Pipe Floater for Dredging

Wooky

FURUKAWA ELECTRIC
In spite of its lightweight and compactness

**Large Buoyancy**

Free from rusting and sinking due to water seepage

"Wooky" is a pipe floater of laminated circular structure, obtained by interlayer thermal fusion of chemically cross-linked polyethylene foam of Furukawa Electric "FOAMACE". Wooky can be mounted directly on sand discharge pipes, enabling compact and simple installation. Eliminating sinking due to water seepage, Wooky achieves stabilized buoyancy and durability, thereby exhibiting superior performance.

- **Stabilized Buoyancy**
  - The fine closed cells individually exert buoyancy, and they do not absorb water. Moreover, since Wooky has a solid structure, it won't sink even if it is damaged by impact causing an opening or hole.

- **Ease of Handling**
  - For its lightweight and compactness, Wooky is easy to handle, allowing easy mounting on to sand discharge pipes. It can be used to float in shallow water areas and narrow channels.

- **Long-Term Stability**
  - Wooky neither corrodes due to sea water nor sinks due to seepage. This maintains stabilized buoyancy for long periods.

- **Environment and Safety Is Taken into Account**
  - Wooky uses neither chlorofluorocarbons for foaming nor hazardous substances leaching into sea water. Moreover, its resiliency reduces impacts on equipment in case of collisions.

- **High Transportability and Economic Efficiency**
  - Wooky saves storage space and upgrades transportation efficiency. Moreover, it can be used repeatedly, resulting in much improved economic efficiency.

It is best suited for transportation of pressure feed tubes in dredging construction.

- Wooky is best suited for piping in land-based source of extraction in low waters.
- Wooky allows transporting over a soft muddy ground.
- Wooky can be towed by a small ship.

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[Draft Balance]

| Preconditions | Water surface
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Muddy water content: 100% (Specific gravity: 1.2)</td>
</tr>
<tr>
<td></td>
<td>Water submersion ratio: 60%</td>
</tr>
<tr>
<td></td>
<td>Draft: 722mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Muddy water content: 100% (Specific gravity: 1.2)</th>
<th>Draft: 722mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muddy water content: 0% (Specific gravity: 1.2)</td>
<td>Draft: 539mm</td>
</tr>
</tbody>
</table>

| Number of Wooky used: (unit per steel pipe) | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
| Inner dia. of Wooky (mm) | 210 | 260 | 310 | 360 | 420 | 510 | 560 | 610 | 630 | 660 | 690 | 710 | 760 |
| Outer dia. of Wooky (mm) | 490 | 590 | 690 | 790 | 890 | 990 | 1,090 | 1,190 | 1,290 | 1,400 | 1,540 | 1,680 | 1,760 |

* Designs under other conditions listed above are available, with different sizes of sand discharge pipe and different numbers of Wooky unit. Please make inquiries.
Mounting Procedures

■ Example of mounting using metal cramp
(Sand discharge pipe: 810-mm dia. x 6,000mm; Five Wooky units are used per one length)

1 Metal cramp and Wooky (lower half) are arranged.

2 Sand discharge pipe is laid down.

3 Wooky (upper half) is overlaid. The size is designed to be a little tight to prevent coming off. Press it down to fit properly.

4 Fasten the bolt firmly so that the metal cramp sinks somewhat into the surface.

■ Example of Wooky mounted using metal cramps for sea water use.

■ Mounting using steel band (for freshwater)
An exclusive tool is needed.

As shown in the photo, put the outside steel band on the binding tool to let it through, and fasten the band by moving the lever back and forth.

■ Example of Wooky mounted using steel bands for freshwater use.

⚠️ Caution

Wooky is flammable, being made of foamed polyethylene. When a fusion burner and the like is used for disassembly, take extra care that Wooky does not catch fire. Also watch out for fire during storage.
Wooky can be used in combination with steel drum floaters. When line elongation is needed, the drum floaters would sink, making a smooth transition.

Example of Use
Pipe Floater for Dredging

Wooky

■ Track Record of Wooky (Abstract of typical construction work)

