Jergens®

WORKHOLDING SOLUTIONS | SPECIALTY FASTENERS | LIFTING SOLUTIONS

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Jergens Company Profile

Jergens Inc. was founded in 1942 by Jack Schron, Sr. and his father Christy, to provide standard components for building jigs and fixtures. Today the fourth generation of family involvement continues stronger than ever. The company currently operates as three separate divisions: Jergens Manufacturing, ASG, Division of Jergens, Inc., and Acme Industrial Company. While all divisions are vital to the Jergens family, the manufacturing division is the centerpiece of our capabilities. In June 1999, Jergens moved into a new 110,000 square foot facility and prides itself by manufacturing over 80% of it's product offering, as well as setting the standard for producing the highest quality components in our industry.

Jergens Manufacturing now comprises 3 distinct business units: Workholding Solutions, Lifting Solutions and Specialty Fasteners. Building on its reputation of uncompromising quality standards, Jergens is committed to helping its customers achieve leaner, more profitable manufacturing, and continues to add products and engineered solutions for an integrated approach to "Manufacturing Efficiency."

Today, you'll find our tooling components, fasteners and hoist rings at work in just about every industry on every continent. And our innovative Quick Change Workholding Solutions like Ball Lock® Mounting System have changed the way manufacturers worldwide think about productivity.

Jergens actively supports global, multinational and internationally based customers with metric dimensioned product offerings as well as many inch threaded products that are common in aerospace and industrial applications around the world. In important manufacturing markets in Canada, Europe, Asia and Latin America, Jergens representatives and stocking distributors have represented Jergens for more than 30 years. Our international representatives are trained technically on our products and provide expertise to customers and sub dealers in applying Jergens technologies to local industries. In recent years, two wholly owned affiliates were formed to serve the Chinese and Indian markets. Jergens (Shanghai) Commercial Co., Ltd, opened in 2006 and Jergens India Private Ltd., Navi Mumbai India opened in 2009. These fully registered trading subsidiaries employ trained multi-lingual engineers and commercial managers who provide marketing and importing, warehousing, distribution and technical support to our customers, distributors and local representatives.

Acme Industrial, located in Carpentersville, Illinois, is a premium manufacturer of precision drill bushings and keylocking thread inserts. Our ASG Division specializes in products for light assembly ranging from torquecontrolled electric screwdrivers to automation systems.

In addition to our unique product designs, we lead the industry with unparalleled customer service and delivery. Our website is a good example of our commitment to be the most innovative company in our industry. Customers and distributors can check stock and order on-line, view the Jergens catalog, and even download 2D, 3D and solid model CAD drawings in a variety of formats. Visit our website at www.jergensinc.com for the latest news and product information, as well as links to our other divisions. The Jergens family thanks you for your business.

Distribution of Jergens Products

Jergens is proud to be represented by a network of qualified distributors throughout the world. If you do not know the name of the distributor nearest you, please call Jergens Customer Service at 1-877-486-1454 or visit www.jergensinc.com.

Quality Policy

Jergens, Inc. manufactures and supplies only *quality* products. Our quality system is ISO 9001:2015 and AS9100:2016 Certified. Center-Pull and Side-Pull Hoist Rings are CE Certified. If there is a problem with any of our products, please contact your local Jergens Distributor or contact our Customer Service Department.

Design Aids

Jergens, Inc. offers several CAD drawing formats for use in fixture design. Our internet site (www.jergensinc.com) offers our complete catalog with links to CAD drawings on most of our products. We also offer 3D solid models of our products via the internet.

Application Assistance

Jergens Inc. maintains a complete Technical Sales Department to work with you. Please feel free to call upon their knowledge and experience. Application videos are available for the Ball Lock® Mounting System, 5-Axis and Hydraulic Vise Column products at www.jergensinc.com or Youtube channel.

Engineering Changes

Product improvement is a continuing process at Jergens, Inc. Specifications and engineering data are subject to change without notice. **If current information is critical to your design, it is suggested that you contact the Jergens Customer Service Department, or download the most current drawing from our website*, to verify any dimensions or specifications**.

Bar Coding

Jergens' boxed and bagged products are fully bar coded for automatic identification. The bar code labels contain the ASCII Code 39 format, which was chosen as being suitable for most bar code readers. Jergens' bar codes will identify part numbers and manufacturer's codes.

Specials

Jergens, Inc. will modify any item that is similar to our standard component parts. Please contact your Jergens Distributor with your request for a quote. Prints or sketches should be furnished if possible.

Material and Finish Specifications

Stressproof®: A severely cold worked, furnace treated steel bar. Produced by LaSalle patented process to obtain high strength, free machinability, good wear, and minimum warpage in the bar.

Alloy Steel - 4140 or equivalent

Low Carbon Steel - Free Machining 1215, 1018, or equivalent

52100: QQS-624

Custom Design and Build Expertise

All Jergens custom workholding fixtures are engineered exactly for your complex components and ensure the fastest changeover times. Many of our custom solutions are assembled using standard or lightly- modified standard products as a basis, so we turn around fixtures with the industry's shortest lead times. Full custom solutions are also offered.

*** 3D Solid Models are available in multiple formats from www.jergensinc.com**

Jergens, Inc.
Manufacturing Number: 697830
FSCM #94882

ISO 9001:2008
Registration #00010133

ISO 9001:2015
Certificate Number: 20.184.2

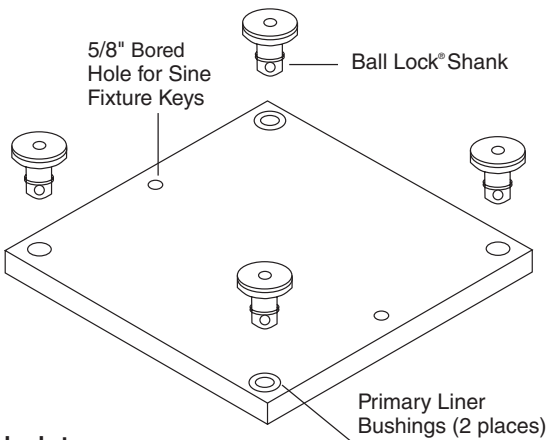
AS9100:2016
Certificate Number: 20.184.1

Quick Change Kits

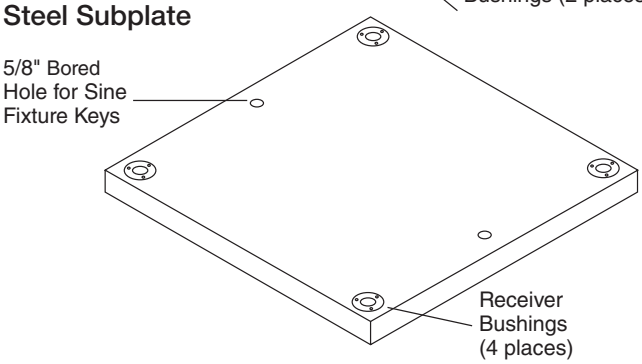
The Jergens Ball Lock® Quick Change Kits speed fixture changeover in all types of manufacturing operations. Each kit includes two aluminum fixture plates with two primary liner bushings installed; one steel subplate with receiver bushings installed, and four 20mm Ball Lock® shanks with working loads of 3000 lbs. each. While one fixture plate is on the machine, the operator can load parts on the other. This minimizes downtime for true set-up reduction. To enable the subplate to be mounted on a slotted table without the need to indicate the subplate, sine fixture keys can be used. The sine fixture key bored holes are oriented parallel to the receiver bushings on the subplate and to the liner bushings on the fixture plate. These also allow the fixture plate to be mounted on a toolroom mill without the need to indicate it. This is extremely useful when machining location points on your fixture.

Everything You Need to Change Fixtures in Less Than One Minute

Aluminum Fixture Plate



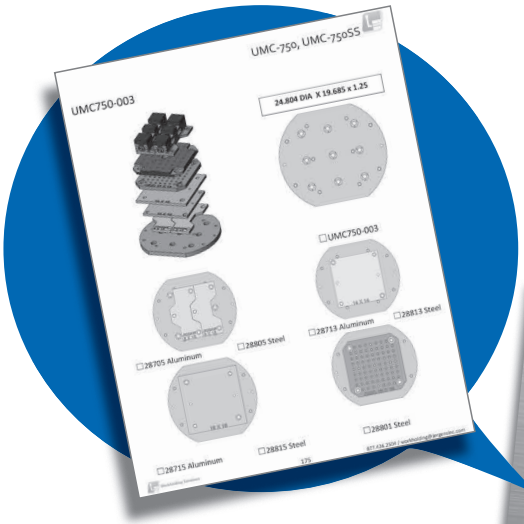
Steel Subplate



Quick Change Kits

Part Number	Kit Includes
49001	2 - 28713 (14"x14"x3/4") aluminum fixture plates with 20mm liner bushings installed 1 - 49101 (16"x16"x1-1/8") steel subplate with receiver bushings installed 4 - 49601 (20mm) Ball Lock® Shanks
49002	2 - 28715 (16"x16"x3/4") aluminum fixture plates with 20mm liner bushings installed 1 - 49101 (16"x16"x1-1/8") steel subplate with receiver bushings installed 4 - 49601 (20mm) Ball Lock® Shanks
49004	Bridgeport™-Style 2 - 28731 (10"x15"x3/4") aluminum fixture plates with 16mm liner bushings installed 1 - 49121 (10"x15"x3/4") steel subplate with receiver bushings installed 4 - 49608 (16mm) Ball Lock® Shanks

Ball Lock® Selector Guides for Popular Machine Tools



Use these guides to quickly select the correct Ball Lock® Mounting System for your Machine Tool.

