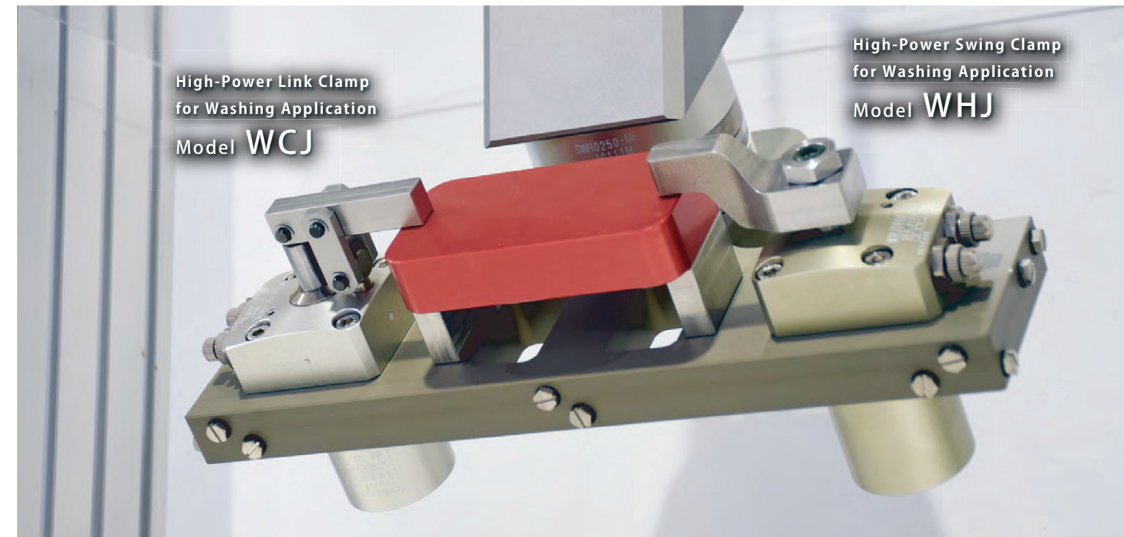


New For setup improvement of washing applications

Kosmek Products for Washing Application



High-Power Link Clamp
for Washing Application
Model WCJ

High-Power Swing Clamp
for Washing Application
Model WHJ

KOSMEK Harmony in Innovation

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* SPECIFICATIONS IN THIS LEAFLET ARE SUBJECT TO CHANGE WITHOUT NOTICE.



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

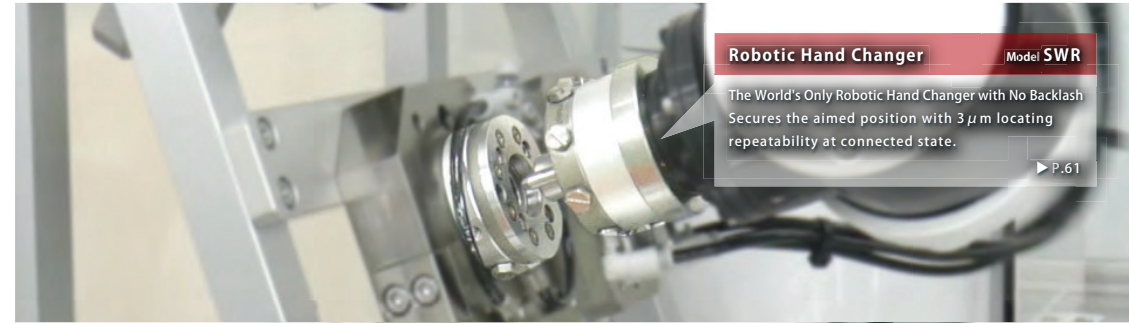


High-Power Link Clamp for Washing Application Model WCJ

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

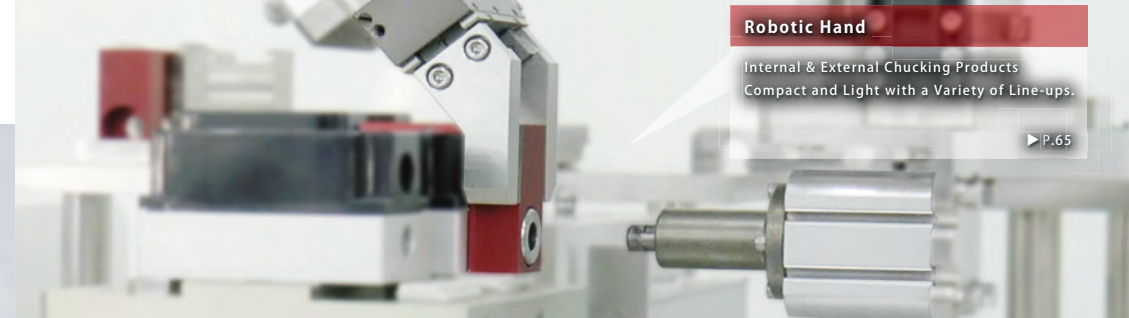
Robotic Hand Changer Model SWR

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 Swing Clamp for Washing Application

Model WHJ



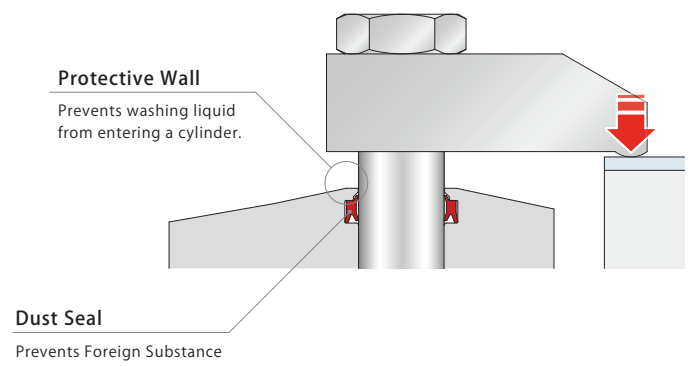
Suitable for High-Pressure Washing

PAT.

Features

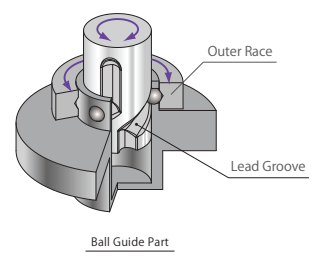
Durability

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



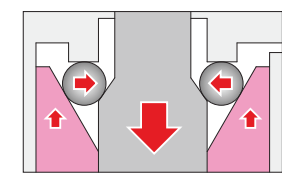
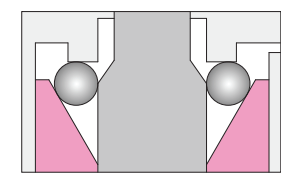
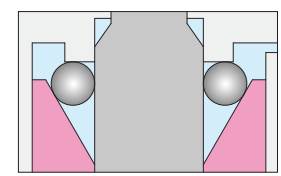
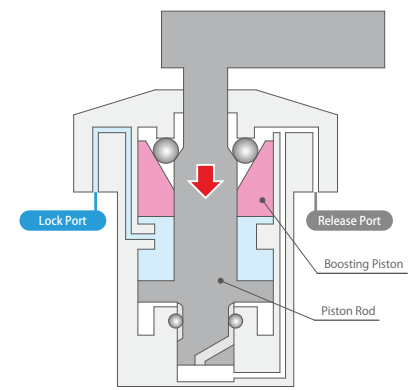
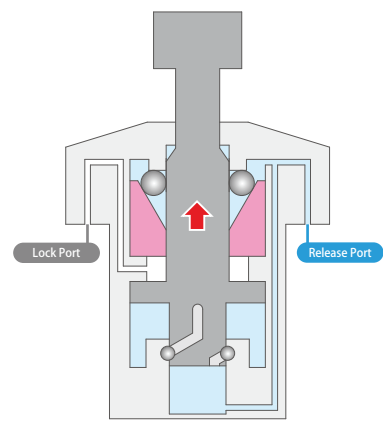
Swing Mechanism with High Speed and High Durability

Our strong hydraulic clamp mechanism is used to pneumatic clamps. Makes it faster with 3 lines of lead groove + outer race. (High Rigidity makes it possible to use a long lever.)



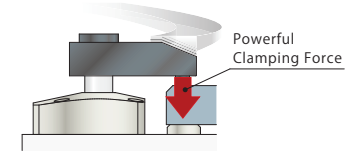
The High-Power Pneumatic Swing Clamp is a hybrid system using air pressure and a mechanical lock.

Action Description



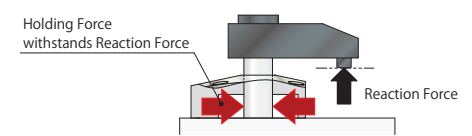
No Hydraulic Use

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.



