



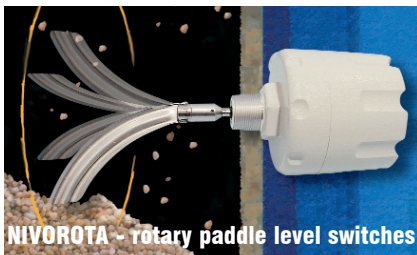
# NIVOROTA - rotary paddle level switches

## Level switching of free flowing solids

**NIVELCO**  
25 YEARS OF EXPERIENCE  
IN LEVEL MEASUREMENT

### Introduction

NIVOROTA rotary paddle level switch series of robust design can be used for detecting level of lumpy or powdery materials and granules. Mounted to tanks, silos and hoppers it can monitor and control level, filling and emptying of stored materials such as stone, fly ash, sand, coal, feed, beet slice, etc. A small power electric motor drives the paddle, which rotates freely in the absence of the material. When the paddle is impeded by the material reaching it, the motor will be switched off the same time triggering a dry contact control switch. When the material level drops the paddles run free again, the motor is reactivated and the control switch returns to its original position. Units of the EK-500 true fail-safe series can through its self-diagnostic capability distinguish between "sensing" (level too high or low) and "fault" of device and separate outputs will be provided for material sense and unit status (fault). This will be performed by microprocessor monitoring components of the unit such as motor, shaft, microswitch, spring, etc.



### Main features

- Level switching of free flowing solids
- Cable extended versions up to 3m
- Automatic motor shut-down
- High temperature version
- Dust-Ex versions

### Main application areas

- Food industry: sun flower, sun flower cod, coffee and cacao powder, flour, sugar, etc.
- Chemical industry: plastic powders, granules, pellets
- Building industry: cement, sand, calcium powder, gypsum
- Energetics: active soot, coal powder, fly ash

### Type selection

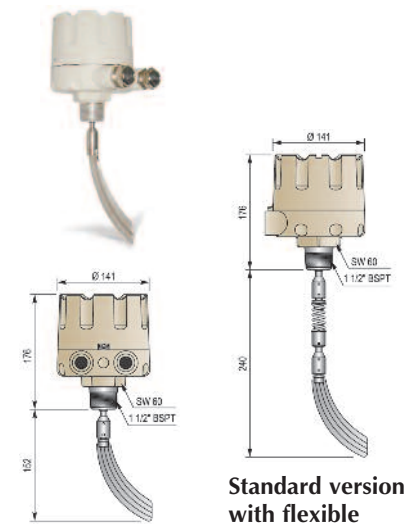
For appropriate model selection the following should be taken into consideration:

- **Protrusion length**  
Level switching application (low or high level switch) and the position of installation determines the protrusion length.
- **Number of vanes**
  - Specific gravity and particle size of the material provides orientation for the number of vanes.
  - Most commonly used is the stainless steel, single vane blade. The lowest specific gravity for this paddle is 0,4 kg/dm<sup>3</sup>.
  - For lighter materials the use of 3- or 4-vane paddle is recommended
  - If there is a risk of breaking the paddle and falling pieces could cause damages of technological equipment plastic blades should be selected.
- **Plastic paddle**  
If there is an extra risk of breakage of the metal paddle it is practical to use a plastic paddle.
- **Flexible coupling**  
Use if the shaft of the instrument has to be protected against falling materials. (rocks, larger lumpy materials)
- **Other considerations depending on the application**

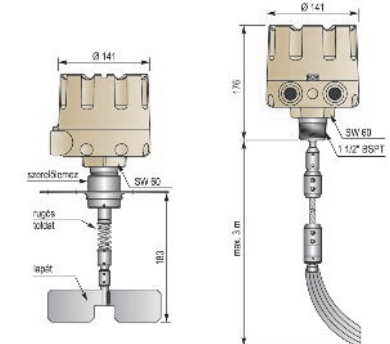
	E-400	E-500	E-600
Single vane paddle	■	■	■
Three / four vane paddle	■	■	–
Flex. coupling	■	■	■
Cable extension	■	■	■
True fail-safe	–	■	–
DC power supply	■	■	–
Ex version	■	■	■
High temp. version	■	■	–
1" mounting	–	–	■
1 1/2" mounting	■	■	–
Mounting plate	■	■	■
Torque setting	■	■	■

