

**NIMI**

# MAGHAMMER®

electromagnetic

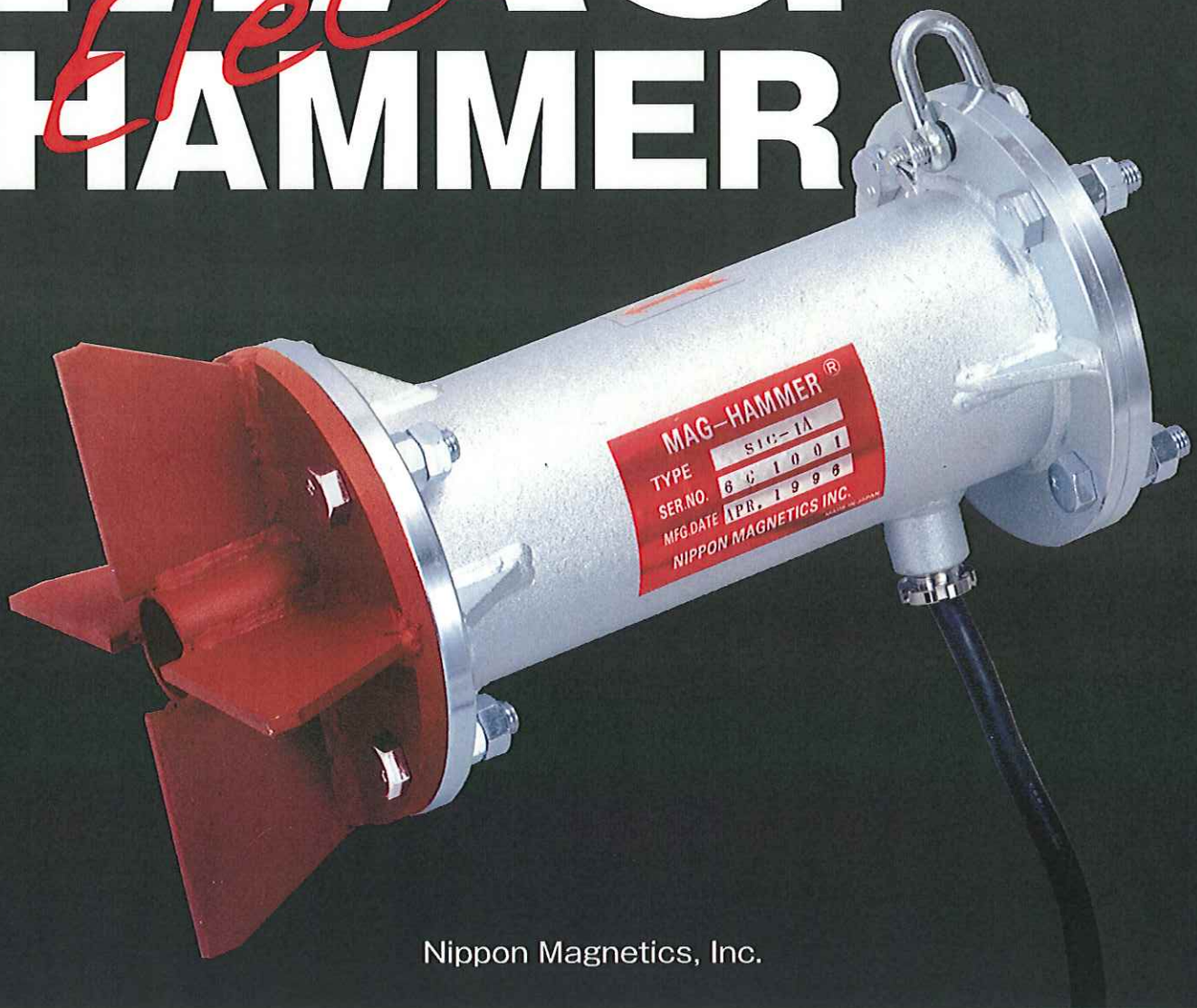
**Solution for rat-holing, arching and bridging for powder and bulk solids**

