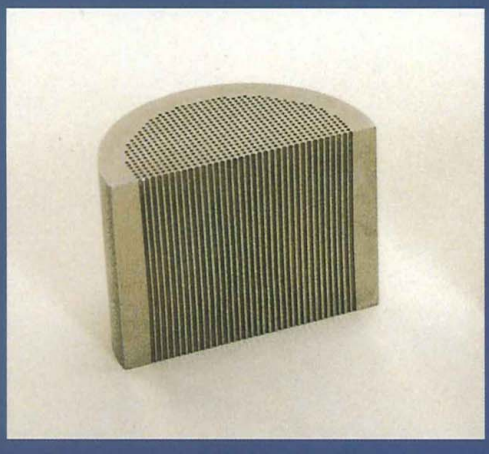
# Sintered Vent

## P-Type

*Many Parallel*
*Straight Holes*



FINE SINTER

# Reduce Defects!
# Low Maintenance!
# Long Durability!

## APPLICATIONS:

*METAL CASTING*

*PLASTIC INJECTION*

*FILTERING APPARATUS*

*FLOW RATE CONTROLLING*



"***SINTERED VENT P TYPE***" is a unique product made by powder metallurgy process.

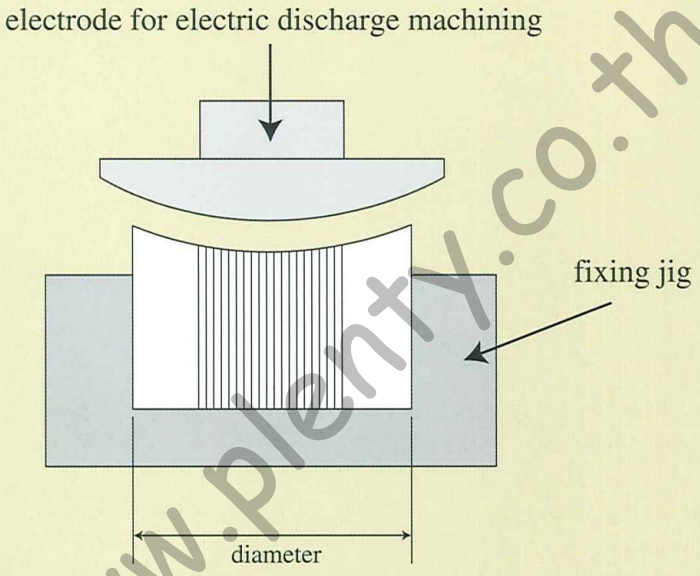
## FLOW RATE

**compared with ordinary vent plug**

| OUTER DIAMETER mm | CROSS SECTIONAL AREA $mm^2$ | SINTERED VENT (PORE DIA. : 0.5mm) | | | ORDINARY SLIT VENT* | | | IMPROVEMENT % |
|---|---|---|---|---|---|---|---|---|
| | | NUMBER OF PORES | OPEN PORE AREA $mm^2$ | POROSITY % | NUMBER OF PORES | OPEN PORE AREA $mm^2$ | POROSITY % | |
| 6 | 28.3 | 61 | 12.0 | 42 | 6 | 3 | 10.6 | 400 |
| 8 | 50.2 | 96 | 18.8 | 38 | 8 | 4 | 8.0 | 440 |
| 12 | 113 | 200 | 39.2 | 35 | 8 | 4 | 3.5 | 890 |
| 16 | 201 | 341 | 66.9 | 33 | 8 | 4 | 2.0 | 1670 |
| 20 | 314 | 553 | 108.5 | 35 | 12 | 6 | 1.9 | 1730 |
| 28 | 615 | 973 | 191.0 | 35 | 12 | 6 | 1.0 | 3040 |

## ◆ FOR USE

○ Fix by insertion.
○ Tap from the top of plate.
○ Recommended fitting interference : 0.025mm～0.050mm
○ Select coating according to application
○ Round and chamfer profiles can be made by using file, whetstone or a sand paper. As a result, vent pores may become close and rough. However, pores can be reopened by electric discharge machining as shown in the figure below.




