF265-30-22-14	1SFL547002R1422	4.675
160	500	250	400	24...60	20...60	2 2	AF305-30-22-11	1SFL587002R1122	4.675
				48...130	48...130	2 2	AF305-30-22-12	1SFL587002R1222	4.675
				100...250	100...250	2 2	AF305-30-22-13	1SFL587002R1322	4.675
				250...500	250...500	2 2	AF305-30-22-14	1SFL587002R1422	4.675
200	600	300	520	24...60	20...60	2 2	AF370-30-22-11	1SFL607002R1122	4.675
				48...130	48...130	2 2	AF370-30-22-12	1SFL607002R1222	4.675
				100...250	100...250	2 2	AF370-30-22-13	1SFL607002R1322	4.675
				250...500	250...500	2 2	AF370-30-22-14	1SFL607002R1422	4.675

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

1SFC101093C0201 - Rev. E

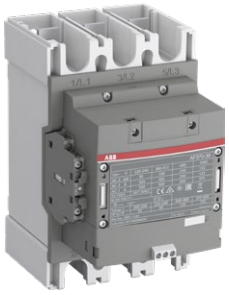
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts for faster opening utilization

1SFC101251V0001

AF205-30-22



1SFC101248V0001

AF370-30-22

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

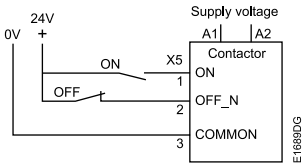
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

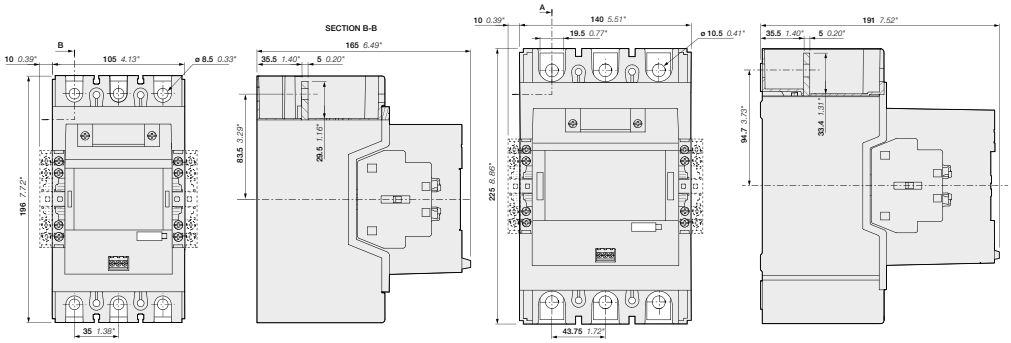
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	2 2	AF190-30-22-33	1SFL487002R3322	3.000
				250...500	250...500	2 2	AF190-30-22-34	1SFL487002R3422	3.000
110	350	150	300	100...250	100...250	2 2	AF205-30-22-33	1SFL527002R3322	3.000
				250...500	250...500	2 2	AF205-30-22-34	1SFL527002R3422	3.000
132	400	200	350	100...250	100...250	2 2	AF265-30-22-33	1SFL547002R3322	4.675
				250...500	250...500	2 2	AF265-30-22-34	1SFL547002R3422	4.675
160	500	250	400	100...250	100...250	2 2	AF305-30-22-33	1SFL587002R3322	4.675
				250...500	250...500	2 2	AF305-30-22-34	1SFL587002R3422	4.675
200	600	300	520	100...250	100...250	2 2	AF370-30-22-33	1SFL607002R3322	4.675
				250...500	250...500	2 2	AF370-30-22-34	1SFL607002R3422	4.675

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF190 ... AF370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF190, AF205

AF265, AF305, AF370

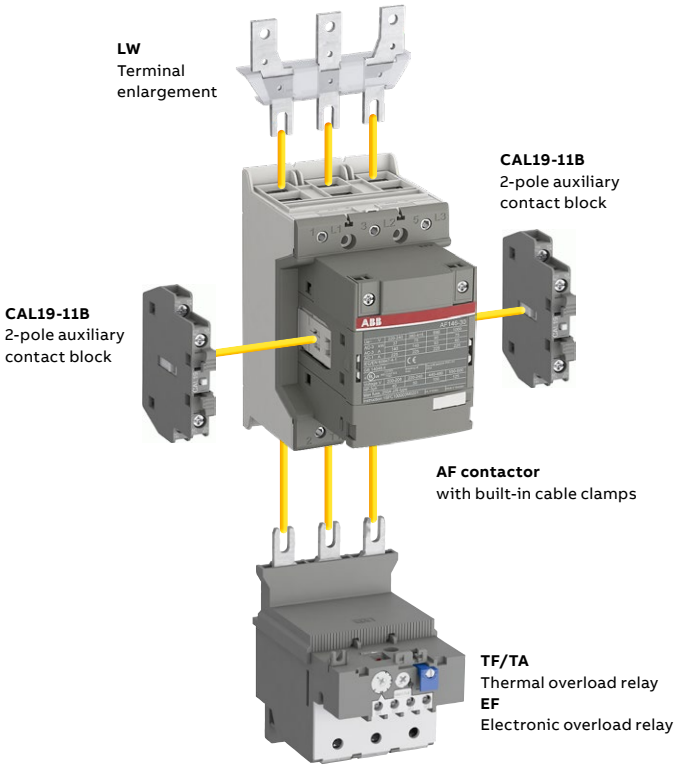
Main dimensions mm, inches

1SFC101169C0201 - Rev. A

AF116 ... AF370 3-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories

Main accessories (other accessories available)



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11 (2)	CAL19-11B (2)	
AF116 ... AF370	3 0	2 2	2 x CAL19-11 included	+ 2 x CAL19-11B	–

(2) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF116 ... AF140	TF140DU (66...142 A)	EF146 (54...150 A)
AF146	–	EF146 (54...150 A)
AF190, AF205	TA200DU (66...200 A)	EF205 (63...210 A)
AF265 ... AF370	–	EF370 (115...380 A)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.
(1) Direct mounting - No kit required.

1SFC101133C0201 - Rev. B

AF400 ... AF750 3-pole contactors

200 to 400 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts

AF460-30-22

AF750-30-22

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC or 600 V DC (2). These contactors are of the block type design with 3 main poles.

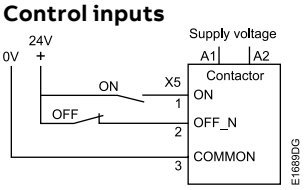
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

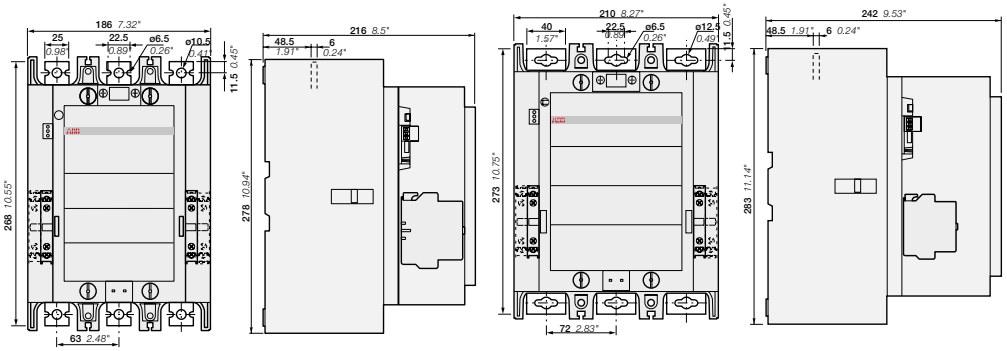
IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
200	600	350	550	-	24...60	2 2	AF400-30-22	1SFL577001R6822 (1)	12.000
				48...130	48...130	2 2	AF400-30-22	1SFL577001R6922	12.000
				100...250	100...250	2 2	AF400-30-22	1SFL577001R7022	12.000
				250...500	250...500	2 2	AF400-30-22	1SFL577001R7122	12.000
250	700	400	650	-	24...60	2 2	AF460-30-22	1SFL597001R6822 (1)	12.000
				48...130	48...130	2 2	AF460-30-22	1SFL597001R6922	12.000
				100...250	100...250	2 2	AF460-30-22	1SFL597001R7022	12.000
				250...500	250...500	2 2	AF460-30-22	1SFL597001R7122	12.000
315	800	500	750	-	24...60	2 2	AF580-30-22	1SFL617001R6822 (1)	15.000
				48...130	48...130	2 2	AF580-30-22	1SFL617001R6922	15.000
				100...250	100...250	2 2	AF580-30-22	1SFL617001R7022	15.000
				250...500	250...500	2 2	AF580-30-22	1SFL617001R7122	15.000
400	1050	600	900	-	24...60	2 2	AF750-30-22	1SFL637001R6822 (1)	15.000
				48...130	48...130	2 2	AF750-30-22	1SFL637001R6922	15.000
				100...250	100...250	2 2	AF750-30-22	1SFL637001R7022	15.000
				250...500	250...500	2 2	AF750-30-22	1SFL637001R7122	15.000

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) Up to 850 V DC for AF580, AF750.

AF400...AF750 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF400, AF460

AF580, AF750

Main dimensions mm, inches

1SFC101014C0201 - Rev. A

AF1250 ... AF2850 3-pole contactors

475 to 560 kW and 1260 to 2850 A AC-1

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts

AF1250-30-22

AF2650-30-22

AF1250 ... AF2050 contactors are mainly used for controlling power circuits up to 1000 V AC or 850 V DC, AF2650 and AF2850 for controlling power up to 1000 V AC. These contactors are of the block type design with 3 main poles.

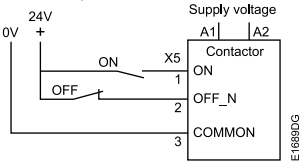
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
- only 4 coils for AF1250 to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
- only 1 coil for AF1350 ... AF2850 to cover control voltages between 100...250 V 50/60 Hz and 100...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc (1)		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC (2)						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
-	1260	-	1210	-	24...60	2 2	AF1250-30-22	1SFL647001R6822 (1)	16.000
				48...130	48...130	2 2	AF1250-30-22	1SFL647001R6922	16.000
				100...250	100...250	2 2	AF1250-30-22	1SFL647001R7022	16.000
				250...500	250...500	2 2	AF1250-30-22	1SFL647001R7122	16.000
475	1350	800	1350	100...250	100...250	2 2	AF1350-30-22	1SFL657001R7022	34.000
560	1650	900	1650	100...250	100...250	2 2	AF1650-30-22	1SFL677001R7022	35.000
-	2050	-	2100	100...250	100...250	2 2	AF2050-30-22	1SFL707001R7022	35.000
-	2650	-	2700	100...250	100...250	2 2	AF2650-30-22	1SFL667001R7022	45.000
-	2850	-	2850	100...250	100...250	2 2	AF2850-30-22	1SFL687001R7022	45.000

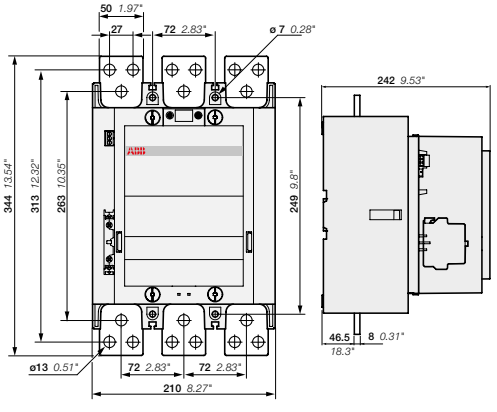
(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) AF2650 : Maximum operational voltage = 1000 V according to UL / CSA.

AF1250 ... AF2850 are equipped with low voltage inputs for control, for example by a PLC.

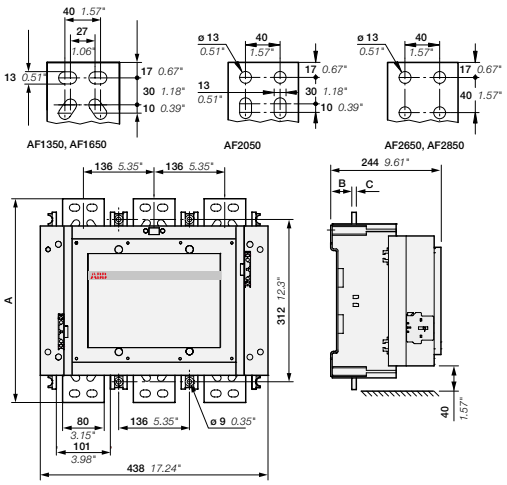
Control inputs



	AF1350, AF1650, AF2050	AF2650, AF2850
A	392 mm / 15.43"	422 mm / 16.61"
B	47 mm / 1.85"	53 mm / 2.11"
C	10 mm / 0.39"	25 mm / 0.98"



AF1250



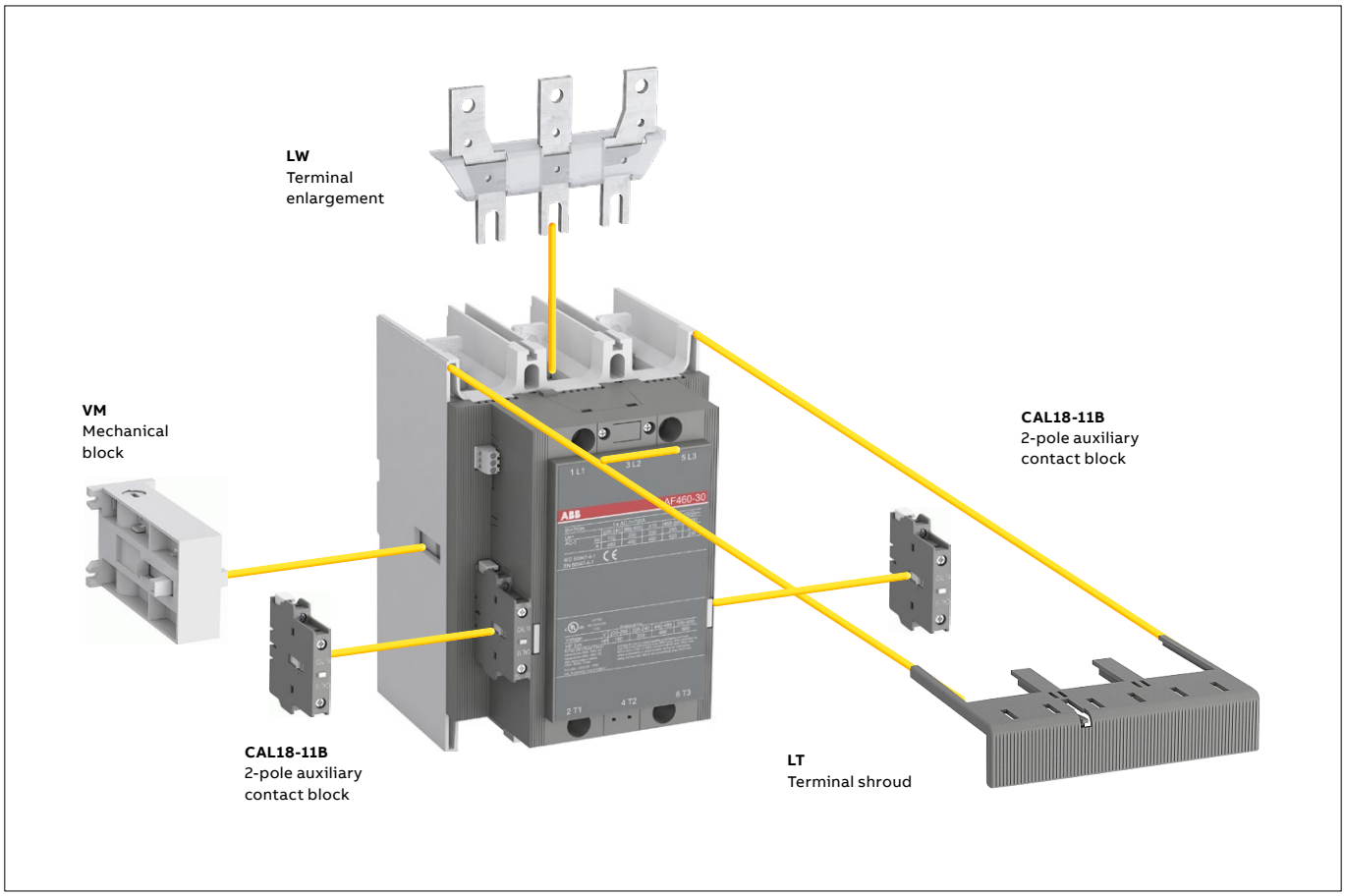
AF1350, AF1650, AF2050, AF2650, AF2850

Main dimensions mm, inches

1SFC101095C0201 - Rev. A

AF400... AF2850 3-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks CAL18-11	CAL18-11B (2)	Mechanical interlock units (between two contactors)
Contactors + auxiliary contact blocks					
AF145 ... AF2850	3	0 2 2	2 x CAL18-11 included	2 x CAL18-11B	–
Contactors with mechanical interlocking + auxiliary contact blocks					
AF400 ... AF2850	3	0 2 2	2 x CAL18-11 included	4 x CAL18-11B	+ VM...H (1)