To view our Ball Lock® Selector Guides visit our website at www.jergensinc.com/showcase-balllock-selector-guides

We Put It All Together… In Seconds.

METRIC

Maximize productivity levels and dramatically increase throughput with Ball Lock®.

Looking to realize the full benefits of lean manufacturing? Then you need the one system that puts it all together, so you can put it all together…and that's Ball Lock®.

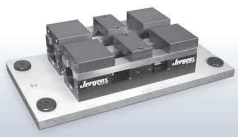
Ball Lock® is the industry's most popular quick-change, fixturing-flexible mounting system that can be configured to create lean-optimized solutions for your most demanding needs.

The original quick change system for fast set-ups and machine changeover.


SHANKS

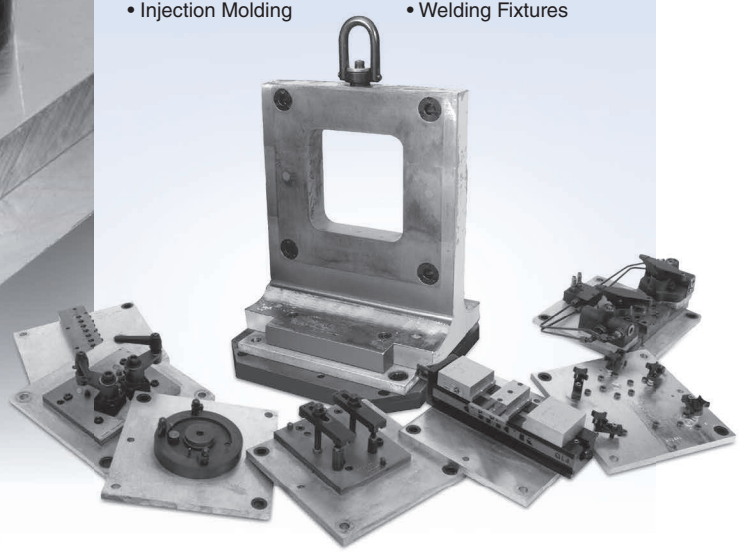

RECEIVERS


FIXTURE PLATES & SUBPLATES

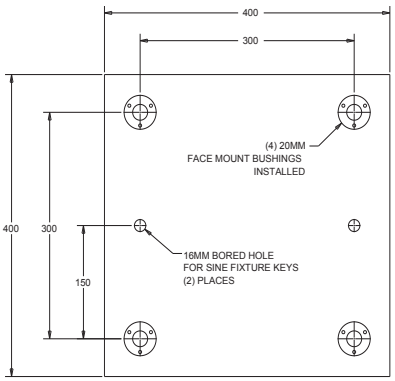

VISES

The Ball Lock® Mounting System is used as a Quick Change Solution on the following:

- CNC Machines
- Palletized Fixtures
- Stamping
- Fabricating
- Injection Molding
- Packaging Machines
- Assembly Machines
- EDM
- Robotics
- Welding Fixtures



Pre-Machined Ball Lock® Steel Subplate

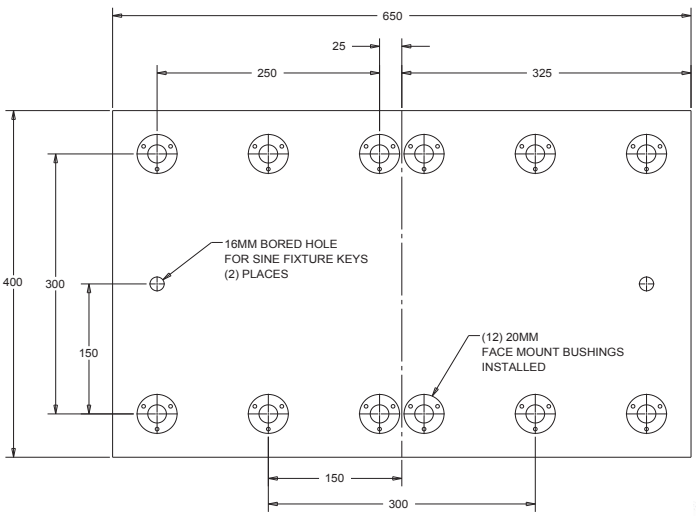


400 x400 Subplate

Part Number	Wt. (kg)
59101	37

Equipped with four 20mm receiver bushings for use with 350x350 or 400x400 (mm) fixture plates. Ideal for horizontal machining centers or multiple pallet machining centers.

- FreMax™ 15 steel plate or equivalent
- Thickness: 28.57mm ±0.13mm
- Parallel within 0.025mm



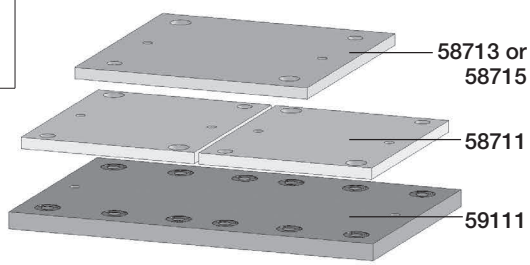
650x400 Dual Station Subplate

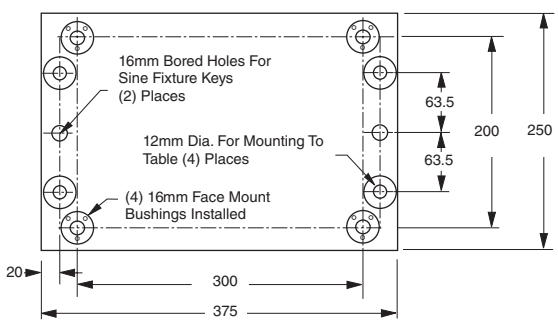
Part Number	Wt. (kg)
59111	58

Equipped with twelve installed 20mm receiver bushings to easily locate and mount Jergens Standard Fixture Plates.

- Ideal for vertical machining centers
- Thickness: 28.57mm ±0.13mm
- Parallel within 0.025mm

Aluminum Plate Part Number	Steel Plate Part Number	Number of Fixture Plates	Plate Width and Length (mm)
58713	58813	1	350x350
58715	58815	1	400x400
58711	58811	2	300x350





250x375 Bridgeport™- Style Subplate

Part Number	Wt. (kg)
59121	15

Equipped with four installed 16mm receiver bushings and 12mm mounting holes. Used with the Bridgeport™ style fixture plates 58731 or 58831.

- Thickness: 19.05mm ±0.13mm
- Parallel within 0.025mm

Ball Lock® Quick Change Kits include all components needed in a single package. See page 43 for details.

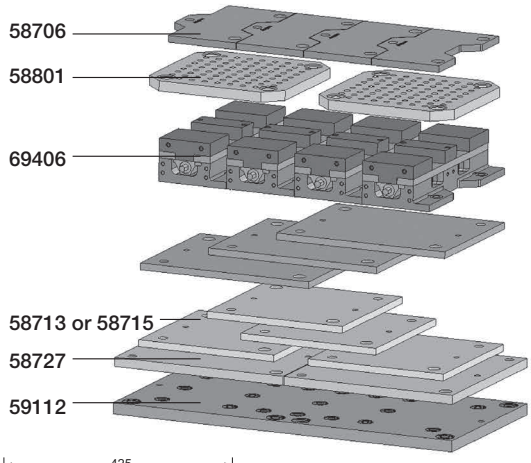
Multi-Purpose Subplates

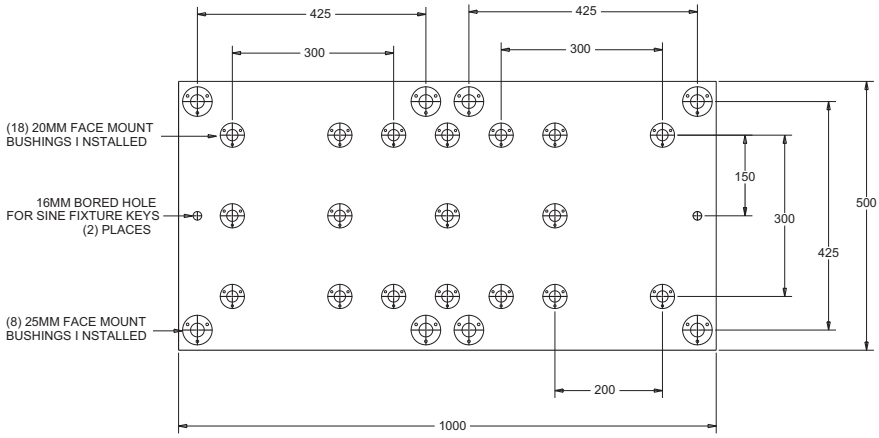
1000x500 Multi-Purpose Subplate

Part Number	Wt. (kg)
59112	130

The Jergens Multi-Purpose Subplate accommodates a wide variety of fixture plates and vises. This versatility facilitates using the same VMC for diverse products in repetitive runs-long and short batch sizes.

