

AF 3-pole contactors

3/42 Overview

Ordering details

4 to 200 kW

3/44	AF09 ... AF38	AC / DC operated
3/45	AF09Z ... AF38Z	24 V DC operated designed for PLC
3/46	AF09Z ... AF38Z	AC / DC operated for specific applications
3/47	AF40 ... AF96	AC / DC operated
3/48	AF09 ... AF96	Contactors and main accessories
3/49	AF116 ... AF146	AC / DC operated
3/50	AF116 ... AF146	AC / DC operated for faster opening utilization
3/51	AF190 ... AF370	AC / DC operated
3/52	AF190 ... AF370	AC / DC operated for faster opening utilization
3/53	AF116 ... AF370	Contactors and main accessories

4 to 560 kW (up to 2850 A AC-1) - with 1 N.O. + 1 N.C.

3/54	AF26 ... AF38	AC / DC operated
3/55	AF26Z ... AF38Z	AC / DC operated for specific applications
3/56	AF26 ... AF38	Contactors and main accessories
3/57	AF40 ... AF96	AC / DC operated
3/58	AF40 ... AF96	Contactors and main accessories
3/59	AF116 ... AF146	AC / DC operated
3/60	AF116 ... AF146	AC / DC operated for faster opening utilization
3/61	AF190 ... AF370	AC / DC operated
3/62	AF190 ... AF370	AC / DC operated for faster opening utilization
3/63	AF116 ... AF370	Contactors and main accessories
3/64	AF400 ... AF750	AC / DC operated
3/65	AF1250 ... AF2850	AC / DC operated
3/66	AF1350T ... AF2850T	AC / DC operated
3/67	AF400 ... AF2850	Main accessories

4 to 560 kW (up to 2850 A AC-1) - with 2 N.O. + 2 N.C.

3/68	AF09 ... AF38	AC / DC operated
3/69	AF09Z ... AF38Z	AC / DC operated for specific applications
3/70	AF40 ... AF96	AC / DC operated
3/71	AF09 ... AF96	Contactors and main accessories
3/72	AF116 ... AF146	AC / DC operated
3/73	AF116 ... AF146	AC / DC operated for faster opening utilization
3/74	AF190 ... AF370	AC / DC operated
3/75	AF190 ... AF370	AC / DC operated for faster opening utilization
3/76	AF116 ... AF370	Contactors and main accessories
3/77	AF400 ... AF750	AC / DC operated
3/78	AF1250 ... AF2850	AC / DC operated
3/79	AF400 ... AF2850	Contactors and main accessories

3/80 Technical data

3/104 Electrical durability

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 $\theta \leq 60^\circ\text{C}$ for AF09 ... AF370 $\theta \leq 55^\circ\text{C}$ for AF400 ... AF2650	220 - 230 - 240 V	kW	2.2	3	4	6.5	9	11	11	15	18.5	22	30
			380 - 400 V	kW	4	5.5	7.5	11	15	18.5	18.5	22	30	37	45/55
			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	105
	AC-1	Rated operational current	$\theta \leq 40^\circ\text{C}$, 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	40
		440 - 480 V	hp	5	7.5	10	15	20	25	30	40	50	60	60/75
		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
	Mechanical	VM4
Interlocking units	Mechanical / Electrical	VEM4
Connection sets	For reversing contactors	BER16-4
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

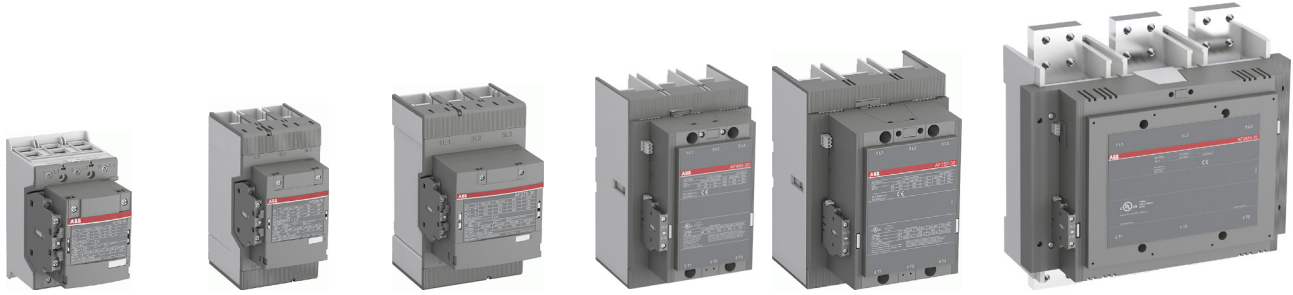


Accessories	Thermal / magnetic protection Class 10	MS116 (0.10...32 A) Ics up to 50 kA for class 10 A MS132 (0.10...32 A) Ics up to 100 kA	MS165 (10...80 A) Ics up to 100 kA (1)
	Magnetic only types	MO132 (0.16...32 A) Ics up to 100 kA	MO165 (16...80 A) Ics up to 100 kA (1)
	For contactor mounting	BEA16-4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

(3) -5 ... +40 °C for TA200-V1000



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			
BER140-4				BER205-4			
BER370-4				BEM460-30			
BEM750-30							

TF140DU (66...142 A) $\theta \leq 55^\circ\text{C}$	TA200DU (66...200 A) $\theta \leq 55^\circ\text{C}(3)$						
EF146 (54...150 A)	EF205 (63...210 A)	EF370 (115...380 A)	EF460 (150...500 A)	EF750 (250...800 A)	EF1250DU (350...1250 A)		

AF09 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated



AF09-30-10



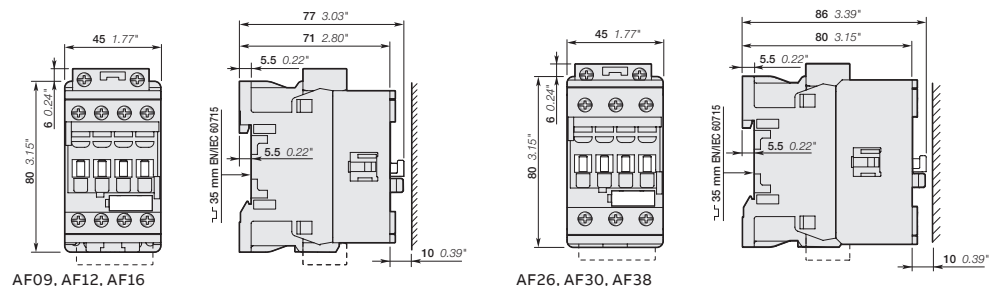
AF26-30-00

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		Auxiliary contacts fitted	Type	Order code	Weight
Rated power	operational current $\theta \leq 40^\circ\text{C}$	3-phase motor rating 480 V	General use rating 600 V AC	Uc min. ... Uc max.					
400 V AC-3	AC-1			V 50/60 Hz	V DC				Pkg (1 pce) 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
				24...60	20...60 (1)	1 0	AF12-30-10-11	1SBL157001R1110	0.270
						0 1	AF12-30-01-11	1SBL157001R1101	0.270
5.5	28	7.5	28	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
				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
7.5	30	10	30	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
				24...60	20...60 (1)	0 0	AF26-30-00-11	1SBL237001R1100	0.310
						0 0	AF26-30-00-12	1SBL237001R1200	0.310
				48...130	48...130	0 0	AF26-30-00-13	1SBL237001R1300	0.310
						0 0	AF26-30-00-14	1SBL237001R1400	0.350
				100...250	100...250	0 0	AF30-30-00-11	1SBL277001R1100	0.310
						0 0	AF30-30-00-12	1SBL277001R1200	0.310
15	50	20	50	100...250	100...250	0 0	AF30-30-00-13	1SBL277001R1300	0.310
						0 0	AF30-30-00-14	1SBL277001R1400	0.350
				250...500	250...500	0 0	AF38-30-00-11	1SBL297001R1100	0.310
						0 0	AF38-30-00-12	1SBL297001R1200	0.310
				48...130	48...130	0 0	AF38-30-00-13	1SBL297001R1300	0.310
						0 0	AF38-30-00-14	1SBL297001R1400	0.350
				100...250	100...250	0 0	AF38-30-00-11	1SBL297001R1100	0.310
						0 0	AF38-30-00-12	1SBL297001R1200	0.310
				250...500	250...500	0 0	AF38-30-00-13	1SBL297001R1300	0.310
						0 0	AF38-30-00-14	1SBL297001R1400	0.350

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



Main dimensions mm, inches

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

24 V DC operated designed for PLC



AF09Z-30-10



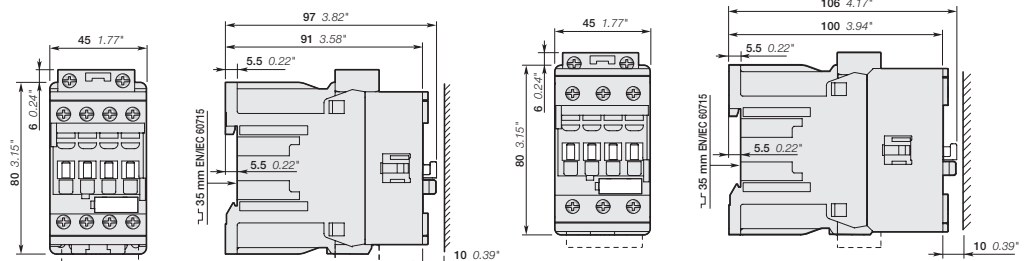
AF26Z-30-00

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	Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power	current	3-phase motor rating	General use rating	Uc				Pkg (1 pce)
400 V AC-3	$\theta \leq 40^\circ\text{C}$ AC-1	480 V	600 V AC	V DC				kg
kW	A	hp	A					
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

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications



AF09Z-30-10



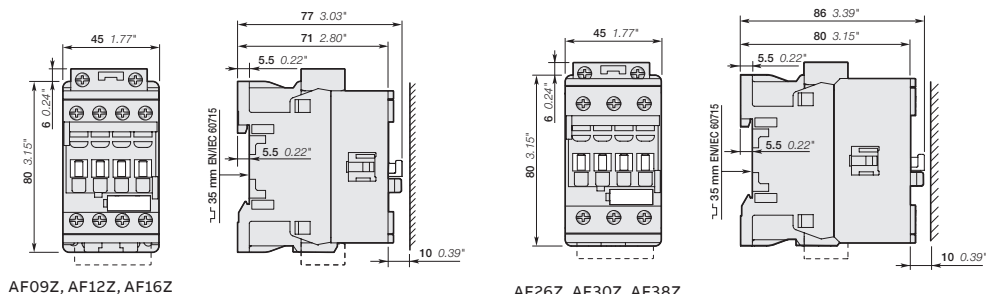
AF26Z-30-00

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 Pkg (1 pce) kg
Rated operational power	current $\theta \leq 40^\circ\text{C}$	3-phase motor rating 480 V	General use rating 600 V AC	V 50/60 Hz	V DC				
400 V AC-3 kW	AC-1 A	hp	A						
4	25	5	25	-	12...20	1 0	AF09Z-30-10-20	1SBL136001R2010	0.310
				24...60	20...60	0 1	AF09Z-30-01-20	1SBL136001R2001	0.310
						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
				24...60	20...60	0 1	AF12Z-30-01-20	1SBL156001R2001	0.310
						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
				24...60	20...60	0 1	AF16Z-30-01-20	1SBL176001R2001	0.310
						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

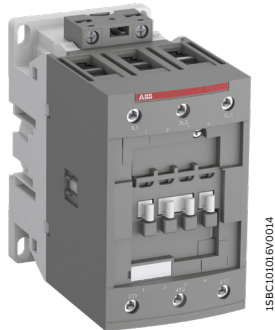
AF40 ... AF96 3-pole contactors

18.5 to 45 kW

AC / DC operated



AF40-30-00



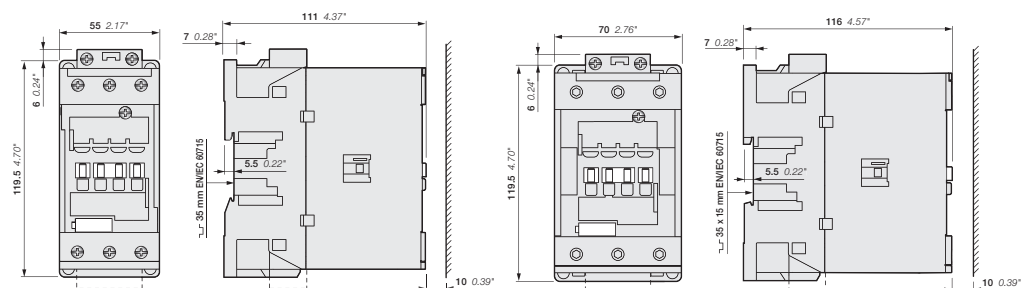
AF80-30-00

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	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						
400 V AC-3	AC-1			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
45/55	130	60/75	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.



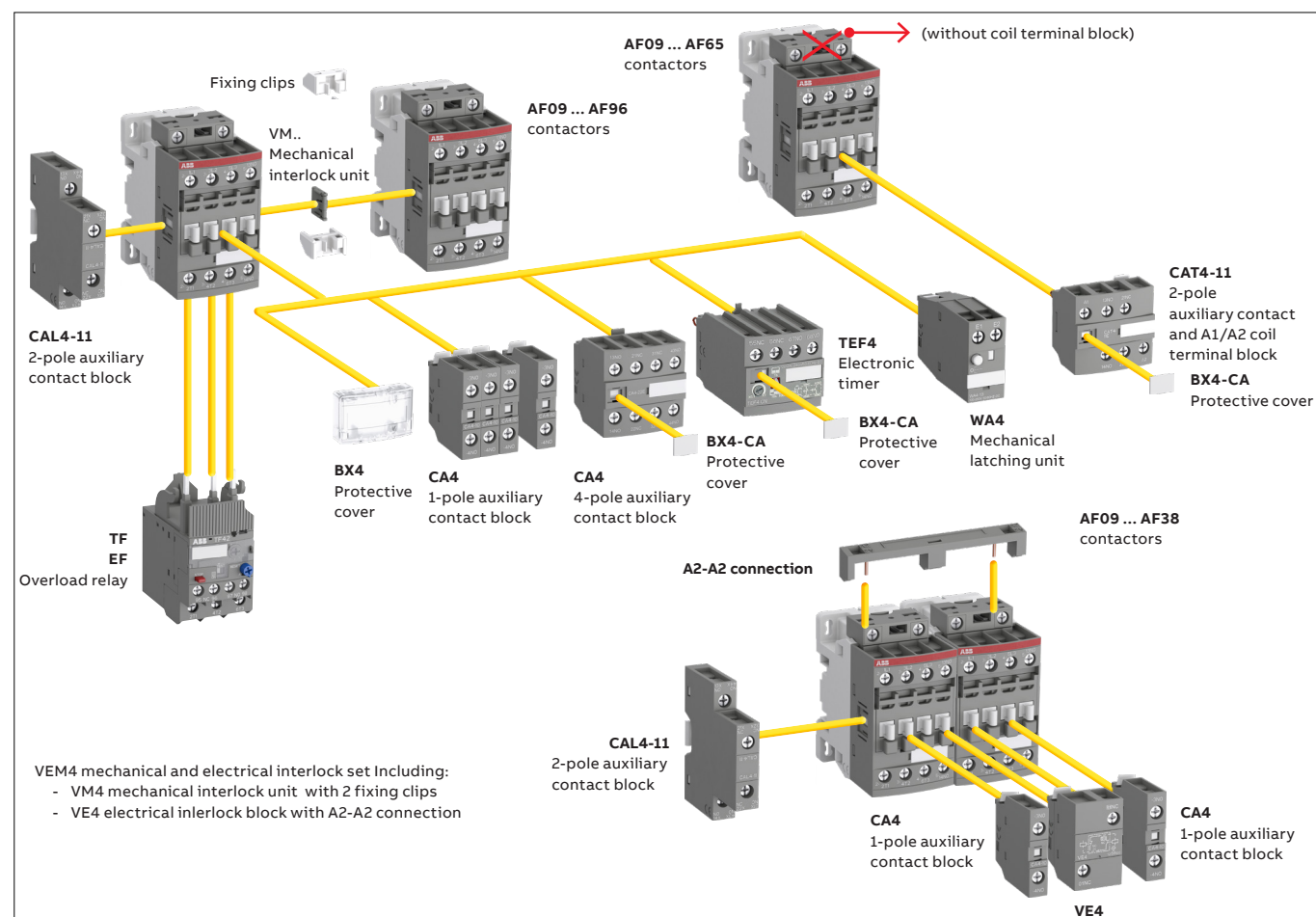
AF40, AF52, AF65

AF80, AF96

Main dimensions mm, inches

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			Electronic timer	Mechanical latching unit	Electrical and mechanical interlock set (between 2 contactors)	Side-mounted accessories		
			Auxiliary contact blocks						Auxiliary contact blocks		
			1-pole CA4	2-pole CAT4-11	4-pole CA4	TEF4	WA4 (2)	VEM4	2-pole CAL4-11		
									Left side	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)

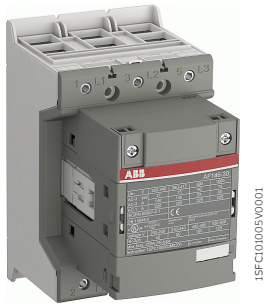
The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.

