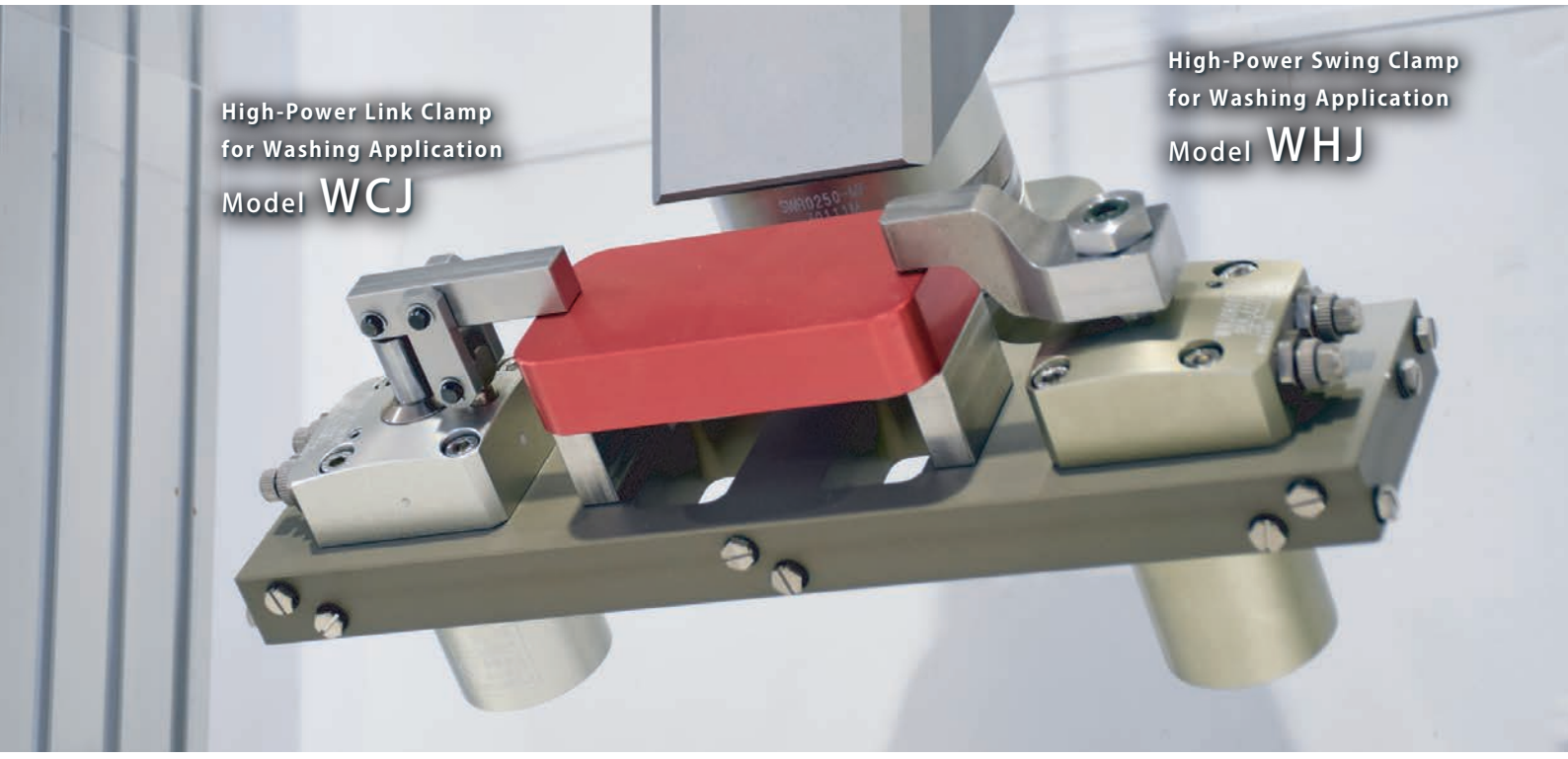
New For setup improvement of washing applications

Kosmek Products for Washing Application



KOSMEK
Harmony in Innovation

High-Power Swing Clamp for Washing Application Model WHJ

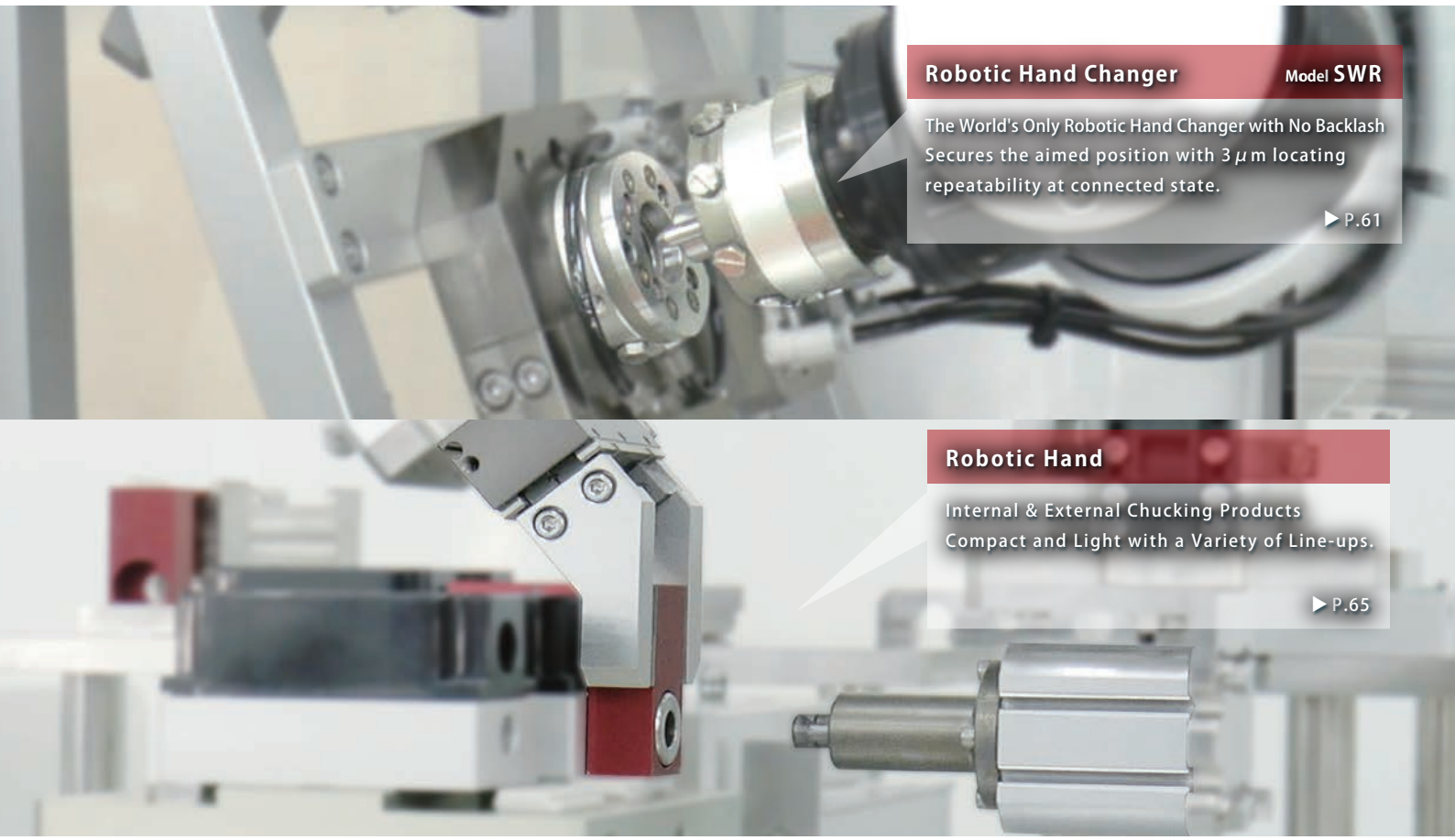
Suitable for High-Pressure Washing and with Powerful Clamping Force and Holding Force Equivalent to Hydraulic Clamps
The lever swings 90° to clamp workpiece. ▶ P.03

For High-Pressure Washing

High-Power Link Clamp for Washing Application Model WCJ

Suitable for High-Pressure Washing and with Powerful Clamping Force and Holding Force Equivalent to Hydraulic Clamps
The lever pivots to clamp workpiece.

▶ P.27



Robotic Hand Changer Model SWR

The World's Only Robotic Hand Changer with No Backlash
Secures the aimed position with 3 μm locating repeatability at connected state.

▶ P.61

Robotic Hand

Internal & External Chucking Products
Compact and Light with a Variety of Line-ups.

▶ P.65

Before / After Washing Process

Compact Location Clamp Model SWQ

For Pallet Exchange Automation
Clamping and locating at once
with 3 μm locating repeatability

▶ P.67

Auto Coupler

With the location clamp locked, air circuit is automatically connected to the pallet by Auto Coupler.

▶ P.68

High-Power Link Clamp for Washing Application

Model WCJ

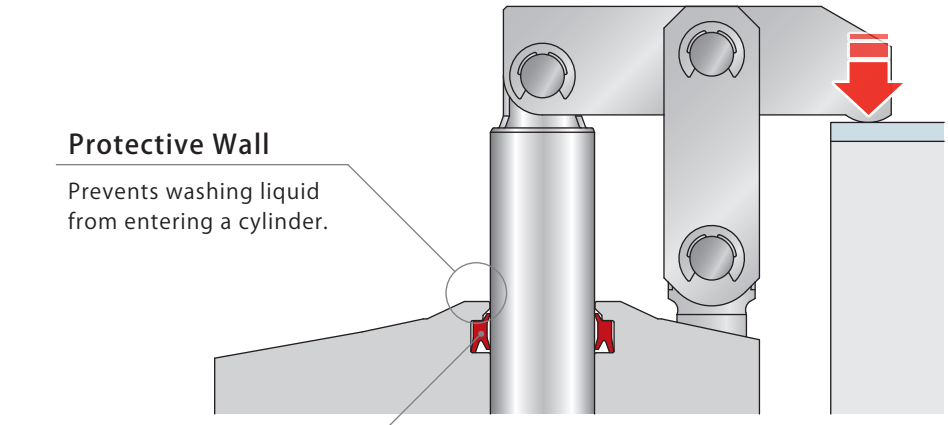
Suitable for High-Pressure Washing

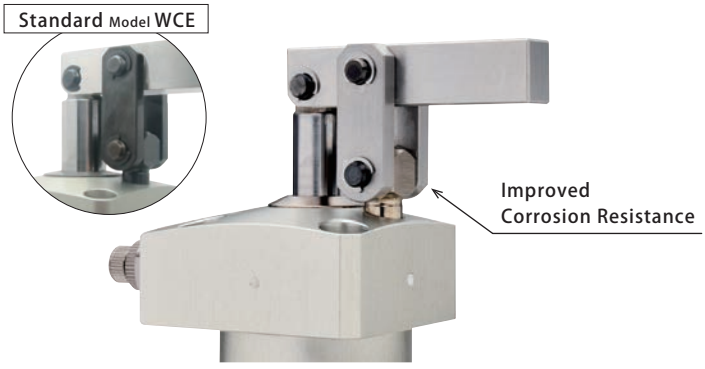
PAT.

Features

Durability Anticorrosion

The protective wall over the dust seal keeps washing liquid out.





Highly Durable Parts Designed for Washing Applications

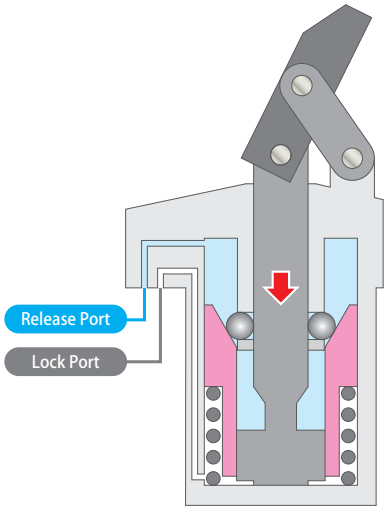
This model has high corrosion resistance in each part, improving anti-rust performance, compared to the standard High-Power Pneumatic Link Clamp (model WCE).

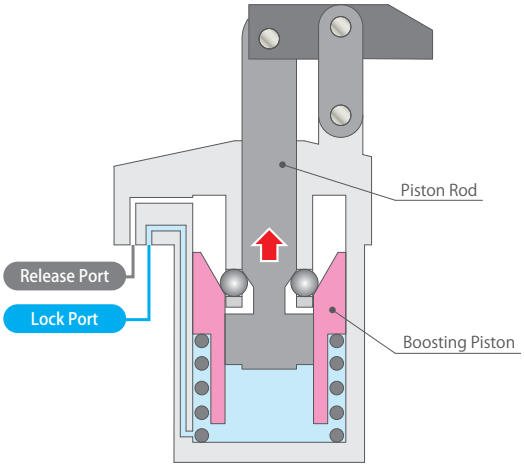
The High-Power Pneumatic Link Clamp is a hybrid system using air pressure and a mechanical lock.

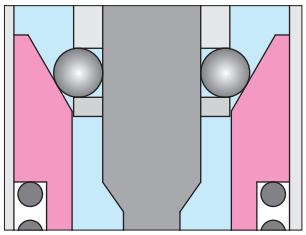
Action Description

Released State
Lock Air OFF
Release Air ON

Locked State
Lock Air ON
Release Air OFF

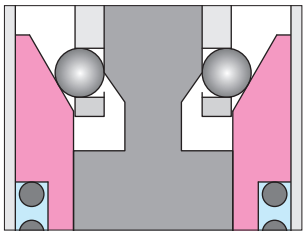




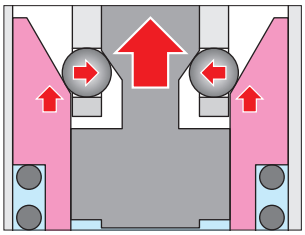


Released State

The piston rod descends to release.



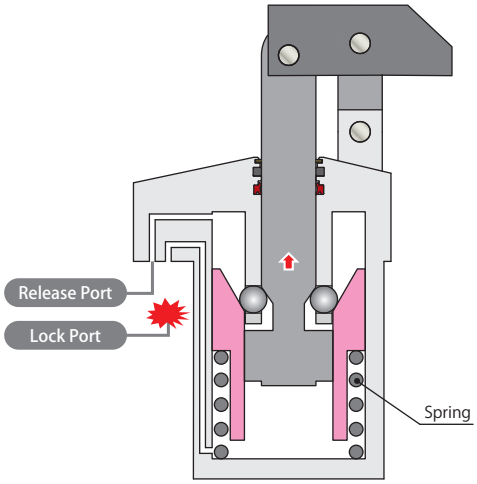
Locking Operation
(Idle Stroke Completed)

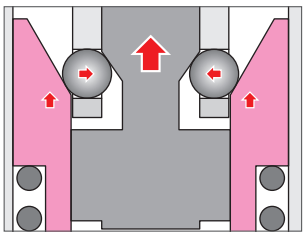


Locked State
(Boosting Stroke)

The piston rod ascends and the boosting piston activates. It exerts strong clamping force and holding force with the wedge mechanism.

Self-Locking State
Lock Air OFF
Release Air OFF



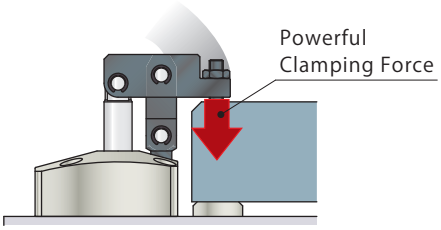


Self-Locking State
(Holding with Spring Force + Mechanical Lock)

If lock air pressure drops to zero at locked state, lock pressure is maintained with the internal spring and mechanical lock.

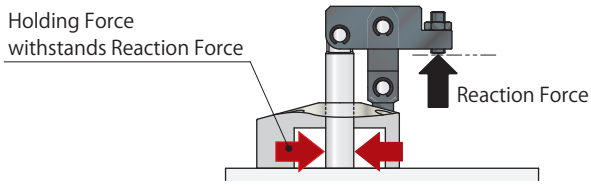
No Hydraulic Use

Washing fixture system with high-power pneumatic clamps exerting equivalent force to hydraulic clamps needs no hydraulic pressure.



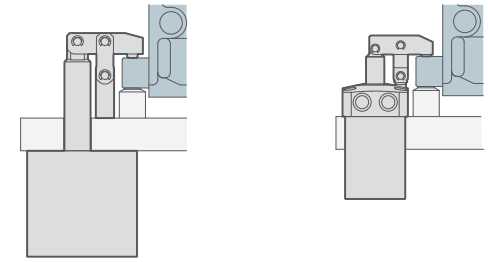
Holding Force

Minimal clamping force and powerful holding force minimize workpiece deformation. Mechanical locking allows holding force to exert 3 times the clamping force at most.



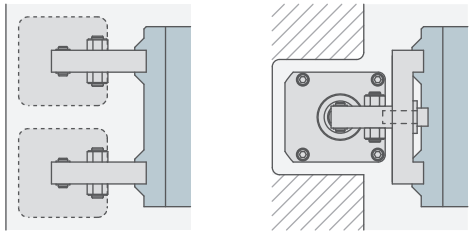
Smaller Footprint

Exerts three times clamping force compared to the same size general air cylinder. Smaller cylinder allows for more compact fixtures.



General Air Cylinder　High-Power Pneumatic Clamp

Downsized

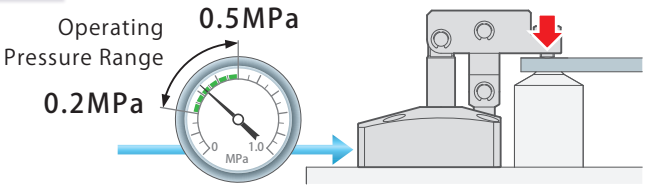


General Air Cylinder　High-Power Pneumatic Clamp

Reduced Number of Clamps

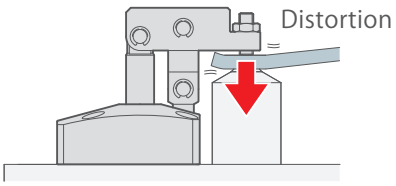
Energy Saving

Energy-saving clamp exerts high clamping force with low pressure.

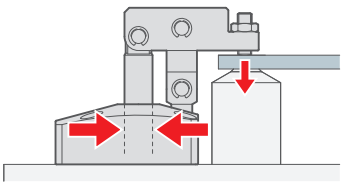


High Quality

Optimum clamping force does not distort workpiece and holding force is strong enough to withstand washing load.



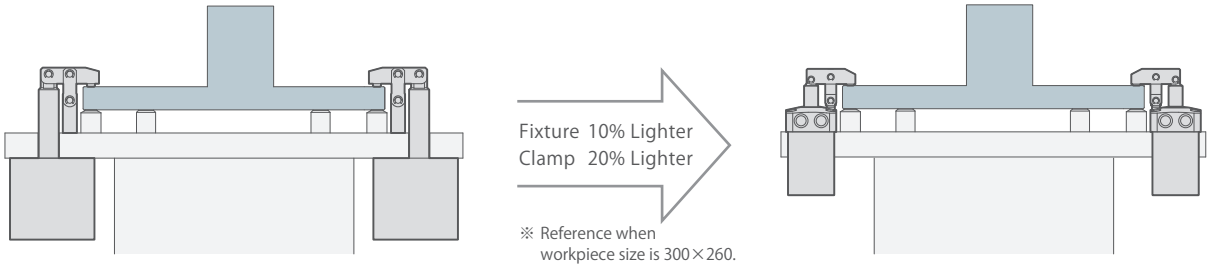
Strong clamping force distorts workpiece.



Clamping force is lowered, yet workpiece can be supported with holding force.

