

Technical Data for Designers

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Star-delta starters	A2/27 to A2/31

Motor starters - open version

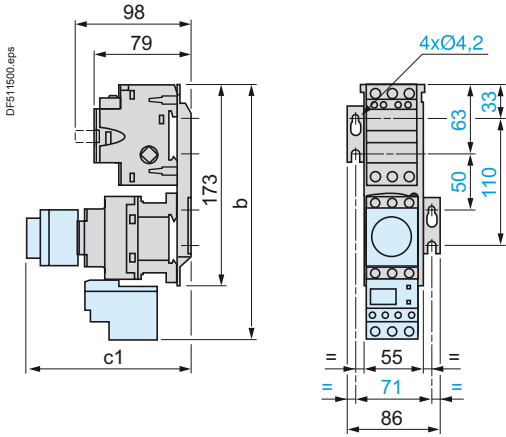
D.O.L. starters, plate mounted, for motor control 4 to 37 kW, with isolating device, pre-assembled

Direct-on-line and reversing

Dimensions

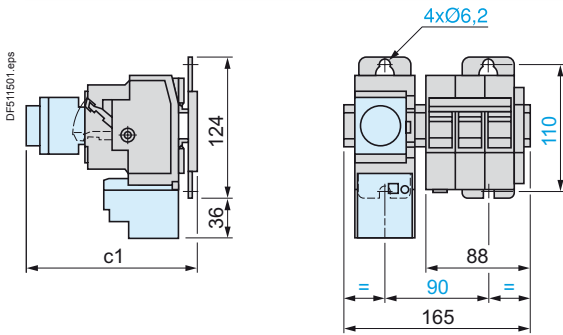
D.O.L. starters, plate mounted, pre-assembled

LC4 D09A...D25A



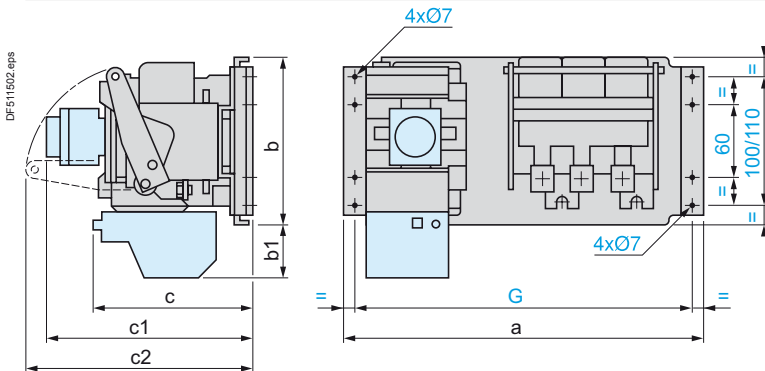
LC4	D09A...D18A	D25A	
b	218	221	
c1	without cover or add-on blocks	94	100
	with cover, without add-on blocks	96	102
	with LAD N or C (2 or 4 contacts)	127	133
	with LA6 DK10	139	145
	with LAD T, R, S	147	153
	with LAD T, R, S and sealing cover	151	157

LC4 D32A



LC4	D32A	
c1	without cover or add-on blocks	100
	with cover, without add-on blocks	102
	with LAD N or C (2 or 4 contacts)	133
	with LA6 DK10	145
	with LAD T, R, S	153
	with LAD T, R, S and sealing cover	157

LC4 D40...D80

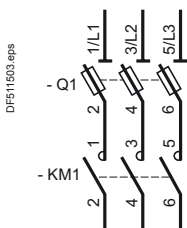


LC4	D40...D65	D80	
a	281	311	
b	143	143	
b1	45	48	
c	130	140	
c1	without cover or add-on blocks	124	135
	with cover, without add-on blocks	129	140
	with LA1 DN (1 contact)	149	160
	with LAD N or C (2 or 4 contacts)	157	168
	with LA6 DK	169	180
	with LAD T, R, S	177	188
	with LAD T, R, S and sealing cover	181	192
c2	100	178	
G	263	293	

