

SPR-10 Cobot Solutions (CB)

Full catalogue 2024

11/20/2024

 **IPT Kereskedelmi Kft.**
Ipar, ProfiL, Technika

Mazur Péter

IPT Kereskedelmi Kft.

Házgyári út 7.

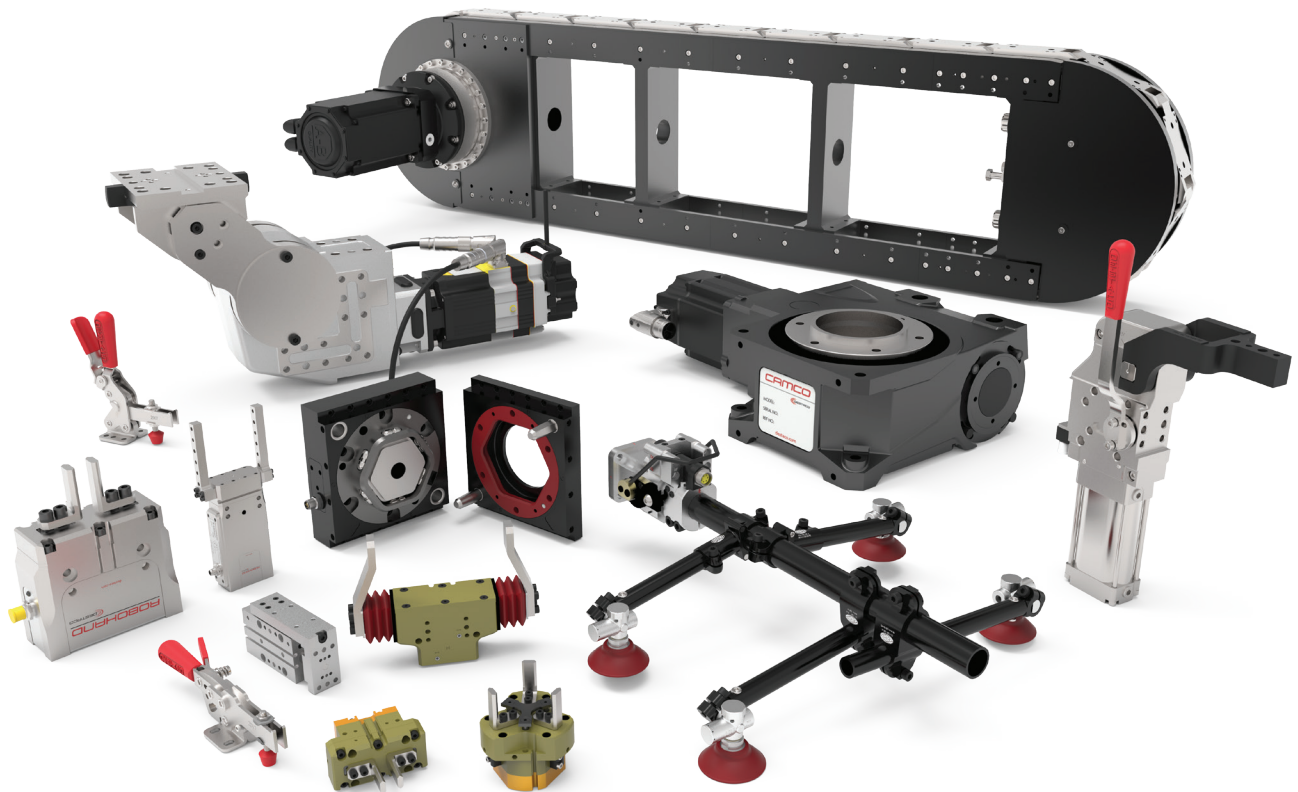
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SPR-10 Cobot Solutions (CB)

11/20/2024

This catalog is a custom document and the products included is based on your unique selection from portions of complete catalogs that already exist. Please refer to our full catalogs for more information on products not included in this customized document.

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Robot Vacuum Grippers	CB-VGS-1
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Tool Tree Storage Solutions	CB-TTS-1

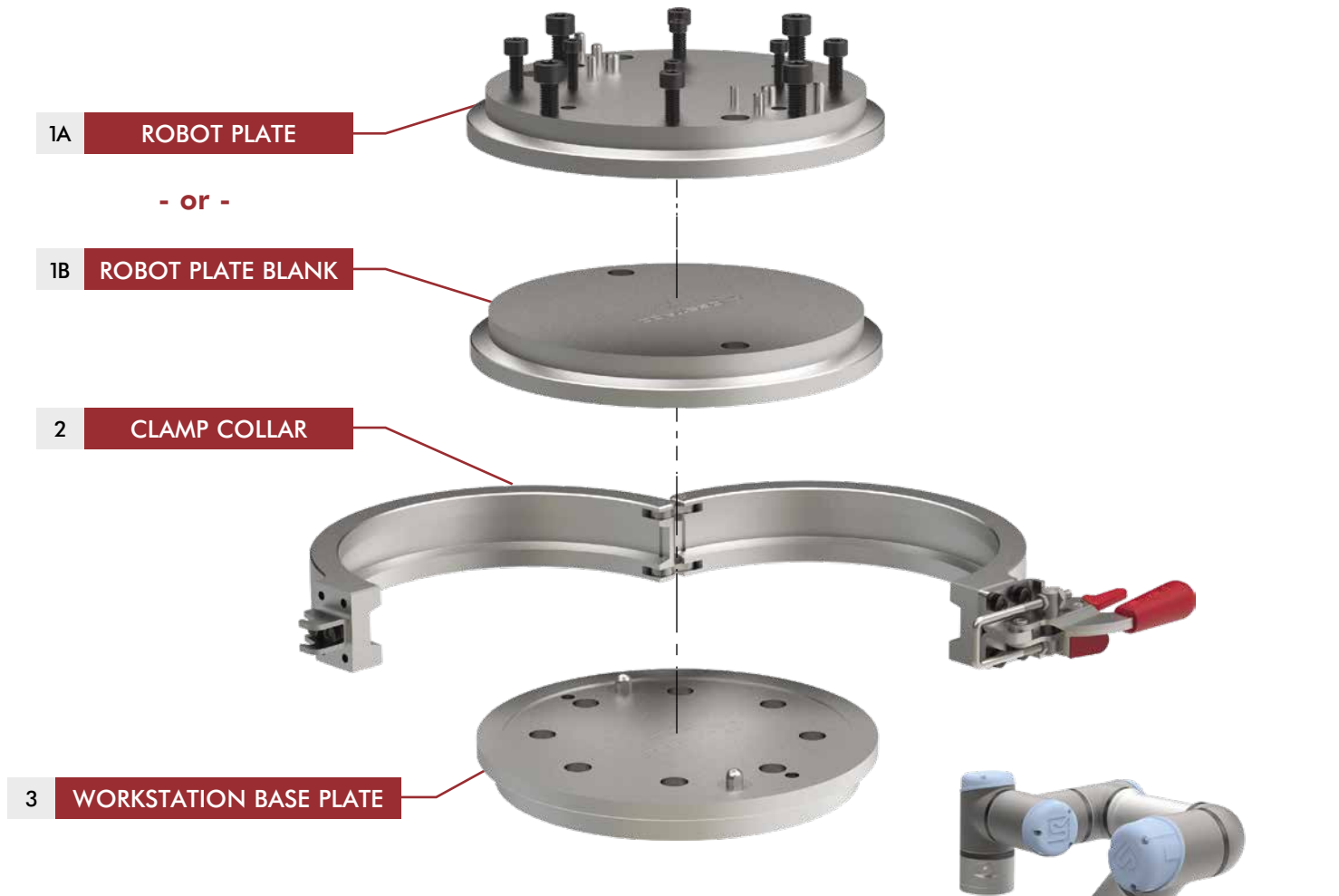
SPR-10 Cobot Solutions (CB)

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Table of Contents (continued)

QUICK-MOVE ROBOT BASE CHANGER

Quick-Move Robot Base Changer | Product Overview



Order #	Description	Page
1A CB-200-R01	Robot Plate with UR and TM mounting hole pattern (Mounting hardware included)	2
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2 CB-200-C01	Clamp Collar	3
3 CB-200-B01	Workstation Base Plate (Mounting hardware not included)	4



Compatibility Charts

Robot Manufacturer	Model	Robot Plate
TECHMAN	TM5M-700, TM5M-900, TM12M, TM14M	CB-200-R01
UNIVERSAL ROBOTS	UR3, UR5, UR10, UR16	
HANWA PRECISION MACHINERY	HCR-3, HCR-5	
OMRON TM	TM5-700, TM5-900, TM12, TM14	
DOBOT	CR-5	
Other Robots	Various	CB-200-R00

QUICK-MOVE ROBOT BASE CHANGER

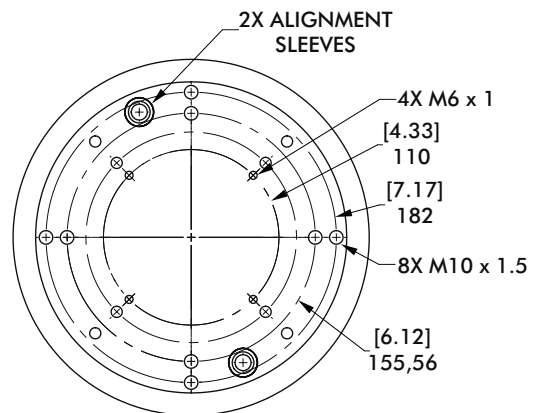
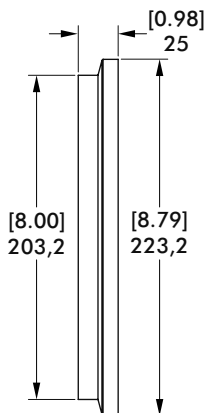
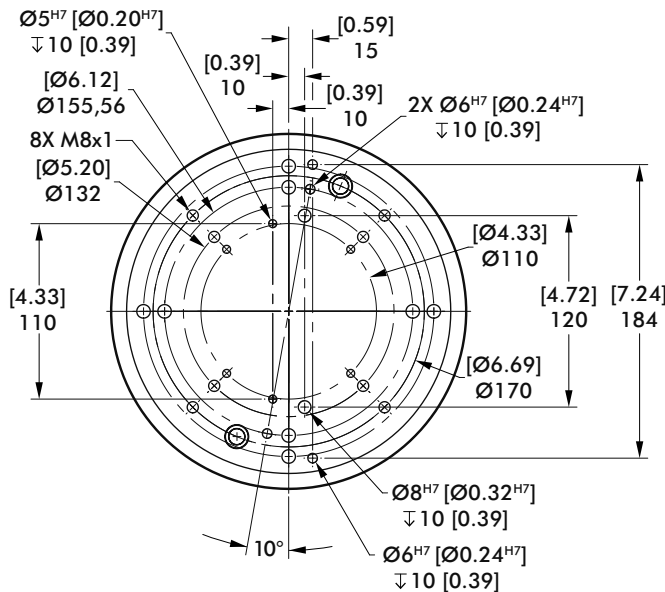
Robot Plate | Dimensions and Specifications

CB-200-R01 Robot Plate

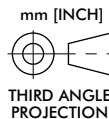
Robot Mount Surface



Clamp Mating Surface



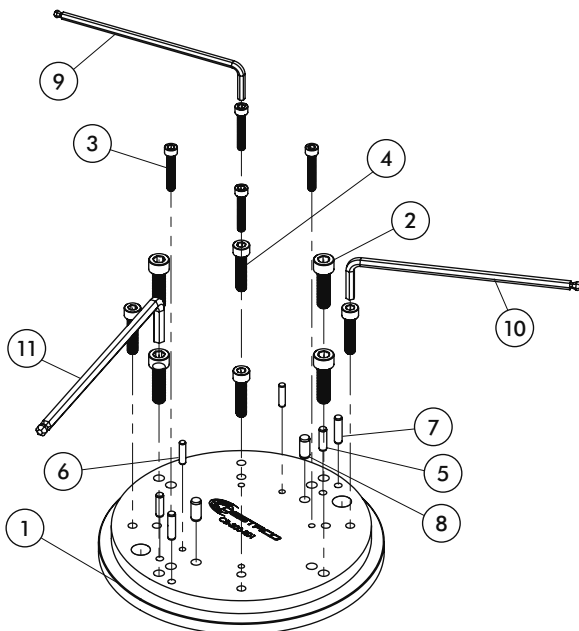
Mounting pattern is compatible with TM and UR Robots



Specifications:	Units	CB-200-R01
Weight :	Kg [lb]	2,51 [5.53]
Material:		Aluminum

CB-200-R01 Robot Plate Components

Hardware kit to mount Robot plate to UR and TM Robots



Item	Description	Quantity
1	Robot Plate	1
2	SHCS, M10 x 35mm, SS	4
3	SHCS, M6 x 30mm, SS	4
4	SHCS, M8 x 35mm, SS	4
5	Dowel Pin, Ø6mm x 20mm (AISI 316)	2
6	Dowel Pin, Ø5mm x 20mm (AISI 316)	2
7	Dowel Pin, Ø6mm x 24mm (AISI 316)	2
8	Dowel Pin, Ø8mm x 18mm (AISI 316)	2
9	Ball Pointed Wrench, Allen, 5mm Hex	1
10	Ball Pointed Wrench, Allen, 6mm Hex	1
11	Ball Pointed Wrench, Allen, 8mm Hex	1

QUICK-MOVE ROBOT BASE CHANGER

Robot Plate Blank, Clamp Collar | Dimensions and Specifications

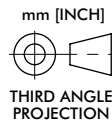
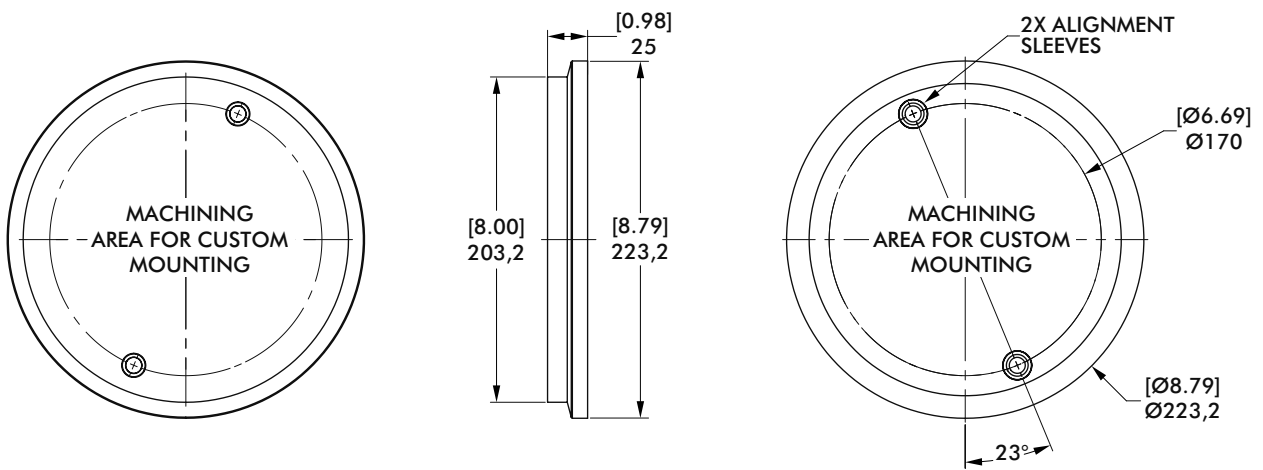


CB-200-R00 Robot Plate Blank

Robot Arm Surface

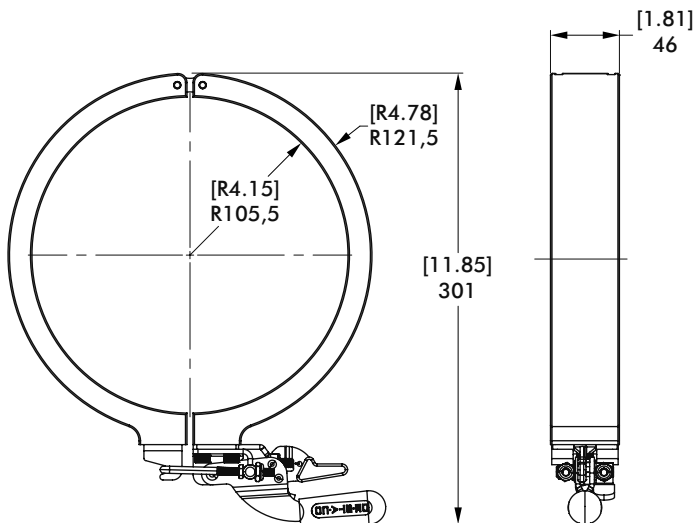


Clamp Mating Surface



Specifications:	Units	CB-200-R00
Weight :	Kg [lb]	2,26 [4.98]
Material:		Aluminum

CB-200-C01 Clamp Collar

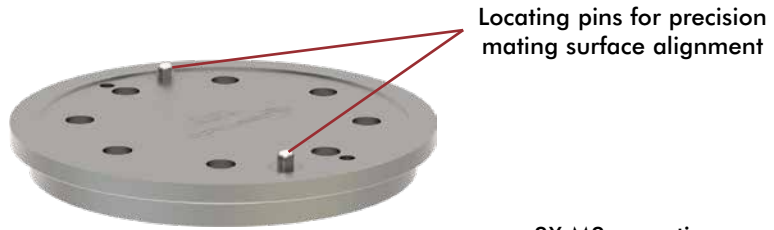


Specifications:	Units	CB-200-C01
Weight :	Kg [lb]	2 [4.4]
Material:		Aluminum

QUICK-MOVE ROBOT BASE CHANGER

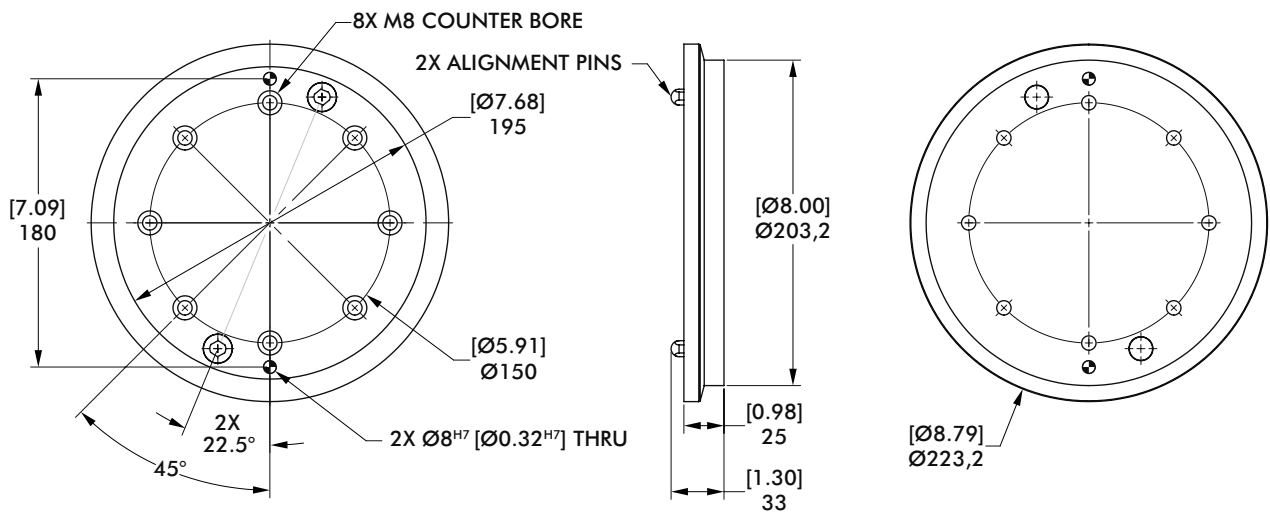
Workstation Base Plate | Dimensions and Specifications

CB-200-B01 Workstation Base Plate



Locating pins for precision mating surface alignment

8X M8 mounting screws and 2X 8mm dowel pins for mounting not included



mm [INCH]
THIRD ANGLE PROJECTION

Specifications:	Units	CB-200-B01
Weight :	Kg [lb]	2,28 [5]
Material:		Aluminum

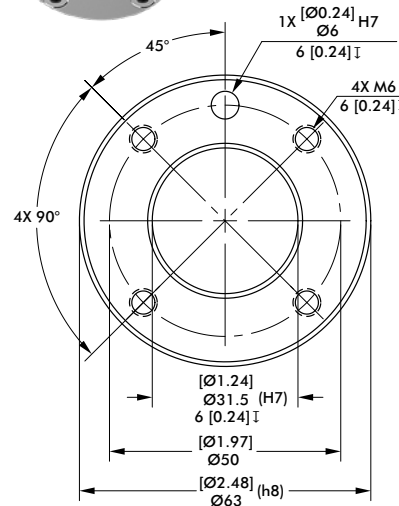
ROBOT DIRECTCONNECT ADAPTER KIT

Compatibility Charts



AP-050-01 Robot Mounting Compatibility

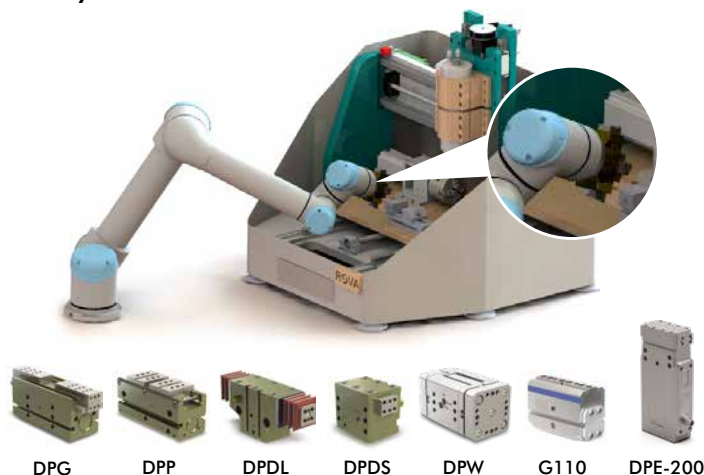
Robot Manufacturer	Model
GENERIC	Any model with ISO-9409-1-50-4-M6 Pattern
ABB	CRB 15000
AUBO	I3, I5, I7, I10
DOBOT	CR - 5
Doosan Robotics	M0609,M1509,M1013,M0617
ESI	C-7, C-15
F&P PERSONAL ROBOTICS	P-ROB 2R-24V, 48V
FRANKA EMIKA	PANDA
HAN'S ROBOTS	ELFIN 3, 5, 10
HANWHA PRECISION MACHINERY	HCR-3, 5, 12
JAKA/KUNLIN	ZU 7, 12
KAWADA INDUSTRIES	NEXTAGE
KUKA	LBR iiwa 7 R800, LBR iiwa 14 R820
MODBOT	Robot, SCARA
Omron TM	TM 5 - 700, TM 5 - 900, TM 12, TM 14
RAINBOW ROBOTICS	RB5
REIS	RV10-6, RV20-6
ROZUM	PULSE 75, 90
SIASUN	GCR5, GCR14, GCR20, SCR3, SCR5
STAUBLI	TX2 90, TX2 TOUCH 90, TX2 TOUCH 90L, TX2 TOUCH 90XL
TECHMAN	TM5M-700, TM5M-900, TM12M, TM14M
UNIVERSAL ROBOTS	UR3, UR5, UR10, UR16



ISO-9409-1-50-4-M6
Robot Mounting Pattern

AP-050-01 Robohand Gripper Mounting Compatibility

Robohand Products	Compatible Series	Description
DPG	All Size	Pneumatic 2-Jaw Parallel Gripper
DPDL	047, 056, 088	
DPDS	047, 056, 088	
DPP	10M, 14M	
DPW	250M	
G110, G120	08, 11	
DPE	200-25	Electric 2-Jaw Parallel Gripper



ROBOT DIRECTCONNECT ADAPTER KIT

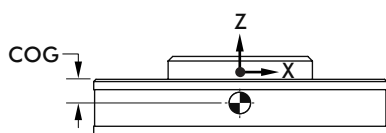
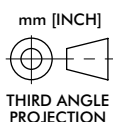
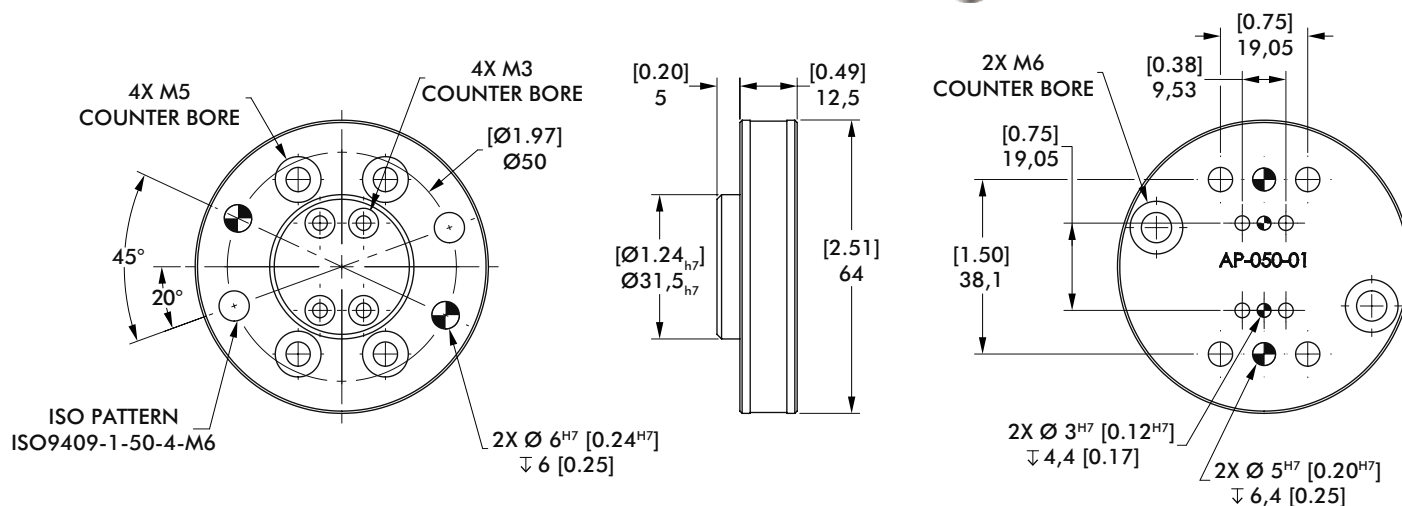
DirectConnect Adapter Kit | Ordering Information