(4) Direct mounting - No kit required.

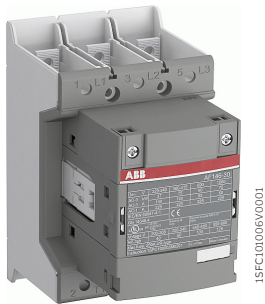
AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated



AF146-30-00



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		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current $\theta \leq 40^\circ\text{C}$	3-phase motor rating 480 V	General use rating 600 V AC	Uc min. ... Uc max.					Pkg (1 pce)
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz V DC					kg

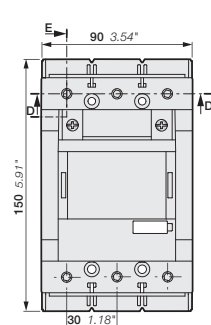
For connection with built-in cable clamps

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

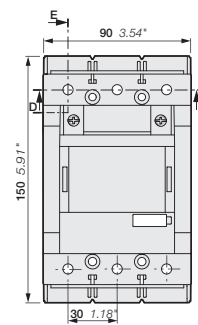
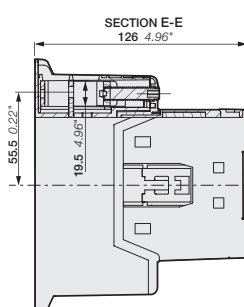
With bar connections

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

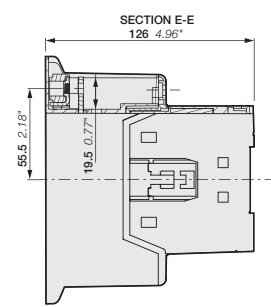
(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-00



AF116, AF140, AF146-30-00B

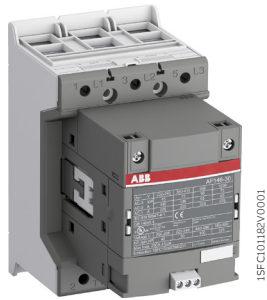


Main dimensions mm, inches

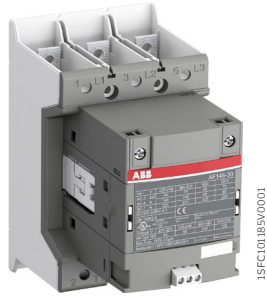
AF116 ... AF146 3-pole contactors with built-in PLC interface

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 $\theta \leq 40^\circ\text{C}$	3-phase motor rating	General use rating	Uc min. ... Uc max.					
400 V	AC-1	480 V	600 V AC	V 50/60 Hz V DC					Pkg (1 pce)
kW	A	hp	A						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

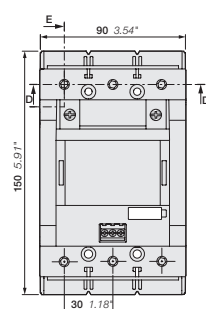
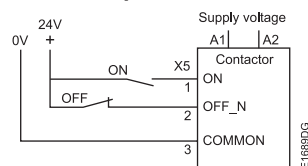
With bar connections

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

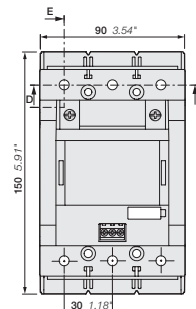
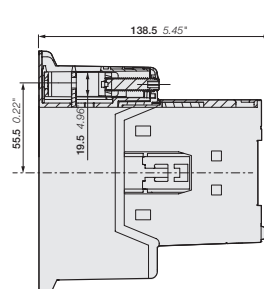
(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

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

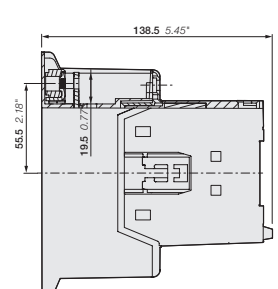
Control inputs



AF116, AF140, AF146-30-00



AF116, AF140, AF146-30-00B

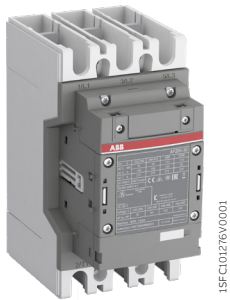


Main dimensions mm, inches

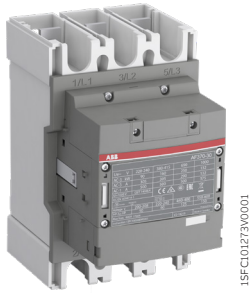
AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated



AF205-30-00



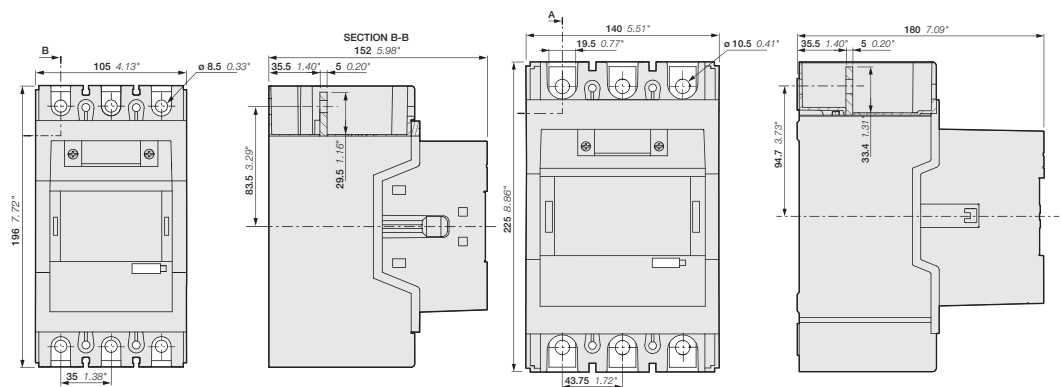
AF370-30-00

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	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	275	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

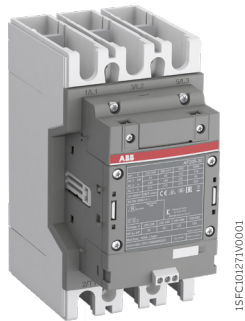
AF265, AF305, AF370

Main dimensions mm, inches

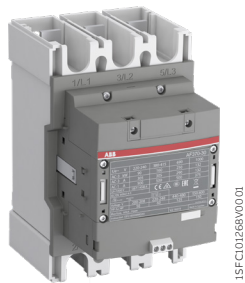
AF190 ... AF370 3-pole contactors with built-in PLC interface

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.

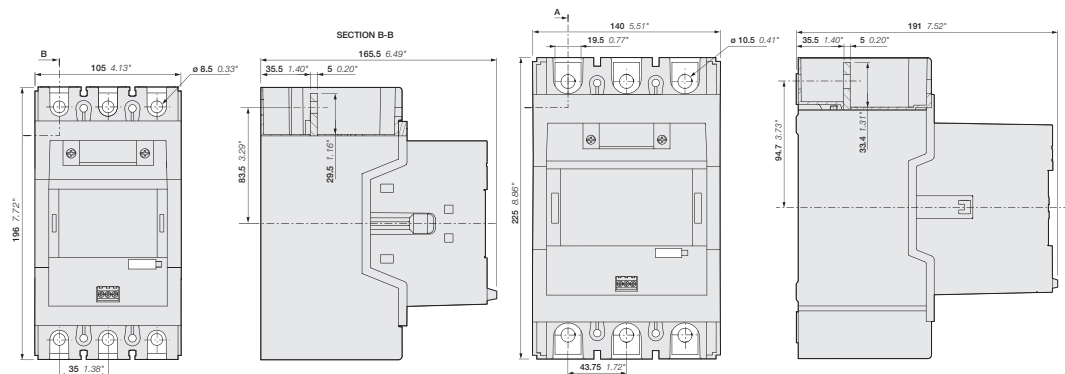
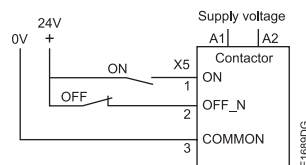
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
 - can manage large control voltage variations
 - reduced panel energy consumption
 - 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	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	275	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



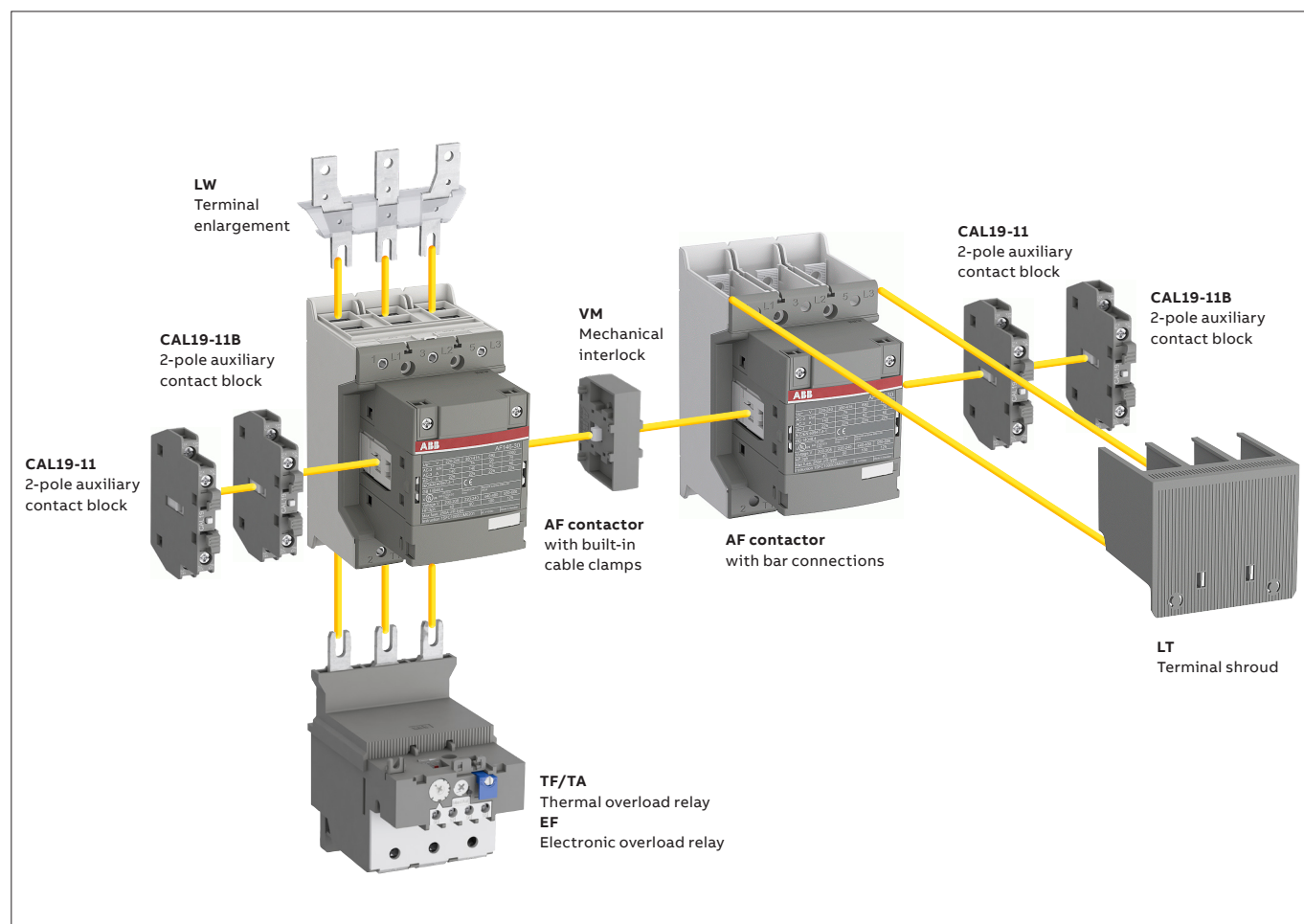
AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

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	2 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	3	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)

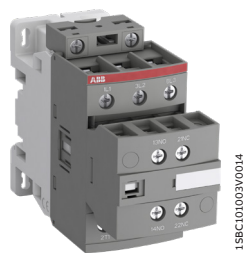
The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.

(1) Direct mounting - No kit required.

AF26 ... AF38 3-pole contactors

4 to 18.5 kW

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



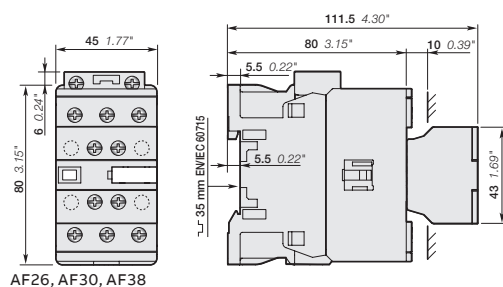
AF26-30-11

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 kW	current θ ≤ 40°C AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC A	V 50/60 Hz	V DC				Pkg (1 pce) 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.

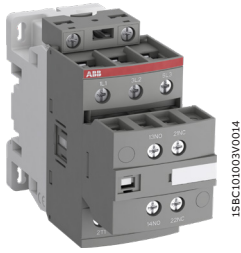


Main dimensions mm, inches

AF26Z ... AF38Z 3-pole contactors

4 to 18.5 kW

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



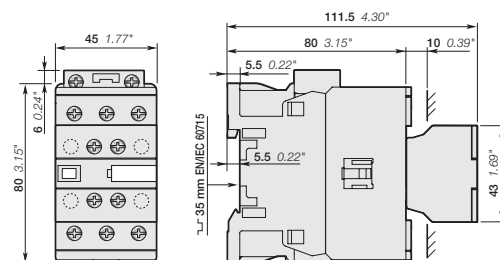
AF26Z-30-11

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 Pkg (1 pce) kg
Rated operational power 400 V AC-3 kW	current $\theta \leq 40^\circ\text{C}$ AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC A	V 50/60 Hz	V DC				
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

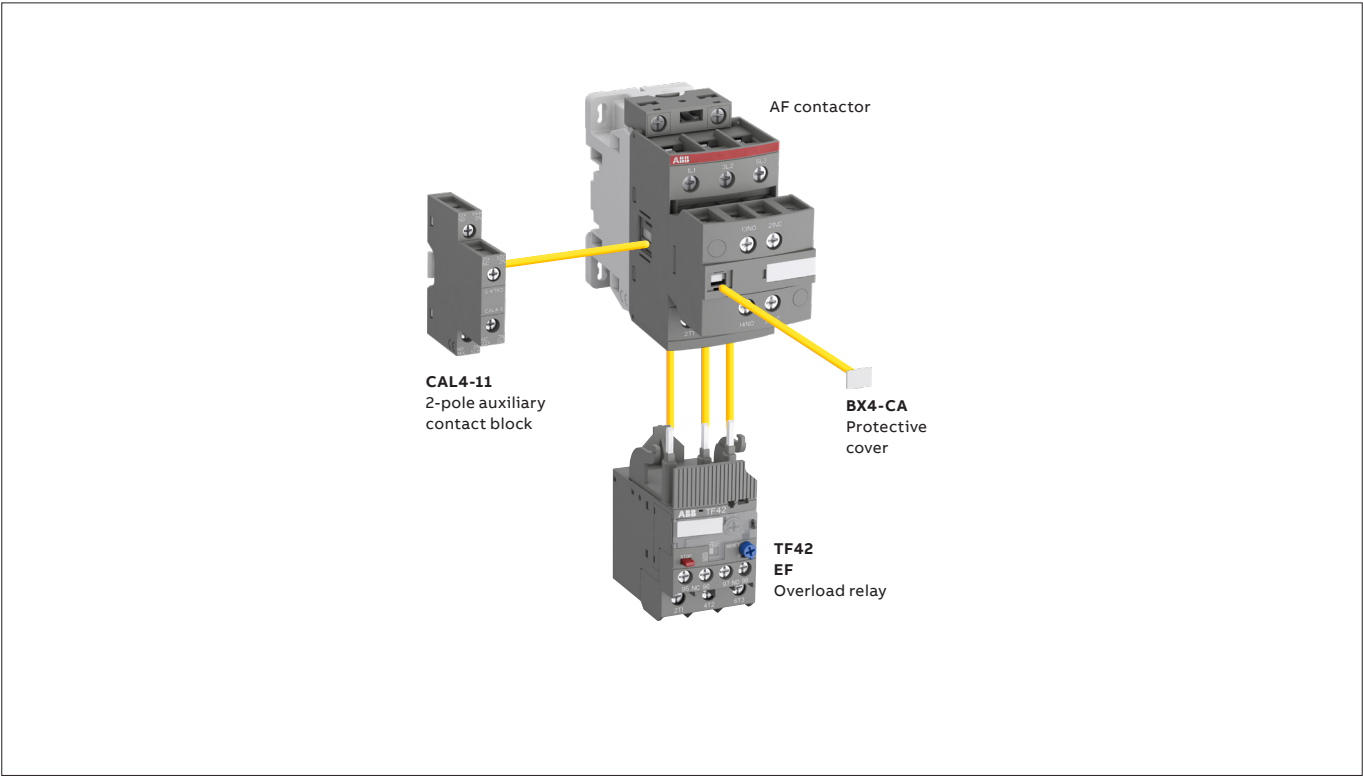


AF26Z, AF30Z, AF38Z

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)	Auxiliary contact blocks	
			VM4	2-pole CAL4-11 Left side	Right side
AF26 ... AF38	3 0	1 1		+ 1	or 1
				+ 1	+ 1

Overload relays fitting details (1)

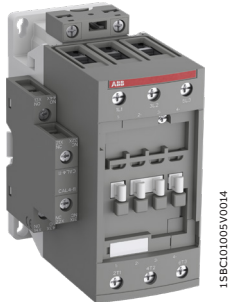
Contactor types	Thermal overload relays	Electronic overload relays
AF26 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
		EF45 (9...45 A)

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.