Scheme

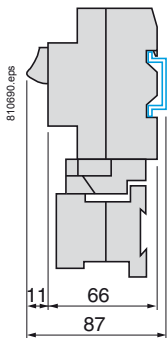
D.O.L. starters

LC4 D09A to D80

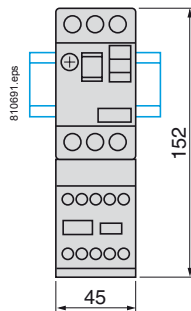


GV2 ME●●K●●

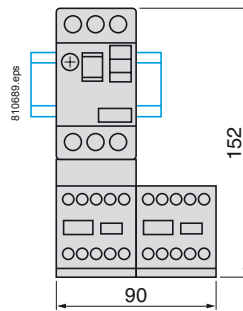
On mounting rail AM1 DE200



GV2 ME●●K1●●

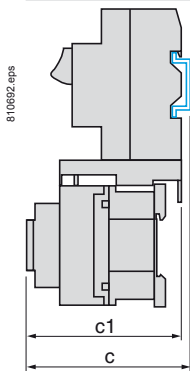


GV2 ME●●K2●●

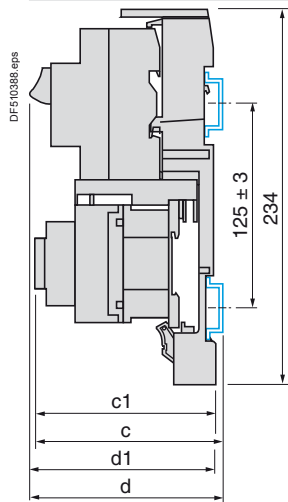


GV2 DM●●●●●

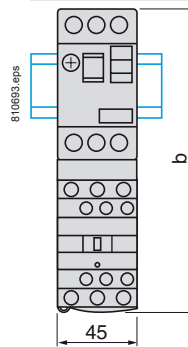
On mounting rail AM1 DE200



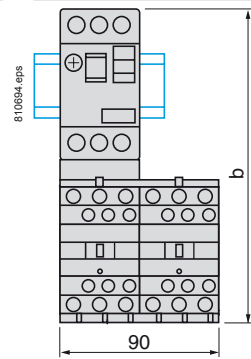
With adapter plate LAD 311



GV2 DM1●●●●●



GV2 DM2●●●●●

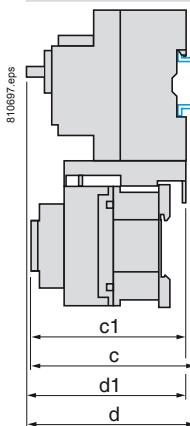


GV2	DM●02●● to DM●20●●	DM●21●● to DM●32●●
b	176.4	186.8
c	99.6	105.9
c1	94.1	100.4

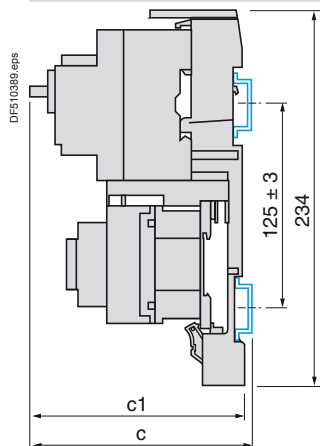
GV2	DM●02●● to DM●20●●	DM●21●● to DM●32●●
c	135.6	141.9
c1	130.1	136.4
d	112.5	112.5
d1	107	107

GV2 DP●●●●●

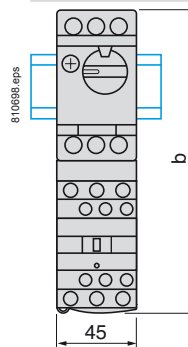
On mounting rail AM1 DE200



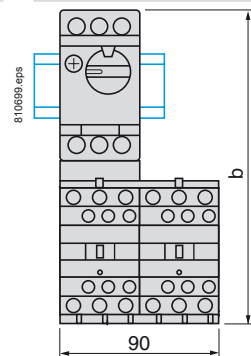
With adapter plate LAD 311



GV2 DP1●●●●●



GV2 DP2●●●●●

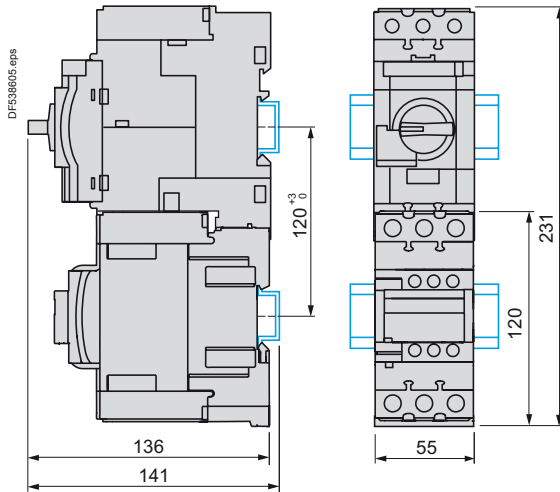


GV2	DP●02●● to DP●08●●	DP●10●● to DP●32●●
b	176.4	186.8
c	105.6	111.9
c1	100.1	106.4
d	100.5	100.5
d1	95	95