- FreMax™ 15 Steel or Equivalent
- Thickness: 31.75mm ±0.13mm
- Parallel within 0.025mm





Fixture Plate Options for Multi-Purpose Subplates – Aluminum or Steel

Fixture Plate*/Vise Part Number	Thickness of Fixture Plate	Number of Fixture Plates/Vise That Mount on Multi-Purpose Subplate	Receiver Bushing Center Distance	Receiver Bushing Size	Required Ball Lock® Shank Part Number	Number of Shanks Required Per Fixture Plate/Vise
58713 (350 x 350) Fixture Plate	20mm	2	300 x 300	20 mm	**49651**	4
58715 (400 x 400) Fixture Plate	20mm	2	300 x 300	20 mm	**49651**	4
58801 (400 x 400) Modular Grid Plate	30mm**	2	300 x 300	20 mm	**49652**	4
58706 Jigsaw Interlocking Plate	20mm	4	300 x 200	20 mm	**49651**	3
58727 (500 x 500) Fixture Plate	25mm	2	425 x 425	25 mm	**49662**	4
69406 150mm Jigsaw Vise	20mm	4	300 x 200	20 mm	**49651**	3

* See next page for dimensional data on fixture plates. Part numbers shown for aluminum plates, also available in steel.
** Counterbored to 25mm at mounting holes.

Fixture Plates for Use on Multi-Purpose Subplate

350x350x20mm Fixture Plate

Aluminum Plate Part Number	Wt (lbs)
58713	6

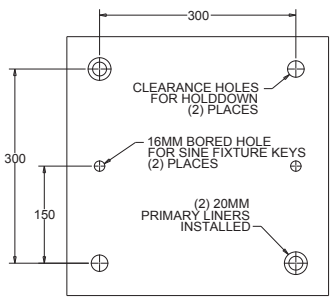
Steel Plate Part Number	Wt (lbs)
58813	19

400x400 Fixture Plate

Aluminum Plate Part Number	Wt (lbs)
58715	8

Steel Plate Part Number	Wt (lbs)
58815	25

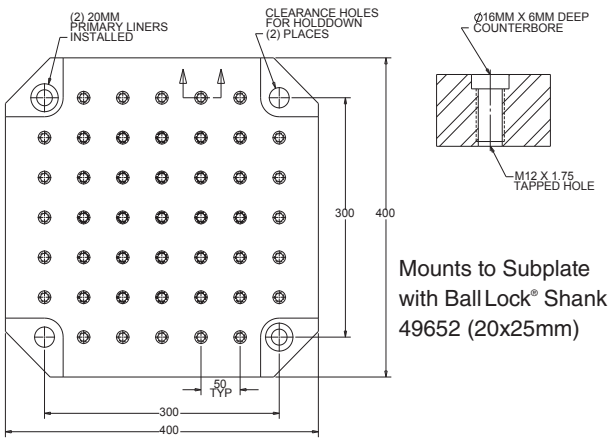
- Cast Aluminum or FreMax™ 15 Steel or equivalent
- Thickness: 20mm ±0.13mm
- Parallel within 0.025mm Steel
- Mounts to subplates with Ball Lock® Shank 49651 (20x20mm)



400x400 Modular Grid Fixture Plate

Aluminum Plate Part Number	Wt (lbs)
58801	80

- FreMax™ 15 Steel or equivalent
- Thickness: 28.57mm ±0.13mm
- Parallel within 0.025mm Steel



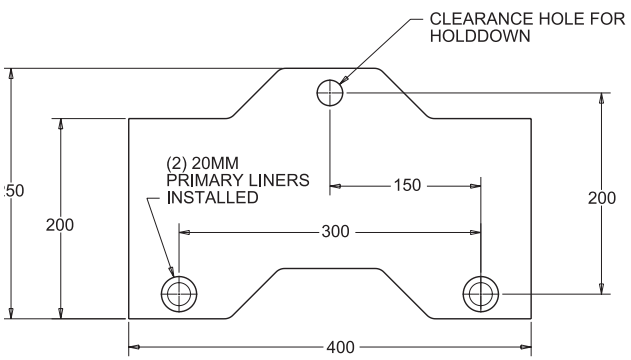
Mounts to Subplate with Ball Lock® Shank 49652 (20x25mm)

Jigsaw Interlocking FixturePlate

Aluminum Plate Part Number	Wt (lbs)
58706	4

Steel Plate Part Number	Wt (lbs)
58806	12

- Material: Cast Aluminum or FreMax™ 15 Steel or equivalent
- Thickness: 20mm ±0.13mm
- Parallel within 0.025mm Steel
- For use with narrow base 100mm or 150mm vise models
- Design allows close spacing of vises for more parts per run
- Mounts to Subplates using Ball Lock® Shank 49651 (20x20mm)
- Useful for high density fixturing

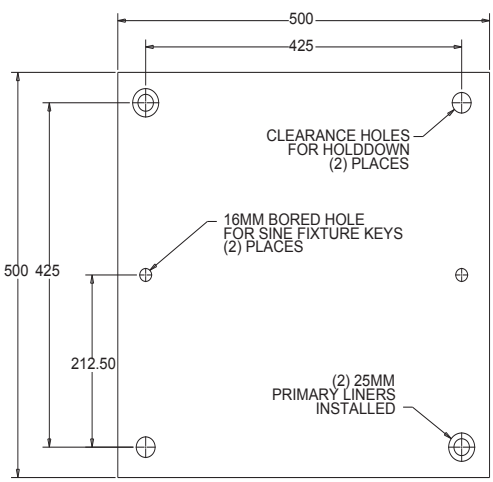


500x500x25mm Fixture Plate

Aluminum Plate Part Number	Wt (lbs)
58727	17

Steel Plate Part Number	Wt (lbs)
58827	48

- Cast Aluminum or FreMax™ 15 Steel or equivalent
- Thickness: 25mm ±0.13mm
- Parallel within 0.025mm Steel
- Mounts to Subplates using Ball Lock® Shank 49662 (25x25mm)



Ball Lock® Fixture Plates

- Cast Aluminum; or FreMax™ 15 Steel or equivalent
- Thickness ±0.13mm
- Parallel within .025mm Steel
- 6061–T-651 plates, flat within 0.03mm available upon request

Ball Lock® Fixture Plates with 2 Primary Liners Installed

Part Number				Plate Dimensions (mm)	Plate Thickness ±0.13(mm)	Ball Lock® Shank Size (mm)	Ball Lock® Shank Part Number
Aluminum	Weight (Kgs)	Steel	Weight (Kgs)				
58706	4	**58806**	12	250 x 400	20	20	**49651**
58711	5	**58811**	16	300 x 350	20	20	**49651**
58713	6	**58813**	19	350 x 350	20	20	**49651**
58715	8	**58815**	25	400 x 400	20	20	**49651**
58727	17	**58827**	48	500 x 500	25	25	**49662**
—	—	**58801**	38	400 x 400	28.57	20	**49652**
58731	5	**58831**	15	375 x 250	20	16	**49657**

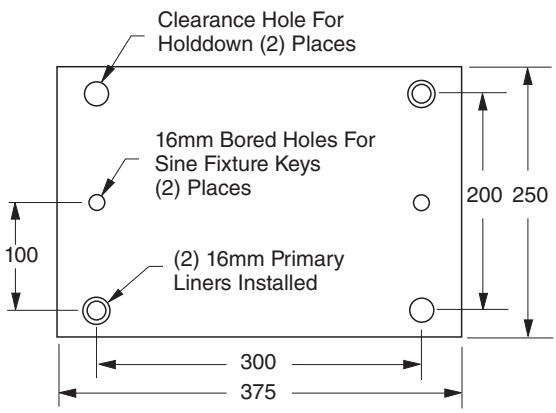
- Machined to close tolerances
- Repeatability ±0.013mm or better
- Reduces fixture set-up and assembly time
- Provided with 16mm bored holes for sine fixture keys
- For horizontal or vertical machining centers, Tool Room Mills machines, or multiple pallet machining centers

Custom Sizes Available
Jergens will make Ball Lock® fixture plates or subplates to your specifications. Call 1-877-426-2504 for further information.