Light Weight

High-Power Link Clamp for Washing Application allows for lighter fixture, minimizing load to the positioner.



General Air Cylinder　High-Power Pneumatic Clamp

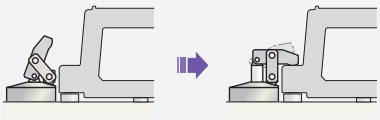
Lineup

Standard Model

Model **WCJ**

External Dimensions
→ P.41

Clamp with link mechanism



Air Sensing Manifold Option

Model **WCJ-M**

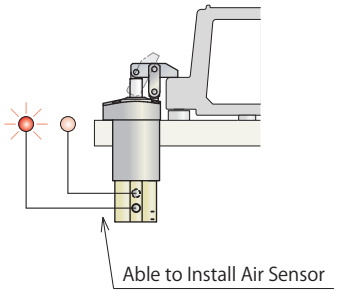
External Dimensions
→ P.43

Air Sensing Piping Option

Model **WCJ-N**

External Dimensions
→ P.45

Clamping action can be confirmed with air catch sensor



Accessories

Speed Control Valve

Model **BZW-A**

→ P.53

Manifold Block

Model **WHZ-MD**

→ P.55

Model No. Indication

WCJ 160 0 – 2 A R ☐

1 2 3 4 5

1 Cylinder Force

060：Cylinder Force 0.6kN (Pneumatic Pressure 0.5MPa)

100：Cylinder Force 0.9kN (Pneumatic Pressure 0.5MPa)

160：Cylinder Force 1.6kN (Pneumatic Pressure 0.5MPa)

250：Cylinder Force 2.5kN (Pneumatic Pressure 0.5MPa)

400：Cylinder Force 3.9kN (Pneumatic Pressure 0.5MPa)

※ Cylinder force differs from clamping force and holding force.

2 Design No.

0 ：Revision Number

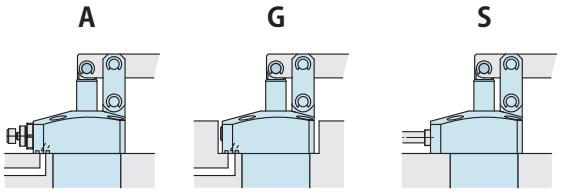
3 Piping Method

A ：Gasket Option (with Ports for Speed Controller)

G ：Gasket Option (with R Thread Plug)

S ：Piping Option (Rc Thread)

※ Speed control valve (BZW) is sold separately.
Please refer to P.53.



Gasket Option		Piping Option
With Ports for Speed Controller Includes R Thread Plug (order speed controller separately)	with R Thread Plug	Rc Thread No Gasket Port

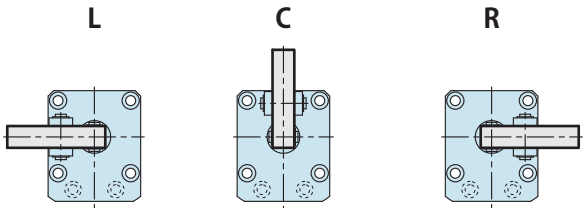
4 Lever Direction

L ：Left

C ：Center

R ：Right

※ The images show the lever direction when the piping port is placed in front of you.



5 Action Confirmation Method

Blank ：None (Standard)

M ：Air Sensing Manifold Option

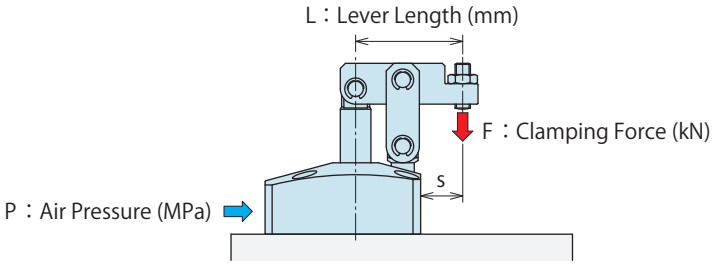
N ：Air Sensing Piping Option

Specifications

Model No.			WCJ0600-2□□□	WCJ1000-2□□□	WCJ1600-2□□□	WCJ2500-2□□□	WCJ4000-2□□□
Cylinder Force (at 0.5MPa) kN			0.6	0.9	1.6	2.5	3.9
Clamping Force			Refer to "Clamping Force Curve" on P.33				
Holding Force			Refer to "Holding Force Curve" on P.35				
Clamping Force and Holding Force at 0MPa			Refer to "Clamping Force and Holding Force Curve at 0 MPa" on P.37				
Full Stroke mm			19.5	22	23.5	27.5	33
(Break down)	Idle Stroke mm		16	18	19.5	23.5	29
	Lock Stroke ※1 mm		3.5	4	4	4	4
Cylinder Capacity cm^3	Lock	5 Blank	12.1	22.4	35.8	56.1	95.6
		5 M / N	11.0	20.6	33.9	53.0	91.9
	Release		10.5	19.9	32.1	50.6	85.2
Spring Force N			36.8 ～ 54.4	60.8 ～ 78.4	83.5 ～ 140.9	146.5 ～ 218.8	234.1 ～ 334.6
Max. Operating Pressure MPa			0.5				
Min. Operating Pressure※2 MPa			0.2				
Withstanding Pressure MPa			0.75				
Operating Temperature ℃			0 ～ 70				
Usable Fluid			Dry Air				

Notes:
※1. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of idle stroke.)
※2. Minimum pressure to operate the clamp without load.
1. Please see the external dimension if you need the information of mass.

Clamping Force Curve



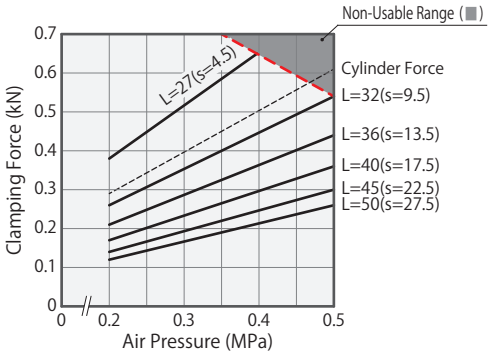
(How to read the Clamping Force Curve)
When using WCJ2500-2□□□
Supply Air Pressure 0.3MPa
Lever Length L=50mm
Clamping force is about 1.46kN.

Notes:
※1. F : Clamping Force (kN), P : Supply Air Pressure (MPa), L : Lever Length (mm).
1. Tables and graphs shown are the relationship between the clamping force (kN) and supply air pressure (MPa).
2. Cylinder force (When L=0) cannot be calculated from the calculation formula of clamping force.
3. Clamping force shows capability when a lever locks in a horizontal position.
4. The clamping force varies as per the lever length. Please use it with supply pneumatic pressure suitable for lever length.
5. Operation in the non-usable range can damage the clamp and lead to fluid leakage.

WCJ0600-2□□□

Clamping Force Calculation Formula※1(kN) $F = \frac{14.7 \times P + 1.1}{L - 16}$

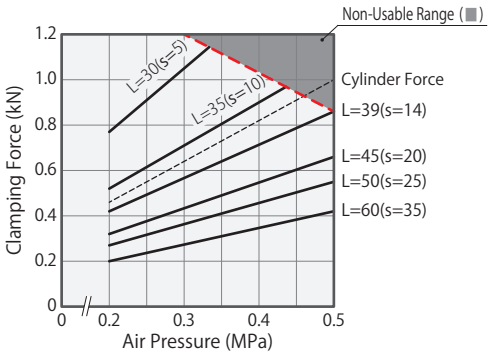
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Lever Length L (mm)						Min. Lever Length (mm)
		27	32	36	40	45	50	
0.5	0.59	■	0.53	0.42	0.35	0.29	0.25	32
0.4	0.49	0.63	0.44	0.35	0.29	0.24	0.21	27
0.3	0.38	0.50	0.34	0.28	0.23	0.19	0.16	24
0.2	0.28	0.37	0.25	0.20	0.17	0.14	0.12	23
Max. Operating Pressure (MPa)		0.40	0.50	0.50	0.50	0.50	0.50	



WCJ1000-2□□□

Clamping Force Calculation Formula※1(kN) $F = \frac{28.6 \times P + 2.2}{L - 19.5}$

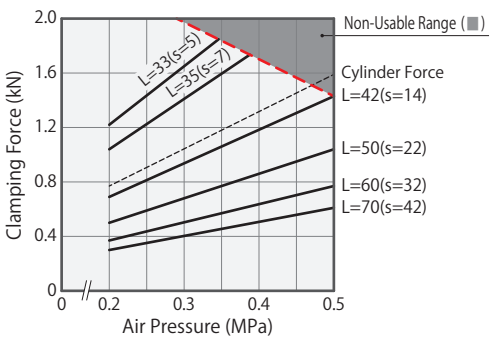
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Lever Length L (mm)						Min. Lever Length (mm)
		30	35	39	45	50	60	
0.5	0.94	■	■	0.85	0.65	0.54	0.41	39
0.4	0.78	■	0.88	0.70	0.54	0.45	0.34	33
0.3	0.62	1.03	0.70	0.55	0.42	0.35	0.27	29
0.2	0.45	0.76	0.51	0.41	0.31	0.26	0.20	25
Max. Operating Pressure (MPa)		0.33	0.43	0.50	0.50	0.50	0.50	



WCJ1600-2□□□

Clamping Force Calculation Formula※1(kN) $F = \frac{51.6 \times P + 4.3}{L - 21}$

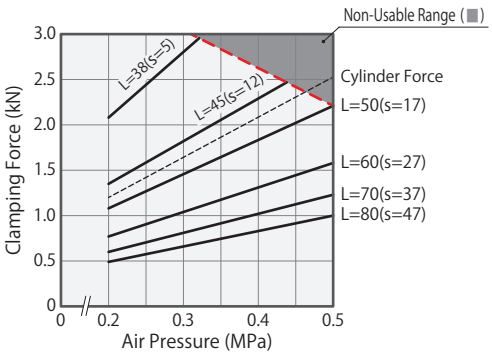
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Lever Length L (mm)						Min. Lever Length (mm)
		33	35	42	50	60	70	
0.5	1.59	■	■	1.43	1.04	0.77	0.61	42
0.4	1.32	■	■	1.19	0.86	0.64	0.51	36
0.3	1.05	1.65	1.41	0.94	0.68	0.51	0.40	31
0.2	0.77	1.22	1.04	0.70	0.50	0.37	0.30	28
Max. Operating Pressure (MPa)		0.35	0.39	0.50	0.50	0.50	0.50	



WCJ2500-2□□□

Clamping Force Calculation Formula※1 (kN) $F = \frac{93.9 \times P + 8.3}{L - 25}$

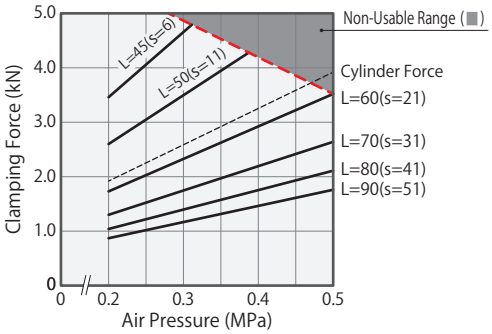
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Lever Length L (mm)						Min. Lever Length (mm)
		38	45	50	60	70	80	
0.5	2.46			2.21	1.58	1.23	1.00	50
0.4	2.04		2.29	1.83	1.31	1.02	0.83	42
0.3	1.62	2.81	1.82	1.46	1.04	0.81	0.66	37
0.2	1.20	2.08	1.35	1.08	0.77	0.60	0.49	33
Max. Operating Pressure (MPa)		0.32	0.43	0.50	0.50	0.50	0.50	



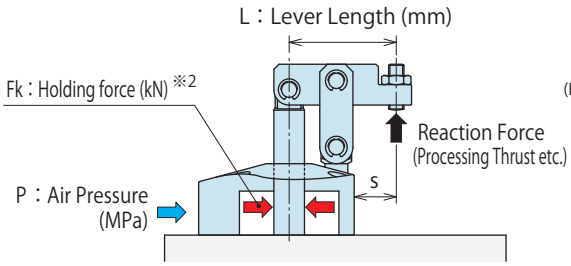
WCJ4000-2□□□

Clamping Force Calculation Formula※1 (kN) $F = \frac{179.2 \times P + 16.1}{L - 30}$

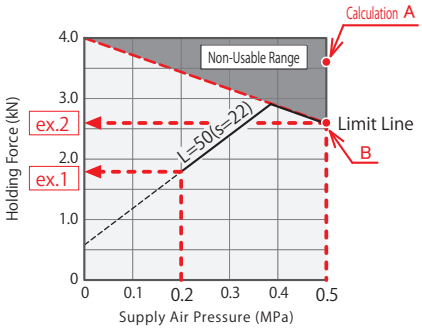
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■) Lever Length L (mm)						Min. Lever Length (mm)
		45	50	60	70	80	90	
0.5	3.92			3.52	2.64	2.11	1.76	60
0.4	3.25			2.93	2.19	1.76	1.46	51
0.3	2.59	4.66	3.49	2.33	1.75	1.40	1.16	44
0.2	1.92	3.46	2.60	1.73	1.30	1.04	0.87	39
Max. Operating Pressure (MPa)		0.31	0.39	0.50	0.50	0.50	0.50	



Holding Force Curve



(Reading of holding force：example1)
When WCJ1600-2□□□ is used.
Supply Air Pressure 0.2MPa, Lever Length L=50mm
Holding force is about 1.79kN.
(Reading of holding force：example2)
In the case of using WCJ1600-2□□□
Supply Air Pressure 0.5MPa, Lever Length L= 50 mm
A calculated value becomes the holding force.
The value of tolerance part B which met the limit line becomes holding force which can counter to reaction force, and holding force becomes about 2.58 kN(s).

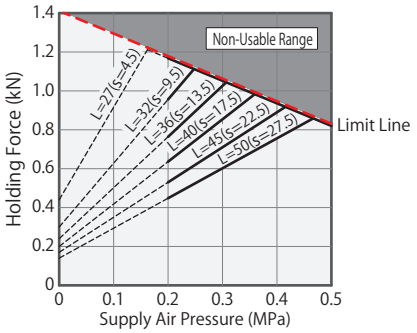


Notes:
※2. Holding force shows the force which can counter to reaction force in the clamping state, and differ from clamp force.
Moreover, keep in mind that it may produce displacement depending on lever rigidity even if it is the reaction force below holding force.
(When slight displacement is also not allowed, please keep the reaction force beyond clamp force from being added.)
※3. Fk : Holding force (kN) , P : Supply air pressure (MPa) , L : Lever length (mm).
When a holding force calculated value exceeds the value of a limit line, holding force becomes a value of a limit line.
1. This table and the graph show the relation between holding force (kN) and supply pneumatic pressure (MPa).
2. Holding force shows capability when a lever locks in a horizontal position.
3. Holding force changes with lever length. Please use it with supply pneumatic pressure suitable for lever length.
4. Operation in the non-usable range can damage the clamp and lead to fluid leakage.

WCJ0600-2□□□

Holding Force Formula ※3 (kN) (Fk ≦ Limit Line Value) $Fk = \frac{52.4 \times P + 4.8}{L - 16}$

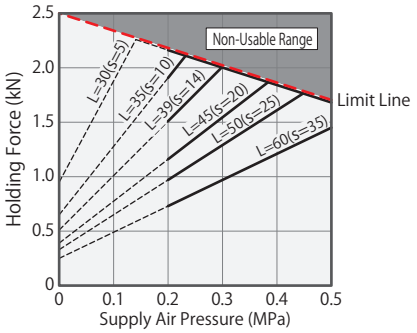
Supply Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)						Non-Usable Range Limit Line Value (kN)
	27	32	36	40	45	50	
0.5	■	0.82	0.82	0.82	0.82	0.82	0.82
0.4	0.94	0.94	0.94	0.94	0.89	0.76	0.94
0.3	1.05	1.05	1.03	0.86	0.71	0.60	1.05
0.2	1.17	0.96	0.76	0.64	0.53	0.45	1.17



WCJ1000-2□□□

Holding Force Formula ※3 (kN) (Fk ≦ Limit Line Value) $Fk = \frac{97.6 \times P + 10.0}{L - 19.5}$

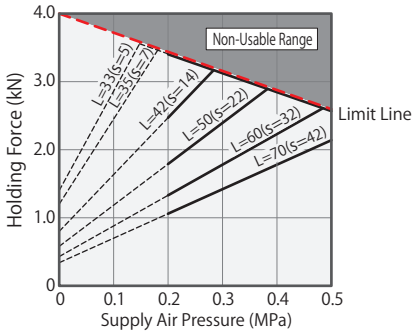
Supply Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)						Non-Usable Range Limit Line Value (kN)
	30	35	39	45	50	60	
0.5	■	■	1.67	1.67	1.67	1.45	1.67
0.4	■	1.84	1.84	1.84	1.61	1.21	1.84
0.3	2.01	2.01	2.01	1.54	1.29	0.97	2.01
0.2	2.18	1.90	1.51	1.16	0.97	0.73	2.18



WCJ1600-2□□□

Holding Force Formula ※3 (kN) (Fk ≦ Limit Line Value) $Fk = \frac{175.2 \times P + 16.8}{L - 21}$

Supply Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)						Non-Usable Range Limit Line Value (kN)
	33	35	42	50	60	70	
0.5	■	■	2.58	2.58	2.58	2.13	2.58
0.4	■	■	2.86	2.86	2.23	1.77	2.86
0.3	3.14	3.14	3.14	2.39	1.78	1.42	3.14
0.2	3.42	3.42	2.47	1.79	1.33	1.06	3.42

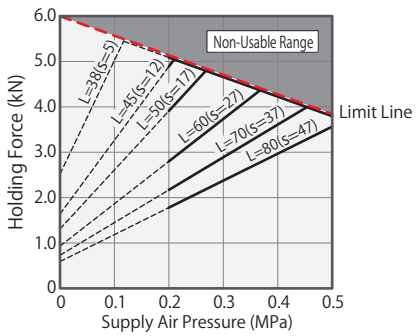


WCJ2500-2□□□

Holding Force Formula ※3 (Fk ≦ Limit Line Value) (kN)

$$Fk = \frac{325.6 \times P + 32.6}{L - 25}$$

Supply Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)						Non-Usable Range Limit Line Value (kN)
	38	45	50	60	70	80	
0.5	■	■	3.81	3.81	3.81	3.55	3.81
0.4	■	4.24	4.24	4.24	3.62	2.96	4.24
0.3	4.67	4.67	4.67	3.72	2.90	2.37	4.67
0.2	5.10	4.89	3.91	2.79	2.17	1.78	5.10

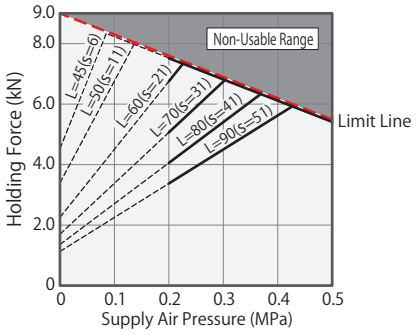


WCJ4000-2□□□

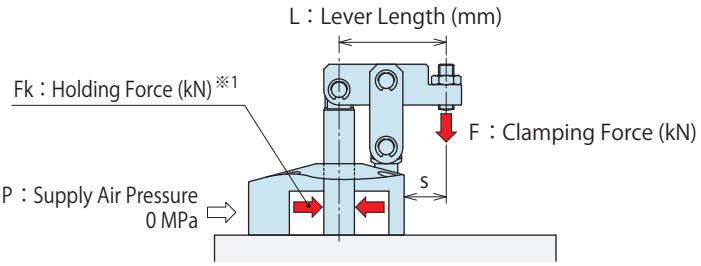
Holding Force Formula ※3 (Fk ≦ Limit Line Value) (kN)

$$Fk = \frac{673.9 \times P + 68}{L - 30}$$

Supply Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■) Lever Length L (mm)						Non-Usable Range Limit Line Value (kN)
	45	50	60	70	80	90	
0.5	■	■	5.48	5.48	5.48	5.48	5.48
0.4	■	■	6.16	6.16	6.16	5.63	6.16
0.3	6.85	6.85	6.85	6.75	5.40	4.50	6.85
0.2	7.53	7.53	6.76	5.07	4.06	3.38	7.53



Clamping Force and Holding Force Curve at 0MPa



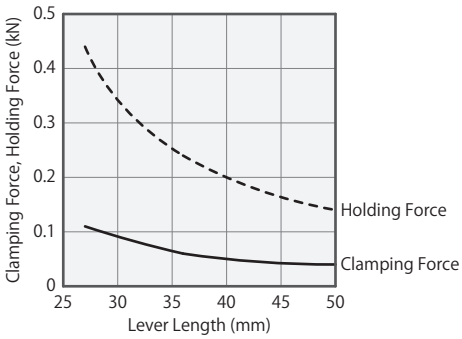
(Reading of the clamping force and holding force curve at zero air pressure)
When using WCJ1600-2□□□
When air supply is shut off at clamped state:
Supply Air Pressure =0MPa
Lever Length L= 50 mm
Clamping force becomes about 0.15 kN.
Holding force becomes about 0.58 kN.

