

## Magnetic Starters Ordering Information

**At Moeller Electric, everything starts with quality and service.**

Moeller Electric's line of heavy duty starters are designed to withstand the most severe applications. They are built to meet your requirements, whether for installation across the street or across the ocean. Whatever the application, nearby Moeller Electric technical experts stand ready to help you select the right combination of components for the job.

The following pages list the most popular starter types and accessories. If you require a modification that you do not see here, just give us a call and we will be pleased to discuss your needs.

**For quality starters and quick delivery, there is no better place to start looking than Moeller Electric.**

### Selecting and completing the type number

Type numbers provide full, and in some cases, coded descriptions, of the standard devices to which they apply. The most frequently used starter type numbers are explained as follows:

#### Key to completion of type number

Starter type	Frame size	Auxiliary contacts	Overload relay	Enclosure	Coil voltage
<ul style="list-style-type: none"> <li>- <b>DIL</b> = Non-reversing</li> <li>- <b>DIUL</b> = Reversing</li> <li>- <b>M</b> = Combination</li> <li>- <b>MW</b> = Combination Reversing</li> <li>- <b>2S</b> = Two Speed</li> <li>- <b>AT</b> = Autotransformer</li> <li>- <b>SD</b> = Star Delta</li> <li>- <b>PW</b> = Part Winding</li> </ul>	<ul style="list-style-type: none"> <li>⌊ DIL contactors are available in a variety of sizes to match the motor being started</li> </ul>	<ul style="list-style-type: none"> <li>- <b>10</b> = 1 N.O. - 0 N.C.</li> <li>- <b>11</b> = 1 N.O. - 1 N.C.</li> <li>- <b>20</b> = 2 N.O. - 0 N.C.</li> <li>- <b>22</b> = 2 N.O. - 2 N.C.</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Z00</b>... complete the part number by adding</li> <li>- <b>Z1</b>... suffix code from the</li> <li>- <b>Z5</b>... table on the opposite page. In order to do this, find out the motor full load current and select the overload range accordingly. The overload relay is calibrated for long time tripping at 125% of the dial setting and, therefore, for motors with a service factor of 1.15 or greater, use the motor nameplate full load current to select the dial setting. For motors with a service factor of less than 1.15, multiply the motor nameplate full load current by 0.9 and use the resulting value to set the overload relay dial.</li> <li>- <b>ZEV</b></li> </ul>	<ul style="list-style-type: none"> <li>- <b>/S</b> = General Purpose, Type 1</li> <li>- <b>/SD</b> = Dust and Drip Resistant, Type 12</li> <li>- <b>/DW</b> = Outdoor Use, Type 3R</li> <li>- <b>/I</b> = Corrosion-resistant, Type 12, 13, Indoor 4X</li> <li>- <b>no suffix</b> = open type (no enclosure)</li> </ul>	<ul style="list-style-type: none"> <li>⌊ Standard coil voltage is 120V 60Hz. Other coil voltages in the range of 12V DC to 480V AC can be provided. Select required coil voltage from page 03/065</li> </ul>

To order a magnetic starter, specify the following:

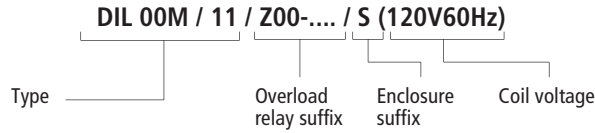
- Type number, consisting of starter type, frame size and auxiliary contacts
- Overload relay suffix (see selection table on the opposite page)
- Enclosure suffix
- Coil voltage
- Accessories

# Magnetic Starters

## Ordering Information

### Ordering Example

Required is a full voltage, non-reversing, non-combination starter in a general purpose Type 1 enclosure and with a coil voltage of 120V 60Hz for a 10 HP motor at 460V AC, 3-phase.



**Type**

- DIL** Non-reversing, across-the-line starter
- 0M** Contactor frame size (10 HP @ 460V AC, 3-phase).  
Accessories are chosen according to contactor frame size.
- /11** Auxiliary contacts: 1 N.O., 1 N.C.
- /Z00-** Type Z00 overload relay (motor current setting range suffix must be added)

**Overload relay suffix**

- Z00-** This part requires completion by adding a suffix code from the table below  
For the 10 HP motor @ 460V AC, 3-phase, the motor full load current is 14 (if possible, actual nameplate rating should be used).  
Select the appropriate overload setting range within the Z00- type listing below that includes the 14A motor FLC. This is **Z00-16** with an adjustable range of 10 to 16A. The suffix to be inserted into the starter catalog number is the maximum of the setting range, in this case **16**.

