

pneumagiQ[®]
Patented



The World's First Universal Pneumatic EOAT Interface

Pneumatics.
Plug & Play.



reddot winner 2023
innovative product



reddot winner 2023



Any Robot | Any EOAT

IMPACT
ROBOTICS





Pneumatic EOAT

EOAT, or, End of arm tooling is a crucial part of all industrial robots deployed globally. This is the equipment mounted on a robot that interacts with the parts or components that the robot is to work on.

Most EOAT are powered either electrically, hydraulically, mechanically, pneumatically, or sometimes a combination of different techniques.

Pneumatic EOAT has proven to be most popular as they integrate and pack a lot of power in small packages. They are typically more economical and have been available for many years, making it accessible to most integrators.

At the same time, deploying pneumatic tools requires dependency on skilled engineering resources, as well as integrating multiple components. Typically this slows down the integrators turn around time to deliver a working robotic solution.

Introducing pneumagiQ

pneumagiQ is a **Universal Pneumatic EOAT Interface**.

Built on the bedrock of a technology (patent pending) that controls flow, direction and pressure of pneumatic air into a single system, the minimalist design of pneumagiQ simplifies multi-tooling of pneumatic end of arm tooling.

pneumagiQ enables an integrator to quickly install pneumatic tools to a robot, without having to source a plethora of components or depend on skilled engineering resources.

With just one pneumatic tube, pneumagiQ simplifies the deployment of pneumatic tooling eliminating multiple tubes and wires running across the body of the robot.

Platform Approach to Pneumatic EOAT

When a product is designed as a 'platform', it provides a foundation for others to build upon.

In a world of multiple types and brands of pneumatic EOAT, most users have their specific application requirement, as well as preference of brand of pneumatic EOAT for the same.

pneumagiQ is designed as a brand agnostic platform for pneumatic EOAT. This makes it truly universal, modular & flexible, allowing integrators to install any brand / model of pneumatic EOAT. Thus, enabling to deliver robotic solutions much faster.

pneumagiQ gives users the option of interchangeability of applications and brands as per their preference, or, the changing need of the application.

Needs only one compressed air inlet

Hose-free direct connection

Integrated air blow-off port

Silencer

Modbus RTU communication



Interchangeable tool mounting

Switchable tool orientation

Sensor connectors

Status indicators

IP66

Quick response time

magic with pneumatics.

pneumagiQ®

Patent Pending



Integrating Pneumatic End of Arm Tooling

Complex?

Simplified!

The Traditional Way

Multiple Resources

Design | Controls | Pneumatics

Multiple Vendors

Sourcing Challenge

Long Install Time

Design -> Install - 3 Weeks

Messy Install

Restricted Robot Motion

The pneumagiQ Way

Out-of-the-box

One Compact Unit

Single Tube Air Inlet

Connects over just one compressed air line

Bundled Features

Pneumatic Distribution | Controls
Sensor Port | Air blow-off Port

Modbus RTU

Single cable communication

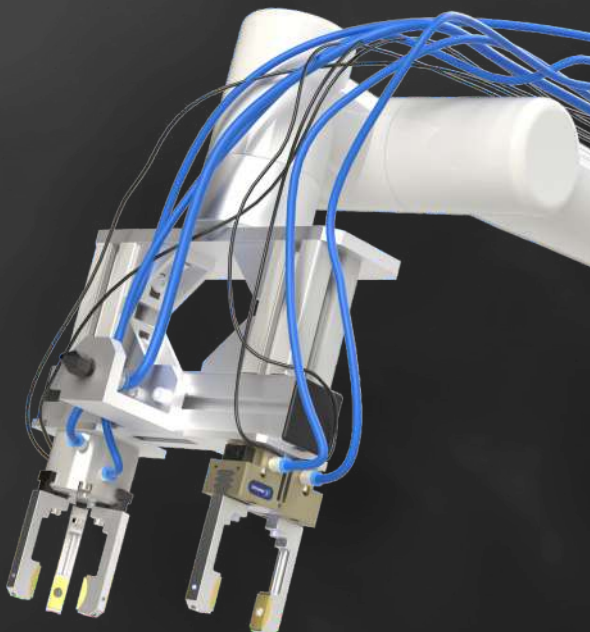
Traditionally, installing a robot with a pneumatic EOAT could be overwhelming, requiring high dependency on skilled engineering resources with knowledge on mechanical, electrical and pneumatics.

Selection and procurement of multiple components from multiple vendors not only increases the burden on buyer, but also increases the project turn around time significantly.

