

SYMMCO

INCORPORATED

**Your Key
— To —
Quality
& Savings**

Stock Bearing Products

Solid & Core Bar Stock

Rectangular Plate Stock

ISO 9001:2008 REGISTERED



**AVAILABLE FROM STOCK
SHIPPED IN 24 HOURS**



Dear Symmco Customer:

Thank you for choosing Symmco for your stock product requirements. We understand that responding quickly to customers' needs is essential in today's market, and that's why we are committed to carrying and maintaining a full line of sintered, oil impregnated bushings, bars and plates. In fact, all of the parts included in this catalog are available for shipment within 24 hours.

Since we carry the largest inventory of sintered bronze in North America, you can be assured that delivery of your order will be fast and trouble-free... meaning you will have exactly what you need, when you need it!

Total customer satisfaction has been our top priority since Symmco was founded in 1952, so please feel free to contact any of our representatives with your questions or comments regarding our products and their applications. We will be happy to assist you!

With gratitude,

The Symmco "Team"



S Y M M C O

your key | to quality & savings



C O N T E N T S :

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Symmco: The Smart Choice In Powder Metallurgy Since 1952

From its humble origins in a garage in Sykesville, Pennsylvania, Symmco Incorporated has grown into an established pacesetter in the powder metal (P/M) industry. Dedicated to the cost-effective fabrication of P/M parts that range from plain to complex, the international company sells only products of the highest quality that are manufactured in its 100,000-square-foot facility in the heart of the industrial northeast.



Devoted to surpassing its own rigorous standards, Symmco's customer-oriented business philosophy emphasizes quality, service and design ingenuity. Through precise, skillful engineering and manufacturing, Symmco transforms raw materials (in the form of powder) into sintered bronze bearings, solid and cored bars, rectangular plate, as well as ferrous and nonferrous structural parts, such as gears, pulleys and sprockets. Considered to be the P/M market's "short run specialist," Symmco established this reputation by concentrating on customers requiring short to medium volume runs. However, the manufacturer's diverse capabilities also allow for the execution of long runs along with assembly solutions.

Symmco possesses the largest inventory of sintered bronze bearings in North America (over 1,500 stock sizes are available for immediate shipment) and sells its products through distributors and direct OEM sales.

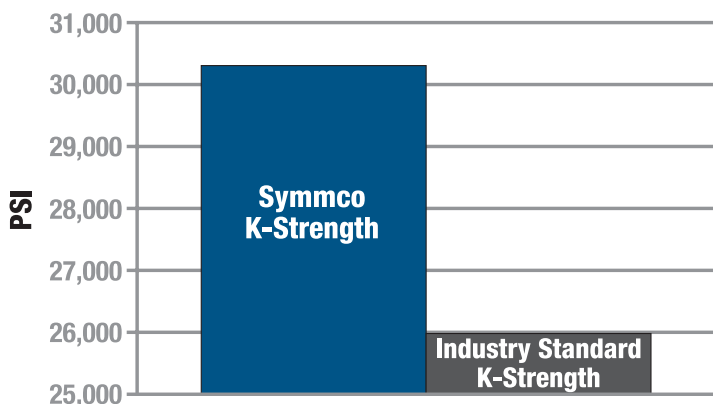
Why Symmco Is Unique

For the highest quality powder metal products in the world, turn to Symmco. Customers looking to save both money and resources know that Symmco parts offer superior performance and reliable consistency, two factors that help to reduce downtime and operating costs. The most cost-effective and innovative solutions to your unique P/M applications can be discovered by collaborating with the company's experienced technical engineers who are ready to assist you with your needs. And with an unyielding commitment to outstanding service, Symmco works hard to ensure that the delivery is quick and trouble-free, meaning your parts will be available when you need them (stock products will be en route in 24 hours or less).

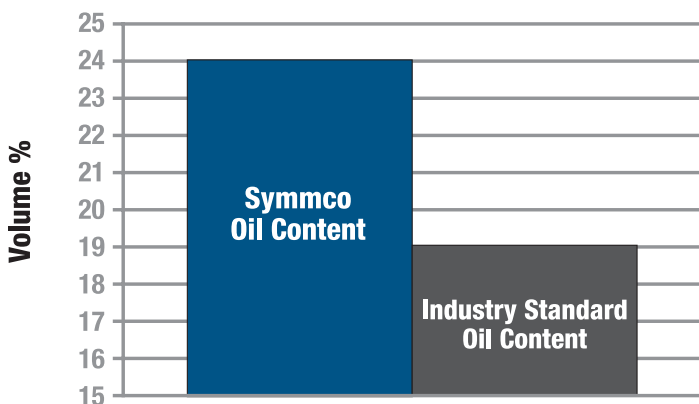
The Symmco Advantage

- **24-Hour Shipping For In-Stock Items**
- **Largest Inventory Of Oil Impregnated Bronze Bearings & Bars In North America**
- **Superior Customer Service**
- **Longer-Lasting Products That Result In Less Downtime & Lower Operating Costs**
- **Cost-Effective, Engineered Solutions**
- **Assembly Solutions**

K-STRENGTH COMPARISON SYMMCO VS THE INDUSTRY STANDARD



OIL CONTENT COMPARISON SYMMCO VS THE INDUSTRY STANDARD



Symmco Bearing Products

Over the years, Symmco has built a reputation for manufacturing the finest powder metal bearings in the market. Weekly testing has proven that Symmco bearings consistently exceed industry standards with respect to K-strength and porosity. Our proprietary blending and sintering process advancements in grain structure and porosity promote high strength while supporting the proper interconnected pores to provide above standard oil flow to the bearing shaft, resulting in:

- superior strength
- reduced coefficient of friction
- uniform oil coating of the mating shaft during operation

To increase the life and improve the performance of your P/M bearing products, choose Symmco bearings.

Fast, Efficient Service

Since Symmco is conveniently located at the crossroads of U.S. 219 and Interstate 80, a customer's order is only minutes away from shipping arteries that extend to all locations in the United States. With the largest inventory of sintered bearings, solid and cored bars and rectangular plate in the industry, Symmco can offer 24-hour service when critical parts require a quick turnaround.

Industries Served

Symmco manufactures a myriad of complex parts in a wide variety of materials for such industries as agriculture, lawn and garden, marine, heavy truck, electric motors, linear actuators, office machines, photographic equipment, appliances, medical equipment, transportation equipment, automobiles, pumps and conveyors, food processing machinery, and power tools, to name a few.

Cost conscious customers often ask whether or not a material they are now using can be matched with a P/M part. Although this can usually be accomplished, identical properties often are not necessary. In a vast majority of cases, powder metal parts can greatly reduce costs while maintaining or improving quality. Our engineering department is available to determine whether or not your particular part can be manufactured through the P/M process.



ISO 9001:2008 Registered

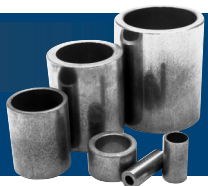
Through the design and implementation of Symmco's quality management system that includes effective documentation and records management, effective planning and implementation structure, good resource management, and efficient process control, measurement and analysis, the company has achieved ISO 9001:2008 Certification. The certification was confirmed and registered through SRI Quality System Registrar.

A high priority has always been placed on providing excellent customer service and making ongoing improvements. As an ISO registered company, those goals will continue to be of great importance in the ongoing effort to be the leading manufacturer and supplier of powder metal bearings and component parts.

Cost-Effective Parts Manufacturing

Designers and engineers are turning to the powder metal process with increasing frequency because of its cost-effectiveness and versatility. Powder metallurgy permits the combining of elemental powder metals which cannot be accomplished by other manufacturing processes.

P/M affords a wide range of possible applications for use in the manufacture of gears, cams, sprockets and many types of component parts that can result in substantial savings. For instance, intricate parts that are currently cast and machined can often be converted to P/M and produced to finished or near net shape, resulting in the elimination of the machining process. Thus the P/M process assures a quality, lower cost, high precision part and, in fact, can generate savings up to 90% over other manufacturing methods. Additionally, powder metal parts have a proven record of unexcelled wear resistance and long life.