**Enclosure Suffix**

- /S** General purpose indoor, Type 1 (as shown on previous page)

**Coil voltage**

- 120V 60Hz** Select the required coil voltage from the list shown on page 03/065 and 066.

### Overload relay selection table

Adjustable setting range	Type	Suffix code	Adjustable setting range	Type	Suffix code	Adjustable setting range	Type	Suffix code
0.1 - 0.16	Z00-	<b>0.16</b>	6 - 10	Z1-	<b>10</b>	50 - 70	Z5-	<b>70/FF250</b>
0.16 - 0.24	Z00-	<b>0.24</b>	10 - 16	Z1-	<b>16</b>	70 - 100	Z5-	<b>100/FF250</b>
0.24 - 0.4	Z00-	<b>0.4</b>	16 - 24	Z1-	<b>24</b>	95 - 125	Z5-	<b>125/FF250</b>
0.4 - 0.6	Z00-	<b>0.6</b>	24 - 40	Z1-	<b>40</b>	120 - 160	Z5-	<b>160/FF250</b>
0.6 - 1.0	Z00-	<b>1.0</b>	40 - 57	Z1-	<b>57</b>	160 - 220	Z5-	<b>220/FF250</b>
1.0 - 1.6	Z00-	<b>1.6</b>	50 - 63	Z1-	<b>63</b>	200 - 250	Z5-	<b>250/FF250</b>
1.6 - 2.4	Z00-	<b>2.4</b>	63 - 75	Z1-	<b>75</b>			
2.4 - 4	Z00-	<b>4</b>				42 - 63	ZW7-	<b>63</b>
4 - 6	Z00-	<b>6</b>	25 - 35	Z5-	<b>35/SK3</b>	60 - 90	ZW7-	<b>90</b>
6 - 10	Z00-	<b>10</b>	35 - 50	Z5-	<b>50/SK3(4)</b>	85 - 125	ZW7-	<b>125</b>
10 - 16	Z00-	<b>16</b>	50 - 70	Z5-	<b>70/SK3(4)</b>	110 - 160	ZW7-	<b>160</b>
16 - 24	Z00-	<b>24</b>	70 - 100	Z5-	<b>100/SK3(4)</b>	160 - 240	ZW7-	<b>240</b>
			95 - 125	Z5-	<b>120/SK4</b>	190 - 290	ZW7-	<b>290</b>
			120 - 150	Z5-	<b>150/SK4</b>	270 - 400	ZW7-	<b>400</b>
						360 - 540	ZW7-	<b>540</b>

