



Direct current contactors



Orange

Lovato
electric
100% electricity

Orange

Contactors with direct-current control circuit BF series



**Innovative design and concepts:
the ideal solution for your industrial automation**


Lovato
electric
100% electricity

Completeness

Three-pole contactors

Up to 110A at 440V in AC3.



DC control	BF09D	BF12D	BF18D	BF25D	BF26D	BF32D	BF38D	BF50C	BF65C	BF80C	BF95C	BF110C
DC control with low consumption	BF09L	BF12L	BF18L	BF25L	BF26L	BF32L	BF38L	—	—	—	—	—

Four-pole contactors

Up to 125A in AC1.



DC control	BF09 T4D	BF18 T4D	BF26 T4D	BF38 T4D	BF65 40	BF80 40
DC control with low consumption	BF09 T4L	BF18 T4L	BF26 T4L	BF38 T4L	—	—

Special contactors

2NO+2NC power pole contactors (AC1).

4NC power pole contactors (AC1).



DC control	BF18 T2D	BF26 T2D	BF38 T2D	BF18 T0D	BF26 T0D
DC control with low consumption	BF18 T2L	BF26 T2L	BF38 T2L	BF18 T0L	BF26 T0L

Control relays

I_{th}=10A.



DC control	BF00 40D	BF00 31D	BF00 22D	BF00 04D
DC control with low consumption	BF00 40L	BF00 31L	BF00 22L	BF00 04L

Standard DC voltages



DC control	12 - 24 - 48 - 60 - 110 - 125 - 220VDC
DC control with low consumption	24 - 48VDC

Simplicity and Safety

BF00, BF09-BF38



4-Terminal coil

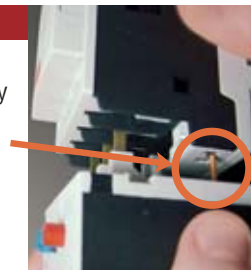
Connecting cables can be coupled to the coil both on the line and load ends of the contactor.

Built-in surge suppressor

The BF09 to BF38 contactors with standard voltage coils include a built-in surge suppressor.

Effortless thermal overload relay link

During the connection of the thermal overload relay to the contactor, its auxiliary contact is simultaneously linked to the contactor coil terminal rigid connector. The complete overload relay fixing is obtained with one single operation and without other connections.



Low consumption for coils

The BF...L contactors feature a 2.4W low consumption. This characteristic widely consents their direct control by PLC outputs.

Wide operating range

BF...D contactors are equipped with a wide operating range coil and are particularly useful in applications subject to considerable voltage variations, such as in electric traction railway equipment.

45mm wide contactors

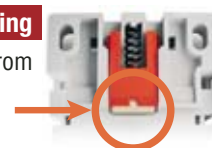
Ratings up to 38A - 18.5kW in AC3, merely 45mm wide: exceptional benefit for electric panel dimensions.

Side add-on fourth pole

For the 45A and 56A AC1 ratings, a side-mount fourth power pole can be snapped on the three-pole contactor. This solution consents to optimise inventory.

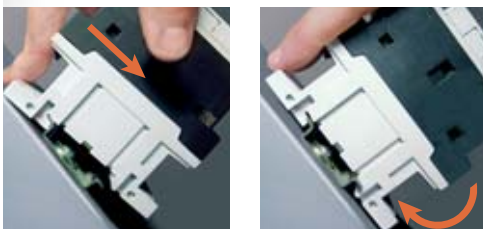
Rubber pad insert for no DIN rail sliding

A rubber insert prevents the contactors from sliding on the 35mm DIN rail even when out of tolerance or mounted vertically.



35mm DIN rail mounting and fixing

Contactors mounting on and removal from a 35mm DIN rail are tool less operations and are done by simply applying pressure on the contactor.



Connection security - IP20

The ease of terminal access and space is combined with IP20 finger safety, to prevent touching of live parts.





PAGE 2

THREE-POLE CONTACTORS

- Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 25 to 125A
- Ie ratings in AC3 440V duty: 9 to 110A
- Power ratings in AC3 400V duty: 4.2-61kW
- DC control coil
- DC control coil with low consumption.



PAGE 2

FOUR-POLE CONTACTORS

- Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 25 to 125A
- Power ratings in AC1 400V duty: 16-82kW
- DC control coil
- DC control coil with low consumption.



PAGE 4

**FOUR-POLE CONTACTORS
WITH 2NO+2NC MAIN POWER POLES**

- Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 32 to 56A
- DC control coil
- DC control coil with low consumption.



PAGE 4

**FOUR-POLE CONTACTORS
WITH 4NC MAIN POWER POLES**

- Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 32 to 56A
- DC control coil
- DC control coil with low consumption.



PAGE 5

CONTROL RELAYS

- Ith rating: 10A
- DC control coil
- DC control coil with low consumption
- 4 or 8 auxiliary contact composition.

DIRECT CURRENT CONTACTORS

- ◆ *Three-pole versions up to 110A in AC3 duty*
- ◆ *Four-pole versions up to 125A in AC1 duty*
- ◆ *2NO+2NC or 4NC power pole versions*
- ◆ *Low-consumption versions for control relays and 9-38A contactors in AC3 duty*
- ◆ *Extensive choice of add-on blocks and accessories*
- ◆ *Certified by primary international authorities.*



Contactors

Three-pole	2
Four-pole	2
Four-pole with 2NO+2NC power poles	4
Four-pole with 4NC power poles	4
Control relays	5

Add-on blocks and accessories

Add-on blocks	6
Accessories	8

Spare parts

Coils	12
Main contacts	13

PAGE

Contactors

Three-pole and four-pole contactors with DC control circuit

Three-pole contactors



new

BF09D-BF12D-BF18D-BF25D
BF09L-BF12L-BF18L-BF25L



new

BF26D-BF32D-BF38D
BF26L-BF32L-BF38L



BF50C-BF65C-BF80C-BF95C-BF110C

Three-phase motor control in AC3 duty

Order code DC coil	DC coil with low consumption 2.4W	Operating current (AC3)		Maximum power at ≤55°C (AC3)						
		≤40°C	≤55°C	230V	400V	415V	440V	500V	690V	1000V
Ⓢ	Ⓢ	[A]	[A]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
BF09 01 DⓈ	BF09 01 LⓈ	25	9	2.2	4.2	4.5	4.8	5.5	7.2	—
BF09 10 DⓈ	BF09 10 LⓈ									
BF12 01 DⓈ	BF12 01 LⓈ	28	12	3.2	5.7	6.2	6.2	7.5	10	—
BF12 10 DⓈ	BF12 10 LⓈ									
BF18 01 DⓈ	BF18 01 LⓈ	32	18	4	7.5	9	9	10	10	—
BF18 10 DⓈ	BF18 10 LⓈ									
BF25 01 DⓈ	BF25 01 LⓈ	32	25	7	12.5	13.4	13.4	15	18	—
BF25 10 DⓈ	BF25 10 LⓈ									
BF26 00 DⓈ	BF26 00 LⓈ	45	26	7.3	13	14	14	15.6	18.5	—
BF32 00 DⓈ	BF32 00 LⓈ	56	32	7.3	13	14	14	15.6	18.5	—
BF38 00 DⓈ	BF38 00 LⓈ	56	38	11	18.5	18.5	18.5	20	22	—
11 BF50C 00Ⓢ	—	90	50	14.3	25	27.2	27.2	33.2	43.5	25
11 BF65C 00Ⓢ	—	110	65	18.5	33	36	36	45.3	59.7	30
11 BF80C 00Ⓢ	—	125	80	23	41	46	46	56	74	37
11 BF95C 00Ⓢ	—	125	95	27.6	50	55	55	56	74	45
11 BF110C 00Ⓢ	—	125	110	33	61	66	70	59	80	45

Four-pole contactors



new

BF09 T4D - BF18 T4D
BF09 T4L - BF18 T4L



new

BF26 T4D - BF38 T4D
BF26 T4L - BF38 T4L



BF65C 40 - BF80C 40

Resistive load control in AC1 duty

Order code DC coil	DC coil with low consumption 2.4W	Operating current (AC1)			Maximum power at ≤40°C (AC1)						
		≤40°C	≤55°C	≤70°C	230V	400V	415V	440V	500V	690V	1000V
Ⓢ	Ⓢ	[A]	[A]	[A]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
BF09 T4 DⓈ	BF09 T4 LⓈ	25	20	18	9.5	16	17	18	21	27	—
BF18 T4 DⓈ	BF18 T4 LⓈ	32	26	23	12	21	22	23	26	36	—
BF26 T4 DⓈ	BF26 T4 LⓈ	45	36	32	17	30	31	33	37	51	—
BF38 T4 DⓈ	BF38 T4 LⓈ	56	45	40	21	36	38	40	45	62	—
11 BF65C 40Ⓢ	—	110	90	70	41	72	78	80	95	112	—
11 BF80C 40Ⓢ	—	125	100	80	47	82	90	90	108	128	—

① Complete order code with coil voltage digit.

Standard voltages are as follows:

– DC 012 / 024 / 048 / 060 / 110 / 125 / 220VDC.

Example: BF09 10 D012 for contactor BF09, three poles, with one NO contact and 12VDC coil.

② Low consumption version. Complete order code with coil voltage digit.

Standard voltages are as follows:

– DC 024 / 048VDC.

Example: BF09 01 L024 for contactor BF09, three poles, with one NC contact and 24VDC 2.4W low-consumption coil.

③ Maximum assembly combinations are given on pages 6 and 10.

	Type of terminal	Incorporated auxiliary contacts		Quantity per pkg	Weight
		NO	NC	n°	[kg]
Clamp-screw	—	—	1④	10	0.470
				10	0.470
Clamp-screw	—	—	1④	10	0.470
				10	0.470
Clamp-screw	—	—	1④	5	0.470
				5	0.470
Clamp-screw	—	—	1④	5	0.470
				5	0.470
Clamp-screw	—	—	—	1	0.540
Clamp-screw	—	—	—	1	0.540
Clamp-screw	—	—	—	1	0.540
Lug-clamp	—	—	—	1	1.690
Lug-clamp	—	—	—	1	1.690
Lug-clamp	—	—	—	1	1.730
Lug-clamp	—	—	—	1	1.730
Lug-clamp	—	—	—	1	1.730

	Type of terminal	Incorporated auxiliary contacts		Quantity per pkg	Weight
		NO	NC	n°	[kg]
Clamp-screw	—	—	—	1	0.470
Clamp-screw	—	—	—	1	0.470
Clamp-screw	—	—	—	1	0.625
Clamp-screw	—	—	—	1	0.625
Lug-clamp	—	—	—	1	1.940
Lug-clamp	—	—	—	1	1.950

④ Highly conductive auxiliary contacts.

