

# Collet Type Holding Fixtures



**Air or Hydraulic Operations for Stationary,  
Rotary or Slide Table Applications**

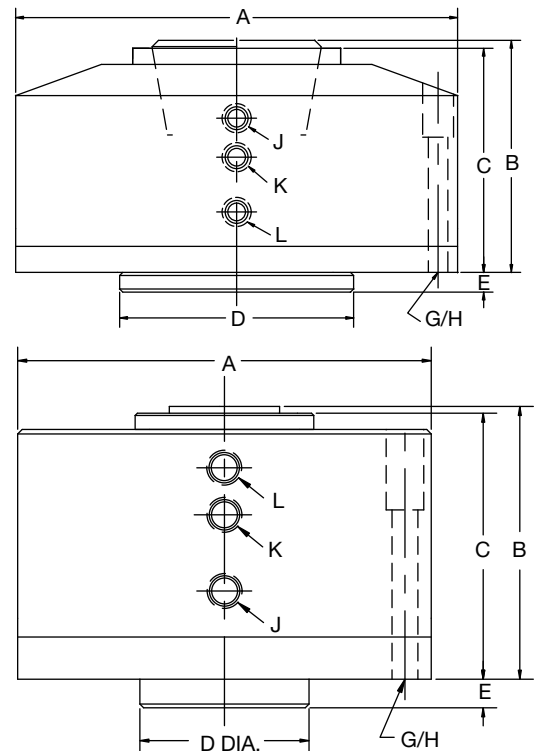


**Zagar**  
INCORPORATED

# Air/Hydraulic Stationary Mounted Holding Fixtures

Specifications								
<b>MODEL No.</b>	791-50-0-0	791-100-0-0	791-1100-0-0	791-1180-0-0	791-200-0-0	791-1200-0-0	791-1300-0-0	791-1400-0-0
<b>Basic Design</b>	Fixed Position	Fixed Position	Fixed Position	Fixed Position	Fixed Position	Fixed Position	Fixed Position	Fixed Position
<b>Application</b>	Heavy Duty	Light Duty	Heavy Duty	Heavy Duty	Light Duty	Heavy Duty	Heavy Duty	Heavy Duty
<b>Collet</b>	707-3029 (3-C)	707-178 (5-C)	707-178 (5-C)	707-278 (16-C)	707-315 (22-C)	707-315 (22-C)	791-1310 (35-C)	791-1400 (44-C)
<b>Piston Area</b>	5.00 Sq. In.	3.5 Sq. In.	10.16 Sq. In.	20.53 Sq. In.	6.5 Sq. In.	25.46 Sq. In.	35.34 Sq. In.	48.10 Sq. In.
<b>Operating Pressure</b>	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi
<b>Displacement</b>	.78 Cu. In.	.7 Cu. In.	1.5 Cu. In.	3.20 Cu. In.	1.3 Cu. In.	4.0 Cu. In.	8.83 Cu. In.	12.02 Cu. In.
<b>Weight</b>	7.5 lbs.	15 lbs.	20 lbs.	39.5 lbs.	35.0 lbs.	45 lbs.	174 lbs.	200 lbs.
<b>Piston Stroke</b>	.156 Max.	.156 Max.	.156 Max.	.156 Max.	.156 Max.	.156 Max.	.25 Max.	.25 Max.
Dimensions								
<b>A</b>	4.00	4.25	5.50	7.50	6.50	8.50	11.50	12.00
<b>B</b>	3.00	3.50	3.62	4.88	4.62	4.50	6.96	9.50
<b>C</b>	2.86	3.21	3.46	4.50	4.50	4.40	6.46	8.75
<b>D</b>	2.2495 / 2.2490	2.2495 / 2.2490	2.2495 / 2.2490	3.6245 / 3.6240	3.6245 / 3.6240	3.6245 / 3.6240	5.9995 / 5.9990	6.999 / 6.997
<b>E</b>	0.38	0.50	0.38	0.38	0.50	0.38	0.50	0.50
<b>G</b>	0.250	0.312	0.312	0.375	0.375	0.375	0.500	0.500
<b>H</b>	3 Holes - 3.375 B.C.	3 Holes - 3.625 B.C.	4 Holes - 4.800 B.C.	4 Holes - 6.750 B.C.	3 Holes - 5.625 B.C.	4 Holes - 7.750 B.C.	4 Holes - 10.500 B.C.	4 Holes - 10.500 B.C.
<b>J (Unclamp)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/4 N.P.T.	1/4 N.P.T.
<b>K (Clamp)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/4 N.P.T.	1/4 N.P.T.
<b>L (Coolant)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/4 N.P.T.	1/4 N.P.T.


