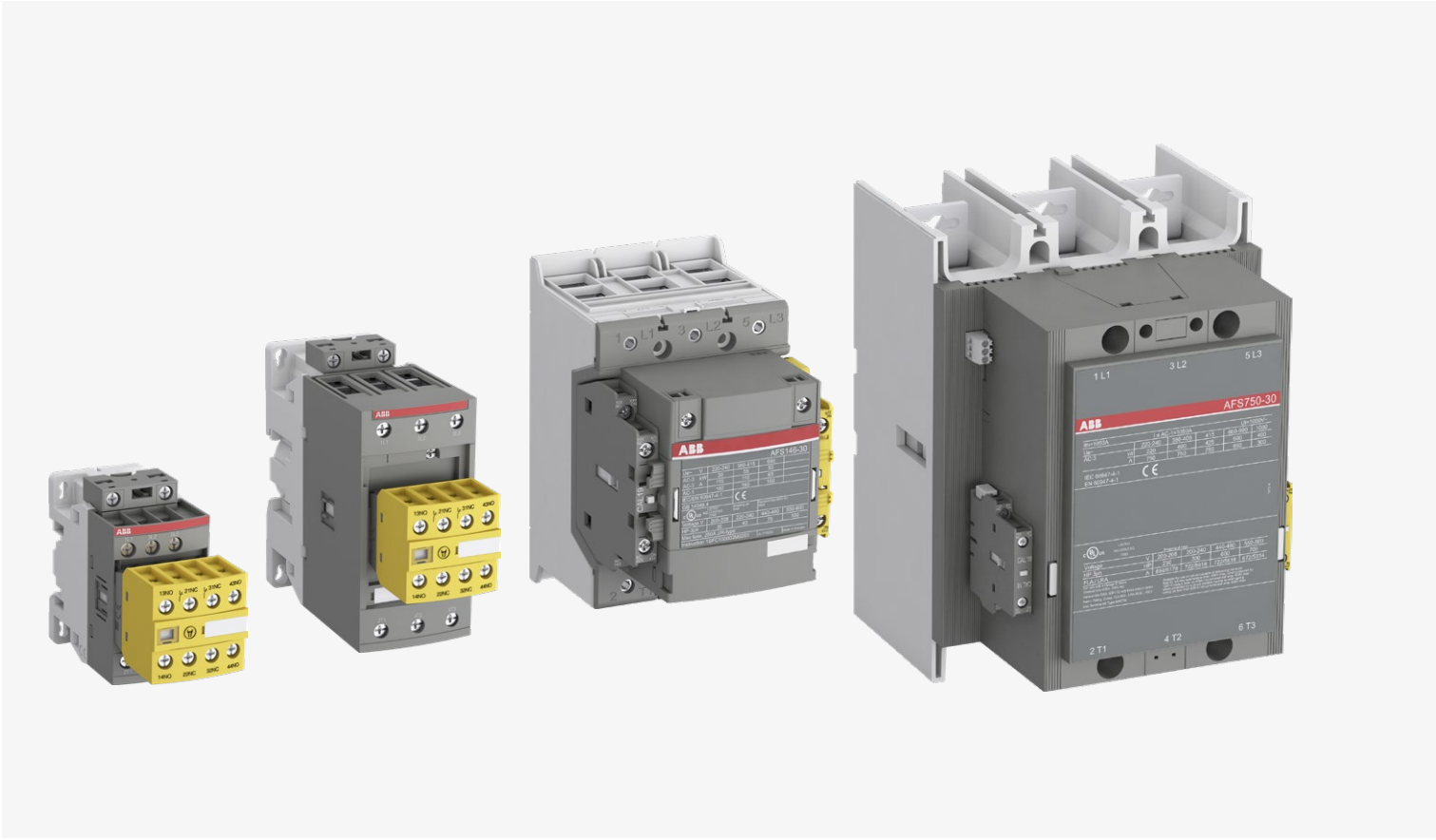
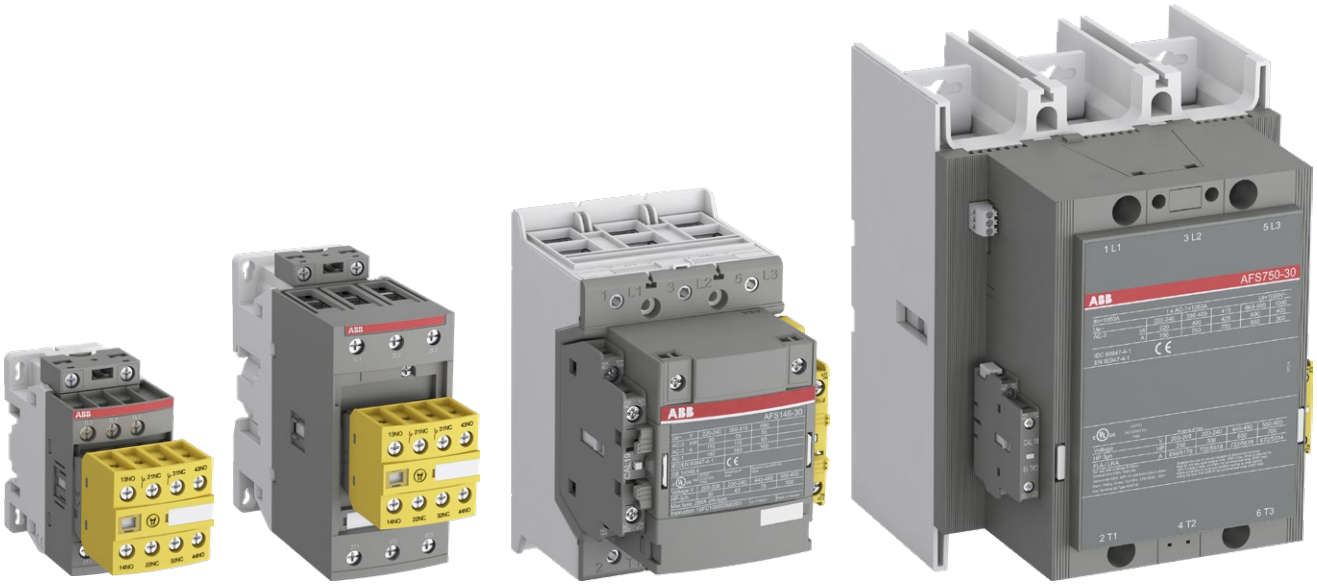
CATALOG

AFS contactors
Dedicated for safety applications



AFS 3-pole contactors dedicated for safety applications

AFS 3-pole contactors
Dedicated for safety applications



Designed for machine safety applications, AFS contactors now complete ABB's safety component portfolio.
With a range stretching from 9 A up to 750 A for motor starting applications and with a design complying with the latest safety standard, the AFS range of contactors is the given choice for any application that puts the users safety first.

Safety and protection
ABB's AFS contactors can be easily integrated in machine manufacturer's systems complying with main standards EN ISO 13849 and EN 62061 - guaranteeing the safe use of your machinery and equipment. An easily identifiable yellow low energy auxiliary contact block ensures the status feedback circuits required in machine safety applications.

Continuous operation
The AFS contactor secures system uptime. Featuring ABB's tested and proven AF technology, AFS contactors are reliable in any network. Direct control by safety PLCs or safety relays ensures the required safety performance.

Speed up your projects
AFS design makes integration easier. With energy efficient coils smaller transformers can be used and panel space more efficiently used. Wide voltage range coils and easily available safety data simplifies product selection. In addition, all the safety data for the AFS contactors is available using common safety design tools.

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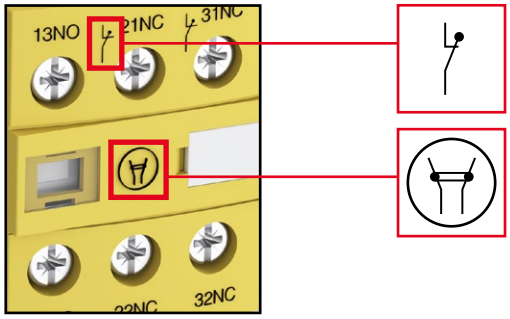
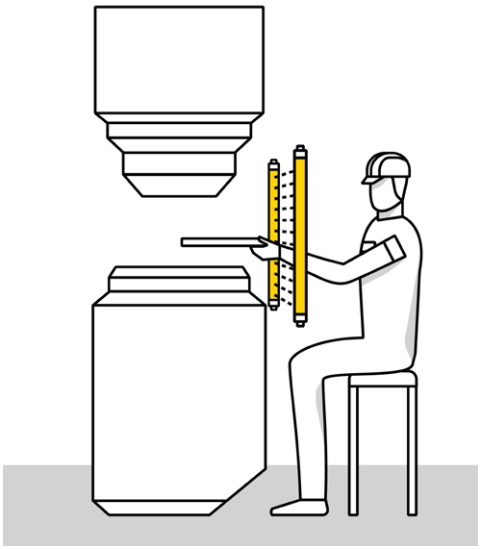
AFS 3-pole contactors
Dedicated for safety applications

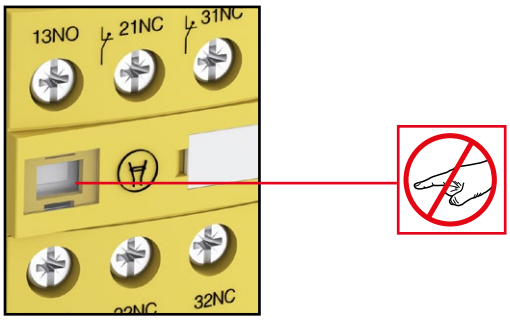
Guaranteed contactor status
ABB's permanently fixed auxiliary contact blocks guarantee the correct contactor status at all times. Mechanically linked and mirror contacts provide the performance required in feedback circuits. This prevents any unexpected state changes of auxiliary contact if main contacts become welded or stuck and ensures an accurate depiction of the safety system status displayed at all times. Mechanically linked and mirror contact symbols are marked on the yellow auxiliary block.



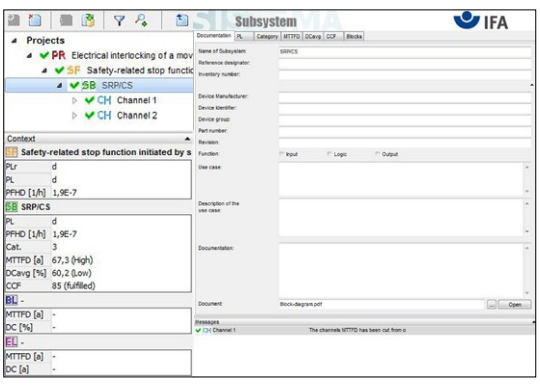
Fast response for increased safety
In safety applications speed is essential to protect operators. AFS contactors feature fast opening times, down to 20 ms for certain PLC controlled contactors, ensuring that when a dangerous failure is detected the operator is kept out of harms way.



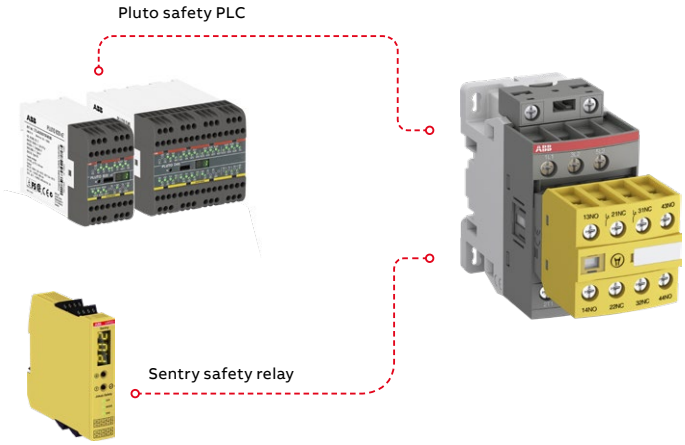
Prevent unexpected operations
Factory fitted auxiliary contact blocks that are permanently fixed protects devices against accidental operation and misuse. A factory-fitted transparent cover on contactors up to 96 A shields the contactor status indicator, providing additional protection from misuse.



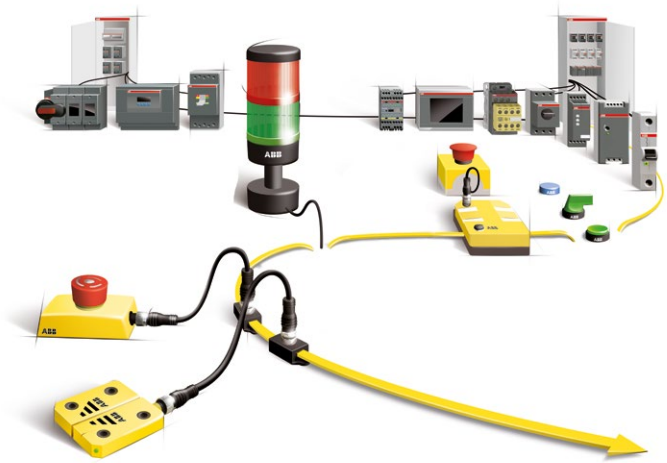
Simplify calculation of your installation safety level
AFS contactor safety data is available in safety design tools Sistema and FSDT, dedicated software for determining the Performance Level (PL) and Safety Integrity Level (SIL) of safety functions and generating technical documentations.



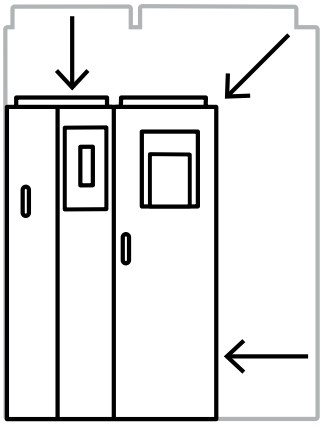
Control by safety PLCs or safety relays
ABB's AFS contactors can be controlled directly by safety PLCs or safety relays, or by a power relay depending on size. AFS contactors is part of the ABB safety family, and selected sizes are tested together with ABB's Pluto safety PLC and the Sentry safety relay. For full coordination please advise ABB. The auxiliary contacts only require a minimum switching capacity of 3 V / 1 mA. They guarantee system status feedback, making the system safe and reliable.



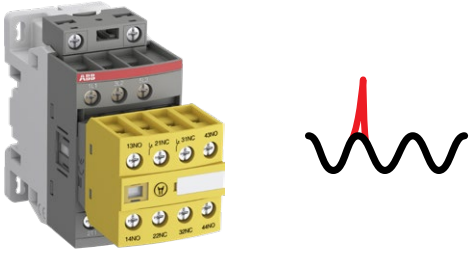
Easy safety chain identification
The yellow housing of ABB's AFS contactors makes identifying the safety product in your panel quicker. During routine maintenance work, ABB's intuitive design saves valuable time.



Panel size reduction
Utilizing AF technology, AFS coils needs up to 60% less energy than conventional contactor coils. This allows for smaller transformers to be used for contactor control, which in turn allows for more efficient use of panel space. Using AFS contactors saves money and precious space.



Built-in surge suppression
Unlike conventional contactors, ABB's AFS contactors have built-in surge suppression, preventing surges from ever reaching the control circuit. With no need for the usual external surge suppressor add-ons, ABB's solution means one less device to install and one less complication to manage.



