

**The simplicity of it! –
Tool-less plug connection
without tools!**

xStart



Using the new xStart motor-starter combinations it is possible to create the best solutions from standard products even more easily and efficiently. Moeller has optimised the DIL and PKZ standard products in such a way that, by using simple toolless plug connectors, they can be assembled to form reliable motor-starters. Without the need for tools! The MSC motor-starter combinations can also be supplied as complete devices. Costs for fitting and wiring can be considerably reduced in this way. Costs for testing are cut and errors are prevented from the start. Another advantage lies in increased safety during maintenance work where removal of the combination plug connector produces a visible isolating gap. This Moeller technology is available on our direct-on-line and reversing starters up to 15.5 A.



Simple and low-priced engineering

If coordination type "1" or coordination type "2": PKZM 0 and PKZM 4 motor-starter combinations with DIL M contactors master short-circuit currents from 50 kA to 35 kW/400 V. With a power of 5.5 kW/400 V even 100 kA is not a problem.

Depending on the combination of motor-protective circuit-breaker and contactor, a motor starter conform to coordination type "1" or coordination type "2" is the result. Thus, the most frequent applications are covered with just a few standard components. This provides added benefits in terms of stockkeeping.

Tested motor-starter combinations from Moeller – staying on the safe side.

Operational continuity with standard components

The IEC/EN 60947 and VDE 0660 standards differentiate between motor starters according to coordination type "1" and coordination type "2". The coordination types provide information about the behaviour of motor starters under short-circuit conditions. Both types safely shutdown the short-circuit. Motor starters to coordination type "1" are low-priced starters for standard applications. The standard allows damage to the starter with a short-circuit. In order to comply with the demands of coordination type "2", the motor starter must be capable of continued operation without replacing parts after shutting down a short-circuit. These motor starter types assure the highest level of operational continuity



Slim solutions: DOL starters from standard components

The new direct-on-line starters built from standard components are available in four slim frame sizes. The contactor and the protective switch are of the same compact width dimension. Thus you lose not a millimetre of control panel space. The convenient MSC motor-starters using toolless plug connection technology are available up to 15.5 A and require only a top-hat rail for mounting. The mechanical connector ensures a secure hold and the electrical connector provides optimum reliability and safety. Complete mounting connectors are offered for DOL and reversing starters from 17 up to 32 A. This prevents fitting errors and cuts down on wiring time.



Plug and go: reversing starters from standard components

The reversing starters offer distinct advantages to the assembler. Instead of laboriously having to tighten up 23 screws, a small number of components simply plug together. This of course speeds up fitting work, and means fewer errors and a very clearly laid out switching installation.






Easier installation and removal of individual motor starters

The switchgear interconnected with the three phase commoning links is generally snapped onto a mounting rail. If it is a motor starter, all motor-protective circuit-breakers and all contactors are snapped onto two mounting rails underneath one another, or onto a particularly useful mounting rail adapter. The result is an additional benefit where components can be easily removed from an interconnected group by offsetting the adapter mounting rail without having to disassemble the entire three phase commoning link.