**[USAGE]** Prevents rat hole, arching and bridging for hoppers, shooters, air ducts, and tanks.

**[Features]**

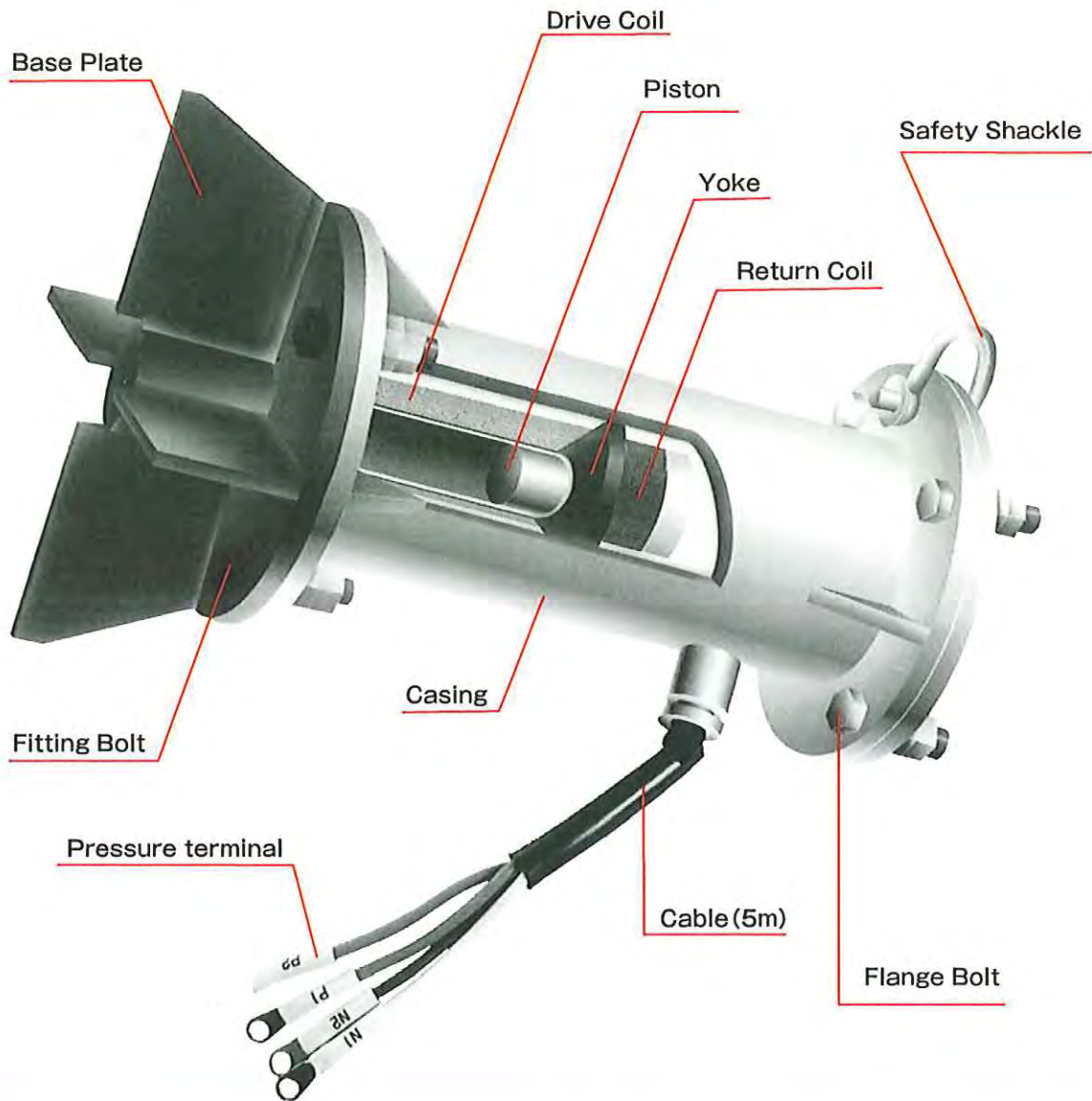
1. High efficiency for continuous impacting force.
2. Flexible adjustments by controller fit specific needs for application.
3. Sealed design allows use in severe dusty atmosphere.
4. Operation can be activated by an external signal, internal timer or manual control.

**MAG**  
*Electro*  
**HAMMER**



Nippon Magnetics, Inc.

## Construction



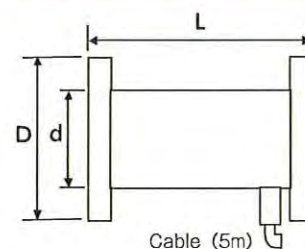
### Characteristics:

- 1 No compressed air required.
- 2 Impact force is adjustable with Controller.
- 3 Hitting frequency and pause time are adjustable with Controller.
- 4 Automatic hitting frequency is adjustable as 1 hit+pause, 2 hits+pause, 3 hits+pause, etc. up to 10 hits+pause with Controller.
- 5 Continuous impact will be effective in overcoming problems.
- 6 SIC Type casing is sealed to prevent ingress of dust or moisture.
- 7 Durability with contact-free Controller.
- 8 Built-in terminal block in Controller for connecting external signal extension.