High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

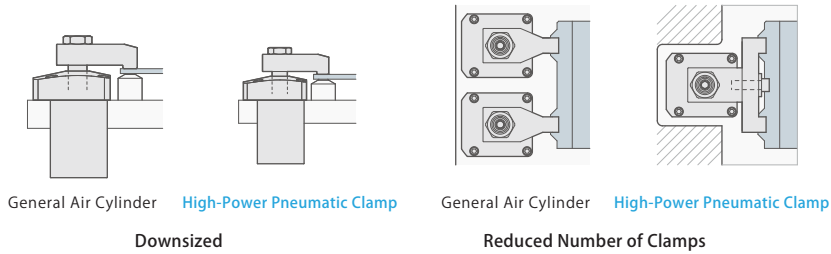
General Cautions

Related Products for Washing Application

Company Profile Sales Offices

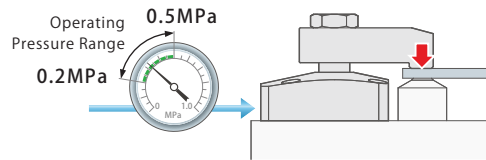
Smaller Footprint

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



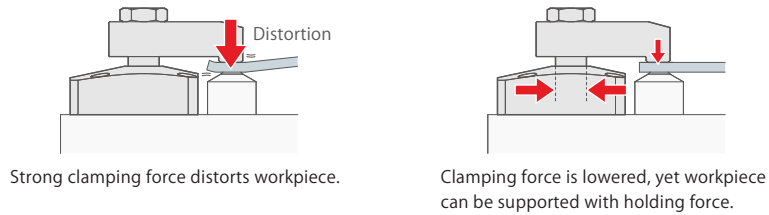
Energy Saving

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



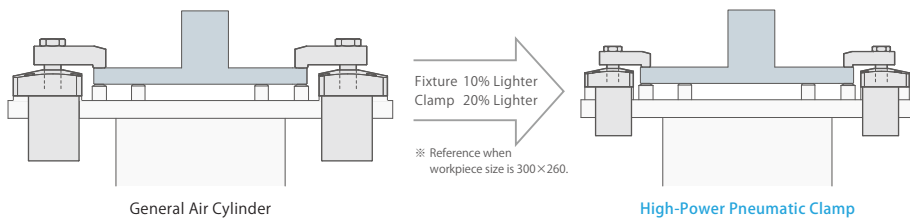
High Quality

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



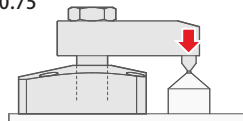
Light Weight

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



High Accuracy

High locating accuracy at locked position allows for precise clamping. Swing Complete Position Repeatability : $\pm 0.75^\circ$



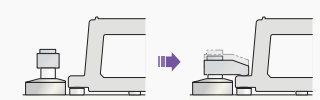
Lineup

Standard Model

Model **WHJ**

External Dimensions
→ P.15

Clamp with 90° swing

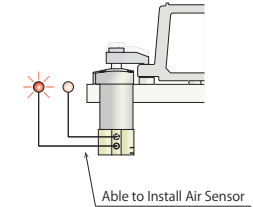


Air Sensing Manifold Option

Model **WHJ-M**

External Dimensions
→ P.17

Clamping action can be confirmed with air catch sensor



Air Sensing Piping Option

Model **WHJ-N**

External Dimensions
→ P.19

Accessories

Speed Control Valve

Model **BZW-B**



→ P.53

Manifold Block

Model **WHZ-MD**



→ P.55

High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

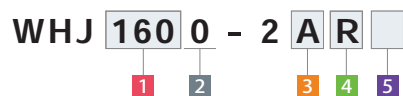
WHZ-MD

General Cautions

Related Products for Washing Application

Company Profile Sales Offices

Model No. Indication



1 Cylinder Force

- 060** : Cylinder Force 0.6 kN (Pneumatic Pressure 0.5MPa)
- 100** : Cylinder Force 1.0 kN (Pneumatic Pressure 0.5MPa)
- 160** : Cylinder Force 1.6 kN (Pneumatic Pressure 0.5MPa)
- 250** : Cylinder Force 2.4 kN (Pneumatic Pressure 0.5MPa)
- 400** : Cylinder Force 3.9 kN (Pneumatic Pressure 0.5MPa)

※ Cylinder force differs from clamping force and holding force.

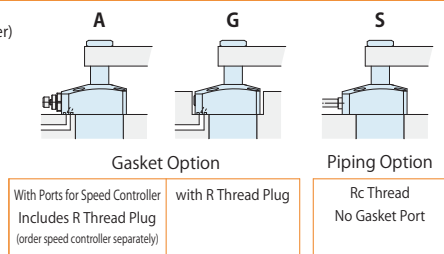
2 Design No.

- 0** : Revision Number

3 Piping Method

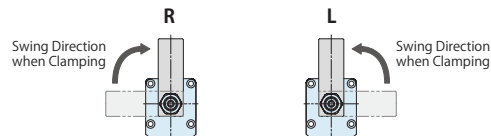
- A** : Gasket Option (with Ports for Speed Controller)
- G** : Gasket Option (with R Thread Plug)
- S** : Piping Option (Rc Thread)

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



4 Swing Direction when Clamping

- R** : Clockwise
- L** : Counter-Clockwise



5 Action Confirmation Method

- Blank** : None (Standard)
- M** : Air Sensing Manifold Option
- N** : Air Sensing Piping Option

Specifications

Model No.	WHJ0600-2□□□	WHJ1000-2□□□	WHJ1600-2□□□	WHJ2500-2□□□	WHJ4000-2□□□
Cylinder Force (at 0.5MPa)	kN 0.6	1.0	1.6	2.4	3.9
Clamping Force (Calculation Formula) *1	kN $F=(1.1666-0.00287 \times L) \times P$	$F=(1.8842-0.00346 \times L) \times P$	$F=(3.0603-0.00505 \times L) \times P$	$F=(4.7875-0.00654 \times L) \times P$	$F=(7.6871-0.00947 \times L) \times P$
Holding Force (Calculation Formula) *1	kN $Fk= \frac{2.771 \times P}{1-0.0025 \times L}$	$Fk= \frac{4.08 \times P}{1-0.0021 \times L}$	$Fk= \frac{6.628 \times P}{1-0.0012 \times L}$	$Fk= \frac{10.481 \times P}{1-0.0008 \times L}$	$Fk= \frac{16.806 \times P}{1-0.0006 \times L}$
Full Stroke	mm 14	14.5	15	17.5	19.5
Swing Stroke (90°)	mm 8	8.5	9	11.5	13.5
Vertical Stroke	mm 6				
(Break down) : Idle Stroke	mm 2				
: Lock Stroke *2	mm 4				
Swing Angle Accuracy			90° ±3°		
Swing Completion Position Repeatability			±0.75°		
Max. Operating Pressure	MPa 0.5				
Min. Operating Pressure *3	MPa 0.2				
Withstanding Pressure	MPa 0.75				
Operating Temperature	°C 0 ~ 70				
Usable Fluid			Dry Air		

Notes :

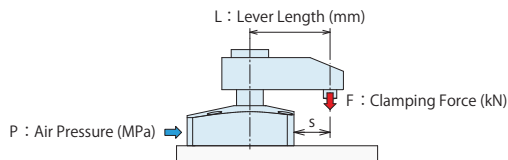
- ※ 1. F : Clamping Force (kN), Fk: Holding Force (kN), P : Supply Air Pressure (MPa), L : Distance between the piston center and the clamping point (mm).
- ※ 2. The specification value of cylinder force, clamping force, holding force and swing completion position repeatability is fulfilled only when clamping within the lock stroke range.
(Please refer to "The specification value is not fulfilled when clamping out of the lock stroke range." on P.25.)
- ※ 3. Minimum pressure to operate the clamp without load.
The clamp may stop in the middle of swing action depending on the lever shape. (Refer to "Notes on Lever Design" on P.25.)



1. Please refer to External Dimensions for cylinder capacity and mass.

High-Power Swing Clamp for Washing Application
WHJ
High-Power Link Clamp for Washing Application
WCJ
Air Flow Control Valve
BZW
Manifold Block
WHZ-MD
General Cautions
Related Products for Washing Application
Company Profile Sales Offices

Clamping Force Curve

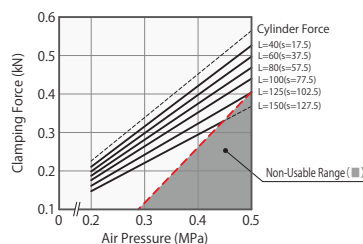


(How to read the Clamping Force Curve)
When using WHJ1600
Supply Air Pressure 0.4MPa
Lever Length L=60mm
Clamping force is about 1.1kN.

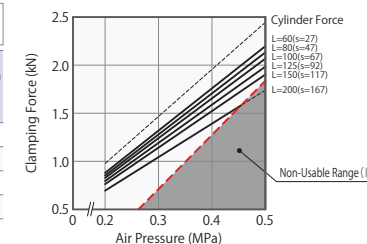
Notes:

- ※ 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 shown in the below tables and graphs is the value when clamping within the lock stroke range. (Please refer to "The specification value is not fulfilled when clamping out of the lock stroke range." on P.25.)
- 4. The clamping force is shown with lever in the locked position.
- 5. The clamping force varies as per the lever length. Please use it with supply pneumatic pressure suitable for lever length.
- 6. Operation in the non-usable range can damage the clamp and lead to fluid leakage.