Direct-on-line starter

Direct-on-line starter, 400/415 V

				Setting range		Motor starter	
	AC-3 380 V 400 V 415 V	Rated operation current 400 V	Rated short-circuit current 380 – 415 V	Overload release	short-circuit release	Actuating voltage Coordination type "1"	Actuating voltage Coordination type "2"
Complete units PKZ and DIL M	<i>P</i> kW	<i>I_e</i> A	<i>I_q</i> kA	<i>I_r</i> A	<i>I_{rm}</i> A	Part no.	Part no.
	0.06	0.21	150 (50) ¹	0.16 – 0.25	3.5	MSC-D-0,25-M7 (...)	MSC-D-0,25-M7 (...)
	0.09	0.31	150 (50) ¹	0.25 – 0.4	5.6	MSC-D-0,4-M7 (...)	MSC-D-0,4-M7 (...)
	0.12	0.41	150 (50) ¹	0.40 – 0.63	8.82	MSC-D-0,63-M7 (...)	MSC-D-0,63-M7 (...)
	0.18	0.6	150 (50) ¹	0.40 – 0.63	8.82	MSC-D-0,63-M7 (...)	MSC-D-0,63-M7 (...)
	0.25	0.8	150 (50) ¹	0.63 – 1	14	MSC-D-1-M7 (...)	MSC-D-1-M7 (...)
	0.37	1.1	150 (50) ¹	1.00 – 1.6	22.4	MSC-D-1,6-M7 (...)	MSC-D-1,6-M7 (...)
	0.55	1.5	150 (50) ¹	1.00 – 1.6	22.4	MSC-D-1,6-M7 (...)	MSC-D-1,6-M7 (...)
	0.75	1.9	150 (50) ¹	1.60 – 2.5	35	MSC-D-2,5-M7 (...)	MSC-D-2,5-M7 (...)
	1.1	2.6	150 (50) ¹	2.50 – 4	56	MSC-D-4-M7 (...)	MSC-D-4-M7 (...)
	1.5	3.6	150 (50) ¹	2.50 – 4	56	MSC-D-4-M7 (...)	MSC-D-4-M7 (...)
	2.2	5	150 (50) ¹	4.00 – 6.3	88.2	MSC-D-6,3-M7 (...)	MSC-D-6,3-M7 (...)
	3	6.6	150 (50) ¹	6.30 – 10	140	MSC-D-10-M7 (...)	MSC-D-10-M17 (...)
	4	8.5	150 (50) ¹	6.30 – 10	140	MSC-D-10-M9 (...)	MSC-D-10-M17 (...)
	5.5	11.3	50	8 – 12	168	MSC-D-12-M12 (...)	MSC-D-12-M17 (...)
	7.5	16 (15.5) ²	50	10 - 16	224	MSC-D-16-M15(...)	MSC-D-16-M17(...)
11	21.7	50	20 – 25	350	MSC-D-25-M25 (...)	MSC-D-25-M25 (...)	
15	29.3	50	25 – 32	448	MSC-D-32-M32 (...)	MSC-D-32-M32 (...)	
Components PKZ and DIL M  	5.5	11.3	50	10 - 16	224	-	-
	7.5	16	50	10 - 16	224	-	-
	11	21.7	50	20 - 25	350	-	-
	15	29.3	50	25 - 32	448	-	-
	18.5	36	50	32 - 40	560	-	-
	22	41	50	40 - 50	700	-	-
	30	55	50	50 - 58	812	-	-
34	63	50	55 - 65	910	-	-	

¹ For coordination type "2"

² If DILM15-... is used

Motor protective circuit-breaker	Coordination type "1"		Coordination type "2"	
	Contactor	DOL starter Set Mechanical connection element + Electrical contact element	Contactor	DOL starter Set Mechanical connection element + Electrical contact element
Part no.	Part no.	Part no.	Part no.	Part no.
PKZM0-0,25	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-0,4	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-0,63	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-0,63	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-1	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-1,6	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-1,6	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-2,5	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-4	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-4	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-6,3	DILM7-..	PKZM0-XD M12	DILM7-..	PKZM0-XD M12
PKZM0-10	DILM7-..	PKZM0-XD M12	DILM17-..	PKZM0-XD M32
PKZM0-10	DILM9-..	PKZM0-XD M12	DILM17-..	PKZM0-XD M32
PKZM0-12	DILM12-..	PKZM0-XD M12	DILM17-..	PKZM0-XD M32
PKZM0-16	DILM15-..	PKZM0-XD M12	DILM17-..	PKZM0-XD M32
PKZM0-25	DILM25-..	PKZM0-XD M32	DILM25-..	PKZM0-XD M32
PKZM0-32	DILM32-..	PKZM0-XD M32	DILM32-..	PKZM0-XD M32
PKZM4-16	DILM17-..	-	DILM17-..	-
PKZM4-16	DILM17-..	-	DILM17-..	-
PKZM4-25	DILM25-..	-	DILM25-..	-
PKZM4-32	DILM32-..	-	DILM32-..	-
PKZM4-40	DILM40	-	DILM40	-
PKZM4-50	DILM50	-	DILM50	-
PKZM4-58	DILM65	-	DILM65	-
PKZM4-63	DILM65	-	DILM65	-

Notes

The direct-on-line starters (complete units) consist of a motor-protective circuit-breaker PKZM 0 and a contactor DIL M.