### AC Magnetic Full Voltage Non-reversing Starters

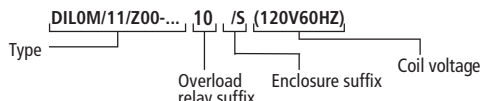
UL/CSA max. Hp rating <sup>3)</sup> 50/60Hz				Standard auxiliary contacts		Type <sup>1)</sup> Specify coil voltage and frequency → page 03/066, 067  Specify overload relay suffix code → page 03/031 Note: suffix has already been provided in certain types	Price includes 3 phase, bimetallic overload relay				
200 V	230 V	460 V	575 V	N.O.	N.C.	...	Enclosed	General purpose Type 1 Replace <input type="checkbox"/> with suffix /S	Industrial use Type 12 dusttight Replace with suffix /SD Type 3R weatherproof Replace <input type="checkbox"/> with suffix /DW	Insulating material Type 12, 13, indoor 4X corrosion-resistant dusttight Replace <input type="checkbox"/> with suffix /I	Open without enclosure  Delete <input type="checkbox"/> in type
HP	HP	HP	HP				see price list	see price list	see price list	see price list	
Three phase											
1 1/2	2	3	3	1	0	DILEEM-10/ZE-... <input type="checkbox"/> (...)					
2	3	5	5	1	0	DILEM-10/ZE-... <input type="checkbox"/> (...)					
3	3	5	7 1/2	1	0	DIL00M-10/Z00-... <input type="checkbox"/> (...)					
3	3	7 1/2	10	1	0	DIL00AM-10/Z00-... <input type="checkbox"/> (...)					
5	7 1/2	10	15	1	1	DIL0M-11/Z00-... <input type="checkbox"/> (...)					
-	-	15	20	1	1	DIL0AM-11/Z00-24 <input type="checkbox"/> (...)					
7 1/2	-	-	-	1	1	DIL0M-11/Z1-40 <input type="checkbox"/> (...)					
-	10	-	-	1	1	DIL0AM-11/Z1-40 <input type="checkbox"/> (...)					
10	-	20	25	1	1	DIL1M-11/Z1-40 <input type="checkbox"/> (...)					
-	-	25	30	1	1	DIL1AM-11/Z1-40 <input type="checkbox"/> (...)					
-	15	-	-	1	1	DIL1AM-11/Z1-57 <input type="checkbox"/> (...)					
15	20	40	40	1	1	DIL2M-11/Z1-57 <input type="checkbox"/> (...)					
-	-	-	50	1	1	DIL2AM-11/Z1-57 <input type="checkbox"/> (...)					
20	-	-	-	1	1	DIL2AM-11/Z1-63 <input type="checkbox"/> (...)					
-	25	50	-	1	1	DIL2AM-11/Z1-75 <input type="checkbox"/> (...)					
25	30	60	75	1	1	DIL3M80/11/Z5-... <input type="checkbox"/> (...)					
40	50	100	125	1	1	DIL4M115/11/Z5-... <input type="checkbox"/> (...)					
50	60	125	150	2	2	DILM185/22/Z5-160 <input type="checkbox"/> (...) <sup>2)</sup>					
60	75	150	200	2	2	DILM225/22/Z5-220 <input type="checkbox"/> (...) <sup>2)</sup>					
75	100	200	250	2	2	DILM250/22/Z5-250 <input type="checkbox"/> (...) <sup>2)</sup>					
115 V    200 V    230 V											
HP	HP	HP		N.O.	N.C.						
Single phase											
1/4	3/4	1		1	0	DILEEM-10/ZE-... <input type="checkbox"/> (...)					
1/2	1	1 1/2		1	0	DILEM-10/ZE-... <input type="checkbox"/> (...)					
1/2	1	1 1/2		1	0	DIL00M-10/Z00-... <input type="checkbox"/> (...)					
1	2	2		1	0	DIL00AM-10/Z00-... <input type="checkbox"/> (...)					
2	2	3		1	1	DIL0M-11/Z00-... <input type="checkbox"/> (...)					
2	3	3		1	1	DIL0AM-11/Z00-... <input type="checkbox"/> (...)					
3	5	5		1	1	DIL1M-11/Z1-40 <input type="checkbox"/> (...)					
3	5	7 1/2		1	1	DIL1AM-11/Z1-40 <input type="checkbox"/> (...)					
3	-	-		1	1	DIL2M-11/Z1-40 <input type="checkbox"/> (...)					
-	7 1/2	10		1	1	DIL2M-11/Z1-57 <input type="checkbox"/> (...)					
5	-	-		1	1	DIL2AM-11/Z1-57 <input type="checkbox"/> (...)					
-	10	-		1	1	DIL2AM-11/Z1-63 <input type="checkbox"/> (...)					
-	-	15		1	1	DIL2AM-11/Z1-75 <input type="checkbox"/> (...)					

Notes:

- <sup>1)</sup> Overload relays supplied with starters on this page can also be field-installed, for more flexibility in selection. Consult Moeller Electric for additional details.
- <sup>2)</sup> These starters are not available with suffix /I enclosures.
- <sup>3)</sup> Consult Moeller Electric for export applications

To order specify:

- Type number
- Overload relay suffix
- Enclosure suffix
- Coil voltage
- Accessories



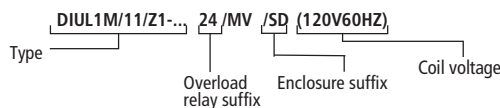
Additional information	Page
Technical data	03/080
Dimensions	03/092
Overload relays	04/004
Accessories	03/053
Factory modifications	03/046
Weights	14/020