## ■ MAGHAMMER Specifications

| Model    | Construction                                       | Impact Force |                        | Size(mm) |     |     | Weight (kgs) | Ampere 3 $\phi$ AC220V |
|----------|----------------------------------------------------|--------------|------------------------|----------|-----|-----|--------------|------------------------|
|          |                                                    | kg·m/sec     | Equivalent Hmmer(lbs.) | D        | d   | L   |              |                        |
| SIC-05A  | Sealed Unit<br>(Indirect Hitting)                  | 1.8          | 1                      | 130      | 76  | 226 | 7            | 1.3                    |
| SIC-1A   |                                                    | 3.8          | 2                      | 165      | 102 | 284 | 13           | 1.8                    |
| SIC-2A   |                                                    | 8.2          | 4                      | 190      | 114 | 318 | 22           | 3.4                    |
| SIC-3A   |                                                    | 21.3         | 10                     | 255      | 165 | 384 | 52           | 3.9                    |
| SIC-05AS | Sealed Unit<br>(Indirect &<br>Sound-proof hitting) | 1.3          | 0.7                    | 130      | 76  | 226 | 7            | 1.3                    |
| SIC-1AS  |                                                    | 2.7          | 1.5                    | 165      | 102 | 284 | 13           | 1.8                    |
| SIC-2AS  |                                                    | 5.7          | 3                      | 190      | 114 | 318 | 22           | 3.4                    |
| SIC-3AS  |                                                    | 14.9         | 7                      | 255      | 165 | 384 | 52           | 3.9                    |

- Note : 1) High temperature model (100°C ambient temperature) available on request.  
 2) Stainless steel, anti-corrosion type, for application in corrosive atmosphere available on request.  
 3) Piston-extruded model available on request.  
 4) CE marking model available on request.  
 5) Base plate with bolts & nuts is included as standard supply. 5-Meter cable  
 6) 5-Meter cable to connect MAGHAMMER® is included as standard supply.



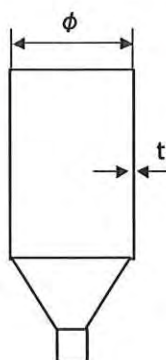
## ■ Controller

| Model | "Q'ty of MAGHAMMER® controllable by one Controller" | Construction                          | Input    | Operation                                                                    | Impact Force Variable |
|-------|-----------------------------------------------------|---------------------------------------|----------|------------------------------------------------------------------------------|-----------------------|
| SB-1A | 3×05A or 2×1A or 1×2A or 1×3A                       | Indoor use<br>Dust-proof<br>With case | 3φAC220V | Auto or Remote<br>Hits variable:1 to 10<br>Pause variable:<br>30sec.to 10min | 50~100%               |
| SB-2A | 6×05A or 4×1A or 2×2A or 2×3A                       |                                       |          |                                                                              |                       |
| SN-1A | 3×05A or 2×1A or 1×2A or 1×3A                       | Without case                          |          | Auto operation<br>By external signal<br>1hit/1sec                            | 50~100%               |
| SN-2A | 6×05A or 4×1A or 2×2A or 2×3A                       |                                       |          |                                                                              |                       |

- Note : 1) Dust-proof and water-proof controller is available for outdoor use.  
 2) Controller for multi MAGHAMMERs' operation is available on request.

## ■ Selection Guide

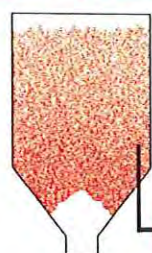
Various factor must be considered for selection of MAGHAMMERs, but the primary factors are hopper's shape and dimensions as well as type of material. This chart serves as a general guide for the model and quantity of units required. It is wise to have the larger model and adjust the impact force.