The resultant installation is a congregation of multiple tubes, valves and other components, making the installation messy and restricting the motion of the robot.

The patent pending **pneumagiQ** product line-up eliminates the engineering and sourcing complexity experienced in the traditional approach, making it a plug & play experience.

Compact body with a single tube air-inlet makes the robotic cell aesthetically appealing, maximizing the robots payload, and retaining the freedom of motion of the robotic arm.



pneumagiQ PQ9020

Built on the pneumagiQ technology, PQ9020 is a compact **Universal Pneumatic EOAT Interface** with a mechanical form factor designed to seamlessly mount two pneumatic EOAT at a 90° offset from each other.

Pq9020 boasts of an extremely small weight of 1.1 kg (2.4 lbs), however, can carry an overall payload of up to 20 kg (44 lbs).

With the increasing deployment of collaborative robots for high payloads, using pneumatic tooling at the end of the robot arm is becoming increasingly popular.

The ability of quick installation, complimented with the compact and aesthetic design, makes PQ9020 an ideal choice for all such applications.

pneumagiQ PQ180

Leveraging the pneumagiQ technology, PQ180 is a variant of the **Universal Pneumatic EOAT Interface** that allows the user to mount two pneumatic EOAT 180° away from each other.

400 mm away from each other, the two tools extend out 200 mm from the center of the robot tool flange in opposite directions.

Collaborative robots with smaller payloads typically have a smaller reach. PQ180 allows the user to extend the reach of the robot by an additional 200mm, thereby enhancing the utility of the robot beyond the manufacturers specifications.

With the pneumatic tool not installed directly on the tool flange, the PQ180 is the ideal choice for tight applications where the robot may not be able to reach.

pneumagiQ PQ90

Built on the pneumagiQ technology, PQ90 is a compact **Universal Pneumatic EOAT Interface** with a mechanical form factor designed to seamlessly mount two pneumatic EOAT at a 90° offset from each other.

PQ90 boasts of an extremely small weight, however, can carry an overall payload of up to 5 kg (11 lbs).

With the increasingly deployment of collaborative robots for moderate payloads, using pneumatic tooling at the end of arm of robot is becoming increasingly popular.

The ability of quick installation, complimented with the compact aesthetic design of PQ90 makes it ideal for all such applications.

High Payload

20_{kg}

Heavy Payload

Tool Offset

180°

Extended Reach

Light Weight

580_g

Single Air Inlet

Dual EOAT - 90°

Air Blow-off

4 Sensor Input



The World's First
Universal Pneumatic EOAT Interface
Any Robot | Any Pneumatic EOAT

Robot Coupler

With an offering of multiple robot couplers, pneumagiQ is compatible with most robots or tool changers in the world - be it a collaborative robot, an industrial robot, a SCARA robot, a cartesian robot, gantries, or special purpose machines.



Tool Coupler

With an option of multiple Tool Couplers designed specifically for different types of pneumatic EOAT, the integrator can select the specific coupler, enabling quick coupling of the tool with pneumagiQ.

Many of the Tool Couplers allow for a 'hose free direct connection' eliminating the need for any last mile pneumatic tubing.

The 'Universal Tool Coupler' allows one to couple non listed pneumatic tools to pneumagiQ.

End of Arm Tooling

pneumagiQ has been built as a 'platform' enabling to simplify the implementation of pneumatic end of arm tooling.

This truly makes pneumagiQ a single point source for installing most pneumatic tooling on robots. The plug & play approach emphasizes the underlying vision of accelerating the deployment of robots.

Logos of manufacturers of robots, grippers, EOAT as well as images of the products manufactured by these companies are only for purpose of representing the end application. These products are not an offering of Impaqt Robotics.

Robot Mounting Face

Mount the suitable Robot Coupler to interface pneumagiQ with the specific robot.



I/O Connector

Connect directly to the Tool I/O Port of Universal Robots (eSeries & CB3). For other robots, connect directly to the controllers and communicate over Modbus RTU.



Status Indicator

To indicate the functioning of pneumagiQ and communication between pneumagiQ and the robot.



Compressed Air Inlet

Connect just one pneumatic tube and operate two pneumatic tools & one air-blow off port. Eliminate the need for multiple pneumatic tubes and wire packages running across the body of the robot.



Sensor Connectors

Sensors installed on the pneumatic tool to know its state (open/close) can be connected directly to pneumagiQ, avoiding need for lengthy wiring to the robot controller.



