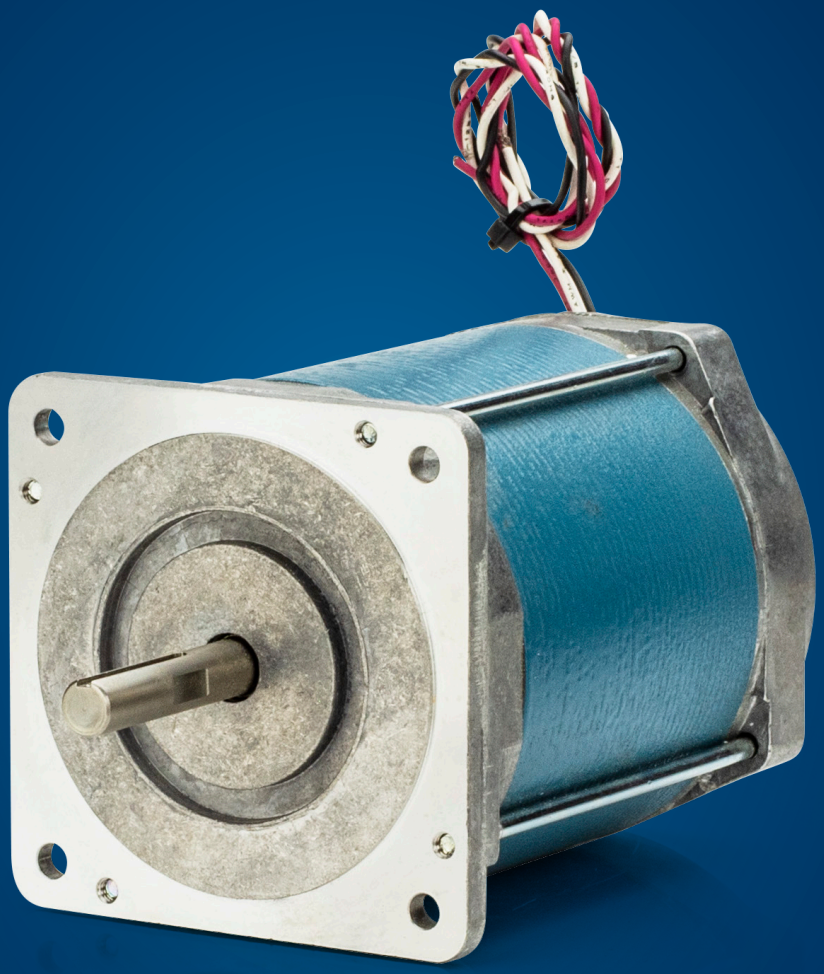
Kollmorgen SS Synchronous Motor

Selection Guide



SS451 Synchronous Motor

KOLLMORGEN

A REGAL REXNORD BRAND

Kollmorgen: Your Partner, In Motion.

Every solution comes from a real understanding of the challenges facing machine designers and users.

Innovators consistently rate Kollmorgen as one of their best motion systems manufacturing partners. Whether you are looking for classic servo motors, direct-drive servo motors, stepper motors, drives & amplifiers, gearing, actuation, or multi-axis motion controllers, Kollmorgen is one of the few companies in the world that actually designs and manufactures all of these products.

Our customers are leaders in many industries such as Aerospace & Defense, Printing, Packaging & Converting, Food & Beverage Processing, Medical Imaging, In Vitro Diagnostics & Laboratory Automation, Pharmaceutical Manufacturing, Material Forming and Cutting, Oil & Gas, and Robotics. Kollmorgen is also a leader in Warehouse Automation, including complete AGV systems, software, awareness and autonomy.

Our Automation Solutions can be found on Mars and in space, ships and submarines, O&G drilling and metrology, surgical robots and laser eye surgery, even inside artificial hearts. These are just a few applications that demand high-performance and high-quality while satisfying their specific needs.