AP-050-01 Robot DirectConnect Adapter Kit for Grippers

Robot Mount Surface



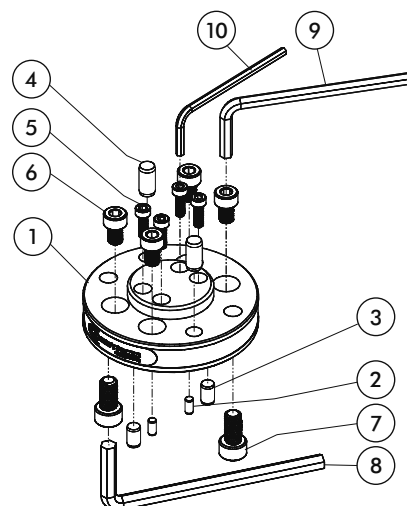
Tooling Surface



Specifications:	Units	AP-050-01
Weight :	Kg [lb]	0,13 [0.28]
Material:		Aluminum
Center of Gravity (COG) [X] [Y] [Z]	mm	[0] [0] [-5.75]
Moment of Inertia @ COG- IXX	[Kg-mm ²]	33,21
Moment of Inertia @ COG- IYY	[Kg-mm ²]	36
Moment of Inertia @ COG- IZZ	[Kg-mm ²]	63,81

AP-050-01 Robot DirectConnect Adapter Kit Components

Item	Description	Quantity
1	Adapter; ISO 50 DirectConnect Plate	1
2	Dowel Pin, $\varnothing 3$ mm x 6mm, Stainless, 316	2
3	Dowel Pin, $\varnothing 5$ mm x 8mm, Stainless, 316	2
4	Dowel Pin, $\varnothing 6$ mm x 12mm, Stainless, 316	2
5	SHCS, M3 x 10mm, Stainless, Patchlock	4
6	SHCS, M5 x 8mm, Stainless, Patchlock	4
7	SHCS, M6 x 12mm, Stainless, Patchlock	2
8	Wrench, Allen, 2.5mm Hex	1
9	Wrench, Allen, 4mm Hex	1
10	Wrench, Allen, 5mm Hex	1



ROBOT DIRECTCONNECT ADAPTER KIT

DirectConnect Sensor | Dimensions and Specifications



OHSN-023 8-Pin M8 NPN Sensor with Plug Connector

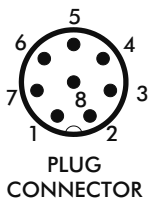
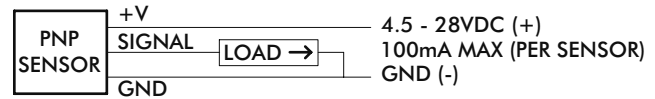
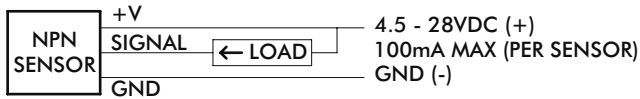
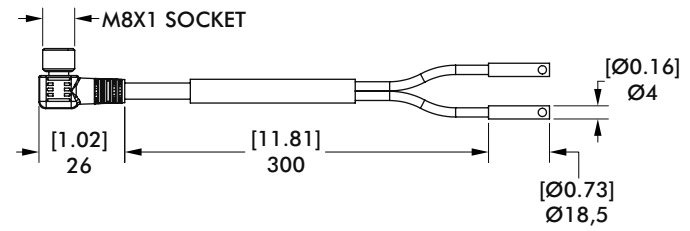
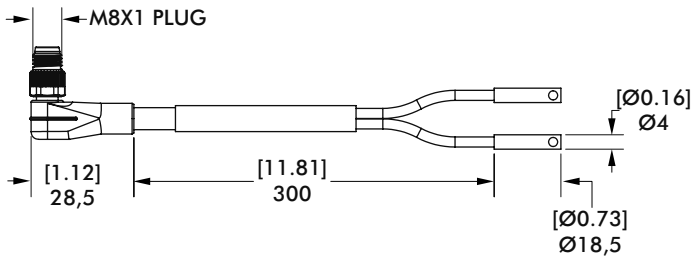


OHSP-022 8-Pin M8 PNP Sensor with Socket Connector

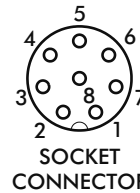


Description:	Part #
NPN Magneto-resistive Sensor	OHSN-023

Description:	Part #
PNP Magneto-resistive Sensor	OHSP-022



Connector Pin	Signal
1	+Vdd
2	SIGNAL B
3	SIGNAL A
4	N/C
5	N/C
6	N/C
7	0V
8	N/C



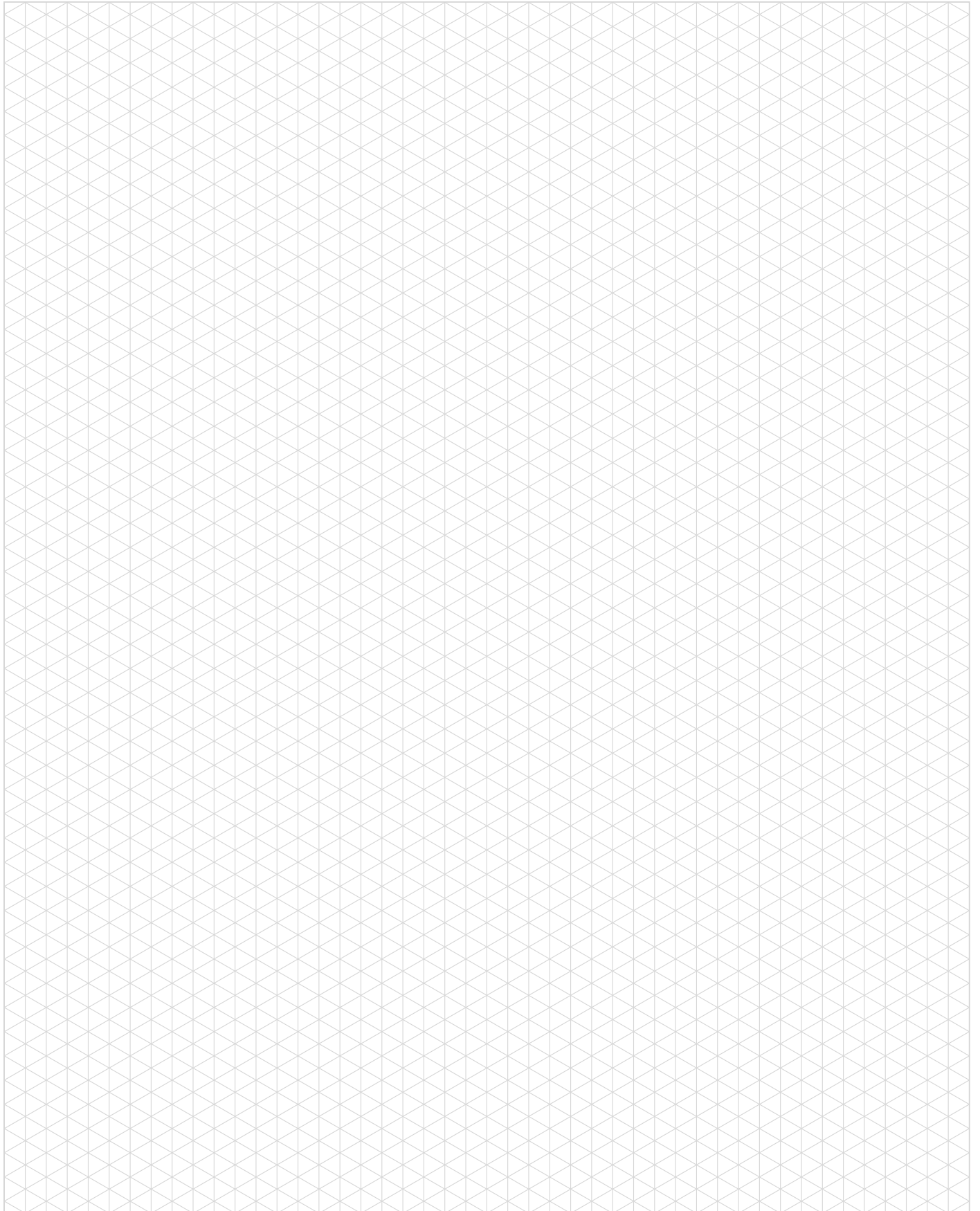
Connector Pin	Signal
1	N/C
2	N/C
3	SIGNAL A
4	SIGNAL B
5	N/C
6	N/C
7	0V
8	+Vdd

Specifications:	OHSN-023/ OHSP-022
Voltage Supply Range:	4.5-28VDC
Current Consumption:	Max 20mA@24V
Voltage Drop:	Max 0.5V
Max Switching Current:	100mA
Reverse Polarity Protection:	Yes
Short Circuit (Transient) Protection:	Yes
Temperature Range:	-10 to 70°C [14 to 158°F]
Protection Class:	Not Rated
Response Frequency:	1 kHz



ROBOT DIRECTCONNECT ADAPTER KIT

Notes



MULTI-MOUNT ROBOT SOLUTIONS

Features and Benefits

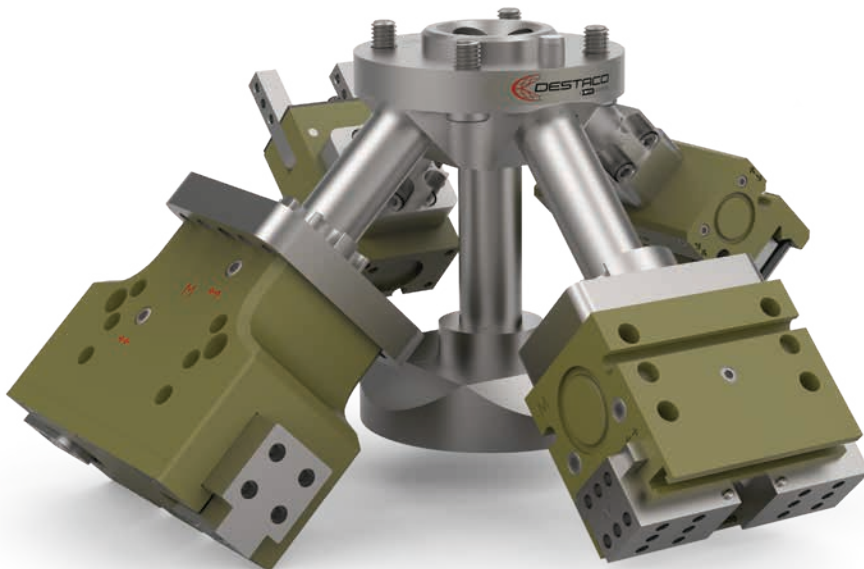
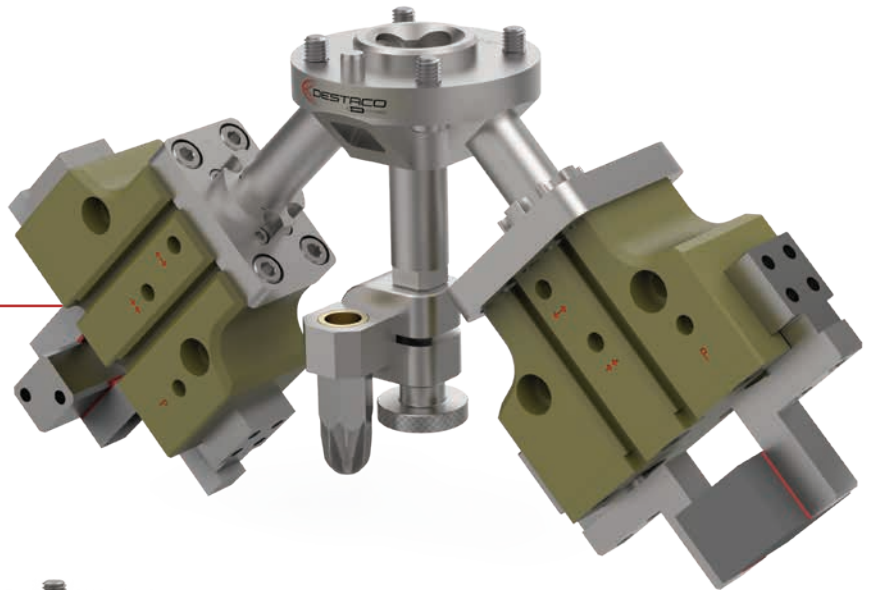


Tool Extenders

- Extend Robot Reach
- EOL Packaging
- Small Part Placement

Machine Tending

- CNC Machining
- Load and Unload
- Machine Transfers

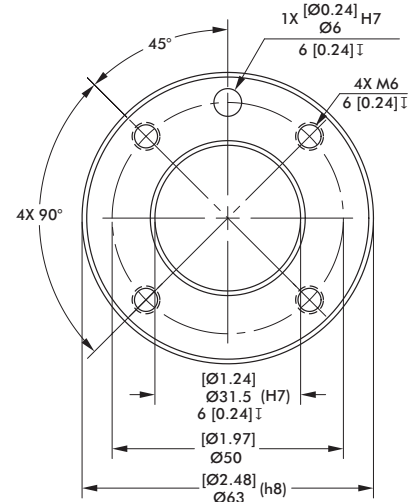
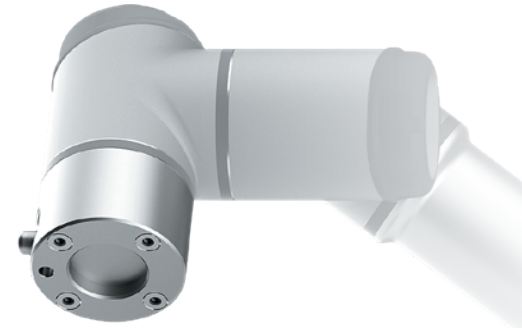


Tool Arrays

- Mix and Match Tooling
- Multiple Size Part Transfers
- Multi-Purpose Assembly Cells
- Multiple Part Size Load and Unload
- Flex Manufacturing Cells

MM-050-01 and TE-050-01 Robot Arm Adapters

Robot Manufacturer	Model
GENERIC	Any model with ISO-9409-1-50-4-M6 Pattern
ABB	CRB 15000
AUBO	I3, I5, I7, I10
DOBOT	CR - 5
DOOSAN ROBOTICS	M0609,M1509,M1013,M0617
ESI	C-7, C-15
F&P PERSONAL ROBOTICS	P-ROB 2R-24V, 48V
FRANKA EMIKA	PANDA
HAN'S ROBOTS	ELFIN 3, 5, 10
HANWHA PRECISION MACHINERY	HCR-3, 5, 12
JAKA/KUNLIN	ZU 7, 12
KAWADA INDUSTRIES	NEXTAGE
KUKA	LBR iiwa 7 R800, LBR iiwa 14 R820
MODBOT	Robot, SCARA
Omron TM	TM 5 - 700, TM 5 - 900, TM 12, TM 14
RAINBOW ROBOTICS	RB5
REIS	RV10-6, RV20-6
ROZUM	PULSE 75, 90
SIASUN	GCR5, GCR14, GCR20, SCR3, SCR5
STAUBLI	TX2 90, TX2 TOUCH 90, TX2 TOUCH 90L, TX2 TOUCH 90XL
TECHMAN	TM5M-700, TM5M-900, TM12M, TM14M
UNIVERSAL ROBOTS	UR3, UR5, UR10, UR16

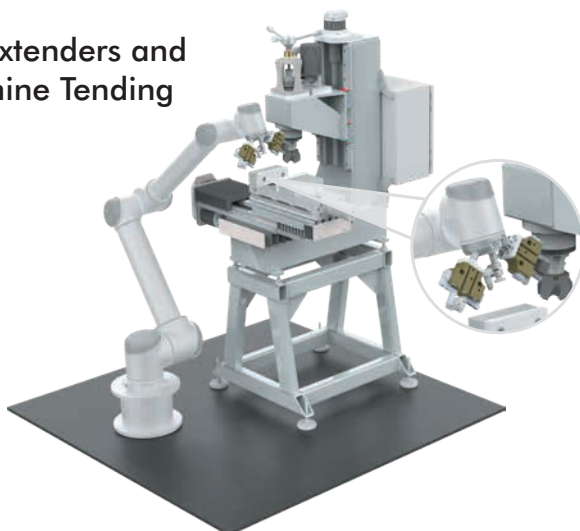


ISO-9409-1-50-4-M6
Cobot Mounting Pattern

Tool Arrays

- Mix and Match Tooling
- Multiple Size Part Transfers
- Multi-Purpose Assembly Cells
- Multiple Part Size Load and Unload
- Flex Manufacturing Cells

Tool Extenders and Machine Tending



Tool Arrays



MULTI-MOUNT ROBOT SOLUTIONS

Robohand Compatibility Charts

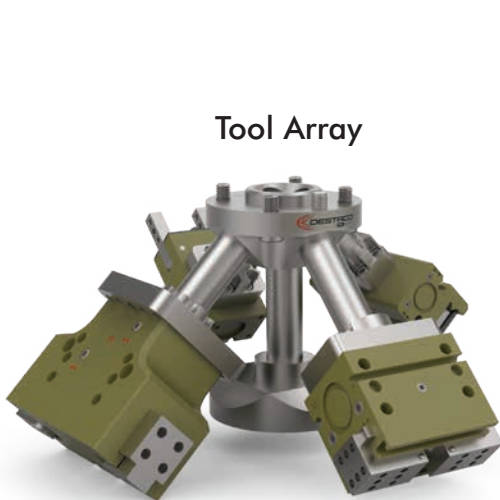


MM-T-XX Tool Mounting Plate Kits

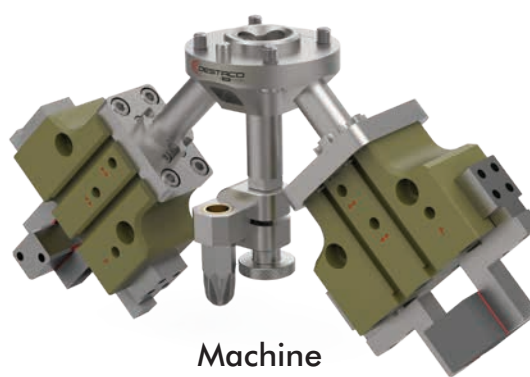
Robohand Grippers	Product Size	Description	Tool Plate Kits*
DGC	All Sizes	Pneumatic 2 Jaw Parallel Gripper	MM-T-05
DPG	All Sizes		MM-T-05
DPDL	047, 056		MM-T-05 or MM-T-06
DPDS			MM-T-05
DPDL	088, 125		MM-T-05
DPDS			MM-T-05
DPL	2520, 2535		MM-T-05
DPP	10M, 14M		MM-T-05 or MM-T-06
DPP	20M, 28M		MM-T-05
DPW	250M		MM-T-05 or MM-T-06
DPW	375M, 500M		MM-T-05
G110, G120	08M, 11M		MM-T-05 or MM-T-06
G110, G120	18M, 25M		MM-T-05
DPE-200	200		Electric 2 Jaw Parallel Gripper
DCT	12M, 16M, 20M	Angular Gripper	MM-T-05 or MM-T-06
DCT			MM-T-05



*Use the tool plate that best fits the gripper size for the application.



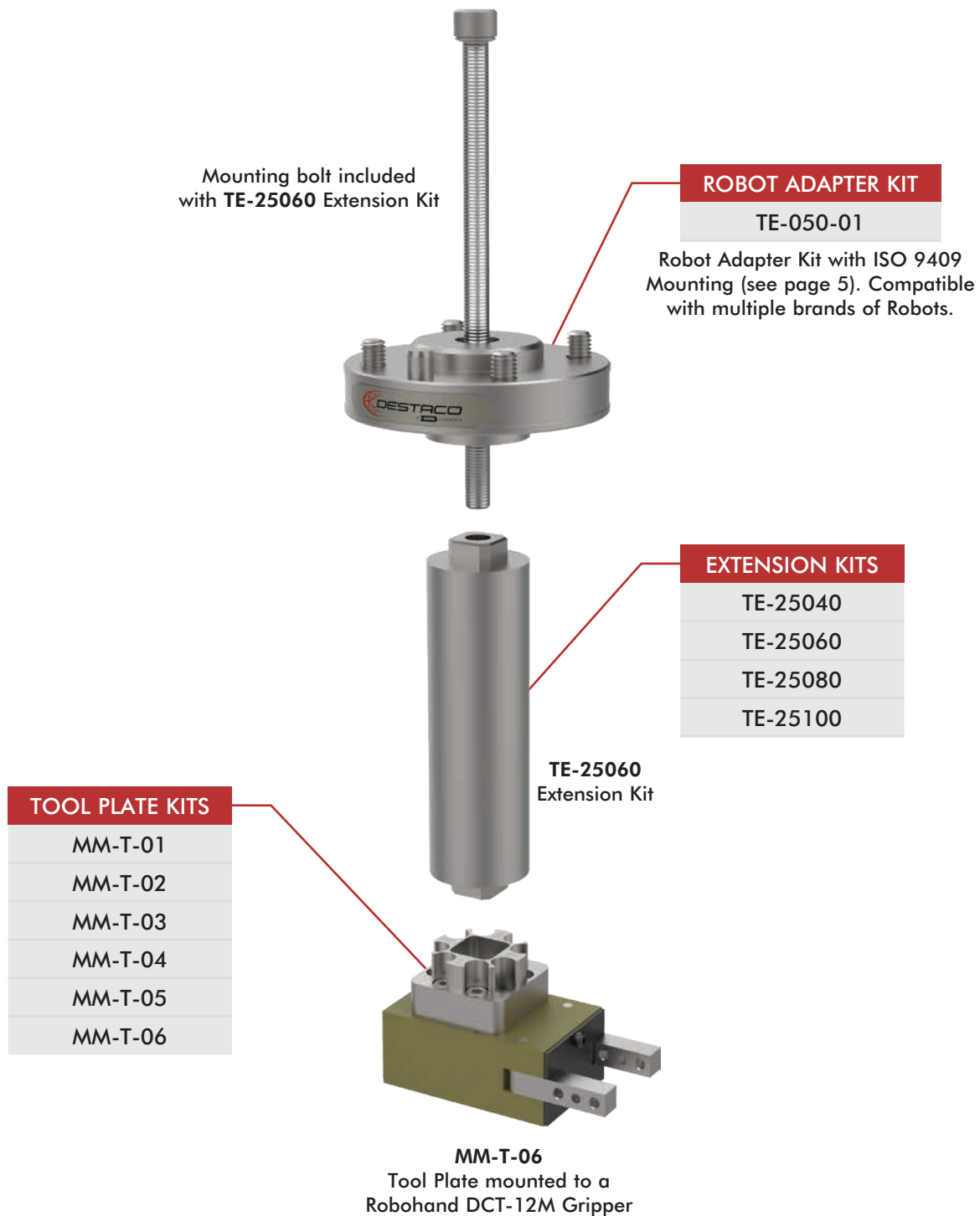
Tool Array



Machine Tending



Tool Extenders



How To Order: (Example for above configured product)

Order #	Description	Page
TE-050-01	Robot Adapter Kit	5
TE-25060	Extension Kit	6
MM-T-06	Tool Plate Kit	11-16

MULTI-MOUNT ROBOT SOLUTIONS

Tool Extension | Dimensions and Specifications

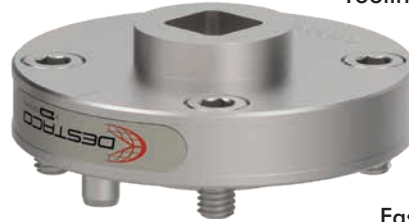


TE-050-01 Robot Adapter Kit for Tool Extension Solutions

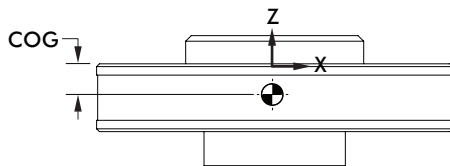
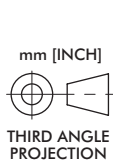
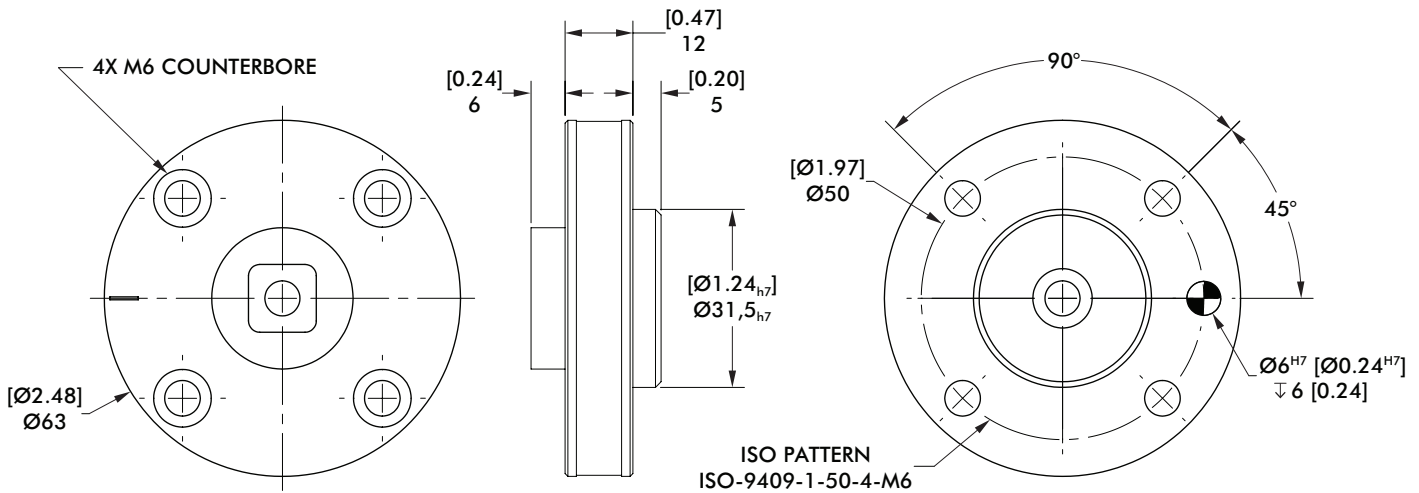
Robot Side



Tooling Side



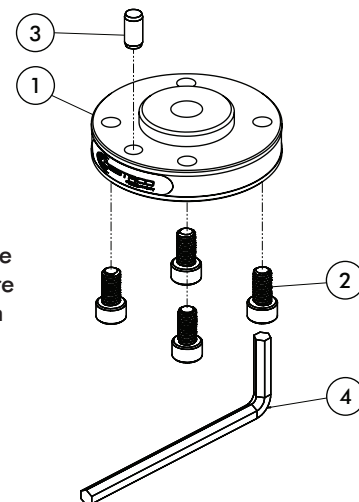
Fasteners, dowel pins included.