375x250x20mm Fixture Plate Bridgeport™ Style

Aluminum Plate Part Number	Wt. (kg)
58731	5

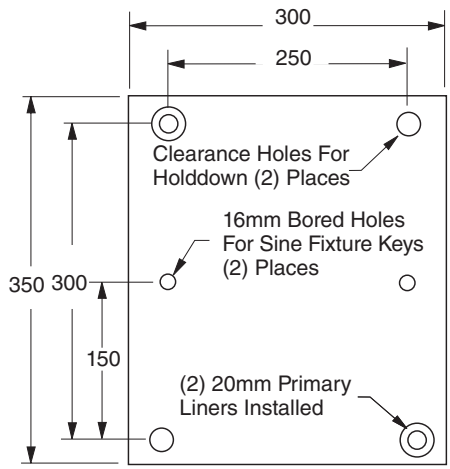
Steel Plate Part Number	Wt. (kg)
58831	15



300x350x20mm Fixture Plate

Aluminum Plate Part Number	Wt. (kg)
58711	5

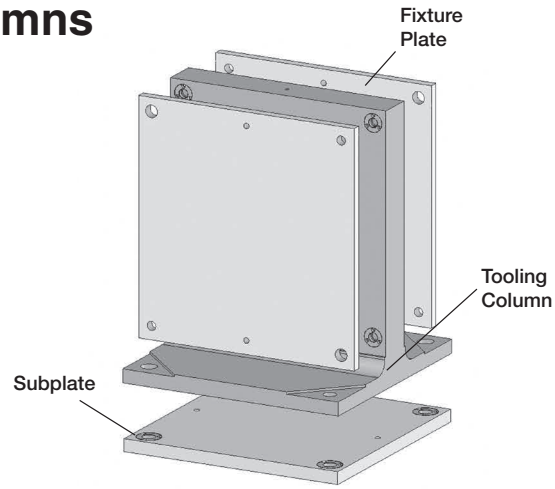
Steel Plate Part Number	Wt. (kg)
58811	16



Pre-Machined Ball Lock® T-Columns

- Class 40 Cast Iron
- Also available in Aluminum
- Ball Lock® Receiver Bushings and Liners installed
- Provides accurate fixturing base for CNC machining centers
- Perpendicularity is 0.025 mm per 250 mm

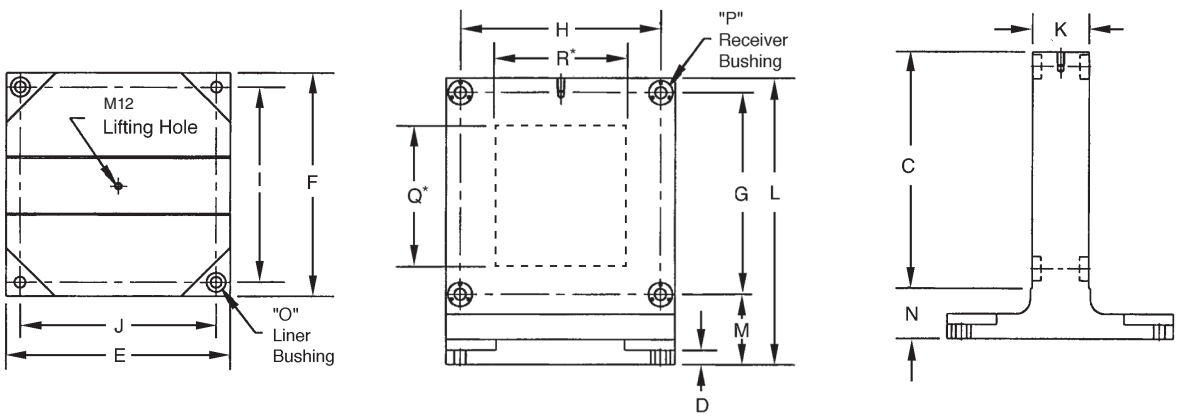
Custom Sizes Available with or without Ball Lock®
We are able to quote you on your special requirement with or without the Ball Lock® Mounting System.
Call 1-877-426-2504 for design specification information.



Cast Iron T-Columns With Ball Lock® Receiver Bushings Installed

See page 34 for Metric Fixture Plates and Subplates

Pallet Size (mm)	Part Number	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)	M (mm)	N (mm)	O (mm)	P (mm)	Wt. (kg)
400	**69151**	410	25	400	400	350	350	350	350	100	500	125	90	20	20	190
500	**69161**	560	25	500	500	475	425	425	425	120	650	137.5	90	25	25	310
630	**69171**	660	40	630	630	575	550	525	525	100	750	137.5	90	35	25	500



*Note: Window sections are also available on T-Columns. Specify window size and location (Q and R Dimensions).

Corresponding Fixture Plates, Subplates and Ball Lock® Shanks

Pallet Size (mm)	T-Column Part Number	Aluminum Fixture Plate Part Number	Steel Fixture Plate Part Number	Fixture Plate Size	Fixture Plate Ball Lock® Shank Part Number	Shank Size	Subplate Part Number	Subplate Ball Lock® Shank Part Number	Shank Size
400	**69151**	**58717**	**58817**	400 x 400	**49651**	20 x 20	**59102**	**49652**	20 x 25
500	**69161**	**58745**	**58845**	500 x 550	**49662**	25 x 25	**59103**	**49662**	25 x 25
630	**69171**	**58746**	**58846**	625 x 650	**49662**	25 x 25	**59104**	**49683**	35 x 40

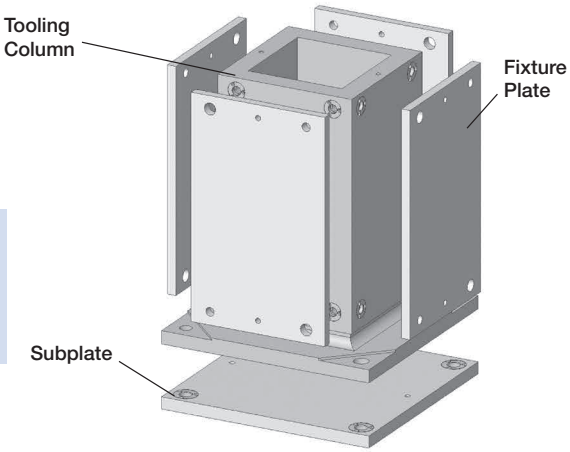
Use Hoist Ring **23462**, see Lifting Solutions Catalog or Master Catalog for lifting and handling – Order separately.

Engineering Changes

Product improvement is a continuing process at Jergens. Specifications and engineering data are subject to change after publishing. Contact Jergens Technical Sales Department to verify any dimensions or specifications.

Pre-Machined Ball Lock® 4-Sided Tooling Columns

- Class 40 cast iron
- Also available in Aluminum
- Ball Lock® Receiver Bushings and Liner Bushings installed
- Provides accurate fixturing base for CNC machining centers
- Perpendicularity is 0.025 mm per 250 mm

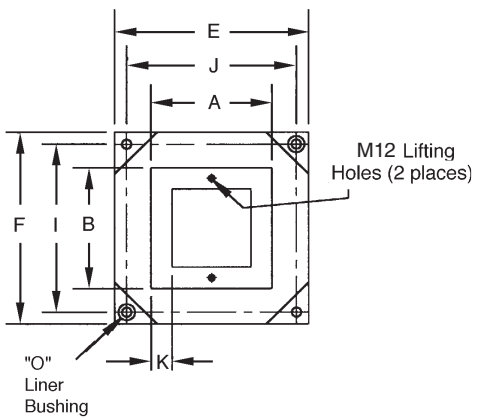


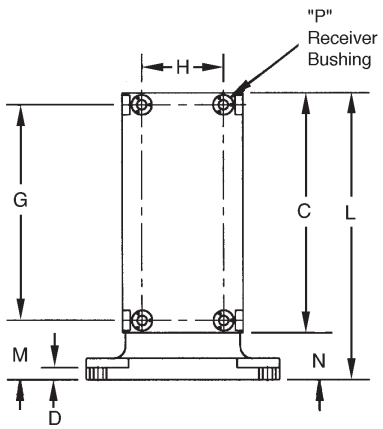
Custom Sizes Available with or without Ball Lock®
We are able to quote you on your special requirement with or without the Ball Lock® Mounting System.
Call 1-877-426-2504 for design specification information.

Cast Iron 4-Sided Tooling Columns With Ball Lock® Receiver Bushings Installed

See page 34 for Metric Fixture and Subplates

Pallet Size (mm)	Part Number	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)	M (mm)	N (mm)	O (mm)	P (mm)	Wt. (kg)
400	**69051**	250	250	505	25	400	400	450	150	350	350	40	600	125	95	20	20	225
500	**69061**	300	300	630	25	500	500	550	175	425	425	40	725	137.5	95	25	25	320
630	**69071**	400	400	655	40	630	630	575	275	525	525	45	750	137.5	95	35	25	495





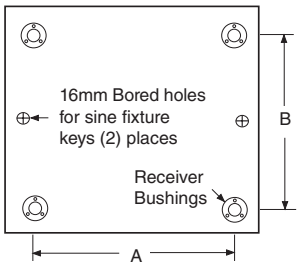
Corresponding Fixture Plates, Subplates and Ball Lock® Shanks

Pallet Size (mm)	T-Column Part Number	Aluminum Fixture Plate Part Number	Steel Fixture Plate Part Number	Fixture Plate Size	Fixture Plate Ball Lock® Shank Part Number	Shank Size	Subplate Part Number	Subplate Ball Lock® Shank Part Number	Shank Size
400	**69051**	**58741**	**58841**	250 x 500	**49651**	20 x 20	**59102**	**49652**	20 x 25
500	**69061**	**58742**	**58842**	300 x 625	**49662**	25 x 25	**59103**	**49662**	25 x 25
630	**69071**	**58743**	**58843**	400 x 650	**49662**	25 x 25	**59104**	**49683**	35 x 40

Use Hoist Ring **23462**, see Lifting Solutions Catalog or Master Catalog for lifting and handling – Order separately.

Engineering Changes
Product improvement is a continuing process at Jergens. Specifications and engineering data are subject to change after publishing. Contact Jergens Technical Sales Department to verify any dimensions or specifications.

