

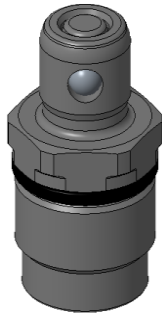


LBRQC series

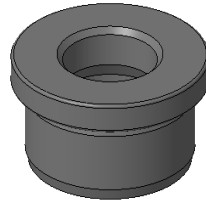
Ball Lock Cylinder

- LBRQC-KM10-50
- LBRQC-KM10-70
- LBRQC-KM12-100
- LBRQC-KM14-150
- LBRQC-KM18-200

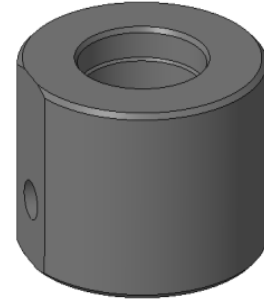
Ball Lock Cylinder



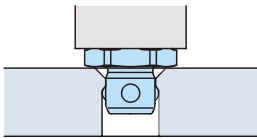
Attachment



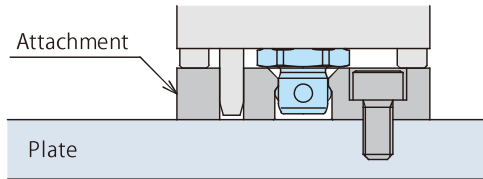
Manifold Block



Application Examples



Pallet Transfer



Install attachments for plates that cannot have workpiece holes.

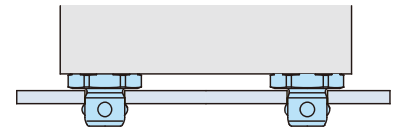
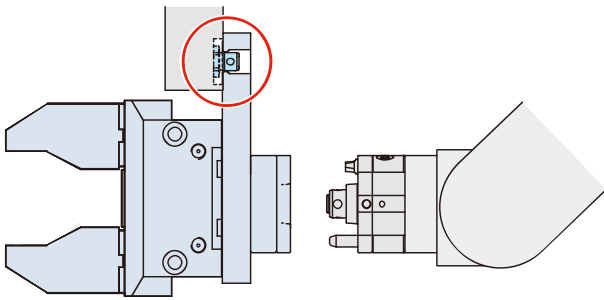
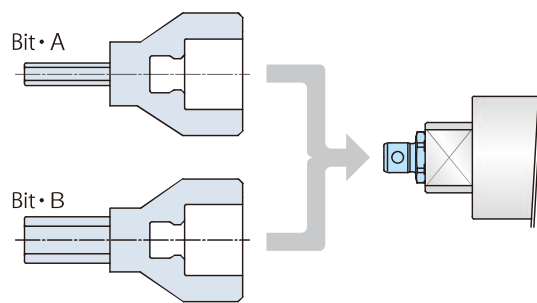


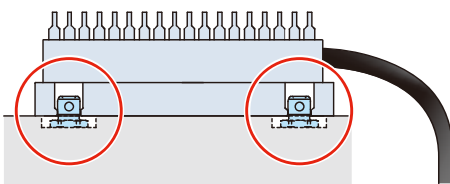
Plate Transfer



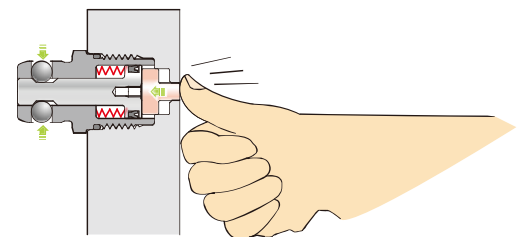
Temporary Stopper/Falling Prevention for Stocker