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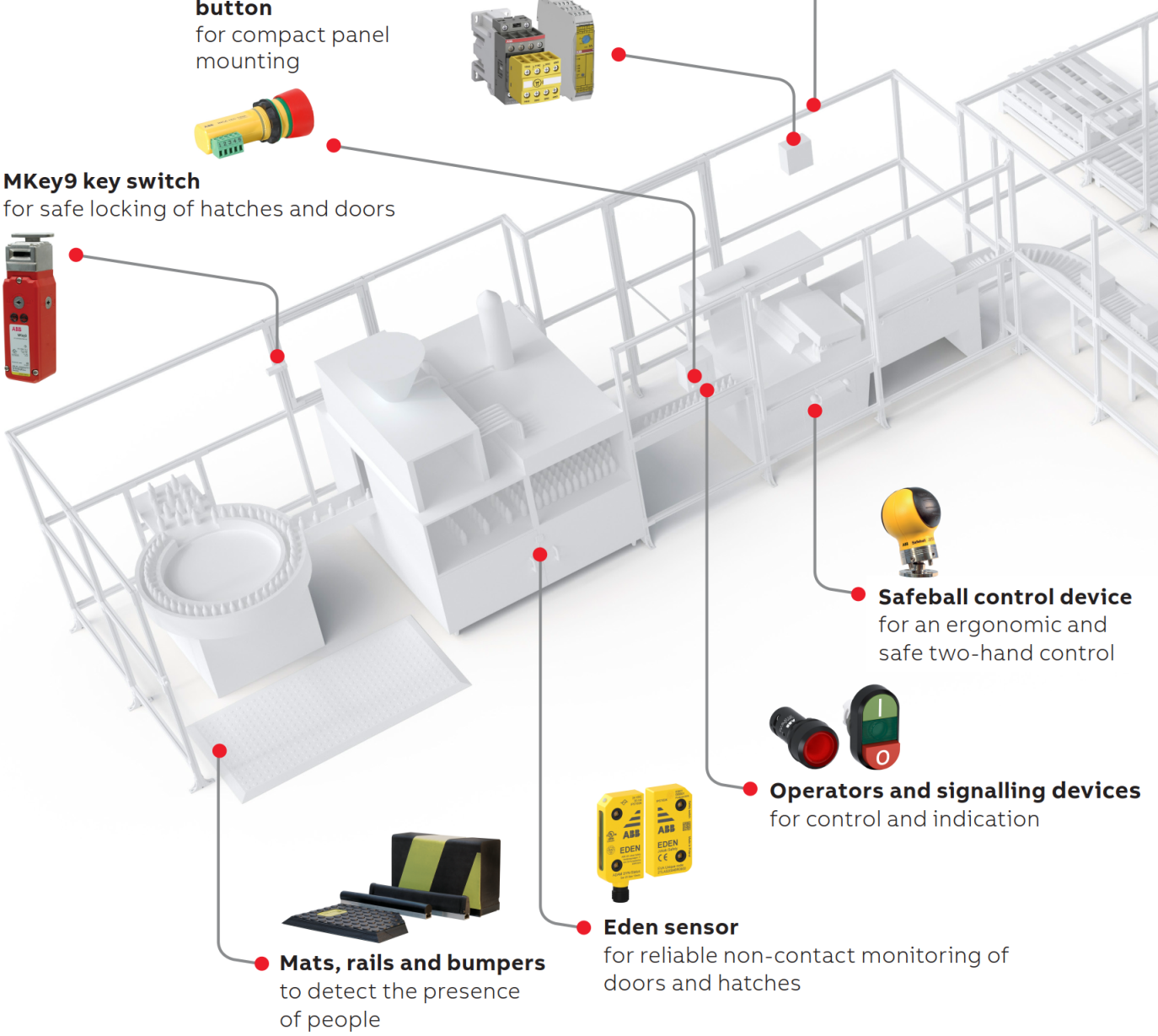
AFS 3-pole contactors
A part of ABB's complete safety solutions



Magne magnetic lock
to keep doors and hatches locked during a process

Pluto programmable safety controller, Vital safety controller and Sentry safety relays
for flexible monitoring of safety devices

Smile emergency stop button
to safely stop machinery in hazardous situations

Orion light guards
for a production friendly safety detection

Knox safety lock
for safe locking of doors

JSDH4 three-position device
for safe and ergonomic inspection and troubleshooting

LineStrong pull wire emergency stop switch
for easy access of emergency stop function

1SBC100524S0201

AFS09 ... AFS38 3-pole contactors for safety applications

4 to 18.5 kW

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

AFS16-30-22

AFS38-30-22

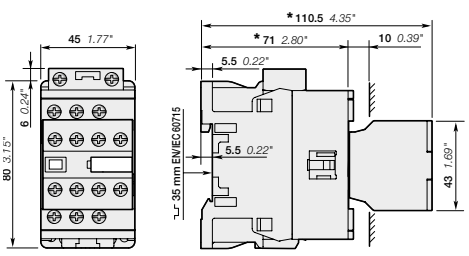
AFS09 ... AFS38 contactors are designed for machine safety applications. They are delivered with fixed front-mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked and mirror contacts make your system safer.

- control circuit with electronic coil interface:
  - dedicated 24 V DC for direct control by PLC-output ≥ 250 mA, low holding consumption up to 1.7 W
  - 24...60 V AC, 20...60 V DC and 100...250 V AC / DC operated accepting a wide control voltage range
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- front-mounted auxiliary contact block:
  - permanently fixed
  - protective cover to prevent manual operation
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

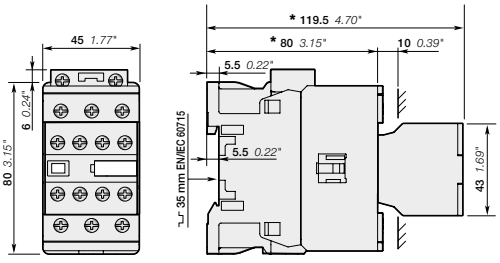
IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3 kW	current θ ≤ 40 °C AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC A	V 50/60 Hz	V DC				Pkg (1 pce) kg
4	25	5	25	-	24	2 2	AFS09Z-30-22-30	1SBL136082R3022	0.490
				24 ... 60	20 ... 60 (1)	2 2	AFS09-30-22-11	1SBL137082R1122	0.320
				100 ... 250	100 ... 250	2 2	AFS09-30-22-13	1SBL137082R1322	0.320
5.5	28	7-1/2	28	-	24	2 2	AFS12Z-30-22-30	1SBL156082R3022	0.490
				24 ... 60	20 ... 60 (1)	2 2	AFS12-30-22-11	1SBL157082R1122	0.320
				100 ... 250	100 ... 250	2 2	AFS12-30-22-13	1SBL157082R1322	0.320
7.5	30	10	30	-	24	2 2	AFS16Z-30-22-30	1SBL176082R3022	0.490
				24 ... 60	20 ... 60 (1)	2 2	AFS16-30-22-11	1SBL177082R1122	0.320
				100 ... 250	100 ... 250	2 2	AFS16-30-22-13	1SBL177082R1322	0.320
11	45	15	45	-	24	2 2	AFS26Z-30-22-30	1SBL236082R3022	0.540
				24 ... 60	20 ... 60 (1)	2 2	AFS26-30-22-11	1SBL237082R1122	0.360
				100 ... 250	100 ... 250	2 2	AFS26-30-22-13	1SBL237082R1322	0.360
15	50	20	50	-	24	2 2	AFS30Z-30-22-30	1SBL276082R3022	0.540
				24 ... 60	20 ... 60	2 2	AFS30-30-22-11	1SBL277082R1122	0.360
				100 ... 250	100 ... 250 (1)	2 2	AFS30-30-22-13	1SBL277082R1322	0.360
18.5	50	25	50	-	24	2 2	AFS38Z-30-22-30	1SBL296082R3022	0.540
				24 ... 60	20 ... 60 (1)	2 2	AFS38-30-22-11	1SBL297082R1122	0.360
				100 ... 250	100 ... 250	2 2	AFS38-30-22-13	1SBL297082R1322	0.360

(1) AFS..-30-..-11 for control by transistor outputs of safety PLCs and safety relays use interface relay RA4 1SBN060100R1000.



AFS09, AFS12, AFS16

* For AFS09Z, AFS12Z, AFS16Z-30-22-30: depth + 20 mm (+ 0.79")



AFS26, AFS30, AFS38

* For AFS26Z, AFS30Z, AFS38Z-30-22-30: depth + 20 mm (+ 0.79")

Main dimensions mm, inches

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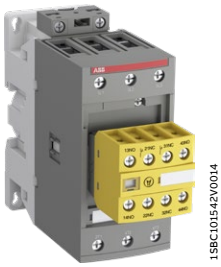
AFS40 ... AFS96 3-pole contactors for safety applications

18.5 to 45 kW

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



1SBC101542V0014

AFS65-30-22

1SBC101544V0014

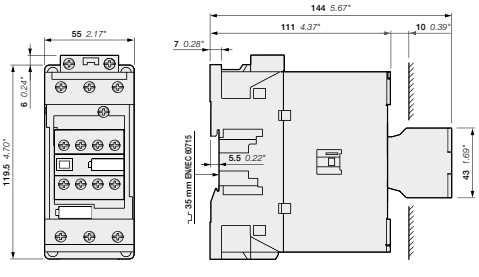
AFS96-30-22

AFS40 ... AFS96 contactors are designed for machine safety applications. They are delivered with fixed front-mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits. Mechanically linked and mirror contacts make your system safer.

- control circuit with electronic coil interface:
  - 24...60 V AC, 20...60 V DC and 100...250 V AC / DC operated accepting a wide control voltage range
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- front-mounted auxiliary contact block:
  - permanently fixed
  - protective cover to prevent manual operation
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.			Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC							Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC					kg
18.5	70	30	60	24 ... 60	20 ... 60	(1)	2 2	AFS40-30-22-11	1SBL347082R1122	1.020
				100 ... 250	100 ... 250		2 2	AFS40-30-22-13	1SBL347082R1322	1.000
22	100	40	80	24 ... 60	20 ... 60	(1)	2 2	AFS52-30-22-11	1SBL367082R1122	1.020
				100 ... 250	100 ... 250		2 2	AFS52-30-22-13	1SBL367082R1322	1.000
30	105	50	90	24 ... 60	20 ... 60	(1)	2 2	AFS65-30-22-11	1SBL387082R1122	1.020
				100 ... 250	100 ... 250		2 2	AFS65-30-22-13	1SBL387082R1322	1.000
37	125	60	105	24 ... 60	20 ... 60	(1)	2 2	AFS80-30-22-11	1SBL397082R1122	1.270
				100 ... 250	100 ... 250		2 2	AFS80-30-22-13	1SBL397082R1322	1.220
45	130	60	115	24 ... 60	20 ... 60	(1)	2 2	AFS96-30-22-11	1SBL407082R1122	1.270
				100 ... 250	100 ... 250		2 2	AFS96-30-22-13	1SBL407082R1322	1.220

(1) AFS..-30-..-11 for control by transistor outputs of safety PLCs and safety relays use interface relay RA4 1SBN060100R1000.



AFS40, AFS52, AFS65

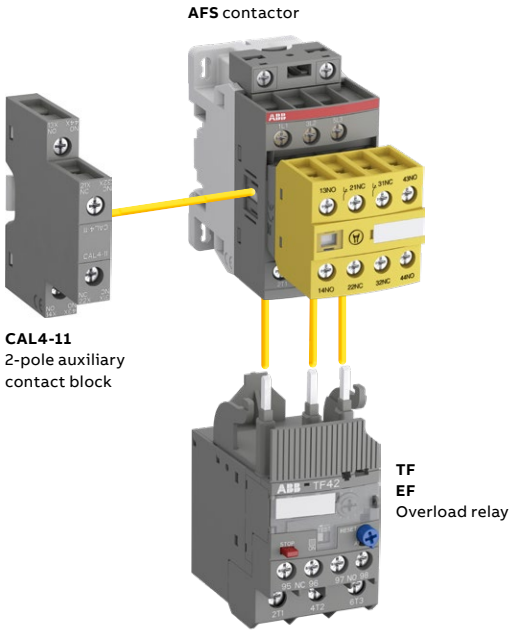
AFS80, AFS96

Main dimensions mm, inches

1SBC100308S0201

AFS09 ... AFS96 3-pole contactors for safety applications

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories
Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories Auxiliary contact blocks 1-pole CA4	2-pole CAT4-11	4-pole CA4	Electronic timer TEF4	Mechanical interlock unit (between 2 contactors) VM..		Side-mounted accessories Auxiliary contact blocks 2-pole CAL4-11 Left side	Right side
AFS09 ... AFS38	3 0	2 2	–	–	–	–	1	+	1	–
AFS09Z ... AFS38Z	3 0	2 2	–	–	–	–	1		–	–
AFS40 ... AFS96	3 0	2 2	–	–	–	–	–	+	1	+ 1
			–	–	–	–	–	+	1	or 1

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AFS09 ... AFS38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
AFS26 ... AFS38	TF42 (0.10...38 A)	EF45 (9...45 A)
AFS40 ... AFS65	TF65 (22...67 A)	EF65 (20...70 A)
AFS80, AFS96	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.

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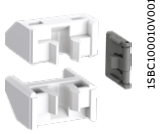
AFS09 ... AFS96 3-pole contactors for safety applications

Main accessories

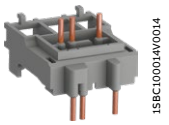
CAL4-11



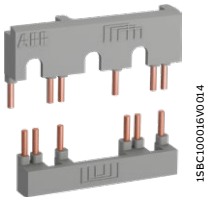
VM4

For contactors	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Side-mounted instantaneous auxiliary contact blocks					
AFS09 ... AFS96	1 1 – –	CAL4-11	1SBN010120R1011	1	0.040
	1 1 – –	CAL4-11-T	1SBN010120T1011	10	0.040
Mechanical interlock unit					
AFS09 ... AFS38		VM4	1SBN030105T1000	10	0.005
AFS40 ... AFS96		VM96-4	1SBN033405T1000	10	0.006

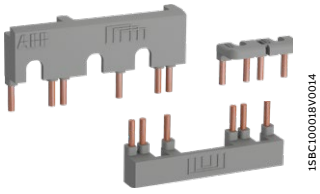
Note: VM4 and VM96-4 include 2 fixing clips (BB4) to maintain together both contactors.



BEA16-4



BER16-4



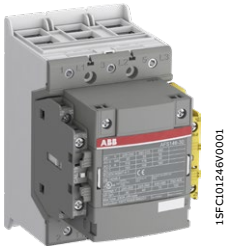
BEY16-4

For contactors			Type	Order code	Pkg qty	Weight (1 pce) kg
Connecting links with manual motor starters						
AFS09 ... AFS16	with	MS116-0.16 ... MS116-25, MS132-0.16 ... MS132-25	BEA16-4	1SBN081306T1000	10	0.025
AFS26 ... AFS38	with	MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10	BEA26-4	1SBN082306T1000	10	0.025
	with	MS116-20 ... MS116-32, MS132-12 ... MS132-32	BEA38-4	1SBN082306T2000	10	0.030
AFS40 ... AFS65	with	MS165-16 ... MS165-65	BEA65-4	1SBN083406R1000	1	0.090
		MS165-16 ... MS165-65 (2)	BPR65-4	1SBN113405R1000	1	0.014
Connection sets for reversing contactors						
AFS09 ... AFS16			BER16-4	1SBN081311R1000	1	0.045
AFS26 ... AFS38			BER38-4	1SBN082311R1000	1	0.100
AFS40 ... AFS65			BER65-4	1SBN083411R1000	1	0.175
AFS80 ... AFS96			BER96-4	1SBN083911R1000	1	0.250
Connection sets for star-delta starting						
AFS09 ... AFS16	with or without VM4		BEY16-4	1SBN081313R2000	1	0.050
AFS26 ... AFS38	with or without VM4		BEY38-4	1SBN082713R2000	1	0.110
AFS40 ... AFS65	with or without VM96-4		BEY65-4	1SBN083413R2000	1	0.200
AFS80 ... AFS96	with or without VM96-4		BEY96-4	1SBN083913R2000	1	0.250

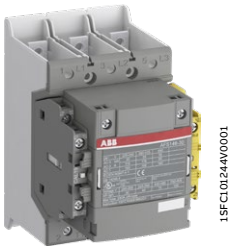
(1) For more information, refer to "Accessories" section.
(2) Use one BPR65-4 for each contactor AF540 ... AF565.