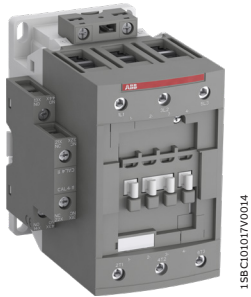
AF40 ... AF96 3-pole contactors

18.5 to 30 kW

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



AF40-30-11



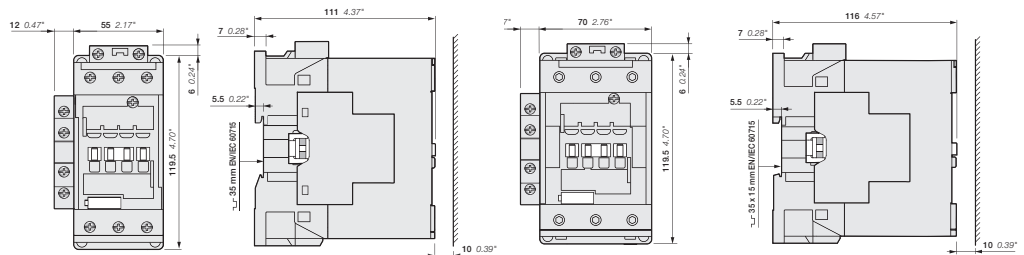
AF80-30-11

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		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power	current $\theta \leq 40^\circ\text{C}$	3-phase motor rating 480 V	General use rating 600 V AC	Uc min. ... Uc max.					Pkg (1 pce)
400 V AC-3 kW	AC-1 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
45/55	130	60/75	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.



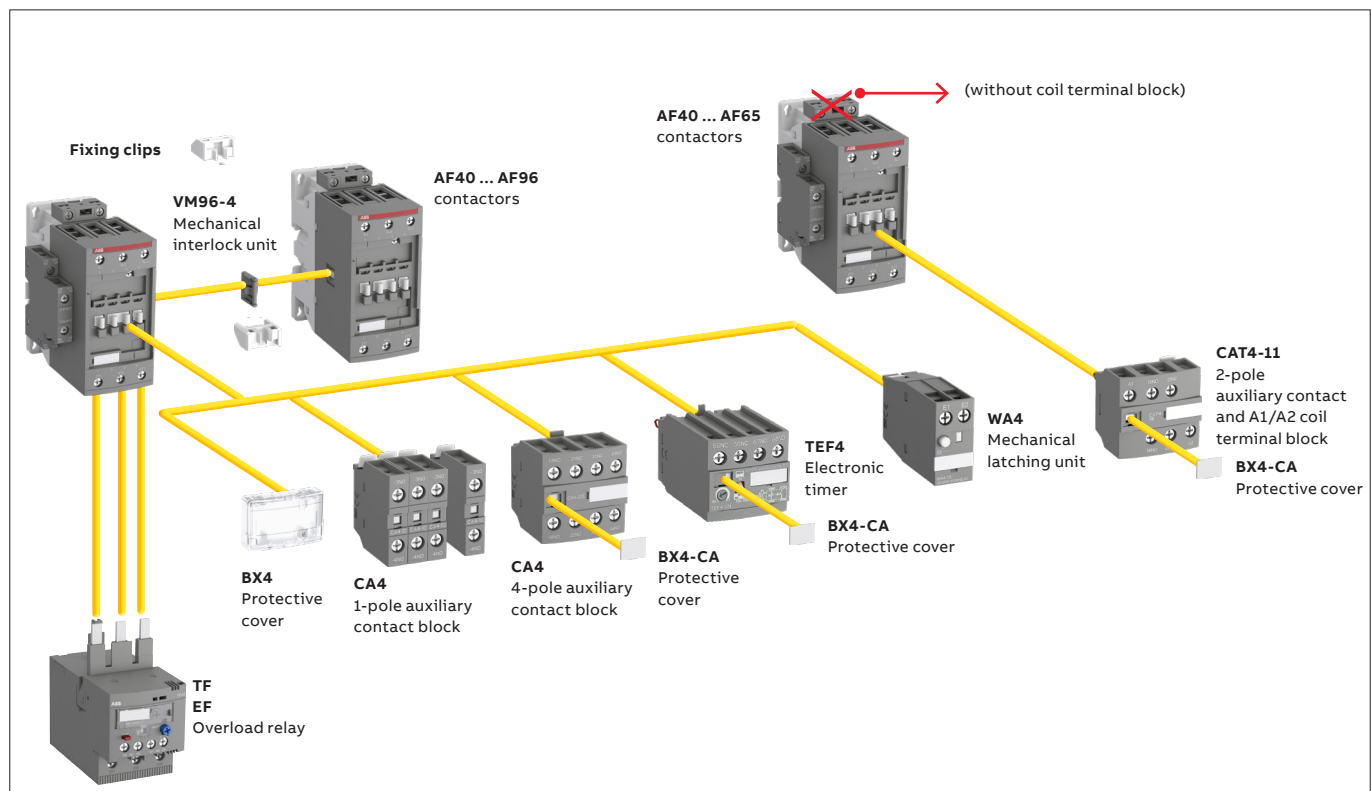
AF40, AF52, AF65-30-11-..

AF80, AF96-30-11-..

Main dimensions mm, inches

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			Electronic timer	Mechanical latching unit (1)	Side-mounted accessories	Auxiliary contact blocks	
			Auxiliary contact blocks					Mechanical interlock set (between 2 contactors)		
			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.

AF116 ... AF146 3-pole contactors

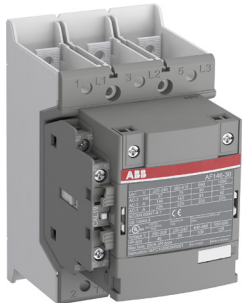
55 to 75 kW

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



AF146-30-11

1SFLC101001V001



AF146-30-11B

1SFLC101008V0001

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		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current	3-phase motor rating	General use rating	Uc min. ... Uc max.				Pkg (1 pce)
400 V	AC-1	480 V	600 V AC	V 50/60 Hz V DC				kg
	A	hp	A					

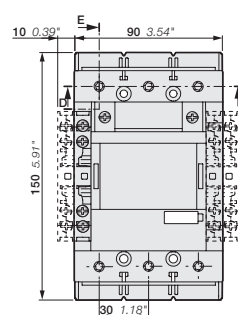
For connection with built-in cable clamps

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

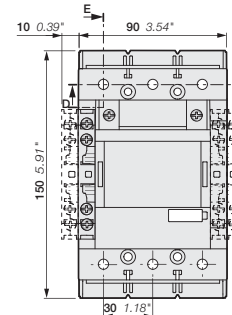
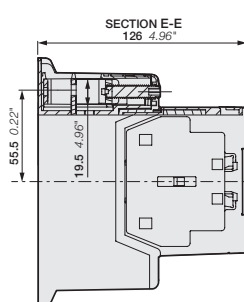
With bar connections

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

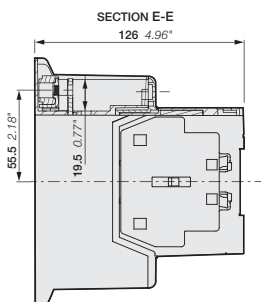
(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-11



AF116, AF140, AF146-30-11B

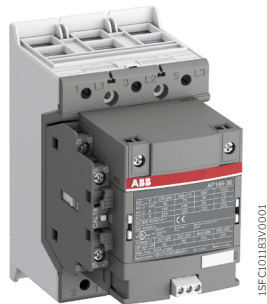


Main dimensions mm, inches

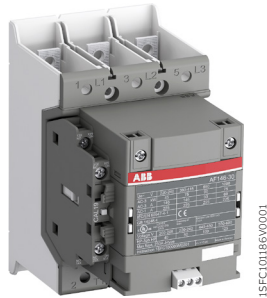
AF116 ... AF146 3-pole contactors with built-in PLC interface

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	Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	3-phase motor rating	General use rating	Uc min. ... Uc max.			Pkg (1 pce)
400 V	480 V	600 V AC	V 50/60 Hz V DC			kg
AC-3	AC-1	A				
kW	hp					

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

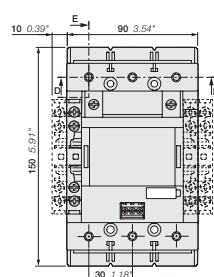
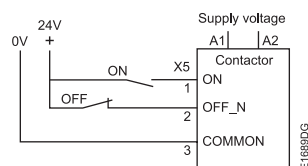
With bar connections

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

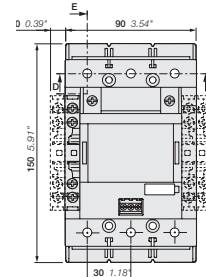
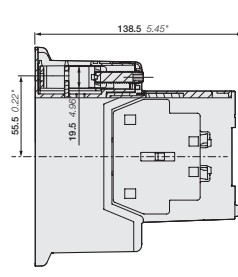
(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

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

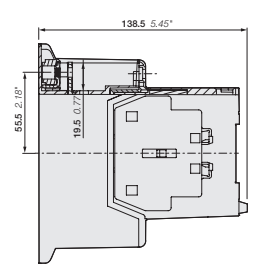
Control inputs



AF116, AF140, AF146-30-11



AF116, AF140, AF146-30-11B

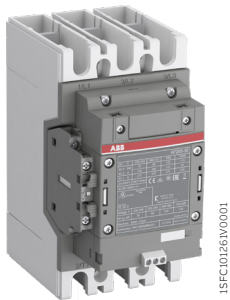


Main dimensions mm, inches

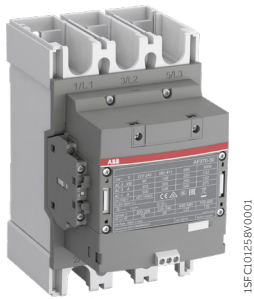
AF190 ... AF370 3-pole contactors

90 to 200 kW

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



AF205-30-11



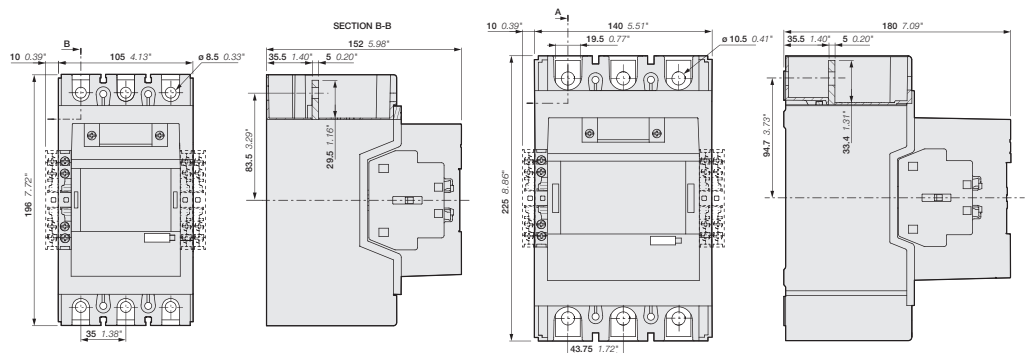
AF370-30-11

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	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	275	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

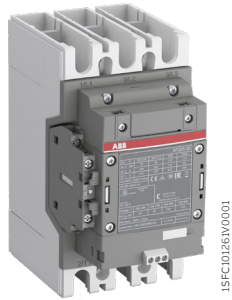
AF265, AF305, AF370

Main dimensions mm, inches

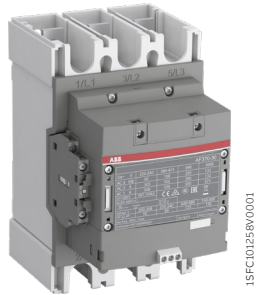
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

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



AF205-30-11



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.

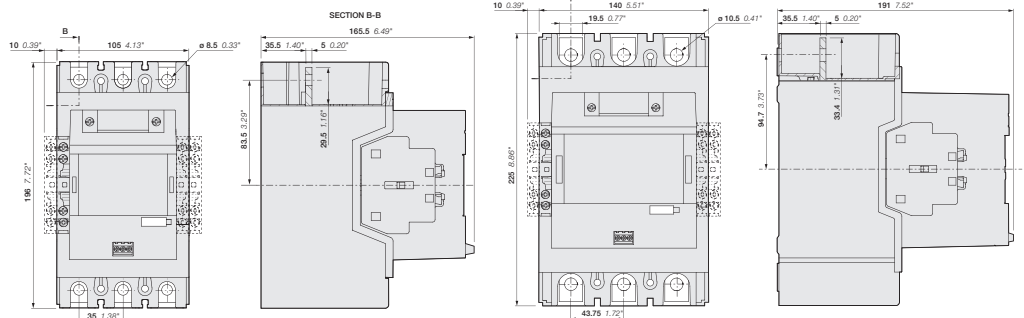
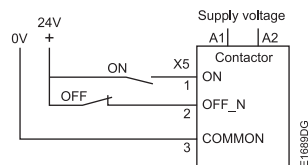
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
 - can manage large control voltage variations
 - reduced panel energy consumption
 - 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 Pkg (1 pce) kg
Rated operational power	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				
90	275	125	275	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



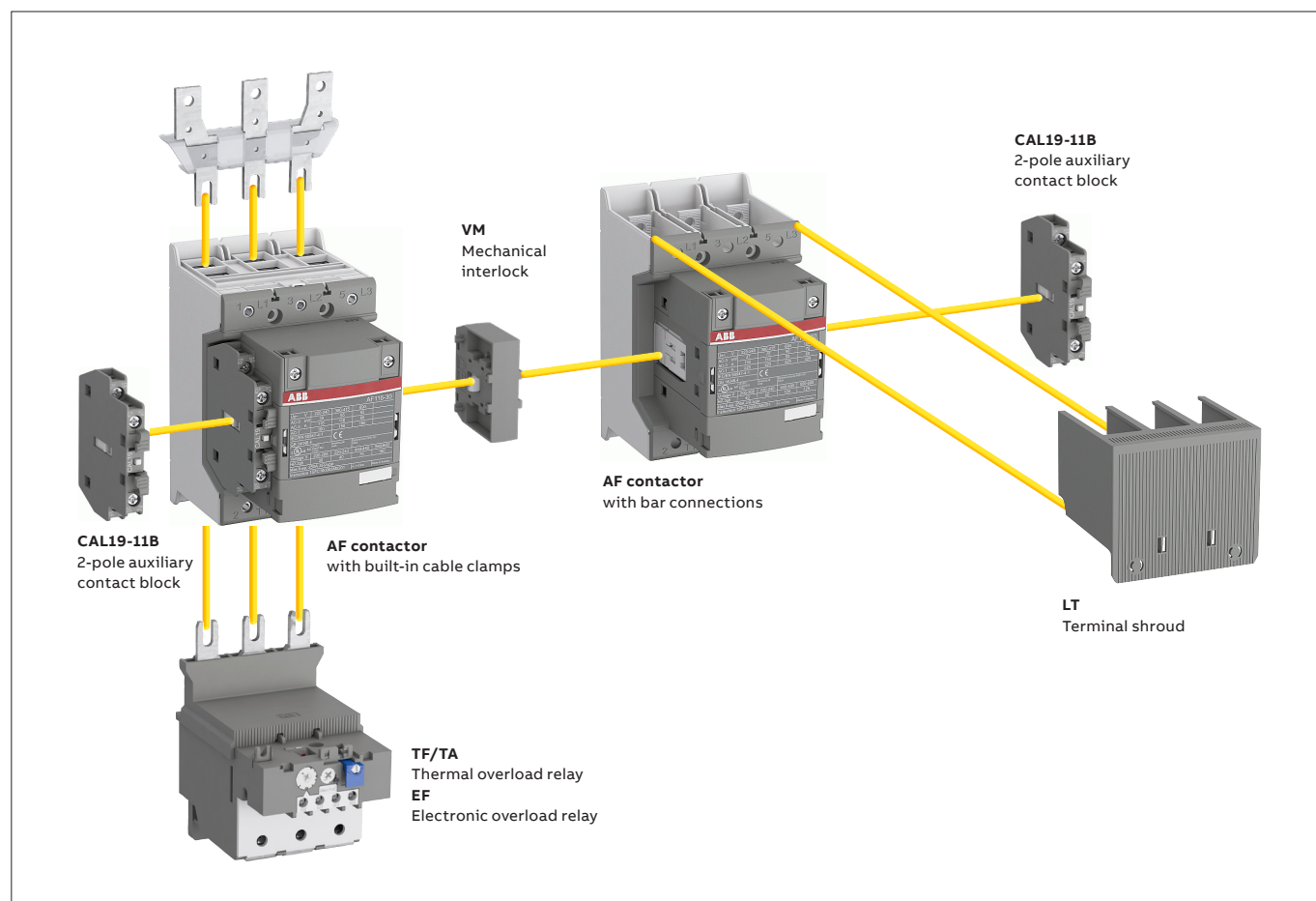
AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

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 CAL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CAL19.