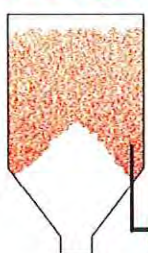
● Model&Q'ty

| φmm | 1     | 2 | 3 | 4    | 5 | 6 | 7    | 8 | 9    | over |
|-----|-------|---|---|------|---|---|------|---|------|------|
| 0.5 | 05A×1 |   |   | 1A×1 |   |   | 2A×1 |   | 3A×1 |      |
| 0.8 |       |   |   |      |   |   |      |   |      |      |
| 1   |       |   |   |      |   |   |      |   |      |      |
| 1.5 | 05A×2 |   |   | 1A×2 |   |   | 2A×2 |   | 3A×2 |      |
| 2   |       |   |   |      |   |   |      |   |      |      |
| 2.5 |       |   |   |      |   |   |      |   |      |      |
| 3   | 05A×3 |   |   | 1A×3 |   |   | 2A×3 |   | 3A×3 |      |
| 3.5 |       |   |   |      |   |   |      |   |      |      |
| 4   |       |   |   |      |   |   |      |   |      |      |
| 5   | 05A×4 |   |   | 1A×4 |   |   | 2A×4 |   | 3A×4 |      |
| 6   |       |   |   |      |   |   |      |   |      |      |

## ● Phenomena of problems which can be solved



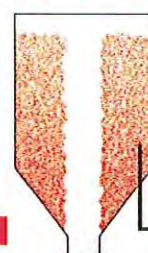
BRIDGING



ARCHING

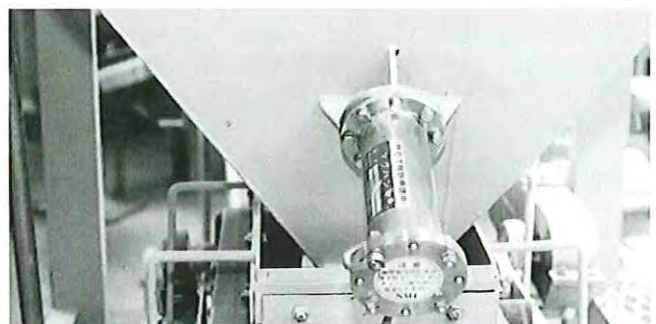
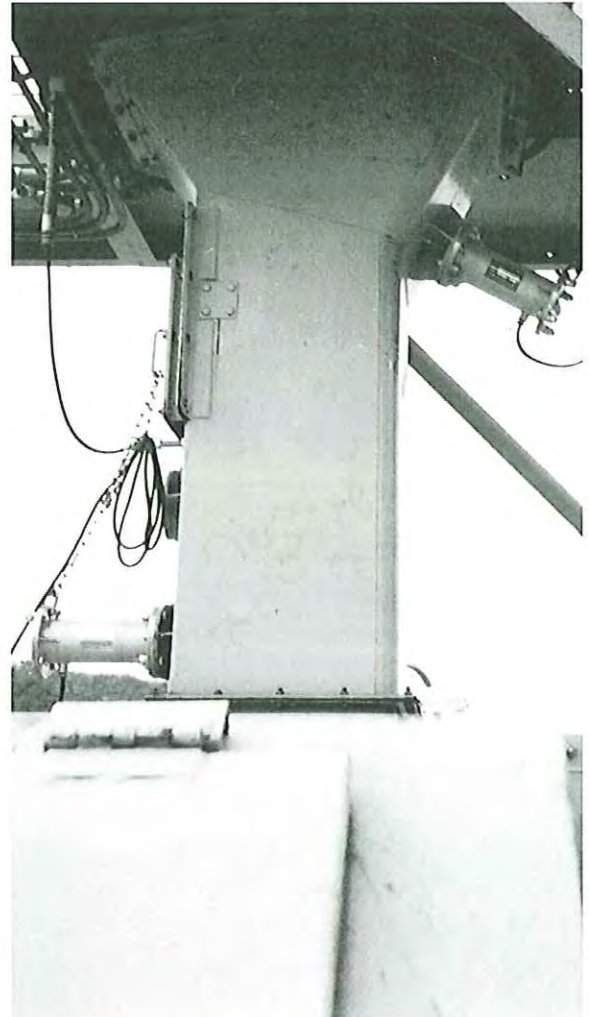