1SBC100314S0201 - Rev. A

AFS116 ... AFS146 3-pole contactors for safety applications
55 to 75 kW
AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS146-30-12



AFS146-30-12B

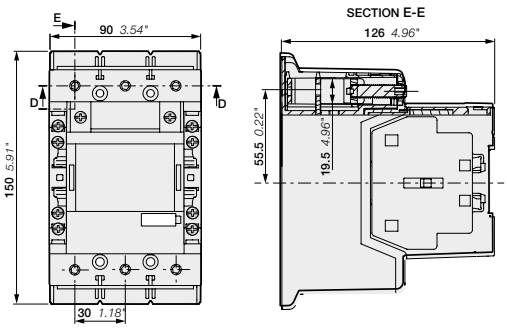
AFS116 ... AFS146 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked contacts make your system safer.

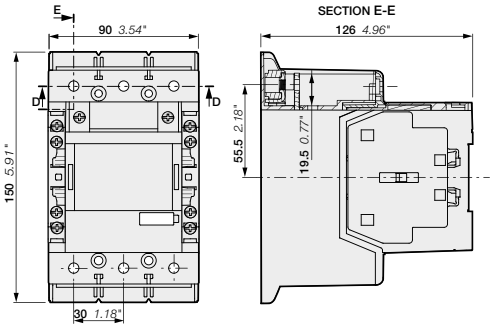
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	1 2	AFS116-30-12-11	1SFL427081R1112	1.750
				48...130	48...130	1 2	AFS116-30-12-12	1SFL427081R1212	1.750
				100...250	100...250	1 2	AFS116-30-12-13	1SFL427081R1312	1.750
				250...500	250...500	1 2	AFS116-30-12-14	1SFL427081R1412	1.750
75	225	100	200	24...60	20...60	1 2	AFS146-30-12-11	1SFL467081R1112	1.750
				48...130	48...130	1 2	AFS146-30-12-12	1SFL467081R1212	1.750
				100...250	100...250	1 2	AFS146-30-12-13	1SFL467081R1312	1.750
				250...500	250...500	1 2	AFS146-30-12-14	1SFL467081R1412	1.750
With bar connections									
55	160	75	160	24...60	20...60	1 2	AFS116-30-12B-11	1SFL427082R1112	1.500
				48...130	48...130	1 2	AFS116-30-12B-12	1SFL427082R1212	1.500
				100...250	100...250	1 2	AFS116-30-12B-13	1SFL427082R1312	1.500
				250...500	250...500	1 2	AFS116-30-12B-14	1SFL427082R1412	1.500
75	225	100	200	24...60	20...60	1 2	AFS146-30-12B-11	1SFL467082R1112	1.500
				48...130	48...130	1 2	AFS146-30-12B-12	1SFL467082R1212	1.500
				100...250	100...250	1 2	AFS146-30-12B-13	1SFL467082R1312	1.500
				250...500	250...500	1 2	AFS146-30-12B-14	1SFL467082R1412	1.500

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



AFS116, AFS146-30-12



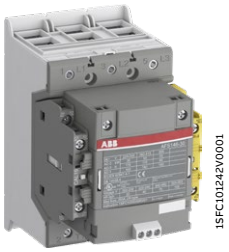
AFS116, AFS146-30-12B

Main dimensions mm, inches

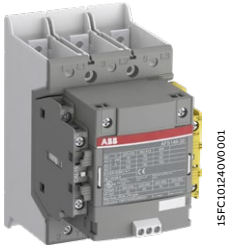
1SBC100469S0201

AFS116 ... AFS146 3-pole contactors for safety applications with built-in PLC interface - 55 to 75 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS146-30-12



AFS146-30-12B

AFS116 ... AFS146 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked contacts make your system safer.

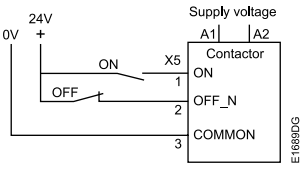
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

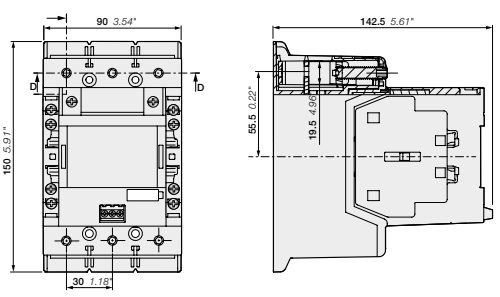
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	1 2	AFS116-30-12-33	1SFL427081R3312	1.750
				250...500	250...500	1 2	AFS116-30-12-34	1SFL427081R3412	1.750
75	225	100	200	100...250	100...250	1 2	AFS146-30-12-33	1SFL467081R3312	1.750
				250...500	250...500	1 2	AFS146-30-12-34	1SFL467081R3412	1.750
With bar connections									
55	160	75	160	100...250	100...250	1 2	AFS116-30-12B-33	1SFL427082R3312	1.500
				250...500	250...500	1 2	AFS116-30-12B-34	1SFL427082R3412	1.500
75	225	100	200	100...250	100...250	1 2	AFS146-30-12B-33	1SFL467082R3312	1.500
				250...500	250...500	1 2	AFS146-30-12B-34	1SFL467082R3412	1.500

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

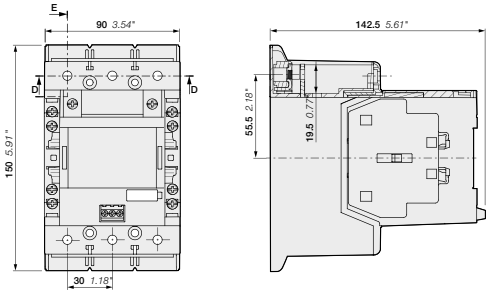
AFS116 ... AFS146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AFS116, AFS146-30-12



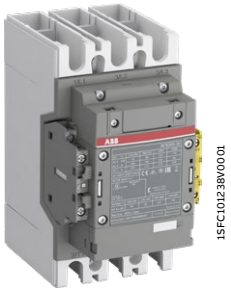
AFS116, AFS146-30-12B

Main dimensions mm, inches

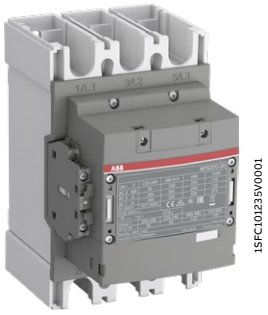
1SBC100470S0201

AFS190 ... AFS370 3-pole contactors for safety applications 90 to 200 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS205-30-12



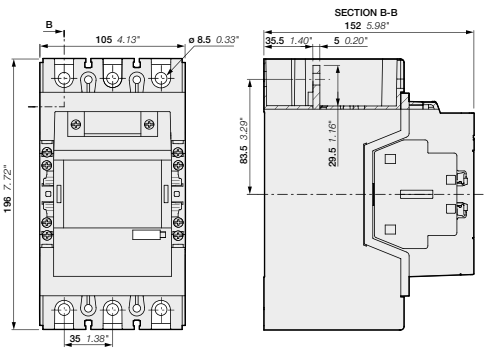
AFS370-30-12

AFS190 ... AFS370 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

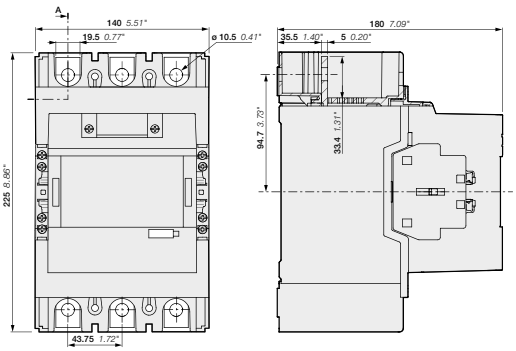
Mechanically linked contacts make your system safer.

- 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
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	1 2	AFS190-30-12-11	1SFL487082R1112	3.000
				48...130	48...130	1 2	AFS190-30-12-12	1SFL487082R1212	3.000
				100...250	100...250	1 2	AFS190-30-12-13	1SFL487082R1312	3.000
				250...500	250...500	1 2	AFS190-30-12-14	1SFL487082R1412	3.000
110	350	150	300	24...60	20...60	1 2	AFS205-30-12-11	1SFL527082R1112	3.000
				48...130	48...130	1 2	AFS205-30-12-12	1SFL527082R1212	3.000
				100...250	100...250	1 2	AFS205-30-12-13	1SFL527082R1312	3.000
				250...500	250...500	1 2	AFS205-30-12-14	1SFL527082R1412	3.000
132	400	200	350	24...60	20...60	1 2	AFS265-30-12-11	1SFL547082R1112	4.675
				48...130	48...130	1 2	AFS265-30-12-12	1SFL547082R1212	4.675
				100...250	100...250	1 2	AFS265-30-12-13	1SFL547082R1312	4.675
				250...500	250...500	1 2	AFS265-30-12-14	1SFL547082R1412	4.675
160	500	250	400	24...60	20...60	1 2	AFS305-30-12-11	1SFL587082R1112	4.675
				48...130	48...130	1 2	AFS305-30-12-12	1SFL587082R1212	4.675
				100...250	100...250	1 2	AFS305-30-12-13	1SFL587082R1312	4.675
				250...500	250...500	1 2	AFS305-30-12-14	1SFL587082R1412	4.675
200	600	300	520	24...60	20...60	1 2	AFS370-30-12-11	1SFL607082R1112	4.675
				48...130	48...130	1 2	AFS370-30-12-12	1SFL607082R1212	4.675
				100...250	100...250	1 2	AFS370-30-12-13	1SFL607082R1312	4.675
				250...500	250...500	1 2	AFS370-30-12-14	1SFL607082R1412	4.675



AFS190, AFS205



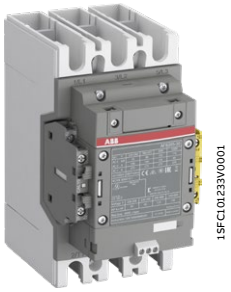
AFS265, AFS305, AFS370

Main dimensions mm, inches

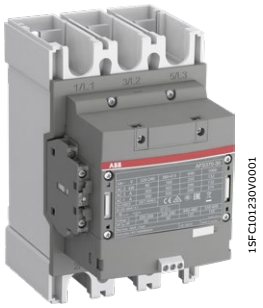
1SBC100471S0201

AFS190 ... AFS370 3-pole contactors for safety applications with built-in PLC interface - 90 to 200 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS205-30-12



AFS370-30-12

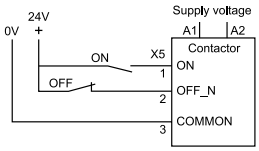
AFS190 ... AFS370 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits. Mechanically linked contacts make your system safer.

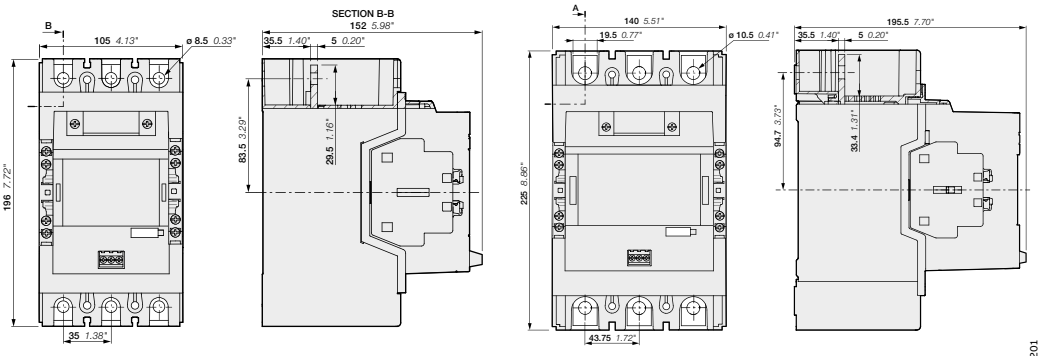
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	1 2	AFS190-30-12-33	1SFL487082R3312	3.000
				250...500	250...500	1 2	AFS190-30-12-34	1SFL487082R3412	3.000
110	350	150	300	100...250	100...250	1 2	AFS205-30-12-33	1SFL527082R3312	3.000
				250...500	250...500	1 2	AFS205-30-12-34	1SFL527082R3412	3.000
132	400	200	350	100...250	100...250	1 2	AFS265-30-12-33	1SFL547082R3312	4.675
				250...500	250...500	1 2	AFS265-30-12-34	1SFL547082R3412	4.675
160	500	250	400	100...250	100...250	1 2	AFS305-30-12-33	1SFL587082R3312	4.675
				250...500	250...500	1 2	AFS305-30-12-34	1SFL587082R3412	4.675
200	600	300	520	100...250	100...250	1 2	AFS370-30-12-33	1SFL607082R3312	4.675
				250...500	250...500	1 2	AFS370-30-12-34	1SFL607082R3412	4.675

AFS190 ... AFS370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AFS190, AFS205

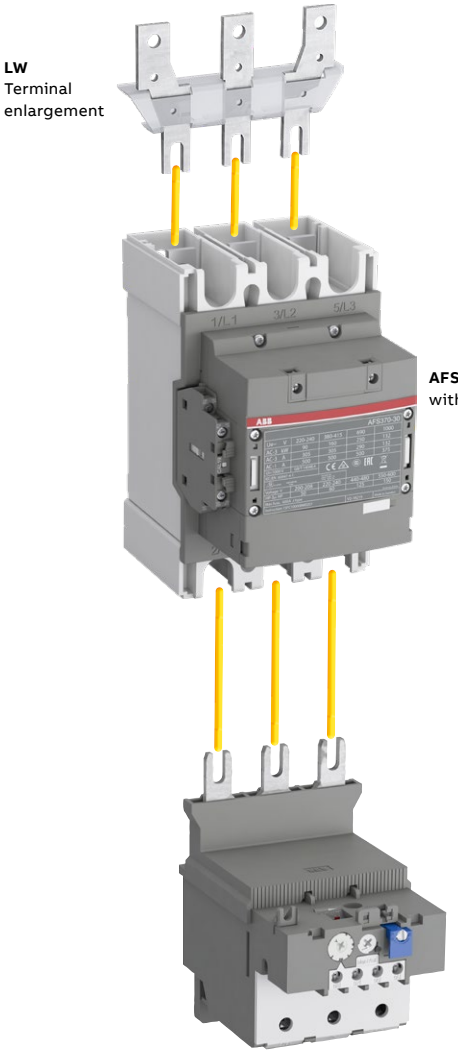
AFS265, AFS305, AFS370

Main dimensions mm, inches

1SBC100472S0201

AFS116 ... AFS370 3-pole contactors for safety applications with 1 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

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AFS116	TF140DU (66...142 A)	EF146 (54...150 A)
AFS146	–	EF146 (54...150 A)
AFS190, AFS205	TA200DU (66...200 A)	EF205 (63...210 A)
AFS265 ... AFS370	–	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.