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.

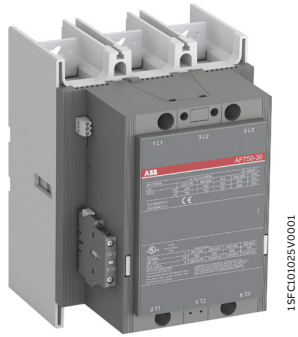
AF400 ... AF750 3-pole contactors

200 to 400 kW

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



AF460-30-11



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.

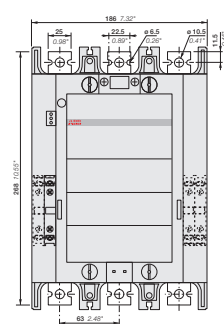
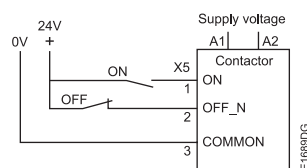
IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3 kW	current θ ≤ 40 °C 690 V AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC A	V 50/60 Hz	V DC				Pkg (1 pce) kg
200	600	350	550	-	24...60	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.

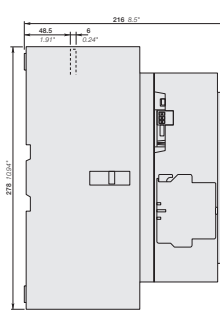
(2) Up to 850 V DC for AF580, AF750.

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

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



AF1250-30-11

1SFC101027V0001



AF2650-30-11

1SFC101031V0001

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)

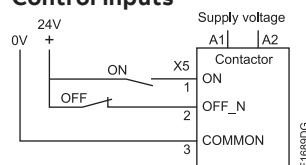
- only 4 coils for AF1250 to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
- only 1 coil for AF1350 ... AF2850 to cover control voltages between 100...250 V 50/60 Hz and 100...250 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct 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 Uc (1) V 50/60 Hz V DC		Auxiliary contacts fitted 	Type	Order code	Weight Pkg (1 pce) kg
Rated operational power	current θ ≤ 40 °C 690 V AC-3 kW	3-phase motor rating 480 V hp	General use rating 600 V AC (2) A						
-	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

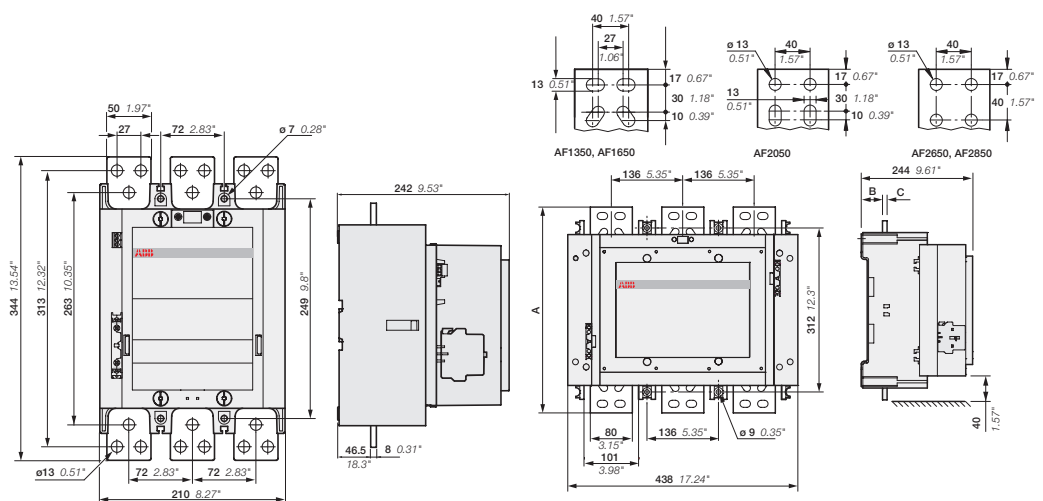
(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole. (2) AF2650: Maximum operational voltage = 1000 V according to UL / CSA.

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

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



AF2650-30T-11

1SFL00216V0001

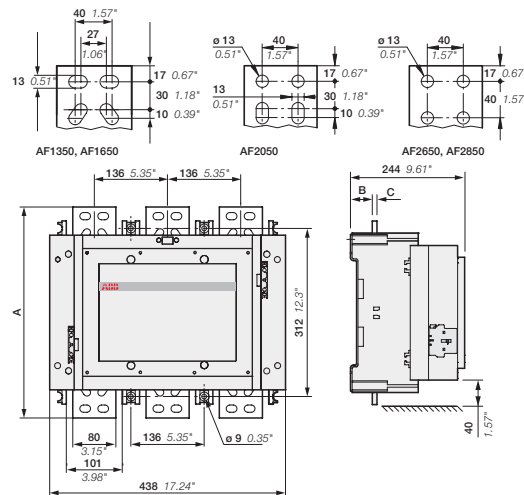
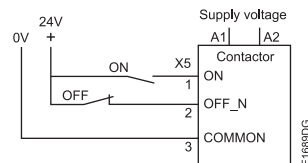
AF1350T .. AF2850T contactors are designed to meet the Low Voltage Ride Through requirements for grid connections withstand voltage drop-outs up to 1 sec without opening. These contactors are often used in grid connected applications where the demand of non interrupted power is required. When controlled 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	current θ ≤ 40 °C	3-phase motor rating	General use rating					
400 V AC-3	690 V AC-1	480 V	600 V AC					
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

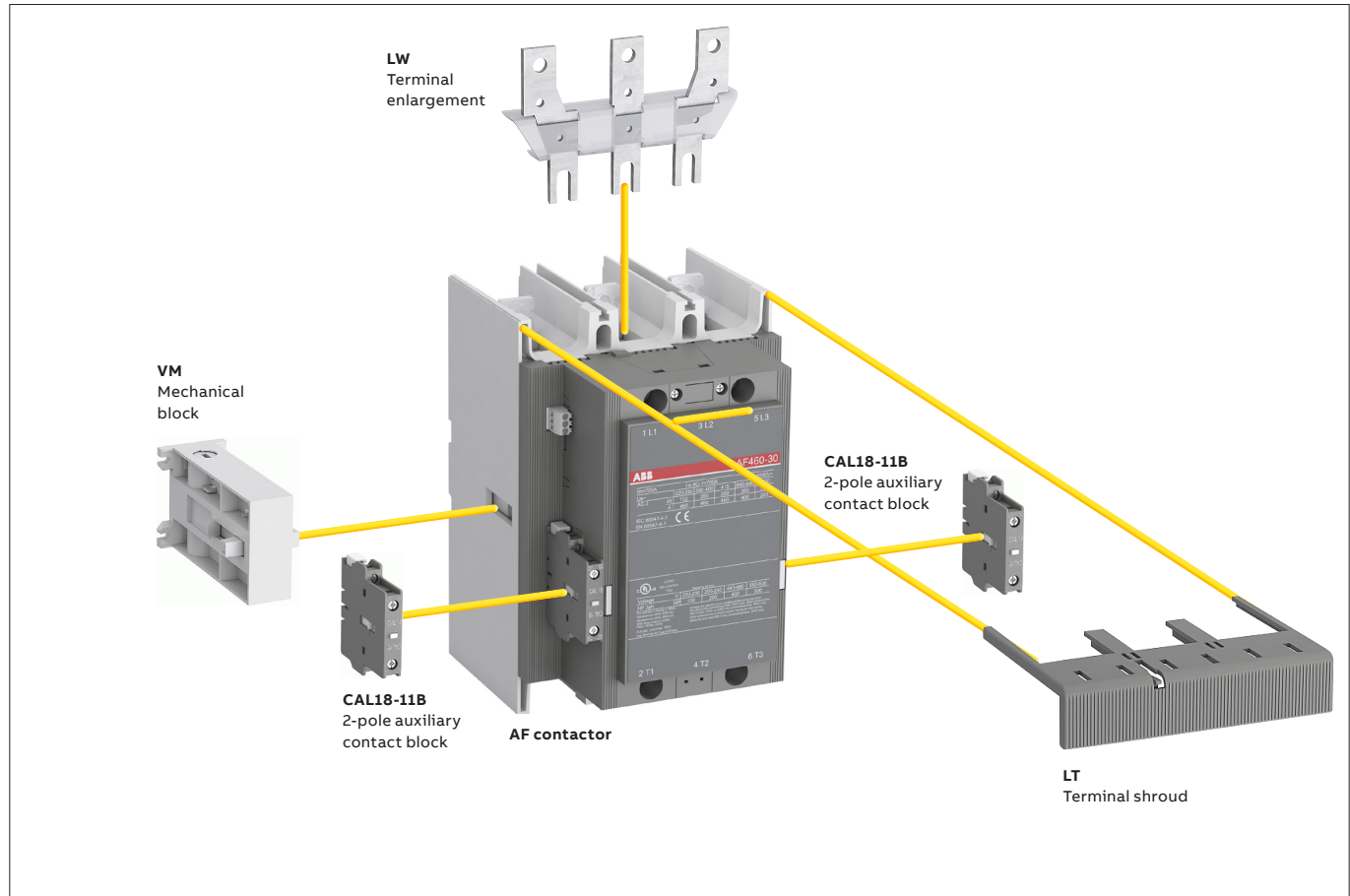
Main dimensions mm, inches

	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"

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	Mechanical interlock units (between two contactors)
	3	0		
			CAL18-11 CAL18-11B (3)	

Contactors + auxiliary contact blocks

AF400 ... AF2850	3	0	1	1	▶	1 x CAL18-11	+ 2 x CAL18-11B	–
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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)
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(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)

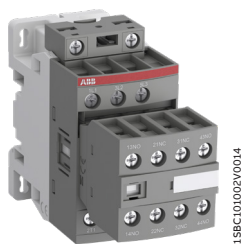
The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.

(1) Mounting kit required (see "Motor protection").

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

1SBC101002V0014



AF26-30-22

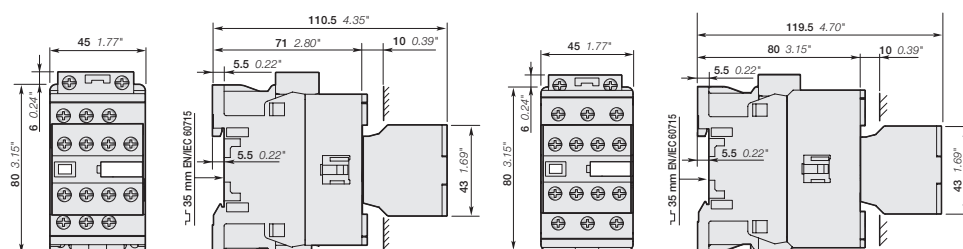
1SBC101004V0014

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		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power	current $\theta \leq 40^\circ\text{C}$	3-phase motor rating 480 V	General use rating 600 V AC	Uc min. ... Uc max.					
400 V AC-3 kW	AC-1 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

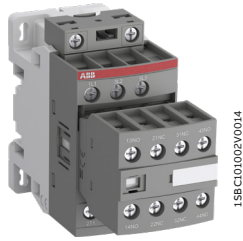
AF26, AF30, AF38

Main dimensions mm, inches

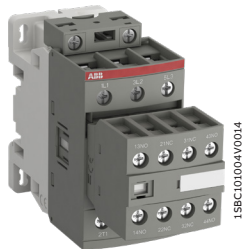
AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

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



AF09Z-30-22



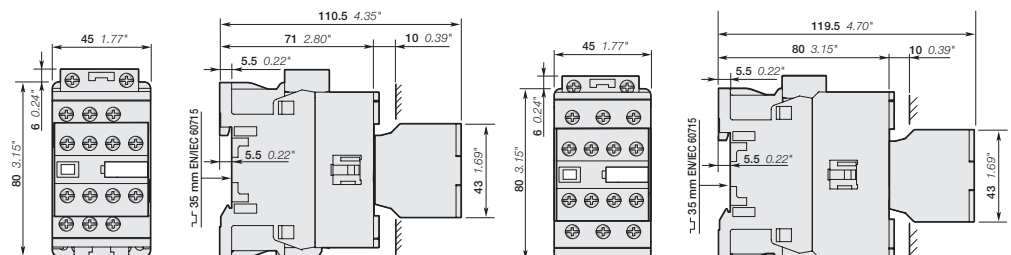
AF26Z-30-22

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 Rated operational power 400 V AC-3 kW	UL/CSA 3-phase motor rating 480 V AC-1 A	General use rating 600 V AC hp	General use rating 600 V AC A	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight Pkg (1 pce) kg
				V 50/60 Hz	V DC				
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

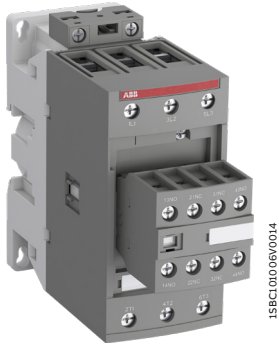
Main dimensions mm, inches

AF26Z, AF30Z, AF38Z

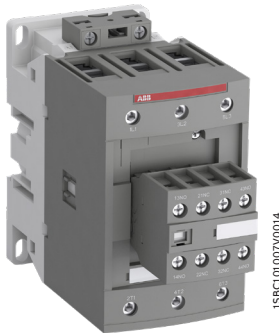
AF40 ... AF96 3-pole contactors

18.5 to 30 kW

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



AF40-30-22



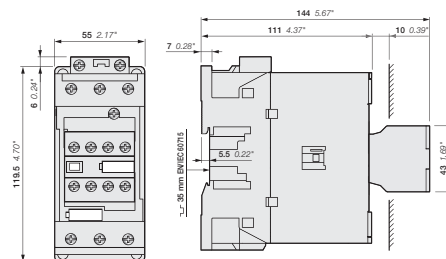
AF80-30-22

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):

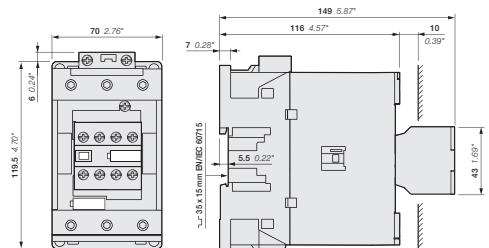
- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (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		Auxiliary contacts fitted	Type	Order code	Weight Pkg (1 pce) kg
Rated operational power 400 V AC-3 kW	3-phase motor rating 480 V	General use rating 600 V AC	Uc min. ... Uc max.					
$\theta \leq 40^\circ\text{C}$	AC-1		V 50/60 Hz	V DC				
18.5	70	30	60			AF40-30-22-11	1SBL347001R1122	1.020
						AF40-30-22-12	1SBL347001R1222	1.020
						AF40-30-22-13	1SBL347001R1322	1.000
						AF40-30-22-14	1SBL347001R1422	1.000
22	100	40	80			AF52-30-22-11	1SBL367001R1122	1.020
						AF52-30-22-12	1SBL367001R1222	1.020
						AF52-30-22-13	1SBL367001R1322	1.000
						AF52-30-22-14	1SBL367001R1422	1.000
30	105	50	90			AF65-30-22-11	1SBL387001R1122	1.020
						AF65-30-22-12	1SBL387001R1222	1.020
						AF65-30-22-13	1SBL387001R1322	1.000
						AF65-30-22-14	1SBL387001R1422	1.000
37	125	60	105			AF80-30-22-11	1SBL397001R1122	1.270
						AF80-30-22-12	1SBL397001R1222	1.270
						AF80-30-22-13	1SBL397001R1322	1.220
						AF80-30-22-14	1SBL397001R1422	1.220
45/55	130	60/75	115			AF96-30-22-11	1SBL407001R1122	1.270
						AF96-30-22-12	1SBL407001R1222	1.270
						AF96-30-22-13	1SBL407001R1322	1.220
						AF96-30-22-14	1SBL407001R1422	1.220

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



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

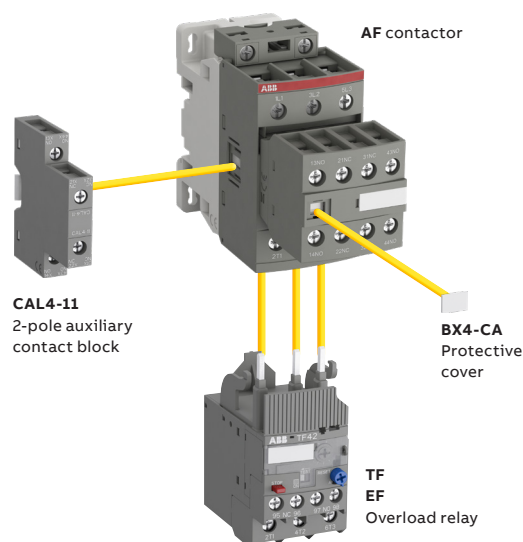


AF80, AF96-30-22-..

