



# Single-Phase Motors

## ALUMINIUM Multi-Mount Frames



## General Specifications.

### Standards

EMT Single Phase motors are designed, manufactured and tested to comply with relevant IEC, International and Australian Standards.

International Standards
Ratings and performance. IEC 60034-1
Methods for determining losses and efficiency. IEC 60034-2
Degree of protection. (IP Code) IEC 60034-5
Methods of cooling. (IC Code) IEC 60034-6
Symbols for types of construction and mounting arrangements. (IM Code) IEC 60037-7
Terminal markings and direction of rotation. IEC 60034-8
Noise limits. IEC 60034-9
Mechanical vibration. IEC 60034-14
Dimensions and outputs for electrical machines. IEC 60072-1

### Duty

Standard motors are Continuous Duty Rated (S1), based upon max ambient of 40 deg. C and altitudes below 1000 metres. Motors may need to be de-rated for higher ambient, higher altitude or higher duty ratings. In these instances, refer to EMT.

### Construction

Motor stator frames and end shields are manufactured from high-pressure die cast aluminium alloy, providing high mechanical strength, low weight and excellent surface appearance. The mounting feet are bolt on Multi-Mount type that provides high strength particularly with applications where shock loads or vibration is present. Flanged end shields are one-piece designs which are internally strengthened to support the full motor weight in any horizontal or vertical mounting position.

### Stator Windings

Standard motors are wound with quality Class “F” insulating materials and winding designs generally limit the temperature rise to Class “B” specifications. Motors with Class “H” insulation systems are available upon request.

### Rotors.

The rotor windings and end rings are one-piece die cast aluminium with cooling fins to provide internal air movement. Shafts are made from high quality carbon steel. All drive shafts are Drilled and Tapped as standard and all shaft keyways are “captive”.

### Balancing

All rotors are dynamically balanced and conform to limits of vibration severity as specified in relevant IEC and Australian standards.

### Fasteners

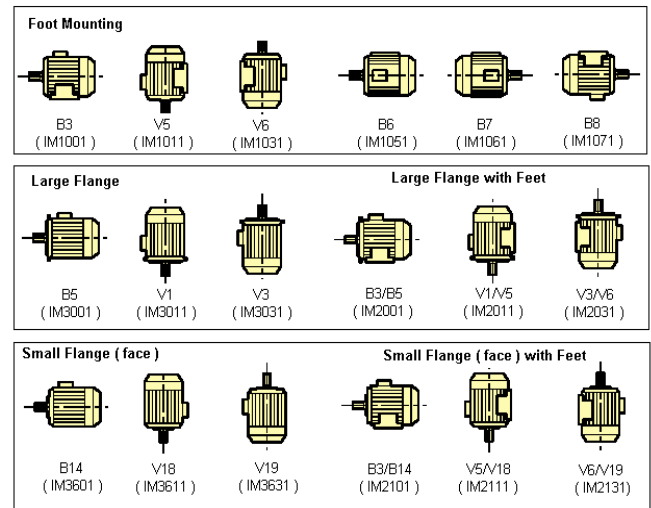
All fasteners are electro-zinc plated for high corrosion resistance.

### Degree of Protection

Degree of protection for all motors is IP55 as standard. All motors are fitted with a double lip oil seal at each end to enhance protection of the bearings against the ingress of dust, water, oils and other contaminants. All flanged motors are suitable as standard, for fitment to a wet mount gearbox. Modifications to higher IP ratings can be provided upon request.

### Mounting Arrangements

The most common mounting arrangements for electric motors are detailed in IEC and Australian Standards. The design of motors is such that they can be operated in all horizontal or vertical mounting positions providing consideration is given to bearing life and the location of any drain holes when provided. EMT Single phase motors are available in B3 foot mounted, B5 flange mounted, and B14A face mounted and in some frame sizes, B14B flange mounted are available.



### Bearings.

All standard, motors are fitted with high quality “sealed for life,” type deep groove ball bearings. Bearing seals are full contact synthetic rubber, enhancing the protection against the ingress of dust and fluids into the bearings. Standard bearings are lubricated with lithium-based grease suitable for operation within an ambient temperature range of –20 degC to +55 deg C. Bearings are preloaded with a wave washer, which increases bearing life and reduces bearing noise. The life of bearings is dependent on various factors such as bearing load, motor speed, operating temperature and the purity of grease. Special bearing arrangements can be provided for high or low ambient temperature applications, or high thrust or centrifugal load applications. In these instances, refer to EMT.

