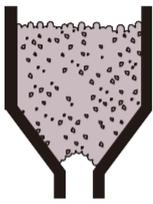


EXEN

FLOW AID SYSTEM

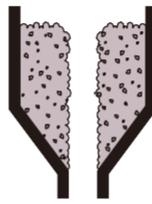
BLASTER / KNOCKER / PNEUMATIC BALL VIBRATOR /
PISTON VIBRATOR / VIBRATION MOTOR

TROUBLEPHENOMENON



BRIDGING

Bridging occurs when material clings to the wall or compacts above the discharging opening at hopper bottom, and material flowing upper area is interrupted.



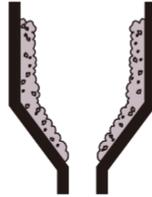
RATHOLING

Ratholing occurs when material flows only above the discharging opening and forms a tube besides the hopper wall leaving the hopper filled with "dead" material which will not be discharged.



ARCHING

Arching occurs when material in hopper bottom flows out from the discharging opening and an arch is formed which is strong enough to support entire head load in the hopper.



ADHERENCETOWALL

Material which is easy to cling or influenced by moisture/temperature adheres to hopper wall and refuses to flow.



Air Knocker



Pneumatic Vibrator

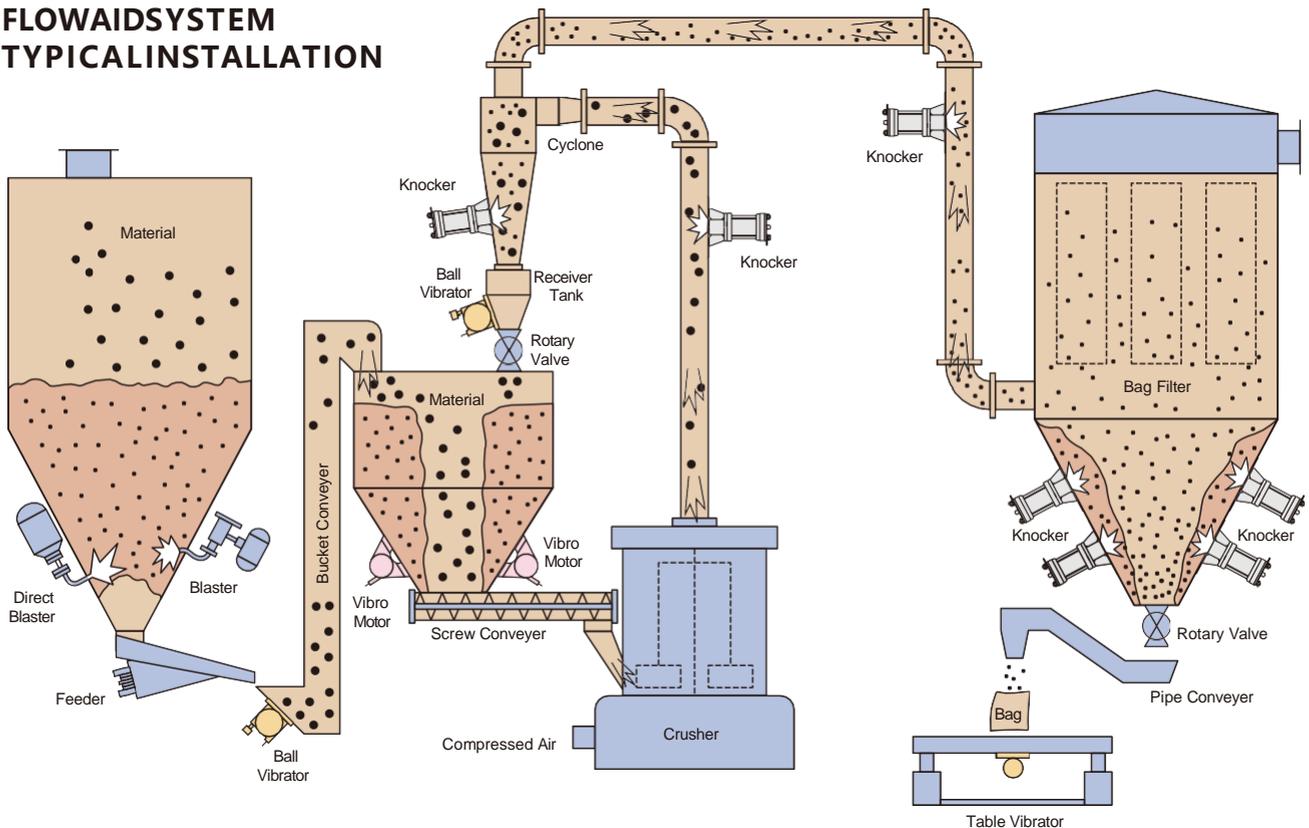


Direct Blaster



Electric Vibrator

**FLOWAIDSYSTEM
TYPICALINSTALLATION**



Automatic hammering device with adjustable impact force

The air knocker is a unique equipment in which the force of compressed air makes the piston to energetically strike the base surface (or the hopper wall surface directly) and eliminates the adhesion or clogging of powder. In addition, this air knocker is excellent in safety and economical because it runs only by compressed air, and even suitable to use for a powder that has a characteristic to compacts or shows adhesion when receives centrifugal vibration.

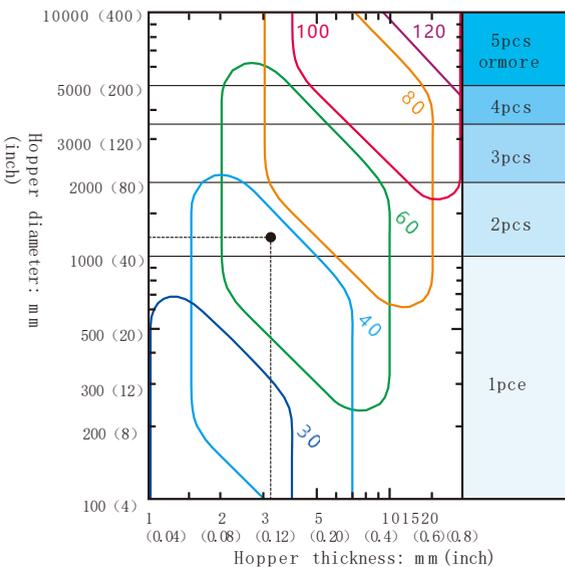


FEATURES

- 1 Impact force of air knocker is adjustable by controlling the supply air pressure.
- 2 Able to operate multiple units with relay piping method.
- 3 Excellent durability, simple structural design and easy maintenance.
- 4 Simple working principle does not require a complicated operational circuit.



With pipe mounting base



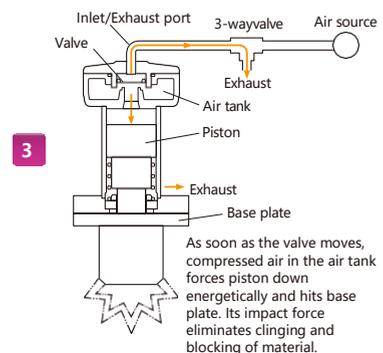
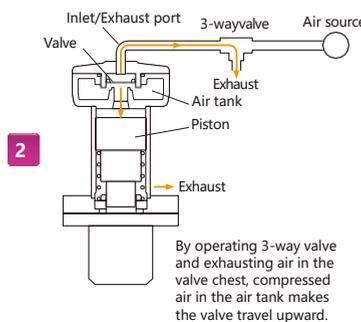
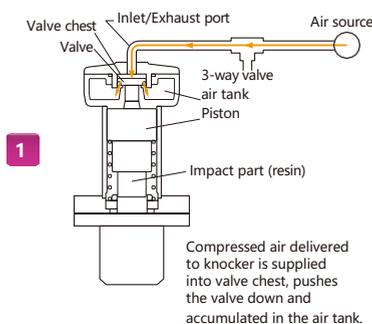
Model Selection Guide

Model and quantity of air knocker which provides the optimum result is selected according to the shape, size and material of hopper as well as clinging condition and work material stored in hopper. For instance, when installing on the conical hopper of 1,200mm dia. and 3.2mm thickness, find the point of intersection X. As the point X is within the range of RKV40x 2 pcs and RKV60x 2 pcs, select RKV40x 2 pcs for weak clinging strength, and RKV60x2pcs for strong clinging strength.

Hint

The large hopper tends to create segregation easier and also causes a dead stock in hopper corner easier. In this case, installing more number of smaller size unit rather than installing less number of larger size unit is recommended.

Operating principle



*Stainless steel model and heat-resistant model are also available.

Air knocker RKV series

Installed directly on hoppers, silos and chutes to eliminate blockages.



RKV20P

RKV30PB

RKV40PB



For flat surface

RKV60PB

RKV80PA

RKV100PA



The base of RKV60PBR, RKV80PAR, and RKV100PAR is designed for round surface.

For round surface

RKV60PB

RRKV80PAR

RKV100PAR

■ Specification (Metric) * Reinforcing rib is included in RKV60PB and larger model only, and fall prevention wire and shackle are included in all models.

Model	Working Pressure (MPa)	Stroke Cycle (time/min)	Air Consumption (L/time)(ANR)	Stroke Energy (N · m)	Impulsive Force		Weight (kg)
					(kg · m/s)	Converts into Hammer pound(lb)	
RKV20P	0.3~0.7	1~60	0.04~0.10	4.3~8.3	0.6~0.8	0.6以下	0.8
RKV30PB			0.05~0.13	5.5~13.1	1.2~1.8	1.0以下	1.0
RKV40PB			0.15~0.37	9.2~22.3	2.6~4.0	1.0~1.5	2.5
RKV60PB/PBR			0.33~0.77	20.6~49.0	6.9~10.6	1.5~3.0	7.0/7.1
RKV80PA/PAR			0.60~1.40	45.1~109	15.2~23.7	3.0~8.0	14.5/14.6
RKV100PA/PAR			0.98~2.28	82.4~201	30.0~46.9	6.0~15.0	34.0/34.3

* weight(kg)Includes base

■ Specification (Imperial) * Reinforcing rib is included in RKV60PB and larger model only, and fall prevention wire and shackle are included in all models.

Model	Working Pressure (PSI)	Stroke Cycle (time/min)	Air Consumption (cf/time)	Stroke Energy (lbf · ft)	Impulsive Force		Weight (lb)
					(lb · ft/s)	Converts into Hammer pound(lb)	
RKV20P	44~102	1~60	0.001~0.004	3.2~6.1	4.3~5.8	Below0.6	1.8
RKV30PB			0.002~0.005	4.1~9.7	8.7~13.0	Below1.0	2.2
RKV40PB			0.005~0.013	6.8~16.4	18.8~28.9	1.0~1.5	5.5
RKV60PB/PBR			0.012~0.027	15.2~36.1	49.9~76.7	1.5~3.0	15.4/15.7
RKV80PA/PAR			0.021~0.049	33.3~80.4	109.9~171.4	3.0~8.0	32.0/32.2
RKV100PA/PAR			0.035~0.081	60.8~148.3	217.0~339.2	6.0~15.0	75.0/75.6

* weight(lb)Includes base



RKV120P (with bolt set)

Base

(with reinforcing ribs)

■ Specification (Metric)

Model	Working Pressure (MPa)	Stroke Cycle (time/min)	Air Consumption (L/time)(ANR)	Stroke Energy (N · m)	Impulsive Force		Weight (kg)
					(kg · m/s)	Converts into Hammer pound(lb)	
RKV120P	0.3~0.7	1~6	3.22~6.64	131~321	52.0~84.0	2times ofRKV100PA	51.8

* weight(kg)Includesbase

■ Specification (Imperial)

Model	Working Pressure (PSI)	Stroke Cycle (time/min)	Air Consumption (cf/time)	Stroke Energy (lbf · ft)	Impulsive Force		Weight (lb)
					(lb · ft/s)	Converts into Hammer pound(lb)	
RKV120P	44~102	1~6	0.114~0.234	96.6~236.8	376.1~607.6	2times ofRKV100PA	114.2

* weight(lb)Includes base

* Weight includes base and reinforcing ribs.

* Fall prevention chain is not fixed to RKV120P when shipping out from factory. Please fix it securely before use.

* RKV120Pbasecomeswithreinforcingribs.Weldtheribstothebasesite.

AirknockerRKDseries

While the RKV series transmits impact force indirectly through the knocker base, RKD series transmits impact force directly to the object by the piston.



RKD30PB



RKD40PB



RKD60PB



RKD80PA



RKD100PA

■ Specification (Metric)		* Reinforcing rib, fall prevention wire and shackle are included in all models.					
Model	Working Pressure (MPa)	Stroke Cycle (time/min)	Air Consumption (L/time)(ANR)	Stroke Energy (N · m)	Impulsive Force		Weight (kg)
					(kg · m/s)	Converts into Hammer pound (lb)	
RKD30PB	0.3~0.7	1~60	0.05~0.13	5.5~13.1	1.2~1.8	Below 1.0	1.7
RKD40PB			0.15~0.37	9.2~22.3	2.6~4.0	1.0~1.5	4.8
RKD60PB			0.33~0.77	20.6~49.0	6.9~10.6	1.5~3.0	10.7
RKD80PA			0.60~1.40	45.1~109.0	15.2~23.7	3.0~8.0	18.4
RKD100PA			0.98~2.28	82.4~201.0	30.0~46.9	6.0~15.0	35.5

* weight(kg)Includes base

■ Specification (Imperial)		* Reinforcing rib, fall prevention wire and shackle are included in all models.					
Model	Working Pressure (PSI)	Stroke Cycle (time/min)	Air Consumption (cf/time)	Stroke Energy (lbf · ft)	Impulsive Force		Weight (lb)
					(lb · ft/s)	Converts into Hammer pound (lb)	
RKD30PB	44~102	1~60	0.002~0.005	4.1~9.7	8.7~13.0	Below 1.0	3.7
RKD40PB			0.005~0.013	6.8~16.4	18.8~28.9	1.0~1.5	10.6
RKD60PB			0.012~0.027	15.2~36.1	49.9~76.7	1.5~3.0	23.6
RKD80PA			0.021~0.049	33.3~80.4	109.9~171.4	3.0~8.0	40.6
RKD100PA			0.035~0.081	60.8~148.3	217.0~339.2	6.0~15.0	78.3

* weight(kg)Includes base.