Notes:
※1. Holding force shows the force which can counter to reaction force at clamped state, and differs from clamping force.
Moreover, keep in mind that it may produce displacement depending on lever rigidity even if it is the reaction force below holding force.
(When slight displacement is also not allowed, please keep the reaction force beyond clamp force from being added.)
※2. F : Clamping force (kN) , Fk : Holding force (kN) , L : Lever length (mm).
1. This table and the graph show the relation between lever length (mm) and the clamping force (kN) and holding force (kN) at the time of 0MPa.
2. The clamping force and holding force at the time of zero air pressure show capability when a lever locks in a level position.
3. Clamping force and holding force change with lever length.

WCJ0600-2□□□

Clamping Force Formula at 0MPa ※2	(kN)	$F = \frac{1.1}{L - 16}$
Holding Force Formula at 0MPa ※2	(kN)	$Fk = \frac{4.8}{L - 16}$

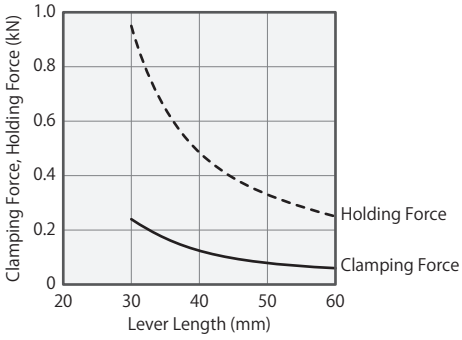
Lever Length	(mm)	27	32	36	40	45	50
Clamping Force Reference Value at 0MPa (kN)		0.10	0.07	0.06	0.05	0.04	0.03
Holding Force Reference Value at 0MPa (kN)		0.44	0.30	0.24	0.20	0.17	0.14



WCJ1000-2□□□

Clamping Force Formula at 0MPa ※2	(kN)	$F = \frac{2.2}{L - 19.5}$
Holding Force Formula at 0MPa ※2	(kN)	$Fk = \frac{10.0}{L - 19.5}$

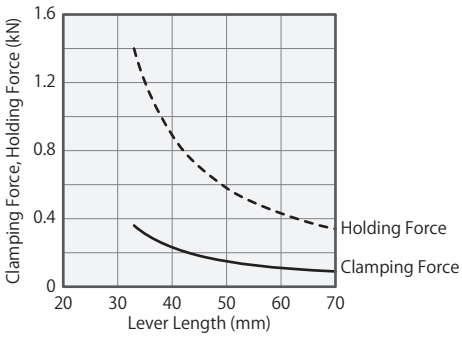
Lever Length	(mm)	30	35	39	45	50	60
Clamping Force Reference Value at 0MPa (kN)		0.21	0.14	0.11	0.09	0.07	0.05
Holding Force Reference Value at 0MPa (kN)		0.95	0.65	0.51	0.39	0.33	0.25



WCJ1600-2□□□

Clamping Force Formula at 0MPa ※2	(kN)	$F = \frac{4.3}{L - 21}$
Holding Force Formula at 0MPa ※2	(kN)	$Fk = \frac{16.8}{L - 21}$

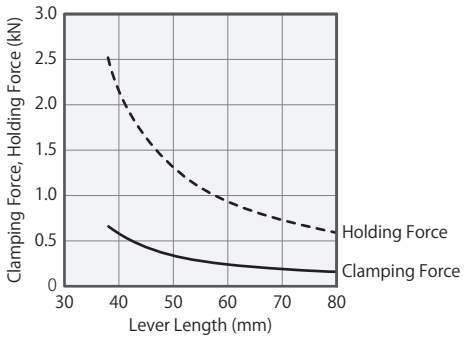
Lever Length	(mm)	33	35	42	50	60	70
Clamping Force Reference Value at 0MPa (kN)		0.36	0.31	0.20	0.15	0.11	0.09
Holding Force Reference Value at 0MPa (kN)		1.40	1.20	0.80	0.58	0.43	0.34



WCJ2500-2□□□

Clamping Force Formula at 0MPa ※2	(kN)	$F = \frac{8.3}{L - 25}$
Holding Force Formula at 0MPa ※2	(kN)	$Fk = \frac{32.6}{L - 25}$

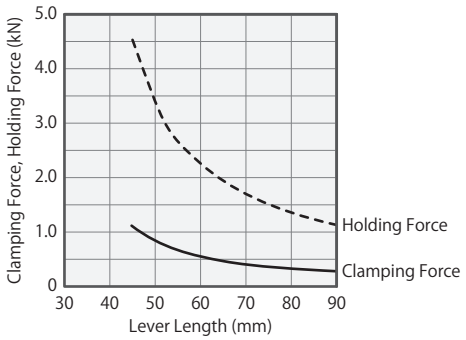
Lever Length (mm)	38	45	50	60	70	80
Clamping Force Reference Value at 0MPa (kN)	0.64	0.42	0.33	0.24	0.18	0.15
Holding Force Reference Value at 0MPa (kN)	2.51	1.63	1.30	0.93	0.72	0.59



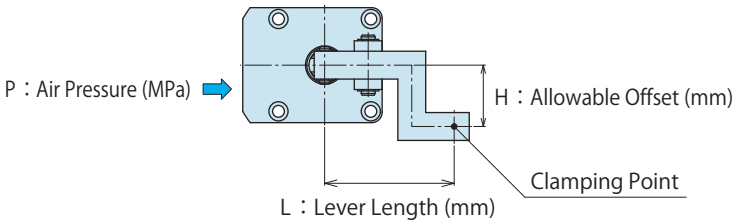
WCJ4000-2□□□

Clamping Force Formula at 0MPa ※2	(kN)	$F = \frac{16.1}{L - 30}$
Holding Force Formula at 0MPa ※2	(kN)	$Fk = \frac{68.0}{L - 30}$

Lever Length (mm)	45	50	60	70	80	90
Clamping Force Reference Value at 0MPa (kN)	1.07	0.80	0.54	0.40	0.32	0.27
Holding Force Reference Value at 0MPa (kN)	4.53	3.40	2.27	1.70	1.36	1.13



Allowable Offset Graph



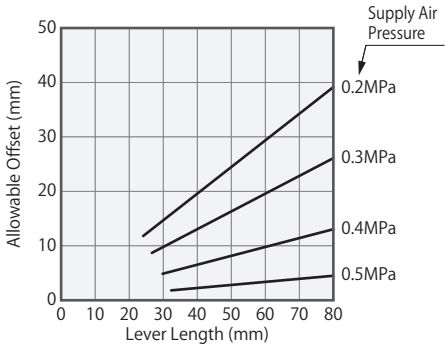
(Reading of the Allowable Offset Graph)
When using WCJ2500-2□□□
Supply Air Pressure 0.3MPa,
Lever Length L=50mm,
Allowable Offset is about 18mm.

Notes:

1. Tables and graphs shown are the relationships between the lever length (mm) for supply air pressure (MPa) and the allowable offset (mm).
2. Using the lever beyond allowable offset may cause deformation, galling and fluid leakage etc.
3. The tables and graphs are only for reference. The design should be carried out with allowance fully taken into consideration.

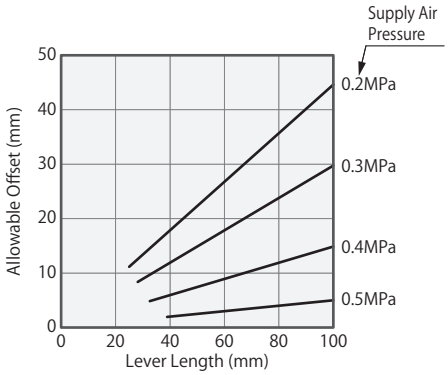
WCJ0600-2□□□

Supply Air Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range ( )					
	L=27	L=32	L=36	L=40	L=45	L=50
0.5		2	2	2	3	3
0.4	4	5	6	7	7	8
0.3	9	10	12	13	15	16
0.2	13	16	18	20	22	24



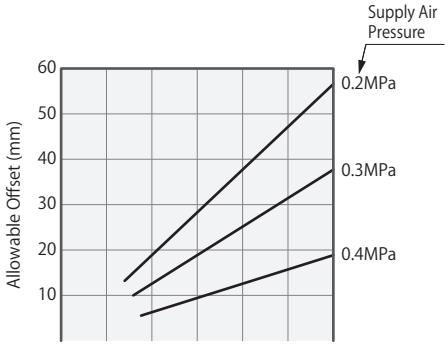
WCJ1000-2□□□

Supply Air Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range ( )					
	L=30	L=35	L=39	L=45	L=50	L=60
0.5			2	2	3	3
0.4		5	6	7	7	9
0.3	9	10	12	13	15	18
0.2	13	16	17	20	22	27



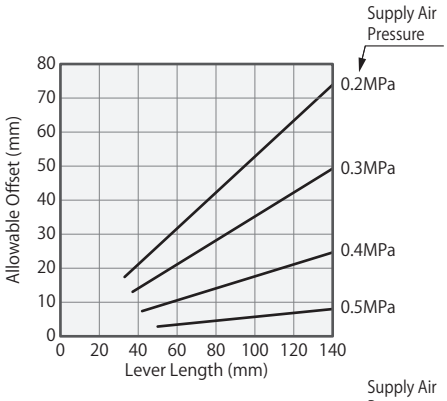
WCJ1600-2□□□

Supply Air Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range ( )					
	L=33	L=35	L=42	L=50	L=60	L=70
0.5			2	3	3	4
0.4			7	8	9	11
0.3	10	11	13	16	19	22
0.2	16	17	20	24	28	33



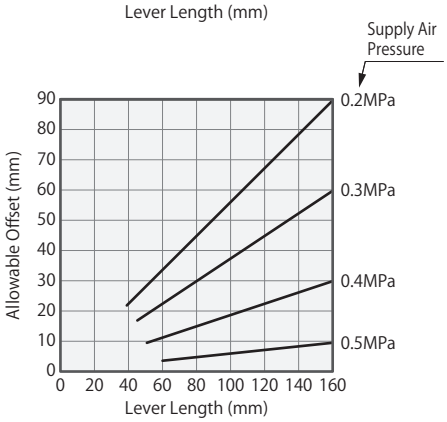
WCJ2500-2□□□

Supply Air Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range ( )					
	L=38	L=45	L=50	L=60	L=70	L=80
0.5			3	3	4	5
0.4		8	9	11	12	14
0.3	13	16	18	21	25	28
0.2	20	24	26	32	37	42



WCJ4000-2□□□

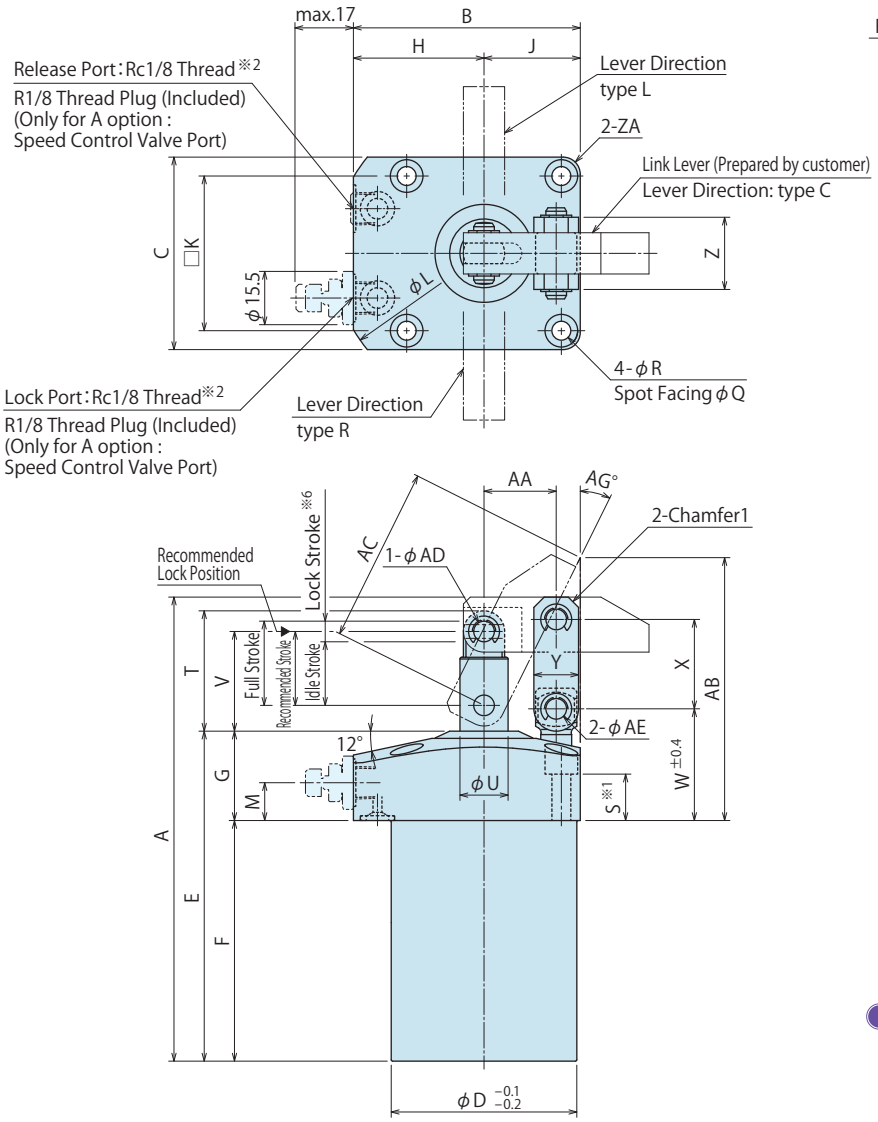
Supply Air Pressure (MPa)	Allowable Offset H (mm) Non-Usable Range ( )					
	L=45	L=50	L=60	L=70	L=80	L=90
0.5			4	4	5	5
0.4			11	13	15	17
0.3	17	19	22	26	30	34
0.2	25	28	34	39	45	50

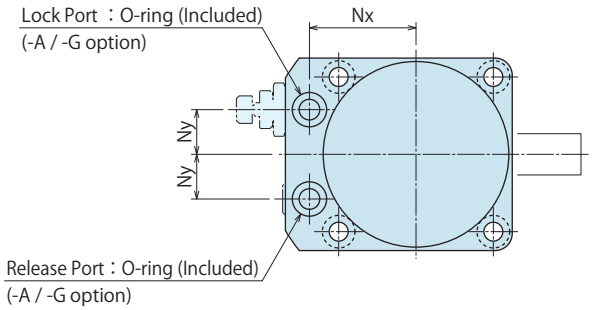


External Dimensions

A：Gasket Option (With Ports for Speed Controller：R-Thread Plug Included)

※ The drawing shows the locked state of WCJ-2AC.





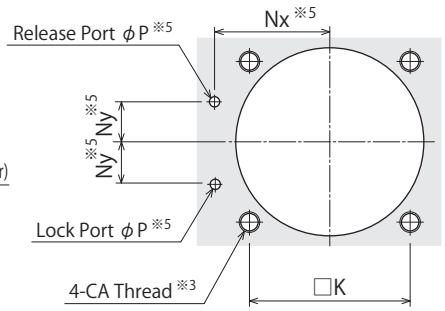
Notes：

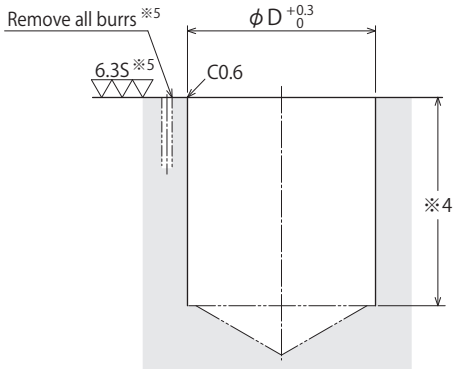
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

※2. Speed control valve is sold separately. Please refer to P.53.

1. Please use the attached pin (equivalent to φADf6, φAEf6, HRC60) as the mounting pin for lever.

Machining Dimensions of Mounting Area





Notes：

※3. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

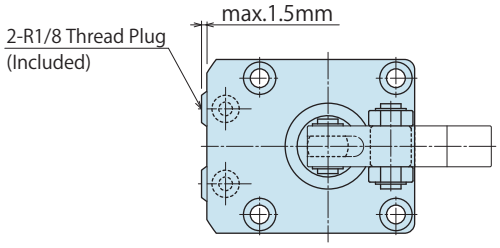
※4. The depth of the body mounting hole φD should be decided according to the mounting height referring to dimension 'F'.

※5. The machining dimension is for -A/-G：Gasket Option.

Piping Method

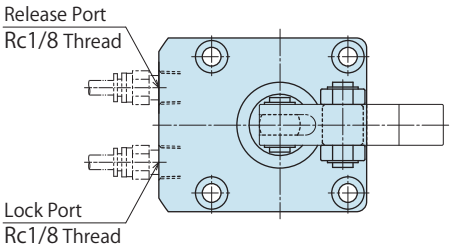
G：Gasket Option (with R Thread Plug)

※The drawing shows the locked state of WCJ-2GC.

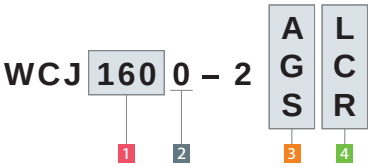


S：Piping Option (Rc Thread)

※The drawing shows the locked state of WCJ-2SC.