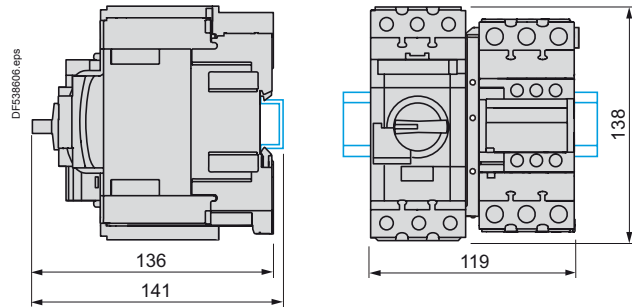
GV2	DP●02●● to DP●08●●	DP●10●● to DP●32●●
c	141.6	147.9
c1	136.5	142.4

GV3 P●●1 + LC1 D40A...D65A (for customer assembly)

Vertical mounting ⁽¹⁾

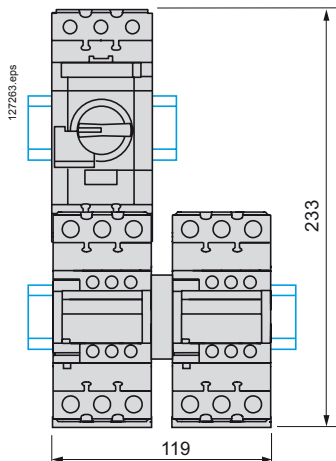


Side by side mounting with S-shape busbar system GV3 S ⁽²⁾

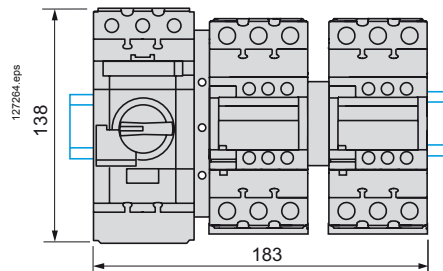


GV3 P●●1 + LC2 D40A...D65A (for customer assembly)

Vertical mounting ⁽¹⁾



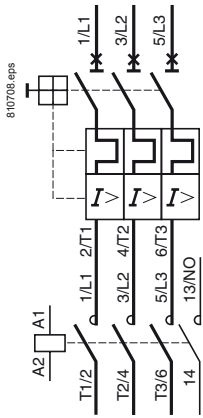
Side by side mounting with S-shape busbar system GV3 S ⁽²⁾



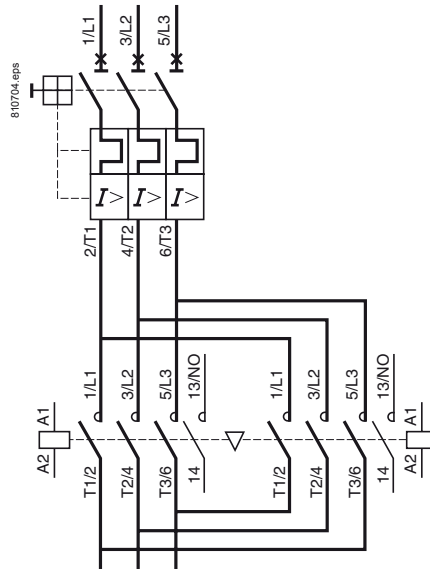
- ⁽¹⁾ For several side-by-side motor starters, the maximum current allowed is equal to the nominal current under 400 V.
Example: 55 A for a 30 kW motor under 400 V, for a GV3 P65 circuit breaker and a LC1 D65A contactor association.
- ⁽²⁾ The maximum current allowed is equal to 90 % of maximum current. Example: 45 A for a LC1 D50A contactor.