Up to 15.5 A, starters are mounted without adapter plates, with only the motor-protective circuit-breaker being secured to the top-hat rail. The contactors receive their mechanical hold via a mechanical connection module.

From 16 A, motor-protective circuit-breakers and contactors are mounted on top-hat-rail adapter plates.

The connection of the main contacts between PKZ and contactor is effected via an electrical contact module.



Moeller provides a PC-based electronic selection program for motor starters in addition to the comprehensive selection page in the Moeller main catalogue. This program considers various operating voltages, short-circuit ratings and co-ordination types, as well as fuseless and fused combinations. This small program is available from Moeller free of charge on the Internet. Moeller has provided the practically-minded with a carton selection slider for a number of years.



www.moeller.net/select

Type F Combined Motor Controller for North America



Type F Combination Starter

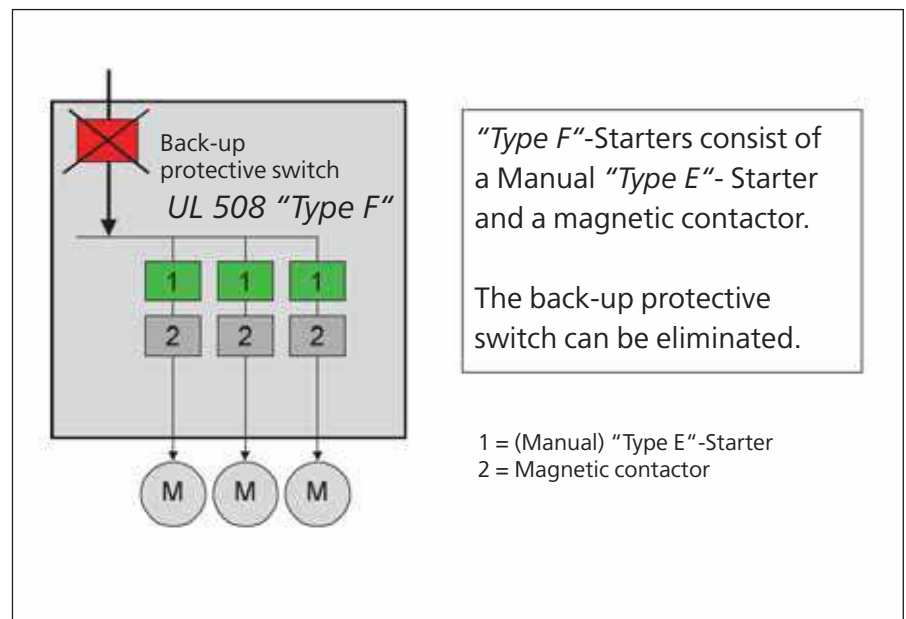
UL has now officially introduced in the *UL 508* standard the latest category of combination motor starters: a "Type F Combination Motor Controller". A Type F combination controller consists simply of a Manual self-protected "Type E" combination motor controller (e.g. a *PKZM0-...* equipped with the large clearance terminal block *BK25-...-E*) combined with a standard magnetic contactor (controller). "Type F Combination Motor Starters" also eliminate the need for a backup overcurrent protective device. All such combinations must be submitted by the manufacturer for UL listing and CSA certification. Moeller already has in submittal to UL a number of Type F combination starters covering a wide range of HP ratings. It is also worth noting that all currently available "Type F"-Starters, like "Type E"-Starters, are only suitable for solidly grounded 4 wire, wye-type supply networks (e.g. 480Y/277 V). "Type F"- combination Starters are only possible in the US at this time, because the CSA standard has not yet officially adopted it.