Because motion matters, it's our focus: Motion can distinctly differentiate a specific machine and deliver a marketplace advantage by increasing its performance and dramatically improving Overall Equipment Effectiveness (OEE).

High-performance motion can make your customer's machine more reliable and energy-efficient, enhance accuracy and improve operator safety. Motion also represents endless possibilities for innovation.

We've always understood this potential, and thus have kept motion at our core and in our Vision, Mission & Values, relentlessly developing products that offer precise control of torque, velocity and position accuracy in machines that rely on complex motion.

Removing the Barriers of Design, Sourcing, and Time

At Kollmorgen, we know that OEM engineers can achieve a lot more when obstacles aren't in the way. So, we clear obstacles in three important ways:

Integrating Standard and Custom Products

The optimal solution is often not clear-cut. Our application expertise allows us to modify standard products or develop totally custom solutions across our whole product portfolio so that designs can take flight.

Providing Motion Solutions, Not Just Components

As companies reduce their supplier base and focus their engineering manpower on the product design, they need a total system supplier with a wide range of integrated solutions. Kollmorgen offers complete solutions as well as motion subsystems that combine programming software, engineering services and best-in-class motion components.

Global Footprint

With direct sales, engineering support, manufacturing facilities, and distributors spanning the Americas, Europe, the Middle East, and Asia, we're close to OEMs worldwide. Our proximity helps speed delivery and lend support where and when they're needed.

Financial and Operational Stability

Kollmorgen is part of Regal Rexnord. A key driver in the growth of all Regal Rexnord segments is the Regal Rexnord Business System, which relies on the principle of "kaizen" – or continuous improvement. Using world-class tools, cross-disciplinary teams of exceptional people evaluate processes and develop plans that result in superior performance.

Kollmorgen: Your partner. In Motion.

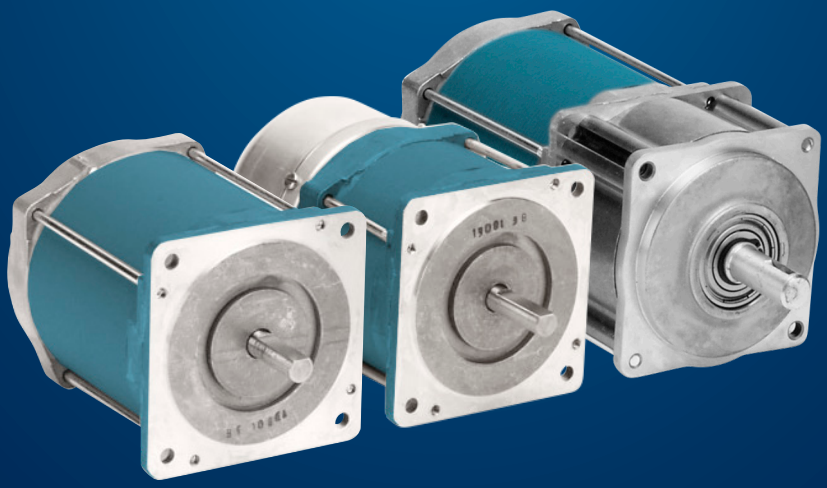
Table of Contents

SS Synchronous Motors

Our high pole count motors naturally turn at slower speeds (72 or 60 rpm). They only need a capacitor (C) network to operate from single-phase, 120VAC or 240VAC utility power. These motors provide the highest torque in an AC synchronous motor for loads that operate at 72 rpm or slower. They are available in two frame sizes.