(1) Interlock type, according to the contactor ratings (see "Accessories").
(2) The CEL18-.. auxiliary contact blocks can replace the CAL18-11 and CAL18-11B. Though, no auxiliary contact block can be mounted outside the CEL18-..

Overload relays fitting details

Contactor types	Thermal overload relays	Electronic overload relays
AF400, AF460	–	EF460 (150...500 A) (3)
AF580, AF750	–	EF750 (250...800 A) (3)
AF1350, AF1650	–	E1250DU (375...1250 A) (3)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.
(3) Mounting kit required (see "Motor protection").

1SFC101127C0201 - Rev. A

AF09 ... AF38 3-pole contactors

Technical data

Main pole - Utilization characteristics according to IEC

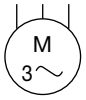
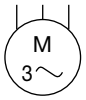
Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1					
Rated operational voltage Ue max.		690 V					
Rated frequency (without derating)		50 / 60 Hz					
Conventional free-air thermal current Ith							
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		35 A	35 A	35 A	50 A	50 A	50 A
With conductor cross-sectional area		6 mm²	6 mm²	6 mm²	10 mm²	10 mm²	10 mm²
AC-1 Utilization category							
For air temperature close to contactor							
Ie / Rated operational current AC-1	θ ≤ 40 °C	25 A	28 A	30 A	45 A	50 A	50 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 60 °C	25 A	28 A	30 A	40 A	42 A	42 A
	θ ≤ 70 °C	22 A	24 A	26 A	32 A	37 A	37 A
With conductor cross-sectional area		4 mm²	6 mm²	6 mm²	10 mm²	10 mm²	10 mm²
AC-3, AC-3e Utilization category							
For air temperature close to contactor θ ≤ 60 °C							
Ie / Max. rated operational current AC-3, AC-3e (1)							
3-phase motors	220-230-240 V	9 A	12 A	18 A	26 A	33 A	40 A
	380-400 V	9 A	12 A	18 A	26 A	32 A	38 A
	415 V	9 A	12 A	18 A	26 A	32 A	38 A
	440 V	9 A	12 A	18 A	26 A	32 A	38 A
	500 V	9.5 A	12.5 A	15 A	23 A	28 A	33 A
	690 V	7 A	9 A	10.5 A	17 A	21 A	24 A
Rated operational power AC-3, AC-3e (1)							
1500 r.p.m. 50 Hz	220-230-240 V	2.2 kW	3 kW	4 kW	6.5 kW	9 kW	11 kW
1800 r.p.m. 60 Hz	380-400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW
3-phase motors	415 V	4 kW	5.5 kW	9 kW	11 kW	15 kW	18.5 kW
	440 V	4 kW	5.5 kW	9 kW	15 kW	18.5 kW	22 kW
	500 V	5.5 kW	7.5 kW	9 kW	15 kW	18.5 kW	22 kW
	690 V	5.5 kW	7.5 kW	9 kW	15 kW	18.5 kW	22 kW
Rated making capacity AC-3, AC-3e		10 x Ie AC-3, 12 x Ie AC-3e acc. to IEC 60947-4-1					
Rated breaking capacity AC-3, AC-3e		8 x Ie AC-3, 8.5 x Ie AC-3e acc. to IEC 60947-4-1					
AC-8a Utilization category							
(without thermal overload relay - Ue 400 V 50/60 Hz - θ ≤ 40 °C)							
Ie / Rated operational current AC-8a		12 A	16 A	22 A	30 A	40 A	50 A
Rated operational power AC-8a		5.5 kW	7.5 kW	11 kW	15 kW	20 kW	25 kW
Short-circuit protection device for contactors							
without thermal overload relay - Motor protection excluded (2)							
Ue ≤ 500 V AC - gG type fuse		25 A	32 A	32 A	50 A	63 A	63 A
Rated short-time withstand current Icw	1 s	300 A	300 A	300 A	700 A	700 A	700 A
at 40 °C ambient temperature,	10 s	150 A	150 A	150 A	350 A	350 A	350 A
in free air from a cold state	30 s	80 A	80 A	80 A	225 A	225 A	225 A
	1 min	60 A	60 A	60 A	150 A	150 A	150 A
	15 min	35 A	35 A	35 A	50 A	50 A	50 A
Maximum breaking capacity							
cos ϕ = 0.45	at 440 V	250 A	250 A	250 A	500 A	500 A	500 A
	at 690 V	106 A	106 A	106 A	200 A	200 A	200 A
Power dissipation per pole	Ie / AC-1	0.8 W	1 W	1.2 W	1.8 W	2.4 W	2.4 W
	Ie / AC-3, AC-3e	0.1 W	0.2 W	0.35 W	0.6 W	0.9 W	1.3 W
Max. electrical switching frequency	AC-1	600 cycles/h					
	AC-3, AC-3e	1200 cycles/h					
	AC-2, AC-4	300 cycles/h			150 cycles/h		

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".

1SBC101425S0201

AF40 ... AF96 3-pole contactors
Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1				
Rated operational voltage Ue max.		690 V			1000 V	
Rated frequency (without derating)		50 / 60 Hz				
Conventional free-air thermal current Ith						
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		105 A	105 A	105 A	130 A	130 A
With conductor cross-sectional area		35 mm²	35 mm²	35 mm²	50 mm²	50 mm²
AC-1 Utilization category						
For air temperature close to contactor						
Ie / Rated operational current AC-1	θ ≤ 40 °C	70 A	100 A	105 A	125 A	130 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 60 °C	60 A	80 A	90 A	100 A	105 A
	θ ≤ 70 °C	50 A	70 A	80 A	85 A	90 A
With conductor cross-sectional area		25 mm²	35 mm²	35 mm²	50 mm²	50 mm²
AC-3, AC-3e Utilization category						
For air temperature close to contactor θ ≤ 60 °C						
Ie / Max. rated operational current AC-3, AC-3e (1)						
AC-3e Ue ≤ 690 V	220-230-240 V	40 A	53 A	65 A	80 A	96 A
	380-400 V	40 A	53 A	65 A	80 A	96 A
 3-phase motors	415 V	40 A	53 A	65 A	80 A	96 A
	440 V	40 A	53 A	65 A	80 A	96 A
	500 V	35 A	45 A	55 A	65 A	80 A
	690 V	25 A	35 A	39 A	49 A	57 A
	1000 V	-	-	-	25 A	30A
Rated operational power AC-3, AC-3e (1)						
AC-3e Ue ≤ 690 V	220-230-240 V	11 kW	15 kW	18.5 kW	22 kW	25 kW
	380-400 V	18.5 kW	22 kW	30 kW	37 kW	45 kW
 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	415 V	22 kW	30 kW	37 kW	45 kW	55 kW
	440 V	22 kW	30 kW	37 kW	45 kW	55 kW
	500 V	22 kW	30 kW	37 kW	45 kW	55 kW
	690 V	22 kW	30 kW	37 kW	45 kW	55 kW
	1000 V	-	-	-	35 kW	40 kW
Rated making capacity AC-3, AC-3e		10 x Ie AC-3, 12 x Ie AC-3e acc. to IEC 60947-4-1				
Rated breaking capacity AC-3, AC-3e		8 x Ie AC-3, 8.5 x Ie AC-3e acc. to IEC 60947-4-1				
AC-8a Utilization category						
(without thermal overload relay						
Ue 400 V 50/60 Hz - θ ≤ 40 °C)						
Ie / Rated operational current AC-8a		53 A	70 A	85 A	105 A	120 A
Rated operational power AC-8a		25 kW	37 kW	45 kW	55 kW	65 kW
Short-circuit protection device for contactors						
without thermal overload relay - Motor protection excluded (2)						
Ue ≤ 500 V AC - gG type fuse		100 A	125 A	160 A	160 A	200 A
Rated short-time withstand current Icw	1 s	1000 A	1000 A	1000 A	1200 A	1200 A
at 40 °C ambient temperature,	10 s	600 A	600 A	600 A	780 A	780 A
in free air from a cold state	30 s	350 A	350 A	350 A	450 A	450 A
	1 min	250 A	250 A	250 A	300 A	300 A
	15 min	110 A	110 A	110 A	140 A	140 A
Maximum breaking capacity						
cos ϕ = 0.45	at 440 V	950 A	950 A	950 A	1150 A	1150 A
	at 690 V	600 A	600 A	600 A	750 A	750 A
Power dissipation per pole	Ie / AC-1	3 W	6.3 W	7 W	7.6 W	8.2 W
	Ie / AC-3, AC-3e	1 W	1.7 W	2.7 W	3 W	4.5 W
Max. electrical switching frequency	AC-1	600 cycles/h				
	AC-3, AC-3e	1200 cycles/h				
	AC-2, AC-4	150 cycles/h				

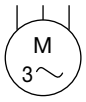
(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".

1SBC101743S0201 - Rev. B

AF116 ... AF370 3-pole contactors

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1							
Rated operational voltage Ue max.		690 V	690 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated frequency (without derating)		50 / 60 Hz							
Conventional free-air thermal current Ith									
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		160 A	200 A	225 A	275 A	350 A	400 A	500 A	600 A
With conductor cross-sectional area		70 mm²	95 mm²	95 mm²	150 mm²	240 mm² (3)	240 mm²	300 mm² (4)	2 x 185 mm² (4)
AC-1 Utilization category									
For air temperature close to contactor									
Ie / Rated operational current AC-1	θ ≤ 40 °C	160 A	200 A	225 A	275 A	350 A	400 A	500 A	600 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 60 °C	145 A	175 A	200 A	250 A	300 A	350 A	400 A	500 A
	θ ≤ 70 °C	130 A	160 A	175 A	200 A	240 A	290 A	325 A	400 A
Ie / Rated operational current AC-1	θ ≤ 40 °C	–	–	225 A	250 A	275 A	350 A	375 A	400 A
Ue max. ≤ 1000 V, 50/60 Hz	θ ≤ 60 °C	–	–	200 A	225 A	250 A	300 A	325 A	350 A
	θ ≤ 70 °C	–	–	175 A	185 A	200 A	240 A	260 A	290 A
With conductor cross-sectional area		70 mm²	95 mm²	95 mm²	150 mm²	240 mm² (3)	240 mm²	300 mm² (4)	2 x 185 mm² (4)
AC-3 Utilization category									
For air temperature close to contactor θ ≤ 60 °C									
Ie / Max. rated operational current AC-3 (1)									
	220-230-240 V	116 A	140 A	146 A	190 A	205 A	265 A	305 A	370 A
	380-400 V	116 A	140 A	146 A	190 A	205 A	265 A	305 A	370 A
 3-phase motors	415 V	116 A	140 A	146 A	190 A	205 A	265 A	305 A	370 A
	440 V	116 A	140 A	146 A	190 A	205 A	265 A	305 A	370 A
	500 V	110 A	130 A	130 A	156 A	186 A	250 A	290 A	350 A
	690 V	65 A	80 A	93 A	135 A	165 A	250 A	290 A	315 A
	1000 V	–	–	60 A	85 A	100 A	113 A	131 A	141 A
Rated operational power AC-3 (1)									
	220-230-240 V	30 kW	37 kW	45 kW	55 kW	55 kW	75 kW	90 kW	110 kW
	380-400 V	55 kW	75 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW
 1500 r.p.m. 50 Hz	415 V	55 kW	75 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW
1800 r.p.m. 60 Hz	440 V	75 kW	90 kW	90 kW	110 kW	132 kW	160 kW	160 kW	200 kW
3-phase motors	500 V	75 kW	90 kW	90 kW	110 kW	132 kW	160 kW	200 kW	250 kW
	690 V	55 kW	75 kW	90 kW	132 kW	160 kW	200 kW	250 kW	315 kW
	1000 V	–	–	75 kW	110 kW	132 kW	160 kW	185 kW	200 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1							
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1							
Short-circuit protection device for contactors									
without thermal overload relay - Motor protection excluded (2)									
Ue ≤ 500 V AC - gG type fuse		250 A	315 A	315 A	355 A	400 A	500 A	500 A	630 A
Rated short-time withstand current Icw	1 s	1300 A	1460 A	1460 A	1900 A	2050 A	2650 A	3050 A	3700 A
at 40 °C ambient temperature,	10 s	928 A	1168 A	1168 A	1520 A	1640 A	2120 A	2440 A	2960 A
in free air from a cold state	30 s	536 A	674 A	674 A	878 A	947 A	1224 A	1409 A	1709 A
	1 min	379 A	477 A	477 A	621 A	670 A	865 A	996 A	1208 A
	15 min	160 A	200 A	225 A	275 A	350 A	400 A	500 A	600 A
Maximum breaking capacity									
cos ϕ = 0.45	at 440 V	2000 A	3000 A	3000 A	3300 A	3500 A	3800 A	4600 A	5000 A
(cos ϕ = 0.35 for Ie > 100 A)	at 690 V	1000 A	1500 A	1500 A	2200 A	2500 A	3300 A	3800 A	4000 A
Power dissipation per pole	Ie / AC-1	12 W	18 W	23 W	15 W	25 W	32 W	50 W	72 W
	Ie / AC-3	6 W	9 W	10 W	7 W	8 W	14 W	19 W	27 W
Maximum electrical switching frequency	AC-1	300 cycles/h							
	AC-3	300 cycles/h							
	AC-2, AC-4	150 cycles/h							

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
For AC-3e utilization category, please consult your ABB local sales organization.
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".
(3) For currents above 275A use terminal enlargements or terminal extensions.
(4) For currents above 450A use terminal enlargements or terminal extensions.