**ELECTRIC DISCHARGE MACHINING CONDITION**

1) electric discharge time : 30sec～2min
2) electrode distance from this plug face : 0.02～0.03mm



Rust proofing is accomplished by steam treatment (except for stainless steel type).

# SPECIFICATION

CODE EXAMPLE 50310

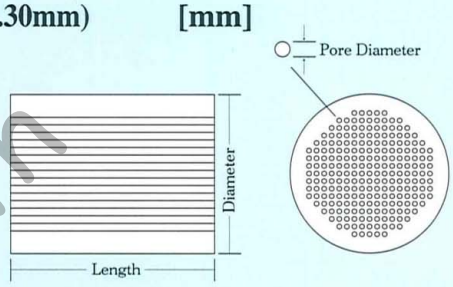
- 50310
  - Length (mm)
  - Diameter (mm)
  - Pore Diameter (×10mm)

## Used for Gravity Die-Casting(Pore Diameter : 0.50mm) [mm]

| CODE | 50310 | 50410 | 50510 | 50610 | 50615 | 50810 | 50815 | 51010 | 51015 | 51210 | 51215 | 51415 | 51615 | 51815 | 52015 | 52815 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIAMETER | 3 | 4 | 5 | 6 | 6 | 8 | 8 | 10 | 12 | 12 | 12 | 14 | 18 | 18 | 20 | 28 |
| No. OF PORES | 37 | 37 | 61 | 61 | 61 | 96 | 96 | 200 | 200 | 200 | 200 | 341 | 341 | 553 | 553 | 973 |
| LENGTH | 10 | 10 | 10 | 10 | 15 | 10 | 15 | 10 | 15 | 10 | 15 | 15 | 15 | 15 | 15 | 15 |

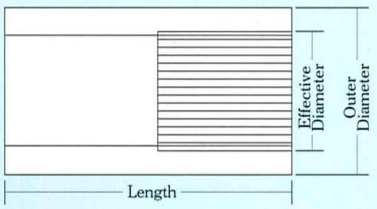
## Used for Low Pressure Die-casting or Vacuum Casting(Pore Diameter : 0.30mm) [mm]

| CODE | 30510 | 30610 | 30615 | 30810 | 30815 | 31010 | 31015 | 31210 | 31215 | 31415 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIAMETER | 5 | 6 | 6 | 8 | 8 | 10 | 10 | 12 | 12 | 14 |
| No. OF PORES | 89 | 89 | 89 | 200 | 200 | 340 | 340 | 340 | 340 | 550 |
| LENGTH | 10 | 10 | 15 | 10 | 15 | 10 | 15 | 10 | 15 | 15 |




## Used for Plastic Injection Molding (Pore Diameter : 0.03～0.10mm) [mm]

| CODE | 030610 | 030810 | 031010 | 050610 | 050810 | 051010 | 100810 | 101010 |
|---|---|---|---|---|---|---|---|---|
| OUTER DIA. | 6 | 8 | 10 | 6 | 8 | 10 | 8 | 10 |
| EFFECTIVE DIA. | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 | 3.5 | 5.5 | 5.5 |
| No. OF PORES | 880 | 880 | 880 | 880 | 880 | 880 | 880 | 880 |
| LENGTH | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |




## Special Supplied Sintered Vent at Inch Size

| | Used for Low Pressure · Vacuum Casting | | | | | | | Used for Gravity Casting | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CODE | 3-3/16 | 3-1/4 | 3-5/16 | 3-3/8 | 3-1/2 | 3-9/16 | 3-5/8 | 5-3/16 | 5-1/4 | 5-5/16 | 5-3/8 | 5-1/2 | 5-9/16 | 5-5/8 | 5-3/4 | 5-1 |
| DIAMETER inch | 9/16 | 1/4 | 5/16 | 3/8 | 1/2 | 9/16 | 5/8 | 3/16 | 1/4 | 5/16 | 3/8 | 1/2 | 9/16 | 5/8 | 3/4 | 1 |
| PORE DIA. mm | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| No. OF PORES | 61 | 96 | 200 | 200 | 341 | 553 | 553 | 61 | 61 | 96 | 200 | 200 | 341 | 341 | 553 | 973 |
| LENGTH inch | 5/16 | 5/16 | 5/16 | 1/2 | 1/2 | 5/8 | 5/8 | 5/16 | 5/16 | 5/16 | 1/2 | 1/2 | 5/8 | 5/8 | 5/8 | 5/8 |