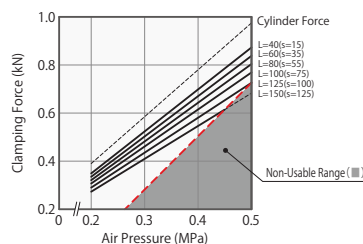
WHJ0600		Clamping Force Calculation Formula ^{※1} (kN) $F=(1.1666 - 0.00287 \times L) \times P$						
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■)						Max. Lever Length (mm)
		Lever Length L (mm)						
		40	60	80	100	125	150	
0.5	0.57	0.53	0.50	0.47	0.44			120
0.4	0.45	0.42	0.40	0.37	0.35	0.32	0.29	180
0.3	0.34	0.32	0.30	0.28	0.26	0.24	0.22	180
0.2	0.23	0.21	0.20	0.19	0.18	0.16	0.15	180
Max. Operating Pressure (MPa)	0.5	0.5	0.5	0.5	0.49	0.44		



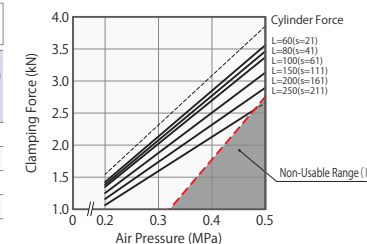
WHJ2500		Clamping Force Calculation Formula ^{※1} (kN) $F=(4.7875 - 0.00654 \times L) \times P$						
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■)						Max. Lever Length (mm)
		Lever Length L (mm)						
		60	80	100	125	150	200	
0.5	2.44	2.20	2.13	2.07	1.99	1.90		170
0.4	1.96	1.76	1.71	1.65	1.59	1.52	1.39	245
0.3	1.47	1.32	1.28	1.24	1.19	1.14	1.04	270
0.2	0.98	0.88	0.85	0.83	0.79	0.76	0.70	270
Max. Operating Pressure (MPa)	0.5	0.5	0.5	0.5	0.5	0.45		



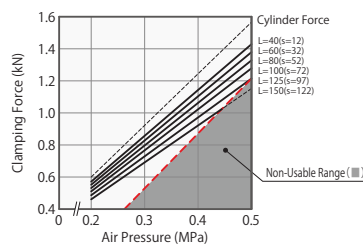
WHJ1000		Clamping Force Calculation Formula ^{※1} (kN) $F=(1.8842 - 0.00346 \times L) \times P$						
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■)						Max. Lever Length (mm)
		Lever Length L (mm)						
		40	60	80	100	125	150	
0.5	0.98	0.87	0.84	0.80	0.77	0.73		125
0.4	0.78	0.70	0.67	0.64	0.62	0.58	0.55	180
0.3	0.59	0.52	0.50	0.48	0.46	0.44	0.41	190
0.2	0.39	0.35	0.34	0.32	0.31	0.29	0.27	190
Max. Operating Pressure (MPa)	0.5	0.5	0.5	0.5	0.5	0.44		



WHJ4000		Clamping Force Calculation Formula ^{※1} (kN) $F=(7.6871 - 0.00947 \times L) \times P$						
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■)						Max. Lever Length (mm)
		Lever Length L (mm)						
		60	80	100	150	200	250	
0.5	3.86	3.56	3.46	3.37	3.13	2.90		230
0.4	3.09	2.85	2.77	2.70	2.51	2.32	2.13	330
0.3	2.32	2.14	2.08	2.02	1.88	1.74	1.60	330
0.2	1.54	1.42	1.39	1.35	1.25	1.16	1.06	330
Max. Operating Pressure (MPa)	0.5	0.5	0.5	0.5	0.5	0.48		



WHJ1600		Clamping Force Calculation Formula ^{※1} (kN) $F=(3.0603 - 0.00505 \times L) \times P$						
Air Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN) Non-Usable Range (■)						Max. Lever Length (mm)
		Lever Length L (mm)						
		40	60	80	100	125	150	
0.5	1.57	1.43	1.38	1.33	1.28	1.22		125
0.4	1.25	1.14	1.10	1.06	1.02	0.97	0.92	174
0.3	0.94	0.86	0.83	0.80	0.77	0.73	0.69	200
0.2	0.63	0.57	0.55	0.53	0.51	0.49	0.46	200
Max. Operating Pressure (MPa)	0.5	0.5	0.5	0.5	0.5	0.44		



High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

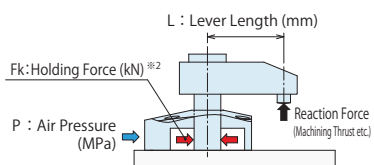
WHZ-MD

General Cautions

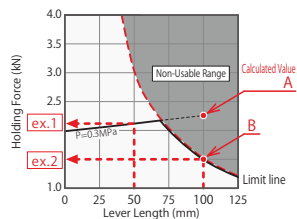
Related Products for Washing Application

Company Profile Sales Offices

Holding Force Curve



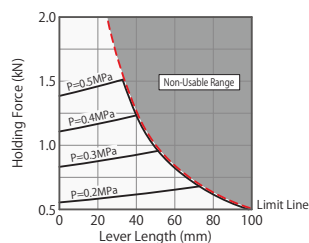
(How to read the Holding Force Curve: ex.1)
When using WHJ1600,
Supply Air Pressure 0.3MPa, Lever Length L=50mm
Holding force is about 2.1kN.
(How to read the Holding Force Curve: ex.2)
When using WHJ1600,
Supply Air Pressure 0.3MPa, Lever Length L=100mm
The calculated value is the holding force of
point A, but it is in the non-usable range.
The value of intersection B is the holding force that
counters the reaction force, and it is about 1.5kN.



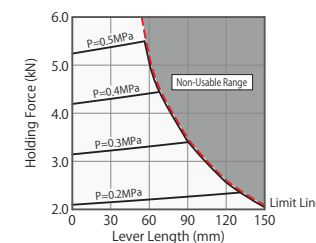
Notes:

- ※2. Holding force shows the force which can counter to reaction force in the clamping state, and differ 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 clamping force from being added.)
 - ※3. Fk : Holding Force (kN) , P : Supply Air Pressure (MPa) , L : Lever Length (mm).
When holding force calculated value exceeds the value of a limit line, holding force is a value of a limit line.
- This table and the graph show the relation between holding force (kN) and lever length (mm).
 - Holding force shown in the below tables and graphs is the value when clamping within the lock stroke range. (Please refer to "The specification value is not fulfilled when clamping out of the lock stroke range." on P.25.)
 - Holding force indicates the value when the lever locks a workpiece in horizontal position.
 - Holding force varies depending on the lever length. Set the supply air pressure suitable to the lever length.
 - Using in the non-usable range may damage the clamp and lead to fluid leakage.

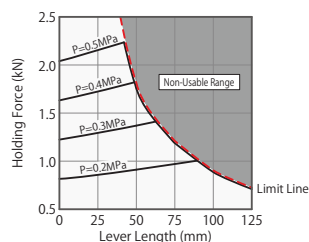
WHJ0600		Holding Force Formula ※3 (Fk ≤ Limit Line Value) (kN)		$Fk = \frac{2.771 \times P}{1 - 0.0025 \times L}$		
Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■)					
	Lever Length L (mm)					
	40	60	80	100	125	150
0.5	1.23	0.82	0.62	0.49		
0.4	1.23	0.82	0.62	0.49	0.40	0.33
0.3	0.93	0.82	0.62	0.49	0.40	0.33
0.2	0.62	0.65	0.62	0.49	0.40	0.33



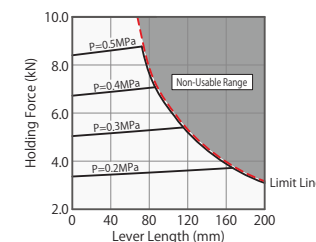
WHJ2500		Holding Force Formula ※3 (Fk ≤ Limit Line Value) (kN)		$Fk = \frac{10.481 \times P}{1 - 0.0008 \times L}$		
Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■)					
	Lever Length L (mm)					
	60	80	100	125	150	200
0.5	5.21	3.91	3.12	2.50	2.08	
0.4	4.40	3.91	3.12	2.50	2.08	1.56
0.3	3.30	3.36	3.12	2.50	2.08	1.56
0.2	2.20	2.24	2.28	2.33	2.08	1.56



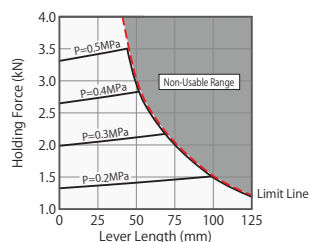
WHJ1000		Holding Force Formula ※3 (Fk ≤ Limit Line Value) (kN)		$Fk = \frac{4.08 \times P}{1 - 0.0021 \times L}$		
Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■)					
	Lever Length L (mm)					
	40	60	80	100	125	150
0.5	2.23	1.51	1.13	0.91	0.73	
0.4	1.78	1.51	1.13	0.91	0.73	0.61
0.3	1.34	1.40	1.13	0.91	0.73	0.61
0.2	0.89	0.93	0.98	0.91	0.73	0.61