Direct-on-line and reversing

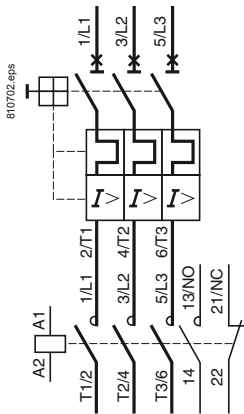
GV2 ME●●K1●●



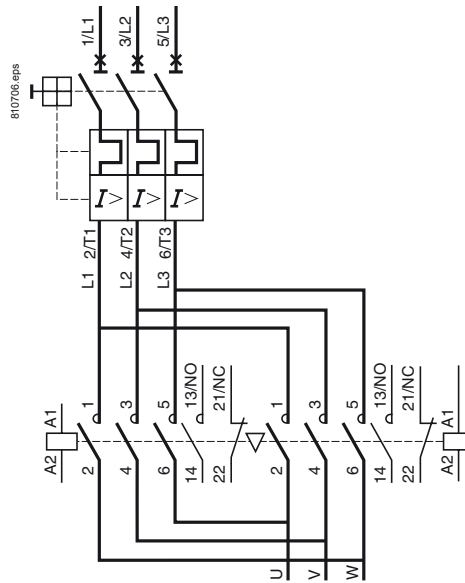
GV2 ME●●K2●●



GV2 DM1●●●●



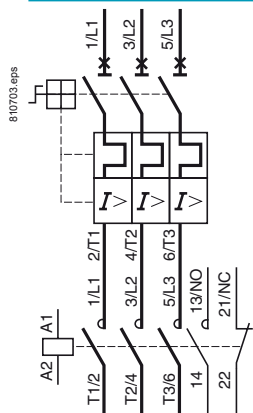
GV2 DM2●●●●



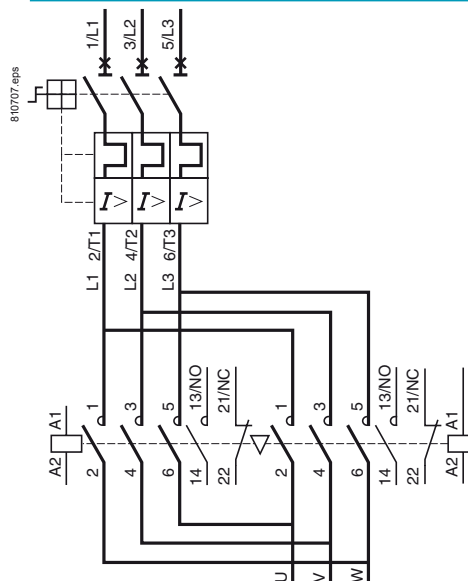
Open pre-cabled motor starters

Direct-on-line and reversing

GV2 DP1

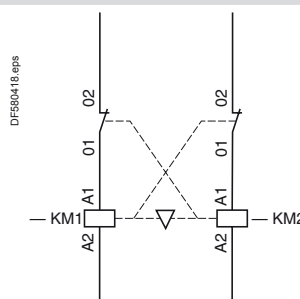
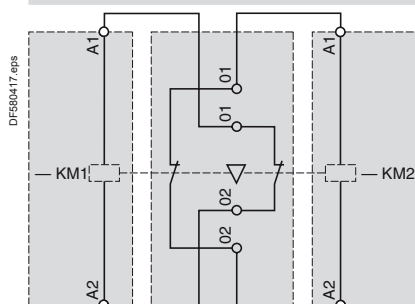