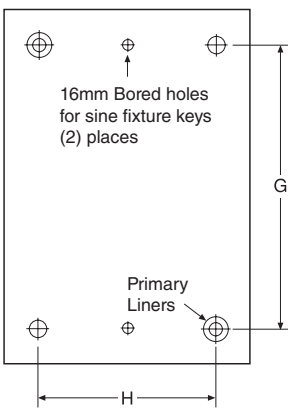
Subplates for Tooling Columns and Fixture Plates



Standard Steel Subplates for Tooling Columns

Subplate Mounting holes can be provided per customer specification.
Supplied with Ball Lock® Receiver Bushings installed.

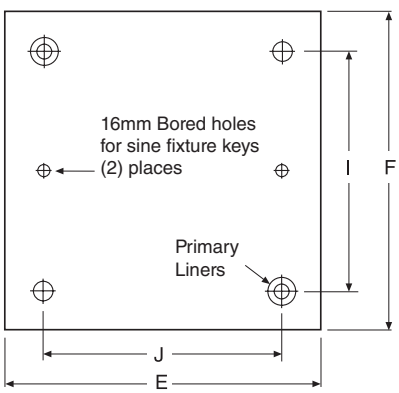
Part Number	Pallet Size (mm)	For Tooling Columns	Ball Lock® Pattern A (mm)	Ball Lock® Pattern B (mm)	Receiver Size (mm)	Thickness of Subplate (mm) ±0.13	Wt. (Kgs)
59102	400	**69151, 69051**	350	350	20	28.57	31
59103	500	**69161, 69061**	425	425	25	31.75	59
59103-C	500	**69151, 69051**	350/425	350/425	20/25	31.75	59
—	—	**69161, 69061**	Dual	Dual	Dual	—	—
59104	630	**69171, 69071**	525	525	35	34.92	124



Fixture Plates for Standard Tooling Columns and T-Columns

Supplied with 2 primary Ball Lock® Liner Bushings installed.

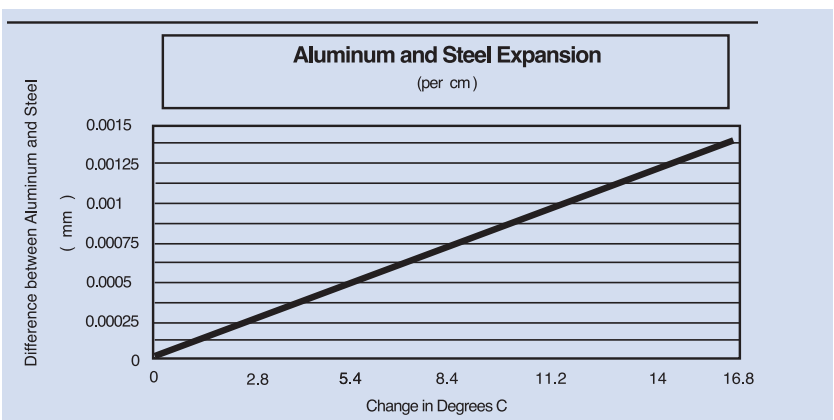
Pallet Size (mm)	Part Number Aluminum	(kg)	Steel	(kg)	For Tooling Columns	Type	Fixture Plate Size (mm)	Fixture Plate Thickness (mm) ±0.13	Ball Lock® Pattern H (mm)	Ball Lock® Pattern G (mm)	Liner Size (mm)
400	**58741**	7	**58841**	19	**69051**	4-S	250x500	20	150	450	20
500	**58742**	13	**58842**	36	**69061**	4-S	300x625	25	175	550	25
630	**58743**	18	**58843**	50	**69071**	4-S	400x650	25	275	575	25
400	**58717**	8	**58817**	25	**69151**	T	400x400	20	350	350	20
500	**58745**	19	**58845**	53	**69161**	T	500x550	25	425	475	25
630	**58746**	27	**58846**	63	**69171**	T	625x650	25	550	575	25



Fixture Plates for Tooling Column Subplates

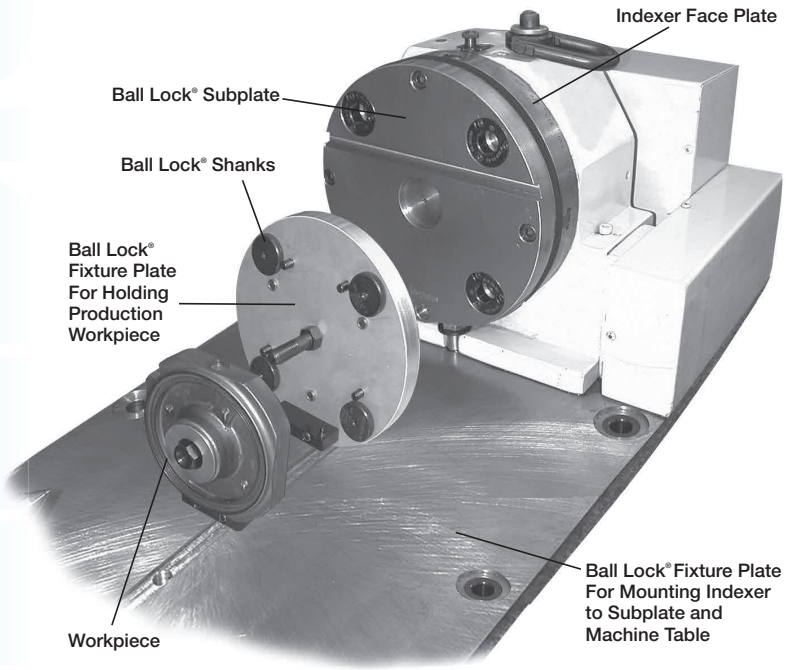
Supplied with 2 primary Ball Lock® Liner Bushings installed.

Pallet Size (mm)	Part Number Aluminum	(kg)	Steel	(kg)	For Subplate	Plate Dim. E (mm)	Plate Dim. F (mm)	Fixture Plate Thickness ±0.13 (mm)	Ball Lock® Pattern I (mm)	Ball Lock® Pattern J (mm)	Liner Size (mm)
400	**58717**	8	**58817**	25	**59102**	400	400	20	350	350	20
500	**58727**	17	**58827**	48	**59103**	500	500	25	425	425	25
630	**58732**	27	**58832**	76	**59104**	630	630	25	525	525	35



NOTE: Aluminum and steel expand at different rates. Please take this information into consideration when creating your own Ball Lock® fixture and subplates.

Ball Lock® For 4th Axis Rotary Indexers



Problem:
Rotary indexers increase the versatility of vertical machining centers, yet they offer one major challenge: set-up is so time-consuming that it may limit a machine's flexibility. In many cases, machinists dedicate their 4th Axis tool to a single machine to avoid the agony of an extended set-up and changeover.

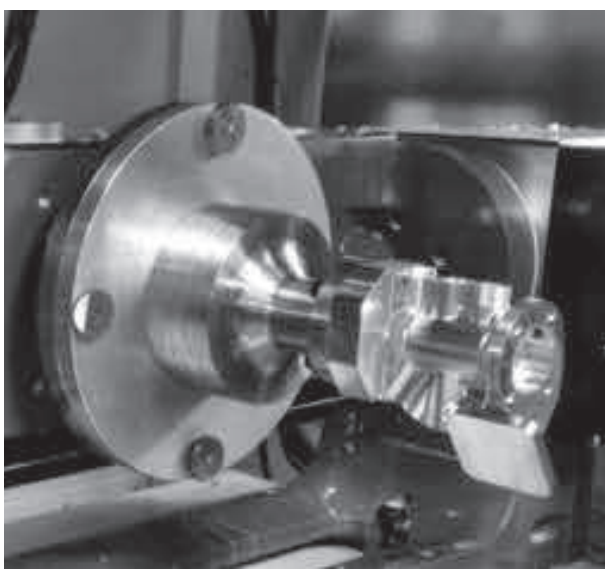
Benefits:
- Maximize indexer utilization
- Eliminate lengthy set-ups
- Accurate fixture plate changover in seconds

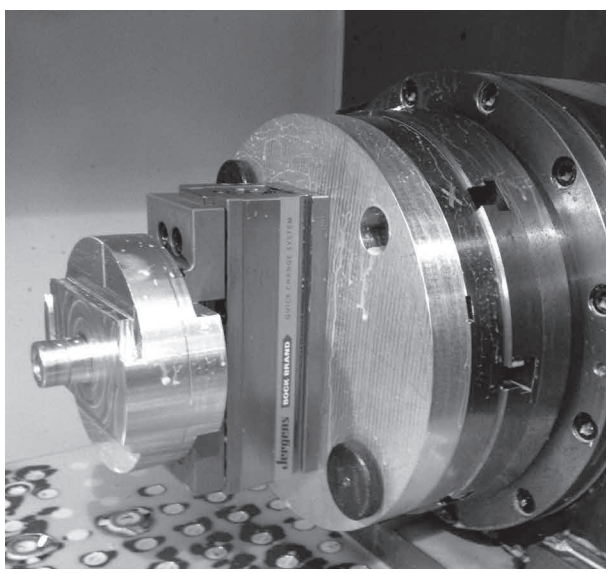
Jergens' Solution:
Ball Lock® Mounting System for Indexers provides a double solution.