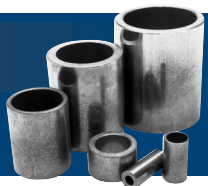


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1/8 .127	3/16 .1895	1/4 1/2	SS- 46- 4 - 8
1/8 .127	1/4 .252	1/8 1/4 3/8 1/2	SS- 48- 2 - 4 - 6 - 8
1/8 .127	5/16 .3145	1/4 3/8 1/2	SS- 410- 4 - 6 - 8
3/16 .189	1/4 .252	1/4 3/8 1/2 5/8 3/4	SS- 68- 4 - 6 - 8 -10 -12
3/16 .190	5/16 .3145	1/4 3/8 1/2 5/8 3/4 1	SS- 610- 4 - 6 - 8 -10 -12 -16
3/16 .190	3/8 .377	3/8 1/2 5/8 3/4	SS- 612- 6 - 8 -10 -12
1/4 .252	5/16 .315	1/4 3/8 1/2 3/4	SS- 810- 4 - 6 -8 -12
1/4 .252	3/8 .377	1/4 3/8 1/2 5/8 3/4 7/8 1 1-1/4	SS- 812- 4 - 6 - 8 -10 -12 -14 -16 -20
1/4 .252	7/16 .439	3/8 1/2 5/8 3/4 7/8 1	SS- 814- 6 - 8 -10 -12 -14 -16

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1/4 .252	1/2 .503	1/2 3/4 1 1-1/4	SS- 816- 8 - 12 - 16 -20
5/16 .3145	3/8 .378	1/4 3/8 1/2 5/8 3/4 7/8 1	SS-1012- 4 - 6 - 8 -10 -12 -14 -16
5/16 .3145	7/16 .440	1/4 3/8 1/2 5/8 3/4 7/8 1 1-1/8 1-1/4	SS-1014- 4 - 6 - 8 -10 -12 -14 -16 -18 -20
5/16 .3145	1/2 .503	3/8 1/2 5/8 3/4 7/8 1 1-1/4 1-1/2	SS-1016- 6 - 8 -10 -12 -14 -16 -20 -24
3/8 .377	7/16 .440	1/2 5/8 3/4 1	SS-1214- 8 -10 -12 -16
3/8 .378	1/2 .503	1/4 3/8 1/2 5/8 3/4 7/8 1 1-1/8 1-1/4	SS-1216- 4 - 6 - 8 -10 -12 -14 -16 -18 -20

Sintered Bronze Oil-Impregnated

Sleeve Bearings

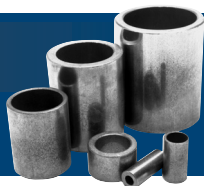


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
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		1/2	- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
3/8 .378	5/8 .628	3/8	SS-1220- 6
		1/2	- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-1/2	-24
3/8 .378	3/4 .753	3/8	SS-1224- 6
		1/2	- 8
		3/4	-12
		1	-16
		1-1/4	-20
7/16 .440	9/16 .565	3/8	SS-1418- 6
		1/2	- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
7/16 .440	5/8 .628	3/8	SS-1420- 6
		1/2	- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-1/2	-24
7/16 .4395	11/16 .6905	1/2	SS-1422- 8
		1	-16
		1-1/2	-24

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1/2 .502	5/8 .628	3/8	SS-1620- 6
		1/2	- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
1/2 .503	11/16 .690	1/2	SS-1622- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
1/2 .503	3/4 .753	3/8	SS-1624- 6
		1/2	- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
1/2 .503	13/16 .815	1/2	SS-1626- 8
		3/4	-12
		1	-16
		1-1/2	-24
1/2 .503	7/8 .878	1/2	SS-1628- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-1/2	-24
1/2 .503	1 1.004	3/4	SS-1632-12
		1	-16
		1-1/2	-24
		2	-32

Sintered Bronze Oil-Impregnated

Sleeve Bearings

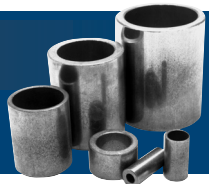


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
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		1	-16
		1-1/4	-20
		1-1/2	-24
9/16 .565	3/4 .753	1/2	SS-1824- 8
		3/4	-12
		1	-16
		1-1/4	-20
		1-1/2	-24
9/16 .565	13/16 .815	1/2	SS-1826- 8
		3/4	-12
		1	-16
		1-1/4	-20
		1-1/2	-24
5/8 .628	3/4 .753	1/2	SS-2024- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
5/8 .628	13/16 .815	1-1/2	-24
		1-1/2	-24
		1-3/4	-28
5/8 .628	7/8 .878	1/2	SS-2026- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
5/8 .628	7/8 .878	1/2	SS-2028- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
5/8 .628	15/16 .941	2	-32
		5/8	SS-2030-10
		3/4	-12
		1	-16

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
5/8 .628	1.003	1/2	SS-2032- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
11/16 .690	7/8 .878	2	-32
		3/4	SS-2228-12
		1	-16
		1-1/4	-20
		1-1/2	-24
3/4 .753	7/8 .878	1-3/4	-28
		2	-32
		1/2	SS-2428- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
3/4 .753	15/16 .941	1-1/4	-20
		1-1/2	-24
		1-5/8	-26
		1-3/4	-28
		1-7/8	-30
		2	-32
3/4 .753	1.003	1/2	SS-2430- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
		1-5/8	-26
		1-3/4	-28
3/4 .753	1.003	1-7/8	-30
		2	-32
		1/2	SS-2432- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
5/8 .628	15/16 .941	1-3/4	-28
		2	-32
		2-1/2	-40

**Sintered Bronze
Oil-Impregnated**

Sleeve Bearings

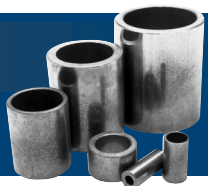


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
3/4 .753	1-1/8 1.128	1/2	SS-2436- 8
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		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
3/4 .753	1-1/4 1.253	3/4	SS-2440-12
		1	-16
		1-1/4	-20
		1-1/2	-24
13/16 .815	1 1.003	3/4	SS-2632-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
13/16 .815	1-1/16 1.065	1 1-1/4	SS-2634-16 -20
7/8 .878	1 1.003	1/2	SS-2832- 8
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
7/8 .878	1-1/16 1.0655	1 1-1/4	SS-2834-16 -20
7/8 .878	1-1/8 1.128	3/4	SS-2836-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-3/8	-22
		1-1/2	-24
		1-5/8	-26
		1-3/4	-28
		2	-32
		2-1/4	-36
		2-1/2	-40
7/8 .878	1-1/4 1.253	3/4	SS-2840-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		2	-32

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
15/16 .940	1-3/16 1.190	3/4	SS-3038-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		2	-32
15/16 .940	1-1/4 1.254	3/4	SS-3040-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
1 1.004	1-1/8 1.128	3/4	SS-3236-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
1 1.004	1-3/16 1.190	3/4	SS-3238-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
1 1.004	1-1/4 1.254	1/2	SS-3240- 8
		3/4	-12
		7/8	-14
		1	-16
		1-1/4	-20
		1-3/8	-22
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/4	-36
		2-1/2	-40
		3	-48
1 1.004	1-5/16 1.316	1	SS-3242-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40
		3	-48

Sintered Bronze Oil-Impregnated

Sleeve Bearings

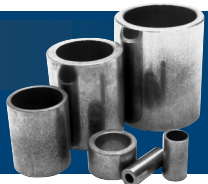


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1 1.004	1-3/8 1.379	3/4	SS-3244-12
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		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40
1 1.004	1-1/2 1.504	1	SS-3248-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40
		3	-48
1 1/16 1.065	1-5/16 1.316	1	SS-3442-16
		1-1/2	-24
		2	-32
		2-1/2	-40
1 1/8 1.129	1-1/4 1.254	1	SS-3640-16
		1-1/4	-20
		1-1/2	-24
1 1/8 1.129	1-5/16 1.316	1	SS-3642-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
1 1/8 1.129	1-3/8 1.379	3/4	SS-3644-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40
		3	-48
1 1/8 1.129	1-1/2 1.504	1	SS-3648-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1 3/16 1.192	1-7/16 1.441	1-1/4	SS-3846-20
		1-1/2	-24
		2	-32
		2-1/2	-40
		3	-48
1 3/16 1.192	1-1/2 1.504	1	SS-3848-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40
		3	-48
1 1/4 1.254	1-1/2 1.504	1/2	SS-4048- 8
		5/8	-10
		3/4	-12
		7/8	-14
		1	-16
		1-1/8	-18
		1-1/4	-20
		1-3/8	-22
		1-1/2	-24
		1-5/8	-26
		1-3/4	-28
		1-7/8	-30
		2	-32
1 1/4 1.254	1-5/8 1.629	2-1/4	-36
		2-1/2	-40
		3	-48
1 1/4 1.254	1-9/16 1.566	1	SS-4050-16
		1-1/2	-24
		2	-32
1 1/4 1.254	1-5/8 1.629	1	SS-4052-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/2	-40
		3	-48
1 1/4 1.254	1-3/4 1.754	1-1/2	SS-4056-24
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		2	-32
		2-1/2	-40
		3	-48