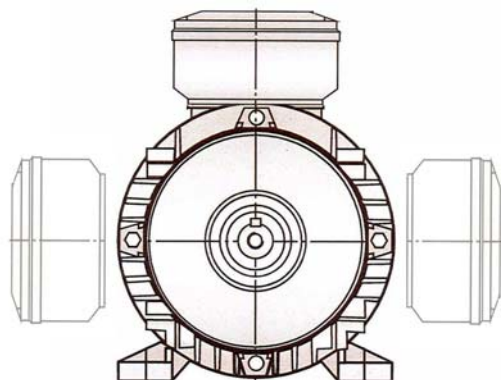
### Cooling

Totally enclosed fan cooled (TEFC – IC0141), with external frame cooling fins to assist with heat dissipation. Cooling fans are one-piece fibre-reinforced polypropylene. To ensure movement free operation throughout the life of the motor, all Fans are keyed to the shaft on a machined flat and secured with a circlip. All fans are bi-directional and fan covers are rigid pressed steel construction with anti-corrosion protection.

**Terminal Box**

Terminal box is 2 piece rigid fibre reinforced PVC which can be rotated to provide for cable entry from any one of 4 directions. The terminal box includes a moulded cable gland entry as standard. All capacitors are fully enclosed within the terminal box, therefore providing excellent protection against dust, water, oils and mechanical damage.

Together with a Multi-Mount frame design, the terminal box can be positioned in any one of 3 positions, simply by relocating the bolt-on mounting feet.



**MULTI - MOUNT  
TERMINAL BOX LOCATIONS**

**Centrifugal Start Switch**

Cap Start/Cap Run motors utilise a solid, internal centrifugal switch plate mechanism that has a larger diameter than the motor bearings, therefore eliminating potential damage to the switch plate when the motor is dismantled for maintenance. The switch plates on larger ML series motors have dual start switch contacts, making them suitable for applications that have a long run up time.

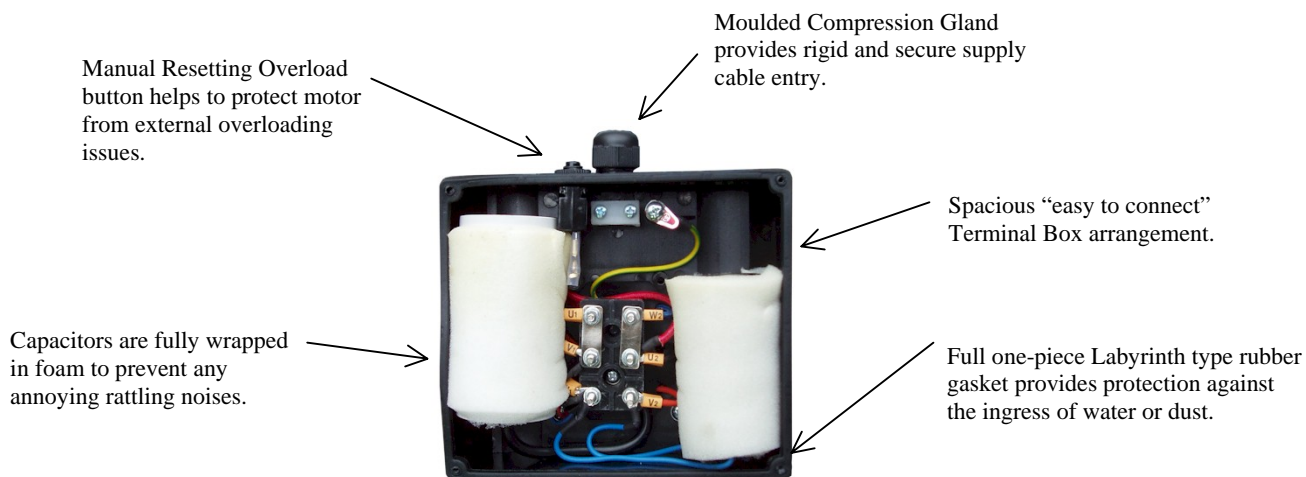
**Paint System**

After thorough cleaning and degreasing, all components are coated with an enamel based epoxy polymer, gloss paint finish that is sprayed electro statically to ensure uniform coverage. This treatment enhances the non-corrosive qualities of the silicon aluminium. Special paint systems for food industry or corrosive environments can be provided upon request.