GV2 DP2

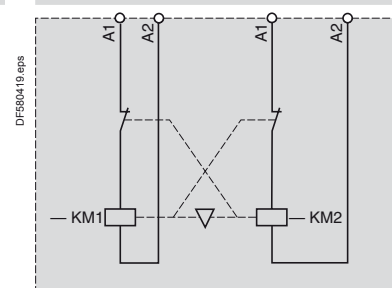


Mechanical interlock with integral electrical contacts

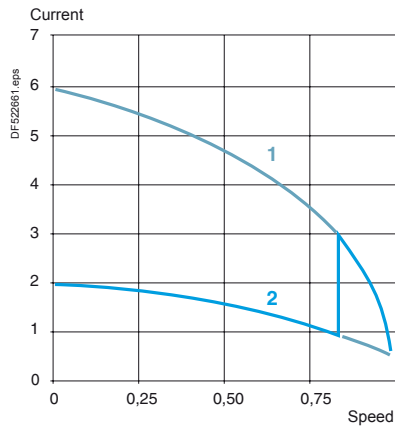
Control circuit ~



Control circuit ☐☐



Star-delta starting

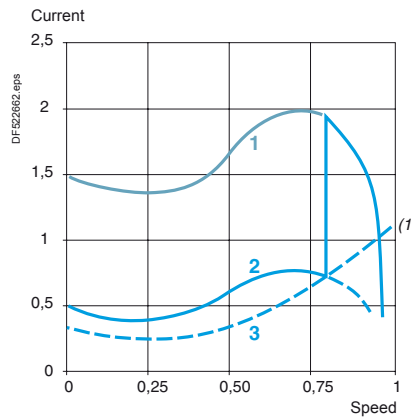


- 1 Starting in direct delta connection
- 2 Starting in star connection

This method of starting is applicable to motors on which all 6 stator terminals are accessible and whose delta connection voltage corresponds to the mains voltage.

Star-delta starting should be used for motors starting on no-load or having a low load torque and gradual build-up:

- the starting torque in star connection is reduced to one third of the direct starting torque, i.e. about 50 % of the rated torque.
- the starting current in star connection is about 1.8 to 2.6 times the rated current.



- 1 Starting in direct delta connection
- 2 Starting in star connection
- 3 Resistive torque of the machine

The transition from star to delta connection must occur when the machine has run up to speed. A too rapid build-up in load torque would cause the stabilised run-up speed to be too low and would therefore eliminate any advantage in this method of starting: this is the case with certain machines whose load torque depends on the machine speed (a characteristic of centrifugal machines, for example).

All star-delta starters are supplied with a special LAD S2 or LA2 KT2 time delay relay which imposes a delay on the delta contactor during the transition period in order to allow the star contactor sufficient breaking time.

For ratings D115 and D150, this function is performed by a time delay auxiliary contact block LAD T2 and a control relay.

(1) Motor manufacturers generally specify machine load torques.
Example: maximum resistive torque on completion of star-delta start (expressed as a proportion of the rated torque).

Star-delta

Dimensions

Star-delta starters

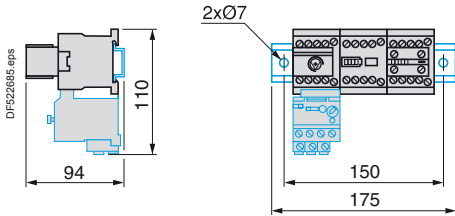
Plate mounted, pre-assembled

LC3 K

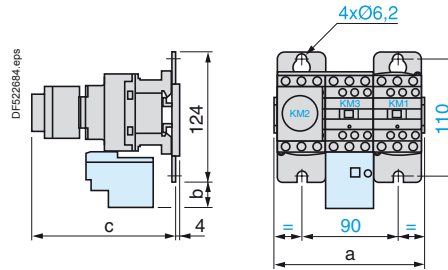
Pre-assembled:

LC3 D09A...D32A

For customer assembly: 3 x LC1 D with components D09 to D32



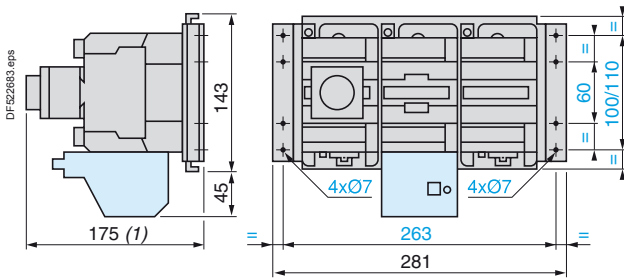
On starters LC3 D09A to D18A, a connection block is mounted on the upper part of contactor KM2, increasing the overall height of the product by 6.5 mm.