Model No. Indication



(Format Example：WCJ1000-2AR, WCJ2500-2SL)

1 Cylinder Force
2 Design No.
3 Piping Method
4 Lever Direction

External Dimensions and Machining Dimensions for Mounting

(mm)

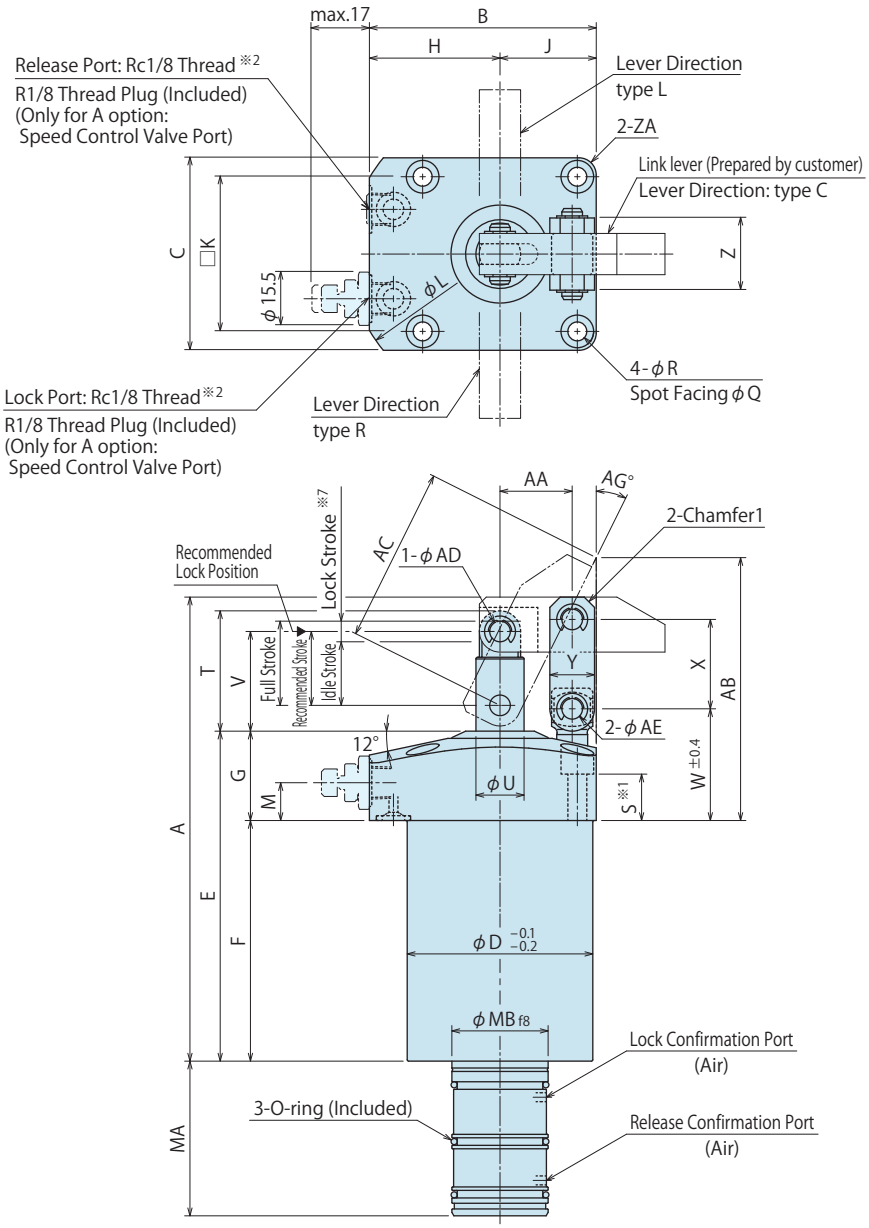
Model No.		WCJ0600-2□□	WCJ1000-2□□	WCJ1600-2□□	WCJ2500-2□□	WCJ4000-2□□
	Full Stroke	19.5	22	23.5	27.5	33
(Break	Idle Stroke	16	18	19.5	23.5	29
down)	Lock Stroke ※6	3.5	4	4	4	4
Recommended Stroke		17.5	20	21.5	25.5	31
A		111.5	123	134.5	157.5	184
B		54	60	66	76	87
C		45	50	56	66	78
D		40	46	54	64	77
E		80.5	89	95.5	110.5	126
F		54.5	63	69.5	79.5	94.5
G		26	26	26	31	31.5
H		31.5	35	38	43	48
J		22.5	25	28	33	39
K		34	39	45	53	65
L		72	79	88	98	113
M		11	11	11	11	11
Nx		26	28	31	36	41
Ny		9	10	13	15	20
P		max. ϕ3	max. ϕ5	max. ϕ5	max. ϕ5	max. ϕ5
Q		9.5	9.5	9.5	11	11
R		5.5	5.5	5.5	6.8	6.8
S		15.5	14	13.5	16	15
T		27.5	30.5	35	39	49
U		10	12	14	16	20
V		23	26	29	33	41
W		31	31	32.5	37.5	40.5
X		20.5	23.5	26	32.5	39.5
Y		11	11	13	16	18
Z		19	19	21	28	37
Chamfer 1		C2.5	C2.5	C3	C3	C5
AA		16	19.5	21	25	30
AB		76.1	72	76.5	92.2	105.7
AC		49.8	46.9	50.9	62.7	74.7
AD		5	5	6	6	8
AE		5	5	6	8	10
AG		21.6°	26.5°	26.4°	26.1°	25.2°
CA (Nominal × Pitch)		M5×0.8	M5×0.8	M5×0.8	M6×1	M6×1
ZA (Chamfer)		C3	R5	R5	R6	R6
O-ring (-A/-G option)		1BP5	1BP7	1BP7	1BP7	1BP7
Mass ※7	kg	0.5	0.6	0.9	1.4	2.3

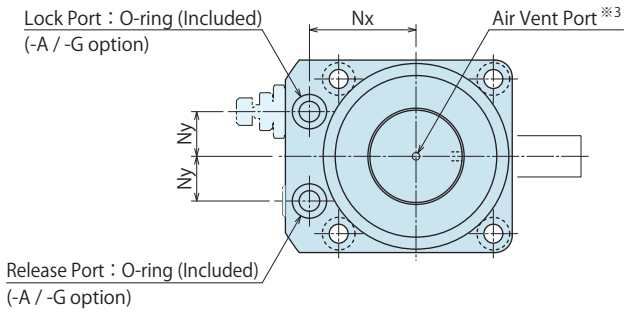
Notes: ※6. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range.
(The specification value is not fulfilled when clamping within the range of idle stroke.)
※7. Mass of single clamp without the link lever.

External Dimensions

A：Gasket Option (With Ports for Speed Controller：R-Thread Plug Included)

※ The drawing shows the locked state of WCJ-2ACM.





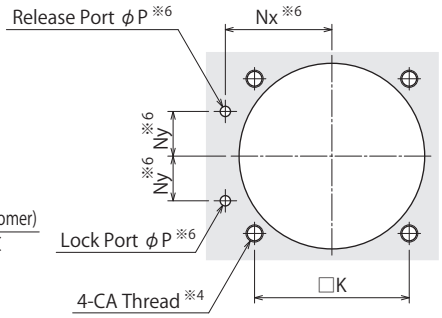
Notes：

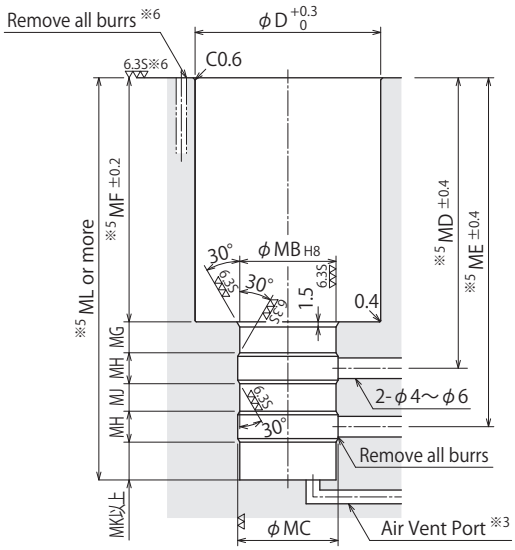
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

※2. Speed control valve is sold separately. Please refer to P.53.

1. Please use the attached pin (equivalent to ϕADf6, ϕAEf6, HRC60) as the mounting pin for lever.
2. Please refer to P.47~48 for air sensing chart.

Machining Dimensions of Mounting Area





Notes：

※3. Air vent port must be open to the atmosphere, and prevent washing liquid.

※4. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

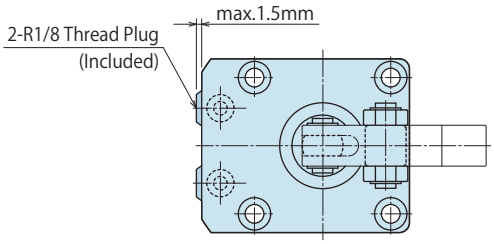
※5. The dimensions indicate those under the flange.

※6. The machining dimension is for -A/-G：Gasket Option.

Piping Method

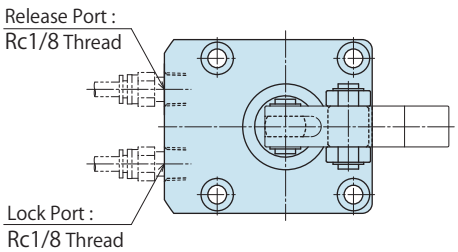
G：Gasket Option (With R Thread Plug)

※The drawing shows the locked state of WCJ-2GCM.



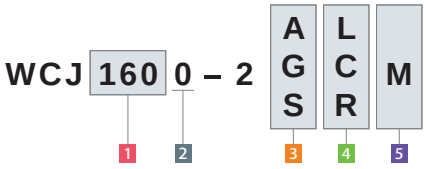
S：Piping Option (Rc Thread)

※The drawing shows the locked state of WCJ-2SCM.



Model No. Indication

(Format Example：WCJ1000-2ARM, WCJ2500-2SLM)



1 Cylinder Force
2 Design No.
3 Piping Method
4 Lever Direction
5 Action Confirmation (When M is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

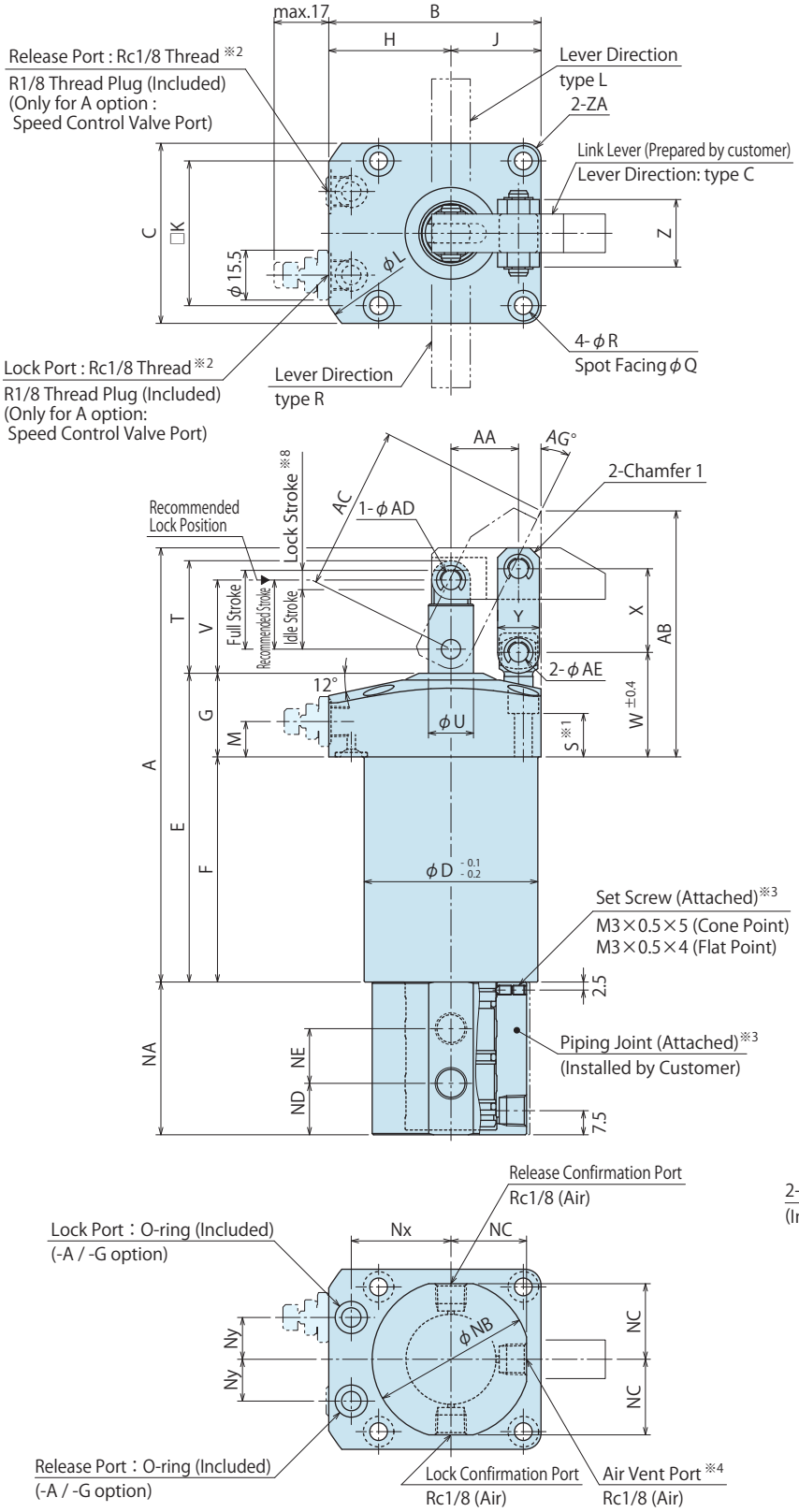
Model No.	WCJ0600-2□□M	WCJ1000-2□□M	WCJ1600-2□□M	WCJ2500-2□□M	WCJ4000-2□□M
Full Stroke	19.5	22	23.5	27.5	33
(Break down) Idle Stroke	16	18	19.5	23.5	29
(Break down) Lock Stroke※7	3.5	4	4	4	4
Recommended Stroke	17.5	20	21.5	25.5	31
A	111.5	123	134.5	157.5	184
B	54	60	66	76	87
C	45	50	56	66	78
D	40	46	54	64	77
E	80.5	89	95.5	110.5	126
F	54.5	63	69.5	79.5	94.5
G	26	26	26	31	31.5
H	31.5	35	38	43	48
J	22.5	25	28	33	39
K	34	39	45	53	65
L	72	79	88	98	113
M	11	11	11	11	11
Nx	26	28	31	36	41
Ny	9	10	13	15	20
P	max. ϕ3	max. ϕ5	max. ϕ5	max. ϕ5	max. ϕ5
Q	9.5	9.5	9.5	11	11
R	5.5	5.5	5.5	6.8	6.8
S	15.5	14	13.5	16	15
T	27.5	30.5	35	39	49
U	10	12	14	16	20
V	23	26	29	33	41
W	31	31	32.5	37.5	40.5
X	20.5	23.5	26	32.5	39.5
Y	11	11	13	16	18
Z	19	19	21	28	37
Chamfer 1	C2.5	C2.5	C3	C3	C5
AA	16	19.5	21	25	30
AB	76.1	72	76.5	92.2	105.7
AC	49.8	46.9	50.9	62.7	74.7
AD	5	5	6	6	8
AE	5	5	6	8	10
AG	21.6°	26.5°	26.4°	26.1°	25.2°
CA (Nominal × Pitch)	M5×0.8	M5×0.8	M5×0.8	M6×1	M6×1
MA	40	43.5	45	50	55
MB f8	$20^{-0.020}_{-0.053}$	$28^{-0.020}_{-0.053}$	$28^{-0.020}_{-0.053}$	$38^{-0.025}_{-0.064}$	$38^{-0.025}_{-0.064}$
MB H8	$20^{+0.033}_{0}$	$28^{+0.033}_{0}$	$28^{+0.033}_{0}$	$38^{+0.039}_{0}$	$38^{+0.039}_{0}$
MC	21.2	29.2	29.2	39.2	39.2
MD	68	77.5	84	95	112
ME	82	92.5	101	115	134
MF	55.5	64	70.5	80.5	95.5
MG	8	9	9	10	12
MH	9	9	9	9	9
MJ	5	6	8	11	13
MK	10	11.5	11	12	13
ML	96.5	108.5	116.5	131.5	151.5
ZA (Chamfer)	C3	R5	R5	R6	R6
O-ring (-A/-G option)	1BP5	1BP7	1BP7	1BP7	1BP7
3-O-ring	AS568-016 (70°)	AS568-021 (70°)	AS568-021 (70°)	AS568-028 (70°)	AS568-028 (70°)
Mass※8 kg	0.6	0.7	1.0	1.6	2.5

Notes: ※7. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of idle stroke.)
※8. Mass of single clamp without the link lever.

External Dimensions

A：Gasket Option (With Ports for Speed Controller：R-Thread Plug Included)

※ The drawing shows the locked state (piping joint installed) of WCJ-2ACN.



Notes：

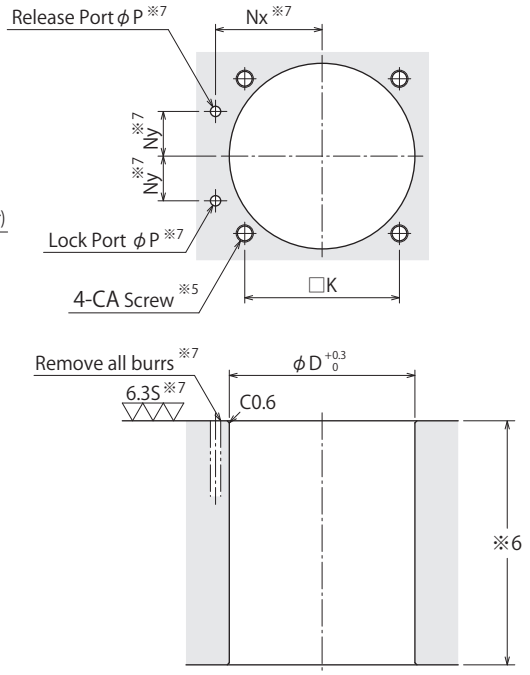
※1. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.

※2. Speed control valve is sold separately. Please refer to P.53.

※3. Piping joint and set screw will be shipped as attachments. Make sure not to damage O-ring and insert the piping joint from the bottom of the cylinder and fix it with set screw. As for the set screw, mount in order of ① cone point and ② flat point.

1. Please use the attached pin (equivalent to φADf6, φAEf6, HRC60) as the mounting pin for lever.
2. Please refer to P.47~48 for air sensing chart.

Machining Dimensions of Mounting Area



Notes：

※4. Air vent port must be open to the atmosphere, and prevent washing liquid.

※5. CA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.

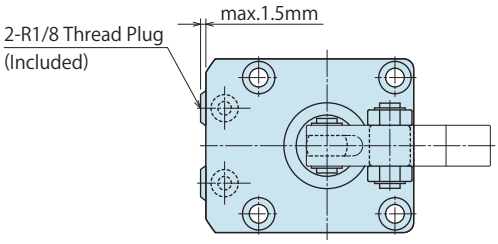
※6. The depth of the body mounting hole φD should be less than 'Dimension F'.

※7. The machining dimension is for -A/-G：Gasket Option.

Piping Method

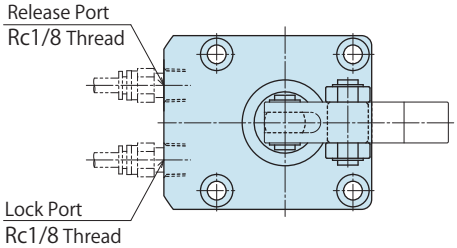
G：Gasket Option (with R Thread Plug)

※The drawing shows the locked state of WCJ-2GCN.



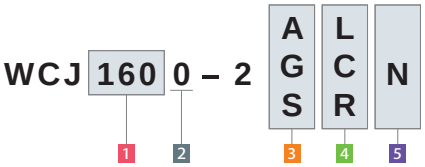
S：Piping Option (Rc Thread)

※The drawing shows the locked state of WCJ-2SCN.