Sintered Bronze Oil-Impregnated

Sleeve Bearings

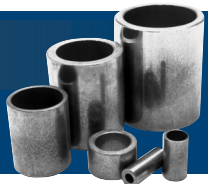


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1-5/16 1.316	1-9/16 1.566	1	SS-4250-16
		1-1/2	-24
		2	-32
1-5/16 1.316	1-5/8 1.629	1-1/4	SS-4252-20
		1-1/2	-24
		2	-32
		2-1/2	-40
1-3/8 1.379	1-5/8 1.629	3	-48
		1	SS-4452-16
		1-1/8	-18
		1-1/4	-20
		1-1/2	-24
		2	-32
1-3/8 1.379	1-5/8 1.629	2-1/2	-40
		3	-48
1-3/8 1.379	1-3/4 1.754	1	SS-4456-16
		1-1/2	-24
		2	-32
		2-1/2	-40
1-7/16 1.442	1-5/8 1.629	3	-48
		1	SS-4652-16
		1-1/2	-24
1-7/16 1.442	1-3/4 1.754	2	-32
		2-1/2	-40
		3	-48
		3/4	SS-4656-12
		1	-16
		1-1/4	-20
		1-1/2	-24
		1-3/4	-28
1-1/2 1.504	1-3/4 1.754	2	-32
		2-1/2	-40
		3	-48
		1/2	SS-4856-8
		3/4	-12
1-1/2 1.504	1-3/4 1.754	1	-16
		1-1/4	-20
		1-3/8	-22
		1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/4	-36
		2-1/2	-40
1-1/2 1.504	1-3/4 1.754	3	-48

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1-1/2 1.504	1-13/16 1.816	1	SS-4858-16
		1-1/2	-24
		1-5/8	-26
		2	-32
1-1/2 1.504	1-7/8 1.879	3	-48
		1-1/2	SS-4860-24
		2	-32
		2-1/2	-40
1-1/2 1.504	2	2-3/4	-44
		3	-48
		3-1/2	-56
		1	SS-4864-16
		1-1/2	-24
1-5/8 1.629	1-7/8 1.879	2	-32
		2-1/2	-40
		3	-48
		3-1/2	-56
		1-1/4	SS-5260-20
1-5/8 1.629	1-7/8 1.879	1-1/2	-24
		1-3/4	-28
		2	-32
		2-1/4	-36
		2-1/2	-40
1-5/8 1.629	2	3	-48
		1	SS-5264-16
		1 1/2	-24
		1-3/4	-28
		2	-32
1-11/16 1.6915	2-3/16 2.1925	2-1/2	-40
		3	-48
		4	-64
		1-3/4	SS-5470-28
1-3/4 1.754	2	2	-32
		3	-48
		4	-64
		1	SS-5664-16
		1-1/4	-20
		1-1/2	-24
1-3/4 1.754	2.004	1-3/4	-28
		2	-32
		2-1/2	-40
		3	-48

Sintered Bronze Oil-Impregnated

Sleeve Bearings



Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1-3/4 1.754	2-1/8 2.129	1-3/8	SS-5668-22
		1-1/2	-24
		2	-32
		2-1/2	-40
1-15/16 1.940	2-1/8 2.1285	3	-48
		2-1/2	SS-6268-40
		2	SS-6274-32
		2-1/2	-40
1-15/16 1.9405	2-5/16 2.3165	3	-48
		4	-64
		2	SS-6472-16
		1-1/2	-24
2 2.004	2-1/4 2.254	2	-32
		2-1/2	-40
		3	-48
		4	-64
2 2.004	2-3/8 2.380	1-1/2	SS-6476-24
		1-3/4	-28
		2	-32
		2-1/2	-40
		2-3/4	-44
		3	-48
		3-1/2	-56
		4	-64
2 2.004	2-1/2 2.505	1	SS-6480-16
		1-1/2	-24
		2	-32
		2-1/2	-40
		3	-48
		3-1/2	-56
2-1/4 2.254	2-5/8 2.630	4	-64
		2	SS-7284-32
		2-1/2	-40
		3	-48
2-1/4 2.254	2-3/4 2.755	2	SS-7288-32
		3	-48
2-3/8 2.379	2-3/4 2.755	2	SS-7688-32
		2-1/2	-40
		3	-48

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
2-1/2 2.504	2-3/4 2.754	2	SS-8088-32
		2-1/2	-40
		3	-48
		4	-64
2-1/2 2.504	2-7/8 2.880	2-1/4	SS-8092-36
		2-1/2	-40
		3	-48
		4	-64
2-1/2 2.504	3 3.005	2	SS-8096-32
		3	-48
		4	-64
		2-1/2	SS-8896-24
2-3/4 2.754	3-1/4 3.255	3	-40
		1-1/2	SS-88104-32
		2	-48
		3	-64
2-15/16 2.940	3-5/16 3.315	4	-48
		2	SS-94106-48
		3	-48
		4	-64
3 3.005	3-1/2 3.505	2	SS-96104-32
		3	-48
		4	-64
		2-1/2	SS-96112-32
3-1/4 3.253	4 4.006	3	-40
		3-1/2	-48
		4	-64
		2	SS-104116-64
4 4.0035	4 1/2 4.504	3	SS-112128-48
		4	-56
		5	-64
		4	SS-128144-64
4 4.003	4 5/8 4.628	6	-96
		4	SS-128148-64
		5	SS-144168-80
		2	SS-160184-32
4-1/2 5.004	5-1/4 5.755	5	SS-160184-32
		2	-48

If you do not see exactly what you need, please contact our sales department.

Sintered Bronze Oil-Impregnated

Flanged Bearings

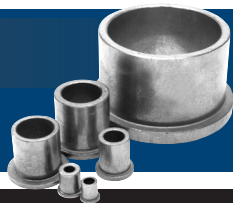


Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
3/16 .1895	5/16 .314	3/16	7/16	1/16	SF- 610- 3
		1/4			-4
		5/16			- 5
		3/8			- 6
		1/2			- 8
1/4 .252	3/8 .377	3/16	15/32	1/16	SF- 812- 3
		1/4			-4
		5/16			- 5
		3/8			- 6
		7/16			- 7
		1/2			- 8
		5/8			-10
		3/4			-12
1/4 .252	1/2 .503	5/8 3/4	5/8	1/16	SF- 816-10 -12
5/16 .315	7/16 .440	3/8	9/16	1/16	SF-1014- 6
		1/2			- 8
		5/8			-10
		3/4			-12
		7/8 1			-14 -16
5/16 .3145	1/2 .503	3/8	11/16	1/16	SF-1016- 6
3/8 .377	1/2 .502	1/4	5/8	1/16	SF-1216- 4
		5/16			- 5
		3/8			- 6
		1/2			- 8
		5/8			-10
		3/4			-12
		1			-16
3/8 .377	9/16 .5655	1/2 3/4	11/16	1/16	SF-1218- 8 -12
3/8 .377	5/8 .627	1/2	7/8	1/16	SF-1220 -8
		3/4			-12
		1			-16
		1-1/4			-20
7/16 .439	9/16 .565	1/2 5/8 3/4	11/16	1/16	SF-1418- 8 - 10 -12