Bit/Tool Change

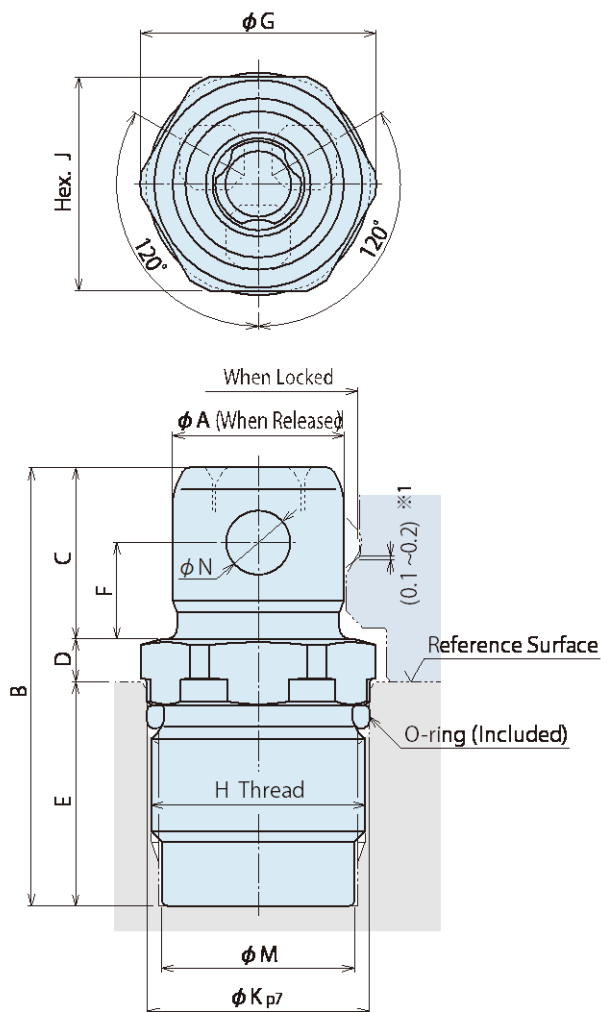


Falling Prevention for Nozzle Unit

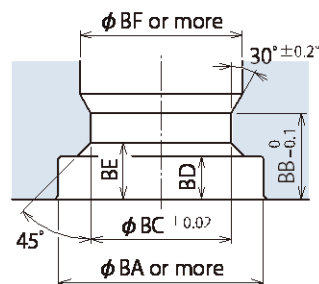


Used by Hand or Another Cylinder

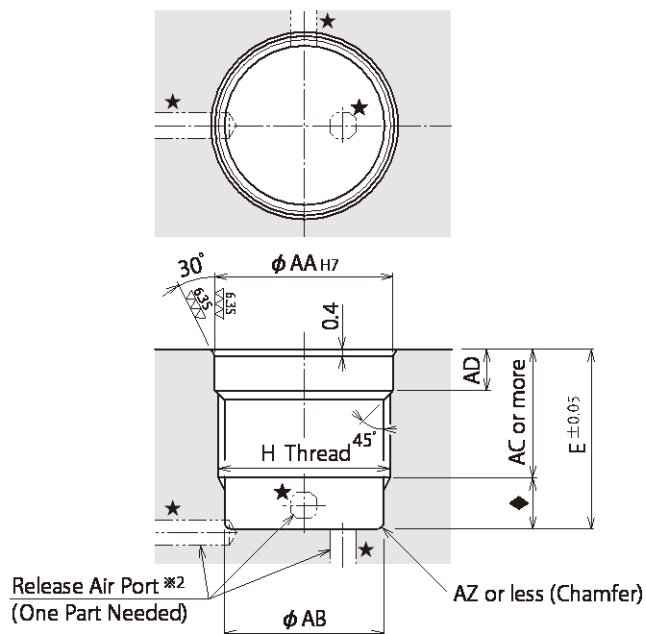
External Dimensions



Workpiece Hole Reference Dimensions



Mounting Hole Machining Dimensions



Note :

- ※1. There is a gap between a workpiece hole and a cylinder when locked (when expanded).
- ※2. Release air pressure can be supplied from the side or the bottom surface of the mounting hole (★ part).
If machining the release air port on the side, please machine it with in ◆ area.