Model No. Indication

(Format Example：WCJ1000-2ARN, WCJ2500-2SLN)



1 Cylinder Force
2 Design No.
3 Piping Method
4 Lever Direction
5 Action Confirmation (When N is chosen)

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.	WCJ0600-2□□N	WCJ1000-2□□N	WCJ1600-2□□N	WCJ2500-2□□N	WCJ4000-2□□N
Full Stroke	19.5	22	23.5	27.5	33
(Break down) Idle Stroke	16	18	19.5	23.5	29
(Break down) Lock Stroke※8	3.5	4	4	4	4
Recommended Stroke	17.5	20	21.5	25.5	31
A	111.5	123	134.5	157.5	184
B	54	60	66	76	87
C	45	50	56	66	78
D	40	46	54	64	77
E	80.5	89	95.5	110.5	126
F	54.5	63	69.5	79.5	94.5
G	26	26	26	31	31.5
H	31.5	35	38	43	48
J	22.5	25	28	33	39
K	34	39	45	53	65
L	72	79	88	98	113
M	11	11	11	11	11
Nx	26	28	31	36	41
Ny	9	10	13	15	20
P	max. ϕ3	max. ϕ5	max. ϕ5	max. ϕ5	max. ϕ5
Q	9.5	9.5	9.5	11	11
R	5.5	5.5	5.5	6.8	6.8
S	15.5	14	13.5	16	15
T	27.5	30.5	35	39	49
U	10	12	14	16	20
V	23	26	29	33	41
W	31	31	32.5	37.5	40.5
X	20.5	23.5	26	32.5	39.5
Y	11	11	13	16	18
Z	19	19	21	28	37
Chamfer 1	C2.5	C2.5	C3	C3	C5
AA	16	19.5	21	25	30
AB	76.1	72	76.5	92.2	105.7
AC	49.8	46.9	50.9	62.7	74.7
AD	5	5	6	6	8
AE	5	5	6	8	10
AG	21.6°	26.5°	26.4°	26.1°	25.2°
CA (Nominal × Pitch)	M5×0.8	M5×0.8	M5×0.8	M6×1	M6×1
NA	42.5	46	47.5	52.5	57.5
NB	42	49	49	59	59
NC	19.5	23.5	23.5	28.5	28.5
ND	15	16.5	16	17	18
NE	16	15	17	20	22
ZA (Chamfer)	C3	R5	R5	R6	R6
O-ring (-A/-G option)	1BP5	1BP7	1BP7	1BP7	1BP7
Mass※9 kg	0.7	0.8	1.1	1.8	2.7

Notes: ※8. The specification value of cylinder force, clamping force and holding force is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of idle stroke.)
※9. Mass of single clamp without the link lever.

Air Sensing Option (Action Confirmation Method･･･M：Air Sensing Manifold Option / N：Air Sensing Piping Option)

Action confirmation can be conducted by detecting differential pressure with the air catch sensor connected to lock confirmation port and release confirmation port.

Applicable Model

WCJ 160 0 - 2 [A G S] [L C R] [M N]

5 Action Confirmation Method
：When M/N is chosen

About Air Catch Sensor

Air catch sensor is required in order to conduct the action confirmation of the piston rod.

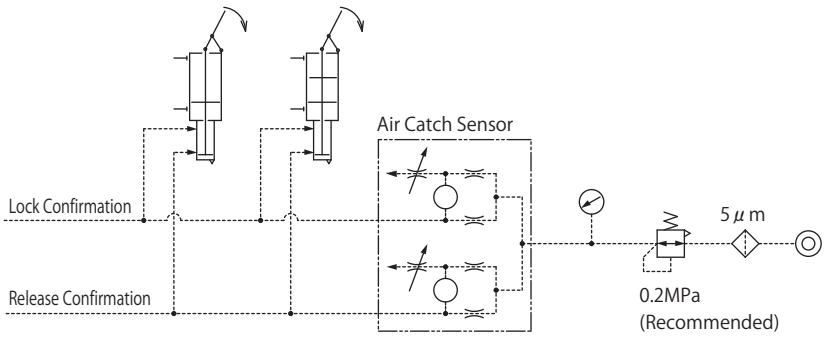
The essential condition: Air catch sensor with consumption rate more than 22～25L/min (at 0.2 MPa)

Recommended Operating Air Pressure : 0.2 MPa

Recommended Air Catch Sensor

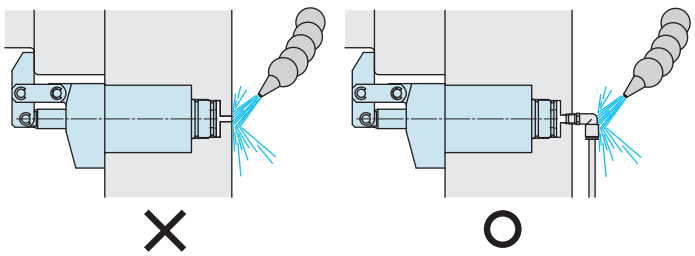
Maker	SMC	CKD
Name	Air Catch Sensor	Gap Switch
Model No.	ISA2-H	GPS2-07-15

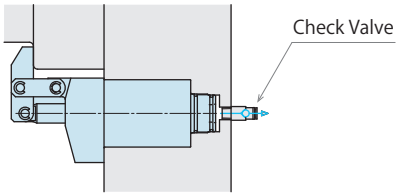
In order to carry out stabilized detection, the number of clamps connected per air catch sensor should be no more than 4.
The air pressure to the air catch sensor should be 0.2MPa.
Refer to the drawing below for the air circuit composition.



Notes for Use and Installation

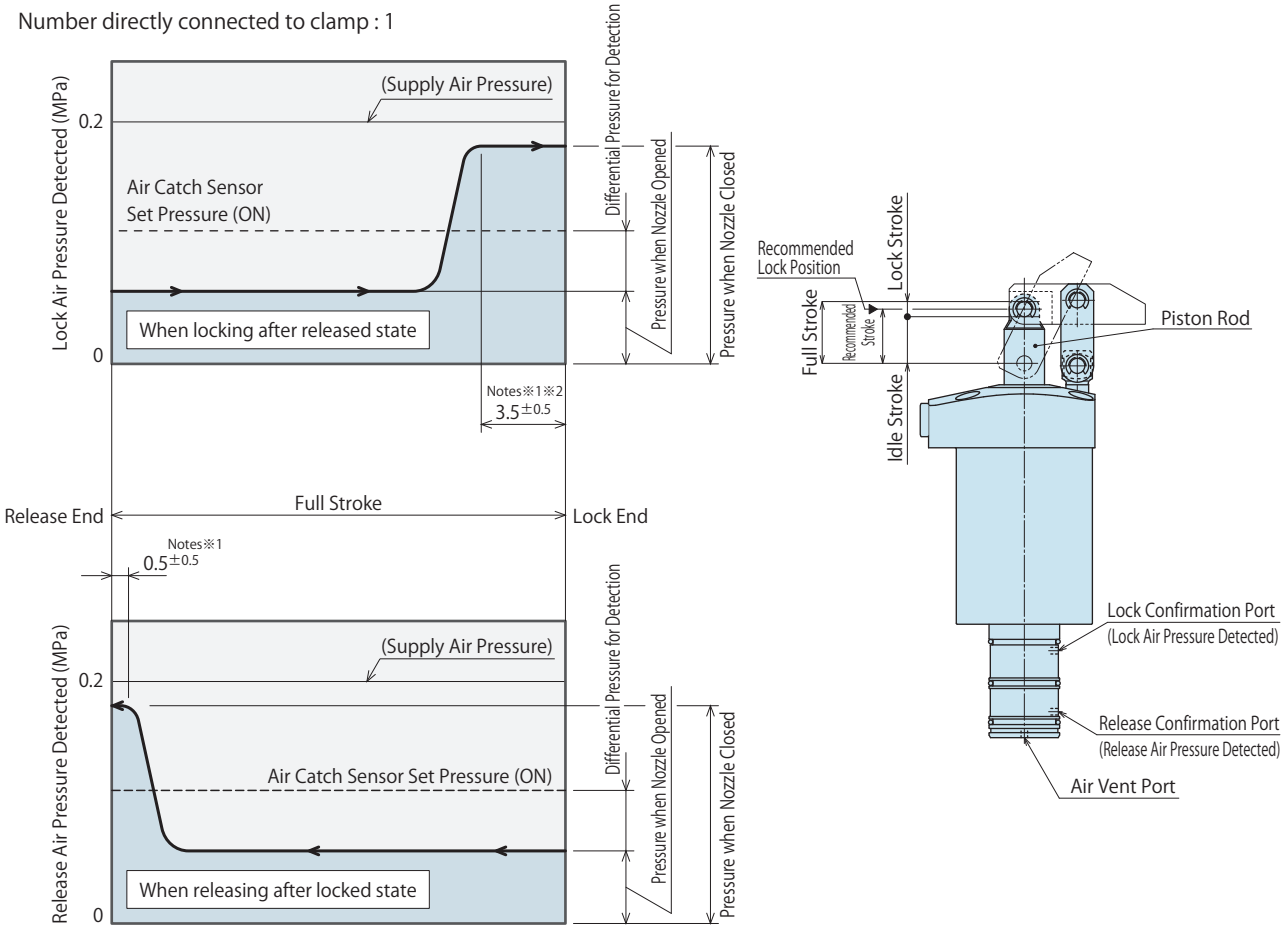
- Air vent port must be open to the atmosphere and kept free of coolant, chips or other debris.
  The air catch sensor can malfunction if the air vent port is blocked.
- Grease the O-ring before assembly to fixture.
  If it is mounted under dry state, the O-ring may have twisting or be defective.
  If excessive grease is applied, the grease may overflow to block the detection port, resulting in malfunctioning of the air catch sensor.





Air Sensing Chart

Number directly connected to clamp : 1



Notes :

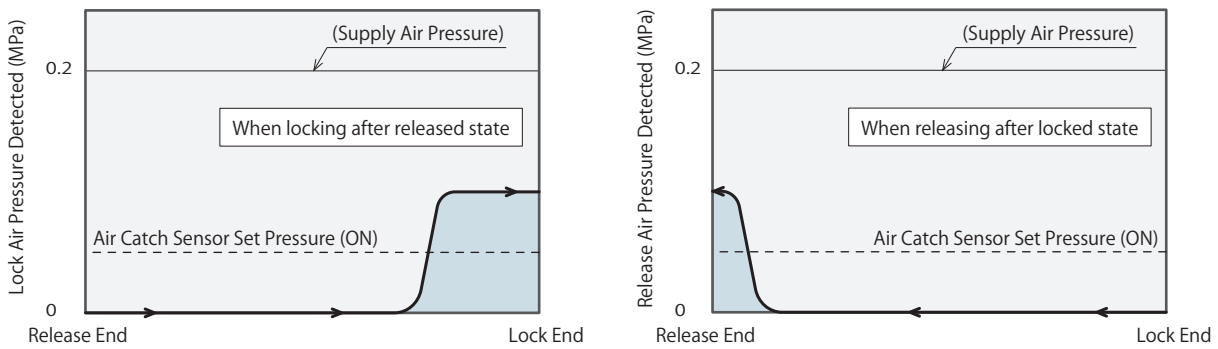
1. Sensing chart shown is the relationship between the cylinder stroke and detection circuit air pressure.
2. The position where the air catch sensor has ON signal output varies depending on the sensor setting.
3. The detection pressure varies depending on the number of clamps connected per circuit. (Maximum number of clamps connected : 4)
4. The features may vary depending on the air circuit structure. Please contact us for further information.

※1. There is certain tolerance with regard to the position where the pressure for fully closing the detection nozzle is reached depending on the clamp structure. (Refer to the sensing chart.)

※2. WCJ0600-2□□M/N : the position where the pressure for fully closing the detection nozzle is $3.0^{\pm 0.5}$ mm.

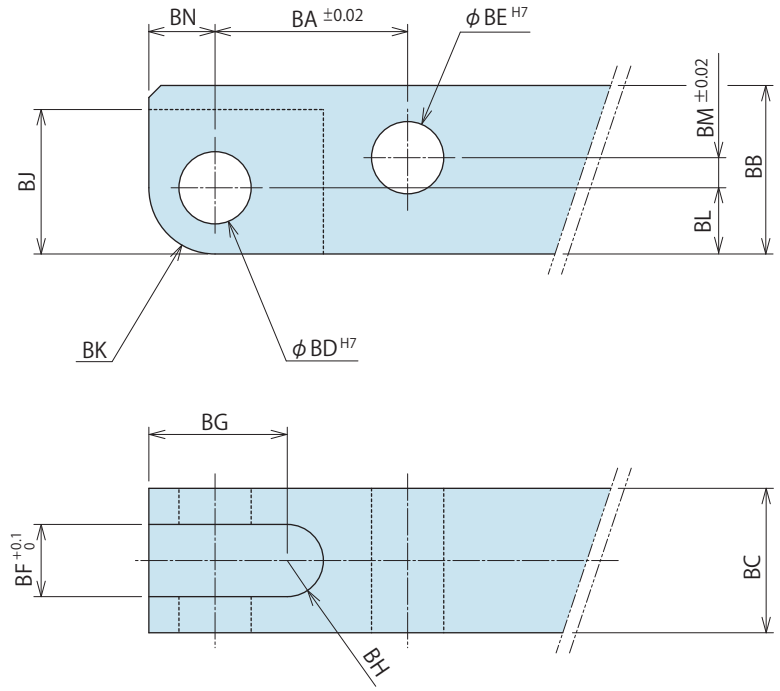
Model No.		WCJ0600-2□□M/N	WCJ1000-2□□M/N	WCJ1600-2□□M/N	WCJ2500-2□□M/N	WCJ4000-2□□M/N
Full Stroke	mm	19.5	22	23.5	27.5	33

Number Directly Connected to Clamp : 4 (for reference)



Link Lever Design Dimension

※ Reference for designing link lever.



Link Lever Design Dimension List

(mm)

Corresponding Model No.	WCJ0600	WCJ1000	WCJ1600	WCJ2500	WCJ4000
BA	16	19.5	21	25	30
BB	12.5	12.5	16	20	25
BC	$10\,{}^{0}_{-0.2}$	$10\,{}^{0}_{-0.2}$	$12\,{}^{0}_{-0.3}$	$16\,{}^{0}_{-0.3}$	$19\,{}^{0}_{-0.3}$
BD	$5\,{}^{+0.012}_{0}$	$5\,{}^{+0.012}_{0}$	$6\,{}^{+0.012}_{0}$	$6\,{}^{+0.012}_{0}$	$8\,{}^{+0.015}_{0}$
BE	$5\,{}^{+0.012}_{0}$	$5\,{}^{+0.012}_{0}$	$6\,{}^{+0.012}_{0}$	$8\,{}^{+0.015}_{0}$	$10\,{}^{+0.015}_{0}$
BF	5	5	6	8	10
BG	10	10	13	13	17
BH	R2.5	R2.5	R3	R4	R5
BJ	10	10	13	13	17.5
BK	R4.5	R4.5	R6	R6	R8
BL	4.5	4.5	6	6	8
BM	2.5	2.5	3.5	6	7.5
BN	4.5	4.5	6	6	8

Notes :

1. Design the link lever length according to the performance curve.
2. If the link lever is not in accordance with the dimension shown above, performance may be degraded and damage can occur.
3. Please use the attached pin (equivalent to φADf6, φAEf6, HRC60) as the mounting pin for lever.
   (Please refer to each external dimension of WCJ for the dimensions φAD and φAE.)

Accessories : Others

● We offer more accessories for model WCJ.

Speed Control Valve
Model **BZW-A**

※Use BZW□-A for WCJ.

Refer to P.53 for reference.

Manifold Block
Model **WHZ-MD**

Refer to P.55 for reference.

Cautions

Notes for Design

1) Check Specifications

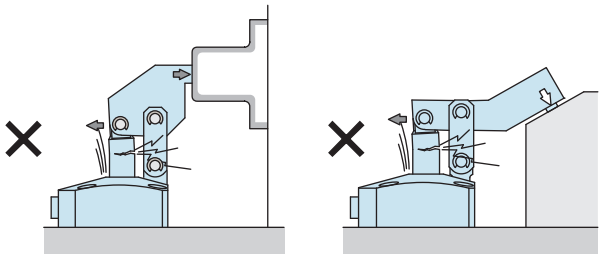
- Please use each product according to the specifications.
- The mechanical lock mechanism of this clamp has the clamping force and holding force even when air pressure falls to zero. (Refer to clamping force and holding force curve.)

2) Notes for Circuit Design

- Ensure there is no possibility of supplying air pressure to the lock and release ports simultaneously. Improper circuit design may lead to malfunctions and damages.

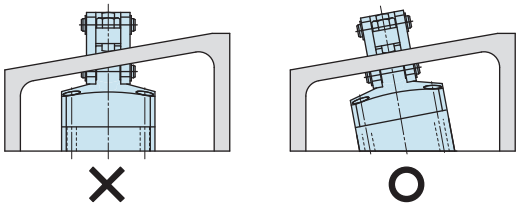
3) Notes for Link Lever Design

- Make sure no force is applied to the piston rod except the axial direction. (Make sure the clamp surface and the mounting surface on the workpiece are parallel.) The usage like the one shown in the drawing below will apply a large bending stress to the piston rod and must be avoided.



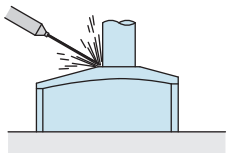
4) When clamping on a sloped surface of a workpiece

- Make sure the clamping surface and the mounting surface on the workpiece are parallel.



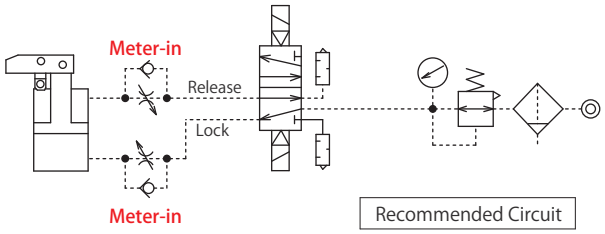
5) Do not inject high-pressure washing liquid directly to a clamp.

- Direct injection of high-pressure washing liquid to a clamp leads to damage and invasion of washing liquid.

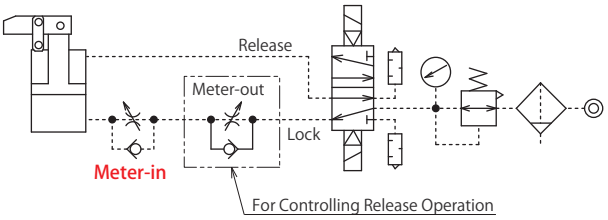


6) Speed Adjustment

- If the clamp operates too fast the parts will wear out and become damaged more quickly leading to equipment failure. Do not adjust the Meter-out valve outside the cylinder because there is an orifice of meter-out connected internally. (The operating time of mechanical locking system will be very long if there is back pressure in the circuit.) Adjust speed control of locking operation speed within 0.5 seconds by installing Meter-in speed control valve into the lock port. If the adjustment time is longer than that, pressure rising will be slow and eventually takes more time to achieve the clamping force corresponding to the catalog data. Even if there is stick-slip or acceleration movement under low pressure and small volume of air, it is not malfunction. (Please set under above condition when you have to adjust action movement time over 1.0 second.)

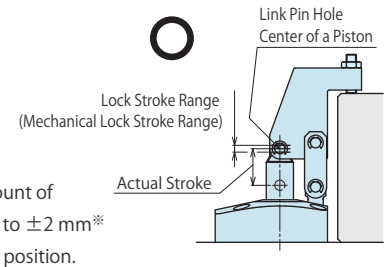


For multiple clamps operating simultaneously, please install the speed controller (meter-in) to each clamp. Also, when load is applied to the release action direction during release action, adjust the speed by installing the speed controller (meter-out) on the lock port side.



7) The specification value is not fulfilled when clamping out of the lock stroke (mechanical lock stroke) range.

- When the center of link pin hole of piston rod clamps out of the lock stroke range, the mechanical lock function does not work. As a result, the specification value of clamping force and holding force will not be fulfilled. Moreover, there will be no clamping or holding force at zero air pressure.