## AC Magnetic Full Voltage Reversing Starters

UL/CSA max. Hp rating 50/60Hz				Standard auxiliary contacts		Type	Price includes 3 phase, bimetallic overload relay			
200 V	230 V	460 V	575 V	N.O.	N.C.	Specify coil voltage and frequency → page 03/072	Enclosed		Open	
HP	HP	HP	HP			Specify overload relay suffix code → page 03/031 Note: suffix has already been provided in certain types	General purpose Type 1 Replace with suffix /S	Industrial use Type 12 dusttight Replace with suffix /SD Type 3R weatherproof Replace with suffix /DW	Insulating material Type 12, 13, indoor 4X corrosion-resistant dusttight Replace with suffix /I	without enclosure  Delete <input type="checkbox"/> in type
1 ½	2	3	3	0	1	...(...)	see price list	see price list	see price list	see price list
Three phase										
1 ½	2	3	3	0	1	DIULEEM-01/ZE-... <input type="checkbox"/> (...)				
2	3	5	5	0	1	DIULEM-01/ZE-... <input type="checkbox"/> (...)				
3	3	5	7 ½	0	1	DIUL00M-01/Z00-.../MV <input type="checkbox"/> (...)				
3	3	7 ½	10	0	1	DIUL00AM-01/Z00-.../MV <input type="checkbox"/> (...)				
7 ½	7 ½	10	15	1	1	DIUL0M/11/Z00-.../MV <input type="checkbox"/> (...)				
-	-	15	20	1	1	DIULOAM/11/Z00-24/MV <input type="checkbox"/> (...)				
-	10	-	-	1	1	DIULOAM/11/Z1-40/MV <input type="checkbox"/> (...)				
10	-	20	25	1	1	DIUL1M/11/Z1-40/MV <input type="checkbox"/> (...)				
-	15	25	30	1	1	DIUL1AM/11/Z1-40/MV <input type="checkbox"/> (...)				
15	20	40	40	1	1	DIUL2M/11/Z1-57MV <input type="checkbox"/> (...)				
20	25	50	50	1	1	DIUL2AM/11/Z5-.../MV <input type="checkbox"/> (...)				
25	30	60	75	1	1	DIUL3M80/11/Z5-100/XMV <input type="checkbox"/> (...)				
40	50	100	125	1	1	DIUL4M115/11/Z5-.../XMV <input type="checkbox"/> (...) <sup>1)</sup>				
50	60	125	150	2	2	DIULM185/22/Z5-160/XMV <input type="checkbox"/> (...) <sup>2)</sup>				
60	75	150	200	2	2	DIULM225/22/Z5-220/XMV <input type="checkbox"/> (...) <sup>2)</sup>				
75	100	200	250	2	2	DIULM250/22/Z5-250/XMV <input type="checkbox"/> (...) <sup>2)</sup>				

Notes: <sup>1)</sup> These starters with suffix /I enclosure are available in types 12 and 13 only.  
<sup>2)</sup> These starters are not available with suffix /I enclosures.

To order specify:  
Type number  
Overload relay suffix  
Enclosure suffix  
Coil voltage  
Accessories



Additional information	Page
Technical data	03/077
Dimensions	03/092
Overload relays	04/004
Accessories	03/053
Factory modifications	03/046
Weights	14/020

