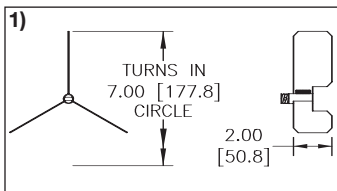


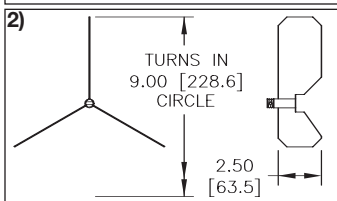
## Paddle Assembly Selection Guide

DRAWING DIMENSIONS ARE SHOWN IN INCHES WITH MILLIMETER EQUIVALENT IN BRACKETS

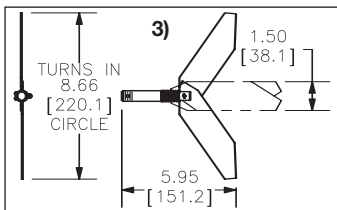


### PADDLE ASSEMBLIES

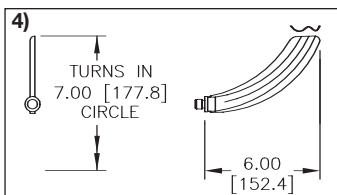
**1) Standard Stainless Steel Three Vane Paddle:** For use with **average to high bulk density** materials. P/N 1-4146



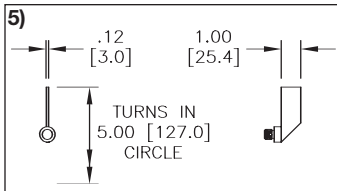
**2) Large Stainless Steel Three Vane Paddle:** Provides accurate level control for **lightweight (low bulk density) materials**. P/N 1-4141



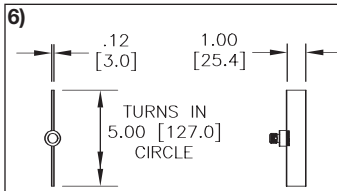
**3) Insertable\*, Stainless Steel Two Vane Collapsible Paddle:** Provides low and high level control for **average weight materials**. P/N 1-4161



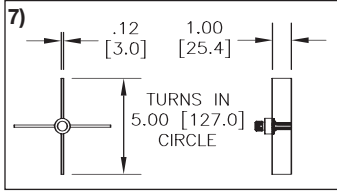
**4) Insertable\*, Stainless Steel Scimitar Single Vane Paddle:** Provides low and high level control for **light to average weight materials**. P/N 1-4193



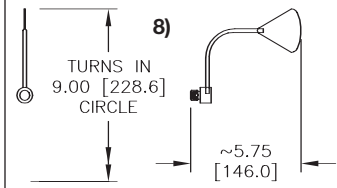
**5) Insertable\*, Stainless Steel Single Vane Paddle:** Provides level control for **heavy materials under 1-1/2 inch (38 mm) in diameter**. P/N 1-4145



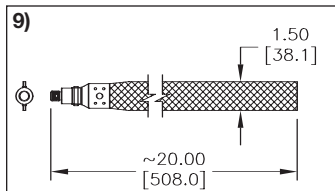
**6) Stainless Steel, Two Vane Paddle:** Provides level control for **heavy materials under 1-1/2 inch (38 mm) in diameter**. P/N 1-4135



**7) Stainless Steel Four Vane Paddle:** For use in materials with **average to high bulk densities**. P/N 1-4156



**8) Stainless Steel Triangular Arc Single Vane Paddle:** Provides level control for **light to average weight materials**. Ideal for **stringy fibrous materials** like shredded newspaper and reclaimed rubber. Vertical mounted only. P/N 1-4144



**9) Ex-Flex Three-Ply, 20 inch (508 mm) Belt Paddle:** Provides level control for **heavy materials over 2 inches (50 mm) in diameter**. Vertical (top) mounted only. P/N 1-4137

### SELECTION CONSIDERATIONS

Monitor offers a variety of interchangeable paddle assemblies for the KA/KAX and SafePoint® level sensors to meet the needs of a wide variety of applications. Different material densities, particle sizes, flow characteristics and sensor mounting factors require specific paddles to provide optimum performance.

#### Bulk Density Ranges:

- **High:** Greater than 65 lb/ft<sup>3</sup> (1,041 kg/m<sup>3</sup>), such as powdered cement and glass beads.
- **Average:** Between 25 and 65 lb/ft<sup>3</sup> (400 and 1,041 kg/m<sup>3</sup>), such as granulated sugar and plastic pellets.
- **Low (Light):** Between 5 and 24 lb/ft<sup>3</sup> (80 and 384 kg/m<sup>3</sup>), such as carbon black and cereal flakes. [A material with a bulk density less than 5 lb/ft<sup>3</sup> (80 kg/m<sup>3</sup>) is often too light for a rotary paddle to accurately sense. A vibratory level sensor or RF capacitance sensor may be better solutions.]

#### Particle Sizes:

Particle sizes can be characterized in these basic forms.

- **Very Fine:** Minus 100 mesh (149 microns)
- **Fine:** 100 mesh (149 microns) to 1/8 inch (3 mm)
- **Granular:** 1/8 inch (3 mm) to 1/2 inch (13 mm)
- **Lumpy:** Lumps 1/2 inch (13mm) and larger
- **Irregular:** Fibrous, stringy, odd-shaped, etc.

#### Material Flow:

Common descriptors for material flow characteristics include very free flowing material (Ex. coffee beans or dried grains), generally free flowing material (Ex. plastic pellets or fly ash), and sluggish or slower flowing material (Ex. charcoal or wood chips).

Understanding the material flow in conjunction with the bulk density can also help to determine the material's resistance to displacement that a paddle will be exposed to. For example, a material with poor flow characteristics will provide increased resistance to the turning paddle even though it may post a low bulk density.

#### Sensor Mounting Location & Technique:

**The mounting location/orientation** - The paddle type selection can be influenced by where the level sensor is located on the vessel. The sensor can be top or horizontally mounted, usually for high level detection or batching applications. The sensor can also be side or vertically mounted to monitor a low, intermediate, or high material level.

As general rule try to choose a mounting point in the vessel where the paddle will be out of the direct flow of incoming and outgoing material to prevent any damage that may be caused by the force of the flow. (Accessories may be needed when designing and installing the rotary paddle sensor. This may include the use of flexible couplings, shaft extensions, shaft guards and protective baffles.)

**The mounting technique** - Typical installation techniques for side and top mounted sensors include welded coupling mounting or adapter plate mounting. When installing to a welded coupling, if the paddle cannot be attached to the sensor from inside the vessel or if a mounting plate is not used, an insertable paddle would be a good choice. Insertable paddles eliminate the need for a mounting plate.

\* P/N 1-4161 and P/N 1-4193 are insertable through either a half or full 1-1/4" NPT or 1-1/2" BSPT coupling, that is welded to the bin wall. P/N 1-4145 is insertable through a half 1-1/4" or 1-1/2" coupling.