Specifications			
<b>MODEL No.</b>	791-1120-0-0	791-1190-0-0	791-1220-0-0
<b>Basic Design</b>	Draw Type	Draw Type	Draw Type
<b>Application</b>	Heavy Duty	Heavy Duty	Heavy Duty
<b>Collet</b>	707-178 (5-C)	707-278 (16-C)	707-315 (22-C)
<b>Piston Area</b>	10.16 Sq. In.	20.53 Sq. In.	25.46 Sq. In.
<b>Operating Pressure</b>	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi
<b>Displacement</b>	1.5 Cu. In.	3.20 Cu. In.	4.0 Cu. In.
<b>Weight</b>	21 lbs.	41 lbs.	46.5 lbs.
<b>Piston Stroke</b>	.156 Max.	.156 Max.	.156 Max.
Dimensions			
<b>A</b>	5.50	7.50	8.50
<b>B</b>	3.62	4.88	4.50
<b>C</b>	3.32	4.50	4.40
<b>D</b>	2.2495 / 2.2490	3.6245 / 3.6240	3.6245 / 3.6240
<b>E</b>	0.38	0.38	0.38
<b>G</b>	0.312	0.375	0.375
<b>H</b>	4 Holes - 4.800 B.C.	4 Holes - 6.750 B.C.	4 Holes - 7.750 B.C.
<b>J (Unclamp)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.
<b>K (Clamp)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.
<b>L (Coolant)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.

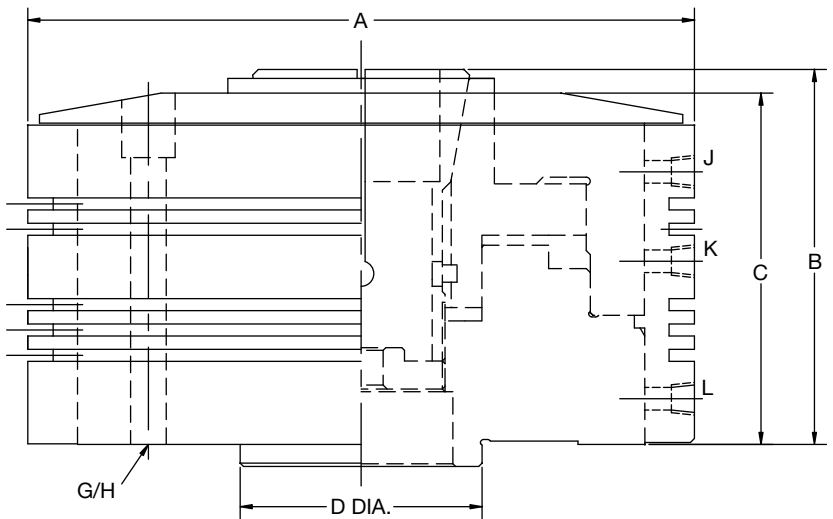


## Features:

- Operation - Horizontally or vertically
- Fixed position or draw collet design
- Coolant feed through the fixture
- Remove collet from the top
- Streamlined construction
- Hardened piston
- Fast positive clamping
- Rigid construction
- Minimum stack height
- Low air consumption
- Thru feed capabilities
- Simple operation
- Clamps within 0.001" of true position
- Depth control via internal stop
- Normal operating pressure  
Air - 80 PSI. Hyd. - 1500 PSI
- Replacement parts are available