1SFC101108C0201 - Rev. A

AF400 ... AF750 3-pole contactors

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1			
Rated operational voltage Ue max.		1000 V			
Rated frequency (without derating)		50/60 Hz			
Conventional free-air thermal current Ith					
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		600 A	700 A	800 A	1050 A
With conductor cross-sectional area (3)		2x185 mm²	2x240 mm²	2x240 mm²	800 mm² (4)
AC-1 Utilization category					
For air temperature close to contactor					
Ie / Rated operational current AC-1	θ ≤ 40 °C	600 A	700 A	800 A	1050 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 55 °C	500 A	600 A	700 A	875 A
	θ ≤ 70 °C	400 A	480 A	580 A	720 A
Ie / Rated operational current AC-1	θ ≤ 40 °C	600 A	700 A	800 A	1000 A
Ue max. ≤ 1000 V, 50/60 Hz	θ ≤ 55 °C	500 A	600 A	700 A	875 A
	θ ≤ 70 °C	400 A	480 A	580 A	720 A
With conductor cross-sectional area		2x185 mm²	2x240 mm²	2x240 mm²	800 mm² (4)
AC-3 Utilization category					
For air temperature close to contactor θ ≤ 55 °C					
Ie / Max. rated operational current AC-3 (1)					
	220-230-240 V	400 A	460 A	580 A	750 A
	380-400 V	400 A	460 A	580 A	750 A
M 3~ 3-phase motors	415 V	400 A	460 A	580 A	750 A
	440 V	400 A	460 A	580 A	750 A
	500 V	400 A	460 A	580 A	750 A
	690 V	350 A	400 A	500 A	650 A
	1000 V	155 A	200 A	250 A	300 A
Rated operational power AC-3 (1)					
	220-230-240 V	110 kW	132 kW	160 kW	220 kW
	380-400 V	200 kW	250 kW	315 kW	400 kW
M 3~ 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	415 V	220 kW	250 kW	355 kW	425 kW
	440 V	220 kW	250 kW	355 kW	450 kW
	500 V	250 kW	315 kW	400 kW	520 kW
	690 V	315 kW	355 kW	500 kW	600 kW
	1000 V	220 kW	280 kW	355 kW	400 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1			
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1			
Short-circuit protection device for contactors without thermal overload relay Motor protection excluded (2)					
Ue ≤ 500 V AC - gG type fuse		630 A	800 A	1000 A	1000 A
Rated short-time withstand current Icw	1 s	4600 A	4600 A	7000 A	7000 A
at 40 °C ambient temperature,	10 s	4400 A	4400 A	6400 A	6400 A
in free air from a cold state	30 s	3100 A	3100 A	4500 A	4500 A
	1 min	2500 A	2500 A	3500 A	3500 A
	15 min	840 A	840 A	1300 A	1300 A
Maximum breaking capacity					
cos ϕ = 0.45	at 440 V	4000 A	5000 A	6000 A	7500 A
(cos ϕ = 0.35 for Ie > 100 A)	at 690 V	3500 A	4500 A	5000 A	7000 A
Power dissipation per pole	Ie / AC-1	30 W	42 W	32 W	50 W
	Ie / AC-3	16 W	21 W	17 W	28 W
Max. electrical switching frequency	AC-1	300 cycles/h		300 cycles/h	
	AC-3	300 cycles/h		300 cycles/h	
	AC-2, AC-4	60 cycles/h		60 cycles/h	

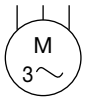
(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents". For AC-3e utilization category, please consult your ABB local sales organization.
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".
(3) Conductors with preparation.
(4) Max. connection bar width 50 mm.
(5) Max. connection bar width 100 mm.

1SFC101110C0201 - Rev. E

AF1250 ... AF2850 3-pole contactors

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1					
Rated operational voltage Ue max.		1000 V					
Rated frequency (without derating)		50/60 Hz					
Conventional free-air thermal current Ith							
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		1260 A	1350 A	1650 A	2050 A	2650 A	2850 A
With conductor cross-sectional area (3)		1000 mm² (4)	1000 mm² (5)	1500 mm² (5)	2000 mm² (5)	3000 mm² (5)	3000 mm² (5)
AC-1 Utilization category							
For air temperature close to contactor							
Ie / Rated operational current AC-1	θ ≤ 40 °C	1260 A	1350 A	1650 A	2050 A	2650 A	2850 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 55 °C	1040 A	1150 A	1450 A	1750 A	2350 A	2600 A
	θ ≤ 70 °C	875 A	1000 A	1270 A	1500 A	2120 A	2300 A
Ie / Rated operational current AC-1	θ ≤ 40 °C	1260 A	1350 A	1650 A	2050 A	2650 A	2850 A
Ue max. ≤ 1000 V, 50/60 Hz	θ ≤ 55 °C	1040 A	1150 A	1450 A	1750 A	2350 A	2600 A
	θ ≤ 70 °C	875 A	1000 A	1270 A	1500 A	2120 A	2300 A
With conductor cross-sectional area		1000 mm² (4)	1000 mm² (5)	1500 mm² (5)	2000 mm² (5)	3000 mm² (5)	3000 mm² (5)
AC-3 Utilization category							
For air temperature close to contactor θ ≤ 55 °C							
Ie / Max. rated operational current AC-3 (1)							
	220-230-240 V	–	860 A	1060 A	1060 A	–	–
	380-400 V	–	860 A	1060 A	1060 A	–	–
 3-phase motors	415 V	–	860 A	1060 A	1060 A	–	–
	440 V	–	860 A	1060 A	1060 A	–	–
	500 V	–	800 A	970 A	970 A	–	–
	690 V	–	800 A	970 A	970 A	–	–
	1000 V	–	375 A	400 A	425 A	–	–
Rated operational power AC-3 (1)							
	220-230-240 V	–	257 kW	315 kW	–	–	–
	380-400 V	–	475 kW	560 kW	–	–	–
 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	415 V	–	500 kW	630 kW	630 kW	–	–
	440 V	–	560 kW	710 kW	710 kW	–	–
	500 V	–	560 kW	710 kW	–	–	–
	690 V	–	800 kW	1000 kW	1000 kW	–	–
	1000 V	–	560 kW	600 kW	630 kW	–	–
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1					
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1					
Short-circuit protection device for contactors without thermal overload relay Motor protection excluded (2) Ue ≤ 500 V AC - gG type fuse		Please consult us for coordination with circuit-breaker					
Rated short-time withstand current Icw	1 s	8000 A	10000 A	12000 A	12000 A	12000 A	12000 A
at 40 °C ambient temperature,	10 s	7200 A	8000 A	10000 A	10000 A	10000 A	10000 A
in free air from a cold state	30 s	5200 A	6000 A	7500 A	7500 A	7500 A	7500 A
	1 min	4000 A	4500 A	5500 A	5500 A	5500 A	5500 A
	15 min	1500 A	1600 A	2200 A	2200 A	2800 A	3000 A
Maximum breaking capacity							
cos ϕ = 0.45	at 440 V	7500 A	10000 A	12000 A	8400 A	8400 A	8400 A
(cos ϕ = 0.35 for Ie > 100 A)	at 690 V	7000 A	–	–	–	–	–
Power dissipation per pole	Ie / AC-1	80 W	80 W	80 W	125 W	200 W	200 W
	Ie / AC-3	–	50 W	50 W	–	–	–
Max. electrical switching frequency	AC-1	300 cycles/h	60 cycles/h		60 cycles/h	15 cycles/h	15 cycles/h
	AC-3	–	60 cycles/h		–	–	–
	AC-2, AC-4	–	60 cycles/h		–	–	–

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
For AC-3e utilization category, please consult your ABB local sales organization.
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".
(3) Conductors with preparation.
(4) Max. connection bar width 50 mm.
(5) Max. connection bar width 100 mm.

1SFC101110C0201 - Rev. E

AF09 ... AF38 3-pole contactors
Technical data

Main pole - Utilization characteristics according to UL / NEMA / CSA

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Standards		UL 508, CSA C22.2 N°60947-4-1					
Maximum operational voltage		600 V					
NEMA size		00	0	–	1	–	–
NEMA continuous amp rating	Thermal current	9 A	18 A		27 A		
NEMA maximum horse power ratings							
1-phase, 60 Hz	115 V AC	1/3 hp	1 hp		2 hp		
	230 V AC	1 hp	2 hp		3 hp		
NEMA maximum horse power ratings							
3-phase, 60 Hz	200 V AC	1-1/2 hp	3 hp		7-1/2 hp		
	230 V AC	1-1/2 hp	3 hp		7-1/2 hp		
	460 V AC	2 hp	5 hp		10 hp		
	575 V AC	2 hp	5 hp		10 hp		
UL / CSA general use rating							
	600 V AC	25 A	28 A	30 A	45 A	50 A	50 A
With conductor cross-sectional area		AWG 10	AWG 10	AWG 10	AWG 8	AWG 8	AWG 8
1 pole	80 V DC	25 A	28 A	30 A	45 A	50 A	50 A
2 poles in serie	160 V DC	25 A	28 A	30 A	45 A	50 A	50 A
3 poles in serie	240 V DC	25 A	28 A	30 A	45 A	50 A	50 A
With conductor cross-sectional area		AWG 10	AWG 10	AWG 10	AWG 8	AWG 8	AWG 8
UL / CSA maximum 1-phase motor rating							
Full load current	120 V AC	13.8 A	16 A	20 A	24 A	24 A	24 A
	240 V AC	10 A	12 A	17 A	17 A	28 A	28 A
Horse power rating	120 V AC	3/4 hp	1 hp	1-1/2 hp	2 hp	2 hp	2 hp
	240 V AC	1-1/2 hp	2 hp	3 hp	3 hp	5 hp	5 hp
UL / CSA maximum 3-phase motor rating							
Full load current (1)	200-208 V AC	7.8 A	11 A	17.5 A	25.3 A	32.2 A	32.2 A
	220-240 V AC	6.8 A	9.6 A	15.2 A	22 A	28 A	28 A
	440-480 V AC	7.6 A	11 A	14 A	21 A	27 A	34 A (3)
	550-600 V AC	9 A	11 A	17 A	22 A	27 A (2)	32 A (3)
Horse power rating (1)	200-208 V AC	2 hp	3 hp	5 hp	7-1/2 hp	10 hp	10 hp
	220-240 V AC	2 hp	3 hp	5 hp	7-1/2 hp	10 hp	10 hp
	440-480 V AC	5 hp	7-1/2 hp	10 hp	15 hp	20 hp	25 hp (3)
	550-600 V AC	7-1/2 hp	10 hp	15 hp	20 hp	25 hp (2)	30 hp (3)
UL / CSA - DC motor starting - 3 poles in series							
Full Load Amps (FLA)	125 V DC	9.5 A	13.2 A	17 A	25 A	25 A	25 A
	250 V DC	8.5 A	12.2 A	12.2 A	20 A	29 A	29 A
Horse power rating	125 V DC	1 hp	1-1/2 hp	2 hp	3 hp	3 hp	3 hp
	250 V DC	2 hp	3 hp	3 hp	5 hp	7-1/2 hp	7-1/2 hp
Short-circuit protection device for contactors							
without thermal overload relay - Motor protection excluded							
High fault current		100 kA					
Fuse rating		30 A	30 A	60 A	60 A	100 A	100 A
Fuse type, 600 V		J					
Max. electrical switching frequency							
For general use		600 cycles/h					
For motor use		1200 cycles/h					

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see “Motor rated operational powers and currents”.
(2) For contactors produced since week 49-2011.
(3) For contactors produced since week 36-2014.

1SBC101426S0201 - Rev. C

AF40 ... AF96 3-pole contactors
Technical data

Main pole - Utilization characteristics according to UL / NEMA / CSA

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Standards		UL 60947-4-1, CSA C22.2 N°60947-4-1				
Maximum operational voltage		600 V				
NEMA size		2	-	-	3	-
NEMA continuous amp rating	Thermal current	45 A	-	-	90 A	-
NEMA maximum horse power ratings						
1-phase, 60 Hz	115 V AC	3 hp	-	-	-	-
	230 V AC	7.5 hp	-	-	-	-
NEMA maximum horse power ratings						
3-phase, 60 Hz	200 V AC	10 hp	-	-	25 hp	-
	230 V AC	15 hp	-	-	30 hp	-
	460 V AC	25 hp	-	-	50 hp	-
	575 V AC	25 hp	-	-	50 hp	-
UL / CSA general use rating						
	600 V AC	60 A	80 A	90 A	105 A	115 A
With conductor cross-sectional area		AWG 6	AWG 4	AWG 3	AWG 2	AWG 2
1 pole	80 V DC	60 A	80 A	90 A	105 A	115 A
2 poles in serie	160 V DC	60 A	80 A	90 A	105 A	115 A
3 poles in serie	240 V DC	60 A	80 A	90 A	105 A	115 A
With conductor cross-sectional area		AWG 6	AWG 4	AWG 3	AWG 2	AWG 2
UL / CSA maximum 1-phase motor rating						
Full load current	120 V AC	34 A	34 A	56 A	80 A	80 A
	240 V AC	40 A	50 A	68 A	68 A	88 A
Horse power rating	120 V AC	3 hp	3 hp	5 hp	7-1/2 hp	7-1/2 hp
	240 V AC	7-1/2 hp	10 hp	15 hp	15 hp	20 hp
UL / CSA maximum 3-phase motor rating						
Full load current (1)	200-208 V AC	32.2 A	48.3 A	62.1 A	78.2 A	92 A
	220-240 V AC	42 A	54 A	68 A	80 A	80 A
	440-480 V AC	40 A	52 A	65 A	77 A	77 A
	550-600 V AC	41 A	52 A	62 A	77 A	77 A
Horse power rating (1)	200-208 V AC	10 hp	15 hp	20 hp	25 hp	30 hp
	220-240 V AC	15 hp	20 hp	25 hp	30 hp	30 hp
	440-480 V AC	30 hp	40 hp	50 hp	60 hp	60 hp
	550-600 V AC	40 hp	50 hp	60 hp	75 hp	75 hp
UL / CSA - DC motor starting - 3 poles in series						
Full Load Amps (FLA)	125 V DC	40 A	58 A	76 A	76 A	110 A
	250 V DC	38 A	55 A	72 A	89 A	106 A
Horse power rating	125 V DC	5 hp	7-1/2 hp	10 hp	10 hp	15 hp
	250 V DC	10 hp	15 hp	20 hp	25 hp	30 hp
Short-circuit protection device for contactors without thermal overload relay - Motor protection excluded						
High fault current		100 kA				
Fuse rating		150 A	150 A	150 A	200 A	200 A
Fuse type, 600 V		J				
Maximum electrical switching frequency						
For general use		600 cycles/h				
For motor use		1200 cycles/h				

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".