1SBC100473S0201 - Rev. B

AFS116 ... AFS370 3-pole contactors for safety applications with 1 N.O. + 2 N.C. auxiliary contacts

Main accessories


1SFC101041V0001

LT370-30C


1SFC101049V0001

LX140

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
Terminal shrouds				
AFS116 ... AFS146, with compression lugs	LT140-30L	1SFN124203R1000	2	0.070
AFS190, AFS205, with cable clamps	LT205-30C	1SFN124801R1000	2	0.050
AFS190, AFS205, with compression lugs	LT205-30L	1SFN124803R1000	2	0.220
AFS190, AFS205, with shorting bar or between contactor and TOL/EOL in DOL-starters	LT205-30Y	1SFN124804R1000	1	0.050
AFS265 ... AFS370, with cable clamps	LT370-30C	1SFN125401R1000	2	0.035
AFS265 ... AFS370, with compression lugs	LT370-30L	1SFN125403R1000	2	0.280
AFS265 ... AFS370, with shorting bar or between contactor and TOL/EOL in DOL-starters	LT370-30Y	1SFN125404R1000	1	0.075
AFS265 ... AFS370, for use with extending cable clamps, ATK300/2 and OZXB4	LT370-30D	1SFN125406R1000	1	0.150

For contactors	Dimensions hole Ø mm	Dimensions bar mm	Type	Order code	Pkg qty	Weight (1 pce) kg
Terminal enlargements						
AFS116...AFS146	6.5	13 x 3	LW140	1SFN074207R1000	1	0.115
AFS190...AFS205	10.5	17.5 x 5	LW205	1SFN074807R1000	1	0.260
AFS265...AFS370	10.5	20 x 5	LW370	1SFN075407R1000	1	0.340
Terminal extension						
AFS116...AFS146	6.5	13 x 3	LX140	1SFN074210R1000	1	0.072
AFS190...AFS250	8.5	17.5 x 5	LX205	1SFN074810R1000	1	0.180
AFS265...AFS370	10.5	20 x 5	LX370	1SFN075410R1000	1	0.234

(1) For more information, refer to "Accessories" section.

AFS400 ... AFS750 3-pole contactors for safety applications 200 to 400 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts

AFS460-30-12

AFS750-30-12

AFS400 ... AFS750 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked contacts make your system safer.

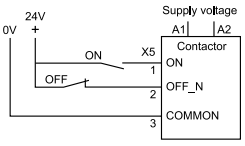
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

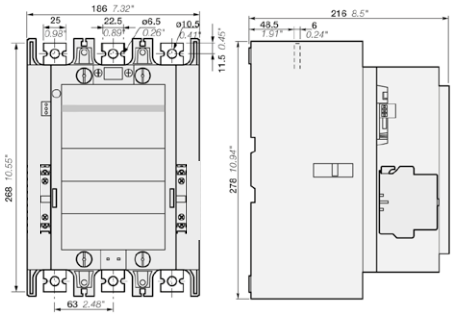
IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC	V 50/60 Hz	V DC				Pkg (1 pce)
kW	A	hp	A						kg
200	600	350	550	-	24...60	1 2	AFS400-30-12-68	1SFL577081R6812 (1)	12.000
				48...130	48...130	1 2	AFS400-30-12-69	1SFL577081R6912	12.000
				100...250	100...250	1 2	AFS400-30-12-70	1SFL577081R7012	12.000
				250...500	250...500	1 2	AFS400-30-12-71	1SFL577081R7112	12.000
250	700	400	650	-	24...60	1 2	AFS460-30-12-68	1SFL597081R6812 (1)	12.000
				48...130	48...130	1 2	AFS460-30-12-69	1SFL597081R6912	12.000
				100...250	100...250	1 2	AFS460-30-12-70	1SFL597081R7012	12.000
				250...500	250...500	1 2	AFS460-30-12-71	1SFL597081R7112	12.000
315	800	500	750	-	24...60	1 2	AFS580-30-12-68	1SFL617081R6812 (1)	15.000
				48...130	48...130	1 2	AFS580-30-12-69	1SFL617081R6912	15.000
				100...250	100...250	1 2	AFS580-30-12-70	1SFL617081R7012	15.000
				250...500	250...500	1 2	AFS580-30-12-71	1SFL617081R7112	15.000
400	1050	600	900	-	24...60	1 2	AFS750-30-12-68	1SFL637081R6812 (1)	15.000
				48...130	48...130	1 2	AFS750-30-12-69	1SFL637081R6912	15.000
				100...250	100...250	1 2	AFS750-30-12-70	1SFL637081R7012	15.000
				250...500	250...500	1 2	AFS750-30-12-71	1SFL637081R7112	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 AFS580, AFS750.

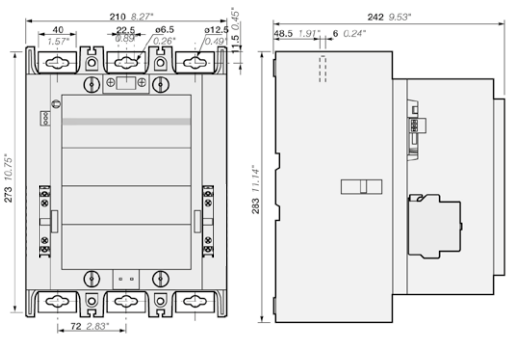
AFS400...AFS750 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AFS400, AFS460



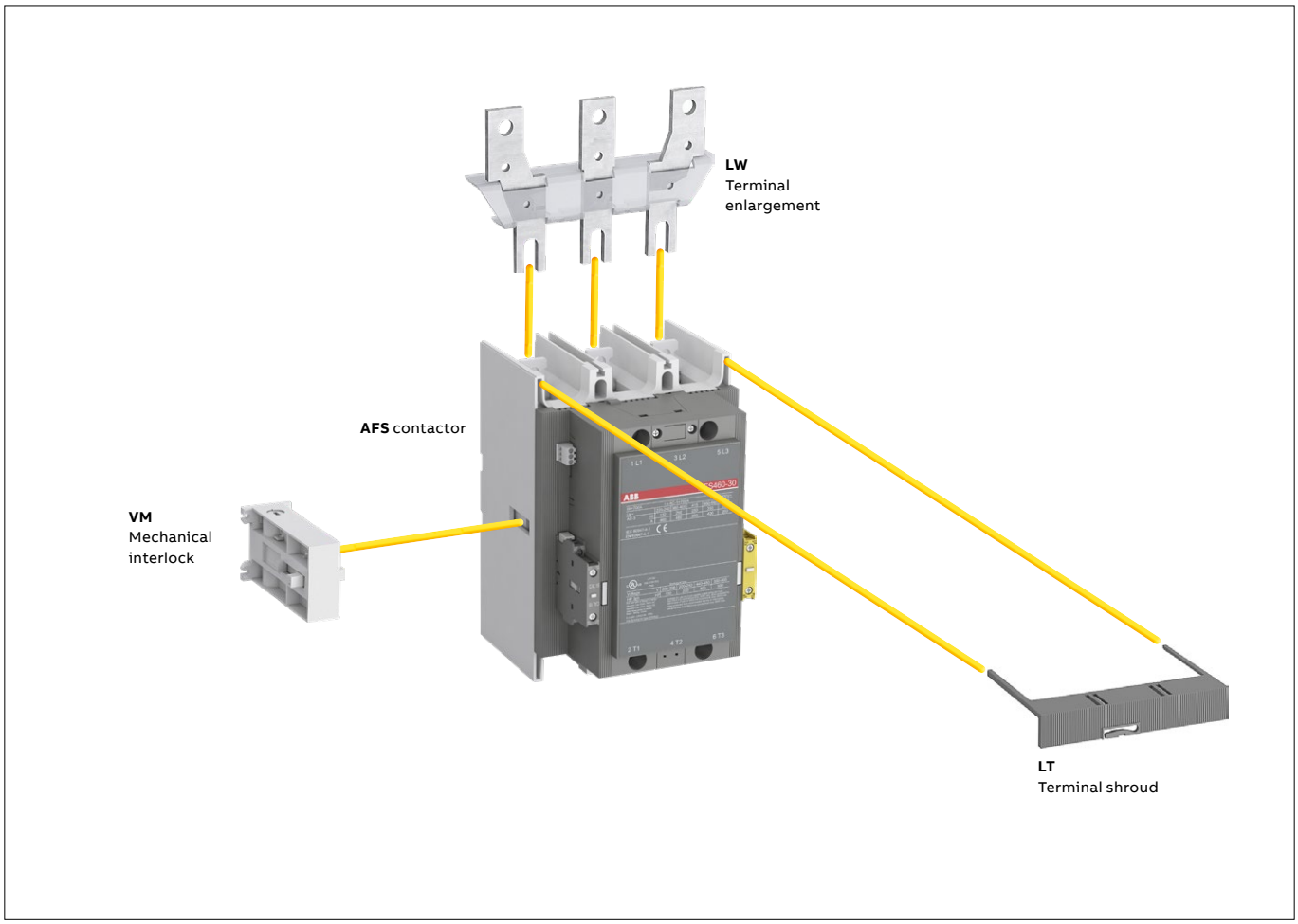
AFS580, AFS750

Main dimensions mm, inches

1SBC100475S0201

AFS400 ... AFS750 3-pole contactors for safety applications with 1 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

Overload relays fitting details

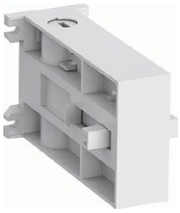
Contactor types	Thermal overload relays	Electronic overload relays
AFS400, AFS460	–	EF460 (150...500 A) (3)
AFS580, AFS750	–	EF750 (250...800 A) (3)

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").

1SBC100476S0201

AFS400 ... AFS750 3-pole contactors for safety applications with 1 N.O. + 2 N.C. auxiliary contacts

Main accessories



VM750H

LT460-AC

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
Mechanical interlock unit				
AFS400 ... AFS750	VM750H	1SFN035700R1000	1	0.200
Terminal shrouds				
AFS400, AFS460 with connectors	LT460-AC	1SFN125701R1000	2	0.100
AFS400, AFS460 with lugs	LT460-AL	1SFN125703R1000	2	0.800
AFS580 ... AFS750 with connectors	LT750-AC	1SFN126101R1000	2	0.120
AFS580 ... AFS750 with lugs	LT750-AL	1SFN126103R1000	2	0.825

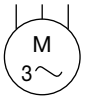
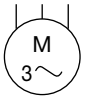
For contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce) kg
	hole Ø mm	bar mm				
Terminal enlargements						
AFS400, AFS460	10.5	25 x 5	LW460	1SFN075707R1000	1	0.730
AFS580, AFS750	13	40 x 6	LW750	1SFN076107R1000	1	1.230
Terminal extension						
AFS400, AFS460	10.5	25 x 5	LX460	1SFN075710R1000	1	0.500
AFS580, AFS750	13	40 x 6	LX750	1SFN076110R1000	1	0.850

1SBC100475O201

AFS09 ... AFS96 3-pole contactors for safety applications

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38	AFS40	AFS52	AFS65	AFS80	AFS96
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1										
Rated operational voltage Ue max.		690 V									1000 V	
Rated frequency (without derating)		50 / 60 Hz										
Conventional free-air thermal current Ith												
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		35 A	35 A	35 A	50 A	50 A	50 A	105 A	105 A	105 A	130 A	130 A
With conductor cross-sectional area		6 mm²	6 mm²	6 mm²	10 mm²	10 mm²	10 mm²	35 mm²	35 mm²	35 mm²	50 mm²	50 mm²
AC-1 Utilization category												
For air temperature close to contactor												
Ie / Rated operational current AC-1	θ ≤ 40 °C	25 A	28 A	30 A	45 A	50 A	50 A	70 A	100 A	105 A	125 A	130 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 60 °C	25 A	28 A	30 A	40 A	42 A	42 A	60 A	80 A	90 A	100 A	105 A
	θ ≤ 70 °C	22 A	24 A	26 A	32 A	37 A	37 A	50 A	70 A	80 A	85 A	90 A
With conductor cross-sectional area		4 mm²	6 mm²	6 mm²	10 mm²	10 mm²	10 mm²	25 mm²	35 mm²	35 mm²	50 mm²	50 mm²
AC-3 Utilization category												
For air temperature close to contactor θ ≤ 60 °C												
Ie / Max. rated operational current AC-3 (1)												
	220-230-240 V	9 A	12 A	18 A	26 A	33 A	40 A	40 A	53 A	65 A	80 A	96 A
	380-400 V	9 A	12 A	18 A	26 A	32 A	38 A	40 A	53 A	65 A	80 A	96 A
 3-phase motors	415 V	9 A	12 A	18 A	26 A	32 A	38 A	40 A	53 A	65 A	80 A	96 A
	440 V	9 A	12 A	18 A	26 A	32 A	38 A	40 A	53 A	65 A	80 A	96 A
	500 V	9.5 A	12.5 A	15 A	23 A	28 A	33 A	35 A	45 A	55 A	65 A	80 A
	690 V	7 A	9 A	10.5 A	17 A	21 A	24 A	25 A	35 A	39 A	49 A	57 A
	1000 V										25 A	30 A
Rated operational power AC-3 (1)												
	220-230-240 V	2.2 kW	3 kW	4 kW	6.5 kW	9 kW	11 kW	11 kW	15 kW	18.5 kW	22 kW	25 kW
	380-400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW
 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	415 V	4 kW	5.5 kW	9 kW	11 kW	15 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW
	440 V	4 kW	5.5 kW	9 kW	15 kW	18.5 kW	22 kW	22 kW	30 kW	37 kW	45 kW	55 kW
	500 V	5.5 kW	7.5 kW	9 kW	15 kW	18.5 kW	22 kW	22 kW	30 kW	37 kW	45 kW	55 kW
	690 V	5.5 kW	7.5 kW	9 kW	15 kW	18.5 kW	22 kW	22 kW	30 kW	37 kW	45 kW	55 kW
	1000 V										35 kW	40 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1										
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1										
AC-8a Utilization category												
(without thermal overload relay												
Ue 400 V 50/60 Hz - θ ≤ 40 °C)												
Ie / Rated operational current AC-8a		12 A	16 A	22 A	30 A	40 A	50 A	53 A	70 A	85 A	105 A	120 A
Rated operational power AC-8a		5.5 kW	7.5 kW	11 kW	15 kW	20 kW	25 kW	25 kW	37 kW	45 kW	55 kW	65 kW
Short-circuit protection device for contactors												
without thermal overload relay												
Motor protection excluded (2)												
Ue ≤ 500 V AC - gG type fuse		25 A	32 A	32 A	50 A	63 A	63 A	100 A	125 A	160 A	160 A	200 A
Rated short-time withstand current Icw	1 s	300 A	300 A	300 A	700 A	700 A	700 A	1000 A	1000 A	1000 A	1200 A	1200 A
at 40 °C ambient temperature,	10 s	150 A	150 A	150 A	350 A	350 A	350 A	600 A	600 A	600 A	780 A	780 A
in free air from a cold state	30 s	80 A	80 A	80 A	225 A	225 A	225 A	350 A	350 A	350 A	450 A	450 A
	1 min	60 A	60 A	60 A	150 A	150 A	150 A	250 A	250 A	250 A	300 A	300 A
	15 min	35 A	35 A	35 A	50 A	50 A	50 A	110 A	110 A	110 A	140 A	140 A
Maximum breaking capacity												
cos ϕ = 0.45	at 440 V	250 A	250 A	250 A	500 A	500 A	500 A	950 A	950 A	950 A	1150 A	1150 A
	at 690 V	106 A	106 A	106 A	200 A	200 A	200 A	600 A	600 A	600 A	750 A	750 A
Power dissipation per pole	Ie / AC-1	0.8 W	1 W	1.2 W	1.8 W	2.4 W	2.4 W	3 W	6.3 W	7 W	7.6 W	8.2 W
	Ie / AC-3	0.1 W	0.2 W	0.35 W	0.6 W	0.9 W	1.3 W	1 W	1.7 W	2.7 W	3 W	4.5 W
Max. electrical switching frequency	AC-1	600 cycles/h										
	AC-3	1200 cycles/h										
	AC-2, AC-4	300 cycles/h			150 cycles/h							
B10d - Calculated for 50% of the rated current value Ie at AC-3 / 400 V		1.3 million operating cycles										

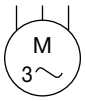
(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".