Specifications

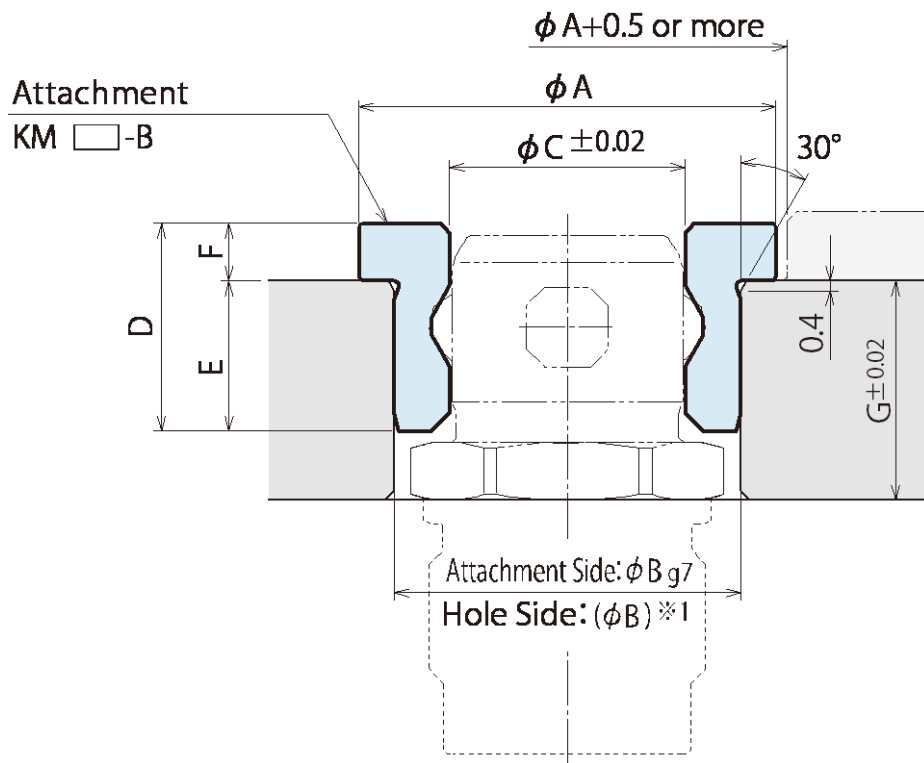
Model No.		KM10-50 -□	KM10-70 -□	KM12-100-□	KM14-150-□	KM18-200-□
Pulling Capacity (Holding Force)	N	50	70	100	150	200
Release Cylinder Capacity	cm ³	0.08	0.08	0.15	0.26	0.49
Max. Operating Pressure	MPa			0.7		
Min. Operating Pressure	MPa			0.25		
Withstanding Pressure	MPa			1.0		
Operating Temperature	Blank	0 ~ 70				
	V	0 ~ 120				
Usable Fluid		Dry Air				
Weight	g	7	8	13	20	41

External Dimensions and Machining Dimensions for Mounting

(mm)

Model No.		KM10-50 -□	KM10-70 -□	KM12-100-□	KM14-150-□	KM18-200-□
Diameter	A (Released)	6.5 ⁰ _{-0.05}	8 ⁰ _{-0.05}	10 ⁰ _{-0.05}	12 ⁰ _{-0.05}	16 ⁰ _{-0.05}
	Locked	7.7	9.3	11.5	13.8	18.2
B		19.5	20.5	22.5	25	29.5
C		7	8	9	10	11.5
D		2	2	2.5	3	4
E		10.5	10.5	11	12	14
F		4	4.5	5	5.5	6.5
G		11	11	13.5	15.5	21.2
H (Nominal > Pitch)		M10×0.75	M10×0.75	M12×1	M14×1	M18×1.5
J		10	10	12	14	19
K		10.4 ^{+0.036} _{+0.018}	10.4 ^{+0.036} _{+0.018}	12.4 ^{+0.036} _{+0.018}	14.4 ^{+0.036} _{+0.018}	19.4 ^{+0.043} _{+0.022}
M		9	9	10.7	12.7	16.1
N		2.5	3	3.5	4	5
O-ring		SS8.5 (NOK-made)	SS8.5 (NOK-made)	SS10.5 (NOK-made)	S12 (NOK-made)	AS568-016
AA		10.4 ^{+0.018} ₀	10.4 ^{+0.018} ₀	12.4 ^{+0.018} ₀	14.4 ^{+0.018} ₀	19.4 ^{+0.021} ₀
AB		9.3 ^{+0.07} _{-0.11}	9.3 ^{+0.07} _{-0.11}	11 ^{+0.15} _{-0.08}	13 ^{+0.15} _{-0.08}	16.5 ^{+0.17} _{-0.12}
AC		7.5	7.5	8	9	10.5
AD		2.4	2.4	2.4	2.8	3.8
AZ (Chamfer)		0.2	0.2	0.4	0.4	0.4
BA		12	12	14.5	17	23
BB		4.7	5	5.8	6.45	8
BC		6.7	8.2	10.2	12.2	16.2
BD		2.5	2.5	3	3.5	4.5
BE		3.3	3.3	4.6	4.9	6.5
BF		7.9	9.5	11.7	14.2	18.6