<table>
<thead>
<tr>
<th>Name of construction work</th>
<th>Sand discharge pipe dia. (mmφ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banyu river, Kanagawa-pref.</td>
<td>510</td>
</tr>
<tr>
<td>Kumamoto port, Kumamoto-pref.</td>
<td>340</td>
</tr>
<tr>
<td>Lake Kasumigaura, Chiba-pref.</td>
<td>270</td>
</tr>
<tr>
<td>Island City, Hakata bay, Fukuoka-pref.</td>
<td>760</td>
</tr>
<tr>
<td>Toyano tideland, Niigata-pref.</td>
<td>160</td>
</tr>
<tr>
<td>Port Island, Hyogo-pref.</td>
<td>560</td>
</tr>
<tr>
<td>Tokoname offshore, Ise bay, Aichi-pref.</td>
<td>355</td>
</tr>
<tr>
<td>Central Japan International Airport, Aichi-pref.</td>
<td>800</td>
</tr>
<tr>
<td>Multi-purpose dam, Yamagata-pref.</td>
<td>310</td>
</tr>
<tr>
<td>Artificial beach, Nachi bay, Wakayama-pref.</td>
<td>560</td>
</tr>
<tr>
<td>Singapore</td>
<td>700</td>
</tr>
</tbody>
</table>

■ Frequently Asked Questions about Wooky
(Below will be given answers to frequently asked questions.)

Q.1 Is Wooky free from getting chipped and crushed?
A There are varieties of plastic foams, but Wooky is made of chemically cross-linked polyethylene. Wooky has softness, and seldom cracks or buckles.

Q.2 Does Wooky fall to pieces due to ultraviolet ray?
A Wooky has a cylindrical layered structure made of several tens of layers. The outermost layer does not worn out in ten years or so. Although its lustered color on the surface fades away, its strength and buoyancy does not degrade.

Q.3 Shellfish and algae, do they attach on Wooky?
If so, how can they be removed?
A They certainly attach since Wooky is made of non-toxic materials. But Wooky has a smoother surface than steel floaters, so that it seems to gather less shellfish and algae. If they attach, remove them by pounding after drying.

Q.4 Is it possible to exchange the steel pipes floated on the sea?
A It is difficult since they are half immersed in the sea.

Q.5 Why is Wooky colored into two parts?
A The outermost surface uses the reinforced grade of FOAMACE, and it is colored orange for the purpose of warning indication. While, the main body is colored black to enhance weatherability.

Q.6 Is Wooky safe against being dragged on earth and sand? Do pebbles no damage?
A Since Wooky has a solid foam structure, it does not sink even when damaged by pebbles. Moreover, even when it is dropped from a truck, rolled on land or plunked on its end, Wooky does not sink during usage.

Q.7 Can Wooky be used under the sea?
A Under the deep sea, Wooky crushes since it is not pressure-proof. The maximum depth of using Wooky is its self-diameter.

Q.8 Is Wooky strong against fire?
A Wooky is flammable, being made of foamed polyethylene. When a fusion burner is used, take extra care that Wooky does not catch fire due to direct exposure to flame or molten metal.

Q.9 Is there any particular attention to be given as to transportation and storage?
A During transportation, fix Wooky firmly to take care of its lightweight. Also watch out for fire carefully during storage.
For Workboats

Furukawa Anchor Buoy D-type

FOAMACE-made anchor buoy that is light in weight, high in softness and toughness. Best suited for workboats which require frequent casting and hoisting of anchor.

Features

- **Lightweight**
  It is half as heavy as steel anchor buoys.

- **Non Water-Absorbing**
  It does not absorb water since the floater is made of FOAMACE, a chemically cross-linked polyethylene foam having closed cell structure.

- **High Safety**
  Even when collided with by any chance, it eases impact thanks to its cushioning effects.

- **High Durability**
  FOAMACE does not rust out.

- **Provided with Holes on Metal Fitting Convenient for Hanging and Tugging**

Structure and Material

- **Floater**
  FOAMACE, a chemically cross-linked polyethylene foam, is laminated in a circular form and its layers are thermally fused together.

- **Metal Fitting**
  Made of steel, rustproof coated.

<table>
<thead>
<tr>
<th>Product No.</th>
<th>Max. buoyancy</th>
<th>D (mm)</th>
<th>d (mm)</th>
<th>H (mm)</th>
<th>h (mm)</th>
<th>R (mm)</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-200</td>
<td>200kg</td>
<td>840</td>
<td>150</td>
<td>700</td>
<td>500</td>
<td>40</td>
<td>Approx. 66kg</td>
</tr>
<tr>
<td>D-300</td>
<td>300kg</td>
<td>1000</td>
<td>150</td>
<td>700</td>
<td>500</td>
<td>40</td>
<td>Approx. 72kg</td>
</tr>
<tr>
<td>D-600</td>
<td>600kg</td>
<td>1000</td>
<td>150</td>
<td>1200</td>
<td>1000</td>
<td>40</td>
<td>Approx. 102kg</td>
</tr>
</tbody>
</table>

* Please make inquiries for special sizes.

Cautions When Using

This product is flammable, being made of foamed polyethylene. In case of using fire, cover the product with flame-resistant sheets.