1SBC100307S0201 - Rev. A

AFS116 ... AFS370 3-pole contactors for safety applications

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AFS116	AFS146	AFS190	AFS205	AFS265	AFS305	AFS370
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1						
Rated operational voltage Ue max.		690 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated frequency (without derating)		50 / 60 Hz						
Conventional free-air thermal current Ith								
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		160 A	225 A	275 A	350 A	400 A	500 A	600 A
With conductor cross-sectional area		70 mm²	95 mm²	150 mm²	240 mm² (3)	240 mm²	300 mm² (4)	2 x 185 mm² (4)
AC-1 Utilization category								
For air temperature close to contactor								
Ie / Rated operational current AC-1	θ ≤ 40 °C	160 A	225 A	275 A	350 A	400 A	500 A	600 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 60 °C	145 A	200 A	250 A	300 A	350 A	400 A	500 A
	θ ≤ 70 °C	130 A	175 A	200 A	240 A	290 A	325 A	400 A
Ie / Rated operational current AC-1	θ ≤ 40 °C	–	225 A	250 A	275 A	350 A	375 A	400 A
Ue max. ≤ 1000 V, 50/60 Hz	θ ≤ 60 °C	–	200 A	225 A	250 A	300 A	325 A	350 A
	θ ≤ 70 °C	–	175 A	185 A	200 A	240 A	260 A	290 A
With conductor cross-sectional area		70 mm²	95 mm²	150 mm²	240 mm² (3)	240 mm²	300 mm² (4)	2 x 185 mm² (4)
AC-3 Utilization category								
For air temperature close to contactor θ ≤ 60 °C								
Ie / Max. rated operational current AC-3 (1)								
	220-230-240 V	116 A	146 A	190 A	205 A	265 A	305 A	370 A
	380-400 V	116 A	146 A	190 A	205 A	265 A	305 A	370 A
 3-phase motors	415 V	116 A	146 A	190 A	205 A	265 A	305 A	370 A
	440 V	116 A	146 A	190 A	205 A	265 A	305 A	370 A
	500 V	110 A	130 A	135 A	165 A	250 A	290 A	315 A
	690 V	65 A	93 A	135 A	165 A	250 A	290 A	315 A
	1000 V	–	60 A	85 A	100 A	100 A	100 A	100 A
Rated operational power AC-3 (1)								
	220-230-240 V	30 kW	45 kW	55 kW	55 kW	75 kW	90 kW	110 kW
	380-400 V	55 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW
 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	415 V	55 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW
	440 V	75 kW	90 kW	110 kW	132 kW	160 kW	160 kW	200 kW
	500 V	75 kW	90 kW	90 kW	110 kW	200 kW	200 kW	250 kW
	690 V	55 kW	90 kW	132 kW	160 kW	200 kW	250 kW	315 kW
	1000 V	–	75 kW	110 kW	132 kW	132 kW	132 kW	132 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1						
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1						
Short-circuit protection device for contactors without thermal overload relay Motor protection excluded (2)								
Ue ≤ 500 V AC - gG type fuse		250 A	315 A	355 A	400 A	500 A	500 A	630 A
Rated short-time withstand current Icw	1 s	1300 A	1460 A	1900 A	2050 A	2650 A	3050 A	3700 A
at 40 °C ambient temperature,	10 s	928 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	878 A	947 A	1224 A	1409 A	1709 A
	1 min	379 A	477 A	621 A	670 A	865 A	996 A	1208 A
	15 min	160 A	225 A	275 A	350 A	400 A	500 A	600 A
Maximum breaking capacity								
cos ϕ = 0.45	at 440 V	2000 A	3000 A	3300 A	3500 A	3800 A	4600 A	5000 A
(cos ϕ = 0.35 for Ie > 100 A)	at 690 V	1000 A	1500 A	2200 A	2500 A	3300 A	3800 A	4000 A
Power dissipation per pole	Ie / AC-1	12 W	23 W	15 W	25 W	32 W	50 W	72 W
	Ie / AC-3	6 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						
B10d - Calculated for 50% of the rated current value Ie at AC-3 / 400 V		1.3 million operating cycles						

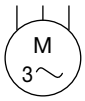
(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
(2) For the protection of motor starters against short circuits, see "Coordination with short-circuit protection devices".
(3) For currents above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

1SBC100478S0201

AFS400 ... AFS750 3-pole contactors for safety applications

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AFS400	AFS460	AFS580	AFS750
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1			
Rated operational voltage Ue max.		1000 V			
Rated frequency (without derating)		50/60 Hz			
Conventional free-air thermal current Ith					
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		600 A	700 A	800 A	1050 A
With conductor cross-sectional area (3)		2x185 mm²	2x240 mm²	2x240 mm²	800 mm² (4)
AC-1 Utilization category					
For air temperature close to contactor					
Ie / Rated operational current AC-1	θ ≤ 40 °C	600 A	700 A	800 A	1050 A
Ue max. ≤ 690 V, 50/60 Hz	θ ≤ 55 °C	500 A	600 A	700 A	875 A
	θ ≤ 70 °C	400 A	480 A	580 A	720 A
Ie / Rated operational current AC-1	θ ≤ 40 °C	600 A	700 A	800 A	1000 A
Ue max. ≤ 1000 V, 50/60 Hz	θ ≤ 55 °C	500 A	600 A	700 A	875 A
	θ ≤ 70 °C	400 A	480 A	580 A	720 A
With conductor cross-sectional area		2x185 mm²	2x240 mm²	2x240 mm²	800 mm² (4)
AC-3 Utilization category					
For air temperature close to contactor θ ≤ 55 °C					
Ie / Max. rated operational current AC-3 (1)					
	220-230-240 V	400 A	460 A	580 A	750 A
	380-400 V	400 A	460 A	580 A	750 A
 3-phase motors	415 V	400 A	460 A	580 A	750 A
	440 V	400 A	460 A	580 A	750 A
	500 V	400 A	460 A	580 A	750 A
	690 V	350 A	400 A	500 A	650 A
	1000 V	155 A	200 A	250 A	300 A
Rated operational power AC-3 (1)					
	220-230-240 V	110 kW	132 kW	160 kW	220 kW
	380-400 V	200 kW	250 kW	315 kW	400 kW
 1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	415 V	220 kW	250 kW	355 kW	425 kW
	440 V	220 kW	250 kW	355 kW	450 kW
	500 V	250 kW	315 kW	400 kW	520 kW
	690 V	315 kW	355 kW	500 kW	600 kW
	1000 V	220 kW	280 kW	355 kW	400 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1			
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1			
Short-circuit protection device for contactors without thermal overload relay Motor protection excluded (2)					
Ue ≤ 500 V AC - gG type fuse		630 A	800 A	1000 A	1000 A
Rated short-time withstand current Icw	1 s	4600 A	4600 A	7000 A	7000 A
at 40 °C ambient temperature,	10 s	4400 A	4400 A	6400 A	6400 A
in free air from a cold state	30 s	3100 A	3100 A	4500 A	4500 A
	1 min	2500 A	2500 A	3500 A	3500 A
	15 min	840 A	840 A	1300 A	1300 A
Maximum breaking capacity					
cos ϕ = 0.45	at 440 V	4000 A	5000 A	6000 A	7500 A
(cos ϕ = 0.35 for Ie > 100 A)	at 690 V	3500 A	4500 A	5000 A	7000 A
Power dissipation per pole	Ie / AC-1	30 W	42 W	32 W	50 W
	Ie / AC-3	16 W	21 W	17 W	28 W
Max. electrical switching frequency	AC-1	300 cycles/h		300 cycles/h	
	AC-3	300 cycles/h		300 cycles/h	
	AC-2, AC-4	60 cycles/h		60 cycles/h	
B10d - Calculated for 50% of the rated current value Ie at AC-3 / 400 V		0.68 million operating cycles			

(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".
(3) Conductors with preparation.
(4) Max. connection bar width 50 mm.

1SBC100479S0201

AFS09 ... AFS96 3-pole contactors for safety applications

Technical data

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

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38	AFS40	AFS52	AFS65	AFS80	AFS96
Standards		UL 60947-4-1, CSA-C22.2 No. 60947-4-1										
Maximum operational voltage		600 V										
NEMA size		00	0	-	1	-	-	2	-	-	3	-
NEMA continuous amp rating	Thermal current	9 A	18 A	-	27 A	-	-	45 A	-	-	90 A	-
NEMA maximum horse power ratings 1-phase, 60 Hz	115 V AC	1/3 hp	1 hp	-	2 hp	-	-	3 hp	-	-	-	-
	230 V AC	1 hp	2 hp	-	3 hp	-	-	7.5 hp	-	-	-	-
NEMA maximum horse power ratings 3-phase, 60 Hz	200 V AC	1-1/2 hp	3 hp	-	7-1/2 hp	-	-	10 hp	-	-	25 hp	-
	230 V AC	1-1/2 hp	3 hp	-	7-1/2 hp	-	-	15 hp	-	-	30 hp	-
	460 V AC	2 hp	5 hp	-	10 hp	-	-	25 hp	-	-	50 hp	-
	575 V AC	2 hp	5 hp	-	10 hp	-	-	25 hp	-	-	50 hp	-
UL / CSA general use rating												
600 V AC		25 A	28 A	30 A	45 A	50 A	50 A	60 A	80 A	90 A	105 A	115 A
With conductor cross-sectional area		AWG 10	AWG 10	AWG 10	AWG 8	AWG 8	AWG 8	AWG 6	AWG 4	AWG 3	AWG 2	AWG 2
1 pole	80 V DC	25 A	28 A	30 A	45 A	50 A	50 A	60 A	80 A	90 A	105 A	115 A
2 poles in serie	160 V DC	25 A	28 A	30 A	45 A	50 A	50 A	60 A	80 A	90 A	105 A	115 A
3 poles in serie	240 V DC	25 A	28 A	30 A	45 A	50 A	50 A	60 A	80 A	90 A	105 A	115 A
With conductor cross-sectional area		AWG 10	AWG 10	AWG 10	AWG 8	AWG 8	AWG 8	AWG 6	AWG 4	AWG 3	AWG 2	AWG 2
UL / CSA maximum 1-phase motor rating												
Full load current	120 V AC	13.8 A	16 A	20 A	24 A	24 A	24 A	34 A	34 A	56 A	80 A	80 A
	240 V AC	10 A	12 A	17 A	17 A	28 A	28 A	40 A	50 A	68 A	68 A	88 A
Horse power rating	120 V AC	3/4 hp	1 hp	1-1/2 hp	2 hp	2 hp	2 hp	3 hp	3 hp	5 hp	7-1/2 hp	7-1/2 hp
	240 V AC	1-1/2 hp	2 hp	3 hp	3 hp	5 hp	5 hp	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	7.8 A	11 A	17.5 A	25.3 A	32.2 A	32.2 A	32.2 A	48.3 A	62.1 A	78.2 A	92 A
	220-240 V AC	6.8 A	9.6 A	15.2 A	22 A	28 A	28 A	42 A	54 A	68 A	80 A	80 A
	440-480 V AC	7.6 A	11 A	14 A	21 A	27 A	34 A	40 A	52 A	65 A	77 A	77 A
	550-600 V AC	9 A	11 A	17 A	22 A	27 A	32 A	41 A	52 A	62 A	77 A	77 A
Horse power rating (1)	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
UL / CSA - DC motor starting - 3 poles in series												
Full Load Amps	125 V DC	9.5 A	13.2 A	17 A	25 A	25 A	25 A	40 A	58 A	76 A	76 A	110 A
	250 V DC	8.5 A	12.2 A	12.2 A	20 A	29 A	29 A	38 A	55 A	72 A	89 A	106 A
Horse power rating	125 V DC	1 hp	1-1/2 hp	2 hp	3 hp	3 hp	3 hp	5 hp	7-1/2 hp	10 hp	10 hp	15 hp
	250 V DC	2 hp	3 hp	3 hp	5 hp	7-1/2 hp	7-1/2 hp	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		30 A		60 A		100 A		150 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".

1SBC100309S0201

AFS116 ... AFS370 3-pole contactors for safety applications

Technical data

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

Contactor types	AC / DC operated	AFS116	AFS146	AFS190	AFS205	AFS265	AFS305	AFS370
Standards		UL 60947-1 / 60947-4-1 and CSA C 22.2 N°60947-1 / 60947-4-1						
Maximum operational voltage		600 V	1000 V					
NEMA size		–	–	–	–	5	–	–
NEMA continuous amp rating	Thermal current	–	–	–	–	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	–	–	–	–	75 hp	–	–
	230 V AC	–	–	–	–	100 hp	–	–
	460 V AC	–	–	–	–	200 hp	–	–
	575 V AC	–	–	–	–	200 hp	–	–
UL / CSA general use rating								
600 V AC		160 A	200 A	250 A	300 A	350 A	400 A	520 A
With conductor cross-sectional area		AWG 2/0	AWG 3/0	MCM 250	MCM 350 (2)	MCM 500	2//AWG 3/0	2//MCM 300
1 000 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	MCM 250	MCM 350 (2)	MCM 500	2//AWG 3/0	2//MCM 300
1 pole	90 V DC	160 A	200 A	–	–	–	–	–
	100 V DC	–	–	250 A	350 A	–	–	–
	110 V DC	–	–	–	–	400 A	500 A	520 A
2 poles in serie	175 V DC	160 A	200 A	–	–	–	–	–
	200 V DC	–	–	250 A	350 A	–	–	–
	225 V DC	–	–	–	–	400 A	500 A	520 A
3 poles in serie	260 V DC	160 A	200 A	–	–	–	–	–
	300 V DC	–	–	250 A	350 A	–	–	–
	340 V DC	–	–	–	–	400 A	500 A	520 A
With conductor cross-sectional area		AWG 2/0	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	150 A	177 A	221 A	285 A	359 A
	220-240 V AC	104 A	130 A	154 A	192 A	248 A	312 A	360 A
	440-480 V AC	96 A	124 A	156 A	180 A	240 A	302 A	361 A
	550-600 V AC	99 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	50 hp	60 hp	75 hp	100 hp	125 hp
	220-240 V AC	40 hp	50 hp	60 hp	75 hp	100 hp	125 hp	150 hp
	440-480 V AC	75 hp	100 hp	125 hp	150 hp	200 hp	250 hp	300 hp
	550-600 V AC	100 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	350 A	400 A	500 A	600 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.