First, Ball Lock® mounting plates free up your machine for additional work by allowing a fast and accurate installation and removal of the complete indexer. Avoid hours of set up. The Ball Lock® System does it in minutes, with repeatability at ±0.0005" (±0.013mm). Low profile, positive clamping, proven in over many years of field use.

Second, the Ball Lock® System provides your fixture plate changeover. By mounting the round subplate to the indexer faceplate, you'll "plug-in" new fixtures in record time (less than 60 seconds).

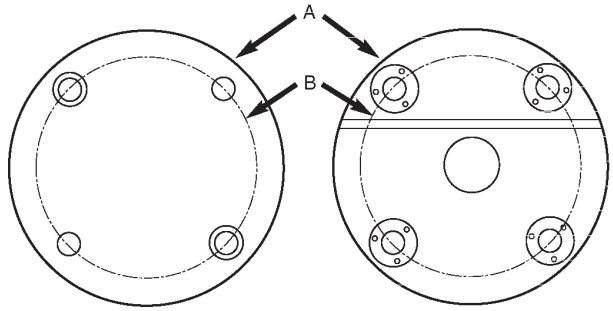
Subplates and fixture plates come with bushings pre-installed.





Round Ball Lock® Fixture Plates and Subplates

Standard Round



Fixture Plate Subplate

Cast Aluminum, FreeMax™ or Steel equivalent

Fixture Plate (mm)

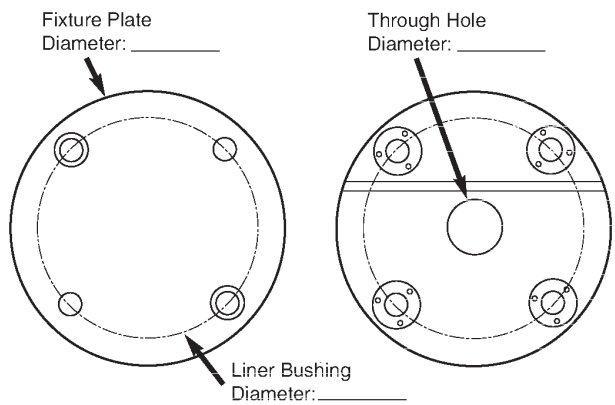
Part Number	A (mm)	B (mm)	Thickness (mm)	Ball Lock® Liner (mm)	Ball Lock® Shank	Weight (Kgs)
58707	200	150	20	16	49657	1.6
58708	250	200	25	20	49652	3.2
58709	300	250	25	20	49652	5.0

Subplate (mm)

Part Number	A (mm)	B (mm)	Thickness (mm)	Ball Lock® Receiver (mm)	Center Hole (mm)	Weight (Kgs)
59107	200	150	20	16	25	5
59108	250	200	25	20	50	9.6
59109	300	250	25	20	50	15

Note: Equivalent system available in inch dimensions.

Custom Round Plates



- Cast Aluminum or FreeMax™ is steel or equivalent
- Thickness ± 0.13mm
- Paralell within 0.025mm Steel

Indexer:

Make: _____

Model: _____

Diameter: _____

Light Duty or Heavy Duty: _____

Through Hole Bore: _____

CNC Machine:

Make: _____

Model: _____

Weight Capacity: _____

Indexer Faceplate:

T-Slot Size: _____

Configuration/Orientation: _____

or

Drilled Tapped Hole Size: _____

Configuration/Orientation: _____

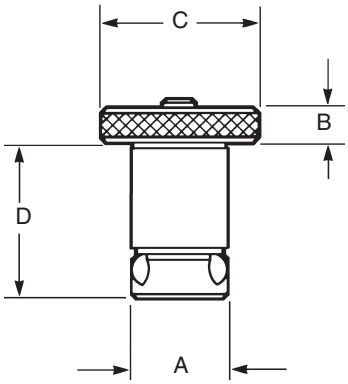
Engineering Changes

Product improvement is a continuing process at Jergens. Specifications and engineering data are subject to change without notice. If current information is critical to your design, it is suggested that you contact Jergens Technical Sales Department to verify any dimensions or specifications.

Locating and Clamping Shanks

U.S. Patents: 3,498,653
4,135,418

- Material: Shank/Bushing, AISI 4340
  Liner, 52100
- Finish: Black Oxide
- Heat Treat: Shanks, RC 40-45
  Bushings, RC 50-54
  Liners, RC 62-64
- Operating Temperature Range: -30°C to 200°C
- Stainless Steel available. See Page 39-40.



Repair Kits

Each Kit Includes:
- Replacement Screw
- Locking Balls
- Drive Ball
- O-Ring

Any Ball Lock® application requires at least two sets of shanks, receiver bushings and liners. The liners are placed into the fixture plate to insure extremely accurate positioning. If more than two shanks are required (to provide additional hold down force), omit the liner bushing so that these additional holes will not interfere with your primary locating holes.

See page 41 for Fast Acting Shanks.

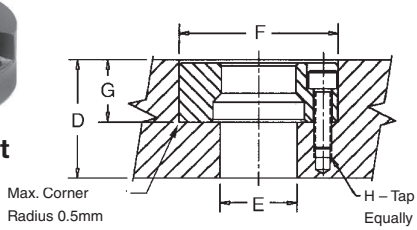
Locating and Clamping Shank Dimensions

Shank Diameter (mm) A	Fixture Plate Thickness ±0.13mm	Shank Part Number	Head of Shank		D	Hex Wrench Size For Set Screw	Maximum		Recommended		Shank Repair Kit Part Number
			Height B	Diameter C			Screw Torque (N.m)	Holddown Force (KN)	Screw Torque (N.m)	Holddown Force (KN)	
13	13	**49655**	6	22	27.6	2.5	1.2	3.3	1	2.7	**49955**
—	20	**49656**	—	—	34.6	—	—	—	—	—	**49956**
16	20	**49657**	8	32	36.5	3	4.5	5.3	3	3.5	**49957**
—	25	**49658**	—	—	41.5	—	—	—	—	—	**49958**
20	20	**49651**	10	40	39.5	3	5.3	13.3	4	10	**49951**
—	25	**49652**	—	—	44.5	—	—	—	—	—	**49952**
25	20	**49661**	10	45	44.0	4	11	30	9	23	**49961**
—	25	**49662**	—	—	49.0	—	—	—	—	—	**49962**
30	20	**49671**	13	50	49.0	5	18	44	15	35	**49971**
—	25	**49672**	—	—	54.0	—	—	—	—	—	**49972**
35	20	**49681**	13	60	51.0	6	33	68	25	52	**49981**
—	25	**49682**	—	—	56.0	—	—	—	—	—	**49982**
—	40	**49683**	—	—	71.0	—	—	—	—	—	**49983**
—	50	**49684**	—	—	81.0	—	—	—	—	—	**49984**
50	20	**49691**	20	75	64.0	10	65	88	50	67	**49991**
—	25	**49692**	—	—	69.0	—	—	—	—	—	**49992**
—	40	**49693**	—	—	84.0	—	—	—	—	—	**49993**
—	50	**49694**	—	—	94.0	—	—	—	—	—	**49994**

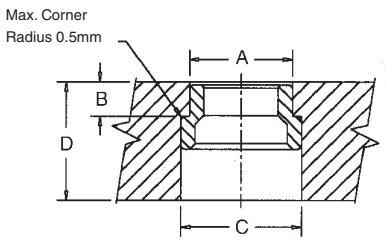
Receiver Bushings

Two styles of receiver bushings are available. Installed bushings should be approximately 0.3mm below subplate surface.

Face Mount



Face Mount Bushing Installation Instructions



Back Mount

Back Mount Bushing Installation Instructions

Generally, the face mount receiver bushing is utilized in blind hole applications (Slip Fit).

The back mount receiver bushing is used in through hole applications (Light Press Fit).

Installation Dimensions

Face Mount

Shank Dia. (mm)	Face Mount Part Number	Actual O.D. -0.01 -0.02	Clearance Drill Diameter E	Bore +0.010 +0.003 F	Depth +0.025 -0.025 G	Tap Size & Depth[1] H	Bolt Circle Diameter 3 PL Equally Spaced	Min. Subplate Thickness D
13	**49556**	35	13.5	35	11.91	M4x0.7 x 7	25	20
16	**49557**	37	21.0	37	11.91	M4x0.7 x 7	29	20
20	**49551**	45	21.0	45	16.21	M5x0.8 x 9	35	25
25	**49552**	55	25.5	55	20.32	M6x1.0 x 10	42	30
30	**49553**	60	30.5	60	22.15	M6x1.0 x 11	48	35
35	**49554**	70	40.0	70	22.99	M8x1.25 x 17	56	40
50	**49555**	92	55.0	92	31.50	M10x1.5 x 18	75	50

[1] Cap Screws Supplied with Face Mount Bushings.

Back Mount

Shank Dia. (mm)	Back Mount Part Number	Actual O.D. +0.04 +0.03 A	Depth +0.025 -0.025 B	C-Bore ±0.15 C	Min. Subplate Thickness D
13	**49566**	20	6.92	26	20
16	**49567**	22	7.24	29	20
20	**49561**	28	8.74	33	25
25	**49562**	35	10.54	41	25
30	**49563**	42	10.95	49	30
35	**49564**	48	12.50	55	35
50	**49565**	67	15.75	76	45

Liner Bushings for Fixture Plates

Locating repeatability will determine if one primary and one secondary or two primary liners are needed. With two primary liners, repeatability of ±0.013 mm can be maintained if the two holes for receiver bushings are held to a centerline distance of ±0.005 mm tolerance.

