



READ BEFORE OPERATING

5TH AXIS | PNEUMATIC WORKHOLDING
APV SERIES

OWNER'S MANUAL

APV-160-A & APV-160-B

PNEUMATIC VISE

WWW.5THAXIS.COM

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**BEFORE
YOU BEGIN**

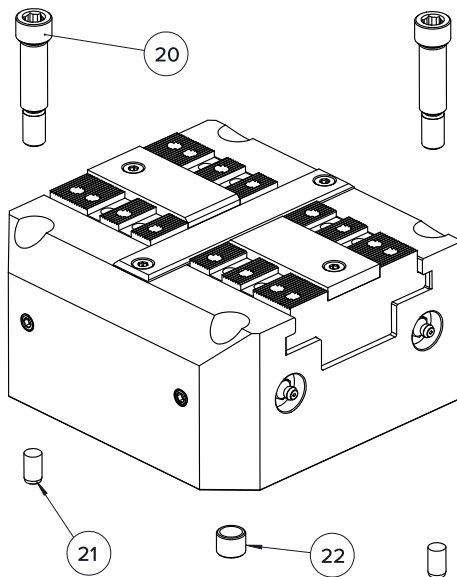
Read this manual in its entirety before installing or operating the APV-160-A or APV-160-B. Improper installation, operation, or maintenance may void the warranty and create unsafe conditions. If assistance is needed, contact 5th Axis Technical Support at support@5thaxis.com before proceeding.

PACKAGE CONTENTS

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i See page 3 for BOM.

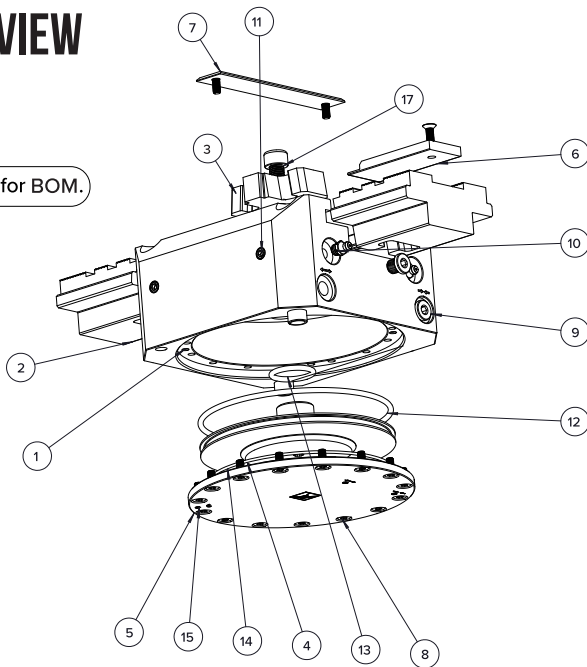


PNEUMATIC VISE EXPLODED VIEW

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i See page 3 for BOM.



PNEUMATIC VISE BOM

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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	APV-160-1	Body, 160MM	1
2	APV-160-A-2/APV-160-B-2	Truck Pneumatic 160MM	2
3	APV-160-A-4/APV-160-B-4	Pneumatic Wedge 160MM	1
4	APV-160-3	Piston, Pneumatic 160MM	1
5	APV-160-8	Back Plate, Pneumatic 160MM	1
6	APV-160-7	Truck Top Plate, Pneumatic, 160MM	2
7	APV-160-9	Top Transverse Plate	1
8	M5X12.FHCS.SS	M5 Flat Head Screws	19
9	PLUG-SOCKET.G18.UNK.ZN.SLDPRT	G1/8 Plug	2
10	GREASE-STRAIGHT-BUTTON.M8X1.25.UNK.ZN	M8 Grease Fitting	4
11	M8X10.SETSCREW-CUP.BL	M8x10MM Set Screw	4
12	OR-250.NBR.70A	Oil-Resistant Buna-N O-Ring	1
13	OR-214.NBR.70A	Oil-Resistant Buna-N O-Ring	1
14	OR-049.NBR.70A	Oil-Resistant Buna-N O-Ring	1
15	M4X4.SETSCREW-CUP.SS	M4 Cup Point Set Screw	3
16	M3X4.SETSCREW-CUP.SS	M3 Cup Point Set Screw	1
17	M10X25.SHCS.12.9.BL	M10x25MM Set Screw	1
20	M10X66.S.SHCS.10.9.BL	M10 Shoulder Screw	2
21	M8X20MM DP	8MM Dowel Pin	2
22	13MM.D.PIN	13MM Hollow Pin	2
23	VAJ-APV-160 <i>(Sold separately)</i>	Pneumatic Vise Aluminum Soft Jaw Set	
24	VSJ-APV-160 <i>(Sold separately)</i>	Pneumatic Vise Steel Low-Profile Master Jaw Set	