RKD120P (with bot set)

Base
(with reinforcing ribs)

Model	Working Pressure (MPa)	Stroke Cycle (time/min)	Air Consumption (L/time)(ANR)	Stroke Energy (N · m)	Impulsive Force		Weight (kg)
					(kg · m/s)	Converts into Hammer pound (lb)	
RKD120P	0.3~0.7	1~6	3.22~6.64	131~321	52.0~84.0	2times of RKD100PA	52.6

* weight(kg)Includes base

■ Specification (Imperial)		* Reinforcing rib, fall prevention wire and shackle are included in all models.					
Model	Working Pressure (PSI)	Stroke Cycle (time/min)	Air Consumption (cf/time)	Stroke Energy (lbf · ft)	Impulsive Force		Weight (lb)
					(lb · ft/s)	Converts into Hammer pound (lb)	
RKD120P	44~102	1~6	0.114~0.234	96.6~236.8	376.1~607.6	2times of RKD100PA	116

* weight (lb) Includes base

* Weight includes base and reinforcing ribs.

* Fall prevention chain is not fixed to RKV120P when shipping out from factory. Please fix it securely before use.

* RKV120P base comes with reinforcing ribs. Weld the ribs to the base on site.

Stainless steel knocker

Body, base, mounting bolts and other parts of RKVS series are made of stainless steel and suitable for food, chemical, and pharmaceutical industries where corrosion resistance and sanitation are required. Also, this model is suitable for industry related to rechargeable battery.



RKVS15



RKVS20



RKVS30



RKVS40



RKVS60

Hygienic knocker (Sanitary Tri-clamp)



RKVS15F



RKVS20F



Tri-clamp
(standard accessory)

■ Specification (Metric)

Model	Working Pressure (MPa)	Stroke Cycle (time/min)	Air Consumption (L/time) (ANR)	Stroke Energy (N · m)	Impulsive Force		Weight (kg)
					(kg · m/s)	Converts into Hammer pound(lb)	
RKVS15	0.3~0.7	1~60	0.03~0.06	2.7~5.9	0.3~0.5	Mini Hammer	0.43
RKVS15-F							0.94
RKVS20			0.04~0.10	4.3~8.3	0.6~0.8	Below0.6	0.80
RKVS20F							0.90
RKVS30			0.05~0.13	5.5~13.1	1.2~1.8	Below1.0	1.60
RKVS40			0.15~0.37	9.2~22.3	2.6~4.0	1.0~1.5	4.20
RKVS60			0.33~0.77	20.6~49.0	6.9~10.6	1.5~3.0	10.40

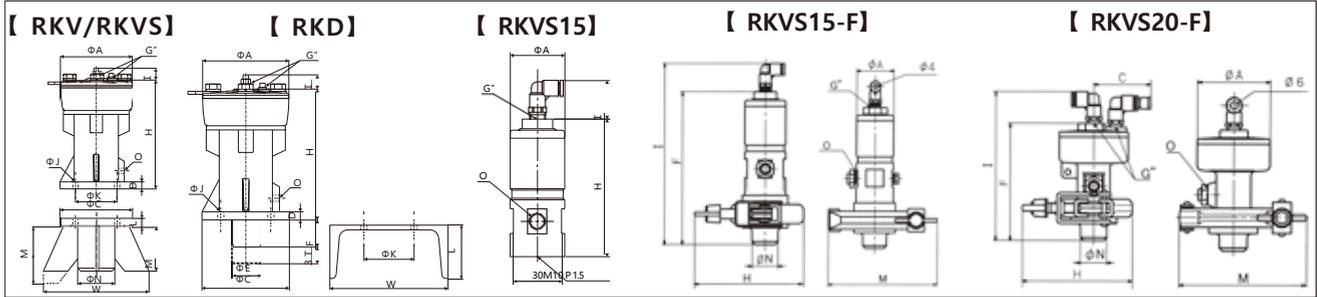
■ Specification (Imperial)

Model	Working Pressure (PSI)	Stroke Cycle (time/min)	Air Consumption (cf/time)	Stroke Energy (lbf · ft)	Impulsive Force		Weight (kg)(lb)
					(ft · lbf/s)	Converts into Hammer pound(lb)	
RKVS15	44~102	1~60	0.001~0.002	2.0~4.4	2.2~3.6	Mini Hammer	0.9
RKVS15-F							2.1
RKVS20			0.001~0.004	3.2~6.1	4.3~5.8	Below0.6	1.8
RKVS20F							2.0
RKVS30			0.002~0.005	4.1~9.7	8.7~13.0	Below1.0	3.5
RKVS40			0.005~0.013	6.8~16.4	18.8~28.9	1.0~1.5	9.3
RKVS60			0.012~0.027	15.2~36.1	49.9~76.7	1.5~3.0	22.9

* Reinforcing rib is included in RKVS60 only, and fall prevention wire and shackle are included in RKVS20-60.

* F-type includes tri-clamp and stainless steel.

* Fall prevention wire for RKVS15-F and RKVS20 F is optional.



■ Dimensions(mm)

Model	φ A	φ C	D	φ E	F	G"	H	I	φ J	φ K	ST	L	M	M"	φ N	O	W	Tube size	
RKVS15	34	—	—	—	—	Rp1/8	86	(24)	—	—	—	—	—	—	—	—	—	—	φ4 × φ2
RKVS15-F		—	—	—	—		127	(91)	(151)	—	—	—	—	(100)	—	—	—	—	
RKV20P	57	57	6.5	—	—	Rp1/8	70	(26)	6.5	44	—	6	28	—	—	—	—	—	—
RKVS20																			
RKVS20F	—	47	—	—	—	—	(91)	(121.5)	—	—	—	—	(100)	—	—	—	—	—	—
RKV30PB	62	70	8	—	—	Rp1/8	90	(25)	9	55	—	8	35	—	—	—	—	—	—
RKVS30	66						95		8.5										
RKV40PB	78	95	12	—	—	Rp1/8	134	(25)	13	70	—	13	60	—	—	—	—	—	—
RKVS40	86						140		12.5										
RKV60PB	105	138	14	—	—	Rp1/8	171	(25)	15	110	—	15	80	—	—	—	—	—	—
RKV60PBR																			
RKVS60	115	—	—	—	—	—	183	—	14.5	—	—	—	—	—	—	—	—	—	—
RKV80PA	146	148	16	—	—	Rp1/4	222	(28)	17	120	—	18	90	—	—	—	—	—	—
RKV80PAR																			
RKV100PA	175	208	20	—	—	Rp1/4	270	(28)	21	170	—	23	115	—	—	—	—	—	—
RKV100PAR																			
RKV120P	220	235	21	—	—	—	326	—	17.5	198	—	—	100	120	133	2-Rp3/4	(313)	—	—
RKD30PB	62	70	8	17	38	Rp1/8	90	(25)	9	55	17	50	—	—	—	—	—	—	—
RKD40PB	78	95	12	25	55		134		13	70	25	75							
RKD60PB	105	138	14	35	65	—	171	—	15	110	35	—	—	—	—	—	—	—	—
RKD80PA	146	148	16	47.5	60	Rp1/4	222	(28)	17	120	40	90	—	—	—	—	—	—	—
RKD100PA	175	208	20	54.5	50														
RKD120P	220	235	21	68	43	—	326	—	17.5	198	74	—	—	—	—	—	—	—	—

■ Dimensions(inch)

Model	φ A	φ C	D	φ E	F	G"	H	I	φ J	φ K	ST	L	M	M"	φ N	O	W	Tube size	
RKVS15	1-11/32	—	—	—	—	Rp1/8	3-25/64	(15/16)	—	—	—	—	—	—	—	—	—	—	φ4 × φ2
RKVS15-F		—	—	—	—		5	(3-37/64)	(5-15/16)	—	—	—	—	(3-15/16)	—	—	—	—	
RKV20P	2-1/4	2-1/4	1/4	—	—	Rp1/8	2-3/4	(1-1/32)	1/4	1-47/64	—	15/64	1-7/64	—	—	—	—	—	—
RKVS20																			
RKVS20F	—	1-27/32	—	—	—	—	(3-37/64)	—	—	—	—	—	(3-15/16)	—	—	—	—	—	
RKV30PB	2-7/16	2-3/4	5/16	—	—	Rp1/8	3-35/64	(63/64)	23/64	2-11/64	—	5/16	1-3/8	—	—	—	—	—	—
RKVS30	2-19/32						3-47/64		21/64										
RKV40PB	3-5/64	3-47/64	15/32	—	—	Rp1/8	5-9/32	(63/64)	33/64	2-3/4	—	33/64	2-23/64	—	—	—	—	—	—
RKVS40	3-25/64						5-33/64		31/64										
RKV60PB	4-9/64	5-7/16	35/64	—	—	Rp1/8	6-47/64	(63/64)	19/32	4-21/64	—	19/32	3-5/32	—	—	—	—	—	—
RKV60PBR																			
RKVS60	4-17/32	—	—	—	—	—	7-13/64	—	37/64	—	—	—	4-59/64	—	—	—	—	—	
RKV80PA	5-3/4	5-53/64	5/8	—	—	Rp1/4	8-47/64	(1-7/64)	43/64	4-23/32	—	45/64	3-35/64	—	—	—	—	—	—
RKV80PAR																			
RKV100PA	6-57/64	8-3/16	25/32	—	—	Rp1/4	10-5/8	(1-7/64)	53/64	6-11/16	—	29/32	4-17/32	—	—	—	—	—	—
RKV100PAR																			
RKV120P	8-21/32	9-1/4	53/64	—	—	—	12-53/64	—	11/16	7-51/64	—	—	3-15/16	4-23/32	5-15/64	2-Rp3/4	(12-21/64)	—	
RKD30PB	2-7/16	2-3/4	5/16	43/64	1-1/2	Rp1/8	3-35/64	(63/64)	23/64	2-11/64	43/64	1-31/32	—	—	—	—	—	—	—
RKD40PB	3-5/64	3-47/64	15/32	63/64	2-11/64		5-9/32		33/64	2-3/4	63/64	2-61/64							
RKD60PB	4-9/64	5-7/16	35/64	1-3/8	2-9/16	—	6-47/64	—	19/32	4-21/64	1-3/8	—	—	—	—	—	—	—	—
RKD80PA	5-3/4	5-53/64	5/8	1-7/8	2-23/64	Rp1/4	8-47/64	(1-7/64)	43/64	4-23/32	1-37/64	3-35/64	—	—	—	—	—	—	—
RKD100PA	6-57/64	8-3/16	25/32	2-9/64	1-31/32		10-5/8												
RKD120P	8-21/32	9-1/4	53/64	2-43/64	1-11/16	—	12-53/64	—	11/16	7-51/64	2-29/32	—	—	—	—	—	—	—	—

* Also available in NPT.



AOC-1B

AOC-1B Controller

Controls air knocker only with compressed air (no electricity required). Knocker's operation interval can be changed easily by the speed controller. Operates up to 3air knockers with relay piping.

■ Specification (Metric)

Model	Installation scope	Power supply	Working pressure (MPa)	Working fluid Temperature (°C)	Working times Per/min.	Approx Dimensions (LXWXH)(mm)	Weight (kg)
AOC-1B	Indoor, Outdoor	Air control	0.3~0.7	5~50	12~60	171×67×204	1.4

■ Specification (Imperial)

Model	Installation scope	Power supply	Working pressure (MPa)	Working fluid Temperature(°C)	Working times Per/min.	Approx Dimensions (LXWXH)(inch)	Weight (lb)
AOC-1B	Indoor, Outdoor	Air control	44~102	41~122	12~60	6-47/64x2-41/64x8-1/32	3.1

* Number of hammering may slightly vary as this model is pneumatically controlled.
 * Required supply air pressure for relay piping is different from normal piping. Please see P8* Pipe length and supply air pressure for relay piping*.
 * This model cannot use for RKV/RKD120P.



KSE1

KSE1 Controller (for indoor use)

Electric control allows accurate operation interval. 2 solenoid valves can be controlled simultaneously (Solenoid valve is not included). operatable with external signal.

■ Specification (Metric)

Model	Protection class	Input Voltage (V)	Timer's set time			Stroke cycle	Output Voltage(V)	Approx dimensions (LXWXH)(mm)	Weight (kg)
			On Setting	OFF Setting					
KSE1	IP65 (Indoor use)	Single phase AC100-240	0.5sec	S(sec)	0.5/1~99	1-99. Infinity	Same as Input voltage	194×167×101	1.2
				M(min)	1~99				
				H(hour)	1~99				

■ Specification (Imperial)

Model	Protection class	Input Voltage (V)	Timer's set time			Stroke cycle	Output Voltage(V)	Approx dimensions (LXWXH)(inch)	Weight (lb)
			On Setting	OFF Setting					
KSE1	IP65 (Indoor use)	Singlephase AC100-240	0.5sec	S(sec)	0.5/1~99	1-99. Infinity	Same as Input voltage	7-41/64×6-37/64×3-31/32	2.65
				M(min)	1~99				
				H(hour)	1~99				

* Input voltage for solenoid valve must be same as that of KSE1. * DC24V type is also available upon request (made-to-order).



HKA5000A

HKA5000A

Controls air knocker only with compressed air (no electricity required). Multiple air knockers can be operated by 2 controls systems.

