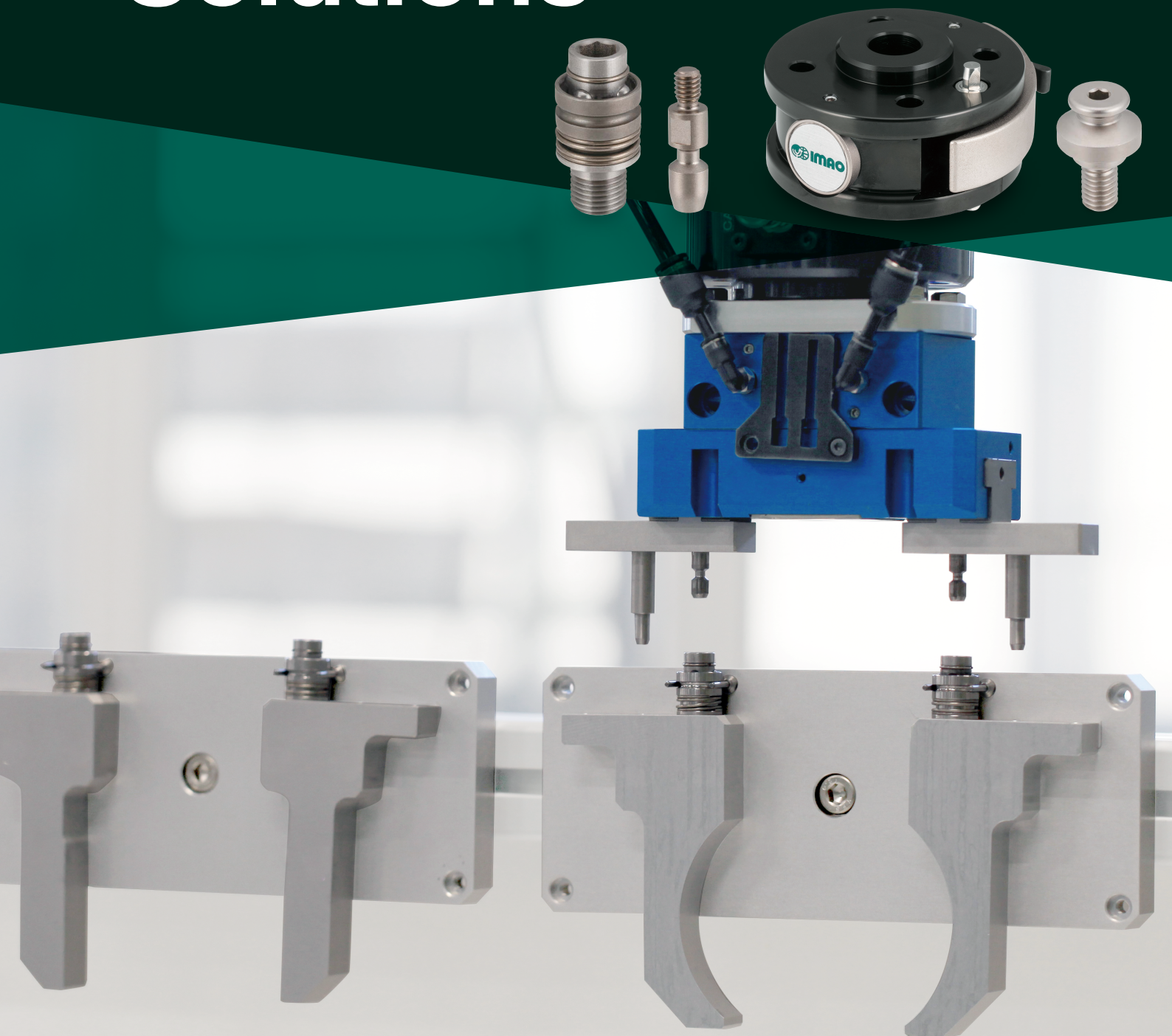
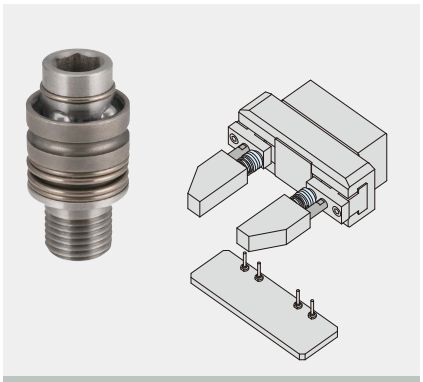
IMAO® fixtureworks®