Features

- Latest high torque construction
- Motor torque up to 700 oz-in (4.94 Nm)
- 72 rpm at 60 Hz, 60 rpm at 50 Hz
- 120 and 240 volt AC versions
- Leaded or terminal box connections
- Gearboxes available on NEMA 34 offerings – SS240, SS450 Series
- SS240, SS450 Series – NEMA Size 34
- SS150, SS250, SS400, SS700 Series – NEMA Size 42



SS Series Synchronous Motor Nomenclature

SS 24 1 LE G60

SS Series

Minimum Running Torque

NEMA Size 34

24	240 oz-in
45	450 oz-in

NEMA Size 42

15	150 oz-in
25	250 oz-in
40	400 oz-in
70	700 oz-in

Voltage

0	120 Vac NEMA 42
1	120 Vac NEMA 34
2	240 Vac

Gearbox (NEMA 34 Only)

GXX where XX = reducer ratio

Rear Shaft Option

(blank)	No Rear Shaft
E	Rear shaft extension

Options

NEMA Size 34

L	Leads
T	Terminal box
(blank)	Connector on leads
C	Covered capacitor
CT	Capacitor in terminal box

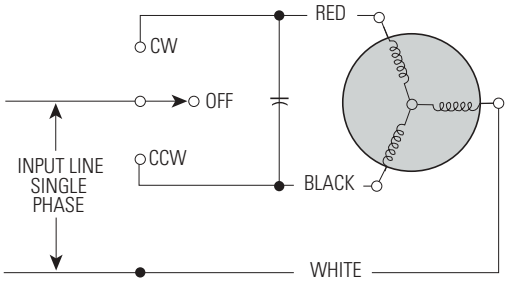
NEMA Size 42

B	Terminal board (SS15x, 25x, 40x)
(blank)	Connector on leads (SS15x, 25x, 40x)
(blank)	Terminal board (SS70x only)

SS Motor Connection Diagrams

C Connection

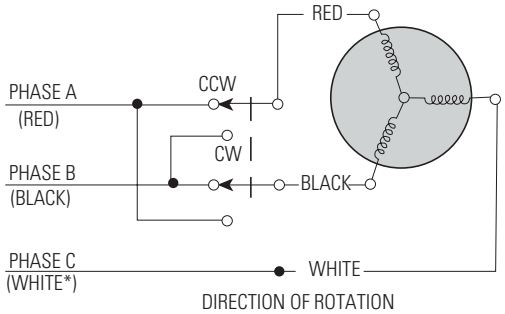
Single-Phase Operation



DIRECTION OF ROTATION
DETERMINED WHEN VIEWED
FROM NAMEPLATE END OF MOTOR.

3∅ Connection

Three-Phase Operation



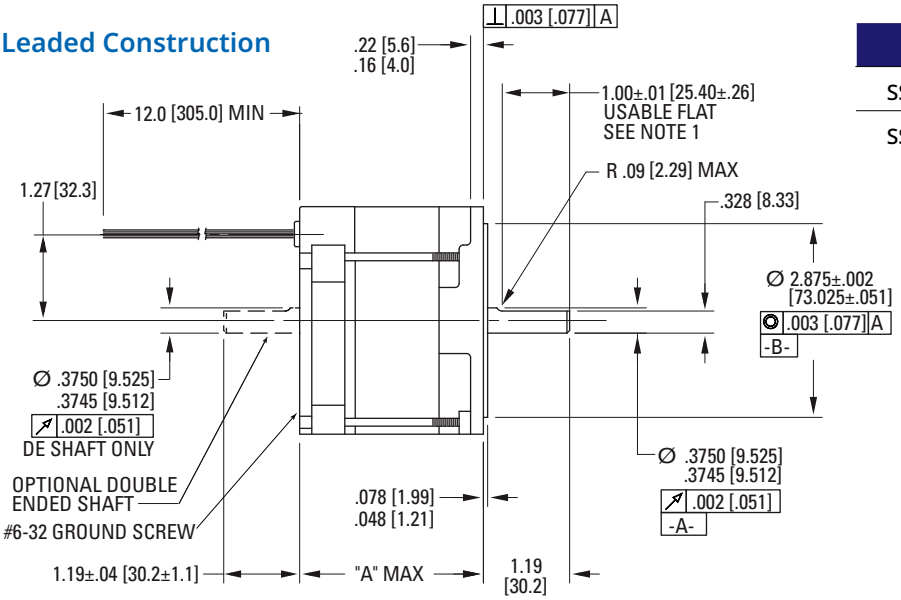
DIRECTION OF ROTATION
DETERMINED WHEN VIEWED
FROM NAMEPLATE END OF MOTOR.

