



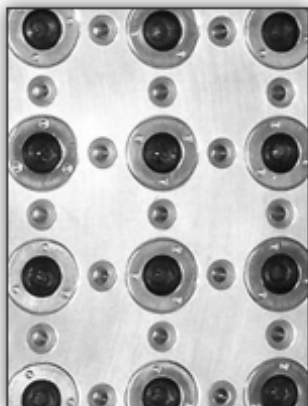
UNIVERSAL COMMON MODULAR FIXTURES (UCMF)

Overview

Invert-A-Bolt™ (IVB) Universal Common Modular Fixtures (UCMF) are typically used in a lean manufacturing environment, especially for high-speed machining. These unique fixtures, loaded on a tombstone type tooling block, can be used to tool for multiple machining operations all in one setup.

The cost savings derived from using IVB UCMFs are numerous and especially applicable in a lean manufacturing environment:

- Elimination of tool design of dedicated fixtures
- Elimination of manufacture of dedicated fixtures
- Elimination of storing & maintaining dedicated fixtures
- Elimination of tool rework for engineering changes to part definition
- Elimination of duplicate fixturing
- Elimination of capital investment represented by dedicated fixturing
- Establishment of standardized work holding techniques
- Opportunity to benefit from "quick-change" pallet solutions
- Opportunity to benefit from the Invert-A-Bolt™ fasteners unique holding solution: ease of programming, reduced setup times, reduced obstruction to machining, and characteristics that allow for special use situations



Invert-A-Bolt™ (IVB) Universal Common Modular Fixtures (UCMF) consist of a tooling plate with multi-purpose holes (bushed and in-line threaded holes) and IVB fastener locations. This flat plate fixture is ideal for machining just about any kind of part, either from raw stock, casting, forging or other configuration. Raw stock ("picture framed") parts can be located with the bushings and held by IVB fasteners. Castings, forgings and other configurations can be held/located using modular fixturing components at the the multi-purpose hole locations.

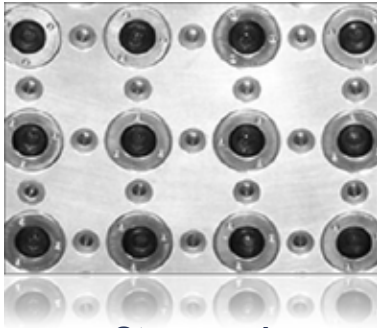


UCMFs* are constructed from Grey Cast Iron, ASTM Class 40 or as specified by the customer. Fixtures consist of Invert-A-Bolt™ fasteners and bushed (or multi-purpose holes) set on typical centers. Each fixture includes lift holes, Sine Key and/or locator key holes (for location of fixture plate), cap screw holes (for hold down to the baseplate or machine bed) as well as scribed information for row and column designations. The tolerances employed vary based upon the size of the fixture, but typically the thickness is held +/- .0015" holding flatness and parallelity as close as possible. Sine Key locations are set on both the horizontal and vertical axes. All locations for bushings and sine key holes are typically held +/- .001" from Horizontal and Vertical Center Lines. These fixtures can be attached to your tombstone or turnkey the whole setup through us!

* Make to order configurations are available. Call toll free 877-462-BOLT for further information.



UNIVERSAL COMMON MODULAR FIXTURE (UCMF) OPTIONS



Staggered



Hybrid



In-Line

All UCMF prices are quoted. Please call 877-462-BOLT for a quote and/or CAD models.

Part Number	Plate Size	Fastener/ Stud Size	# Fasteners	Locator Size	Fastener & Locator Pattern	Bolt Up Pattern
MF-AA03-015-001-500-001	10"x10"x1.9"	AA03-015-001 1/2"-13"	16	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-150-001-625-001	10"x10"x1.9"	AA03-015-001 1/2"-13"	16	.625"/ 5/8"-11	2" x 2" standard	2" x 2" standard
MF-AA02-300-001-375-003	12"x20"x1.9"	AA02-300-001 3/8"-16	70	.375"	1.5" x 1.5" rotated	2" x 2" standard
MF-AA02-300-001-375-001	16"x20"x1.9"	AA02-300-001 3/8"-16	100	.375"	1.5" x 1.5" rotated	2" x 2" standard
MF-AA02-015-001-500-015	14"x25"x1.9"	AA02-015-001 1/2"-13	72	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA02-015-001-375-015	458mm x 596mm x 48.26mm	AA02-015-001 1/2"-13	182	.375"	5.36mm x 35.36mm rotated	50mm x 50mm standard
MF-AA02-015-001-375-009	600mm x 596mm x 48.26mm	AA02-015-001 1/2"-13	250	.375"	5.36mm x 35.36mm rotated	50mm x 50mm standard
MF-AA02-015-001-375-011	24"x24"x1.9"	AA02-015-001 1/2"-13	250	.375"	2" x 2" standard	2" x 2" standard
MF-AA03-015-001-500-003	24"x24"x1.9"	AA03-015-001 1/2"-13	118	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-150-001-625-005	24"x24"x1.9"	AA03-150-001 5/8"-11	118	.625"/ 5/8"-11	2" x 2" standard	2" x 2" standard
MF-AA02-015-001-375-001	24"x32"x1.9"	AA02-015-001 1/2"-13	288	.375"	1.5" x 1.5" rotated	2" x 2" standard
MF-AA02-015-001-375-007	25"x33"x1.9"	AA02-015-001 1/2"-13	192	.375"	2" x 2" standard	2" x 2" standard
MF-AA02-015-001-500-007	25"x33"x1.9"	AA02-015-001 1/2"-13	192	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-015-001-500-009	25"x33"x1.9"	AA03-015-001 1/2"-13	162	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-015-001-500-011	29"x34.6"x1.9"	AA03-015-001 1/2"-13	194	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-150-001-625-003	29"x34.6"x1.9"	AA03-150-001 5/8"-11	194	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA02-015-001-375-003	24"x48"x1.9"	AA02-015-001 1/2"-13	420	.375"	1.5" x 1.5" rotated	2" x 2" standard
MF-AA02-015-001-500-013	25"x49"x1.9"	AA02-015-001 1/2"-13	288	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-015-001-500-013	30"x53"x1.9"	AA03-015-001 1/2"-13	344	.625"/ 5/8"-11	2" x 2" standard	2" x 2" standard
MF-AA03-150-001-625-013	30"x53"x1.9"	AA03-150-001 5/8"-11	344	.625"/ 5/8"-11	2" x 2" standard	2" x 2" standard
MF-AA02-015-001-500-011	18"x96"x1.9"	AA02-015-001 1/2"-13	384	.500"/1/2"-13	2" x 2" standard	2" x 2" standard
MF-AA03-015-001-500-007	90"x78"x1.9"	AA03-015-001 1/2"-13	1535	.500"/1/2"-13	2" x 2" standard	2" x 2" standard