Certifications and compliance

Certifications obtained:

Type	CULUS	CSA	GOST
BF09D - BF09L	●		●
BF12D - BF12L	●		●
BF18D - BF18L	●		●
BF25D - BF25L	●		●
BF26D - BF26L	●		●
BF32D - BF32L	●		●
BF38D - BF38L	●		●
BF50C	●	●	●
BF65C	●	●	●
BF80C	●	●	●
BF95C	●	●	●
BF110C	●		●

● Certified products.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1.

Utilisation current with poles in parallel

For use with poles in parallel, see page TC-6.

Certifications and compliance

Certifications obtained:

Type	CULUS	CSA	GOST
BF09 T4	●		●
BF18 T4	●		●
BF26 T4	●		●
BF38 T4	●		●
BF65C 40	●	●	●
BF80C 40	●	●	●

● Certified products.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1.

Contactors

Four-pole contactors with DC control circuit

Contactors four power poles, 2 NO and 2 NC type



BF18 T2...



Order code	Rated conventional free air thermal current I _{th}			Qty per pkg	Wt per [kg]
	≤40°C [A]	≤55°C [A]	≤60°C [A]		
	[A]	[A]	[A]	n°	[kg]

DC COIL.

Terminals: clamp screw.

BF18 T2 D00	32	26	23	1	0.470
BF26 T2 D00	45	36	32	1	0.540
BF38 T2 D00	56	45	40	1	0.540

DC COIL. Low consumption 2.4W.

Terminals: clamp screws

BF18 T2 L00	32	26	23	1	0.470
BF26 T2 L00	45	36	32	1	0.540
BF38 T2 L00	56	45	40	1	0.540

- ❶ Complete the order code with coil voltage digit. Standard voltages are:
 - DC 012 / 024 / 048 / 060 / 110 / 125 / 220VDC.
 - Example: BF18 T2 012 for contactor BF18 T2, four poles - 2NO+2NC, with 12VDC coil.
- ❷ Low consumption version. Complete order code with coil voltage digit. Standard voltages are:
 - DC 024 / 048VDC
 - Example: BF18 T2 L024 for contactor BF18, four main poles of which 2 NO and 2NC and 24VDC 2.4W low consumption coil.
- ❸ Maximum assembly combinations are given on pages 6 and 10.

Operational characteristics

Type	Protection fuse gG	Conductor section
	[A]	[mm ²]
BF18 T2	40	1-6
BF26 T2	50	2.5-16
BF38 T2	80	2.5-16

Certifications and compliance

Certifications obtained: cULus and GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1.

Contactors four power poles, 4 NC type



BF18 T0...



Order code	Rated conventional free air thermal current I _{th}			Qty per pkg	Wt [kg]
	≤40°C [A]	≤55°C [A]	≤60°C [A]		
	[A]	[A]	[A]	n°	[kg]

DC COIL.

Terminals: clamp screw.

BF18 T0 D00	32	26	23	1	0.470
BF26 T0 D00	45	36	32	1	0.540

DC COIL. Low consumption 2.4W.

Terminals: clamp screws

BF18 T0 L00	32	26	23	1	0.470
BF26 T0 L00	45	36	32	1	0.540

- ❶ Complete the order code with coil voltage digit. Standard voltages are:
 - DC 012 / 024 / 048 / 060 / 110 / 125 / 220VDC.
 - Example: BF18 T0 D012 for contactor BF18 T0, four NC main poles, with 12VDC coil.
- ❷ Low consumption version. Complete order code with coil voltage digit. Standard voltages are:
 - DC 024 / 048VDC
 - Example: BF18 T0 L024 for contactor BF18, four NC main poles and 24VDC 2.4W low consumption coil.
- ❸ Maximum assembly combinations are given on pages 6 and 10.

Operational characteristics

Type	Protection fuse gG	Conductor section
	[A]	[mm ²]
BF18 T0	40	1-6
BF26 T0	50	2.5-16

Certifications and compliance

Certifications obtained: cULus and GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1.

Control relays



BF00... D...
BF00... L...



Order code	Configuration and number of contacts		Qty per pkg	Wt
	NO	NC		
	n°			[kg]

DC COIL.
Terminals: clamp-screw.

BF00 40 D00	4	0	1	0.470
BF00 31 D00	3	1	1	0.470
BF00 22 D00	2	2	1	0.470
BF00 04 D00	0	4	1	0.470

DC COIL. Low consumption 2.4W.
Terminals: clamp-screw.

BF00 40 L00	4	0	1	0.470
BF00 31 L00	3	1	1	0.470
BF00 22 L00	2	2	1	0.470
BF00 04 L00	0	4	1	0.470

- ① Complete order code with coil voltage digit.
Standard voltages are:
- DC 012 / 024 / 048 / 7060 / 110 / 125 / 220VDC.
Example: BF00 40 D012 for control relay BF00 with four NO auxiliary contacts and 12VDC coil.
- ② Low consumption version. Complete order code with coil voltage digit.
Standard voltages are:
- DC 024 / 048VDC
Example: BF00 40 L024 for control relay BF00 with four NO auxiliary contacts and 24VDC 2.4W low consumption coil.
- ③ Maximum assembly combinations are given on pages 6 and 10
- ④ All contacts are highly conductive.

Operational characteristics

- Rated insulation voltage Ui: 690V
- Rated conventional free air thermal current Ith: 10A
- Designation according to IEC/EN 60947-5-1: A600-P600.

Certifications and compliance

Certifications obtained: cULus and GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1.

Add-on blocks



BFX10...



BFX10...



11 G485...
11 G486...
11 G487

Order code	Characteristics	Max qty per contactor	Qty per pkg	Wt
		n°	n°	[kg]

Auxiliary contacts with front centre mounting^①.
Screw terminals.

BFX10 02 Ⓜ	2NC	1	5	0.024
BFX10 11 Ⓜ	1NO + 1NC	1	5	0.024
BFX10 20 Ⓜ	2NO	1	5	0.024
BFX10 04 Ⓜ	4NC	1	5	0.048
BFX10 13 Ⓜ	1NO + 3NC	1	5	0.048
BFX10 22 Ⓜ	2NO + 2NC	1	5	0.048
BFX10 31 Ⓜ	3NO + 1NC	1	5	0.048
BFX10 40 Ⓜ	4NO	1	5	0.048

Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on energisation for front centre mounting.
Screw terminals.

11 G485 3 Ⓜ	3s	1	1	0.040
11 G485 6 Ⓜ	6s	1	1	0.040
11 G485 15 Ⓜ	15s	1	5	0.040
11 G485 30 Ⓜ	30s	1	5	0.040
11 G485 60 Ⓜ	60s	1	5	0.040
11 G485 120 Ⓜ	120s	1	1	0.040

Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on de-energisation for front centre mounting.
Screw terminals.

11 G486 3 Ⓜ	3s	1	1	0.040
11 G486 6 Ⓜ	6s	1	1	0.040
11 G486 15 Ⓜ	15s	1	5	0.040
11 G486 30 Ⓜ	30s	1	5	0.040
11 G486 60 Ⓜ	60s	1	5	0.040
11 G486 120 Ⓜ	120s	1	1	0.040
11 G487 Ⓜ	70ms	1	1	0.040

- ① Highly conductive contacts.
② Maximum assembly combinations are also given on page 10.

Operational characteristics for add-on auxiliary contacts

Type		BFX10	G485Ⓜ G486Ⓜ G487Ⓜ
Conventional free air thermal current Ith	A	10	10
Rated insulation voltage Ui	V	690	690
Terminals: Screw		M 3	M 3,5
Width	mm	6,9	7
Faston		—	—
Conductor section maximum with 1 or 2 cables			
flexible w/o lug	mm ²	2,5	2,5
flexible c/w lug	mm ²	2,5	2,5
AWG	n°	14	14
Terminal protection per IEC/EN 60529		IP20	IP20Ⓜ
IEC/EN 60947-5-1 designation	AC	A600	A600
	DC	Q600	P600
Mechanical life (in millions)	cycles	10	3

- Ⓜ For particularly severe ambient conditions, contact our Customer Service (Tel. +39 035 4282422).
Ⓜ IP20 protection is warranted to equipment wired with 1mm² minimum for G485, G486 and G487 types.

Maximum assembly combination of add-on blocks
See table below and page 10.

Certifications and compliance

Certifications obtained:

Type	UL	cULus	CSA	GOST
BFX10...	—	●	—	●
G485...	Ⓜ	—	●	●
G486...	Ⓜ	—	●	●
G487...	Ⓜ	—	●	●

- Certified products.
Ⓜ "Recognized". Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

Compliant with standards: IEC/EN 60947-1,
IEC/EN 60947-5-1.

MAXIMUM ASSEMBLY COMBINATIONS FOR ADD-ON BLOCKS

	Instantaneous auxiliary contacts								Delayed auxiliary contacts		
	BFX10 02	BFX10 11	BFX10 20	BFX10 04	BFX10 13	BFX10 22	BFX10 31	BFX10 40	G485...	G486...	G487
CONTACTORS	2NO	1NO+1NC	2NO	4NC	1NO+3NC	2NO+2NC	3NO+1NC	4NO	1NO+1NC		
Control relays											
BF00...D	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
BF00...L	yes	yes	yes	no	no	yes	yes	yes	no	no	no
Three-pole											
BF09...25D	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
BF09...25L	yes	yes	yes	no	no	yes	yes	yes	no	no	no
BF26...38D	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
BF26...38L	yes	yes	yes	no	no	yes	yes	yes	no	no	no
Four-pole											
BF09...25D	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
BF09...25L	yes	yes	yes	no	no	yes	yes	yes	no	no	no
BF26...38D	no	yes	yes	no	no	no	no	no	no	no	no
BF26...38L	no	yes	no	no	no	no	no	no	no	no	no
Three-pole											
BF50...110C	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Four-pole											
BF65-80C 40	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

For the use of other auxiliary contacts, contact our Customer Service (Tel. +39 035 4282422).

Add-on blocks



BFXD42



BFX50 00



BFX50 01



BFX50 02



BFX50 03
11 G269 2



11 G222...
11 G272...



11 G454
11 G455



11 G318...
11 G319 225
11 G322...



11 RE244

Order code	Characteristics	Max qty per contactor	Qty per pkg	Wt
		n°	n°	[kg]
Fourth pole.				
BFXD42	For BF26-BF32 and BF38	1	1	0.085
Mechanical interlocks.				
BFX50 00	Side mount for BF00A, BF09A-BF38A	1	5	0.032
BFX50 01	Side mount with 2NC contacts for BF00A, BF09A-BF38A	1	5	0.040
BFX50 02	Front mount, low profile for BF00A, BF09A-BF38A	1	5	0.005
BFX50 03	Front mount for BF00A, BF09A-BF38A	1	5	0.023
11 G269 2	Front mount for BF50-BF110	1	5	0.028
Mechanical latch. Screw terminals.				
11 G222	For BF00A, BF09-BF38	1	1	0.059
11 G272	For BF50-BF110	1	1	0.059
Manual closing mechanism.				
11 G454	For BF00A, BF09-BF38	1	1	0.021
11 G455	For BF50-BF110	1	1	0.028
Surge suppressor for BF50-BF110 contactors, front mount. Faston terminals.				
11 G318 48	≤48VAC/DC (Varistor)	10	10	0.008
11 G318 125	48-125VAC/DC (Varistor)	10	10	0.008
11 G318 240	125-240VAC/DC (Varistor)	10	10	0.008
11 G318 415	240-415VAC/DC (Varistor)	10	10	0.008
11 G319 225	≤225VDC (Diode)	10	10	0.008
Suppressor mounting adapter for G318-G319.				
11 RE244	For 35mm DIN rail (IEC/EN 60715)	10	10	0.004

- ① Different sized contactors can be interlocked.
Example: BF09-BF25 with BF26-BF38.
- ② Replace with the digit of the voltage if 50 or 60Hz and with the letter C followed by the digit of the voltage if DC.
Standard voltages are:
- AC 50/60Hz 24 / 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415VAC indicate 380.
- DC 12 / 24 / 48 / 110-125 indicate 110 / 220-240VDC indicate 220.