Main dimensions mm, inches

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	
				2-pole CAL4-11 Left side	Right side
AF09 ... AF38	3 0	2 2	VM.. 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)

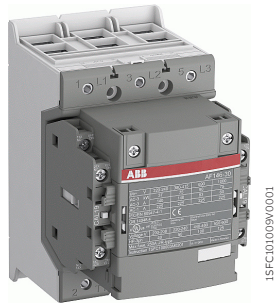
The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.

(1) Direct mounting - No kit required.

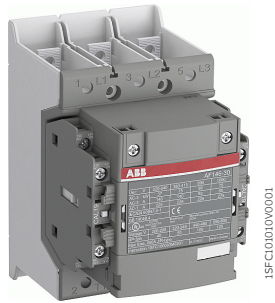
AF116 ... AF146 3-pole contactors

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		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current $\theta \leq 40^\circ\text{C}$	3-phase motor rating	General use rating	Uc min. ... Uc max.					Pkg (1 pce)
400 V AC-3 kW	AC-1 A	480 V hp	600 V AC A	V 50/60 Hz V DC					kg

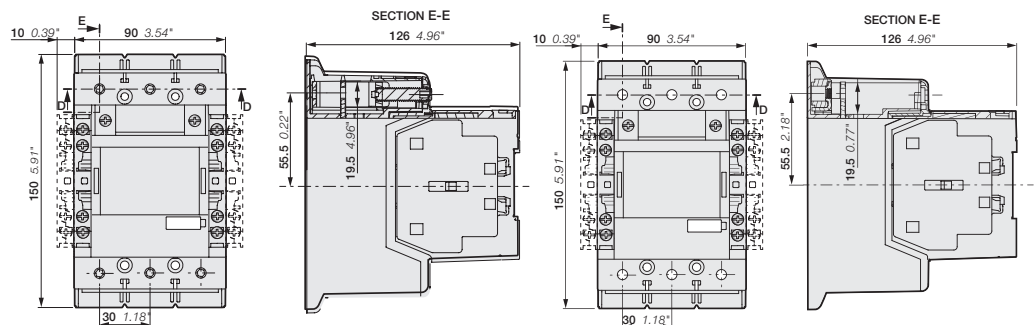
For connection with built-in cable clamps

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

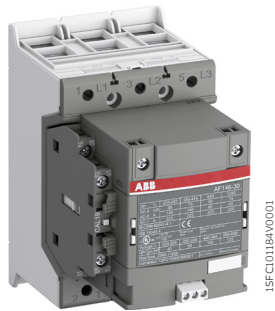
AF116, AF140, AF146-30-22B

Main dimensions mm, inches

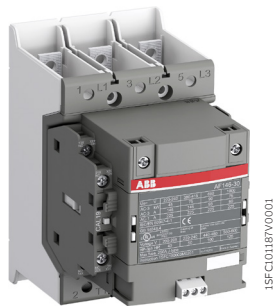
AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

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



AF146-30-22



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	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC					
400 V								
AC-3	AC-1							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

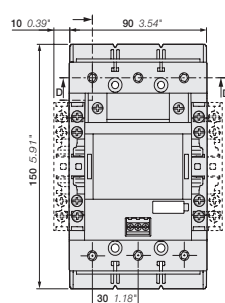
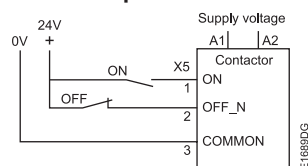
With bar connections

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

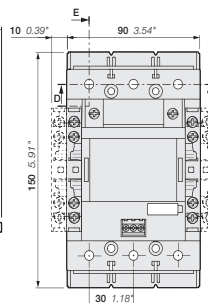
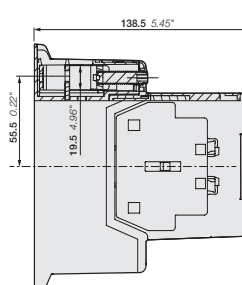
For other auxiliary contacts arrangements, please contact your ABB local sales organization.

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

Control inputs



AF116, AF140, AF146-30-22



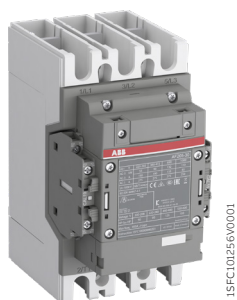
AF116, AF140, AF146-30-22B

Main dimensions mm, inches

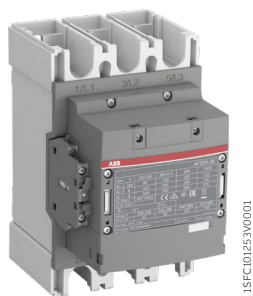
AF190 ... AF370 3-pole contactors

90 to 200 kW

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



AF205-30-22



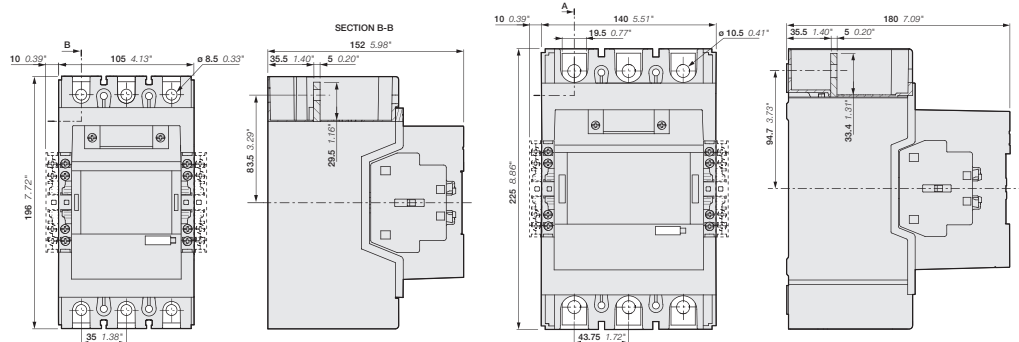
AF370-30-22

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	Rated operational current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	275	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

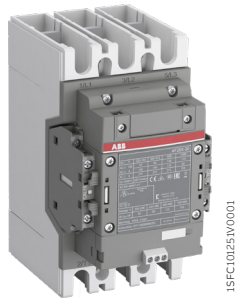
AF265, AF305, AF370

Main dimensions mm, inches

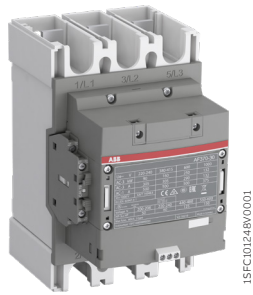
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

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



AF205-30-22



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.

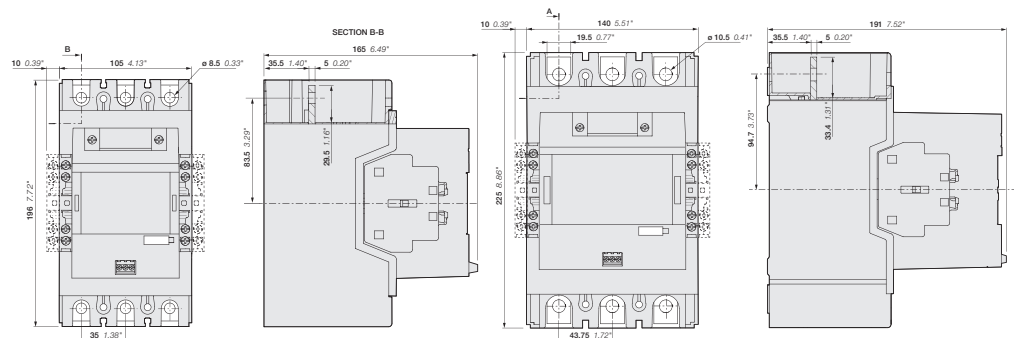
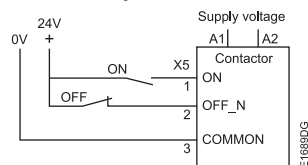
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
 - can manage large control voltage variations
 - reduced panel energy consumption
 - 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	current θ ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC						
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	275	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

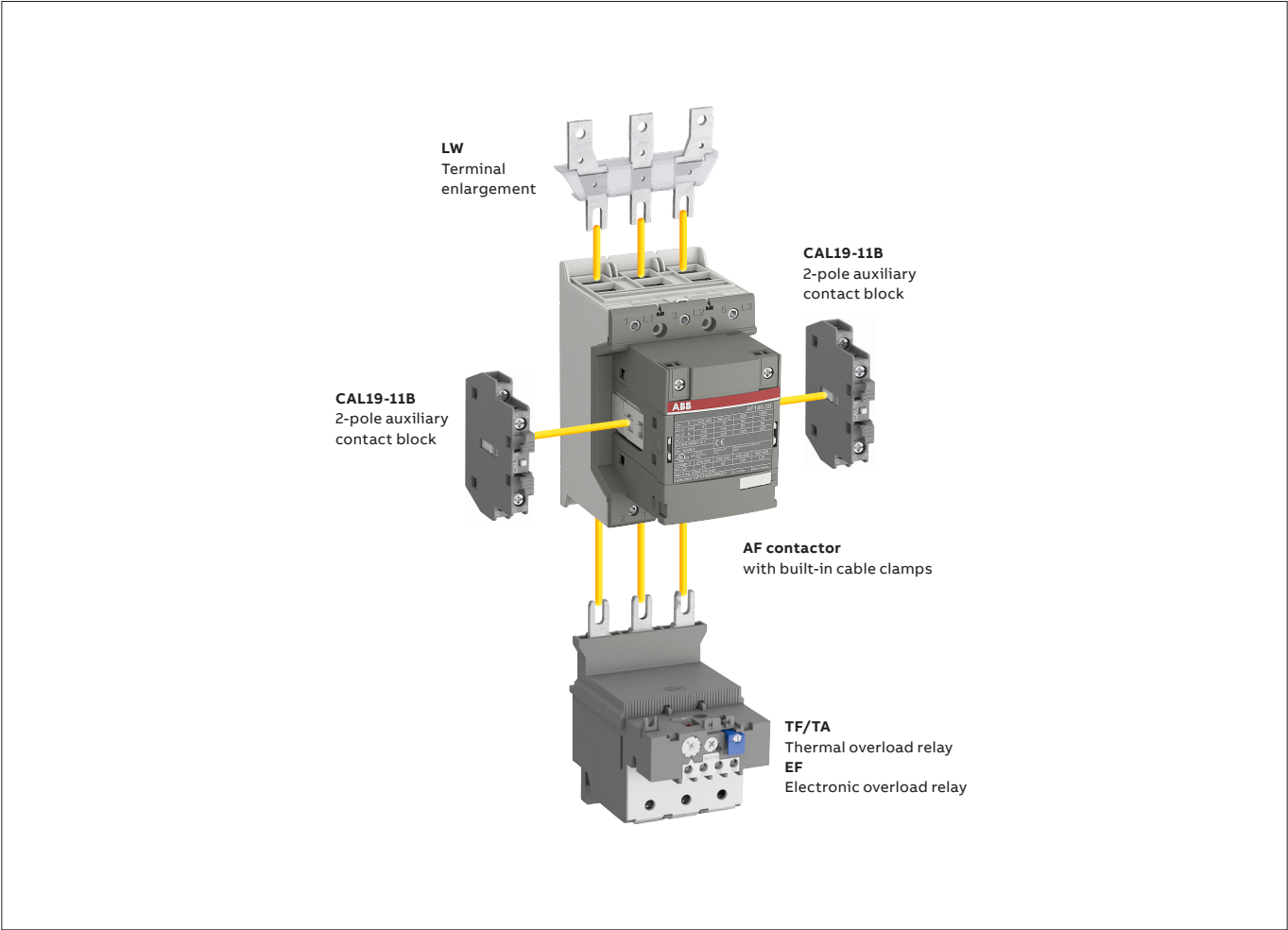
AF265, AF305, AF370

Main dimensions mm, inches

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		Mechanical interlock units (between two contactors)
			Auxiliary contact blocks		
			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.

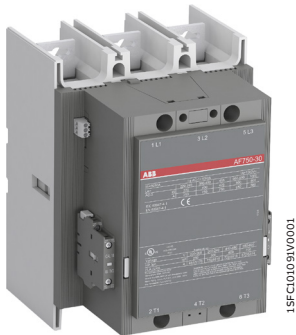
AF400 ... AF750 3-pole contactors

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.

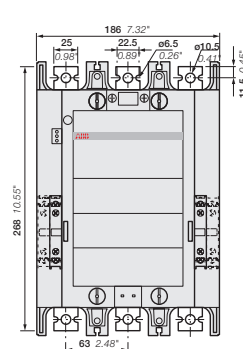
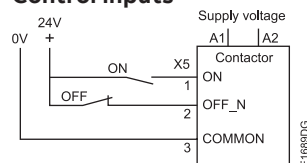
IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power	current $\theta \leq 40^{\circ}\text{C}$	3-phase motor rating	General use rating						Pkg (1 pce)
400 V AC-3	690 V AC-1	480 V	600 V AC						kg
kW	A	hp	A	V 50/60 Hz	V DC				
200	600	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.

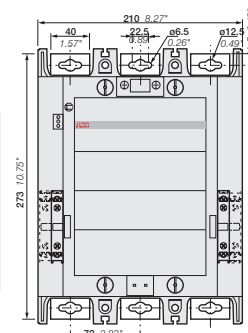
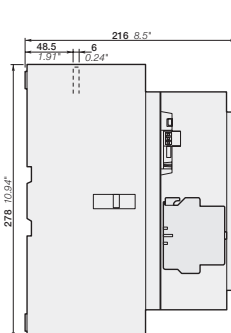
(2) Up to 850 V DC for AF580, AF750.

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

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.

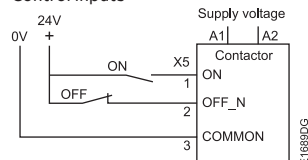
IEC	UL/CSA	Rated control circuit voltage	Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	3-phase motor rating 480 V AC-1	General use rating 600 V AC (2)	Uc (1)			Pkg (1 pce) kg
kW	A	hp	A	V 50/60 Hz	V DC	
-	1260	-	1210	-	24...60	2 2
				48...130	48...130	2 2
				100...250	100...250	2 2
				250...500	250...500	2 2
475	1350	800	1350	100...250	100...250	2 2
560	1650	900	1650	100...250	100...250	2 2
-	2050	-	2100	100...250	100...250	2 2
-	2650	-	2700	100...250	100...250	2 2
-	2850	-	2850	100...250	100...250	2 2

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

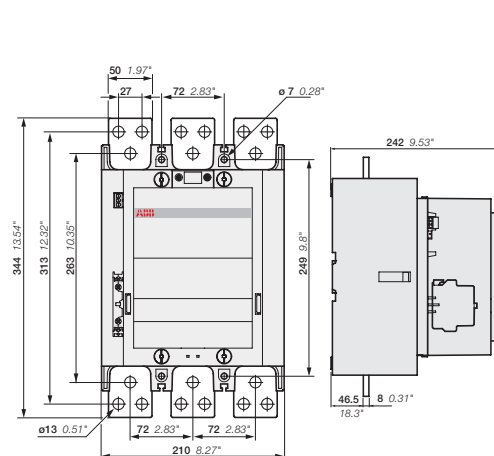
(2) AF2650 : Maximum operational voltage = 1000 V according to UL / CSA.