Please design the amount of actual stroke to be set to ±2 mm※ of recommended lock position.
(The specification value is fulfilled since the center of link pin hole of piston rod is within the lock stroke (mechanical lock stroke) range.

※ For WCJ0600, please design the amount of actual stroke to be set to −1.5 mm ～ +2 mm of recommended lock position.

Installation Notes

1) Usable Fluid

- Please supply filtered clean dry air. (Install the drain removing device.)
- Oil supply with a lubricator etc. is unnecessary. Oil supply with a lubricator may cause loss of the initial lubricant. The operation under low pressure and low speed may be unstable. (When using secondary lubricant, please supply lubricant continuously. Otherwise, the initial grease applied from KOSMEK will be removed from the secondary lubricant.)

2) Procedure before Piping

- The pipeline, piping connector and fixture circuits should be cleaned and flushed thoroughly.
  The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
- There is no filter provided with this product for prevention of contaminants in the air circuit.

3) Applying Sealing Tape

- Wrap with tape 1 to 2 times following the screw direction.
  Wrapping in the wrong direction will cause leakage and malfunction.
- Pieces of the sealing tape can lead to air leakage and malfunction.
- When piping, be careful that contaminant such as sealing tape does not enter in products.

4) Installation of the Product

- When mounting the product use four hexagon socket bolts (with tensile strength of 12.9) and tighten them with the torque shown in the table below. Tightening with greater torque than recommended can depress the seating surface or break the bolt.

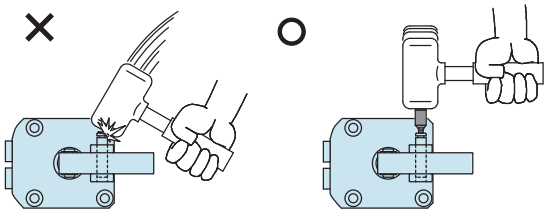
Model No.	Thread Size	Tightening Torque (N·m)
WCJ0600	M5×0.8	6.3
WCJ1000	M5×0.8	6.3
WCJ1600	M5×0.8	6.3
WCJ2500	M6×1	10
WCJ4000	M6×1	10

5) Installing Flow Control Valve

- Tightening torque for installing flow control valve is 5 to 7 N・m.

6) Installation / Removal of the Link Lever

- When inserting the link pin, do not hit the pin directly with a hammer. When using a hammer to insert the pin, always use a cover plate with a smaller diameter than the snap ring groove on the pin.



7) Speed Adjustment

- Adjust the locking action to be about 0.5 seconds.
  Excessively fast operating speed of the clamp may lead to wear-out or damage the internal components.
- Turn the speed control valve gradually from the low-speed side (small flow) to the high-speed side (large flow) to adjust the speed.

8) Checking Looseness and Retightening

- At the beginning of installation, bolts may be tightened lightly. Check torque and re-tighten as required.

9) Please do not carry out manual operation of a clamp.

- When a piston or a lever raises a piston by manual operation at the time of not supplying pneumatic, if it goes into the range of lock stroke, the mechanical lock mechanism will operate and the piston will operate till a rise to a rise end or locking action completion.
  Since a hand is pinched and it becomes a cause of an injury, please do not carry out manual operation of a clamp.

During shipment, clamps are in locked state (with mechanical lock function) to prevent accidents. Even when shipping them to users after installing clamps to fixtures or systems, make sure clamps are in locked state (with mechanical lock function) to prevent accidents.

During locked state, clamps cannot be operated manually because of the mechanical lock. Supply release air pressure to conduct release action.

10) The cautions at the time of a test run.

- If large flow air is supplied right after installation, the action time may become extremely fast, resulting in major clamp damage. Install the speed controller (meter-in) beside the air source and gradually supply air.

※ Please refer to P.57 for common cautions. ・Notes on Handling ・Maintenance/Inspection ・Warranty

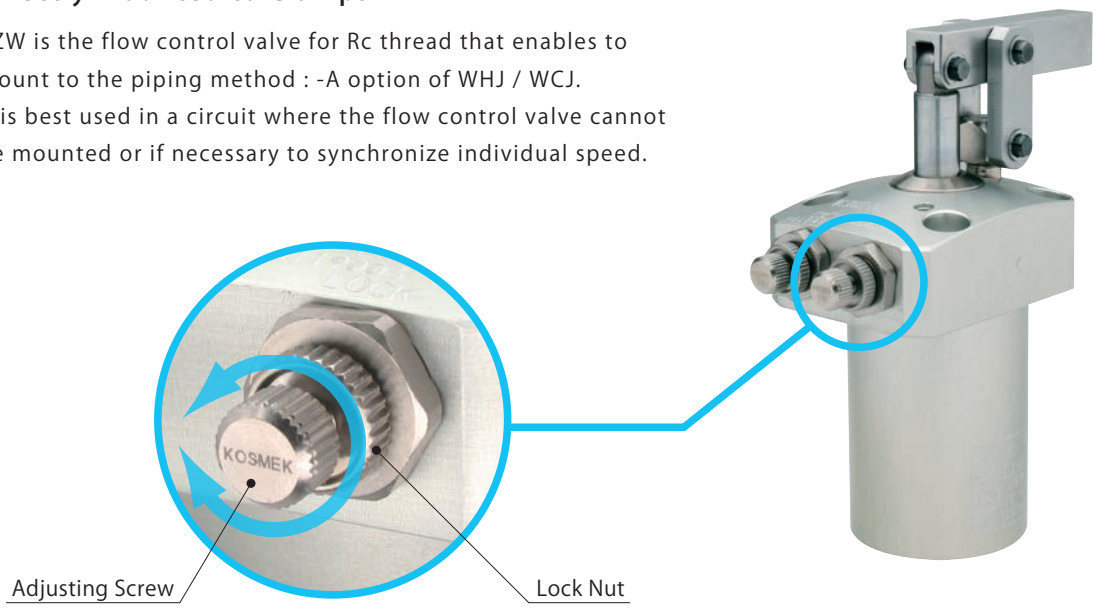
Air Flow Control Valve

Model **BZW**

Directly mounted to clamps, easy adjusting

Directly Mounted to Clamps

BZW is the flow control valve for Rc thread that enables to mount to the piping method : -A option of WHJ / WCJ.
It is best used in a circuit where the flow control valve cannot be mounted or if necessary to synchronize individual speed.



Corresponding Product Model

Clamp	BZW Model No.	Clamp Model No.
High-Power Link Clamp for Washing Application	BZW0100-**A**	WCJ□0-2 **A**□
High-Power Swing Clamp for Washing Application	BZW0100-**B**	WHJ□0-2 **A**□

Corresponding to piping method -A option.

※ When mounting BZW to piping method G, take off R thread plug and remove the seal tape not to get inside cylinder.

Model No. Indication

BZW 010 0 – B

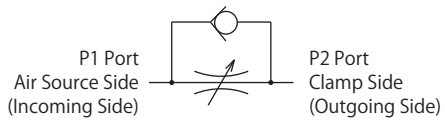
- **B**: Control Method — **B** : Meter-out, **A** : Meter-in
- **0**: Design No. — **0** : Revision Number
- **010**: R Thread Size — **010** : Rc1/8

Specifications

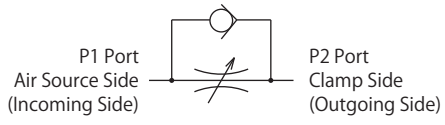
Model No.	BZW0100-B	BZW0100-A
Control Method	Meter-out	Meter-in
Operating Pressure MPa	0.1 ~ 1.0	
Withstanding Pressure MPa	1.5	
Adjust Screw Number of Rotations	10 Rotations	
Tightening Torque N•m	5 ~ 7	
Corresponding Model No.	WHJ□-2A□	WCJ□-2A□

Circuit Symbol

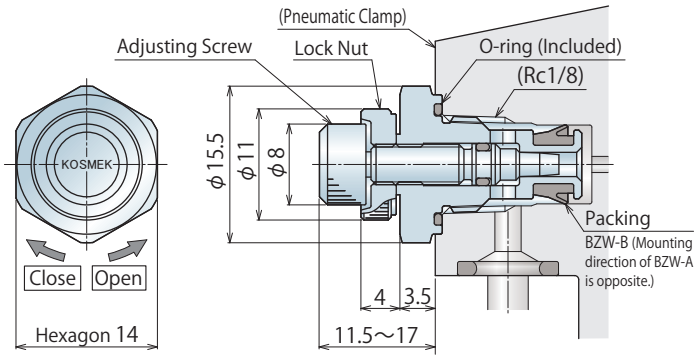
BZW0100-B : Meter-out



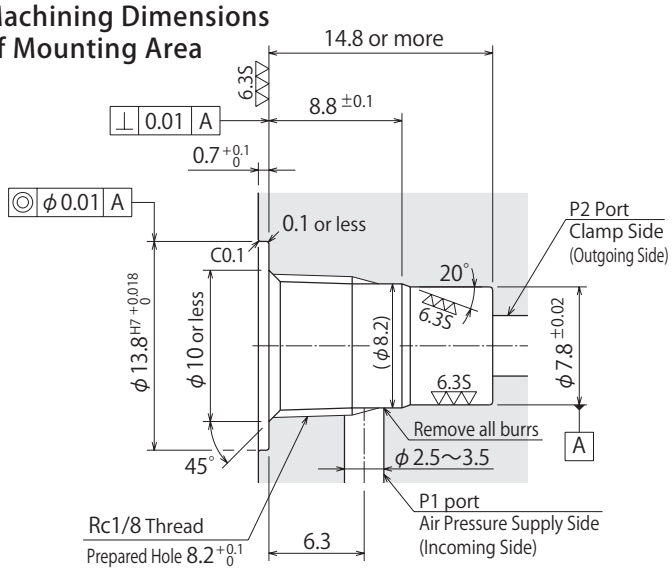
BZW0100-A : Meter-in



External Dimensions



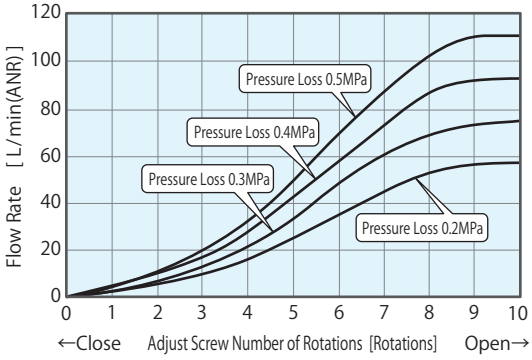
Machining Dimensions of Mounting Area



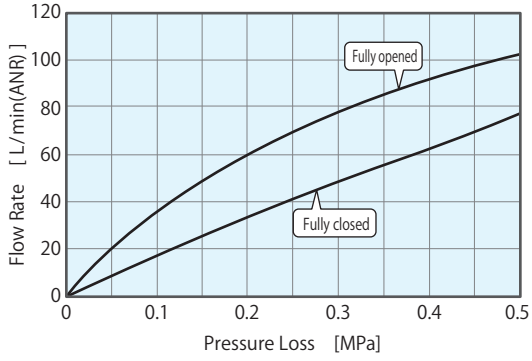
Flow Rate Graph

BZW0100-B/BZW0100-A common

Controlled Flow Direction



Free Flowing Direction



Notes :

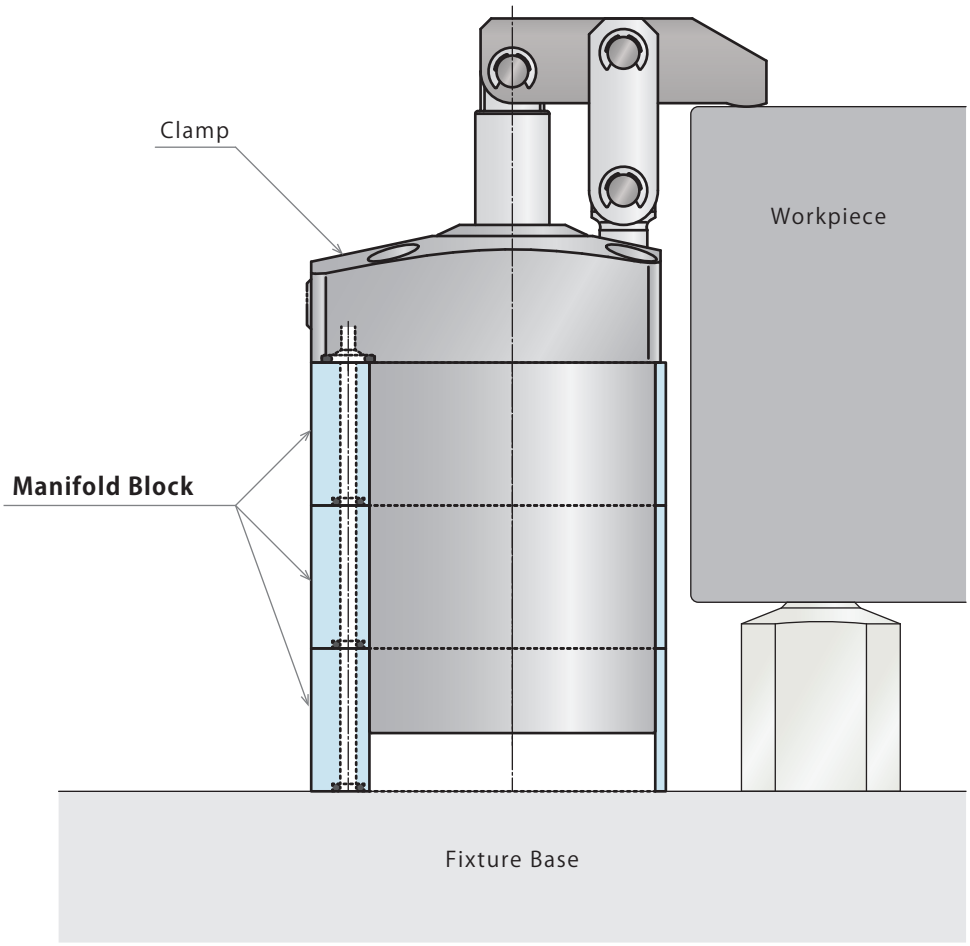
1. Since the ▽▽▽ area is sealing part, be careful not to damage it.
2. No cutting chips or burr shoud be at the tolerance part of machining hole.
3. As shown in the drawing, P1 port is used as the air supply side and P2 port as the clamp side.

Manifold Block

Model **WHZ-MD**

Manifold Block

The mounting height of clamp is adjustable with the manifold block.



Applicable Model

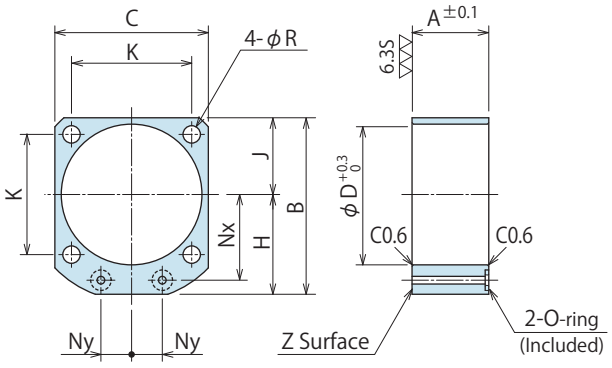
Manifold Block Model No.	Corresponding Item Model No.
Model WHZ-MD	Model WCJ Model WHJ

Manifold Block for WCJ/WHJ

Model No. Indication

WHZ 048 0 – MD

- 048: Size (Refer to following table)
- 0: Design No. (Revision Number)



(mm)

Model No.	WHZ0600-MD	WHZ0320-MD	WHZ0400-MD	WHZ0500-MD	WHZ0630-MD
Corresponding Item Model Number	WCJ0600 WHJ0600	WCJ1000 WHJ1000	WCJ1600 WHJ1600	WCJ2500 WHJ2500	WCJ4000 WHJ4000
A	23	25	27	31	35
B	54	60	67	77	88.5
C	45	50	58	68	81
D	40	46	54	64	77
H	31.5	35	38	43	48
J	22.5	25	29	34	40.5
K	34	39	45	53	65
Nx	26	28	31	36	41
Ny	9	10	13	15	20
R	5.5	5.5	5.5	6.5	6.5
O-ring	1BP5	1BP7	1BP7	1BP7	1BP7
Mass kg	0.1	0.1	0.1	0.2	0.2

Notes : 1. Material : A2017BE-T4
2. Mounting bolts are not provided. Prepare mounting bolts according to the mounting height using the A dimensions as a reference.
3. If thickness other than A is required, perform additional machining on surface Z. Please refer to the drawing.

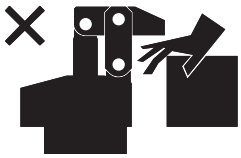
Cautions

Notes on Handling

1) It should be handled by qualified personnel.
- The hydraulic machine and air compressor should be handled and maintained by qualified personnel.

2) Do not handle or remove the product unless the safety protocols are ensured.
① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
② Before the product is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
③ After stopping the machine, do not remove until the temperature cools down.
④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

3) Do not touch clamp (cylinder) while clamp (cylinder) is working. Otherwise, your hands may be injured due to clinching.

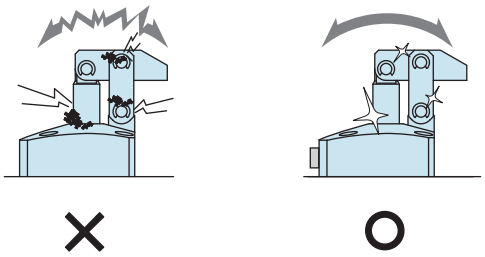


4) Do not disassemble or modify.
- If the product is taken apart or modified, the warranty will be voided even within the warranty period.

Maintenance and Inspection

1) Removal of the Product and Shut-off of Pressure Source
- Before the product is removed, make sure that the above-mentioned safety measures are in place. Shut off the air of hydraulic source and make sure no pressure exists in the hydraulic and air circuit.
- Make sure there is no abnormality in the bolts and respective parts before restarting.

2) Regularly clean the area around the piston rod.
- If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning, fluid leakage and air leaks.



3) Regularly tighten pipings, mounting bolts, nuts, snap rings and cylinders to ensure proper use.

4) Make sure there is smooth action and no abnormal noise.
- Especially when it is restarted after left unused for a long period, make sure it can be operated correctly.

5) The products should be stored in the cool and dark place without direct sunshine or moisture.

6) Please contact us for overhaul and repair.