WHJ4000		Holding Force Formula ※3 (Fk ≤ Limit Line Value) (kN)		$Fk = \frac{16.806 \times P}{1 - 0.0006 \times L}$		
Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■)					
	Lever Length L (mm)					
	60	80	100	150	200	250
0.5	8.72	7.92	6.34	4.22	3.17	
0.4	6.97	7.06	6.34	4.22	3.17	2.53
0.3	5.23	5.30	5.36	4.22	3.17	2.53
0.2	3.49	3.53	3.58	3.69	3.17	2.53



WHJ1600		Holding Force Formula ※3 (Fk ≤ Limit Line Value) (kN)		$Fk = \frac{6.628 \times P}{1 - 0.0012 \times L}$		
Air Pressure (MPa)	Holding Force (kN) Non-Usable Range (■)					
	Lever Length L (mm)					
	40	60	80	100	125	150
0.5	3.48	2.53	1.90	1.52	1.22	
0.4	2.79	2.53	1.90	1.52	1.22	1.01
0.3	2.09	2.14	1.90	1.52	1.22	1.01
0.2	1.39	1.43	1.47	1.51	1.22	1.01



High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

Related Products for Washing Application

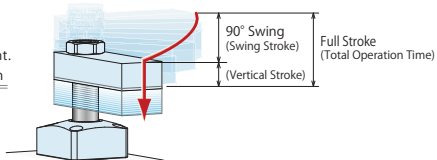
Company Profile Sales Offices

Allowable Swing Time Graph

Adjustment of Swing Time

The graph shows allowable swing time against lever inertia moment. Please make sure that an operation time is more than the operation time shown in the graph.

Excessive action speed can reduce stopping accuracy and damage internal parts.



(How to read the Allowable Swing Time Graph)

When using WHJ1600

Lever Inertia Moment : 0.005 kg·m²

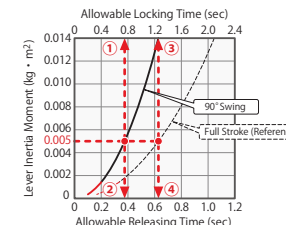
①90° Swing Time when Locking : About 0.76 sec or more

②90° Swing Time when Releasing : About 0.38 sec or more

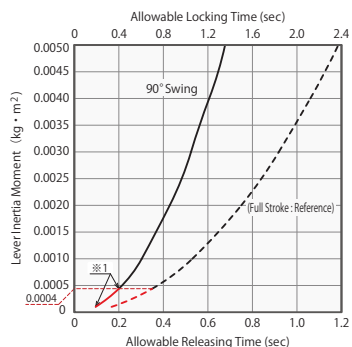
③Total Lock Operation Time : About 1.27 sec or more

④Total Release Operation Time : About 0.63 sec or more

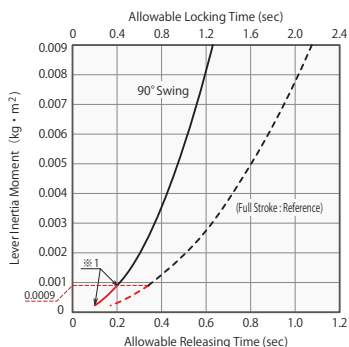
1. The total operation time on the graph represents the allowable operation time when fully stroked.



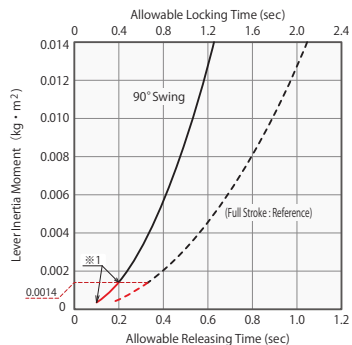
WHJ0600



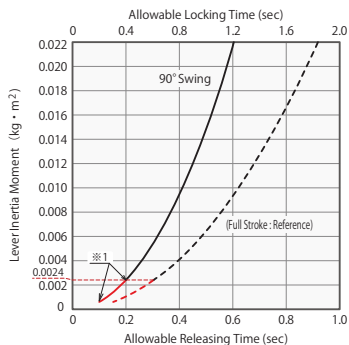
WHJ1000



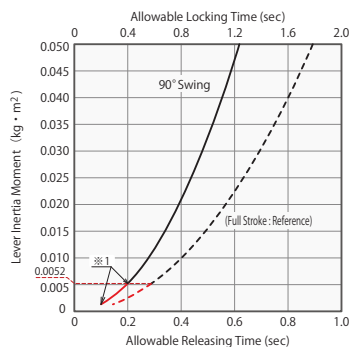
WHJ1600



WHJ2500



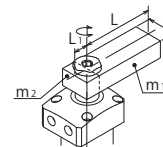
WHJ4000



How to calculate inertia moment (Estimated)

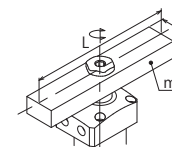
I : Inertia Moment (kg·m²) L,L₁,L₂,K,b : Length(m) m,m₁,m₂,m₃ : Mass (kg)

① For a rectangular plate (cuboid), the rotating shaft is vertically on one side of the plate.



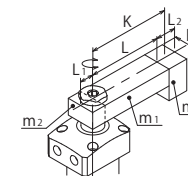
$$I = m_1 \frac{4L^2 + b^2}{12} + m_2 \frac{4L_1^2 + b^2}{12}$$

② For a rectangular plate (cuboid), the rotating shaft is vertically on the gravity center of the plate.



$$I = m \frac{L^2 + b^2}{12}$$

③ The load is applied on the lever front end.



$$I = m_1 \frac{4L^2 + b^2}{12} + m_2 \frac{4L_1^2 + b^2}{12} + m_3 K^2 + m_3 \frac{L_2^2 + b^2}{12}$$

Notes:

- ※ 1. For any lever inertia moment, minimum 90° swing time should be 0.2 sec.
 1. There may be no lever swing action with large inertia depending on supply air pressure, flow and lever mounting position.
 2. For speed adjustment of clamp lever, please use meter-out flow control valve. In case of meter-in control, the clamp lever may be accelerated by its own weight during swinging motion (clamp mounted horizontally) or the piston rod may be moving too fast. (Please refer to P.25 for speed adjustment.)
 3. Please contact us if operational conditions differ from those shown on the graphs.

High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

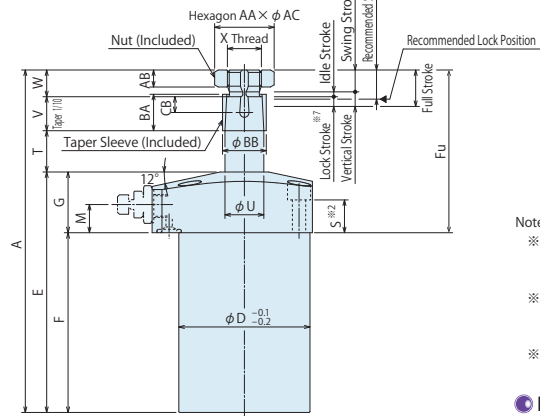
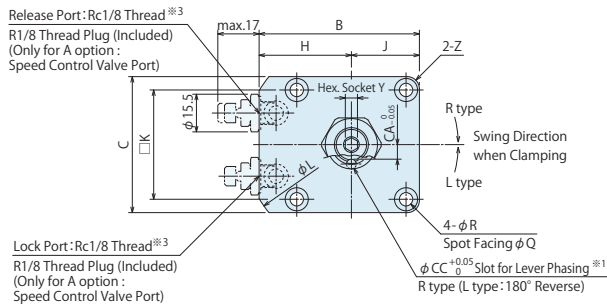
Related Products for Washing Application

Company Profile
Sales Offices

External Dimensions

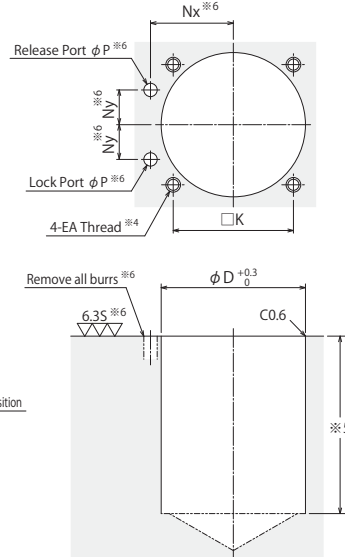
A : Gasket Option (With Ports for Speed Controller : R-Thread Plug Included)

※ The drawing shows the released state of WHJ-2AR.



- Notes :
- ※ 1. The slot for lever phasing faces the port side when locked.
 - ※ 2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
 - ※ 3. Speed control valve is sold separately. Please refer to P.53.