Specifications:	Units	TE-050-01
Weight:	Kg [lb]	0,13 [0.29]
Material:		Aluminum
Centre of Gravity [X] [Y] [Z]	mm	[0] [0] [-5,5]
Moment of Inertia @ COG -I _{XX}	[Kg-mm ²]	32,88
Moment of Inertia @ COG -I _{YY}	[Kg-mm ²]	34,27
Moment of Inertia @ COG -I _{ZZ}	[Kg-mm ²]	61,42

TE-050-01 Robot Adapter Kit Components

Item	Description	Quantity
1	Tool Extender: ISO 50 Master Base	1
2	SHCS, M6 x 12mm, Stainless, Patchlock	4
3	Dowel Pin, Ø6mm x 12mm, Stainless, 316	1
4	Wrench, Allen, 5mm Hex	1



All hardware and tools are provided in the kit

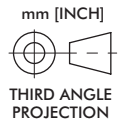
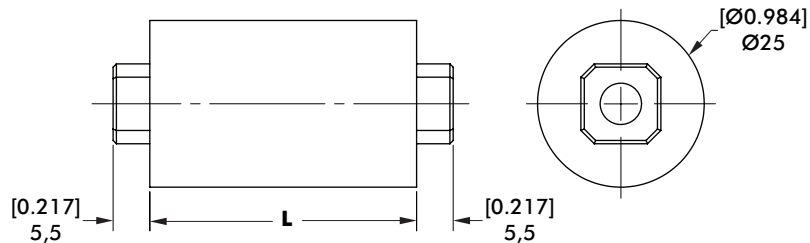
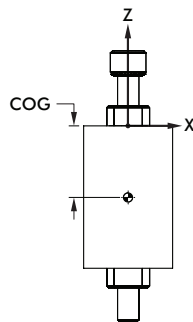
TE-25XXX Extension Kit for Tool Extension Solutions



Extension Model: **TE** — Size: **25** — Arm Length [L]: **XXX**



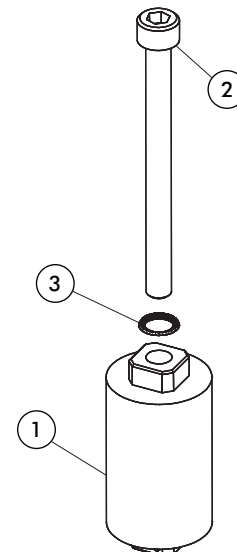
Specifications:	Units	TE-25040	TE-25060	TE-25080	TE-25100
Weight:	Kg [lb]	0,07 [0.15]	0,1 [0.22]	0,13 [0.29]	0,16 [0.35]
Material:		Aluminum	Aluminum	Aluminum	Aluminum
Center of Gravity (COG) [X] [Y] [Z]	mm	[0] [0] [-18,27]	[0] [0] [-28,4]	[0] [0] [-38,54]	[0] [0] [-48,6]
Inertia @ COG [I _{xx}] [I _{yy}] [I _{zz}]	[Kg-mm ²]	[21,11] [21,11] [4,32]	[49,48] [49,48] [6,41]	[98] [98] [8,5]	[172,5] [172,5] [10,57]
Length [L]:	mm	40	60	80	100



(general unit dimensions and specifications shown apply to all models)

TE-25XXX Extension Arm Kit Components

Part #	Item	Description	Quantity
TE-25040	1	Multi-Mount; Ø25 Stem x 40mm	1
	2	SHCS, M6 X 70mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1
TE-25060	1	Multi-Mount; Ø25 Stem x 60mm	1
	2	SHCS, M6 X 90mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1
TE-25080	1	Multi-Mount; Ø25 Stem x 80mm	1
	2	SHCS, M6 x 110mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1
TE-25100	1	Multi-Mount; Ø25 Stem x 100mm	1
	2	SHCS, M6 x 130mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1



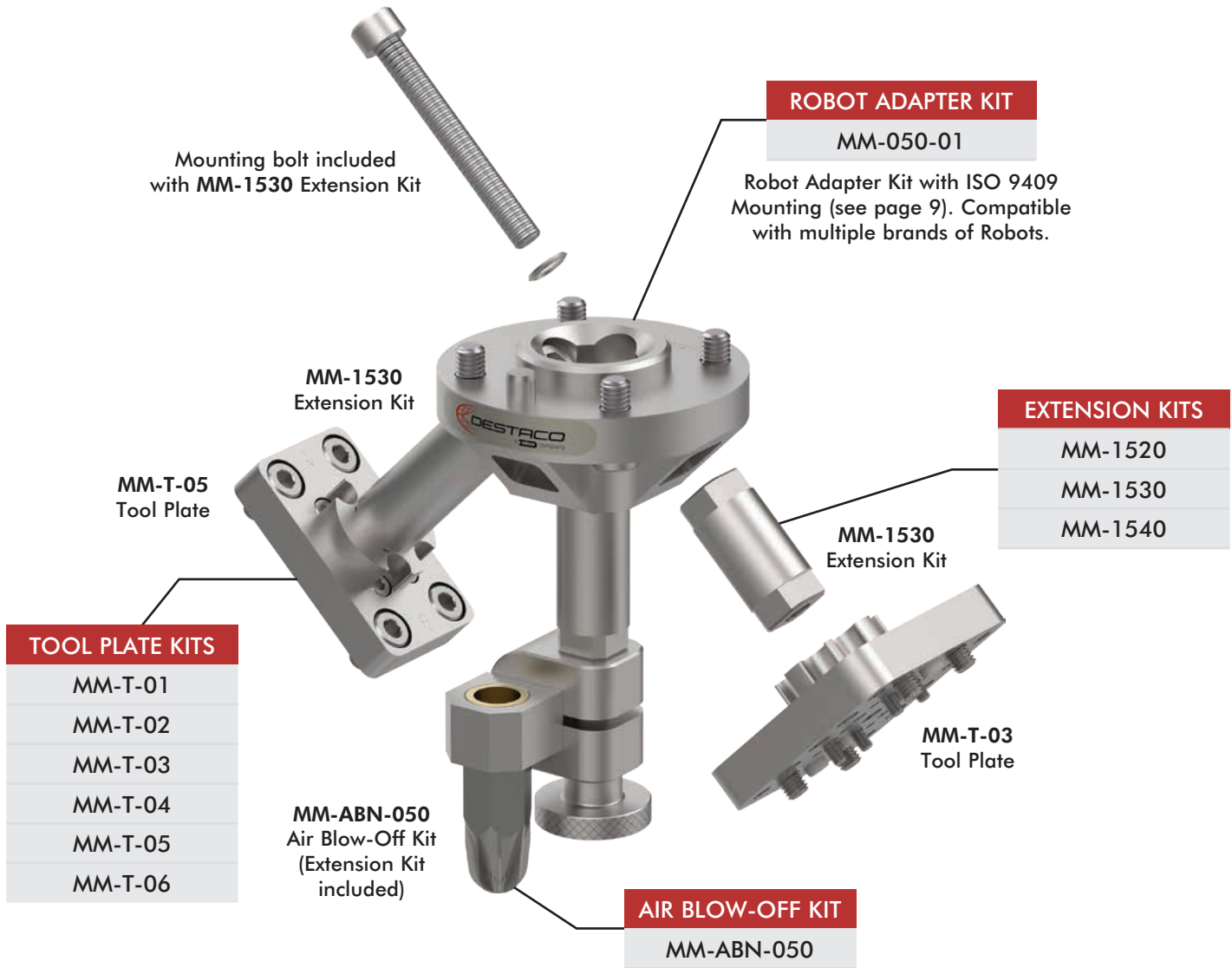
All hardware and tools are provided in the kit

MULTI-MOUNT ROBOT SOLUTIONS

Machine Tending | Ordering Information



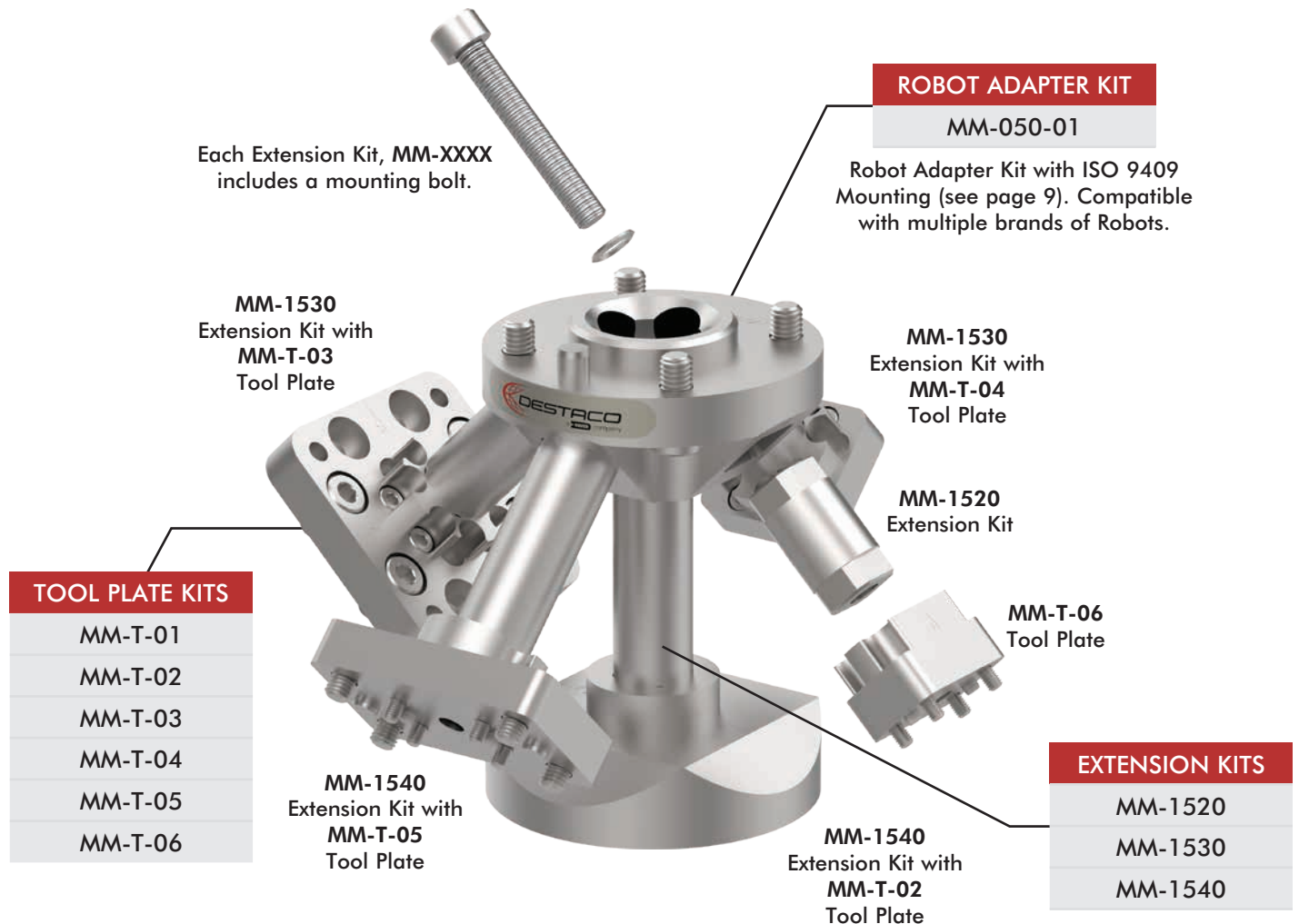
Multi-Mount Machine Tending Kits are ordered separately and assembled with tools, hardware & instructions supplied. A complete machine tending end effector requires 5 kits comprised of a Robot Adaptor Kit, 2 Extension Kits, 2 Tool Plate Kits and an optional air blowoff nozzle. Grippers or other 3rd part tools are mounted to the tool plates with supplied hardware and tools.



How To Order: (Example for above configured product)

Order #	Description	Qty:	Page
MM-050-01	Robot Adapter Kit	1	9
MM-1530	Extension Kit	2	10
MM-T-03	Tool Plate Kit	1	11
MM-T-05	Tool Plate Kit	1	11
MM-ABN-050	Air Blow-Off Kit	1	17

Multi-Mount Tool Array Kits are ordered separately and assembled using included hardware and tools. A complete tool array end effector requires several kits comprised of a single Robot Adaptor Kit, 2 or more Extension Kits and 2 or more Tool Plate Kits. Grippers and other 3rd party tools are mounted to the tool plates.



How To Order: (Example for above configured product)

Order #	Description	Qty:	Page
MM-050-01	Robot Adapter Kit	1	9
MM-1520	Extension Kit	1	10
MM-1530	Extension Kit	2	10
MM-1540	Extension Kit	2	10
MM-T-02	Tool Plate Kit	1	11
MM-T-03	Tool Plate Kit	1	11
MM-T-04	Tool Plate Kit	1	11
MM-T-05	Tool Plate Kit	1	11
MM-T-06	Tool Plate Kit	1	11

MULTI-MOUNT ROBOT SOLUTIONS

Robot Adapter Kit | Dimensions and Specifications



MM-050-01 Robot Adapter Kit for Machine Tending and Tool Array Solutions

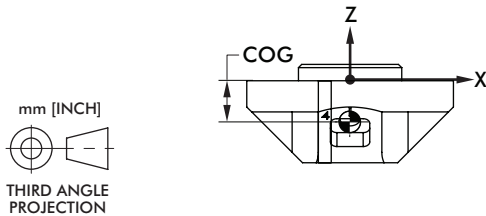
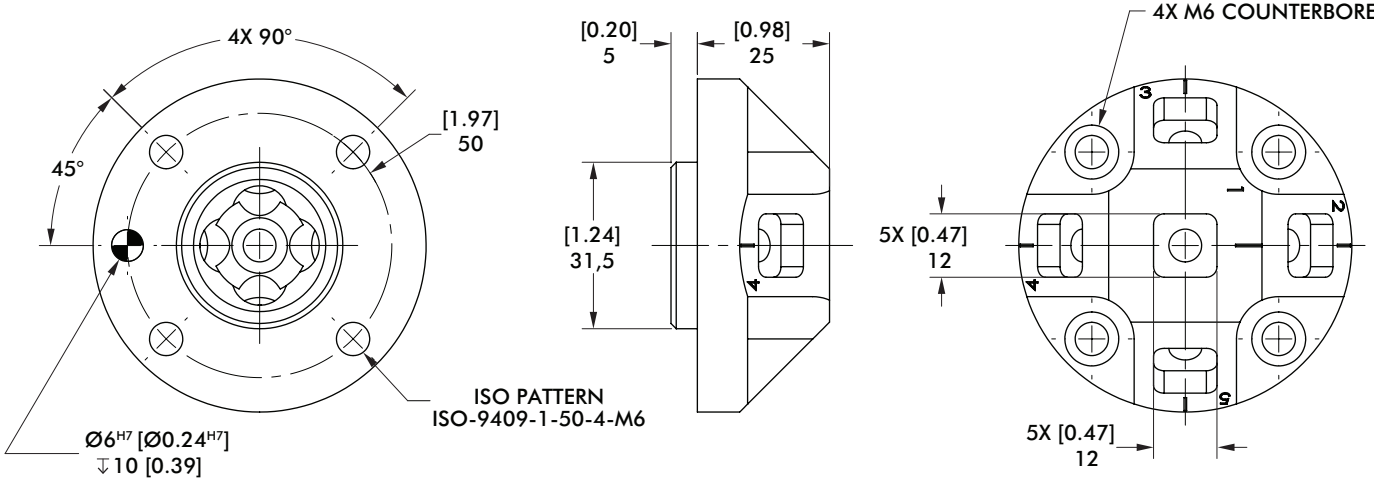
Robot Side



Tooling Side



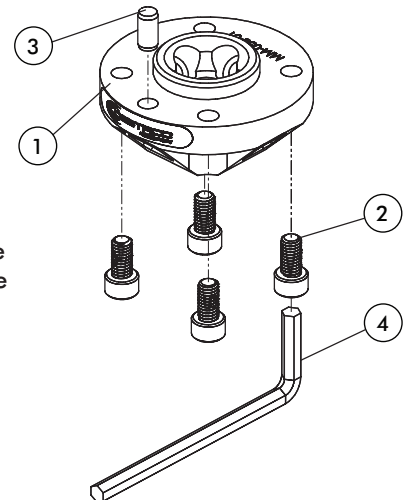
Fasteners, dowel pins included.



Specifications:	Units	MM-050-01
Weight:	Kg [lb]	0,14 [0.31]
Material:		Aluminum
Center of Gravity (COG) [X] [Y] [Z]	mm	[0] [0] [-8,4]
Moment of Inertia @ COG -I _{xx}	[Kg-mm ²]	37,6
Moment of Inertia @ COG -I _{yy}	[Kg-mm ²]	36,21
Moment of Inertia @ COG -I _{zz}	[Kg-mm ²]	60,5

MM-050-01 Robot Adapter Kit Components

Item	Description	Quantity
1	Multi-Mount: ISO 50 Master Base	1
2	SHCS, M6 x 12mm, Stainless, Patchlock	4
3	Dowel Pin, Ø6mm x 12mm, Stainless, 316	1
4	Wrench, Allen, 5mm Hex	1



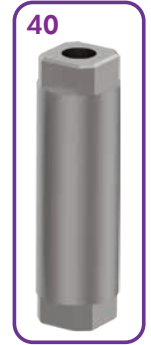
All hardware and tools are provided in the kit

MM-15XX Extension Kit for Machine Tending and Tool Array Solutions

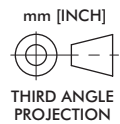
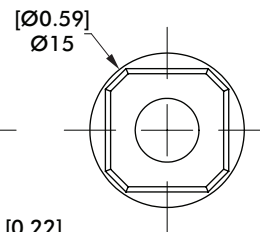
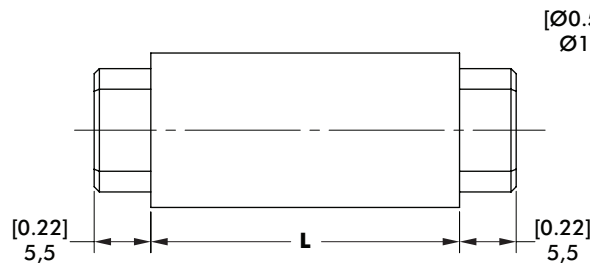
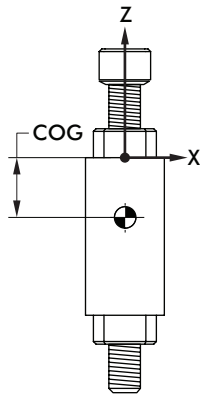
Multi Mount — Size — Extension Length [L]
MM — **15** — **XX**



MM1530
Extension Kit
Shown



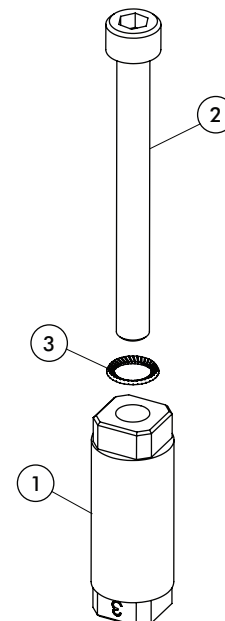
Specifications:	Units	MM-1520	MM-1530	MM-1540
Weight:	Kg [lb]	0,25 [0.05]	0,31 [0.06]	0,37 [0,08]
Material:		Aluminum	Aluminum	Aluminum
Centre of Gravity [X] [Y] [Z]	mm	[0] [0] [-6,41]	[0] [0] [-11,6]	[0] [0] [-16,7]
Inertia @ COG [Ixx] [Iyy] [Izz]	[Kg-mm ²]	[5,46] [5,46] [0,44]	[13,46] [13,46] [0,58]	[14,6] [14,6] [0,72]
Length [L]:	mm [in]	20 [0.79]	30 [1.18]	40 [1.57]



(general unit dimensions and specifications shown apply to all models)

MM-15XX Extension Kit Components

Part #	Item	Description	Quantity
MM-1520	1	Multi-Mount; Ø15 Stem x 20mm	1
	2	SHCS, M6 X 50mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1
MM-1530	1	Multi-Mount; Ø15 Stem x 30mm	1
	2	SHCS, M6 x 60mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1
MM-1540	1	Multi-Mount; Ø15 Stem x 40mm	1
	2	SHCS, M6 x 70mm, Stainless	1
	3	Belleville Spring Lock Washer, 1/4" & M6	1



All hardware
and tools are
provided in
the kit

MULTI-MOUNT ROBOT SOLUTIONS

Tool Plate Kits | Ordering Information and Specifications

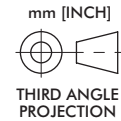
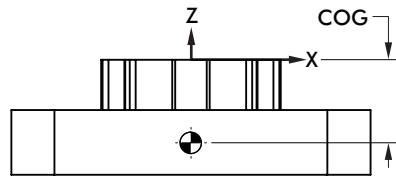


MM-T-XX Tool Plate Kits

for Tool Extenders,
Machine Tending and
Tool Array Solutions



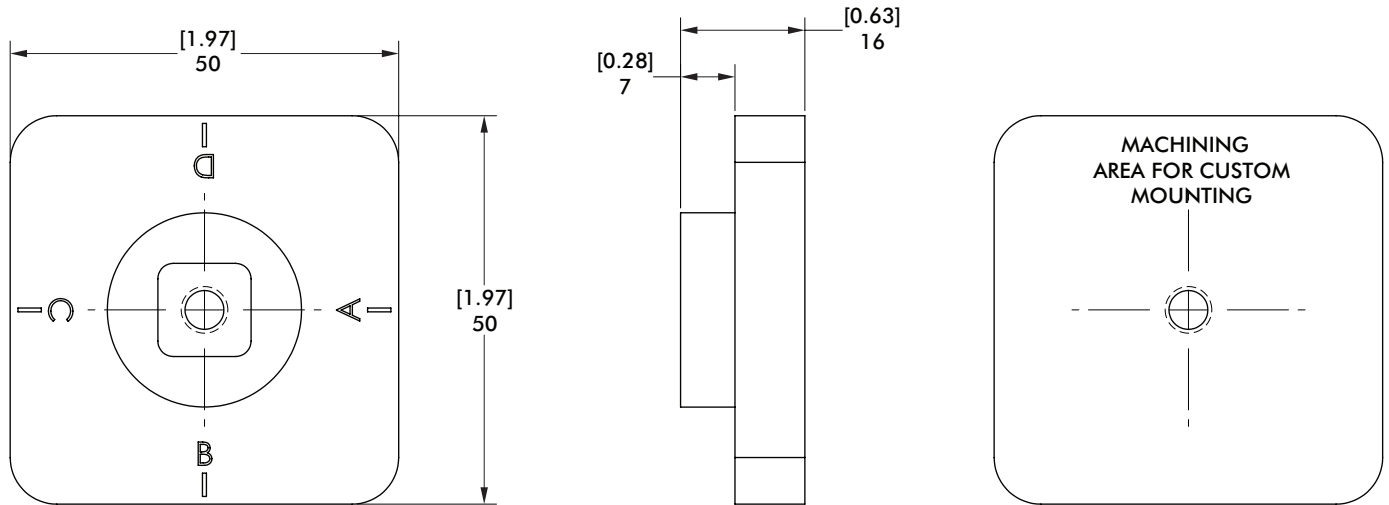
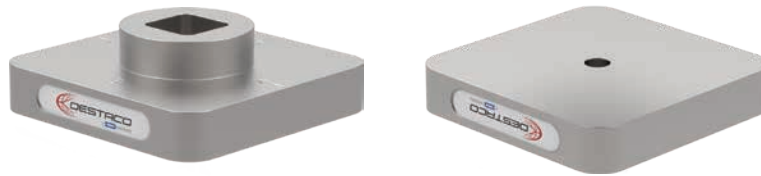
Fasteners, dowel pins
& tools included.