Material	Density (kg/dm <sup>3</sup> )
Wheat	0.4-0.5
Flour	0.6 - 0.8
Wood chip	0.3 - 0.4
Sawdust	0.3 - 0.35
Whiting	0.8 - 1.0
Lime hydrate dust	0.4 - 0.5
PVC dust	0.3 - 0.6
PVC granule	0.3 - 0.6
Sunflower corn	0.3 - 0.5
Sunflower cod	0.1 - 0.2
Feeds	0.2 - 0.6
Ground paprika	0.8 - 1.0

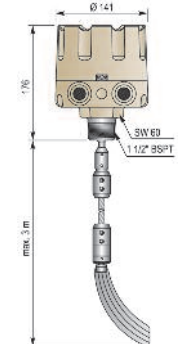
### E-400/500 series



**Standard version**  
EKH-□02

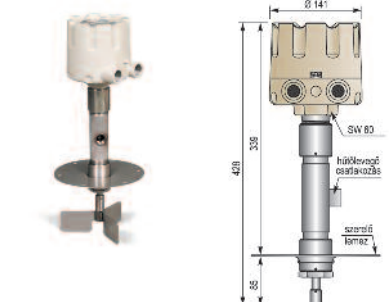


**Standard version with flexible coupling**  
EKH-□03



**Cable extended version**  
EKK-□□□

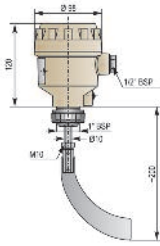
**Three vane paddle version with flex. coupling and mounting plate**  
EKF-403



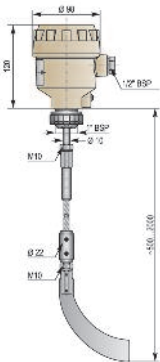
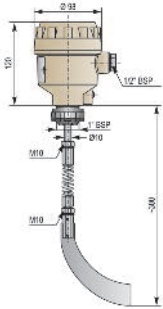
**High temp. version (only with mounting plate)**  
EHQ-□□□



### EKH-600 series



### Standard version EKH-602



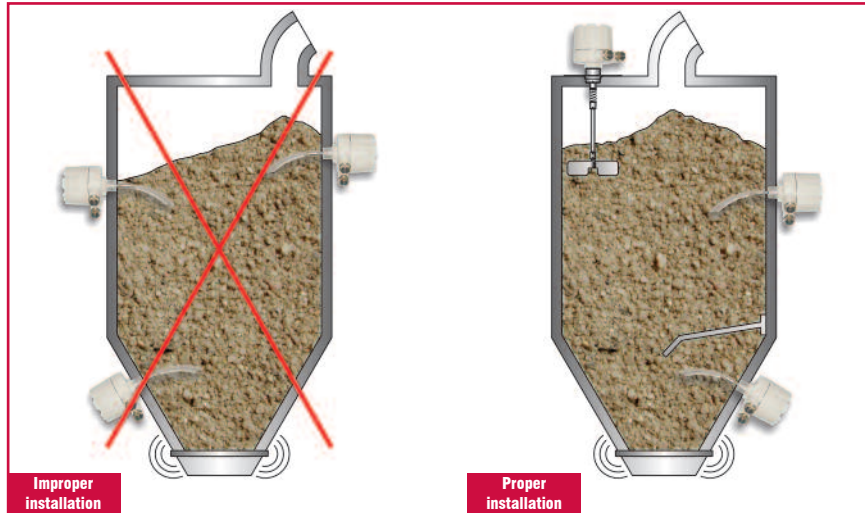
### Standard version with flexible coupling EKH-603

### Cable extended version EKK-6□□

## Installation

The unit should be protected from material flow by appropriate selection of the installation place or by shelter. The device should be screwed in into a 1" BSP or 1 1/2" NPT female process connection. The single vane paddle will pass through the 1" BSP hole. If the

thread is 1 1/2" BSP an EAA-601 type adapter should be used. If the hole is even wider or other considerations warrant it the EAM-601 type mounting plate can be used. Adjust the position of the torque spring according to the density of the material (for higher density higher torque setting should be used).



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