FINE SINTER

# Sintered Vent

## P-Type

## EXAMPLES OF APPLICATION FOR GRAVITY CAST ALUMINUM ALLOYS

## PISTON (PORE DIAMETER : 0.5mm)



**Drastic reduction of surface porosity and pin hole marks in thin wall castings**

FINE SINTER

# Sintered Vent

## P-Type

## EXAMPLES OF APPLICATION FOR GRAVITY CAST ALUMINUM ALLOYS

## ALUMINUM WHEEL (PORE DIAMETER : 0.5mm)



**Drastic reduction of surface porosity and pin hole marks in thin wall castings**

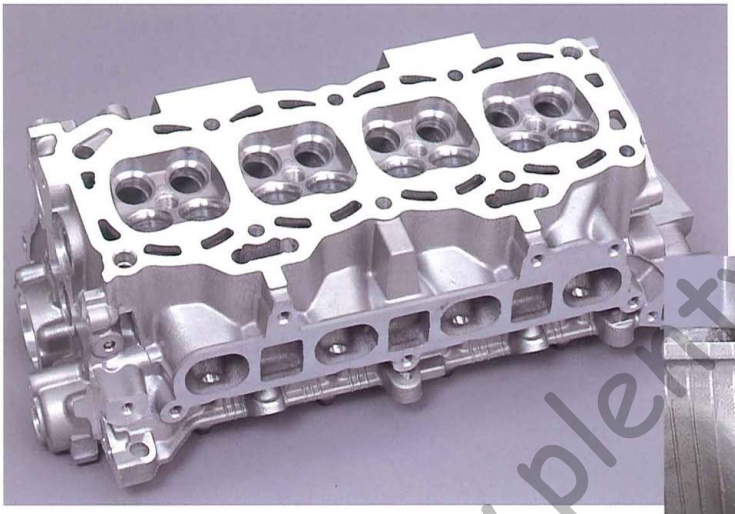
FINE SINTER

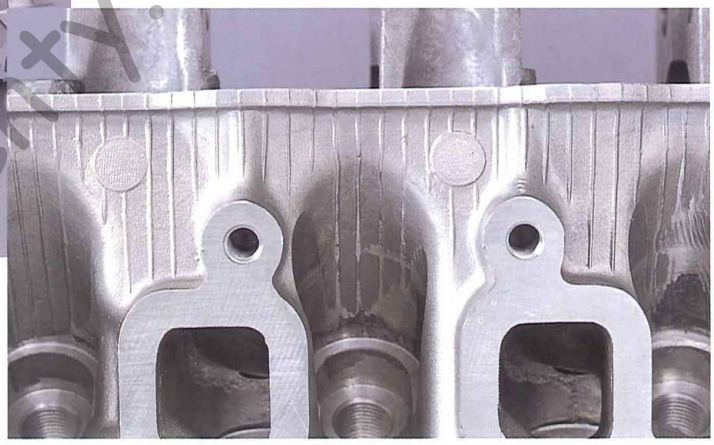
# Sintered Vent

## P-Type

## EXAMPLES OF APPLICATION FOR LOW PRESSURE DIE-CAST OR VACUUM CAST ALUMINUM ALLOYS

## CYLINDER HEAD (PORE DIAMETER : 0.3mm)





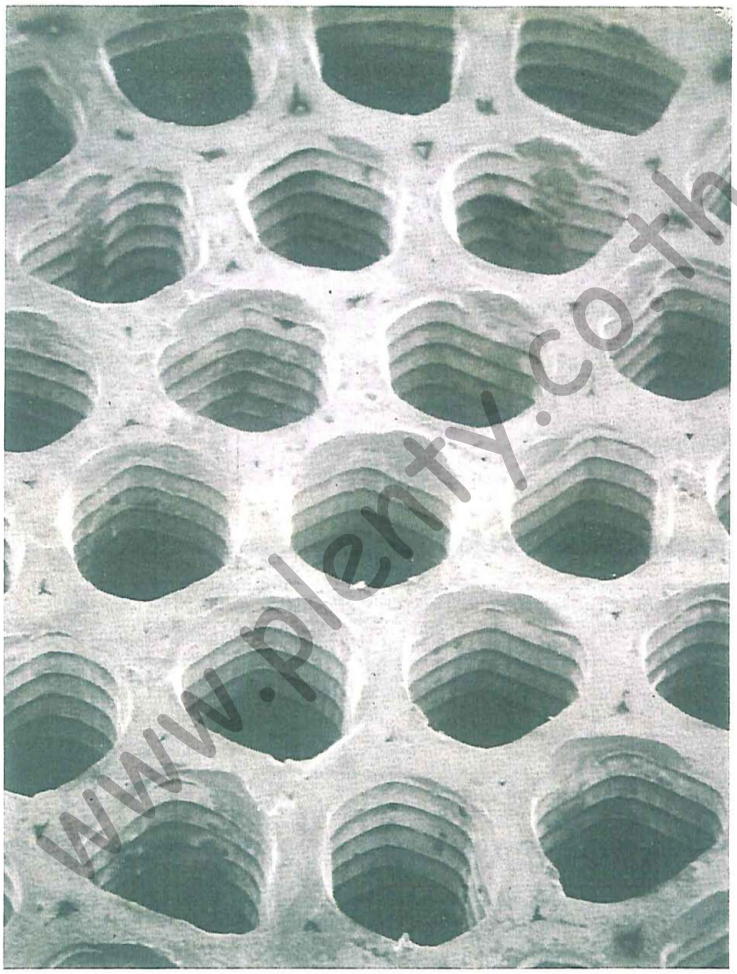


**Lower vent plug replacement frequency**
**Drastic reduction of surface porosity and pin hole marks**

FINE SINTER

# SINTERED VENT

## W-TYPE

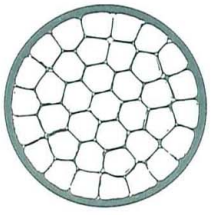


*(enlarged Photo.)*

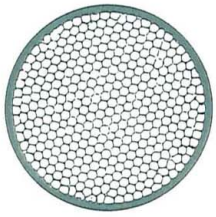
# W-TYPE SINTERED VENT

## WHAT IS THE W-TYPE VENT?

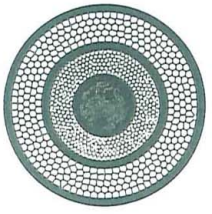
It is a unique porous material part which has numerous parallel straight pores as shown by the photos below. It consists of tightly coiled wire rods which are bundled and sintered.



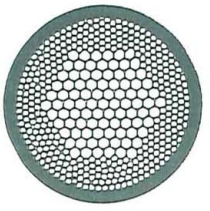
Large pore dia.



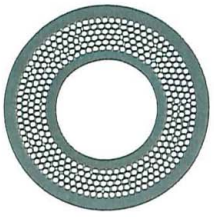
Medium pore dia.



Combination of different pore diameters



Combination of different pore diameters



Doughnut type

## FEATURES OF THE W-TYPE VENT

1. The pore diameter is available within a range of 0.01 to 5 mm. (There are some restrictions, depending on the material used.)
2. Different pore diameters can be combined, and there is a wide variety of choice in the number of pores (1 to 1,000,000) and the percentage of voids (this means the ratio of the pore area to the effective sectional area; up to 95%).
3. Applicable materials include Fe, Cu, Mo, Ti, Al, SUS, sealing alloy and cemented carbide.
4. By surface treatment, the properties can be changed and compounded into ceramic characteristics such as in carbide or nitride.
5. The pore inner wall is a spiral, ensuring a large specific surface area.