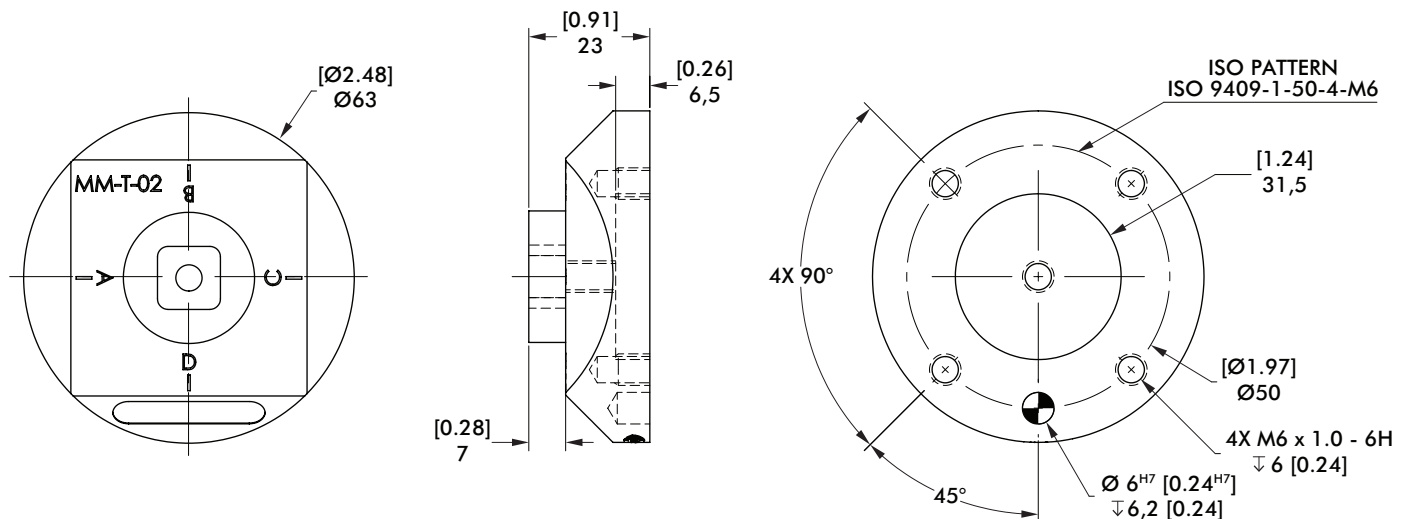
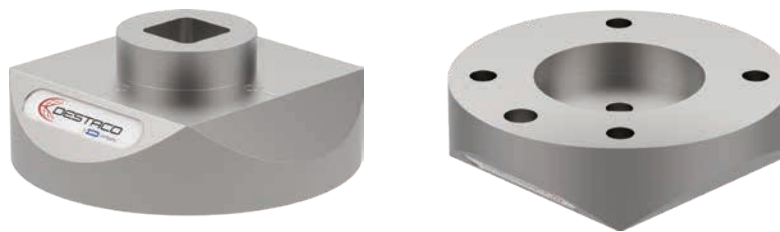
Specifications:	Units	MM-T-01	MM-T-02	MM-T-03	MM-T-04	MM-T-05	MM-T-06
Weight:	Kg [lb]	0,07 [0.15]	0,11 [0.24]	0,06 [0.14]	0,021 [0.046]	0,051 [0.11]	0,02 [0.04]
Material:		Aluminum					
Center of Gravity (COG) [X] [Y] [Z]	mm	[0] [0] [-10,7]	[0] [0] [-14,21]	[0] [0] [-11,5]	[0] [0] [-10,62]	[0] [0] [-11,1]	[0] [0] [-10,2]
Moment of Inertia @ COG [I _{xx}]	[Kg-mm ²]	13,38	30,57	15,23	1,72	4,36	0,78
Moment of Inertia @ COG [I _{yy}]	[Kg-mm ²]	13,38	30,25	11,02	1,42	11,56	1,38
Moment of Inertia @ COG [I _{zz}]	[Kg-mm ²]	25,13	54,96	24,83	2,45	14,46	1,54

MM-T-01 Tool Plate for Tool Extenders, Machine Tending and Tool Array Solutions

mm [INCH]
THIRD ANGLE PROJECTION



MM-T-02 Tool Plate for Tool Extenders, Machine Tending and Tool Array Solutions

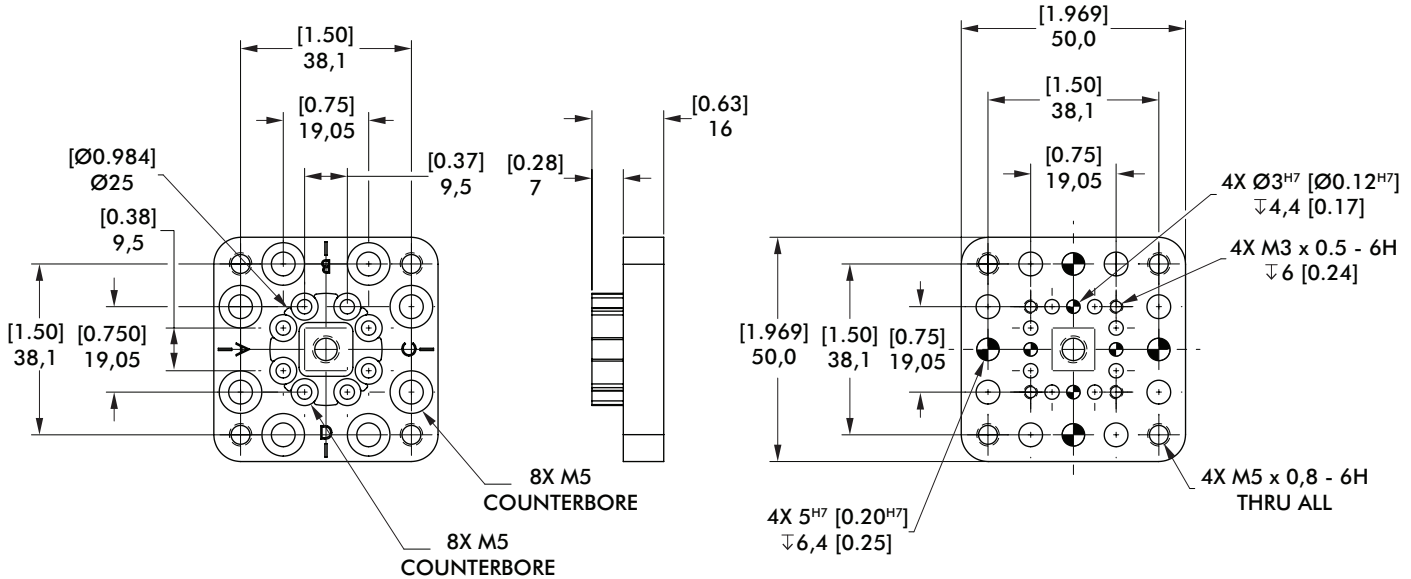
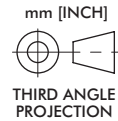


MULTI-MOUNT ROBOT SOLUTIONS

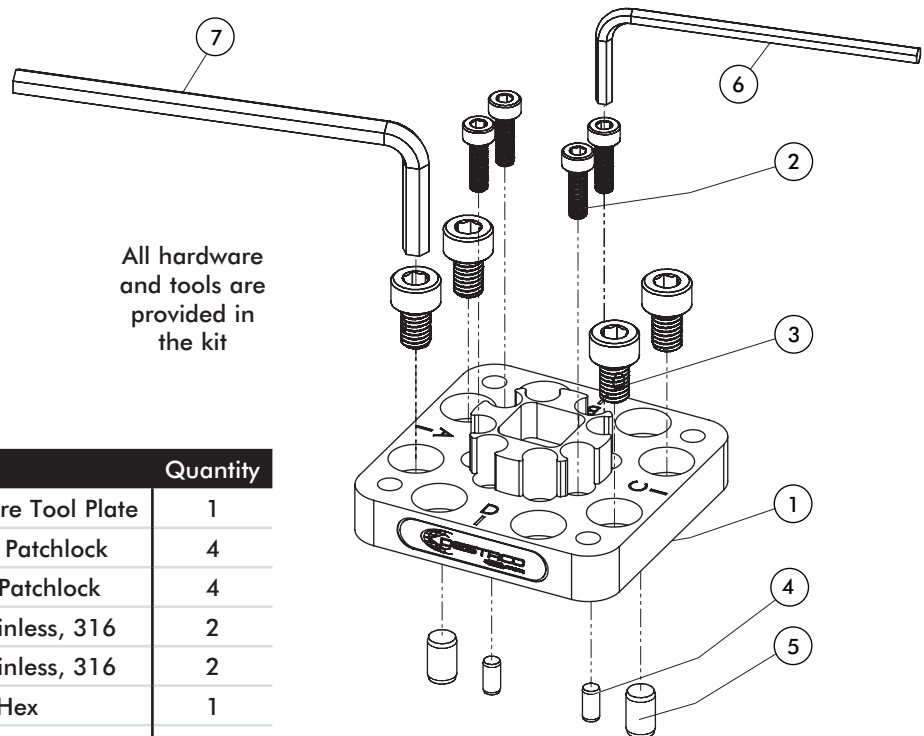


Tool Plate Kits | Dimensions

MM-T-03 Tool Plate
for Tool Extenders,
Machine Tending and
Tool Array Solutions



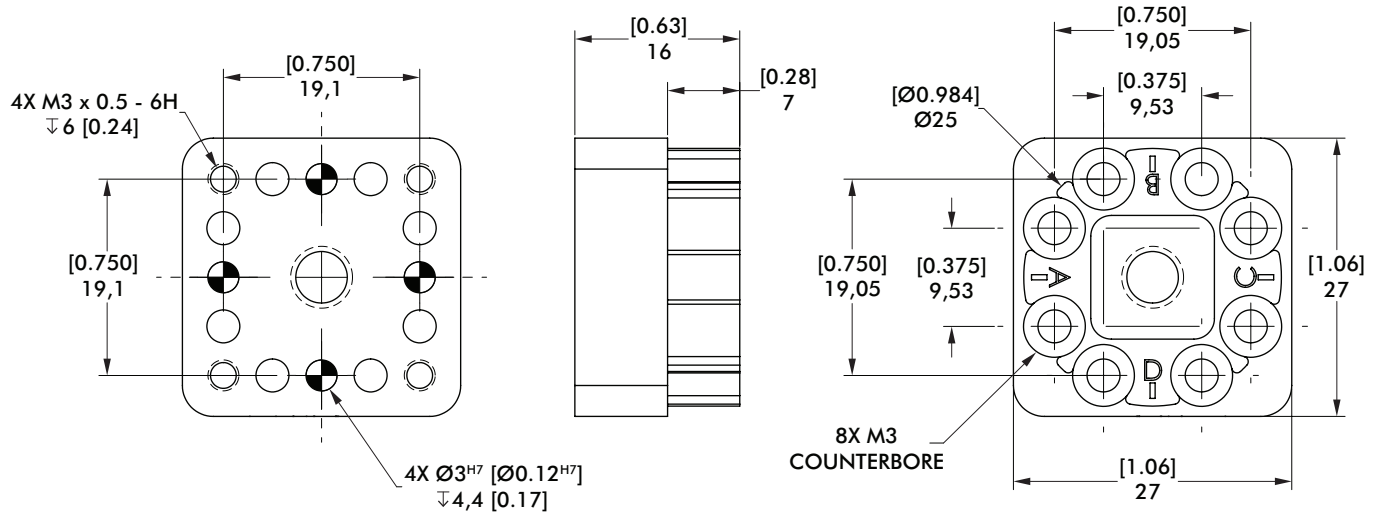
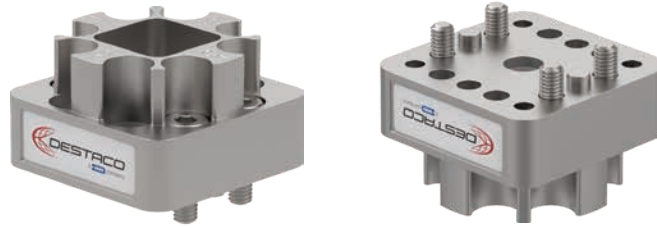
MM-T-03 Tool Plate Kit Components



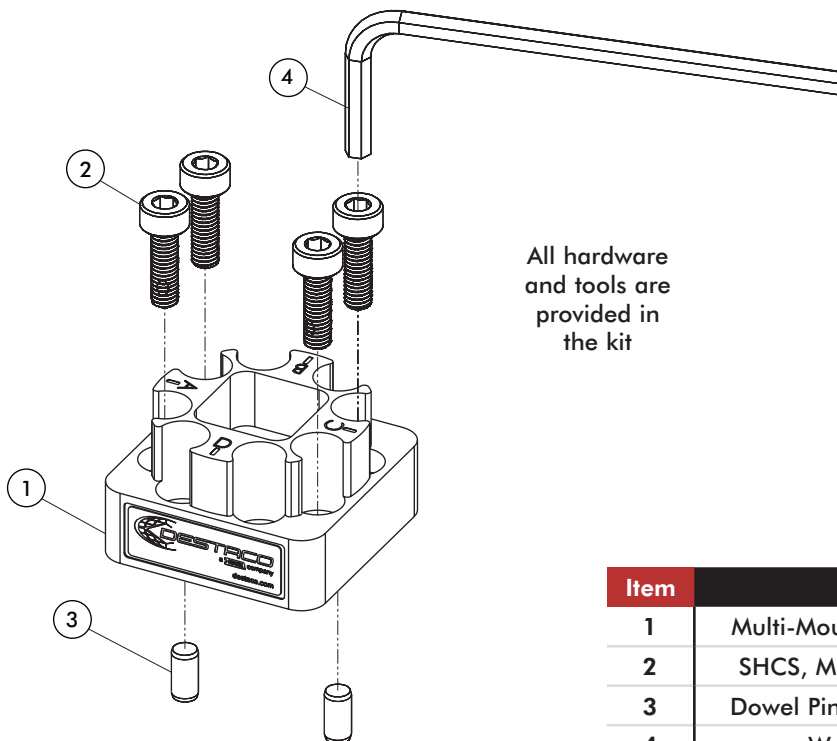
Item	Description	Quantity
1	Multi-Mount; 3 & 5mm DC Square Tool Plate	1
2	SHCS, M3 x 10mm, Stainless, Patchlock	4
3	SHCS, M5 x 8mm, Stainless, Patchlock	4
4	Dowel Pin, Ø3mm x 6mm, Stainless, 316	2
5	Dowel Pin, Ø5mm x 8mm, Stainless, 316	2
6	Wrench, Allen, 2,5mm Hex	1
7	Wrench, Allen, 4mm Hex	1

MM-T-04 Tool Plate for Tool Extenders, Machine Tending and Tool Array Solutions

mm [INCH]
THIRD ANGLE
PROJECTION



MM-T-04 Tool Plate Kit Components



All hardware
and tools are
provided in
the kit

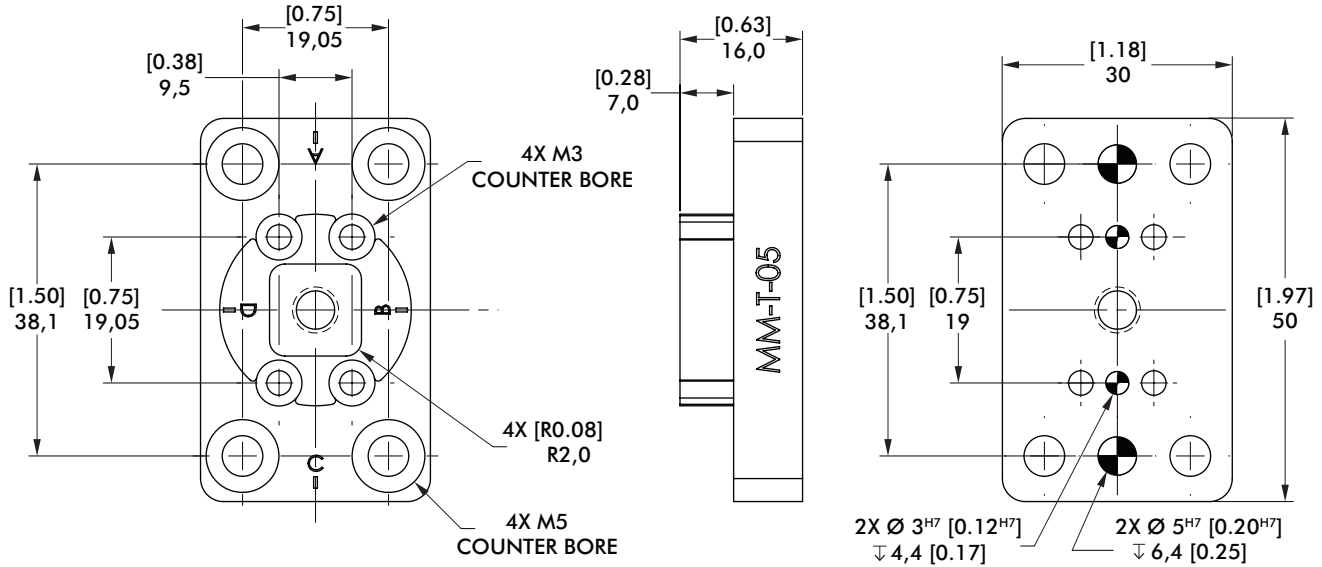
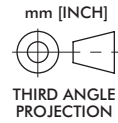
Item	Description	Quantity
1	Multi-Mount; 3mm DC Square Tool Plate	1
2	SHCS, M3 x 10mm, Stainless, Patchlock	4
3	Dowel Pin, Ø3mm x 6mm, Stainless, 316	2
4	Wrench, Allen, 2,5mm Hex	1

MULTI-MOUNT ROBOT SOLUTIONS

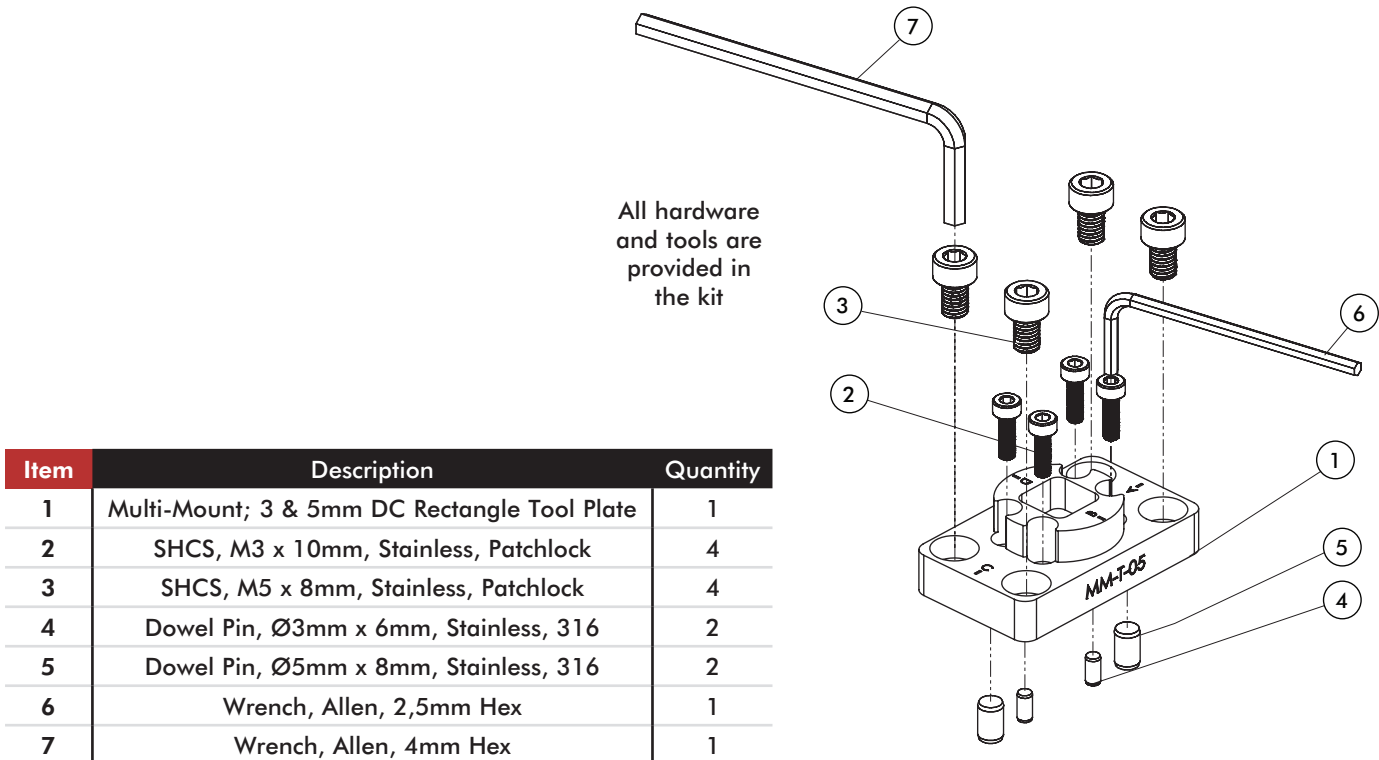


Tool Plate Kits | Dimensions

MM-T-05 Tool Plate
for Tool Extenders,
Machine Tending and
Tool Array Solutions



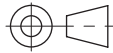
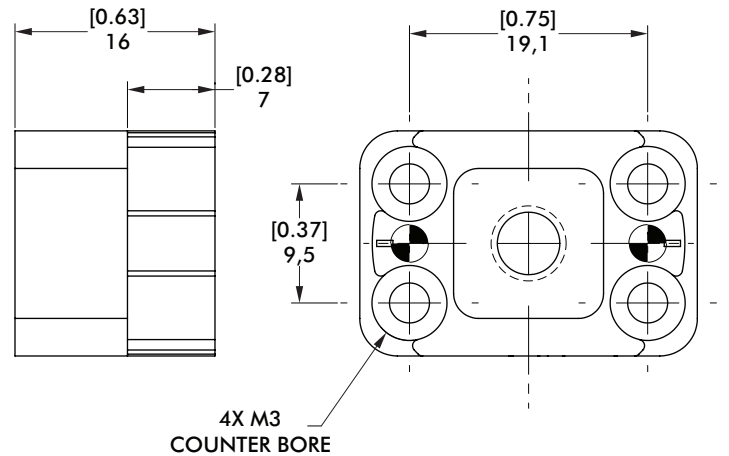
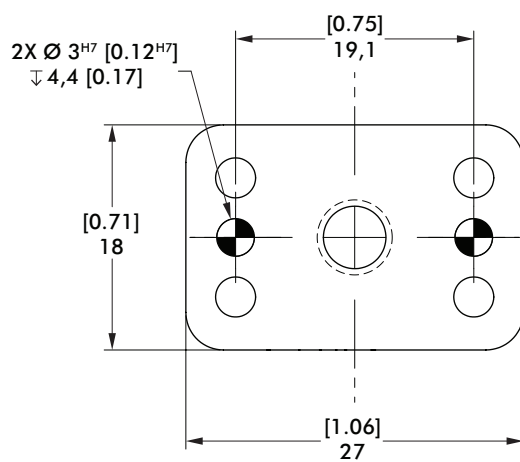
MM-T-05 Tool Plate Kit Components



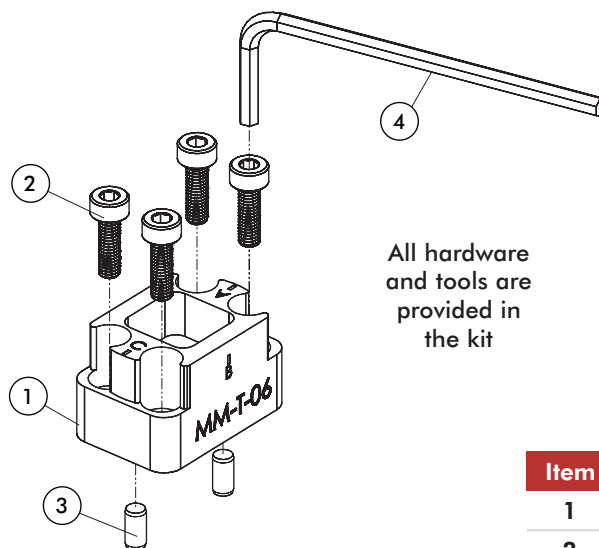
Item	Description	Quantity
1	Multi-Mount; 3 & 5mm DC Rectangle Tool Plate	1
2	SHCS, M3 x 10mm, Stainless, Patchlock	4
3	SHCS, M5 x 8mm, Stainless, Patchlock	4
4	Dowel Pin, Ø3mm x 6mm, Stainless, 316	2
5	Dowel Pin, Ø5mm x 8mm, Stainless, 316	2
6	Wrench, Allen, 2,5mm Hex	1
7	Wrench, Allen, 4mm Hex	1

MM-T-06 Tool Plate for Tool Extenders, Machine Tending and Tool Array Solutions

mm [INCH]
THIRD ANGLE PROJECTION

MM-T-06 Tool Plate Kit Components



All hardware
and tools are
provided in
the kit

Item	Description	Quantity
1	Multi-Mount; 3mm DC Rectangle Tool Plate	1
2	SHCS, M3 x 10mm, Stainless, Patchlock	4
3	Dowel Pin, Ø3mm x 6mm, Stainless, 316	2
4	Wrench, Allen, 2,5mm Hex	1

MULTI-MOUNT ROBOT SOLUTIONS



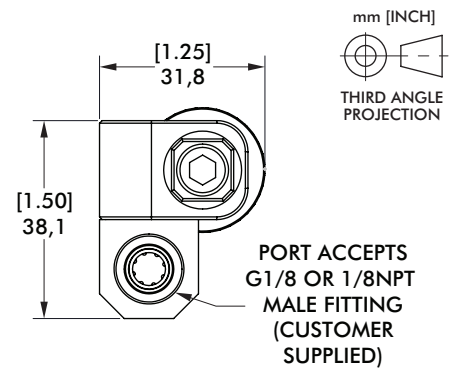
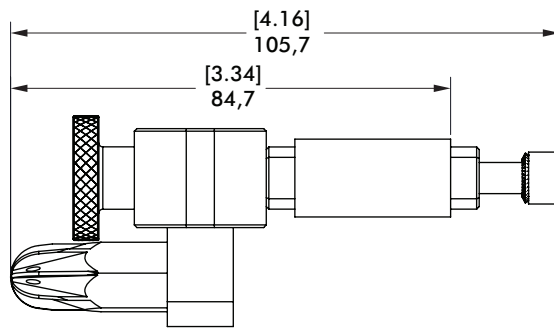
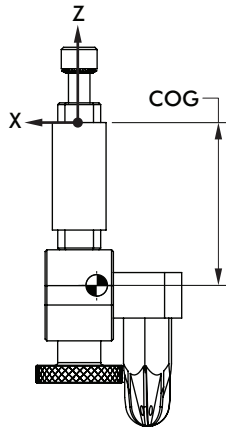
Air Blow-Off Kits | Dimensions and Specifications

MM-ABN-050 Air Blow-Off for Machine Tending Solutions



Specification	Units	MM-ABN-050
Weight:	Kg [lb]	0,12 [0.26]
Centre of Gravity [X] [Y] [Z]	mm	[4,7] [4,01] [-45,01]
Minimum Operating Pressure	bar [psi]	2 [29]
Maximum Operating Pressure	bar [psi]	7 [101.5]
Moment of Inertia @ COG -I _{xx}	[Kg-mm ²]	72,8
Moment of Inertia @ COG -I _{yy}	[Kg-mm ²]	77,6
Moment of Inertia @ COG -I _{zz}	[Kg-mm ²]	16
Air Consumption at 7 Bar [100 PSI]	l/min [cfm]	350 [12]
Sound Volume	dB	71
Max Temperature	C [F]	120 [250]