1SBC101744S0201 - Rev. B

AF116 ... AF370 3-pole contactors

Technical data

Main pole - Utilization characteristics according to UL / NEMA / CSA

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Standards		UL 60947-1 / 60947-4-1A and CSA 60947-1 / 60947-4-1A							
Maximum operational voltage		600V							
NEMA size		–	4	–	–	–	5	–	–
NEMA continuous amp rating	Thermal current	–	135 A	–	–	–	270 A	–	–
NEMA maximum horse power ratings									
1-phase, 60 Hz	115 V AC	–	–	–	–	–	–	–	–
	230 V AC	–	–	–	–	–	–	–	–
NEMA maximum horse power ratings									
3-phase, 60 Hz	200 V AC	–	40 hp	–	–	–	75 hp	–	–
	230 V AC	–	50hp	–	–	–	100 hp	–	–
	460 V AC	–	100 hp	–	–	–	200 hp	–	–
	575 V AC	–	100 hp	–	–	–	200 hp	–	–
UL / CSA general use rating									
600 V AC		160 A	200 A	200 A	250 A	300 A	350 A	400 A	520 A
With conductor cross-sectional area		AWG 2/0	AWG 3/0	AWG 3/0	MCM 250	MCM 350 (2)	MCM 500	2//AWG 3/0	2//MCM 300
UL / CSA maximum 1-phase motor rating									
Full load current	120 V AC	–	–	–	–	–	–	–	–
	240 V AC	–	–	–	–	–	–	–	–
Horse power rating	120 V AC	–	–	–	–	–	–	–	–
	240 V AC	–	–	–	–	–	–	–	–
UL / CSA maximum 3-phase motor rating									
Full load current (1)	200-208 V AC	92 A	120 A	120 A	150 A	177 A	221 A	285 A	359 A
	220-240 V AC	104 A	130 A	130 A	154 A	192 A	248 A	312 A	360 A
	440-480 V AC	96 A	124 A	124 A	156 A	180 A	240 A	302 A	361 A
	550-600 V AC	99 A	125 A	125 A	144 A	192 A	242 A	289 A	336 A
Horse power rating (1)	200-208 V AC	30 hp	40 hp	40 hp	50 hp	60 hp	75 hp	100 hp	125 hp
	220-240 V AC	40 hp	50 hp	50 hp	60 hp	75 hp	100 hp	125 hp	150 hp
	440-480 V AC	75 hp	100 hp	100 hp	125 hp	150 hp	200 hp	250 hp	300 hp
	550-600 V AC	100 hp	125 hp	125 hp	150 hp	200 hp	250 hp	300 hp	350 hp
Short-circuit protection device for contactors without thermal overload relay - Motor protection excluded									
High fault current		100 kA							
Fuse rating		225 A	250 A	250 A	450 A	400 A	500 A	600 A	800 A
Fuse type, 600 V		J							
Maximum electrical switching frequency									
For general use		300 cycles/h							
For motor use		300 cycles/h							

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
(2) For conductor cross-sectional area above MCM 300 use terminal enlargements LW205.

1SFC101109C0201 - Rev. B

AF400 ... AF750 3-pole contactors

Technical data

Main pole - Utilization characteristics according to UL / NEMA / CSA

Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Standards		UL 60947-1 / 60947-4-1 and CSA C 22.2 N°60947-1 / 60947-4-1			
Maximum operational voltage		1000 V			
NEMA size		–	6	–	7
NEMA maximum horse power ratings					
1-phase, 60 Hz	115 V AC	–			
	230 V AC	–			
NEMA maximum horse power ratings					
3-phase, 60 Hz	200 V AC	–	150 hp	–	–
	230 V AC	–	200 hp	–	300 hp
	460 V AC	–	400 hp	–	600 hp
	575 V AC	–	400 hp	–	600 hp
UL / CSA general use rating					
1000 V AC		550 A	650 A	750 A	900 A
3 poles in serie	600 V DC	550 A	650 A	750 A	900 A
UL / CSA maximum 1-phase motor rating					
Full load current	120 V AC	–	–	–	–
	240 V AC	–	–	–	–
Horse power rating	120 V AC	–	–	–	–
	240 V AC	–	–	–	–
UL / CSA maximum 3-phase motor rating					
Full load current (1)	200-208 V AC	358.8 A	414 A	552 A	692.3 A
	220-240 V AC	360 A	480 A	604 A	722 A
	440-480 V AC	414 A	477 A	590 A	722 A
	550-600 V AC	382 A	472 A	578 A	672 A
Horse power rating (1)	200-208 V AC	125 hp	150 hp	200 hp	250 hp
	220-240 V AC	150 hp	200 hp	250 hp	300 hp
	440-480 V AC	350 hp	400 hp	500 hp	600 hp
	550-600 V AC	400 hp	500 hp	600 hp	700 hp
Short-circuit protection device for contactors without thermal overload relay - Motor protection excluded					
Fuse rating		1000 A		1200 A	
Fuse type, 600 V		L			
Maximum electrical switching frequency					
For general use		300 cycles/h			
For motor use		300 cycles/h			

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see “Motor rated operational powers and currents”.

1SFC101111C0201 - Rev. G

AF1250 ... AF2850 3-pole contactors

Technical data

Main pole - Utilization characteristics according to UL / NEMA / CSA

Contactor types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Standards		UL 60947-1 / 60947-4-1 and CSA C 22.2 N°60947-1 / 60947-4-1					
Maximum operational voltage		1000 V					
NEMA size		–	–	8	–	–	–
NEMA maximum horse power ratings							
1-phase, 60 Hz	115 V AC	–					
	230 V AC	–					
NEMA maximum horse power ratings							
3-phase, 60 Hz	200 V AC	–	–	–	–	–	–
	230 V AC	300 hp	–	450 hp	–	–	–
	460 V AC	600 hp	–	900 hp	–	–	–
	575 V AC	600 hp	–	900 hp	–	–	–
UL / CSA general use rating							
1000 V AC		1210 A	1350 A	1650 A	2100 A	2700 A	2850 A
3 poles in serie	600 V DC	1210 A	–	–	–	–	–
UL / CSA maximum 1-phase motor rating							
Full load current	120 V AC	–	–	–	–	–	–
	240 V AC	–	–	–	–	–	–
Horse power rating	120 V AC	–	–	–	–	–	–
	240 V AC	–	–	–	–	–	–
UL / CSA maximum 3-phase motor rating							
Full load current (1)	200-208 V AC	–	954 A	1030 A	–	–	–
	220-240 V AC	–	954 A	1030 A	–	–	–
	440-480 V AC	–	954 A	1030 A	–	–	–
	550-600 V AC	–	944 A	1050 A	–	–	–
Horse power rating (1)	200-208 V AC	–	–	–	–	–	–
	220-240 V AC	–	400 hp	450 hp	–	–	–
	440-480 V AC	–	800 hp	900 hp	–	–	–
	550-600 V AC	–	1000 hp	1150 hp	–	–	–
Short-circuit protection device for contactors without thermal overload relay - Motor protection excluded							
Fuse rating		1200 A	Please consult us for coordination with circuit-breaker				
Fuse type, 600 V		L					
Maximum electrical switching frequency							
For general use		300 cycles/h	60 cycles/h			15 cycles/h	15 cycles/h
For motor use		300 cycles/h	60 cycles/h			–	–

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see “Motor rated operational powers and currents”.

AF09 ... AF96 3-pole contactors

Technical data

Main pole utilization characteristics - 3 N.O. non-reversing contactors

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
HVAC application - UL / CSA												
Definite purpose heating rating - 3-phase												
Full Load Amps (FLA)		20 A	25 A	30 A	45 A	50 A	50 A	60 A	80 A	90 A	105 A	115 A
Locked Rotor Amps (LRA)	200-208 V AC	120 A	150 A	180 A	270 A	300 A	300 A	360 A	480 A	540 A	630 A	690 A
	220-240 V AC	120 A	150 A	180 A	270 A	300 A	300 A	360 A	480 A	540 A	630 A	690 A
	440-480 V AC	120 A	150 A	180 A	270 A	300 A	300 A	360 A	480 A	540 A	630 A	690 A
	550-600 V AC	80 A	100 A	120 A	180 A	200 A	200 A	240 A	320 A	360 A	420 A	460 A
Definite purpose air conditioning rating - 3-phase												
Full Load Amps (FLA)		20 A	25 A	30 A	45 A	50 A	50 A	60 A	80 A	90 A	105 A	115 A
Locked Rotor Amps (LRA)	200-208 V AC	120 A	150 A	180 A	270 A	300 A	300 A	360 A	480 A	540 A	630 A	690 A
	220-240 V AC	120 A	150 A	180 A	270 A	300 A	300 A	360 A	480 A	540 A	630 A	690 A
	440-480 V AC	120 A	150 A	180 A	270 A	300 A	300 A	360 A	480 A	540 A	630 A	690 A
	550-600 V AC	80 A	100 A	120 A	180 A	200 A	200 A	240 A	320 A	360 A	420 A	460 A
AC Resistance air heating												
Full Load Amps (FLA)	600 V AC	20 A	25 A	30 A	45 A	50 A	50 A	65 A	80 A	90 A	105 A	115 A
Elevator control, load switching, 500 000 electrical operating cycles acc. to CSA B44.1 / ASME 17.5 paragraph 19.2.1												
1-phase												
Horse power rating	110-120 V AC	1/4 hp	1/3 hp	(1)	1-1/2 hp	2 hp	2 hp	3 hp	3 hp	3 hp	5 hp	5 hp
	220-240 V AC	1/2 hp	3/4 hp	(1)	3 hp	3 hp	5 hp	5 hp	7-1/2 hp	10 hp	10 hp	10 hp
3-phase												
Horse power rating	200-208 V AC	1 hp	2 hp	(1)	5 hp	7-1/2 hp	7-1/2 hp	10 hp	10 hp	15 hp	15 hp	15 hp
	220-240 V AC	1 hp	2 hp	(1)	5 hp	7-1/2 hp	10 hp	10 hp	15 hp	20 hp	20 hp	20 hp
	440-480 V AC	3 hp	5 hp	(1)	15 hp	20 hp	20 hp	25 hp	30 hp	40 hp	40 hp	40 hp
	550-600 V AC	3 hp	5 hp	(1)	15 hp	20 hp	20 hp	30 hp	40 hp	40 hp	50 hp	50 hp
Elevator control, 500 000 mechanical operating cycles, 5 electrical operating cycles acc. to CSA B44.1 / ASME 17.5 paragraph 19.2.2												
1-phase												
Horse power rating	110-120 V AC	3/4 hp	1 hp	1-1/2 hp	2 hp	2 hp	3 hp	3 hp	3 hp	5 hp	7-1/2 hp	7-1/2 hp
	220-240 V AC	1-1/2 hp	2 hp	3 hp	3 hp	5 hp	7.5 hp	7-1/2 hp	7-1/2 hp	10 hp	15 hp	20 hp
3-phase												
Horse power rating	200-208 V AC	2 hp	3 hp	5 hp	7-1/2 hp	10 hp	10 hp	10 hp	15 hp	20 hp	25 hp	30 hp
	220-240 V AC	2 hp	3 hp	5 hp	7-1/2 hp	10 hp	10 hp	15 hp	20 hp	25 hp	30 hp	30 hp
	440-480 V AC	5 hp	7-1/2 hp	10 hp	15 hp	20 hp	25 hp	30 hp	40 hp	50 hp	60 hp	60 hp
	550-600 V AC	7-1/2 hp	10 hp	15 hp	20 hp	25 hp	30 hp	40 hp	50 hp	60 hp	75 hp	75 hp
Lighting application - UL / CSA												
Tungsten lamps												
1-phase per pole	347 V AC	20 A	25 A	30 A	45 A	50 A	50 A	65 A	80 A	90 A	105 A	115 A
3-phase break all lines	600 V AC	20 A	25 A	30 A	45 A	50 A	50 A	65 A	80 A	90 A	105 A	115 A
Electrical discharge lamps (ballast)												
1-phase per pole	347 V AC	20 A	25 A	30 A	45 A	50 A	50 A	65 A	80 A	90 A	105 A	115 A
3-phase break all lines	600 V AC	20 A	25 A	30 A	45 A	50 A	50 A	65 A	80 A	90 A	105 A	115 A

(1) 3-pole AF16 cannot be used. Select 4-pole non-reversing contactor AF16..-40-..

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AF116 ... AF370 3-pole contactors

Technical data

Main pole utilization characteristics - 3 N.O. non-reversing contactors

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
HVAC application - UL / CSA									
Definite purpose heating rating - 3-phase									
Full Load Amps (FLA)		116 A	125 A	160 A	200 A	250 A	300 A	350 A	520 A
Locked Rotor Amps (LRA)	200-208 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
	220-240 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
	440-480 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
	550-600 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
Definite purpose air conditioning rating - 3-phase									
Full Load Amps (FLA)		116 A	125 A	160 A	200 A	250 A	300 A	350 A	520 A
Locked Rotor Amps (LRA)	200-208 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
	220-240 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
	440-480 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
	550-600 V AC	800 A	875 A	1050 A	1400 A	1500 A	2100 A	2450 A	3120 A
AC Resistance air heating									
Full Load Amps (FLA)	600 V AC	160 A	200 A	200 A	250 A	300 A	400 A	450 A	520 A
Elevator control, load switching, 500 000 electrical operating cycles acc. to CSA B44.1 / ASME 17.5 paragraph 19.2.1									
3-phase									
Horse power rating	200-208 V AC	15 hp	15 hp	15 hp	20 hp	30 hp	40 hp	40 hp	50 hp
	220-240 V AC	20 hp	20 hp	20 hp	25 hp	30 hp	40 hp	50 hp	60 hp
	440-480 V AC	40 hp	40 hp	40 hp	60 hp	75 hp	100 hp	100 hp	125 hp
	550-600 V AC	50 hp	50 hp	50 hp	75 hp	100 hp	125 hp	150 hp	150 hp
Elevator control, 500 000 mechanical operating cycles, 5 electrical operating cycles acc. to CSA B44.1 / ASME 17.5. paragraph 19.2.2									
3-phase									
Horse power rating	200-208 V AC	30 hp	40 hp	40 hp	50 hp	60 hp	75 hp	100 hp	125 hp
	220-240 V AC	40 hp	50 hp	50 hp	60 hp	75 hp	100 hp	125 hp	150 hp
	440-480 V AC	75 hp	100 hp	100 hp	125 hp	150 hp	200 hp	250 hp	300 hp
	550-600 V AC	100 hp	125 hp	125 hp	150 hp	200 hp	250 hp	300 hp	350 hp
Lighting application - UL / CSA									
Tungsten lamps									
1-phase per pole	347 V AC	–	–	–	–	–	–	–	–
3-phase break all lines	600 V AC	–	–	–	–	–	–	–	–
Electrical discharge lamps (ballast)									
1-phase per pole	347 V AC	160 A	200 A	200 A	250 A	300 A	400 A	450 A	520 A
3-phase break all lines	600 V AC	160 A	200 A	200 A	250 A	300 A	400 A	450 A	520 A

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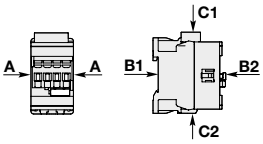
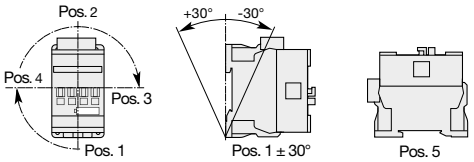
AF09 ... AF38 3-pole contactors
Technical data

General technical data

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Rated insulation voltage Ui							
acc. to IEC 60947-4-1		690 V					
acc. to UL / CSA		600 V					
Rated impulse withstand voltage Uimp.		6 kV					
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A and B (1)					
Ambient air temperature close to contactor							
Operation	Fitted with thermal overload relay	-25...+60 °C					
	Without thermal overload relay	-40...+70 °C					
Storage		-60...+80 °C					
Climatic withstand		Category B according to IEC 60947-1 Annex Q					
Maximum operating altitude (without derating)		3000 m					
Mechanical durability							
Number of operating cycles		10 millions operating cycles					
Max. switching frequency		3600 cycles/h					
Shock withstand							
acc. to IEC 60068-2-27 and EN 60068-2-27							
Mounting position 1							
	Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position					
	A	30 g					
	B1	25 g closed position / 5 g open position					
	B2	15 g					
	C1	25 g					
	C2	25 g					
Vibration withstand		5...300 Hz					
acc. to IEC 60068-2-6		4 g closed position / 2 g open position					

(1) Environment B: all AF09...AF38 produced since week 08.2013.
AF09...AF38-..-..-12 (48 ...130 V 50 / 60 Hz - DC) compliant to environment A only: for environment B, select AF09...AF38Z-..-..-22.

Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Mounting positions							
		Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-pole contactor AF09 ... AF38					
Mounting distances		The contactors can be assembled side by side					
Fixing							
On rail according to IEC 60715, EN 60715		35 x 7.5 mm or 35 x 15 mm					
By screws (not supplied)		2 x M4 screws placed diagonally					

AF09 ... AF38 3-pole contactors
Technical data

Magnet system characteristics for AF09 ... AF38 contactors - AC / DC operated

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Coil operating limits acc. to IEC 60947-4-1	AC supply	At θ ≤ 60 °C 0.85 x Uc min...1.1 x Uc max. At θ ≤ 70 °C 0.85 x Uc min...Uc max.					
	DC supply	At θ ≤ 60 °C 0.85 x Uc min...1.1 x Uc max. At θ ≤ 70 °C 0.85 x Uc min...Uc max.					
AC control voltage 50/60 Hz							
Rated control circuit voltage Uc		24...500 V AC					
Coil consumption	Average pull-in value	50 VA					
	Average holding value	2.2 VA / 2 W					
DC control voltage							
Rated control circuit voltage Uc		20...500 V DC					
Coil consumption	Average pull-in value	50 W					
	Average holding value	2 W					
PLC-output control		Not suitable for direct control by PLC output					
Drop-out voltage		≤ 60 % of Uc min.					
Voltage sag immunity acc. to SEMI F47-0706		–					
Dips withstand -20 °C ≤ θ ≤ +60 °C		–					
Operating time							
Between coil energization and:	N.O. contact closing	40...95 ms					
	N.C. contact opening	38...90 ms					
Between coil de-energization and:	N.O. contact opening	11...95 ms					
	N.C. contact closing	13...98 ms					

Magnet system characteristics for AF09Z ... AF38Z 24 DC operated - designed for PLC - coil 30

Contactor types	DC operated	AF09Z	AF12Z	AF16Z	AF26Z	AF30Z	AF38Z
Coil operating limits acc. to IEC 60947-4-1	DC supply	At θ ≤ 60 °C 0.85...1.1 x Uc At θ ≤ 70 °C Uc					
DC control voltage							
Rated control circuit voltage Uc		24 V DC					
Coil consumption	Average pull-in value	6 W					
	Average holding value	1.7 W					
PLC-output control		≥ 250 mA 24 V DC for PLCs and safety PLCs using broken wire detection					
Drop-out voltage		≤ 60 % of Uc min.					
Operating time							
Between coil energization and:	N.O. contact closing	27...53 ms					
	N.C. contact opening	20...35 ms					
Between coil de-energization and:	N.O. contact opening	17...29 ms					
	N.C. contact closing	22...57 ms					

Magnet system characteristics for AF09Z ... AF38Z for specific applications - coils 20, 21, 22, 23

Contactor types	AC / DC operated	AF09Z	AF12Z	AF16Z	AF26Z	AF30Z	AF38Z
Coil operating limits acc. to IEC 60947-4-1	AC supply	At θ ≤ 60 °C 0.85 x Uc min...1.1 x Uc max. At θ ≤ 70 °C 0.85 x Uc min...Uc max.					
	DC supply	At θ ≤ 70 °C 0.85 x Uc min...1.1 x Uc max.					
AC control voltage							
Rated control circuit voltage Uc		24...250 V AC					
Coil consumption	Average pull-in value	16 VA					
	Average holding value	1.7 VA / 1.5 W					
DC control voltage							
Rated control circuit voltage Uc		12...250 V DC					
Coil consumption	Average pull-in value	12...16 W					
	Average holding value	1.7 W					
PLC-output control		(AF..Z coil 21) ≥ 500 mA 24 V DC for PLCs - not suitable for safety PLCs					
Drop-out voltage		≤ 60 % of Uc min.					
Voltage sag immunity acc. to SEMI F47-0706		(AF..Z coil 21, 22, 23) conditions of use on request					
Dips withstand -20 °C ≤ θ ≤ +60 °C		(AF..Z coil 21, 22, 23) 20 ms average for Uc ≥ 24 V 50/60 Hz or Uc ≥ 20 V DC					
Operating time							
Between coil energization and:	N.O. contact closing	40...95 ms					
	N.C. contact opening	38...90 ms					
Between coil de-energization and:	N.O. contact opening	11...95 ms					
	N.C. contact closing	13...98 ms					

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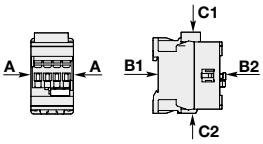
AF40 ... AF96 3-pole contactors

Technical data

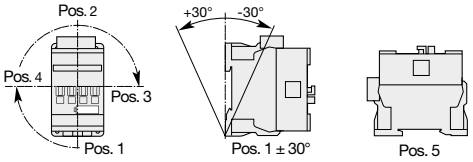
General technical data

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Rated insulation voltage Ui						
acc. to IEC 60947-4-1		690 V			1000 V	
acc. to UL / CSA		600 V				
Rated impulse withstand voltage Uimp.		6 kV			8 kV	
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A and B (1)				
Ambient air temperature close to contactor						
Operation Fitted with thermal overload relay		-40...+70 °C				
Without thermal overload relay		-40...+70 °C				
Storage		-60...+80 °C				
Climatic withstand		Category B according to IEC 60947-1 Annex Q				
Maximum operating altitude (without derating)		3000 m				
Mechanical durability						
Number of operating cycles		10 millions operating cycles				
Max. switching frequency		3600 cycles/h				
Shock withstand						
acc. to IEC 60068-2-27 and EN 60068-2-27						
Mounting position 1						
	Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position				
	A	25 g				
	B1	25 g closed position / 5 g open position				
	B2	15 g				
	C1	25 g				
	C2	25 g				
Vibration withstand		5...300 Hz				
acc. to IEC 60068-2-6		3 g closed position / 3 g open position				

Magnet system characteristics

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Coil operating limits	AC supply	At θ ≤ 70 °C 0.85 x Uc min...1.1 x Uc max.				
acc. to IEC 60947-4-1	DC supply	At θ ≤ 70 °C 0.85 x Uc min...1.1 x Uc max.				
AC control voltage 50/60 Hz						
Rated control circuit voltage Uc		24...500 V AC				
Coil consumption	Average pull-in value	25 VA			40 VA	
	Average holding value	4 VA / 2 W				
DC control voltage						
Rated control circuit voltage Uc		20...500 V AC				
Coil consumption	Average pull-in value	25 W			40 W	
	Average holding value	2 W				
PLC-output control		–				
Drop-out voltage		≤ 60 % of Uc min.				
Voltage sag immunity		conditions of use on request				
acc. to SEMI F47-0706						
Dips withstand		20 ms average				
-20 °C ≤ θ ≤ +60 °C						
Operating time						
Between coil energization and:	N.O. contact closing	42...100 ms				
	N.C. contact opening	38...95 ms				
Between coil de-energization and:	N.O. contact opening	17...100 ms				
	N.C. contact closing	19...105 ms				

Mounting characteristics and conditions

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Mounting positions						
		Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-pole contactor AF40 ... AF96				
Mounting distances		The contactors can be assembled side by side				
Fixing						
On rail according to IEC 60715, EN 60715		35 x 7.5 mm or 35 x 15 mm			35 x 15 mm	
By screws (not supplied)		2 x M4 or 2 x M6 screws placed diagonally				

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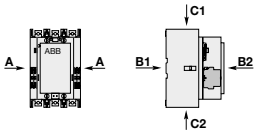
AF116 ... AF370 3-pole contactors

Technical data

General technical data

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Rated insulation voltage Ui									
acc. to IEC 60947-4-1		1000 V							
acc. to UL / CSA		600 V							
Rated impulse withstand voltage Uimp.		8 kV							
Electromagnetic compatibility		AF contactors comply with IEC 60947-1 / EN 60947-1 - Environment A							
Ambient air temperature close to contactor									
Operation Fitted with thermal overload relay		-25 to +55 °C							
Without thermal overload relay		-40 to +70 °C							
Storage		-40 to +70 °C							
Climatic withstand		Category B according to IEC 60947-1 Annex Q							
Maximum operating altitude (without derating)		3000 m							
Mechanical durability									
Number of operating cycles		5 million operating cycles							
Maximum switching frequency		300 cycles/h							
Shock withstand									
acc. to IEC 60068-2-27 and EN 60068-2-27									
Mounting position 1		No change in contact position, closed or open position							
	Shock direction	1/2 sinusoidal shock for 11 ms				1/2 sinusoidal shock for 30 ms			
	A	20 g				20 g			
	B1	15 g closed position / 3 g open position				15 g closed position / 3 g open position			
	B2	15 g closed position / 3 g open position				15 g closed position / 3 g open position			
	C1	20 g				20 g			
	C2	20 g				20 g			
Vibration withstand									
acc to IEC 60068-2-6		0.7 g closed position / 0.7 g open position 13.2...100 Hz							



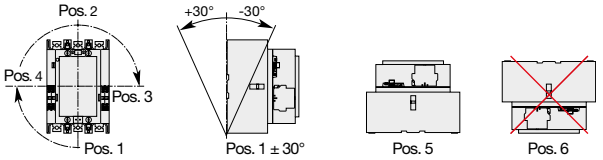
Magnet system characteristics

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Coil operating limits	AC supply	At θ ≤ 70 °C 0.85 x Uc min ... 1.1 x Uc max							
acc. to IEC 60947-4-1	DC supply	At θ ≤ 70 °C 0.80 x Uc min ... 1.1 x Uc max							
Rated control circuit voltage Uc (1)		24...500 V AC, 20...500 V DC							
Coil consumption									
AC control voltage 50/60 Hz									
24...60 V AC	Average pull-in value	225 VA			165 VA		475 VA		
	Average holding value	5.5 VA			6 VA		8.5 VA		
48...130 V AC	Average pull-in value	170 VA			175 VA		340 VA		
	Average holding value	4 VA			4 VA		17 VA		
100...250 V AC	Average pull-in value	130 VA			220 VA		385 VA		
	Average holding value	6 VA			7 VA		17.5 VA		
250...500 V AC	Average pull-in value	205 VA			185 VA		420 VA		
	Average holding value	16 VA			16 VA		21 VA		
DC control voltage									
20...60 V DC	Average pull-in value	210 W			205 W		400 W		
	Average holding value	2.5 W			2.5 W		3.5 W		
48...130 V DC	Average pull-in value	130 W			130 W		360 W		
	Average holding value	2.5 W			2.5 W		2.5 W		
100...250 V DC	Average pull-in value	135 W			190 W		410 W		
	Average holding value	3 W			2.5 W		4.5 W		
250...500 V DC	Average pull-in value	205 W			190 W		600 W		
	Average holding value	4 W			4 W		4.7 W		
Drop-out voltage		55 % of Uc min							
Voltage sag immunity acc. to SEMI F47		Conditions of use on request							
Dips withstand		≥ 20 ms							
Operating time									
Coil supply between A1 - A2									
Between coil energization and:	N.O. contact closing	20...55 ms			25...60 ms		30...60 ms		
Between coil de-energization and (2):	N.O. contact opening	40..70 ms			45...80 ms		45...80 ms		

(1) For more detailed data, please consult your ABB local sales organization
(2) Less than 20ms when using coil code -33 and -34

Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Mounting positions									
		Max. add-on N.O. or N.C. auxiliary contacts: see accessory fitting details for 3-pole contactor AF116 ... AF370							
Mounting distances		The contactors can be assembled side by side							
Fixing									
On rail acc. to IEC 60715, EN 60715		–							
By screws		4 x M4			4 x M5				

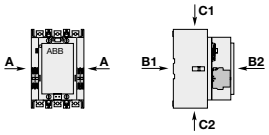


1SFC101112C0201 - Rev. B

AF400 ... AF750 3-pole contactors

Technical data

General technical data

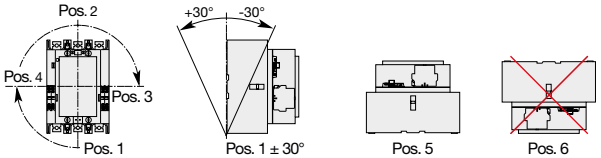
Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Rated insulation voltage Ui					
acc. to IEC 60947-4-1		1000 V			
acc. to UL / CSA		600 V			
Rated impulse withstand voltage Uimp.		8 kV			
Electromagnetic compatibility		AF contactors complying with IEC 60947-1 / EN 60947-1 - Environment A			
Ambient air temperature close to contactor					
Operation	Fitted with electronic overload relay	-25 to +70 °C			
	Without electronic overload relay	-40 to +70 °C			
Storage		-40 to +70 °C			
Climatic withstand		Category B according to IEC 60947-1 Annex Q			
Maximum operating altitude (without derating)		3000 m			
Mechanical durability					
Number of operating cycles		3 millions operating cycles (contacts needs to be replaced every 0,75 millions operating cycles)			
Max. switching frequency		300 cycles/h			
Shock withstand acc. to IEC 60068-2-27 and EN 60068-2-27 Mounting position 1					
	Shock direction	1/2 sinusoidal shock for 30 ms: no change in contact position, closed or open position			
	A	5 g			
	B1	5 g			
	B2	5 g			
	C1	5 g			
	C2	5 g			
Vibration withstand acc to IEC 60068-2-6		0.7 g closed position / 0.7 g open position 13.2...100 Hz			