Attachment



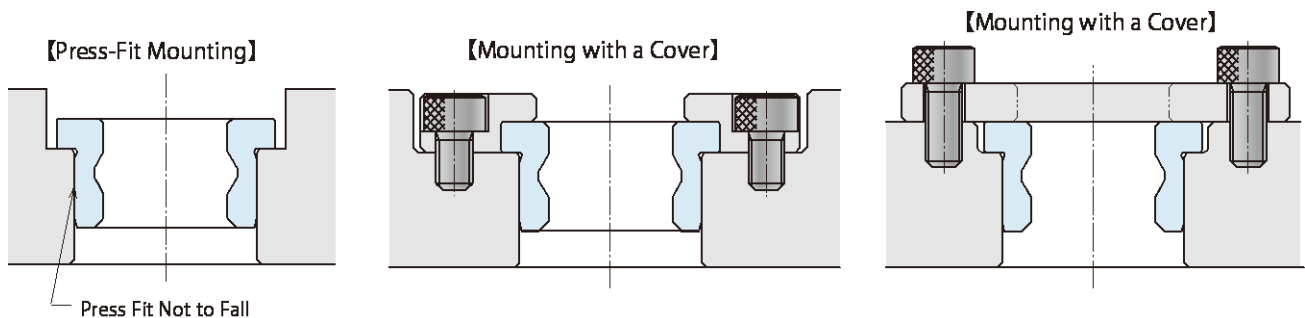
(mm)

Model No.	KM10-50-B	KM10-70-B	KM12-100-B	KM14-150-B	KM18-200-B	
A	14	14	18	20	26	
B	Attachment	12 $\begin{smallmatrix} -0.006 \\ -0.024 \end{smallmatrix}$	12 $\begin{smallmatrix} -0.006 \\ -0.024 \end{smallmatrix}$	15 $\begin{smallmatrix} -0.006 \\ -0.024 \end{smallmatrix}$	17 $\begin{smallmatrix} -0.006 \\ -0.024 \end{smallmatrix}$	23 $\begin{smallmatrix} -0.007 \\ -0.028 \end{smallmatrix}$
	Hole	(12) *1	(12) *1	(15) *1	(17) *1	(23) *1
C	6.7	8.2	10.2	12.2	16.2	
D	7.5	7.5	9	10	11.5	
E	5.5	5.5	6.5	7.5	8.5	
F	2	2	2.5	2.5	3	
G	8	8	9.5	11	13	
Weight	5 g	4 g	8 g	10 g	19 g	