1SBC100480S0201

AFS400 ... AFS750 3-pole contactors for safety applications

Technical data

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

Contactor types	AC / DC operated	AFS400	AFS460	AFS580	AFS750
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			

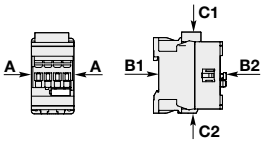
(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see “Motor rated operational powers and currents”.

1SBC100481S0201

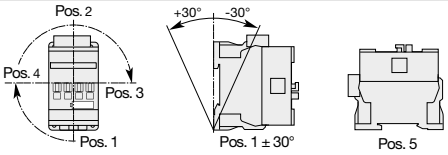
AFS09 ... AFS96 3-pole contactors for safety applications

Technical data

General technical data

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38
Rated insulation voltage Ui							
acc. to IEC 60947-4-1		690 V					
acc. to UL / CSA		600 V					
Rated impulse withstand voltage Uimp.		6 kV					
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environments A and B					
Ambient air temperature close to contactor							
Operation Fitted with thermal overload relay		-40 ... +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 million operating cycles					
Maximum switching frequency		3600 cycles/h					
Shock withstand							
acc. to IEC 60068-2-27 and EN 60068-2-27							
Mounting position 1	Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position					
	A	30 g					
	B1	25 g closed position / 5 g open position					
	B2	15 g					
	C1	25 g					
	C2	25 g					
Vibration withstand		5 ... 300 Hz					
acc. to IEC 60068-2-6		4 g Closed position / 2 g Open position					

Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38
Mounting positions							
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					

1SBC100310S0201 - Rev. A

AFS09 ... AFS38 3-pole contactors for safety applications

Technical data

Magnet system characteristics for AFS09 ... AFS38 contactors - AC / DC operated

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38
Coil operating limits acc. to IEC 60947-4-1	AC supply	At θ ≤ 60 °C 0.85 x Uc min...1.1 x Uc max. At θ ≤ 70 °C 0.85 x Uc min...Uc max.					
	DC supply	at θ ≤ 60 °C 0.85 x Uc min ... 1.1 x Uc max at θ ≤ 70 °C 0.85 x Uc min ... Uc max					
AC control voltage 50/60 Hz							
Rated control circuit voltage Uc		24 ... 250 V AC					
Coil consumption	Average pull-in value	50 VA					
	Average holding value	2.2 VA / 2 W					
DC control voltage							
Rated control circuit voltage Uc		20 ... 250 V DC					
Coil consumption	Average pull-in value	50 W					
	Average holding value	2 W					
PLC-output control		AFS..-30-22-11 not suitable for direct control by PLC-output.					
Drop-out voltage		≤ 60 % Uc min.					
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 (1)					
	N.C. contact closing	13 ... 98 ms					

(1) AFS09 ... AFS38 ≤ 35 ms for 20 °C ≤ θ ≤ 70 °C

Magnet System Characteristics for AFS09Z ... AFS38Z contactors 24V DC operated - designed for PLC - coil 30

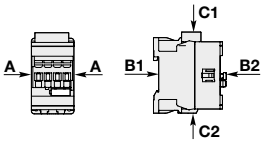
Contactor types	DC operated	AFS09Z	AFS12Z	AFS16Z	AFS26Z	AFS30Z	AFS38Z
Coil operating limits acc. to IEC 60947-4-1	DC supply	at θ ≤ 60 °C 0.85 ... 1.1 x Uc at θ ≤ 70 °C Uc					
DC control voltage							
Rated control circuit voltage Uc		24 V DC					
Coil consumption	Average pull-in value	6 W					
	Average holding value	1.7 W					
PLC-output control		≥ 250 mA 24 V DC for PLCs and safety PLCs using broken wire detection					
Drop-out voltage		≤ 60 % Uc min.					
Operating time							
Between coil energization and:	N.O. contact closing	27 ... 53 ms					
	N.C. contact opening	20 ... 35 ms					
Between coil de-energization and:	N.O. contact opening	17 ... 29 ms					
	N.C. contact closing	22 ... 57 ms					

1SBC100491S0201 - Rev. A

AFS40 ... AFS96 3-pole contactors for safety applications

Technical data

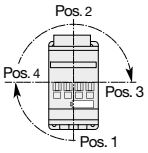
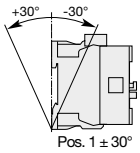
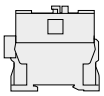
General technical data

Contactor types	AC / DC operated	AFS40	AFS52	AFS65	AFS80	AFS96
Rated insulation voltage Ui						
acc. to IEC 60947-4-1		690 V			1000 V	
acc. to UL / CSA		600 V				
Rated impulse withstand voltage Uimp.		6 kV			8 kV	
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environments A and B				
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 million operating cycles				
Maximum 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 for AFS40 ... AFS96 contactors - AC / DC operated

Contactor types	AC / DC operated	AFS40	AFS52	AFS65	AFS80	AFS96
Coil operating limits	AC supply	At θ ≤ 70 °C 0.85 x Uc min ... 1.1 x Uc max.				
acc. to IEC 60947-4-1	DC supply	at θ ≤ 70 °C 0.85 x Uc min ... 1.1 x Uc max				
AC control voltage 50/60 Hz						
Rated control circuit voltage Uc		24 ... 250 V AC				
Coil consumption	Average pull-in value	25 VA			40 VA	
	Average holding value	4 VA / 2 W				
DC control voltage						
Rated control circuit voltage Uc		20 ... 250 V DC				
Coil consumption	Average pull-in value	25 W			40 W	
	Average holding value	2 W				
PLC-output control		AFS..-30-22-11 not suitable for direct control by PLC-output.				
Drop-out voltage		≤ 60 % Uc min.				
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 for use

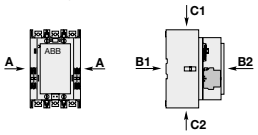
Contactor types	AC / DC operated	AFS40	AFS52	AFS65	AFS80	AFS96
Mounting positions						
Mounting distances		The contactors can be assembled side by side				
Fixing						
On rail according to IEC 60715, EN 60715		35 x 7.5 mm or 35 x 15 mm			35 x 15 mm	
By screws (not supplied)		2 x M4 or 2 x M6 screws placed diagonally				

1SBC100495O0201 - Rev. A

AFS116 ... AFS370 3-pole contactors for safety applications

Technical data

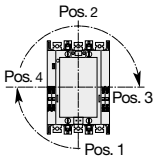
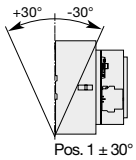
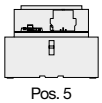
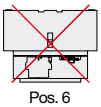
General technical data

Contactor types	AC / DC operated	AFS116	AFS146	AFS190	AFS205	AFS265	AFS305	AFS370
Rated insulation voltage Ui								
acc. to IEC 60947-4-1		1000 V						
acc. to UL / CSA		600 V						
Rated impulse withstand voltage Uimp.		8 kV						
Electromagnetic compatibility		AFS contactors comply with IEC 60947-1 / EN 60947-1 - Environment A						
Ambient air temperature close to contactor								
Operation Fitted with thermal overload relay		-25 to +55 °C						
Without thermal overload relay		-40 to +70 °C						
Storage		-40 to +70 °C						
Climatic withstand		Category B according to IEC 60947-1 Annex Q						
Maximum operating altitude (without derating)		3000 m						
Mechanical durability								
Number of operating cycles		5 million operating cycles						
Maximum switching frequency		300 cycles/h						
Shock withstand								
acc. to IEC 60068-2-27 and EN 60068-2-27								
Mounting position 1		No change in contact position, closed or open position						
	Shock direction	1/2 sinusoidal shock for 11 ms			1/2 sinusoidal shock for 30 ms			
	A	20 g			20 g			
	B1	15 g closed position / 3 g open position			15 g closed position / 3 g open position			
	B2	15 g closed position / 3 g open position			15 g closed position / 3 g open position			
	C1	20 g			20 g			
	C2	20 g			20 g			
Vibration withstand								
acc to IEC 60068-2-6		0.7 g closed position / 0.7 g open position 13.2...100 Hz						

Magnet system characteristics

Contactor types	AC / DC operated	AFS116	AFS146	AFS190	AFS205	AFS265	AFS305	AFS370
Coil operating limits	AC supply	At θ ≤ 70 °C 0.85 x Uc min ... 1.1 x Uc max						
acc. to IEC 60947-4-1	DC supply	At θ ≤ 70 °C 0.80 x Uc min ... 1.1 x Uc max						
Rated control circuit voltage Uc								
Coil consumption		24...500 V AC, 20...500 V DC						
AC control voltage 50/60 Hz								
24...60 V AC	Average pull-in value	225 VA		165 VA		475 VA		
	Average holding value	5.5 VA		6 VA		8.5 VA		
48...130 V AC	Average pull-in value	170 VA		175 VA		340 VA		
	Average holding value	4 VA		4 VA		17 VA		
100...250 V AC	Average pull-in value	130 VA		220 VA		385 VA		
	Average holding value	6 VA		7 VA		17.5 VA		
250...500 V AC	Average pull-in value	205 VA		185 VA		420 VA		
	Average holding value	16 VA		16 VA		21 VA		
DC control voltage								
20...60 V DC	Average pull-in value	210 W		205 W		400 W		
	Average holding value	2.5 W		2.5 W		3.5 W		
48...130 V DC	Average pull-in value	130 W		130 W		360 W		
	Average holding value	2.5 W		2.5 W		2.5 W		
100...250 V DC	Average pull-in value	135 W		190 W		410 W		
	Average holding value	3 W		2.5 W		4.5 W		
250...500 V DC	Average pull-in value	205 W		190 W		600 W		
	Average holding value	4 W		4 W		4.7 W		
Drop-out voltage		55 % of Uc min						
Voltage sag immunity		Conditions of use on request						
acc. to SEMI F47								
Dips withstand		≥ 20 ms						
Operating time								
Coil supply between A1 - A2								
Between coil energization and:	N.O. contact closing	20...55 ms		25...60 ms		30...60 ms		
Between coil de-energization and:	N.O. contact opening	40..70 ms		45...80 ms		45...80 ms		

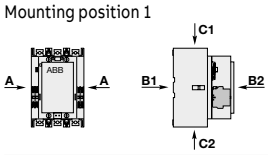
Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AFS116	AFS146	AFS190	AFS205	AFS265	AFS305	AFS370
Mounting positions					 Pos. 5	 Pos. 6		
Mounting distances		The contactors can be assembled side by side						
Fixing								
On rail acc. to IEC 60715, EN 60715		–						
By screws		4 x M4		4 x M5				

AFS400 ... AFS750 3-pole contactors for safety applications

Technical data

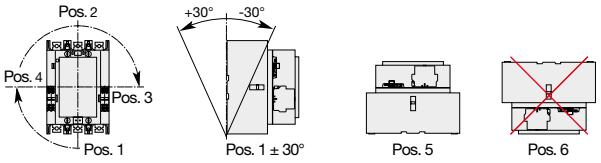
General technical data

Contactor types	AC / DC operated	AFS400	AFS460	AFS580	AFS750
Rated insulation voltage Ui					
acc. to IEC 60947-4-1		1000 V			
acc. to UL / CSA		600 V			
Rated impulse withstand voltage Uimp.		8 kV			
Electromagnetic compatibility		AFS contactors complying with IEC 60947-1 / EN 60947-1 - Environment A			
Ambient air temperature close to contactor					
Operation	Fitted with electronic overload relay	-25 to +70 °C			
	Without electronic overload relay	-40 to +70 °C			
Storage		-40 to +70 °C			
Climatic withstand		Category B according to IEC 60947-1 Annex Q			
Maximum operating altitude (without derating)		3000 m			
Mechanical durability					
Number of operating cycles		3 millions operating cycles			
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	AFS400	AFS460	AFS580	AFS750
Coil operating limits	AC supply	At θ ≤ 70 °C 0.85 x Uc min ... 1.1 x Uc max			
acc. to IEC 60947-4-1	DC supply	At θ ≤ 70 °C 0.80 x Uc min ... 1.1 x Uc max			
Rated control circuit voltage Uc					
Coil consumption		48...500 V AC, 24...500 V DC			
AC control voltage 50/60 Hz					
48...130 V AC	Average pull-in value	1215 VA		1100 VA	
	Average holding value	12 VA		12 VA	
100...250 V AC	Average pull-in value	955 VA		880 VA	
	Average holding value	12 VA		12 VA	
250 ... 500 V AC	Average pull-in value	950 VA		985 VA	
	Average holding value	12 VA		12 VA	
DC control voltage					
24...60 V DC	Average pull-in value	900 W		785 W	
	Average holding value	5 W		5.5 W	
48...130 V DC	Average pull-in value	1150 W		1020 W	
	Average holding value	5 W		5 W	
100...250 V DC	Average pull-in value	895 W		880 W	
	Average holding value	5 W		5 W	
250 ... 500 V DC	Average pull-in value	885 W		910 W	
	Average holding value	7.5 W		7.5 W	
Drop-out voltage		55 % of Uc min.			
Voltage sag immunity		Conditions of use on request			
acc. to SEMI F47					
Dips withstand		≥ 20 ms			
Operating time					
Coil supply between A1 - A2					
Between coil energization and:	Main contact closing	50...120 ms			
Between coil de-energization and:	Main contact opening	33...70 ms			
Control input for PLC's					
Between coil energization and:	Main contact closing	40...60 ms		40...90 ms	
Between coil de-energization and:	Main contact opening	10...30 ms			

Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AFS400	AFS460	AFS580	AFS750
Mounting positions					
Mounting distances		The contactors can be assembled side by side			
Fixing					
On rail according to IEC 60715, EN 60715		–			
By screws		4 x M5		4 x M6	

1SBC100483S0201

AFS09 ... AFS96 3-pole contactors for safety applications

Technical data

Connecting characteristics

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38	AFS40	AFS52	AFS65	AFS80	AFS96
Main terminals		 Screw terminals with cable clamp						 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 Solid (≤ 4 mm²)	1 x	1 ... 6 mm²			2.5 ... 10 mm²			6 ... 35 mm²			6 ... 70 mm²	
Rigid Stranded (6 > 6 mm²)	2 x	1 ... 6 mm²			2.5 ... 10 mm²			6 ... 35 mm²			6 ... 50 mm²	
Flexible with non insulated ferrule	1 x	0.75 ... 6 mm²			1.5 ... 10 mm²			4 ... 35 mm²			6 ... 50 mm²	
	2 x	0.75 ... 6 mm²			1.5 ... 10 mm²			4 ... 35 mm²			6 ... 50 mm²	
Flexible with insulated ferrule	1 x	0.75 ... 4 mm²			1.5 ... 10 mm²			4 ... 35 mm²			6 ... 50 mm²	
	2 x	0.75 ... 2.5 mm²			1.5 ... 4 mm²			4 ... 35 mm²			6 ... 50 mm²	
Bars or lugs	L <	9.6 mm			12.5 mm			9.2 mm			12.2 mm	
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 16 ... 10			AWG 14 ... 8			AWG 10 ... 2			AWG 6 ... 1	
Stripping length		10 mm			14 mm			16 mm			17 mm	
Tightening torque		1.5 Nm / 13 lb.in			2.5 Nm / 22 lb.in			4 Nm / 35 lb.in			6 Nm / 53 lb.in	
Auxiliary conductors (built-in auxiliary terminals + coil terminals)												
Rigid solid	1 x	1 ... 2.5 mm²										
	2 x	1 ... 2.5 mm²										
Flexible with non insulated ferrule	1 x	0.75 ... 2.5 mm²										
	2 x	0.75 ... 2.5 mm²										
Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm²										
	2 x	0.75 ... 1.5 mm²										
Bars or 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						IP10				
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			M6			M8	
	Screwdriver type	Flat Ø 5.5 / Pozidriv 2			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										