■ Specification (Metric)

Model	Protection class	Power supply	Timer's set time	Working pressure (MPa)	Number of the units can be operated	Approx dimensions (LXWXH)(mm)	Weight (kg)
HKA5000A	IP44	Air Control	On timer 10sec-180sec.	0.3~0.7	15 10units. 20·30 8units. 40·60 6units. 80·100 4units. (1system)	450×390×219	12.00
			Off timer 0.1sec-30sec				

■ Specification (Imperial)

Model	Protection class	Power supply	Timer's set time	Working pressure (PSI)	Number of the units can be operated	Approx dimensions (LXWXH)(inch)	Weight (lb)
HKA5000A	IP44	Air Control	On timer 10sec-180sec.	44~102	15 10units. 20·30 8units. 40·60 6units. 80·100 4units. (Per1system)	17-23/32× 15-23/64× 8-5/8	26.46
			Off timer 0.1sec-30sec				

* Any other specification is also available upon request (made-to-order). * Please see P8* Piping references *for number of operable air knocker.



EKE5000

EKE5000

Electric control allows accurate operation interval (solenoid valve is included). Multiple air knockers can be operated by 2 control systems.

Operatable with external signal.

■ Specification (Metric)

Model	Protection class	Input Voltage (V)	Timer's set time	Stroke cycle	Working pressure (MPa)	Number of the units can be operated	Approx dimensions (LXWXH)(mm)	Weight (kg)
EKE5000	IP44	Single phase AC100-240	On Setting 0.5sec	1~99. Infinity	0.3~0.7	15 10units. 20·30 8units. 40·60 6units. 80·100 4units. (Per1system)	450×390×219	13.7
			OFF Setting 1sec-99hrs					

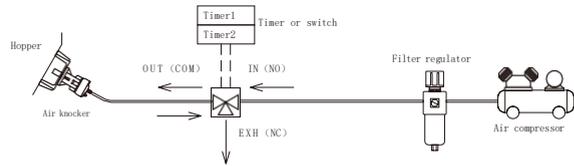
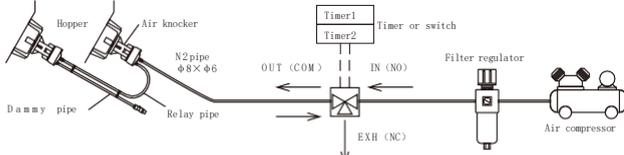
■ Specification (Imperial)

Model	Protection class	Input Voltage (V)	Timer's set time	Stroke cycle	Working pressure (PSI)	Number of the units can be operated	Approx dimensions (LXWXH)(inch)	Weight (lb)
EKE5000	IP44	Singlephase AC100-240	On Setting 0.5sec	1~99. Infinity	44~102	15 10units. 20·30 8units. 40·60 6units. 80·100 4units. (Per1System)	17-23/32× 15-23/64× 8-5/8	30.20
			OFF Setting 1sec-99hrs					

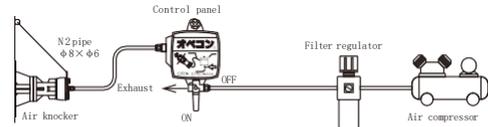
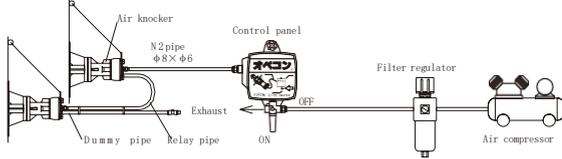
* DC 24V type, or any other specification is also available upon request (made-to-order).

Piping references

Using 3-way solenoid valve AG44 (Maximum 5 knockers)

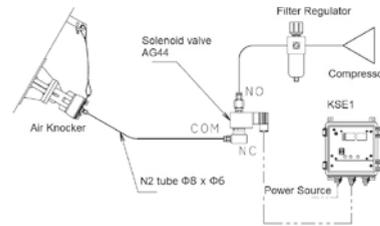
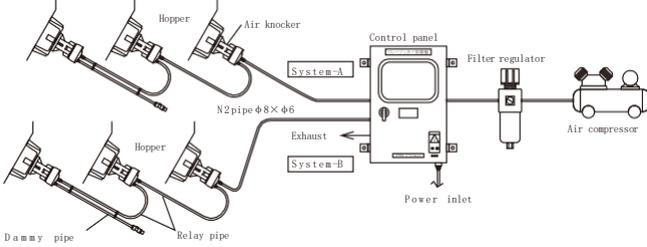


Using AOC-1B controller (Maximum 3 knockers)



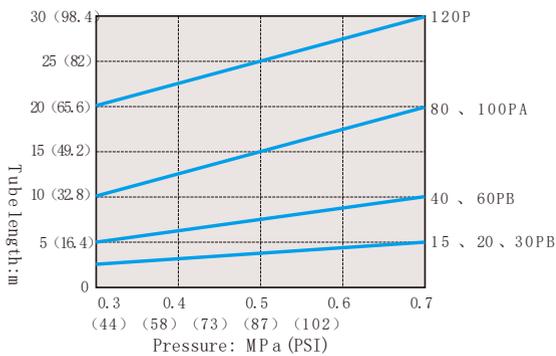
* Knocker can control automatically by installing solenoid valve (AG43-02-4-02G) before AOC-1B.

Using control panel HKA5000A · HKE5000 (Maximum 10 knockers)

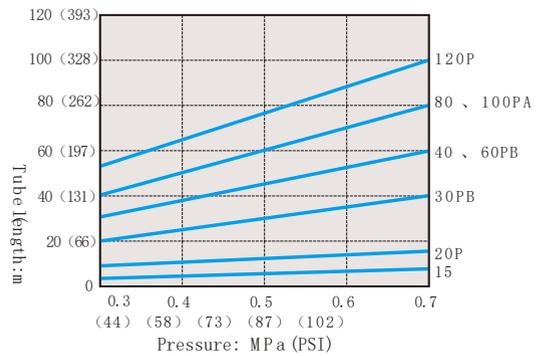


- ⚠ Please set tube length as short as possible to prevent impact force deterioration and/or impacting malfunction.
- ⚠ Impact force may drop by 10-20% when use air knocker with maximum tube length. The maximum tube length varies by model and air pressure.
- ⚠ Please keep the same tube length between the knockers as much as possible to maintain the equal impact force between each knocker.
- ⚠ Using a dummy tube of the same length for the last knocker is recommended to maintain the equal impact force between each knocker.

When using solenoid valve AG44-02-3



When using control panel HKA and EKE(per system)



■ Maximum tube length between AOC-1 Band Knocker

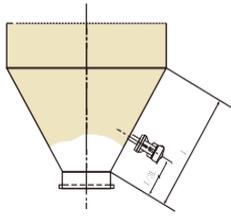
Model RKV/RKD/RKVS	Tube length Meter (Feet)	Tube size mm
15	2(6.56)	φ4xφ2
20		φ6xφ4
30		φ8xφ6
40		
60	8(26.25)	
80	10(32.81)	
100		
120	Cannot be used	

■ Tube length and supply air pressure for relay piping

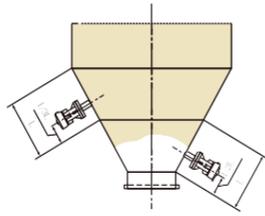
Model RKV/RKD/RKVS	Tube length Meter (Feet)	Working pressure MPa (PSI)
20P	1(3.28) or less	0.30(44) or below
30PB		
40PB	5(16.40) or less	0.40(58) or below
60PB		0.50(73) or below
80PA	10(32.81) or less	0.50(73) or below
100PA		0.55(80) or below
120P	15(49.21) or less	0.65(94) or below

Be sure to follow the instruction manual when installing the air knocker.

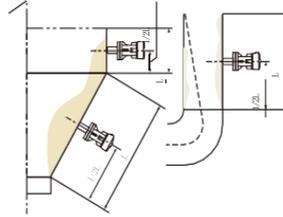
Installation



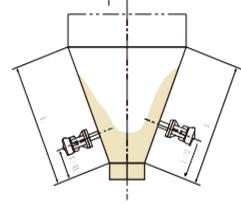
For small cone, pyramid hopper



For large cone, pyramid hopper



For adherence to the wall or pipe.



In case of poor fluidity.

Installation

All knockers

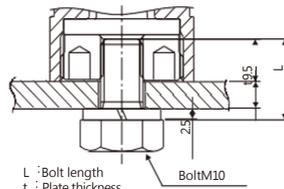
⚠ When fix knocker unit and base with bolt set, pay attention to tightening torque. If tightening torque insufficient, the bolt may be loosened by knocker's own impact.

■ Tightening torque (N·m) * Exclude RKVS15

Nut size		* M6	M8	M10	M12	M14	M16	M20
Tightening torque	Lower nut	* 4.8	10.8	20.6	35.3	56.9	84.3	167
	Upper nut	* 4.8	7.6	14.4	24.7	39.8	59.0	117

Nut size		* M6	M8	M10	M12	M14	M16	M20
Tightening torque	Lower nut	* 3.54	7.97	15.19	26.04	41.97	62.18	123.17
	Upper nut	* 3.54	5.61	10.62	18.22	29.35	43.52	86.3

Fix RKVS15 with M10 bolt.



Thickness (mm)	Installation bolt
Less than 4 * 1	M10 x 14
4 or more - less than 6	M10 x 16
6 or more - less than 8	M10 x 18

Thickness (inch)	Installation bolt
Less than 5/32 * 1	M10 x 35/64
5/32 or more - less than 15/64	M10 x 5/8
15/64 or more - less than 5/16	M10 x 45/64

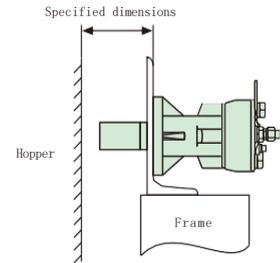
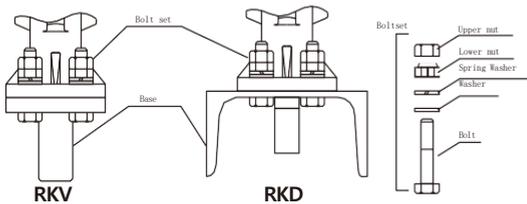
Tightening torque
* Adjustment by flat washer is required for 1-2mm plate thickness (washer thickness 2.0mm)

⚠ If not using the base assembly provided, make sure to follow designated distance as per below table.

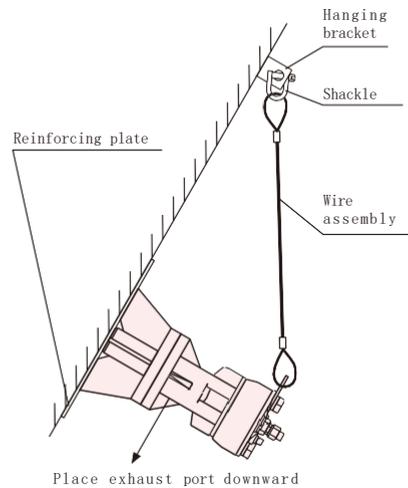
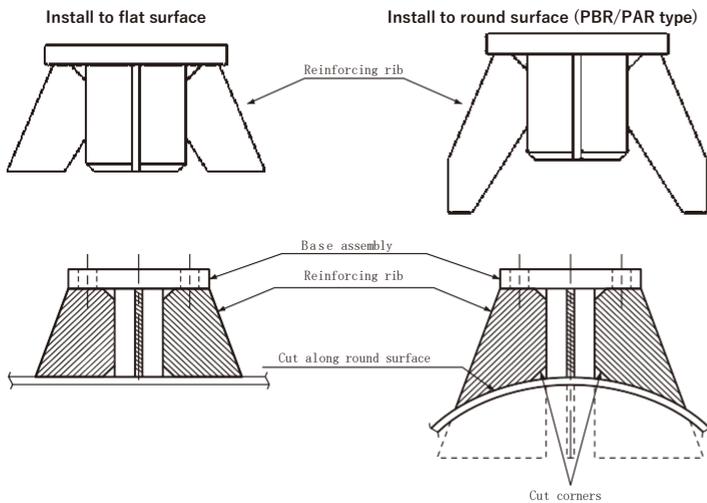
Model	Designated dimension (mm)
RKD30PB	50 ± 2
RKD40PB	75 ± 2
RKD60PB·80·100PA·120P	90 ± 2

Model	Designated dimension (inch)
RKD30PB	1-31/32 ± 5/64
RKD40PB	2-61/64 ± 5/64
RKD60PB·80·100PA·120P	3-35/64 ± 5/64

⚠ Hang and fix the knocker with fall prevention wire and shackle to prevent it from falling.



Knocker RKV series, Installation of Reinforcing Rib



Welding the reinforcing plate

- ⚠ Weld reinforcing plate when installing air knocker on thin plate. Apply all-around welding so that no gap arises between the hopper and the reinforcing plate. Leave one spot without welding for air bleeding. It may create an air-cushion which drops impact force if no spot is left.
- ⚠ Huge impact is given to welded zone during air knocker operation. In order to prevent weld-breakage, be sure to take sufficient weld bead.