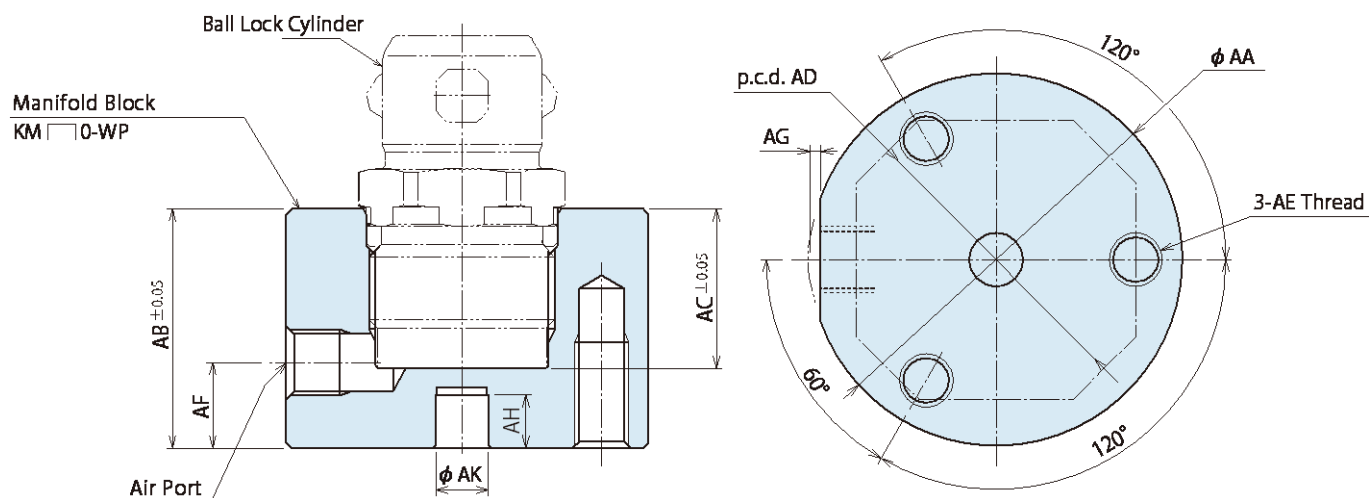
Notes :

1. Material : Martensitic Stainless Steel (HRC29 ~ 33)

*1. Hole Side : Determine ϕB tolerance of mounting hole based on the dimensions of the attachment.
(Refer to the following attachment mounting examples.)



Manifold Block



(mm)

Model No.	KM10-50-WP	KM10-70-WP	KM12-100-WP	KM14-150-WP	KM18-200-WP
Corresponding Model No.	KM10-50 -□	KM10-70 -□	KM12-100□	KM14-150□	KM18-200□
AA	20		22	28	32
AB	15		16	18	20
AC	10.5		11	12	14
AD	15		17	21	25
AE	M3×0.5 Thread Depth 6		M3×0.5 Thread Depth 6	M4×0.7 Thread Depth 8	M4×0.7 Thread Depth 8
Air Port	M3 Thread		M3 Thread	M5 Thread	M5 Thread
AF	5		5	6	6
AG	0.5		0.5	0.8	0.8
AK	2 ^{+0.03} ₀		3 ^{+0.03} ₀	4 ^{+0.03} ₀	4 ^{+0.03} ₀
AH	2		3	4	4
Weight	10g		13g	24g	33g

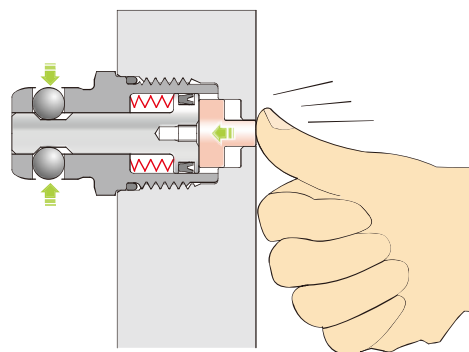
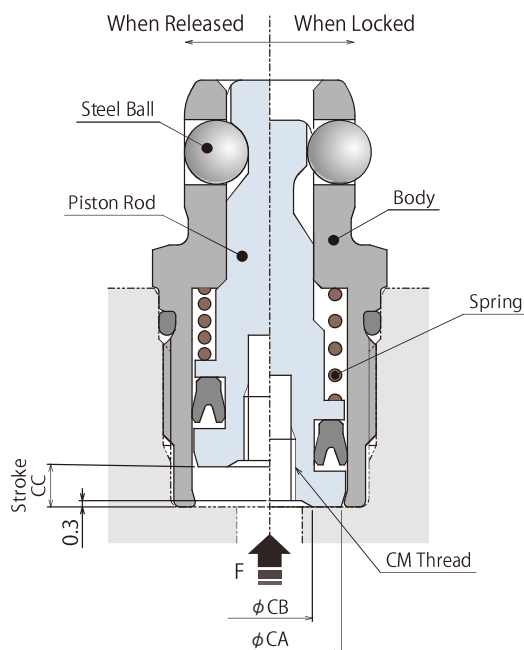
Note :