Magnet system characteristics

Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Coil operating limits	AC supply	At θ ≤ 70 °C 0.85 x Uc min ... 1.1 x Uc max			
acc. to IEC 60947-4-1	DC supply	At θ ≤ 70 °C 0.80 x Uc min ... 1.1 x Uc max			
Rated control circuit voltage Uc (1)		48...500 V AC, 24...500 V DC			
Coil consumption					
AC control voltage 50/60 Hz					
48...130 V AC	Average pull-in value	1215 VA		1100 VA	
	Average holding value	12 VA		12 VA	
100...250 V AC	Average pull-in value	955 VA		880 VA	
	Average holding value	12 VA		12 VA	
250 ... 500 V AC	Average pull-in value	950 VA		985 VA	
	Average holding value	12 VA		12 VA	
DC control voltage					
24...60 V DC	Average pull-in value	900 W		785 W	
	Average holding value	5 W		5.5 W	
48...130 V DC	Average pull-in value	1150 W		1020 W	
	Average holding value	5 W		5 W	
100...250 V DC	Average pull-in value	895 W		880 W	
	Average holding value	5 W		5 W	
250 ... 500 V DC	Average pull-in value	885 W		910 W	
	Average holding value	7.5 W		7.5 W	
Drop-out voltage		55 % of Uc min.			
Voltage sag immunity acc. to SEMI F47		Conditions of use on request			
Dips withstand		≥ 20 ms			
Operating time					
Coil supply between A1 - A2					
Between coil energization and:	Main contact closing	50...120 ms			
Between coil de-energization and:	Main contact opening	33...70 ms			
Control input for PLC's					
Between coil energization and:	Main contact closing	40...60 ms		40...90 ms	
Between coil de-energization and:	Main contact opening	10...30 ms			

(1) For more detailed data, please consult your ABB local sales organization

Mounting characteristics and conditions for use

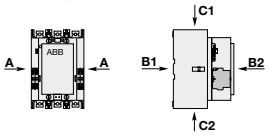
Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Mounting positions					
		Max. add-on N.O. or N.C. auxiliary contacts: see accessory fitting details for 3-pole contactor AF400 ... AF2650			
Mounting distances		The contactors can be assembled side by side			
Fixing					
On rail according to IEC 60715, EN 60715		–			
By screws		4 x M5		4 x M6	

1SFC101113C0201 - Rev. E

AF1250 ... AF2850 3-pole contactors

Technical data

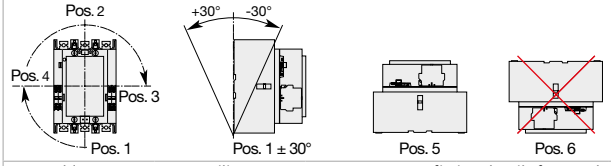
General technical data

Contactor types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Rated insulation voltage Ui							
acc. to IEC 60947-4-1							
acc. to UL / CSA			1000 V				
Rated impulse withstand voltage Uimp.							
Electromagnetic compatibility							
Ambient air temperature close to contactor							
Operation	Fitted with electronic overload relay	-25 to +70 °C					
	Without electronic overload relay	-40 to +70 °C					
Storage		-40 to +70 °C					
Climatic withstand		Category B according to IEC 60947-1 Annex Q					
Maximum operating altitude (without derating)		3000 m					
Mechanical durability							
Number of operating cycles		0.5 million operating cycles				0.3 million operating cycles	
Max. switching frequency		300 cycles/h	60 cycles/h				
Shock withstand							
acc. to IEC 60068-2-27 and EN 60068-2-27							
Mounting position 1							
	Shock direction						
	A	5 g	–				
	B1	5 g	–				
	B2	5 g	–				
	C1	5 g	–				
	C2	5 g	–				
Vibration withstand							
acc to IEC 60068-2-6		0.7 g closed position / 0.7 g open position 13.2...100 Hz					

Magnet system characteristics

Contactor types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Coil operating limits	AC supply						
acc. to IEC 60947-4-1	DC supply						
Rated control circuit voltage Uc			100...250 V AC or DC				
Coil consumption							
AC control voltage 50/60 Hz							
48...130 V AC	Average pull-in value	1100 VA	-				
	Average holding value	12 VA	-				
100...250 V AC	Average pull-in value	880 VA	2450 VA				
	Average holding value	12 VA	48 VA				
250 ... 500 V AC	Average pull-in value	985 VA	-				
	Average holding value	12 VA	-				
DC control voltage							
24...60 V DC	Average pull-in value	785 W	-				
	Average holding value	5.5 W	-				
48...130 V DC	Average pull-in value	1020 W	-				
	Average holding value	5 W	-				
100...250 V DC	Average pull-in value	880 W	2290 W				
	Average holding value	5 W	20.5 W				
250 ... 500 V DC	Average pull-in value	910 W	-				
	Average holding value	7.5 W	-				
Drop-out voltage		55 % of Uc min.					
Voltage sag immunity							
acc. to SEMI F47		Conditions of use on request					
Dips withstand		≥ 20 ms					
Operating time							
Coil supply between A1 - A2							
Between coil energization and:	Main contact closing	50...120 ms	50...80 ms				
Between coil de-energization and:	Main contact opening	33...70 ms	35...55 ms				
Control input for PLC's							
Between coil energization and:	Main contact closing	40...90 ms	40...65 ms				
Between coil de-energization and:	Main contact opening	10...30 ms	10...30 ms				

Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Mounting positions							
		Max. add-on N.O. or N.C. auxiliary contacts: see accessory fitting details for 3-pole contactor AF400 ... AF2650					
Mounting distances		The contactors can be assembled side by side					
Fixing							
On rail according to IEC 60715, EN 60715		–					
By screws		4 x M6	4 x M8				

1SFC101113C0201 - Rev. E

AF09 ... AF38 3-pole contactors
Technical data

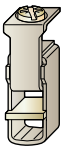
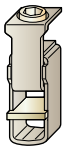
Connecting characteristics

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Main terminals		 Screw terminals with cable clamp					
Connection capacity (min. ... max.)							
Main conductors (poles)							
Rigid Solid (≤ 4 mm²)	1 x	1...6 mm²			2.5...10 mm²		
Stranded (≥ 6 mm²)	2 x	1...6 mm²			2.5...10 mm²		
Flexible with non insulated ferrule	1 x	0.75...6 mm²			1.5...10 mm²		
	2 x	0.75...6 mm²			1.5...10 mm²		
Flexible with insulated ferrule	1 x	0.75...4 mm²			1.5...10 mm²		
	2 x	0.75...2.5 mm²			1.5...4 mm²		
 Bars or lugs	L <	9.6 mm			12.5 mm		
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 16...10			AWG 14...8		
Stripping length		10 mm			14 mm		
Tightening torque		1.5 Nm / 13 lb.in			2.5 Nm / 22 lb.in		
Auxiliary conductors (built-in auxiliary terminals + coil terminals)							
Rigid solid	1 x	1...2.5 mm²					
	2 x	1...2.5 mm²					
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²					
	2 x	0.75...2.5 mm²					
Flexible with insulated ferrule	1 x	0.75...2.5 mm²					
	2 x	0.75...1.5 mm²					
 Lugs	L <	8 mm					
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 18...14					
Stripping length		10 mm					
Tightening torque							
Coil terminals		1.2 Nm / 11 lb.in					
Built-in auxiliary terminals		1.2 Nm / 11 lb.in					
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529							
Main terminals		IP20					
Coil terminals		IP20					
Built-in auxiliary terminals		IP20					
Screw terminals		Delivered in open position, screws of unused terminals must be tightened					
Main terminals		M3.5			M4		
Screwdriver type		Flat Ø 5.5 / Pozidriv 2			Flat Ø 6.5 / Pozidriv 2		
Coil terminals		M3.5					
Screwdriver type		Flat Ø 5.5 / Pozidriv 2					
Built-in auxiliary terminals		M3.5					
Screwdriver type		Flat Ø 5.5 / Pozidriv 2					

1SBC101428S0201 - Rev. A

AF40 ... AF96 3-pole contactors
Technical data

Connecting characteristics

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Main terminals		 Screw terminals with double connector 2 x (9.3 width x 7.9/10.3 depth)			 Screw terminals with double connector 2 x (12.4 width x 9.3/11.1 depth)	
Connection capacity (min. ... max.)						
Main conductors (poles)						
Rigid Stranded (≥ 6 mm²)	1 x	6...35 mm²			6...70 mm²	
	2 x	6...35 mm²			6...50 mm²	
Flexible with non insulated ferrule	1 x	4...35 mm²			6...50 mm²	
	2 x	4...35 mm²			6...50 mm²	
Flexible with insulated ferrule	1 x	4...35 mm²			6...50 mm²	
	2 x	4...35 mm²			6...50 mm²	
Bars or lugs	L <	9.2 mm			12.2 mm	
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 10...2			AWG 6...1	
Stripping length		16 mm			17 mm	
Tightening torque		4 Nm / 35 lb.in			6 Nm / 53 lb.in	
Auxiliary conductors (built-in auxiliary terminals + coil terminals)						
Rigid solid	1 x	1...2.5 mm²				
	2 x	1...2.5 mm²				
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²				
	2 x	0.75...2.5 mm²				
Flexible with insulated ferrule	1 x	0.75...2.5 mm²				
	2 x	0.75...1.5 mm²				
Lugs	L <	8 mm				
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 18...14				
Stripping length		10 mm				
Tightening torque						
Coil terminals		1.2 Nm / 11 lb.in				
Built-in auxiliary terminals		1.2 Nm / 11 lb.in				
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529						
Main terminals		IP10 *				
Coil terminals		IP20				
Built-in auxiliary terminals		IP20				
Screw terminals		Delivered in open position, screws of unused terminals must be tightened				
Main terminals		M6			M8	
	Screwdriver type	Flat Ø 6.5 / Pozidriv 2			Hexagon socket (s = 4 mm)	
Coil terminals		M3.5				
	Screwdriver type	Flat Ø 5.5 / Pozidriv 2				
Built-in auxiliary terminals		M3.5				
	Screwdriver type	Flat Ø 5.5 / Pozidriv 2				

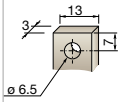
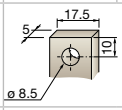
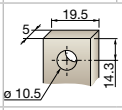
* For IP20 degree of protection, use LT terminal shroud accessory.

1SBC101746S0201 - Rev. A

AF116 ... AF370 3-pole contactors

Technical data

Connecting characteristics

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370
Main terminals Flat type									
Connection capacity (min. ... max.)									
Main conductors (poles)									
Cu cable - Stranded	1 x	10...95 mm²			6...150 mm²		16...300 mm²		
Clamp type		LD... included (1)			1SDA066917R1		1SDA055016R1		
Tightening torque		8 Nm			14 Nm		25 Nm		
Cu cable - Stranded	2 x	10...95 mm²			50...120 mm²		70...185 mm²		
Clamp type		LD... included (1)			1SFN074709R1000, LZ185-2C/120		1SCA022194R0890, OZXB4		
Tightening torque		8 Nm			16 Nm		22 Nm		
Al cable - Stranded	1 x	–			95...185 mm²		185...240 mm²		
Clamp type		–			1SDA054988R1		1SDA055020R1		
Tightening torque		–			31 Nm		43 Nm		
Cu cable - Flexible	1 x	10...70 mm²			6...120 mm²		16...240 mm²		
Clamp type		LD... included (1)			1SDA066917R1		1SDA055016R1		
Tightening torque		8 Nm			14 Nm		25 Nm		
Cu cable - Flexible	2 x	10...70 mm²			50...95 mm²		70...185 mm²		
Clamp type		LD... included (1)			1SFN074709R1000, LZ185-2C/120		1SCA022194R0890, OZXB4		
Tightening torque		8 Nm			16 Nm		22 Nm		
Lugs	L ≤	22 mm (.866 in)			24 mm (.945 in)		32 mm (1.260 in)		
	Ø >	6 mm (.236 in)			8 mm (.315 in)		10 mm (.394 in)		
Socket type		LL... included			LL... included		LL... included		
Tightening torque		9 Nm / 80 lb.in			18 Nm / 160 lb.in		28 Nm / 248 lb.in		
Connection capacity acc. to UL / CSA	1 x	AWG 6...3/0			6...300 MCM		4...400 MCM		
Clamp type		LD... included (1)			ATK185 (2)		ATK300 (2)		
Tightening torque		8 Nm / 71 lb.in			34 Nm / 301 lb.in		42 Nm / 372 lb.in		
Connection capacity acc. to UL / CSA	2 x	AWG 6...3/0			–		4...500 MCM		
Clamp type		LD... included (1)			–		ATK300/2 (2)		
Tightening torque		8 Nm / 71 lb.in			–		42 Nm / 372 lb.in		
Auxiliary conductors (coil terminals)									
Solid / stranded	1 x	1...4 mm²							
	2 x	1...4 mm²							
Flexible	1 x	0.75...2.5 mm²							
	2 x	0.75...2.5 mm²							
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²							
	2 x	0.75...2.5 mm²							
Flexible with insulated ferrule	1 x	0.75...2.5 mm²							
	2 x	0.75...2.5 mm²							
Lugs	L <	8 mm							
	l >	3.5 mm							
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14							
Stripping length		9 mm							
Tightening torque		1.00 Nm / 9 lb.in							
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529									
Main terminals		IP00							
Coil terminals		IP20							
Screw terminals									
Main terminals		M6			M8		M10		
Screwdriver type		Screws and bolts							
Coil terminals (delivered in open position)		M3.5							
Screwdriver type		Flat Ø 5.5 mm / Pozidriv 2							

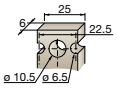
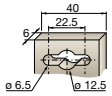
(1) LD... not included for AF116 ... AF146-30-..B.
(2) Available in North America only.