Sintered Bronze Oil-Impregnated

Flanged Bearings

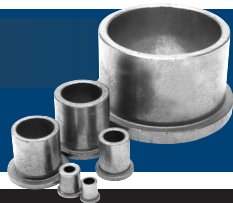


Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
7/16 .439	5/8 .628	5/8 3/4 1 1-1/4	7/8	1/8	SF-1420-10 -12 -16 -20
1/2 .502	5/8 .627	1/4 3/8 1/2 9/16 5/8 11/16 3/4 1 1-1/4 1-1/2	7/8	1/16	SF-1620- 4 -6 - 8 - 9 -10 -11 -12 -16 -20 -24
1/2 .502	11/16 .6905	5/16 1/2 3/4 7/8	7/8	1/8	SF-1622- 5 - 8 -12 -14
1/2 .502	3/4 .753	3/8 1/2 5/8 3/4 1 1-1/4 1-1/2	15/16	1/8	SF-1624- 6 -8 - 10 -12 -16 -20 -24
5/8 .627	3/4 .753	1/2 5/8 3/4 1 1-1/8 1-1/4 1-1/2	1	3/32	SF-2024- 8 -10 -12 -16 -18 -20 -24
5/8 .628	13/16 .815	3/4 1 1-1/4 1-1/2	1	1/8	SF-2026-12 -16 -20 -24
5/8 .628	7/8 .878	5/8 3/4 1 1-1/4 1-1/2	1	1/8	SF-2028-10 -12 -16 -20 -24

**Sintered Bronze
Oil-Impregnated**

Flanged Bearings

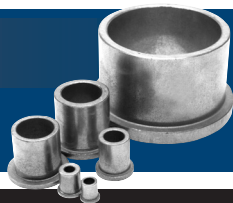


Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
5/8 .627	1 1.003	1	1-1/4	3/16	SF-2032-16
3/4 .753	7/8 .878	1/2 3/4 1 1-1/2	1-1/8	1/8	SF-2428- 8 -12 -16 -24
3/4 .753	15/16 .940	3/4 1 1-1/8 1-1/4 1-1/2	1-1/4	1/8	SF-2430-12 -16 -18 -20 -24
3/4 .753	1 1.003	1/2 5/8 3/4 1 1-1/8 1-1/4 1-1/2	1-1/8	1/8	SF-2432- 8 -10 -12 -16 -18 -20 -24
7/8 .877	1 1.003	1/2 3/4 1 1-1/4 1-1/2	1-1/4	1/8	SF-2832- 8 -12 -16 -20 -24
7/8 .878	1-1/8 1.128	5/8 3/4 1 1-1/4 1-1/2 1-3/4	1-1/2	1/8	SF-2836-10 -12 -16 -20 -24 -28
1 1.003	1-1/4 1.253	3/4 1 1-1/4 1-1/2 1-3/4 2	1-5/8	1/8	SF-3240-12 -16 -20 -24 -28 -32
1 1.003	1-3/8 1.378	3/4 1 1-1/2 1-3/4 2	1-5/8	3/16	SF-3244-12 -16 -24 -28 -32
1-1/8 1.127	1-3/8 1.377	3/4 1 1-1/4	1-3/4	1/8	SF-3644-12 -16 -20

Sintered Bronze Oil-Impregnated

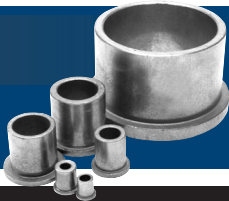
Flanged Bearings



Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
1-1/4 1.252	1-1/2 1.503	1/2 3/4 1 1-1/4 1-1/2 1-3/4	1-11/16	1/8	SF-4048- 8 -12 -16 -20 -24 -28
1-3/8 1.377	1-5/8 1.628	3/4 1	2	1/8	SF-4452-12 -16
1-1/2 1.503	1-3/4 1.752	1-1/2	2	3/32	SF-4856-24
1-5/8 1.6265	2 2.004	2	2-1/4	3/16	SF-5264-32
1-3/4 1.753	2-1/4 2.254	2-1/2	3	1/4	SF-5672-40
2 2.003	2-1/4 2.254	3/4 1 1-1/4 2	2-1/2	1/8	SF-6472-12 -16 -20 -32
2 2.002	2-1/2 2.501	2-3/8	3	3/8	SF-6480-38
2-3/4 2.752	3-1/4 3.255	1-1/2	4	3/16	SF-88104-24
3 3.002	3-1/2 3.502	2-3/8	4	3/8	SF-96112-38

Sintered Bronze Oil-Impregnated Flanged Bearings



Dimensions					
I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
1/4 .252	3/8 .378	1/4 3/8 1/2 5/8 3/4	1/2	1/16	BSF- 812- 4 -6 - 8 -10 -12
3/8 .377	1/2 .503	1/2 3/4 1	11/16	1/16	BSF-1216- 8 -12 -16
1/2 .502	5/8 .628	3/8 1/2 3/4 1 1-1/4 1-1/2	7/8	1/8	BSF-1620- 6 - 8 -12 -16 -20 -24
1/2 .502	3/4 .753	1/2 5/8 3/4 1 1-1/4	1	1/8	BSF-1624- 8 -10 -12 -16 -20
5/8 .627	3/4 .753	5/8 3/4 1 1-1/8	1	1/8	BSF-2024-10 -12 -16 -18
5/8 .627	7/8 .879	1/2 3/4 1 1-1/4	1-1/8	1/8	BSF-2028- 8 -12 -16 -20
3/4 .752	1 1.004	1/2 5/8 3/4 1 1-1/8 1-1/4 1-1/2	1-1/4	3/16	BSF-2432- 8 -10 -12 -16 -18 -20 -24
7/8 .877	1 1.004	1/2 3/4 1	1-1/4	3/16	BSF-2832- 8 -12 -16
1 1.003	1-1/4 1.254	3/4 1 1-1/4 1-1/2	1-1/2	1/8	BSF-3240-12 -16 -20 -24
1-1/4 1.2535	1-1/2 1.504	1 1-1/4 1-1/2 1-3/4	1-3/4	3/16	BSF-4048-16 -20 -24 -28
1-1/2 1.504	1-3/4 1.755	1-1/2	2	3/16	BSF-4856-24

Sintered Bronze Oil-Impregnated

Flanged Bearings

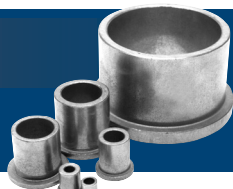


Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
1/8 .127	5/16 .315	1/4 3/8	3/8	3/64	FFB-25- 2 - 3
3/16 .189	5/16 .3145	1/8 1/4 3/8	3/8	3/64	FFB-35- 1 - 2 - 3
1/4 .252	3/8 .377	1/4 3/8 1/2 5/8 3/4	1/2	3/64	FFB-46- 2 - 3 - 4 - 5 - 6
5/16 .314	3/8 .377	3/8	1/2	3/64	FFB-56- 3
5/16 .314	7/16 .439	3/8 1/2 5/8 3/4 7/8	5/8	3/32	FFB-57- 3 - 4 - 5 - 6 - 7
5/16 .314	1/2 .502	3/8 1/2 5/8	11/16	3/32	FFB-58- 3 - 4 - 5
3/8 .377	1/2 .502	3/8 13/32 1/2 5/8 3/4 7/8 1 1-1/4	11/16	3/32	FFB-68- 3 - 3-1/4 - 4 - 5 - 6 - 7 - 8 -10
3/8 .377	9/16 .5645	1/2 3/4 1-1/4	3/4	1/8	FFB-69- 4 - 6 -10
3/8 .377	5/8 .627	3/8 1/2 5/8 3/4 1 1-1/4	7/8	1/8	FFB-610- 3 - 4 - 5 - 6 - 8 -10

Sintered Bronze Oil-Impregnated

Flanged Bearings

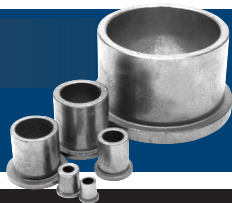


Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
3/8 .377	3/4 .753	1/2	1	1/8	FFB-612- 4
7/16 .439	5/8 .628	5/8 3/4 1-1/4	7/8	1/8	FFB-710- 5 -6 -10
1/2 .502	5/8 .628	3/8 1/2 5/8 3/4 7/8 1 1-1/4 1-1/2 1-3/4	7/8	1/8	FFB-810- 3 - 4 - 5 - 6 - 7 - 8 -10 -12 -14
1/2 .502	11/16 .690	1/2 5/8 3/4	15/16	1/8	FFB-811- 4 - 5 - 6
1/2 .502	3/4 .753	1/2 5/8 3/4 7/8 1 1-1/4 1-1/2	1	1/8	FFB-812- 4 - 5 - 6 - 7 - 8 -10 -12
9/16 .565	3/4 .753	1/2 3/4 1	1	1/8	FFB-912- 4 - 6 - 8
5/8 .626	3/4 .753	1/2 5/8 3/4 1 1-1/4	1	1/8	FFB-1012- 4 - 5 - 6 - 8 -10
5/8 .627	13/16 .815	3/4 5/8 1 1-1/4 1-7/16 1-1/2 2	1-1/16	5/32	FFB-1013- 6 - 5 - 8 -10 -11 1/2 -12 -16
5/8 .627	7/8 .878	5/8 3/4 1 1-3/4	1 1/8	5/32	FFB-1014- 5 - 6 - 8 -14
5/8 .627	1 1.003	3/4 1	1-1/4	5/32	FFB-1016- 6 - 8
3/4 .752	7/8 .878	3/4 1 1-1/4	1-1/8	5/32	FFB-1214- 6 - 8 - 10
3/4 .752	15/16 .940	1 1-1/4 1-1/2	1-3/16	5/32	FFB-1215- 8 -10 -12