**Connections**

Standard motors are fitted with a 6 stud terminal block and an earthing point located on the top of the motor frame, inside the terminal housing. An additional external earthing point is cast into the motor frame near the terminal housing. For detailed connection data, refer to the Connections page within this catalogue.



**STANDARD OPTIONS AVAILABLE:**

- Higher degree of protection. (IP rating)
- Windings for special voltages or frequencies.
- Class "H" insulation.
- Rain hoods for shaft down application.
- Multi speed windings.
- Brake motors and Geared motors.
- Special shafts and double shafts.
- Non-standard flange mounting arrangements.
- Thermistors and Anti-Condensation Heaters
- Auxiliary terminal boxes.
- Special paint systems such as required for food industry and wash down applications.



## Single-Phase Motors.

- Aluminum Multi-Mount Construction.
- TEFC, IP55 enclosure.
- Fully enclosed capacitors.
- Manual Reset Overload Protection.
- Metric frames to IEC & Australian Standards.
- Class 'F' insulation.
- Available in Foot, Flange and Face mountings.

### ML Series ---- Capacitor Start / Capacitor Run.

For general purpose applications, requiring high starting torque



### Performance Data

Type	Rated Output KW	Full Load @ 50Hz				Locked Current ----- Rated Current	Locked Torque ----- Rated Torque	Max. Torque ----- Rated Torque	Capacitor				Net Kg
		Rpm	Amps		Eff. %				Start		Run		
			@ 240V	@ 480V					uF	Vac	uF	Vac	

#### 2 Pole

ML 8012	0.75	2800	4.5	-	74	4.3	1.9	1.65	150	250	20	450	9.8
ML 8022	1.1	2800	6.1	-	77	4.6	1.9	1.7	200	250	30	450	11
ML 90S2	1.5	2800	8.5	-	78	6.5	2.0	1.7	200	250	35	450	15
ML 90L2	2.2	2800	12.9	-	82	6.5	2.0	1.7	300	300	40	450	16.5
ML 100L2*	3	2820	15.9	7.95	83	6.0	1.7	1.7	400	300	55	450	26
ML 112M2*	4	2820	25.4	12.7	83	6.0	1.7	1.7	400	300	55	450	31

#### 4 Pole

ML 7124	0.37	1400	2.6	-	65	5.9	3.4	2.3	75	250	16	450	7.6
ML 8014	0.55	1400	3.5	-	73	6.1	2.0	1.8	100	250	20	450	9.6
ML 8024	0.75	1400	4.5	-	78	4.9	1.7	1.7	150	250	25	450	10.7
ML 90S4	1.1	1400	6.1	-	78	3.2	1.8	1.7	200	250	40	450	14.5
ML 90L4	1.5	1400	8.5	-	79	5.8	2.0	1.6	200	250	45	450	16.5
ML 100L14*	2.2	1450	12.0	6.5	81	6.0	1.7	1.7	300	250	55	450	23
ML 100L24*	3	1450	17.7	8.85	83	6.0	1.7	1.7	400	300	50	450	29
ML 112M4*	4	1450	21.8	10.9	84	6.0	1.7	1.7	400	300	40	450	40

1 HP = 0.746 KW

Design data subject to change without notice

\* These ratings can be configured for either 240V or 480V single phase supply



## Single-Phase Motors.

- Aluminum Multi-Mount Construction.
- TEFC, IP55 enclosure.
- Fully enclosed capacitors
- Manual Reset Overload Protection.
- Metric frames to IEC & Australian Standards.
- Class 'F' insulation.
- Available in Foot, Flange and Face mountings.

### MY Series ---- Permanent Capacitor Run

For pump, fan and blower applications.