LC3	D09A	D12A	D18A	D32A
a	143	143	144	165
b	26.5	26.5	26.5	32.5
c	with LAD S	139	139	139
	with LAD S and sealing cover	143	143	149

Pre-assembled: LC3 D40, D50

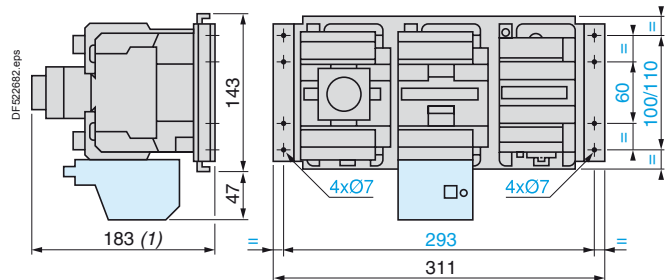
For customer assembly: 3 x LC1 D with components D09 or D50



(1) +4 mm with sealing cover

Pre-assembled: LC3 D80

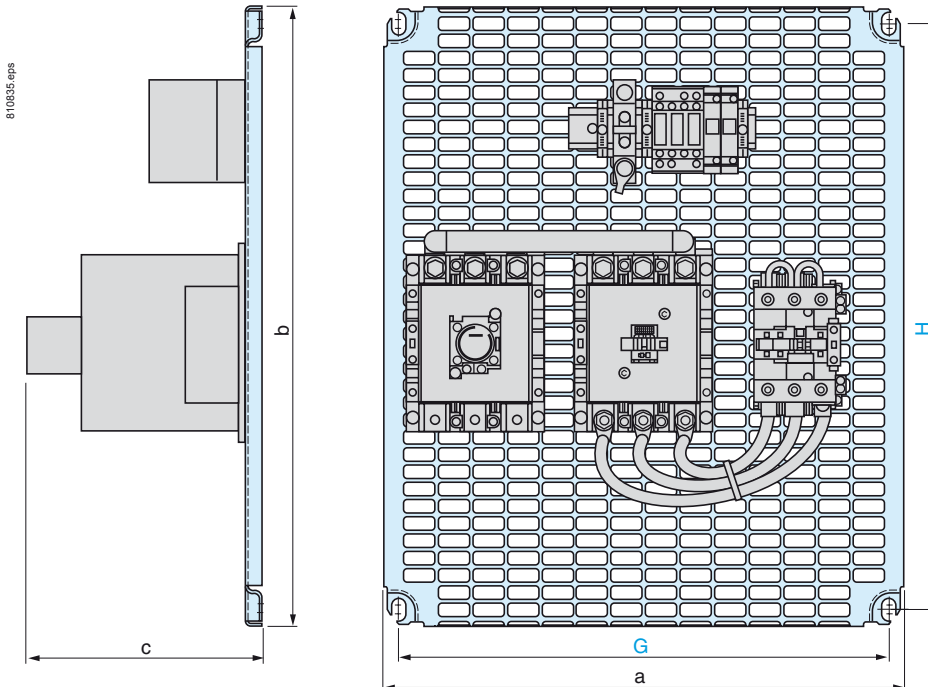
For customer assembly: 3 x LC1 D with components D80



(1) +4 mm with sealing cover

Pre-assembled: LC3 D115, D150

For customer assembly: 3 x LC1 D with components D115 or D150



		a	b	c	G	H
LC3 D115 or 3 x LC1 D with components	D115	450	555	205	425	525
LC3 D150 or 3 x LC1 D with components	D150	450	555	205	425	525