Operational characteristics

Type		BFXD42	BFX50 01
Conventional free air thermal current Ith	A	56	10
Rated insulation voltage Ui	V	690	690
Terminals:	Screw	M4	M3
	Width	mm	12.5
Conductor section Maximum with 1 or 2 cables	flexible w/o lug	mm ²	16
	flexible c/w lug	mm ²	16
	AWG	n°	6
Terminal protection per IEC/EN60529		IP20	IP20
IEC/EN 60947-5-1 designation	AC	—	A600
	DC	—	Q600
Mechanical life (in millions) cycles		10	10

Type		G222	G272
Rated control circuit voltage	AC (50/60 Hz)	V	12-415
	DC	V	12-240
Power consumption with control	AC	VA	40
	DC	W	70
Minimum energising	drop-out	ms	10
	pick-up	ms	50

③ See pages TC-18 to 20 to warrant IP20 protection.

Maximum assembly combination of add-on blocks

See page 10.

Certifications and compliance

Certifications obtained:

Type	UL	cULus	CSA
BFXD42	—	●	—
BFX50...	—	●	—
G269 2	UL	—	●
G222...	UL	—	●
G272...	UL	—	●

● Certified products.

UL "Recognized". Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1.

Accessories



BFX31...
BFX32...



BFX 80



BFX89 01



BFX89 02

Order code di ordinazione	Characteristics	Qty per pkg	Wt
		n°	[kg]

Rigid connecting kits for three-pole reversing contactor assembly.

BFX31 01 ①	For contactors BF09 - BF25 side by side	1	0.060
BFX31 02	For contactors BF09-BF38 side by side with mechanical interlock BFX50 00 or BFX50 01	1	0.063
BFX32 01 ②	For contactors BF26 - BF38 side by side	1	0.080

Rigid connecting kits for star-delta starters.

BFX31 31	For contactors BF09-BF25 (line-star-delta)	1	0.065
BFX32 31	For contactors BF26-BF38 (line-star-delta)	1	0.085
BFX32 32	For contactors BF26-BF38 (line-delta) and BF09-BF25 (star)	1	0.080

Sealing cover.

BFX80	For contactors BF00A, BF09A-BF38A	10	0.006
--------------	-----------------------------------	----	-------

Screw fixing adapters for contactors.

BFX89 01	Universal base to screw fix BF09A-BF38A contactors	5	③
BFX89 02	Screw fixing brackets for BF09A-BF38A contactors	10	③

- ① Mechanical interlock BFX50 02 or BFX50 03 can be used only.
- ② Any type of mechanical interlock BFX50 00, BFX50 01, BFX50 02 can be used.
- ③ Contact our Customer Service (Tel. +39 035 4282422).

Certifications and compliance

Certifications pending: cULus for BFX31 01, BFX31 02, BFX32 01, BFX31 31, BFX32 31 and BFX32 32.
Compliant with standards: IEC/EN 60947-1.

Accessories



11 G265



11 BA135
11 BA235



11 BA435



11 G231
11 G232



11 G285



11 G271



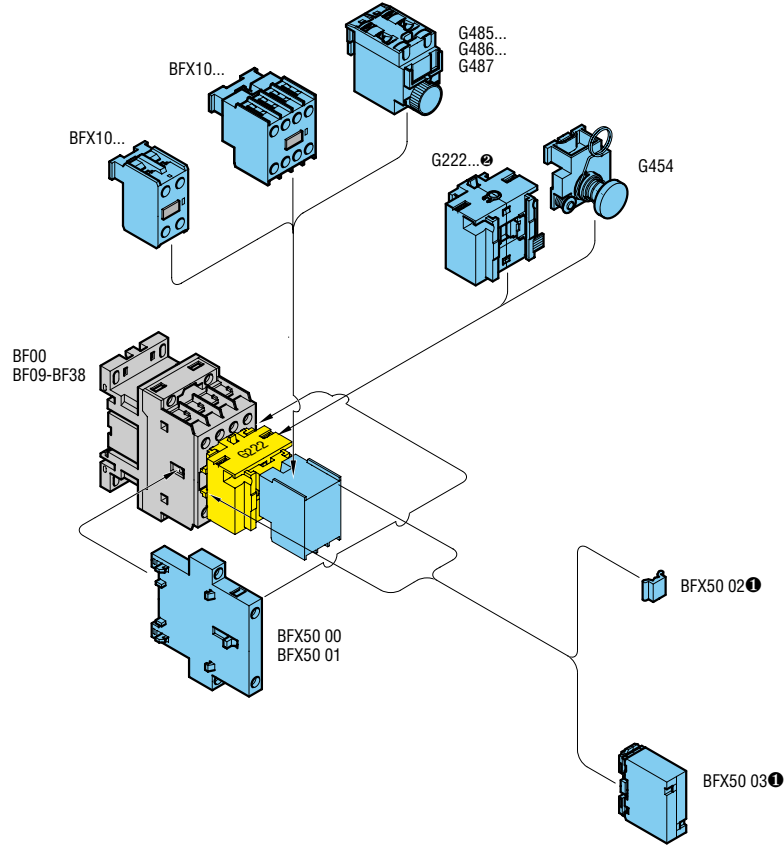
G288

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]
Power terminal shroud.			
11 G265	IP20 protection for 3-pole BF50 to BF110 types	10	0.011
Paralleling links.			
11 BA135	2 poles for BF09-BF25 types	10	0.001
11 BA235	2 poles for BF26-BF38 types	10	0.003
11 BA435	3 poles for BF50-BF110 types	10	0.029
One-pole enlarged terminals.			
11 G231	1-6 mm ² for BF09-BF25 types	12	0.008
11 G232	1-10 mm ² for BF26-BF38 types	12	0.017
Three-pole enlarged terminals.			
11 G271	1-50 mm ² for BF50-BF110 types	10	0.130
Four-pole enlarged terminals.			
G288	1x50mm ² for BF50-BF110 types	10	0.174
Auxiliary terminal.			
11 G285	For BF50-BF110 types	8	0.008
Marking element for BF00A, BF09-BF110 contactors.			
BFX30	Blank label for writing	50	0.001

① Two pieces are required per contactor.

Combinations

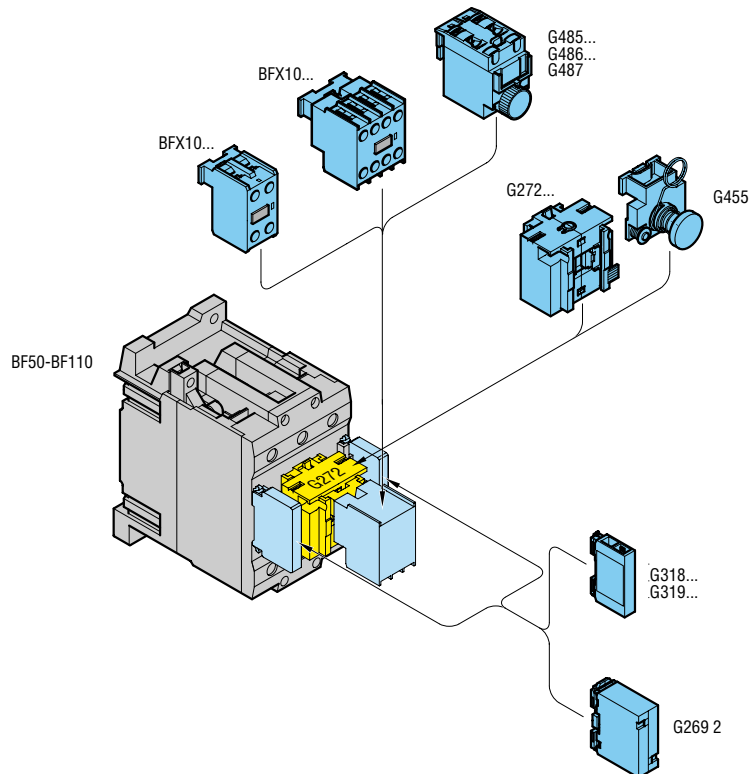
Mounting position on BF00 and BF09-BF38 contactors.



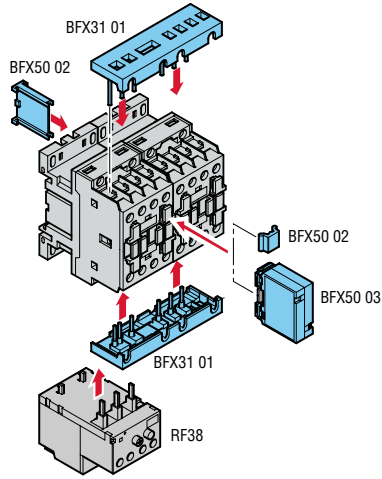
- ❶ Mounting not possible if mechanical latch G222 is fitted.
- ❷ If the mechanical interlock is fitted, the mechanical interlock BFX50 02 or BFX50 03 cannot be used.

Combinations

Mounting position on BF50-BF110 contactors.

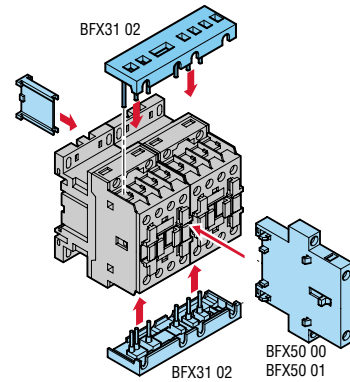


Rigid reversing contactor assembly connecting kits for BF09-BF25 types



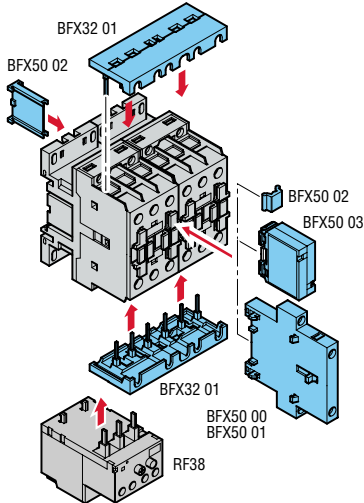
RF38 thermal overload relay can be mounted only on left side contactor.