A straight-forward modular assembly set-up system, in which the manufacturer or the independent panel builder can put together UL listed and CSA certified components and self-certify or label the

resulting starter or assembly, does not exist as such in North America. It is possible, however, to have a UL listed or CSA certified panel shop and assemble combinations that are covered by a procedure or file. It is strongly recommended, therefore, for such an assembly workshop or panel builder in the market to build or engineer similar combinations and assemblies, to work closely with the manufacturer for the latest approval updates and component

rating information, since there are always ongoing design improvements being developed which could represent significant technological and economical advantages to their business.

It is generally acknowledged that the approval process can be both a time and cost intensive endeavor which can often unduly delay the introduction of new products and technology into the market place. This not only puts the component manufacturer at a disadvantage but can also be detrimental to the panel builder and end-user, since the introduction of certain design innovations could translate into significant improvements for their business. Because of the very high export quota of European machinery and panel builders it is also neither practical nor feasible for a manufacturer to introduce and establish new products and technologies that have not yet been approved per North American standards, even when a significant portion of this equipment is destined for the domestic EU market and would manual rating remain in Europe. The approval process also practically rules out customized assembly designs that would combine products from different manufacturers. These mixed combinations are also not usual in the IEC world because the manufacturer is solely able to verify the






"Type F Combination Motor Starters" fulfill all 4 functions of a combination motor starter per *UL 508*. The back-up protective switch can be eliminated.

Type F Combined motor controller (CMC) for North America															
Maximum motor rating Three-phase current HP				Setting ranges		Rated short-circuit breaking capacity									
200 V	230 V	460 V	575 V	Overload release	Short- circuit release	230 V	460 V	575 V	Incoming terminal	Manual motor protector (MMP)	Contactor				
HP	HP	HP	HP	A	A	kA	kA	kA	Part no.	Part no.	Part no.				
0.5 1 1.5 3 3 3 5 5 7.5	0.5 1 1.5 3 3 5 5 7.5 10	0.5 0.75 1	0.5 1 1.5	0.16 – 0.25	3.4	50	50	50	BK25/3-PKZ0-E	PKZM0-0,25	DILM7				
				0.25 – 0.4	5.6	50	50	50	BK25/3-PKZ0-E	PKZM0-0,4	DILM7				
				0.4 – 0.63	8.8	50	50	50	BK25/3-PKZ0-E	PKZM0-0,63	DILM7				
		3 3 3 5 5 7.5	7.5 10 10 10 15 20	0.5 1 1.5	0.5 1 1.5	0.63 – 1	14	50	50	50	BK25/3-PKZ0-E	PKZM0-1	DILM7		
						1 – 1.6	22	50	50	50	BK25/3-PKZ0-E	PKZM0-1,6	DILM7		
						1.6 – 2.5	35	50	50	50	BK25/3-PKZ0-E	PKZM0-2,5	DILM7		
				3 3 3 5 5 7.5	7.5 10 10 10 15 20	–	–	2.5 – 4	56	50	50	50	BK25/3-PKZ0-E	PKZM0-4	DILM7
								4 – 6.3	88	50	50	50	BK25/3-PKZ0-E	PKZM0-6,3	DILM7
								6.3 – 11	140	50	50	50	BK25/3-PKZ0-E	PKZM0-10	DILM9
				3 3 3 5 5 7.5	7.5 10 10 10 15 20	–	–	6.3 – 11	168	50	50	50	BK25/3-PKZ0-E	PKZM0-12	DILM12
								10 – 16	224	18	18	–	BK25/3-PKZ0-E	PKZM0-16	DILM17
								16 – 20	280	18	18	–	BK25/3-PKZ0-E	PKZM0-20	DILM25
3 7.5 10 10	5 7.5 10 10	10 20 25 30	– – – –	20 – 25	350	18	18	–	BK25/3-PKZ0-E	PKZM0-25	DILM25				
				25 – 32	448	18	18	–	BK25/3-PKZ0-E	PKZM0-32	DILM32				
				32 – 40	560	50	50	–	BK50/3-PKZ4-E	PKZM4-16	DILM17				
7.5 10 10	7.5 10 10	20 25 30	– – –	20 – 25	350	50	50	–	BK50/3-PKZ4-E	PKZM4-25	DILM25				
				25 – 32	448	50	50	–	BK50/3-PKZ4-E	PKZM4-32	DILM32				
				32 – 40	560	50	50	–	BK50/3-PKZ4-E	PKZM4-40	DILM40				