1. Material : A2017BE-T4 Surface Finishing : Anodized Aluminum Finishing

Releasing Force and Dimensions when Operated by External Force

BRQC is released by air pressure. It also can be operated by applying external force to the piston rod in such cases :

- Unable to supply air pressure directly
- Unable to secure sealing ability due to high temperature environment
- Operating manually



Part	Material
Body	Martensitic Stainless Steel
Piston Rod	
Steel Ball	
Spring	Stainless Steel

Model No.		KM10-50 -□	KM10-70 -□	KM12-100-□	KM14-150-□	KM18-200-□
Required Releasing Force F	N	10	10	12	12	17
Max. Releasing Force F max ※1	N	40	40	60	60	100
Dimensions	CA	6.8	6.8	8.5	10.5	13.5
	CB	4	4	5	6.5	9.5
	CC	1.8	2	2.3	2.7	3.2
	CM (Nominal × Pitch × Depth)	M2.5×0.45×3	M2.5×0.45×3	M3×0.5×4	M4×0.7×6	M5×0.8×8

Note :

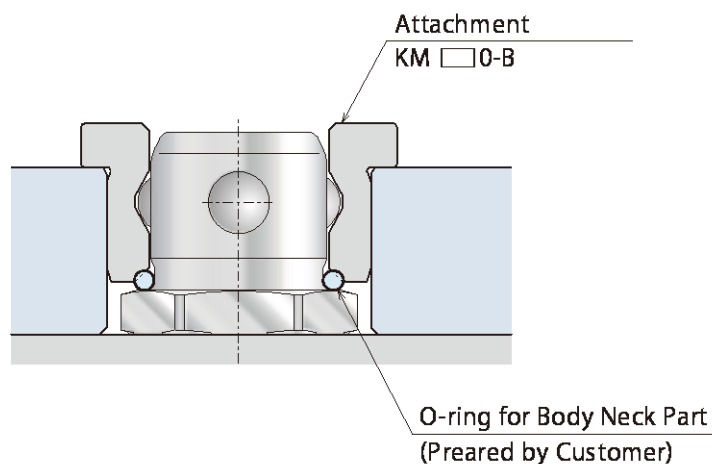
※1. External force F (applying when releasing) should be more than the required releasing force and less than the maximum releasing force. External force greater than the maximum releasing force will damage the product

Backlash Prevention with O-ring (Reference)

1)

There is a clearance between a workpiece hole and BRQC when locked.

Simple backlash prevention is possible by mounting an o-ring to the neck part of BRQC if necessary.



Model No.	KM10-50 -□	KM10-70 -□	KM12-100 -□	KM14-150 -□	KM18-200 -□
O-ring for Body Neck Part	SS6.5 (NOK-made)	SS8 (NOK-made)	S10 (NOK-made)	S12 (NOK-made)	A568-015 ~ 016

2) Do not use the product in the environment with cutting chips and coolant.

3) LBRQC fixes the workpiece hole with the steel balls (when locked).

- There is a gap between the workpiece hole and cylinder when locked.
- There is no locating function or pressing force applied to the reference surface.

4) Workpiece Hole

- When temporarily locking the hole with the external dimensions other than, make sure to design so that the steel balls expand till the proper locked diameter. Otherwise, LBRQC can be released even with low pull-out force.



5) Mounting/Removing Pallet (Workpiece)

- If needed, please apply a guide pin (rough guide) separately to avoid increasing the force which exceeds allowable thrust load when mounting/removing pallet (workpiece).
- The steel balls have only a slight expansion force when locking. If the pallet is heavy and/or the position of the product and pallet hole is dislocated, the steel balls may not expand properly. Please install a guide pin (rough guide) to ensure proper lock action.