**Sintered Bronze
Oil-Impregnated**

Flanged Bearings



Dimensions

I.D.	O.D.	LENGTH	FLANGE O.D.	FLANGE THICKNESS	SYMMCO NO.
3/4 .752	1 1.003	5/8 3/4 1 1-1/4 1-1/2 2	1-1/4	5/32	FFB-1216- 5 - 6 - 8 -10 -12 -16
7/8 .877	1 1.003	3/4 1 1-1/4	1-1/4	5/32	FFB-1416- 6 - 8 -10
7/8 .877	1-1/8 1.128	1 1-1/2	1-3/8	5/32	FFB-1418- 8 -12
1 1.002	1-1/4 1.253	3/4 1 1-1/4 1-1/2 2	1-1/2	3/16	FFB-1620- 6 - 8 -10 -12 -16
1 1.002	1-3/8 1.378	1 1-1/2 1-3/4	1-5/8	3/16	FFB-1622- 8 -12 -14
1-1/4 1.252	1-1/2 1.503	1 1-1/4 1-1/2	1-3/4	3/16	FFB-2024- 8 -10 -12
1-1/2 1.503	1-3/4 1.754	1-1/2	2-1/16	3/16	FFB-2428-12

If you do not see exactly what you need, please contact our sales department.

Sintered Bronze Oil-Impregnated

Thrust Bearings



Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1/4 .255	7/16 .4375	1/16	ST- 814 - 2
1/4 .255	1/2 .500	1/16	ST- 816 - 2
1/4 .255	5/8 .625	1/16	ST- 820 - 2
5/16 .315	5/8 .625	1/16	ST-1020- 2
5/16 .315	3/4 .750	1/16	ST-1024- 2
3/8 .385	5/8 .625	1/16	ST-1220- 2
3/8 .380	3/4 .750	1/32 1/16 1/8	ST-1224- 1 - 2 - 4
7/16 .440	3/4 .750	1/16 1/8	ST-1424- 2 - 4
1/2 .505	3/4 .750	1/16	ST-1624- 2
1/2 .505	7/8 .875	3/16	ST-1628- 6
1/2 .510	1 1.000	1/16 3/32 1/8	ST-1632- 2 - 3 - 4
9/16 .565	1-1/4 1.250	1/16 1/8	ST-1840- 2 - 4
5/8 .628	1 1.000	1/16 1/8	ST-2032- 2 - 4
5/8 .628	1-3/16 1.1875	1/16 3/32 1/8	ST-2038- 2 - 3 - 4
5/8 .628	1-1/4 1.250	1/16 1/8	ST-2040- 2 - 4
21/32 .656	1-1/2 1.500	1/16 1/8	ST-2148- 2 - 4

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
3/4 .753	1-1/4 1.250	1/16 1/8	ST-2440- 2 - 4
3/4 .753	1-3/8 1.375	1/16 1/8 1/4	ST-2444- 2 - 4 - 8
3/4 .765	1-9/16 1.5625	3/32	ST-2450- 3
3/4 .765	1-3/4 1.750	1/8	ST-2456- 4
7/8 .8905	1-1/2 1.500	1/16 1/8	ST-2848- 2 - 4
7/8 .880	2 2.000	1/8	ST-2864- 4
7/8 .8905	2-1/8 2.125	1/8	ST-2868- 4
1 1.003	1-1/2 1.500	1/16 1/8 3/16	ST-3248- 2 - 4 - 6
1 1.0155	1-5/8 1.625	1/16 1/8 1/4	ST-3252- 2 - 4 - 8
1 1.012	1-3/4 1.750	1/16 1/8	ST-3256- 2 - 4
1 1.016	2 2.000	1/8 3/16	ST-3264- 4 - 6
1 1.0155	2-7/8 2.875	1/8	ST-3292- 4
1-1/16 1.0625	2-3/8 2.375	1/16 1/8	ST-3476- 2 - 4
1-1/8 1.140	1-7/8 1.875	1/8	ST-3660- 4
1-1/4 1.253	1-11/16 1.690	1/8	ST-4054- 4
1-1/4 1.265	2 2.000	1/16 1/8	ST-4064- 2 - 4

Sintered Bronze Oil-Impregnated

Thrust Bearings

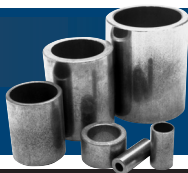


Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1-1/4 1.265	2-3/8 2.375	1/16 1/8	ST-4076- 2 - 4
1-1/4 1.255	3-5/16 3.312	1/16 1/8	ST-40106- 2 - 4
1-3/8 1.379	1-15/16 1.940	1/8	ST-4462- 4
1-1/2 1.503	2 2.000	1/8	ST-4864- 4
1-1/2 1.505	2-1/2 2.505	1/8	ST-4880- 4
1-1/2 1.510	3-1/2 3.500	3/16	ST-48112- 6
1-9/16 1.578	2-7/16 2.4375	1/8	ST-5078- 4
1-3/4 1.755	2-7/16 2.440	1/8	ST-5678- 4
1-3/4 1.765	2-5/8 2.625	1/8	ST-5684- 4
1-15/16 1.953	2-5/8 2.625	1/8	ST-6284- 4
2 2.011	3 3.000	1/8 3/16 1/4	ST-6496 - 4 - 6 - 8
2 2.031	3-5/8 3.625	3/16	ST-64116- 6
2-1/16 2.062	4 4.000	1/8 1/4	ST-66128- 4 - 8
2-1/2 2.502	3-1/4 3.250	1/8	ST-80104- 4
2-3/4 2.766	3-7/8 3.875	1/4	ST-88124- 8

If you do not see exactly what you need, please contact our sales department.

Sintered Bronze Oil-Impregnated

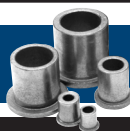
Metric Sleeve Bearings



Dimensions

SYMMCO'S P/N	ID	OD	OAL
SSM-12X15X12	12	15	12
SSM-12X15X16	12	15	16
SSM-12X15X20	12	15	20
SSM-12X16X12	12	16	12
SSM-12X16X16	12	16	16
SSM-12X18X16	12	18	16
SSM-16X20X16	16	20	16
SSM-16X20X20	16	20	20
SSM-20X24X20	20	24	20
SSM-20X26X20	20	26	20
SSM-20X28X20	20	28	20
SSM-25X30X30	25	30	30

Metric Flanged Bearings



Dimensions

SYMMCO'S P/N	ID	OD	OAL	FL OD	FLG THK
SFM-12X15X12X18X1.5	12	15	12	18	1.5
SFM-12X15X16X18X1.5	12	15	16	18	1.5
SFM-12X15X20X18X1.5	12	15	20	18	1.5
SFM-12X17X12X22X2.5	12	17	12	22	2.5
SFM-12X17X20X22X2.5	12	17	20	22	2.5
SFM-14X18X14X22X2	14	18	14	22	2
SFM-16X20X16X24X2	16	20	16	24	2
SFM-18X22X18X26X2	18	22	18	26	2
SFM-20X24X16X28X2	20	24	16	28	2
SFM-20X24X20X28X2	20	24	20	28	2
SFM-20X26X20X32X3	20	26	20	32	3
SFM-25X32X20X39X3.5	25	32	20	39	3.5

Tolerances

Sleeved Bushings

NOMINAL SIZE		TOLERANCES (in 0.001mm)	
Over	To	ID	OD
3	6	+.020 +.000	- -
6	10	+.030 +.010	+.040 +.020
10	18	+.030 +.010	+.050 +.030
18	30	+.030 +.010	+.060 +.040
30	50	+.040 +.010	+.070 +.040
50	65	- -	+.080 +.050