electrical coordination and performance of components of his own make, particularly with respect to short circuit testing and determination of proper overcurrent coordination performance levels. The European "Declarations of Conformity" must, by definition, also be current because they are essentially verifying to the user that a particular combination of products and assemblies reflects actual on going production quality levels which were in place at the time the "Declaration of Conformity" was issued. Practically speaking, manufacturers which would combine products of different makes to produce starters and assemblies would not be able to keep up with on going changes in competitive products, which could be significant in view of the consequences it may have on short circuit coordination values and component performance levels.

Reversing starter

Reversing starter 400/415 V								
				Setting range		Motor starter		
	AC-3 380 V 400 V 415 V	Rated opera- tional current 400 V	Rated short- circuit current 380 – 415 V	Overload release	Short-circuit release	Actuating voltage Coordination type "1"	Actuating voltage Coordination type "2"	
Complete units PKZ and DIL M	<i>P</i> kW	<i>I_e</i> A	<i>I_q</i> kA	<i>I_r</i> A	<i>I_{rm}</i> A	Part no.	Part no.	
	0.06	0.21	150 (50) ¹	0.16 – 0.25	3.5	MSC-R-0,25-M7 (...)	MSC-R-0,25-M7 (...)	
	0.09	0.31	150 (50) ¹	0.25 – 0.4	5.6	MSC-R-0,4-M7 (...)	MSC-R-0,4-M7 (...)	
	0.12	0.41	150 (50) ¹	0.40 – 0.63	8.82	MSC-R-0,63-M7 (...)	MSC-R-0,63-M7 (...)	
	0.18	0.6	150 (50) ¹	0.40 – 0.63	8.82	MSC-R-0,63-M7 (...)	MSC-R-0,63-M7 (...)	
	0.25	0.8	150 (50) ¹	0.63 – 1	14	MSC-R-1-M7 (...)	MSC-R-1-M7 (...)	
	0.37	1.1	150 (50) ¹	1.00 – 1.6	22.4	MSC-R-1,6-M7 (...)	MSC-R-1,6-M7 (...)	
	0.55	1.5	150 (50) ¹	1.00 – 1.6	22.4	MSC-R-1,6-M7 (...)	MSC-R-1,6-M7 (...)	
	0.75	1.9	150 (50) ¹	1.60 – 2.5	35	MSC-R-2,5-M7 (...)	MSC-R-2,5-M7 (...)	
	1.1	2.6	150 (50) ¹	2.50 – 4	56	MSC-R-4-M7 (...)	MSC-R-4-M7 (...)	
	1.5	3.6	150 (50) ¹	2.50 – 4	56	MSC-R-4-M7 (...)	MSC-R-4-M7 (...)	
	2.2	5	150 (50) ¹	4.00 – 6.3	88.2	MSC-R-6,3-M7 (...)	MSC-R-6,3-M7 (...)	
	3	6.6	150 (50) ¹	6.30 – 10	140	MSC-R-10-M7 (...)	MSC-R-10-M17 (...)	
	4	8.5	150 (50) ¹	6.30 – 10	140	MSC-R-10-M9 (...)	MSC-R-10-M17 (...)	
	5.5	11.3	50	8 – 12	168	MSC-R-12-M12 (...)	MSC-R-12-M17 (...)	
	7.5	16	50	10 - 16	224	MSC-R-16-M17(...)	MSC-R-16-M17(...)	
11	21.7	50	20 – 25	350	MSC-R-25-M25 (...)	MSC-R-25-M25 (...)		
15	29.3	50	25 – 32	448	MSC-R-32-M32 (...)	MSC-R-32-M32 (...)		
Components PKZ and DIL M  	5.5	11.3	50	10 - 16	224	-	-	
	7.5	16	50	10 - 16	224	-	-	
	11	21.7	50	20 - 25	350	-	-	
	15	29.3	50	25 - 32	448	-	-	
	18.5	36	50	32 - 40	560	-	-	
	22	41	50	40 - 50	700	-	-	
	30	55	50	50 - 58	812	-	-	
34	63	50	55 - 65	910	-	-		

