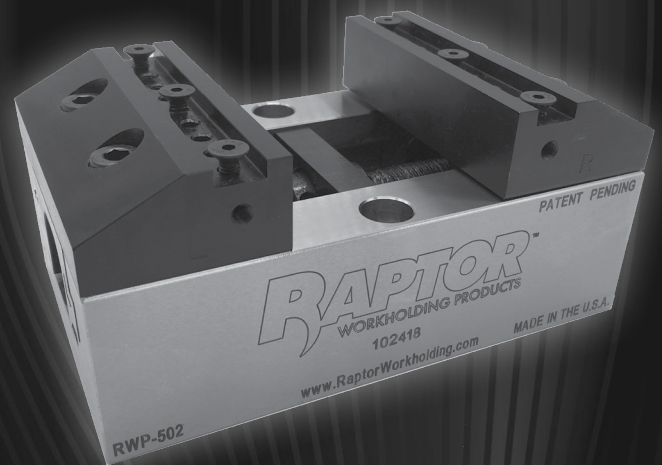


RAPTOR™

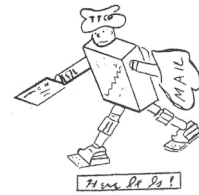
WORKHOLDING PRODUCTS



(800) 824-8333
raptorworkholding.com
te-co.com

BUILDING ON A PROUD LEGACY

In 1926, machinist and entrepreneur W.A. Tietzmann of Englewood, Ohio began manufacturing a line of standardized jig and fixture components. He called his venture the Tietzmann Tool Company (TTCO). Over time and with new ownership, TTCO became TE-CO, and the tooling component product offering continued to grow, along with the acquisition of the Toolex vise line from Pennsylvania. TE-CO quickly became the go-to solution for anyone needing to increase the productivity of their machining operations.



In 2015, TE-CO joined the explosive growth of five-axis machining by adding Raptor Workholding to the TE-CO family. Raptor was founded in 2009, by two aerospace job shops in Southern California. These two shops had purchased palletized five axis machines and needed a smart way to hold products rigidly, while enabling them to machine five sides of the workpiece. At the time, there were very few options, so they worked together, designed, and tested these new products in their own shops. As visitors to their machine shops witnessed and inquired about the dovetail workholding devices, the engineers realized there was a market for these unique products. The Raptor name came from the dovetail clamp design – the hook of the clamp reminded them of the claw of a Raptor.

Raptor's product line continues to expand, with the addition of Piranha Clamp's zero-point self-centering vises, Piranha Cooling Line's modular fluid distribution system, and Kwik-Clamps pneumatic quick-change workholding system.

Today, TE-CO and Raptor are the country's premier supplier of workholding products. From a large variety of tooling components and spring plungers, to high-precision vises and fixtures, and much, much more, TE-CO and Raptor provide superior, cost-effective clamping solutions.



1926 – 1981



1981 Expansion



1981 – 2016



2016 – Present



Made in the USA

Raptor Workholding is a leading manufacturer of modular workholding solutions designed for 3-, 4-, and 5-axis machining. We offer simple, secure, and versatile workholding solutions. Our products are designed and manufactured in the USA, and they offer a wide range of features that make them ideal for demanding applications.

Raptor fixtures are built to attach directly to the CNC machining industry's most popular machines. They can be mounted to tombstones, bridges, nests, carousels, and base plates; and they can be configured to hold multiple fixtures in a single setup.

Raptor's unique dovetail spring-loaded clamps provide rigid clamping while exposing all five faces of the workpiece. This allows most features to be completed in a single operation, which can save time and money.

Raptor's dovetail clamps require only 1/8" of material to hold the workpiece, resulting in less waste, easier prep, and zero distortion. All work can be prepared with a single dovetail, using the same fixture for every part, making setups quick, easy, and repeatable.

Raptor offers a variety of products that are zero-point adaptable with our 50mm Piranha Clamp zero-point and 52mm industry standard mounting. Look for Raptor's ZP logo to ensure zero-point compatibility.



Raptor's pneumatic solution, Kwik-Clamp, can be installed on 3-, 4-, and 5-axis vertical and rotary machining centers. Raptor's Kwik-Clamp provides standardized repeatable, quick-change mounting of the workholding units with accuracy of two-tenths (.0002"). This is a perfect solution for hassle-free setups and automation.

A FULL ACCESS PASS

- 3-, 4- & 5-axis milling & EDM
- Access to all 5 sides
- Simplify your application
- Eliminate operations
- Minimal clamping depth

MODULAR SYSTEM

- Eliminate changeover time by attaching a small fixture to a larger fixture
- Go from large parts to smaller parts quickly
- Turn your single fixture into a multi-fixture in a matter of seconds



INTRODUCTION TO PIRANHA

Piranha Clamp

Self-Centering Zero-Point Vises

If you are looking for a self-centering vise with zero-point mounting, accurate jaw repeatability, unbeatable clamping force, and a solution for chip and coolant evacuation, then the Piranha self-centering vise line is your perfect solution!

Piranha vises are 100% Swiss-designed and manufactured, made of hardened steel, and have maximum operating torque of 150 ft.-lbs. The open bed design allows chips and coolant to be efficiently evacuated, which improves part finish. The zero-point connection allows for rapid part change, resulting in less machine downtime. Piranha clamp also provides minimal material loss due to the 3mm clamping depth. Piranha offers a variety of jaw options for the single and double station Gepard vises.



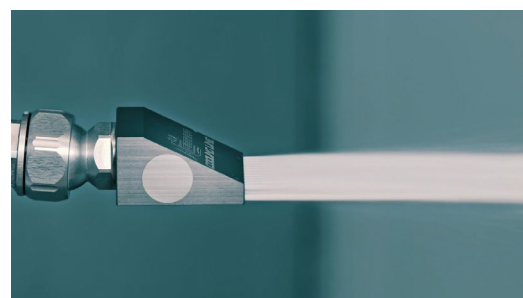
Piranha Cooling Line

High-Performance Fluid Distribution

Are you experiencing chip build-up and re-cutting in your lathes and machining centers? Wheel-loading on your grinders? Are you scrapping parts because your cooling line moved or broke while machining? Are you trying to run lights-out or extend your cutting tool life? If so, the Piranha Cooling Line system is the solution for you!

100% Swiss-designed and manufactured, Piranha is a unique, versatile, and modular coolant line system made from high-strength, anodized aluminum. The cooling line can withstand pressure of up to 1,150 PSI (80 bar). The patented threaded connection design allows for ease of assembly and provides unmatched rigidity, increasing the pressure and volume of coolant, oil, or air to the cutting zone. Piranha is infinitely variable in flexibility and length so it can be adapted to any setup, including cooling, blowing, misting, or suction. Piranha offers a variety of patented, multi-port nozzles that can easily be installed on lathes, grinders, machining centers, and transfer lines.

- Fits on all standard tool holders and CNC Machines
- Flexible, adjustable, lightweight, and versatile
- Higher, more direct pressure in the cutting zone
- Better tool life and chip evacuation
- Distributes a precision flow of fluid, exactly where you want it, and...STAYS IN PLACE!



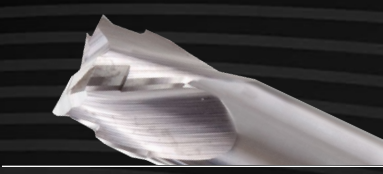
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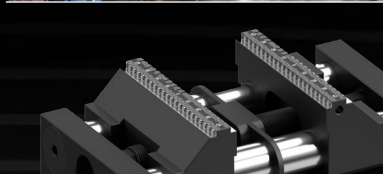
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DOVETAIL FIXTURES

RAPTOR IS SIMPLE.

Simply load your workpiece onto the fixture and hand-tighten the spring-loaded clamp. Unloading is just as easy. For dovetail prep guidelines, please see page 82.



1 - SIMPLE DOVETAIL
A simple workpiece prep creates a dovetail that locks into the Raptor spring-loaded clamp.



2 - SPRING-LOADED CLAMP
The Raptor spring-loaded clamp strongly holds the part and makes releasing easy.



3 - HAND TIGHTENED
Use a T-wrench to hand-tighten the clamp and you're done. It's quick, simple and strong.



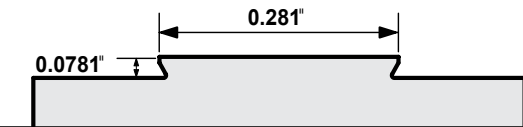
4 - STRONG BY DESIGN
Solid, super-strong stainless-steel or lightweight aluminum ensures that Raptor will hold up to repeated use.



5 - FITS ANY MACHINE
Raptor offers adapters, risers and specific fixture designs to fit any machine. "Yes, even that one."



0.281" x 0.0781" Dovetail Fixtures



RWP-031SS 17-4 Stainless Steel Dovetail Fixture with 0.75" Dovetail Bottom

Raptor's smallest dovetail, designed for micro-machining. Connects directly to the following 0.75" dovetail fixtures: RWP-002, RWP-002SS, RWP-015, RWP-023, RWP-024 & RWP-024SS



Workpiece size min: 0.478" L x 0.478" W x 0.250" H
Workpiece size max: 1.25" cube (0.55 lb. max)
Dovetail width: 0.281"
Dovetail height: 0.078"
Fixture dimensions: 2.070" L x 2.070" W x 1.438" H
Fixture weight: 2 lbs.

RWP-032SS 17-4 Stainless Steel Dovetail Fixture

Raptor's smallest dovetail, designed for micro-machining. Connects to the machine using four mounting holes.



Workpiece size min: 0.478" L x 0.478" W x 0.250" H
Workpiece size max: 1.25" cube (0.55 lb. max)
Dovetail width: 0.281"
Dovetail height: 0.078"
Fixture dimensions: 2.070" L x 2.070" W x 1.563" H
Mounting: Fits 2" bolt circle (1.414" grid)
Fixture weight: 2 lbs.
 (See website for mounting information)

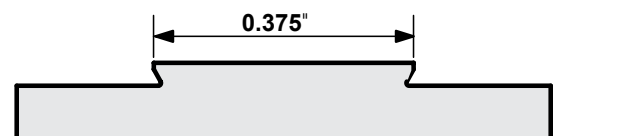
RWP-282 Zero-Point Riser



Fixture dimensions: 5.25" diameter x 2.50" H
Accepts: RWP-024, RWP-024SS & RWP-032SS only
Mounts: On all Piranha Zero-Point plates
Riser weight: 4 lbs.

DOVETAIL FIXTURES

0.375" Dovetail Fixtures



RWP-019SS

17-4 Stainless Steel 0.375" Dovetail Fixture

Designed for small part production & modular applications. Multiple RWP-019SS fixtures can be placed in-line to hold long parts. Multi-fixture options: RWP-019-4X45T & RWP-019-4X90T (See pages 22-23)



Workpiece size min: 1.25" L x 0.75" W x 0.50" H
Workpiece size max: 2.50" cube (2 lb. max)
Dovetail width: 0.375"
Dovetail height: 0.125"
Fixture dimensions: 2.5" L x 1.00" W x 1.25" H
Fixture weight: 1 lb.
 (See website for mounting information)

RWP-213SS

17-4 Stainless Steel 0.75" Dovetail Adapter for RWP-019SS

Connects the RWP-019SS to any of the following 0.75" dovetail fixtures: RWP-002(SS), RWP-015, RWP-023, RWP-024(SS) & RWP-038SS



Adapter height: 0.50"
Adapter length: 2.50"
Adapter weight: 1 lb.

RWP-214SS

17-4 Stainless Steel 1.50" Dovetail Adapter for RWP-019SS

Connects the RWP-019SS to the following 1.50" dovetail fixtures: RWP-001(SS), RWP-013(SS), RWP-026 & RWP-027



Adapter height: 0.50"
Adapter length: 2.50"
Adapter weight: 1 lb.

RWP-042SS

17-4 Stainless Steel 0.375" Dovetail Fixture

Designed for small part production & modular applications. Multiple RWP-042SS fixtures can be placed in-line to hold long parts. Multi-fixture options: RWP-042-4X90T (See page 23)



Workpiece size min: 2.50" L x 0.75" W x 0.50" H
Workpiece size max: 4.00" L x 2.50" W x 2.50" H (7 lb. max)
Dovetail width: 0.375"
Dovetail height: 0.125"
Fixture dimensions: 3.75" L x 1.00" W x 1.25" H
Fixture weight: 1 lb.
 (See website for mounting information)

RWP-248SS

17-4 Stainless Steel 0.75" Dovetail Adapter for RWP-042SS

Connects the RWP-042SS to any of the following 0.75" dovetail fixtures: RWP-002(SS), RWP-015, RWP-023, RWP-024(SS) & RWP-038SS



Adapter height: 0.50"
Adapter length: 3.75"
Adapter weight: 1 lb.

RWP-249SS

17-4 Stainless Steel 1.50" Dovetail Adapter for RWP-042SS

Connects the RWP-042SS to any of the following 1.50" dovetail fixtures: RWP-001(SS), RWP-013(SS), RWP-026 & RWP-027



Adapter height: 0.50"
Adapter length: 3.75"
Adapter weight: 1 lb.

RWP-280

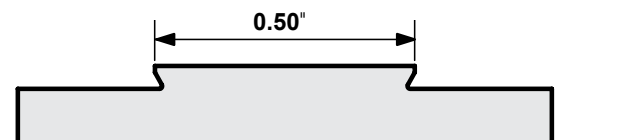
Zero-Point Riser



Fixture dimensions: 5.25" diameter x 2.50" H
Accepts: RWP-019SS & RWP-042SS only
Mounts: On all Piranha Zero-Point plates
Riser weight: 4 lbs.

DOVETAIL FIXTURES

0.50" Dovetail Fixtures



RWP-017SS

17-4 Stainless Steel 0.50" Dovetail Fixture

Connects directly to System 3R 54mm pallets: MacroStd: 3R-651.7E-S / 3R-651.7E-XS & MacroHP: 3R-651.7E.P.



Workpiece size min: 1.30" L x 1.30" W x 0.50" H
Workpiece size max: 3.25" cube (6 lb. max)
Dovetail width: 0.50"
Dovetail height: 0.125"
Fixture dimensions: 2.070" L x 2.070" W x 2.125" H
Fixture weight: 3 lbs.
 (See website for mounting information)

RWP-018

7075 Aluminum 0.50" Dovetail Fixture



Fixture weight: 5 lbs.



Fixture weight: 12 lbs.

Workpiece size min: 2.50" L x 0.95" W x 0.50" H
Workpiece size max: 4.75" cube (10 lb. max)
Dovetail width: 0.50"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 3.0"
Bolt circle diameter: 3.80" (Raptor interface)

RWP-018SS

17-4 Stainless Steel 0.50" Dovetail Fixture

Mounts directly to a Matsuura MAM72-35V English table / pallet or RWP-001-METRIC for metric table / pallet.

RWP-022SS

17-4 Stainless Steel 0.50" Dovetail Fixture with 1.50" Dovetail Bottom

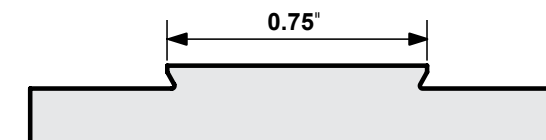
Connects directly to the following 1.50" dovetail fixtures:
 RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027



Workpiece size min: 1.30" L x 1.00" W x 0.50" H
Workpiece size max: 3.25" cube (6 lb. max)
Dovetail width: 0.50"
Dovetail height: 0.125"
Fixture dimensions: 2.35" L x 2.35" W x 2.00" H
Fixture weight: 3 lbs.

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0.75" Dovetail Fixtures



RWP-002

7075 Aluminum 0.75" Dovetail Fixture



Fixture weight: 4 lbs.



Fixture weight: 9 lbs.

Workpiece size min: 2.00" L x 1.75" W x 0.50" H
Workpiece size max: 5.75" cube (18 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 3.0"
Bolt circle diameter: 3.80" (Raptor interface)

RWP-002SS

17-4 Stainless Steel 0.75" Dovetail Fixture

Mounts directly to a Matsuura MAM72-35V English table / pallet or RWP-002-METRIC for metric table / pallet.

RWP-003

7075 Aluminum 5C collet 0.75" Dovetail Fixture

Mounts in any 5C collet closer for milling applications. Multi-fixture option: RWP-003-4X (See page 22)



Workpiece size min: 1.30" L x 1.30" W x 0.50" H
Workpiece size max: 3.0" cube (3 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture height: 1.50" from shoulder
Fixture diameter: 2.23"
Fixture shank diameter: 1.125"
Fixture weight: 2 lbs.

RWP-007SS

17-4 Stainless Steel 0.75" Dovetail Fixture

Connects directly to System 3R 54mm pallets: MacroStd: 3R-651.7E-S / 3R-651.7E-XS & MacroHP: 3R-651.7E.P.



Workpiece size min: 1.30" L x 1.30" W x 0.50" H
Workpiece size max: 3.75" cube (7 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture dimensions: 2.070" L x 2.070" W x 2.125" H
Fixture weight: 3 lbs.
 (See website for mounting information)

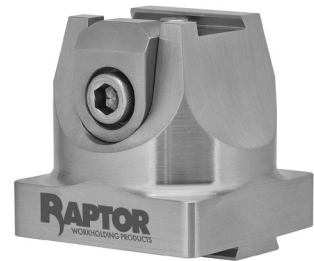
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DOVETAIL FIXTURES

RWP-011SS

17-4 Stainless Steel 0.75" Dovetail Fixture with 0.75" Dovetail Bottom

Connects directly to the following 0.75" dovetail fixtures: RWP-002, RWP-002SS, RWP-015 & RWP-023



Workpiece size min: 1.30" L x 1.30" W x 0.50" H
Workpiece size max: 3.75" cube (7 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture dimensions: 2.070" L x 2.070" W x 2.000" H
Fixture weight: 3 lbs.

RWP-012SS

17-4 Stainless Steel 0.75" Dovetail Fixture with 1.50" Dovetail Bottom

Connects directly to the following 1.50" dovetail fixtures:
 RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027



Workpiece size min: 1.30" L x 1.30" W x 0.50" H
Workpiece size max: 3.75" cube (7 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture dimensions: 2.350" L x 2.350" W x 2.000" H
Fixture weight: 3 lbs.

RWP-015

7075 Aluminum 0.75" Dovetail Fixture

Connects directly to the HAAS TRT100 & HAAS TR110 machines. Please refer to Haas indexer recommendation for platter weight restrictions.



Workpiece size min: 2.00" L x 1.75" W x 0.50" H
Workpiece size max: 5.75" cube (18 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture diameter: 4.33"
Fixture height: 2.0"
Bolt circle diameter: 3.267" for (6) 5/16" or M8 SHCS
Fixture weight: 3 lbs.

RWP-023

7075 Aluminum 0.75" Dovetail Fixture - Grid Pattern Mounting

Designed for tombstones or grid plates with a 2.0" X 2.0" hole pattern or 4.0" bolt circle – without a boss or plug. Not compatible with Raptor risers or adapters.



Workpiece size min: 2.00" L x 1.75" W x 0.50" H
Workpiece size max: 5.75" cube (18 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 3.0"
Bolt circle diameter: 4.00"
Fixture weight: 4 lbs.



RWP-024

7075 Aluminum 0.75" Dovetail Fixture

Designed for modular applications. Multiple RWP-024 fixtures can be placed in-line to hold long parts, referred to as a bridge system. Multi-fixture options: RWP-024-2XR, RWP-024-3XR, RWP-024-4XR & RWP-024-6XC (See pages 24-25)



Fixture weight: 2 lbs.

Workpiece size min: 2.00" L x 2.00" W x 0.50" H
Workpiece size max: 4.00" cube (12.5 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture dimensions: 2.0" L x 2.0" W x 1.50" H

RWP-024SS

17-4 Stainless Steel 0.75" Dovetail Fixture



Fixture weight: 4 lbs.

RWP-282

Zero-Point Riser



Fixture dimensions: 5.25" diameter x 2.50" H
Accepts: RWP-024, RWP-024SS & RWP-032SS only
Mounts: On all Piranha Zero-Point plates
Riser weight: 4 lbs.

DOVETAIL FIXTURES

RWP-025

7075 Aluminum 0.75" 6" Mini Rail Dovetail Fixture with 1.5" Dovetail Bottom

Connects to the following 1.5" dovetail fixtures:

RWP-001, RWP-001SS, RWP-013 & RWP-013SS, RWP-026 & RWP-027



Workpiece size min: 6.00" L x 1.75" W x 0.50" H
Workpiece size max: 8.00" L x 4.00" W x 4.00" H
 (12.5 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture dimensions: 6.00" L x 2.00" W x 1.5" H
Fixture weight: 3 lbs.

RWP-030SS

17-4 Stainless Steel 0.75" Dovetail Fixture

Utilized for milling applications. With three clamps, RWP-030SS provides the ability to machine long workpieces.



Workpiece size min: 5.00" L x 1.75" W x 0.50" H
Workpiece size max: 7.50" cube (40 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 3.0"
Bolt circle diameter: 3.80" (Raptor interface)
Fixture weight: 9 lbs.

Mounts directly to a Matsuura MAM72-35V English table / pallet or RWP-030SS-METRIC for metric table / pallet.

RWP-034SS

17-4 Stainless Steel 0.75" Dovetail Fixture

Designed to connect directly to the Makino A51NX-5XU for milling applications. Not compatible with Raptor risers or adapters.