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

Control inputs

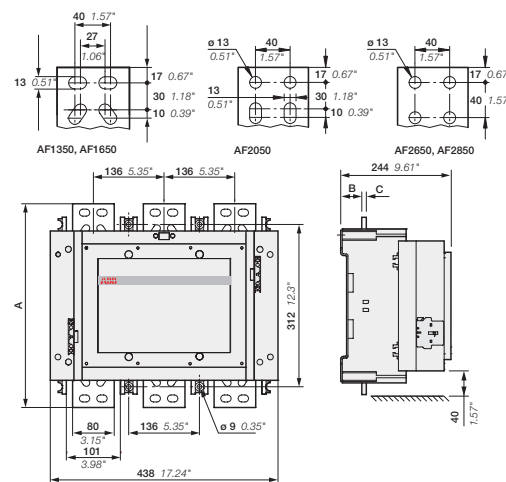


	AF1350, AF1650, AF2050	AF2650, AF2850
A	392 mm / 15.43"	422 mm / 16.61"
B	47 mm / 1.85"	53 mm / 2.11"
C	10 mm / 0.39"	25 mm / 0.98"



AF1250

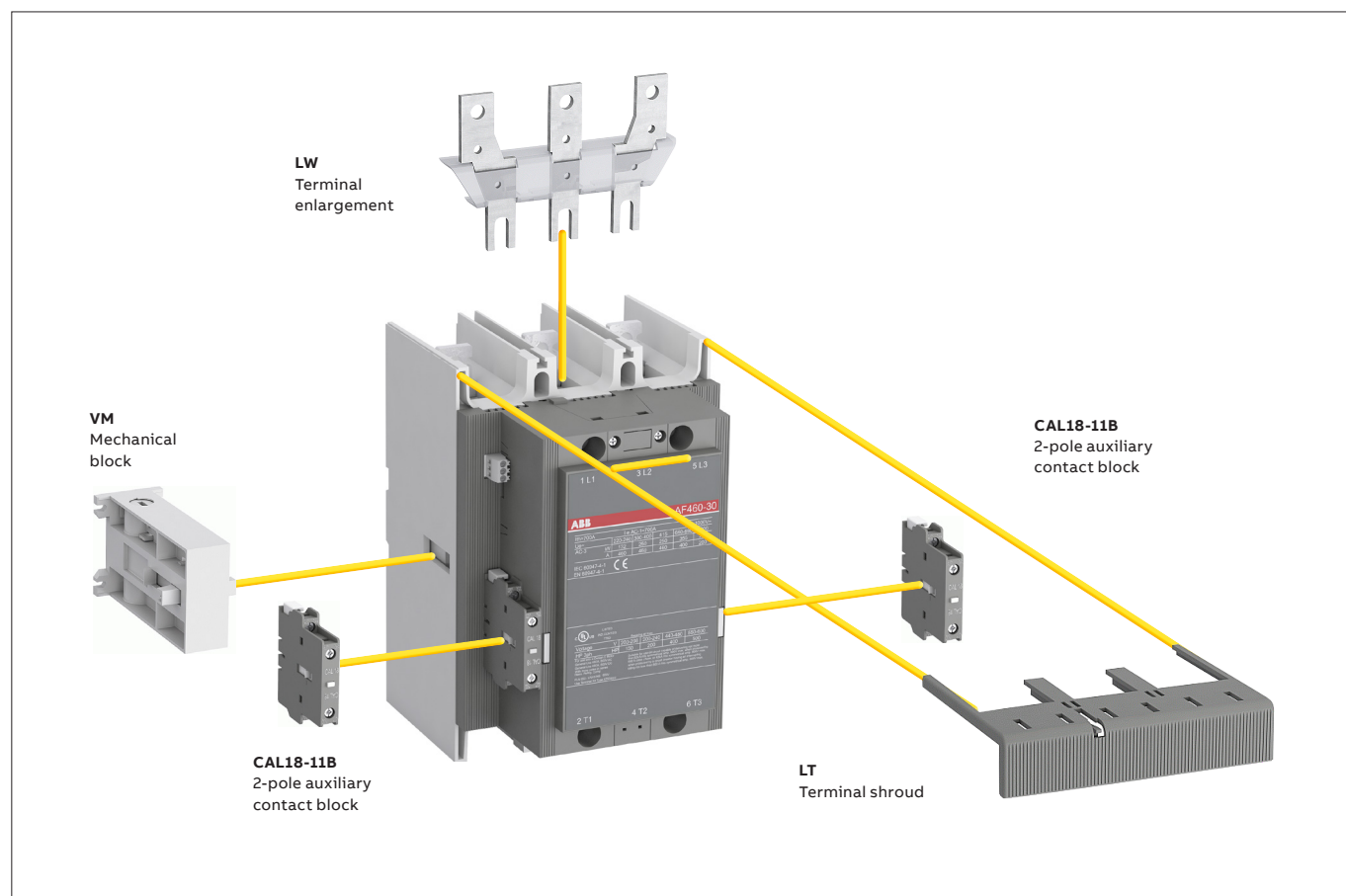
Main dimensions mm, inches



AF1350, AF1650, AF2050, AF2650, AF2850

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		Mechanical interlock units (between two contactors)
			CAL18-11	CAL18-11B (2)	

Contactors + auxiliary contact blocks

AF145 ... AF2850	3	0	2	2	▶	2 x CAL18-11 included	2 x CAL18-11B	-
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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)
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(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").

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 U_e max.		690 V					
Rated frequency (without derating)		50 / 60 Hz					
Conventional free-air thermal current I_{th}							
acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		35 A	35 A	35 A	50 A	50 A	50 A
With conductor cross-sectional area		6 mm ²	6 mm ²	6 mm ²	10 mm ²	10 mm ²	10 mm ²
AC-1 Utilization category							
For air temperature close to contactor							
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	25 A	28 A	30 A	45 A	50 A	50 A
U_e max. $\leq 690\text{ V}$, 50/60 Hz	$\theta \leq 60^\circ\text{C}$	25 A	28 A	30 A	40 A	42 A	42 A
	$\theta \leq 70^\circ\text{C}$	22 A	24 A	26 A	32 A	37 A	37 A
With conductor cross-sectional area		4 mm ²	6 mm ²	6 mm ²	10 mm ²	10 mm ²	10 mm ²
AC-3, AC-3e Utilization category							
For air temperature close to contactor $\theta \leq 60^\circ\text{C}$							
I_e / 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
 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	220-230-240 V	2.2 kW	3 kW	4 kW	6.5 kW	9 kW	11 kW
	380-400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW
	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 I_e AC-3, 12 x I_e AC-3e acc. to IEC 60947-4-1					
Rated breaking capacity AC-3, AC-3e		8 x I_e AC-3, 8.5 x I_e AC-3e acc. to IEC 60947-4-1					
AC-8a Utilization category							
(without thermal overload relay - U_e 400 V 50/60 Hz - $\theta \leq 40^\circ\text{C}$)							
I_e / 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)							
$U_e \leq 500\text{ V AC}$ - gG type fuse		25 A	32 A	32 A	50 A	63 A	63 A
Rated short-time withstand current I_{cw}	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							
$\cos \phi = 0.45$							
	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							
	I_e / AC-1	0.8 W	1 W	1.2 W	1.8 W	2.4 W	2.4 W
	I_e / 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".

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 U_e max.		690 V				1000 V
Rated frequency (without derating)		50 / 60 Hz				
Conventional free-air thermal current I_{th}						
acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		105 A	105 A	105 A	130 A	130 A
With conductor cross-sectional area		35 mm ²	35 mm ²	35 mm ²	50 mm ²	50 mm ²
AC-1 Utilization category						
For air temperature close to contactor						
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	70 A	100 A	105 A	125 A	130 A
U_e max. ≤ 690 V, 50/60 Hz	$\theta \leq 60^\circ\text{C}$	60 A	80 A	90 A	100 A	105 A
	$\theta \leq 70^\circ\text{C}$	50 A	70 A	80 A	85 A	90 A
With conductor cross-sectional area		25 mm ²	35 mm ²	35 mm ²	50 mm ²	50 mm ²
AC-3, AC-3e Utilization category						
For air temperature close to contactor $\theta \leq 60^\circ\text{C}$						
I_e / Max. rated operational current AC-3, AC-3e (1)						
AC-3e $U_e \leq 690$ V	220-230-240 V	40 A	53 A	65 A	80 A	105 A
	380-400 V	40 A	53 A	65 A	80 A	105 A
	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	30 A
Rated operational power AC-3, AC-3e (1)						
AC-3e $U_e \leq 690$ V	220-230-240 V	11 kW	15 kW	18.5 kW	22 kW	30 kW
	380-400 V	18.5 kW	22 kW	30 kW	37 kW	55 kW
	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 I_e AC-3, 12 x I_e AC-3e acc. to IEC 60947-4-1				
Rated breaking capacity AC-3, AC-3e		8 x I_e AC-3, 8.5 x I_e AC-3e acc. to IEC 60947-4-1				
AC-8a Utilization category						
(without thermal overload relay						
U_e 400 V 50/60 Hz - $\theta \leq 40^\circ\text{C}$)						
I_e / 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)						
$U_e \leq 500$ V AC - gG type fuse		100 A	125 A	160 A	160 A	200 A
Rated short-time withstand current I_{cw}	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						
$\cos \phi = 0.45$						
	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	I_e / AC-1	3 W	6.3 W	7 W	7.6 W	8.2 W
	I_e / 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".

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 U _e 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 I _{th}									
acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		160 A	200 A	225 A	275 A	350 A	400 A	500 A	600 A
With conductor cross-sectional area		70 mm ²	95 mm ²	95 mm ²	150 mm ²	240 mm ² (3)	240 mm ²	300 mm ² (4)	2 x 185 mm ² (4)
AC-1 Utilization category									
For air temperature close to contactor									
I _e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	160 A	200 A	225 A	275 A	350 A	400 A	500 A	600 A
U _e max. $\leq 690\text{ V}$, 50/60 Hz	$\theta \leq 60^\circ\text{C}$	145 A	175 A	200 A	250 A	300 A	350 A	400 A	500 A
	$\theta \leq 70^\circ\text{C}$	130 A	160 A	175 A	200 A	240 A	290 A	325 A	400 A
I _e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	–	–	225 A	250 A	275 A	350 A	375 A	400 A
U _e max. $\leq 1000\text{ V}$, 50/60 Hz	$\theta \leq 60^\circ\text{C}$	–	–	200 A	225 A	250 A	300 A	325 A	350 A
	$\theta \leq 70^\circ\text{C}$	–	–	175 A	185 A	200 A	240 A	260 A	290 A
With conductor cross-sectional area		70 mm ²	95 mm ²	95 mm ²	150 mm ²	240 mm ² (3)	240 mm ²	300 mm ² (4)	2 x 185 mm ² (4)
AC-3, AC-3e Utilization category									
For air temperature close to contactor $\theta \leq 60^\circ\text{C}$									
I _e / Max. rated operational current AC-3, AC-3e (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
	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 / 54 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
	415 V	55 kW	75 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW
	440 V	75 kW	90 kW	90 kW	110 kW	132 kW	160 kW	160 kW	200 kW
	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, AC-3e		10 x I _e AC-3, 12 x I _e AC-3e acc. to IEC 60947-4-1							
Rated breaking capacity AC-3, AC-3e		8 x I _e AC-3, 8.5 x I _e AC-3e acc. to IEC 60947-4-1							
Short-circuit protection device for contactors without thermal overload relay - Motor protection excluded (2)									
U _e $\leq 500\text{ V AC}$ - gG type fuse		250 A	315 A	315 A	355 A	400 A	500 A	500 A	630 A
Rated short-time withstand current I _{cw}	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 $\phi = 0.45$	at 440 V	2000 A	3000 A	3000 A	3300 A	3500 A	3800 A	4600 A	5000 A
(cos $\phi = 0.35$ for I _e > 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	I _e / AC-1	12 W	18 W	23 W	15 W	25 W	32 W	50 W	72 W
	I _e / 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. AC-3e is valid up to AF190.

(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.

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 U_e max.		1000 V			
Rated frequency (without derating)		50/60 Hz			
Conventional free-air thermal current I_{th} acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		600 A	700 A	800 A	1050 A
With conductor cross-sectional area (3)		2x185 mm ²	2x240 mm ²	2x240 mm ²	800 mm ² (4)
AC-1 Utilization category					
For air temperature close to contactor					
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	600 A	700 A	800 A	1050 A
U_e max. ≤ 690 V, 50/60 Hz	$\theta \leq 55^\circ\text{C}$	500 A	600 A	700 A	875 A
	$\theta \leq 70^\circ\text{C}$	400 A	480 A	580 A	720 A
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	600 A	700 A	800 A	1000 A
U_e max. ≤ 1000 V, 50/60 Hz	$\theta \leq 55^\circ\text{C}$	500 A	600 A	700 A	875 A
	$\theta \leq 70^\circ\text{C}$	400 A	480 A	580 A	720 A
With conductor cross-sectional area		2x185 mm ²	2x240 mm ²	2x240 mm ²	800 mm ² (4)
AC-3 Utilization category					
For air temperature close to contactor $\theta \leq 55^\circ\text{C}$					
I_e / 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
	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
	220-230-240 V	110 kW	132 kW	160 kW	220 kW
	380-400 V	200 kW	250 kW	315 kW	400 kW
	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 I_e AC-3 acc. to IEC 60947-4-1			
Rated breaking capacity AC-3		8 x I_e AC-3 acc. to IEC 60947-4-1			
Short-circuit protection device for contactors without thermal overload relay Motor protection excluded (2)					
$U_e \leq 500$ V AC - gG type fuse		630 A	800 A	1000 A	1000 A
Rated short-time withstand current I_{cw} at 40°C ambient temperature, in free air from a cold state	1 s	4600 A	4600 A	7000 A	7000 A
	10 s	4400 A	4400 A	6400 A	6400 A
	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 $\cos \phi = 0.45$	at 440 V	4000 A	5000 A	6000 A	7500 A
($\cos \phi = 0.35$ for $I_e > 100$ A)	at 690 V	3500 A	4500 A	5000 A	7000 A
Power dissipation per pole	I_e / AC-1	30 W	42 W	32 W	50 W
	I_e / 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.

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 U_e max.		1000 V					
Rated frequency (without derating)		50/60 Hz					
Conventional free-air thermal current I_{th}							
acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		1260 A	1350 A	1650 A	2050 A	2650 A	2850 A
With conductor cross-sectional area (3)		1000 mm ² (4)	1000 mm ² (5)	1500 mm ² (5)	2000 mm ² (5)	3000 mm ² (5)	3000 mm ² (5)
AC-1 Utilization category							
For air temperature close to contactor							
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	1260 A	1350 A	1650 A	2050 A	2650 A	2850 A
U_e max. ≤ 690 V, 50/60 Hz	$\theta \leq 55^\circ\text{C}$	1040 A	1150 A	1450 A	1750 A	2350 A	2600 A
	$\theta \leq 70^\circ\text{C}$	875 A	1000 A	1270 A	1500 A	2120 A	2300 A
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	1260 A	1350 A	1650 A	2050 A	2650 A	2850 A
U_e max. ≤ 1000 V, 50/60 Hz	$\theta \leq 55^\circ\text{C}$	1040 A	1150 A	1450 A	1750 A	2350 A	2600 A
	$\theta \leq 70^\circ\text{C}$	875 A	1000 A	1270 A	1500 A	2120 A	2300 A
With conductor cross-sectional area		1000 mm ² (4)	1000 mm ² (5)	1500 mm ² (5)	2000 mm ² (5)	3000 mm ² (5)	3000 mm ² (5)
AC-3, AC-3e Utilization category							
For air temperature close to contactor $\theta \leq 55^\circ\text{C}$							
I_e / Max. rated operational current AC-3, AC-3e (1)							
	220-230-240 V	–	860 A	1060 A	1060 A	–	–
	380-400 V	–	860 A	1060 A	1060 A	–	–
	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, AC-3e (1)							
	220-230-240 V	–	257 kW	315 kW	–	–	–
	380-400 V	–	475 kW	560 kW	–	–	–
	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, AC-3e		10 x I_e AC-3, 12 x I_e AC-3e acc. to IEC 60947-4-1					
Rated breaking capacity AC-3, AC-3e		8 x I_e AC-3, 8.5 x I_e AC-3e acc. to IEC 60947-4-1					
Short-circuit protection device for contactors without thermal overload relay							
Motor protection excluded (2)							
$U_e \leq 500$ V AC - gG type fuse		Please consult us for coordination with circuit-breaker					
Rated short-time withstand current I_{cw}	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							
$\cos \phi = 0.45$	at 440 V	7500 A	10000 A	12000 A	8400 A	8400 A	8400 A
($\cos \phi = 0.35$ for $I_e > 100$ A)	at 690 V	7000 A	–	–	–	–	–
Power dissipation per pole	I_e / AC-1	80 W	80 W	80 W	125 W	200 W	200 W
	I_e / 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 AC-3e is valid up to AF190.

(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.



3-phase motors



1500 r.p.m. 50 Hz
1800 r.p.m. 60 Hz
3-phase motors

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
	2 poles in serie	160 V DC	25 A	28 A	30 A	45 A	50 A
	3 poles in serie	240 V DC	25 A	28 A	30 A	45 A	50 A
	With conductor cross-sectional area		AWG 10	AWG 10	AWG 10	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
		240 V AC	10 A	12 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
		240 V AC	1-1/2 hp	2 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
		220-240 V AC	6.8 A	9.6 A	15.2 A	22 A	28 A
		440-480 V AC	7.6 A	11 A	14 A	21 A	27 A
		550-600 V AC	9 A	11 A	17 A	22 A	27 A (2)
	Horse power rating (1)	200-208 V AC	2 hp	3 hp	5 hp	7-1/2 hp	10 hp
		220-240 V AC	2 hp	3 hp	5 hp	7-1/2 hp	10 hp
		440-480 V AC	5 hp	7-1/2 hp	10 hp	15 hp	20 hp
		550-600 V AC	7-1/2 hp	10 hp	15 hp	20 hp	25 hp (2)
	Full Load Amps (FLA)	125 V DC	9.5 A	13.2 A	17 A	25 A	25 A
		250 V DC	8.5 A	12.2 A	12.2 A	20 A	29 A
UL / CSA - DC motor starting - 3 poles in series	Horse power rating	125 V DC	1 hp	1-1/2 hp	2 hp	3 hp	3 hp
		250 V DC	2 hp	3 hp	3 hp	5 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.

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	96 A
	220-240 V AC	42 A	54 A	68 A	80 A	96 A
	440-480 V AC	40 A	52 A	65 A	77 A	96 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	40 hp
	440-480 V AC	30 hp	40 hp	50 hp	60 hp	75 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".