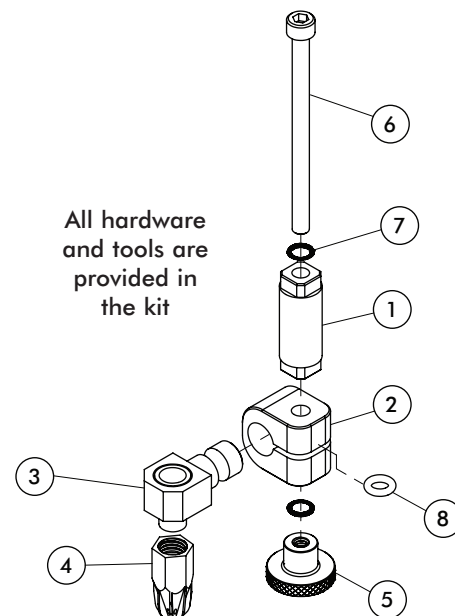
OSHA Compliant 29 CFR 1910.242,
OSHA Compliant 29 CFR 1910.95



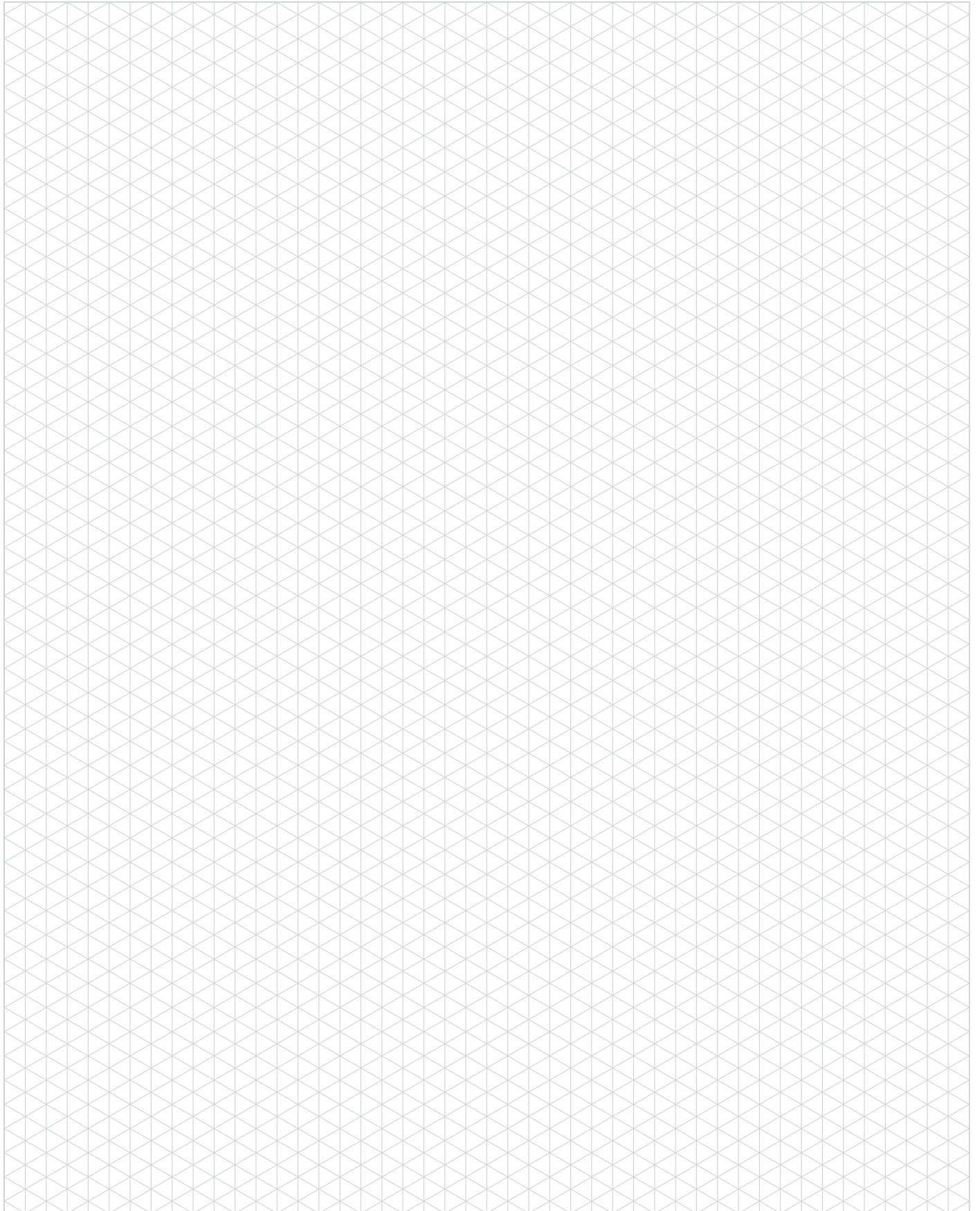
(general unit dimensions and specification shown)

MM-ABN-050 Air Blow-Off Components

Item	Description	Quantity
1	Multi-Mount; Ø15 Stem x 30mm	1
2	Micro Swivel Arm End 1/2" Dia	1
3	Port Only Adapter w/Insert	1
4	Air Nozzel 1/8" NPT Female	1
5	Knurled-Head Thumb Nut M6 x 1 18-8 Stainless Steel	1
6	SHCS, M6 x 85mm, Stainless	1
7	Belleville Spring Lock Washer, 1/4" & M6	2
8	O-Ring AS 568A-108 3/32" x 1/4" ID	1



All hardware
and tools are
provided in
the kit



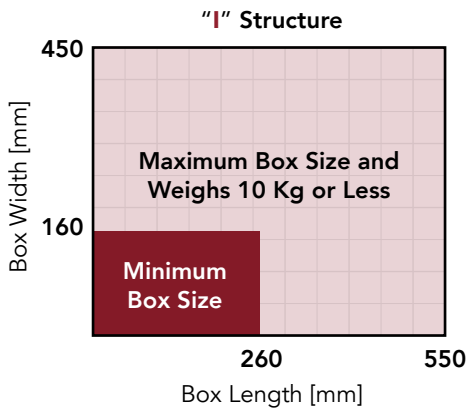
MICROTOOL PALLETIZING END EFFECTORS



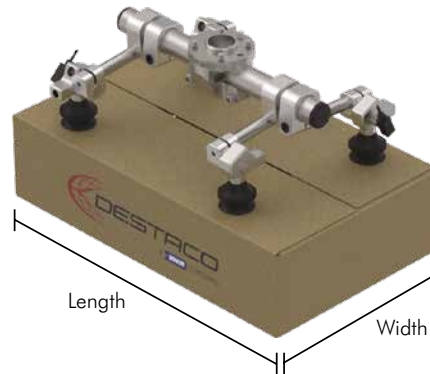
Palletization Tooling Selection

Microtool Palletizing End Effectors use an H and I structure to palletize boxes for Robots with a payload capacity up to 10Kg. The compatible "H" and "I" structure is determined by the box dimensions supported for each. Weight of the boxes is already considered within the 10Kg max payload.

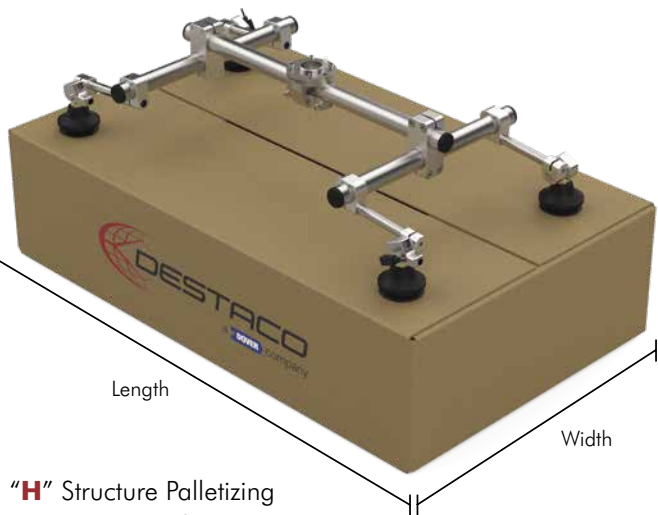
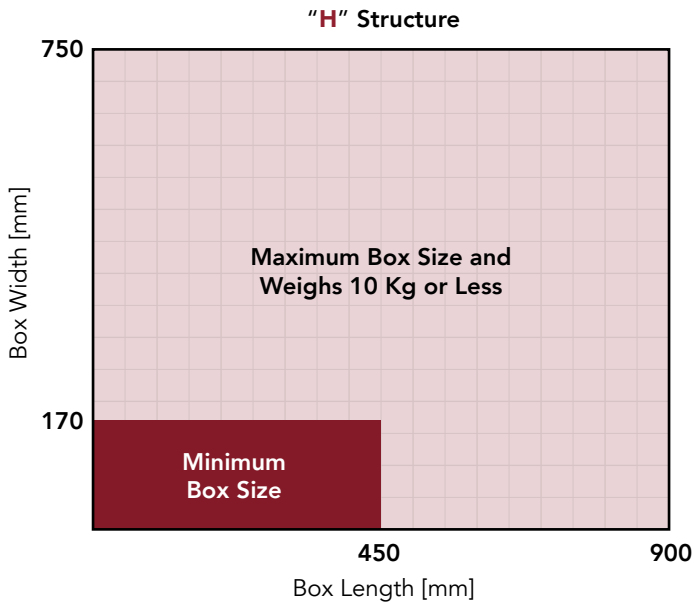
I-Structure Small to Medium Boxes <10kg



"I" Structure Palletizing
Box Length
260mm to 550mm
Box Width
160mm to 450mm



H-Structure Medium to Large Boxes <10kg



"H" Structure Palletizing
Box Length
450mm to 900mm
Box Width
170mm to 750mm

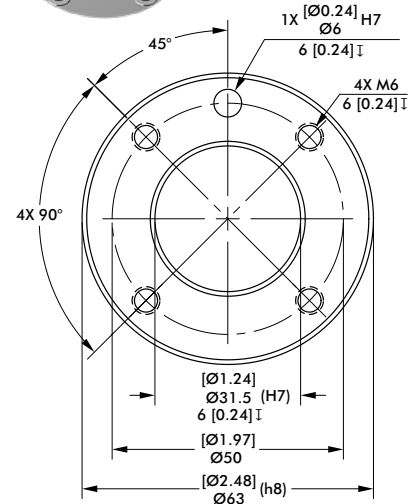
Contact DESTACO for additional Palletizing Solutions

MICROTOOL PALLETIZING END EFFECTORS

Compatibility Chart

CA-050-01 Robot Mounting Compatibility

Robot Manufacturer	Model
GENERIC	Any model with ISO-9409-1-50-4-M6 Pattern
ABB	CRB 15000
AUBO	I3, I5, I7, I10
DOBOT	CR - 5
Doosan Robotics	M0609, M1509, M1013, M0617
ESI	C-7, C-15
F&P PERSONAL ROBOTICS	P-ROB 2R-24V, 48V
FRANKA EMIKA	PANDA
HAN'S ROBOTS	ELFIN 3, 5, 10
HANWHA PRECISION MACHINERY	HCR-3, 5, 12
JAKA/KUNLIN	ZU 7, 12
KAWADA INDUSTRIES	NEXTAGE
KUKA	LBR iiwa 7 R800, LBR iiwa 14 R820
MODBOT	Robot, SCARA
Omron TM	TM 5 - 700, TM 5 - 900, TM 12, TM 14
RAINBOW ROBOTICS	RB5
REIS	RV10-6, RV20-6
ROZUM	PULSE 75, 90
SIASUN	GCR5, GCR14, GCR20, SCR3, SCR5
STAUBLI	TX2 90, TX2 TOUCH 90, TX2 TOUCH 90L, TX2 TOUCH 90XL
TECHMAN	TM5M-700, TM5M-900, TM12M, TM14M
UNIVERSAL ROBOTS	UR3, UR5, UR10, UR16



ISO-9409-1-50-4-M6
Robot Mounting Pattern



"I" Structure for
Small to Medium Boxes



"H" Structure for
Medium to Large Boxes

MICROTOOL PALLETIZING END EFFECTORS

"I" Structure for Small to Medium Boxes | Ordering Information



1 ROBOT ADAPTER KIT

▶ CA-050-01

2	Box Length mm	LENGTH TUBE
	260 ~ 270	CPI-PAT-10T-08
	270 ~ 330	CPI-PAT-10T-10
▶	330 ~ 400	CPI-PAT-10T-12
	400 ~ 500	CPI-PAT-10T-14
	500 ~ 550	CPI-PAT-10T-16

3	Box Width mm	VACUUM ARMS
	160 ~ 170	VAA-200-1050-M18
▶	170 ~ 230	VAA-300-1050-M18
	230 ~ 300	VAA-400-1050-M18
	300 ~ 400	VAA-500-1050-M18
	400 ~ 450	VAA-600-1050-M18

5 SENSORS

▶ 360-VN-3

360-VP-3

4	Box Weight Kg	VACUUM CUPS*
	Up to 3	VC-B20N-18F
▶	3 ~ 5	VC-B30N-18F
	5 ~ 10	VC-B50N-18F

*Use next size cup if package weighs ≤ 3 kg, but length of box ≥ 360 or width of box ≥ 260 .
 Use next size cup if package weighs between 3 to 5kg, but length of box ≥ 450 or width of box ≥ 350 .

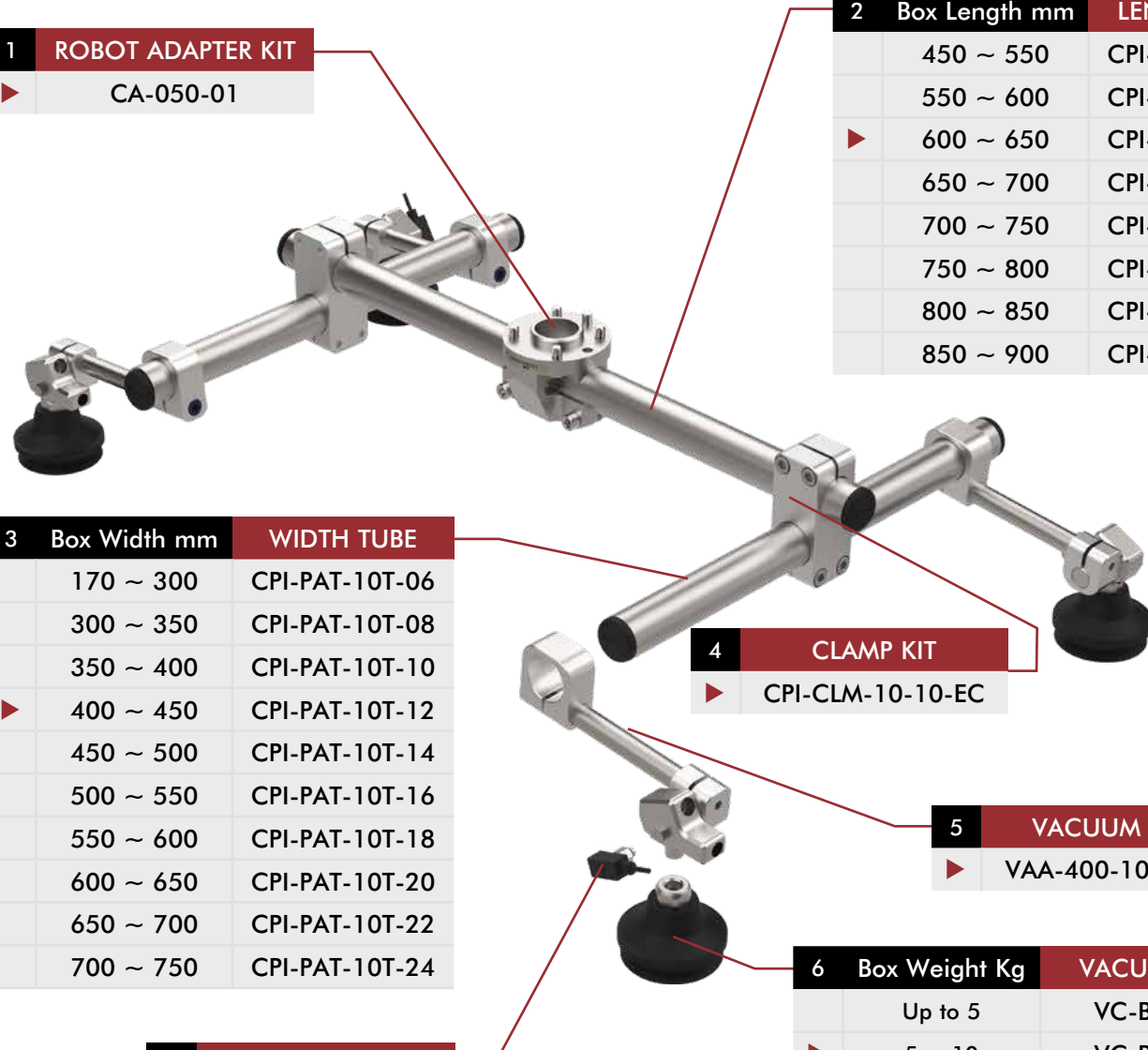
How To Order: (Example for above configured product)

Length of Box (mm) = 400 Width of Box (mm) = 220 Weight of Box (kg) = 6

Order #	Description	Qty	Page
1	CA-050-01	1	5
2	CPI-PAT-10T-12	1	6
3	VAA-300-1050-M18	4	7
4	VC-B30N-18F	4	9
5	360-VN-3	2	10

MICROTOOL PALLETIZING END EFFECTORS

"H" Structure for Medium to Large Boxes | Ordering Information



1 ROBOT ADAPTER KIT
▶ CA-050-01

2	Box Length mm	LENGTH TUBE
	450 ~ 550	CPI-PAT-10T-10
	550 ~ 600	CPI-PAT-10T-12
▶	600 ~ 650	CPI-PAT-10T-14
	650 ~ 700	CPI-PAT-10T-16
	700 ~ 750	CPI-PAT-10T-18
	750 ~ 800	CPI-PAT-10T-20
	800 ~ 850	CPI-PAT-10T-22
	850 ~ 900	CPI-PAT-10T-24

3	Box Width mm	WIDTH TUBE
	170 ~ 300	CPI-PAT-10T-06
	300 ~ 350	CPI-PAT-10T-08
	350 ~ 400	CPI-PAT-10T-10
▶	400 ~ 450	CPI-PAT-10T-12
	450 ~ 500	CPI-PAT-10T-14
	500 ~ 550	CPI-PAT-10T-16
	550 ~ 600	CPI-PAT-10T-18
	600 ~ 650	CPI-PAT-10T-20
	650 ~ 700	CPI-PAT-10T-22
	700 ~ 750	CPI-PAT-10T-24

4 CLAMP KIT
▶ CPI-CLM-10-10-EC

5 VACUUM ARMS
▶ VAA-400-1050-M18

6	Box Weight Kg	VACUUM CUPS*
	Up to 5	VC-B30N-18F
▶	5 ~ 10	VC-B50N-18F

7 VACUUMSENSORS
▶ 360-VN-3
▶ 360-VP-3

* Use next size cup, If package weighs ≤ 5kg, but length of box ≥ 550 or width of box ≥ 250.

How To Order: (Example for above configured product)

Length of Box (mm) = 600 Width of Box (mm) = 450 Weight of Box (kg) = 8

	Order #	Description	Qty	Page
1	CA-050-01	Robot Adapter Kit	1	5
2	CPI-PAT-10T-14	Length Tube	1	6
3	CPI-PAT-10T-12	Width Tube	2	7
4	CPI-CLM-10-10-EC	Clamp Kit	2	11
5	VAA-400-1050-M18	Vacuum Arms	4	7
6	VC-B50N-18F	Vacuum Cups	4	9
7	360-VP-3	PNP Sensors	2	10

MICROTOOL PALLETIZING END EFFECTORS

Robot Arm Adapter Kit | Ordering Information, Dimensions, Specifications

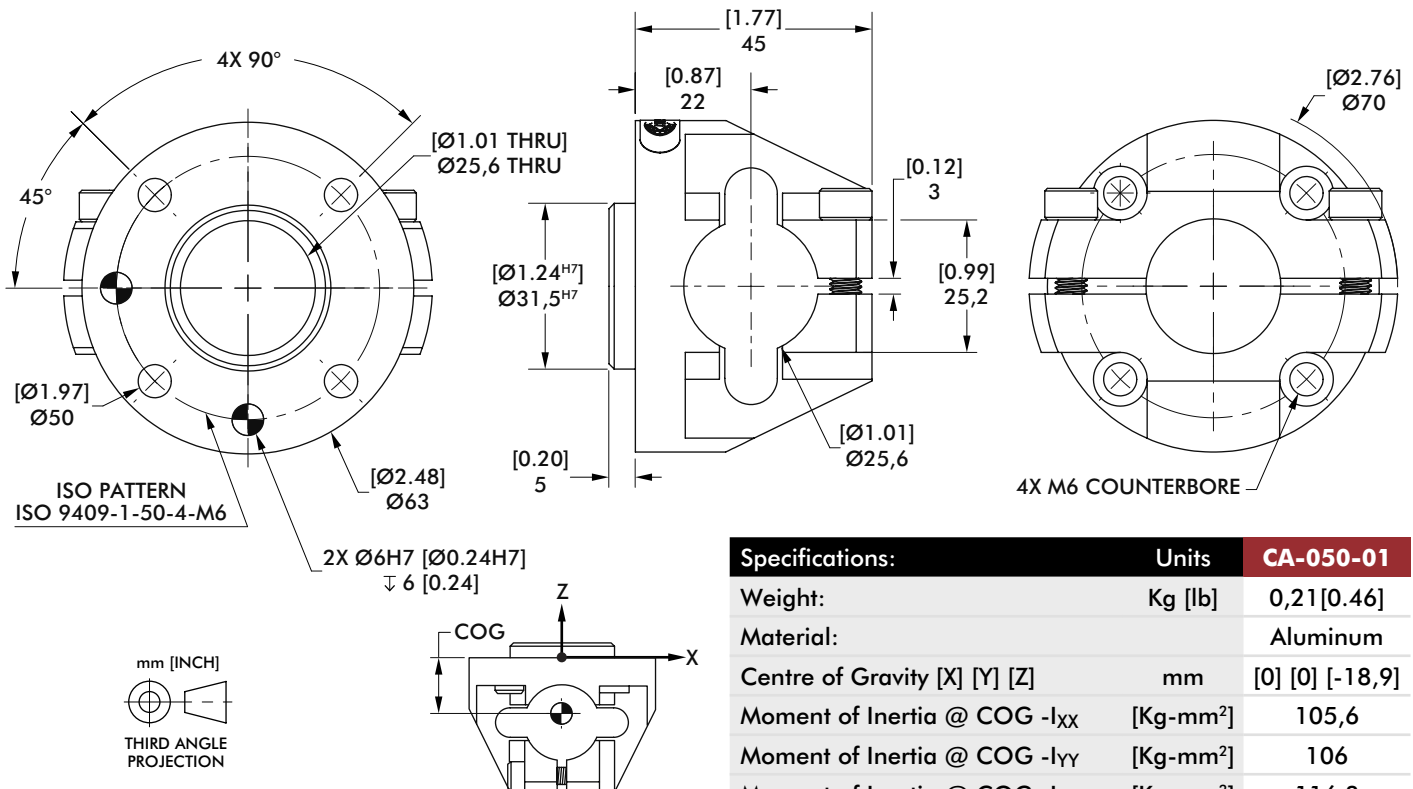


CA-050-01 Robot Adapter Kit



Fasteners, dowel pins included.