Workpiece size min: 5.00" L x 1.75" W x 0.50" H
Workpiece size max: 7.50" cube (40 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture dimensions: 5.0" L x 3.90" W x 2.0" H
Bolt circle diameter: 3.0"
Boss/hole: 2.18" dia. x 0.07" boss
Fixture weight: 9 lbs.

RWP-038SS

17-4 Stainless Steel 0.75" Dovetail Fixture

Designed to connect directly to the HAAS TRT100 & HAAS TR110 for milling applications.



Workpiece size min: 2.00" L x 1.75" W x 0.50" H
Workpiece size max: 5.00" cube (TRT-100 4 lb. max)
 (TR-100 12 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture diameter: 4.33"
Fixture height: 1.30"
Bolt circle diameter: 3.267" for (6) 5/16" or M8 SHCS
Boss/hole: 0.4992" dia. x 0.19" boss
Fixture weight: 2 lbs.

RWP-405

7075 Aluminum 8.00" Long Rail 0.75" Dovetail Fixture

Designed for longer workpieces. Not compatible with Raptor risers or adapters.



Workpiece size min: 8.00" L x 1.75" W x 0.50" H
Workpiece size max: 14.0" L x 4.00" W x 4.00" H
 (65 lb. max)
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture length: 8.0"
Fixture width: 3.80"
Fixture height: 3.0"
Fixture weight: 9 lbs.

DOVETAIL FIXTURES

1.5" Dovetail Fixtures



RWP-001 7075 Aluminum 1.5" Dovetail Fixture



Fixture weight: 4 lbs.



Fixture weight: 9 lbs.

Workpiece size min: 2.35" L x 2.35" W x 0.50" H
Workpiece size max: 6.75" cube (30 lb. max)
Dovetail width: 1.5"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 3.0"
Bolt circle diameter: 3.80" (Raptor interface)

RWP-001SS 17-4 Stainless 1.5" Dovetail Fixture

RWP-013 7075 Aluminum 1.5" Dovetail Fixture



Fixture weight: 3 lbs.



Fixture weight: 8 lbs.

Workpiece size min: 2.35" L x 2.35" W x 0.50" H
Workpiece size max: 6.75" cube (30 lb. max)
Dovetail width: 1.5"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 2.0"
Bolt circle diameter: 3.80" (Raptor interface)

RWP-0013SS 17-4 Stainless 1.5" Dovetail Fixture

RWP-026 7075 Aluminum 1.5" Dovetail Fixture

Designed for tombstones or grid plates with a 2.0" x 2.0" hole pattern or a 4.0" bolt circle – without a boss or plug. This dovetail fixture is used for milling and turning applications. Not compatible with Raptor risers or adapters.



Workpiece size min: 2.35" L x 2.35" W x 0.50" H
Workpiece size max: 6.75" cube (30 lb. max)
Dovetail width: 1.5"
Dovetail height: 0.125"
Fixture diameter: 4.97"
Fixture height: 3.0"
Fixture weight: 4 lbs.
Bolt circle diameter: 4.0"

RWP-027 7075 Aluminum 1.5" Dovetail Fixture

Designed for small rotary tables and lathes with a custom subplate. Compatible with the Yukiawa TNT100L when mounted to the RWP-241 adapter plate (sold separately). Not compatible with Raptor risers or adapters.



Workpiece size min: 2.35" L x 2.35" W x 0.50" H
Workpiece size max: 6.00" cube (20 lb. max)
Dovetail width: 1.5"
Dovetail height: 0.125"
Fixture diameter: 3.0"
Fixture height: 2.0"
Bolt circle diameter: 2.362" for 5/16" or M8 SHCS
Boss/hole: 1.00" dia. x 0.30" receiving hole
Centering plug included: 1.00" dia. & 40mm dia.
Fixture weight: 3 lbs.

RWP-401-11 7075 Aluminum 11.00" long rail 1.5" Dovetail Fixture

Designed for longer workpieces. Not compatible with Raptor risers or adapters.



Workpiece size min: 11.00" L x 2.63" W x 0.50" H
Workpiece size max: 17.0" L x 7.0" W x 12.0" H
 (140 lb. max)
Dovetail width: 1.5"
Dovetail height: 0.125"
Fixture length: 11.0"
Fixture width: 4.40"
Fixture height: 3.0"
Fixture weight: 10 lbs.

Mounts directly to a Matsuura MAM72-35V English table / pallet or RWP-001-METRIC for metric table / pallet.

Mounts directly to a Matsuura MAM72-35V English table / pallet or RWP-013-METRIC for metric table / pallet.

DOVETAIL FIXTURES

2.25" Dovetail Fixtures

RWP-006

7075 Aluminum 2.25" Dovetail Fixture



Fixture weight: 10 lbs.



Workpiece size min: 5.9" L x 3.96" W x 0.50" H
Workpiece size max: 8.0" L x 10.0" W x 10.0" H
 (80 lb. max)
Dovetail width: 2.25"
Dovetail height: 0.1875"
Fixture dimensions: 5.950" L x 3.957" W x 2.500" H
Bolt circle diameter: 3.80" (Raptor interface)

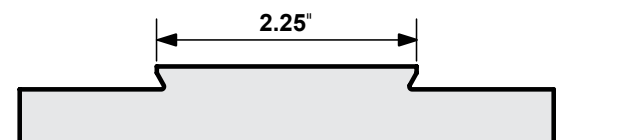
RWP-006SS

17-4 Stainless Steel 2.25" Dovetail Fixture



Fixture weight: 21 lbs.

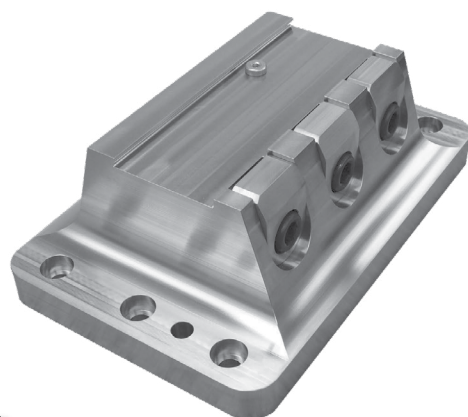
Mounts directly to a Matsuura MAM72-35V English table.



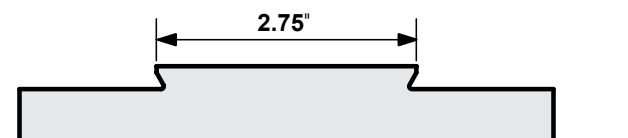
2.75" Dovetail Fixtures

RWP-403SS-12

17-4 Stainless Steel 2.75" Dovetail Fixture



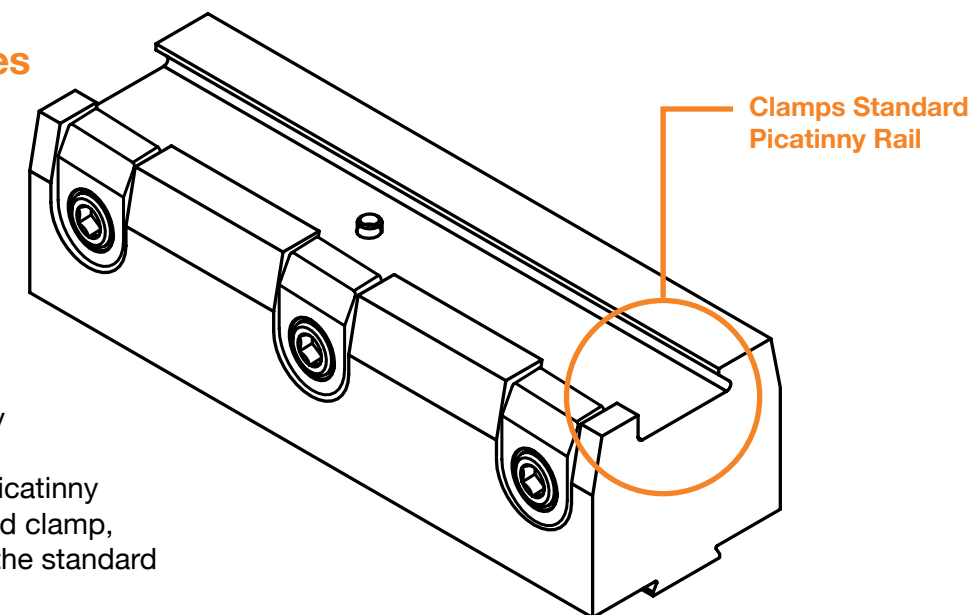
Workpiece size min: 7.50" L x 4.15" W x 0.50" H
Workpiece size max: 14.00" L x 13.00" W x 12.00" H
 (618 lb. max)
Dovetail width: 2.75"
Dovetail height: 0.250"
Fixture dimensions: 11.50" L x 7.50" W x 3.875" H
Fixture weight: 58 lbs.



Picatinny Rail Fixtures

The defense industry relies on Raptor Workholding's variety of options for gripping the Picatinny Rail - a standard interface for the attachment of weapon accessories, which are found on almost every infantry weapon used by modern U.S. forces. Raptor's 3.5" and 6" Picatinny fixtures feature a spring-loaded clamp, purposely engineered to grip the standard DOD specific Picatinny rail.

Simply prepare a Picatinny rail on your first operation, flip it over and use this efficient, strong, and accurate Raptor fixture to hold on to the rail for machining your final operation. Picatinny fixtures are available in



three base mounting configurations: Raptor Interface, direct-mount, or a 0.75" dovetail base. Increase productivity even further with optional Piranha zero-point mounting.



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PICATINNY RAIL FIXTURES

RWP-PIC3SS

Stainless Steel Picatinny Rail Fixture



Workpiece size min: 5.00" L x 0.50" H
Workpiece size max: 12.00" L x 4.00" W x 4.00" H
 (54 lb. max)
Fixture diameter: 4.97"
Fixture height: 3.0"
Bolt circle diameter: 3.80" (Raptor interface)
Fixture weight: 10.5 lbs.

Mounts directly to a Matsuura MAM72-35V English table / pallet or RWP-PIC3SS-METRIC for metric table / pallet.

RWP-PIC6-DM

Picatinny Rail Fixture 6.00" Long Direct Mount

Mounts and locates with (2) socket head shoulder screws.



Workpiece size min: 6.00" L x 0.50" H
Workpiece size max: 12.00" L x 4.00" W x 4.00" H
 (54 lb. max)
Body material: 4140 PHT Steel
Fixture length: 6.00"
Fixture width: 2.00"
Fixture height: 1.625"
Fixture weight: 5.0 lbs.
 (See website for mounting information)

RWP-PIC6-DT

Picatinny Rail Fixture 6.00" Long Dovetail Mount

Mounts on the following 0.75" dovetail fixtures: RWP-002, RWP-002SS, RWP-015, RWP-023, RWP-030SS & RWP-034SS



Workpiece size min: 6.00" L x 0.50" H
Workpiece size max: 12.00" L x 4.00" W x 4.00" H
 (54 lb. max)
Body material: 4140 PHT steel
Fixture length: 6.00"
Fixture width: 2.00"
Fixture height: 1.625"
Fixture weight: 5.0 lbs.

RWP-PIC9-DM

Picatinny Rail Fixture 3.50" Long Direct Mount

Mounts and locates with (2) socket head shoulder screws.



Workpiece size min: 3.50" L x 0.50" H
Workpiece size max: 6.50" L x 4.00" W x 4.00" H
 (30 lb. max)
Body material: 4140 PHT steel
Fixture length: 3.50"
Fixture width: 2.00"
Fixture height: 1.625"
Fixture weight: 3.0 lbs.
 (See website for mounting information)

MULTI-FIXTURES

Raptor multi-fixtures provide a foundation to attach more than one Raptor dovetail fixture, which allows machinists to manufacture longer part runs or program for multiple parts in one setup. Providing a method to hold parts at different angles and in different dovetail sizes, multi-fixtures reduce changeover time and allow for increased productivity.

RWP-003-4X

0.75" Dovetail 60° Multi-Fixture with Raptor Interface Mounting

Utilizes (4) RWP-003 dovetail fixtures (see page 11). Designed specifically for five-axis machining applications. Mounts to Raptor risers with Raptor interface mounting.

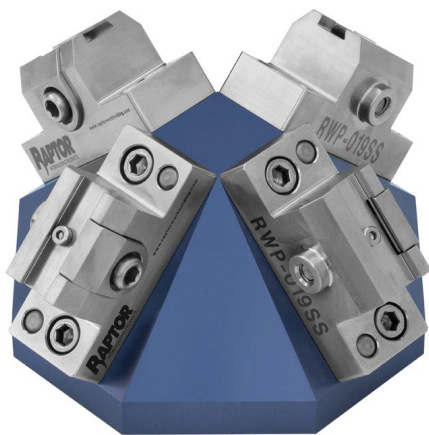


Workpiece size min: 1.30" L x 1.30" W x 0.50" H
Workpiece size max: 3.0" cube (3 lb. max @ each fixture)
Fixture swing diameter: 7.135" (without workpieces)
Fixture height: 3.327" (without workpieces)
Fixture body diameter: 4.970"
Bolt circle diameter: 3.800" (Raptor interface)
Boss: 1.250" dia. x 0.25" boss
Fixture weight: 6 lbs.

RWP-019-4X45T

0.375" Dovetail 45° Multi-Fixture with a 1.50" Dovetail Bottom

Includes (4) RWP-019SS dovetail fixtures (see page 8). Mounts to the following 1.50" dovetail fixtures: RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027

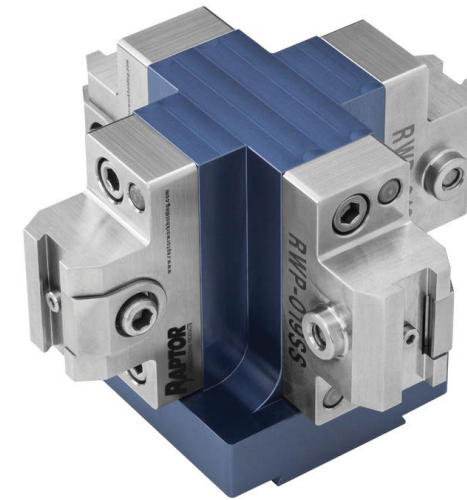


Workpiece size min: 1.25" L x 0.750" W x 0.50" H
Workpiece size max: 2.50" cube (2 lb. max @ each fixture)
Fixture swing diameter: 5.431" (without workpieces)
Fixture height: 2.692" (without workpieces)
Fixture weight: 5 lbs.

RWP-019-4X90T

0.375" Dovetail 90° Multi-Fixture with a 1.50" Dovetail Bottom

Includes (4) RWP-019SS dovetail fixtures (see page 8). Mounts to the following 1.50" dovetail fixtures: RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027



Workpiece size min: 1.25" L x 0.750" W x 0.50" H
Workpiece size max: 2.50" cube (2 lb. max @ each fixture)
Fixture swing diameter: 4.554" (without workpieces)
Fixture height: 3.126" (without workpieces)
Fixture weight: 6 lbs.

RWP-042-4X90T

0.375" Dovetail 90° Multi-Fixture with a 1.50" Dovetail Bottom

Includes (4) RWP-042SS dovetail fixtures (see page 9). Mounts to the following 1.50" dovetail fixtures: RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027



Workpiece size min: 2.50" L x 0.75" W x 0.50" H
Workpiece size max: 4.00" L x 2.50" W x 2.50" H
 (7 lb. max @ each fixture)
Fixture swing diameter: 4.554" (without workpieces)
Fixture height: 4.375" (without workpieces)
Fixture weight: 6 lbs.

MULTI-FIXTURES

RWP-024-2XR

0.75" Dovetail Multi-Fixture: Includes (2) RWP-024 (See page 13) on a single base



Workpiece size min: 5.00" L x 2.00" W x 0.50" H
Workpiece size max: 8.50" L x 4.00" W x 4.00" H
 (16 lb. max)
Fixture height: 2.875"
Dovetail height: 0.125"
Dovetail width: 0.75"
Base length: 7.00"
Fixture weight: 5 lbs.

The bridge system is sold complete as shown.
 Base unit can be purchased separately.

RWP-024-3XR

0.75" Dovetail Multi-Fixture: Includes (3) RWP-024 (See page 13) on a single base



Workpiece size min: 8.00" L x 2.00" W x 0.50" H
Workpiece size max: 12.5" L x 4.00" W x 4.00" H
 (24 lb. max)
Fixture height: 2.875"
Dovetail height: 0.125"
Dovetail width: 0.75"
Base length: 10.00"
Fixture weight: 7 lbs.

The bridge system is sold complete as shown.
 Base unit can be purchased separately.

RWP-024-4XR

0.75" Dovetail Multi-Fixture: Includes (4) RWP-024 (See page 13) on a single base



Workpiece size min: 11.00" L x 2.00" W x 0.50" H
Workpiece size max: 16.50" L x 4.00" W x 4.00" H
 (32 lb. max)
Fixture height: 2.875"
Dovetail height: 0.125"
Dovetail width: 0.75"
Base length: 13.00"
Fixture weight: 10 lbs.

The bridge system is sold complete as shown.
 Base unit can be purchased separately.

RWP-024-6XC

0.75" Dovetail Multi-Fixture with 2.25" Dovetail Bottom

Designed for modular applications: includes (6) RWP-024 (see page 13) fixtures on a carousel base to machine multiple items in one operation. Mounts to either RWP-006 or RWP-006SS (see page 18).



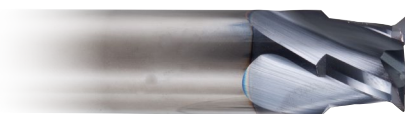
Workpiece size min: 2.00" L x 2.00" W x 0.50" H
Workpiece size max: 4.00" cube (12.5 lb. max)
Fixture height: 2.310"
Dovetail width: 0.75"
Dovetail height: 0.125"
Fixture swing diameter: 10.552" (without workpieces)
Fixture weight: 16 lbs.

Sold complete as shown

DOVETAIL CUTTERS & ACCESSORIES

Raptor dovetail cutters machine the flat on the dovetail edge on a workpiece in one pass, preventing a sharp edge on the dovetail from pressing into the corner of the fixture. Available in various heights and diameters, Raptor has a dovetail cutter to address multiple needs. All cutters are for 60 degree dovetails.

Cutter	Coated / Uncoated	Shank	Use with Dovetail Size	Flute
RWP-DC403U	Uncoated	0.750"	0.375", 0.50", 0.75" & 1.50"	3
RWP-DC404C	Coated	0.750"	0.375", 0.50", 0.75" & 1.50"	4
RWP-DC405C	Coated	0.248"	0.281" x 0.0469" (old style)	4
RWP-DC407C	Coated	0.350"	0.375", 0.50", 0.75" & 1.50"	4
RWP-DC408C	Coated	0.450"	0.375", 0.50", 0.75" & 1.50"	4
RWP-DC409C	Coated	0.248"	0.281" x 0.0781"	4
RWP-DC410C	Coated	0.750"	2.25"	4
RWP-DC411C	Coated	1.0"	2.75"	4



Replacement Clamp Kits

- (2) clamp assemblies per kit
- Made from 17-4 stainless steel
- Includes grease

RWP-KIT-301SQ - 1.500" dovetail

RWP-KIT-302SQ - 0.750" dovetail

RWP-KIT-303SQ - 2.250" dovetail

RWP-KIT-304SQ - 0.281" x 0.0461" dovetail
(Fits obsolete RWP-008, RWP-009 & RWP-010)

RWP-KIT-305SQ - 0.375" dovetail

RWP-KIT-306SQ - 0.500" dovetail

RWP-KIT-307SQ - 0.281" x 0.0781" dovetail
(Fits RWP-031SS & RWP-032SS)

RWP-KIT-3001SQ - 2.750" dovetail

RWP-KIT-PICSQ - Picatinny rails



Replacement Locating Pins

- (5) replacement pins per pack

RWP-8-32 - 8/32 x 1/4" replacement locating pins

Replacement locating pins for all Raptor fixtures manufactured before 2017 except the RWP-019SS, RWP-031SS, RWP-032SS & RWP-042SS

RWP-8-32CLS - 8/32 x 1/4" replacement locating pins

Replacement locating pins for all Raptor fixtures manufactured 2017 or after except the RWP-019SS & RWP-042SS

RWP-8-32MO - 8/32 x 8/32 x 0.165" replacement locating pins

Replacement locating pins for only the RWP-019SS & RWP-042SS



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Raptor pinch blocks connect directly to a Raptor dovetail fixture. They are designed for a quick solution for secondary or final operations with reoccurring machining or for removing a dovetail from the sixth side of a finished part. A shim and screw are included with each pinch block.

RWP-702

7075 Aluminum Pinch Block with 1.50" Dovetail Bottom

Product dimensions: 2.35" L x 2.95" W x 1.82" H

Fixture compatibility: RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027

Fixture weight: 4 lbs.



RWP-703

7075 Aluminum Pinch Block with 1.50" Dovetail Bottom

Product dimensions: 5.00" L x 2.95" W x 1.82" H

Fixture compatibility: RWP-001, RWP-001SS, RWP-013, RWP-013SS, RWP-026 & RWP-027

Fixture weight: 4 lbs.



RWP-704

7075 Aluminum Pinch Block with 0.75" Dovetail Bottom

Product dimensions: 2.35" L x 2.95" W x 1.82" H

Fixture compatibility: RWP-002, RWP-002SS, RWP-015, RWP-023, RWP-038SS & RWP-027

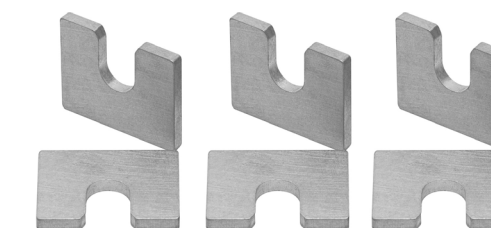
Fixture weight: 4 lbs.