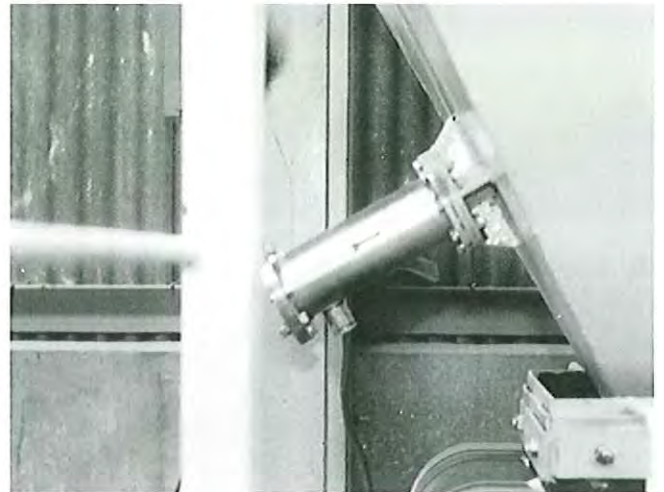
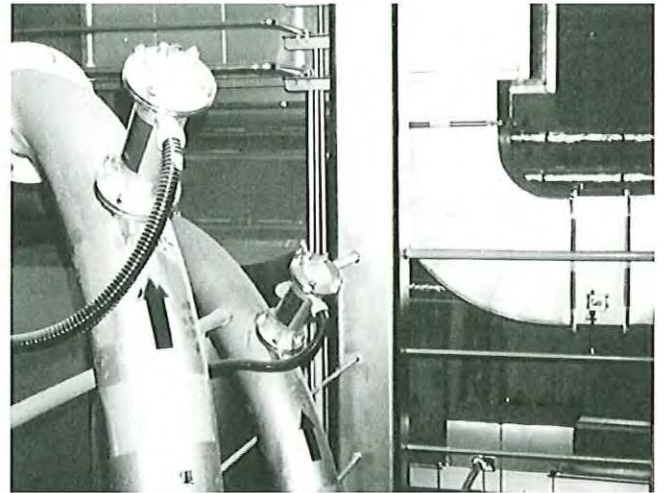
CLINGING



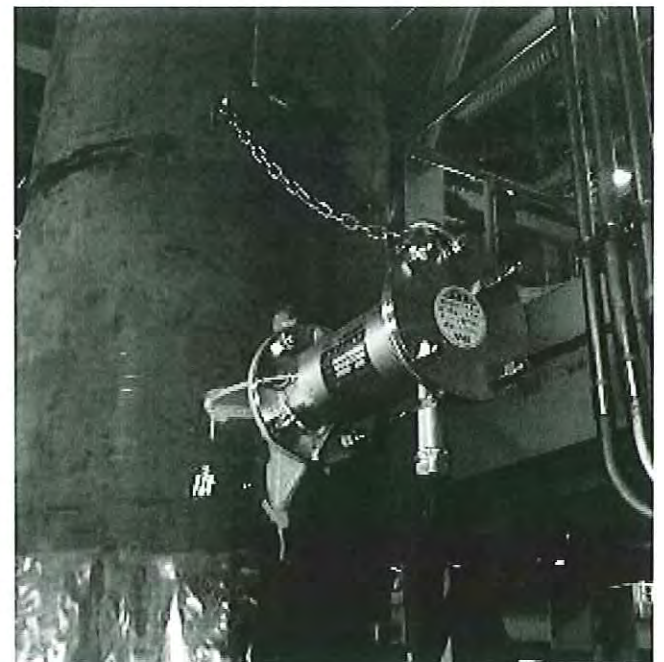
RATHOLE

## Examples of installations





**MAGHAMMERS installed for various applications.**

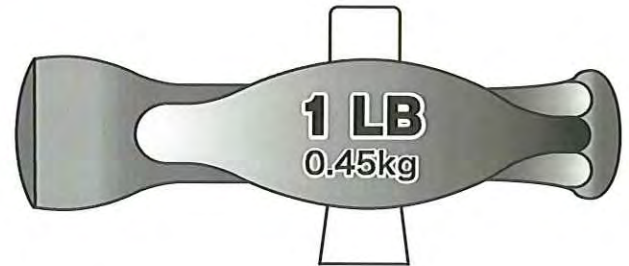


**Actual sizes of Pistons**



**Actual sizes of Hammers**

**SIC-05A**



**SIC-1A**



**SIC-2A**



**SIC-3A**

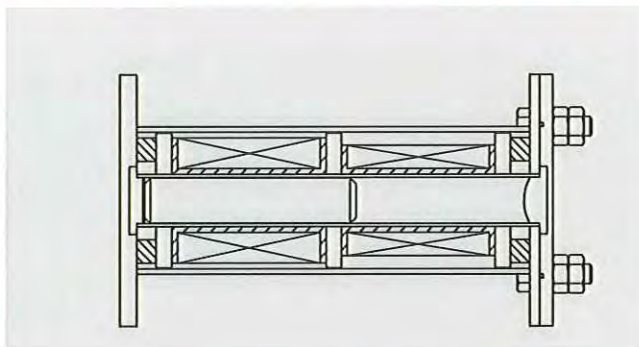
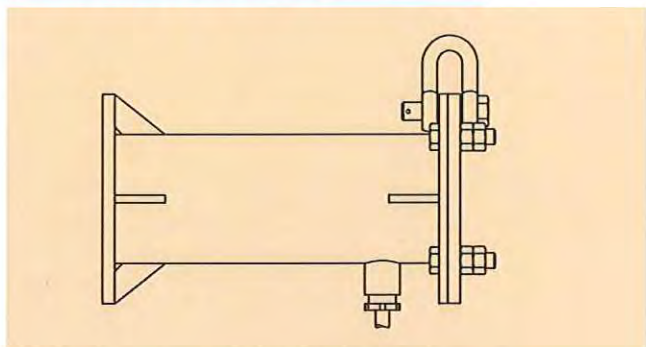