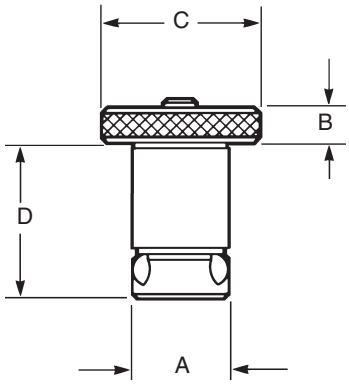
Note on Installation of Press Fit Liners & Back Mount Style Receiver Bushings:
To alleviate the possibility of binding the shank in the bore, the maximum interference fit between bore and bushing O.D. should not exceed 0.013 mm.

Shank Diameter (mm)	Fixture Plate Thickness +0.13 -0.13	Primary Liner		Secondary Liner		Liner O.D. +0.00 - 0.01
		Part Number	I.D.	Part Number	I.D.	
13	13	**49755**	13.01	**49855**	13.04	19.040
—	20	**49756**	—	**49856**	—	19.040
16	20	**49757**	16.01	**49857**	16.04	25.042
—	25	**49758**	—	**49858**	—	25.042
20	20	**49751**	20.01	**49851**	20.04	35.042
—	25	**49752**	—	**49852**	—	35.042
25	20	**49761**	25.01	**49861**	25.04	35.042
—	25	**49762**	—	**49862**	—	35.042
30	20	**49771**	30.01	**49871**	30.04	45.042
—	25	**49772**	—	**49872**		45.042
35	20	**49781**	35.01	**49881**	35.04	45.042
—	25	**49782**	—	**49882**	—	45.042
—	40	**49783**	—	**49883**	—	45.042
—	50	**49784**	—	**49884**	—	45.042
50	20	**49791**	50.01	**49891**	50.04	63.546
—	25	**49792**	—	**49892**	—	63.546
—	40	**49793**	—	**49893**	—	63.546
—	50	**49794**	—	**49894**	—	63.546

Stainless Steel Locating and Clamping Shanks

U.S. Patents: 3,498,653
4,135,418

- Material: 17-4 PH Stainless Steel
- Heat Treat: Rc 40-45
- Operating Temperature Range: -30°C to 200°C



Replacement Kits

Each Kit Includes:
- Replacement Screw
- Locking Balls
- Drive Ball
- O-Ring

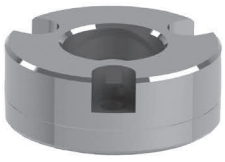
Any Ball Lock® application requires at least two sets of shanks, receiver bushings and liners. The liners are placed into the fixture plate to insure extremely accurate positioning. If more than two shanks are required (to provide additional hold down force), omit the liner bushing so that these additional holes will not interfere with your primary locating holes.

Stainless Steel Locating and Clamping Shank Dimensions

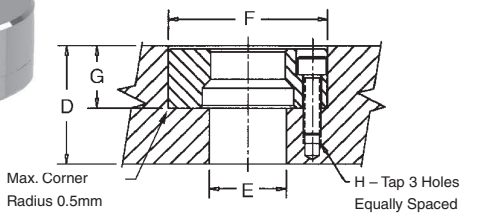
Shank Diameter (mm) A	Fixture Plate Thickness ±0.13mm	Shank Part Number	Head of Shank		D	Hex Wrench Size For Set Screw	Maximum		Recommended		Shank Repair Kit Part Number
			Height B	Diameter C			Screw Torque (N.m)	Holddown Force (KN)	Screw Torque (N.m)	Holddown Force (KN)	
13	13	**49655SS**	6	22	27.6	2.5	1.2	3.3	1	2.7	**49955SS**
—	20	**49656SS**	—	—	34.6	—	—	—	—	—	**49956SS**
16	20	**49657SS**	8	32	36.5	3	4.5	5.3	3	3.5	**49957SS**
—	25	**49658SS**	—	—	41.5	—	—	—	—	—	**49958SS**
20	20	**49651SS**	10	40	39.5	3	5.3	13.3	4	10	**49951SS**
—	25	**49652SS**	—	—	44.5	—	—	—	—	—	**49952SS**
25	20	**49661SS**	10	45	44.0	4	11	30	9	23	**49961SS**
—	25	**49662SS**	—	—	49.0	—	—	—	—	—	**49962SS**
30	20	**49671SS**	13	50	49.0	5	18	44	15	35	**49971SS**
—	25	**49672SS**	—	—	54.0	—	—	—	—	—	**49972SS**
35	20	**49681SS**	13	60	51.0	6	33	68	25	52	**49981SS**
—	25	**49682SS**	—	—	56.0	—	—	—	—	—	**49982SS**
—	40	**49683SS**	—	—	71.0	—	—	—	—	—	**49983SS**
—	50	**49684SS**	—	—	81.0	—	—	—	—	—	**49984SS**
50	20	**49691SS**	20	75	64.0	10	65	88	50	67	**49991SS**
—	25	**49692SS**	—	—	69.0	—	—	—	—	—	**49992SS**
—	40	**49693SS**	—	—	84.0	—	—	—	—	—	**49993SS**
—	50	**49694SS**	—	—	94.0	—	—	—	—	—	**49994SS**

Stainless Steel Receiver Bushings

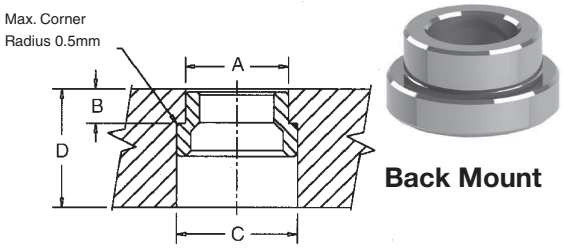
Two styles of receiver bushings are available. Installed bushings should be approximately 0.3mm below subplate surface.



Face Mount



Face Mount Bushing Installation Instructions



Back Mount

Back Mount Bushing Installation Instructions

Generally, the face mount receiver bushing is utilized in blind hole applications (Slip Fit).

The back mount receiver bushing is used in through hole applications (Light Press Fit).

Installation Dimensions

Face Mount

Shank Dia. (mm)	Face Mount Part Number	Actual O.D. -0.01 -0.02	Clearance Drill Diameter E	Bore +0.010 +0.003 F	Depth +0.025 -0.025 G	Tap Size & Depth[1] H	Bolt Circle Diameter 3 PL Equally Spaced	Min. Subplate Thickness D
13	**49556SS**	35	13.5	35	11.91	M4x0.7 x 7	25	20
16	**49557SS**	37	21.0	37	11.91	M4x0.7 x 7	29	20
20	**49551SS**	45	21.0	45	16.21	M5x0.8 x 9	35	25
25	**49552SS**	55	25.5	55	20.32	M6x1.0 x 10	42	30
30	**49553SS**	60	30.5	60	22.15	M6x1.0 x 11	48	35
35	**49554SS**	70	40.0	70	22.99	M8x1.25 x 17	56	40
50	**49555SS**	92	55.0	92	31.50	M10x1.5 x 18	75	50

[1]Cap Screws Supplied with Face Mount Bushings.

Back Mount

Shank Dia. (mm)	Back Mount Part Number	Actual O.D. +0.04 +0.03 A	Depth +0.025 -0.025 B	C-Bore ±0.15 C	Min. Subplate Thickness D
13	**49566SS**	20	6.92	26	20
16	**49567SS**	22	7.24	29	20
20	**49561SS**	28	8.74	33	25
25	**49562SS**	35	10.54	41	25
30	**49563SS**	42	10.95	49	30
35	**49564SS**	48	12.50	55	35
50	**49565SS**	67	15.75	76	45

Stainless Steel Liner Bushings for Fixture Plates

Locating repeatability will determine if one primary and one secondary or two primary liners are needed. With two primary liners, repeatability of ±0.013 mm can be maintained if the two holes for receiver bushings are held to a centerline distance of ±0.005 mm tolerance.

Note on Installation of Press Fit Liners & Back Mount Style Receiver Bushings:
To alleviate the possibility of binding the shank in the bore, the maximum interference fit between bore and bushing O.D. should not exceed 0.013 mm.

Liner Dimensions

Shank Diameter (mm)	Fixture Plate Thickness +0.13 -0.13	Primary Liner		Secondary Liner		Liner O.D. +0.00 - 0.01
		Part Number	I.D.	Part Number	I.D.	
13	13	**49755SS**	13.01	**49855SS**	13.04	19.040
—	20	**49756SS**	—	**49856SS**	—	19.040
16	20	**49757SS**	16.01	**49857SS**	16.04	25.042
—	25	**49758SS**	—	**49858SS**	—	25.042
20	20	**49751SS**	20.01	**49851SS**	20.04	35.042
—	25	**49752SS**	—	**49852SS**	—	35.042
25	20	**49761SS**	25.01	**49861SS**	25.04	35.042
—	25	**49762SS**	—	**49862SS**	—	35.042
30	20	**49771SS**	30.01	**49871SS**	30.04	45.042
—	25	**49772SS**	—	**49872SS**		45.042
35	20	**49781SS**	35.01	**49881SS**	35.04	45.042
—	25	**49782SS**	—	**49882SS**	—	45.042
—	40	**49783SS**	—	**49883SS**	—	45.042
—	50	**49784SS**	—	**49884SS**	—	45.042
50	20	**49791SS**	50.01	**49891SS**	50.04	63.546
—	25	**49792SS**	—	**49892SS**	—	63.546
—	40	**49793SS**	—	**49893SS**	—	63.546
—	50	**49794SS**	—	**49894SS**	—	63.546

Accessories

Tapered Caps and Plugs

Keep debris out of your subplate's receiver bushings when not in use. Polyethylene caps snap in and out easily.