RWP-700-SHIM

The RWP-700-SHIM are used with the pinch blocks to prevent them from closing completely when machining part profile

These are sold in packs of six units.



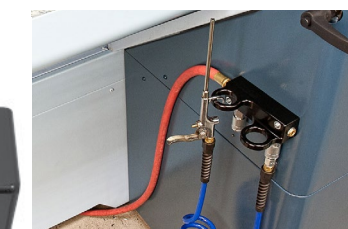
Air Manifold

RWP-AIR-501

- Designed with 3 air connections and mounts to any machine where compressed air is needed.

• 3.00" L x 5.00" W x 1.50" H

- Hoses and lines are not included



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ADAPTERS & RISERS

Raptor provides a variety of adapters and risers to fit on many different CNC machine models. Adapters and risers are designed to accept multiple dovetail fixtures, allowing for many easy machining options when tooling up your CNC.

RWP-202

Adapter

Enables compatible fixtures to be mounted on the Haas TR-210, HRT210 & HRC210.



Adapter material: Aircraft grade aluminum
Adapter height: 2.00"
Adapter diameter: 8.20"
Bolt circle diameter: 6.50" for (6) 1/2" SHCS
Boss/hole: 2.000" dia. x 0.375" boss
Mounts: All fixtures with a Raptor interface
Adapter weight: 9 lbs.

RWP-203

Adapter

Enables compatible fixtures to be mounted on the Haas TR-160, TR160-2, TR200Y, TRT-160, HRT160 & HRC160.



Adapter material: Aircraft grade aluminum
Adapter height: 1.50"
Adapter diameter: 6.30"
Slotted bolt circle diameters: 5.400" to 5.512" for (6) 3/8-16" SHCS
Boss/hole: 1.500" dia. x 0.313" boss
Mounts: All fixtures with a Raptor interface
Included items: (6) 3/8-16 x 1.00" long SHCS,
 (6) 41406T TE-CO t-nuts
Adapter weight: 5 lbs.

RWP-262

Medium Universal Riser

Enables compatible fixtures to be mounted on the pallet of the following machines: Mori Seiki NMV5000, DMU50 / 50eco, NMV3000 metric / english & multiple other machines.



Riser material: Aircraft grade aluminum
Riser height: 3.50"
Riser diameter: 8.98"
Bolt circle diameter: 6.00" to 7.03" slotted
 c 'bores for M12 or 1/2" SHCS
Boss/hole: 1.00" dia. x 0.30" receiving hole
Available plugs: RWP-810 (1.250" dia.), RWP-811
 (30mm dia.) & RWP-PLUG-208
 (2.50" machinable dia.)
Mounts: All fixtures with a Raptor interface
Riser weight: 14 lbs.

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RWP-208

Small Emergency Adapter

Enables compatible fixtures to be mounted on the pallet of your machine by simply adding the mounting holes.



Adapter material: Aircraft grade aluminum
Adapter height: 1.50"
Adapter diameter: 7.95"
Boss/hole: 1.00" dia. x 0.30" receiving hole
Available plugs: RWP-810 (1.25" dia.), RWP-811
 (30mm dia.) & RWP-PLUG-208
 (2.50" machinable dia.)
Adapter weight: 9 lbs.

Includes Raptor interface mounting on top

RWP-PLUG-208

6061 Aluminum Machinable Plug – 2.50" diameter

This blank 2.50" diameter allows customer to modify to fit a specific application. The slip fit 1.00" diameter fits in the bottom of fixtures/risers that have a 1.00" diameter receiving hole.

Plug weight: 1 lb.

RWP-PLUG-208SS

17-4 Stainless Steel Machinable Plug – 2.50" diameter

This blank 2.50" diameter allows customer to modify to fit a specific application. The slip fit 1.00" diameter fits in the bottom of fixtures/risers that have a 1.00" diameter receiving hole.

Plug weight: 1 lb.



RWP-209

Large Emergency Adapter

Enables compatible fixtures to be mounted on the pallet of your machine by simply adding the mounting holes.



Adapter material: Aircraft grade aluminum
Adapter height: 1.500"
Adapter diameter: 9.055"
Boss/hole: 1.00" dia. x 0.30" receiving hole
Available plugs: RWP-810 (1.25" dia.), RWP-811
 (30mm dia.) & RWP-PLUG-208
 (2.50" machinable dia.)
Adapter weight: 9 lbs.
Mounts: All fixtures with a Raptor interface

Includes Raptor interface mounting on top

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ADAPTERS & RISERS

RWP-222

Small Universal Adapter

Mounts directly to your machine table/pallet using slotted c'bores. The Raptor RWP-PLUG-208 (machinable 2.5" dia. plug) is available for locating this adapter to your machine table and is sold separately.



Adapter material: Aircraft grade aluminum
Adapter height: 2.00"
Adapter diameter: 9.875"
Bolt circle diameter: 5.50" to 8.50" for M10 or 3/8" SHCS
Boss/hole: 1.00" dia. x 0.30" receiving hole
Available plugs: RWP-810 (1.25" dia.), RWP-811 (30mm dia.) & RWP-PLUG-208 (2.50" machinable dia.)
Mounts: All fixtures with a Raptor interface
Adapter weight: 15 lbs.

RWP-223

Large Universal Adapter

Mounts directly to your machine table/pallet using slotted c'bores. The Raptor RWP-PLUG-208 (machinable 2.5" dia. plug) is available for locating this adapter to your machine table and is sold separately.



Adapter material: Aircraft grade aluminum
Adapter height: 2.00"
Adapter diameter: 11.95"
Bolt circle diameter: 6.00" to 10.00" for M12 or 1/2" SHCS
Boss/hole: 1.00" dia. x 0.30" receiving hole
Available plugs: RWP-810 (1.25" dia.), RWP-811 (30mm dia.) & RWP-PLUG-208 (2.50" machinable dia.)
Mounts: All fixtures with a Raptor interface
Adapter weight: 22 lbs.

RWP-224

Riser

Can be used in a modular configuration when used with the universal adapter part number RWP-223.



Riser material: Aircraft grade aluminum
Riser height: 6.00"
Riser diameter: 11.95"
Bolt circle diameter: 10.15" for M12 or 1/2" SHCS
Boss/hole: 1.00" dia. x 0.30" receiving hole
Available plugs: RWP-810 (1.25" dia.), RWP-811 (30mm dia.) & RWP-PLUG-208 (2.50" machinable dia.)
Mounts: All fixtures with a Raptor interface
Riser weight: 44 lbs.

RWP-234

Riser

Enables compatible fixtures to be mounted on the following: Haas UMC-750M/UMC-750SS or Matsuura MX-520 300mm.



Riser material: Aircraft grade aluminum
Riser height: 4.5"
Riser diameter: 11.40"
Bolt circle diameter: 9.92" for M12 or 1/2" SHCS
Boss/hole: 1.97" (50mm) dia. x 0.75" receiving hole
Mounts: All fixtures with a Raptor interface
Riser weight: 31 lbs.

RWP-237

Multi-Fixture Nest Riser (45° faces)

Designed to fit the following machines: Haas UMC-750/UMC-750SS or Matsuura MX-520 500mm.



Riser material: Aircraft grade aluminum
Riser height: 6.55"
Riser diameter: 14.75"
Bolt circle diameter: 13.20" for M12 or 1/2" SHCS
Boss/hole: 1.97" dia. x 0.75" receiving hole
Mounts: All fixtures with a Raptor interface
Riser weight: 70 lbs.

RWP-272

Multi-Fixture Nest Riser (30° faces)

Designed to fit machines with the following spacings: 100mm, 80mm & 63mm.



Riser material: Aircraft grade aluminum
Riser height: 4.50"
Riser diameter: 15.75"
Bolt circle diameter: 12.665" and 9.921" for M12 or 1/2" SHCS
Mounts: All fixtures with a Raptor interface
Riser weight: 65 lbs.

ADAPTERS & RISERS

RWP-238-8

5C Indexer Adapter



Adapter material: 7075 aluminum
Mounts: RWP-003
Spindle nose TPI: 8 (see page 11)
Adapter weight: 2 lbs.

RWP-238-10

5C Indexer Adapter

Adapter material: 7075 aluminum
Mounts: RWP-003 (see page 11)
Spindle nose TPI: 10
Adapter weight: 2 lbs.

RWP-239

Small Machine Adapter

Fits on the following Machines: Haas TRT70 & TRT100, Nikken 100FA & 130FA, Yukiwa TNT100L, Sankyo RT80 & RT100 & others. This allows you to mount the following fixtures on top: RWP-024, RWP-024SS, RWP-019SS & RWP-042SS

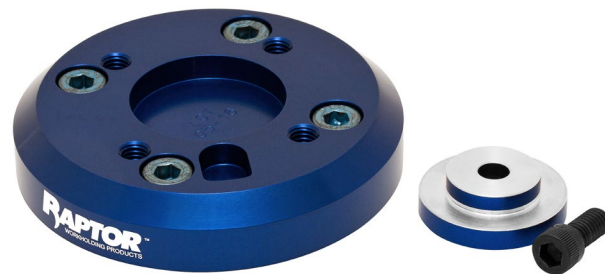


Adapter material: 7075 aluminum
Adapter height: 0.750"
Adapter diameter: 3.937"
Boss/hole: 0.375" dia. x 0.38" receiving hole
Comes with: 3/8" dowel pin, 2.50" machinable plug, retaining screw
Mounts: RWP-024, RWP-024SS, RWP-019SS & RWP-042SS
Adapter weight: 1.5 lbs.

RWP-241

Adapter

This has the mounting interface for the RWP-027 (1.5" dovetail fixture). Designed to mount directly to the Yukiwa TNT100L.



Adapter material: 7075 aluminum
Adapter height: 0.75"
Adapter diameter: 3.94"
Bolt circle diameter: 2.677" for (4) M8 or 5/16" SHCS
Boss/hole: 1.968" dia. x 0.23" plug
Adapter weight: 1.1 lbs.

RWP-601

Extender – 1.00" Height

The 1" extender is to add height when used with Raptor interface fixtures and risers.



Extender material: 7075 aluminum
Extender diameter: 4.95"
Connects to: All risers with a Raptor interface
Mounts: All fixtures with a Raptor interface
Boss/plug: 1.25" dia. x 0.25" boss
Extender weight: 3 lbs.

RWP-602

Extender – 2.00" Height

The 2" extender is to add height when used with Raptor interface fixtures and risers.



Extender material: 7075 aluminum
Extender diameter: 4.95"
Connects to: All risers with a Raptor interface
Mounts: All fixtures with a Raptor interface
Boss/plug: 1.25" dia. x 0.25" boss
Extender weight: 4 lbs.

RWP-810

6061 Aluminum Plug Adapter

Plug with a 1.25" slip fit locating diameter for centering purposes. The slip fit 1.00" diameter fits in the bottom of fixtures / risers that have a 1.00" diameter receiving hole.
Weight: 0.05 lbs.

RWP-811

6061 Aluminum Plug Adapter

Plug with a 30mm slip fit locating diameter for centering purposes. The slip fit 1.00" diameter fits in the bottom of fixtures / risers that have a 1.00" diameter receiving hole.
Weight: 0.05 lbs.



Reduce setup and changeover times with Raptor's quick-change workholding system, Kwik-Clamp!

The Raptor Kwik-Clamp can be installed on any 3-,4- or 5-axis CNC Vertical Machining Center in less than one hour. With two dowel pins and a standard CAT 40 retention knob, fixtures are clamped to the vertical or rotary table in less than 10 seconds using compressed air to provide between 2,000-4,000 lbs. of clamping force at .0002" repeatability.

Rapid exchange, location and locking of common fixtures with Kwik-Clamp increases productivity during the production run, resulting in decreased downtime and more finished parts per shift. While one fixture is being machined, the operator loads parts into the next fixture

outside of the machine. At the end of the machining cycle, fixtures are swapped within seconds, and production resumes. True positioning of Kwik-Clamp's standardized system offers greater flexibility by allowing jobs to be transferred between machines. Multiple sides of a part are machined without the need for removal and re-positioning. Defects and scrap are greatly reduced as parts can be inspected inside the fixture mid-program and then instantly and accurately placed back into the machine for completion.

RKC-301

3-axis workholding system

- 2,000 lbs. clamping force at 100 PSI
- Air connection on side of unit

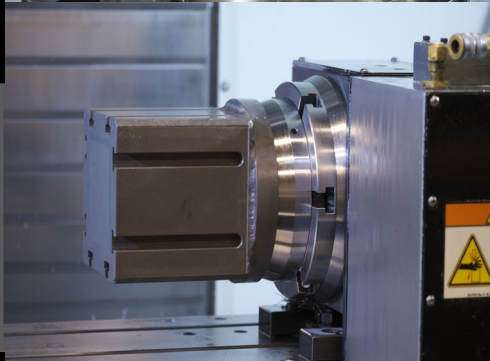


- Automation can be easily added to any process by adding two tapered pins to the gripper and two tapered holes to the workholding

RKC-401

4-axis workholding system

- 4,000 lbs. clamping force at 100 PSI
- Air connection on back of the indexer unit



- Increase quality by finishing parts in one operation, less possibility of finding issues down the line in 2nd or 3rd ops

RKC-501

5-axis workholding system

- 2,000 lbs. clamping force at 100 PSI
- Air connection on bottom of base for through pallet air system



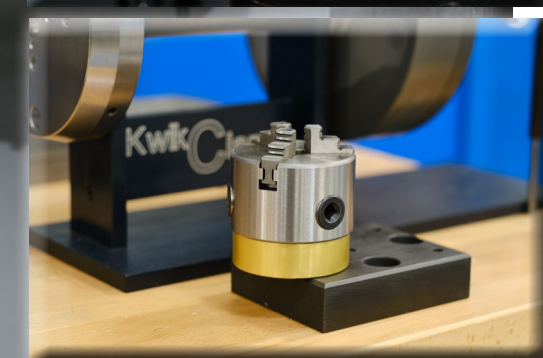
- Standardized mounting system, jobs can be run on any machine with Kwik-Clamp

- 0.0002" precision and 0.0002" repeatability

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KWIK-CLAMP Accessories

Part Number	Description
RKC-100	HASS CAT40 RETENTION KNOB
RKC-101	DOWEL PIN .3125" DIA. - STANDARD
RKC-102	DOWEL PIN .3125" DIA. - DIAMOND
RKC-201	RAPTOR/PIRANHA TO KWIK-CLAMP ADAPTER
RKC-202	KWIK-CLAMP 5C COLLET ADAPTER
RKC-203	KWIK-CLAMP 6" CHUCK ADAPTER
RKC-204	KWIK-CLAMP 8" CHUCK ADAPTER
RKC-206	KWIK-CLAMP 1.25" x 4" x 5" FIXTURE BLANK
RKC-207	KWIK-CLAMP 1.25" x 3.5" x 4" FIXTURE BLANK
RKC-208	KWIK-CLAMP TOE CLAMP



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SELF-CENTERING VISES

Raptor Self-Centering Vises

Raptor self-centering vises are made of all steel construction. Raptor self-centering vises have a centering tolerance of +/- 0.13mm (0.0005"), and they hold a repeatability of .001". They can be mounted onto Piranha zero-point plates. Raptor vise jaws adjust from either end of vise and the jaws can also be reversed. Raptor has many aluminum and steel jaw options available as well as multiple jaw inserts.

RWP-502

100mm Wide Self-Centering Vise

Vise weight: 14 lbs.



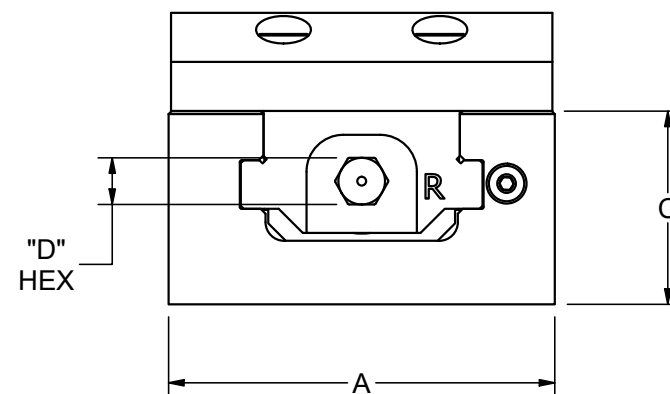
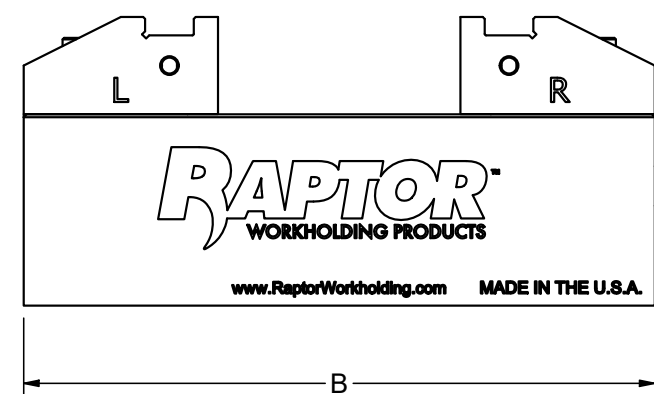
RWP-505

150mm Wide Self-Centering Vise

Vise weight: 50 lbs.



Part Number	A	B	C	D (Hex)	Standard Jaw Openings	Reversed Jaw Opening	Maximum Torque
RWP-502	3.937" (100mm)	6.49"	1.96"	12MM	0-2.50"	2.50"-5.62"	30-foot lbs. (creates 4,000 lbs. force)
RWP-505	5.91" (150mm)	9.84"	2.95"	16MM	0-3.88"	4.75"-9.25"	75-foot lbs. (creates 6,000 lbs. force)



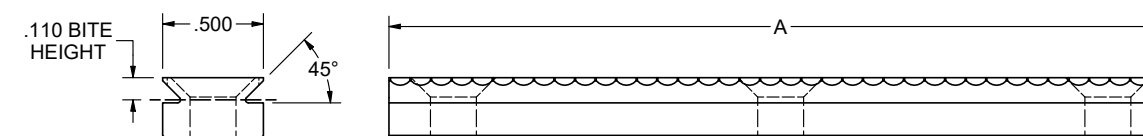
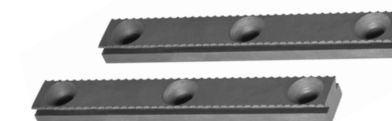
Raptor Vise Accessories

Inserts - 4140 Hardened Steel

Serrated

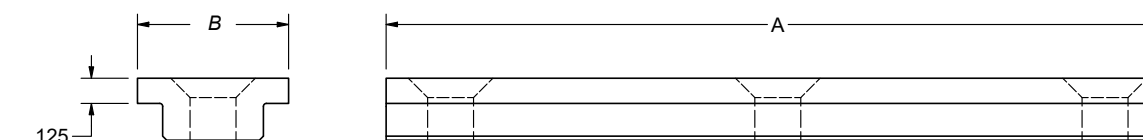
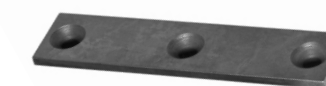
Part Number	Compatible With	A
RWP-1050S	RWP-502	3.888"
RWP-1550S	RWP-505	5.832"

- Sold as a set



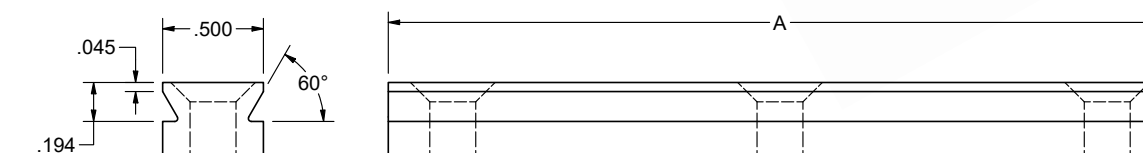
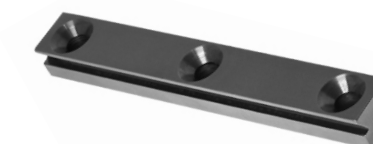
Parallel

Part Number	Standard/Thin	Vise Compatibility	A	B
RWP-1051	STANDARD	RWP-502	3.888"	.75"
RWP-1551	STANDARD	RWP-505	5.832"	.875"
RWP-1052	THIN	RWP-502	3.888"	.75"
RWP-1552	THIN	RWP-505	5.832"	.875"



Dovetail

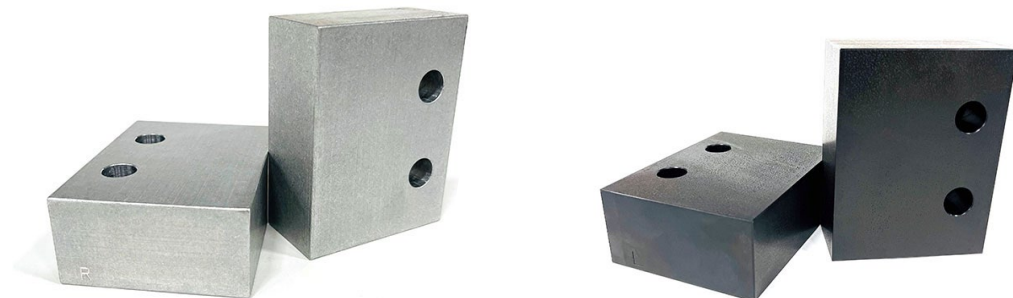
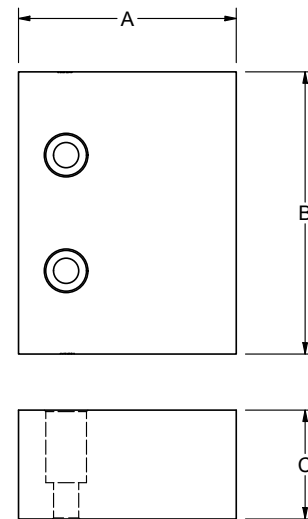
Part Number	Compatible With	A
RWP-1056	RWP-502	3.888"
RWP-1556	RWP-505	5.832"



Machinable Soft Jaws

- Machinable jaws allow user to machine part-specific profile in jaw for maximum clamping / location, allowing for lower height / more tool clearance
- Good for secondary ops
- Dowel pins used for on / off repeatability

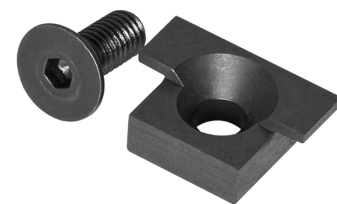
6061 Aluminum	1018 Steel	A	B	C	Compatible Vise	Part Description
RWP-1028	RWP-1028-ST	3.89"	3.00"	1.50"	RWP-502	Left Jaw
RWP-1027	RWP-1027-ST	3.89"	3.00"	1.50"	RWP-502	Right Jaw
RWP-1528	RWP-1528-ST	4.50"	5.83"	2.00"	RWP-505	Left Jaw
RWP-1527	RWP-1527-ST	4.50"	5.83"	2.00"	RWP-505	Right Jaw



RWP-33020

Mitee-Bite TalonGrip™ end stop

- Fits both RWP-502 & RWP-505 vises
- Locates workpiece for repeat positioning
- Stops sold individually



RWP-33050

Mitee-Bite TalonGrip™ (2) pack

- Fits both the RWP-502 & RWP-505 vises
- Low profile clamping
- Use to secure soft material workpieces
- Can be used in conjunction with end stops
- Hardened tool steel material



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Raptor Vise Adapters / Riser Plates

The following products were designed for the RWP-502 or RWP-505 vise. There are multiple options to choose from that will mount to most rotary tables and pallets.