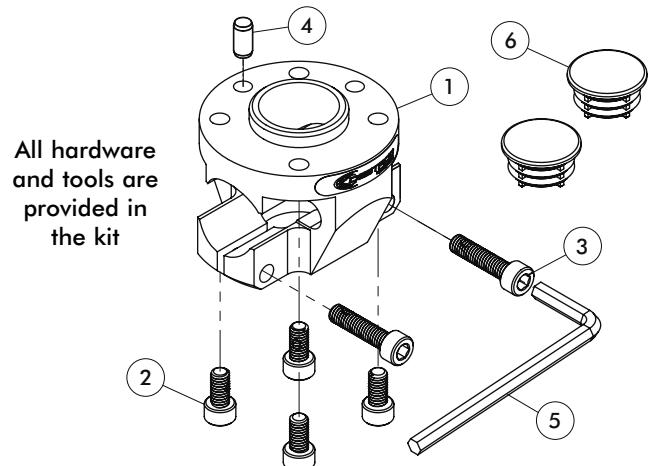
(general unit dimensions and specification shown)



Specifications:	Units	CA-050-01
Weight:	Kg [lb]	0,21[0.46]
Material:		Aluminum
Centre of Gravity [X] [Y] [Z]	mm	[0] [0] [-18,9]
Moment of Inertia @ COG -I _{xx}	[Kg-mm ²]	105,6
Moment of Inertia @ COG -I _{yy}	[Kg-mm ²]	106
Moment of Inertia @ COG -I _{zz}	[Kg-mm ²]	116,3

CA-050-01 Robot Adapter Kit Components

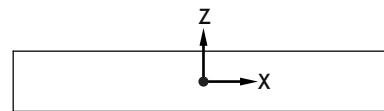
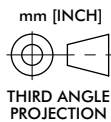
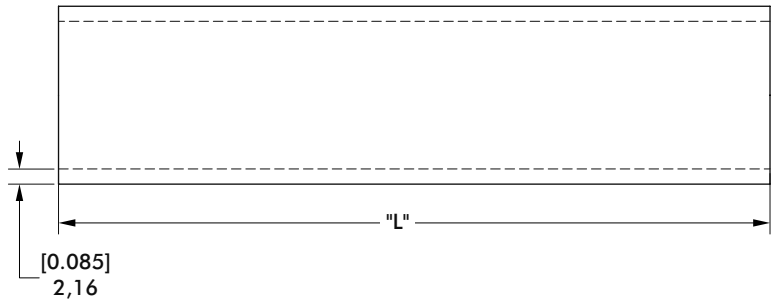
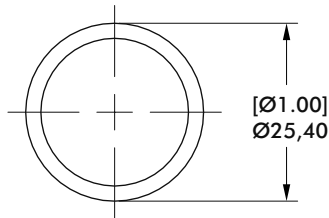
Item	Description	Quantity
1	ISO 50 Compound Adaptor Base	1
2	SHCS, M6 x 12mm, Stainless, Patchlock	4
3	SHCS, M6 x 25mm, Stainless, Patchlock	2
4	Dowel Pin, $\text{Ø}6\text{mm}$ x 12mm, Stainless, 316	1
5	Wrench, Allen, 5mm Hex	1
6	1" Tube End Cap	2



MICROTOOL PALLETIZING END EFFECTORS

Length Tube | Ordering Information, Dimensions, Specifications

Length Tube Series Dia. Length [L]
CPI **PAT** **10T** **XX**



Model	For Structure	Weight Kg [lb]	Material	Centre of Gravity			Moment of Inertia @ COG			Tube Length [L]: mm [In]
				[X]	[Y]	[Z]	I _{xx} [Kg-mm ²]	I _{yy} [Kg-mm ²]	I _{zz} [Kg-mm ²]	
CPI-PAT-10T-06	H	0,06 [0.13]	Aluminum	[0]	[0]	[0]	130	130	8,83	152,4 [6]
CPI-PAT-10T-08	I, H	0,09 [0.2]		[0]	[0]	[0]	303,5	303,5	11,78	203,2 [8]
CPI-PAT-10T-10	I, H	0,11 [0.24]		[0]	[0]	[0]	588,6	588,6	14,72	254 [10]
CPI-PAT-10T-12	I, H	0,13 [0.29]		[0]	[0]	[0]	1013,2	1013,2	17,7	304,8 [12]
CPI-PAT-10T-14	I, H	0,15 [0.33]		[0]	[0]	[0]	1605,2	1605,2	20,61	355,6 [14]
CPI-PAT-10T-16	I, H	0,17 [0.38]		[0]	[0]	[0]	2392,46	2392,46	23,56	406,4 [16]
CPI-PAT-10T-18	H	0,19 [0.42]		[0]	[0]	[0]	3402,93	3402,93	26,5	457,2 [18]
CPI-PAT-10T-20	H	0,22 [0.48]		[0]	[0]	[0]	4664,5	4664,5	29,5	508 [20]
CPI-PAT-10T-22	H	0,24 [0.53]		[0]	[0]	[0]	6205,03	6205,03	32,4	558,8 [22]
CPI-PAT-10T-24	H	0,26 [0.57]		[0]	[0]	[0]	8052,5	8052,5	35,34	609,6 [24]

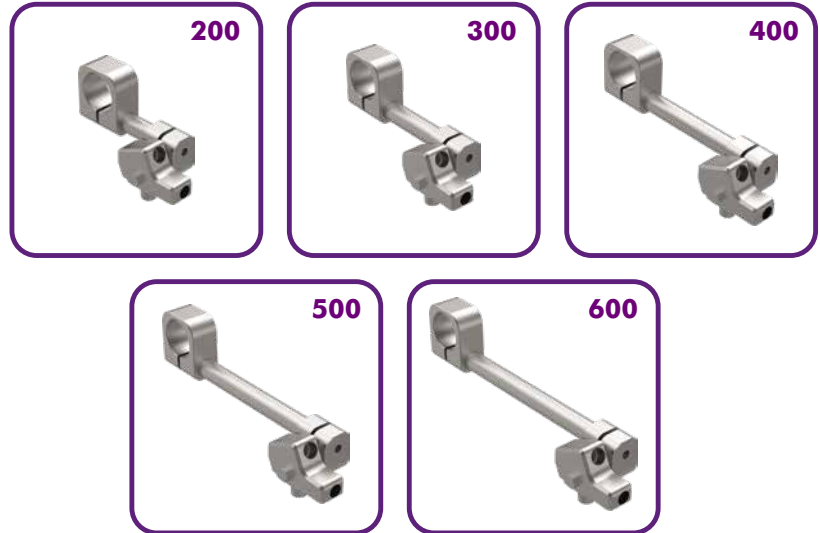
MICROTOOL PALLETIZING END EFFECTORS

Vacuum Arm | Ordering Information, Dimensions, Specifications

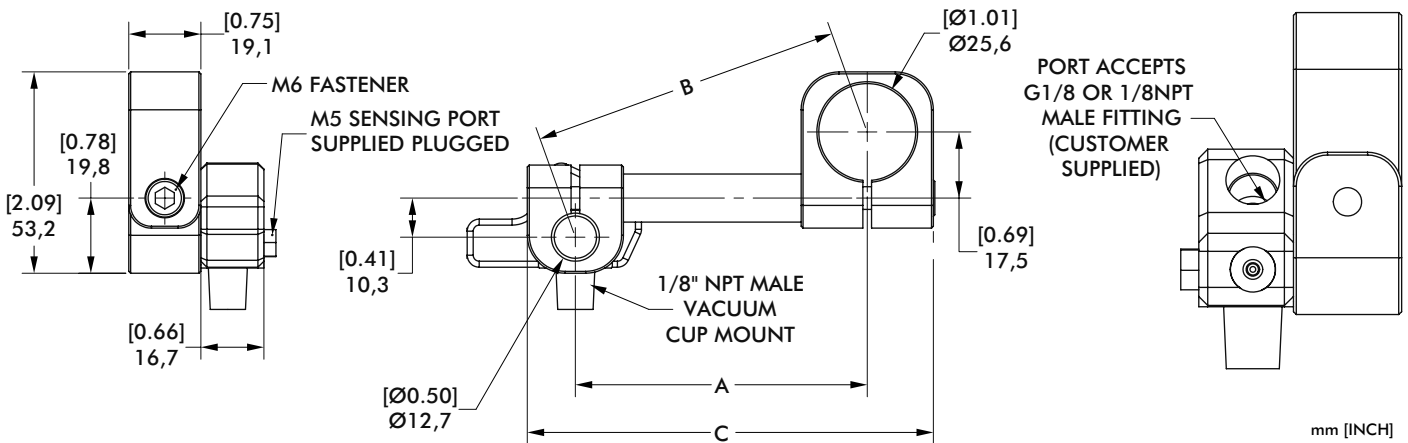


VAA-200-1050-M18
Shown

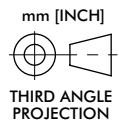
Vacuum Arm Assembly: **VAA** | Model: **XXX** | Tube Size: **1050** | Thread Size: **M18**



Model	For Structure	Weight: Kg [lb]	Material:	Min Operating Pressure: bar [psi]	Max Operating Pressure: bar [psi]	Air Consumption, Vacuum @ 1s: l/m [scfm]
VAA-200-1050-M18	I	0,09 [0.20]	Aluminum	3,4 [50]	5,5 [80]	40 [1.4]
VAA-300-1050-M18	I	0,10 [0.22]				
VAA-400-1050-M18	I, H	0,11 [0.24]				
VAA-500-1050-M18	I	0,12 [0.26]				
VAA-600-1050-M18	I	0,13 [0.28]				



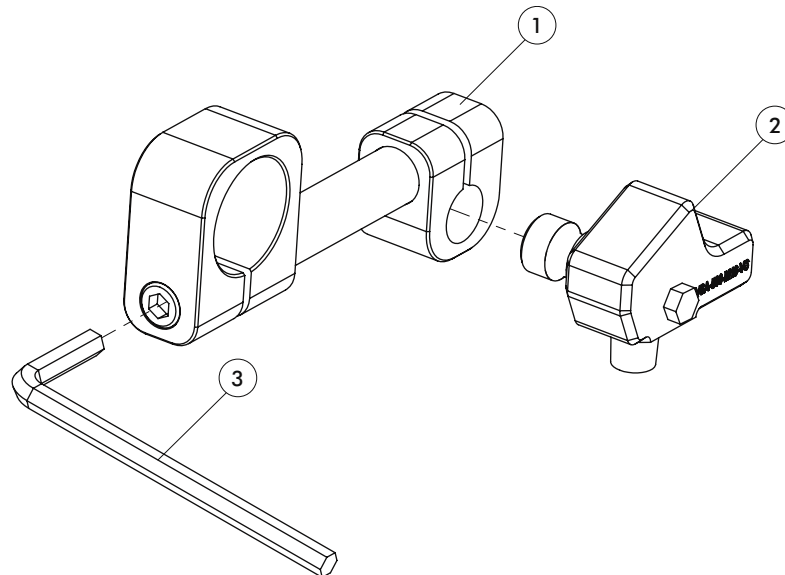
Dimension: mm [in]	VAA-200-1050-M18	VAA-300-1050-M18	VAA-400-1050-M18	VAA-500-1050-M18	VAA-600-1050-M18
A	50,7 [2.00]	76,1 [3.00]	101,6 [4.00]	127,0 [5.00]	152,4 [6.00]
B	56,6 [2.23]	80,2 [3.16]	104,7 [4.12]	129,5 [5.10]	154,4 [6.08]
C	77,7 [3.06]	104,4 [4.11]	129,0 [5.08]	156,0 [6.14]	180,0 [7.09]



MICROTOOL PALLETIZING END EFFECTORS

Vacuum Arm | Ordering Information

Part #	Item	Description	Quantity
VAA-200-1050-M18	1	Swivel Arm; CPI-200-1050-MSA	1
	2	Micro Tooling Venturi; CPI-VSA-500-M18	1
	3	5mm Hex Key Wrench	1
VAA-300-1050-M18	1	Swivel Arm; CPI-300-1050-MSA	1
	2	Micro Tooling Venturi; CPI-VSA-500-M18	1
	3	5mm Hex Key Wrench	1
VAA-400-1050-M18	1	Swivel Arm; CPI-400-1050-MSA	1
	2	Micro Tooling Venturi; CPI-VSA-500-M18	1
	3	5mm Hex Key Wrench	1
VAA-500-1050-M18	1	Swivel Arm; CPI-500-1050-MSA	1
	2	Micro Tooling Venturi; CPI-VSA-500-M18	1
	3	5mm Hex Key Wrench	1
VAA-600-1050-M18	1	Swivel Arm; CPI-600-1050-MSA	1
	2	Micro Tooling Venturi; CPI-VSA-500-M18	1
	3	5mm Hex Key Wrench	1



MICROTOOL PALLETIZING END EFFECTORS

Vacuum Cups | Ordering Information, Dimensions, Specifications



VC-B30N-18F
Shown

Vacuum Cup **VC** - Style **XXXX** - Thread Size **18F**



B20N

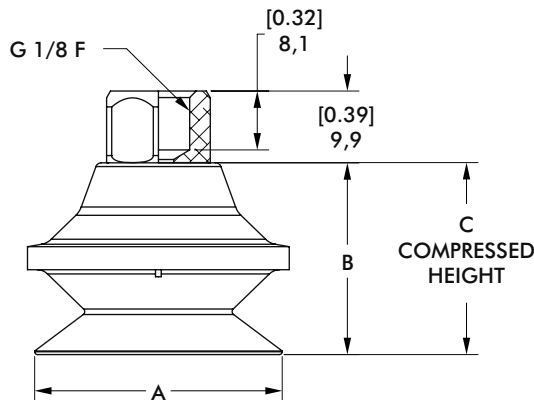
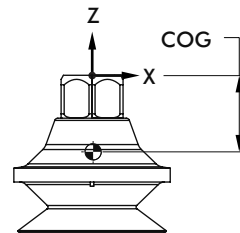
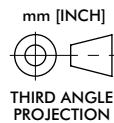
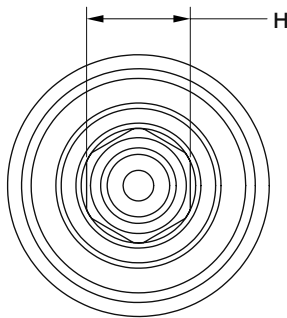


B30N



B50N

Model	For Structure	Weight: gm [oz]	Load: Kg [lb]	Cup Material	Center of Gravity [X] [Y] [Z]: mm	Moment of Inertia @ COG			Duro-meter:	Operating Temp: °C
						I _{xx} [Kg-mm ²]	I _{yy} [Kg-mm ²]	I _{zz} [Kg-mm ²]		
VC-B20N-18F	I	6,2 [0.20]	1,02 [2.25]	Nitrile	[0] [0] [11,2]	0,29	0,46	0,46	A50	-40 to 135
VC-B30N-18F	I, H	11,5 [0.37]	2,21 [4.88]		[0] [0] [17,6]	1,46	1,81	1,81		
VC-B50N-18F	H	30,5 [0.98]	6,63 [14.6]		[0] [0] [20,2]	7	7	7,31		



Application

- Non-porous cardboard
- Dry surfaces
- Moderately flat surfaces
- Moderate compression distance
- Minor misalignments via bellows compliance

Dimensions: mm [in]	VC-B20N-18F	VC-B30N-18F	VC-B50N-18F
A	22,4 [0.88]	34 [1.34]	52,8 [2.08]
B	17,5 [0.69]	26,4 [1.04]	34,5 [1.36]
C	7,6 [0.30]	11,4 [0.45]	14,5 [0.57]
H	14,2 [0.56]	14,2 [0.56]	14,2 [0.56]

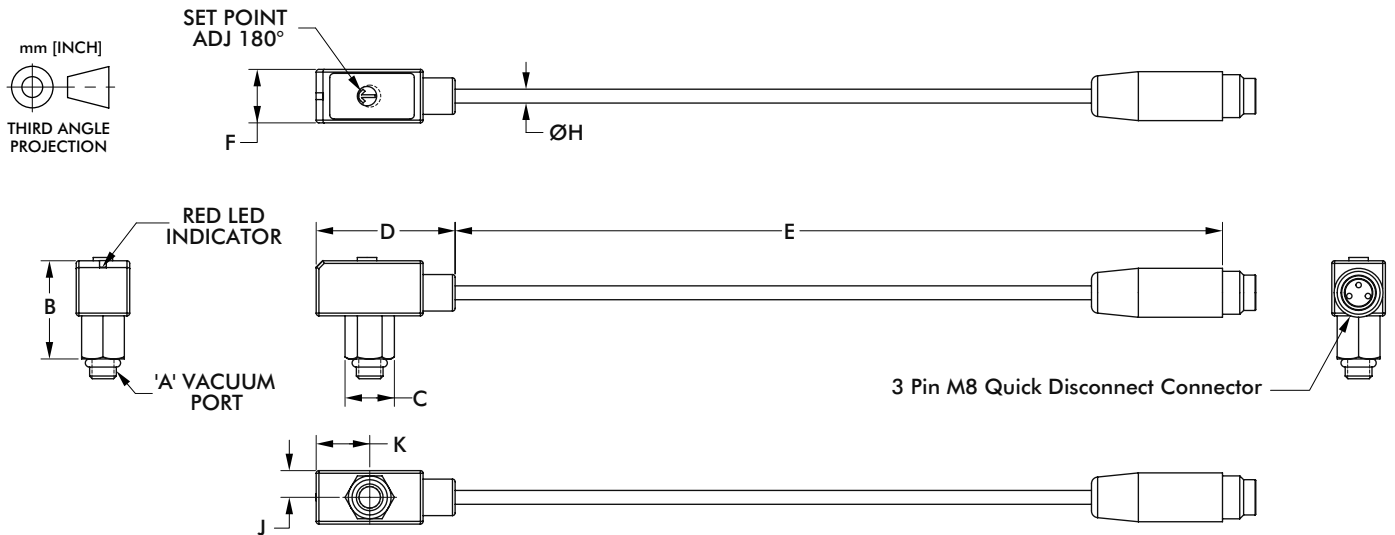
MICROTOOL PALLETIZING END EFFECTORS

Vacuum Sensors | Ordering Information, Dimensions, Specifications

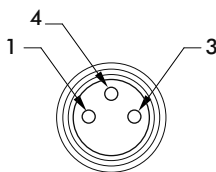


Series 360 - **Sensor Type** XX - **No. of Pins** 3

Part Number	Description
360-VN-3	NPN Vacuum Sensor
360-VP-3	PNP Vacuum Sensor



Part #	A	B	C	D	E	F	H	J	K
360-VX-3	[10-32] M5	[0.73] 18.57	[0.31] 7.95	[1.01] 25.73	[6.0] 152.4	[0.40] 10.11	[0.10] 2.54	[0.20] 5.05	[0.39] 9.96



QUICK DISCONNECT PIN OUT
 PIN 1, BROWN, + VDC
 PIN 4, BLACK, SWITCHED OUTPUT
 PIN 3, BLUE, - VDC

Specification	360-VN-3/360-VP-3
Maximum Pressure:	29 psi [200 kPa]
Rated Vacuum Pressure Range:	0 to -29.5 inHG [0 to 100 kPa]
Temperature Range:	14°F to 122°F [-10°C to 60°C]
Electrical Connection:	-3 = 3-Pin Pico 8 mm Connector
Operating Voltage:	10.8 to 30 V DC (including ripple)
Current Consumption:	20 mA Max
Display:	Red LED
Circuit:	NPN, PNP
NPN Output Voltage	0.8 V DC Max
PNP Output Voltage:	1.8 V DC Max
Max Temperature	120 [250]

Easy Vacuum Setpoint Adjust

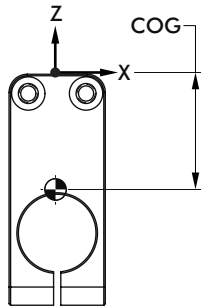
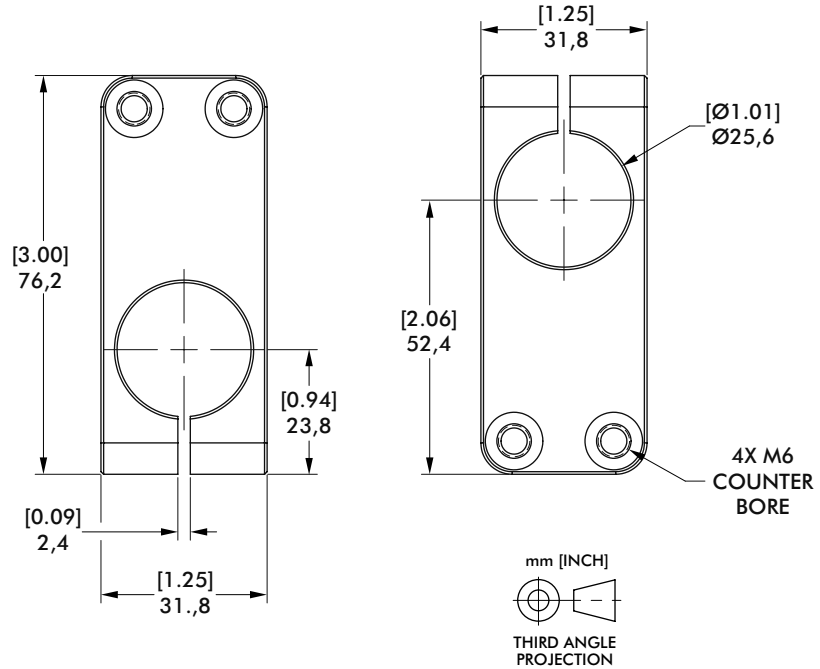
- Remove power and wire sensor per pin diagram.
- Set vacuum setpoint while vacuum cup maintains a gripped part.
- Increase vacuum by rotating setpoint clockwise.
- Decrease vacuum by rotating setpoint counter-clockwise.

MICROTOOL PALLETIZING END EFFECTORS

Clamp Kit Assembly | Ordering Information, Dimensions, Specifications



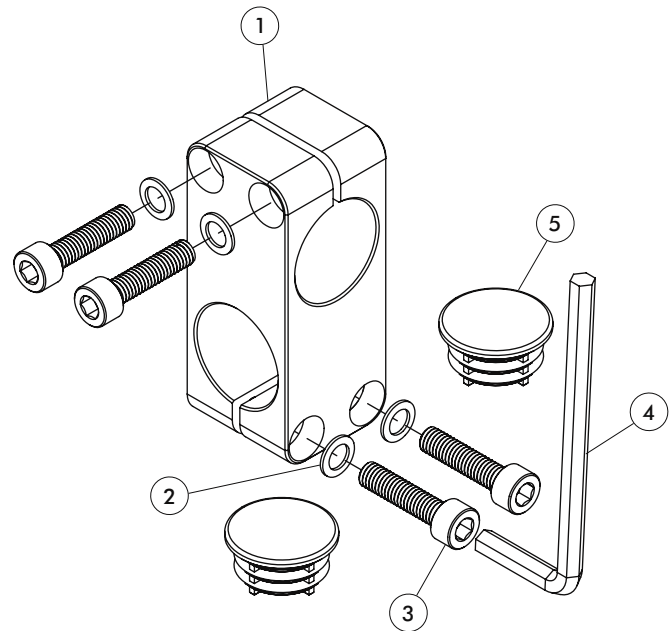
CPI-CLM-10-10-EC Clamp Kit



Specification	Units	CPI-CLM-10-10-EC
Weight:	Kg [lb]	0,13 [0.29]
Material:		Aluminum
Centre of Gravity [X] [Y] [Z]	mm	[0] [38,10] [0]
Moment of Inertia @ COG -I _{XX}	[Kg-mm ²]	106,54
Moment of Inertia @ COG -I _{YY}	[Kg-mm ²]	26,73
Moment of Inertia @ COG -I _{ZZ}	[Kg-mm ²]	106,54

CPI-CLM-10-10-EC Clamp Kit Components

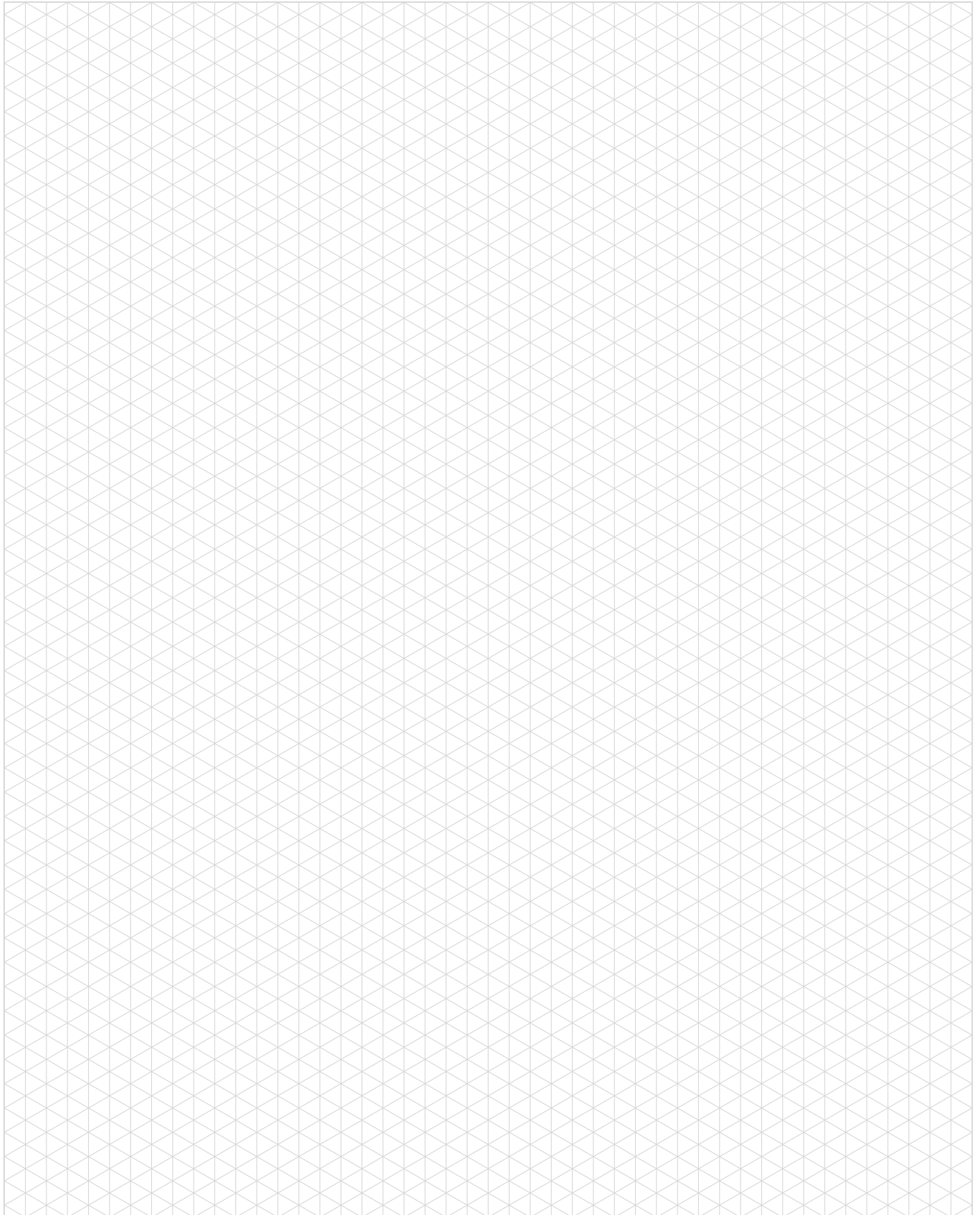
Item	Description	Quantity
1	Clamp Block 1"	1
2	Ø6 Washer	4
3	Screw M6 x 25	4
4	Wrench Allen, 5mm	1
5	Tube End Cap 1"	2





MICROTOOL PALLETIZING END EFFECTORS

Notes



ROBOT VACUUM GRIPPING SOLUTIONS

ARV® Vacuum Gripper Kit | Ordering Information



1 VACUUM GENERATOR KIT
▶ CPI-VSA-ARVS-5-U18

3 VACUUM SENSOR
360-VN-3
▶ 360-VP-3

2 VACUUM CUPS
VC-B20N-18M
▶ VC-B30N-18M
VC-B50N-18M
VC-BM20N-18M
VC-BM30N-18M
VC-BM50N-18M
VC-F20N-18M
VC-F30N-18M
VC-F50N-18M

How To Order: (Example for above configured product)

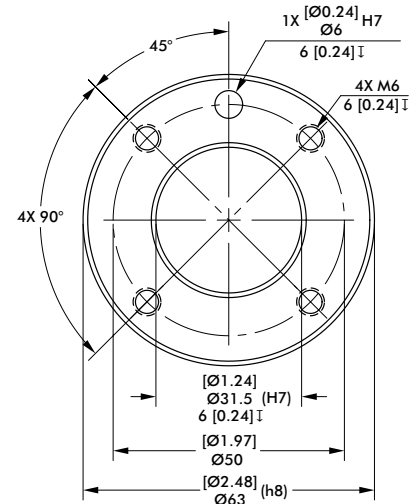
Order #	Description	Qty	Page
1	CPI-VSA-ARVS-5-U18 Vacuum Generator Kit	1	2
2	VC-B30N-18M Vacuum Cup	1	3
3	360-VP-3 Vacuum Sensor	1	4

ROBOT VACUUM GRIPPING SOLUTIONS

ARV® Vacuum Gripper Kit | Robot Compatibility Charts

ARV® Vacuum Gripper Kit - Robot Compatibility

Robot Manufacturer	Model
GENERIC	Any model with ISO-9409-1-50-4-M6 Pattern
ABB	CRB 15000
AUBO	I3, I5, I7, I10
DOBOT	CR - 5
DOOSAN ROBOTICS	M0609,M1509,M1013,M0617
ESI	C-7, C-15
F&P PERSONAL ROBOTICS	P-ROB 2R-24V, 48V
FRANKA EMIKA	PANDA
HAN'S ROBOTS	ELFIN 3, 5, 10
HANWHA PRECISION MACHINERY	HCR-3, 5, 12
JAKA/KUNLIN	ZU 7, 12
KAWADA INDUSTRIES	NEXTAGE
KUKA	LBR iiwa 7 R800, LBR iiwa 14 R820
MODBOT	Robot, SCARA
Omron TM	TM 5 - 700, TM 5 - 900, TM 12, TM 14
RAINBOW ROBOTICS	RB5
REIS	RV10-6, RV20-6
ROZUM	PULSE 75, 90
SIASUN	GCR5, GCR14, GCR20, SCR3, SCR5
STAUBLI	TX2 90, TX2 TOUCH 90, TX2 TOUCH 90L, TX2 TOUCH 90XL
TECHMAN	TM5M-700, TM5M-900, TM12M, TM14M
UNIVERSAL ROBOTS	UR3, UR5, UR10, UR16



ISO-9409-1-50-4-M6
Cobot Mounting Pattern

Vacuum grippers are used with smooth nonporous workpiece materials such as:

- Composites
- Glass
- High Density Cardboard
- Laminated paper
- Metals
- Hard Plastic
- Smooth surfaced Wood
- Smooth Ceramics
- Plastic Bag Packaging



ARV® Vacuum Gripper Operation:

- Vacuum grippers operate in any orientation with the workpiece.
- The entire area of the vacuum cup must be in contact with the smooth surface of the workpiece.
- Air Pressure is required to create and maintain gripforce on part
- The vacuum gripper will lose gripforce upon loss of air pressure.
- Workpiece should be gripped in the center of its geometry whenever possible.