Machining Dimensions of Mounting Area

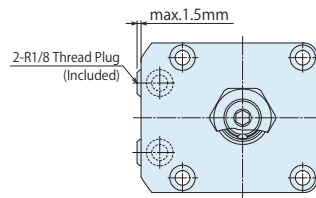


- Notes :
- ※ 4. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
 - ※ 5. The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension 'F'.
 - ※ 6. The machining dimension is for -A/-G : Gasket Option.

Piping Method

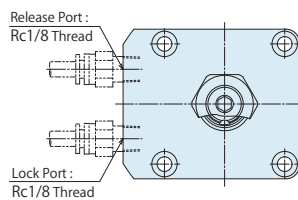
G : Gasket Option (With R Thread Plug)

※ The drawing shows the released state of WHJ-2GR.

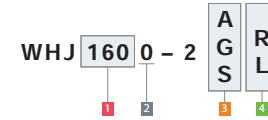


S : Piping Option (Rc Thread)

※ The drawing shows the released state of WHJ-2SR.



Model No. Indication



(Format Example : WHJ1000-2AR, WHJ2500-2SL)

- 1 Cylinder Force
- 2 Design No.
- 3 Piping Method
- 4 Swing Direction when Clamping

External Dimensions and Machining Dimensions for Mounting

Model No.	WHJ0600-2□□	WHJ1000-2□□	WHJ1600-2□□	WHJ2500-2□□	WHJ4000-2□□
Full Stroke	14	14.5	15	17.5	19.5
Swing Stroke (90°)	8	8.5	9	11.5	13.5
Vertical Stroke			6		
(Break Idle Stroke down) Lock Stroke $\phi 7$			4		
Recommended Stroke	11	11.5	12	14.5	16.5
A	125	134.5	141	167	185.5
B	54	60	66	76	87
C	45	50	56	66	78
D	40	46	54	64	77
E	89	95.5	99	117.5	128
F	64	70.5	74	87.5	98
Fu	61	64	67	79.5	87.5
G	25	25	25	30	30
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	13	13
Nx	26	28	31	36	41
Ny	9	10	13	15	20
P	max. $\phi 3$	max. $\phi 5$	max. $\phi 5$	max. $\phi 5$	max. $\phi 5$
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	16	16.5	17	19.5	21.5
U	12	14	16	20	25
V	10	12	14	17	21
W	10	10.5	11	13	15
X (Nominal \times Pitch)	M10 \times 1	M12 \times 1.5	M14 \times 1.5	M16 \times 1.5	M22 \times 1.5
Y	4	5	5	6	8
Z (Chamfer)	C3	R5	R5	R6	R6
AA	17	19	22	24	32
AB	6	6.5	7	8	10
AC	19	21.2	24.5	26.5	35.5
BA	11	13	15	18	22
BB	14	16	18	22	28
CA	4.5	5	6	8	10
CB	4.5	4.5	6.5	5.5	9.5
CC	3	4	4	4	6
EA (Nominal \times Pitch)	M5 \times 0.8	M5 \times 0.8	M5 \times 0.8	M6 \times 1	M6 \times 1
O-ring (-A/-G option)	1BP5	1BP7	1BP7	1BP7	1BP7
Cylinder Capacity Lock	12.8	21.8	35.5	61.3	103.8
cm ³ Release	15.2	25.5	40.3	69.2	117.6
Mass $\phi 8$ kg	0.5	0.8	1.0	1.7	2.8

- Notes :
- ※ 7. The specification value of cylinder force, clamping force, holding force and swing completion position repeatability is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of swing stroke and idle stroke.)
 - ※ 8. Mass of single swing clamp including taper sleeve and nut.

High-Power Swing Clamp for Washing Application
WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

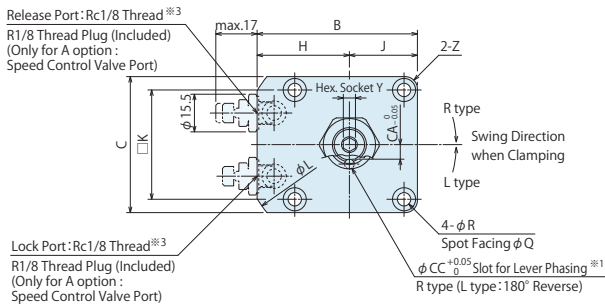
Related Products for Washing Application

Company Profile Sales Offices

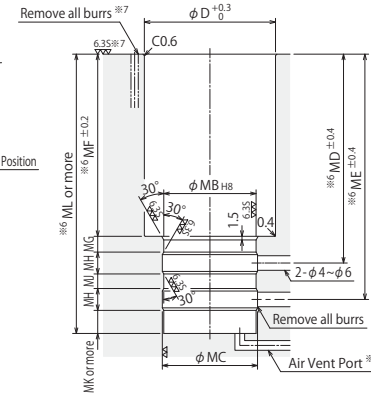
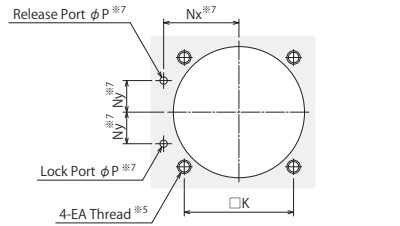
External Dimensions

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

※ The drawing shows the released state of WHJ-2ARM.



Machining Dimensions of Mounting Area

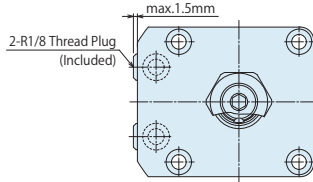


- Notes:
- ※4. Air vent port must be open to the atmosphere, and prevent washing liquid.
 - ※5. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
 - ※6. The dimensions indicate those under the flange.
 - ※7. The machining dimension is for -A/-G : Gasket Option.

Piping Method

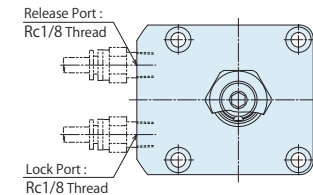
G : Gasket Option (With R Thread Plug)

※The drawing shows the released state of WHJ-2GRM.



S : Piping Option (Rc Thread)

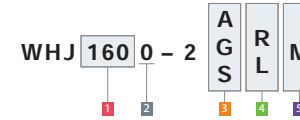
※The drawing shows the released state of WHJ-2SRM.



Notes :

- ※1. The slot for lever phasing faces the port side when locked.
- ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
- ※3. Speed control valve is sold separately. Please refer to P.53.
 - Please contact us when you require options in combination.
 - Please refer to P.21~P.22 for Air Sensing Chart.

Model No. Indication



(Format Example : WHJ1000-2ARM, WHJ2500-2SLM)

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

External Dimensions and Machining Dimensions for Mounting

Model No.	WHJ0600-2□□M	WHJ1000-2□□M	WHJ1600-2□□M	WHJ2500-2□□M	WHJ4000-2□□M
Full Stroke	14	14.5	15	17.5	19.5
Swing Stroke (90°)	8	8.5	9	11.5	13.5
Vertical Stroke	6				
(Break / Idle Stroke down) : Lock Stroke ※8	2				
Recommended Stroke	11	11.5	12	14.5	16.5
A	125	134.5	141	167	185.5
B	54	60	66	76	87
C	45	50	56	66	78
D	40	46	54	64	77
E	89	95.5	99	117.5	128
F	64	70.5	74	87.5	98
Fu	61	64	67	79.5	87.5
G	25	25	25	30	30
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	13	13
Nx	26	28	31	36	41
Ny	9	10	13	15	20
P	max. phi 3	max. phi 5	max. phi 5	max. phi 5	max. phi 5
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	16	16.5	17	19.5	21.5
U	12	14	16	20	25
V	10	12	14	17	21
W	10	10.5	11	13	15
X (Nominal x Pitch)	M10x1	M12x1.5	M14x1.5	M16x1.5	M22x1.5
Y	4	5	5	6	8
Z (Chamfer)	C3	R5	R5	R6	R6
AA	17	19	22	24	32
AB	6	6.5	7	8	10
AC	19	21.2	24.5	26.5	35.5
BA	11	13	15	18	22
BB	14	16	18	22	28
CA	4.5	5	6	8	10
CB	4.5	4.5	6.5	5.5	9.5
CC	3	4	4	4	6
EA (Nominal x Pitch)	M5x0.8	M5x0.8	M5x0.8	M6x1	M6x1
MA	36	39	39	44	44
MB φ _B	28 ^{+0.020} _{-0.053}	38 ^{+0.025} _{-0.064}	38 ^{+0.025} _{-0.064}	45 ^{+0.025} _{-0.064}	45 ^{+0.025} _{-0.064}
MB H _B	28 ^{+0.033} ₀	38 ^{+0.039} ₀	38 ^{+0.039} ₀	45 ^{+0.039} ₀	45 ^{+0.039} ₀
MC	29.2	39.2	39.2	46.2	46.2
MD	75.5	82.5	86	100	110.5
ME	88.5	97.5	101	118.5	129
MF	65	71.5	75	88.5	99
MG	6	6.5	6.5	7	7
MH	9	9	9	9	9
MJ	4	6	6	9.5	9.5
MK	9	9.5	9.5	10.5	10.5
ML	102	111.5	115	133.5	144
O-ring (-A/-G option)	1BP5	1BP7	1BP7	1BP7	1BP7
3-O-ring	AS568-021 (70°)	AS568-028 (70°)	AS568-028 (70°)	AS568-030 (70°)	AS568-030 (70°)
Cylinder Capacity	Lock	21.8	35.5	61.3	103.8
cm ³	Release	14.5	24.4	39.1	67.2
Mass ※9	kg	0.6	1.0	1.2	2.0
					3.1

- Notes:
- ※8. The specification value of cylinder force, clamping force, holding force and swing completion position repeatability is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of swing stroke and idle stroke.)
 - ※9. Mass of single swing clamp including taper sleeve and nut.