* — WHITE IS NOT "NEUTRAL"

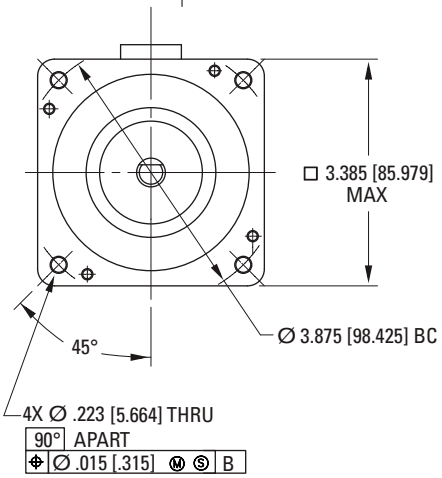
SS Series NEMA 34 Motors

SS240 and SS450 NEMA 34 Outline Drawings

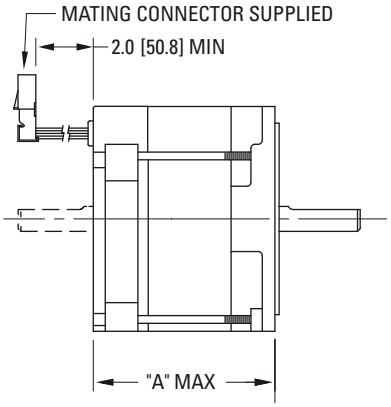
Leaded Construction



Model	"A" Max
SS241L / SS242L	2.72 (69.9)
SS451L / SS452L	4.32 (110)

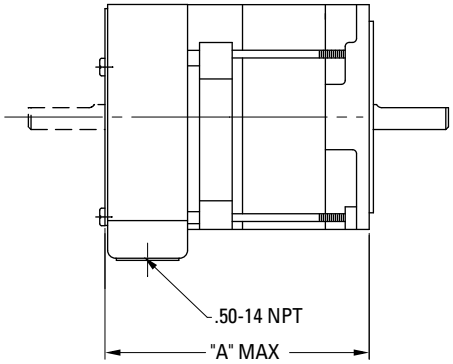


Leaded Plug Construction



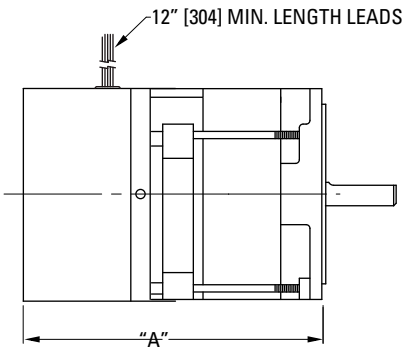
Model	"A" Max
SS241_	2.72 (69.1)
SS242_	
SS451_	4.32 (110)
SS452_	

Terminal Box Construction



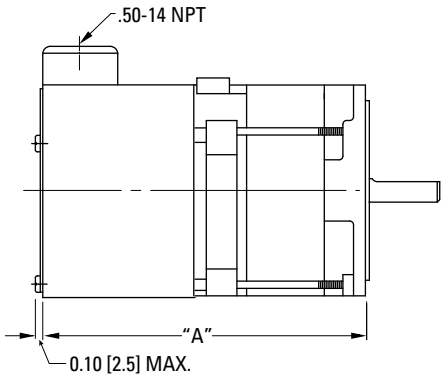
Model	"A" Max
SS241T	4.05 (103)
SS242T	
SS451T	5.65 (144)
SS452T	