Robot Integration Solutions

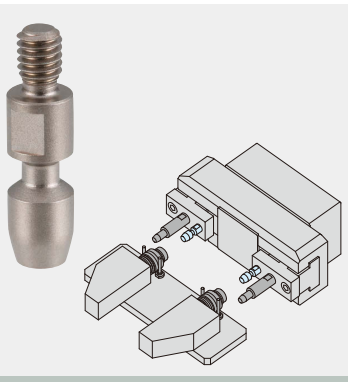


MotionAct Finger Changers



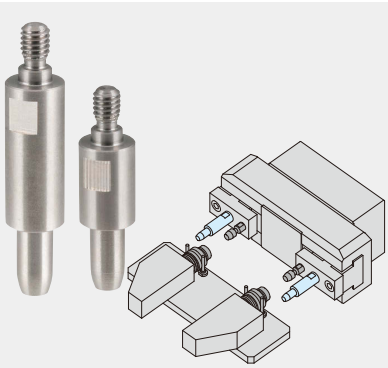
MOTIONACT FINGER CHANGERS

Part No. QMCF



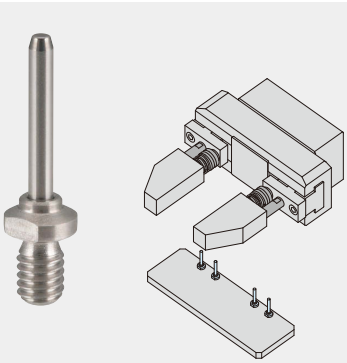
CLAMPING PINS

Part No. QMCFC



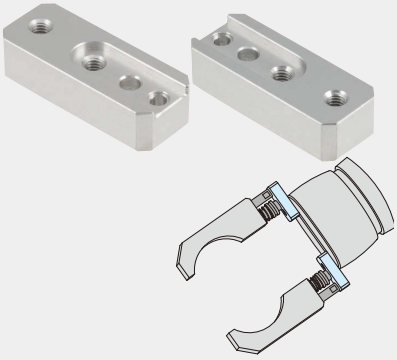
SUPPORT PINS

Part No. QMCFS



RETAINING PINS

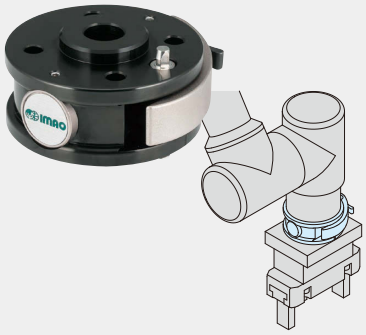
Part No. QMCFE



MOUNTING PLATES FOR COBOTTA

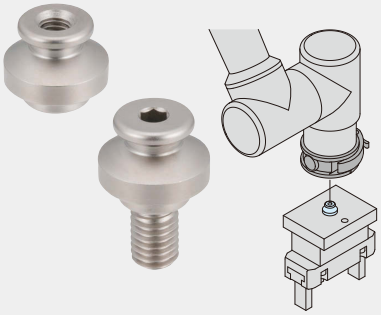
Part No. QMCFP

One-Touch Tool Changers



ONE-TOUCH TOOL CHANGERS

Part No. QRMTC



CLAMPING PINS

Part No. QRMTC-M

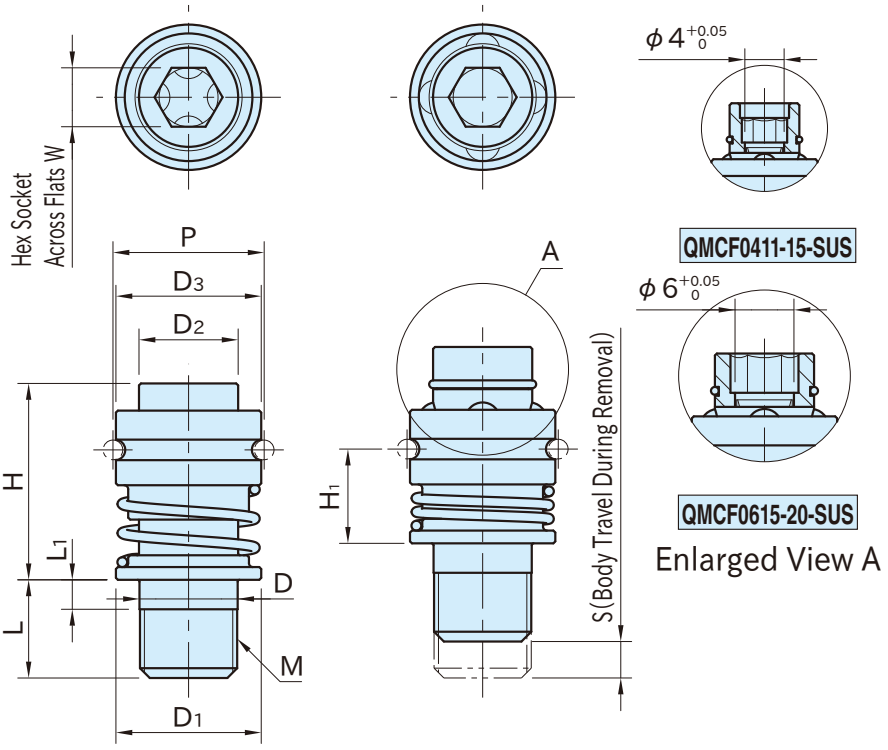
IMAO® fixtureworks®

QMCF MOTIONACT FINGER CHANGERS

RoHS Stainless Steel

IMAO





★Key Point

Change gripper fingers with simple robot arm motion.

Body, Slide Pin	Ring	Ball	Spring
SUS303 stainless steel	SUS630 stainless steel Precipitation hardened	SUS440C stainless steel Quenched and tempered	SUS304WPB stainless steel

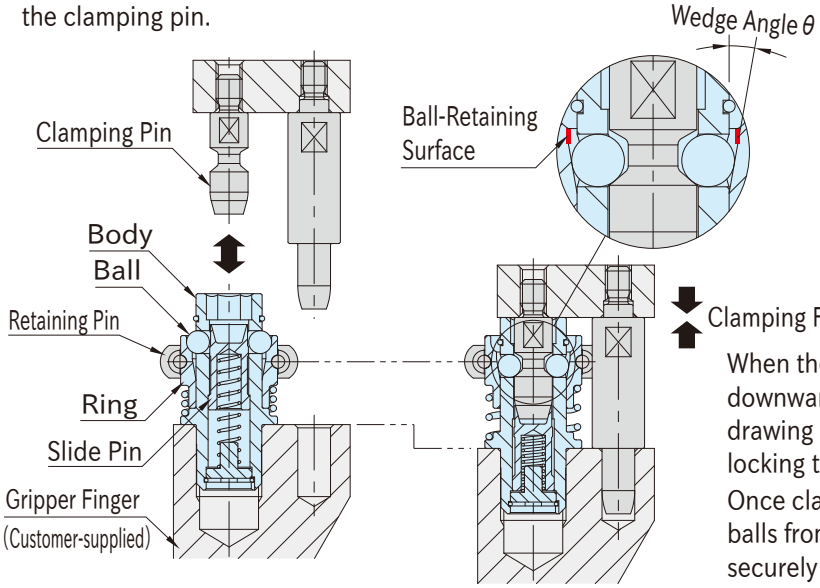
Part Number	D (h9)	M	D1	D2	D3	P	L	L1	H (0 -0.04)	H1	W	S	Clamping Force (N)	Weight (g)
QMCF0411-15-SUS	8	M 8×1(Fine Thread)	10.8	7.1	10.8	11	8	2.5	15	7	4	2.5	10	8
QMCF0615-20-SUS	10	M10×1(Fine Thread)	14.8	10.1	14.8	15	10	3	20	9.8	6	3.4	50	20

Part Number	Clamping Pins	Support Pins	Retaining Pins	Mounting Plates for COBOTTA
QMCF0411-15-SUS	QMCFC0411-M3-SUS	QMCFS0411-0315-SUS QMCFS0411-0310-SUS	QMCFE0411-0312-SUS	QMCFP0411-C1
QMCF0615-20-SUS	QMCFC0615-M4-SUS	QMCFS0615-0420-SUS QMCFS0615-0412-SUS	QMCFE0615-0416-SUS	–

QMCFC	CLAMPING PINS	QMCFE	RETAINING PINS
			
QMCFS	**SUPPORT PINS**	**QMCFP**	**MOUNTING PLATES FOR COBOTTA**
			

Feature

・MotionAct Finger Changers enable automated gripper finger changes using robot arm movements.
・Simply engage the groove on the Finger Changer body with the retaining pin and move the robot arm to insert or remove the clamping pin.

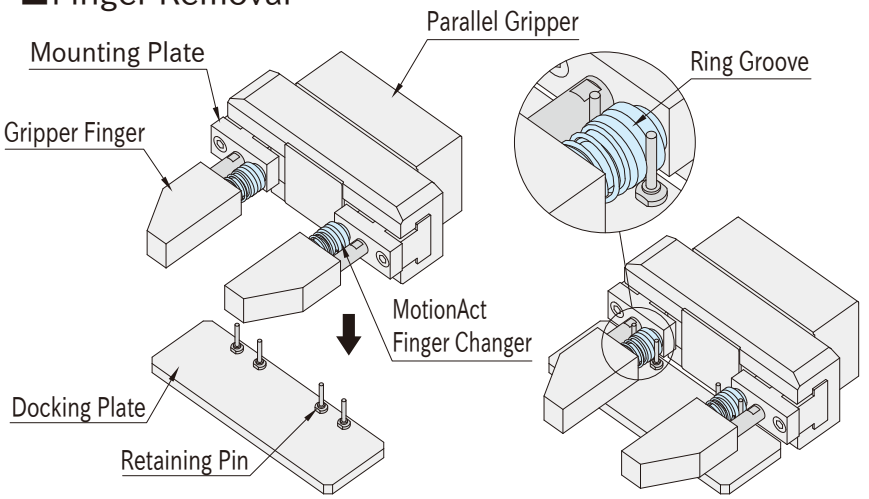


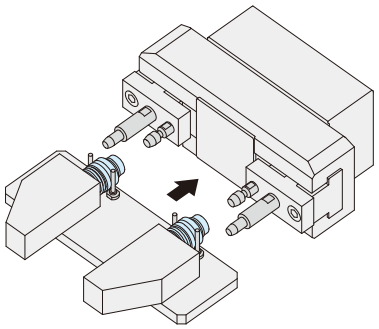
When the clamping pin is inserted, the slide pin moves downward. The four balls engage the clamping pin, drawing the body toward the gripper and automatically locking the finger to the gripper.
Once clamped, the ball-retaining surface prevents the balls from moving outward, keeping the clamping pin securely engaged.

How To Use

For smoother robot teaching, start with the finger removal sequence.
Note: When using a pneumatic gripper, teach the robot with the gripper at the fully open or fully closed position.

■Finger Removal

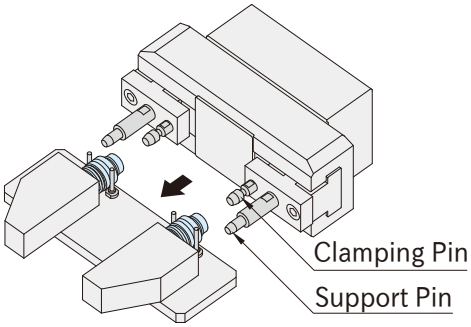


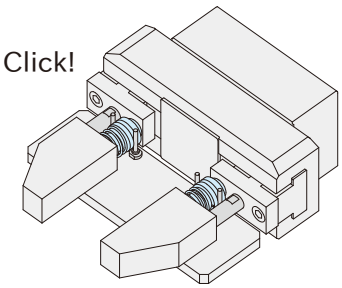


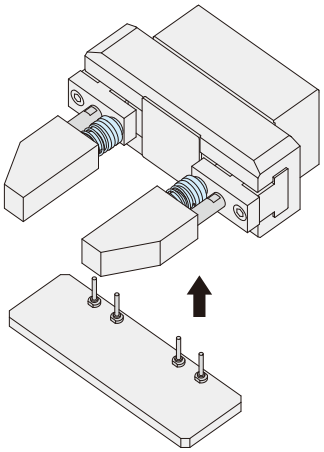
1.Engage the ring groove of the Finger Changer with the retaining pin and position the finger on the docking plate.