RWP-209-V100

Emergency Adapter

- Provided blank for user to add mounting of their choice
- Stackable with RWP 242-V100 to achieve 3.25" H
- Mounts directly to your machine table / pallet using slotted c'bores. The Raptor RWP-PLUG-208 (machinable 2.5" dia. plug) is available for locating this adapter to your machine table and is sold separately.



Adapter material: Aircraft grade aluminum plain
Adapter height: 1.50"
Adapter diameter: 9.90"
Vise compatibility: RWP-502
Boss/hole: 1.000" dia. x 0.30" receiving hole
Adapter weight: 9 lbs.

RWP-222-V100

Small Universal Adapter

- Slotted c'bores for 3/8" or M10 SHCS on a 5.50" - 8.5" B.C.
- Stackable with RWP-242-V100 to achieve 3.75" H
- Mounts directly to your machine table / pallet using slotted c'bores. The Raptor RWP-PLUG-208 (machinable 2.5" dia. plug) is available for locating this adapter to your machine table and is sold separately.



Adapter material: Aircraft grade aluminum
Adapter height: 2.00"
Adapter diameter: 9.875"
Vise compatibility: RWP-502
Boss/hole: 1.000" dia. x 0.30" receiving hole
Adapter weight: 15 lbs.

RWP-223-V100

Large Universal Adapter

- Slotted c'bores for 1/2" or M12 SHCS on a 6.0" - 10.0" B.C.
- Stackable with RWP 242-V100 to achieve 3.75" H
- Mounts directly to your machine table / pallet using slotted c'bores. The Raptor RWP-PLUG-208 (machinable 2.5" dia. plug) is available for locating this adapter to your machine table and is sold separately.



Adapter material: Aircraft grade aluminum
Adapter height: 2.00"
Adapter diameter: 11.90"
Vise compatibility: RWP-502 and RWP-505
Boss/hole: 1.000" dia. x 0.30" receiving hole
Adapter weight: 22 lbs.

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SELF-CENTERING VISES

RWP-242-V100

Vise Riser Plate

- C'bores for 1/2" or M12 SHCS on a 7.0" B.C.
- Can be stacked in an application for higher "Z" using RWP-222-V100, RWP-223-V100 or RWP-209-V100
- Mounts directly to your machine table / pallet using slotted c'bores. The Raptor RWP-PLUG-208 (machinable 2.5" dia. plug) is available for locating this adapter to your machine table and is sold separately.



Adapter material: Aircraft grade aluminum
Adapter height: 1.75"
Adapter diameter: 8.45"
Vise compatibility: RWP-502
Boss/hole: 1.000" dia. x 0.30" receiving hole
Adapter weight: 9 lbs.

RWP-244-V100

Vise Adapter Plate with 2.25" Dovetail Bottom

- Mounts directly to: RWP-006 or RWP-006SS
- RWP-006 and RWP-006SS mount to any riser that has Raptor interface



Adapter material: Aircraft grade aluminum
Adapter dimensions: 6.50" L x 4.125" W x 1.00" H
Vise compatibility: RWP-502
Adapter weight: 4 lbs.

RWP-251-V100

Vise Riser

- C'bores for 1/2" or M12 SHCS on a 9.92" B.C.
- Mounts directly to: Haas UMC750, MC750SS, Matsuura MX520 300MM and many others



Adapter material: Aircraft grade aluminum
Adapter height: 4.50"
Adapter diameter: 11.40"
Vise compatibility: RWP-502
Adapter weight: 60 lbs.

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Piranha Clamp Gepard Vises



The Gepard self-centering vise is designed for both first and second operations. Available in both single and double station. Gepard vises come standard with zero-point mounting, which allows for quick part changes and 0.01mm (0.0004") repeatability/centering tolerance. The Piranha rail system enables the jaws to operate with the lowest jaw lift in the industry.

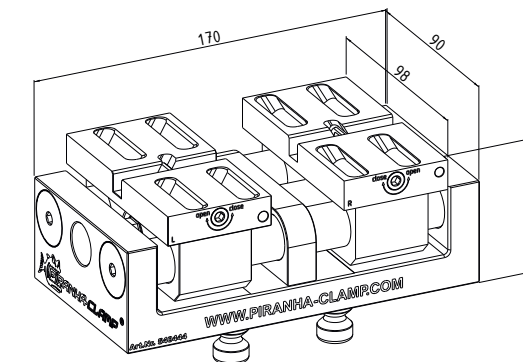
540444

Gepard 170 Self-Centering with Aluminum Jaws



Vise weight: 12.57 lbs.
Outside jaws weight: 1.32 lbs.
Maximum allowed torque: 73-foot lbs.
Hex size: 12mm

See pages 42-45 for replacement jaw options

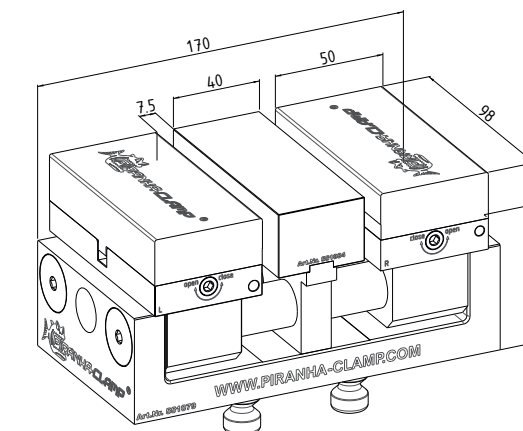


551079

Gepard 170 Double Station with Aluminum Jaws



Vise weight: 12.57 lbs.
Outside jaws weight: 1.32 lbs.
Center jaw weight: 0.661 lbs.
Maximum allowed torque: 73-foot lbs.
Hex size: 12mm

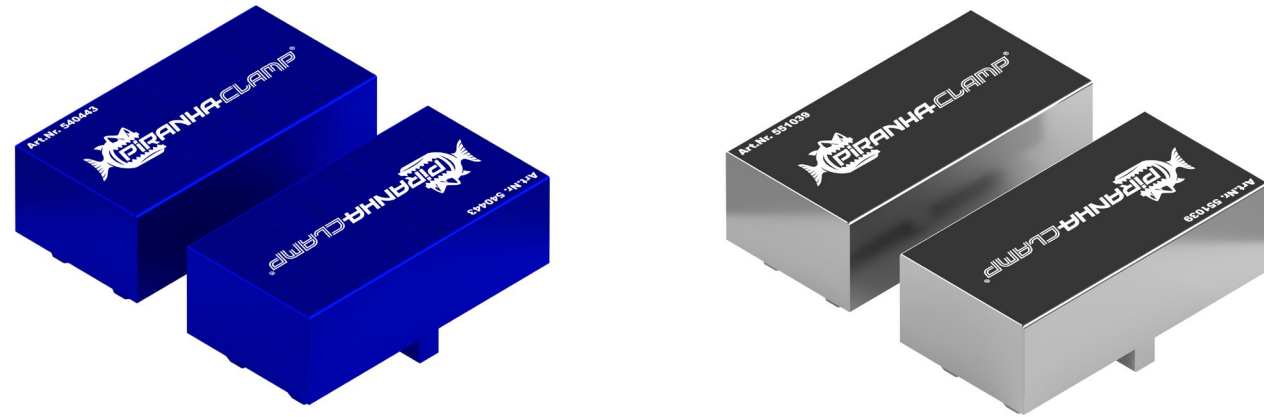


Double Station Replacement Jaw Options:

551130	551131	551132
<p>3-piece set Short aluminum machinable jaws Outer jaws: 50mm L x 98mm W x 31mm H (usable height) Center jaw: 40mm L x 98mm W x 31mm H (usable height) Weight: 1.30kg. (2.87 lbs.) Clamping range: 0mm-75mm</p>	<p>3-piece set Medium aluminum machinable jaws Outer jaws: 50mm L x 98mm W x 41mm H (usable height) Center jaw: 40mm L x 98mm W x 41mm H (usable height) Weight: 1.60kg. (3.52 lbs.) Clamping range: 0mm-75mm</p>	<p>3-piece set Tall aluminum machinable jaws Outer jaws: 50mm L x 98mm W x 51mm H (usable height) Center jaw: 40mm L x 98mm W x 51mm H (usable height) Weight: 1.90kg. (4.18 lbs.) Clamping range: 0mm-75mm</p>

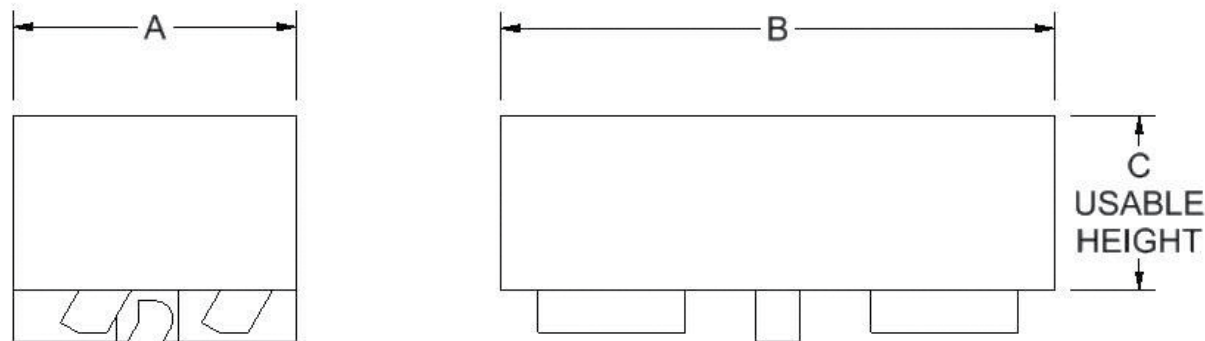
SELF-CENTERING VISES

GEPARD 170: Aluminum / Steel Machinable Jaws



Jaw Number	A (mm)	B (mm)	C Usable Height (mm)	Material
540443	50	98	31	ALUMINUM
551018	50	98	41	ALUMINUM
551019	50	98	51	ALUMINUM
551039	50	98	31	STEEL
551033	50	98	41	STEEL
551042	50	98	51	STEEL

*Jaws are sold as a set



GEPARD 170: Serrated Clamping Jaws

551009

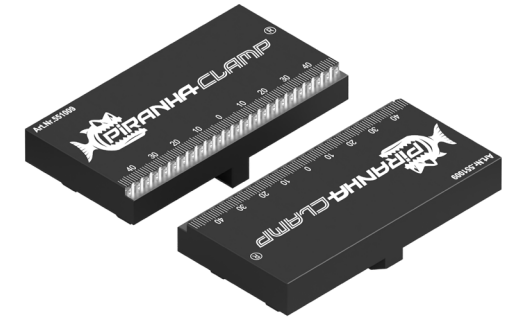
2-piece set

Short clamping jaws

Jaw Dim: 50mm L x 98mm W x 22mm H

Weight: 1.10kg. (2.42 lbs.)

Clamping Range: 7mm-61mm



551123

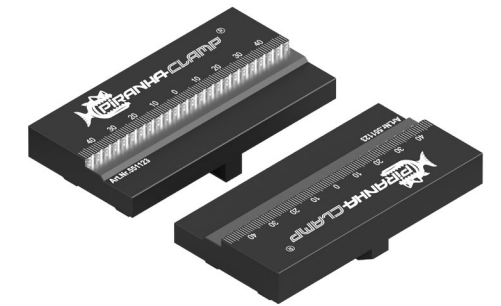
2-piece set

Medium clamping jaws

Jaw Dim: 50mm L x 98mm W x 22mm H

Weight: 1.00kg. (2.20 lbs.)

Clamping Range: 44mm-98mm



551008

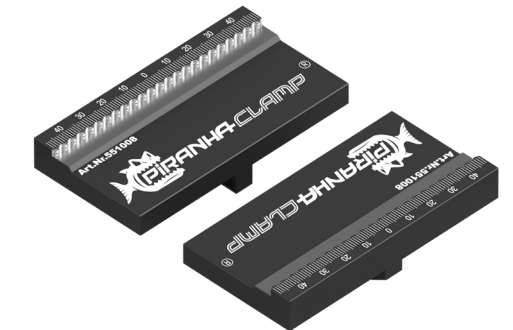
2-piece set

Long clamping jaws

Jaw Dim: 50mm L x 98mm W x 22mm H

Weight: 0.90kg. (1.98 lbs.)

Clamping Range: 81mm-135mm



551056

2-piece set

High-short clamping jaws

Jaw Dim: 50mm L x 98mm W x 40mm H

Weight: 2.00kg. (4.40 lbs.)

Clamping Range: 7mm-61mm



SELF-CENTERING VISES

GEPARD 170: Hybrid Serrated / Flat Clamping Jaws

551063

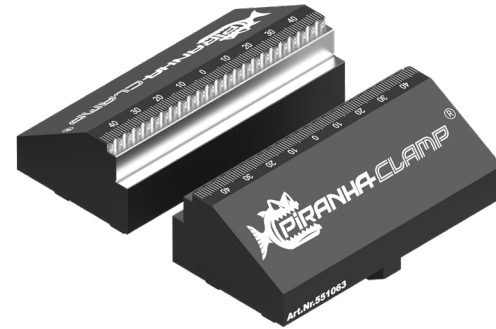
2-piece set

High-short

Jaw Dim: 50mm L x 98mm W x 40mm H

Weight: 2.00kg. (4.40 lbs.)

Clamping Range: Bottom - 10mm-65mm
Top - 17mm-70mm (serrated)



551102

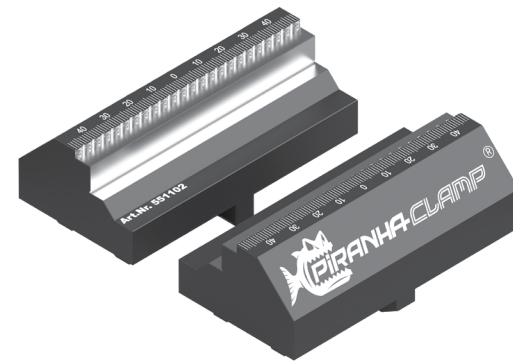
2-piece set

High-medium

Jaw Dim: 50mm L x 98mm W x 40mm H

Weight: 1.80kg. (3.96 lbs.)

Clamping Range: Bottom - 37mm-91mm
Top - 49mm-102mm (serrated)



551032

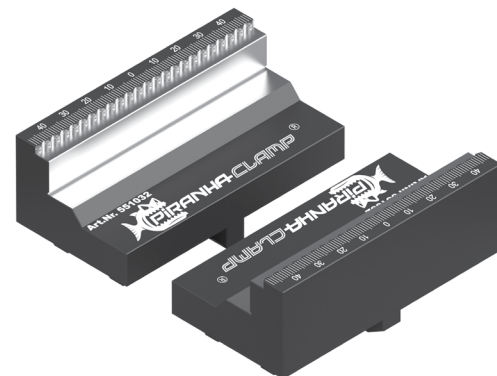
2-piece set

High-long

Jaw Dim: 50mm L x 98mm W x 40mm H

Weight: 1.60kg. (3.52 lbs.)

Clamping Range: Bottom - 70mm-124mm
Top - 81mm-134mm (serrated)



GEPARD 170: Low-Profile Flat Clamping Jaws

551005

2-piece set

Short low-profile flat

Jaw Dim: 50mm L x 98mm W x 25mm H

Weight: 1.30kg. (2.86 lbs.)

Clamping Range: 16mm-70mm



551124

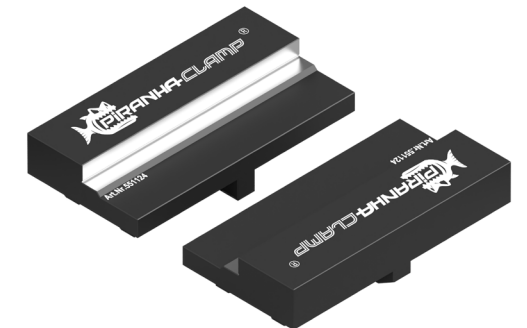
2-piece set

Medium low-profile flat

Jaw Dim: 50mm L x 98mm W x 25mm H

Weight: 1.10kg. (2.42 lbs.)

Clamping Range: 50mm-105mm



551004

2-piece set

Long low-profile flat

Jaw Dim: 50mm L x 98mm W x 25mm H

Weight: 0.85kg. (1.87 lbs.)