Covered Capacitor



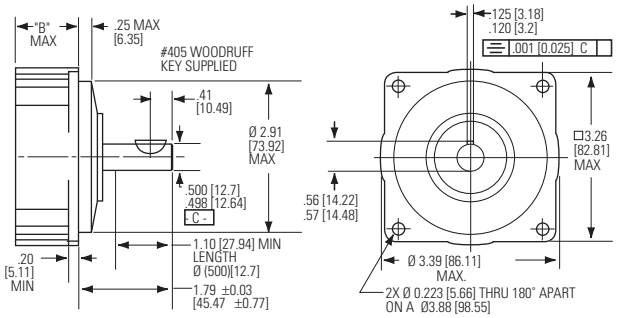
Model	"A" Max
SS241C	4.69 (119)
SS242C	
SS451C	6.29 (160)
SS452C	

Capacitor in Terminal Box



Model	"A" Max
SS241CT	5.48 (139)
SS242CT	
SS451CT	7.08 (180)
SS452CT	

Gearbox Construction



Motor Series	Gearbox	
	Ratio	"B" Max
SS240	3:1 thru 5:1	1.19 (30.2)
	9:1 thru 25:1	1.81 (46.0)
	27:1 thru 125:1	2.38 (60.5)
SS450	3:1 thru 5:1	1.19 (30.2)
	9:1 thru 25:1	1.81 (46.0)
	27:1 thru 125:1	2.38 (60.5)

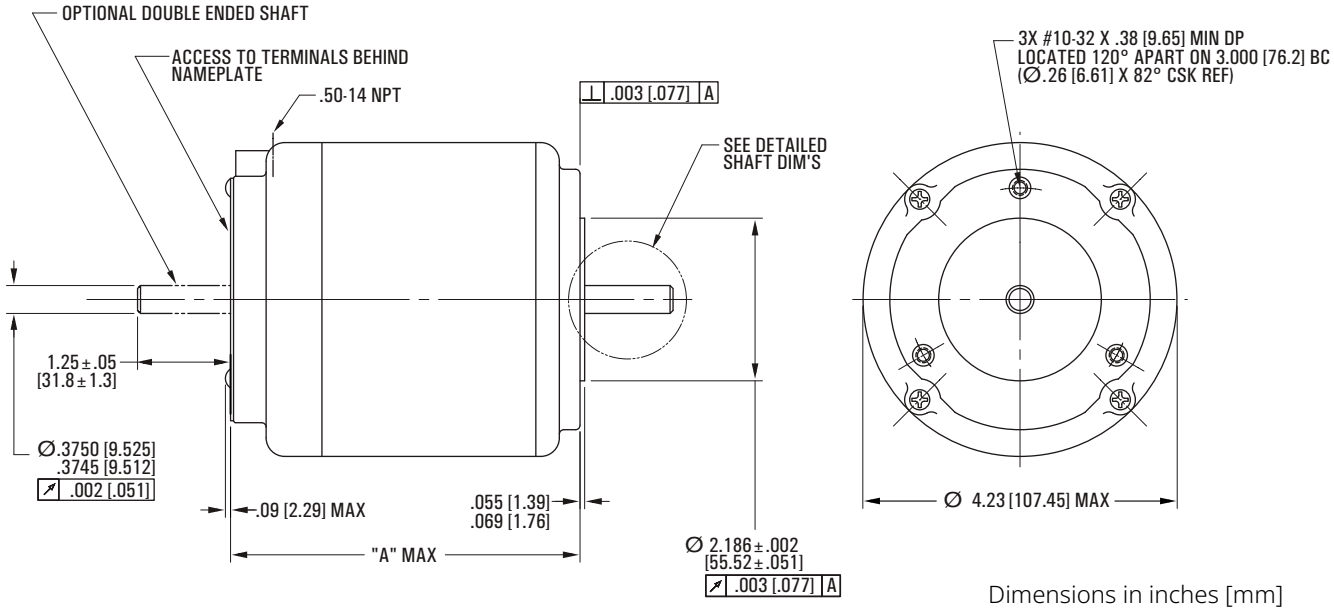
SS24x and SS45x NEMA 34 Performance Data