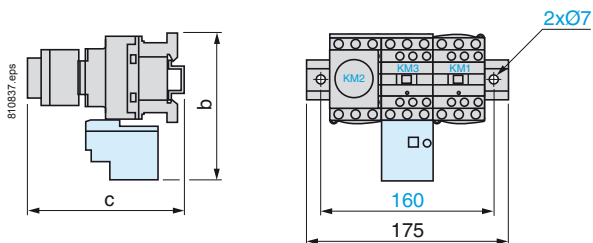
Star-delta

Dimensions

Star-delta starters

On mounting rail AM1 DP, pre-assembled

LC3 D090A à D320A



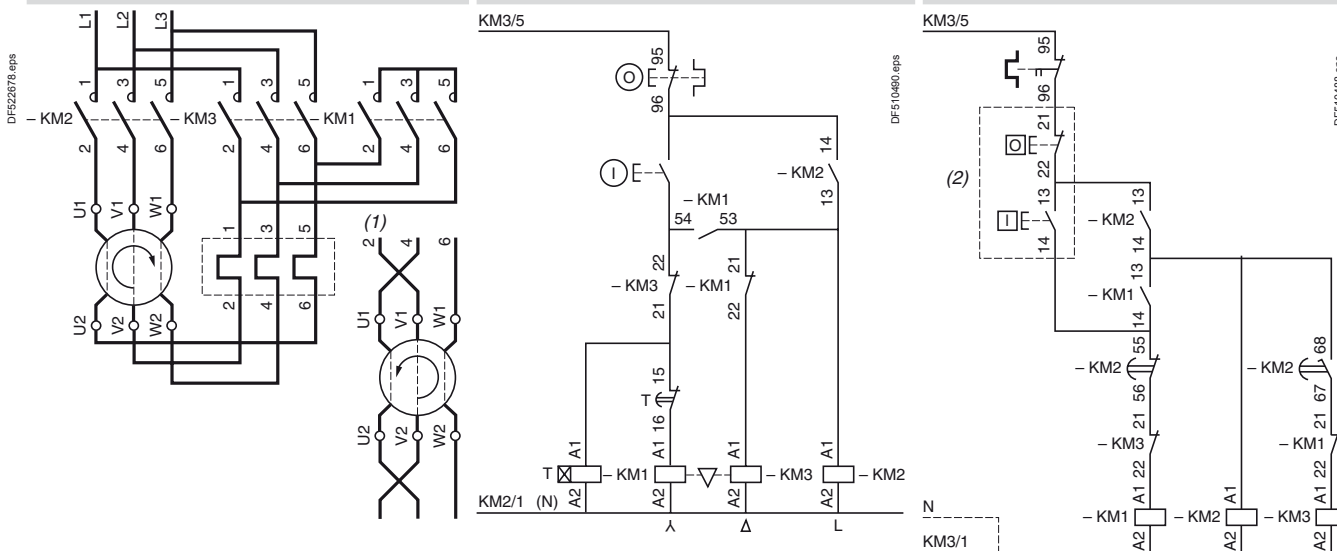
LC3	D090A à D180A	D320A
b	153	137
c	with LAD S 139	145
	with LAD S and sealing cover 143	149

Schemes

LC3 K, LC3 D09A to D80
LC3 D090A to D320A

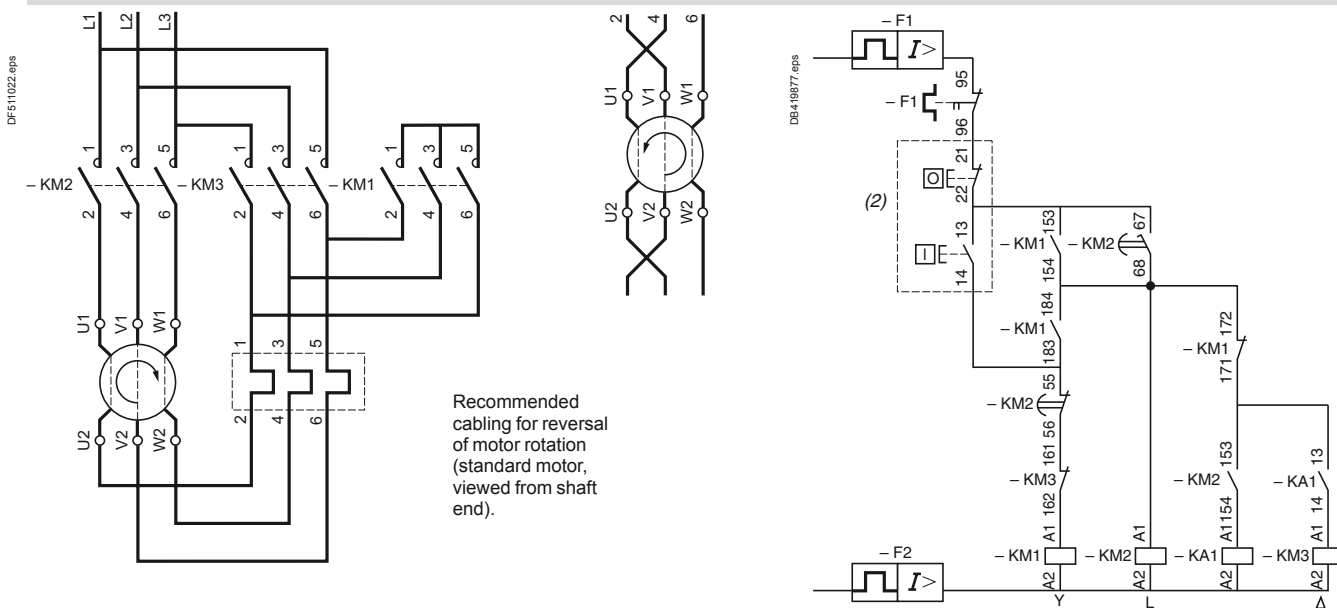
LC3 K

LC3 D



Note: LC3 D09A to D18A: Mechanical interlock between KM3 and KM1.