Flanged Bushings

NOMINAL SIZE		TOLERANCES		
Over	To	ID	OD	FOD
3	6	+.020 +.000	- -	-
6	10	+.030 +.010	+.040 +.020	±.130
10	18	+.035 +.010	+.050 +.030	±.130
18	30	+.040 +.010	+.070 +.040	±.160
30	50	+.050 +.010	+.080 +.040	±.200
50	65	- -	+.100 +.50	±.240

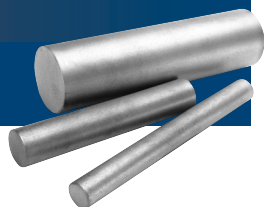
TOLERANCES

Length	To 25 mm Over 25 mm	+/- .12 mm +/- .5%
Flange Thickness	To 3 mm Over 3 mm	+/- .07 mm +/- .13 mm
Concentricity	ID to 40 mm ID over 40 mm	0.075 mm Max. 10 mm Max

*Other sizes available, please
contact our sales department.*

**Sintered Bronze
Oil-Impregnated**

Sintered Bronze Solid Bar Stock



All Symmco bars will finish to dimensions shown.

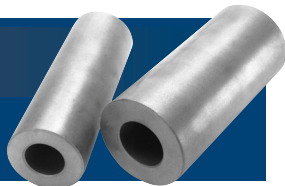
Dimensions

O.D.	LENGTH	SYMMCO NO.
1/4	2	SBS- 2- 2
3/8	3	SBS- 3- 3
1/2	6-1/2	SBS- 4- 6
5/8	6-1/2	SBS- 5- 6
3/4	6-1/2	SBS- 6- 6
7/8	6-1/2	SBS- 7- 6
1	6-1/2	SBS- 8- 6
1-1/8	6-1/2	SBS- 9- 6
1-1/4	6-1/2	SBS-10- 6
1-3/8	6-1/2	SBS-11- 6
1-1/2	6-1/2	SBS-12- 6
1-5/8	6-1/2	SBS-13- 6
1-3/4	6-1/2	SBS-14- 6
2	6-1/2	SBS-16- 6
2-1/4	6-1/2	SBS-18- 6
2-1/2	6-1/2	SBS-20- 6
2-3/4	6-1/2	SBS-22- 6
3	6-1/2	SBS-24- 6
3-1/4	6-1/2	SBS-26- 6
3-1/2	6-1/2	SBS-28- 6
4	6-1/2	SBS-32- 6
4-1/2	6-1/2	SBS-36- 6
5	6-1/2	SBS-40- 6
5-1/2	6-1/2	SBS-44- 6
6	6-1/2	SBS-48- 6
7	6-1/2	SBS-56- 6
8	6-1/2	SBS-64- 6

If you do not see exactly what you need, please contact our sales department.

**Sintered Bronze
Oil-Impregnated**

Sintered Bronze Cored Bar Stock



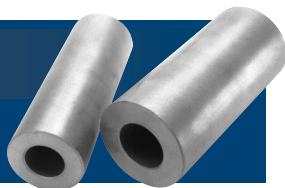
All Symmco bars will finish to dimensions shown.

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1/2	1	6-1/2	SCS- 48-6
5/8	1	6-1/2	SCS- 58-6
1/2	1-1/8	6-1/2	SCS- 49-6
5/8	1-1/8	6-1/2	SCS- 59-6
1/2	1-1/4	6-1/2	SCS- 410-6
5/8	1-1/4	6-1/2	SCS- 510-6
3/4	1-1/4	6-1/2	SCS- 610-6
5/8	1-3/8	6-1/2	SCS- 511-6
7/8	1-3/8	6-1/2	SCS- 711-6
1/2	1-1/2	6-1/2	SCS- 412-6
5/8	1-1/2	6-1/2	SCS- 512-6
3/4	1-1/2	6 1/2	SCS- 612-6
7/8	1-1/2	6-1/2	SCS- 712-6
1	1-1/2	6-1/2	SCS- 812-6
1	1-5/8	6-1/2	SCS- 813-6
5/8	1-3/4	6-1/2	SCS- 514-6
3/4	1-3/4	6-1/2	SCS- 614-6
1	1-3/4	6-1/2	SCS- 814-6
1-1/4	1-3/4	6-1/2	SCS-1014-6
1/2	2	6-1/2	SCS- 416-6
5/8	2	6-1/2	SCS- 516-6
3/4	2	6-1/2	SCS- 616-6
7/8	2	6-1/2	SCS- 716-6
1	2	6-1/2	SCS- 816-6
1-1/4	2	6-1/2	SCS-1016-6
1-3/8	2	6-1/2	SCS-1116-6
1-1/2	2	6-1/2	SCS-1216-6

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1-1/8	2-1/8	6-1/2	SCS- 917-6
3/4	2-1/4	6-1/2	SCS- 618-6
7/8	2-1/4	6-1/2	SCS- 718-6
1	2-1/4	6-1/2	SCS- 818-6
1-1/4	2-1/4	6-1/2	SCS-1018-6
1-1/2	2-1/4	6-1/2	SCS-1218-6
1-3/4	2-1/4	6-1/2	SCS-1418-6
3/4	2-1/2	6-1/2	SCS- 620-6
1	2-1/2	6-1/2	SCS- 820-6
1-1/4	2-1/2	6-1/2	SCS-1020-6
1-1/2	2-1/2	6-1/2	SCS-1220-6
1-3/4	2-1/2	6-1/2	SCS-1420-6
1-3/4	2-5/8	6-1/2	SCS-1421-6
3/4	2-3/4	6-1/2	SCS- 622-6
1-3/8	2-3/4	6-1/2	SCS-1122-6
1-1/2	2-3/4	6-1/2	SCS-1222-6
1-3/4	2-3/4	6-1/2	SCS-1422-6
2	2-3/4	6-1/2	SCS-1622-6
1	3	6-1/2	SCS- 824-6
1-1/4	3	6-1/2	SCS-1024-6
1-1/2	3	6-1/2	SCS-1224-6
1-3/4	3	6-1/2	SCS-1424-6
2	3	6-1/2	SCS-1624-6
2-1/4	3	6-1/2	SCS-1824-6
2-3/8	3	6-1/2	SCS-1924-6
2	3-1/4	6-1/2	SCS-1626-6
2-1/4	3-1/4	6-1/2	SCS-1826-6

**Sintered Bronze
Oil-Impregnated**

Sintered Bronze Cored Bar Stock



All Symmco bars will finish to dimensions shown.

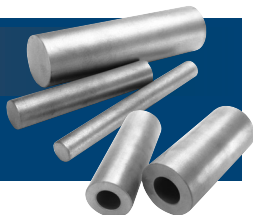
Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
1	3-1/2	6-1/2	SCS- 828-6
1-1/4	3-1/2	6-1/2	SCS-1028-6
1-1/2	3-1/2	6-1/2	SCS-1228-6
1-3/4	3-1/2	6-1/2	SCS-1428-6
2-1/4	3-1/2	6-1/2	SCS-1828-6
2-3/8	3-1/2	6-1/2	SCS-1928-6
2-1/2	3-1/2	6-1/2	SCS-2028-6
2-1/4	3-3/4	6-1/2	SCS-1830-6
2-1/2	3-3/4	6-1/2	SCS-2030-6
2-3/4	3-3/4	6-1/2	SCS-2230-6
3	3-3/4	6-1/2	SCS-2430-6
1	4	6-1/2	SCS- 832-6
1-1/4	4	6-1/2	SCS-1032-6
1-1/2	4	6-1/2	SCS-1232-6
2	4	6-1/2	SCS-1632-6
2-1/4	4	6-1/2	SCS-1832-6
2-3/8	4	6-1/2	SCS-1932-6
2-1/2	4	6-1/2	SCS-2032-6
3	4	6-1/2	SCS-2432-6
1-3/4	4-1/4	6-1/2	SCS-1434-6
2-1/2	4-1/4	6-1/2	SCS-2034-6
3-1/4	4-1/4	6-1/2	SCS-2634-6
1-3/4	4-1/2	6-1/2	SCS-1436-6
2	4-1/2	6-1/2	SCS-1636-6
2-1/4	4-1/2	6-1/2	SCS-1836-6
2-3/8	4-1/2	6-1/2	SCS-1936-6
2-1/2	4-1/2	6-1/2	SCS-2036-6