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		600 V		1000 V					
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		275 A	300 A	350 A	400 A	520 A
1000 V AC		–	–	200 A	250 A	275 A	300 A	350 A	400 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		400 A		500 A	600 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.

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".

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-..

AF116 ... AF370 3-pole contactors

Technical data

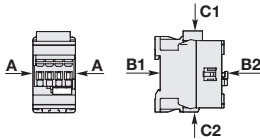
Main pole utilization characteristics - 3 N.O. non-reversing contactors

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

AF09 ... AF38 3-pole contactors

Technical data

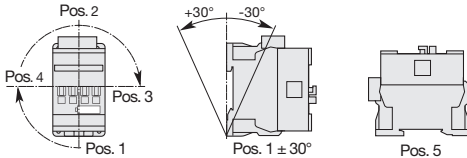
General technical data

Contactor types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38
Rated insulation voltage U_i							
acc. to IEC 60947-4-1		690 V					
acc. to UL / CSA		600 V					
Rated impulse withstand voltage U_{imp} .		6 kV					
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A and B (1)					
Pollution degree		3					
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							
acc. to IEC 60068-2-6		5...300 Hz					
		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 $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max.}$					
	DC supply	At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots U_c \text{ max.}$ At $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max.}$ At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots U_c \text{ max.}$					
AC control voltage 50/60 Hz							
Rated control circuit voltage U_c		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 U_c		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		$\leq 60\%$ of $U_c \text{ min.}$					
Voltage sag immunity acc. to SEMI F47-0706		-					
Dips withstand $-20^\circ\text{C} \leq \theta \leq +60^\circ\text{C}$		-					
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 $\theta \leq 60^\circ\text{C}$ $0.85 \dots 1.1 \times U_c$ At $\theta \leq 70^\circ\text{C}$ U_c					
DC control voltage							
Rated control circuit voltage U_c		24 V DC					
Coil consumption	Average pull-in value	6 W					
	Average holding value	1.7 W					
PLC-output control		$\geq 250 \text{ mA}$ 24 V DC for PLCs and safety PLCs using broken wire detection					
Drop-out voltage		$\leq 60\%$ of $U_c \text{ min.}$					
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					

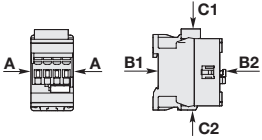
Magnet system characteristics for AF09Z ... AF38Z for specific applications - coils 20, 21, 22, 23

Contactor types	AC / DC operated	AF09Z	AF12Z	AF16Z	AF26Z	AF30Z	AF38Z
Coil operating limits acc. to IEC 60947-4-1	AC supply	At $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max.}$ At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots U_c \text{ max.}$					
	DC supply	At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max.}$					
AC control voltage							
Rated control circuit voltage U_c		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 U_c		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) $\geq 500 \text{ mA}$ 24 V DC for PLCs - not suitable for safety PLCs					
Drop-out voltage		$\leq 60\%$ of $U_c \text{ min.}$					
Voltage sag immunity acc. to SEMI F47-0706		(AF..Z coil 21, 22, 23) conditions of use on request					
Dips withstand $-20^\circ\text{C} \leq \theta \leq +60^\circ\text{C}$		(AF..Z coil 21, 22, 23) 20 ms average for $U_c \geq 24 \text{ V}$ 50/60 Hz or $U_c \geq 20 \text{ V}$ 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					

AF40 ... AF96 3-pole contactors

Technical data

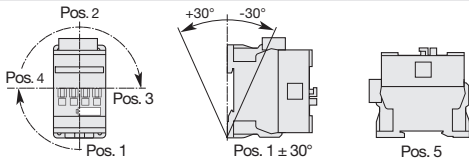
General technical data

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Rated insulation voltage U_i						
acc. to IEC 60947-4-1		690 V			1000 V	
acc. to UL / CSA		600 V				
Rated impulse withstand voltage U_{imp}		6 kV			8 kV	
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A and B				
Pollution degree		3				
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 $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$.				
acc. to IEC 60947-4-1	DC supply	At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$.				
AC control voltage 50/60 Hz						
Rated control circuit voltage U_c		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 U_c		20...500 V DC				
Coil consumption	Average pull-in value	25 W				40 W
	Average holding value	2 W				
PLC-output control		-				
Drop-out voltage		$\leq 60\%$ of $U_c \text{ min}$.				
Voltage sag immunity		conditions of use on request				
acc. to SEMI F47-0706						
Dips withstand		20 ms average				
-20 °C $\leq \theta \leq$ +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

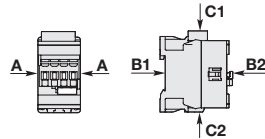
Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Mounting positions						
		Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-pole contactor AF40 ... AF96				
Mounting distances		The contactors can be assembled side by side				
Fixing						
On rail 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				

AF40 ... AF96 3-pole contactors

Technical data

General technical data

Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Rated insulation voltage U_i						
acc. to IEC 60947-4-1		690 V			1000 V	
acc. to UL / CSA		600 V				
Rated impulse withstand voltage U_{imp}		6 kV			8 kV	
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A and B				
Pollution degree		3				
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 $\theta \leq 70$ °C $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$.				
acc. to IEC 60947-4-1	DC supply	At $\theta \leq 70$ °C $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$.				
AC control voltage 50/60 Hz						
Rated control circuit voltage U_c		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 U_c		20...500 V DC				
Coil consumption	Average pull-in value	25 W				40 W
	Average holding value	2 W				
PLC-output control		-				
Drop-out voltage		≤ 60 % of $U_c \text{ min}$.				
Voltage sag immunity		conditions of use on request				
acc. to SEMI F47-0706						
Dips withstand		20 ms average				
-20 °C $\leq \theta \leq$ +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

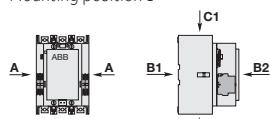
Contactor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Mounting positions						
		Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-pole contactor AF40 ... AF96				
Mounting distances		The contactors can be assembled side by side				
Fixing						
On rail 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				

AF400 ... AF750 3-pole contactors

Technical data

General technical data

Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Rated insulation voltage U_i		1000 V			
acc. to IEC 60947-4-1		600 V			
acc. to UL / CSA					
Rated impulse withstand voltage U_{imp}		8 kV			
Electromagnetic compatibility		AF contactors complying with IEC 60947-1 / EN 60947-1 - Environment A			
Pollution degree		3			
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 $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$			
acc. to IEC 60947-4-1	DC supply	At $\theta \leq 70^\circ\text{C}$ $0.80 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$			
Rated control circuit voltage U_c (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 $U_c \text{ min.}$			
Voltage sag immunity acc. to SEMI F47		Conditions of use on request			
Dips withstand		$\geq 20 \text{ ms}$			
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

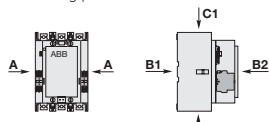
Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Mounting positions					
Mounting distances		Max. add-on N.O. or N.C. auxiliary contacts: see accessory fitting details for 3-pole contactor AF400 ... AF2650			
Fixing		The contactors can be assembled side by side			
On rail according to IEC 60715,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

AF1250 ... AF2850 3-pole contactors

Technical data

General technical data

Contactors types	AC / DC operated	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
Rated insulation voltage U_i							
acc. to IEC 60947-4-1							
acc. to UL / CSA			1000 V				
Rated impulse withstand voltage U_{imp} .							
Electromagnetic compatibility							
Pollution degree		3					
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

Contactors 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 U_c			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 U_c 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

Contactors 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				

AF09 ... AF38 3-pole contactors

Technical data

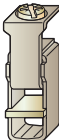
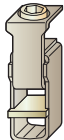
Connecting characteristics

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 ($\leq 4 \text{ mm}^2$)	} 1 x	1...6 mm ²				2.5...10 mm ²	
 Stranded ($\geq 1 \text{ mm}^2$)		2 x 1...6 mm ²				2.5...10 mm ²	
 Flexible with non insulated ferrule	1 x	0.75...6 mm ²				1.5...10 mm ²	
 Flexible with insulated ferrule	2 x	0.75...6 mm ²				1.5...10 mm ²	
 Flexible with insulated ferrule	1 x	0.75...4 mm ²				1.5...10 mm ²	
 Flexible with insulated ferrule	2 x	0.75...2.5 mm ²				1.5...4 mm ²	
 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/stranded	1 x	1...2.5 mm ²					
 Rigid solid/stranded	2 x	1...2.5 mm ²					
 Flexible with non insulated ferrule	1 x	0.75...2.5 mm ²					
 Flexible with insulated ferrule	2 x	0.75...2.5 mm ²					
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²					
 Flexible with insulated ferrule	2 x	0.75...1.5 mm ²					
 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					

AF40 ... AF96 3-pole contactors

Technical data

Connecting characteristics

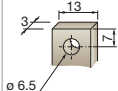
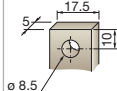
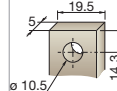
Contractor types	AC / DC operated	AF40	AF52	AF65	AF80	AF96
Main terminals		 Screw terminals with double connector 2 x (9.3 width x 7.9/10.3 depth)			 Screw terminals with double connector 2 x (12.4 width x 9.3/11.1 depth)	
Connection capacity (min. ... max.)						
Main conductors (poles)						
 Rigid	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/stranded		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.

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)										
	Rigid 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 >	3.5 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							

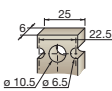
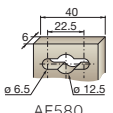
(1) LD... not included for AF116 ... AF146-30...B.

(2) Available in North America only.

AF400 ... AF750 3-pole contactors

Technical data

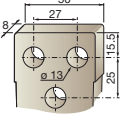
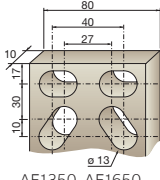
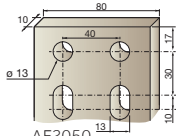
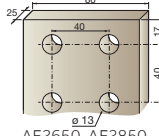
Connecting characteristics

Contactor types	AC / DC operated	AF400	AF460	AF580	AF750
Main terminals					
Flat type					
Connection capacity (min. ... max.)					
Main conductors (poles)					
 Cu cable - Stranded	2 x	240 mm ²		–	
 Clamp type		1SDA013922R1		–	
 Tightening torque		35 Nm		–	
 Cu cable - Stranded	3 x	–	185 mm ²		
 Clamp type		–	1SDA013956R1		
 Tightening torque		35 Nm	45 Nm		
 Al cable - Stranded	2 x	240 mm ²		–	
 Clamp type		1SDA013922R1		–	
 Tightening torque		35 Nm		–	
	3 x	–	185 mm ²		
 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)					
 Rigid Solid/Stranded	1 x	1...4 mm ²			
	2 x	1...4 mm ²			
 Flexible	1 x	0.75...2.5 mm ²			
	2 x	0.75...2.5 mm ²			
 Flexible with non insulated ferrule	1 x	0.75...2.5 mm ²			
	2 x	0.75...2.5 mm ²			
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²			
	2 x	0.75...2.5 mm ²			
 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)							
 Rigid Solid/Stranded	1 x	1...4 mm ²					
	2 x	1...4 mm ²					
 Flexible	1 x	0.75...2.5 mm ²					
	2 x	0.75...2.5 mm ²					
 Flexible with non insulated ferrule	1 x	0.75...2.5 mm ²					
	2 x	0.75...2.5 mm ²					
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²					
	2 x	0.75...2.5 mm ²					
 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		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

Contactors types	AC / DC operated	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
Rated operational voltage U _e max.		690 V										
Rated frequency (without derating)		50 / 60 Hz										
Conventional free air thermal current I _{th} - θ ≤ 40 °C		16 A										
I _e / 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 I _e AC-15 acc. to IEC 60947-5-1										
Breaking capacity AC-15		10 x I _e AC-15 acc. to IEC 60947-5-1										
I _e / 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 I _{cw}	for 1.0 s	100 A										
	for 0.1 s	140 A										
Minimum switching capacity with failure rate acc. to IEC 60947-5-4		12 V / 3 mA										
		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

Contactors 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										

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 I_c is the current to be broken by the contactor and I_e the rated operational current normally drawn by the load, then:

- Categories AC-1 and AC-3: $I_c = I_e$
- Category AC-2: $I_c = 2.5 \times I_e$
- Category AC-4: $I_c = 6 \times I_e$

Generally speaking $I_c = m \times I_e$ 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 I_c .

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 U_e
 - Current normally drawn I_e (U_e / I_e / kW relation for motors, see "Motor rated operational powers and currents").
 - Utilization category AC-1, AC-2, AC-3 or AC-4
 - Breaking current $I_c = I_e$ for AC-1 and for AC-3 ; $I_c = 2.5 \times I_e$ for AC-2 ; $I_c = 6 \times I_e$ 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 (I_c ; N).

Electrical durability forecast and contactor selection for mixed duty motor control: AC-3 ($I_c = I_e$) type switching off while "motor running" and, occasionally, AC-4 ($I_c = 6 \times I_e$) type switching off while "motor accelerating"

- Note the characteristics of the motor to be controlled:
 - Operational voltage U_e
 - Current normally drawn while "motor running" I_e (U_e / I_e / kW relation for motors, see "Motor rated operational powers and currents")
 - Breaking current for AC-3 $I_c = I_e$
 - Breaking current for AC-4 while "motor accelerating" $I_c = 6 \times I_e$
 - 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 (U_e / I_e) 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 $I_c = I_e$ (AC-3)
 - The number of operating cycles B for $I_c = 6 \times I_e$ (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.

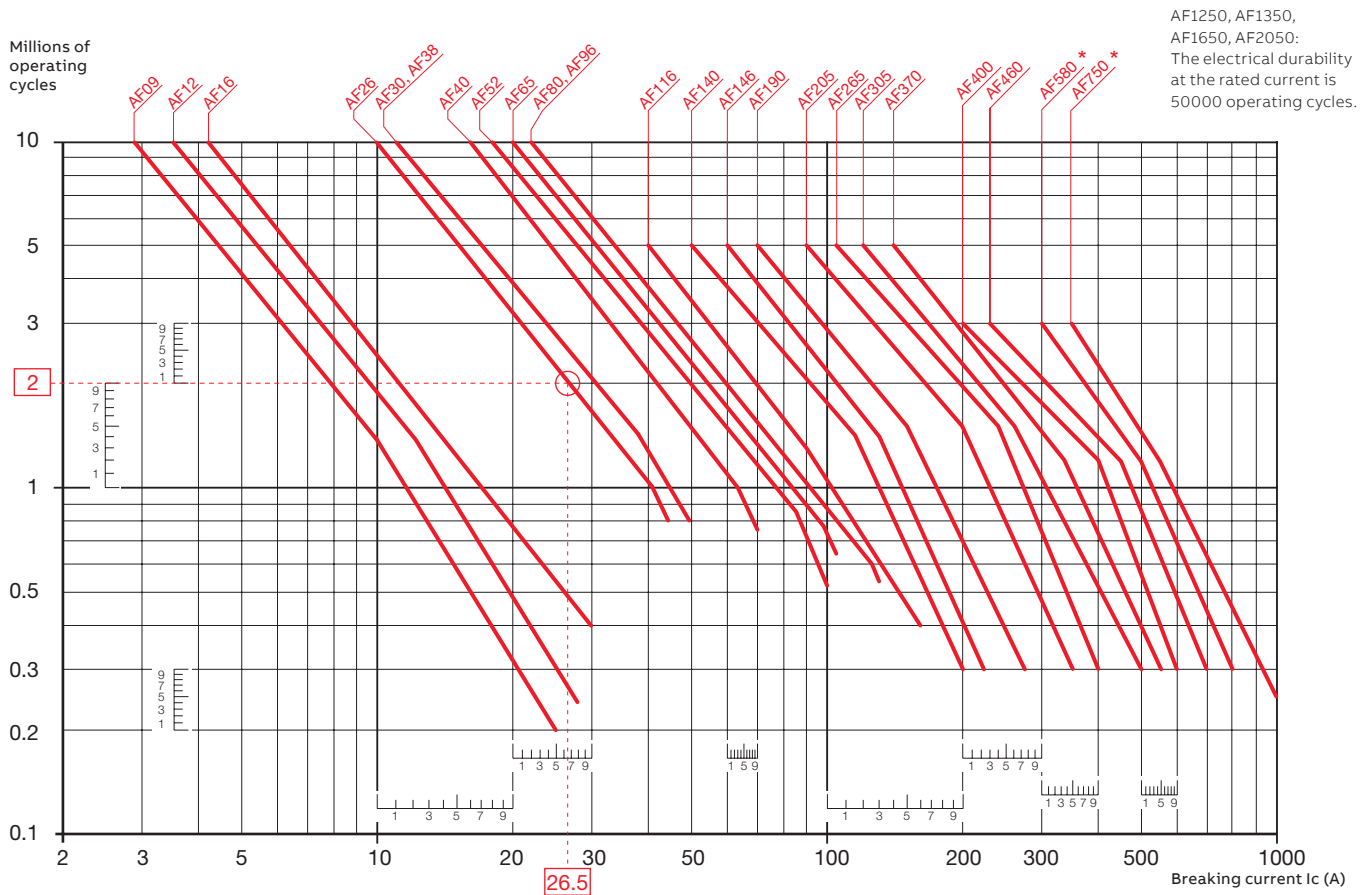
3-pole contactors

Electrical durability

Electrical durability for AC-1 utilization category - $U_e \leq 690\text{ V}$

Switching non-inductive or slightly inductive loads. The breaking current I_c 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:

$I_c / \text{AC-1} = 26.5\text{ A}$ – Electrical durability required = 2 millions operating cycles.