Clamping Range: 81mm-135mm



SELF-CENTERING VISES

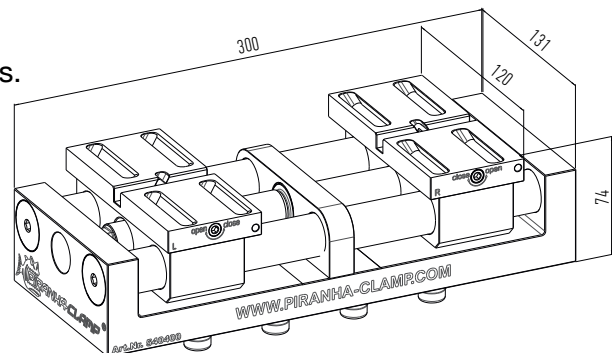
540400

Gepard 300 Self-Centering with Aluminum Jaws



Vise weight: 31.52 lbs.
Outside jaws weight: 2.42 lbs.
Maximum allowed torque: 73-foot lbs.
Hex size: 16mm

See pages 47-49 for replacement jaw options

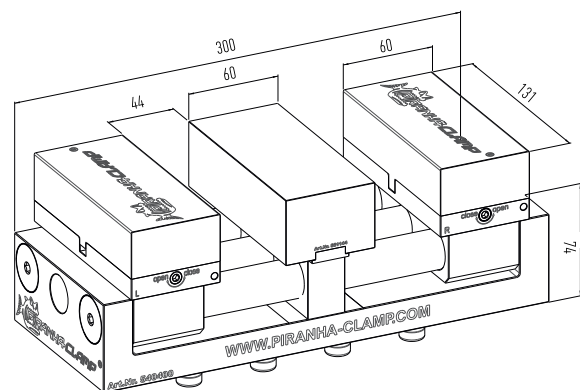


551080

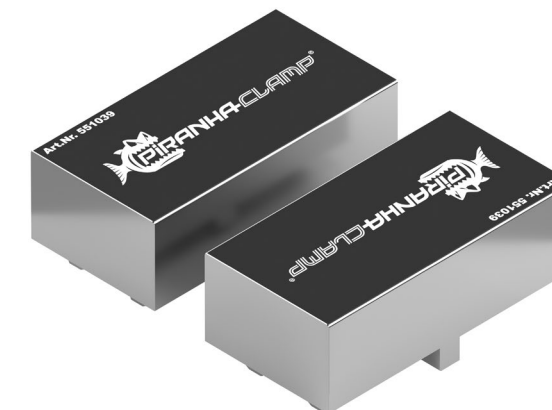
Gepard 300 Double Station with Aluminum Jaws



Vise weight: 31.52 lbs.
Outside jaws weight: 2.42 lbs.
Center jaw weight: 1.10 lbs.
Maximum allowed torque: 73-foot lbs.
Hex size: 16mm



GEPARD 300: Aluminum / Steel Machinable Jaws



Jaw Number	A (mm)	B (mm)	C Usable Height (mm)	Material
540424	60	131	41	ALUMINUM
551020	60	131	51	ALUMINUM
551021	60	131	61	ALUMINUM
551045	60	131	41	STEEL
551046	60	131	51	STEEL
551047	60	131	61	STEEL

*Jaws are sold as a set

Double Station Replacement Jaw Options:

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551133

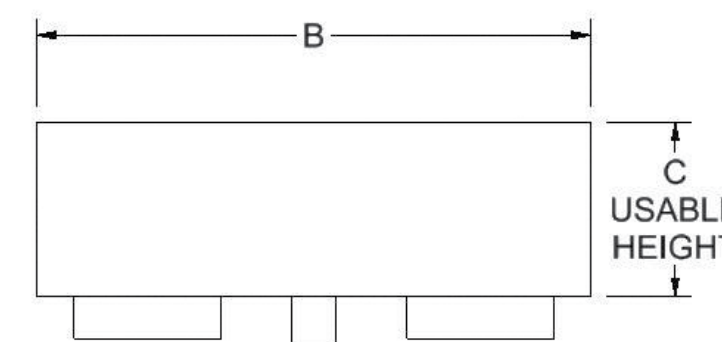
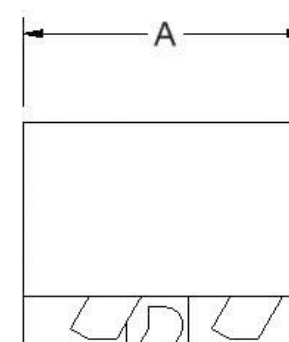
3-piece set
Short aluminum machinable jaws
Outer jaws: 60mm L x 131mm W x 41mm H (usable height)
Center jaw: 60mm L x 131mm W x 41mm H (usable height)
Weight: 2.40kg. (5.29 lbs.)
Clamping range: 0mm-132mm

551134

3-piece set
Medium aluminum machinable jaws
Outer jaws: 60mm L x 131mm W x 51mm H (usable height)
Center jaw: 60mm L x 131mm W x 51mm H (usable height)
Weight: 3.10kg. (6.83 lbs.)
Clamping range: 0mm-132mm

551135

3-piece set
Tall aluminum machinable jaws
Outer jaws: 60mm L x 131mm W x 61mm H (usable height)
Center jaw: 60mm L x 131mm W x 61mm H (usable height)
Weight: 3.90kg. (8.59 lbs.)
Clamping range: 0mm-132mm



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SELF-CENTERING VISES

GEPARD 300: Serrated Clamping Jaws

551007

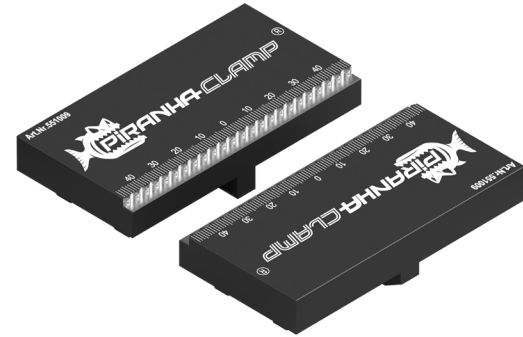
2-piece set

Short clamping jaws

Jaw Dim: 60mm L x 131mm W x 22mm H

Weight: 1.80kg. (3.96 lbs.)

Clamping Range: 7mm-153mm



551006

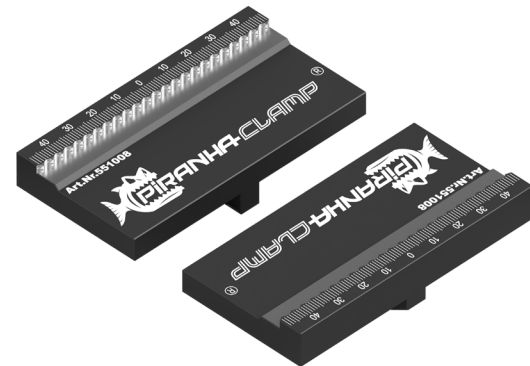
2-piece set

Long clamping jaws

Jaw Dim: 60mm L x 131mm W x 22mm H

Weight: 1.50kg. (3.30 lbs.)

Clamping Range: 101mm-247mm



551058

2-piece set

High-short clamping jaws

Jaw Dim: 60mm L x 131mm W x 50mm H

Weight: 4.20kg. (9.25 lbs.)

Clamping Range: 7mm-153mm



GEPARD 300: Hybrid Serrated / Flat Clamping Jaws

551057

2-piece set

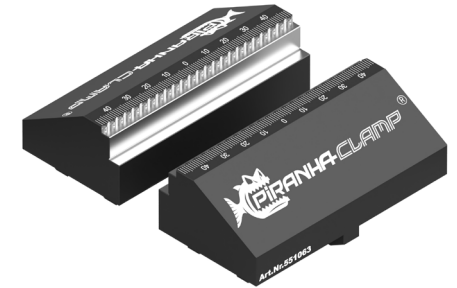
High-short

Jaw Dim: 60mm L x 131mm W x 50mm H

Weight: 4.15kg. (9.14 lbs.)

Clamping Range: Bottom - 11mm-157mm

Top - 17mm-164mm (serrated)



551038

2-piece set

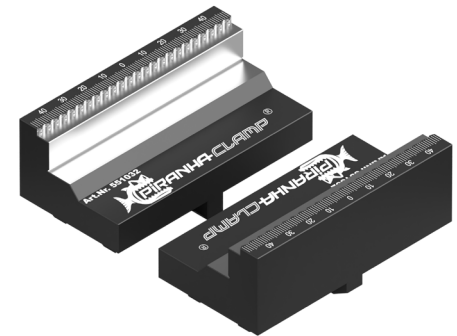
High-long

Jaw Dim: 60mm L x 131mm W x 50mm H

Weight: 3.40kg. (7.49 lbs.)

Clamping Range: Bottom - 101-247mm

Top - 95mm-241mm (serrated)



GEPARD 300: Low-Profile Flat Clamping Jaws

551003

2-piece set

Short low-profile flat

Jaw Dim: 60mm L x 131mm W x 25mm H

Weight: 2.15kg. (4.73 lbs.)

Clamping Range: 17mm-163mm



551002

2-piece set

Long low-profile flat

Jaw Dim: 60mm L x 131mm W x 25mm H

Weight: 1.30kg. (2.86 lbs.)

Clamping Range: 101mm-247mm



SELF-CENTERING VISES



Piranha Clamp Snapper Vises

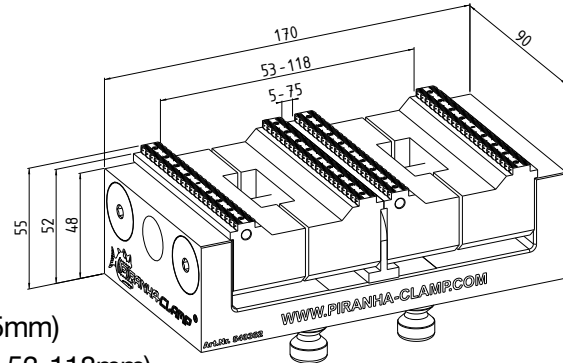
Utilizing hardened serrated jaws, the Snapper vise is designed for first operations or raw casting machining. The Snapper has the lowest profile in the industry, allowing for more “z-axis” access. The Snapper grips with two rows of teeth at 8,000 lbs. force on just 3mm of material. The Piranha Snapper vises come standard with zero-point mounting with allows for quick part changes and 0.01mm (0.0004”) repeatability / centering tolerance. ***Replacement jaws available upon request.**

540362

Snapper 170 Self-Centering Vise

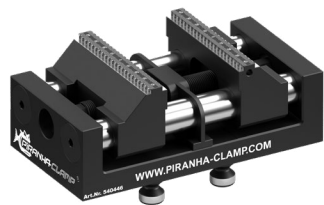


Vise weight: 9.92 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 12mm
Clamping range: (standard 5-75mm)
(reversed jaws 53-118mm)

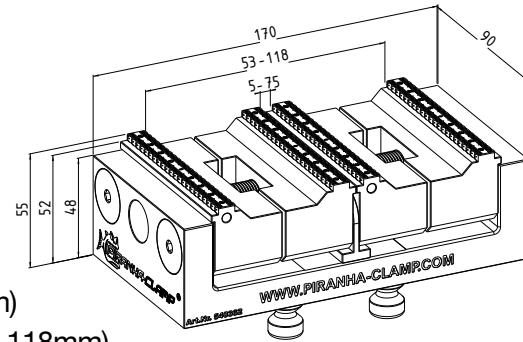


540446

Snapper 170 Self-Centering Vise with 10mm Taller Height Jaws



Vise weight: 10.14 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 12mm
Clamping range: (standard 5-75mm)
(reversed jaws 53-118mm)

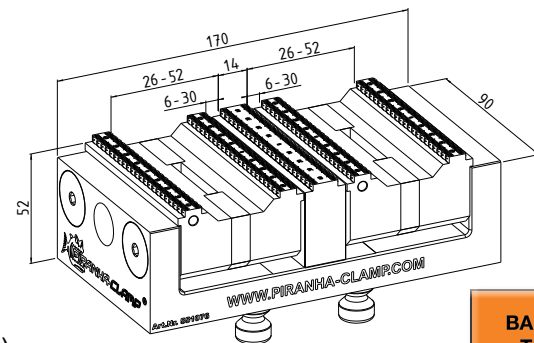


551076

Snapper 170 Double Station Vise



Vise weight: 11.02 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 12mm
Clamping range: (standard 6-30mm)
(reversed jaws 26-52mm)



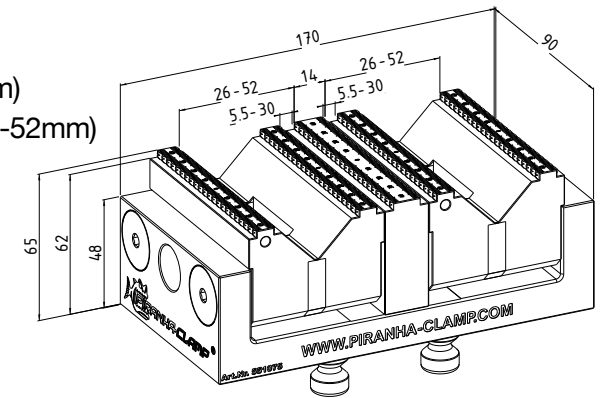
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551075

Snapper 170 Double Station Vise with 10mm Taller Height Jaws



Vise weight: 11.24 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 12mm
Clamping range: (standard 6-30mm)
(reversed jaws 26-52mm)

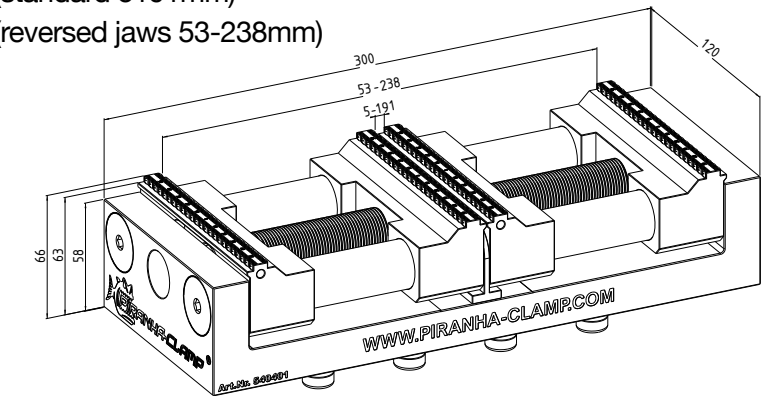


540401

Snapper 300 Self-Centering Vise



Vise weight: 25.35 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 16mm
Clamping range: (standard 5191mm)
(reversed jaws 53-238mm)

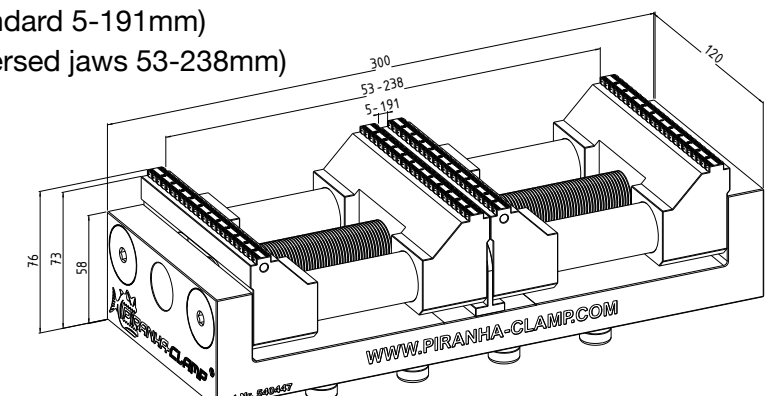


540447

Snapper 300 Self-Centering Vise with 10mm Taller Height Jaws



Vise weight: 25.57 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 16mm
Clamping range: (standard 5-191mm)
(reversed jaws 53-238mm)

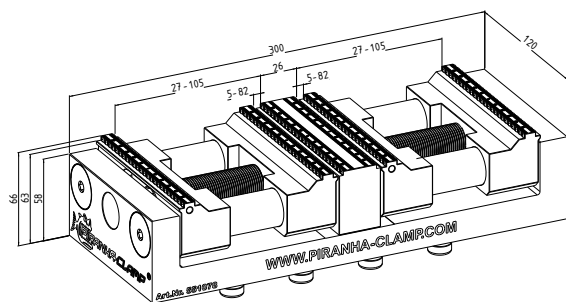


SELF-CENTERING VISES

551078 Snapper 300 Double Station Vise



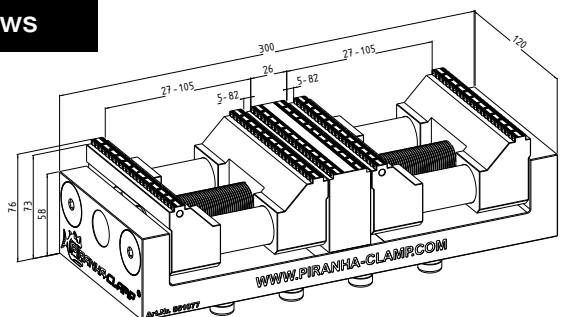
Vise weight: 26.46 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 16mm
Clamping range: (standard 5-82mm)
(reversed jaws 27-105mm)



551077 Snapper 300 Double Station Vise with 10mm Taller Height Jaws

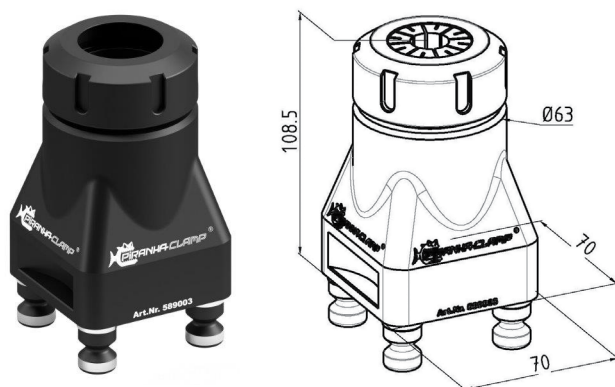


Vise weight: 26.67 lbs.
Max allowed torque: 147-foot lbs.
Hex size: 16mm
Clamping range: (standard 5-82mm)
(reversed jaws 27-105mm)



589003 ER40 Collet Chuck Fixture

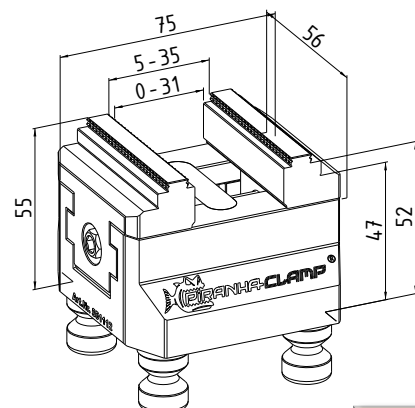
- Accepts ER40 collets (not included)
- Fits on all Piranha Zero-Point plates



551112 PV 75 Self-Centering Vise



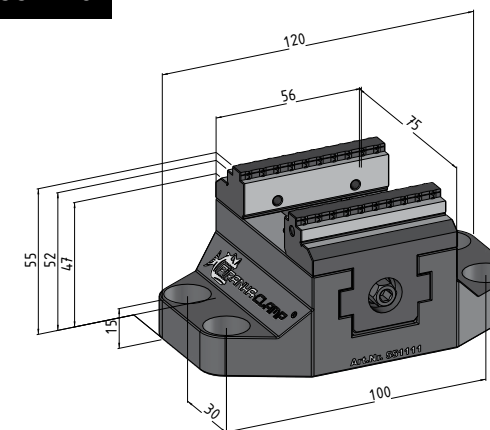
Vise weight: 3.52 lbs.
Max allowed torque: 24-foot lbs.
Hex size: 8mm
Centering tolerance: 0.01mm (0.0004")
Clamping range: (serrated 0-31mm)
(plain 5-35mm)
(serrated with reversed jaws 19-49mm)
(plain with reversed jaws 25-55mm)



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551111 Flange Mount Self-Centering Vise Direct Mount to Pyramid 551119

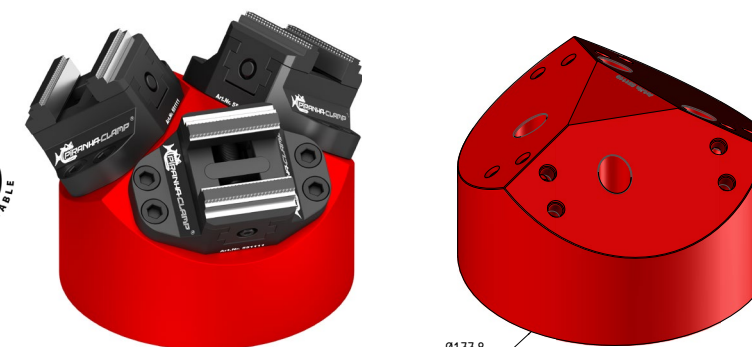
Fits pyramid: 551119
Vise weight: 4.00 lbs.
Clamping range: (serrated 0-31mm)
(plain 5-35mm)
(serrated with reversed jaws 19-49mm)
(plain with reversed jaws 25-55mm)
Max allowed torque: 24-foot lbs.
Hex size: 8mm



Pyramids

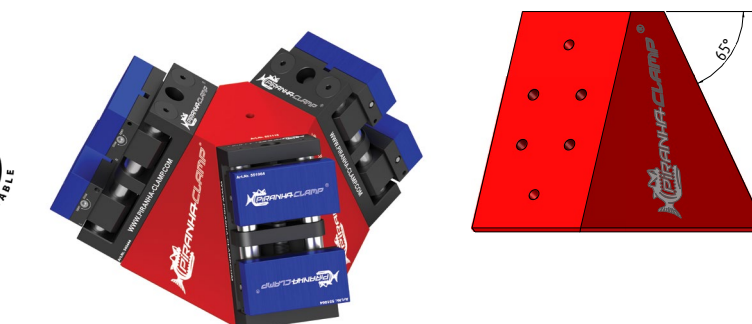
551119 Pyramid Fixture with (3) 551111 Vises

- Multiple clamping on 5-axis machines
- Mounting for (3) 551111 vises only
- Diameter 177.8mm x 108.6mm tall
- Pyramid faces are at 45°
- Weight = 5.4kg. (11.9 lbs.)
- Zero-point mounting included (on bottom)
- Includes (3) 551111 vises



551116 Pyramid Fixture Body

- Mounting for (3) vises (see below)
- 250mm x 160mm tall
- Pyramid faces are at 65°
- Weight = 9.7kg. (21.4 lbs.)
- Zero-point mounting included (on bottom)
- Vises not included, sold separately



Vise Options Available to Mount to 551116, 551141 & 551142:

540444-PY
Gepard 170, includes aluminum clamping jaws

540446-PY
Snapper 170 with 10mm taller height jaws

551079-PY
Gepard 170 double station, includes aluminum double station jaw set

551076-PY
Snapper 170 double station

540362-PY
Snapper 170 self-centering vise

551075-PY
Snapper 170 double station with 10mm taller height jaws

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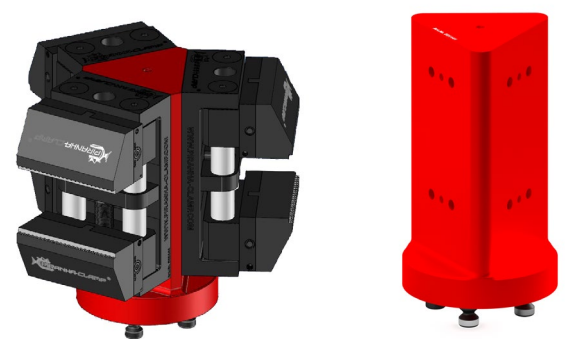
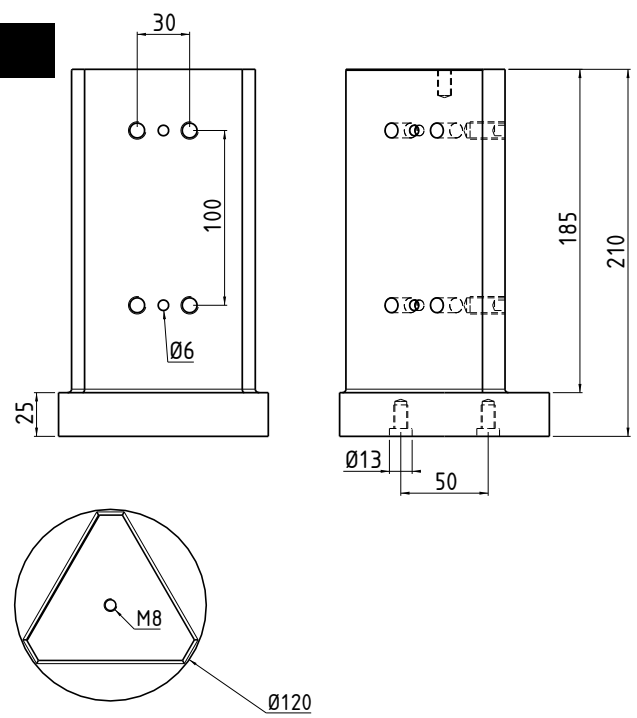
SELF-CENTERING VISES