Packaged 10 per pack.

Receiver Bushing Diameter	Part Number
13	**49201**
16	**49202**
20	**49203**
25	**49204**
30	**49205**
35	**49206**
50	**49207**

Lifting Handles

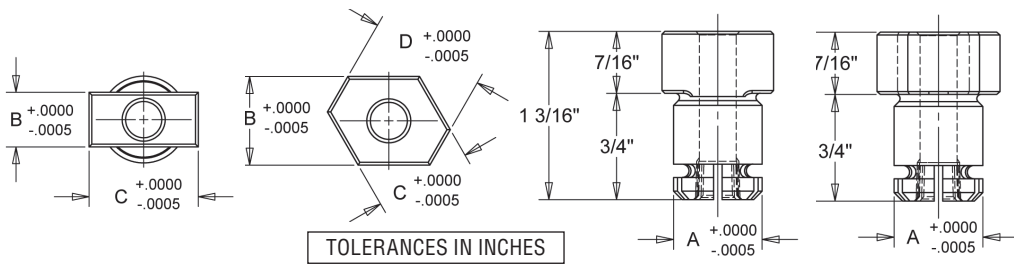
For easy handling of fixture plates up to 500 lbs.

Part Number	Length	Ht.	W	Mounting Distance
33701	107mm	36mm	.38 Kg	93.47mm

Multi-Slot Sine Fixture Keys

Locate subplates or fixture plates to slotted machine tables without having to slot the plate. Available in sizes from 12mm to 32mm slots.

Part Number	Shank Size A	Key Width B	C	D	Wt. (lbs)	Recommended Hole Dia.
39525	16	10	20	—	0.04	16mm Shank Size 16.01 +/-0.01
39526	16	12	22	—	0.04	16mm Shank Size 16.01 +/-0.01
39527	16	14	16	18	0.04	16mm Shank Size 16.01 +/-0.01
39528	20	24	28	32	0.09	20mm Shank Size 20.01 +/-0.01



TOLERANCES IN INCHES

Fast Acting Ball Lock® Shanks

Ball Lock® Shank Diameter (mm)	Fixture Plate Thickness (mm)	FAST ACTING BALL LOCK® SHANKS			
		Shank with Thumb Screw		Shank with Adjustable Handle	
		Part Number		Part Number	
		Assenby	T-Screw	Assenby	Handle
13	13	**49655-S**	**43971**	**49655-H**	**34360**
—	20	**49656-S**	**43972**	**49656-H**	**34361**
16	20	**49657-S**	**43974**	**49657-H**	**34365**
—	25	**49658-S**	**43975**	**49658-H**	**34365**
20	20	**49651-S**	**43974**	**49651-H**	**34365**
—	25	**49652-S**	**43975**	**49652-H**	**34365**
25	20	**49661-S**	**43977**	**49661-H**	**34378**
—	25	**49662-S**	**43978**	**49662-H**	**34379**
30	20	**49671-S**	**43980**	**49671-H**	**34385**
—	25	**49672-S**	**43980**	**49672-H**	**34385**
35	20	**49681-S**	**43985**	**49681-H**	**34393**
—	25	**49682-S**	**43985**	**49682-H**	**34393**

Thumb Screw

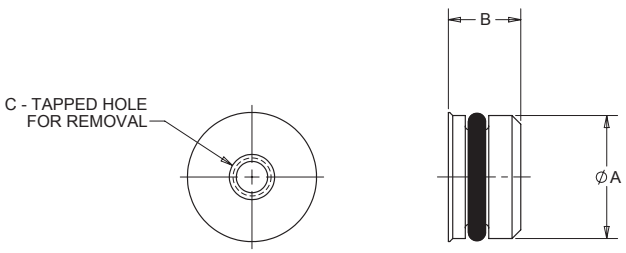
- Fast acting thumb screws 2 1/2 turns. No tools needed.

Adjustable Handle

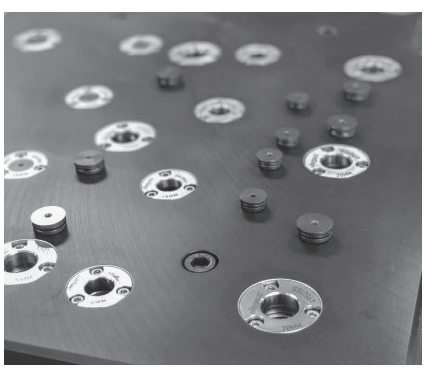
- Handle can be moved out of the work area to avoid interference.

Receiver Bushing Plugs

- Material: Aluminum
- Finish: Blue Anodize
- O-Ring Included
- Prevent chips and coolant from accumulating inside receiver bushings that are not in use
- Eliminates the need to clean out receiver bushings in between setups
- Flush mount design does not protrude above subplate surface
- Durable aluminum construction provides better resistance to hot chips than comparable plastic plugs
- Tapped hole for easy removal



Bushing Dia. (mm)	Plug Part Number	A (mm)	B (mm)	C	Extraction Tool Part No.
13	**49231**	13	8	M4 x 0.7	**49208**
16	**49232**	16	8	M4 x 0.7	**49208**
20	**49233**	20	8	M4 x 0.7	**49208**
25	**49234**	25	10	M4 x 0.7	**49208**
30	**49235**	30	11	M4 x 0.7	**49208**
35	**49236**	35	14	M6 x 1.0	**49209**
50	**49237**	50	17	M6 x 1.0	**49209**

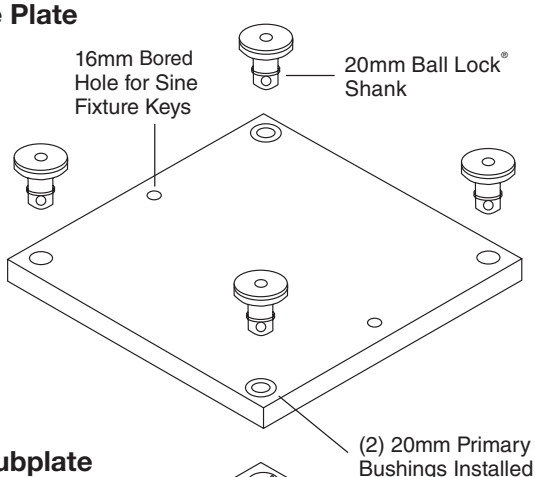


Quick Change Kits

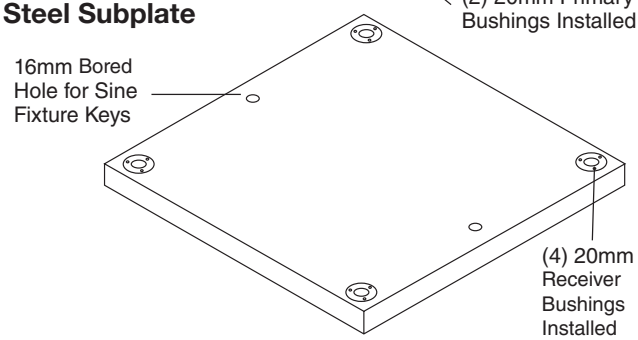
The Jergens Ball Lock® Quick Change Kits speed fixture changeover in all types of manufacturing operations. Each kit includes two aluminum fixture plates with 2 primary liner bushings installed; one steel subplate with receiver bushings installed, and four 20mm Ball Lock® shanks with working loads of 3000 lbs. each. While one fixture plate is on the machine, the operator can load parts on the other. This minimizes downtime for true set-up reduction. To enable the subplate to be mounted on a slotted table without the need to indicate the subplate, sine fixture keys can be used. The sine fixture key reamed holes are oriented parallel to the receiver bushings on the subplate and to the liner bushings on the fixture plate. These also allow the fixture plate to be mounted on a toolroom mill without the need to indicate it. This is extremely useful when machining location points on your fixture.

Everything You Need to Change Fixtures in Less Than One Minute

Aluminum Fixture Plate



Steel Subplate



Quick Change Kits

Part Number	Kit Includes
59002	2 - 58715 (400x400x20) aluminum fixture plates with 20mm liner bushings installed 1 - 59101 (400x400x25) steel subplate with receiver bushings installed 4 - 20mm Ball Lock® Shanks (49651)

Custom Kits Available

Jergens manufactures ready to use kits including Ball Lock® subplate and fixture plates.
For a special kit tailored to your CNC machine, please provide:

Name and Type of Machine _____
Travel of Machine Table (x, y, z) _____
Dimensions of Machine Table (x and y) _____
Maximum Weight allowed on Machine Table _____
T-slot Width and Center to Center Distance _____