ROBOT VACUUM GRIPPING SOLUTIONS

ARV® Vacuum Gripper Kit | Dimensions and Specifications



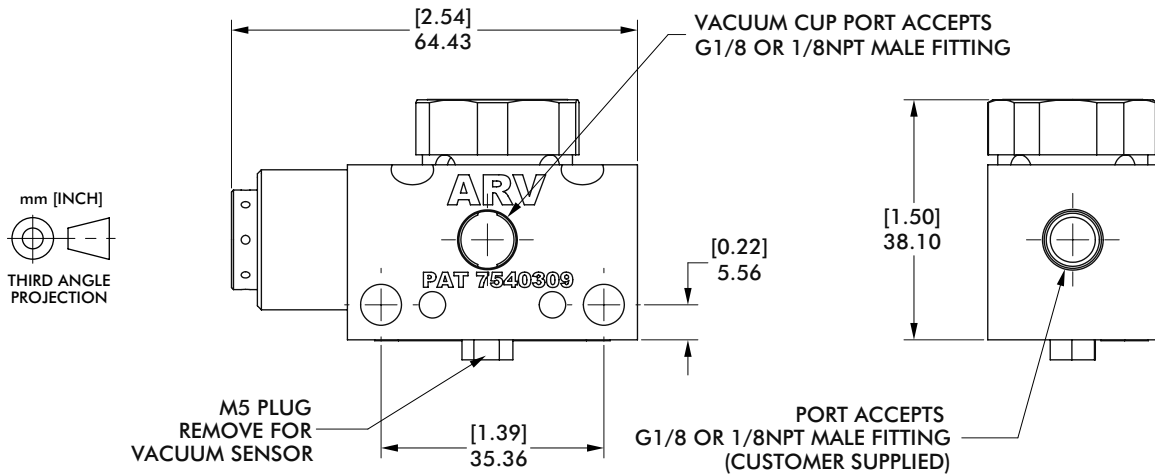
CPI-VSA-ARVS-5-U18 Vacuum Generator Kit



ARV Venturi Vacuum Generator with built-in exhaust silencer, provides automatic workpiece release for high-speed operation.



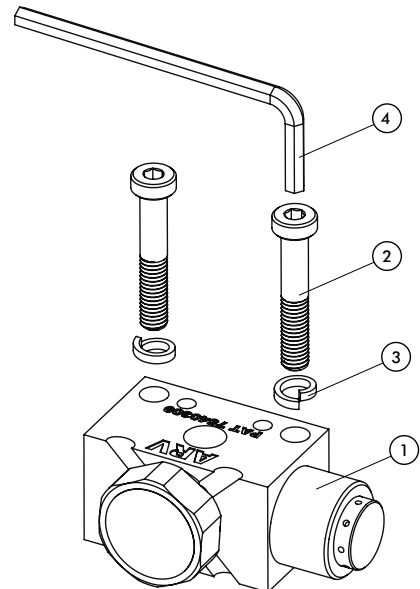
Specifications:	Units	MG-050-01
Weight	Kg [lb]	0,10 [0.22]
Material:		Aluminum
Specifications @ 4 bar [60psi]:		
Speed to Vacuum	sec.	0.2 - 0.3
Speed to Release	sec.	0.02
Air Consumption [Vacuum]	l/m [scfm]	40 l/m [1.4 scfm]
Air Consumption [Blow-Off]		0
Noise Level (at one meter)	dBa	68



CPI-VSA-ARVS-5-U18 Vacuum Generator Kit Components

Item	Description	Quantity
1	Auto Release Venturi Vacuum Generator	1
2	SHCS, M6 x 35mm, Stainless	2
3	Split Lock Washer	2
4	Wrench, Allen, 4mm Hex	1

All hardware and tools are provided in the kit



Vacuum Cup Usage

Vacuum grippers must be operated within a safe working payload. To properly size a vacuum cup for your application, use the formula on this page. There are four simple steps to help make sure your application has the appropriate vacuum cup.

- Step 1:** Verify Workpiece part weight and contour.
- Step 2:** Add up your application features that determines an effective safety factor(s). See application features below.
- Step 3:** Select the vacuum cup group(flat, bellows, multi-bellows) from the selection and load rating (f) charts that best matches your application.
- Step 4:** Starting with the largest cup within the selected vacuum cup group calculate the payload rating (w) and verify it is equal to or larger than the workpiece weight. See calculated example.

Use the largest cup possible that best fits the application.



Formula

$$W = \frac{F}{S}$$

W = Payload Rating
F = Load Rating
S = Safety factor

Payload and load rating must be in the same units, either English or Metric.

Use this formula to determine the maximum payload rating allowable for single vacuum gripper.

Application Features

Ideal plant conditions*: **3**
Fast moving robot: **+1**
Slick or Oily Panel: **+1**
Flexing Workpiece: **+2**
High Horizontal Loads: **+1**

Safety Factor

Starting with Ideal conditions (3), add each additional condition to determine a total safety factor.

Example:

Ideal conditions:	3
Fast moving robots:	+1
Oily Part:	+1
Total Safety Factor	5

Vacuum Cup Sizing Example:

Vacuum Cup:	VC-B50N-18M
F (Load Rating):	6.63kg
Safety Factor:	5
<small>(oily, fast moving, ideal plant conditions)</small>	
W (Payload Rating):	1.326kg (6.63/5)
This is the working payload rating of the cup for this application.	

*Ideal conditions are defined as having no surface, operational, or environmental conditions which could adversely effect the performance of the vacuum cup.

ROBOT VACUUM GRIPPING SOLUTIONS

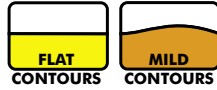


Vacuum Cups | Selection and Load Ratings

Flat Cups

- Use with flat or mild contoured workpiece surfaces
- Consistent workpiece pick location, no misalignment

Vacuum Surface Contour:

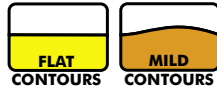


		VC-F20N-18M	VC-F30N-18M	VC-F50N-18M
Supply Pressure	bar [psi]	4,0 [60]	4,0 [60]	4,0 [60]
Load Rating	Kg [lb]	1,47 [3.25]	2,55 [5.63]	7,54 [16.6]

Bellows Cups

- Flat & Slightly curved surface
- Used when workpiece pick location slightly varies or is less consistent
- Bellows allows for minor workpiece misalignment

Vacuum Surface Contour:



		VC-B20N-18M	VC-B30N-18M	VC-B50N-18M
Supply Pressure	bar [psi]	4,0 [60]	4,0 [60]	4,0 [60]
Load Rating	Kg [lb]	1,02 [2.25]	2,21 [4.88]	6,63 [14.6]

Multi-Bellows Cups

- Uneven, curved or arched workpieces
- Used when workpiece pick location slightly varies or is less consistent
- Bellows allows for high workpiece misalignment

Vacuum Surface Contour:

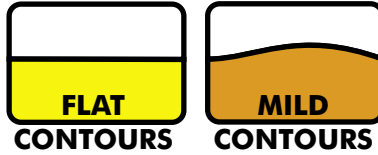


		VC-BM20N-18M	VC-BM30N-18M	VC-BM50N-18M
Supply Pressure	bar [psi]	4,0 [60]	4,0 [60]	4,0 [60]
Load Rating	Kg [lb]	0,68 [1.50]	1,64 [3.63]	4,37 [9.63]

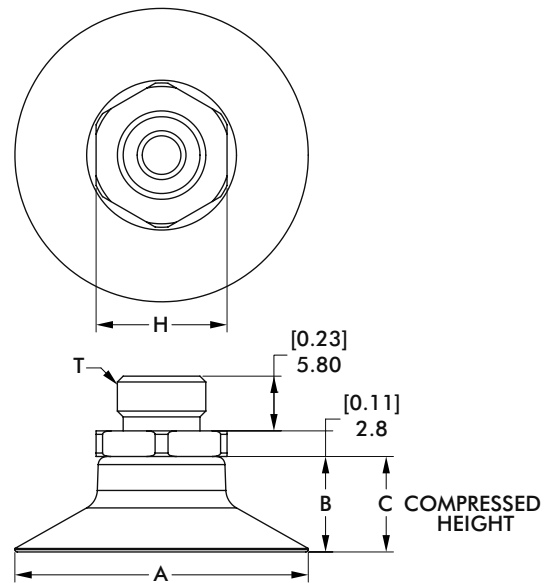
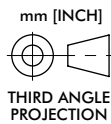
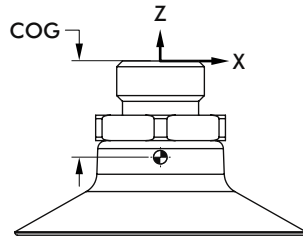
ROBOT VACUUM GRIPPING SOLUTIONS

Flat Foot Vacuum Cups | Selection and Dimensions

VC-FXXN-18M Flat Foot Vacuum Cups



Specifications:	Units	VC-F20N-18M	VC-F30N-18M	VC-F50N-18M
Weight:	g [oz]	7,8 [0.27]	6,2 [0.22]	19,6 [0.69]
COG (Centre of Gravity) [X] [Y] [Z]	mm	[0] [0] [-8.83]	[0] [0] [-10.55]	[0] [0] [-18]
Moment of Inertia @ COG -I _{XX}	[Kg-mm ²]	0,13	0,25	3,08
Moment of Inertia @ COG -I _{YY}	[Kg-mm ²]	0,13	0,25	3,08
Moment of Inertia @ COG -I _{ZZ}	[Kg-mm ²]	0,11	0,25	4,28
Temperature Range:		-40° to 57°C (-40° to 135°F)		
Material:		Shore A50 durometer Nitrile		



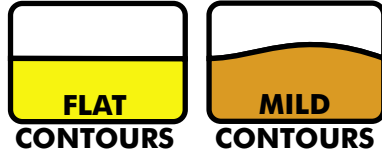
Model	Units	A	B	C	H	T
VC-F20N-18M	mm [in]	22,1 [0.87]	8,6 [0.34]	7,1 [0.28]	14,2 [0.56]	18M
VC-F30N-18M	mm [in]	32,0 [1.26]	10,4 [0.41]	8,1 [0.32]		
VC-F50N-18M	mm [in]	53,1 [2.08]	17,5 [0.69]	14,5 [0.57]	17,4 [0.68]	

ROBOT VACUUM GRIPPING SOLUTIONS

Bellows Vacuum Cups | Selection and Dimensions

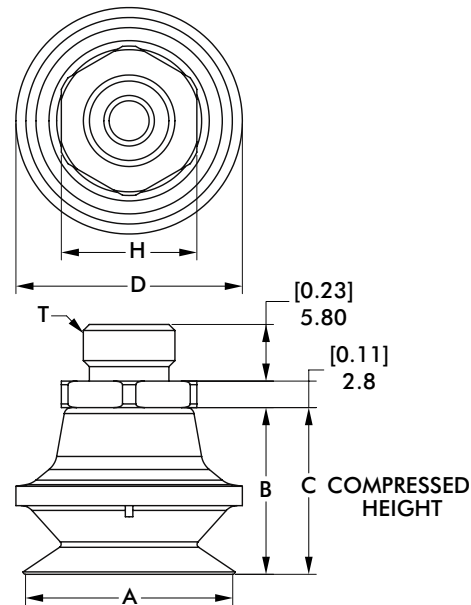
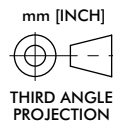
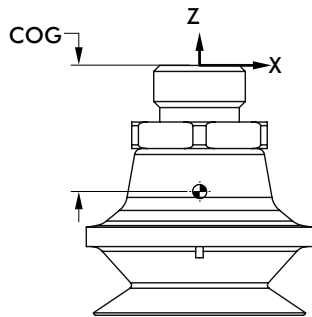


VC-**BXXN**-18M Bellows Vacuum Cups



Vacuum Cup: **VC** | Style: **BXXN** | Thread Size: **18M**

Specifications:	Units	VC-B20N-18M	VC-B30N-18M	VC-B50N-18M
Weight:	g [oz]	5,07 [0.18]	11,42 [0.40]	24,76 [0.87]
COG (Centre of Gravity) [X] [Y] [Z]	mm	[0] [0] [-11.87]	[0] [0] [-17.91]	[0] [0] [-23]
Moment of Inertia @ COG -IXX	[Kg-mm ²]	0,33	1,51	6,5
Moment of Inertia @ COG -IYY	[Kg-mm ²]	0,33	1,51	6,5
Moment of Inertia @ COG -IZZ	[Kg-mm ²]	0,22	1,39	7,2
Temperature Range:		-40° to 57°C (-40° to 135°F)		
Material:		Shore A50 durometer Nitrile		



Model	Units	A	B	C	D	H	T
VC-BM20N-18M	mm [in]	22,4 [0.88]	17,5 [0.69]	7,6 [0.30]	23,9 [0.94]	14.2 [0.56]	18M
VC-BM30N-18M	mm [in]	34,0 [1.34]	26,4 [1.04]	11,4 [0.45]	36,3 [1.43]		
VC-BM50N-18M	mm [in]	52,8 [2.08]	34,5 [1.36]	14,5 [0.57]	59,4 [2.34]	17.4 [0.68]	

ROBOT VACUUM GRIPPING SOLUTIONS

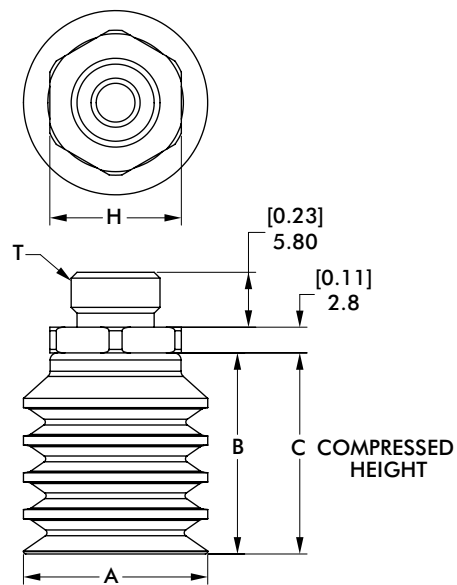
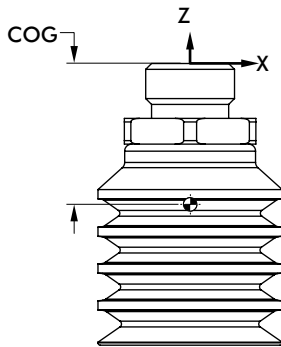
Multi-Bellows Vacuum Cups | Selection and Dimensions

VC-**BMXXN**-18M Multi-Bellows Vacuum Cups



Vacuum Cup: **VC** - Style: **BMXXN** - Thread Size: **18M**

Specifications:	Units	VC-BM20N-18M	VC-BM30N-18M	VC-BM50N-18M
Weight:	g [oz]	5,3 [0.19]	10,3 [0.36]	32,7 [1.15]
COG (Centre of Gravity) [X] [Y] [Z]	mm	[0] [0] [-12.8]	[0] [0] [-16.60]	[0] [0] [-30.57]
Moment of Inertia @ COG -IXX	[Kg-mm ²]	0,37	1,38	17,59
Moment of Inertia @ COG -IYY	[Kg-mm ²]	0,37	1,38	17,59
Moment of Inertia @ COG -IZZ	[Kg-mm ²]	0,20	0,97	13,41
Temperature Range:		-40° to 57°C (-40° to 135°F)		
Material:		Shore A50 durometer Nitrile		



mm [INCH]
THIRD ANGLE PROJECTION

Model	Units	A	B	C	H	T
VC-BM20N-18M	mm [in]	20,1 [0.79]	21,9 [0.86]	8,9 [0.35]		
VC-BM30N-18M	mm [in]	30,0 [1.18]	30,7 [1.21]	10,7 [0.42]	14,2 [0.56]	18M
VC-BM50N-18M	mm [in]	50,0 [1.97]	51,1 [2.01]	23,1 [0.91]		

ROBOT VACUUM GRIPPING SOLUTIONS

Vacuum Sensors | Dimensions and Specifications

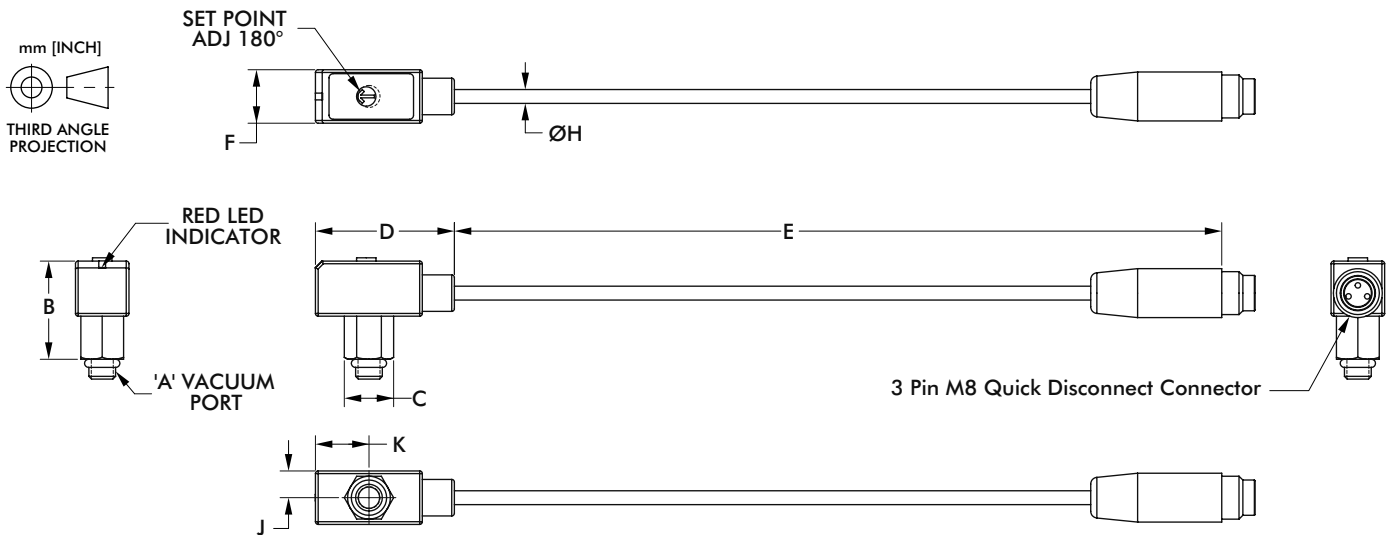


360-VX-3 Vacuum Sensor

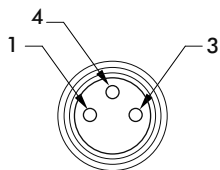


Series	Sensor Type	No. of Pins
360	VX	3

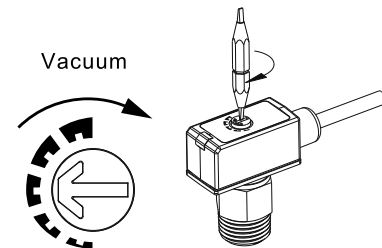
Part Number	Description
360-VN-3	NPN Vacuum Sensor
360-VP-3	PNP Vacuum Sensor



Part #	A	B	C	D	E	F	H	J	K
360-VX-3	[10-32] M5	[0.73] 18,57	[0.31] 7,95	[1.01] 25,73	[6.0] 152,4	[0.40] 10,11	[0.10] 2,54	[0.20] 5,05	[0.39] 9,96



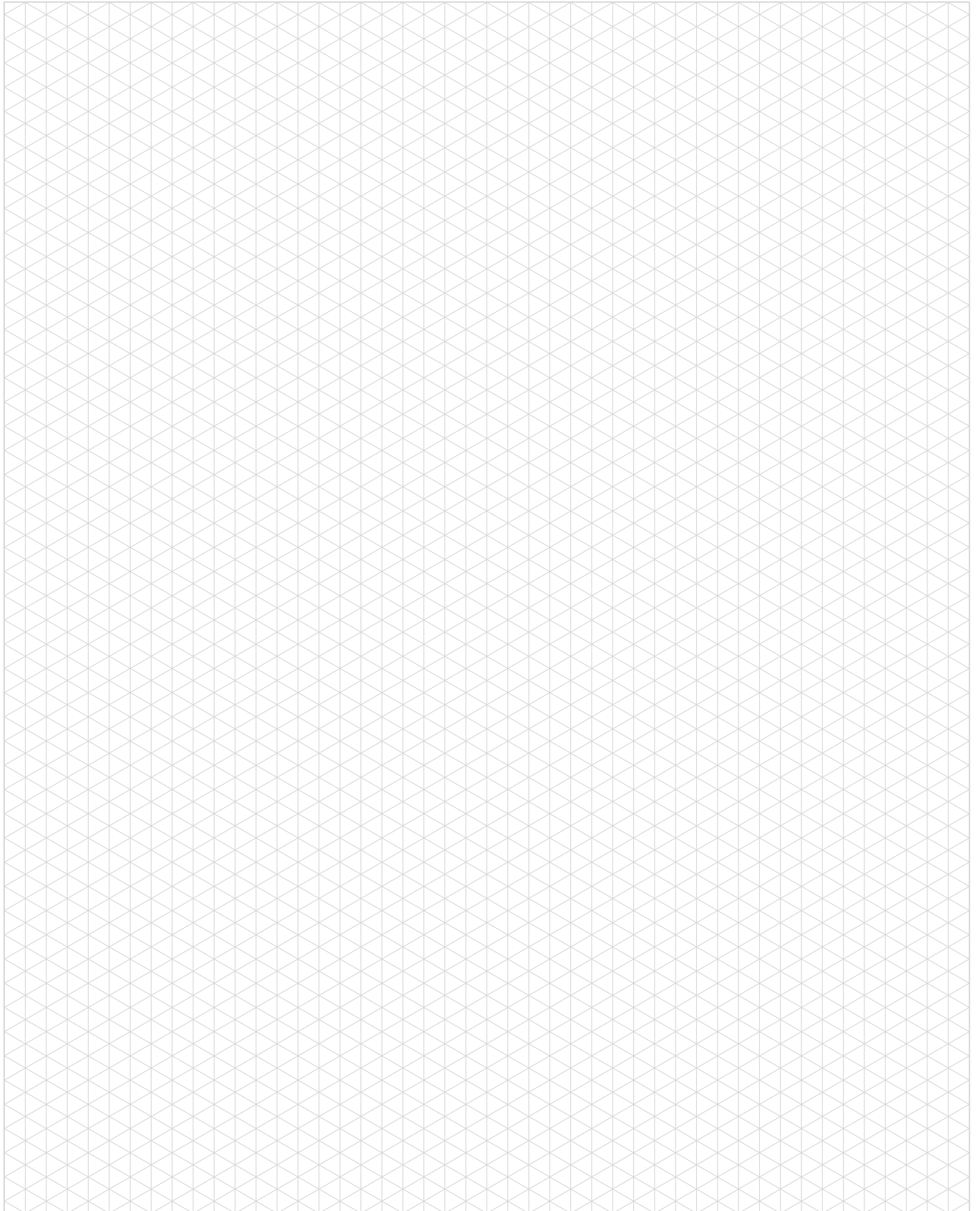
QUICK DISCONNECT PIN OUT
 PIN 1, BROWN, +VDC
 PIN 4, BLACK, SWITCHED OUTPUT
 PIN 3, BLUE, -VDC



Specification	360-VN-3/360-VP-3
Maximum Pressure:	29 psi [200 kPa]
Rated Vacuum Pressure Range:	0 to -29,5 inHG [0 to 100 kPa]
Operating Pressure:	14°F to 122°F [-10°C to 60°C]
Electrical Connection:	-3 = 3-Pin Pico 8 mm Connector
Operating Voltage:	10.8 to 30 V DC (including ripple)
Current Consumption:	20 mA Max
Display:	Red LED
Circuit:	NPN, PNP
NPN Output Voltage	0.8 V DC Max
PNP Output Voltage:	1.8 V DC Max
Max Temperature	120 [250]

Easy Vacuum Setpoint Adjust

- Remove power and wire sensor per pin diagram.
- Set vacuum setpoint while vacuum cup maintains a gripped part.
- Increase vacuum by rotating setpoint clockwise.
- Decrease vacuum by rotating setpoint counter-clockwise.