¹ For coordination type "2"

Motor protective circuit-breaker	Coordination type "1"			Coordination type "2"	
	Contactor	Reversing starter set Mechanical connection element + Electrical contact element		Contactor	Reversing starter set Mechanical connection element + Electrical contact element
Part no.	Part no.	Part no.	Part no.	Part no.	Part no.
PKZM0-0,25	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-0,4	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-0,63	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-0,63	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-1	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-1,6	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-1,6	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-2,5	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-4	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-4	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-6,3	2x DILM7-01	PKZM0-XR M12	2x DILM7-01	PKZM0-XR M12	PKZM0-XR M12
PKZM0-10	2x DILM7-01	PKZM0-XR M12	2x DILM17-01	PKZM0-XR M32	PKZM0-XR M32
PKZM0-10	2x DILM9-01	PKZM0-XR M12	2x DILM17-01	PKZM0-XR M32	PKZM0-XR M32
PKZM0-12	2x DILM12-01	PKZM0-XR M12	2x DILM17-01	PKZM0-XR M32	PKZM0-XR M32
PKZM0-16	2x DILM17-01	PKZM0-XR M32	2x DILM17-01	PKZM0-XR M32	PKZM0-XR M32
PKZM0-25	2x DILM25-01	PKZM0-XR M32	2x DILM25-01	PKZM0-XR M32	PKZM0-XR M32
PKZM0-32	2x DILM32-01	PKZM0-XR M32	2x DILM32-01	PKZM0-XR M32	PKZM0-XR M32
PKZM4-16	2x DILM17-..	-	2x DILM17-..	-	-
PKZM4-16	2x DILM17-..	-	2x DILM17-..	-	-
PKZM4-25	2x DILM25-..	-	2x DILM25-..	-	-
PKZM4-32	2x DILM32-..	-	2x DILM32-..	-	-
PKZM4-40	2x DILM40	-	2x DILM40	-	-
PKZM4-50	2x DILM50	-	2x DILM50	-	-
PKZM4-58	2x DILM65	-	2x DILM65	-	-
PKZM4-63	2x DILM65	-	2x DILM65	-	-

Notes

The reversing starters (complete units) consist of a motor-protective circuit-breaker PKZM 0 and two contactors DIL M. Up to 12 A, starters are mounted without adapter plates, with only the motor-protective circuit-breaker being secured to the top-hat rail. The contactors receive their mechanical hold via a mechanical connection module.

From 16 A, motor-protective circuit-breakers and contactors are mounted on top-hat-rail adapter plates.

The connection of the main contacts between PKZ and contactor is effected via an electrical contact module.

Complete units with mechanical interlock, starters up to 12 A also with electrical interlock.