Model	Min. Torque	Load Inertia*	Line Current	Weight	Shaft Loading		Wiring Diagram	Phase Shifting Capacitor (250 Vac)	
					Radial Force	Axial Force			
	oz-in (Nm)	oz-in-s² (kg-cm²)	A (RMS/Ø)	lb (kg)	lb (N)	lb (N)		Kit No.	µF
60 Hz, 120 Vac, 1Ø, 72 RPM									
SS241	240 (1.69)	0.10 (7.3)	0.4	4.1 (1.9)	25 (111)	50 (222)	C	201053-037	7
SS451	450 (3.18)	0.23 (16)	0.8	6.5 (2.9)	25 (111)	50 (222)	C	201053-042	14
60 Hz, 240 Vac, 1Ø, 72 RPM									
SS242	240 (1.69)	0.10 (7.3)	0.2	4.1 (1.9)	25 (111)	50 (222)	C	201053-038	2
SS452	450 (3.18)	0.31 (22)	0.3	6.5 (2.9)	25 (111)	50 (222)	C	201053-044	3
60 Hz, 208 - 240 Vac, 3Ø, 72 RPM									
SS242	240 (1.69)	0.10 (7.3)	0.2	4.1 (1.9)	25 (111)	50 (222)	3Ø	N/A	N/A
SS452	450 (3.18)	0.18 (13)	0.3	6.5 (2.9)	25 (111)	50 (222)	3Ø	N/A	N/A
50 Hz, 240 Vac, 1Ø, 60 RPM									
SS242	240 (1.69)	0.041 (2.9)	0.4	4.1 (1.9)	25 (111)	50 (222)	C	201053-038	2
SS452	450 (3.18)	0.084 (5.9)	0.8	6.5 (2.9)	25 (111)	50 (222)	C	201053-061	4
50 Hz, 208 Vac, 3Ø, 60 RPM									
SS242	240 (1.69)	0.17 (12)	0.2	4.1 (1.9)	25 (111)	50 (222)	3Ø	N/A	N/A
SS452	450 (3.18)	0.18 (13)	0.3	6.5 (2.9)	25 (111)	50 (222)	3Ø	N/A	N/A

* This is the maximum rigidly attached load inertia the motor will reliably start. If the load is attached to the motor with a 5° flex coupling, the motor will start loads up to seven times listed.

SS Series NEMA 42 Motors

SS150, SS250, SS400, SS700 NEMA 42 Outline Drawings



Dimensions in inches [mm]

Model	"A" Max	Shaft Figure
SS150	4.74 (120.4)	1
SS250		
SS400	6.62 (168.1)	2
SS700	6.99 (177.5)	3

SS150, SS250, SS400, SS700 Shaft Details

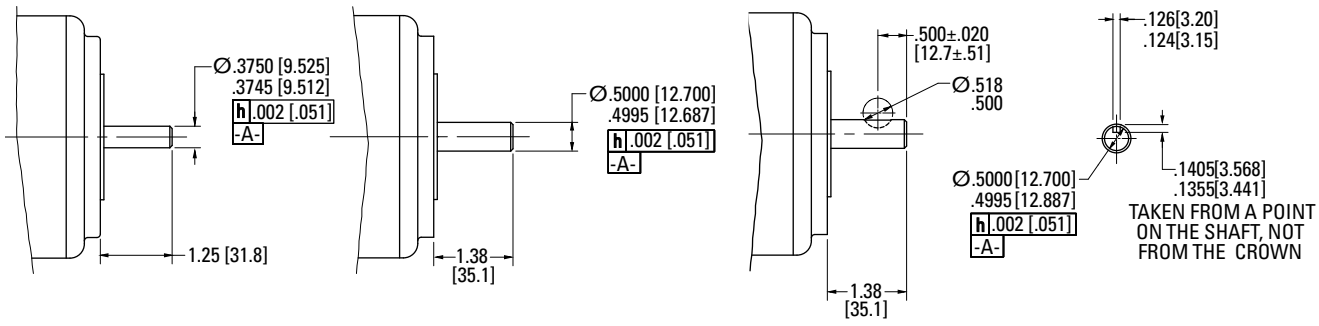


FIGURE 1 FIGURE 2 FIGURE 3

Dimensions in inches [mm]

