KURT WORKHOLDING

KURT RV36 AUTOMATION GRIPPER SYSTEM

Operating Instruction Manual
Model No. RV36

ENGLISH

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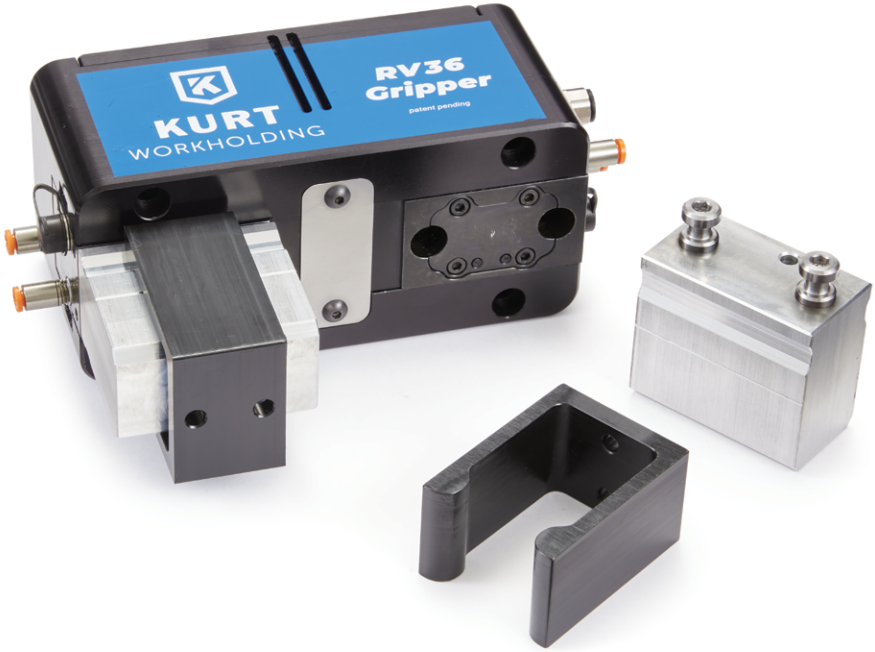


HEALTH AND SAFETY

The RV36 Automation Gripper System is designed to be used in robotic cells and other automated systems. When designing, operating, performing maintenance, or interacting in any other capacity with automated systems, always employ proper safety measures. These include but are not limited to ensuring that all sources of electrical energy are turned off or discharged before cell entry, ensuring that all pneumatic or hydraulic energy has been released before cell entry, and ensuring that there are no suspended loads that could create a falling hazard. Following proper Lock-Out Tag-Out procedure is always required when interacting with automated systems and robotic cells. Failure to observe proper safety protocols can lead to injury or death.

WARNINGS

- Disconnect all air from gripper during installation and setup.
- Disconnect all air from gripper while maintenance is being performed.
- Do not put any part of your body inside the gripping envelope if air is connected to the gripper.
- Do not stand or put any part of your body underneath the gripper while it is suspending a load.
- Do not attempt to approach or maintenance the gripper if the automation cell is running.

INTRODUCTION

Thank you for purchasing a Kurt RV36 Automation Gripper System. The RV36 is an innovative gripper design, engineered specifically for the high automation demands of today's manufacturing environment. This gripper system allows the gripper fingers to be switched out quickly and in an automated capacity. This functionality allows the same gripper body to perform many different tasks within a cell. The following features are available for the RV36.

Features

- Quick, automated gripper finger exchange.
- Multiple gripper attachment options coming soon.
- Gripper finger presence sensing built in.
- Thru-finger part sensing optional with custom fingers.

Operating Information

- 250 pounds is the maximum gripping force produced by the RV36.
- The RV36 has 0.600 inches of stroke.
- 90-100 PSI is the required operating air pressure for the gripper finger pistons.
- 50-100 PSI is the recommended operating air pressure for the main gripper piston.
- Parts being handled by the RV36 should not exceed 50 pounds.
- The RV36 gripper body weighs 5.6 lbs.
- A single standard aluminum finger (complete) weighs 0.55 lbs.
- A single standard steel finger (complete) weighs 1.3 lbs.
- 4 inches is the maximum recommended length for custom RV36 gripper fingers.
- 5 pounds is the maximum recommended weight for a single custom RV36 gripper finger.

INSTALLATION AND MOUNTING

The first step in preparing your new RV36 Gripper System for use, will be mounting the gripper on either a robot or some other automation platform. Use the following drawings as reference for both mounting and the fabrication of adapter plates and other mounting hardware.