LC3 D115 and D150



(1) Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end).
(2) Remote control.

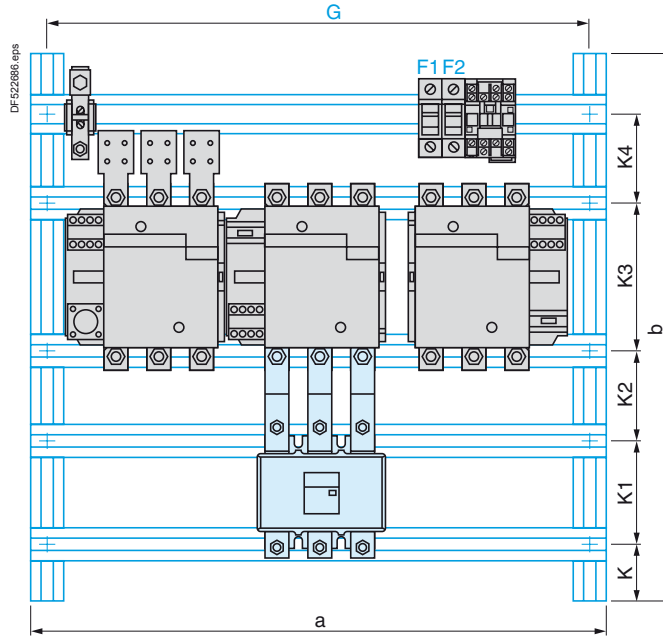
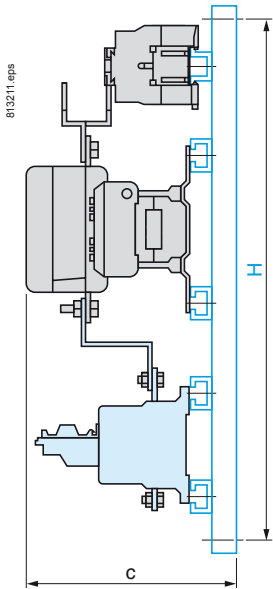
Star-delta

Dimensions

Chassis mounted starters

Pre-assembled: **LC3 F185 to LC3 F400**

For customer assembly: **2 x LC1 F●●● and 1 x LC1 D150 or 3 x LC1 F●●●**



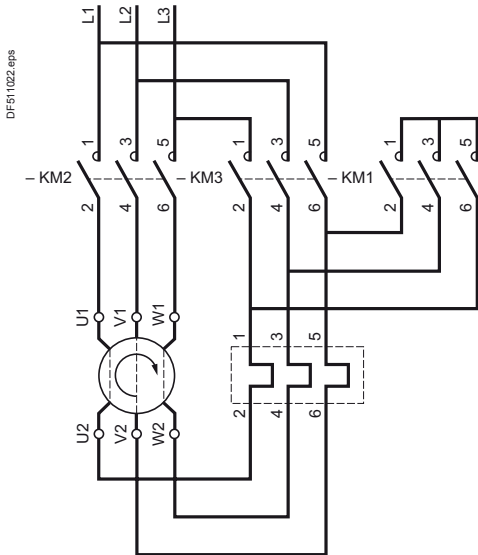
	a	b	c	G	H	K	K1	K2	K3	K4
LC3 F185 or 2 x LC1 F●●● + 1 x LC1 D with components F185	565	675	235	525	625	160	110	80	110	80
LC3 F225 or 3 x LC1 F●●● with components F225	565	675	235	525	625	160	110	80	110	80
LC3 F265 or 3 x LC1 F●●● with components F265	665	775	266	625	725	165	110	100	110	110
LC3 F330 or 3 x LC1 F●●● with components F330	765	975	276	725	825	195	140	100	110	180
LC3 F400 or 3 x LC1 F●●● with components F400	765	975	276	725	925	195	140	100	180	110

Star-delta

Schemes

Star-delta starters

LC3 F185 to F400



Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end).