SS 15x, 25x, 40x, 70x NEMA 42 Performance Data

Model	Min. Torque	Load Inertia*	Line Current	Weight	Shaft Loading		Wiring Diag.	Phase Shifting Components				
					Radial Force	Axial Force		Resistor			Capacitor (330 Vac)	
	oz-in (Nm)	oz-in-s² (kg-cm²)	A (RMS/Ø)	lb (kg)	lb (N)	lb (N)		Resistor part no.	Ohms	Watts	Capacitor part no.	µF
60 Hz, 120 Vac, 1Ø, 72 RPM												
SS150B	150 (1.06)	0.062 (4.4)	0.45	8.0 (3.6)	25 (111)	50 (222)	C	201052-007	250	25	201053-005	3.75
SS250B	250 (1.77)	0.12 (8.8)	0.6	8.0 (3.6)	25 (111)	50 (222)	C	201052-013	150	50	201053-010	6.5
SS400B	400 (2.82)	0.18 (13.2)	0.6	12.3 (5.6)	25 (111)	50 (222)	C	201052-013	150	50	201053-010	6.5
SS700	700 (4.94)	0.42 (30)	1.1	15.5 (7.0)	25 (111)	50 (222)	C	201052-027	150	100	201053-032	12.5
60 Hz, 240 Vac, 1Ø, 72 RPM												
SS152B	150 (1.06)	0.062 (4.4)	0.2	8.0 (3.6)	25 (111)	50 (222)	C	201052-030	1000	25	201053-023	1
SS252B	250 (1.77)	0.12 (8.8)	0.4	8.0 (3.6)	25 (111)	50 (222)	C	201052-015	500	50	201053-036	2
SS402B	400 (2.82)	0.18 (13.2)	0.4	12.3 (5.6)	25 (111)	50 (222)	C	201052-015	500	50	201053-012	1.75
SS702	700 (4.94)	0.42 (30)	0.55	15.5 (7.0)	25 (111)	50 (222)	C	201052-028	500	100	201053-030	3
50 Hz, 240 Vac, 1Ø, 60 RPM												
SS152B	150 (1.06)	0.074 (5.2)	0.2	8.0 (3.6)	25 (111)	50 (222)	C	201052-030	1000	25	201053-034	1.5
SS252B	250 (1.77)	0.15 (10.5)	0.40	8.0 (3.6)	25 (111)	50 (222)	C	201052-015	500	50	201053-030	3
SS402B	400 (2.82)	0.21 (14.6)	0.40	12.3 (5.6)	25 (111)	50 (222)	C	201052-015	500	50	201053-035	2.5
SS702	700 (4.94)	0.51 (36)	0.55	15.5 (7.0)	25 (111)	50 (222)	C	201052-028	500	100	201053-028	4

* This is the maximum rigidly attached load inertia the motor will reliably start. If the load is attached to the motor with a 5° flex coupling, the motor will start loads up to seven times listed.

More Expertise for a More Successful Machine

Our global engineering, service and support network provides deep knowledge of all the major industries that rely on advanced motion control and automation technology. We offer world-class engineering expertise, self-service design tools, personalized field service, and easy access to our design, application and manufacturing centers in strategic locations across the globe.

About Kollmorgen

Kollmorgen, a Regal Rexnord brand, has more than 100 years of motion experience, proven in the industry's highest-performing, most reliable motors, drives, linear actuators, AGV (Automated Guided Vehicle) control solutions, and automation control platforms. We deliver breakthrough solutions that combine exceptional performance, reliability and ease of use, giving machine builders an irrefutable marketplace advantage.

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