

# PMAT – Piab Modular Automation Tooling



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## PMAT – Piab Modular Automation Tooling



### Connections to main frame/structure of the end-effector

Durable mounting bars, clamp blocks with tubes and special parts that will all fit to any type of welded frames or extrusions.

They form the structure of the PMAT end-effector and interfaces nicely with the swivel arms and in some cases directly with a function attachment.

### Centralized vacuum connection

Connect your PMAT system to a centralized vacuum pump.

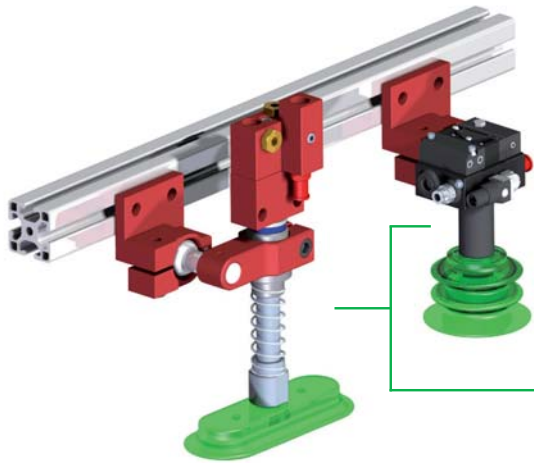
### Ball joint

### Swivel arms

The swivel arm is the part which allows for unlimited positioning of the suction cup. A single-bolt on the swivel arm will tighten the entire assembly of arm, function attachment and cup in the right position. Swivel arms are available in different lengths for increased flexibility and they can be mounted to a rod/bar by a slide-on function or be clamped to the rod/bar.