TECHNICAL DATA

SPECIFICATIONS



42 KN (9,400 lbf)
MAX CLAMPING FORCE



2.6MM (0.10")
TRAVEL PER JAW



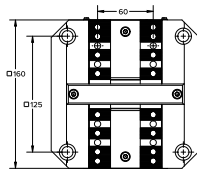
30-130 PSI (2-9 BAR)
OPERATING PRESSURE

- 4 AIR**
1. Side Ports - 2X G 1/8 Fittings
 2. Bottom Ports - 2X M4 Plugs

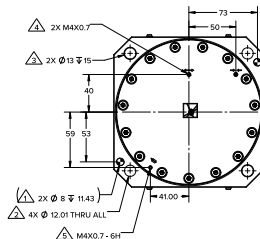
- 5 GREASE**
1. Side Ports - 4X Grease Fittings
 2. Bottom Ports - 1X M4 Plugs

- 1** 2X 8MM PINS + 4X M10 SCREWS
2 2X SB10 + 2X M10 SCREWS
3 2X 13MM BUSHINGS + 4X M10 SCREWS

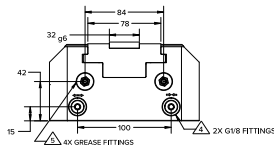
TOP



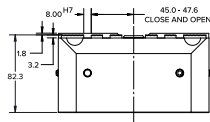
BOTTOM



FRONT



SIDE



(All dimensions shown are in mm)

TECHNICAL DATA

SPECIFICATIONS



9 KN (2,000 lbf)
MAX CLAMPING FORCE



8.2MM (0.32")
TRAVEL PER JAW



30-130 PSI (2-9 BAR)
OPERATING PRESSURE

- 4 AIR**
1. Side Ports - 2X G 1/8 Fittings
 2. Bottom Ports - 2X M4 Plugs

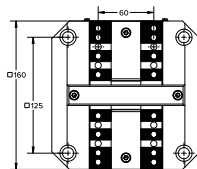
- 5 GREASE**
1. Side Ports - 4X Grease Fittings
 2. Bottom Ports - 1X M4 Plugs

- 1** 2X 8MM PINS + 4X M10 SCREWS

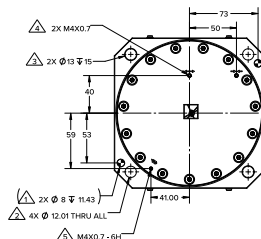
- 2** 2X SB10 + 2X M10 SCREWS

- 3** 2X 13MM BUSHINGS + 4X M10 SCREWS

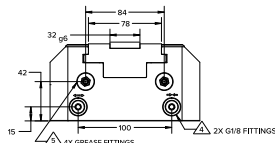
TOP



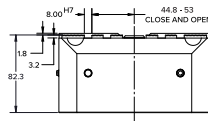
BOTTOM



FRONT



SIDE



(All dimensions shown are in mm)

MOUNTING CONFIGURATIONS

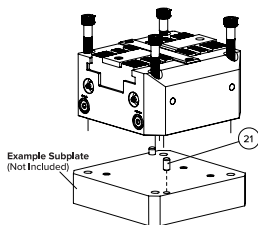
THREE MOUNTING OPTIONS

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1

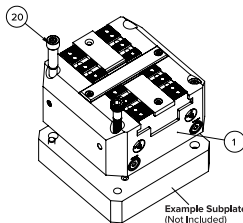
2x 8mm Pins + 4x M10 Screws



(All dimensions shown are in mm)

2

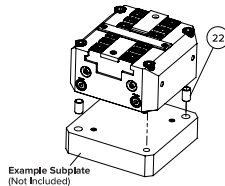
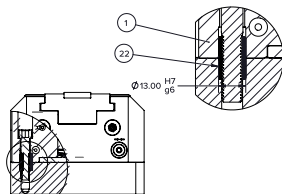
2x SB10 + 2x M10 Screws



(All dimensions shown are in mm)

3

2x 13mm Bushings + 4x M10 Screws



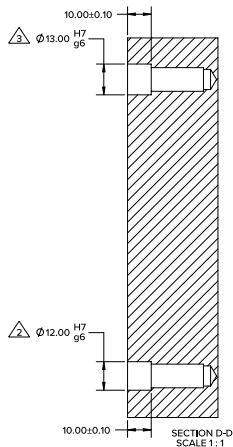
(All dimensions shown are in mm)



IMPORTANT: All required pins and fasteners are included in the box.