Air Blow-off Port

An integrated air blow-off port to clean the work piece and/or the work piece holder before unloading / loading the new part. Ideal for most machine tending applications, or, can be used for other applications such as spray painting etc.



Tool Mounting Face

Select & install the Tool Couplers suitable for the pneumatic tool being coupled to pneumagiQ.

Each of the two Tool Mounting Faces can have different type / brand / model of pneumatic tool installed, as suited for the application.

Make use of the in-line air ports for 'hose free direct connection' to connect with specific pneumatic tool.



Install in just 10 minutes

Plug & Play Approach

The 'design to install' phase of a traditional pneumatic EOAT setup could take up to 3 weeks. The pneumagiQ Plug & Play approach now brings down the time to just 10 minutes.

Optimized Mechanical Form Factor

The options of a 90° or 180° mechanical offset, compact size and light weight makes pneumagiQ a preferred option for all pneumatic EOAT installation such as machine tending, 3D vision random bin picking, polishing, deburring among others.

Rugged Design

The sturdy design with an IP66 rating makes pneumagiQ well suited for robotic installations in harsh environments including machine tending, pick & place etc.

Smart Robot Installation

The single tube air inlet and the smartly designed couplers for robots & various end of arm tooling enables a smarter robot installation.

Benefits - Integrator

- pneumagiQ enables installing pneumatic EOAT Plug & Play.
- No dependency on skilled design & engineering resources.
- Save time and efforts coordinating sourcing of components from multiple vendors.
- Reduce installation time to just a few minutes.
- Decrease turnaround of projects - more projects in the same time.
- Aesthetic implementation of the robotic cell.
- Enhance reach and degree of freedom of the robot.

Benefits - End User

- Aesthetic robotic cell.
- Zero maintenance.
- Minimize requirement of spares.
- Quicker deployment of projects.
- Quick redeployment for other applications.



90° / 180° Mechanical Offset

Avoid Mechanical Fabrication

Fast

Accelerate Robot Deployment

Light

Maximize Robot Payload

Small

Access Tight Spaces

IP66

Use in Harsh Environment

Quick Response

Increase Machine Utilization

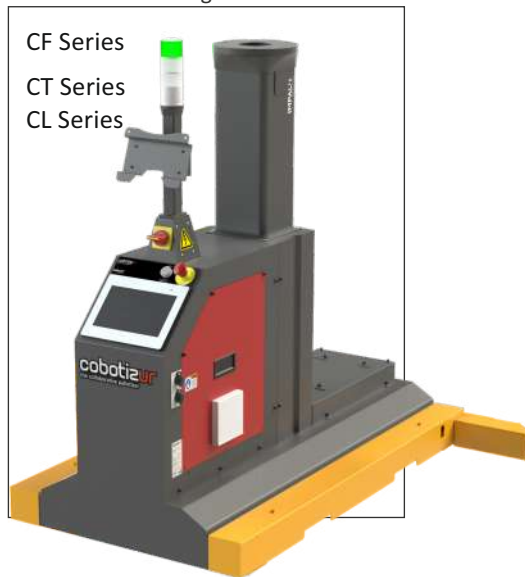
Specifications

pneumagiQ

Model	PQ90	PQ180	PQ9020
Part Number	6 102 0122	6 102 0224	6 102 0324
General			
Mountable pneumatic EOAT	2	2	2
Angle between EOAT	90°	180°	90°
Range Extension	-	200 mm (7 7/8 inch)	-
Air blow-off ports	1	2	1
Sensor connectors	2	4	4
Response time	< 30 ms (Modbus RTU)		
Operating medium	Compressed air		
Weight	580 g / 1.3 lbs	870 g / 1.9 lbs	1100 g / 2.4 lbs
Payload			
Max. payload per Tool Mounting Face*	3.5 kg / 7.7 lbs		12.5 kg / 27.6 lbs
Overall payload	5 kg / 11 lbs		20 kg / 44 lbs

Product Lineup

cobotizur®
the collaborative palletizer
The CoBot Palletizing Platform



pneumagiQ®
Patented

Universal Pneumatic EOAT Interface



pneuvaQ®
Patent Pending

Integrated Pneumatic + Vacuum Interface



casemagiQ®
Patent Pending

Universal Case Forming EOAT



Robot Compatibility

ABB

DOOSAN



JAKA

Kawasaki Robotics

KUKA

OMRON

TM ROBOT

UNIVERSAL ROBOTS

YASKAWA

Qik-kit®

Cable Management System

Qik-mount®

Cobot Peripherals



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innovative product



reddot winner 2023



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