The RV36 gripper can be mounted using the four counter-bored holes for 1/4 inch socket head cap screws shown in the drawings below. There are also two 1/4 inch precision dowel holes centered on either end of the gripper body that can be used for repeatable gripper locating.

Fig.1 **TOP**

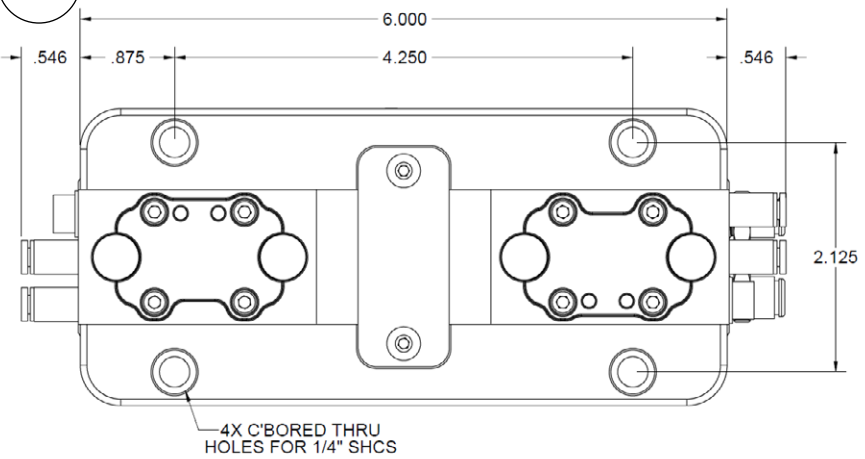
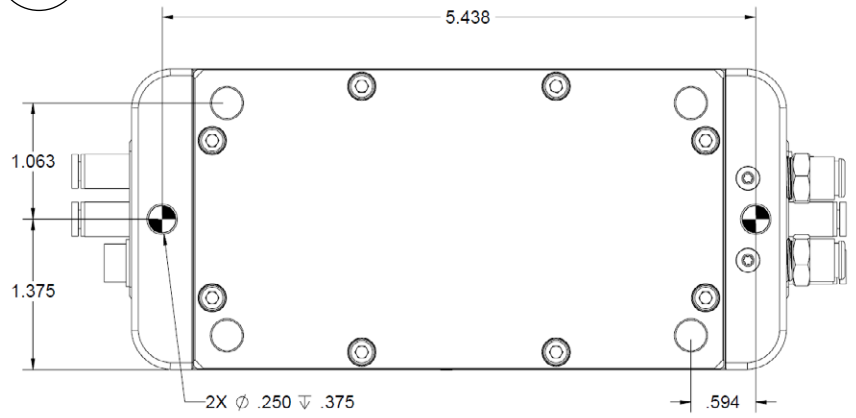


Fig.2 **BOTTOM**



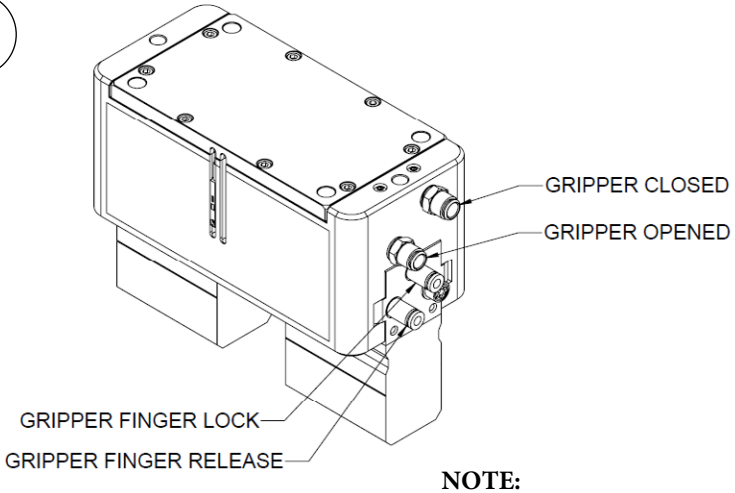
AIR FITTINGS

After mounting the RV36, air lines will need to be run to the different fittings on the gripper. The following drawing shows the functions of the different fittings that come installed on the RV36.