2.With the ring groove engaged with the retaining pin, pull the gripper to detach the finger.

■Finger Attachment







1.Insert the clamping pin into the Finger Changer positioned on the docking plate.

2.The clamping pin is automatically clamped upon insertion.

3.Move the gripper upward to disengage the ring groove from the retaining pin.

Continuing on Next Page

Technical Information

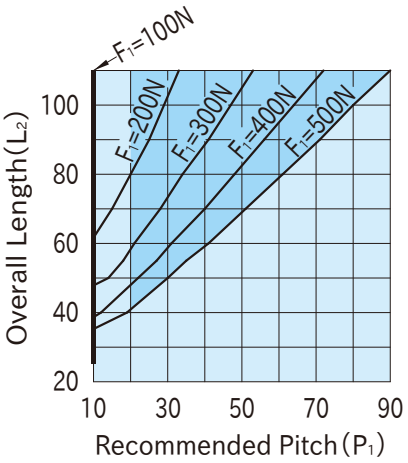
Part Number	Heatresistant Temperature (℃)	Allowable Tensile Load W_1 (N)	Allowable Load F_1 (N) *)	Load on Robot (N) **)
QMCF0411-15-SUS	180	350	500	5
QMCF0615-20-SUS		600	900	20

*) Allowable load when used with one support pin.

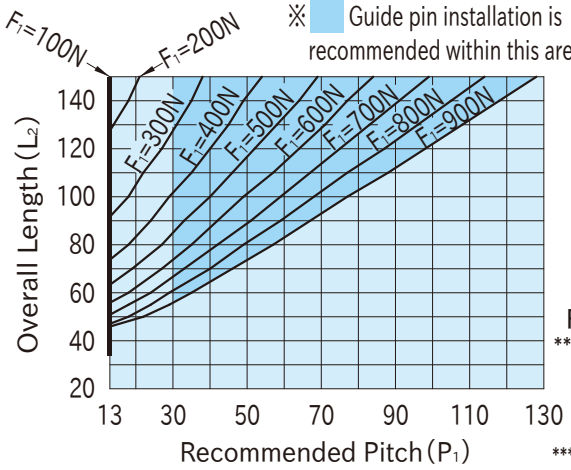
**) This is the load applied to the robot during attachment or detachment of the Finger Changer, based on internal testing. Use this value for reference only.

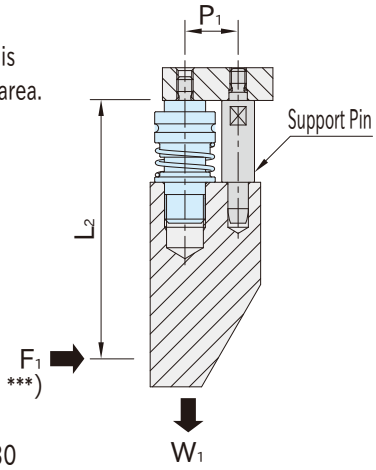
■Recommended Pitch by Finger Length and Load

QMCF0411-15-SUS



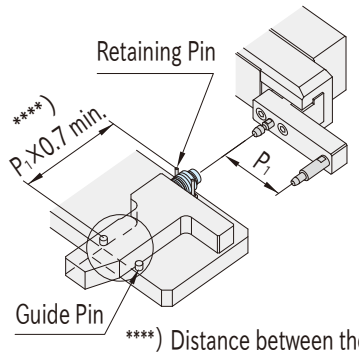
QMCF0615-20-SUS





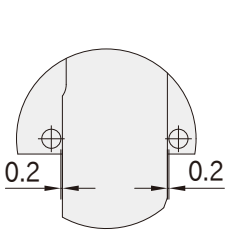
***) F_1 is the allowable load per finger. The total allowable load for the parallel gripper is $F_1 \times 2$.

■Finger Guiding

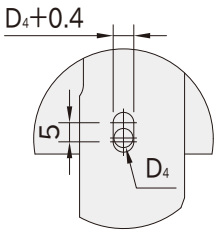


****) Distance between the retaining pin and guide pin

<Guide Pin Details>



Outer-Edge Guiding



Guiding with a Slot

The finger may tilt during attachment or detachment. A larger pitch (P_1) between the Finger Changer and the support pin increases misalignment caused by tilting, making pin engagement difficult. Provide guide pins or other guiding features to keep the finger aligned.

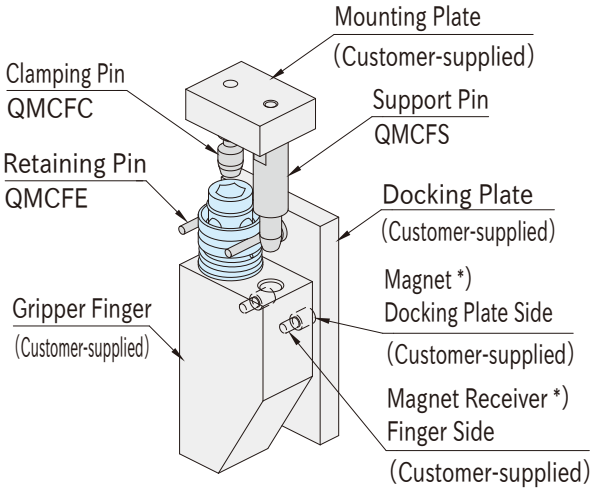
Guide Required When:

- QMCF0411 size: $P_1 \geq 20$
- QMCF0615 size: $P_1 \geq 30$

Configuration Examples

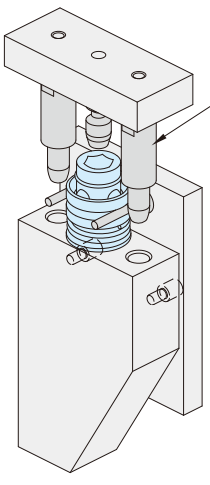
■Standard Positioning - One Support Pin

Positioning Repeatability: ±0.2

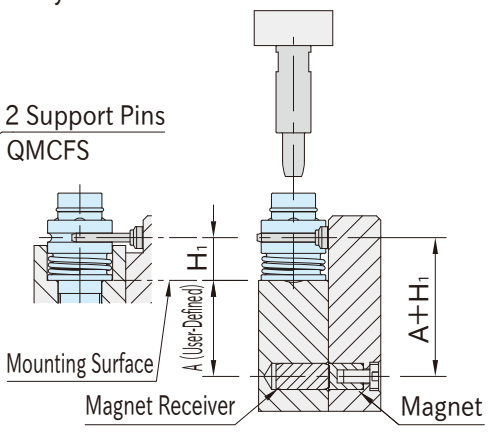


■Precision Positioning - Two Support Pins

Positioning Repeatability: ±0.03



<Magnet Details>



Position the magnet receiver and magnet as shown above.