# Air/Hydraulic Rotating Holding Fixtures

Air/Hydraulic Rotating Holding Fixtures					
					
<b>MODEL No.</b>	791-150-0-0	791-1150-0-0	791-250-0-0	791-1250-0-0	791-1450-0-0
<b>Basic Design</b>	Fixed Position	Fixed Position	Fixed Position	Fixed Position	Fixed Position
<b>Application</b>	Light Duty	Heavy Duty	Light Duty	Heavy Duty	Heavy Duty
<b>Collet</b>	707-178 (5-C)	707-178 (5-C)	707-315 (22-C)	707-315 (22-C)	791-1400 (44-C)
<b>Piston Area</b>	3.5 Sq. In.	10.16 Sq. In.	6.5 Sq. In.	25.46 Sq. In.	48.10 Sq. In.
<b>Operating Pressure</b>	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi	80 to 1500 psi
<b>Displacement</b>	.7 Cu. In.	1.5 Cu. In.	1.3 Cu. In.	4.0 Cu. In.	12.02 Cu. In.
<b>Rotating Torque</b>	15 Ft. Lbs.	18 Ft. Lbs.	20 Ft. Lbs.	27 Ft. Lbs.	50 Ft. Lbs.
<b>Weight</b>	22 lbs.	28 lbs.	18 lbs.	45 lbs.	300 lbs.
<b>Piston Stroke</b>	.156 Max.	.156 Max.	.156 Max.	.156 Max.	.25 Max.
<b>Piston Stroke</b>	0.156	0.156	0.200	0.156	0.156
<b>Max. RPM (with coolant)</b>	950	700	550	400	250
Dimensions					
<b>A</b>	5.62	7.00	8.00	10.00	16.00
<b>B</b>	4.06	4.06	5.50	5.62	9.00
<b>C</b>	3.21	3.46	4.50	4.40	8.00
<b>D</b>	2.2495 / 2.2490	2.2495 / 2.2490	3.6245 / 3.6240	3.6245 / 3.6240	6.999 / 6.997
<b>E</b>	0.50	0.38	0.50	0.38	0.50
<b>G</b>	0.312	0.312	0.375	0.375	0.500
<b>H</b>	3 Holes - 3.625 B.C.	4 Holes - 4.800 B.C.	3 Holes - 5.625 B.C.	4 Holes - 7.750 B.C.	4 Holes - 14.500 B.C.
<b>J (Unclamp)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/4 N.P.T.
<b>K (Clamp)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/4 N.P.T.
<b>L (Coolant)</b>	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/8 N.P.T.	1/4 N.P.T.



### Rotary Fixture:

- Basic piston design
- Center assembly mounted to rotating spindle or table
- Outer housing held stationary (secure but not rigid)
- Many features are the same as stationary mounted models
- Mounts to most adapters or face plates
- Locating boss allows for quick changeover
- Coolant recommended for high R.P.M. or heat applications



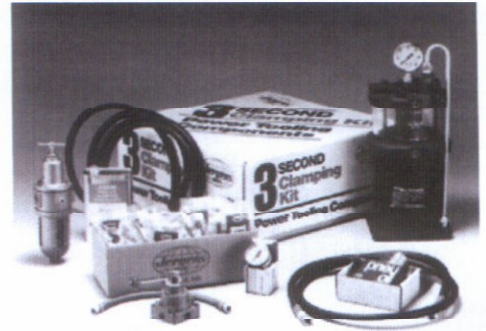


# Air/Hydraulic Booster



## Booster Power Kit No. 13-184-1-0

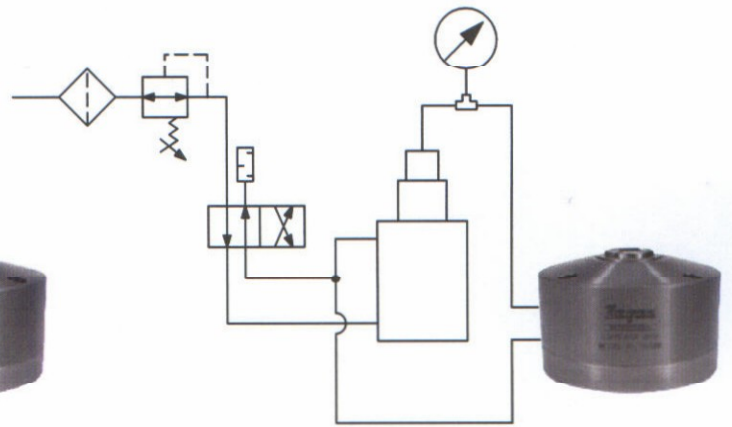
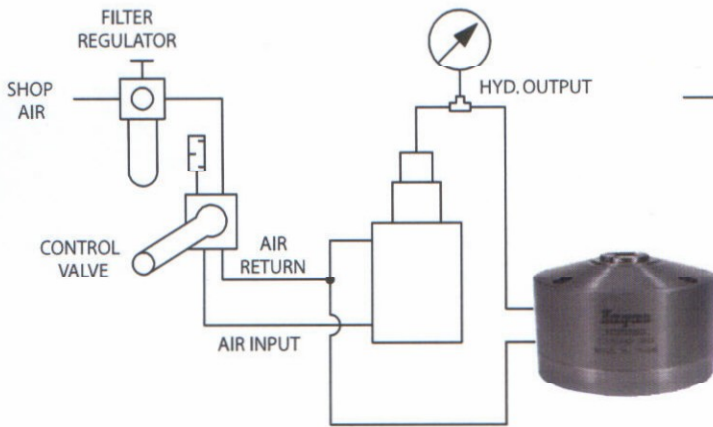
The Booster Power Kit has everything you'll need to install your hydraulic collet system.