■ Reinforcing plate size(mm)

Model	Square Type	Round Type	φ A	φ B	C
RKV/RKD/(RKVS) 30PB	□150 × t 3.2 (3.0)	φ 150 × t 3.2 (3.0)	15	20	52
RKV/RKD/(RKVS) 40PB	□200 × t 3.2 (3.0)	φ 200 × t 3.2 (3.0)			80
RKV/RKD/(RKVS) 60PB	□300 × t 4.5 (4.0)	φ 300 × t 4.5 (4.0)	55	25	90
RKV/RKD80PA	□400 × t 4.5 (4.0)	φ 400 × t 4.5 (4.0)			120
RKV/RKD100PA	□500 × t 6.0 (6.0)	φ 500 × t 6.0 (6.0)	85	30	140
RKV/RKD120P	□600 × t 9.0 (9.0)	φ 600 × t 9.0 (9.0)	95		160

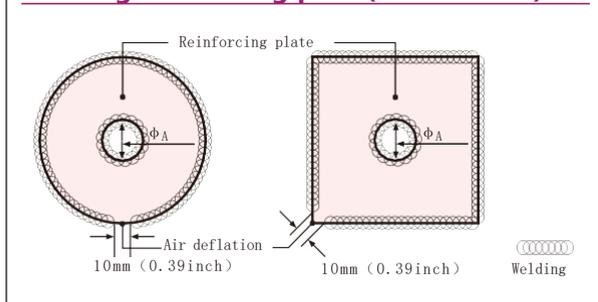
* ()Stainless steel material

■ Reinforcing plate size(inch)

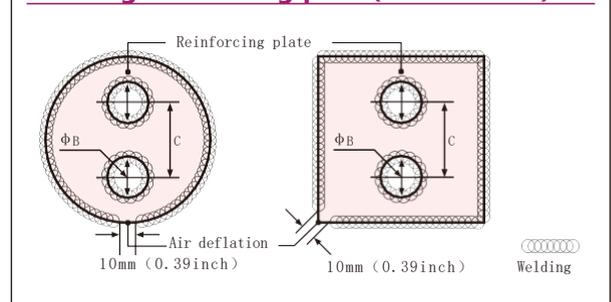
Model	Square Type	Round Type	φ A	φ B	C
RKV/RKD/(RKVS) 30PB	□6 × t0.126(0.118)	Φ6 × t0.126(0.118)	19/32	25/32	2-3/64
RKV/RKD/(RKVS) 40PB	□8 × t0.126(0.118)	Φ8 × t0.126(0.118)			3-5/32
RKV/RKD/(RKVS) 60PB	□12 × t0.177(0.157)	Φ12 × t0.177(0.157)	2-11/64	63/64	3-35/64
RKV/RKD80PA	□16 × t0.177(0.157)	Φ16 × t0.177(0.157)			4-23/32
RKV/RKD100PA	□20 × t0.236(0.236)	Φ20 × t0.236(0.236)	3-11/32	1-3/16	5-33/64
RKV/RKD120P	□24 × t0.35(0.35)	Φ24 × t0.35(0.35)	3-47/64		6-19/64

* ()Stainless steel material

Welding reinforcing plate(RKV series)



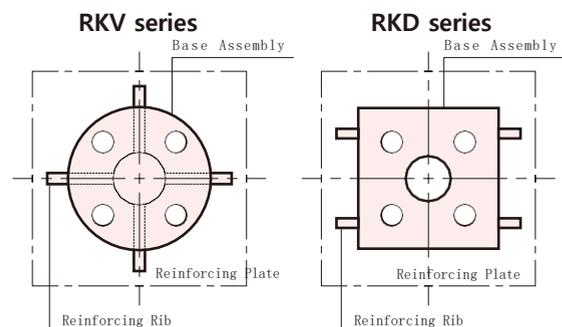
Welding reinforcing plate(RKD series)



Installation of base assembly and reinforcing rib

- ⚠ Make sure the exhaust port is facing down, and apply all-around welding.
- ⚠ Cut the reinforcing rib in accordance with the installation surface, put it symmetrically and apply all-around welding (for models RKD 60PB and above).

* ForRKV120P, the reinforcing ribs are not set on base assembly. Please weld on site.



Electromagnetic knocker EK series

The electromagnetic knocker eliminates blockage trouble of various powders and granules only with electric power (no air supply is required). Since it does not emit oil mist, it is suitable for use in clean environments.



■ Specification (Metric)

Model	Power source	Impact cycle (sec)	Current (average)(A)	Impact energy (N · m)	Impulsive force (kg · m/s)	Converts into hammer pound (lb)	Unit weight (kg)	Overall weight (kg)
EK5A	DIGIOPE EKC200 Input voltage AC200V	1~60	1.3	13.8	3.2	1.0	8.3	10.7
EK5SA				7.1	2.2	0.7		
EK10A			1.8	28.4	6.6	2.0	15.6	19.1
EK10SA				13.8	4.6	1.5		
EK20A			3.4	48.6	11.9	4.0	23.7	28.8
EK20SA				24.2	8.4	3.0		

■ Specification (Imperial)

Model	Power source	Impact cycle (sec)	Current (average) (A)	Impact energy (lbf · ft)	Impulsive force (ft · lbf/s)	Converts into Hammer pound (lb)	Unit weight (lb)	Overall weight (lb)
EK5A	DIGIOPE EKC200 Input voltage AC200V	1~60	1.3	10.18	23.15	1.0	18.3	23.59
EK5SA				5.24	15.91	0.7		
EK10A			1.8	20.95	47.74	2.0	34.39	42.11
EK10SA				10.18	33.27	1.5		
EK20A			3.4	35.85	86.07	4.0	52.25	63.49
* _s EK20SA				17.85	60.76	3.0		

The weight include 5m of cable (1.0 kg). * Reinforcing ribs are set on the base assembly

* When operates the knocker continuously with impact cycle of 1 second; please do not run more than 1 hour. When continuous operation more than 1 hour is required, please provide cooling time equivalent to the operating time. (Example: Switch-off the knocker for 30minutes after 30 minutes of operation). If the knocker needs to operate continuously for 1 hour or more, please set the impact cycle for more than 2 seconds.

■ Dimensions (mm)

Model	ϕA	ϕC	D	H	I	ϕJ	ϕK	L	M	N
EK5A/5SA	92	130	19.5	235.5	24	11	108	9	70	(164)
EK10A/10SA	118	165	22.0	287.5		13	138	10	85	(214.7)
EK20A/20SA	134	190	25.0	321.5		17	160	12	105	(244.6)

■ Dimensions (inch)

Model	ϕA	ϕC	D	H	I	ϕJ	ϕK	L	M	N
EK5A/5SA	3-5/8	5-1/8	49/64	9-17/64	15/16	7/16	4-1/4	23/64	2-3/4	(6-29/64)
EK10A/10SA	4-1/64	6-1/2	55/64	11-5/16		33/64	5-7/16	25/64	3-11/32	(8-29/64)
EK20A/20SA	5-9/32	7-31/64	63/64	12-21/32		43/64	6-19/64	15/32	4-9/64	(9-5/8)

Control panel

Dedicated controller for electromagnetic knocker EKC 200

Control panel EKC 5000 series (EKC 200 built-in type)



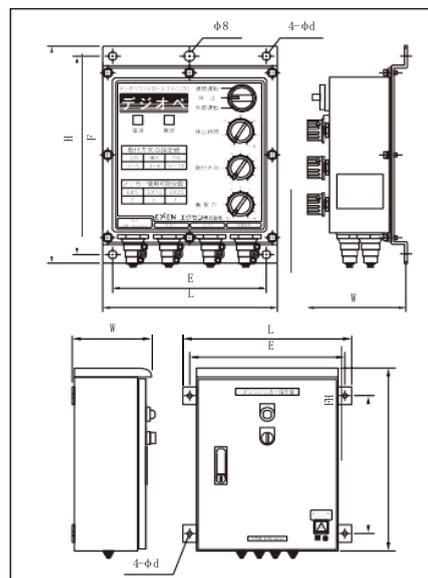
EKC200



EKC5201



EKC5202



■ Specification (Metric)							* Made-to-order product		
Model	Structure	Input voltage (V)	Max. Input (A)	Output voltage (V)	Timer set	Weight (kg)	Number of knockers operation		
							EK5A/5SA	EK10A/10SA	EK20A/20SA
EKC200	Indoor	3Φ AC200V 50/60Hz	4.0	DC300	N/A	2.2	2	2	1
EKC5201 *	Indoor/		4.1		ON/OFF	19.0			
EKC5202 *	Outdoor		8.1		0.1s-6h	24.0	4	4	2

■ Specification (Imperial)							* Made-to-order product		
Model	Structure	Input voltage (V)	Max. Input (A)	Output voltage (V)	Timer set	Weight (lb)	Number of knockers operation		
							EK5A/5SA	EK10A/10SA	EK20A/20SA
EKC200	Indoor	3Φ AC200V 50/60Hz	4.0	DC300	N/A	4.85	2	2	1
EKC5201 *	Indoor/		4.1		ON/OFF	41.89			
EKC5202 *	Outdoor		8.1		0.1s-6h	52.91	4	4	2

* EKC 5201/5202 is available with other input voltages.

■ Dimensions (mm)							
Model	L	W	H	E	F	φ d	
EKC200	170	100	224	150	204	6.5	
EKC5201	480	215	515	440	400	11.0	
EKC5202	580			540			

■ Dimensions (inch)							
Model	L	W	H	E	F	φ d	
EKC200	6-11/16	3-15/16	8-13/16	5-29/32	8-1/32	1/4	
EKC5201	18-57/64	8-15/32	20-9/32	17-21/64	15-3/4	7/16	
EKC5202	22-53/64			21-17/64			



■ Piston vibrator

Excellent durability EPV series

Piston vibrator EPV series is a pneumatic vibrator that produces a stable and uni-directional vibration by vertical movement of piston. This is used mainly for prevention of blockage or filling of powder in hopper, tank, or piping chute, and as vibration source of Vibration table, vibration feeder and vibration screen.



EPV12A

EPV18

EPV25

EPV35

EPV18L

EPV35L

FEATURES

- ① The frequency and vibration force are adjustable by supply air pressure.
- ② Exen's original wear resistance treatment is given to piston which achieved excellent durability.
- ③ Applicable for vibration feeder and filling equipment because of its uni-directional vibration.
- ④ Exhaust muffler having both of filter and silencer function cuts an oil mist and noise at the same time -Ecofriendly.
- ⑤ Only one bolt is required for installation-Simple and easy installation.

Ultra-compact piston vibrator ELV 8

Unlike the conventional piston vibrator EPV series, linear type piston vibrator ELV series has a different structure in which high amplitude can be obtained in high-stroke operation because the piston protrudes out side of cylinder. It provides two kinds of amplitudes by installing direction (cylinder-fix or piston-fix).



ELV8

FEATURES

- ① Vibration frequency and vibratory force are adjustable by supply air pressure
- ② Two kinds of amplitude is selectable by installing direction
- ③ Optional dust cover protects the slide surface in dusty environment



Cylinder-fix



Piston-fix

Optional item



Dust cover

■ Specification (Metric)

Model		Working Pressure (MPa)	Frequency (Hz)	Centrifugal Force (N)	Air Consumption (L/min (ANR))	Diameter (mm)	Height (mm)	Bolt size (mm)	Weight (kg)
ELV8	Installation piston	0.2~0.6	25~36	13~40	4~48	8	96~124	M5	0.10
	Installation cylinder		34~54	14~41	8~76	23		M6	

■ Specification (Imperial)

Model		Working Pressure (PSI)	Frequency (VPM)	Centrifugal Force (lbf)	Air Consumption (CFM)	Diameter (inch)	Height (inch)	Bolt size (inch)	Weight (lb)
ELV8	Installation piston	29~87	1500~2160	2.92~8.99	0.14-1.69	5/16	3-25/32-4-7/8	No12	0.22
	Installation cylinder		2040~3240	3.15~9.22	0.28-2.68	29/32		1/4	

■ Piston vibrator

Easy desorption by single wing bolt, EPV-F series

Small piston vibrator series with tri-clamp is suitable for hygienic applications in food and pharmaceutical industry.



EPV12A-F



EPV18-F



**Tri-clamp
(standard accessory)**



Fall prevention wire (option)

FEATURES

- 1 EPV-F series is easy to attach/detach due to tri-clamp fixation. This feature allows user to wash and maintain cleanliness of their facility by removing EPV-F series instantly from the facility.
- 2 Excellent corrosion resistance because of Exen's unique hard-surface-treated aluminum body and tri-clamp made of stainless steel.
- 3 Exhaust muffler having both of filter and silencer function cuts an oil mist and noise at the same time - Eco friendly.

■ Specification (Metric)

Model	Working Pressure (MPa)	Frequency (Hz)	Centrifugal Force(N)	Air Consumption (L/min)(ANR)	Diameter x Height (mm)	Bolt size (mm)	Weight (kg)
EPV12A	0.2~0.6	106~164	29~82	9~24	φ 27x98	M8×10+ α (Thickness)	0.14
EPV18		102~149	66~186	17~62	φ 38x116	M10×11+ α (Thickness)	0.34
EPV18L		58~94	82~265	15~54	φ 38x153		0.48
EPV25		75~108	147~374	75~153	φ 43.5x137	M12×12+ α (Thickness)	0.58
EPV35		79~117	304~778	45~145	φ 56x138		1.03
EPV35L		51~73	347~921	44~125	φ 56x184		1.47
EPV12A-F		106~164	29~82	9~24	φ 27x154	Ferrule clamp IDF/ISO-1.5S	0.74
EPV18-F		102~149	66~186	17~62	φ 38x157		0.85

* Above figures are measured under our own standard with silencer. * Working temperature range 0 ~ 60°C

* Oil free means general service air which hardly contain soil.

■ Specification (Imperial)

Model	Working Pressure (PSI)	Frequency (VPM)	Centrifugal Force(lbf)	Air Consumption (CFM)	Diameter x Height (inch)	Bolt size(Inch)	Weight (lb)
EPV12A	29-87	6,360-9,840	6.52-18.43	0.32-0.85	Φ 1-1/16x3-55/64	5/16x25/64+ α (Thickness)	0.31
EPV18		6,120-8,940	14.84-41.81	0.60-2.19	Φ 1-1/2x4-9/16	25/64x7/16 α (Thickness)	0.75
EPV18L		3,480-5,640	18.43-59.57	0.53-1.91	Φ 1-1/2x6-1/32		1.06
EPV25		4,500-6,480	33.05-84.08	2.65-5.40	Φ 1-23/32x5-25/64	15/32x15/32+ α (Thickness)	1.28
EPV35		4,740-7,020	68.34-174.90	1.59-5.12	Φ 2-13/64x5-7/16		2.27
EPV35L		3,060-4,380	78.01-207.05	1.55-4.41	Φ 2-13/64x7-1/4		3.24
EPV12A-F		6,360-9,840	6.52-18.43	0.32-0.85	Φ 1-1/16x6-1/16	Ferrule clamp IDF/ISO-1.5S	1.43
EPV18-F		6,120-8,940	14.84-41.81	0.60-2.19	Φ 1-1/2x6-3/16		1.87

* Above figures are measured under our own standard with silencer. * Working temperature range 0 ~ 60°C

* Oil free means general service air which hardly contain soil.