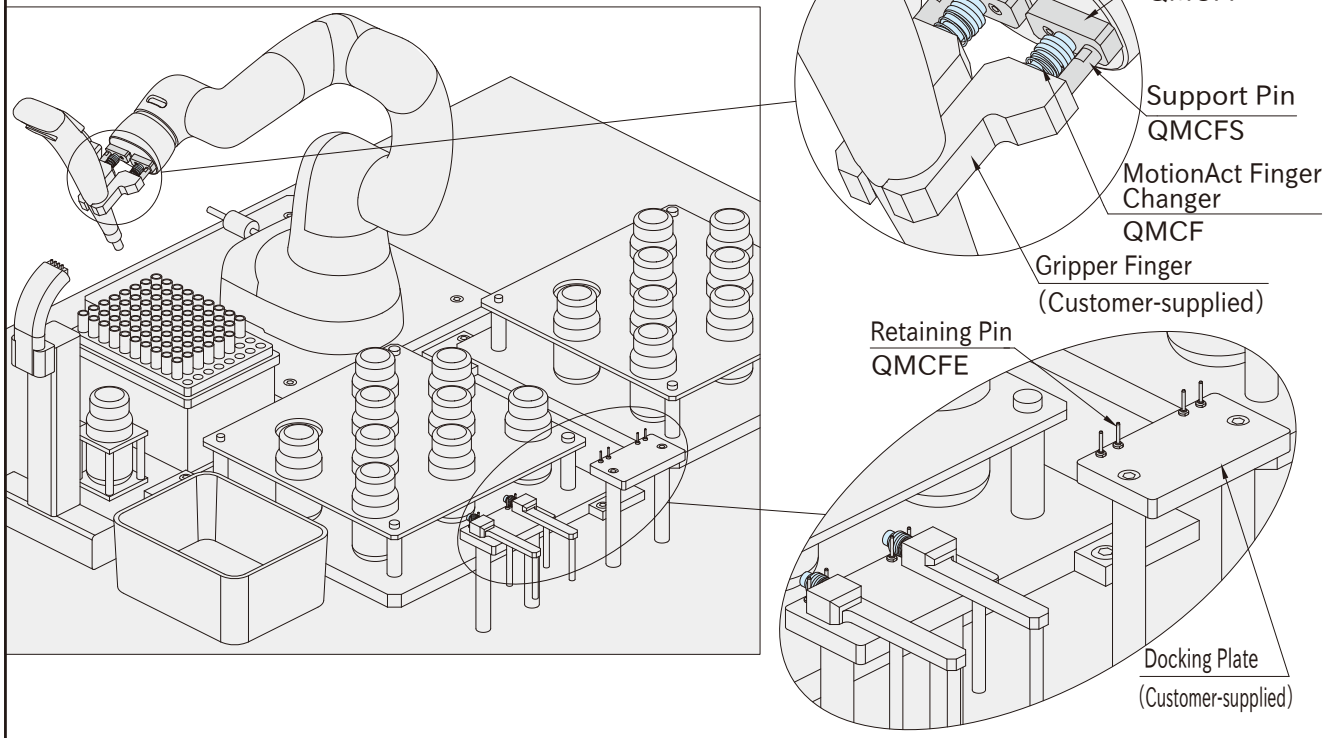
Refer to the following H_1 values:

- QMCF0411-15-SUS : 7
- QMCF0615-20-SUS : 9.8

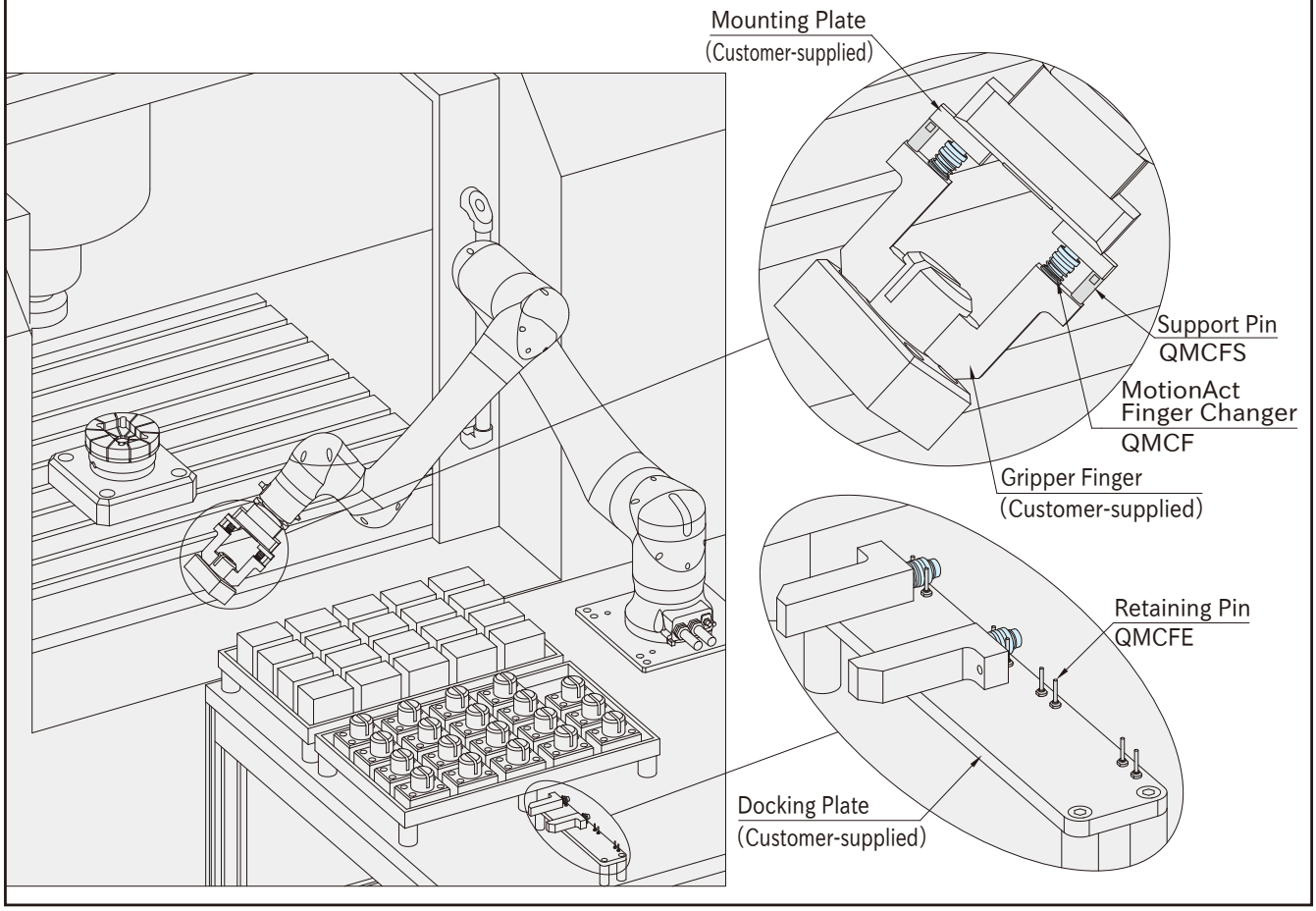
Note: When used in a vertical orientation, hold the finger in place with a magnet.

Application Example

Gripper Finger Change in a Laboratory
– Handling Sample Containers and Electric Pipettes



Gripper Finger Change for Machine Tending

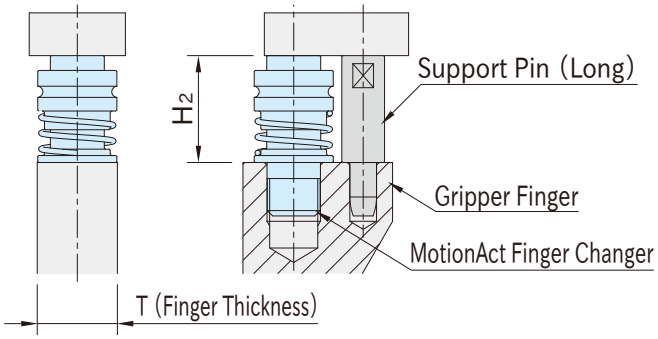


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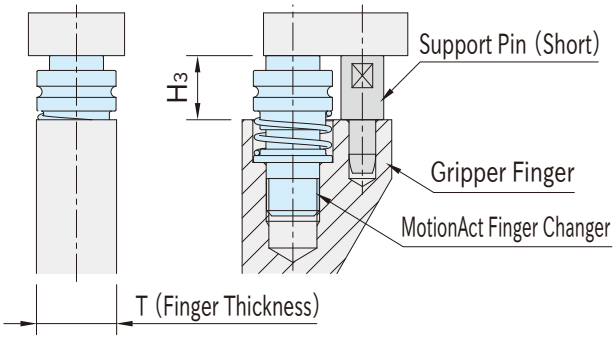
How To Install