1SFC101114C0201 - Rev. A

AF400 ... AF750 3-pole contactors

Technical data

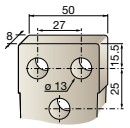
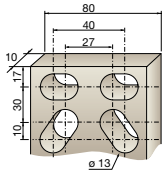
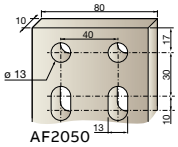
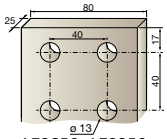
Connecting characteristics

Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Main terminals Flat type				 AF580 AF750	
Connection capacity (min. ... max.)					
Main conductors (poles)					
Cu cable - Stranded	2 x	240 mm²		–	
Clamp type		1SDA013922R1		–	
Tightening torque		35 Nm		–	
Cu cable - Stranded	3 x	–	185 mm²		
Clamp type		–	1SDA013956R1		
Tightening torque		35 Nm	45 Nm		
Al cable - Stranded	2 x	240 mm²		–	
Clamp type		1SDA013922R1		–	
Tightening torque		35 Nm		–	
	3 x	–	185 mm²		
Clamp type		–	1SDA013956R1		
Tightening torque		35 Nm	45 Nm		
Lugs	L ≤	47 mm	50 mm		
	Ø >	10 mm	12 mm		
Tightening torque		35 Nm / 310 lb.in	45 Nm / 398 lb.in		
Connection capacity acc. to UL / CSA	2 x	250-500 MCM alt. 2/0 AWG-500 MCM	–		
Clamp type		K6TH alt. ATK580	–		
Tightening torque		275 lb.in	–		
Connection capacity acc. to UL / CSA	3 x	2/0 AWG-400 MCM	2/0 AWG-500 MCM		
Clamp type		K6TJ	ATK750/3		
Tightening torque		275 lb.in	375 lb.in		
Auxiliary conductors (coil terminals)					
Solid / stranded	1 x	1...4 mm²			
	2 x	1...4 mm²			
Flexible	1 x	0.75...2.5 mm²			
	2 x	0.75...2.5 mm²			
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²			
	2 x	0.75...2.5 mm²			
Flexible with insulated ferrule	1 x	0.75...2.5 mm²			
	2 x	0.75...2.5 mm²			
Lugs	L ≤	8 mm			
	l >	3.7 mm			
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14			
Tightening torque Recommended		1.00 Nm / 9 lb.in			
Max.		1.20 Nm			
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529					
Main terminals		IP00			
Coil terminals		IP20			
Screw terminals					
Main terminals		M10	M12		
		Screws and bolts			
Coil terminals (delivered in open position)		M3.5			
Screwdriver type		Flat Ø 5.5 mm / Pozidriv 2			

AF1250 ... AF2850 3-pole contactors

Technical data

Connecting characteristics

Contactor types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Main terminals Flat type		 AF1250	 AF1350, AF1650		 AF2050	 AF2650, AF2850	
Connection capacity (min. ... max.)							
Main conductors (poles)							
Cu cable - Stranded	2 x	–					
Clamp type		–					
Tightening torque		–					
Cu cable - Stranded	3 x	–					
Clamp type		–					
Tightening torque		–					
Al cable - Stranded	2 x	–					
Clamp type		–					
Tightening torque		–					
	3 x	–					
Clamp type		–					
Tightening torque		–					
Lugs	L ≤	50 mm	100 mm				
	Ø >	12 mm					
Tightening torque		45 Nm / 398 lb.in					
Connection capacity acc. to UL / CSA	2 x	2// 3 x 0.25 in	4/0 AWG - 500 MCM		4//4 x 0.25 in		
Clamp type		bars, use LW1250	K7TK ATK1350/4	K7TK	bars		
Tightening torque			375 lb.in		–		
Connection capacity acc. to UL / CSA	3 x	2/0 AWG-500 MCM	1/0-750 MCM		–		
Clamp type		–	K8TL, K8TM, ATK1650/4	K8TL, K8TM, ATK1650/4, ATK1650/6	–		
Tightening torque		375 lb.in	500 lb.in		–		
Auxiliary conductors (coil terminals)							
Solid / stranded	1 x	1...4 mm²					
	2 x	1...4 mm²					
Flexible	1 x	0.75...2.5 mm²					
	2 x	0.75...2.5 mm²					
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²					
	2 x	0.75...2.5 mm²					
Flexible with insulated ferrule	1 x	0.75...2.5 mm²					
	2 x	0.75...2.5 mm²					
Lugs	L ≤	8 mm					
	I >	3.7 mm					
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14					
Tightening torque Recommended		1.00 Nm / 9 lb.in					
Max.		1.20 Nm					
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529							
Main terminals		IP00					
Coil terminals		IP20					
Screw terminals							
Main terminals		M12					
		Screws and bolts					
Coil terminals (delivered in open position)		M3.5					
Screwdriver type		Flat Ø 5.5 mm / Pozidriv 2					

AF09 ... AF96 3-pole contactors
Technical data

Built-in auxiliary contacts according to IEC

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
Rated operational voltage Ue max.		690 V										
Rated frequency (without derating)		50 / 60 Hz										
Conventional free air thermal current Ith - θ ≤ 40 °C		16 A										
Ie / Rated operational current AC-15												
acc. to IEC 60947-5-1	24-127 V 50/60 Hz	6 A										
	220-240 V 50/60 Hz	4 A										
	400-440 V 50/60 Hz	3 A										
	500 V 50/60 Hz	2 A										
	690 V 50/60 Hz	2 A										
Making capacity AC-15		10 x Ie AC-15 acc. to IEC 60947-5-1										
Breaking capacity AC-15		10 x Ie AC-15 acc. to IEC 60947-5-1										
Ie / Rated operational current DC-13												
acc. to IEC 60947-5-1	24 V DC	6 A / 144 W										
	48 V DC	2.8 A / 134 W										
	72 V DC	1 A / 72 W										
	110 V DC	0.55 A / 60 W										
	125 V DC	0.55 A / 69 W										
	220 V DC	0.27 A / 60 W										
	250 V DC	0.27 A / 68 W										
	400 V DC	0.15 A / 60 W										
	500 V DC	0.13 A / 65 W										
	600 V DC	0.1 A / 60 W										
Short-circuit protection device gG type fuse		10 A										
Conditional short-circuit current		1 kA										
Rated short-time withstand current Icw	for 1.0 s	100 A										
	for 0.1 s	140 A										
Minimum switching capacity		12 V / 3 mA										
with failure rate acc. to IEC 60947-5-4		10^{-7}										
Non-overlapping time between N.O. and N.C. contacts		≥ 2 ms										
Power dissipation per pole at 6 A		0.1 W										
Max. electrical switching frequency	AC-15	1200 cycles/h										
	DC-13	900 cycles/h										
Mechanically linked contacts acc. to annex L of IEC 60947-5-1		Built-in N.O. or N.C. auxiliary contacts and additional N.O. or N.C. auxiliary contacts (CA4, CAL4, CAT4 aux. contact blocks) are mechanically linked contacts.										
Mirror contacts acc. to annex F of IEC 60947-4-1		Built-in N.C. auxiliary contacts or additional N.C. auxiliary contacts (CA4, CAL4, CAT4 aux. contact blocks) are mirror contacts.										

Built-in auxiliary contacts according to UL / CSA

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
Max. operational voltage		600 V AC, 600 V DC										
Pilot duty		A600, Q600										
AC thermal rated current		10 A										
AC maximum volt-ampere making		7200 VA										
AC maximum volt-ampere breaking		720 VA										
DC thermal rated current		2.5 A										
DC maximum volt-ampere making-breaking		69 VA										

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3-pole contactors

Electrical durability and utilization categories

General

Utilization categories determine the current making and breaking conditions relating to the characteristics of the loads to be controlled by the contactors. International standard IEC 60947-4-1 and European standard EN 60947-4-1 are the standards to be referred to.

If Ic is the current to be broken by the contactor and Ie the rated operational current normally drawn by the load, then:

- Categories AC-1 and AC-3: ..... Ic = Ie
- Category AC-2: ..... Ic = 2.5 x Ie
- Category AC-4: ..... Ic = 6 x Ie

Generally speaking Ic = m x Ie where m is a multiple of the load operational current.

On next pages, the curves corresponding to categories AC-1, AC-3 and AC-4 represent the electrical durability variation of standard contactors in relation to the breaking current Ic.

Electrical durability is expressed in millions of operating cycles.

Curve utilization mode

Electrical durability forecast and contactor selection for categories AC-1, AC-2, AC-3 or AC-4

- Note the characteristics of the load to be controlled:
  - Operational voltage ..... Ue
  - Current normally drawn ..... Ie (Ue / Ie / kW relation for motors, see "Motor rated operational powers and currents").
  - Utilization category ..... AC-1, AC-2, AC-3 or AC-4
  - Breaking current ..... Ic = Ie for AC-1 and for AC-3 ; Ic = 2.5 x Ie for AC-2 ; Ic = 6 x Ie for AC-4
- Define the number of operating cycles N required.
- On the diagram corresponding to the operational category, select the contactor with the curve immediately above the intersection point (Ic ; N).

Electrical durability forecast and contactor selection for mixed duty motor control: AC-3 (Ic = Ie) type switching off while "motor running" and, occasionally, AC-4 (Ic = 6 x Ie) type switching off while "motor accelerating"

- Note the characteristics of the motor to be controlled:
  - Operational voltage ..... Ue
  - Current normally drawn while "motor running" ..... Ie (Ue / Ie / kW relation for motors, see "Motor rated operational powers and currents")
  - Breaking current for AC-3 ..... Ic = Ie
  - Breaking current for AC-4 while "motor accelerating"..... Ic = 6 x Ie
  - Percentage of AC-4 operating cycles ..... K (on the basis of the total number of operating cycles)
- Define the total number of operating cycles N required.
- Note the smallest contactor rating compatible for AC-3 (Ue / Ie) on Main pole utilization characteristic table (see “Technical data”).
- For the selected contactor make a note of the following in relation to the voltage using diagram AC-3 in next pages:
  - The number of operating cycles A for Ic = Ie (AC-3)
  - The number of operating cycles B for Ic = 6 x Ie (AC-4)
- Calculate the estimated number of cycles N’ (N’ is always below A)

$$N' = \frac{A}{1 + 0.01\,K\,(A/B - 1)}$$

- If N' is too low in relation to the target N, calculate the estimated number of cycles for a higher contactor rating.

Case of uninterrupted duty

For uninterrupted duty, some verifications of preventing maintenance are necessary to check the functionality of the concerned product (consult us).

The combined effect of environmental conditions and the proper temperature of the product may require some disposals.

As a matter of fact, for this duty, the use duration prevails over the number of operating cycles.

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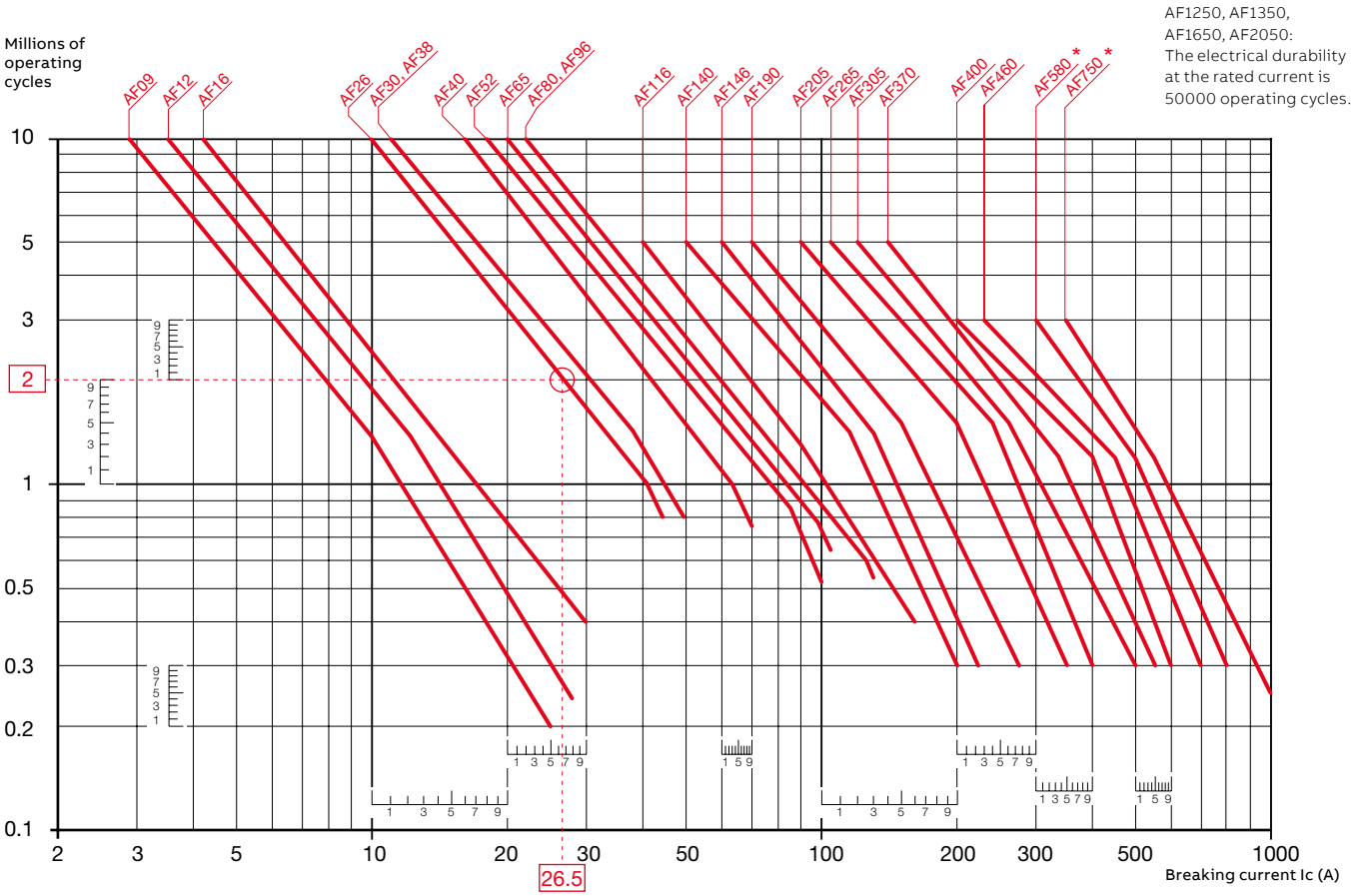
3-pole contactors

Electrical durability

Electrical durability for AC-1 utilization category - Ue ≤ 690 V

Switching non-inductive or slightly inductive loads. The breaking current Ic for AC-1 is equal to the rated operational current of the load.

Ambient temperature and maximum electrical switching frequency: see "Technical data".



Note: * For AF580 and AF750 contacts needs to be replaced after 750k operations.

Example:

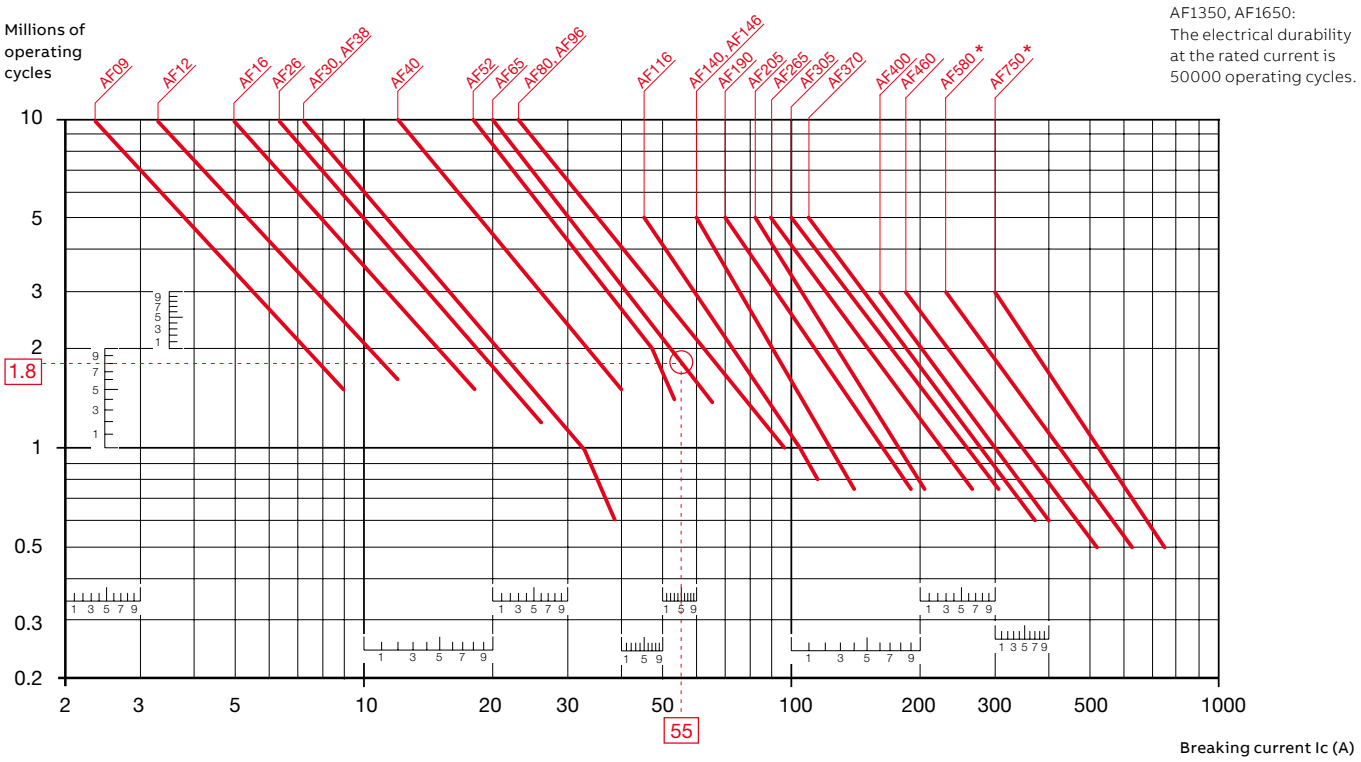
Ic / AC-1 = 26.5 A – Electrical durability required = 2 millions operating cycles.