### Performance Data

Type	Rated Output KW	Full Load @ 50Hz			Locked Current ----- Rated Current	Locked Torque ----- Rated Torque	Max. Torque ----- Rated Torque	Capacitor				Net Kg
		Rpm	Current @ 240V Amps	Eff. %				Start		Run		
								uF	Vac	uF	Vac	

#### 2 Pole

MY 5622	0.12	2730	0.89	58	4.5	0.45	1.7	-	-	6	450	3.5
MY 6312	0.18	2740	1.4	63	4.5	0.45	1.7	-	-	6	450	4.5
MY 6322	0.25	2740	1.6	65	4.5	0.45	1.7	-	-	8	450	5.1
MY 7112	0.37	2760	2.7	68	4.5	0.45	1.7	-	-	12	450	6.2
MY 7122	0.55	2760	3.8	69	4.5	0.45	1.7	-	-	16	450	6.2
MY 8012	0.75	2780	4.73	70	4.5	0.50	1.7	-	-	30	450	9
MY 8022	1.1	2800	6.5	71	4.5	0.50	1.7	-	-	35	450	10.8
MY 90S2	1.5	2800	8.9	72	5.0	0.50	1.7	-	-	40	450	12
MY 90L2	2.2	2800	12.9	73	5.0	0.50	1.7	-	-	40	450	13.5

#### 4 Pole

MY 5624	0.09	1340	0.91	49	4.5	0.55	1.7	-	-	6	450	3.5
MY 6324	0.18	1400	1.4	58	3.4	0.74	2.2	-	-	10	450	5.4
MY 7114	0.25	1400	2.0	60	3.1	0.49	2.1	-	-	14	450	6.0
MY 7124	0.37	1400	2.6	65	3.5	0.48	2.3	-	-	16	450	7.4
MY 8014	0.55	1400	3.5	70	3.1	0.55	1.8	-	-	20	450	9.5
MY 8024	0.75	1400	4.5	74	3.0	0.42	1.55	-	-	25	450	10.5
MY 90S4	1.1	1400	7.0	69	5.0	0.50	1.7	-	-	40	450	13
MY 90L4	1.5	1400	8.5	80	5.0	0.41	1.6	-	-	45	450	15

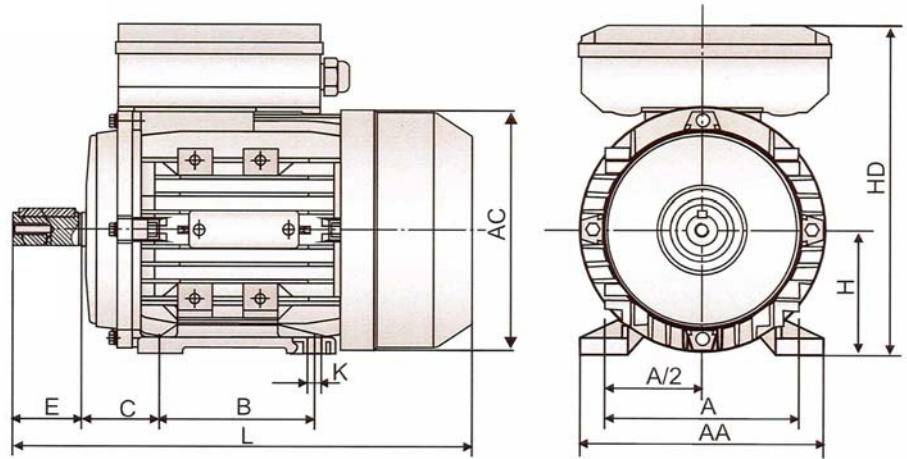
#### 6 Pole

MY 7116	0.18	910	1.3	57	4.5	0.35	1.3	-	-	10	450	6.5
MY 7126	0.25	900	1.8	67	2.0	0.35	1.3	-	-	10	450	6.8
MY 8016	0.37	910	2.5	62	4.5	0.65	1.7	-	-	12	450	9.5
MY 8026	0.55	900	3.5	67	2.0	0.35	1.3	-	-	18	450	10.7
MY 90S6	0.75	910	5.2	68	4.5	0.35	1.4	-	-	30	450	12
MY 90L6	1.1	900	6.5	74	2.6	0.35	1.4	-	-	35	450	16