## MAGHAMMER outer appearance

## MAGHAMMER internal structure

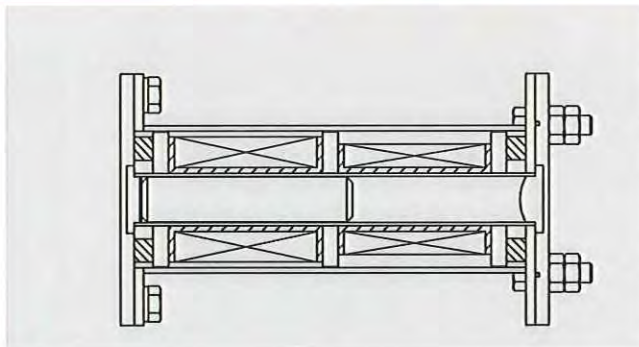
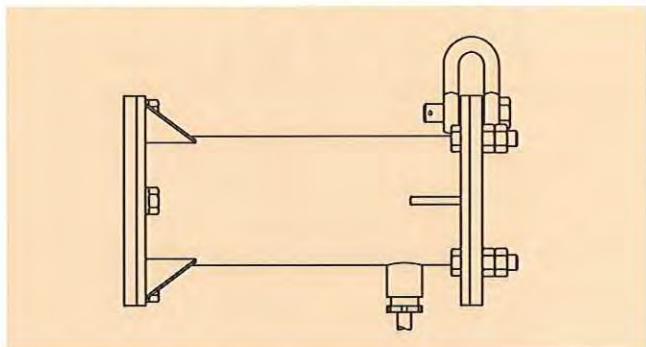
### Standard type (SIS-A)

Powerful impact with stainless steel impact plate.



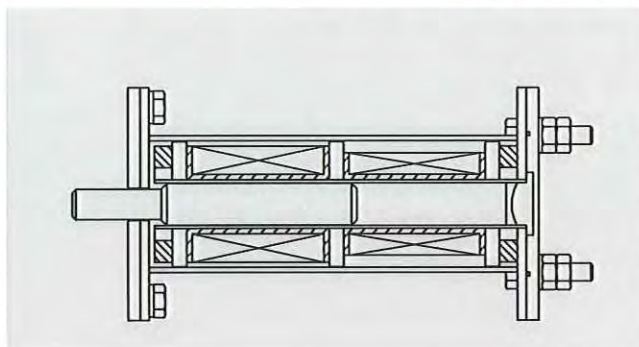
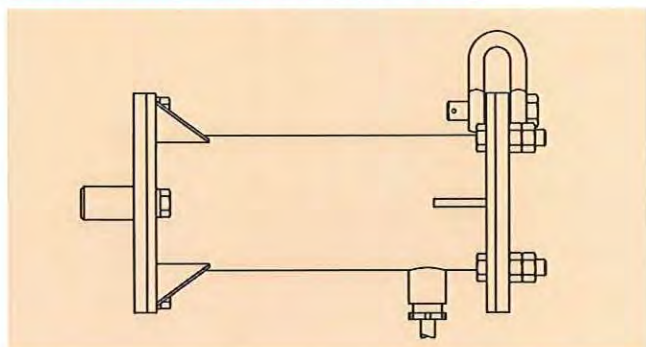
### Sound-proof type (SIS-AS)

Lower noise level with rubber impact plate.