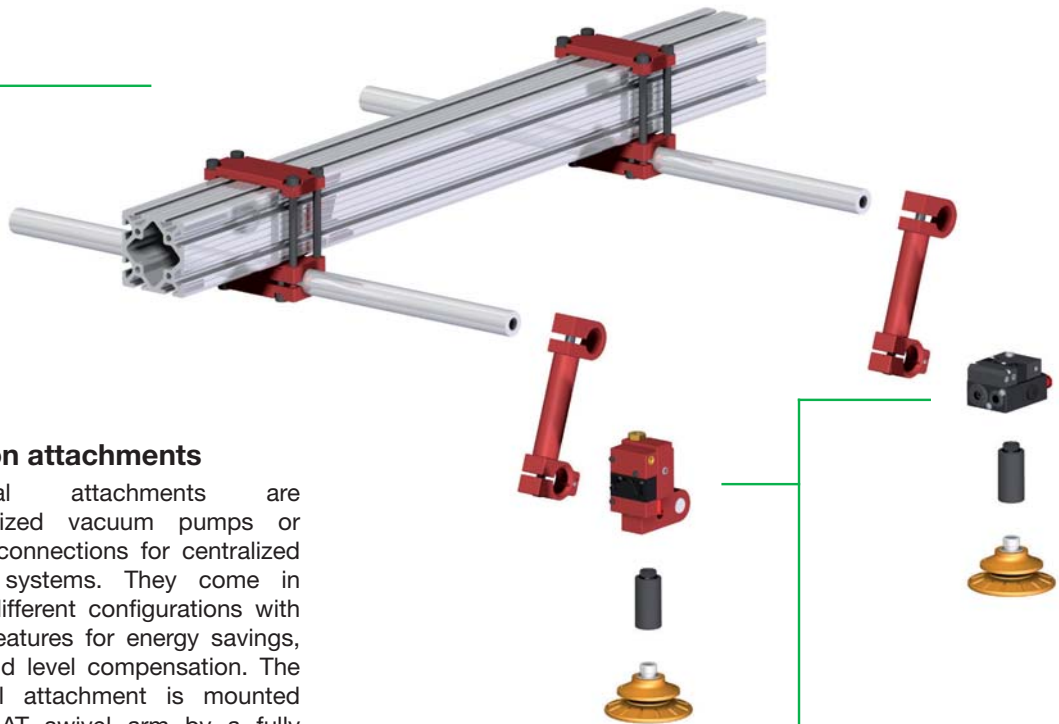
### Piab suction cups

Piab suction cups are available in a variety of sizes and materials to efficiently handle your application. To prevent damage to the surface of metal sheets common in automotive and large appliance applications, Piab's DURAFLEX® cups feature a dual-hardness design and soft cup body. Lower vacuum force is needed to seal the cups to part surfaces for gentler handling. The soft lip of Piab's DURAFLEX® cups also molds easily to curved surfaces for less vacuum leakage and stronger grip.



### Accessories for suction cups

The PMAT offers a wide range of suction cup accessories to optimize and facilitate the installation. For instance, the accessories can help to avoid bending stress on the suction cup when lifting heavy objects, extend the cup to reach areas in cramped spaces or simply height adjust the cup to the right level.



### Function attachments

Functional attachments are decentralized vacuum pumps or vacuum connections for centralized vacuum systems. They come in several different configurations with special features for energy savings, safety and level compensation. The functional attachment is mounted to a PMAT swivel arm by a fully flexible ball joint or a more rigid and rotating lock-pin. The suction cup or the suction cup accessory have a matching interface for the function attachment.

# Connections to main frame of the end-effector



## Mounting bar – welded

- Rigid mounting with low deflection.
- Slotted mounting for adjustability.
- 100–600 mm (4”-24”) lengths.



## Profile mount ball clamp

- Fits on standard size extrusion.
- Used with any Ball joint style function attachment.

## Technical Data

Description	Torsional twist	Load, vertical, max.	Load, torque, max.
Mounting bar welded L=100	1 °	–	–
Mounting bar welded L=150	1.2 °	–	–
Mounting bar welded L=200	1.6 °	–	–
Mounting bar welded L=300	2.5 °	–	–
Mounting bar welded L=600	4.6 °	–	–
Profile mount ball clamp, left hand	–	180 lbf	29.5 lb ft
Profile mount ball clamp, right hand	–	180 lbf	29.5 lb ft

## Ordering information

For a complete list of available PMAT products visit [piab.com](http://piab.com). On our webpage you will also be able to find dimensional drawings, CAD-drawings and much more. Register and get full access to all resources available.

# Swivel arms



## Swivel arm – clamp on

- Standard mounting to 25 mm and 1” bars, easily removable connection.
- Easy single screw adjustment.
- Available in lock pin 16, 19 or ball joint mountings, industry standard.



## Swivel arm – slide on

- Standard mounting to 25 mm or 1” bars.
- Easy single screw adjustment.
- Available in lock pin 16, 19 or ball joint mountings, industry standard.

## Technical Data

Description	Load, vertical, max.	Load, torque, max.
Swivel arm – clamp on	89.9 lbf	29.5 lb ft
Swivel arm – slide on	89.9 lbf	29.5 lb ft

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## Function attachments



### Centralized vacuum connection

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- Connects centralized vacuum to suction cup.
- Available in lock pin 16, 19 or ball joint mountings, industry standard.
- Available with level compensator to compensate for differences in level of object.



### Vacuum Check Valve VT-1H

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- Check valve that traps vacuum in sealed applications for safe operation.
- Built-in blow off check valve for fast release of object.
- Available in lock pin 16, 19 or ball joint mountings, industry standard.
- Available with level compensator to compensate for differences in level of object.

### Ordering information

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### Vacuum Check Valve VT-1H with COAX®

- Two-stage COAX® cartridge MINI Pi12-2 integrated.
- Check valve that traps vacuum in sealed applications for safe operation.
- Built-in blow off check valve for fast release of object.
- Available in lock pin 16, 19 or ball joint mountings, industry standard.
- Available with level compensator to compensate for differences in level of object.