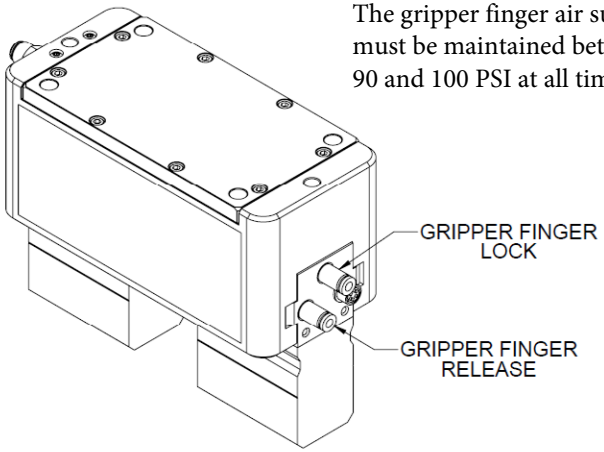
The ports that control the open and closing of the gripper are 1/4" push to connect air fittings.

The ports that control the locking and releasing of the gripper fingers are 5/32" push to connect air fittings.

Fig.3



NOTE:
The gripper finger air supply must be maintained between 90 and 100 PSI at all times.



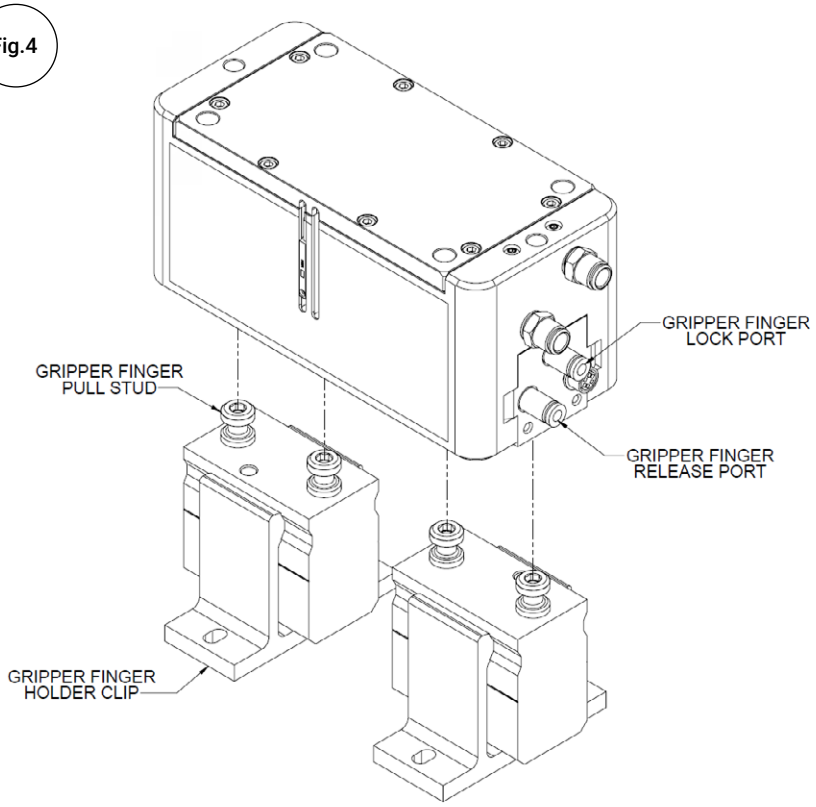
GRIPPER FINGER EXCHANGE

When you receive your new RV36 Gripper, you will notice that the gripper fingers are removable. This allows for one gripper body to switch quickly and easily between different gripper finger sets in order to perform different tasks.

Each gripper nut contains a set of 5/32 push to connect air ports. The upper port on each of these nuts is responsible for locking the gripper fingers into place. The lower air port is responsible for releasing the gripper fingers. The gripper can be in any position to lock and release finger sets.

You will need a stable and repeatable location to store gripper fingers that are not in use. Kurt's gripper finger holder clips are an easy and efficient way to create a gripper finger exchange station.