High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

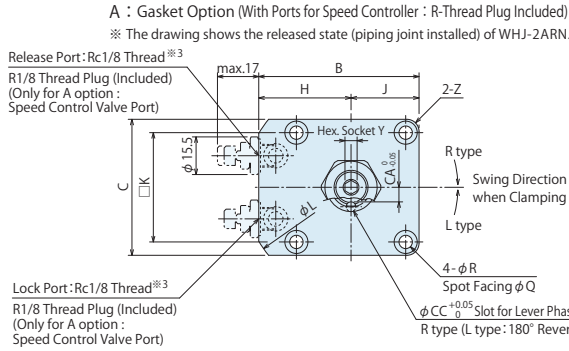
WHZ-MD

General Cautions

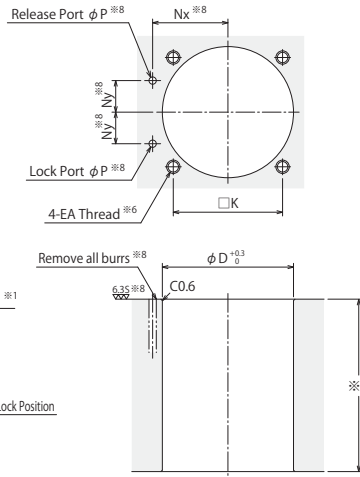
Related Products for Washing Application

Company Profile Sales Offices

External Dimensions



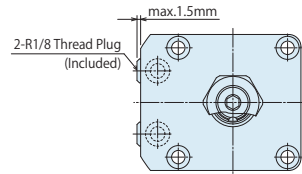
Machining Dimensions of Mounting Area



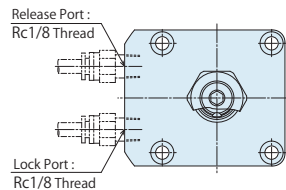
- Notes:
- ※5. Air vent port must be open to the atmosphere, and prevent washing liquid.
 - ※6. EA tapping depth of the mounting bolt should be decided according to the mounting height referring to dimension 'S'.
 - ※7. The depth of mounting hole φD should be less than dimension 'F'.
 - ※8. The machining dimension is for -A/-G : Gasket Option.

Piping Method

G : Gasket Option (With R Thread Plug)
 ※The drawing shows the released state of WHJ-2GRN.

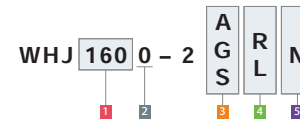


S : Piping Option (Rc Thread)
 ※The drawing shows the released state of WHJ-2SRN.



- Notes:
- ※1. The slot for lever phasing faces the port side when locked.
 - ※2. Mounting bolts are not provided. Please prepare them according to the mounting height referring to dimension 'S'.
 - ※3. Speed control valve is sold separately. Please refer to P.53.
 - ※4. 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.
- Please contact us when you require options in combination.
 - Please refer to P.21~P.22 for Air Sensing Chart.

Model No. Indication



- (Format Example : WHJ1000-2ARN, WHJ2500-2SLN)
- Cylinder Force
 - Design No.
 - Piping Method
 - Swing Direction when Clamping
 - Action Confirmation (When N is chosen)

External Dimensions and Machining Dimensions for Mounting

Model No.	WHJ0600-2□□N	WHJ1000-2□□N	WHJ1600-2□□N	WHJ2500-2□□N	WHJ4000-2□□N
Full Stroke	14	14.5	15	17.5	19.5
Swing Stroke (90°)	8	8.5	9	11.5	13.5
Vertical Stroke	6				
(Break : Idle Stroke down) : Lock Stroke *9	2				
Recommended Stroke	4				
A	11	11.5	12	14.5	16.5
B	125	134.5	141	167	185.5
C	54	60	66	76	87
D	45	50	56	66	78
E	40	46	54	64	77
F	89	95.5	99	117.5	128
G	64	70.5	74	87.5	98
Fu	61	64	67	79.5	87.5
H	25	25	25	30	30
I	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	13	13
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	16	16.5	17	19.5	21.5
U	12	14	16	20	25
V	10	12	14	17	21
W	10	10.5	11	13	15
X (Nominal × Pitch)	M10 × 1	M12 × 1.5	M14 × 1.5	M16 × 1.5	M22 × 1.5
Y	4	5	5	6	8
Z (Chamfer)	C3	R5	R5	R6	R6
AA	17	19	22	24	32
AB	6	6.5	7	8	10
AC	19	21.2	24.5	26.5	35.5
BA	11	13	15	18	22
BB	14	16	18	22	28
CA	4.5	5	6	8	10
CB	4.5	4.5	6.5	5.5	9.5
CC	3	4	4	4	6
EA (Nominal × Pitch)	M5 × 0.8	M5 × 0.8	M5 × 0.8	M6 × 1	M6 × 1
NA	38.5	41.5	41.5	46.5	46.5
NB	49	59	59	66	66
NC	14	14.5	14.5	15.5	15.5
ND	13	15	15	18.5	18.5
NE	23.5	28.5	28.5	32	32
NF	2.5	2.5	2.5	3	3
O-ring (-A/-G option)	1BP5	1BP7	1BP7	1BP7	1BP7
Cylinder Capacity Lock	12.8	21.8	35.5	61.3	103.8
cm ³ Release	14.5	24.4	39.1	67.2	115.4
Mass *10 kg	0.7	1.0	1.2	2.0	3.1

- Notes:
- ※9. The specification value of cylinder force, clamping force, holding force and swing completion position repeatability is fulfilled only when clamping within the lock stroke range. (The specification value is not fulfilled when clamping within the range of swing stroke and idle stroke.)
 - ※10. Mass of single swing clamp including taper sleeve and nut.

High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

Related Products for Washing Application

Company Profile Sales Offices

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

WHJ 160 0 - 2



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

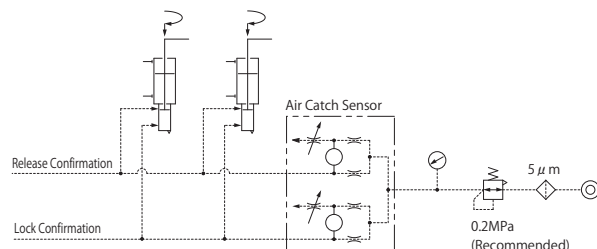
Recommended Air Catch Sensor

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.

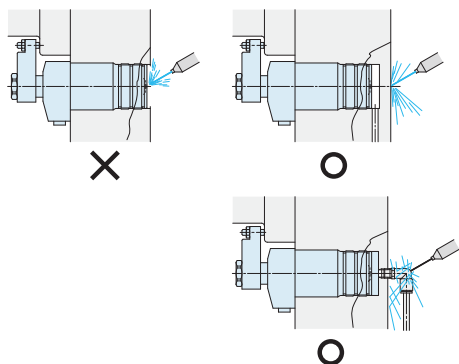
Refer to the drawing below for the air circuit composition.