■ Mounting Options

Standard Mounting

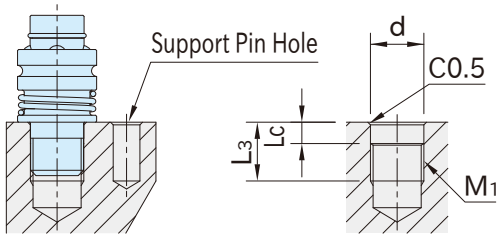


Recessed Mounting

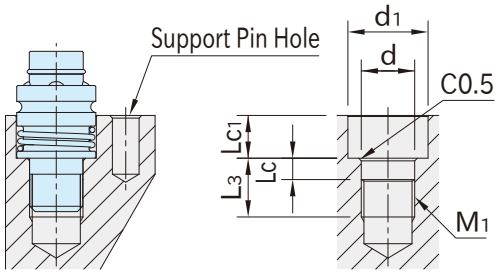


■Finger Changer Mounting Hole Dimensions

Standard Mounting

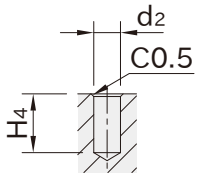


Recessed Mounting



Part Number	H_2	H_3	d $^{(+0.10)}_{(+0.05)}$	d_1 $^{(+0.3)}_{(+0.1)}$	M_1	L_3	Lc	Lc_1	T	
									Standard Mounting	Recessed Mounting
QMCF0411-15-SUS	15	10	8	11	M 8×1 (Fine Thread)	9	3.5	5	11 - 23	13 - 17.5
QMCF0615-20-SUS	20	12	10	15	M10×1 (Fine Thread)	11	4	8	15 - 30	17 - 23

■ Support Pin Hole Dimensions (Finger Side)



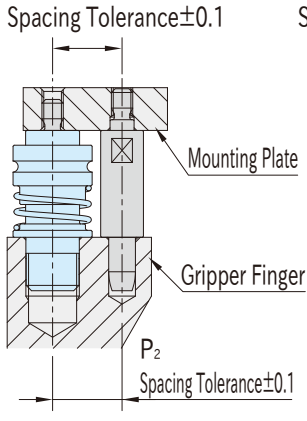
Part Number	d_2				H_4
	1 Support Pin		2 Support Pins *)		
QMCF0411-15-SUS	4	$(^{+0.35}_{+0.25})$	4	$(^{+0.02}_{0})$	9
QMCF0615-20-SUS	5		5		11

*) Use two support pins for precision positioning.

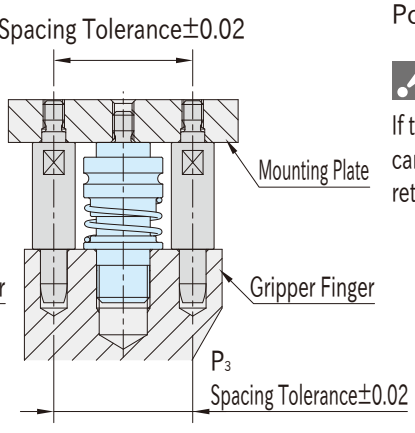
Accuracy

■Machining Accuracy

Standard Positioning



Precision Positioning



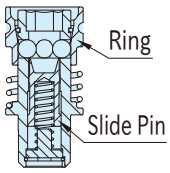
Part Number	P_2	P_3
QMCF0411-15-SUS	≥ 10	≥ 20
QMCF0615-20-SUS	≥ 13	≥ 26

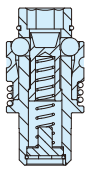
■ Repeatability

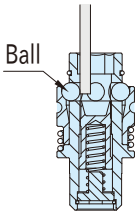
Positioning repeatability is ±0.2 mm for Standard Positioning and ±0.03 mm for Precision Positioning.

Caution

If the ring is displaced as shown, the clamping pin cannot be inserted. Follow step 1 or 2 below to return the Finger Changer to the unclamped state.







1. Push the ring downward to raise the slide pin and return the Finger Changer to the unclamped state.
2. If the slide pin does not rise in step 1, hold the ring down and use a thin rod to push the balls outward.

• COBOTTA is a registered trademark of DENSO WAVE INCORPORATED.

IMAO® fixtureworks®

QMCFC CLAMPING PINS

RoHS Stainless Steel

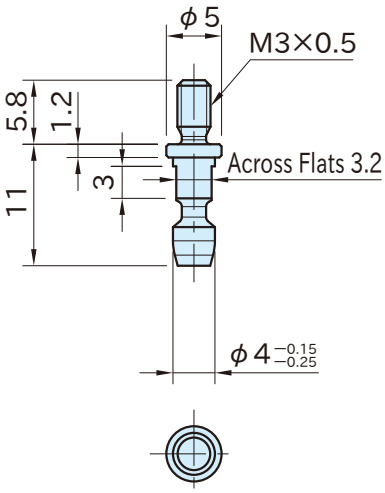
IMAO



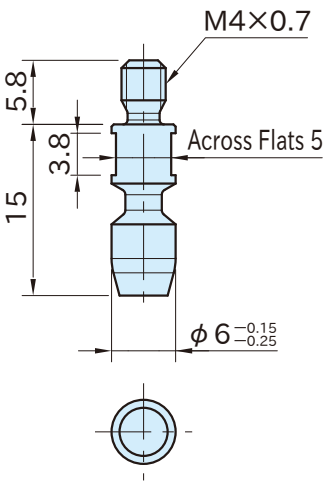
QMCFC0411-M3-SUS



QMCFC0615-M4-SUS



QMCFC0411-M3-SUS

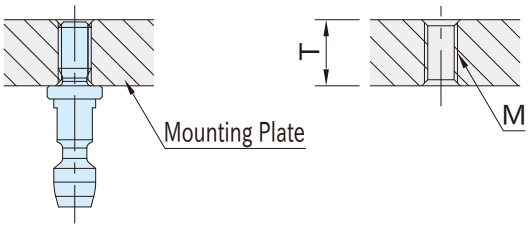


QMCFC0615-M4-SUS

Body
SUS630 stainless steel Precipitation hardened

Part Number	Weight (g)	MotionAct Finger Changers
QMCFC0411-M3-SUS	1	QMCF0411-15-SUS
QMCFC0615-M4-SUS	3	QMCF0615-20-SUS

How to Install



Part Number	M	T
QMCFC0411-M3-SUS	M3×0.5	≥ 6
QMCFC0615-M4-SUS	M4×0.7	≥ 8

Note

Color differences due to the hardening treatment do not affect product function or quality.

Reference

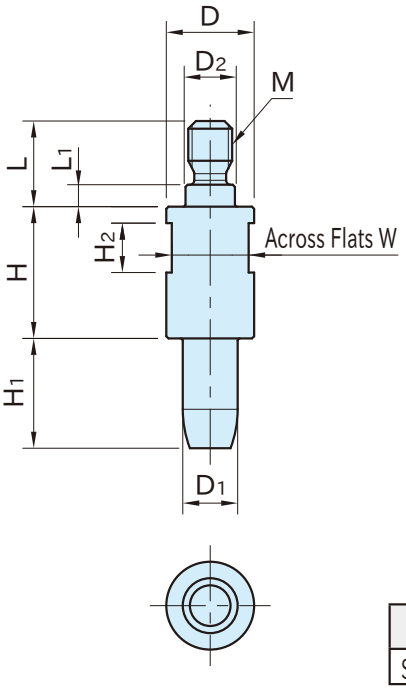
QMCF MotionAct Finger Changers

QMCFS SUPPORT PINS

RoHS Stainless Steel

IMAO



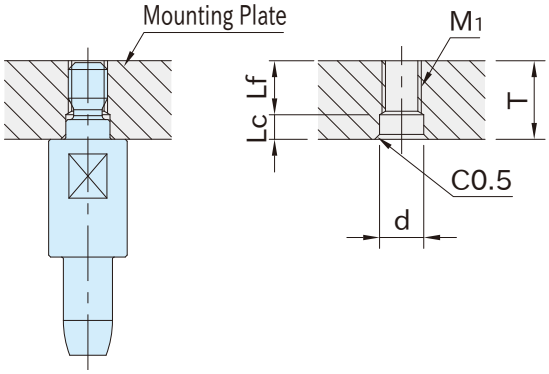


Body
SUS303 stainless steel

Part Number	Type	D	D_1 (-0.03 -0.05)	M	L	D_2 (-0.005 -0.025)	L_1	H (±0.02)	H_1	H_2	W	Weight (g)
QMCFS0411-0315-SUS	Long	6	4	M3×0.5	5.8	3.5	1.5	15	8	4	5	4.5
QMCFS0411-0310-SUS	Short							10				3
QMCFS0615-0420-SUS	Long	8	5	M4×0.7	7.8	4.5	2	20	10	4.5	7	10
QMCFS0615-0412-SUS	Short							12				7