Rigid reversing contactor assembly connecting kits for BF09-BF25 types with mechanical interlock BFX50 00 or BFX50 01



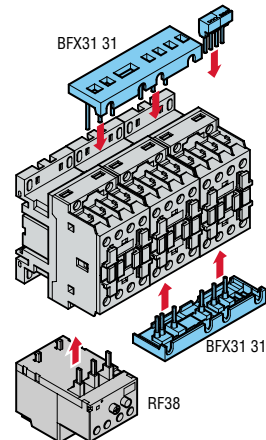
RF38 thermal overload relay can be mounted only on left side contactor.

Rigid reversing contactor assembly connecting kits for BF26-BF38 types

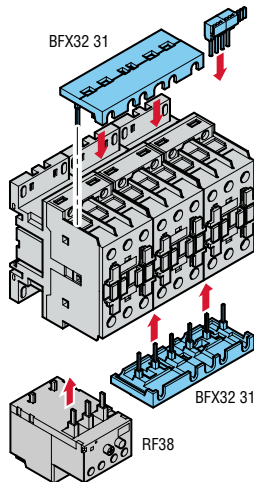


RF38 thermal overload relay can be mounted only on left side contactor.

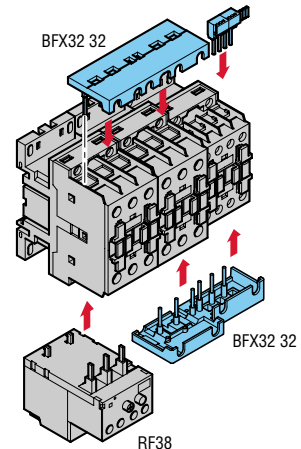
Rigid star-delta starter connecting kits for BF09-BF25 types



Rigid star-delta starter connecting kits for BF26-BF38 types



Rigid star-delta starter connecting kits with BF26-BF38(line-delta) and BF09-BF25 (star) contactors



DC coils



11 BA911...

Order code	Rated voltage	Qty per pkg	Wt
	[V]	n°	[kg]

Control relay BF00, contactors BF09-BF38

NO COIL REPLACEMENT IS POSSIBLE FOR TYPES BF00 OR BF09-BF38.

For BF50C-BF65C-BF80C-BF95C-BF110C contactors.

11 BA911 12	12	1	0.380
11 BA911 24	24	1	0.380
11 BA911 48	48	1	0.380
11 BA911 60	60	1	0.380
11 BA911 110	110	1	0.380
11 BA911 125	125	1	0.380
11 BA911 220	220	1	0.380

Operational characteristics

DC control

Rated voltage	from	V	12
	to	V	660
Operating limits	pick-up	from	% Us
		to	% Us
	drop-out	from	% Us
		to	% Us
Average dissipation (in-rush/holding) ≤20°C	W	15	

Materials

Class F enamelled copper wire.

Special versions

For coils with non standard voltages, contact our Customer Service (Tel. +39 035 4282422).



Main contacts for BF contactors



BFX99...



11 G274... - 11 G275... - 11 G276...
11 G475 - 11 G476

Order code	For contactor	Qty per pkg	Wt
		n°	[kg]

Main contacts
3 or 4 pole set complete with screws.

BFX99 026T	BF26	1	0.038
BFX99 026F	BF26 T4	1	0.051
BFX99 032T	BF32	1	0.070
BFX99 038T	BF38	1	0.070
BFX99 038F	BF38 T4	1	0.093
11 G274	BF50	1	0.095
11 G274 4	BF50 40	1	0.127
11 G275	BF65	1	0.095
11 G275 4	BF65 40	1	0.127
11 G276	BF80	1	0.111
11 G276 4	BF80 40	1	0.148
11 G475	BF95	1	0.111
11 G476	BF110	1	0.111

Special versions

For non standard spare contact configurations, contact our Customer Service (Tel. +39 035 4282422).

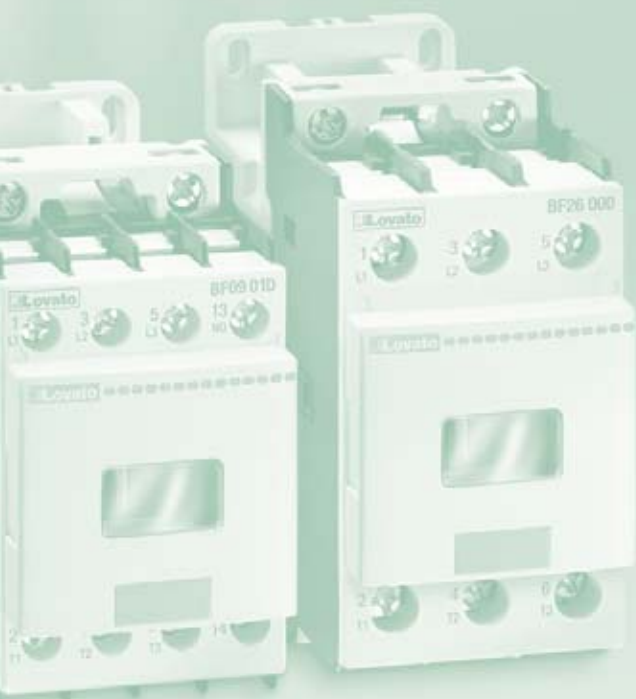


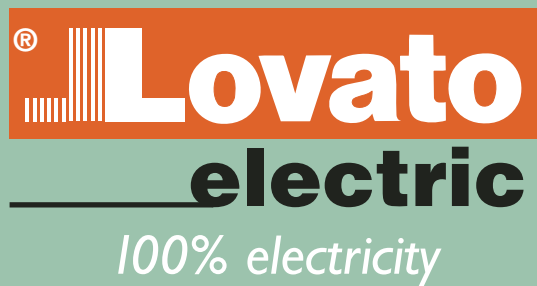
Dimensions



Dimensions

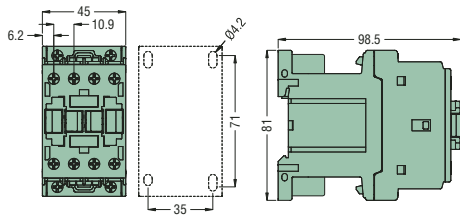
 **Lovato**
electric



 **Lovato**
electric
100% electricity

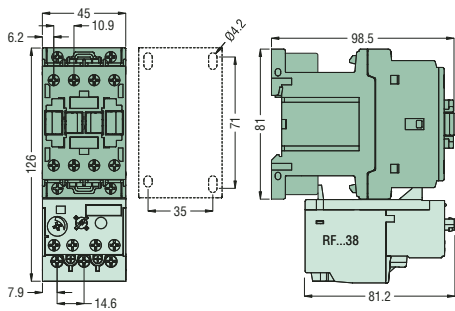
CONTROL RELAYS

BF00...D and BF00...L

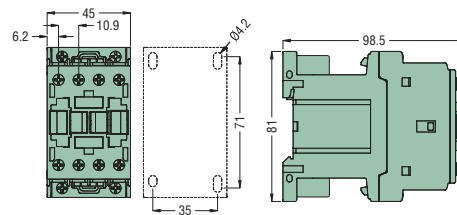


THREE AND FOUR-POLE CONTACTORS

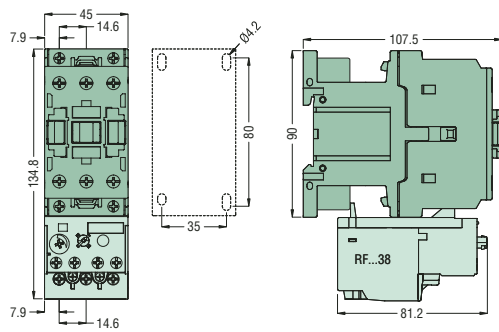
BF09... - BF12... - BF18... D and L three poles
with RF...38 thermal relay



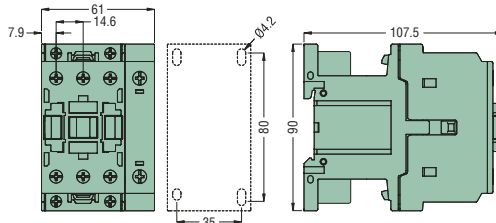
BF09 T... - BF12 T... - BF18 T... D and L four poles



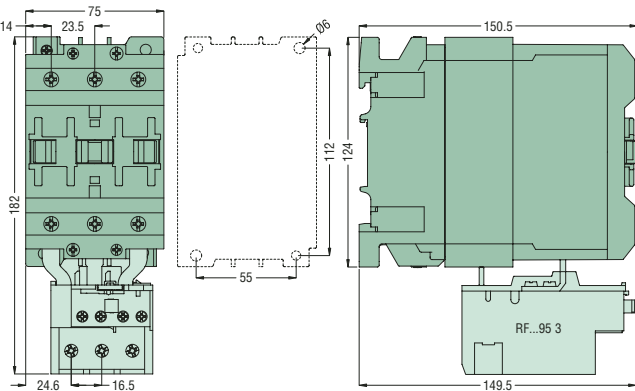
BF26... - BF32... - BF38... D and L three poles
with RF...38 thermal relay



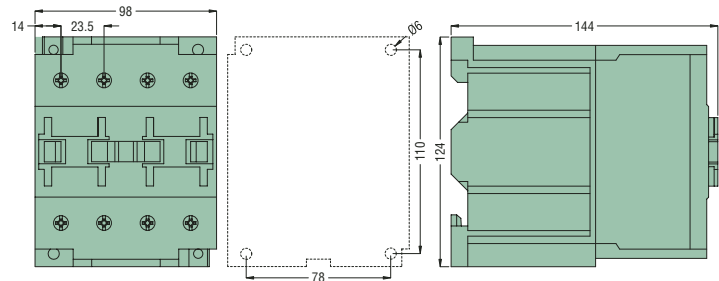
BF26 T... - BF32 T... - BF38 T... D and L four poles



BF50C 00... - BF65C 00... - BF80C 00... - BF95C 00... - BF110C 00... three poles
with RF95 3 thermal relays

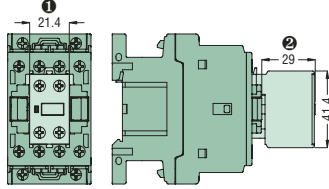


BF65C 40... - BF80C 40... four poles



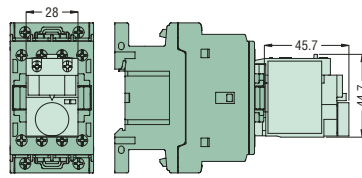
ADD-ON BLOCKS WITH BF CONTACTORS

Auxiliary contacts **BFX10...**

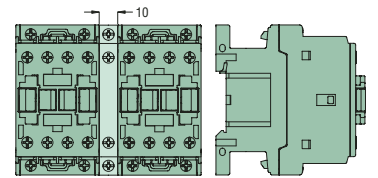


- ❶ BFX10 add-on blocks with four contacts are 42.8mm wide.
- ❷ BFX 10 add-on blocks with four contacts are 36mm deep.