## APPLICATIONS

1. Degasing for low-pressure casting or plastic molding
2. Fluid damper or silencer
3. Fluid jet nozzle
4. Pivot ball bearing or bearing for a sliding section
5. Heat exchanger
6. Fluid catalyst
7. Heat sink material (high temperature conduction, low temperature inflation)
8. Electric contacts and electrode materials
9. Beam screen (image mask)
0. Stabilizer for superconductive materials



## STANDARD DIMENSIONS FOR DEGASING APPLICATION

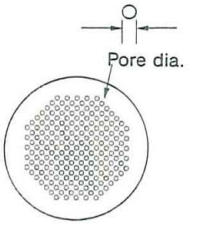
○ Material: SUS316 SUS420J2

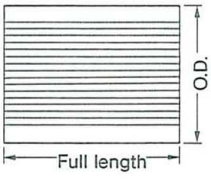
| Part No. | W100110 | W100210 | W100310 | W100410 | W100510 | W100610 | W100810 | W101010 | W101210 | W101510 | W102010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| O.D. (mm) | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 | 20 |
| No. of pores | 7 | 55 | 76 | 76 | 76 | 76 | 300 | 690 | 1200 | 1900 | 4300 |
| Void percentage (%) | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Full length (mm) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Effective length (mm) | 10 | 10 | 10 | 10 | 3 | 3 | 3 | 3 | 3 | 4 | 4 |
| Effective dia. (mm) | 0.6 | 1.7 | 2 | 2 | 2 | 2 | 4 | 6 | 8 | 10 | 15 |
| Pore dia. (mm) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |

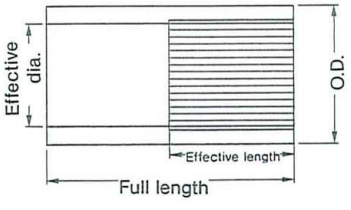
| Part No. | W050110 | W050210 | W050310 | W050410 | W050510 | W050610 | W050810 | W051010 | W051210 | W051510 | W052010 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| O.D. (mm) | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 15 | 20 |
| No. of pores | 43 | 250 | 400 | 400 | 400 | 400 | 1600 | 3600 | 6400 | 10000 | 22500 |
| Void percentage (%) | 25 | 22 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Full length (mm) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Effective length (mm) | 10 | 10 | 10 | 10 | 3 | 3 | 3 | 3 | 3 | 4 | 4 |
| Effective dia. (mm) | 0.65 | 1.7 | 2 | 2 | 2 | 2 | 4 | 6 | 8 | 10 | 15 |
| Pore dia. (mm) | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

| Part No. | W030110 | W030210 | W030310 | W030410 | W030510 |
|---|---|---|---|---|---|
| O.D. (mm) | 1 | 2 | 3 | 4 | 5 |
| No. of pores | 70 | 280 | 630 | 1200 | 1200 |
| Void percentage (%) | 25 | 25 | 25 | 27 | 27 |
| Full length (mm) | 10 | 10 | 10 | 10 | 10 |
| Effective length (mm) | 10 | 10 | 10 | 3 | 3 |
| Effective dia. (mm) | 0.5 | 1 | 1.5 | 2 | 2 |
| Pore dia. (mm) | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

(Note) The actual numbers of pores may be less than those shown in the above tables.




## OPERATION PRECAUTIONS

1. Do not tap the pore surface with a metallic or hard tool, otherwise clogging or chipping may result.
2. Do not grind or cut the pore surfaces.
3. The recommended force-fit allowance is 0.01 to 0.02 mm for a diameter of 10 mm or less and 0.015 to 0.035 mm for a diameter over 10 mm.
4. Use a plastic or wooden hammer for force-fitting.