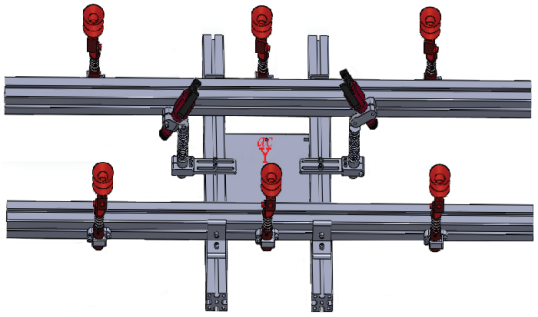
BUILDING AN EOAT PROJECT

An automation system should incorporate high efficiency, process reliability, and cost savings.



When planning an automation system there are three things to be concerned with: efficiency, reliability, and cost. Our EOAT components are designed with both efficiency and reliability in mind, allowing you to combine both into a single smoothly running system. Our EOAT Components can easily be combined to build virtually any tooling project.

EFFICIENCY -
Is the use of EOAT increasing and/or enhancing production speed, accuracy, flexibility and ease of product changeover? If so, then it is more efficient than your existing methods.

RELIABILITY -
A properly designed EOAT assembly will grip and hold parts reliably. If not, then you need to consider a redesign or modification to your design to increase reliability. Are parts being dropped? Are parts being marked by cups or grippers? Is the molding cycle being interrupted because the EOAT isn't working properly? Is the EOAT allowing the robot to work at it's peak capacity?

COST -
EOAT, when provided by the robot manufacturer or specialty shops, can be quite expensive. The best way to reduce the cost of end-of-arm-tooling is to buy standard EOAT components and do it yourself. If you possess basic assembly and electrical skills, chances are it will be easier than you think. Start with small, uncomplicated projects and, as your expertise grows, you can quickly move to large, more complicated projects. This catalog includes everything you need to build a complete EOAT, and we have the best prices!

WHEN SETTING UP YOUR OWN EOAT, CONSIDER THE FOLLOWING:

1. How are components connected to the EOAT?

2. How does the EOAT connect to the robot?

3. How could it be better?

4. Is it reliable?
   - Are parts being droppped?
   - Are parts being marked by vacuum cups or grippers?
   - Is the molding cycle being interrupted because the EOAT isn't working properly?
   - Is the EOAT allowing the robot to work at it's peak capacity?

5. Mold considerations
   - Is a mold drawing available?
   - What is the distance between tie bars?
   - What is the length of the ejector stroke?
   - Are there any overhead or side obstructions?
   - What is the temperature of the ejected part?

6. Robot considerations
   - What is the robot make & model?
   - What is the robots maximum payload?
   - What is the available movement pattern? single stage, 3-axis or 6-axis?
   - How many air, vacuum & electric circuits are available?

CHOOSING FRAMING -
Simple EOAT project - The vacuum cups, grippers, nippers etc. can be connected directly to an aluminum plate.

Complicated EOAT project - The vacuum cups, grippers, nippers, etc. need to be connected to tube profiles, extrusion profiles or a mix of extrusion and tube profiles.

TUBE PROFILES -
Tube profiles are an excellent choice when adjustablility and light weighty is needed. Nippers, grippers, vacuum cups etc. are often mounted on tube profiles because of the ease of adjustment and extended angle adjustments they can provide.

EXTRUSION PROFILES -
Extrusion profiles are grooved along their entire length. Nippers, grippers, vacuum cups etc. are attached to the profile using brackets and nuts and bolts which slide into the grooves.

MIX AND MATCH WITH EXTRUSION AND TUBE PROFILES -
When you have rigidity and adjustability concerns, then you have to adopt extrusion profiles as the base framework and tube profiles connecting components for maximum positioning adjustability. Extrusion profiles and brackets allow for easy linear adjustments. Round elbow angle adjusters provide a wide range of angle adjustments as well as rotational adjustability.

VACUUM CUPS -
Vacuum cups are the most popular and economical method for the EOAT to grip and properly position items. Most robots come standard with a vacuum detection circuit that monitors for a minimum vacuum level. If a vacuum cup has missed or dropped a part, the vacuum detection circuit senses low vacuum and prevents the robot or machine from starting a new cycle until corrected. Therefore, additional part verification is not normally needed. This eliminates the need for separate parts sensors which can add both cost and weight to the EOAT. Vacuum cups are available in a wide range of styles, sizes and materials to suit a wide range of application needs.

SPRUE GRIPPERS -
Sprue grippers are commonly used to grip sprues but they are often used to grip parts as well. While grippers usually work like fingers that come together to grasp something, they can also be placed inside of a part and spread apart to apply pressure from within. Grippers attach to the EOAT using special gripper brackets. Some use compressed air to both open and close the fingers (double acting). Others combine the use of compressed air with a spring to open or close (single action).

MOUNTING CLAMPS -
Mounting Clamps are used with tube profiles and/or gripper mounting arms on one end, and cups, adapters, holders, suspensions, sprue grippers, and/or nipper brackets on the other end, making the EOAT adjustable and better able to hold the part. They are more versatile than others and have changeable direction.

SUSPENSIONS -
Suspensions have tube profiles, gripper mounting arms, and/or mounting clamps on one end, and an adapter cup on the other end, making it more adjustable and strong. They are available in both rotating and non-rotating versions.

GRIPPER MOUNTING ARMS -
Gripper mounting arms have either tube profiles or clamps on one end, and sprue grippers, cups with adapters or holders, suspensions, or nipper brackets on the other end. They are available in both rotating and non-rotating varieties.

NIPPERS -
Nippers (or sprue cutters) are most often used to cut (or degate) sprues and/or runners from parts. Styles include both single and double-acting models as well as sliding models. Nippers can be mounted either on the EOAT or at a separate degating station. By using the appropriate mounting bracket, nippers can be mounted onto either round or slotted profiles. Some round-bodied nippers have mounting threads on their bottom and other nipper bodies have mounting threads on square slide surfaces which can provide a low-cost alternative to mounting clamps.

SLIDING NIPPERS -
This style nipper allows the blade to cut flush against the part. After the blade is positioned between the runner and part, compressed air is applied to activate the pull-sliding stroke. This moves the blade flush against the part. Compressed air is then applied to the blade resulting in the cutting action. Spring action returns the sliding body to its normal position. Compressed air is supplied to two parts, allowing for independent control over the sliding stroke and cutting operations.

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