Notes for Use and Installation

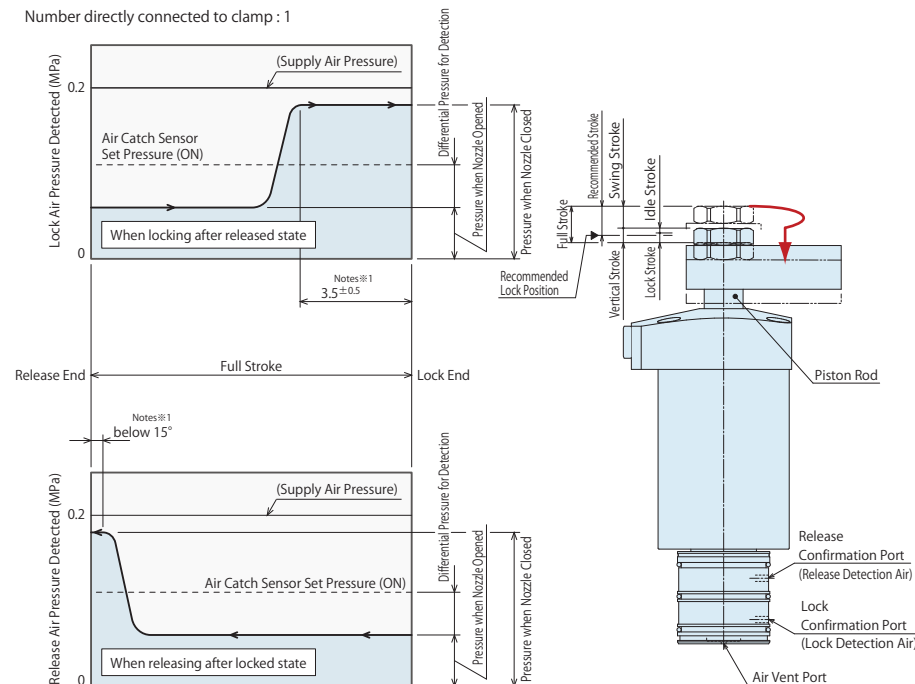
- Air vent port must be open to the atmosphere and kept free of coolant, chips or other debris. The air catch sensor can malfunction if the air vent port is blocked.

- 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

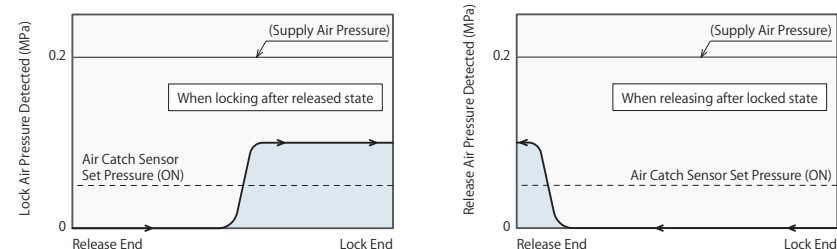


Notes :

1. Sensing chart shown is the relationship between the 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 a 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.)

Model No.	WHJ0600-2□□M/N	WHJ1000-2□□M/N	WHJ1600-2□□M/N	WHJ2500-2□□M/N	WHJ4000-2□□M/N	
Full Stroke	mm	14	14.5	15	17.5	19.5

Number directly connected to clamp : 4 (for reference)



High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

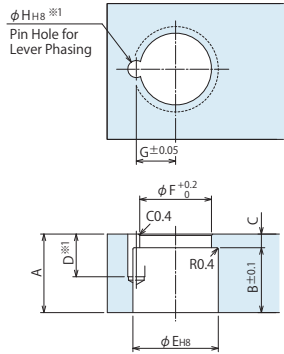
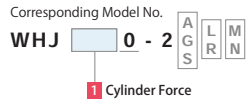
Related Products for Washing Application

Company Profile

Sales Offices

Taper Lock Lever Design Dimensions

※ Reference for designing taper lock swing lever.



Corresponding Model No.	WHJ0600-2□□□	WHJ1000-2□□□	WHJ1600-2□□□	WHJ2500-2□□□	WHJ4000-2□□□
A	14	16	18	22	26
B	11	13	15	18	22
C	3	3	3	4	4
D	8.5	8.5	10.5	10.5	14.5
E	14 ^{+0.027} / ₀	16 ^{+0.027} / ₀	18 ^{+0.027} / ₀	22 ^{+0.033} / ₀	28 ^{+0.033} / ₀
F	11	13	15	17	23.5
G	6	7.1	8.1	10.1	13.1
H	3 ^{+0.014} / ₀	4 ^{+0.018} / ₀	4 ^{+0.018} / ₀	4 ^{+0.018} / ₀	6 ^{+0.018} / ₀
Phasing Pin (Reference) ^{※2}	$\phi 3(h8) \times 8$	$\phi 4(h8) \times 8$	$\phi 4(h8) \times 10$	$\phi 4(h8) \times 10$	$\phi 6(h8) \times 14$

Notes :

- Swing lever should be designed with its length according to performance curve.
 - If the swing lever is not in accordance with the dimensions shown above, performance may be degraded and damage can occur.
- ※1. The pin hole (ϕH) for determining the lever phase should be added, if necessary. Additional machining is not required if there is no phasing needed.
- ※2. Phasing pin is not included. Prepare it separately.

Accessories : Others

- We offer more accessories for model WHJ.

Speed Control Valve

Model **BZW-B**

※ Use BZW□-B for WHJ.



Refer to P.53 for reference.

Manifold Block

Model **WHZ-MD**



Refer to P.55 for reference.

High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

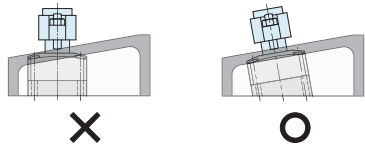
Related Products for Washing Application

Company Profile Sales Offices

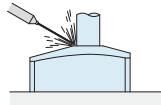
Cautions

Notes for Design

- Check Specifications
 - Please use each product according to the specifications.
- 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.
- Swing lever should be designed so that the inertia moment is small.
 - Large inertia moment will degrade the lever's stopping accuracy and cause undue wear to the clamp.
 - Additionally, the clamp may not function, depending on supplied air pressure and lever mounting position.
 - Please set the operating time after the inertia moment is calculated. Please make sure that the clamps work within allowable operating time referring to the allowable operating time graph.
 - If supplying a large amount of air right after installation, action time will be extremely fast leading to severe damage on a clamp. Install the speed controller (meter-in) near the air source and gradually supply air pressure.
- When clamping on a sloped surface of a workpiece
 - Make sure the clamping surface and mounting surface of the clamp are parallel.

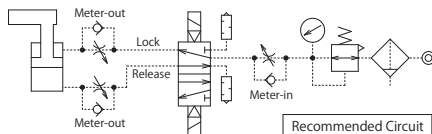


- Do not inject high-pressure washing liquid directly to a clamp.
 - Direct injection of high-pressure washing liquid to a clamp leads to damage and invasion of washing liquid.



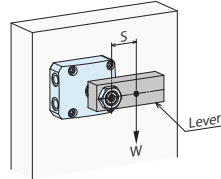
Swing Speed Adjustment

- If the clamp operates too fast the parts will wear out and leads to damage more quickly leading to complete equipment failure. Adjust the speed following "Allowable Swing Time Graph".
- Install a speed control valve (meter-out) and gradually control the flow rate from the low-speed side (small flow) to the designated speed. Controlling from the high-speed side (large flow) causes excessive surge pressure or overload to the clamp leading to damage of a machine or device.



Notes for Lever Design

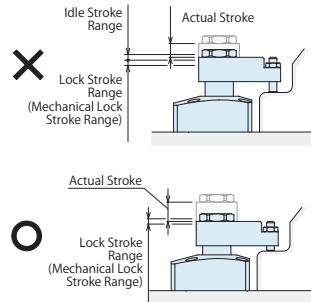
- Please design the lever as light as possible, and it should be no larger than necessary.
- The clamp may not function depending on supplying air pressure, mounting position and shape of the lever. If using a large lever with the mounting position shown below, it may stop in the middle of swing action. Please use a lever with (Lever Weight W) × (Gravity Center S) lighter than shown in the below list.



Model No.	(Lever Length W) × (Center of Gravity S) (N·m)
WHJ0600	0.08
WHJ1000	0.10
WHJ1600	0.20
WHJ2500	0.45
WHJ4000	0.90

- The specification value is not fulfilled when clamping out of the lock stroke range.
 - The mechanical lock function will not work when clamping within the range of swing stroke and idle stroke, and the specification value of cylinder force, clamping force, holding force and swing completion position repeatability will not be fulfilled.

The actual stroke of the piston that descends from the release-end to lock-end should be designed to have the same value as the recommended stroke listed in the external dimensions.



Installation Notes

- 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.)
- 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.
- 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.
- 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 chart below. Tightening with greater torque than recommended can depress the seating surface or break the bolt.

Model	Thread Size	Tightening Torque(N·m)
WHJ0600	M5×0.8	6.3
WHJ1000	M5×0.8	6.3
WHJ1600	M5×0.8	6.3
WHJ2500	M6×1	10
WHJ4000	M6×1	10

- Installing Flow Control Valve
 - Tightening torque for installing flow control valve is 5 to 7 N·m.
- Installation / Removal of the Swing Lever
 - Oil or debris on the mating surfaces of the lever, taper sleeve or piston rod can cause the rod to loosen. Please clean them thoroughly before assembly.
 - Lever mounting bolt torques are shown below.

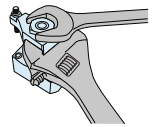
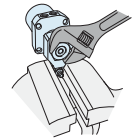
Standard : Taper Lock Lever Option

Model	Thread Size	Tightening Torque (N·m)
WHJ0600	M10×1	10 ~ 13
WHJ1000	M12×1.5	17 ~ 20
WHJ1600	M14×1.5	21 ~ 25
WHJ2500	M16×1.5	33 ~ 40
WHJ4000	M22×1.5	84 ~ 100

- If the piston rod is subjected to excessive torque or shock, the rod or the internal mechanism may be damaged. Observe the following points to prevent such shock.