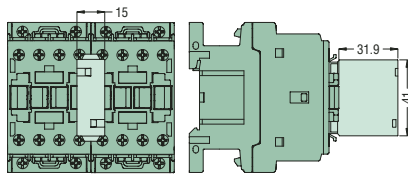
G485..., **G486...**, **G487** delayed contacts



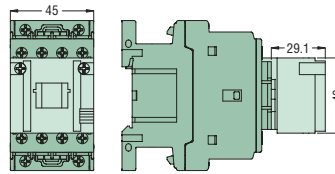
BFX50 00, **BFX50 01** interlocks



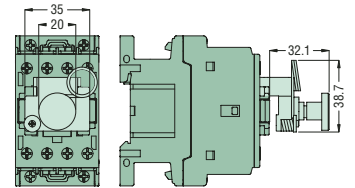
BFX50 03, **G269 1**, **G269 2** interlocks



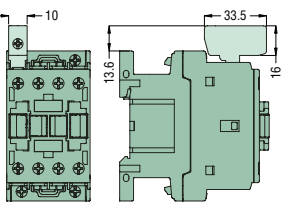
G222, **G272** latch



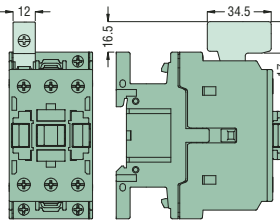
G454, **G455** manual closing



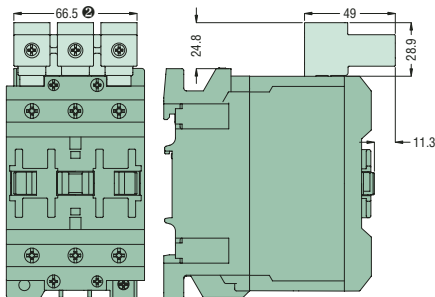
G231 terminal



G232 terminal

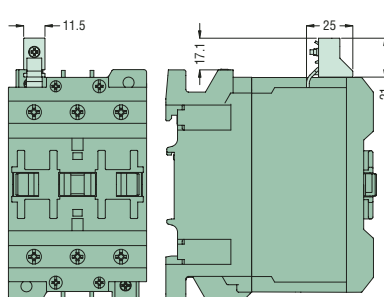


G271, **G288** terminal

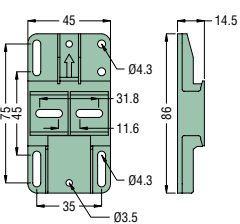


- ❸ 90mm for G288 terminal only.

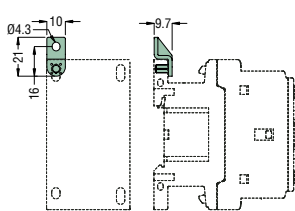
G285 auxiliary terminal



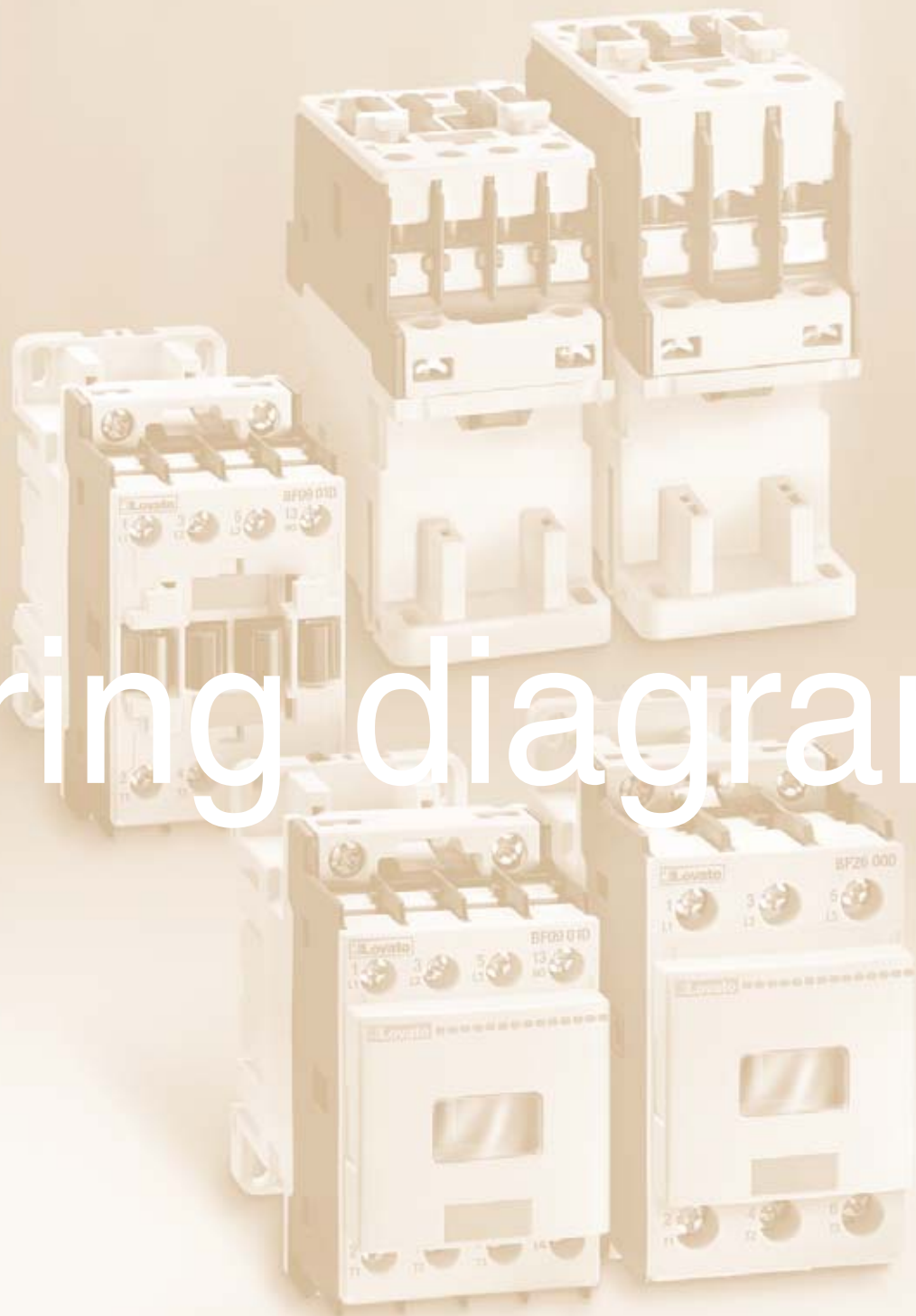
BFX89 01 fixing base



BFX89 02 fixing bracket



Wiring diagrams



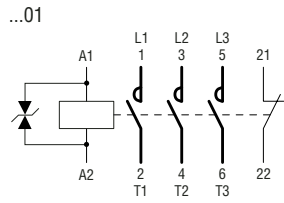
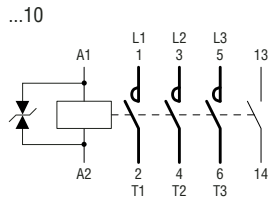
W

Wiring diagrams

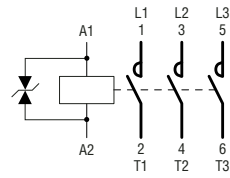


100% electricity

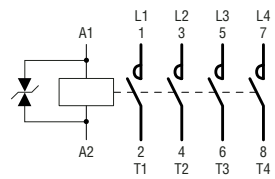
THREE-POLE CONTACTORS BF09 - BF12 - BF18 - BF25