Dimensions			
I.D.	O.D.	LENGTH	SYMMCO NO.
3	4-1/2	6-1/2	SCS-2436- 6
3-1/2	4-3/4	6-1/2	SCS-2838-6
2	5	6-1/2	SCS-1640-6
2-1/2	5	6-1/2	SCS-2040-6
3	5	6-1/2	SCS-2440-6
3-1/2	5	6-1/2	SCS-2840-6
3-3/4	5	6-1/2	SCS-3040-6
2	5-1/2	6-1/2	SCS-1644-6
4	5-1/2	6-1/2	SCS-3244-6
3	6	6-1/2	SCS-2448-6
3-1/2	6	6-1/2	SCS-2848-6
4	6	6-1/2	SCS-3248-6
4-1/2	6	6-1/2	SCS-3648-6
4	7	6-1/2	SCS-3256-6
5	7	6-1/2	SCS-4056-6
4	8	6-1/2	SCS-3264-6
6	8	6-1/2	SCS-4864-6
6	9	6-1/2	SCS-4872-6
7	9	6-1/2	SCS-5672-6

*If you do not see exactly what you need,
please contact our sales department.*

**18-22% Copper
Balance Iron**

Sintered Iron-Copper Cored & Solid Bar Stock



All Symmco bars will finish to dimensions shown.

CORED

Dimensions

SYMMCO'S P/N	I.D.	O.D.	LENGTH
FCCS-1000	1/2	1	5
FCCS-1102	3/4	1 3/16	5
FCCS-1402	1/2	1-7/16	5
FCCS-1500	3/4	1-9/16	5
FCCS-1601	1	1-11/16	5
FCCS-1602	1-1/4	1-11/16	5
FCCS-1900	3/4	1-15/16	5
FCCS-1904	1-1/2	1-15/16	5
FCCS-2100	1	2-3/16	5
FCCS-2103	1-1/4	2-3/16	5
FCCS-2504	1-3/4	2-1/2	5
FCCS-2600	2	2-5/8	5
FCCS-2803	1-1/4	2-7/8	5
FCCS-3004	1-3/4	3	5
FCCS-3005	2	3	5
FCCS-3301	2-1/2	3-3/8	5
FCCS-3805	1-1/2	3-7/8	5
FCCS-4102	2-1/2	4-1/8	5
FCCS-4802	3	4-7/8	5

SOLID

Dimensions

SYMMCO'S P/N	O.D.	LENGTH
FCSS-300	3/8	3
FCSS-500	1/2	6 1/2
FCSS-600	5/8	5
FCSS-700	3/4	5
FCSS-800	7/8	5
FCSS-1000	1	5
FCSS-1100	1-3/16	5
FCSS-1300	1-5/16	5
FCSS-1400	1-7/16	5
FCSS-1500	1-9/16	5
FCSS-1800	1-13/16	5
FCSS-2000	2	5
FCSS-2800	2-7/8	5

Sintered Bronze Oil-Impregnated Cored Disk

DIMENSIONS

SYMMCO'S P/N	I.D.	O.D.	LENGTH
SCD-9001	3	9	5/16 (*)

Sintered Bronze Oil-Impregnated Solid Disk

DIMENSIONS

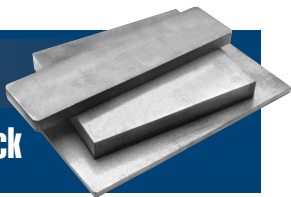
SYMMCO'S P/N	O.D.	THICK
SDD-8000	8	5/16 (*)
SDD-8000-3	8	3/8 (*)

Will finish to size shown (*) + .0035

If you do not see exactly what you need, please contact our sales department.

**Sintered Bronze
Oil-Impregnated**

Sintered Bronze Rectangular Plate Stock



Dimensions			
SYMMCO'S P/N	WIDTH	LENGTH	THICKNESS
SP 0.5 - 2.5 x 4	.50"	2.50"	.250"
SP 2 - 8.25 x 4	2.00"	8.125"	.250"
SP 2 - 8.25 x 8	2.00"	8.125"	.500"
SP 3 - 12 x 4	3.00"	12.00"	.250"
SP 3 - 12 x 8	3.00"	12.00"	.500"
SP 3 - 12 x 12	3.00"	12.00"	.750"
SP 3 - 12 x 16	3.00"	12.00"	1.000"
SP 5 - 6 x 2	5.00"	6.00"	.125"
SP 5 - 6 x 3	5.00"	6.00"	.1875"
SP 5 - 6 x 4	5.00"	6.00"	.250"
SP 5 - 6 x 5	5.00"	6.00"	.3125"
SP 5 - 6 x 6	5.00"	6.00"	.375"
SP 5 - 6 x 8	5.00"	6.00"	.500"
SP 5 - 6 x 10	5.00"	6.00"	.625"
SP 5 - 6 x 12	5.00"	6.00"	.750"
SP 5 - 6 x 16	5.00"	6.00"	1.000"
SP 5 - 8 x 2	5.00"	8.00"	.125"
SP 5 - 8 x 3	5.00"	8.00"	.1875"
SP 5 - 8 x 4	5.00"	8.00"	.250"
SP 5 - 8 x 8	5.00"	8.00"	.500"
SP 5 - 8 x 12	5.00"	8.00"	.750"
SP 5 - 8 x 16	5.00"	8.00"	1.000"
SP 6 - 12 x 2	6.00"	12.00"	.125"
SP 6 - 12 x 3	6.00"	12.00"	.1875"
SP 6 - 12 x 4	6.00"	12.00"	.250"
SP 6 - 12 x 6	6.00"	12.00"	.375"
SP 6 - 12 x 8	6.00"	12.00"	.500"
SP 6 - 12 x 10	6.00"	12.00"	.625"
SP 6 - 12 x 12	6.00"	12.00"	.750"
SP 6 - 12 x 16	6.00"	12.00"	1.000"

Plate stock will finish to sizes shown. Thickness tolerance is (+) plus .010, (-) minus .005.

If you do not see exactly what you need, please contact our sales department.

Symmco Typical Properties

Material Composition

MATERIAL COMPOSITION	SINTERED BRONZE	SINTERED IRON-COPPER
Copper	87.5 - 90.5	18 - 22
Iron	1.0 max	76 - 81
Tin	9.5 - 10.5	
Carbon/Graphite	0.3 max	0.3 max
Other elements	1	2

Physical & Mechanical Properties

MATERIAL COMPOSITION	SINTERED BRONZE	SINTERED IRON-COPPER
Density (gm. per cu. cent.)	6.4 - 6.8	5.8 - 6.2
Porosity (% by volume)	19 min.	19 min.
Tensile Strength (psi) as Sintered	14,000	22,000
Yield Strength in Comp.	11,000	
App. Rockwell Hardness as Sintered (Ref. Only)	H-45	F-35
K-Strength Constant	26,500	30,000

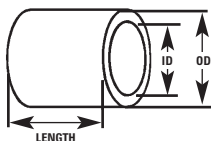
Comparable Specifications

MATERIAL COMPOSITION	SINTERED BRONZE	SINTERED IRON-COPPER
ASTM	B438/438M-05 Gr. 1; Type 2	B-439 Grade 4
MPIF	CT-1000-K26	FC-2000-K30
SAE	AMS-4805-D	
SAE (Old)	841	863
Military	B438/438M-05 Gr. 1; Type 2	B-439 Grade 4
Symmco Designation	Sym 1	Sym 77

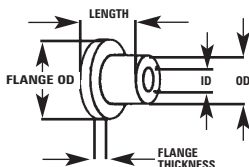
NOTE: This data is based on parts as manufactured by Symmco.