Easy relocation because of compact body and simple structure, PSB/PLB

This pneumatic piston vibrator has been used for many years as a formwork vibrator for concrete placement at tunnels sites because of its robust structure. It has also been used for many years to prevent blockage of measuring hoppers in secondary concrete product factories (concrete fabricators) and ready-mixed concrete factories.



PSB



PSholder



PLB



PLholder

■ Specification (Metric)

Model	Working Pressure (MPa)	Frequency (Hz)	Centrifugal Force (N)	Air Consumption (L/min)ANR	Size(mm)	Fitting size	Weight (kg)
					LxWxH		
PSB	0.3~0.6	80~110	160~280	120~260	110x65x105	Hose stem 1/4B	1.4
PLB		52~70	400~710	200~420	190x65x147		4.1

■ Specification (Imperial)

Model	Working Pressure (PSI)	Frequency (VPM)	Centrifugal Force (lbf)	Air Consumption (CFM)	Size(inch)	Fitting size	Weight (lb)
					LxWxH		
PSB	44-87	4,800-6,600	36-63	4.24-9.18	4-21/64X2-9/16X4-9/64	Hose stem 1/4B	3.09
PLB		3,120-4,200	90-160	7.06-14.83	7-31/64X2-9/16X5-25/32		9.04

* The above dimensions includes holder and weight excludes holder. * It may differ from the above specifications by the mounting conditions.

* Operating temperature range: 0-80°C

■ Turbine vibrator

UT series, ultra compact BT series

This is an easy-to-use pneumatic oil-free vibrator that operates simply by supplying compressed air like a conventional ball vibrator (lubrication to supply air is strictly prohibited). The high speed rotating turbine does not contact the casing so that the noise level is very small, and environment friendly.

FEATURES

- 1 No lubricant required (lubrication is strictly prohibited)
- 2 Quiet operation due to no-contact between casing and rotation parts as well as high performance muffler.
- 3 BTP series use polyacetal resin for casing and stainless steel for other parts (BTS series use stainless steel for casing too) so these models are highly durable and can be used safely in food, pharmaceutical and chemical industries.



■ Specification (Metric)

Model	Working Pressure (MPa)	Frequency (HZ)	Centrifugal Force (N)	Air Consumption (L/min) ANR	Dimention (mm) LxWxH	Weight (kg)
BTP18	0.2~0.6	153~414	8~61	7~16	32 × 17 × 48.6	0.05
BTP24		119~351	16~142	20~48	34 × 20 × 59.6	0.09
BTS24		0.3~0.6	110~290	15~100	19~33	34 × 20 × 61.6
UT321	0.2~0.6	454~641	490~974	39~88	85 × 33 × 79	0.25
UT322		321~492	444~1044			0.26
UT471		322~493	1032~2410	130~294	90 × 43 × 103	0.56
UT472		239~349	1120~2381	129~294		0.58
UT611		195~304	1116~2730	160~371	104 × 56 × 118	1.15
UT612		146~222	1234~2870			1.16

■ Specification

■ (Imperial)

Model	Working Pressure (PSI)	Frequency (VPM)	Centrifugal Force (lbf)	Air Consumption (CFM)	Dimention (inch) LxWxH	Weight (lb)
BTP18	29-87	9,180-24,840	1.80-13.71	0.25-0.56	1-17/64x43/64x1-29/32	0.11
BTP24		7,140-21,060	3.60-31.92	0.71-1.69	1-11/32x25/32x2-11/32	0.2
BTS24		44-87	6,600-17,400	3.37-22.48	0.67-1.17	1-11/32x25/32x2-27/64
UT321	29-87	27,240-38,460	110.16-218.96	1.38-3.11	3-11/32x1-19/64x3-7/64	0.55
UT322		19,260-29,520	99.82-234.70			0.57
UT471		19,320-29,580	232.00-541.79	4.59-10.38	3-35/64x1-11/16x4-1/16	1.23
UT472		14,340-20,940	251.79-535.27	4.56-10.38		1.28
UT611		11,700-18,240	250.89-613.73	5.65-13.10	4-3/32x2-13/64x4-41/64	2.54
UT612		8,760-13,320	277.41-645.20			2.56

* The above are the results under our measuring standards and conditions. The value may vary by the installation conditions. * Operating temperature range

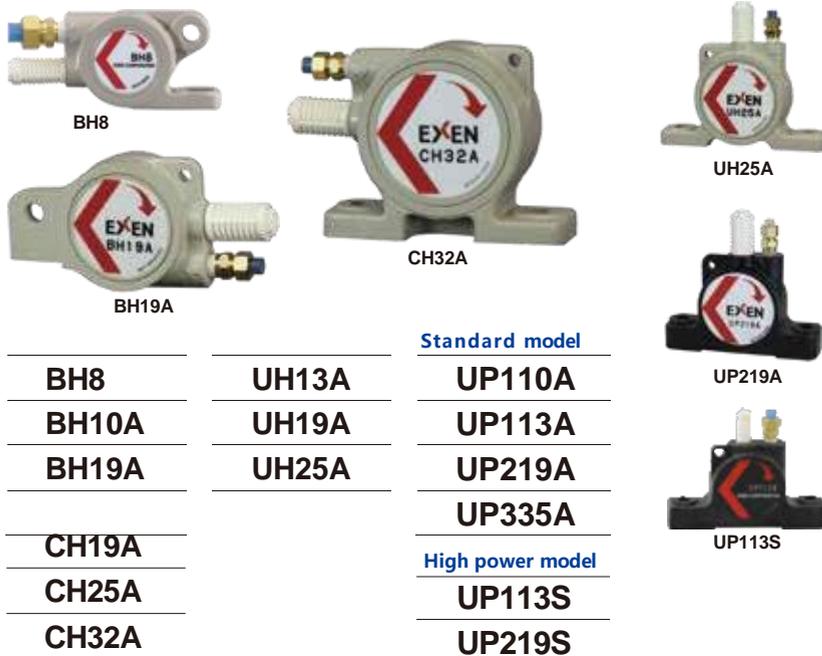
■ Ball vibrator

Effective for narrow area and places require a small vibration-BH /CH /UH series Plastic body with excellent corrosion resistance-UP series

A steel ball that rotates at high speed inside the casing with compressed air generates optimum centrifugal vibration. Simple structure allows variable vibration frequency and centrifugal force by supply air pressure

* Use a lubricator to maintain its performance.

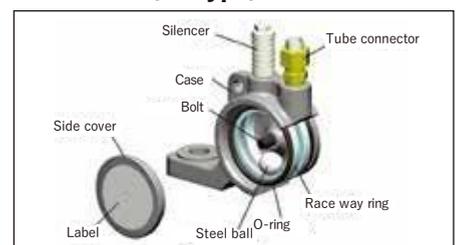
* Use at an ambient temperature of 80°C/176°F (60°C/140°F for the UP series) or lower.



FEATURES

- 1 Various shapes are available according to the object to be installed, and vibration frequency/centrifugal force are adjustable by supply air pressure.
- 2 The compact body and simple structure allows installation in narrow spaces and easy maintenance.
- 3 Corrosion-resistant resin casing enhances applicability to humid places, salty environment or rain exposure.

Structure (UHtype)



Dimensional table

Specification (Metric)

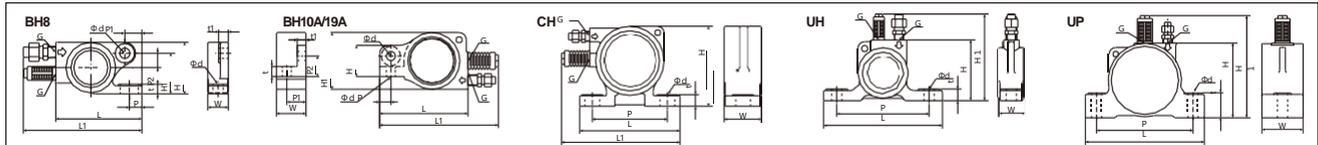
Model	Required to start (MPa)		Frequency(Hz) · Centrifugal force(kN) · Air Consumption (m ³ /min(ANR))															Weight (kg)
			0.2MPa			0.3MPa			0.4MPa			0.5MPa			0.6MPa			
	Vert.	Horz.	Hz	kN	m ³ /min (ANR)	Hz	kN	m ³ /min (ANR)	Hz	kN	m ³ /min (ANR)	Hz	kN	m ³ /min (ANR)	Hz	kN	m ³ /min (ANR)	
BH8	0.02	0.01	322	0.09	0.04	348	0.13	0.06	432	0.17	0.08	471	0.20	0.09	499	0.22	0.10	0.3
BH10A	0.03		285	0.13	0.07	324	0.17	0.10	377	0.23	0.12	418	0.28	0.14	451	0.33	0.17	0.5
BH19A	0.06	0.02	174	0.60	0.14	204	0.83	0.19	227	1.02	0.25	245	1.19	0.31	259	1.33	0.37	1.1
CH19A			162	0.52	0.13	189	0.71	0.18	211	0.89	0.24	228	1.03	0.29	240	1.15	0.35	1.2
CH25A	0.11	0.02	110	0.79	0.17	129	1.09	0.23	144	1.36	0.30	155	1.57	0.37	164	1.76	0.43	2.6
CH32A	0.20		—	—	—	104	1.22	0.22	118	1.56	0.28	129	1.87	0.34	137	2.11	0.40	2.4
UH13A	0.03	0.01	264	0.30	0.11	310	0.41	0.15	341	0.50	0.19	366	0.57	0.23	383	0.63	0.28	0.7
UH19A	0.06	0.02	163	0.53	0.13	192	0.73	0.18	214	0.91	0.23	231	1.06	0.29	246	1.20	0.34	1.2
UH25A	0.13		110	0.67	0.11	127	0.90	0.15	140	1.09	0.19	152	1.28	0.24	162	1.46	0.28	1.9
UP110A	0.03	0.03	273	0.15	0.12	323	0.21	0.16	361	0.27	0.21	391	0.31	0.26	418	0.36	0.30	0.24
UP113A			238	0.24		282	0.34		316	0.43		344	0.50	0.25	367	0.57	0.31	0.25
UP219A	0.07	0.04	139	0.38	0.14	163	0.53	0.19	185	0.67	0.24	201	0.79	0.29	213	0.90	0.35	0.45
UP335A	0.23	0.03	101	0.94	0.19	119	1.31	0.26	135	1.69	0.33	147	1.99	0.41	157	2.27	0.48	1.2
UP113S	0.06	0.04	185	0.28	0.12	220	0.40	0.16	247	0.50	0.21	266	0.58	0.26	281	0.65	0.30	0.25
UP219S	0.11		109	0.46	0.14	133	0.68	0.19	151	0.87	0.24	165	1.03	0.29	174	1.16	0.35	0.48

Specification (Imperial)

Model	Required to start (PSI)		Frequency(VPM) · Centrifugal force(lbf) · Air Consumption(CFM)															Weight (lb)
			39PSI			44PSI			58PSI			73PSI			87PSI			
	Vert.	Horz.	VPM	lbf	CFM	VPM	lbf	CFM	VPM	lbf	CFM	VPM	lbf	CFM	VPM	lbf	CFM	
BH8	2.9	1.45	19,320	20.23	1.41	20,880	29.23	2.12	25,920	38.22	2.83	28,260	44.96	3.18	29,940	49.46	3.53	0.66
BH10A	4.35		17,100	29.23	2.42	19,440	38.22	3.53	22,620	51.71	4.24	25,080	62.95	4.94	27,060	74.19	6.00	1.10
BH19A	8.7	2.90	10,440	134.89	4.94	12,240	186.59	6.71	13,620	229.31	8.83	14,700	267.52	10.95	15,540	299.00	13.07	2.43
CH19A			9,720	116.90	4.59	11,340	159.61	6.36	12,660	200.08	8.48	13,680	231.55	10.24	14,400	258.53	12.36	2.65
CH25A	15.95	2.90	6,600	177.60	6.00	7,740	245.04	8.12	8,640	305.74	10.59	9,300	352.95	13.07	9,840	395.66	15.19	5.73
CH32A	29.01		—	—	—	6,240	274.27	7.77	7,080	350.70	9.89	7,740	420.39	12.01	8,220	474.35	14.13	5.29
UH13A	4.35	1.45	15,840	67.44	3.88	18,600	92.17	5.30	20,460	112.40	6.71	21,960	128.14	8.12	22,980	141.63	9.89	1.54
UH19A	8.70	2.90	9,780	119.15	4.59	11,520	164.11	6.36	12,840	204.58	8.12	13,860	238.30	10.24	14,760	269.77	12.01	2.65
UH25A	18.85		6,600	150.62	3.88	7,620	202.33	5.30	8,400	245.04	6.71	9,120	287.76	8.48	9,720	328.22	9.89	4.19
UP110A	4.35	4.35	16,380	33.72	4.24	19,380	47.21	5.65	21,660	60.70	7.42	23,460	69.69	9.18	25,080	80.93	10.59	0.53
UP113A			14,280	53.95		16,920	76.44		18,960	96.67		20,640	112.40	8.83	22,020	128.14	10.95	0.55
UP219A	10.15	5.80	8,340	85.43	4.94	9,780	119.15	6.71	11,100	150.62	8.48	12,060	177.60	10.24	12,780	202.33	12.36	0.99
UP335A	33.36	4.35	6,060	211.32	6.71	7,140	294.50	9.18	8,100	379.93	11.65	8,820	447.37	14.48	9,420	510.32	16.95	2.65
UP113S	8.70	5.80	11,100	62.95	4.24	13,200	89.92	5.65	14,820	112.40	7.42	15,960	130.39	9.18	16,860	146.13	10.59	0.55
UP219S	15.95		6,540	103.41	4.94	7,980	152.87	6.71	9,060	195.58	8.48	9,900	231.55	10.24	10,440	260.78	12.36	1.06

* Above figures are the result of our in house test and it may vary by installation condition. * Air pressure required to start may slightly higher than normal operation.