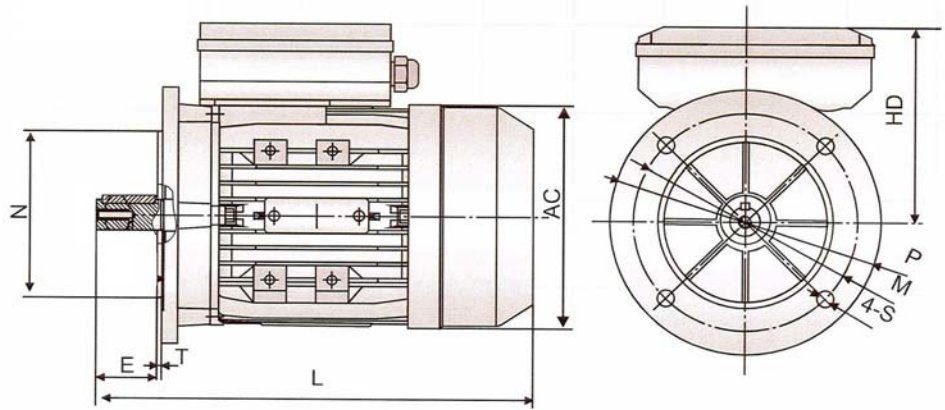
1 HP = 0.746KW

Design data subject to change without notice

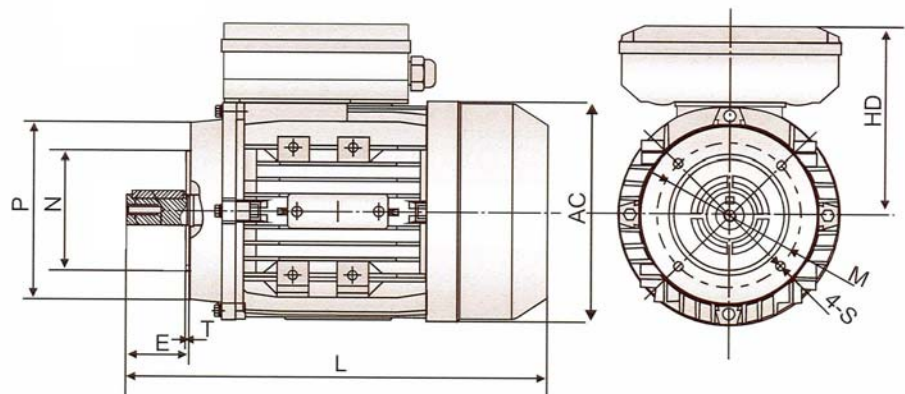
**B3  
Foot Mount**



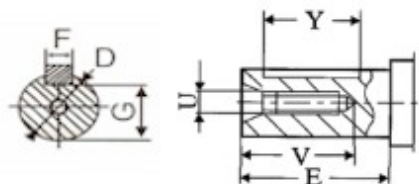
**B5  
Flange Mount**



**B14A  
Face Mount**



**Shaft & Keyway  
Dimensions**



## ML Series & MY Series - Main Dimensions

Frame	A	B	C	D	E	F	G	Y	U	V	H	K	AA	AB	AC	BB	HD	L
MY 56	90	71	36	9	20	3	7.2	14	M4	10	56	6	25	112	110	90	146	191
MY 63	100	80	40	11	23	4	8.5	14	M4	10	63	7	32	122	122	100	180	215
MY 71 ML 71	112	90	45	14	30	5	11	20	M5	13	71	7	32	137	144	112	195	243
MY 80 ML 80	125	100	50	19	40	6	15.5	30	M6	16	80	10	41	152	160 173	122	222	285
MY 90S ML 90S	140	100	56	24	50	8	20	40	M8	20	90	10	46	169	182	153	242	334
MY 90L ML 90L2 ML 90L4	140	125	56	24	50	8	20	40	M8	20	90	10	46	169	182	153	242	334 357 334
ML100L14 ML 100L24	160	140	63	28	60	8	24	45	M10	24	100	12	46	192	202	185	261	370 433
ML 112M	190	140	70	28	60	8	24	45	M10	25	112	12	53	226	220	185	285	460

## Flange Dimensions

Frame	B5 Flange						B14A Flange					B14B Flange (Opt **)				
	M	N	P	LA	S	T	M	N	P	S	T	M	N	P	S	T
56	100	80	120	9	7	3	65	50	80	M5	2.5	85	70	105	M6	2.5
63	115	95	140	9	10	3	75	60	90	M5	2.5	100	80	120	M6	3
71	130	110	160	10	10	3.5	85	70	105	M6	2.5	115	95	140	M8	3
80	165	130	200	12	12	3.5	100	80	120	M6	3	130	110	160	M8	3.5
90S/L	165	130	200	12	12	3.5	115	95	140	M8	3	130	110	160	M8	3.5
100L	215	180	250	13	15	4	130	110	160	M8	3.5	165	130	200	M10	3.5
112M	215	180	250	14	15	4	130	110	160	M8	3.5	165	130	200	M10	3.5