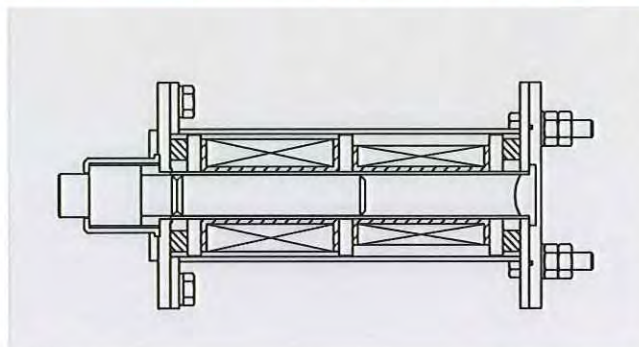
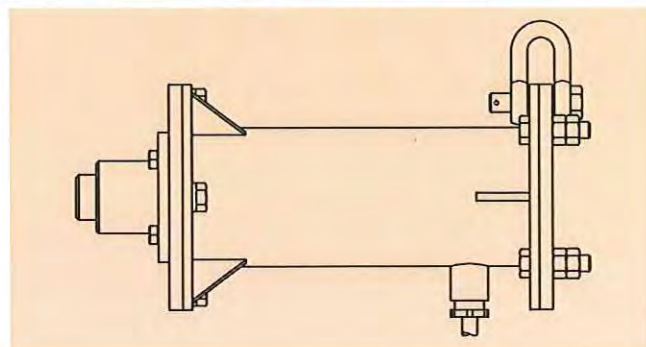
### Piston-extruded type (SIO-A)

Suitable to hitting rotating mixers.



### Direct impact type (SIS-A)

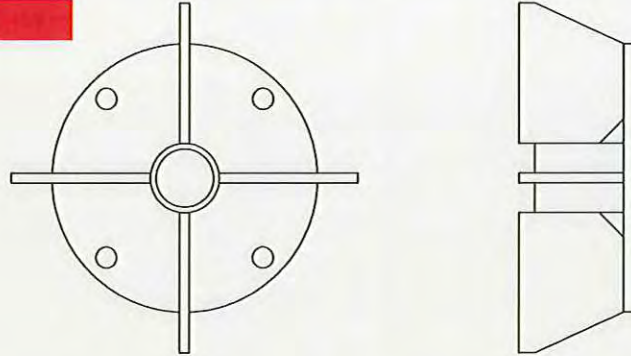
Suitable to hitting shafts of electric dust collectors as extra impact.