Tombstones

551141

Tombstone Body with Mounting for (3) 170mm Vises

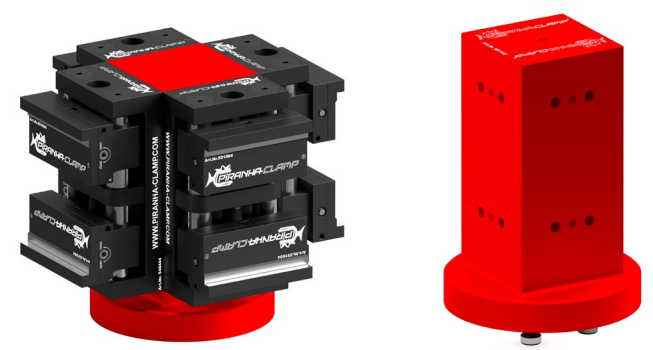
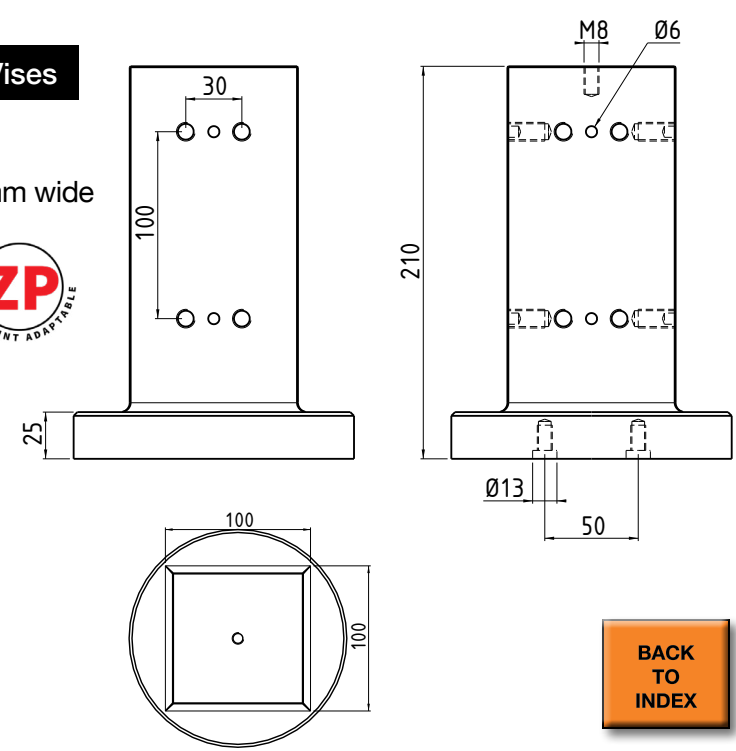
- Tombstone faces are evenly spaced at 120°
- Base = dia. 120mm, OAH = 210mm
- Zero-point mounting included (on bottom)
- Vises not included, sold separately



551142

Tombstone Body with Mounting for (4) 170mm Vises

- Tombstone faces are evenly spaced at 90°
- Base = dia. 150mm, OAH = 210mm, Faces = 90mm wide
- Zero-point mounting included (on bottom)
- Vises not included, sold separately



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Piranha Clamp Accessories

540277

Zero-point studs (4) pack
Weight = 0.40kg. (0.88 lbs.)



551025

Aluminum hole plugs non-flush (4) pack
Must be used when not utilizing all zero-point holes
Weight = 0.20kg. (0.44 lbs.)



551140

Steel flush hole plug (4) pack
Must be used when not utilizing all zero-point holes
Weight = 0.40kg. (0.88 lbs.)



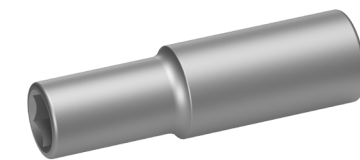
501000

8mm socket key for PV 75 vises
Weight = 0.01kg. (0.22 lbs.)



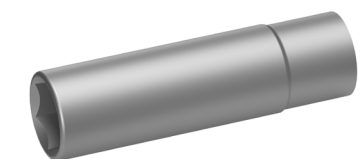
501001

12mm socket key for 170 vises
Weight = 0.01kg. (0.22 lbs.)



501002

16mm socket key for 300 vises
Weight = 0.01kg. (0.22 lbs.)



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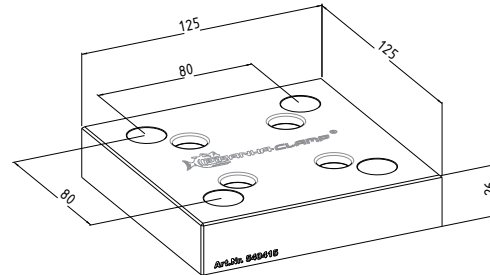
ZERO-POINT PLATES

Piranha zero-point plates are comprised of precision bores and a clamp that is acutated with a simple turn of a wrench. All zero-point plates are steel material with a black oxide finish. Piranha zero-point plates allow for precise, repeatable set-ups utilizing a 50mm spread. Zero-point plates accept both Piranha and Raptor self-centering vises, as well as many Raptor dovetail fixtures by clamping on the precision locating studs.

540415

Zero-Point Clamping Plate

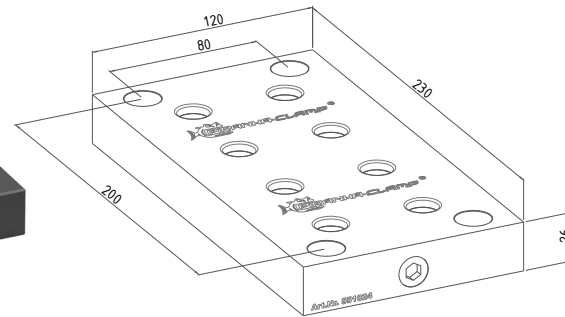
- Weight = 2.40kg. (5.29 lbs.)



551024

Double Zero-Point Clamping Plate

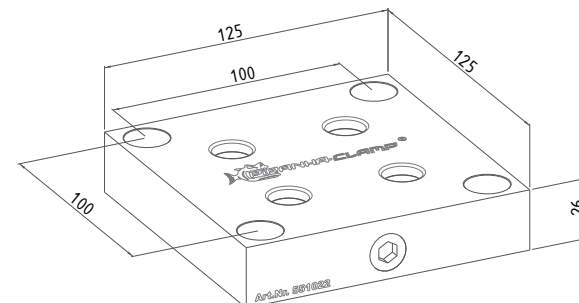
- Weight = 4.30kg. (9.47 lbs.)
- When zero-point holes are not used, a plug must be added to ensure proper function of the mechanism (see part numbers 551025 or 551140)



551022

Zero-Point Clamping Plate

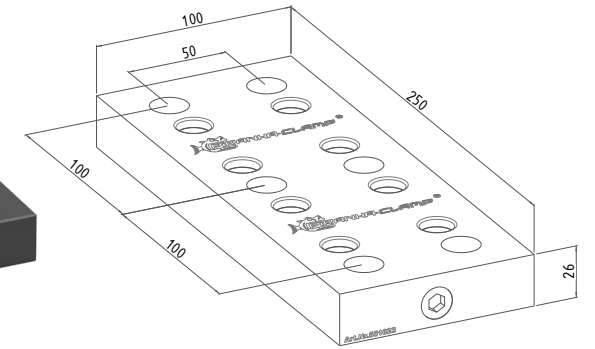
- Weight = 2.65kg. (5.84 lbs.)



551023

Double Zero-Point Clamping

- Weight = 4.00kg. (8.8 lbs.)
- When zero-point holes are not used, a plug must be added to ensure proper function of the mechanism (see part numbers 551025 or 551140)



551093

Blank Double Zero-Point Clamping Plate

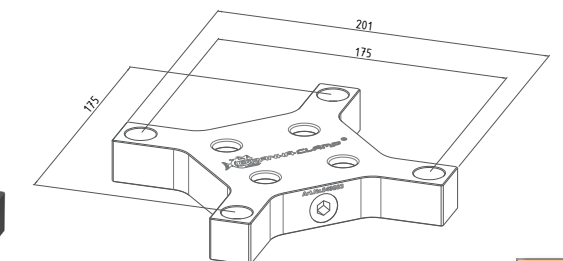
- Weight = 4.40kg. (9.70 lbs.)
- 250mm L x 120mm W x 26mm H
- When zero-point holes are not used, a plug must be added to ensure proper function of the mechanism (see part numbers 551025 or 551140)
- Plates are provided with blank mounting (customer must modify)



540283

Zero-Point Butterfly Clamping Plate

- Weight = 2.50kg. (5.51 lbs.)

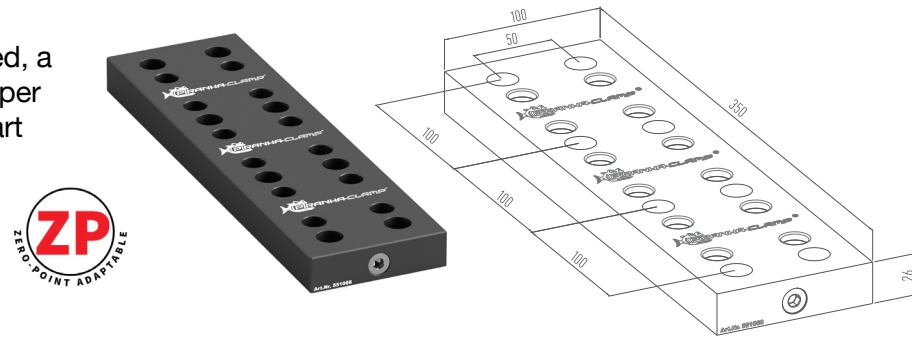


ZERO-POINT PLATES

551068

Triple Zero-Point Clamping Plate

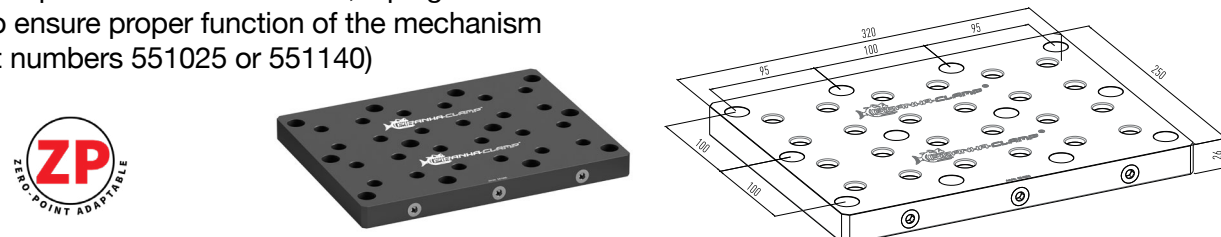
- Weight = 5.20kg. (11.45 lbs.)
- When zero-point holes are not used, a plug must be added to ensure proper function of the mechanism (see part numbers 551025 or 551140)



551085

Zero-Point Clamping Plate

- Weight = 12.00kg. (26.45 lbs.)
- When zero-point holes are not used, a plug must be added to ensure proper function of the mechanism (see part numbers 551025 or 551140)



551158

Zero-Point Adapter

- Weight = 2.3kg. (5 lbs.)
- Adapts Raptor risers to zero-point products
- Has a 31.75mm (1.25") boss on the bottom
- 126mm dia. x 26mm H



Blank Zero-Point Clamping Plates- Customer Must Add Mounting

551086

- Weight = 2.31kg. (9.0 lbs.)
- 120mm dia. X 26mm H



551087

- Weight = 4.1kg. (9.0 lbs.)
- 160mm dia. X 26mm H



551090

- Weight: 16.6kg. (27.7 lbs.)
- 280mm dia. X 26mm H
- When zero-point holes are not used, a plug must be added to ensure proper function of the mechanism (see part numbers 551025 or 551140)



551088

- Weight = 5.2kg. (11.4 lbs.)
- 180mm dia. X 26mm H



501089

- Weight = 6.4kg. (14.1 lbs.)
- 200mm dia. X 26mm H



PIRANHA MULTI-CLAMP

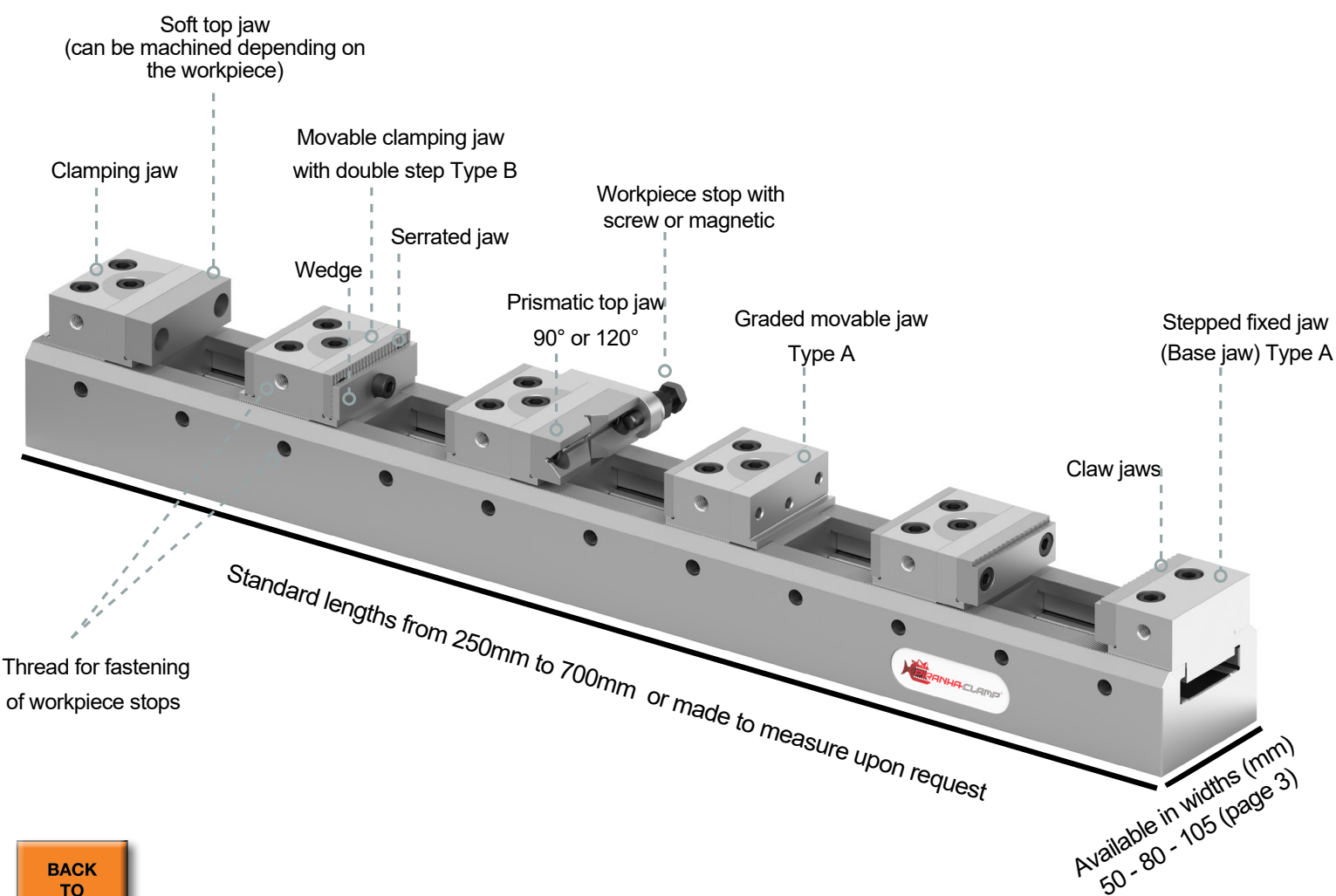
The Piranha Multi-Clamp Vise is one of the most accurate, versatile, and flexible clamping systems for multiple workpiece clamping. It is designed for clamping multiple workpieces at the same time on the machine tool table, creating a reduction in part changeover times.

This system is built around a steel clamping rail with standard lengths from 250mm up to 700mm and standard widths of 50mm, 80mm and 105mm.

Piranha Multi-Clamp offers a wide variety of clamping modules that bolt to the vise bed, locating on the 1mm, 60-Rockwell, serrations to maximize clamping repeatability. By utilizing the various clamping modules, the Piranha Multi-Vise can accommodate various clamping requirements needed in today's machining environments.

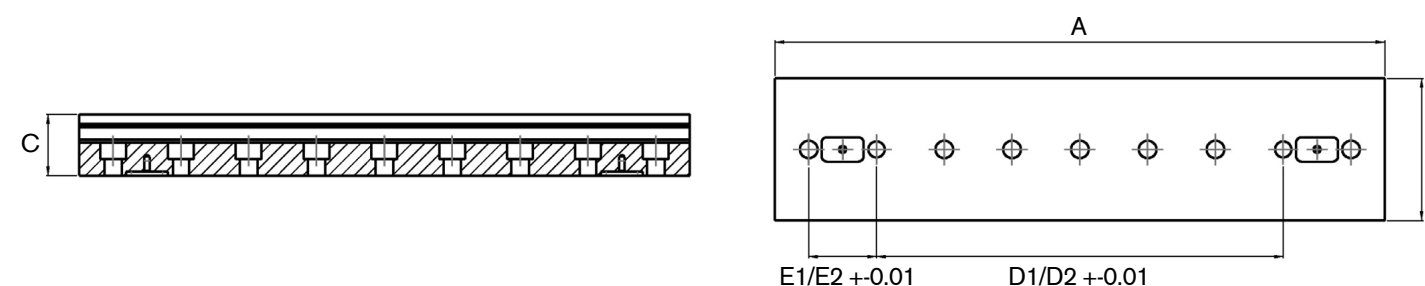
Each clamping module utilizes linear clamping with a single screw moving a conical shaped wedge, exerting up to 3,500 lbs. of maximum, uniform holding pressure on the clamped part. The optional jaw offerings allow the customer to clamp on parallels, serrated jaws or "V" jaws.

The optional jaw offerings allow the customer to clamp on parallels/serrated jaws or "V" jaws.



Standard Dimensions

Size (mm)	Item No.	Millimeters (mm)							Weight in kg.	Maximum clamping force
		A	B	C	E1	D1	E2	D2		
50	574050-250	250	60	40	40	120	50	100	3.3	2,922 @ 15 ft-lbs.
50	574050-320	320	60	40	40	200	50	100	4.2	
50	574050-500	500	60	40	40	360	50	350	6.6	
50	574050-600	600	60	40	40	400	50	400	8.0	
50	574050-650	650	60	40	40	400	50	400	8.4	
50	574050-700	700	60	40	40	400	50	400	9.3	
80	574080-350	350	90	40	40	200	50	250	6.3	3,596 @ 22 ft-lbs.
80	574080-500	500	90	40	40	360	50	350	9.0	
80	574080-600	600	90	40	40	400	50	400	10.8	
80	574080-650	650	90	40	40	400	50	400	11.5	
80	574080-700	700	90	40	40	400	50	400	12.8	
80	576080-350	350	90	60	40	200	50	250	11.1	
80	576080-500	500	90	60	40	360	50	350	15.8	
80	576080-600	600	90	60	40	400	50	400	17.8	
80	576080-650	650	90	60	40	400	50	400	19.9	
80	576080-700	700	90	60	40	400	50	400	22.1	
105	5745105-500	500	105	45	40	360	50	360	13.0	
105	5745105-600	600	105	45	40	400	50	400	15.9	
105	5745105-700	700	105	45	40	400	50	400	18.5	



PIRANHA MULTI-CLAMP

Vise Workplace Capacity - Calculator

The table below helps to determine the maximum number of parts that will fit on each size vise. Once you have determined the maximum size of the part you want to hold, find the size on the chart that is closest to the size being machined. From that, you can see how many of that size part fits on each size of each vise.