\*\* Optional – when available

## Bearing Sizes

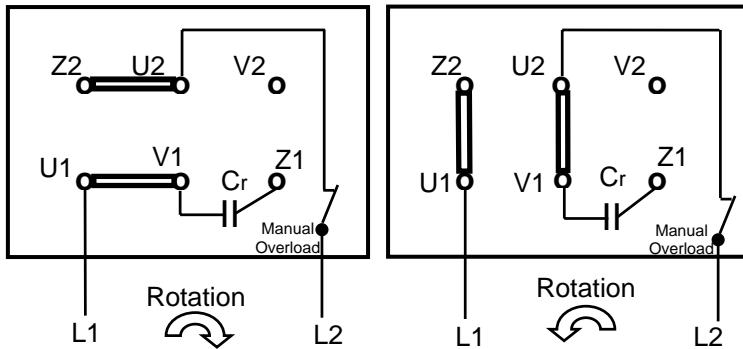
Frame	56	63	71	80	90	100	112	132	160
DE	6201-2RS	6201-2RS	6202-2RS	6204-2RS	6205-2RS	6206-2RS	6306-2RS	6308-2RS	-
NDE	6201-2RS	6201-2RS	6202-2RS	6204-2RS	6205-2RS	6206-2RS	6306-2RS	6308-2RS	-

All dimensions are in mm and all data is subject to change without notice



## Connections – EMT Single Phase Motors

### MY Series – Capacitor Run Motor



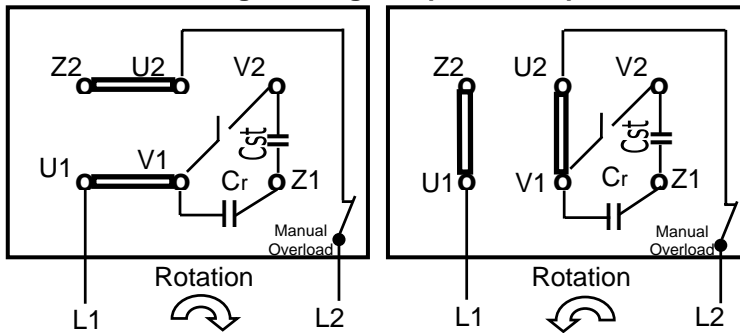
Both MY and ML Series Single-Phase motors are suitable for applications where reversing of direction is required, either by simple changing of connection bridges or by use of an external reversing switch.

Motors from frame size 56 to 90 are suitable for 240V 50Hz connection.

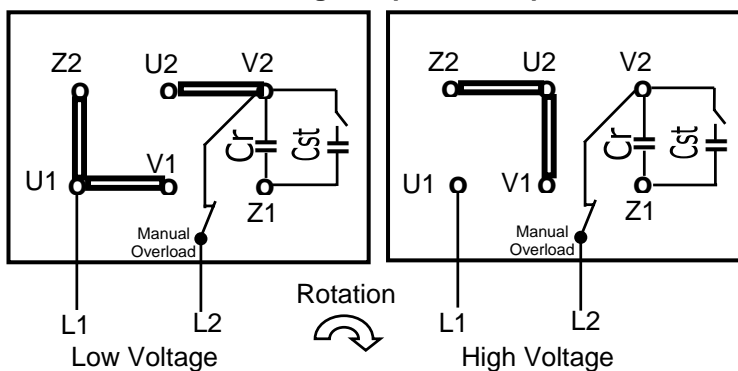
Motors of frame size 100 and above are Dual Voltage rated and suitable for connection to 240V or 480V, 50Hz single phase supply. For motors suitable for a 60Hz supply, please refer to EMT to determine suitable voltage ratings.

All motors are fitted with a Manually Resetting Overload button,

### ML Series – Single Voltage, Cap start / Cap run Motor



### ML Series – Dual Voltage, Cap start / Cap run Motor



To change rotation, reverse leads V1 and Z1

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