**MAGHAMMER** Base Plate design & installation

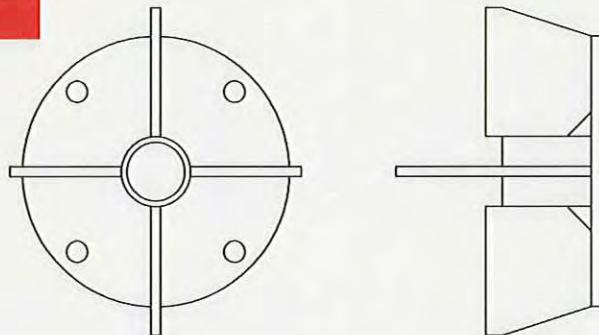
**Location**

Flat surface



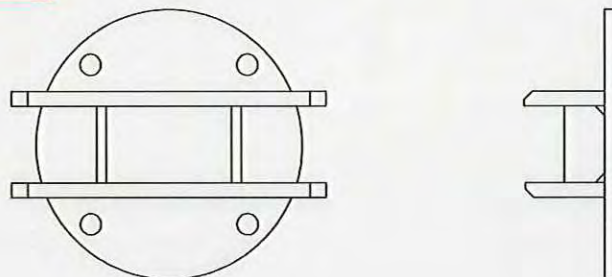
Pyramid hopper  
Pyramid chute

Round surface



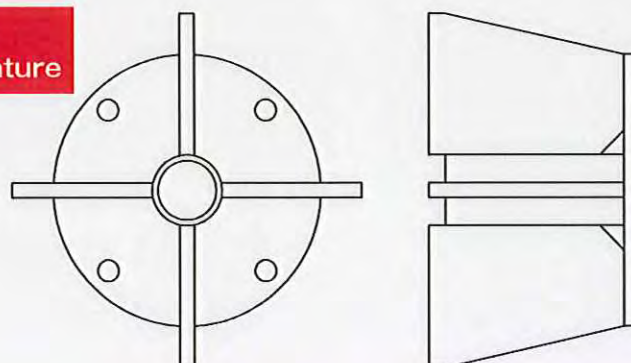
Conical hopper  
Round chute

Small size pipe



Small size pipes

Flat surface  
with high temperature

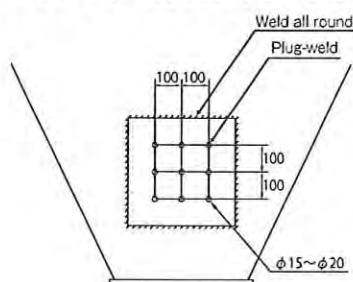


**[For high temperature]**  
Available for  
flat & round  
surfaces,  
small size pipes,  
etc.

## How & where to fit

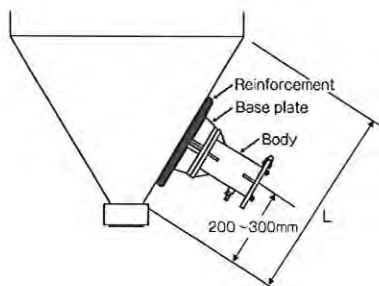
- ① weld the reinforcement plate of 4-6mm thick onto the hopper surface if the hopper wall is thin.
- ② Weld all around the base plate onto the hopper wall or to the reinforcement plate.
- ③ Fit the body onto the base plate with bolts & nuts.
- ④ Whenever MAGHAMMAR<sup>®</sup> is fitted at a higher level, take the safety measure to prevent it from falling by attaching a chain or wire to the safety shackle.

## How to mount reinforcement plate



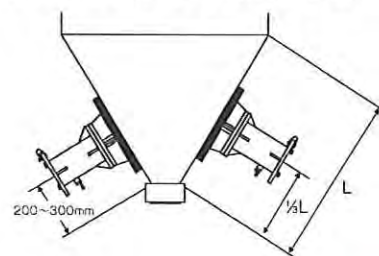
Drill 2cm diam. holes at 100mm interval and weld the reinforcement plate on the hopper wall, firstly plug-weld, then around the plate as per the sketch.

## Normal installation



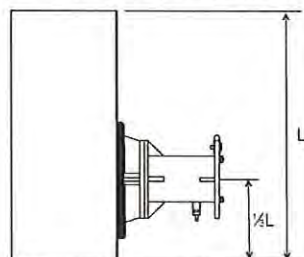
200-300mm from the hopper outlet is the normal mounting position. When fitting on an existing hopper, try with a hammer to look for the most effective point of product release, i.e. the position for MAGHAMMAR<sup>®</sup>.

## Poor fluidity material



For Poor fluidity material, fit two MAGHAMMARs on different heights on opposite sides for better fluidity.

## Vertical installation



When installing onto chutes, pipes or other vertical surfaces, install at 1/3 high of "L" distance as shown in the sketch.

## Operation

- ① Plug in the power source and switch on the breaker (MCCB) of the controller-control panel light on.

- ② Selector switch can select "Auto", "Off" or "EXT"

### a. [Auto switch]

Can hit once per second and choose hitting frequency, 1 to 10 by dialing. After hit (or hits) it pauses 30 sec. to 10 min. by setting "Pause Timer" and then repeats the same operation automatically.

### b. [EXT switch]

The same operation as "Auto" is available if switch is on between terminals of XC and XO with no voltage contact. Continuous hitting is available if switched on between XC and X1 terminals.

- ③ When pressing the button for "Continuous Hit" on the control panel, continuous hammering can be done on either position of "Auto" or "EXT"

- ④ Impact force can be changed by adjusting both dials of "Mounting Direction" and "Impact Magnitude".

"Mounting Direction" dial indicates the direction of the MAGHAMMAR<sup>®</sup> body installed, upward, downward or horizontal. Set it on 0-6 for upward, 6 for horizontal and 6-8 for downward. In case of 60° angle hopper, set it on 5 with "Impact Magnitude" at 5 to 10 in normal case.

※ SN type controller: With switch on between terminals of XC and X1 with no voltage contact, it works one hammering per second. With switch off between XC and X1, no hammering is done.

## Hammering cycle of MAGHAMMAR<sup>®</sup>

MAGHAMMAR<sup>®</sup> is not of continuous rating. MAGHAMMAR's maximum operation ratio is one hammering per 3 seconds. For example, after 10 times of hammering, the pause of 20 seconds is required. Continuous hammering should be limited within one minute. After one minute continuous hammering, the pause of two minutes is required.

## Hammering cycle adjustment

SB type is preset for 4 time continuous hammering. It can be adjusted from 1 to 10 times by selecting "Hit Time" dial.

## Accessories

- 1) Base plate ..... 1pc
- 2) Fitting bolts & double nuts ..... 1set
- 3) Safety shackle for prevention of falling ..... 1pc
- 4) 5-meter cable from MAGHAMMAR<sup>®</sup> ..... 1pc
- 5) Instruction manual ..... 1vol.