Using the AC-1 curves above select the AF26 contactor at intersection "○" (26.5 A / 2 millions operating cycles).

3-pole contactors

Electrical durability

Electrical durability for AC-3 utilization category - Ue ≤ 440 V.
Switching cage motors: starting and switching off running motors. The breaking current Ic for AC-3 is equal to the rated operational current Ie (Ie = motor full load current).
Ambient temperature and maximum electrical switching frequency: see "Technical data".



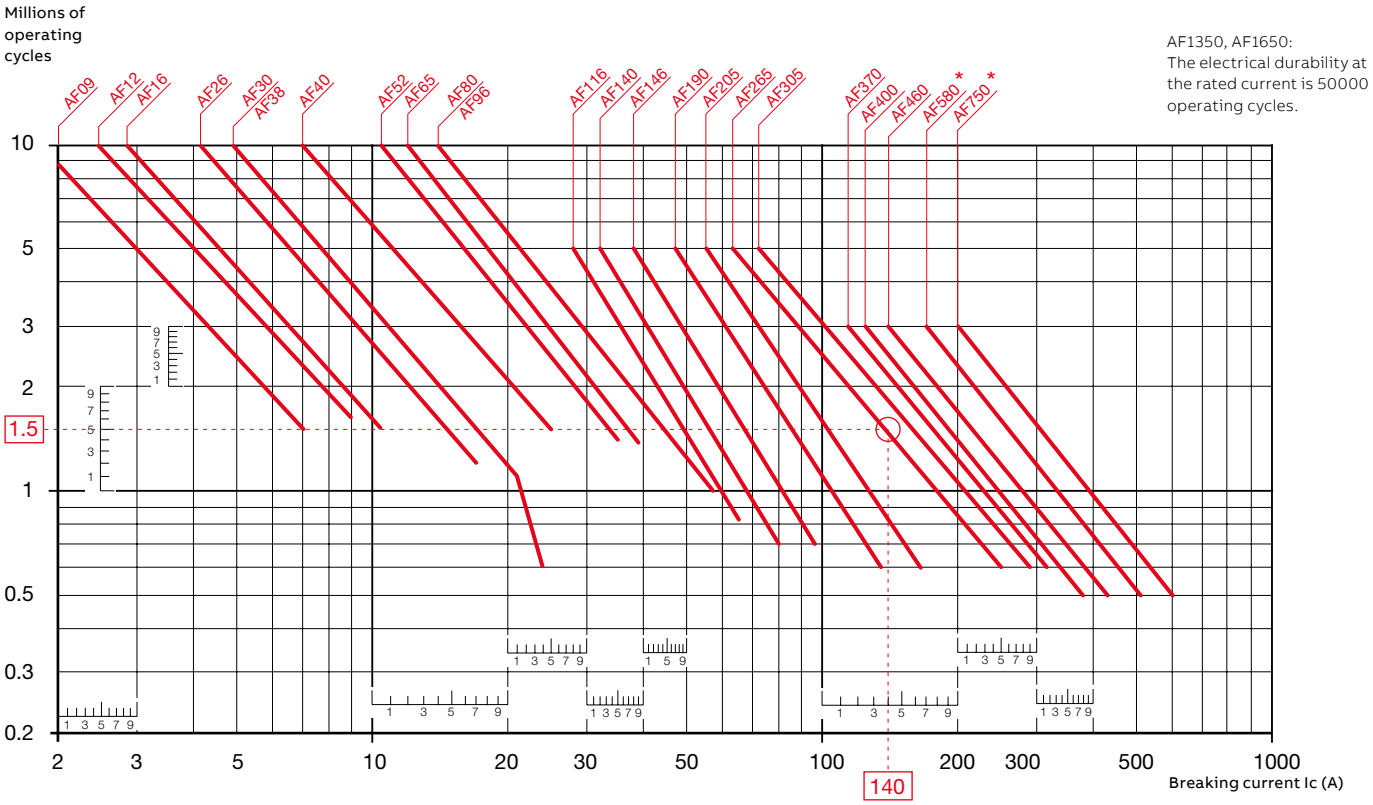
Note: * For AF580 and AF750 contacts needs to be replaced after 750k operations.

Example:
Motor power 30 kW for AC-3 - Ue = 400 V and Ie = 55 A utilization – Electrical durability required = 1.8 million operating cycles.
For AC-3: Ic = Ie. Select the AF65 contactor at intersection "○" (55 A / 1.8 million operating cycles) on the curves (AC-3 - Ue ≤ 440 V).

3-pole contactors

Electrical durability

Electrical durability for AC-3 utilization category - 440 V < Ue ≤ 690 V.
Switching cage motors: starting and switching off running motors. The breaking current Ic for AC-3 is equal to the rated operational current Ie (Ie = motor full load current).
Ambient temperature and maximum electrical switching frequency: see "Technical data".



Note: * For AF580 and AF750 contacts needs to be replaced after 750k operations.

Example:
Motor power 132 kW for AC-3 - Ue = 660 V and Ie = 140 A utilization – Electrical durability required = 1.5 million operating cycles.
For AC-3: Ic = Ie. Select the AF265 contactor at intersection "○" (140 A / 1.5 million operating cycles) on the curves (AC-3 - 440 V < Ue ≤ 690 V).

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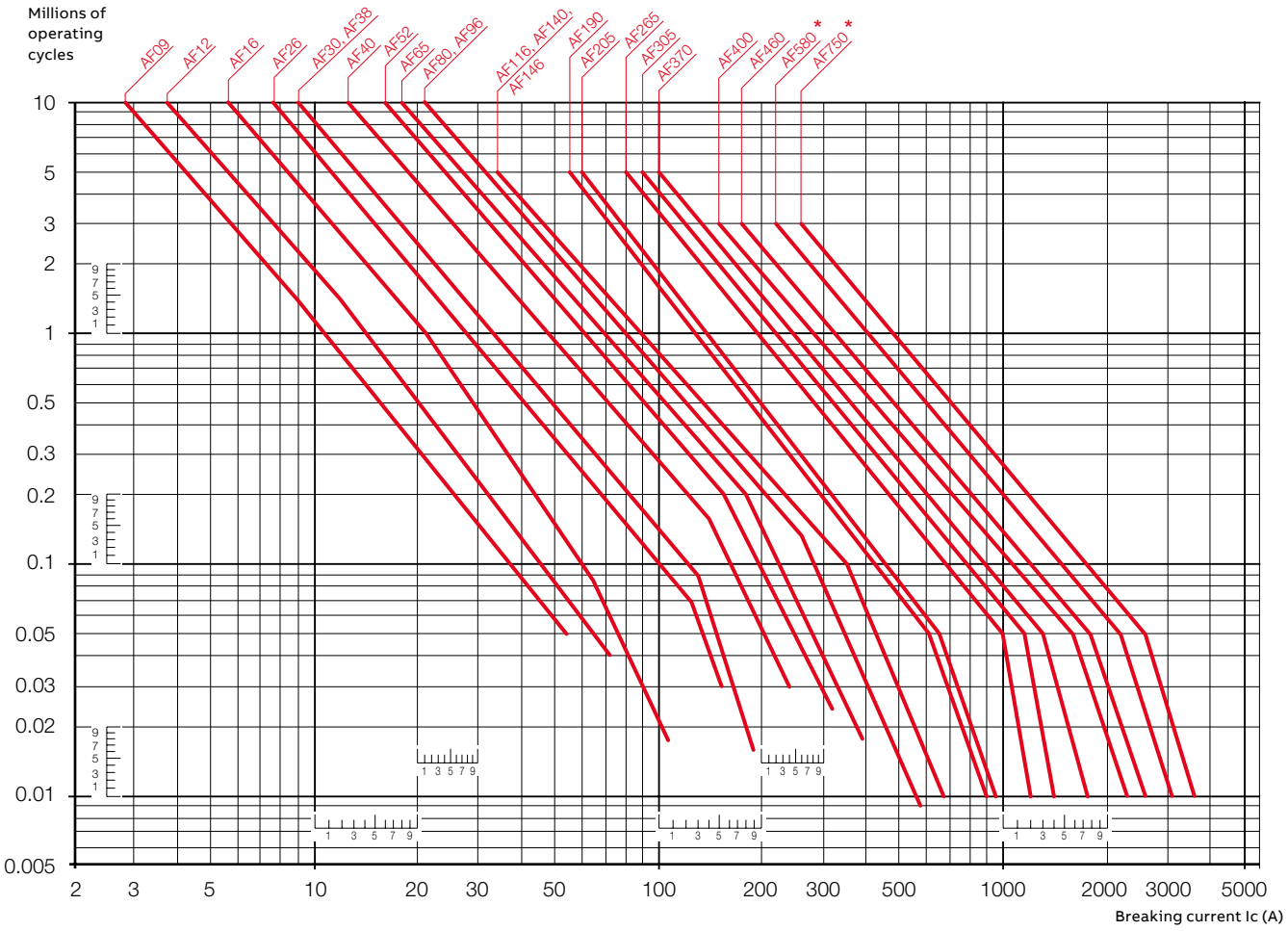
3-pole contactors

Electrical durability

Electrical durability for AC-2 or AC-4 utilization category - Ue ≤ 440 V
Ambient temperature ≤ 60 °C for AF09 ... AF370, ≤ 55 °C for AF400 ... AF1650
Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keeping in mind that Ie is the motor rated operational current (Ie = motor full-load current).

Maximum electrical switching frequency: see "Technical data".

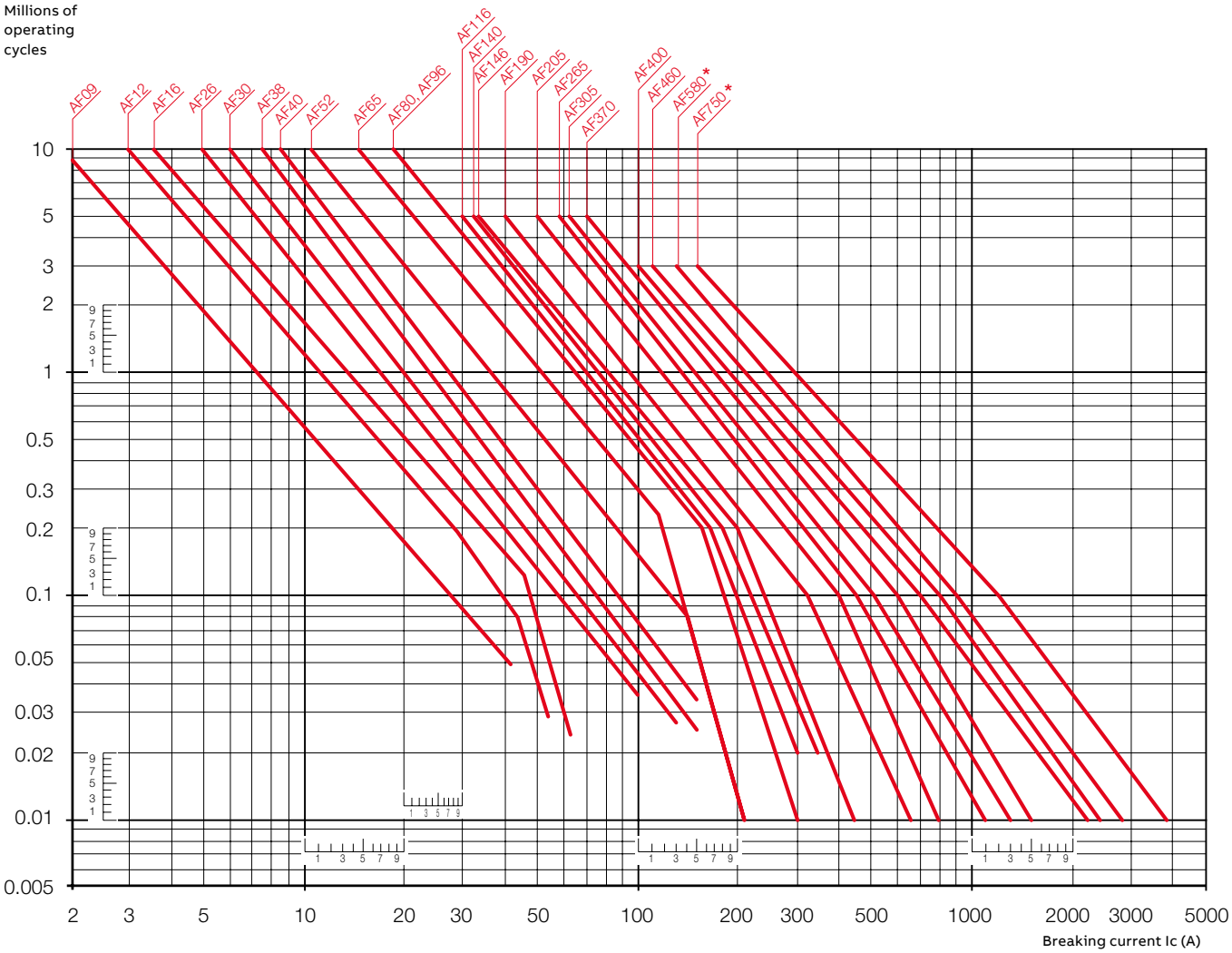


Note: * For AF580 and AF750 contacts needs to be replaced after 750k operations.

3-pole contactors

Electrical durability

Electrical durability for AC-2 or AC-4 utilization category - 440 V < Ue ≤ 690 V
Ambient temperature ≤ 60 °C for AF09 ... AF370, ≤ 55 °C for AF400 ... AF750
Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keaping in mind tha Ie is the motor rated operational current (Ie = motor full load current). Maximum electrical switching frequency: see "Technical data".



Note: * For AF580 and AF750 contacts needs to be replaced after 750k operations.

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