PKZM 0 accessories

PKZM 0 motor-protective circuit-breaker accessories			
	For use with		Application note
		Part no.	The set consists of
Wiring set DOL starter	PKZM0+DILM7 PKZM0+DILM9 PKZM0+DILM12 PKZM0+DILM15	PKZM0-XDM12	Mechanical connection module for PKZM 0 and contactor Main current wiring between PKZM 0 and contactor in tool-less plug connection
	PKZM0+DILM17 PKZM0+DILM25 PKZM0+DILM32	PKZM0-XDM32	Mounting rail adapter plate Main current wiring between PKZM 0 and contactor
	PKZM4+DILM40 PKZM4+DILM50 PKZM4+DILM65	PKZM4-XDM65	Mounting rail adapter plate Main current wiring between PKZM 4 and contactor
Wiring set reversing starter	PKZM0+DILM7-01 PKZM0+DILM9-01 PKZM0+DILM12-01	PKZM0-XRM12	Mechanical connection module for PKZM 0 and contactor Main current wiring between reversing starters in tool-less plug connection Control cable in tool-less plug connection
	PKZM0+DILM17-01 PKZM0+DILM25-01 PKZM0+DILM32-01	PKZM0-XRM32	Mounting rail adapter plate Reversing starter main current wiring
Wiring set star-delta starter	PKZM0+DILM7 PKZM0+DILM9 PKZM0+DILM12	PKZM0-XSM12	Mechanical connection module for PKZM 0 and contactor Star-delta starter in tool-less plug connection main current wiring Control cable in tool-less plug connection Mounting rail adapter plate
	PKZM0+DILM17-01 PKZM0+DILM25-01 PKZM0+DILM32-01	PKZM0-XSM32	Mounting rail adapter plate Star-delta starter main current wiring
Electrical contact module for main current wiring	PKZM0+DILM17 PKZM0+DILM25 PKZM0+DILM32	PKZM0-XM32DE	For electrical connection of the main current contacts between PKZM 0 and DIL M17..M25..M32 contactors only for use in conjunction with busbar adapter or mounting rail adapter plate
	PKZM4+DILM40 PKZM4+DILM50 PKZM4+DILM65	PKZM4-XM65DE	For electrical connection of the main current contacts between PKZM 4 and DIL M40..M50..M65 contactors only for use in conjunction with busbar adapter or mounting rail adapter plate
Mounting rail adapter plate	PKZM0-XDM12 PKZM0-XRM12	PKZM0-XC45	Consisting of: 45 mm wide adapter plate Connection nose for alignment of further plates
		PKZM4-XC55	Consisting of: 55 mm wide adapter plate Connection nose for alignment of further plates Reversing starter design with DIL M40..M50..M65 contactors 1x PKZM 4-XDM65 + 1x PKZM 0-XC55 adapter plate + 1x DIL M65-XRL Star-delta starter design with DIL M40..M50..M65 contactors 1x PKZM 4-XDM65 + 2x PKZM 0-XC55 adapter plates + 1 x DIL M65-XSL
Side module		PKZM0-XS	Can be grouped on PKZM 0-XC45 mounting rail adapter plate and PKZM 0-XC55 for extendibility by 9 mm
Connection element		PKZM0-XCM	Connection nose for alignment of multiple mounting rail adapter plates PKZM 0-XC45 and PKZM 0-XC55

New busbar adapters (not only) for motor-starter combinations

xStart



The new busbar adapters from Moeller represent an ideal extension of the xStart system. Their standard-compliant dimensions ensure that they fit on all 60 mm busbar systems from all leading manufacturers world-wide. Their UL/CSA approvals assures that they are approved both for the European and North American/Canadian markets. A 100% compatibility of the busbar adapter, e.g. to the system accessories of Wöhner the busbar manufacturer is thus provided. The new busbar adapter offers several improvements. They support the adapters of starter combinations, which have been combined with the tool-less plug connection from the xStart system. The busbar adapters are available both as individual devices as well as completed devices with motor starters. This saves the customer time and money and provides a complete solution which can be used immediately in his busbar system.