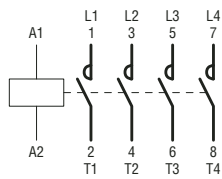
BF26 - BF32 - BF38



FOUR-POLE CONTACTORS BF09 T4 ÷ BF38 T4

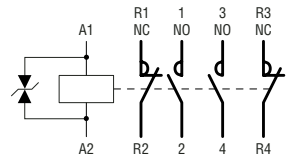


BF50 40 - BF65 40 - BF80 40 BF65C 40 - BF80C 40

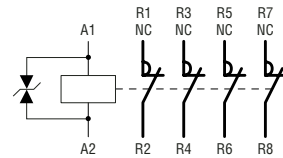


FOUR-POLE CONTACTORS WITH 2NO AND 2NC OR 4NC MAIN POLES

BF18 T2 - BF26 T2 - BF38 T2

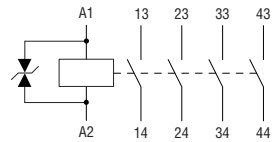


BF18 T0 - BF26 T0

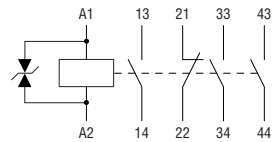


CONTROL RELAYS

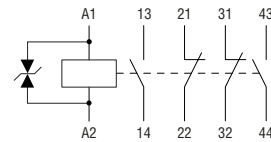
BF00 40



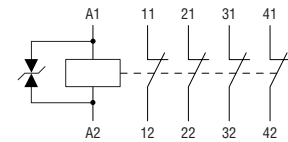
BF00 31



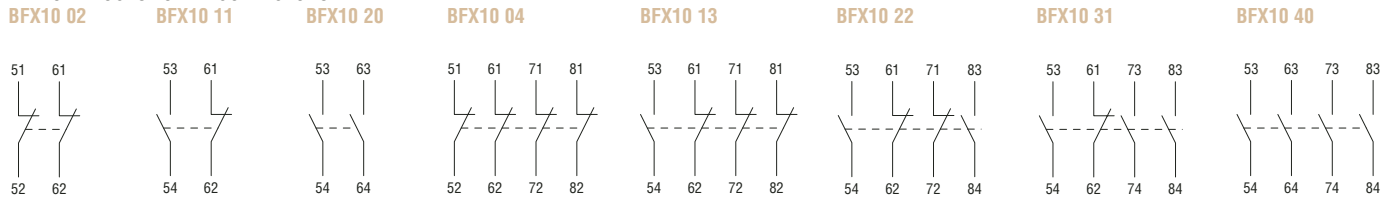
BF00 22



BF00 04

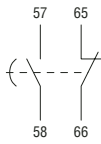


ADD-ON BLOCKS FOR BF CONTACTORS

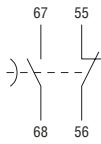


Contactors with DC control circuit

G485...
Delayed contacts



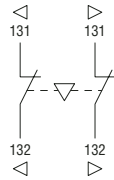
G486... - G487



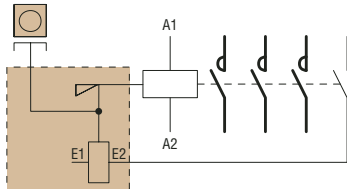
BFXD42
4th pole



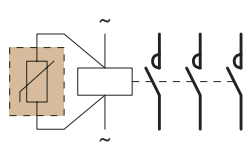
BFX50 01
Interlock



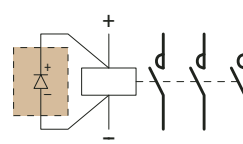
G222... - G272... Latch



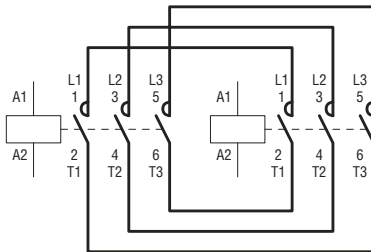
G318... Suppressor



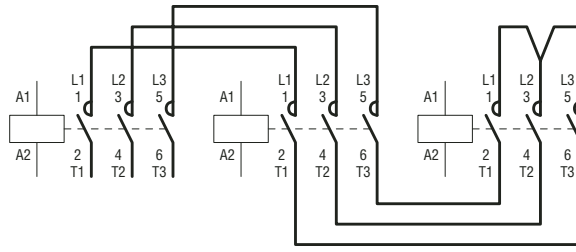
G319 225 Suppressor



BFX31 01 - BFX31 02 - BFX32 01
Reversing contactor connectors



BFX31 31 - BFX32 31 - BFX32 32
Star-delta connectors



Technical charac



TC

Technical characteristics



Lovato
electric



Lovato
electric

100% electricity

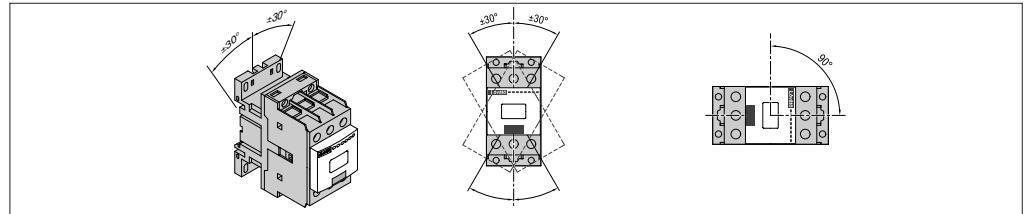
Contactors
with DC control circuit

Mounting position
of contactors

ON VERTICAL PLANE

The performances given in this catalogue have been established with contactors mounted on a vertical plane with line terminals facing upwards and load terminals facing downwards.

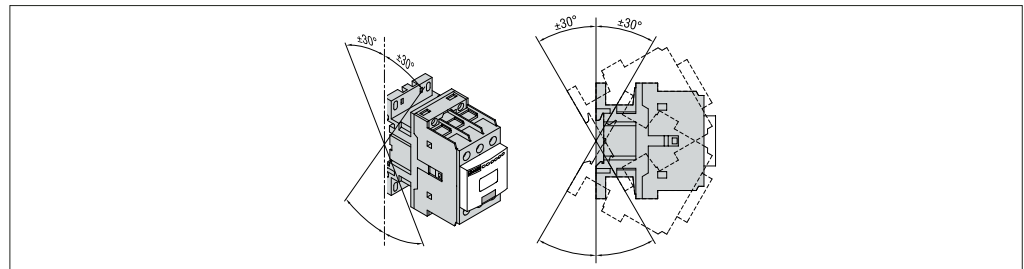
All contactors can be mounted with a $\pm 30^\circ$ inclination to the vertical axis of the contactor without any derating. For BF series contactors, this inclination can reach $\pm 90^\circ$, that is with the terminals are facing towards left and right.



ON VERTICAL PLANE WITH 30° INCLINATION

All contactors can be mounted on a plane which varies in respect to the vertical up to $\pm 30^\circ$ angle. On the average, a 5% increase of the minimum pick-up

voltage in -30° position can be noted. This inclination is greater than the one prescribed by main naval registers.



ON HORIZONTAL PLANE (FOR BF SERIES CONTACTORS)

Considerable performance variations can be noted.

It is necessary to check the two possible mounting positions:

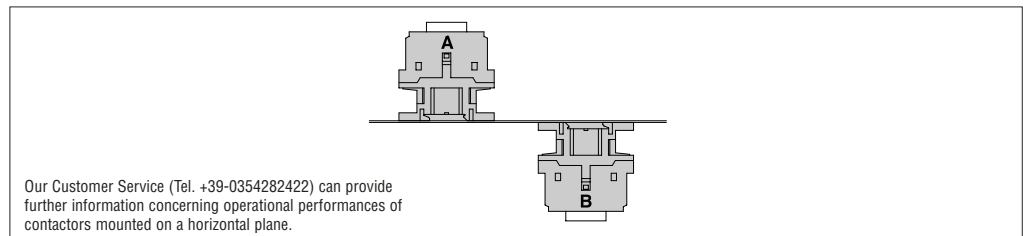
- when the contactor is energised, the movable equipment moves upwards.
- when the contactor is energised, the movable equipment moves downwards.

In the first case, it is difficult to close the contactor while in the second, to open it.

The variables which could influence the contactor performance, in addition to the two mounting positions, are:

- type of contactor
- type of control
- contact configuration
- number and type of add-on blocks
- permissible tolerance of auxiliary voltage variation
- ambient temperature.

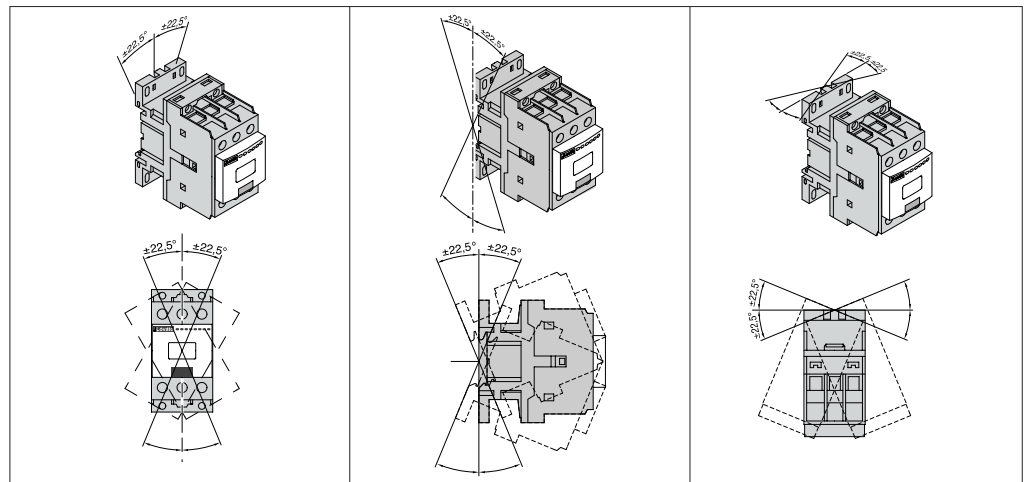
NOTE: Position B is not recommendable.



Our Customer Service (Tel. +39-0354282422) can provide further information concerning operational performances of contactors mounted on a horizontal plane.

DYNAMIC TYPE TESTS

Our contactors have sustained dynamic testing, with contactor mounting position rotated $\pm 22.5^\circ$ in respect to the three orthogonal axes.



Contactors with DC control circuit

Utilisation category AC3

POLE CHARACTERISTICS

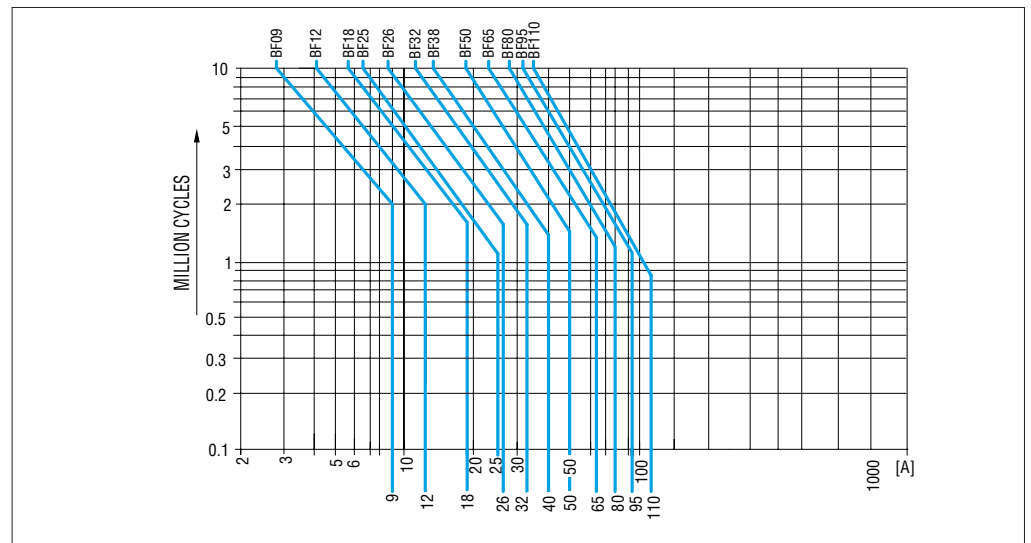
Squirrel-cage induction motors; breaking at rated motor current.

MAXIMUM OPERATIONAL POWER at ambient temperature $\leq 55^{\circ}\text{C}$.

Contactor type	Operational current (U _e \leq 440V) [A]	Operational power						
		220/230V [kW]	380/400V [kW]	415V [kW]	440V [kW]	500V [kW]	660/690V [kW]	1000V [kW]
BF09	9	2.2	4.2	4.5	4.8	5.5	7.5	-
BF12	12	3.2	5.7	6.2	6.2	7.5	10	-
BF18	18	4	7.5	9	9	10	10	-
BF25	25	7.0	12.5	13.4	13.4	15	18	-
BF26	26	7.3	13	14	14	15.6	18.5	-
BF32	32	8.8	16	17	17	20	22	-
BF38	38	11	18.5	18.5	18.5	20	22	-
BF50	50	14.3	25	27.2	27.2	33.2	43.5	25
BF65	65	18.5	33	36	36	45.3	59.7	30
BF80	80	23	41	46	46	56	74	37
BF95	95	27.6	50	55	55	56	74	45
BF110	110	33	61	66	70	59	80	45