## 13-184-2-0 Air/Hydraulic Booster

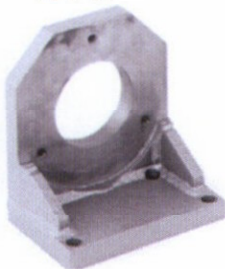
The air/hydraulic booster is designed for use on a small circuit with high fluid pressure requirements. The booster uses an air cylinder to compress hydraulic oil which, in turn, pressurizes the piston in the collet fixture. To unclamp, a hand operated 4-way valve is used to reverse the air flow.

### CIRCUIT SCHEMATICS



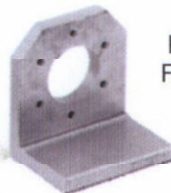
791-111

For 2"  
Fixture



791-110

For 1"  
Fixture



### Remote Controls (For Air Control Only)



### Angled Mounting Plate for Horizontal Mounting Ask About Our Sub-Plates for Vertical Mounting

Whether your application involves a new or old machine, one or a group of machines, one fixture or many, manual or automatic, large or small, Zagar fixtures can hold your part.

13-184-8-0 Valve  
13-184-10-0 Muffler (not shown)

13-112-3-0 Foot Paddle (not shown)  
13-112-4-0 Foot Guard (not shown)  
707-2197-0 Hoses

# Fixture Selection and Installation Guide

## Air Operation for:

- assembly applications
- light holding pressure applications
- quick cycle requirements
- clean environment

## Hydraulic Operation for:

- metal cutting
- high torque requirements
- consistent holding
- heavy chip & coolant conditions
- crimping



Light and heavy duty collet fixtures are designed for your production and tool room environments. Housings are made of cast iron. Steel clamp pistons are hardened and ground to insure lasting quality. Seals and "O" rings are selected for industrial quality standards.

Air/Hydraulic fixtures develop their holding power from line pressure applied against the piston area. For calculating the holding force use the following formula:

$$\text{Clamping pressure} = \frac{\text{Line Pressure} \times \text{Piston Area} \times \text{Cotangent of the Collet Angle}}{2}$$

$$\begin{aligned} \text{Applied Force} &= \text{Piston Area} \times \text{Operating Pressure} \\ \text{Holding Force} &= \text{Force} / 2 \times \text{Cotan} < \times .7 \end{aligned}$$

## Recommended Installation:

- 1.) Grind sub mounting plate on top and bottom
- 2.) Bore pilot hole for fixture boss
- 3.) Add locating holes, diameter and/or surfaces
- 4.) Mount fixture to sub-plate
- 5.) Install pressure lines to proper ports
- 6.) Attach coolant lines if required
- 7.) Adjust collet (tighten collet against part while fixture is in unclamped position. Back off collet 1 1/2 turns)
- 8.) Lock collet in plate (side lock screw or collet backup plug)





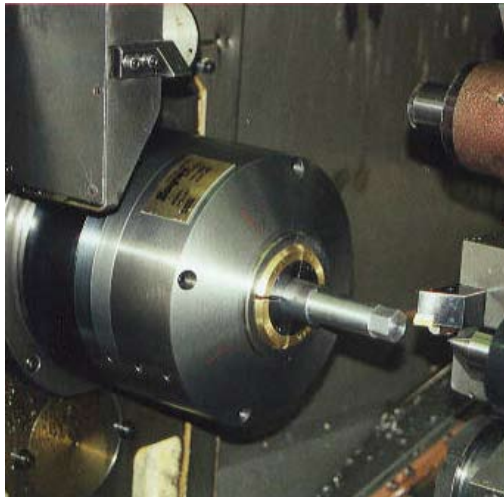
## Examples of Zagar work holding fixtures on machining centers, grinding machines, turning centers, and production rotary transfer machines.

VMC 6 station manifold pallet (single valve actuates 6 fixtures). Shown with expanding internal mandrel collets, set-up and orienting hardware for positioning work-piece.

Examples of Zagar work holding fixtures on machining centers, grinding machines, turning centers, and production rotary transfer machines.



Surface grinding - 15 station manifold pallet. Hydraulic operated fixtures with porting thru collet fixture bases (no piping). Single valve actuation. High pressure capacity (1,200 PSI max input) assures secure work holding during aggressive stock removal.



Turning center operation of 2" capacity collet chuck. Auto. clamp is actuated thru tie-in to turning center hydraulic actuated draw bar. Max. 2" bar feed capacity thru chuck.

(2) 6 Station manifold pallets on rotary index table. Hydraulic actuated 5-C collet fixtures are ported thru base of each fixture (no piping – single valve actuation). High pressure input enables secure clamping of round nuts in high material removal Acme threading operation.