Fig.4



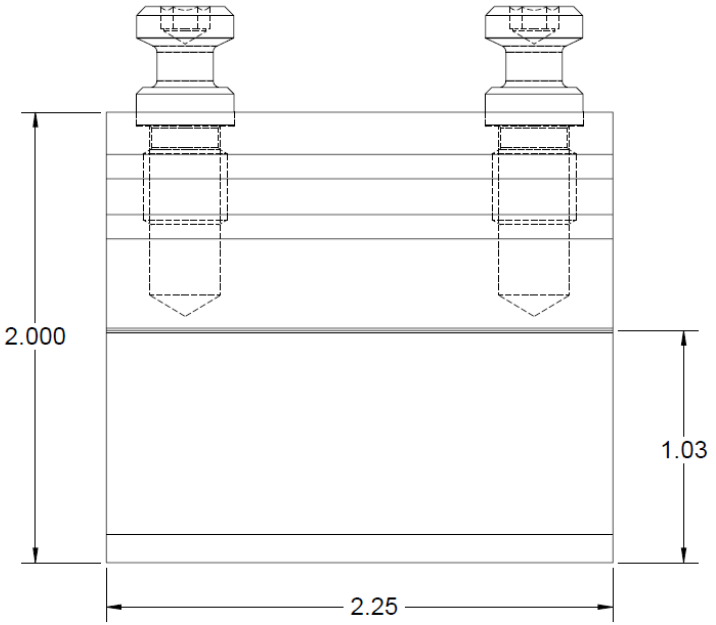
MACHINING THE GRIPPER FINGERS

There are many applications where sets of gripper fingers will need to be custom machined in order for the gripper to lift different parts or perform different tasks within a cell. The drawing below shows the dimensions for the region where the gripper fingers can be machined without causing damage to the finger pull studs.

NOTE:

Do not use gripper fingers that exceed 4 inches in length or weigh more than 5 pounds per finger.

Fig.5



SENSORS AND ELECTRONICS

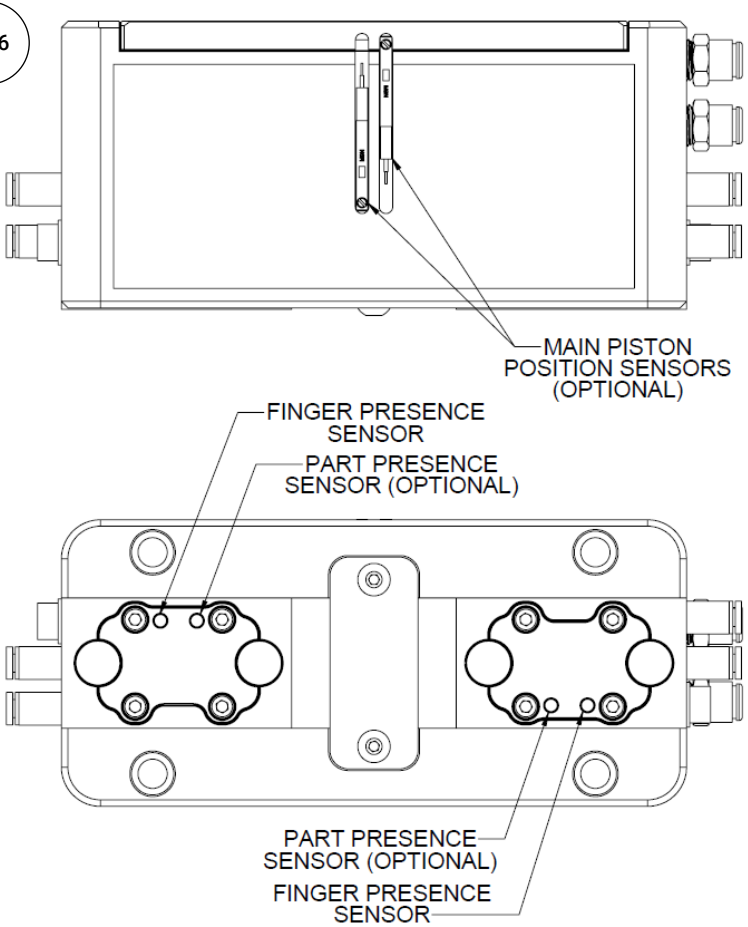
The RV36 has built in sensor mounting locations that allow the user to detect multiple factors when the gripper is operational.

A set of sensors located in the nuts can detect the presence or absence of gripper fingers.

A second set of sensors in the nuts can be used with custom fingers to detect part presence in the gripper.

Switches can be installed to detect the position of the main piston within the body of the gripper.