### Vacuum Check Valve VT-1H Vacustat with COAX®

- Two-stage COAX® cartridge MINI Pi12-2 integrated.
- Check valve that traps vacuum in sealed applications for safe operation.
- Built-in blow off check valve for fast release of object.
- Integrated energy-saving device, Vacustat results in virtually no air consumption in sealed applications.
- Available in lock pin 16, 19 or ball joint mountings, industry standard.
- Available with level compensator to compensate for differences in level of object.

### Technical Data

Description	Vacuum flow, max.
Vacuum Check Valve VT-1H	1.44 scfm
Vacuum Check Valve VT-1H with COAX®	1.44 scfm
Vacuum Check Valve VT-1H Vacustat with COAX®	1.44 scfm

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## Accessories



### Cross connector

- Connects 25 mm bars at any angle.
- Can be used with a Suction cup extension.



### Level compensator – profile mount

- Compensates for differences in height.
- Provides certain degree of shock absorption.
- Fits on standard size extrusion.



### Proximity mounting bracket

- For mounting of sensors or visions systems.
- Multiple interfaces.

### Technical Data

Description	Load, vertical, max.	Load, torque, max.	Load, horizontal, max.
Cross connector 25-25/65	89.9 lbf	88.5 lb ft	–
Level compensator – profile mount	157 lbf	–	157 lbf

### Ordering information

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## PMAT Configurable Products

Facilitate the selection of our great assortment of function attachments and swivel arm options by using the combined swivel arm and function attachment code configurator. Note that all function attachments are not presented in the code.

Select rod extension	PMAT code
Rod extension 50	AA
Rod extension 100	AB
Rod extension 150	AC

Bar mounting style	PMAT code
Bar clamp, clamp-on 25	00
Bar clamp, slide-on 25	01
Bar clamp, slide-on 1", pin 16	02
Bar clamp, slide-on 1", pin 19	14
Bar clamp, slide-on 1", ball joint	04

Swivel style	PMAT code
Swivel style pin 16	P
Swivel style pin 19	C
Swivel style ball joint	I

Function attachment	PMAT code			
No attachment	00			
	Left hand		Right hand	
		LCS *		LCS *
Centralized vacuum connection, G	XX1	XX2	XX1RH	XX2RH
Centralized vacuum connection, NPT	X1	X2	X1RH	X2RH
Vacuum Check Valve VT-1H, G	XAB	XAM	XABRH	XAMRH
Vacuum Check Valve VT-1H, NPT	AB	AM	ABRH	AMRH
Vacuum Check Valve VT-1H COAX® cartridge MINI Pi12-2, G	XAA	XAL	XAARH	XALRH
Vacuum Check Valve VT-1H COAX® cartridge MINI Pi12-2, NPT	AA	AL	AARH	ALRH
Vacuum Check Valve VT-1H Vacustat COAX® cartridge MINI Pi12-2, G	XEA	XBTF	XEARH	XBTFRH
Vacuum Check Valve VT-1H Vacustat COAX® cartridge MINI Pi12-2, NPT	EA	BTF	EARH	BTFRH

\* With level compensator, LCS.

## Warranties

Piab offers a warranty to distributors, integrators and users of Piab products worldwide as per the following definitions:

- A five-year warranty is valid for vacuum pumps excluding accessories and controls.
- A one-year warranty is valid for other products if the failure has occurred within specified lifetime in terms of duty cycles.

General warranty principles:

- Piab guarantees against defects in the manufacture and materials by normal use in proper environment, when following the instructions for care, maintenance and control described in the appropriate Piab manual.
- Piab replaces or repairs, free of charge, faulty products provided that these are returned to Piab, and found to be covered by the warranty.
- It is at Piab's discretion whether a faulty product should be sent back to Piab for replacement or if the repair shall be made locally at Piab's expense.
- This warranty does not include wear parts such as suction cups, filter elements, sealings, hoses, etc.
- This warranty does not include subsequent damages caused by defective products.