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

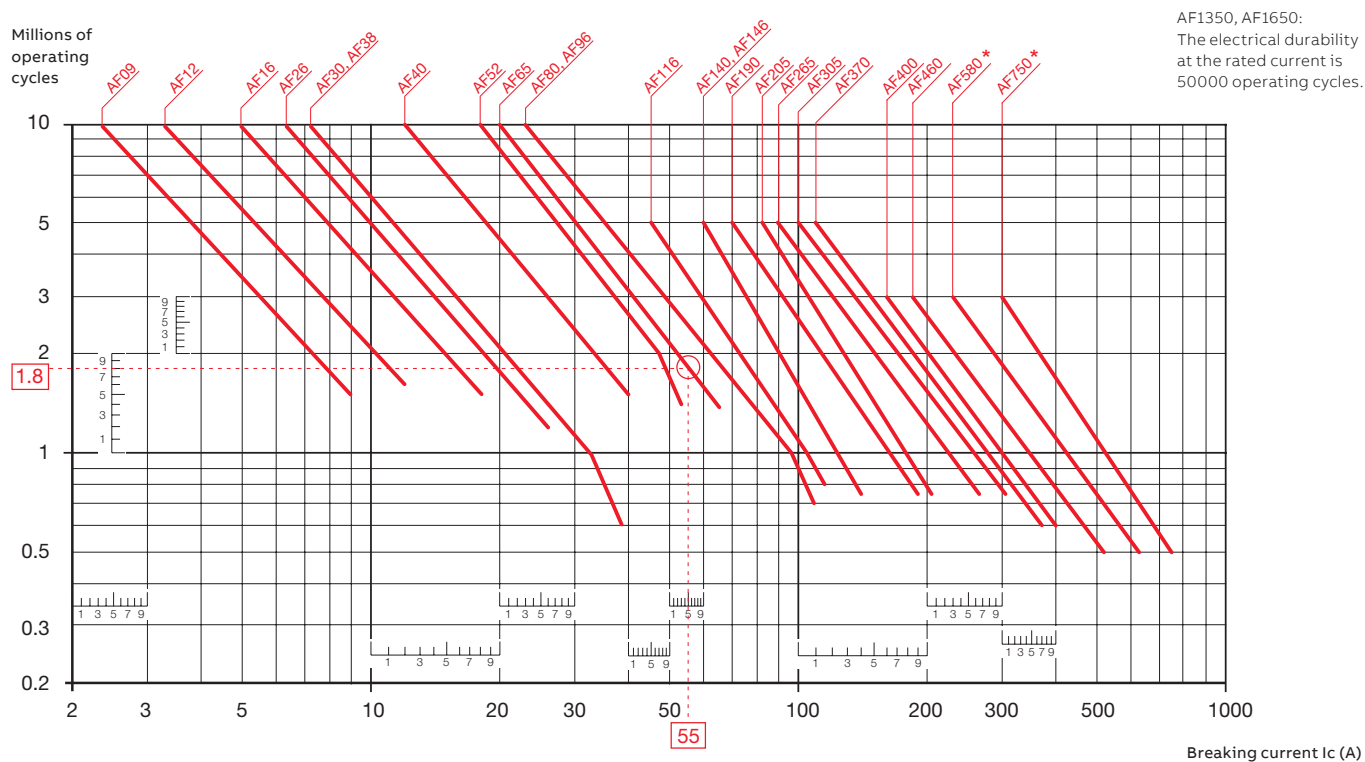
3-pole contactors

Electrical durability

Electrical durability for AC-3 utilization category - $U_e \leq 440$ V.

Switching cage motors: starting and switching off running motors. The breaking current I_c for AC-3 is equal to the rated operational current I_e (I_e = 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 - $U_e = 400$ V and $I_e = 55$ A utilization – Electrical durability required = 1.8 million operating cycles. For AC-3: $I_c = I_e$. Select the AF65 contactor at intersection "O" (55 A / 1.8 million operating cycles) on the curves (AC-3 - $U_e \leq 440$ V).

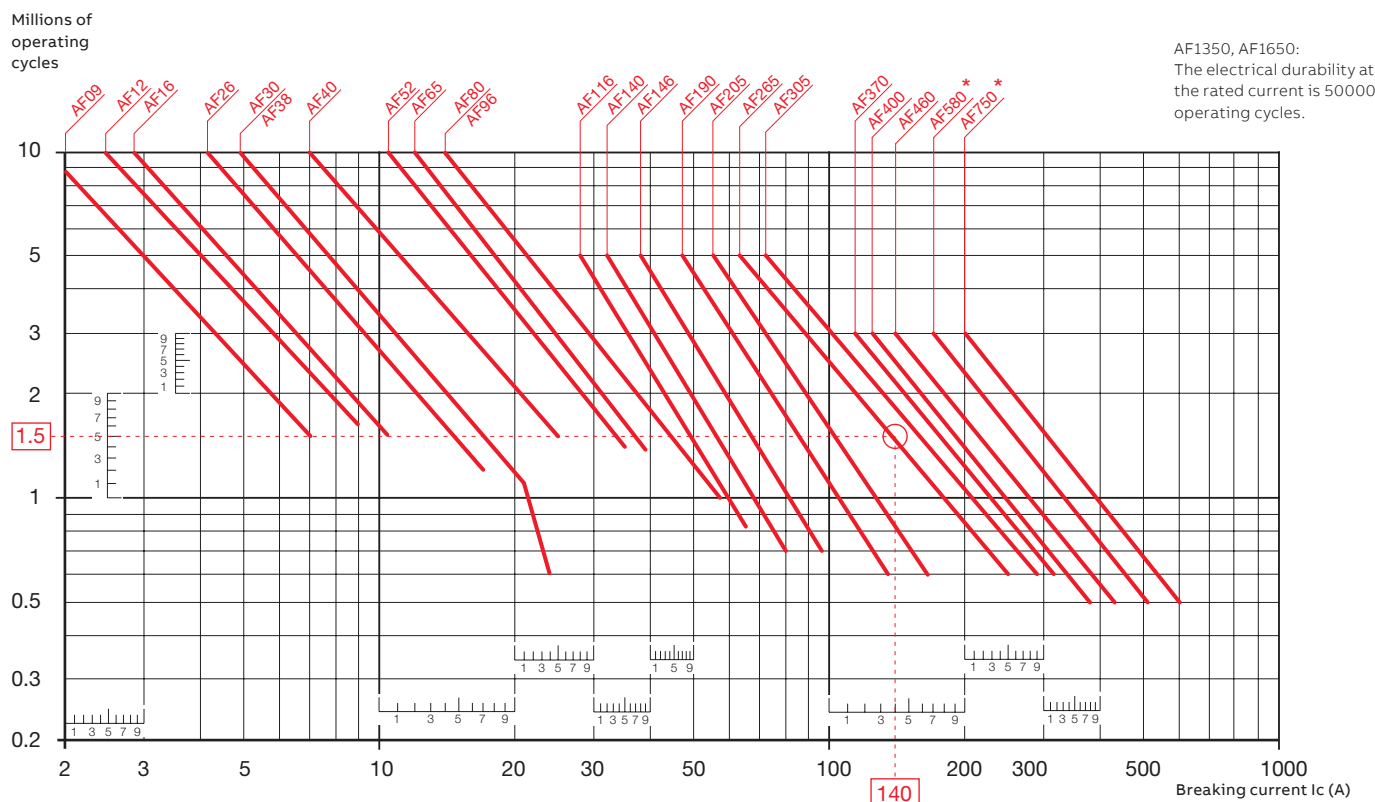
3-pole contactors

Electrical durability

Electrical durability for AC-3 utilization category - $440\text{ V} < U_e \leq 690\text{ V}$.

Switching cage motors: starting and switching off running motors. The breaking current I_c for AC-3 is equal to the rated operational current I_e (I_e = 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 - $U_e = 660\text{ V}$ and $I_e = 140\text{ A}$ utilization – Electrical durability required = 1.5 million operating cycles. For AC-3: $I_c = I_e$. Select the AF265 contactor at intersection "O" (140 A / 1.5 million operating cycles) on the curves (AC-3 - $440\text{ V} < U_e \leq 690\text{ V}$).

3-pole contactors

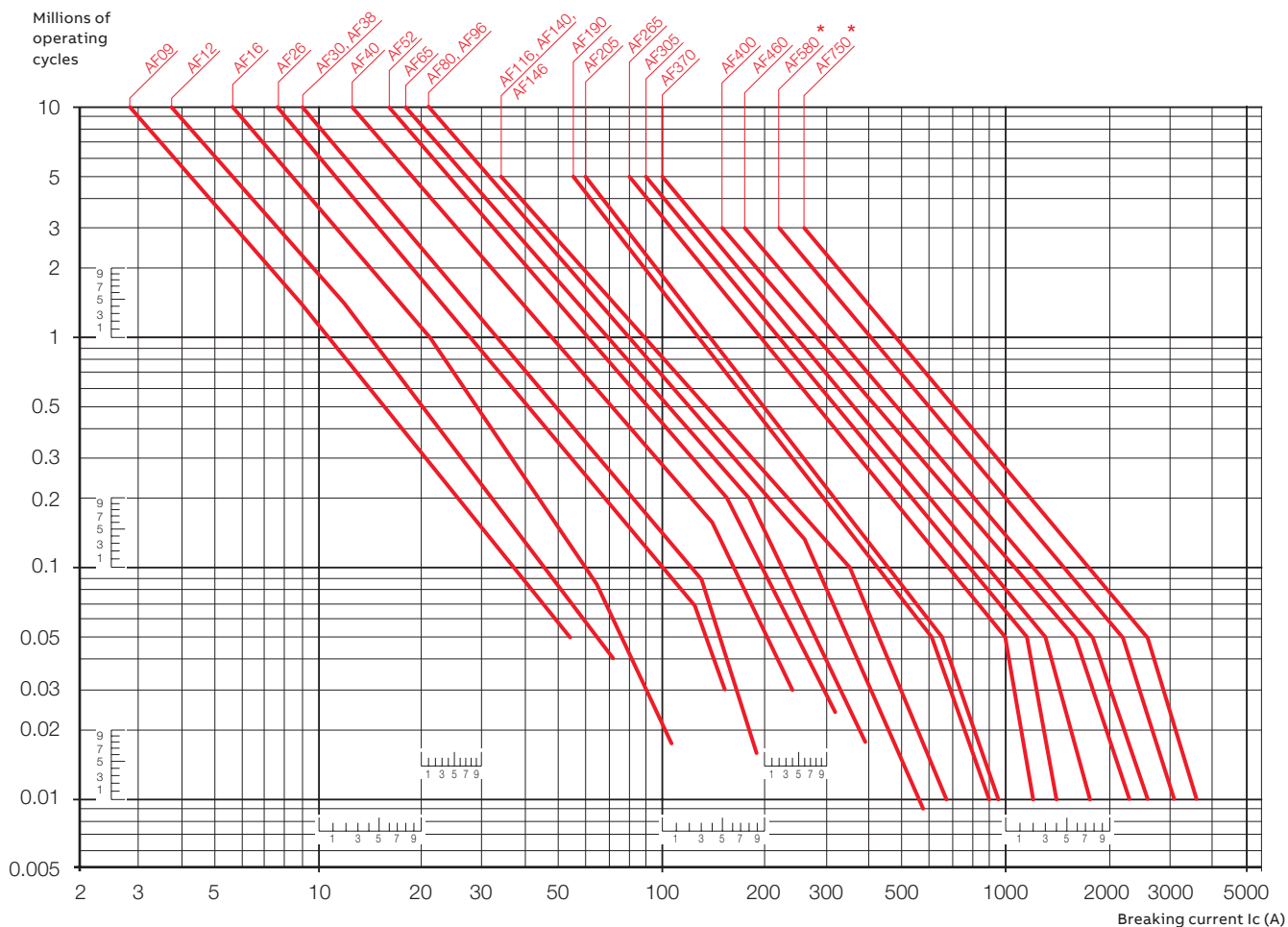
Electrical durability

Electrical durability for AC-2 or AC-4 utilization category - $U_e \leq 440 \text{ V}$

Ambient temperature $\leq 60^\circ\text{C}$ for AF09 ... AF370, $\leq 55^\circ\text{C}$ for AF400 ... AF1650

Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current I_c is equal to $2.5 \times I_e$ for AC-2 and $6 \times I_e$ for AC-4, keeping in mind that I_e is the motor rated operational current (I_e = 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

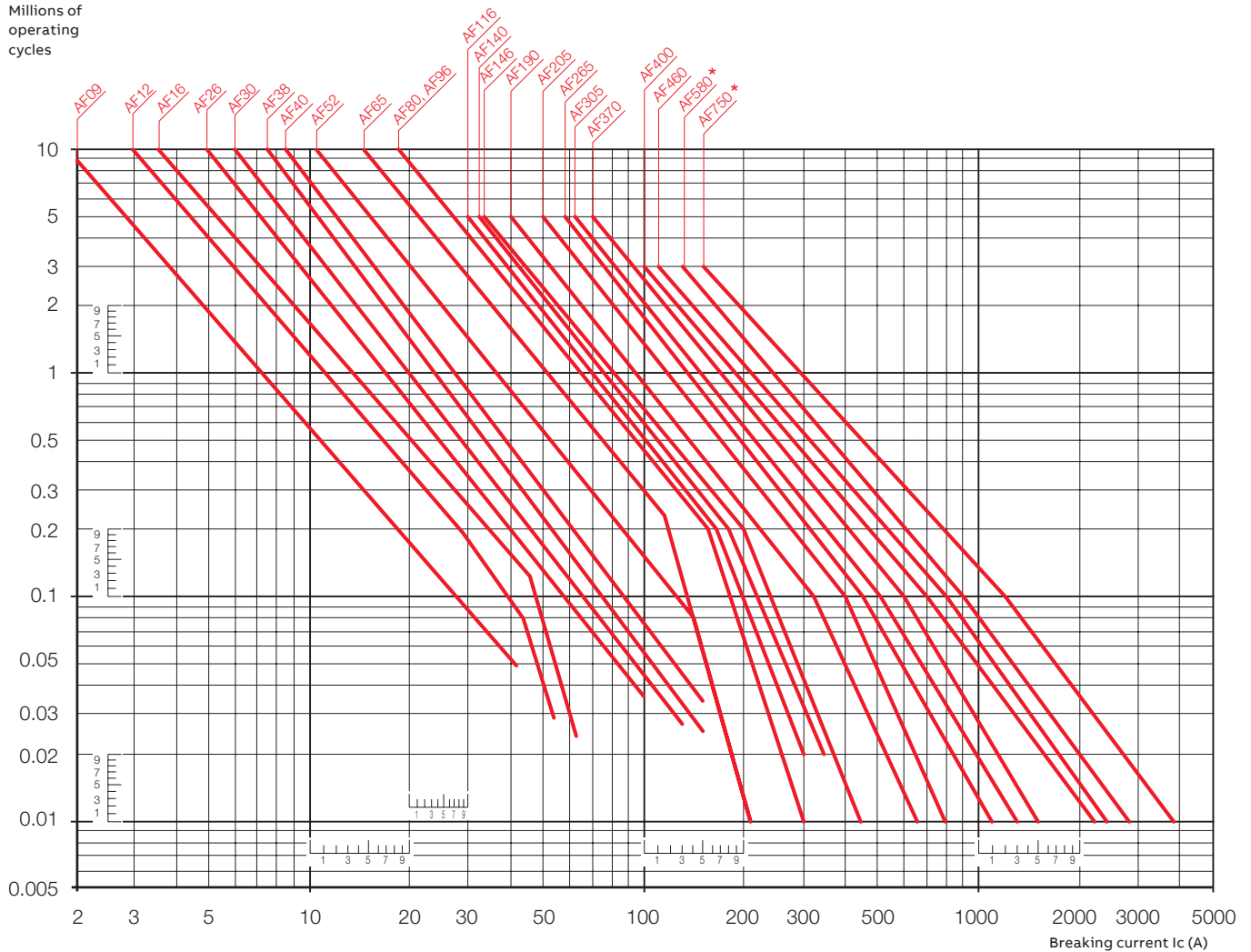
Electrical durability

Electrical durability for AC-2 or AC-4 utilization category - $440\text{ V} < U_e \leq 690\text{ V}$

Ambient temperature $\leq 60\text{ °C}$ for AF09 ... AF370, $\leq 55\text{ °C}$ for AF400 ... AF750

Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current I_c is equal to $2.5 \times I_e$ for AC-2 and $6 \times I_e$ for AC-4, keeping in mind that I_e is the motor rated operational current (I_e = motor full load current). Maximum electrical switching frequency: see "Technical data".

Millions of
operating
cycles



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