Electrical life AC3 $\leq 440\text{V}$

Electrical life of contactors



POLE CHARACTERISTICS

MAXIMUM OPERATIONAL CURRENT

Voltage U _e	Contactor Type	Maximum current I _e [A] in categories: DC1 with L/R ≤ 1ms and poles in series				DC3 - DC5 with L/R ≤ 15ms and poles in series			
		1	2	3	4	1	2	3	4
≤ 24V	BF09	15	18	20	20	10	13	15	15
	BF12	17	20	22	-	12	15	18	-
	BF18	17	20	22	22	12	15	18	18
	BF25	20	23	23	-	15	18	22	-
	BF26	25	28	28	28	18	20	25	30
	BF32	30	32	32	-	20	25	30	-
	BF38	35	36	36	36	24	28	32	32
	BF50	45	60	60	-	30	35	50	-
	BF65	50	70	70	70	35	45	55	60
	BF80	70	100	100	100	40	60	80	90
	BF95	70	100	100	-	40	60	80	-
BF110	70	100	100	-	40	60	80	-	
48V	BF09	13	18	20	20	9	11	15	15
	BF12	15	20	22	-	11	13	18	-
	BF18	15	20	22	22	11	13	18	18
	BF25	18	23	23	-	13	18	22	-
	BF26	21	28	28	28	15	20	25	30
	BF32	26	32	32	-	17	22	28	-
	BF38	30	34	34	34	20	25	28	28
	BF50	40	60	60	-	25	35	50	-
	BF65	50	70	70	70	25	40	50	60
	BF80	60	100	100	100	30	50	70	90
	BF95	60	100	100	-	30	55	75	-
BF110	60	100	100	-	30	55	75	-	
75V	BF09	12	17	20	20	8	10	13	15
	BF12	13	18	20	-	10	12	15	-
	BF18	15	20	20	20	11	13	16	16
	BF25	18	23	23	-	13	16	18	-
	BF26	18	25	25	25	13	18	20	25
	BF32	22	28	32	-	15	20	28	-
	BF38	23	29	33	33	17	22	28	28
	BF50	40	60	60	-	22	30	45	-
	BF65	50	70	70	70	25	40	50	60
	BF80	60	100	100	100	30	50	70	90
	BF95	60	100	100	-	30	50	70	-
BF110	60	100	100	-	30	50	70	-	

Contactors with DC control circuit

POLE CHARACTERISTICS
MAXIMUM OPERATIONAL CURRENT

Voltage U _e	Contactor Type	Maximum current I _e [A] in categories: DC1 with L/R ≤ 1ms and poles in series				DC3 - DC5 with L/R ≤ 15ms and poles in series			
		1	2	3	4	1	2	3	4
110V	BF09	6	12	15	16	2	7	11	12
	BF12	6	13	16	-	2	8	12	-
	BF18	6	13	16	18	2	8	12	13
	BF25	6	16	18	-	2	10	15	-
	BF26	6	22	24	24	2	13	18	20
	BF32	8	25	27	-	2.5	15	20	-
	BF38	8	32	34	34	2.5	18	23	23
	BF50	8	50	55	-	3	25	30	-
	BF65	8	60	60	70	3	30	35	50
	BF80	8	80	85	100	3	40	60	75
	BF95	8	80	85	-	3	40	60	-
BF110	8	80	85	-	3	40	60	-	
220V	BF09	4	8	10	12	0.75	1.5	5	7
	BF12	4	8	11	-	0.75	1.5	6	-
	BF18	4	8	11	13	0.75	1.5	6	8
	BF25	4	8	12	-	0.75	1.5	8	-
	BF26	5	12	14	14	0.75	1.5	10	15
	BF32	5	14	16	-	1	3	12	-
	BF38	5	20	26	26	1	4	15	15
	BF50	6	36	45	-	1	5	20	-
	BF65	6	36	50	60	1	5	25	30
	BF80	6	40	55	70	1	7	35	40
	BF95	6	40	55	-	1	7	35	-
BF110	6	40	55	-	1	7	35	-	
300V	BF09	-	-	-	10	-	-	-	5
	BF18	-	-	-	11	-	-	-	5
	BF26	-	-	-	16	-	-	-	10
	BF38	-	-	-	25	-	-	-	12
	BF65	-	-	-	60	-	-	-	25
	BF80	-	-	-	70	-	-	-	35

**Contactors
with DC control circuit**

**Utilisation
categories DC1,
DC3 and DC5.
Pole characteristics**

CHOICE CRITERIA

The elements to be considered for the contactor choice are:

- Rated operational current I_e
- Rated operational voltage U_e
- Utilisation category and L/R time constant
- Eventual verification of electrical life.

OPERATING CONDITIONS

Indicated current is valid for:

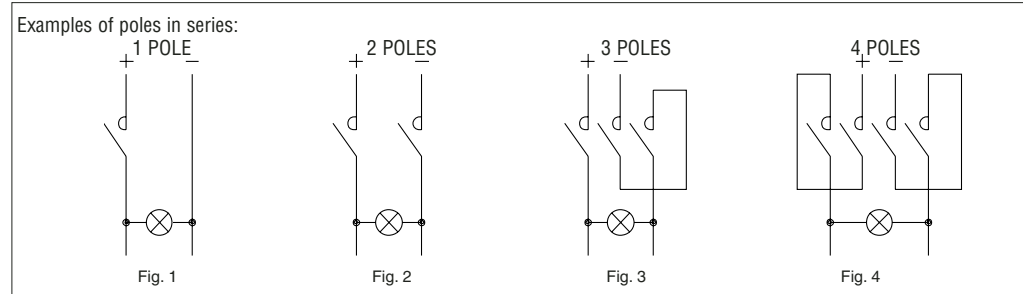
- Ambient temperature $\leq 55^\circ\text{C}$
- Operating cycles: up to 120 cy/h with 60% on-load factor
up to 250 cy/h with 30% on-load factor.

POLES IN SERIES

It is important to use contactors with the indicated number of poles in series depending on operating voltage.

The poles in series can be connected to one single polarity or divided between the two polarities of the circuit indifferently.

NOTE. For voltages lower than 30V, the diagrams given in figures 3 and 4 are not recommendable since voltage drops can take place. In these cases, it is better to use poles in parallel considering the notes given in the following section.



POLES IN PARALLEL

It is possible to increase the electrical life by placing poles in series when using voltages which require 1 or 2 poles in parallel.

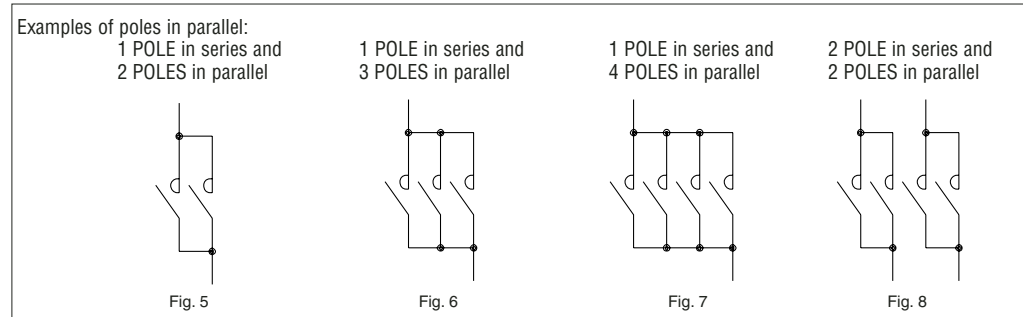
Poles in parallel do not increase the maximum operational current given in the following pages; that is, if one pole has a maximum operational current in DC5 of 8A, two poles in parallel, it will always be 8A.

With poles in parallel, it is possible to increase the rated contact capacity (I_{th}) only if the contactor opens and closes in no-load conditions or when used as resistance shunts. In this case, the contact capacity can be increased.

The value can be obtained by multiplying the rated current of one pole by the K factor given below; e.g.: if one pole carries 10A, three poles in parallel can carry $10 \times 2.2 = 22\text{A}$.

Therefore, the operating current is the one indicated in the tables, multiplied by the K factor given below which takes into consideration the unequal current division on the various poles.

- 2 POLES in parallel K = 1.6
- 3 POLES in parallel K = 2.2
- 4 POLES in parallel K = 2.8



MAXIMUM OPERATIONAL CURRENT

See tables on pages TC-4 and TC-5.

OTHER CONDITIONS

For different operating conditions or voltage not included among those indicated in the tables, on pages TC-4 and TC-5, contact our Customer Service (Tel. +39 035 4282422).

Contactors with DC control circuit


Operational characteristics BF00

TYPE		BF00	
POLE CHARACTERISTICS			
Poles	n°	4	
Conventional free air thermal current I _{th} (≤40°C)	A	10	
Rated insulation voltage U _i	V	690	
Frequency limit	Hz	25-400 ❶	
Designation of auxiliary contacts according to IEC/EN 60947-5-1	AC	A600	
	DC	Q600	
Terminals	A	8.3	
	B	3.5	
	screw	M3.5	
	Phillips	2	
	quick-connect	Faston	—
Min-Max tightening torque for contact terminals	Nm	1.4-1.8	
	lbft	1.03-1.33	
Min-Max tightening torque for coil terminals	Nm	0.8-1	
	lbft	0.59-0.74	
	Phillips	2	
Maximum conductor section connectable with 1 or 2 wires	AWG	n°	16-10
	Flexible w/o lug (min-max)	mm²	6
	Flexible c/w lug	mm²	6
Terminal protection according to IEC/EN 60529		IP20❷	
AMBIENT CONDITIONS			
Operating temperature	°C	-50...+70	
Storage temperature	°C	-60...+80	
Maximum altitude	m	3000	
Operation position	Normal	On vertical plane	
	Allowable	±30°	
Fixing		Screw or 35mm DIN rail (IEC/EN 60715)	
DC CONTROL AND WITH LOW CONSUMPTION			
Rated control voltage	V	6 - 600	
Operating limits	pick-up BF00...D version	% U _s	70...125
	pick-up BF00...L version	% U _s	80...110
	drop-out BF00...D and BF00...L versions	% U _s	10...40
Average consumption at 20°C (in-rush/holding)	BF00...D	W	5.4
	BF00...L	W	2.4
OPERATING TIMES			
Average time for control at U _s	in DC closing NO	ms	47
	opening NO	ms	63
	closing NC	ms	75
	opening NC	ms	40
LIFE (millions)			
Mechanical	cycles	20	
MAXIMUM OPERATING RATE			
Mechanical operations	cycles/h	3600	

❶ Derating for use at 61-400 Hz. Contact our Customer Service (Tel. +39 035 4282422).

❷ IP20 protection warranted by wired equipment; minimum 1mm².