## AC Magnetic Two-speed Starters

					2 speed, 2 winding	Enclosed <sup>2)</sup> Y-Y <sup>1)</sup>	2 speed, 1 winding	Enclosed <sup>2)</sup>
UL/CSA max. Hp rating 50/60Hz 3 phase					Type	List Price	Type	List Price
					Specify coil voltage and frequency → page 03/064	includes 2 3-phase bimetallic overload relays	Specify coil voltage and frequency → page 03/064	includes 2 3-phase bimetallic overload relays
200 V 230 V 460 V 575 V HP HP HP HP					Specify overload relay rated current see below	see price list	Specify overload relay rated current see below	see price list
Constant or variable torque								
3	3	5	7 ½		2S2W00M/Z00-.../Z00-.../S(...)		2S1W00M/Z00-.../Z00-.../S(...)	
-	-	7 ½	10		2S2W00AM/Z00-.../Z00-.../S(...)		2S1W00AM/Z00-.../Z00-.../S(...)	
7 ½	7 ½	10	15		2S2W0M/Z00-.../Z00-.../S(...)		2S1W0M/Z00-.../Z00-.../S(...)	
-	-	15	20		2S2W0AM/Z00-.../Z00-.../S(...)		2S1W0AM/Z00-.../Z00-.../S(...)	
-	10	-	-		2S2W0AM/Z1-.../Z00-.../S(...)		2S1W0AM/Z1-.../Z00-.../S(...)	
10	-	20	25		2S2W1M/Z1-.../Z1-.../S(...)		2S1W1M/Z1-.../Z1-.../S(...)	
-	15	25	30		2S2W1AM/Z1-.../Z1-.../S(...)		2S1W1AM/Z1-.../Z1-.../S(...)	
15	20	40	40		2S2W2M/Z1-.../Z1-.../S(...)		2S1W2M/Z1-.../Z1-.../S(...)	
20	25	50	50		2S2W2AM/Z1-.../Z1-.../S(...)		2S1W2AM/Z1-.../Z1-.../S(...)	
25	30	60	75		2S2W3M80/Z5-.../Z1-.../S(...)		2S1W3M80/Z5-.../Z1-.../S(...)	
30	-	75	100		2S2W4M115/Z5-.../Z1-.../S(...)		2S1W4M115/Z5-.../Z1-.../S(...)	
Constant horsepower								
2	2	3	5		2S2W00M/Z00-.../Z00-.../S(...)		2S1W00M/Z00-.../Z00-.../S(...)	
-	-	5	7 ½		2S2W00AM/Z00-.../Z00-.../S(...)		2S1W00AM/Z00-.../Z00-.../S(...)	
5	5	7 ½	10		2S2W0M/Z00-.../Z00-.../S(...)		2S1W0M/Z00-.../Z00-.../S(...)	
-	7 ½	10	15		2S2W0AM/Z00-.../Z00-.../S(...)		2S1W0AM/Z00-.../Z00-.../S(...)	
7 ½	-	15	20		2S2W1M/Z1-.../Z1-.../S(...)		2S1W1M/Z1-.../Z1-.../S(...)	
-	10	20	25		2S2W1AM/Z1-.../Z1-.../S(...)		2S1W1AM/Z1-.../Z1-.../S(...)	
10	15	30	30		2S2W2M/Z1-.../Z1-.../S(...)		2S1W2M/Z1-.../Z1-.../S(...)	
15	20	40	40		2S2W2AM/Z1-.../Z1-.../S(...)		2S1W2AM/Z1-.../Z1-.../S(...)	
20	25	50	60		2S2W3M80/Z1-.../Z1-.../S(...)		2S1W3M80/Z1-.../Z1-.../S(...)	
30	30	75	100		2S2W4M115/Z5-.../Z1-.../S(...)		2S1W4M115/Z5-.../Z1-.../S(...)	

Notes:

- <sup>1)</sup> Starters are for Y-Y motors, For other winding configurations, consult Moeller Electric.
- <sup>2)</sup> General purpose enclosure Type 1. For other special purpose enclosures, consult Moeller Electric.
- <sup>3)</sup> For factory modifications, see page 03/046.

### Setting range of adjustable thermal overload relays

Type	Setting range from ... to ... A (when ordering state <b>bold</b> figure)
Z00-	0.1-0.16, 0.16-0.24, 0.4-0.6, 0.6-1, 1.0-1.6, 1.6-2.4, 2.4-4, 4-6, 6-10, 10-16, 16-24
Z1-	6-10, 10-16, 16-24, 24-40, 40-57, 50-63, 63-75
Z5-	25-35, 35-50, 50-70, 70-100, 95-125, 120-150
ZW7-	42-63, 60-90, 85-125, 110-160, 160-240, 190-290, 270-400, 360-540

### To order specify:

- Type number, coil voltage
- Line voltage, HP, phase and frequency
- Control voltage and frequency if different from line voltage
- Motor speeds
- Motor full load currents at each speed
- Constant or variable torque, or constant horsepower

### Example:

2S2W1AM/11/Z1-40/Z00-24/S, 120V 60Hz coil - 575V, 30Hp, 3ph., 1800/1200 RPM, 29.2/20.6A constant torque