Jaw width (mm)	Length of clamping rail (mm)	Number of workpieces															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Maximum size of workpieces (mm)															
50	250 mm	188	77	40	21	10											
	320 mm	258	112	63	39	24	14	7									
	500 mm	438	202	123	84	60	44	33	25	18	13	8					
	600 mm	538	252	156	109	80	61	47	37	29	23	18	13	10			
	650 mm	588	277	173	121	90	69	54	43	35	28	22	17	13	10	7	
	700 mm	638	302	190	134	100	78	62	50	40	33	27	22	17	14	10	8
80	350 mm	225	101	49	24	8											
	500 mm	405	176	99	61	38	23	12									
	600 mm	505	226	133	86	58	40	26	16	9							
	650 mm	555	251	149	99	68	48	33	23	14							
	700 mm	605	276	166	111	78	56	41	29	20	12						
105 / 120	500 mm	381	158	83	46	24	9										
	600 mm	481	208	117	71	44	26	13									
	700 mm	581	258	150	96	64	42	27	15								

Compatibility Clamping Rail and Base Jaws

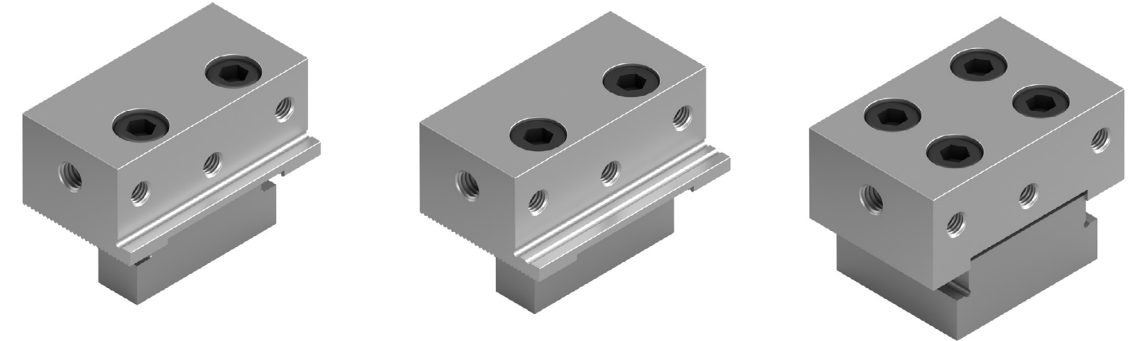
Size of clamping rail (mm)	Jaw width (mm)
50	50
80	80
	105
	120
105	80
	105
	120



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Fixed Base Clamping Jaws

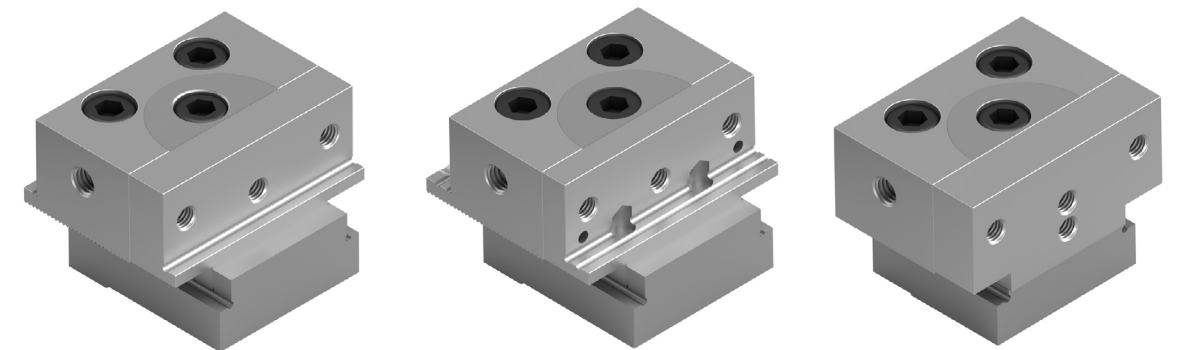
Each fixed jaw is non-movable jaw, used to locate part prior to machining. These jaws are used in conjunction with the Piranha Multi-Vise Rail.



Part Number			Jaw Width (mm)
Single Step	Double Step	No Step	
570001	570010	570020	50
570002	570011	570021	80
570003	570012	570022	105
570004	570013	570023	120

Moveable Clamping Jaws

Each movable jaw is designed to be moved up and down the clamping rail to accommodate different part sizes. The different steps are for the addition of various hard jaws and and / or parallels.



Part Number			Jaw Width (mm)
Single Step	Double Step	No Step	
570030	570040	570050	50
570031	570041	570051	80
570032	570042	570052	105
570033	570043	570053	120

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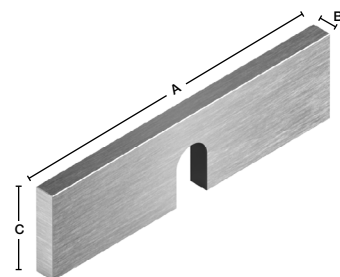
PIRANHA MULTI-CLAMP

Additional Jaws

Piranha Multi-Clamp offers a variety of jaws in many sizes and types to fit almost any application. These jaw offerings include standard parallels, serrated hard and step jaws, plain hard jaws, v-jaws and machinable soft jaws.

Parallels

Piranha offers standard parallels in many sizes that are designed to be used in conjunction with one of the step clamp modules (1 or 2 step) to lift your part off the bed of the vise.



Wedges with Groove for Stepped Jaws	Size (mm)		
	A	B	C
570060	49	3	11
570061	49	3	12
570062	49	3	13
570063	49	3	14
570064	49	3	15
570065	49	3	16
570066	78	4	11
570067	78	4	12
570068	78	4	13
570069	78	4	14
570070	78	4	15

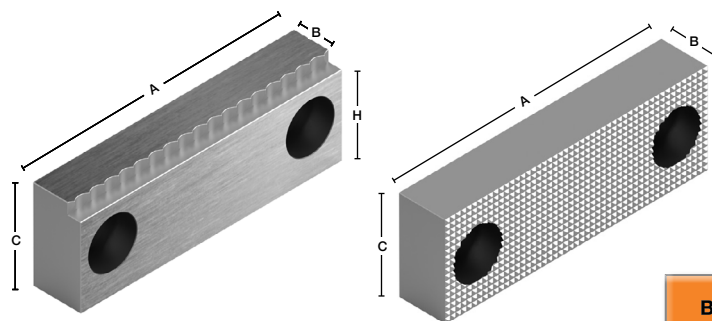
Wedges with Groove for Stepped Jaws	Size (mm)		
	A	B	C
570071	105	4	12
570072	105	4	14
570073	105	4	16
570074	105	4	18
570075	105	4	20
570076	120	4	12
570077	120	4	14
570078	120	4	16
570079	120	4	18
570080	120	4	20

Serrated Step Jaws and Hard Jaws

Serrated step jaws have a step with serrations at the top of the step for aggressive minimal clamping applications. Serrated hard jaws have serrations over the entire face of the steel jaw to enable more aggressive part clamping.

Serrated Step Jaws	Size (mm)			
	A	B	C	H
570090	49	72	17	15
570091	78	72	22	19
570092	105	72	32	29
570093	120	72	32	29

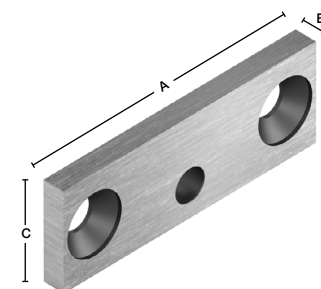
Serrated Hard Jaws	Size (mm)		
	A	B	C
570100	49	4	17
570101	49	9	17
570102	78	4	22
570103	78	11	22
570104	105	4	32
570105	120	4	32



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Smooth Standard Hard Jaws

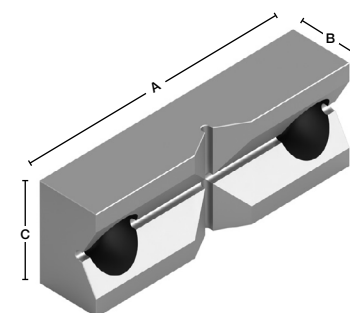
Made of hardened and ground steel, to provide an accurate surface for clamping your part.



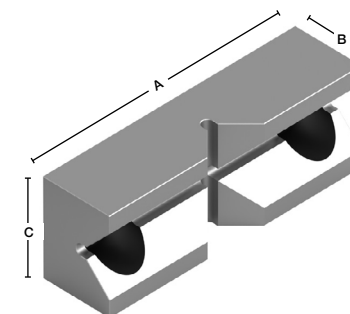
Smooth Standard Hard Jaws	Size (mm)		
	A	B	C
570110	49	4	17
570111	49	9	17
570112	78	4	22
570113	78	11	22
570114	105	4	32
570115	120	4	32

Steel "V" Jaws

Piranha offers V-jaws in both 90° and 120° angle on the jaw surface for clamping of round surfaces.



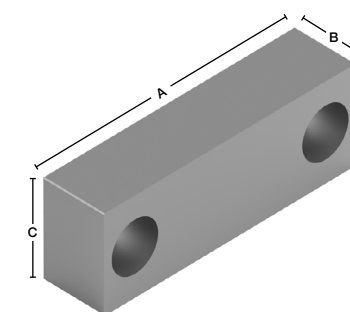
Steel "V" Jaws 120°	Size (mm)		
	A	B	C
570120	49	11	17
570121	78	16	22
570122	105	18	32
570123	120	18	32



Steel "V" Jaws 90°	Size (mm)		
	A	B	C
570130	49	13	17
570131	78	16	22
570132	105	32	32
570133	120	32	32

Standard Aluminum Soft Jaws

Made out of aluminum, these jaws are designed for milling a pocket in the jaw to contour with the shape of the part being machined.



Standard Aluminum Soft Jaws	Size (mm)		
	A	B	C
570140	49	9	17
570141	49	12	17
570142	78	17	22
570143	78	18	22
570144	105	15	32
570145	120	15	32

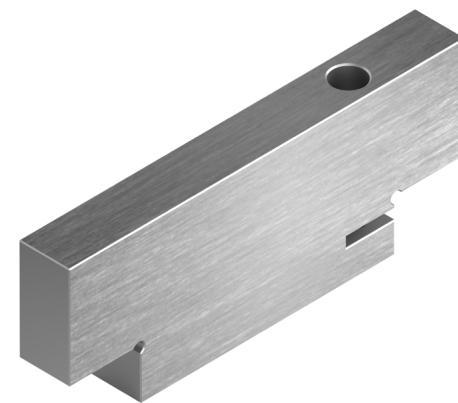
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Locking Support Brackets

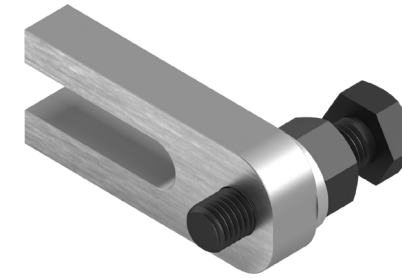
Used for support when encountering long distances between clamps

Locking Support Brackets	Size (mm)
570150	11 x 9 x 50
570151	12 x 8 x 50
570152	13 x 7 x 50
570153	14 x 6 x 50
570154	15 x 5 x 50
570155	16 x 4 x 50
570156	17 x 3 x 50
570157	18 x 2 x 50
570158	19 x 1 x 50
570160	15.2 x 17 x 80
570161	16.2 x 16 x 80
570162	17.2 x 15 x 80
570163	18.2 x 14 x 80
570164	19.2 x 13 x 80
570165	20.2 x 12 x 80
570166	21.2 x 11 x 80
570167	22.2 x 10 x 80
570168	23.2 x 9 x 80
570169	24.2 x 8 x 80
570170	25.2 x 7 x 80
570171	26.2 x 6 x 80
570172	27.2 x 5 x 80
570173	28.2 x 4 x 80
570174	29.2 x 3 x 80
570175	30.2 x 2 x 80
570176	31.2 x 1 x 80

Locking Support Brackets	Size (mm)
570180	32.2 x 10 x 105
570181	34.2 x 8 x 105
570182	36.2 x 6 x 105
570183	38.2 x 4 x 105
570184	40.2 x 2 x 105
570190	32.2 x 10 x 120
570191	34.2 x 8 x 120
570192	36.2 x 6 x 120
570193	38.2 x 4 x 120
570194	40.2 x 2 x 120

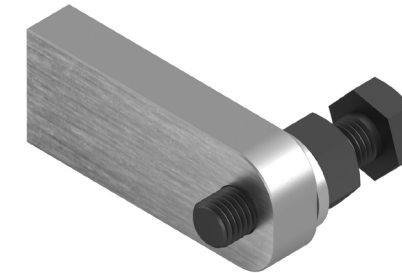


Workstop



Workpiece stop	Size (mm)
570200	50
570201	80
570202	Long

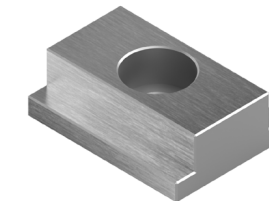
Magnetic Workstop



Magnetic workpiece stop	Size (mm)
570210	50
570211	80
570212	Long

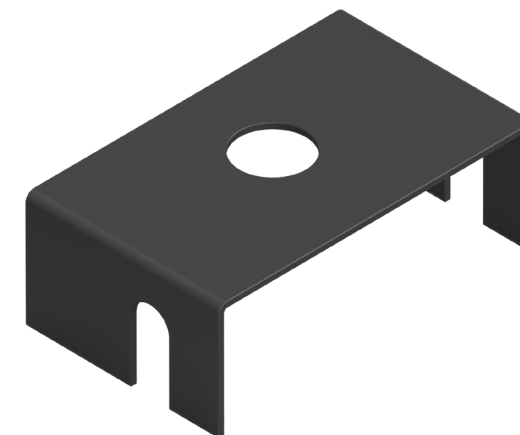
Step Keys

Locates vise on machine table



Step Keys	Size (mm)
570220	18 x 10
570221	18 x 12
570222	18 x 14
570223	18 x 16
570224	18 x 18

Chip Protectors



Chip Protection	Size (mm)
570230	50
570231	80
570232	105
570233	120

PIRANHA COOLING LINE

The Piranha Cooling Line is a unique and versatile system that withstands higher pressures up to 1,150 PSI with a variety of connectors and nozzles. The system, made of high-strength, anodized aluminum, allows coolant, oil and air to be directed exactly where it is needed, leading to improved tool life, increased machine uptime and better part finish.

Available in the following sizes: 1/8", 1/4" & 1/2"

The flat nozzles are available in various widths to optimize the grinding process.

Threaded connectors as well as ball socket connectors and bore adapters are the connection to the machine.

Spacers in various lengths serve for optimum flexibility and accessibility.

The nut is used to secure the nozzles.

Ball valves and check valve allow the flow to be stopped mechanically if required.

The various angle elements (90°, T- and Y-pieces and multiple connections) allow individual extensions.

Nozzles are available with different passage and angles. With the multi-hole nozzle you get a point and precise jet.



1/8 INCH

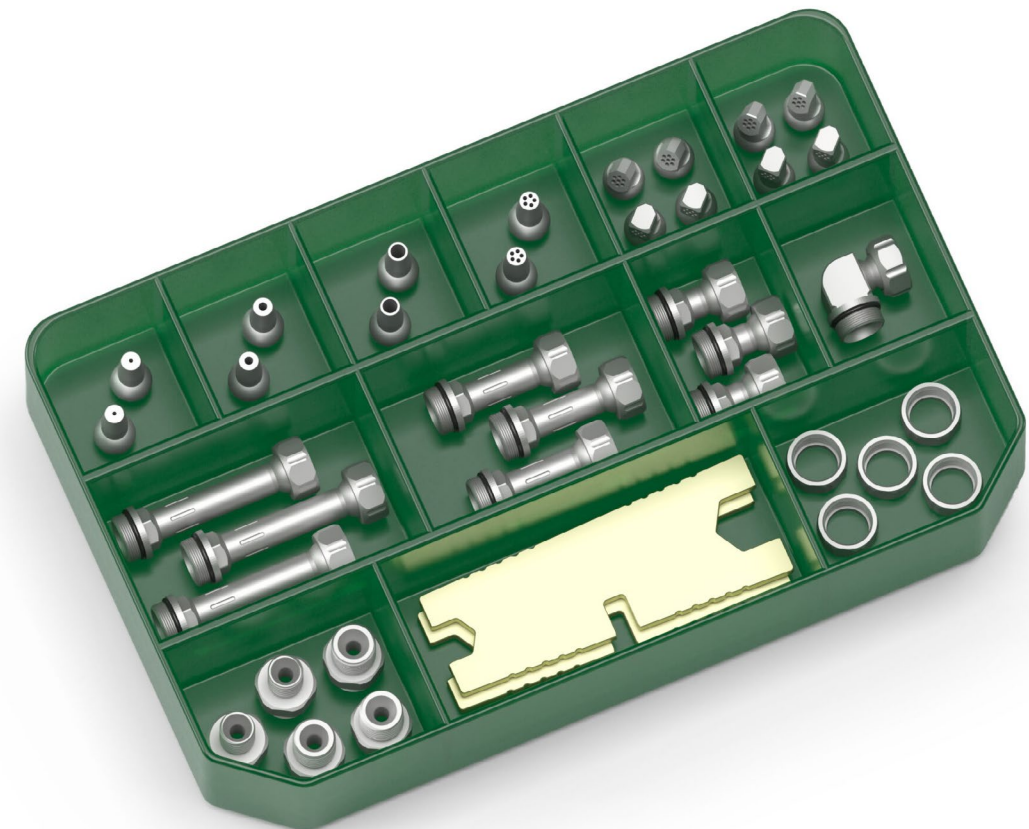
- Through-hole dia. 3.4mm
- Clamping torque 1.5 - 2.2 ft. lbs.

The Piranha Cooling Line Starter Kit includes a variety of popular components to allow construction of a basic cooling line setup. The kits include a few different threaded connectors for adaptability to your machine. The kits are also a great way to keep components organized and close to the machine for quick additions or modifications to an existing setup. Everything you need packaged in a convenient, durable, sectioned storage case. Every machine should have this clever kit nearby!

Starter Kit: PCL-1/8-SET-1

Includes:

- | | | | |
|------------------|-----------------|--------------------|------------------|
| (2) RD-9.5-1 | (2) SDK-9.5/90° | (3) D-9.5/45 | (1) GA-9.5-M8x1 |
| (2) RD-9.5-2 | (2) SDL-9.5/60° | (1) L-1/8 | (1) GA-9.5-M10x1 |
| (2) RD-9.5-3.4 | (2) SDL-9.5/90° | (1) GA-9.5-1/8 | (2) S-9/13 |
| (2) RD-9.5-5/1.0 | (3) D-9.5/20 | (1) GA-9.5-1/8-NPT | (5) M-SW13 |
| (2) SDK-9.5/60° | (3) D-9.5/32 | (1) GA-9.5-M8 | |



1/8 INCH

- Through-hole dia. 3.4mm
- Clamping torque 1.5 - 2.2 ft. lbs.

Threaded Connectors

GA-9.5-1/8
G (BSPP)



GA-9.5-1/8-NPT
(NPT)



GA-9.5-1/8-R
R (BSPT)



GA-9.5-1/4
1/4"



GA-9.5-1/4-NPT
1/4" (NPT)



GA-9.5-1/4-R
1/4" R (BSPT)



GA-9.5-1/16-NPT
1/16" (NPT)



GA-9.5-M6
M6



GA-9.5-M8X1
M8 x 1.00



GA-9.5-M8
M8 x 1.25



GA-9.5-M10X0.5
M10 x 0.5



GA-9.5-M10X1
M10 x 1.00



GA-9.5-M10X1-S
M10 x 1.00 short



Bore Adapters

BA-10
Bore Adapter - 10mm diameter



Ball Connectors

KA-10-20
10mm ball x 20mm long
(includes clamping ring)



KA-12-20
12mm ball x 20mm long
(includes clamping ring)



KA-14-20
14mm ball x 20mm long
(includes clamping ring)



Spacers

D-9.5/20
20mm length



D-9.5/32
32.5mm length



D-9.5/45
45mm length



BACK
TO
INDEX

1/8 INCH

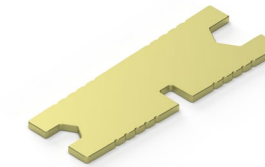
- Through-hole dia. 3.4mm
- Clamping torque 1.5 - 2.2 ft. lbs.

