RHP-5 Vx3y Cone-type Overfill Detector

Sample application of the cone-type detector

The cone-type overfill detector is suspended on the tip using chains of the required length welded to the specified position.

Description

The RHP-5 Vx3y overfill detector (hereinafter "overfill detector") is designed for indicating congestions of the conveyer and chute overflows with a material. The product is used especially for the self-acting shutdown of the automated conveyer lines.

The overfill detector may be used for all materials of fine up to medium grain size, whose properties (e.g. aggressiveness, abrasiveness) do no cause undesirable mechanical damage to the overfill detector.

Materials compatible with the detector include washed and raw coal, intermediate product, gangue, coke, iron ore, limestone, gravel, and materials of a bulky nature.

The pre-requisite of a correct operation is that the material causing congestion of the overflow forms a loose cone, which will deflect, with increasing congestion, the suspended section of the overfill detector by at least 20° up to 25° from the vertical position.

Application

The overfill detector thus cannot be used for materials that allow the suspended section to sink into the material conveyed.

The overfill detector is not designed for installation to the mobile equipment, such as mobile conveyers, vibratory feeders, and so on, and to equipment, the vibration of which could cause a spontaneous activation through the sensor vibration.

Function

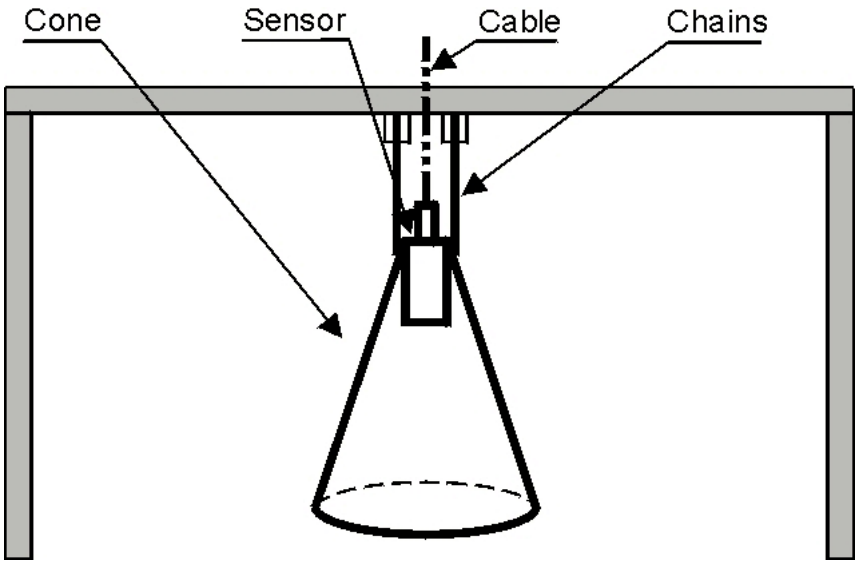
The principle of the overflow congestion indication by means of the overfill detector utilizes the spherical induction switch, which trips when deflected from the vertical axis.

Due to this, it is necessary to locate the overfill detector so that the flap moves, when a congestion occurs, to the side of the cone formed by the material conveyed in case of congestion. As the congestion increases, the flap is deflected by a given angle.

The overfill evaluation should be time-based to eliminate incidental short-term displacements caused e.g. by rebounding material

Design

The RHP-5 Vx3y cone-type overfill detector is made as omni-directional (deflection in all directions).



ZAM-SERVIS s.r.o. Křišťanova 1116/14 702 00 Ostrava - Přívoz
tel.: +420 596 135 422, email: zam@zam.cz, www.zam.cz

THE EUROPEAN REGIONAL DEVELOPMENT FUND
AND THE MINISTRY OF INDUSTRY AND TRADE OF
CZECH REPUBLIC SUPPORT INVESTMENT IN YOUR FUTURE

zam servis

RHP-5 Vx3y Cone-type Overfill Detector

Material

The detectors are made of the steel plate with a thickness of 3 mm. All types of detectors including suspended components are powder coated in brown color. The sensor itself is located in the steel pipe welded at the upper section of the detector. The sensor cable is routed upwards from the sensor in the flexible metallic protector coated with the PVC foil.

Installation and assembly

The overfill detector is mounted to the overflow cover or to the support structure above the overflow or chute, always from the loose material cone in the material motion direction.

The installation location shall be selected so that the detector disconnects, even with activated delay, the feed conveyer drive before hazardous congestion and deactivation of the drive by its own protection occur.

When locating the unit it is necessary to ensure the minimum number of incidental deflections (caused by the rebounding material, vibrations, and so on). The number shall not exceed value, which can still be eliminated by setting the delay. The chain suspensions of the overfill detector are attached to the support structure (e.g. to the overflow cover) by two M10 bolts.

The chain suspensions can be shortened as needed.

The sensor shall be suspended so that the rivet on its front side faces towards the accumulating material.

Type designation and ordering

RHP 5 - XXXY

- **Cable length [cm]**
- **Plate**
- ~~**Welded-on piece for bar, hose**~~
- ~~**Lug**~~
- **230 V, twisted-pair**
- **24 V, three-wire, PNP**
- **NAMUR**
- ~~**S Unidirectional**~~
- **V Omni-directional**

Technical parameters:

Detector weight incl. cone	2kg
Detector dimensions incl. cone	200 x 350 x 58
Detector chains length incl. cone	up to 5m
Ambient temperature range	-25°C - +70°C
Switching system	
PNP autput - three-wire	
Supply voltage	10…30V DC/230V
Voltage loss	<= 1,5V při $I_{a\ max}$
Constant current, $I_{a\ max}$	<= 300mA
Wire cross-section	0,25 mm^2
Wire length	approx. 2m or 5m
Delay	2ms
Supply voltage	20…250V AC
Výstup 230V AC dvoudrát	
Voltage loss	<= 8,5V při $I_{a\ max}$
Constant current, $I_{a\ max}$	<= 250mA (…+50°C) <= 200mA (…+80°C)
Wire cross-section	0,5 mm^2
Wire length	approx. 2m
Delay	<= 10ms
NAMUR	
Supply voltage	5…25V DC
Current consumption, unloaded	<= 1mA
Current consumption, loaded	>= 2,2mA
Wire cross-section	0,5 mm^2
Wire length	approx. 2m
IP rating	IP 54

The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.

ZAM-SERVIS s.r.o. Křišťanova 1116/14 702 00 Ostrava - Přívoz
tel.: +420 596 135 422, email: zam@zam.cz, www.zam.cz