Part Number	MotionAct Finger Changers
QMCFS0411-0315-SUS	QMCF0411-15-SUS
QMCFS0411-0310-SUS	
QMCFS0615-0420-SUS	QMCF0615-20-SUS
QMCFS0615-0412-SUS	

How to Install



Size	M_1	Lf	Lc	d (H8)	T
QMCFS0411	M3×0.5	4	2	3.5	≥ 6
QMCFS0615	M4×0.7	5.5	2.5	4.5	≥ 8

Reference

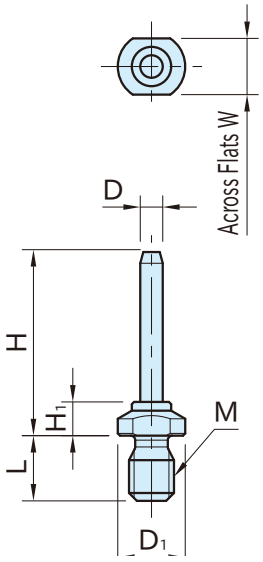
QMCF MotionAct Finger Changers

QMCFE RETAINING PINS

RoHS Stainless Steel

IMAO





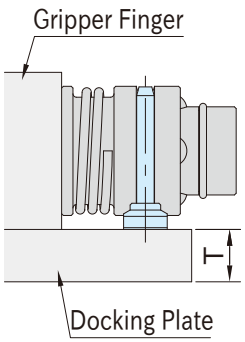
Body	Pin
SUS303 stainless steel	SUS440C stainless steel Quenched and tempered

Part Number	D	D_1	M	L	H	H_1	W	Weight (g)	MotionAct Finger Changers
QMCFE0411-0312-SUS	1.5	4.6	M3×0.5	4.5	12	2.2	4	0.5	QMCF0411-15-SUS
QMCFE0615-0416-SUS	2	6	M4×0.7	5.8	16	3	5	1.5	QMCF0615-20-SUS

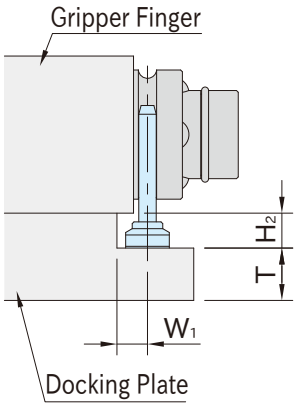
How to Install

■Mounting Options

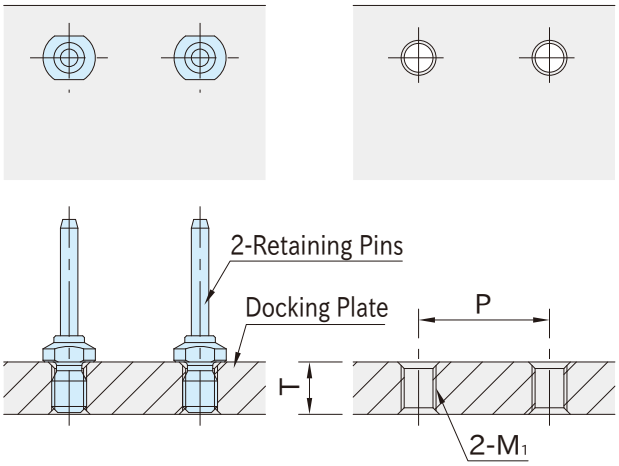
Standard Mounting



Recessed Mounting



■Mounting Hole Dimension



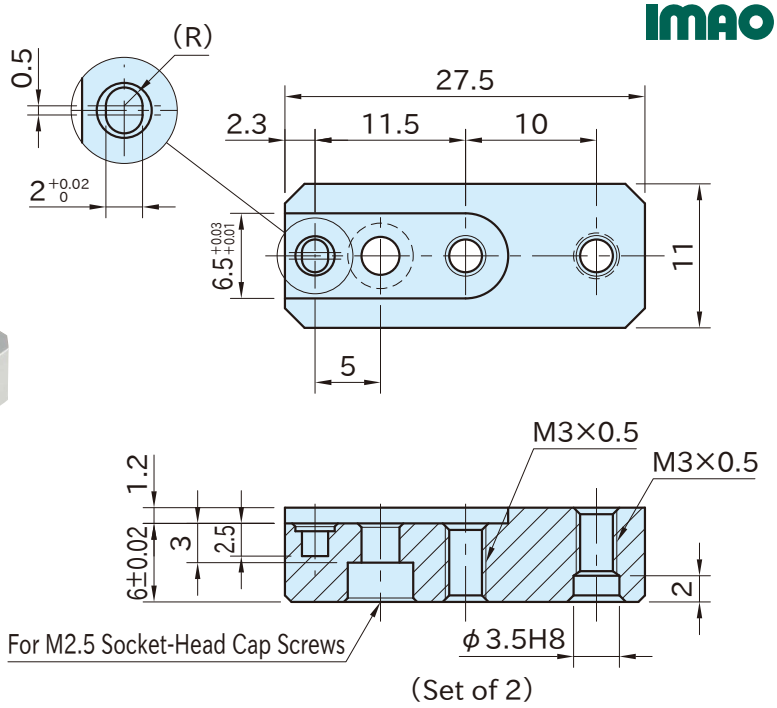
Part Number	P (±0.1)	M_1	T	H_2	W_1
QMCFE0411-0312-SUS	11	M3×0.5	≥ 5	2.7	≥ 2.8
QMCFE0615-0416-SUS	15	M4×0.7	≥ 6	3.5	≥ 3.5

Reference

QMCF MotionAct Finger Changers

QMCFP MOUNTING PLATES FOR COBOTTA





★Key Point

Easy mounting of the MotionAct Finger Changer on COBOTTA

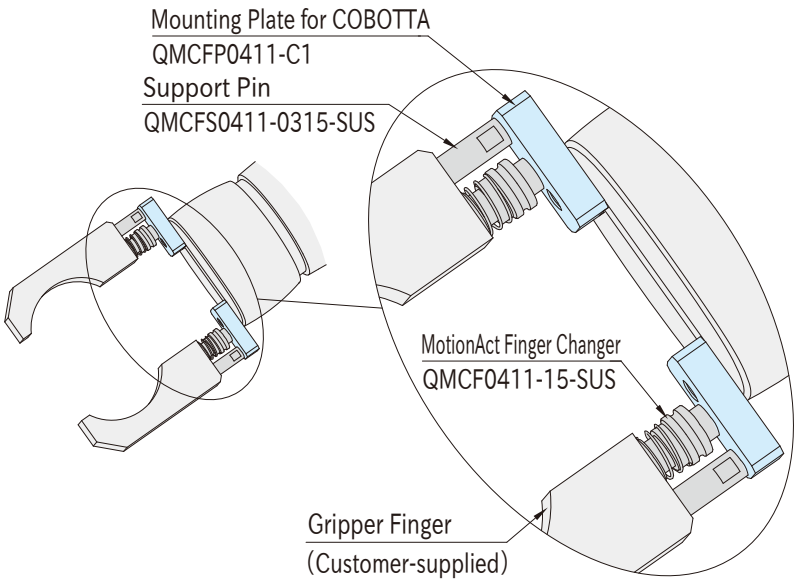
Part Number	Weight (g)	Clamping Pins	Support Pins
QMCFP0411-C1	10	QMCFC0411-M3-SUS	QMCFS0411-0315-SUS QMCFS0411-0310-SUS

Body
A5052 aluminum alloy Anodized

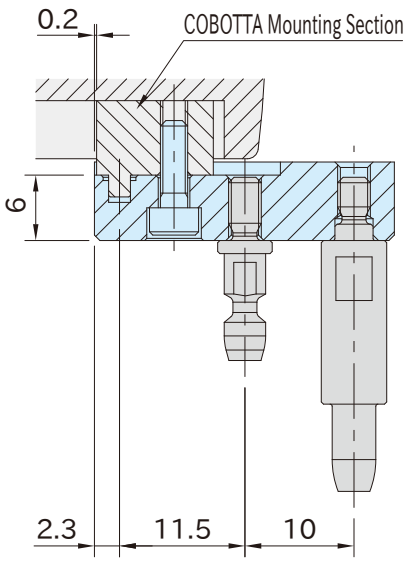
Application Example

A dedicated mounting plate for COBOTTA's optional electric gripper, enabling easy installation of the MotionAct Finger Changer.
For use with the QMCF0411-15-SUS MotionAct Finger Changer.