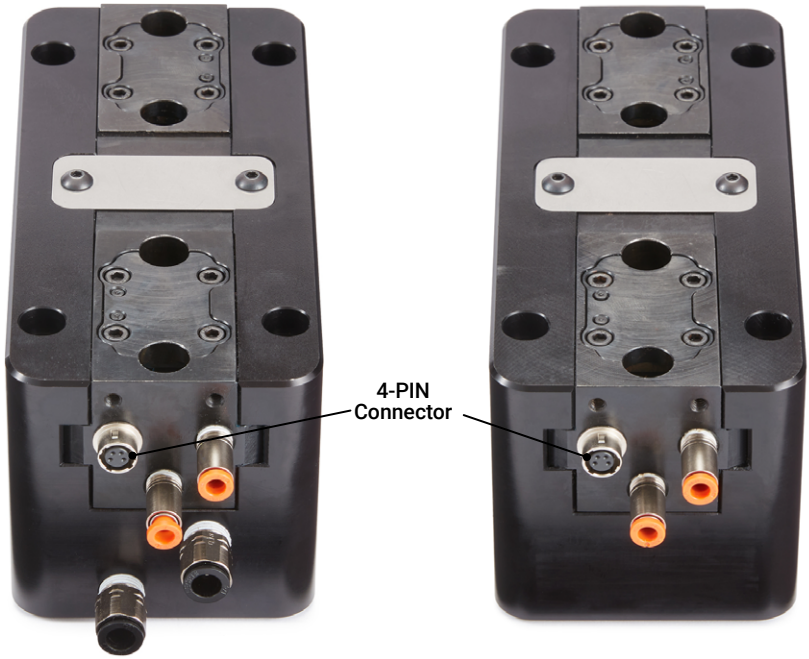
Fig.6



SENSORS AND ELECTRONICS

The PIN out information for the finger detection and part detection communication cables is shown below.

Fig.7

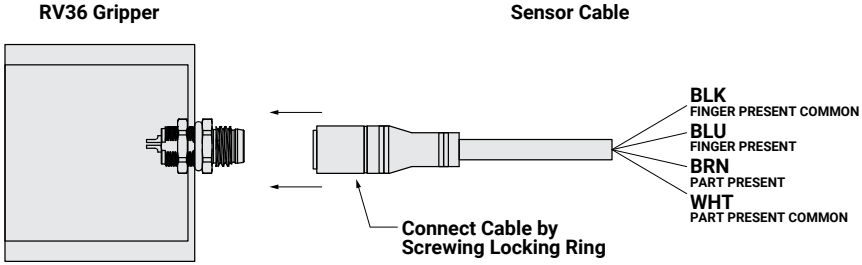


Connector: M8 4 pin
Connector pinout: 1 – Brown, 2 – White, 3 – Blue, 4 – Black
Reed switch 1 (Finger Present, RV36): Blue/Black, Normally Open
Reed switch 2 (Part Present, RV36): Brown/White, Normally Open
When the magnet on the finger side contacts the sensor, the sensor triggers, and the Blue/Black wires complete the circuit.