Tolerances

Plain Bearings:



Flanged Bearings:



PLAIN & FLANGED BEARINGS

Inside & Outside Diameters (Inches)

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1/2	+ .000 – .001
1/2	1	+ .000 – .001
1	1-1/2	+ .000 – .001
1-1/2	2-1/2	+ .000 – .0015
2-1/2	3-1/2	+ .000 – .002
3-1/2	4-1/2	+ .000 – .0025
4-1/2	5-1/2	+ .000 – .0035
5-1/2	6-1/2	+ .000 – .004

Length (Inches)

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1-1/2	± .005
1-1/2	3	± .0075
3	4-1/2	± .010
4-1/2	6	± .015

Flange Diameter - Based on Flange OD

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1-1/4	± .005
1-1/4	2-1/2	± .010
2-1/2	4	± .015
4	4-1/2	± .025

Flange Thickness - Based on Flange OD

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1-1/4	± .0025
1-1/4	2-1/2	± .005

Flange Fillets, Radii – Based on Body OD

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE MAX. TYPICAL
–	1	1/32
1	2	3/64
2	2-1/2	1/16
2-1/2	4	3/32

Concentricity, ID with respect to OD (Maximum Total Dial Indicator Reading) – Based on ID

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1	.003
1	1-1/2	.003
1-1/2	3	.004
3	4-1/2	.005
4-1/2	6	.006

Tolerances



Thrust Bearings

Inside Diameter

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1-1/4	± .005
1-1/4	2-1/2	± .010
2-1/2	4	± .015
THICKNESS		± .0025

Outside Diameter

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1-1/2	± .010
1-1/2	3	± .015
3	4-1/2	± .020

Parallelism of Faces - Based on OD

OVER (INCHES)	UP TO & INCLUDING	TOLERANCE
–	1-1/2	.003
1-1/2	3-1/2	.004
3-1/2	4	.005

Running Clearance

Proper running clearance for bearings depends to a great extent on the particular application. Only minimum recommended clearances for oil impregnated bearings used with the ground steel shafting are listed.

Clearance, Min. In.

SHAFT SIZE, IN.	BRONZE BASE	IRON BASE
Up to 0.760	0.0005	0.001
0.761 to 1.510	0.001	0.0015
1.511 to 2.510	0.0015	0.002
Over 2.510	0.002	0.0025

Press Fits

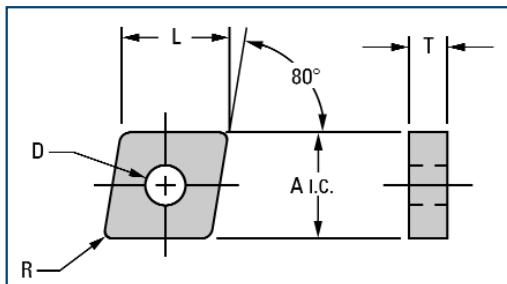
Plain cylindrical journal bearings are commonly installed by press fitting the bearing into a housing with an insertion arbor. For housings rigid enough to withstand the press fit without appreciable distortion and for bearings with thickness approximately one-eighth of the bearing outside diameter, the press fits shown are recommended.

Press Fit In.

OUTSIDE DIAMETER IN.	MINIMUM	MAXIMUM
Up to 0.760	0.001	0.003
0.761 to 1.510	0.0015	0.004
1.511 to 2.510	0.002	0.005
2.511 to 3.010	0.002	0.006
Over 3.010	0.002	0.007

Machining

Recommendations for machining self-lubricating bushings are predicated on maintaining the porosity of the overall part by avoiding closure of the surface microporosity during the machining process. Minimizing the loss of microporosity can be achieved by utilizing sharp tooling and proper feed rates.



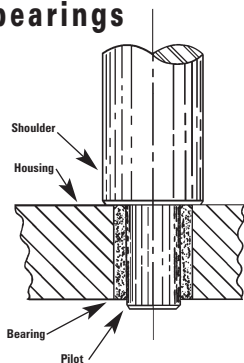
Material	Speed (SFM)	Feed rate (IPM)	Tool Nose Radius (Dim "R")
Bronze	500	.002"-.006	.003-.015
Iron-Copper	500	.002"-.006	.003-.015

Notes:

CNGG style inserts are recommended for general turning and boring. Tool nose radius can be .003" - .015", cutting edges must be "dead sharp."

- Where ID tolerance are to be held within 0.0005", roller-type burnishing tools may be used for large volumes. This operation will maintain porosity. (Amount rolled must not exceed .001".)
- Reaming is more susceptible to destroying surface microporosity versus single point tooling, and when used, sharp tooling is critical. Stock removal should be limited to (0.003" - 0.005") on the diameter.
- Boring - Carbide inserted tooling with "dead sharp" edges will produce quality finishes and maintain porosity.
- Oil impregnated parts should be re-oiled after machining.
- For additional information or technical assistance, please contact Symmco engineering support.

PILOTED DRIVER for proper insertion of sintered bearings



Suggestions for inserting sintered bronze bearings using a piloted driver:

1. Shoulder diameter should be larger than bearing.
2. Pilot length should exceed bearing length.
3. Pilot diameter should be approximately .0003 larger than desired bearing ID after insertion.
4. Edge of housing bore should be broken to prevent shearing of bearing OD after insertion.

REF:

Housing Bore -----1.2495/1.2505
 Shaft Diameter -----.9995/1.0000
 Bearing size -----1.003/1.004 ID x 1.253/1.254 OD
 Pilot Diameter -----1.0013 - 1.0015

Even though your available bearings may vary slightly in bore size, the proper use of a piloted driver for insertion will assure correct shaft clearance after assembly.

Depending on the bore size, bearings having dimensional differences of up to .003" can be interchanged.

Primary Material Selection Guide

Symmco Standard Bearing Materials

Material	Overview	Applications
Symmco: Sym 1 MPIF: CT-1000-K26 ASTM: B438-00a Grade 1; Type 2 SAE 841 - Bronze	Standard high quality bearing material. Stocked in standard bearing sizes as well as bar and plate stock. Highly wear resistant, ductile and corrosion resistant.	Business machines, lawn & garden, home appliances, conveyors, water pumps, industrial motors, tool & hobby, motion controls, hydraulics, farm machinery, mining equipment
Symmco: Sym 77 MPIF: FC-2000-K25 ASTM: B 439; Grade 4 SAE 863 Iron-Copper	More economical than bronze. Moderately higher strength rating. Lower PV value. Stocked in cored and solid bar stock.	Farm machinery, ATV's, pulleys, sheaves, wheel bearings, machine tools

- Symmco standard oil impregnated bearings are all ROHS compliant and manufactured at our facility in Sykesville, PA. **Made in the USA.**

PV Factor: the normal load carrying capacity of a bearing material and is expressed as a factor (Pressure or bearing load in pounds per square inch x Surface Velocity as in feet per minute.)

Material	PV	P (psi)		V (sfm)
		Static	Dynamic	
Sym 1	50,000	8,000	2,000	1,200
Sym 77	35,000	20,000	4,000	225

Calculating the PV factor:

P = the load in (psi) on the bearing area
(Bearing ID x Length)

V = surface velocity of the shaft in feet per minute (sfm)

PV = $W/LD \times \pi DS/12 = 3.14WS/12L$

W = bearing load (pounds)

L = length of bearing (inches)

D = inside diameter of bearing (inches)

S = shaft speed (rpm)

The PV factor lists the working value upper limits and should not be exceeded. Exceeding the limits may cause premature failure of the bearing.

General Information About Symmco Products

Lubrication: Symmco's standard lubrication is a high grade 100 viscosity, non-detergent, turbine oil with an effective operating range: (-10°F to + 200°F). Symmco offers additional specialty lubricants for high temperature applications (up to 300°F), as well as custom specifications such as food grade and military specifications (i.e. Mil-PRF-6085D, MIL-PRF-7808H and MIL-PRF-17331-H).

Storage: Oil impregnated bushings must be stored in non-absorbing containers. Paper, cloth and cardboard are not appropriate for storing bushings, as they will wick oil out of the bushing. Metal or plastic re-sealable bags are preferred. Machined parts or parts that have been sitting in stock for long periods of time should be re-oiled as needed.

Shaft Material: SAE 1137 or SAE 1141 are recommended shaft materials. Other steels containing at least 0.4% carbon may be used. Hard chromium plating is recommended when corrosion is a factor. Shaft finish should be 4RMS to 10RMS. Stainless steel should not be used with bronze bushings unless used in conjunction with a specialty or synthetic lubricant.

Surface Finish: Symmco finished bushings as measured by a chisel stylus indicate 125 RMS with the appearance of 63 RMS.

Wall Thickness: General rule of thumb to determine maximum acceptable length:

Bronze base: $(OD-ID)/2 \times 24$

Iron base: $(OD-ID)/2 \times 20$

When dealing with the "maximum limits" for thin wall tolerance, contact Symmco technical sales for clarification.