Operational characteristics
BF09-BF38

TYPE		BF09	BF12	BF18	BF25	BF26	BF32	BF38	
POLE CHARACTERISTICS									
Power poles	n°	3-4	3	3-4	3	3-4	3	3-4	
Rated insulation voltage Ui	V	690							
Rated impulse withstand voltage Uimp	kV	6							
Operational frequency	Hz	25-400 ^①							
Operational current	Conventional free air thermal Ith (≤40°C)	A	25	28	32	32	45	56	56
	AC3 (≤440V ≤55°C)	A	9	12	18	25	26	32	38
	AC4 (400V) ^②	A	4.9	7.9	8.5	10	11.5	13.5	15.5
Short-time allowable current for 10s (IEC/EN 60947-1)	A	110	110	130	160	200	320	320	
Max fuse size Type 1 or 2	gG	A	32	40	40	40	50	63	80
	aM	A	10	12	16	25	32	32	40
Making capacity (RMS value)	A	250	250	250	250	480	480	480	
Breaking capacity at voltage ≤440V	A	250	250	250	250	480	480	480	
Consumption and resistance per pole (average values)	mΩ	2.5	2.5	2.5	2.5	2.0	2.0	2.0	
	Ith	W	1.6	2.0	2.6	2.6	4.0	6.0	6.0
	AC3	W	0.2	0.4	0.8	1.6	1.4	2.0	2.9
Terminals		Type	Clamp-screw						
		A	9.5	9.5	9.5	9.5	13	13	13
		B	4.5	4.5	4.5	4.5	5.5	5.5	5.5
		Screw	M3.5	M3.5	M3.5	M3.5	M4	M4	M4
		Phillips	2	2	2	2	2	2	2
Min-Max tightening torque for contact terminal	Nm	1.5...1.8	1.5...1.8	1.5...1.8	1.5...1.8	2.5...3	2.5...3	2.5...3	
	lbft	1.1...1.3	1.1...1.3	1.1...1.3	1.1...1.3	1.8...2.2	1.8...2.2	1.8...2.2	
Min-Max tightening torque for coil terminals	Nm	0.8-1	0.8-1	0.8-1	0.8-1	0.8-1	0.8-1	0.8-1	
	lbft	0.6-0.75	0.6-0.75	0.6-0.75	0.6-0.75	0.6-0.75	0.6-0.75	0.6-0.75	
Maximum conductor section connectable with 1 or 2 wires	AWG	N°	16-10	16-10	16-10	16-10	14-6	14-6	14-6
	Flexible w/o lug (min-max)	mm ²	1-6	1-6	1-6	1-6	2.5-16	2.5-16	2.5-16
	Flexible c/w lug	mm ²	1-4	1-4	1-4	1-4	1-10	1-10	1-10
Power terminal protection according to IEC/EN 60529		IP20 ^③	IP20 ^③	IP20 ^③	IP20 ^③	IP20 ^④	IP20 ^④	IP20 ^④	
AMBIENT OPERATING CONDITIONS									
Operating temperature	°C	-50...+70							
Storage temperature	°C	-60...+80							
Maximum altitude	m	3000							
Operating position	Normal	On vertical plane							
	Allowable	± 30°							
Fixing		Screw or 35mm DIN rail (IEC/EN 60715)							

^① Derating for use at 61-400Hz. Contact our Customer Service (Tel. +39 035 4282422).

^② Current values guarantee an electrical life of about 200,000 cycles.

^③ IP20 protection warranted by wired equipment; minimum 1mm² conductor section.

^④ IP20 protection on front.

Contactors with DC control circuit


TYPE			BF09	BF12	BF18	BF25	BF26	BF32	BF38		
DC CONTROL and low consumption											
Rated control voltage	from	V	6								
	to	V	415								
Operating limits											
Pick-up	3-pole BF...D type	from	% Us		70						
		to	% Us		125						
	4-pole BF...D type	from	%Us		70			80			
		to	%Us		125			110			
	3/4-pole BF...L type	from	% Us		80						
		to	% Us		110						
Drop-out	for all types	from	%Us		10						
		to	%Us		40						
Average coil consumption at $\leq 20^{\circ}\text{C}$	BF...D	W	5.4								
	BF...L	W	2.4								
OPERATING TIMES											
Average time for control at Us	in DC	closing NO	ms	47	47	47	47	46	46	46	
			opening NO	ms	63	63	63	63	64	64	64
			closing NC	ms	75	75	75	75	75	75	75
			opening NC	ms	40	40	40	40	40	40	40
LIFE (millions)											
Mechanical AC control		cycles	20	20	20	20	20	20	20		
Electrical (Ie at 400V AC3)		cycles	2.0	2.0	1.6	1.2	1.6	1.6	1.4		
MAXIMUM OPERATING RATE											
Mechanical operations		cy/h	3600								

Operational characteristics of incorporated auxiliary contacts of contactors BF00 BF09-BF25

TYPE		BF00 - BF09 - BF25							
CHARACTERISTICS									
Thermal current Ith	A	10							
Rated insulation voltage Ui	V	690							
Terminals	Screw	M3.5							
	Width	mm	8.3						
	Faston		-						
		Phillips		2					
Maximum conductor section connectable with 1 or 2 wires									
Flexible w/o lug (min-max)	mm ²	1 - 6							
Flexible c/w lug	mm ²	6							
AWG	n°	10							
IEC/EN 60947-5-1 designation	AC	A600							
	DC	P600							

① The NO and NC auxiliary contacts are highly conductive.

Operational characteristics
BF50-BF110

TYPE		BF50	BF65	BF80	BF95	BF110	
POLE CHARACTERISTICS							
Power poles	n°	3	3-4	3-4	3	3	
Rated insulation voltage Ui	V	1000 ^①					
Rated impulse withstand voltage Uimp	kV	8					
Operational frequency	Hz	25 - 400 ^②					
Operational current	Conventional free air thermal Ith (≤40°C)	A	90	110	125	125	125
	AC3 (≤440V ≤55°C)	A	50	65	80	95	110
	AC4 (400V) ^③	A	28	31	38	43	43
Short-time allowable current for 10s (IEC/EN 60947-1)	A	390	390	480	760	880	
Max fuse size	gG	A	100	125	160	160	160
	aM	A	50	80	80	100	125
Making capacity (RMS value)	A	800	1090	1200	1200	1200	
Breaking capacity at voltage	≤440V	A	800	1090	1200	1200	1200
	500V	A	660	830	1050	1050	1050
	690V	A	500	630	800	800	800
Consumption and resistance per pole (average values)		mΩ	0.8	0.8	0.6	0.6	0.6
	Ith	W	6.5	9.7	9.4	9.4	9.4
	AC3	W	2.0	3.4	3.8	5.4	7.3
Terminals		Type	Lug clamp ^④				
		A	12.3	12.3	12.3	12.3	12.3
		B	12	12	12	12	12
		Screw	M6	M6	M6	M6	M6
		Metric Allen	4	4	4	4	4
Min-Max tightening torque for contact terminal	Nm	4-5					
	lbft	2.95-3.69					
Min-Max tightening torque for coil terminals	Nm	0.8-1					
	lbft	0.59-0.74					
	Phillips	1					
Maximum conductor section connectable with 1 or 2 wires AWG	n°	2/0					
	Flexible w/o lug (min-max)	mm²	4-50	4-50	6-50	6-50	6-50
	Flexible c/w lug	mm²	4-50	4-50	6-50	6-50	6-50
Power terminal protection according to IEC/EN 60529		IP20 ^⑤					
AMBIENT CONDITIONS							
Operating temperature	°C	-50...+70					
Storage temperature	°C	-60...+80					
Maximum altitude	m	3000					
Operating position	Normal	On vertical plane					
	Allowable	± 30°					
Fixing		Screw or DIN rail 35mm ^⑥ and 75mm (IEC/EN 60715)					

^① Rated insulation voltage Ui for 4-pole types is 690V.

^② Derating for use at 61-400 Hz. Contact our Customer Service (Tel. +39 035 4282422).

^③ Current values guarantee an electrical life of about 200,000 cycles.

^④ In addition the main terminal, the following dimensions refer to the second entry of flexible busbars: 12.3x3.8mm.

^⑤ IP20 protection warranted to three-pole contactors only by mounting the G265 protection.

^⑥ Only three-pole versions can be mounted on 35mm DIN rail.

Contactors with DC control circuit

TYPE			BF50	BF65	BF80	BF95	BF110	
DC CONTROL								
Rated control voltage	from	V	12	12	12	12	12	
	to	V	600	600	600	600	600	
Operating voltage limits	pick-up	from	% Us	80	80	80	80	80
		to	% Us	110	110	110	110	110
	drop-up	from	% Us	10	10	10	10	10
		to	% Us	25	25	25	25	25
Average coil consumption at $\leq 20^{\circ}\text{C}$ (in rush-holding)		W	15	15	15	15	15	
OPERATING TIMES								
Average time for control at Us	in DC closing NO	ms	60-90	60-90	60-90	60-90	60-90	
	opening NO	ms	7-12	7-12	7-12	7-12	7-12	
LIFE (millions)								
Mechanical	DC control	cycles	15	15	15	15	15	
Electrical (Ie at 400V in AC3)		cycles	1.5	1.4	1.3	1.2	0.8	
MAXIMUM OPERATING RATE								
Mechanical operations		cy/h	3600					

new
2008

Orange



Electromechanical starters



Signal towers



Micro switches

moduLo



Current monitoring relays

moduLo



Level control relays



Digital metering instruments

moduLo



Programmable logic relays

Lovato
electric
100% electricity

PLANET

Switch

- Motor protection circuit breakers
- Switch disconnectors
- Contactors
- Motor protection relays
- Electromechanical starters
- Control and signalling units
- Limit, micro and foot switches
- Rotary cam switches

PLANET

Din

- Modular contactors
- Time relays
- Protection relays
- Level control relays
- Earth leakage relays

PLANET

Logic

- Digital metering instruments and current transformers
- Soft starters
- AC motor drives
- Automatic power factor controllers
- Automatic battery chargers
- Automatic transfer switch controllers
- Programmable logic relays

www.LovatoElectric.com

LOVATO ELECTRIC S.P.A.
CONTROL SOLUTIONS FOR INDUSTRY

VIA DON E. MAZZA, 12 - 24020 GORLE (BERGAMO) ITALY

Tel. +39 035 4282111

Fax +39 035 4282200

E-mail info@LovatoElectric.com

Sales Department:

Tel. +39 035 4282354

Fax +39 035 4282400

LOVATO Electric offices in the world

United Kingdom

LOVATO (UK) LTD
Tel. +44 1384 443377
www.Lovato.co.uk

Germany

DELTEC LOVATO GmbH
Tel. +49 7237 1733
www.DeltecLovato.de

Spain

LOVATO ELECTRIC S.L.
Tel. +34 938 454649
www.LovatoElectric.es

Poland

LOVATO ELECTRIC SP. Z O.O.
Tel. +48 71 7979010
www.LovatoElectric.pl

Czech Republic

LOVATO S.R.O.
Tel. +420 382 265482
www.Lovato.cz

Latvia

LOVATO-REZ LTD
Tel. +371 7 381951
www.Lovato.lv

USA

LOVATO ELECTRIC INC
Tel. +1 757 545 4700
www.LovatoUsa.com

Canada

LOVATO ELECTRIC CORPORATION
Tel. +1 450 681 9200
www.Lovato.ca

Mexico

LOVATO ELECTRIC DE MEXICO, S.A. DE C.V.
Tel. +52 555 3415662
www.LovatoElectric.com.mx

Hong Kong - China

LOVATO ASIA (HK)
Tel. +852 27911616
www.LovatoElectric.com

The products described in this publication are subject to be revised or improved at any moment. Catalogue descriptions and details, such as technical and operational data, drawings, diagrams and instructions, etc., do not have any contractual value. In addition, products should be installed and used by qualified personnel and in compliance with the regulations in force for electrical systems in order to avoid damages and safety hazards.