Warranty

1) Warranty Period

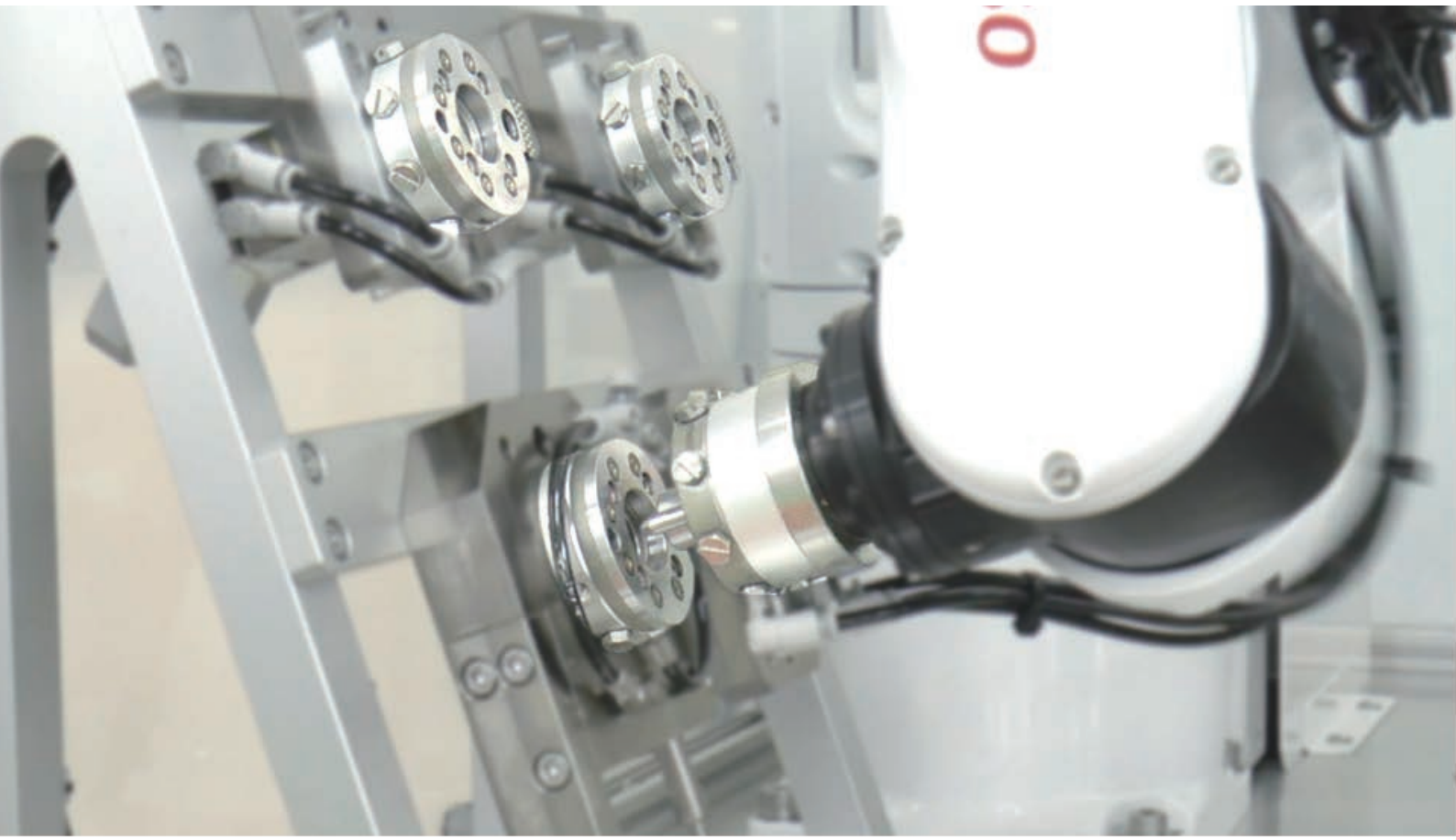
- The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope

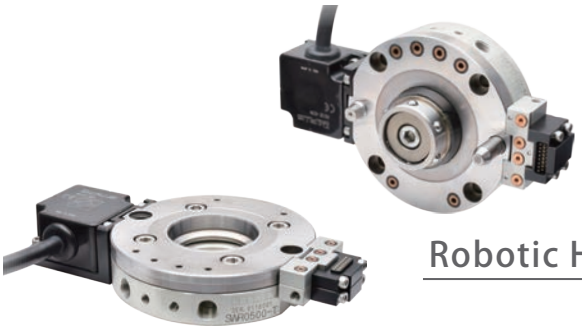
- If the product is damaged or malfunctions during the warranty period due to faulty design, materials or workmanship, we will replace or repair the defective part at our expense.
  Defects or failures caused by the following are not covered.

① If the stipulated maintenance and inspection are not carried out.
② If the product is used while it is not suitable for use based on the operator's judgment, resulting in defect.
③ If it is used or handled in inappropriate way by the operator. (Including damage caused by the misconduct of the third party.)
④ If the defect is caused by reasons other than our responsibility.
⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
⑥ Other caused by natural disasters or calamities not attributable to our company.
⑦ Parts or replacement expenses due to parts consumption and deterioration.
(Such as rubber, plastic, seal material and some electric components.)

Damages excluding from direct result of a product defect shall be excluded from the warranty.



Introducing Kosmek Products



Robotic Hand Changer

▶P.61

Robotic Hand Series

▶P.65

High Accuracy Locating・Clamping

▶P.67

for Washing Application

Auto Coupler

▶P.68

Work Support

▶P.69

FA・Industrial Robot Related Products Complete Catalog

Please find further information on our complete catalog.
You can order from our website (http://www .kosmek.co.jp/english/).

The World's Only

Robotic Hand Changer with Zero Backlash

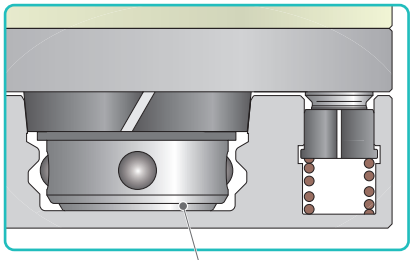
Model SWR

Air Lock / Air Release

Self-Lock Function with Spring

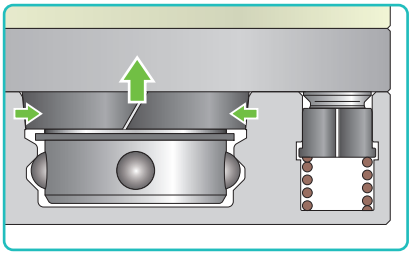
KOSMEK Exclusive Non-Backlash Mechanism

Before Connection



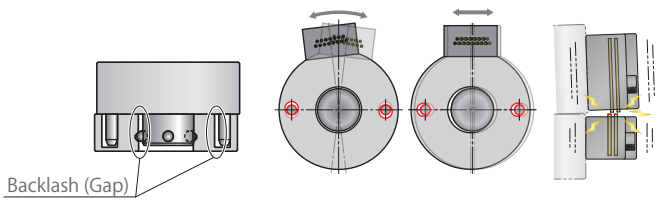
Detaching Function

When Connected



Backlash of Changer Causes Electrode Error

Noise and Continuity Failure due to Friction of Contact Probe



Continuity Failure of Electrode

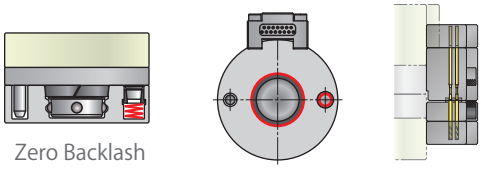
↓

Frequent Moment Stop

Zero-Backlash Connection with Dual Contact

Kosmek Hand Changer with No Backlash Prevents Electrode Error

No Noise



No Continuity Failure of Electrode

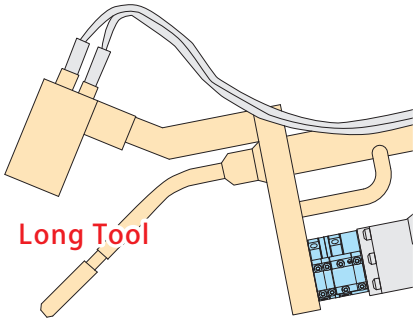
↓

Sharp Decline of Moment Stop

Secures the Aimed Position

When Connected, Locating Repeatability is 3 μm

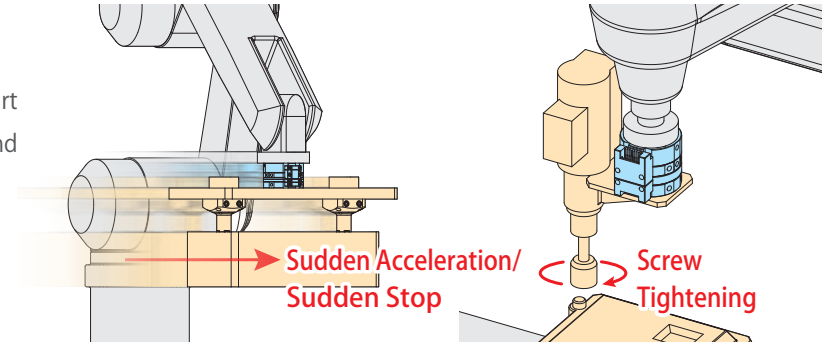
Even with long tools or hands, fluctuation of the edge is extremely small. It secures high accuracy processing even after tool change.



24-Hour Continuous Operation is Possible

Uncomparably High Rigidity and Durability

Strong to "bending" and "torsion" with high rigidity obtained by non-backlash function.
Also, high strength material is used in all the contact part of the master and tool so that it ensures high durability and 3 μm locating repeatability even after 1 million cycles.

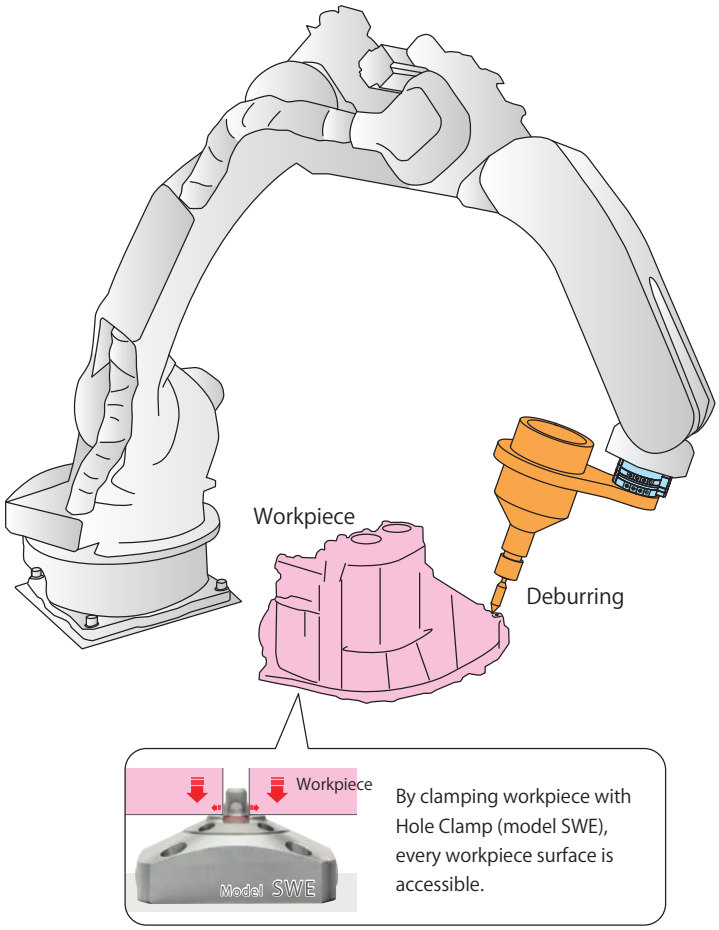


Allowable Weight：3kg ～ 120kg

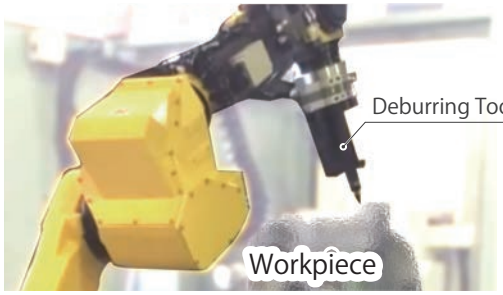
A Variety of Electrode/Air Joint Options

- Resin Connector Electrode
- Solder Terminal
- Solder Terminal with Cable
- Waterproof Electrode (Simple Waterproof)
  Only when connected：Equivalent to IP54
- D-sub Connector
- Circular Connector (Connector Based on JIS C 5432)
- Compact Electric Power Transmission (Ability to Transmit AC/DC200V 5A)
- Power Transmission Option (Connector Based on MIL-DTL-5015)
- High Current Transmission Option
  (Connector Based on MIL-DTL-5015)
- Waterproof Electrode (Noncontact Waterproof) IP67 Compact Model
- Waterproof Electrode (Noncontact Waterproof) IP67
- Air Joint with Larger Port (3 Port Option)
- Air Joint (2 Port Option)
- Air Joint (4 Port・Solder Terminal Extensible Option)
- Air Port with Check Valve

Change the Transfer Hand and Deburring Tool with High Rigidity



By clamping workpiece with Hole Clamp (model SWE), every workpiece surface is accessible.



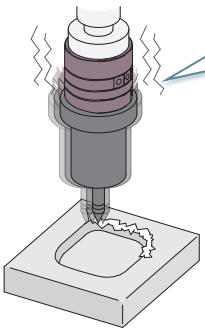
Hand Change

Workpiece Transfer Tool

Withstands Heavy Load with Non-Backlash Function

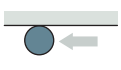
Strong to "bending" and "torsion" with high rigidity.
It ensures stable production even with offset transfer hand or heavy load deburring.

General Changer

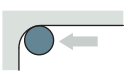


Backlash on Changer Part

Due to backlash, a tool changer is weak to torsion and can be broken if high load is applied when deburring R surface which has large contact area.



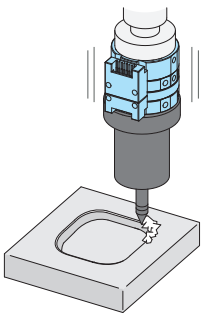
Low Load



High Load

Contact area of R surface is large and receives high load.

Kosmek Robotic Hand Changer



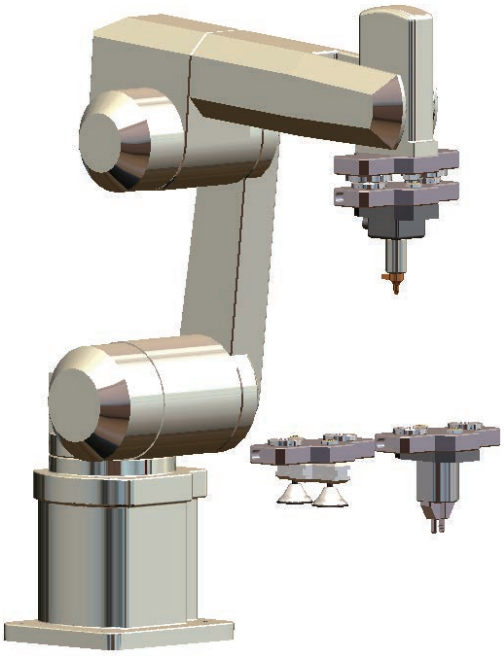
No Backlash on Changer Part

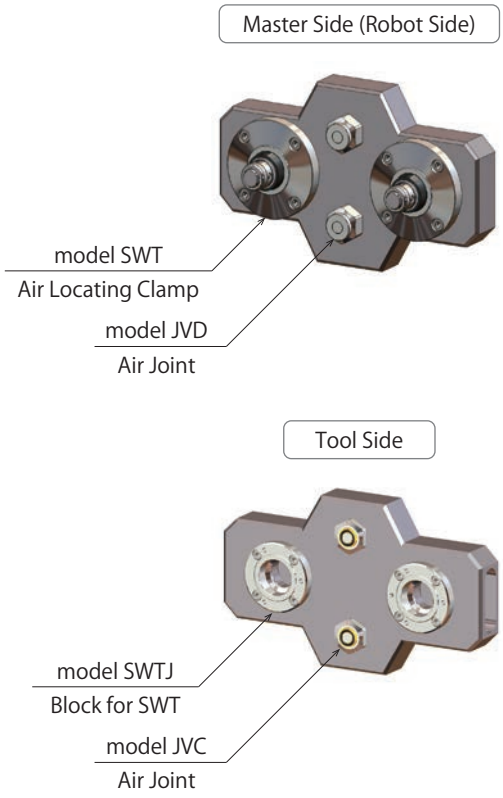
The changer has no backlash so it is highly rigid and strong to torsion. This allows for no fluctuation on tools.

It also withstands high load of casting deburring.

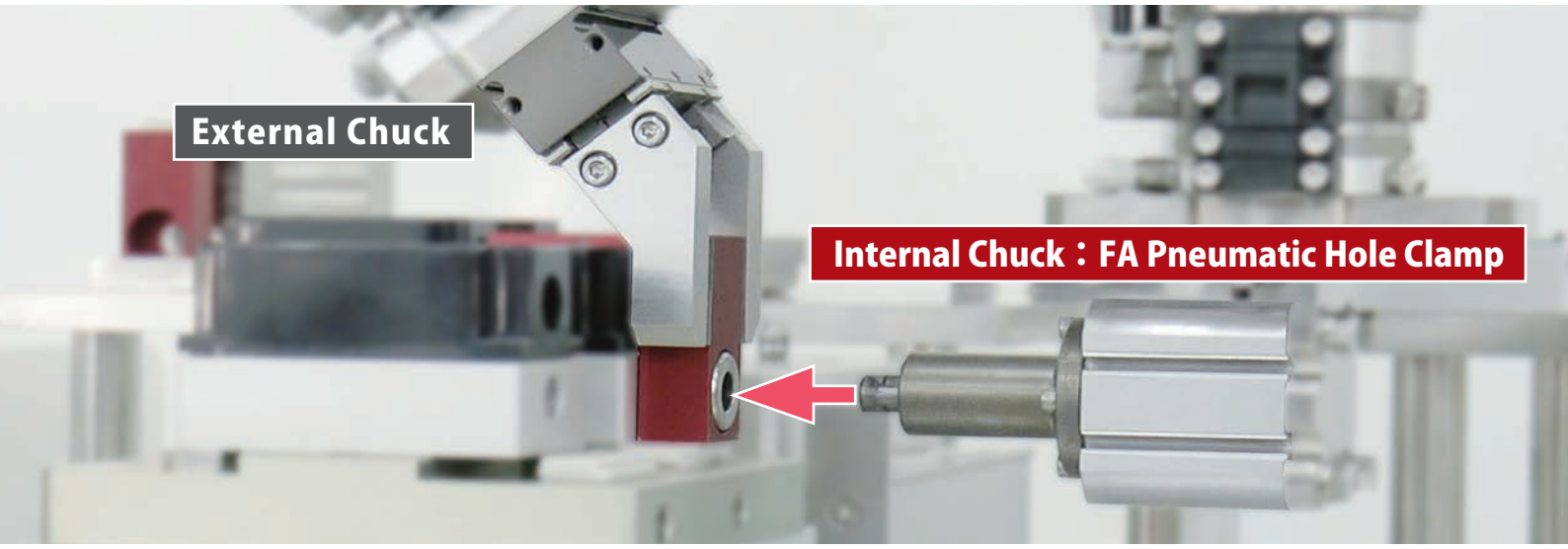
Increase in Allowable Weight with SWT Air Locating Clamp

By using Kosmek Air Locating Clamp SWT, Robotic Hand Changer can be used for larger robots. It is able to install Kosmek Air Joint as well.





Light and Compact Robotic Hand Series for Factory Automation



Kosmek Exclusive Internal Chuck Series

High-Power Pneumatic Hole Clamp
Model SWE

Can be used in machine tools. Gripper expands and pulls workpiece in.

High Power with Foreign Substance Prevention for Machine Tools, etc.

Workpiece Diameter ϕ6～ϕ13 in 0.5mm increments.

Air Lock / Air Release

Self-Lock Function with Spring

FA Pneumatic Hole Clamp
Model WKH

Gripper expands and pulls workpiece in.

Light Body with Selectable Functions : Locating and Floating

Workpiece Diameter ϕ6～ϕ14 in 0.5mm increments.

Air Lock / Air Release

Self-Lock Function with Spring

Ball Lock Cylinder
Model WKA

Secures/Transfers a pallet and prevents falling off with steel balls.