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SIZING GUIDELINE FOR BASE TO MOUNT THE APV-160-A / APV-160-B



SECTION D-D
SCALE 1:1

OPERATING GUIDELINES

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The APV-160-A and APV-160-B is designed for clamping metal and plastic workpieces on machine tools within its specified technical limits. Each vise must be mounted on the machine surface with proper top jaws and interfaces, and operated with clean, filtered, lubricated air. The use of an integrated filter, regulator, lubricator (FRL) is recommended. Workpieces must fall within the allowable size and temperature range (0–100 °C). Minor indentations under clamping are acceptable; plastic deformation is not.

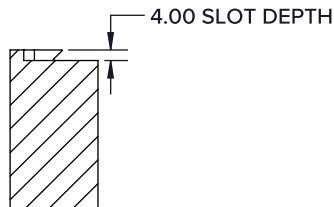
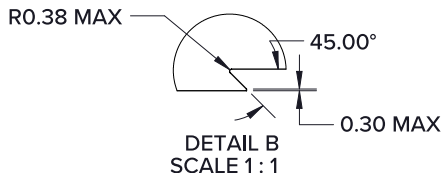
✓ DO	✗ DO NOT
Use clean, filtered, lubricated air.	Clamp unsupported or uneven parts.
Verify part is fully seated before actuation.	Use dirty or unfiltered air.
Inspect clamping surfaces regularly for wear, burrs, or debris.	Modify internal components — doing so voids the warranty.
Lubricate moving parts per schedule (page 10).	Ignore misalignment, leaks, or visible wear
Depressurize the system before any maintenance.	Exceed the intended load limits.
	Use as a press, punch, toolholder, chuck, drill, or cutting tool.

DOVETAIL PREP FOR MASTER JAW

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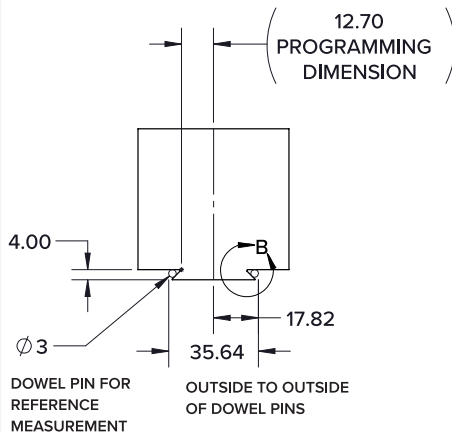
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i **Note:** Use gripper teeth for materials < 25 HRC; dovetails are recommended for parts > 25 HRC.



SECTION A-A

(All dimensions shown are in mm)

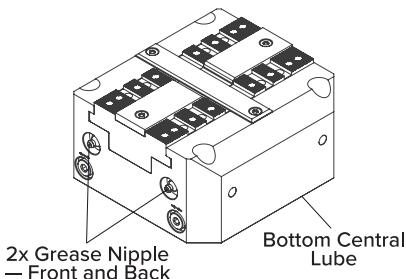


MAINTENANCE GUIDELINES

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LUBRICATION	LEAK TEST
Every 10,000 Cycles or at least once per month	Everyday 15,000 Cycles or once every two months, whichever comes first.
BASIC CLEANING	FULL INSPECTION
Every 6 Months or more frequently in dusty environments	Annually or per duty-cycle assessment





DO NOT SUBSTITUTE LUBRICANTS
Use only approved lubricants listed below. Incompatible lubricants may damage seals, increase wear, and void the warranty.

APPROVED LUBRICANTS

GRADE	APPLICATION
EP NLGI 2 LITHIUM COMPLEX	All sliding interfaces: body-to-base jaw surfaces, base jaws to wedge interfaces, lubrication nipples, and central points.
Silicone Based-O-Ring Lube	All O-ring Interfaces

CARE INSTRUCTIONS

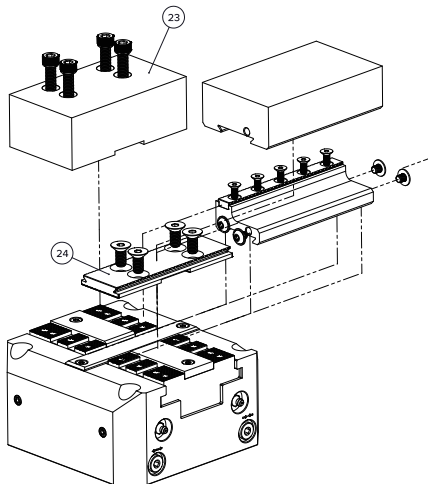
- Inspect all sliding interfaces before lubrication.
- Wipe excess grease from external surfaces after lubrication.
- Verify that all grease nipples are clean and free of debris before pumping.
- Document each service in your maintenance log.
- Replace any seal or component showing visible wear before resuming operation.