■How To Use



■Mounting Dimensions



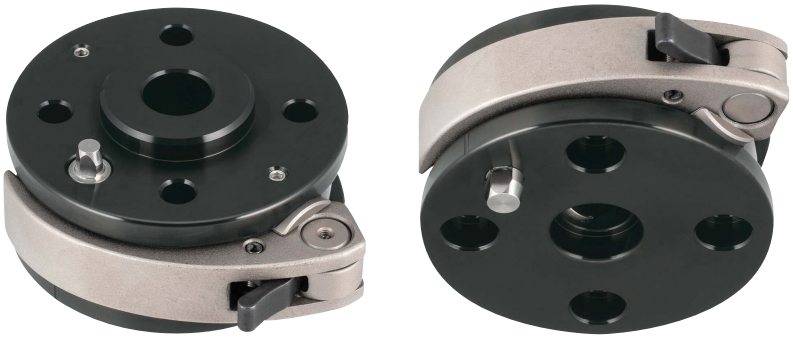
Supplied With

2 of socket-head cap screws (stainless steel), M2.5×0.45-8L

Note

- This mounting plate is for the QMCF0411-15-SUS MotionAct Finger Changer only.
  For QMCF0615-20-SUS, a customer-supplied mounting plate is required.
- COBOTTA is a registered trademark of DENSO WAVE INCORPORATED.

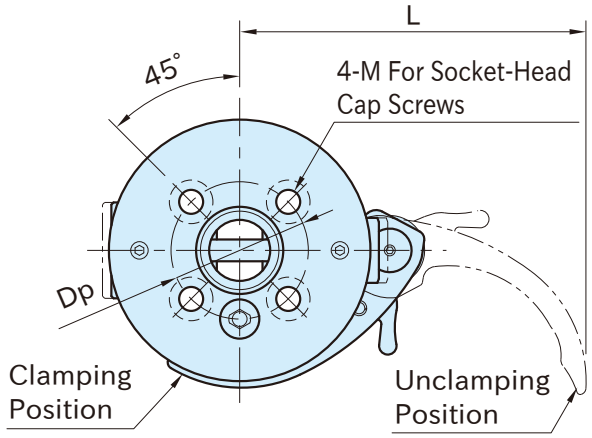
QRMTC ONE-TOUCH TOOL CHANGERS

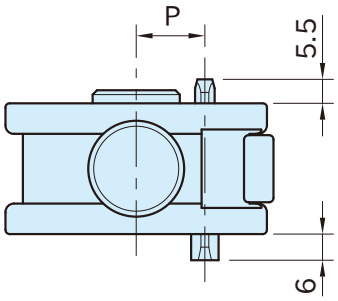


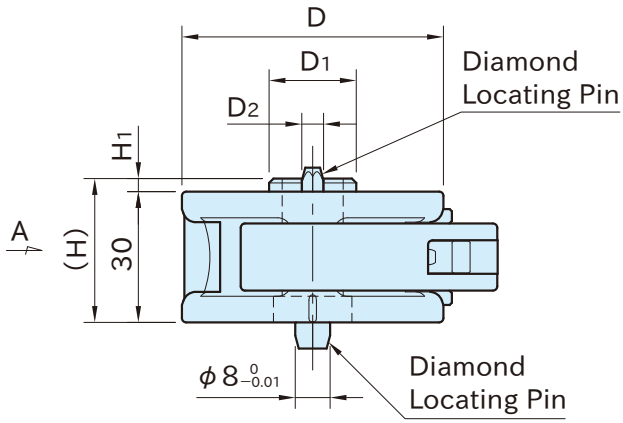
Body
Aluminum Electroless nickel plated Black
Locking Lever
SCM440 steel Quenched and tempered Electroless nickel plated
Release Button
S45C steel Quenched and tempered Nitrocarburized

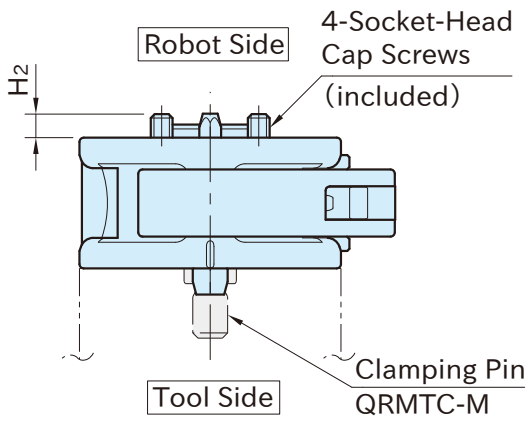
★Key Point

Space-saving manual changer with
one-touch operation and secure pin clamping.









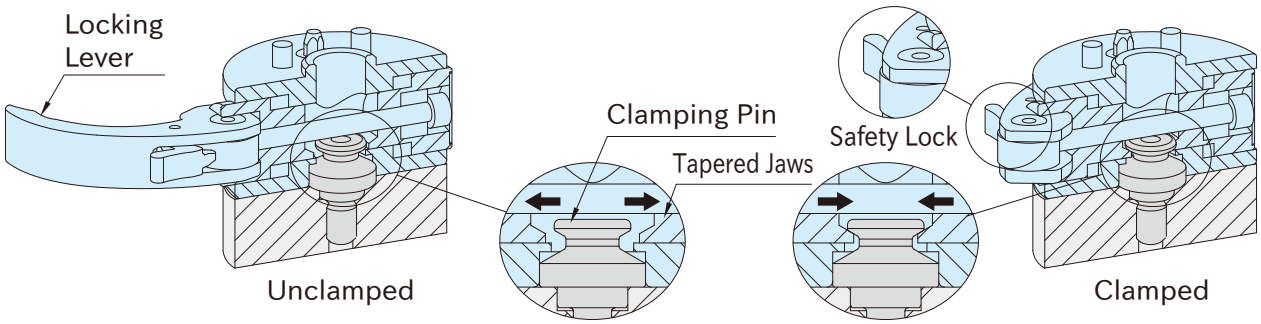
Part Number	D	D1 (f8)	H	H2	L	Dp	M	D2 (0 -0.01)	P (±0.02)	H2	Weight (g)	Clamping Pins
QRMTC2-6030	60	20	33	3	79.5	31.5	M5	5	15.75	5.4	295	QRMTC-M6F
QRMTC4-7030	70	31.5	35	5	95.5	50	M6	6	25	6.5	430	QRMTC-M8

Supplied With

- QRMTC2-6030 : 4 of socket-head cap screws, M5×0.8-30L
- QRMTC2-7030 : 4 of socket-head cap screws, M6×1-30L

Feature

・Can be mounted directly to ISO robot flange without adapter.
・Dual-sided tapered clamping jaws provide strong clamping with minimal operating force.
・The lever features a safety lock that prevents accidental release.
・Manual tool changer ideal for collaborative robots.