* Vertical means installing vibrator in a direction which the ball rotates vertically and horizontal means horizontally. Higher air pressure is required for the vertical than other direction in general.



Dimensions (mm)

Model	L	L1	H	H1	W	t	t1	P	P1	P2	φd	G
BH8	76	(105)	45.0	35.5	18	8.5	8.5	11	15	12.5	2-9 (M8)	Rp1/8
BH10A	80	(109)	30.0	51	30	7.0	7	11	19	19.0	2-9 (M8)	Rp1/8
BH19A	110	(148)	40.0	70	37	14.0	11	14	24	27.0	2-11 (M10)	Rp1/4
CH19A	130	(148)	87.0	—	37	12.5	—	101	—	—	2-11 (M10)	Rp1/4
CH25A	135	(159.5)	106.5	—	51	15.5	—	101	—	—	2-13 (M12)	Rp1/4
CH32A	135	(159.5)	106.5	—	51	15.5	—	101	—	—	2-13 (M12)	Rp1/4
UH13A	130	—	66.0	(95)	29	12.5	—	101	—	—	2-11 (M10)	Rp1/8
UH19A	128	—	84.0	(122)	37	12.5	—	101	—	—	2-11 (M10)	Rp1/4
UH25A	160	—	100.0	(138)	41	15.5	—	126	—	—	2-13 (M12)	Rp1/4
UP110A	127	—	70.0	(99)	31	21.5	—	102	—	—	2-10 (M8)	Rp1/8
UP113A	127	—	70.0	(99)	31	21.5	—	102	—	—	2-10 (M8)	Rp1/8
UP113S	127	—	70.0	(99)	31	21.5	—	102	—	—	2-10 (M8)	Rp1/8
UP219A	141	—	89.0	(127)	39	24.5	—	116	—	—	2-12 (M10)	Rp1/4
UP219S	141	—	89.0	(127)	39	24.5	—	116	—	—	2-12 (M10)	Rp1/4
UP335A	164	—	102.0	(140)	57	33.5	—	133	—	—	2-14 (M12)	Rp1/4

Dimensions (inch)

Model	L	L1	H	H1	W	t	t1	P	P1	P2	φd	G
BH8	2-63/64	(4-9/64)	1-49/64	1-25/64	45/64	21/64	21/64	7/16	19/32	31/64	5/64-23/64(M8)	Rp1/8
BH10A	3-5/32	(4-19/64)	1-3/16	2-1/64	1-3/16	9/32	9/32	7/16	3/4	3/4	5/64-23/64(M8)	Rp1/8
BH19A	4-21/64	(5-53/64)	1-37/64	2-3/4	1-29/64	35/64	7/16	35/64	15/16	1-1/16	5/64-7/16(M10)	Rp1/4
CH19A	5-1/8	(5-53/64)	3-27/64	—	1-29/64	31/64	—	3-31/32	—	—	5/64-7/16(M10)	Rp1/4
CH25A	5-5/16	(6-9/32)	4-3/16	—	2-1/64	39/64	—	3-31/32	—	—	5/64-33/64(M12)	Rp1/4
CH32A	5-5/16	(6-9/32)	4-3/16	—	2-1/64	39/64	—	3-31/32	—	—	5/64-33/64(M12)	Rp1/4
UH13A	5-1/8	—	2-19/32	(3-47/64)	1-9/64	31/64	—	3-31/32	—	—	5/64-7/16(M10)	Rp1/8
UH19A	5-3/64	—	3-5/16	(4-51/64)	1-29/64	31/64	—	3-31/32	—	—	5/64-7/16(M10)	Rp1/4
UH25A	6-19/64	—	3-15/16	(5-7/16)	1-39/64	39/64	—	4-61/64	—	—	5/64-33/64(M12)	Rp1/4
UP110A	5	—	2-3/4	(3-57/64)	1-7/32	27/32	—	4-1/64	—	—	5/64-25/64(M8)	Rp1/8
UP113A	5	—	2-3/4	(3-57/64)	1-7/32	27/32	—	4-1/64	—	—	5/64-25/64(M8)	Rp1/8
UP113S	5	—	2-3/4	(3-57/64)	1-7/32	27/32	—	4-1/64	—	—	5/64-25/64(M8)	Rp1/8
UP219A	5-35/64	—	3-1/2	(5)	1-17/32	31/32	—	4-9/16	—	—	5/64-15/32(M10)	Rp1/4
UP219S	5-35/64	—	3-1/2	(5)	1-17/32	31/32	—	4-9/16	—	—	5/64-15/32(M10)	Rp1/4
UP335A	6-29/64	—	4-1/64	(5-33/64)	2-1/4	1-5/16	—	5-15/64	—	—	5/64-35/64(M12)	Rp1/4

■ Control panel

CA1 is a simple controller for pneumatic ball, piston and turbine vibrator which requires air piping only.



CA1

FEATURES

- ① Operable at any site where compressed air is available (no electricity required).
- ② Vibration force/frequency are controllable since CA1 is equipped with pressure regulator.
- ③ Also suitable for trial/test operation since CA1 can control the devices randomly by manual valve.

■ Specification

Model	Structure	Control method	Working pressure MPa (PSI)	Working flow rate l/min (CFM)	Approx Dimension mm (inch)	Installation Dimension mm (inch)	Weight kg (lb)
CA1	Indoor	Air control Manual valve	0.2-0.6 (29-87)	800 (28.25)	108X208X136 (4-1/4X8-3/16X5-23/64)	93X92 (3-21/32X3-5/8)	0.9 (1.98)

VSE1 is an electrical controller for pneumatic ball, piston and turbine vibrator which requires air piping only.



VSE1

FEATURES

- ① Electric control allows accurate operation interval.
- ② 2 solenoid valves can be controlled simultaneously (Solenoid valve is not included).
- ③ Operable with external signal.

■ Specification

Model	Structure	Input Voltage (V)	Timer setting				Output Voltage (V)	Approx dimension LXWXH mm (inch)	Weight kg (lb)
			ON Setting		OFF Setting				
VSE1	Indoor	Singlephase AC100-240	S(sec)	1-99Unlimited	S(sec)	1-99	Same as input voltage	194X167X101 (7-41/64X6-37/64X3-31/32)	1.2 (2.65)
			M(min)	1-99Unlimited	M(min)	1-99			
			H(hour)	1-99Unlimited	H(hour)	1-99			

Solenoid valve (AG44)

For electric operation of air knocker



5 port solenoid valve (4F310-08-P1)

For multiple air knocker operation or long extension pipe.



Master valve (MV-1)

For long extension pipe. (when air knocker performance is dropped)



Pressure regulator

Impact force adjustment if air knocker and vibration speed and centrifugal force of pneumatic vibrator.



N2 pipe $\phi 8 \times \phi 6$



Union cheese



Service cheese



Elbow



Union connector

Please use extension pipe and push-one connect or in accordance with the use.

■ Vibration table

The principle of table vibrator is that external vibrator (e.g., vibration motor, pneumatic vibrator) mounted on the upper frame of table and the work piece loaded on table is vibrated together. The purpose is to fill the work piece into the container smoothly, defoaming, demolding, penetration enhancement, diffusion, mixing and soon, by using vibration.

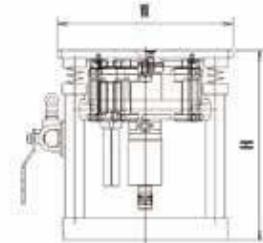
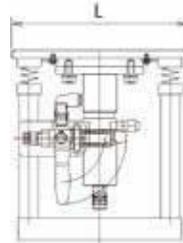


TV300-MW(Electric)

FEATURES

- ① Compact design—can be placed on work table etc.
- ② The feeding and filling speed can be changed simply by adjusting the supply air pressure.
- ③ Stainless steel body(#400)is suitable for food, chemical and pharmaceutical factories.
- ④ No chance of electric leakage due to compressed air operation.

Table Model	Vibrator		Vibration motor specification						Permission Load kg (lb)	Weight kg (lb)	Structure
	model	unit	Voltage (V)	Output (W)	Current (A)	Input Frequency(Hz)	Frequency Hz(VPM)	Centrifugal force KN(lbf)			
TV300-MW	EKM1.1-2P	2	200-440	11	0.05-0.12	50/60	45.5-57.0 (2,730-3,420)	0.07-0.11 (15.74-24.73)	10(22.1)	144(31.7)	Open
TV300C-MW			3-Phases							179(39.5)	Enclose

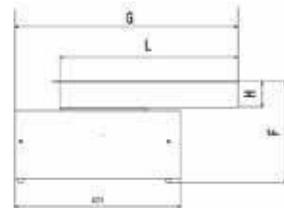
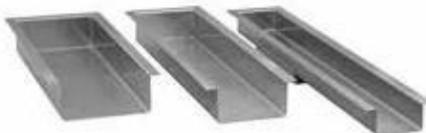


■ Specification

Table Model	Vibrator		Permission Load kg (lb)	Dimensions WXLXH mm(inch)	Weight (kg)	Structure
	model	unit				
TV200-P	EPV35L	1	10(22.1)	200X200X215	6.5(14.3)	Open
TV200C-P				(7-7/8X7-7/8X8-15/32)	9(19.8)	Enclose
TV300-P			20(44.1)	300X300X265	14.3(31.5)	Open
TV300C-P				(11-13/16X11-13/16X10-7/16)	19.6(43.2)	Enclose

* It is possible to design according to your requirement. For the detail, please contact us.

* Other specifications are also available upon request.



■ Specification

Model	Vibrator		Working Pressure MPa(PSI)	Frequency Hz(VPM)	Air consumption L/min (CFM)	Max amplitude mm(Inch)	Weight kg(lb)	Dimensions WXLXH mm(inch)	Material
	model	unit							
PF35L-1	EPV35L	1	0.2-0.6 (29-87)	51~73 (3,600-4,380)	44~125 (155-441)	1.3 (3/64)	11 (24.3)	80X700X45X720X236 (315/27-1/64X1-49/64X28-1/64X9-19/64)	SS304 #400
PF35L-2								120X550X60X619X251 (473/32X21-1/32X2-3/64X24-1/64X9-7/8)	
PF35L-3								150X450X65X565X256 (59/32X17-1/32X2-9/16X22-1/64X10-5/64)	

Product	Capacity kg/h(lb/h)	Product	Capacity kg/h(lb/h)
Dampsalt	546(1,204)	Resinpellet	200(441)
Rocksalt	500(1,102)	Fermentationcompos	280(617)
Coffeebean	180(397)	Magnesiumcarbonate	80(176)
Powderedsugar	320(705)	Sawdust	100(220)
Ricecleaning	370(816)	Potassiumchloride	670(1,477)
Breadcrumbs	100(220)	Bakingsoda	320(705)
Flour	230(507)	Melamine	280(617)
Soda	550(1,213)	Ferrousoxide	1365(3,009)
Carbonblack	150(331)	Abasematerial	370(816)
Particilesilica	30(66)	Whitecarbon	20(44)
Starch	230(507)	Fluorite	50(110)

Direct Blaster EDB series

Infusing compressed air instantaneously into the silo restores flow problem of clinging material.



Incinerate plant silo



Cement silo



Wood chip hopper in thermal power plant



FEATURES

- 1 Since energy source is compressed air, safety is assured and quality of stored material is not spoiled.
- 2 Intermittent operation minimizes air consumption.
- 3 The use of nitrogen gas instead of air prevents dust-explosion.
- 4 Easy to operate



What is a BAD condition?

- 1 Powder and bulk which sticks to the wall regardless of its weight.
- 2 Powder and bulk with strong adhesion.
- 3 Powder and bulk, which is easily influenced by weather (moisture and temperature).
- 4 Powder and bulk, which becomes hard by long-term storage.
- 5 45 degree or less hopper angles, small exhaust port structure.

Model selection guide

Model/Dimension	Condition	1M (3ft)	1.5M (5ft)	3M (9ft)	4.5M (14ft)	6M (19ft)	8.5M (27ft)	10M (32ft)	12M (39ft)
EDB2.5-20	Good	1	3	6	●	●	●	●	●
	Bad	1	2	4	●	●	●	●	●
EDB2.5-30	Good	1	3	5	8	●	●	●	●
	Bad	1	2	3	5	●	●	●	●
EDB2.5-38	Good	1	3	5	8	●	●	●	●
	Bad	1	2	3	5	●	●	●	●
EDB4-60	Good	●	3	4	6	10	12	●	●
	Bad	●	2	3	4	5	6	●	●
EDB4-80	Good	●	3	4	6	10	12	●	●
	Bad	●	2	3	4	5	6	●	●
EDB4-130	Good	●	2	4	6	8	10	11	12
	Bad	●	1	2	3	4	5	6	7
EDB6-230	Good	●	●	2	4	6	8	9	10
	Bad	●	●	1	2	3	4	5	6

Specification

Model	Outlet dia. Inch	Tank capacity Liter (gal)	Working pressure Mpa (PSI)	Available gas	Coating		Weight kg (lb)
					Outer surface	Inner surface	
EDB2.5-20	2.5	20(5.28)	0.3-0.7 (44-102)	Compressed air or Nitrogen gas	Epoxy resin coating		38(83.8)
EDB2.5-30		30(7.93)					42(92.6)
EDB2.5-38		38(10.03)					50(110.2)
EDB4-60	4	60(15.85)					81(178.6)
EDB4-80		80(21.13)					
EDB4-130		130(34.34)					103(227.1)
EDB6-230	6	230(60.76)					168(370.4)
EDB2.5-20T	2.5	20(5.28)					57(125.7)
EDB2.5-30T		30(7.93)					58(127.9)
EDB4-60T	4	60(15.85)					114(251.3)
EDB4-130T		130(34.34)	134(295.4)				
EDB6-230T	6	230(60.76)	231(509.3)				

Mini Blaster EMB series

Compact body made of stainless steel is suitable for small tank, hopper and chute.