Accessories

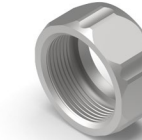
RING-9.5
O-Ring 9.5mm



S-9/13
Hex wrench



M-SW13
Nut with 9.5mm ball socket AF13



Nozzles

RD-9.5-1
9.5mm ball with 1mm hole
x 18mm long



RD-9.5-2
9.5mm ball with 2mm hole
x 18mm long



RD-9.5-3.4
9.5mm ball with 3.4mm hole
x 18mm long

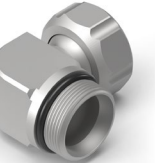


RD-9.5-5/1.0
9.5mm ball with (5) 1.0mm holes
x 18mm long



Elbow

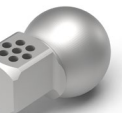
L-1/8
90° elbow



SDK-9.5/60°
Short 60° 9.5mm ball with (7)
1.0mm holes x 14mm long



SDK-9.5/90°
Short 90° 9.5mm ball with (7)
1.0mm holes x 14mm long



SDL-9.5/60°
Long 60° 9.5mm ball with (7)
1.0mm holes x 20mm long



SDL-9.5/90°
Long 90° 9.5mm ball with (7)
1.0mm holes x 20mm long



BACK
TO
INDEX

PIRANHA COOLING LINE

1/4 INCH

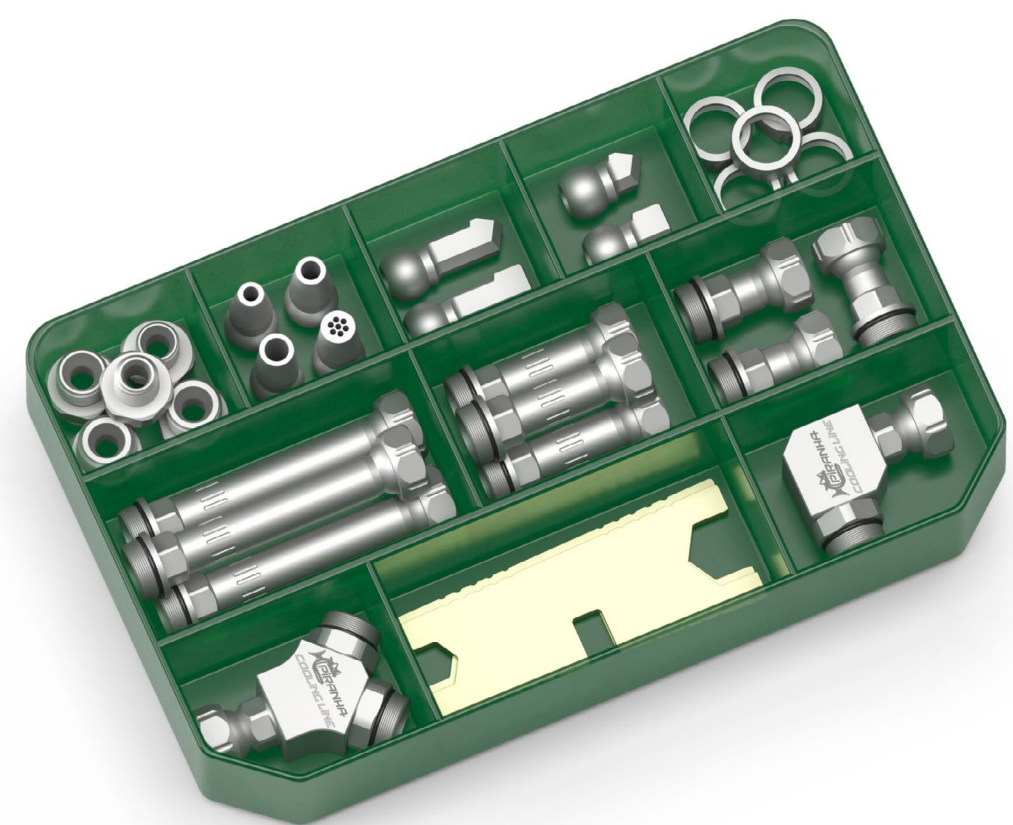
- Through-hole dia. 5.5mm
- Clamping torque 1.8 - 2.2 ft. lbs.

The Piranha Cooling Line Starter Kit includes a variety of popular components to allow construction of a basic cooling line setup. The kits include a few different threaded connectors for adaptability to your machine. The kits are also a great way to keep components organized and close to the machine for quick additions or modifications to an existing setup. Everything you need packaged in a convenient, durable, sectioned storage case. Every machine should have this clever kit nearby!

Starter Kit: PCL-1/4-SET-1

Includes:

- | | | | |
|----------------|-------------------|------------------|---------------|
| (1) GA-1/4 | (1) RD-12.5-3.5 | (1) SDL-12.5/90° | (3) D-12.5/43 |
| (1) GA-1/4-NPT | (1) RD-12.5-4.5 | (1) SDK-12.5/60° | (3) D-12.5/70 |
| (1) GA-1/8-NPT | (1) RD-12.5-5.5 | (1) SDK-12.5/90° | (1) Y-12.5 |
| (1) GA-M10X1 | (1) RD-12.5-7/1.5 | (5) M-SW16 | (2) S-11/16 |
| (1) GA-M12X1 | (1) SDL-12.5/60° | (3) D-12.5/28 | (1) L-12.5 |



BACK TO INDEX

1/4 INCH

- Through-hole dia. 5.5mm
- Clamping torque 1.8 - 2.2 ft. lbs.

Threaded Connectors

- | | | | |
|--------------------------------------|--|--|--|
| GA-1/8
1/8" G (BSPP) | | GA-1/2-1/4
1/2" connector with reduction 1/4" system | |
| GA-1/8-NPT
1/8" (NPT) | | GA-3/4-1/4
3/4" connector with reduction 1/4" system | |
| GA-R-1/8
1/8" R (BSPT) | | GA-M8
M8 x 1.25 | |
| GA-R1/8-L
1/8" R (BSPT) | | GA-M8-L
M8 x 1.25 | |
| GA-1/4
1/4" G (BSPP) | | GA-M8X1
M8 x 1.0 | |
| GA-1/4-NPT
1/4" NPT | | GA-M10
M10 x 1.5 | |
| GA-R-1/4
1/4" R (BSPT) | | GA-M10X1
M10 x 1.0 | |
| GA-R1/4-L
1/4" R (BSPT) | | GA-M12X1
M12 x 1.0 | |
| GA-3/8-1/4
3/8" G (BSPP) | | GA-M14X1
M8 x 1.0 | |
| GA-3/8-R-1/4
3/8" R (BSPT) | | GA-R
14mm dia. blank | |

1/4 INCH

- Through-hole dia. 5.5mm
- Clamping torque 1.8 - 2.2 ft. lbs.

Bore Adapters

BA-12
Bore Adapter - 12mm



BA-13
Bore Adapter - 13mm



BA-14
Bore Adapter - 14mm



BA-15
Bore Adapter - 15mm



Ball Connectors

KA-12-28
12mm ball x 28mm long with ring



KA-12.5-28
12.5mm ball x 28mm long with ring



KA-14-28
14mm ball x 28mm long with ring



KA-15-28
15mm ball x 28mm long with ring



Spacers

D-12.5/28
28mm length



D-12.5/43
43mm length



D-12.5/70
70mm length



Nozzles

CR-12.5-8
Coolant halo assembly
(8) nozzles



FD-12.5-20
20mm wide flat multi-hole



LDK-12.5-12X1
Short diagonal 12.5mm ball
with (12) 1mm holes



LDL-12.5-18X1
Long diagonal 12.5mm ball
with (18) 1.0mm holes



RD-12.5-1.5
12.5mm ball with (1)
1.5mm hole



RD-12.5-3.5
12.5mm ball with (1)
3.5mm hole



RD-12.5-4.5
12.5mm ball with (1)
4.5mm hole



RD-12.5-5.5
12.5mm ball with (1)
5.5mm hole



RDK-12.5-4
12.5mm ball with (1) 4mm



1/4 INCH

- Through-hole dia. 5.5mm
- Clamping torque 1.8 - 2.2 ft. lbs.

RD-12.5-4/1.5
Multi-hole 12.5mm ball
with (4) 1.5mm holes



RD-12.5-3/2
Multi-hole 12.5mm ball
with (3) 2mm holes



RD-12.5-7/1.5
Multi-hole 12.5mm ball
with (7) 1.5mm holes



RDK-12.5-715
Multi-hole 12.5mm ball
with (7) 1.5mm holes (short)



RDK-14715
Multi-port with 14mm ball



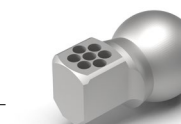
RDK-15715
Multi-port with 15mm ball



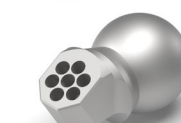
SDK-12.5/60°
Short 60° 12.5mm ball



SDK-12.5/90°
Short 90° with 12.5mm ball



SDK-1260
Short 60° with 14mm ball



SDK-1460
Short 60° with 14mm ball



SDK-1560
Short 60° with 15mm ball



SDL-12.5/60°
Long 60° with 12.5mm ball



SDL-12.5/90°
Long 90° with 12.5mm ball



SDL-1260
Long 60° with 12mm ball



SDL-1460
Short 60° with 14mm ball



SDL-1560
Long 60° with 15mm ball



Round Tube Nozzles

RRD-12.5-75
75mm round tube nozzle



RRD-12.5-100
100mm round tube nozzle



RRD-12.5-125
125mm round tube nozzle



RRD-12.5-150
150mm round tube nozzle



BACK
TO
INDEX

PIRANHA COOLING LINE

1/4 INCH

- Through-hole dia. 5.5mm
- Clamping torque 1.8 - 2.2 ft. lbs.

Accessories

D-SW16

Cap AF13



M-SW16

Nut with 12.5mm ball socket AF16



R-12

Clamping ring for 12mm ball



R-12.5

Clamping ring for 12.5mm ball



R-14

Clamping ring for 14mm ball



R-15

Clamping ring for 15mm ball



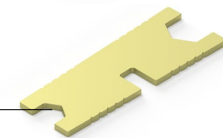
RING-12.5

O-ring 1/4"



S-11/16

Hex wrench



H-12.5

Ball valve



RVD-12.5

Check valve 1/4"



DK-12.5/23

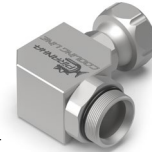
Doubleball spacer- 12.5mm dia. for connecting plastic nozzles



Elbows

L-12.5

90° elbow



T-12.5

T-distributor



QUATRO-12.5

Quarto distribution block



Y-12.5

Y-distributor



BACK
TO
INDEX

1/2 INCH

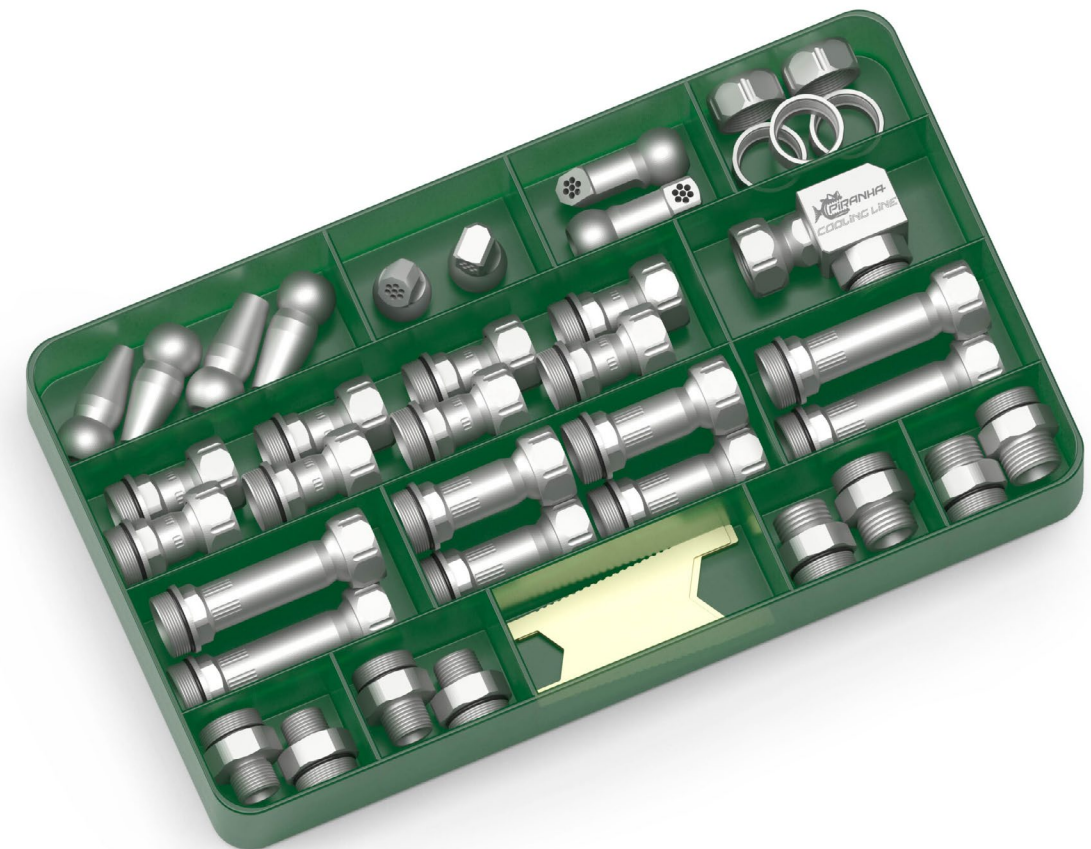
- Through-hole dia. 12.0mm
- Clamping torque 3.7 - 5.5 ft. lbs.

The Piranha Cooling Line Starter Kit includes a variety of popular components to allow construction of a basic cooling line setup. The kits include a few different threaded connectors for adaptability to your machine. The kits are also a great way to keep components organized and close to the machine for quick additions or modifications to an existing setup. Everything you need packaged in a convenient, durable, sectioned storage case. Every machine should have this clever kit nearby!

Starter Kit: PCL-1/2-SET-1

Includes:

- | | | | |
|-------------------|----------------|---------------|-------------------|
| (1) RD-22-6 | (1) SDK-22/90° | (1) L-1/2 | (2) GA-22-1/2-NPT |
| (1) RD-22-8 | (1) SDL-22/60° | (4) D-22-63 | (2) GA-22-3/8 |
| (1) RD-22-10 | (1) SDL-22/90° | (4) D-22-80 | (2) GA-22-3/8-NPT |
| (1) RD-22-12-19.2 | (5) M-SW27 | (2) GA-22-1/2 | (2) S-21/27 |
| (1) SDK-22/60° | (8) D-22-46 | | |



BACK
TO
INDEX

1/2 INCH

- Through-hole dia. 12.0mm
- Clamping torque 3.7 - 5.5 ft. lbs.

Threaded Connectors

GA-22-3/8
3/8" G (BSPP)



GA-22-3/8-NPT
3/8" NPT



GA-22-R-3/8
3/8" R (BSPT)



GA-22-1/2
1/2" G (BSPP)



GA-22-1/2-NPT
1/2" NPT



GA-22-1/2-R
1/2" G (BSPT)



GA-3/8-1/4
3/8" G (BSPT) with
reduction to 1/4" system



GA-3/8-R-1/4
3/8" G (BSPT) with
reduction to 1/4" system



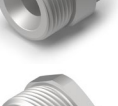
GA-1/2-1/4
1/2" G (BSPT) with
reduction to 1/4" system



GA-3/4-1/2
3/4" G (BSPP)



GA-3/4-1/4
3/4" G (BSPP) with
reduction to 1/4" system



GA-22-R
Blank 24mm dia.



Spacers

D-22-38
38mm long



D-22-46
46mm long



D-22-63
63mm long



D-22-80
80mm long



Accessories

D-SW27
Cap SW27



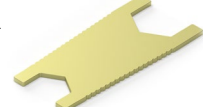
M-SW27
Nut-SW27



RING-22
O-Ring 1/2"



S-21/27
Hex wrench



H-22
1/2" Ball valve



RVD-22
Check valve integrated in spacer



KU-38G
Ball head 3/8" G (BSPP)



1/2 INCH

- Through-hole dia. 12.0mm
- Clamping torque 3.7 - 5.5 ft. lbs.

Nozzles

FD-22-30
30mm wide flat multi-hole



FD-22-40
40mm wide flat multi-hole



FD-22-50
50mm wide flat multi-hole



FD-22-60
60mm wide flat multi-hole



FD-22-80
80mm wide flat multi-hole



FD-22-100
100mm wide flat multi-hole



FD-22-120
120mm wide flat multi-hole



FD-22-30-1
30mm wide 1 row multi holes



FD-22-40-1
40mm wide 1 row multi holes



FD-22-50-1
50mm wide 1 row multi holes



FD-22-80-1
80mm wide 1 row multi holes



LDK-22-16X2
Short 22mm ball with
(16) 2mm holes



LDL-22-24X2
Long 22mm ball with
(24) 2mm holes



RD-22-12-19.2
22mm ball with (19) 2mm holes



RD-22-1.5
22mm ball with 1.5mm hole



RD-22-6
22mm ball with 6mm hole



RD-22-8
22mm ball with 8mm hole



RD-22-10
22mm ball with 10mm hole



SDK-22/60°
Short 60° multi-hole



SDK-22/90°
Short 90° multi-hole



SDL-22/60°
Long 60° multi-hole



SDL-22/90°
Long 90° multi-hole



BACK
TO
INDEX

1/2 INCH

- Through-hole dia. 12.0mm
- Clamping torque 3.7 - 5.5 ft. lbs.

Elbows

L-1/2
90°



Y-1/2
Y-distributor



T-1/2
T-distributor



Y-1/2-1/4
Y-distributor 1/2" to 1/4"



Lathe Balls

- Made of brass
- Maximum pressure = 500psi (33 bar)

BB11018

12mm ball with M5 x 0.8 hole plug

BB11031

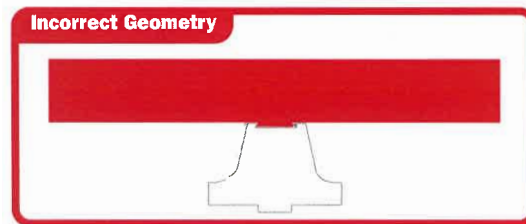
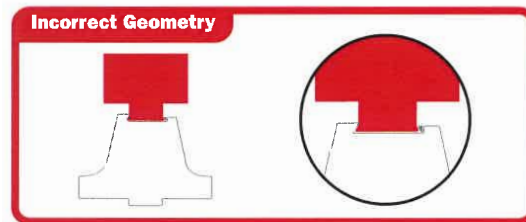
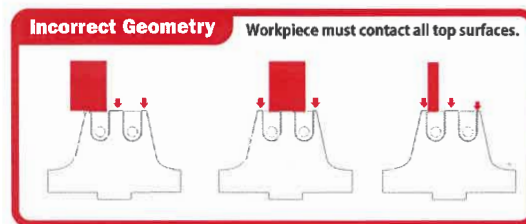
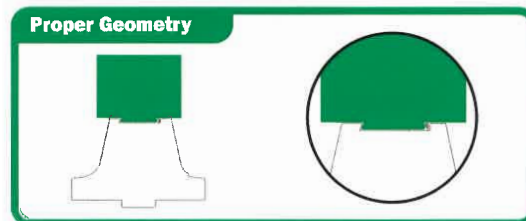
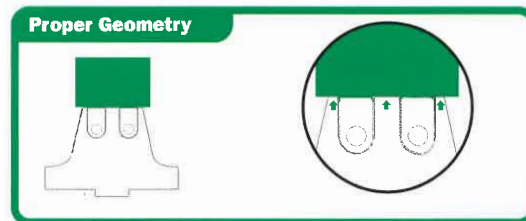
14mm ball with M6 x 1.0 hole plug

BB11043

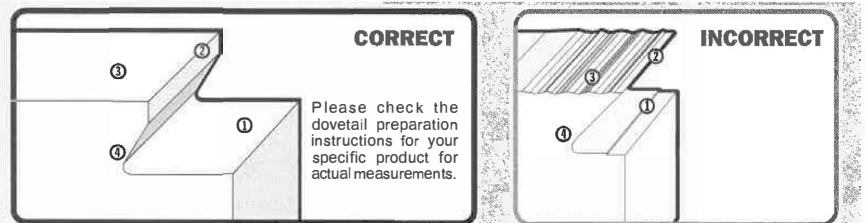
15mm ball with M6 x 1.0 hole plug



NOTES



RAPTOR WORKHOLDING PRODUCTS Dovetail Prep Guidelines



1. Clean, even surface in dovetail cut

Correct: Dovetail cutter has cleaned up entire surface. This leaves more of workpiece in contact with fixture for extra stability.

Incorrect: Surface is cut unevenly, compromising rigidity.

2. Small edge break, not a sharp point

Correct: Cutter should leave a small edge break. Exact measurements can be found in the dovetail preparation specs for your specific product.

Incorrect: Dovetail edge comes to a sharp point interfering with proper fit.

3. Bottom surface of workpiece is smooth

Correct: Workpiece bottom surface is smooth and free of burrs and ridges.

Incorrect: Bottom surface of workpiece is left rough, interfering with proper clamping.

4. Correct angle and radius of dovetail cut

Correct: Dovetail is cut to 60 degrees with an interior radius matching dovetail preparation specs for your product. Dovetail gauge should fit perfectly.

Incorrect: Angle or interior radius is incorrect. May indicate cutter needs to be replaced.

5. Locating pin slots precise and accurate

Correct: Locating pin slots are accurately placed and cut with straight walls following exact measurements found in dovetail preparation specs.

Incorrect: Locating pin slots are in wrong location or have tapered walls harming repeatability of part.

RaptorWorkholding.com

POLICIES AND WARRANTY

Engineering Changes

Specifications and engineering data are subject to change without notice.

Manufacturing Policy

Products supplied by Raptor are of high quality and adhere to manufacturing standards. Tolerances are uniformly held in accordance with catalog specifications. Raptor products are simple to use and support material is provided with each shipment to ensure that applications go smoothly. For additional support, contact Raptor Workholding Products.

Damaged, Short or Lost Items

UPS is the primary carrier if not specified by the customer. If a package and subsequent product is damaged / lost in transit, the customer should immediately place a claim with UPS. The customer should keep all damaged product and packaging for inspection by UPS and notify Raptor so merchandise can be replaced.

Returned Goods

Materials cannot be returned without authorization. Final credit will be determined as follows:

- Only catalog items suitable for resale may be returned.
- Specials and dovetail cutters cannot be returned.
- Customers need to obtain an RGA# by contacting a Raptor customer service representative and reference the RGA# on the returned goods.
- Invoice number and date must be furnished.
- Follow packing instructions, if applicable, for returning goods.
- Transportation charges must be prepaid.
- Credit value will be issued at invoiced price minus a minimum 20% restocking charge.



Limited Warranty

Raptor products are protected with a 1-year warranty from the original date of invoice against defects in material or workmanship

* Subject to the terms as described in the Limited Warranty Policy as stated at www.raptorworkholding.com

RAPTOR™

WORKHOLDING PRODUCTS



Where to Buy



Patent No. US8,672,310 B2
Patent No. US9,126,299 B2
Patent No. US10,384,331



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