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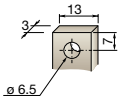
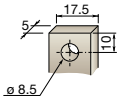
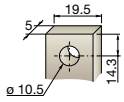
AFS116 ... AFS370 3-pole contactors for safety applications

Technical data

Connecting characteristics

Contactor types	AC / DC operated	AFS116	AFS146	AFS190	AFS205	AFS265	AFS305	AFS370
Main terminals Flat type								
Connection capacity (min. ... max.)								
Main conductors (poles)								
Cu cable - Stranded	1 x	10...95 mm²		6...150 mm²		16...300 mm²		
Clamp type		LD... included (1)		1SDA066917R1		1SDA055016R1		
Tightening torque		8 Nm		14 Nm		25 Nm		
Cu cable - Stranded	2 x	10...95 mm²		50...120 mm²		70...185 mm²		
Clamp type		LD... included (1)		1SFN074709R1000, LZ185-2C/120		1SCA022194R0890, OZXB4		
Tightening torque		8 Nm		16 Nm		22 Nm		
Al cable - Stranded	1 x	–		95...185 mm²		185...240 mm²		
Clamp type		–		1SDA054988R1		1SDA055020R1		
Tightening torque		–		31 Nm		43 Nm		
Cu cable - Flexible	1 x	10...70 mm²		6...120 mm²		16...240 mm²		
Clamp type		LD... included (1)		1SDA066917R1		1SDA055016R1		
Tightening torque		8 Nm		14 Nm		25 Nm		
Cu cable - Flexible	2 x	10...70 mm²		50...95 mm²		70...185 mm²		
Clamp type		LD... included (1)		1SFN074709R1000, LZ185-2C/120		1SCA022194R0890, OZXB4		
Tightening torque		8 Nm		16 Nm		22 Nm		
Lugs	L ≤	22 mm (.866 in)		24 mm (.945 in)		32 mm (1.260 in)		
	Ø >	6 mm (.236 in)		8 mm (.315 in)		10 mm (.394 in)		
Socket type		LL... included		LL... included		LL... included		
Tightening torque		9 Nm / 80 lb.in		18 Nm / 160 lb.in		28 Nm / 248 lb.in		
Connection capacity acc. to UL / CSA	1 x	AWG 6...3/0		6...300 MCM		4...400 MCM		
Clamp type		LD... included (1)		ATK185 (2)		ATK300 (2)		
Tightening torque		8 Nm / 71 lb.in		34 Nm / 301 lb.in		42 Nm / 372 lb.in		
Connection capacity acc. to UL / CSA	2 x	AWG 6...3/0		–		4...500 MCM		
Clamp type		LD... included (1)		–		ATK300/2 (2)		
Tightening torque		8 Nm / 71 lb.in		–		42 Nm / 372 lb.in		
Auxiliary conductors (coil terminals)								
Solid / stranded	1 x	1...4 mm²						
	2 x	1...4 mm²						
Flexible	1 x	0.75...2.5 mm²						
	2 x	0.75...2.5 mm²						
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²						
	2 x	0.75...2.5 mm²						
Flexible with insulated ferrule	1 x	0.75...2.5 mm²						
	2 x	0.75...2.5 mm²						
Lugs	L <	8 mm						
	l >	3.5 mm						
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14						
Stripping length		9 mm						
Tightening torque		1.00 Nm / 9 lb.in						
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529								
Main terminals		IP00						
Coil terminals		IP20						
Screw terminals								
Main terminals		M6		M8		M10		
Screwdriver type		Screws and bolts						
Coil terminals (delivered in open position)		M3.5						
Screwdriver type		Flat Ø 5.5 mm / Pozidriv 2						

(1) LD... not included for AFS116 ... AFS146-30-..B.
(2) Available in North America only.

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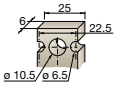
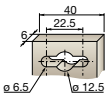
AFS400 ... AFS750 3-pole contactors for safety applications

Technical data

Connecting characteristics

Contactor types	AC / DC operated	AFS400	AFS460	AFS580	AFS750
Main terminals Flat type					
Connection capacity (min. ... max.)					
Main conductors (poles)					
Cu cable - Stranded	2 x	240 mm²			–
Clamp type		1SDA013922R1			–
Tightening torque		35 Nm			–
Cu cable - Stranded	3 x	–		185 mm²	
Clamp type		–		1SDA013956R1	
Tightening torque		35 Nm		45 Nm	
Al cable - Stranded	2 x	240 mm²			–
Clamp type		1SDA013922R1			–
Tightening torque		35 Nm			–
	3 x	–		185 mm²	
Clamp type		–		1SDA013956R1	
Tightening torque		35 Nm		45 Nm	
Lugs	L ≤	47 mm		50 mm	
	Ø >	10 mm		12 mm	
Tightening torque		35 Nm / 310 lb.in		45 Nm / 398 lb.in	
Connection capacity acc. to UL / CSA	2 x	250-500 MCM alt. 2/0 AWG-500 MCM		–	
Clamp type		K6TH alt. ATK580		–	
Tightening torque		275 lb.in		–	
Connection capacity acc. to UL / CSA	3 x	2/0 AWG-400 MCM		2/0 AWG-500 MCM	
Clamp type		K6TJ		ATK750/3	
Tightening torque		275 lb.in		375 lb.in	
Auxiliary conductors (coil terminals)					
Solid / stranded	1 x	1...4 mm²			
	2 x	1...4 mm²			
Flexible	1 x	0.75...2.5 mm²			
	2 x	0.75...2.5 mm²			
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²			
	2 x	0.75...2.5 mm²			
Flexible with insulated ferrule	1 x	0.75...2.5 mm²			
	2 x	0.75...2.5 mm²			
Lugs	L ≤	8 mm			
	l >	3.7 mm			
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14			
Tightening torque Recommended		1.00 Nm / 9 lb.in			
Max.		1.20 Nm			
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529					
Main terminals		IP00			
Coil terminals		IP20			
Screw terminals					
Main terminals		M10		M12	
		Screws and bolts			
Coil terminals (delivered in open position)		M3.5			
Screwdriver type		Flat Ø 5.5 mm / Pozidriv 2			

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AFS09 ... AFS96 3-pole contactors for safety applications

Technical data

Built-in auxiliary contacts according to IEC

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38	AFS40	AFS52	AFS65	AFS80	AFS96
Rated operational voltage Ue max.		690 V										
Rated frequency (without derating)		50 / 60 Hz										
Conventional free air thermal current Ith - θ ≤ 40 °C		16 A										
Ie / Rated operational current AC-15												
acc. to IEC 60947-5-1	24-127 V 50/60 Hz	6 A										
	220-240 V 50/60 Hz	4 A										
	400-440 V 50/60 Hz	3 A										
	500 V 50/60 Hz	2 A										
	690 V 50/60 Hz	2 A										
Making capacity AC-15		10 x Ie AC-15 acc. to IEC 60947-5-1										
Breaking capacity AC-15		10 x Ie AC-15 acc. to IEC 60947-5-1										
Ie / Rated operational current DC-13												
acc. to IEC 60947-5-1	24 V DC	6 A / 144 W										
	48 V DC	2.8 A / 134 W										
	72 V DC	1 A / 72 W										
	110 V DC	0.55 A / 60 W										
	125 V DC	0.55 A / 69 W										
	220 V DC	0.27 A / 60 W										
	250 V DC	0.27 A / 68 W										
	400 V DC	0.15 A / 60 W										
	500 V DC	0.13 A / 65 W										
	600 V DC	0.1 A / 60 W										
Short-circuit protection device gG type fuse		10 A										
Rated short-time withstand current Icw	for 1.0 s	100 A										
	for 0.1 s	140 A										
Minimum switching capacity		12 V / 3 mA										
with failure rate acc. to IEC 60947-5-4		10^{-7}										
Non-overlapping time between N.O. and N.C. contacts		≥ 2 ms										
Power dissipation per pole at 6 A		0.1 w										
Maximum 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 (CAL4 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 (CAL4 aux. contact blocks) are mirror contacts.										

Built-in auxiliary contacts according to UL / CSA

Contactor types	AC / DC operated	AFS09	AFS12	AFS16	AFS26	AFS30	AFS38	AFS40	AFS52	AFS65	AFS80	AFS96
Maximum operational voltage		600 V AC, 600 V DC										
Pilot duty		A600, Q600										
AC thermal rated current		10 A										
AC maximum volt-ampere making		7200 VA										
AC maximum volt-ampere breaking		720 VA										
DC thermal rated current		2.5 A										
DC maximum volt-ampere making-breaking		69 VA										

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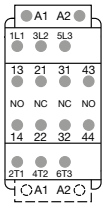
AFS09 ... AFS750 3-pole contactors for safety applications

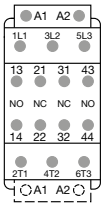
Terminal marking and positioning

AFS09 ... AFS96 contactors - AC / DC operated

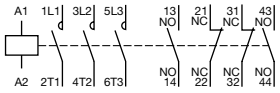
Standard devices



AFS09 ... AFS16..-30-22



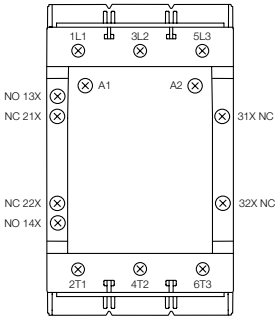
AFS26 ... AFS96..-30-22



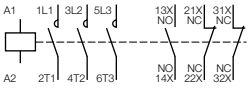
AFS09 ... AFS96..-30-22

AFS116 ... AFS370 contactors - AC / DC operated

Standard devices with factory mounted auxiliary contacts



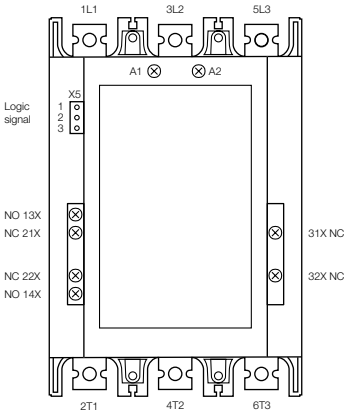
AFS116 ... AFS370-30-12



AFS116 ... AFS370-30-12

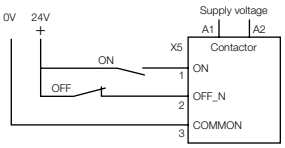
AFS400 ... AFS750 contactors - AC / DC operated

Standard devices with factory mounted auxiliary contacts

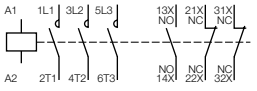


AFS400 ... AFS750-30-12

Control with logic signal



AFS400 ... AFS750-30-12



AFS400 ... AFS750-30-12

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3-pole contactors

Electrical durability and utilization categories

General

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

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

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

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

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

Electrical durability is expressed in millions of operating cycles.

Curve utilization mode

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

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

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

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

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

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

Case of uninterrupted duty

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

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

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

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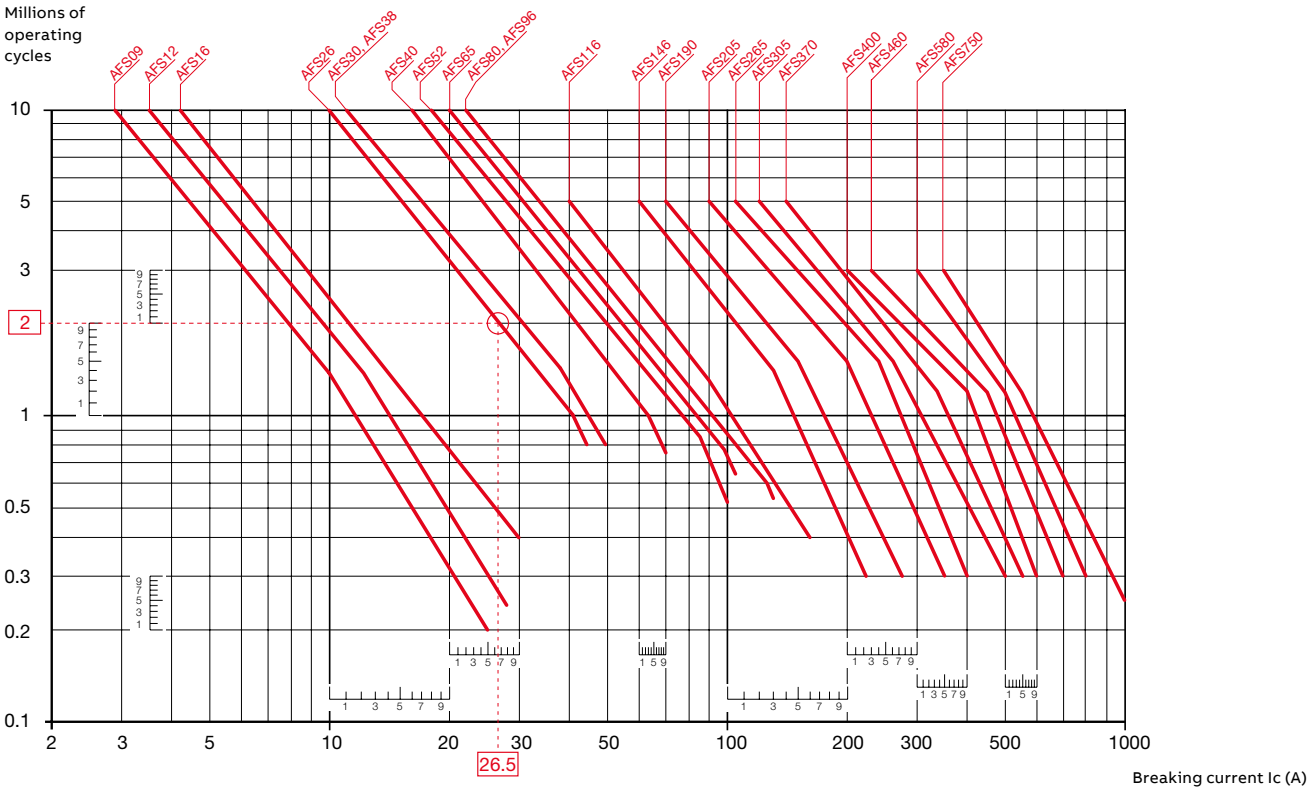
3-pole contactors for safety applications

Electrical durability

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

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

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



Example:

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

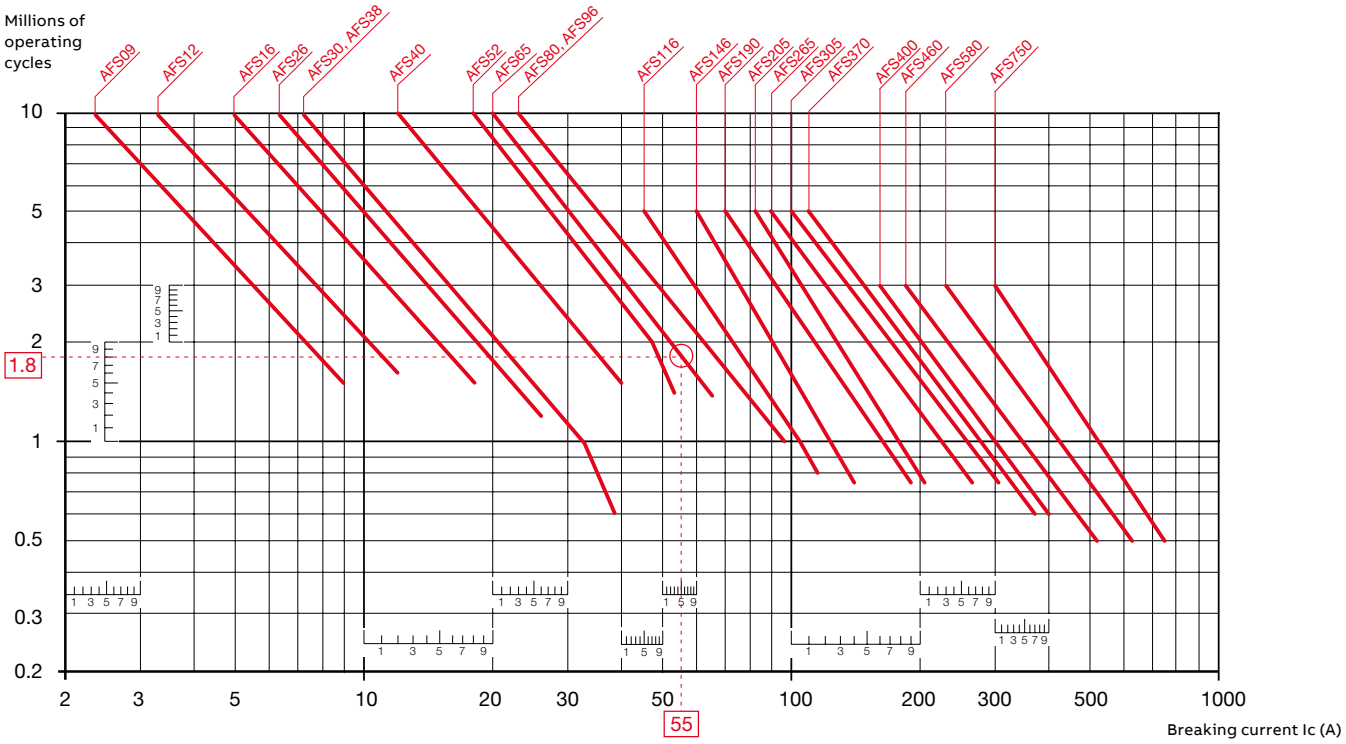
Using the AC-1 curves above select the AFS26 contactor at intersection "○" (26.5 A / 2 millions operating cycles).

1SBC100316S0201 - Rev. A

3-pole contactors for safety applications

Electrical durability

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



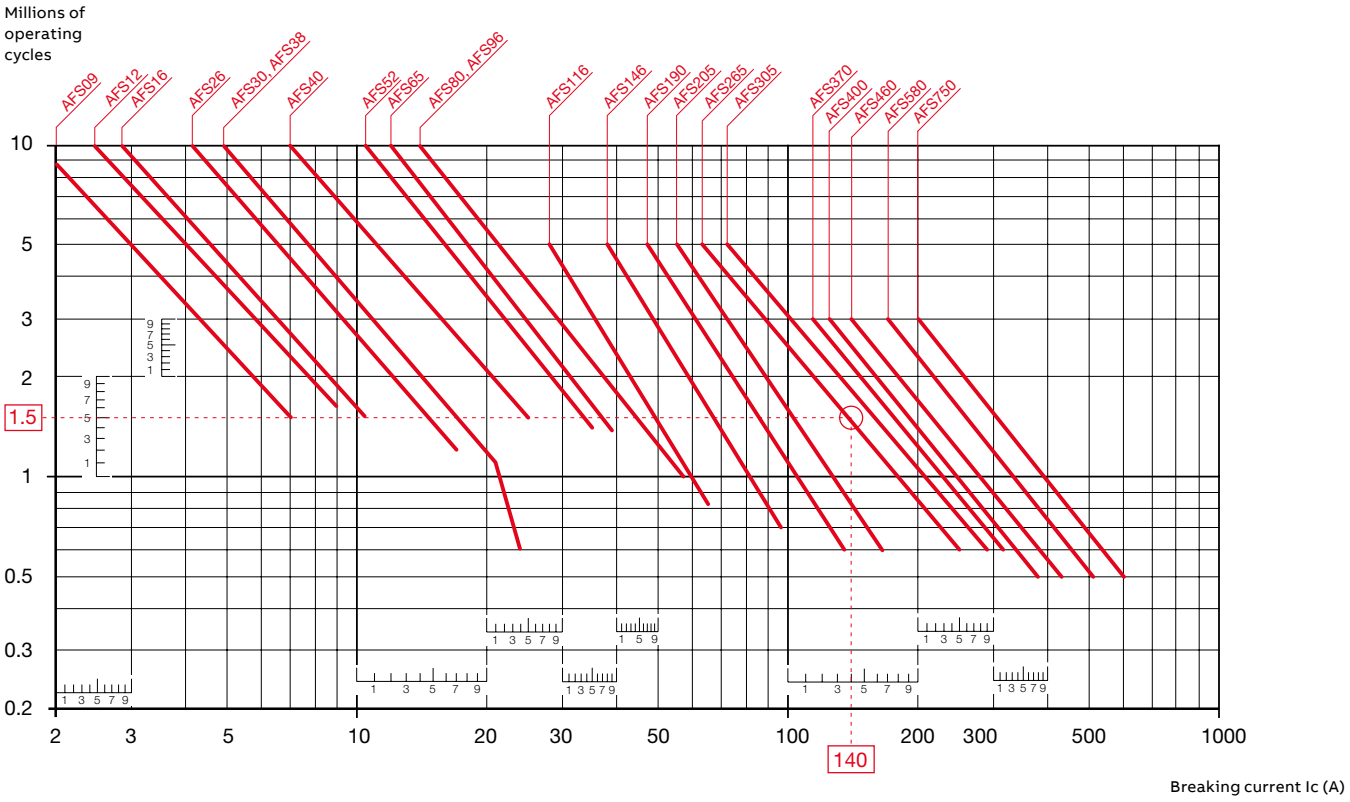
Example:
Motor power 30 kW for AC-3 - Ue = 400 V and Ie = 55 A utilization – Electrical durability required = 1.8 million operating cycles.
For AC-3: Ic = Ie. Select the AFS65 contactor at intersection "○" (55 A / 1.8 million operating cycles) on the curves (AC-3 - Ue ≤ 440 V).

1SBC100317S0201 - Rev. A

3-pole contactors for safety applications

Electrical durability

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

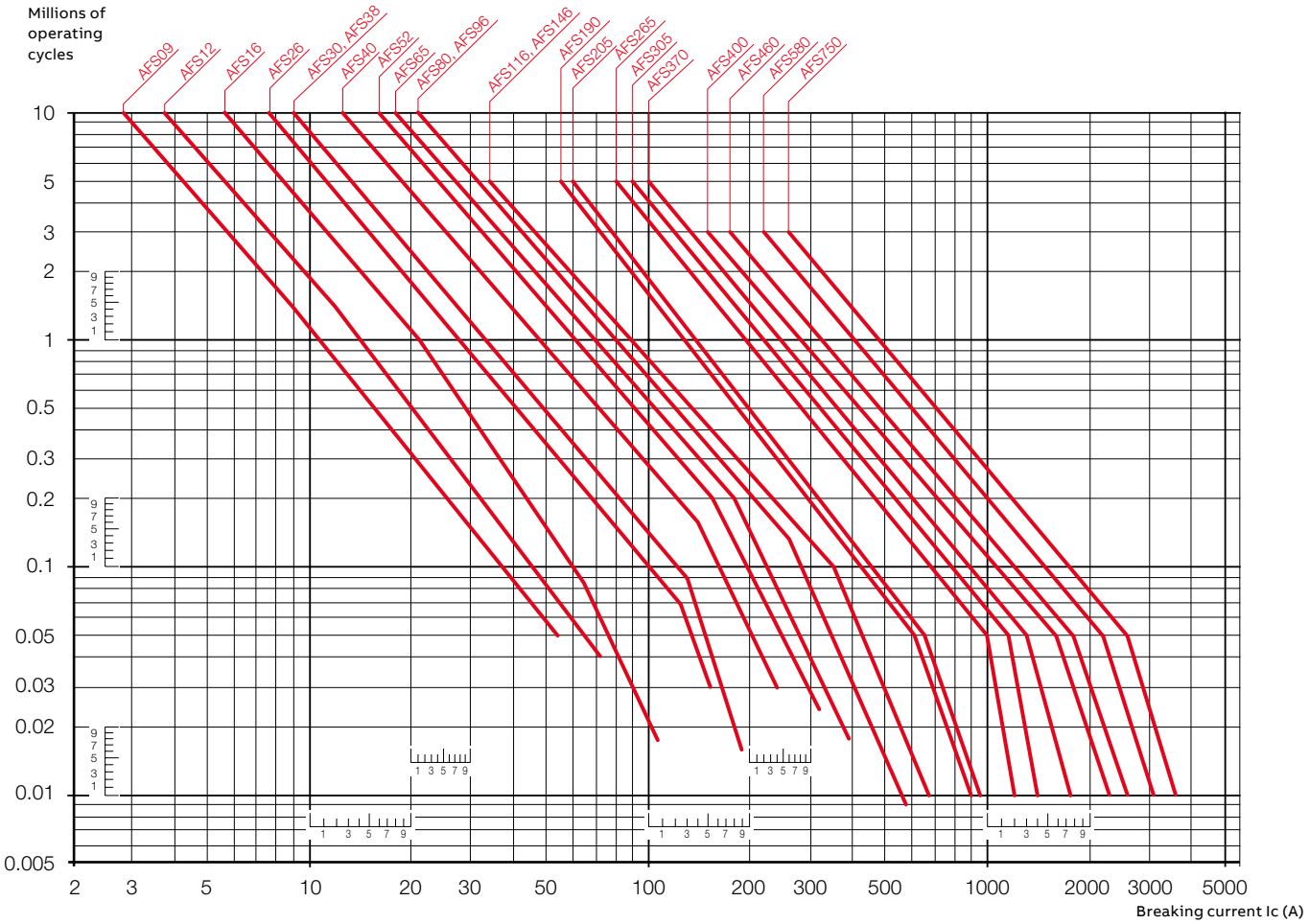


1SBC100318S0201 - Rev. A

3-pole contactors for safety applications

Electrical durability

Electrical durability for AC-2 or AC-4 utilization category - Ue ≤ 440 V
Ambient temperature ≤ 60 °C for AFS09 ... AFS96
Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keeping in mind that Ie is the motor rated operational current (Ie = motor full-load current).
Maximum electrical switching frequency: see "Technical data".

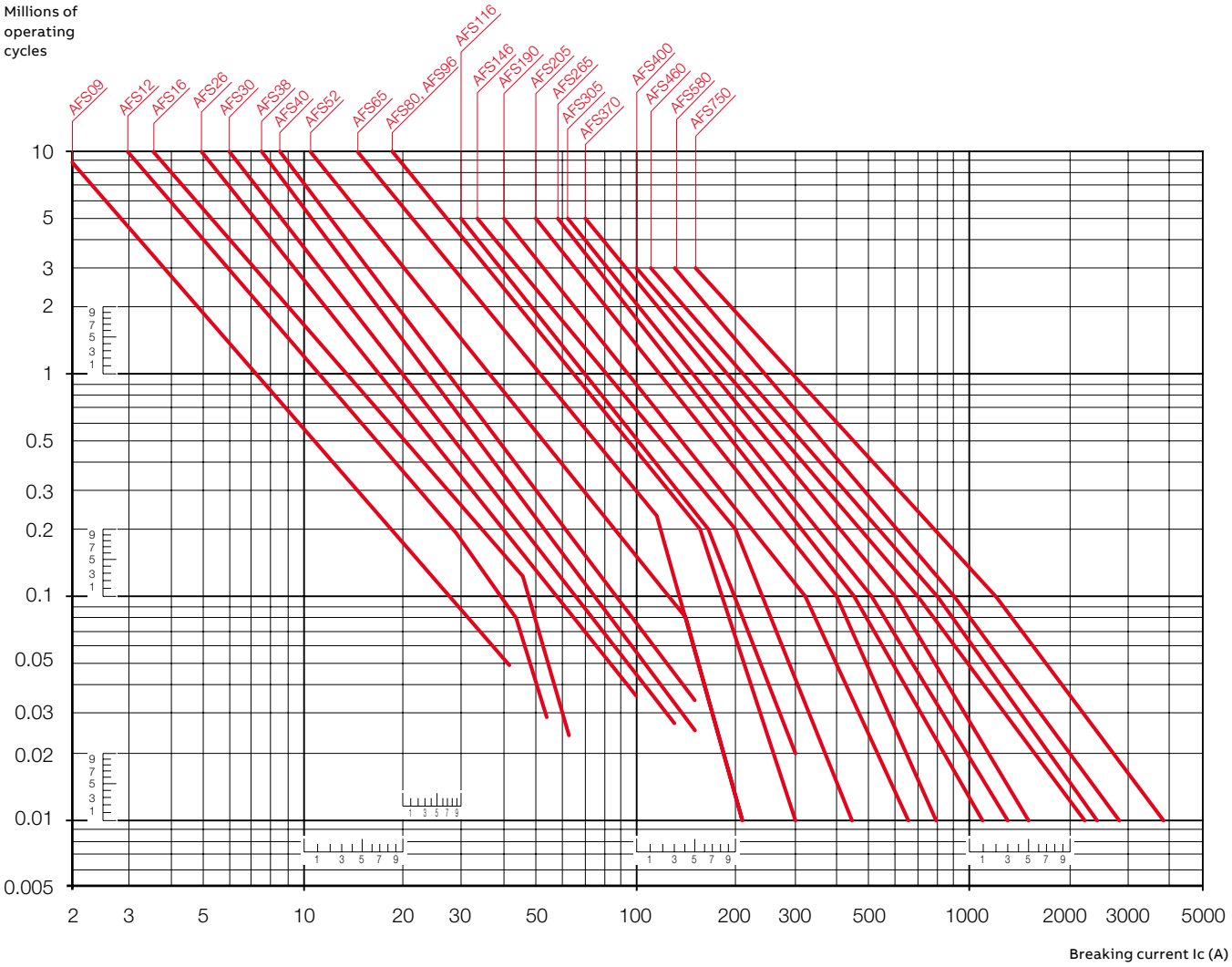


1SBC100319S0201 - Rev. A

3-pole contactors for safety applications

Electrical durability

Electrical durability for AC-2 or AC-4 utilization category - 440 V < Ue ≤ 690 V
Ambient temperature ≤ 60 °C for AFS09 ... AFS96
Switching cage motors: starting, reverse operation and step-by-step operation. The breaking current Ic is equal to 2.5 x Ie for AC-2 and 6 x Ie for AC-4, keaping in mind tha Ie is the motor rated operational current (Ie = motor full load current).
Maximum electrical switching frequency: see "Technical data".



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