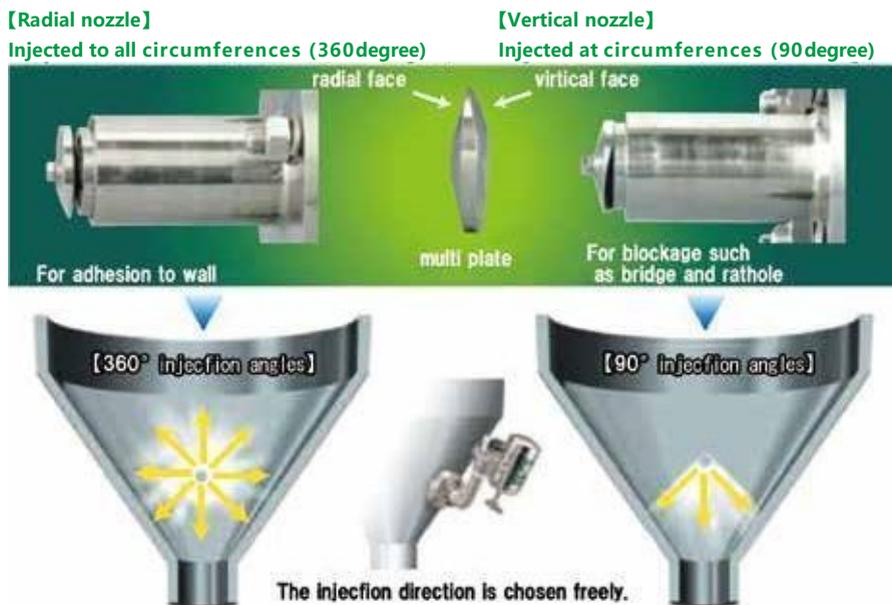
FEATURES

- ① Using stainless steel as standard.
- ② High durability due to simple structure.
- ③ Compact design and light weight.
- ④ Easy maintenance.

■ Effect of multi-nozzle

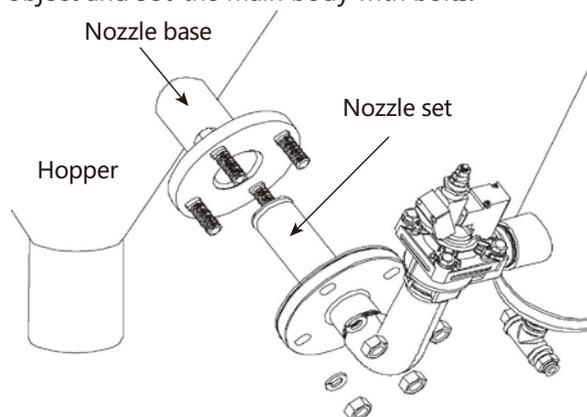
The direction of air injection is adjustable by changing "MultiPlate" direction according to adhesion or blockage condition.

All Mini Blasters are equipped with "MultiPlate" as a standard accessory.



■ Installation

Weld "NozzleBase" to installing object and set the main body with bolts.



■ Specification

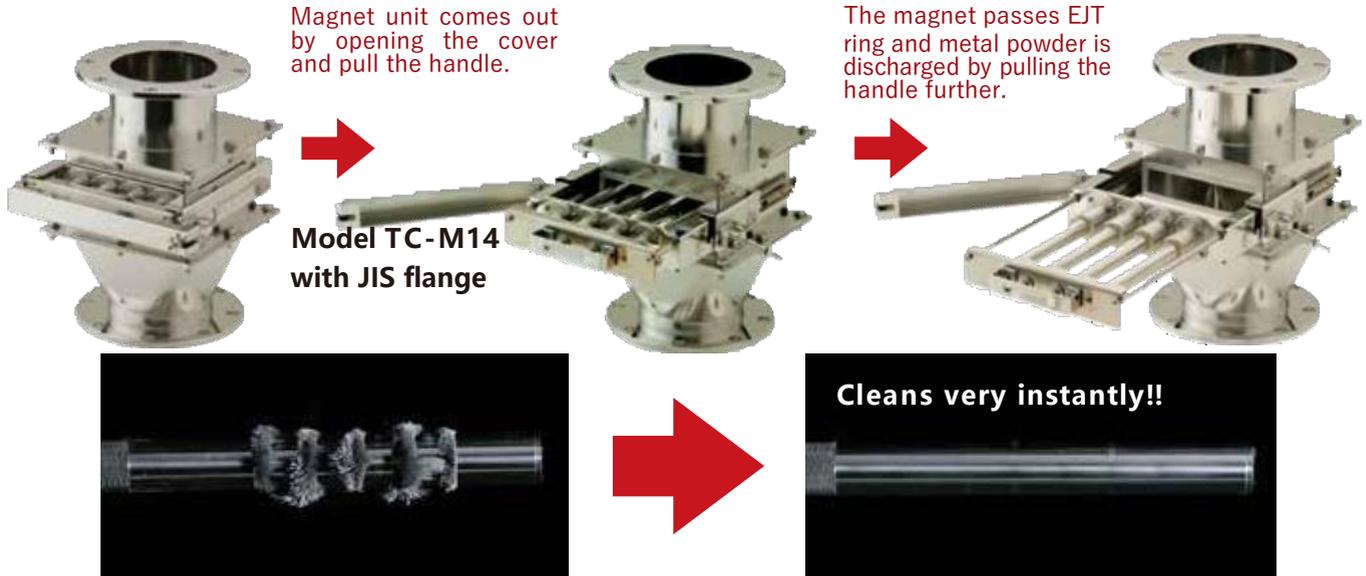
Model	Outlet dia. (Inch)	Valve port	Valve voltage	Working pressure MPa (PSI)	Available gas	Tank capacity L(gal)	Material		Weight kg (lb)
							Valve	Tank	
EMB1.5-3A	1.5	2portPilotType Poppet Structure Solenoid Valve	AC100-400V Single Phase	0.1-0.7 (15-102)	Compressed Air	3(0.79)	ADC12	SS304	10.2(22.5)
EMB1.5-6A						6(1.59)			12.4(27.3)
EMB1.5-10A						10(2.64)			17.8(39.2)

* DC24V is also available.

High magnetic force, one touch cleaning system-TC-M Series

All below difficulties in magnetic separator are now solved by Exen magnetic separator equipped with patented EJT ring.

- * Hectic work of removing metal powder from magnet pipe.
- * Chance of scratching the magnet bar surface by manual scraping.
- * Unexpected accident because of high magnetic force.
- * Unhygienic conditions (touch the bar directly by hands)



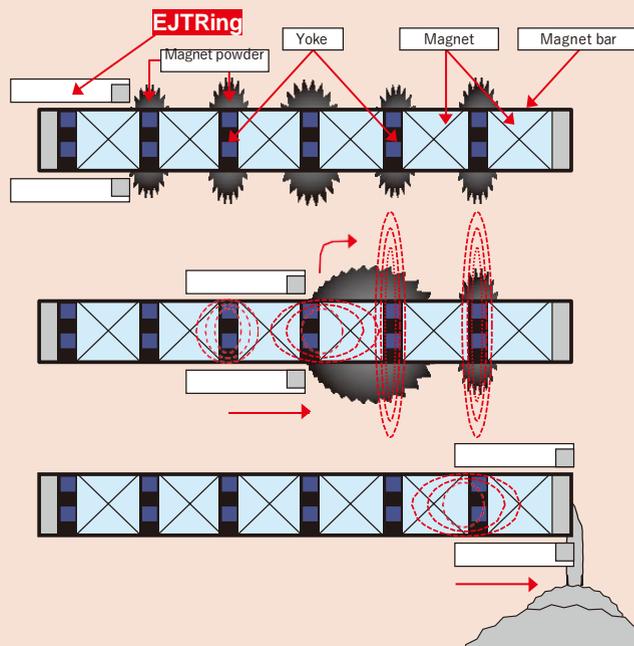
FEATURES

- ① Fine iron powder unremovable by conventional metal detector can be removed.
- ② Achieved magnetic flux density of more than 10,000G at the pipe surface of magnet bar by adoption of neodymium permanent magnet.
- ③ One-touch cleaning by patented EJT ring allows removal of fine metal powder hygienically and safely.
- ④ Achieved long product life since EJT ring does not give a scratch on to the magnet bar surface.

Principle of patented EJT ring

The metal powder adhered to magnetic flux line of magnet bar will be taken out easily. When the bar goes through the EJT ring.

- ① EJT ring passes magnet bar surface circumferentially and EJT ring cuts the magnetic flux line. By sliding, the bar magnetic force keeps getting weak and metal powder will be gradually attracted by next yoke.
- ② At some moment, the magnetic flux line of the yoke will be completely shut out and all metal powder adhered to that yoke will be forwarded to next yoke completely. Since EJT ring is not scraping the magnet bar surface, there is no chance of making a scratch on the bar surface.
- ③ There is no magnetic flux line at the end of magnetic bar so that all metal powders are naturally fall down from the magnet bar.



For food and petrochemical industry

-TC-M Series



* Tray set to catch the removed metal powder is also available (Optional item)

TC-M13

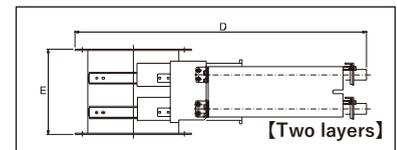
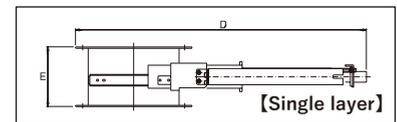
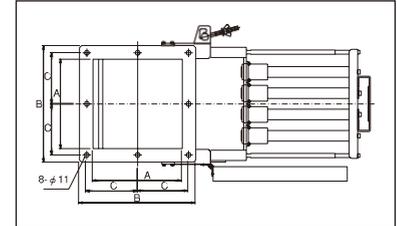
TC-M14

TC-M15

TC-M25

TC-M27

TC-M29



■ Specification

Model	Magnet specification				Capacity (t/h)	Weight kg (lb)	Dimension mm (inch)				
	Number of stages	Number of magnets	Surface MAX magnetic flux density	Maximum Working Temperature			A	B	C	D	E
TC-M13	1	3	0.9 T (9,000G)	80°C	10	9.3(20.5)	153(6-1/32)	224(8-13/16)	95(3-47/64)	465(18-5/16)	140 (5-33/64)
TC-M14		4			20	120(26.5)	203(7-63/64)	274(10-25/32)	120(4-23/32)	540(21-17/64)	
TC-M15		5			40	16.2(35.7)	253(9-61/64)	324(12-3/4)	145(5-45/64)	615(24-7/32)	
TC-M25	2	5	~ 1T (10,000G)	80°C	10	15.7(34.6)	153(6-1/32)	224(8-13/16)	95(3-47/64)	465(18-5/16)	220 (8-21/32)
TC-M27		7			20	21.0(46.3)	203(7-63/64)	274(10-25/32)	120(4-23/32)	540(21-17/64)	
TC-M29		9			40	29.5(65.0)	253(9-61/64)	324(12-3/4)	145(5-45/64)	615(24-7/32)	

* Magnetic separator is built-to-order product. Please ask your local distributor for the manufacturing lead time.

Other specification is also available upon your requirement. Please contact your local distributor for the detail.



Auto-cleaning model (all metal powder cleaning process is automated by actuator)



Suction feeder SF series

This product uses a small amount of compressed air to generate powerful suction force. Simple structure, long life and easy installation.

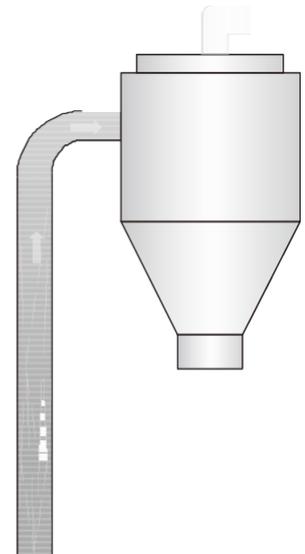


FEATURES

- ① Easy to transport powder, granule and even liquid.
- ② Easy installation to existing facility or narrow space due to compact body.
- ③ Only compressed air is required for operation. No need of electricity.
- ④ Simple structure without any movable item.
- ⑤ Stainless steel body for high corrosion resistance.

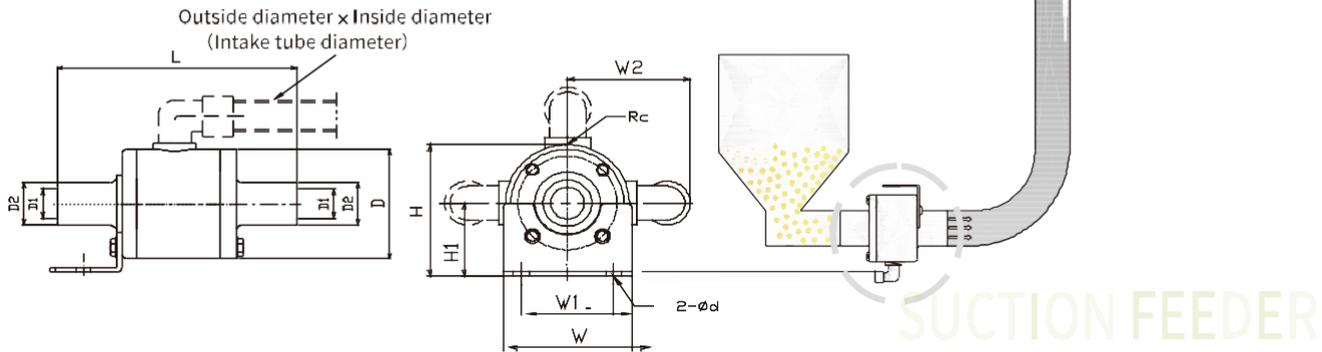
PRINCIPLE

Compressed air enters from the inlet port and is injected a high speed with a special structure inside the unit. At the suction side of the equipment, minus pressure is formed, the material is sucked up, joined at the injection port side and ejected.