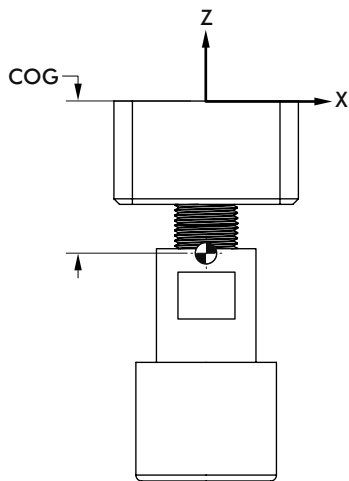
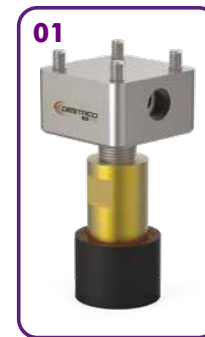
ROBOT MAGNETIC GRIPPING SOLUTIONS

Magnetic Gripper Kit | Ordering Information



MG-050-XX Magnetic Gripper Kit

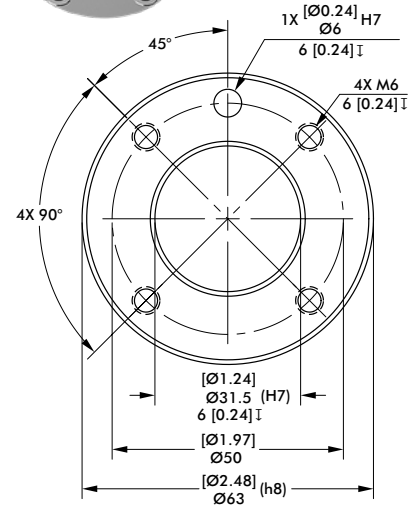
Adapter Model: **MG** - Robot ISO Size: **050** - Type: **XX**



Specifications:	Units	MG-050-01	MG-050-02
Max Payload without Boot:	Kg [lb]	0.25 [0.5]	1.0 [2.2]
Max Payload with Boot:	Kg [lb]	0.75 [1.75]	3.0 [6.6]
Boot Material:		Polyurethane	Polyurethane
Gripper Material:		Aluminum	Aluminum
Minimum Operating Pressure:	bar [psi]	2 [30]	2 [30]
Maximum Operating Pressure:	bar [psi]	4 [60]	4 [60]
Weight:	Kg [lb]	0.31 [.69]	0.57 [1.26]
COG (Centre of Gravity) [X] [Y] [Z]	mm	[-0.15] [0] [-44.21]	[-0.08] [0.17] [-58.46]
Moment of Inertia @ COG -I _{XX}	[Kg-mm ²]	485.23	814.02
Moment of Inertia @ COG -I _{YY}	[Kg-mm ²]	484.53	832.01
Moment of Inertia @ COG -I _{ZZ}	[Kg-mm ²]	96.65	324.3

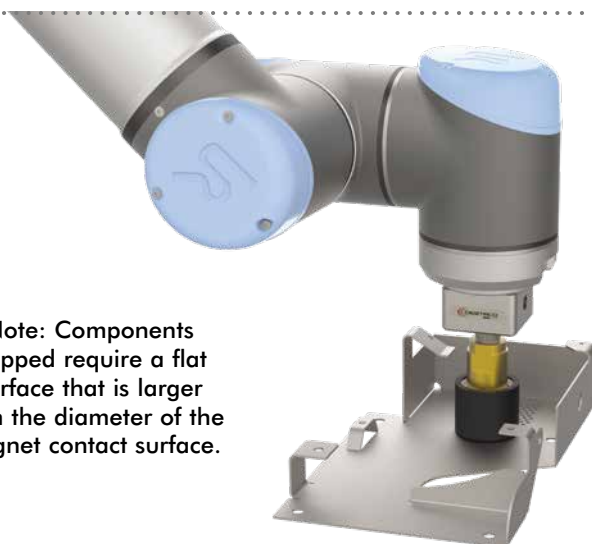
MG-050-XX Magnetic Gripper Kit - Robot Compatibility

Robot Manufacturer	Model
GENERIC	Any model with ISO-9409-1-50-4-M6 Pattern
ABB	CRB 15000
AUBO	I3, I5, I7, I10
DOBOT	CR - 5
Doosan Robotics	M0609,M1509,M1013,M0617
ESI	C-7, C-15
F&P PERSONAL ROBOTICS	P-ROB 2R-24V, 48V
FRANKA EMIKA	PANDA
HAN'S ROBOTS	ELFIN 3, 5, 10
HANWHA PRECISION MACHINERY	HCR-3, 5, 12
JAKA/KUNLIN	ZU 7, 12
KAWADA INDUSTRIES	NEXTAGE
KUKA	LBR iiwa 7 R800, LBR iiwa 14 R820
MODBOT	Robot, SCARA
Omron TM	TM 5 - 700, TM 5 - 900, TM 12, TM 14
RAINBOW ROBOTICS	RB5
REIS	RV10-6, RV20-6
ROZUM	PULSE 75, 90
SIASUN	GCR5, GCR14, GCR20, SCR3, SCR5
STAUBLI	TX2 90, TX2 TOUCH 90, TX2 TOUCH 90L, TX2 TOUCH 90XL
TECHMAN	TM5M-700, TM5M-900, TM12M, TM14M
UNIVERSAL ROBOTS	UR3, UR5, UR10, UR16



ISO-9409-1-50-4-M6
Robot Mounting Pattern

Note: Components gripped require a flat surface that is larger than the diameter of the magnet contact surface.



Mag-Lift Magnetic Gripper Working

Activate air on or off to release or grip ferrous material with these grippers

- Air is supplied when approaching workpiece
- Remove air when magnet is in close proximity to workpiece
- With air removed, grip is maintained allowing ferrous material to be moved to another location
- Activate air pushes magnet away to quickly release work piece

ROBOT MAGNETIC GRIPPING SOLUTIONS

Magnetic Gripper Kit | Dimensions and Specifications

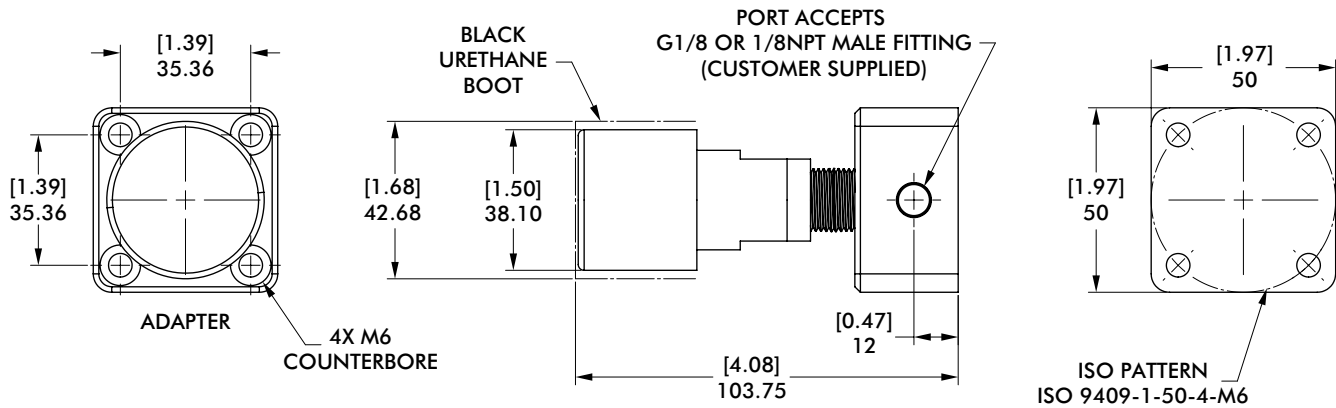


MG-050-01 Magnetic Gripper Kit



mm [INCH]

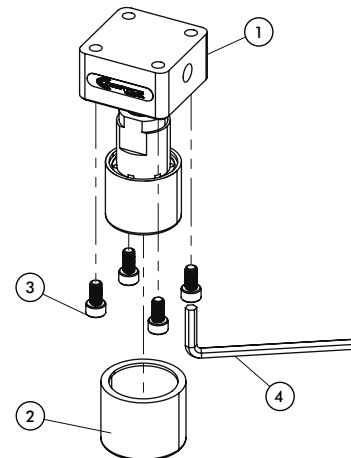
THIRD ANGLE
PROJECTION



MG-050-01 Magnetic Gripper Kit Components

Item	Description	Quantity
1	Magnetic Gripper	1
2	Black Urethane Boot for 1.5" Dia	1
3	SCHS, M6 x 12mm, Stainless, Patchlock	4
4	Wrench, Allen, 5mm Hex	1

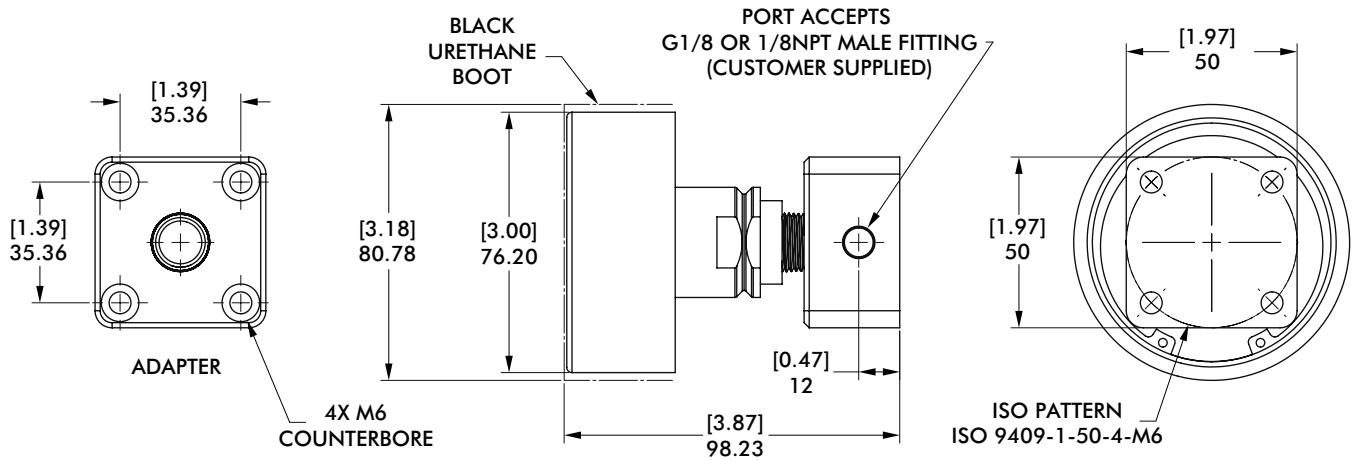
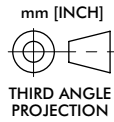
All hardware and tools are provided in the kit



ROBOT MAGNETIC GRIPPING SOLUTIONS

Magnetic Gripper Kit | Dimensions and Specifications

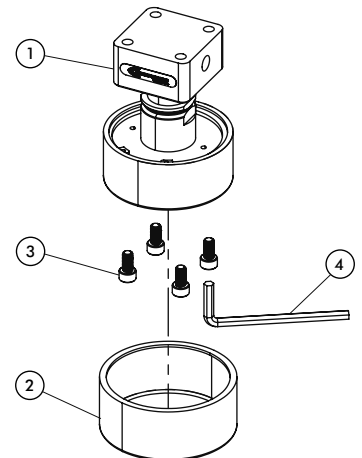
MG-050-02 Magnetic Gripper Kit



MG-050-02 Magnetic Gripper Kit Components

Item	Description	Quantity
1	Magnetic Gripper	1
2	Black Urethane Boot for 3" Dia	1
3	SCHS, M6 x 12mm, Stainless, Patchlock	4
4	Wrench, Allen, 5mm Hex	1

All hardware and tools are provided in the kit



TOOL TREE STORAGE SOLUTIONS

TC1 Tool Tree Kit | Ordering Information



1. BODY BUILDER EXTRUSION

Kit Order #	Max # of Tool Holders
B-30-300-0	4
B-30-400-0	6
B-30-500-0	8

2. TOOL HOLDER CLAMP KIT

TC-050H-02

3. END MOUNT CLAMP

CPI-CLM-30B-20F

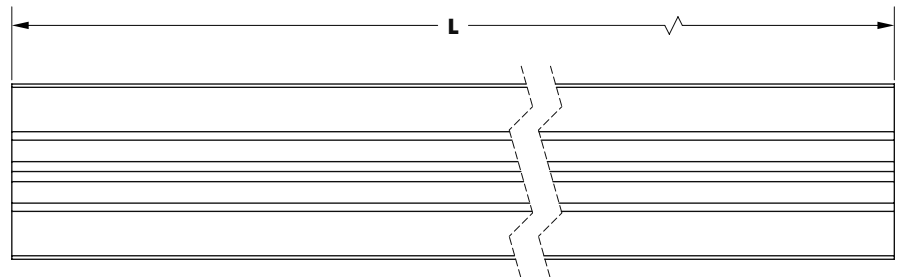
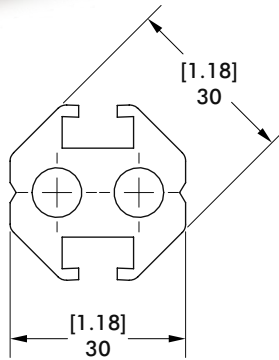
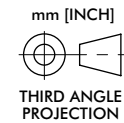
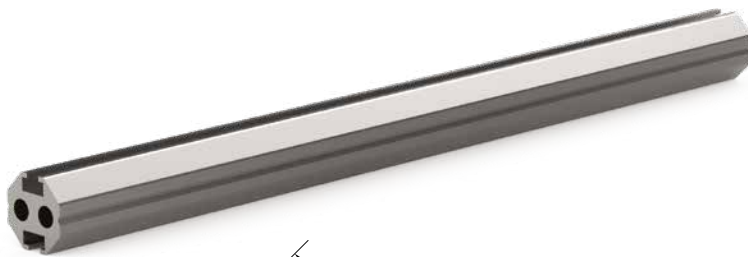
How To Order: (Example for above configured product)

Order #	Description	Qty	Page
1 B-30-300-0	Body Builder Extrusion	1	2
2 TC-050H-02	Tool Holder Clamp Kit	5	3
3 CPI-CLM-30B-20F	End Mount Clamp	1	4

B-30-XXX-0 Body Builder Extrusion

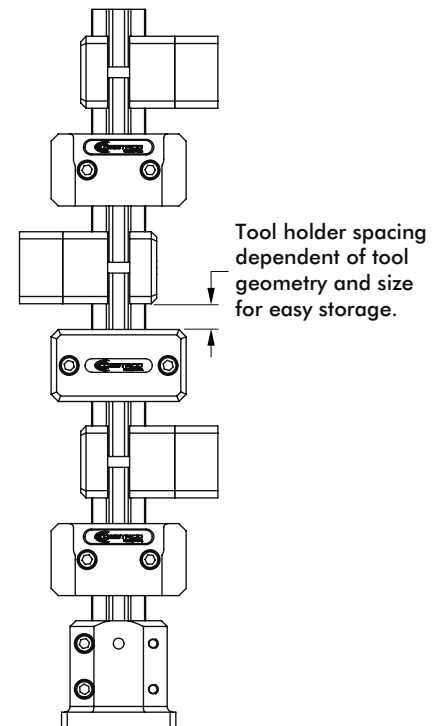
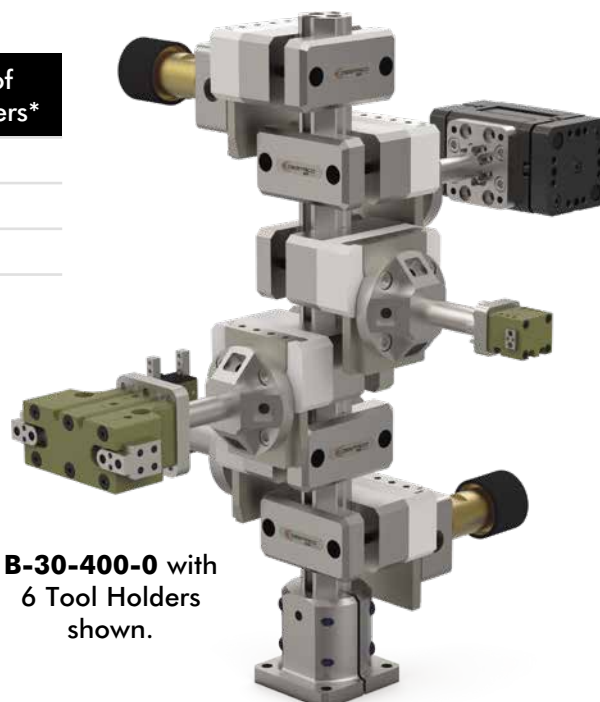
Type	Size	Length	Option
B	30	XXX	0

Specifications:	Units	B-30-300-0	B-30-400-0	B-30-500-0
Length [L]:	mm [in]	300 [11.8]	400 [15.7]	500 [19.7]
Material:		Aluminum	Aluminum	Aluminum
Weight:	Kg [lb]	0.38 [0.84]	0.51 [1.12]	0.64 [1.4]



Order #	Max # of Tool Holders*
B-30-300-0	4
B-30-400-0	6
B-30-500-0	8

*Note: indicates number of Tool Holder suggested considering shown distances and tooling.



TOOL TREE STORAGE SOLUTIONS

TC1 Tool Tree Kit | Dimensions and Specifications



TC-050H-02 Tool Holder Clamp Kit

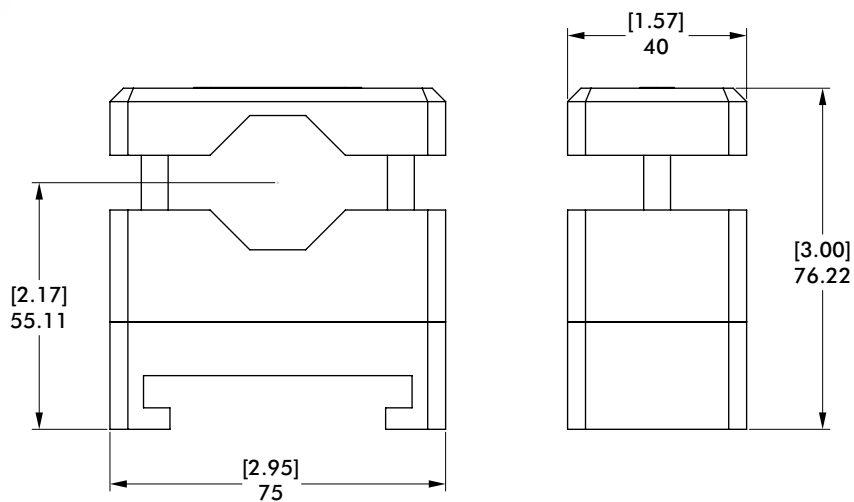
TC-1 Tool Holder Style
TC **050H** **02**



Specifications:	Units	TC-050H-02
Weight:	Kg [lb]	0,37 [0.81]
Material:		Aluminum & Delrin

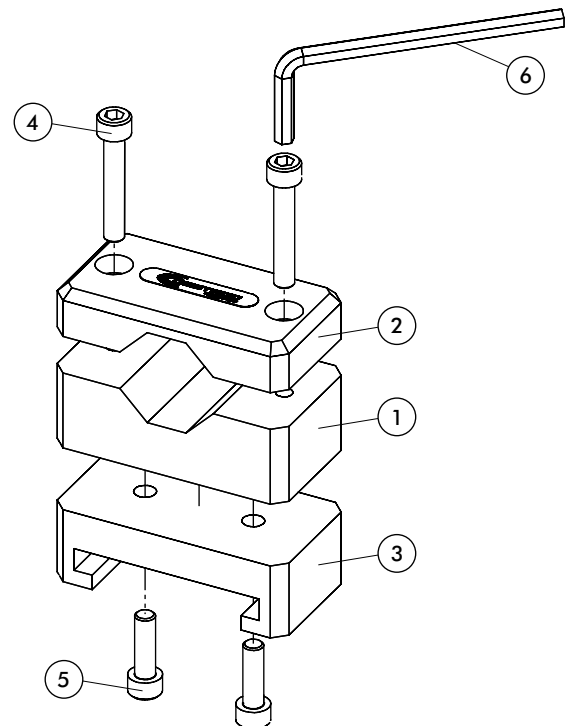
mm [INCH]

THIRD ANGLE PROJECTION



TC-050H-02 Tool Holder Clamp Kit Components

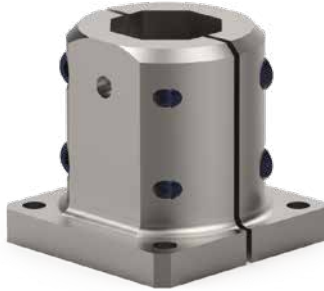
Item	Description	Quantity
1	Mid Mount Body	1
2	Mid Mount Body Cap	1
3	Nest: Tool Holder	1
4	SCHS, M6 x 35mm,Stainless	2
5	SCHS, M6 x 20mm,Stainless	2
6	Wrench,Allen, 5mm Hex	1



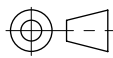
All hardware and tools are provided in the kit

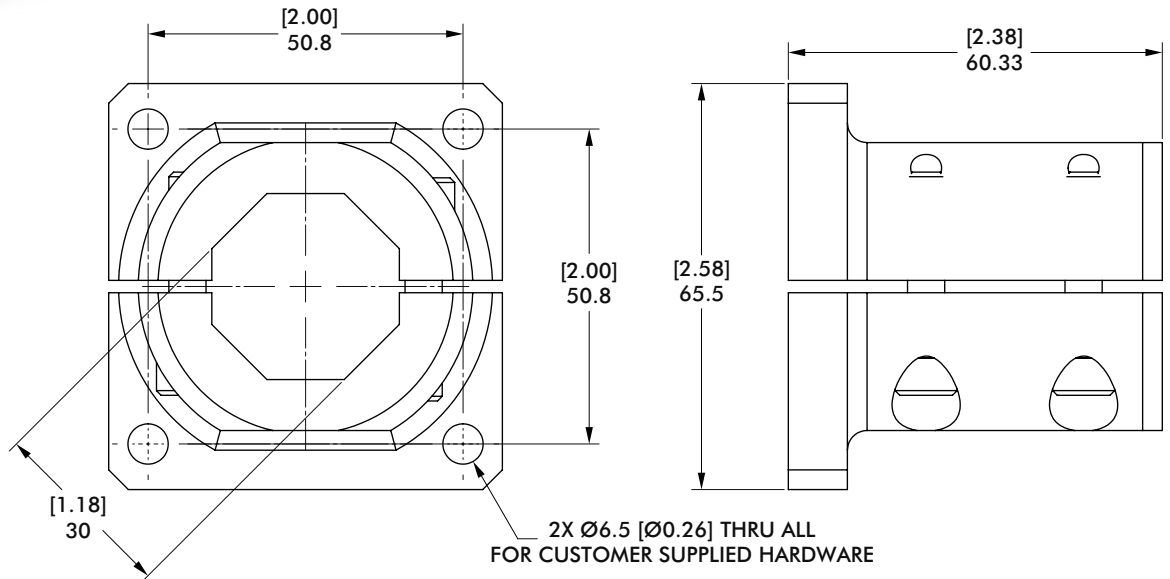
CPI-CLM-30B-20F End Mount Clamp Kit

DESTACO Brand — **Clamp Model** — **Extrusion Size** — **Foot Mount Size**
CPI — **CLM** — **30B** — **20F**



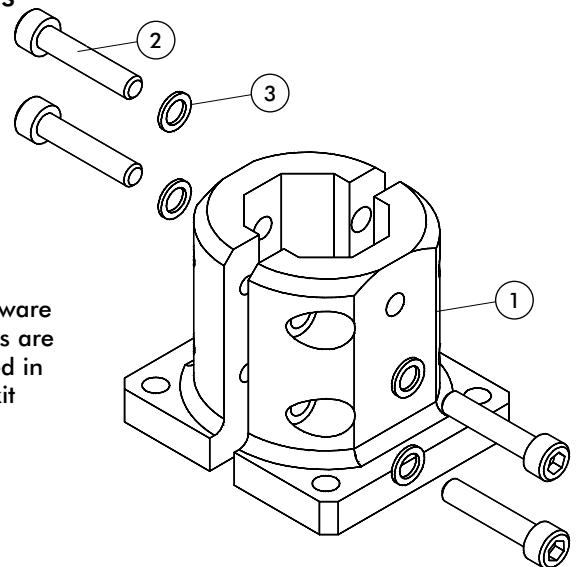
Specifications:	Units	CPI-CLM-30B-20F
Weight:	Kg [lb]	0,29 [0.64]
Material:		Aluminum

mm [INCH]

 THIRD ANGLE PROJECTION



CPI-CLM-30B-20F End Mount Clamp Kit Components

Item	Description	Quantity
1	Bodybuilder: End Mount Body	2
2	SCHS, M6 x 30mm, Stainless	4
3	Serrated Washer	4



All hardware and tools are provided in the kit



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