JAW CONFIGURATIONS

APV-160-A | APV-160-B

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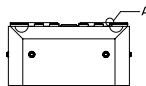
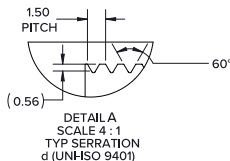
(Jaw sets sold separately; see Items 23 & 24)

i See page 3 for BOM.

JAW CONFIGURATIONS

KIT / PN	DESCRIPTION	MOUNTING CONFIG.
VSJ-APV-160	Pneumatic Vise Steel Low-Profile Master Jaw Set	Serrations + 4X Flat Head Screws
VAJ-APV-160	Pneumatic Vise Aluminum Soft Jaw Set	Slots + 4X SHCS

SERRATION GUIDELINE



SLIDE ON ACCESSORIES

APV-160-A / APV-160-B are compatible with the slide-on accessories of the LiteVise™ family if using VSJ-APV-160 master jaw; VGA-VA5 and VAJ-VA5 jaws are compatible.

MAX ALLOWABLE PRESSURE

- APV-160-A: 30 PSI
- APV-160-B: 90 PSI

ISSUE 01**Vise will not move**

POSSIBLE CAUSE	SOLUTION
Air supply interrupted	Check air supply and verify pressure.
System pressure too low	Increase pressure per technical specifications.
Connections mixed up	Verify and correct all pneumatic connections.
Unused air connections not sealed	Seal front/base connections with supplied accessories.
Active air connections sealed	Remove set screws from sealed connections.
Air not oiled	Verify FRL is delivering lubricated air.
Piston screw broken (overload)	Send for repair or replace with original spare parts.
Piston rod / connection broken (overload)	Send for repair or replace with original spare parts.

ISSUE 02**Clamping force is weakening**

POSSIBLE CAUSE	SOLUTION
Workpiece not clamped tightly	Check connections and reseal.
Damaged seals	Contact 5th Axis for rebuild kit.
Inadequate lubrication	Lubricate using the recommended grease (page 10).

STILL HAVING TROUBLE? Contact 5th Axis Support — see next page

LIMITED WARRANTY

1-YEAR WARRANTY

ONE OF THE BEST IN THE INDUSTRY

5th Axis warrants the APV-160-A and APV-160-B against defects in materials and workmanship under normal use for one year from the date of original purchase. Warranty covers manufacturing defects and excludes wear items (seals, O-rings) and damage resulting from misuse, unauthorized modification, or operation outside specified limits.

Full warranty terms, claim procedures, and return authorization information are available at 5thaxis.com/warranty.

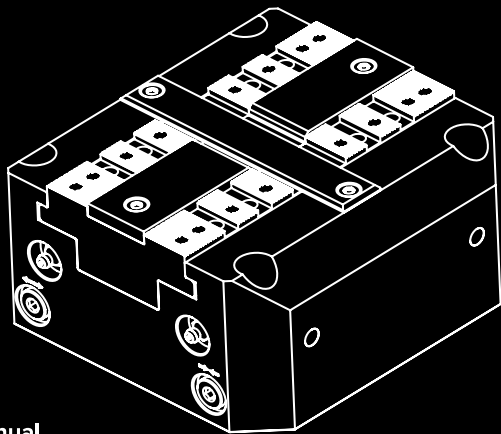
Get Support

5th Axis technical support is based in San Diego, California, and is ready to help with installation, application, and troubleshooting.

PHONE	(858) 505-0432
EMAIL	support@5thaxis.com
WEB	5thaxis.com
ADDRESS	7140 Engineer Road, San Diego, CA 92111
HOURS	Monday–Friday, 7:00 AM – 4:00 PM PT



5TH AXIS | PNEUMATIC WORKHOLDING
APV SERIES



APV-160-A & APV-160-B Owner's Manual



For product support, resources, and
more information, visit 5thaxis.com