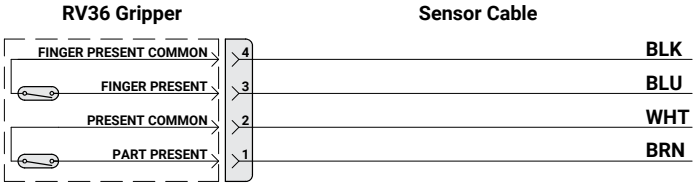
SENSORS AND ELECTRONICS

Fig.8

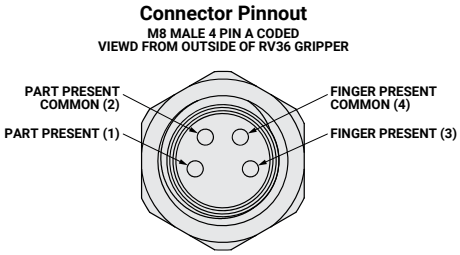
Assembly

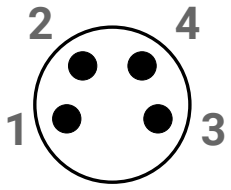


Schematic

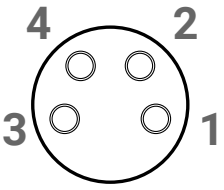


Connector Data

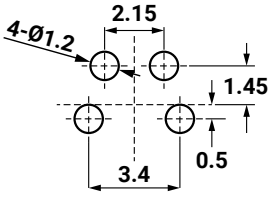




A Code Male 4 PIN



A Code Female 4 PIN



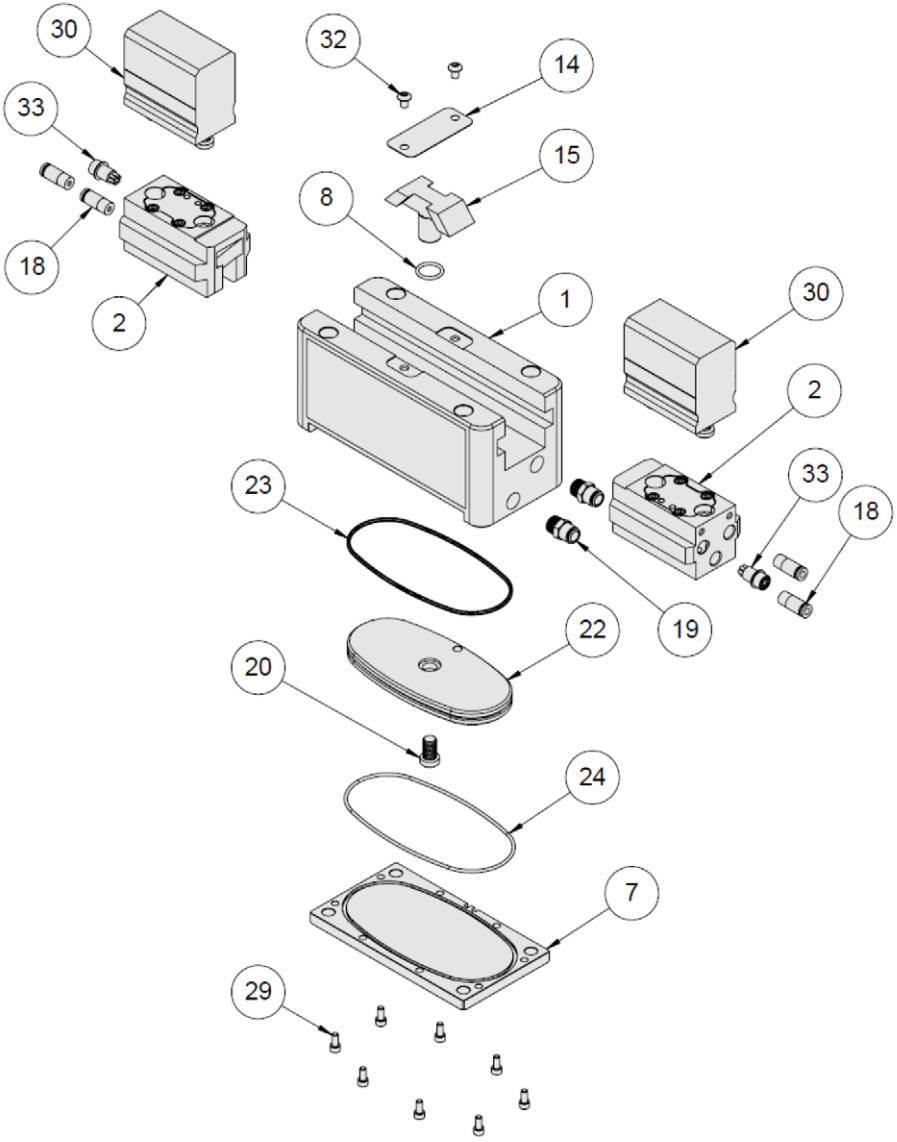
Pin Arrangement

RV36 PARTS LIST

ITEM#	PART#	DESCRIPTION	QTY.
1	RV36-1	Body	1
2	RV36-3	Nut	2
7	RV36-118	Cover, Large Piston	1
8	605-02	O-Ring #14	1
14	RV36-310	Chip Guard	1
15	RV36-329	Wedge Driver	1
18	RV36-376	5/32 Tube, Push To Connect	4
19	RV36-387	1/8 NPT Fitting, Push To Connect	2
20	00-3348	LHSHCS 5/16-24 x 1/2 LG	1
22	RV36-123	Eccentric Piston	1
23	RV36-67	O-Ring, Quad Seal	1
24	RV36-119	O-Ring, Large Piston Cover	1
29	00-1159	SHCS 6-32 x 5/16 LG	8
30	RV36-388A-SA	Robot Gripper Finger - Aluminum	2
32	03-0115	SBHCS 8-32 x 1/4 LG	2
33	LVDT-RECEPT	6 Prong Plug	2

Fig.9

RV36 MECHANICAL DRAWING



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