Busbar adapter

for all 60 mm busbar systems



Busbar adapter, 3-pole¹

Version	Rated operational voltage U_e V	Rated operational current I_e A	Cable cross-section	Adapter width mm	Adapter-length mm	Support rail	For use with:	Designation	Notes Electrical connections
Busbar adapter 25 A 	690	25	AWG 12 (4 mm ²)	45	200	1	PKZM0+ Contactor DILM7 Contactor DILM9 Contactor DILM12 Contactor DILM15 MSC-D-0,25-M7... : MSC-D-16-M15...	BBA0-25	Set direct starter <i>PKZM0-XDM12</i>
	690	25	AWG 12 (4 mm ²)	90	200	1	PKZM0+ 2 x Contactor DILM7-01 2 x Contactor DILM9-01 2 x Contactor DILM12-01 MSC-R-0,25-M7... : MSC-R-12-M12...	BBA0R-25	Set reversing starter <i>PKZM0-XRM12</i>
Busbar adapter 32 A 	690	32	AWG 10 (6 mm ²)	45	200	2	PKZM0+ Contactor DILM17 Contactor DILM25 Contactor DILM32 MSC-D-16-M17... : MSC-D-32-M32...	BBA0-32	Electrical contact module <i>PKZM0-XM32 DE</i>
	690	32	AWG 10 (6 mm ²)	90	200	3	PKZM0+ 2 x Contactor DILM17-01 2 x Contactor DILM25-01 2 x Contactor DILM32-01 MSC-R-16-M17... : MSC-R-32-M32...	BBA0R-32	Electrical contact module <i>PKZM0-XM32 DE</i> Reverse wiring set <i>DILM32-XRL</i>
Busbar adapter 63 A 	690	63	AWG 8 (10 mm ²)	72	260	2	PKZ2+ Contactor DILM7 Contactor DILM9 Contactor DILM12 Contactor DILM17 Contactor DILM25 Contactor DILM32 Contactor DILM40	BBA2L-63	Electrical connector for <i>PKZ2 + DILM7...12:</i> <i>MVS-LB0-00M-G</i> <i>PKZ2 + DILM17...32:</i> <i>MVS-LB0-0M-G</i>
	690	63	AWG 8 (10 mm ²)	72	200	1	PKZ2	BBA2-63	
	690	63	AWG 8 (10 mm ²)	55	260	2	PKZM4+ Contactor DILM17 Contactor DILM25 Contactor DILM32 Contactor DILM40 Contactor DILM50 Contactor DILM65	BBA4L-63	Electrical connector for <i>PKZM4+DILM17...32:</i> <i>MVS-LB0-0M-G</i> <i>PKZM4+DILM40...65:</i> <i>PKZM4-XM65 DE</i>
	690	63	AWG 8 (10 mm ²)	55	200	1	PKZM4	BBA4-63	
Side module	–	–	–	9	200	–		BBA-XSM	Can be attached to both sides of the BBA, for extension of the width

¹ Can be used on all busbars in a 60 mm system. Suitable for double T and triple T profiles using a combined adapter for 5 and 10 mm busbar thicknesses.

Busbar adapter

for all 60 mm busbar systems



Busbar adapter, 3-pole¹

Version	Rated operational voltage U_e V	Rated operational current I_e A	Cable cross-section	Adapter width mm	Adapter length mm	Support rail	For use with:	Designation	Notes Electrical connections
Busbar adapter 16 A, for springloaded terminals 	690	16	AWG 14 (2.5 mm ²)	45	200	2	PKZM0...C+ Contactor DILM7 Contactor DILM9 Contactor DILM12 Contactor DILM15	BBA0C-16	For PKZM0C... with springloaded terminals
	690	16	AWG 14 (2.5 mm ²)	90	200	3	PKZM0...C+ 2 x Contactor DILM7-01 2 x Contactor DILM9-01 2 x Contactor DILM12-01	BBA0RC-16	For PKZM0C... with springloaded terminals
Busbar adapter 25 A, universal 	690	25	AWG 12 (4 mm ²)	45	200	2	Mounting rail can be offset on 1.25 mm grid	BBA0-25/2TS	
Busbar adapter 63 A, universal empty module 	–	–	–	45	200	2	Mounting rail can be offset on 1.25 mm grid	BBA0/2TS-L	without electrical contacts as an extension of BBA... for installation of e.g. reversing starters
	–	–	–	54	260	2	Mounting rail can be offset on 1.25 mm grid	BBA4/2TS-L	without electrical contacts as an extension of BBA... for installation of e.g. reversing starters
Busbar adapter 160 A 	690	160	6 x 9 x 0.8	90	200	–	NZM1 PN1 N1 NS1	NZM1-XAD160	For switch with standard box terminal connection, connection to system top by supplied connection cable
Busbar adapter 250 A 	690	250	–	106	190	–	NZM2 PN2 N2 NS2	NZM2-XAD250	Connection to system optionally at top or bottom by rear side connection (+)NZM2-XXR4...
Busbar adapter 550 A 	690	550	–	140	270	–	NZM3 PN3 N3	NZM3-XAD550	Connection to system top by rear side connection (+)NZM3-XXR13

¹ Can be used on all busbars in a 60 mm system. Suitable for double T and triple T profiles using a combined adapter for 5 and 10 mm busbar thicknesses.