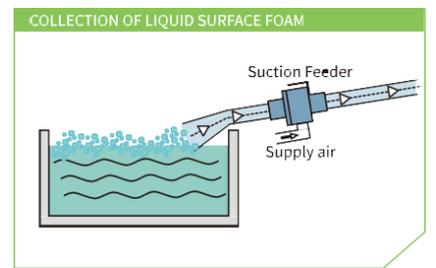
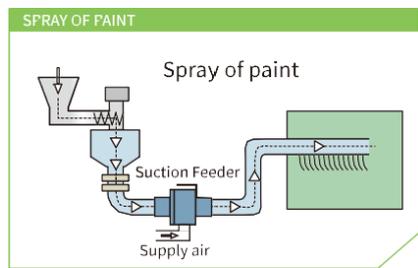
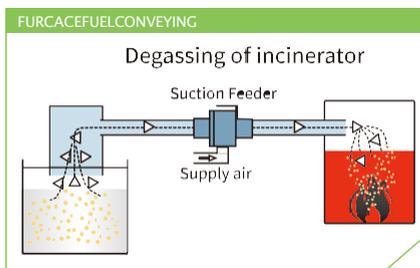
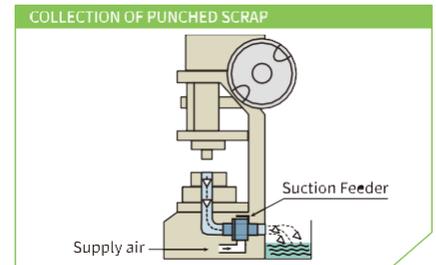
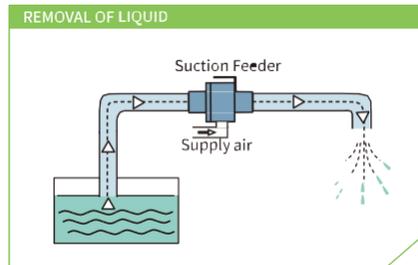
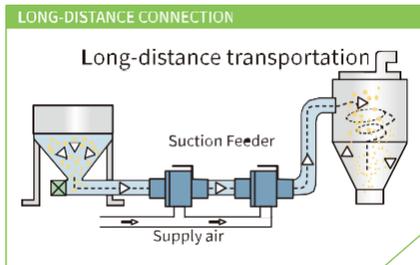


Specification

Model	Working pressure (MPa)	Air consumption (Nm ³ /m)	Degree of vacuum (kPa)	Discharge volume (m ³ /h)	Inlet air tube size (mm)	Hose size (Inch)	Dimensions(mm)									Weight (Kg)
							D	D1	D2	L	H	H1	W	W1	W2	
SF1925SUS	0.5	0.6	15	1.3	φ8×φ6	1	φ54	φ19	φ25	100	61	34	50	36	55	0.79
SF3238SUS		1.1	10	3.3	φ12×φ9	1-1/2	φ71	φ32	φ38	118	79	43	72	53	75	1.32
SF4551SUS		1.3	6	4.1	φ16×φ12	2	φ95	φ45	φ51	123	103	55	97	70	90	2.39



SUCTION FEEDER



The vibrator for boiler tube (heat exchanger) cleaning

- Improves cleaning efficiency and shortens shut down time



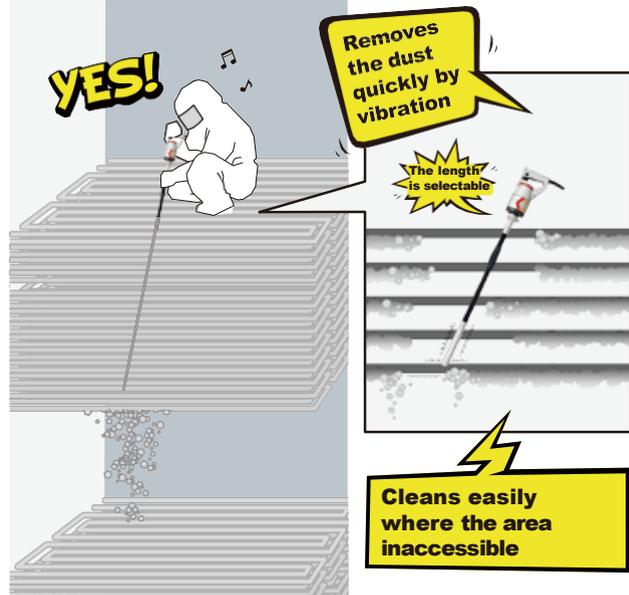
Conventional method

Cleaning of dust adhered on boiler tube



Cleaning from bottom-Unsafe & dirty

Vibrator for boiler tube cleaning



cleaning from top-Easy & safe

Component



BCV2820

BCV2825

■ Specification (Metric)

Model	BCV2820	BCV2825
Output(W)	280	
Voltage(V)	100-240V-1-phase	
Current(A)	5	
Frequency(Hz)	220~280Hz	
Vibration head(dia x length) mm	Φ28×232mm	
Overall length(mm)	2,028mm	2,528mm
Weight(kg)	6.6kg	7.4kg

■ Specification (Imperial)

Model	BCV2820	BCV2825
Output(W)	280	
Voltage(V)	100-240V-1-phase	
Current(A)	5	
Frequency(VPM)	13,200-16,800	
Vibration head (dia x length)inch	Φ1-7/64X9-9/64	
Overall length(inch)	79-27/32	99-17/32
Weight(lb)	14.6	16.3

Hand-Push Sweeper

Suitable for cleaning large space such as factory floor, warehouse floor, construction site, car park, sidewalk and soon



ES-2RA

* Side brush(ES-2S) is optional item.

Model	ES-550A
Sweeping width mm(inch)	5715(28-5/32)
Sweeping performance m ² /h(ft ² /h)	2,500(26,910)
Waste bin capacity L(gal)	20(5.28)
Sweeping brush width mm(inch)	460(18-7/64)
Dimension (when using) L X W X H mm (inch)	890X700X925 (35-3/64X27-9/16X36-27/64)
Dimension (when folding) LX WX H mm (inch)	740X700X330 (29-9/64X27-9/16X12-63/64)
Weight kg(lb)	27(59.52)withsidebrush29.0(63.93)



Stack able design (upto4units) to save storing space.



Mobile caster keeps cleaning brush untouched to ground when moving ES-2RA. This makes easier handing because of no resistance from the brush and also it extends brush life.



ES-550A

Model	ES-550A
Sweeping width mm(inch)	550(21-21/32)
Sweeping performance m ² /h(ft ² /h)	1,920(20,667)
Waste bin capacity L(gal)	20(5.28)
Dimension(when using) L X W X H mm (inch)	580X550X1,250 (22-53/64X21-21/32X49-7/32)
Weight kg(lb)	7.2(15.87)



Equipped with side roller which guides the body for easier cleaning just besides the wall (for all models).



Brush height and ground pressure are adjust able in accordance with floor surface (for all models).

* Shape is different for ES-550A



Equipped with air filter to prevent dust scattering from dust case.(ES-770)



ES-770

Model	ES-770
Sweeping width mm (inch)	770(30-5/16)
Sweeping performance m ² /h(ft ² /h)	2,690(28,955)
Waste bin capacity L(gal)	50(13.21)
Dimension (when using) LXWXH mm (inch)	1,050X800X1,050 (41-11/32X31-1/2X41-11/32)
Weight kg(lb)	13(28.66)



Vertical storing for Space saving.

QUESTIONNAIRE FOR FLOW AID SYSTEM SELECTION

Please fill in or check the box(* mark shows mandatory field)

* Company name * Address * Tel No. * E-mail address * Person in charge				
Material	* Name			
	Specific gravity/Temperature	()g/cm ³ /lb/inch ³	Temperature()°C/°F	
	Moisture content	%		
	* Particle size	() ~ ()mm/inch, μm/μin, mesh		
	* Fluidity	<input type="checkbox"/> Good or <input type="checkbox"/> Average or <input type="checkbox"/> Bad		
	* Adhesion	<input type="checkbox"/> Strong or <input type="checkbox"/> Average or <input type="checkbox"/> Weak		
	* Any problem cause to the material by blowing compressed air into the material?	<input type="checkbox"/> Yes or <input type="checkbox"/> No		
	If Yes, the reason	()		
Storage tank	Name			
	Establishment	<input type="checkbox"/> New setup or <input type="checkbox"/> Existing		
	* Shape/Structure	<input type="checkbox"/> Round or <input type="checkbox"/> Square or <input type="checkbox"/> Other		
	Capacity	()t	()m ³ /ft ³	()L/gal
	* Hopper/Silo diameter	()mm/inch		
	* Plate thickness	()mm/inch		
	* Material	<input type="checkbox"/> Steel or <input type="checkbox"/> Stainless Steel or <input type="checkbox"/> Other()		
	* Inner lining	<input type="checkbox"/> Yes or <input type="checkbox"/> No		
	If yes, material and thickness	()() mm		
Installation place	① <input type="checkbox"/> Indoor or <input type="checkbox"/> Outdoor			
	② <input type="checkbox"/> High humidity <input type="checkbox"/> Dusty <input type="checkbox"/> Anti-explosion <input type="checkbox"/> Special area()			
	Temperature	Summertime ()°C/°F	Wintertime ()°C/°F	
	Power supply	()V / ()Hz	Phase ()	
Compressor	<input type="checkbox"/> Existing <input type="checkbox"/> Not available <input type="checkbox"/> Installing newly			
	Normal pressure	()MPa/Bar/PSI		
	Air consumption	()L/min/CFM		
	Distribution to other machine/equipment	()%		
* Trouble phenomenon	<input type="checkbox"/> Bridging <input type="checkbox"/> Arching <input type="checkbox"/> Ratholing <input type="checkbox"/> Funneling <input type="checkbox"/> Clinging to wall surface <input type="checkbox"/> Natural cling and adhesion of bulk material <input type="checkbox"/> Clogs when starting discharge <input type="checkbox"/> Clogs while discharging <input type="checkbox"/> Clogs by freezing <input type="checkbox"/> Easilyinfluencedbyatmosphericcondition <input type="checkbox"/> Chanceofgasgeneration <input type="checkbox"/> Injuriousmaterial <input type="checkbox"/> Dusty bulk material <input type="checkbox"/> High hygroscopicity <input type="checkbox"/> Other()			
* Current measurement	<input type="checkbox"/> Screw system <input type="checkbox"/> Vibration motor <input type="checkbox"/> Air <input type="checkbox"/> Diaphragm <input type="checkbox"/> Manual How(*): _____ <input type="checkbox"/> Other (*)E.g.:Using--Kg(lb)hammer			
Feeding method (<input type="checkbox"/> continuous or <input type="checkbox"/> intermittent)	<input type="checkbox"/> Belt conveyer <input type="checkbox"/> Feeder <input type="checkbox"/> Bucket loader <input type="checkbox"/> Elevator <input type="checkbox"/> Dump truck <input type="checkbox"/> Chute <input type="checkbox"/> Crane <input type="checkbox"/> Others:			
Discharging method (<input type="checkbox"/> continuous or <input type="checkbox"/> intermittent)	<input type="checkbox"/> Screw conveyer <input type="checkbox"/> Belt conveyer <input type="checkbox"/> Feeder <input type="checkbox"/> Freight car <input type="checkbox"/> Hopper car <input type="checkbox"/> Others: ()			
* Drawing and/or sketch of bin, hopper etc. - IMPORTANT - Please provide following data/information to select suitable model and to suggest installation position. (1) Hopper drawing(or specify dimension in below sketch) (2) Clogging position within the hopper, bin, etc.		Request items: <input type="checkbox"/> Model selection <input type="checkbox"/> Recommendation for installation position <input type="checkbox"/> Price estimation <input type="checkbox"/> Specification Others		

* Mandatory field



Unit exchange chart

Particle	Unit1	Unit2		
Frequency	Hz	v.p.m	1Hz=60v.p.m	1v.p.m=1/60Hz
Revolution speed	min-1	r.p.m	1min-1=1r.p.m	1r.p.m=1min-1
Centrifugal force ·Vibratory force	kN	kgf	1kN=101.97kgf	1kgf=0.00980665kN
Torque	N·cm	kgf·cm	1N·cm=0.10197kgf·cm	1kgf·cm = 9.80665N·cm
Torque ·Stroke energy	N·m	kgf·m	1N·m=0.10197kgf·m	1kgf·m = 9.80665N·m
Impulsive force	kg·m/s	kg·m/sec	1kg·m/s=1kg·m/sec	1kg·m/sec=1kg·m/s
Pressure	MPa	kgf/cm2	1MPa=10.197kgf/cm2	1kgf/cm2 =0.0980665MPa
	Pa	Mpa	1Pa=0.000001MPa	1MPa=1,000,000Pa
	MPa	PSI	1MPa=145psi	1psi=0.006895
	MPa	BAR	1MPa=10bar	1bar=0.1MPa
Horse power ·Output	kW	PS	1kW=1.3596PS	1PS=0.7355kW
Acceleration	m/s2	G	1m/s2=0.10197G	1G=9.80665m/s2
mass	g	oz	1g=0.03527oz	1oz=28.35g
	kg	lb	1kg=2.2046lb	1lb=0.4536Kg
measurement	inch	mm	1inch=25.4mm	1mm=0.03937inch
	feet	cm	1feet=30.48cm	1cm=0.03281feet
temperature	°C	°F	1°C=(°F-32)/1.8	1°F=°CX1.8+32



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