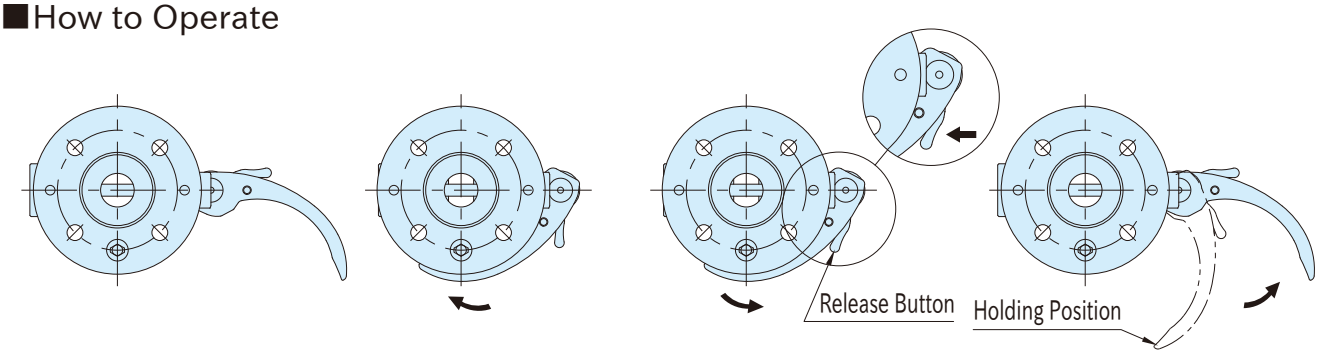
Technical Information

・Repeatability ±0.05mm
・Operating Temperature max.70℃ min.0℃

Part Number	Mounting Interface	Payload (kg)	Clamping Force (N)	Max. Static Bending Moment (N・m)	Max. Static Torque (N・m)
QRMTC2-6030	ISO9409-1-31.5-4-M5	7	800	20	30
QRMTC4-7030	ISO9409-1-50-4-M6	10	1200	30	45

How To Use

■How to Operate



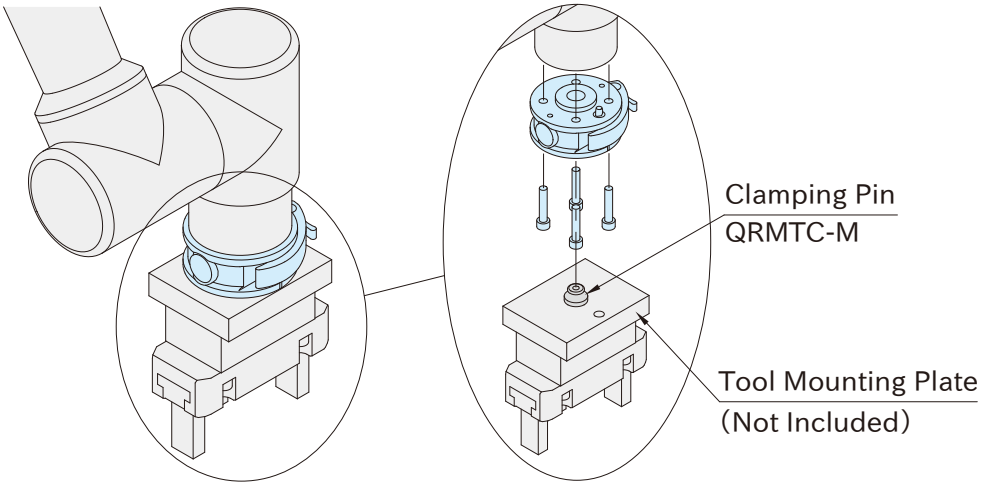
1. Insert
Insert the clamping pin with the lever in the unclamping position.

2. Clamp
Close the lever to the clamping position. The lever is automatically secured by the safety lock.

3. Unlock
Press and hold the release button, then open the lever to unlock it.

4. Remove
Open the lever to the unclamping position and remove the clamping pin. The pin remains locked while the lever is in the holding position.

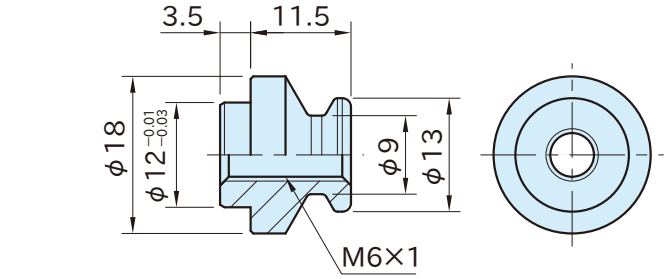
■Application Example



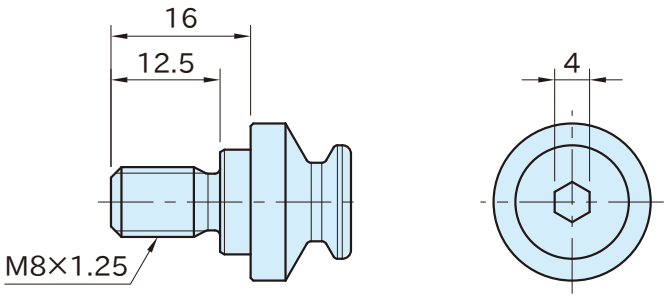
QRMTC-M CLAMPING PINS



QRMTC-M6F QRMTC-M8



QRMTC-M6F



QRMTC-M8

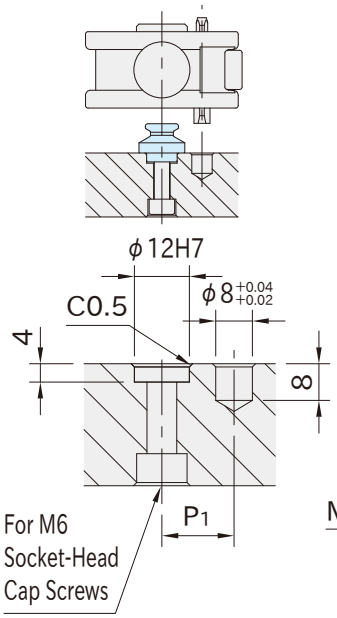
Part Number	Weight (g)	One-Touch Tool Changers
QRMTC-M6F	15	QRMTC2-6030
QRMTC-M8	21	QRMTC4-7030

Body
SCM440 steel Quenched and tempered Electroless nickel plated

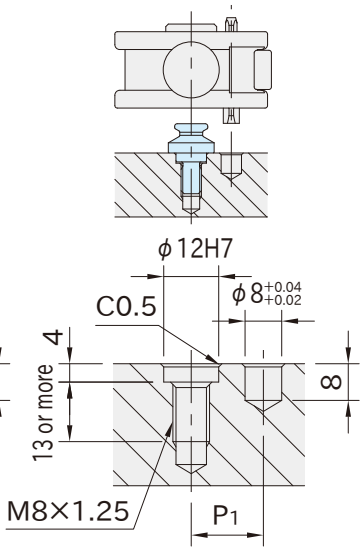
How To Use

■Mounting Hole Dimensions

QRMTC-M6F



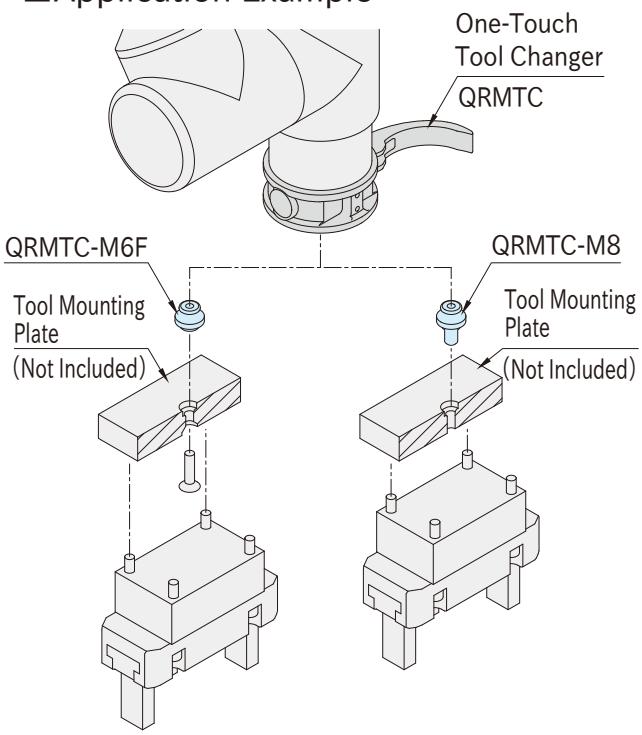
QRMTC-M8



*) Customer supplied, select length as required

One-Touch Tool Changers	P1 (±0.02)
QRMTC2-6030	15.75
QRMTC4-7030	25

■Application Example



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