Powerful, Light and Compact

Pull-Out Load Capacity (Holding Force) : 50N / 70N / 100N

Spring Lock / Air Release

External Chuck Series

Robotic Hands
Model WPS / WPA
WPH / WPP / WPQ

Compact Body with High Gripping Force

Highly Versatile Robotic Hands for Various Usage

High-Power Parallel Gripper
Model WPS

Parallel Gripper
Model WPA

Parallel Gripper
Model WPH

Three-Jaw Chuck
Model WPP

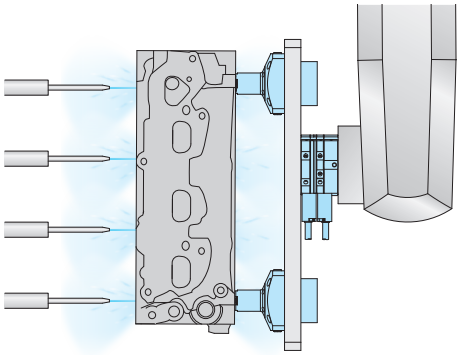
Two-Jaw Chuck
Model WPQ

Air Lock / Air Release

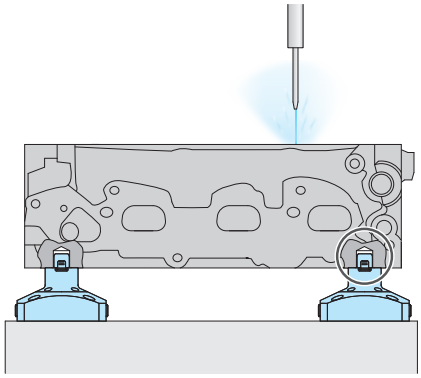
Workpiece Washing Examples with High-Power Pneumatic Hole Clamp

Model SWE

Chucking Inside of Workpiece Holes Allows for **Thorough Washing** with no interference

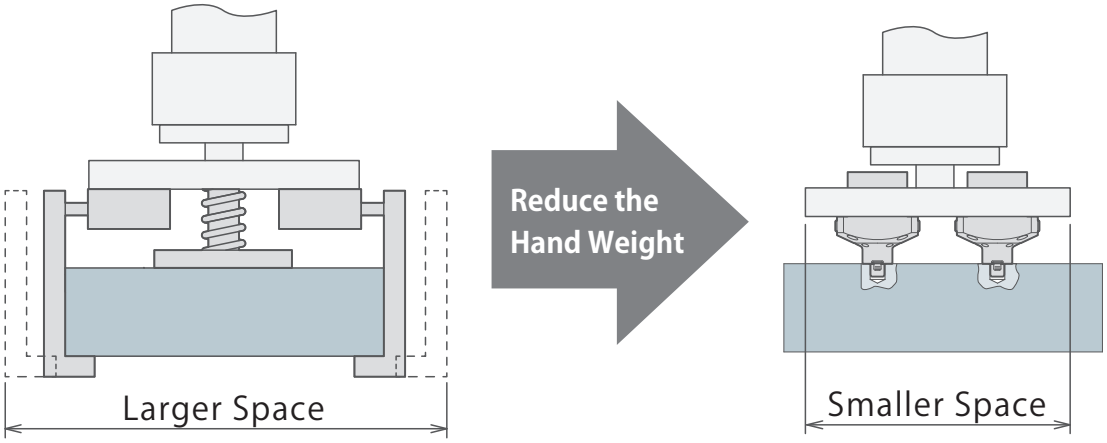


As Robotic Hand



As Fixture Pallet

Chucking Inside of Workpiece Holes Allows for **Compact** and **Light** Applications



Linear Cylinder
Holding Periphery

Compact Transfer Application
with High-Power Pneumatic Clamp

Please refer to【FA・Industrial Robot Related Products Complete Catalog】for further information.

FA・Industrial Robot Related Products

FA・Industrial Robot Related Products Complete Catalog

- Locating Device
- Robotic Hand
- Robotic Hand Changer
- Ball Lock Cylinder
- Clamp (High-Power Pneumatic Hole Clamp)
- Backup Pin
- Work Support
- Control Valve
- Auto Coupler
- Rotary Joint

High Speed and High Accuracy Fixture Setup

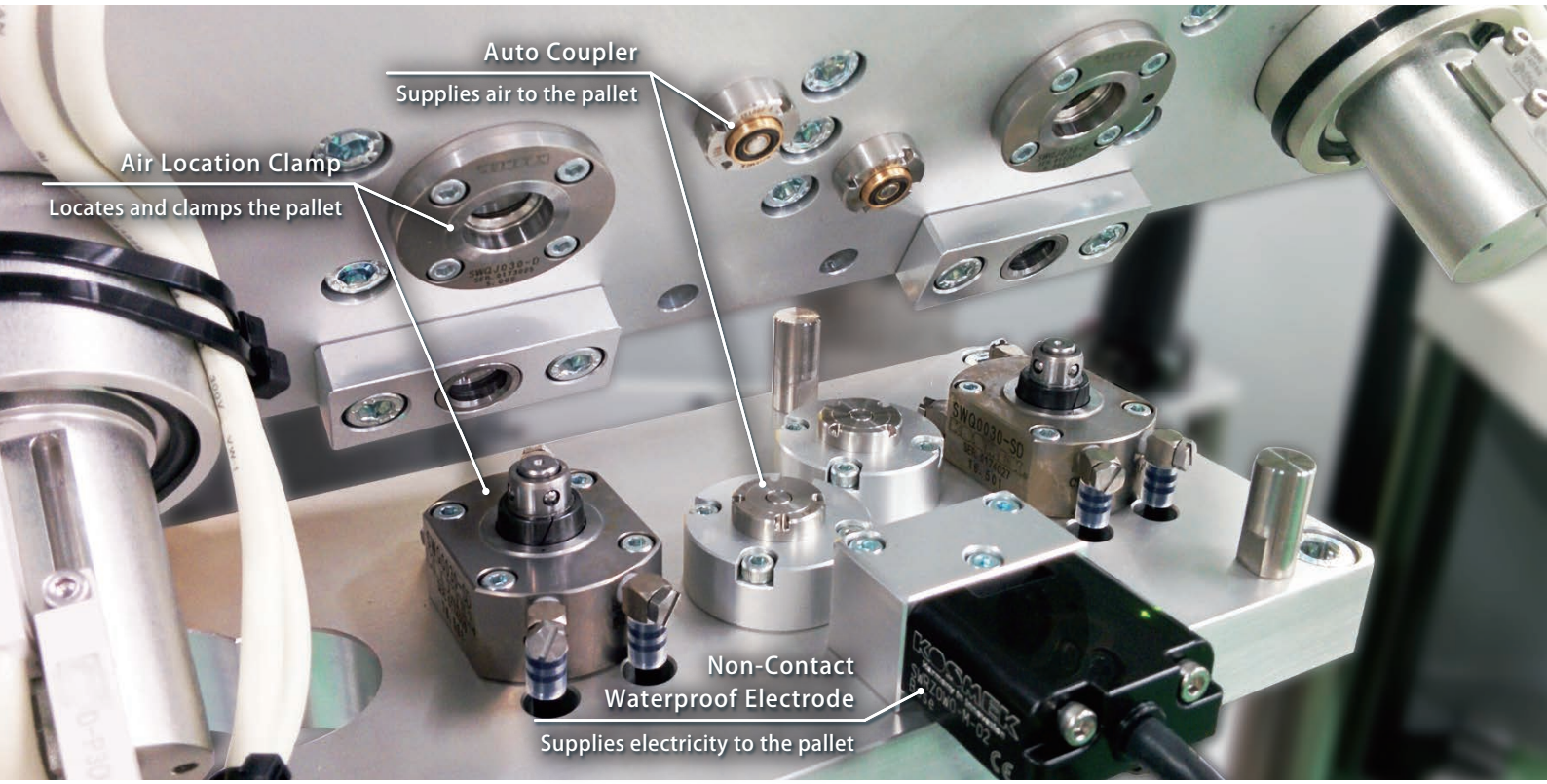
Compact Location Clamp

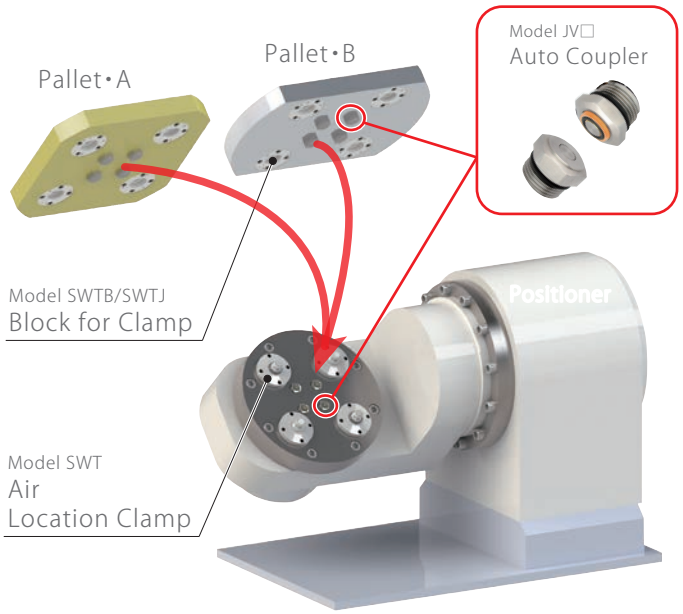
Model SWQ

Locates and clamps a fixture
on a positioner simultaneously.

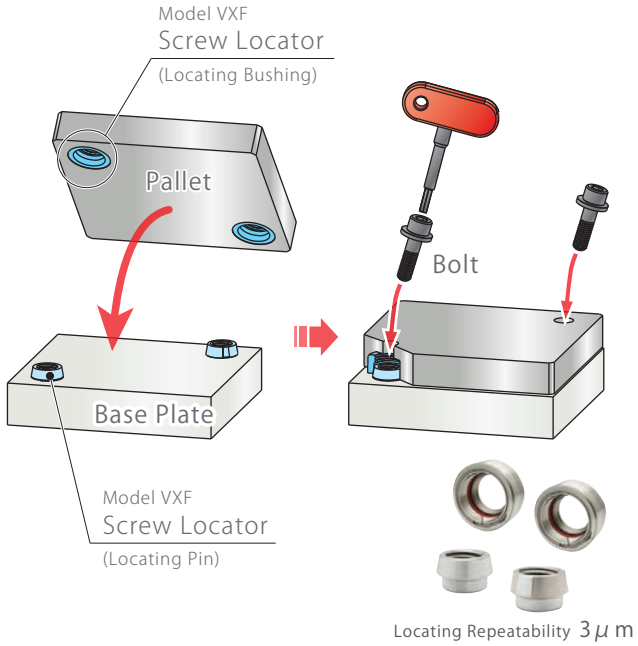
【Locating Repeatability 3 μm】

Allows for setup time reduction and productivity improvement.





Fixture Setup of the Positioner



Manual Pallet Change

Pneumatic Location Clamp Series

Compact Pneumatic Location Clamp
Model SWQ

Compact Model. Suitable for setup of compact pallets and light fixtures.
Locating Repeatability : 3 μm

Air + Spring Lock / Air Release

Pneumatic Location Clamp
Model SWT

With Foreign Substance Prevention for Machine Tools, etc.
Locating Repeatability : 3 μm

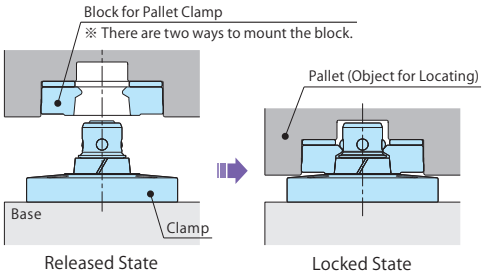
Air + Spring Lock / Air Release

High-Power Pneumatic Pallet Clamp
Model WVS

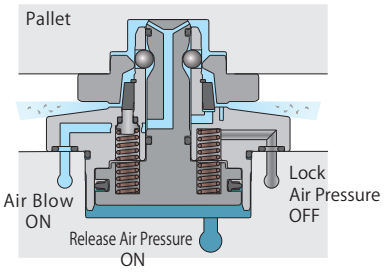
High-power model that exerts equivalent clamping force with hydraulic clamps.
Locating Repeatability : 3 μm

Air + Spring Lock / Air Release

Action Description



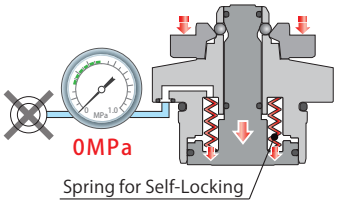
Air Blow and Seating Check



Foreign substance dust is flushed out by air blow.
Seating surface is provided with the air hole.
Use the gap sensor for seat check.

Self Lock (Safety) Function
(Holding Force at 0MPa Air Pressure)

Maintains clamped state.

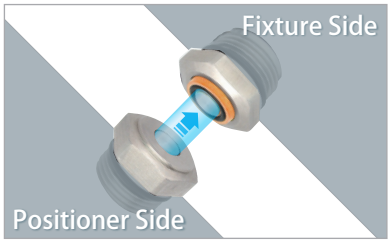


Even if air pressure is at zero, it will stay locked with self-locking spring.
※ More than the minimum operating air pressure is required for locating.

Automatic Air Supply to a Pallet on a Positioner

Auto Coupler
Model JVA/JVB JVC/JVD JVE/JVF

Compact Coupler to Connect Hydraulic/Pneumatic/Coolant Circuits
Connection Stroke : 1mm Commonly Used with Screw Locator and Pneumatic Location Clamp



Automation Products

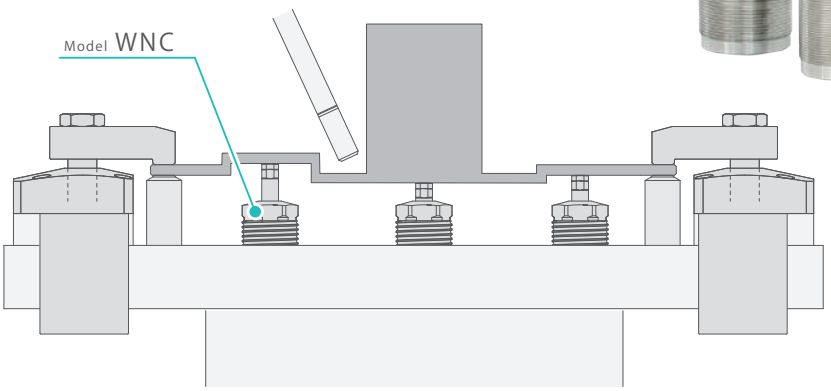
Powerful Support for Unstable Parts

High-Power Pneumatic Work Support (Standard / Rodless Hollow)

Model WNC / WNA

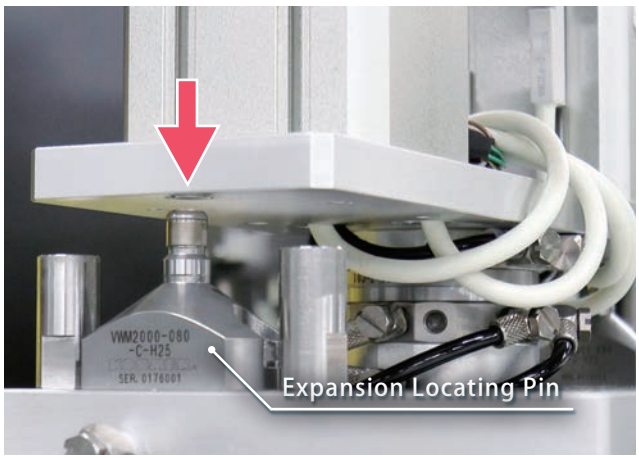
Firmly Supports the Workpiece and Prevents Chattering and Distortion

Locks when the tip of work support contacts a workpiece.
Securely supports a workpiece with various heights.



Air Lock / Spring Release

High Accuracy Locating of Workpiece • Pallet



Expansion Locating Pin

Model VWM / VX

Zero Clearance with High Accuracy Locating Pin

Workpiece Hole Diameter : ϕ8 ~ ϕ20

Model VWM

Locating Repeatability 3 μm

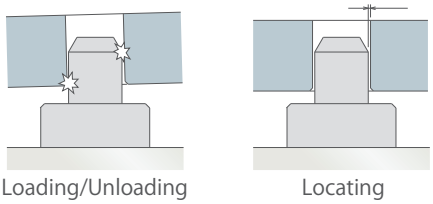
Air + Spring Lock / Air Release

Model VX

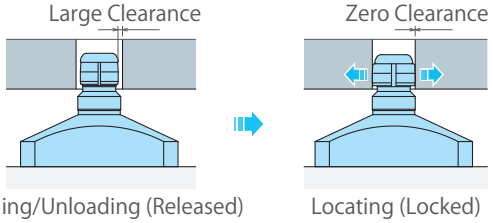
Locating Repeatability 5 μm

Manual Lock / Manual Release

Fixed Pin



Expansion Locating Pin



Difficult to Load/Unload
Some Clearance

Easy to Load/Unload
Zero Clearance and High Accuracy

MEMO

Company Profile

KOSMEK LTD. Head Office

Company Name	KOSMEK LTD.
Established	May 1986
Capital	¥99,000,000
Chairman	Keitaro Yonezawa
President	Tsutomu Shirakawa
Employee Count	250
Group Company	KOSMEK LTD.　KOSMEK ENGINEERING LTD. KOSMEK (USA) LTD.　KOSMEK EUROPE GmbH KOSMEK (CHINA) LTD.　KOSMEK LTD. - INDIA
Business Fields	Design, production and sales of precision products, and hydraulic and pneumatic equipment
Customers	Manufacturers of automobiles, industrial machinery, semiconductors and electric appliances
Banks	Resona bank, Tokyo-Mitsubishi bank, Ikeda bank

Sales Offices

Sales Offices across the World

Japan Overseas Sales	**TEL. +81-78-991-5162**　FAX. +81-78-991-8787 KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241 〒651-2241　兵庫県神戸市西区室谷2丁目1番5号
USA KOSMEK（USA）LTD.	**TEL. +1-630-620-7650**　FAX. +1-630-620-9015 650 Springer Drive, Lombard, IL 60148 USA
Mexico KOSMEK USA Mexico Office	**TEL. +52-442-161-2347** Blvd Jurica la Campana 1040, B Colonia Punta Juriquilla, Queretaro, QRO 76230 Mexico
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Thailand Thailand Representative Office	**TEL. +66-2-300-5132**　FAX. +66-2-300-5133 67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand
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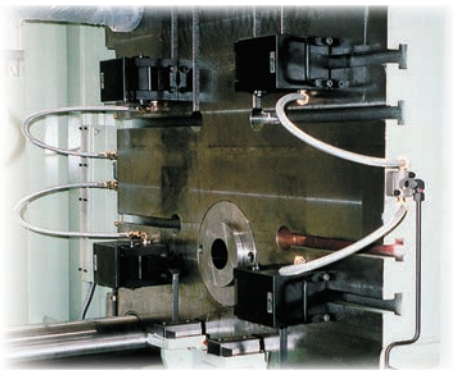
Product Line-up

■ Quick Die Change Systems

FOR PRESS MACHINES

■ Kosmek Factory Automation Systems

FACTORY AUTOMATION INDUSTRIAL ROBOT RELATED PRODUCTS

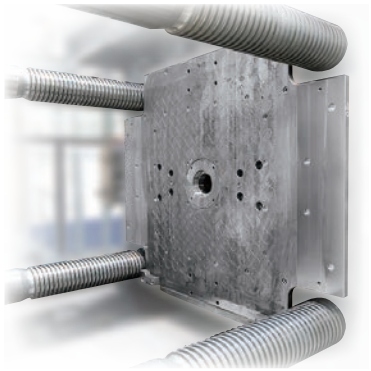


■ Diecast Clamping Systems

FOR DIECAST MACHINES

■ Kosmek Work Clamping Systems

MACHINE TOOL RELATED PRODUCTS



■ Quick Mold Change Systems

FOR INJECTION MOLDING MACHINES

KOSMEK

Harmony in Innovation

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