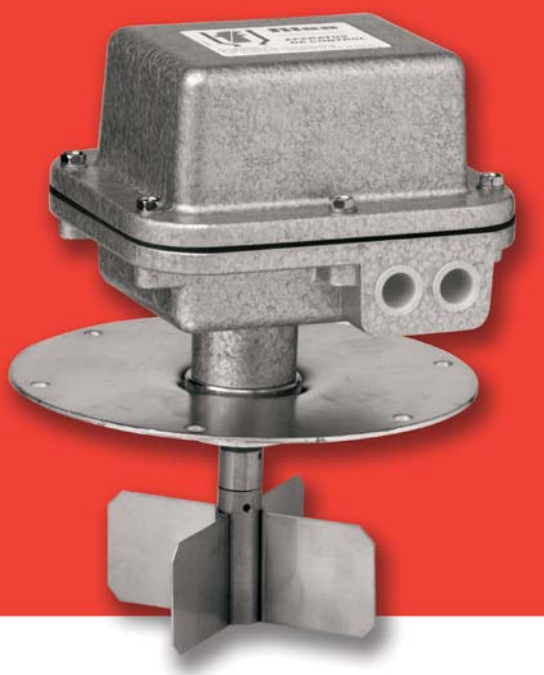
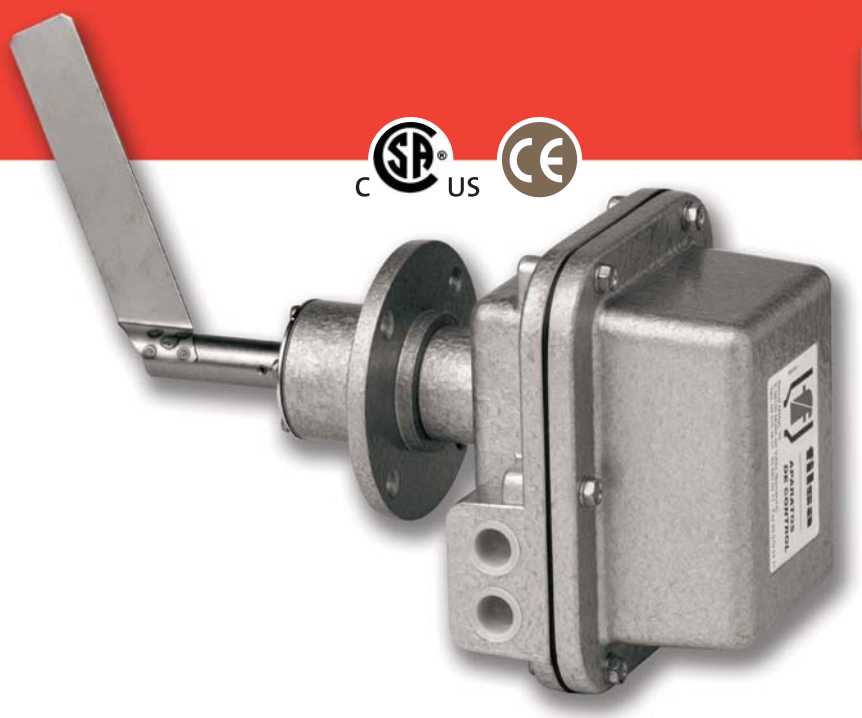
Models IR

Rotary blade level control for bulk materials

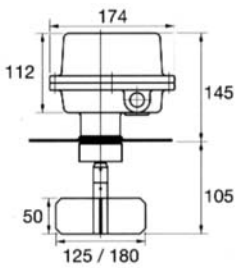




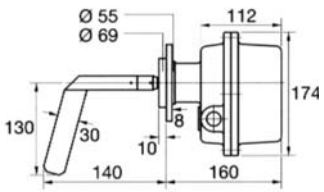
Protection: IP 65

Rotary blade level control for bulk materials

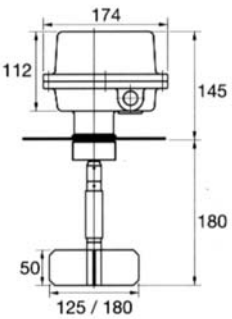
Models IR



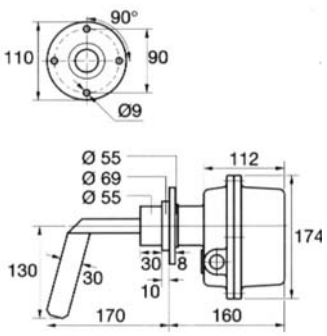
IR 125 or 180



IR - D



IR 125 or 180 Flexible coupling



IR - DR

IR- 69 Standard length 800 mm

IR 125 or 180 with extension

IRC extension with cable
Standard length 2,000 mm

- other measurements on request -

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Models IR

ROTARY BLADE CONTROLLERS IR MODEL
OPERATION, INSTALLATION AND COMMISSIONING INSTRUCTIONS FOR THE LEVEL CONTROL OF MATERIALS IN BULK

Operation:

The operation of these controllers is centred on a synchronous, slow speed motor-gear unit. The blades, driven by the motor-gear unit, are on the product side, coupled by a shaft with two support bearings and a protective clutch.

When the product reaches the blade, and the blade finds resistance to its rotation, the motor-gear unit rotates on its own axis, actuating two micro switches; one of them disconnects the motor and the other acts on the control mechanisms, stopping or starting signals, conveyors, elevators, feeders, etc. Once the blades are free of product, the motor-gear unit is reconnected and the control signals are reversed.

Location:

The controller must be placed in the correct position so that the incoming product can reach the shaft and blades when the silo or tank is filled, leaving them free again when it is emptied. Allowing the product to fall directly onto the blades must be avoided. In the case of necessity, use a protective plate.