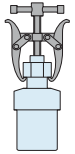
For Installation

- With the clamp positioned to the fixture, determine the lever position, and temporarily tighten the nut for fixing the lever.
- Remove the clamp from the fixture, fix the lever with machine vise etc., and tighten the nut.
- If tightening the nut with the clamp positioned to the fixture, please use a wrench to the hexagon part of piston rod, or fix the lever with a spanner. It is best to bring the lever to the middle of the swing stroke before tightening the nut.



For Removal

- While the clamp is fixed to the fixture or vise, use a wrench to bring the lever to the middle of the swing stroke and then loosen the nut.
- Loosen the nut after securing the lever two or three turns then remove the lever with a puller without any rotational torque applied on the piston rod.



Swing Speed Adjustment

- Adjust the speed following "Allowable Swing Time Graph". If the clamp operates too fast the parts will wear out leading to premature damage and ultimately complete equipment failure.
- Turn the speed control valve gradually from the low-speed side (small flow) to the high-speed side (large flow) to adjust the speed.

Checking looseness and retightening

- At the beginning of the machine installation, the bolt and nut may be tightened lightly. Check the looseness and re-tighten as required.

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

Air Flow Control Valve

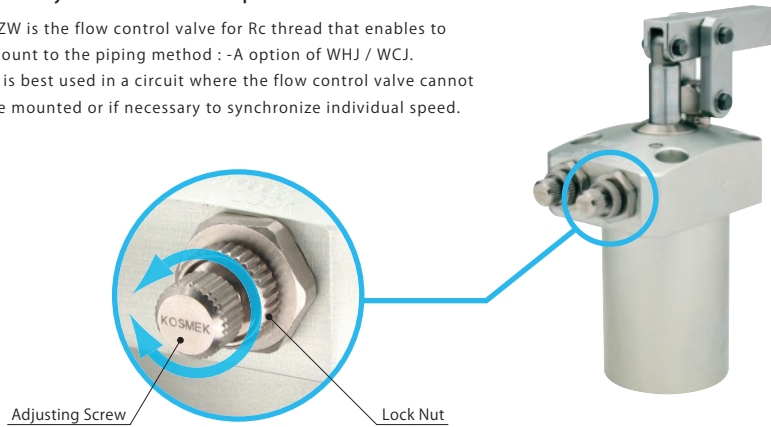
Model BZW



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.



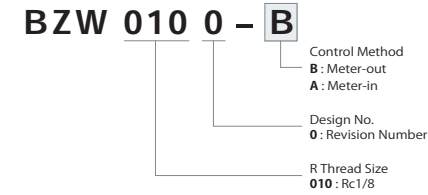
Corresponding Product Model

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

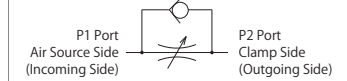


Specifications

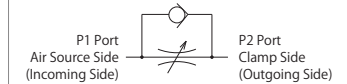
Model No.	BZW0100-B	BZW0100-A
Control Method	Meter-out	Meter-in
Operating Pressure MPa	0.1 ~ 1.0	
Withstanding Pressure MPa	1.5	
Adjust Screw Number of Rotations	10 Rotations	
Tightening Torque N·m	5 ~ 7	
Corresponding Model No.	WHJ □ -2A □	WCJ □ -2A □

Circuit Symbol

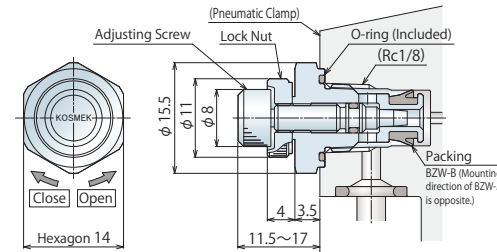
BZW0100-B : Meter-out



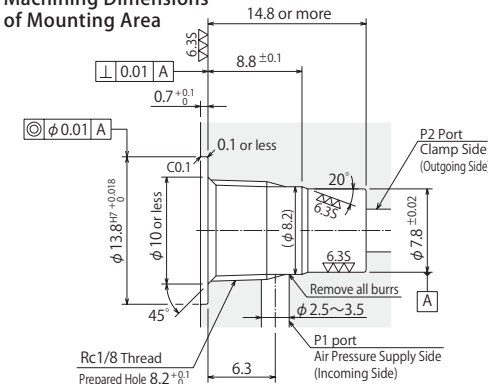
BZW0100-A : Meter-in



External Dimensions



Machining Dimensions of Mounting Area



Notes :

1. Since the $\nabla\nabla\nabla$ area is sealing part, be careful not to damage it.
2. No cutting chips or burr should 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.

High-Power Swing Clamp for Washing Application
WHJ

High-Power Link Clamp for Washing Application
WCJ

Air Flow Control Valve
BZW

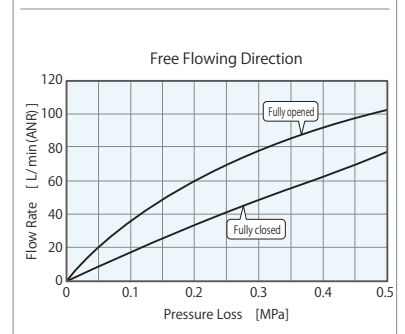
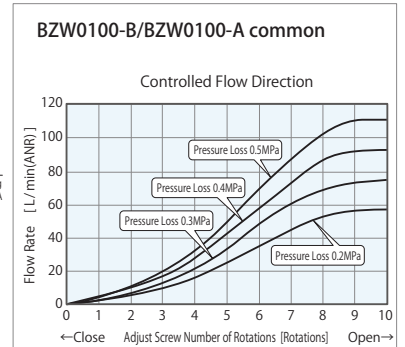
Manifold Block
WHZ-MD

General Cautions

Related Products for Washing Application

Company Profile Sales Offices

Flow Rate Graph



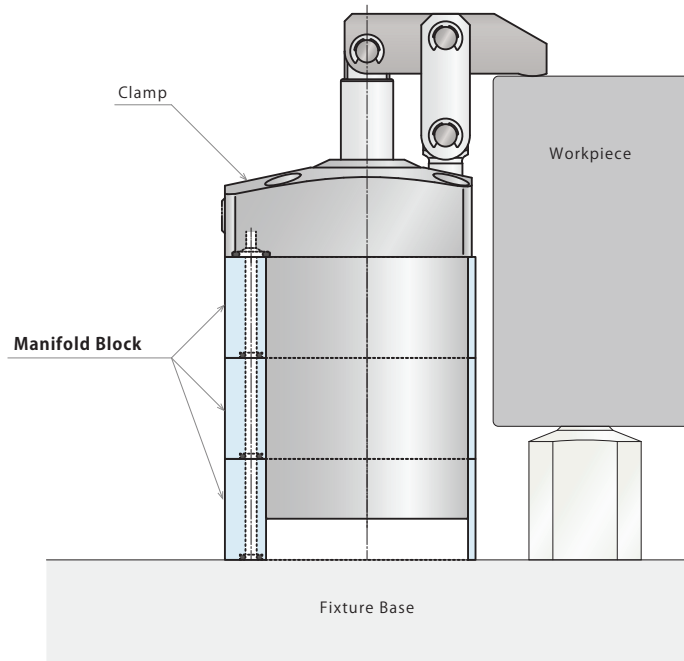
Manifold Block

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

High-Power Swing Clamp for Washing Application
WHJ
High-Power Link Clamp for Washing Application
WCJ
Air Flow Control Valve
BZW

Manifold Block
WHZ-MD

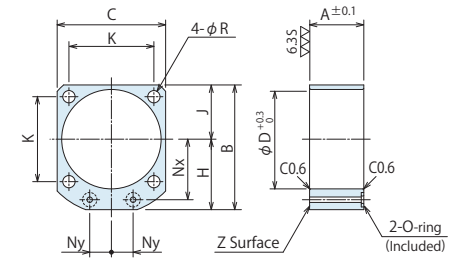
General Cautions

Related Products for Washing Application

Company Profile Sales Offices

Manifold Block for WCJ/WHJ

Model No. Indication
WHZ 048 0 - MD
Size (Refer to following table)
Design No. (Revision Number)



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

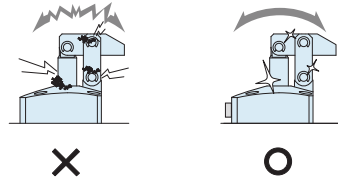
- 1) It should be handled by qualified personnel.
 - The hydraulic machine and air compressor should be handled and maintained by qualified personnel.
- 2) Do not handle or remove the product unless the safety protocols are ensured.
 - ① The machine and equipment can only be inspected or prepared when 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 12 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.

High-Power Swing Clamp for Washing Application

WHJ

High-Power Link Clamp for Washing Application

WCJ

Air Flow Control Valve

BZW

Manifold Block

WHZ-MD

General Cautions

Related Products for Washing Application

Company Profile Sales Offices



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