When the controller is working in silos or receptacles subject to pressure or vacuum, it is advisable to keep the cable inlet hermetically sealed.

Electrical connection:

❶ Remove the cover and make the connections to the motor terminals as shown in numbers 1 and 2 of the terminal strip. It is imperative that the current supply to these connections is uninterrupted. The motor switches off automatically when the blades seize up. Check that the connection voltage corresponds to that in the diagram which is adhered to the cover of the controller.

❷ Make the connections to the micro switch in accordance with the needs of the system. The electrical diagram shows the position of the contacts of the micro switch with the blades in motion. Inside, next to the cable inlet, there is a grounding screw which should be connected to the earth cable.

Vertical shaft extensions:

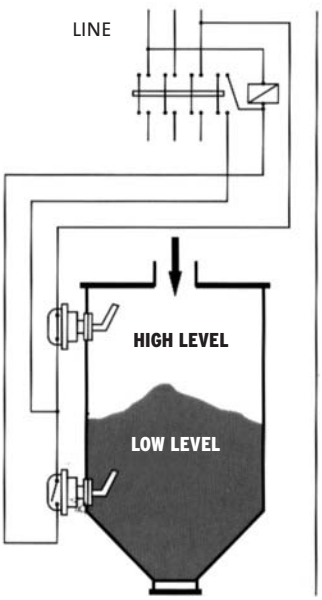
The extensions which we supply are made of 10 mm diameter stainless steel tubing, and the protective sheath of 1-1/4" galvanised steel, screwed onto the footplate. These protections are advisable when the shaft is more than 400 mm. long.

Sensitivity:

The rotary controllers are supplied factory adjusted, and no further adjustment is necessary.

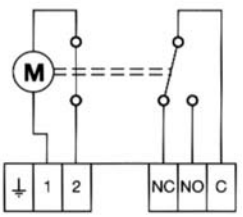
AUTOMATIC LEVEL CONTROL FOR LOADING A SILO

This diagram is typical of an automatic control which responds to the fluctuating levels of material in a silo.
When the material leaves the lower blades free, the filling mechanisms start up and they stop when the material reaches the upper blades. The cycle starts again when the lower blades are free.



The motors of each controller need a permanent power input while in operation

Position of contacts with the blades in motion.

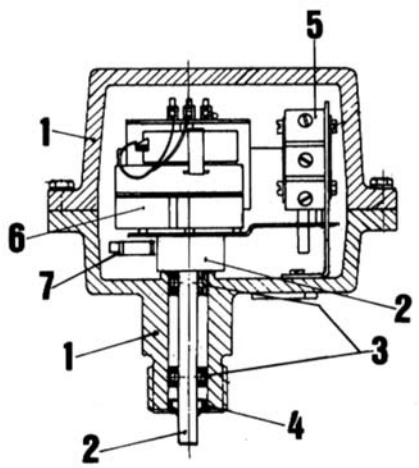


MOTOR:
CONNECTION OF TERMINALS 1 - 2
Standard 230V, 50 Hz. On request 110 - 48 - 24 V a.c. and 24 V d.c.

MICRO SWITCH:
Single pole reverser. Rating: 15 A 220v. Voltage free
NC Normally closed
NO Normally open
C Common

Rotary blade level control for bulk materials

Models IR



COMMON CHARACTERISTICS OF ALL MODELS OF ROTARY CONTROLLERS

SPECIFICATIONS

1. BODY AND COVER
Die cast aluminium 1 1/4" gas thread for flange or sleeve.

2. DRIVE UNIT
Precision shaft with clutch.

3. BEARINGS
2 x 609ZZ.

4. SHAFT SEAL
Hermetic against humidity and dust. Special seal in stainless steel with Teflon-Viton gasket.
Pressure up to 6 bar.

5. SWITCH
Single pole inverter micro switch 15 A, 250 V, a.c.
Voltage free. 2 switches on request.

6. MOTOR GEAR UNIT
230Va.c. 3VA; 115Va.c. - 3VA;
48Va.c. - 3VA; 24Va.c. - 3VA;
24Vd.c. - 3W (with a.c. motor. Conversion d.c. to a.c. by a converter built in the controller).
Temperature range: -20ºC to +80ºC.

7. SWITCH
Cuts off the motor when the blades are blocked by the product.

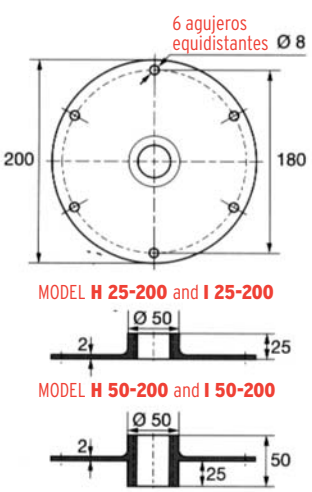
CABLE INLET:
2 Threaded holes PG 11.
BLADES AND SHAFT: supplied in stainless steel.
WEIGHT: between 2.5 and 3 kg, depending on the blades or flange provided.
PROTECTION: IP-65.

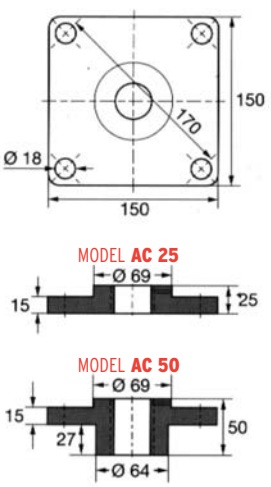
ASSEMBLY FLANGES

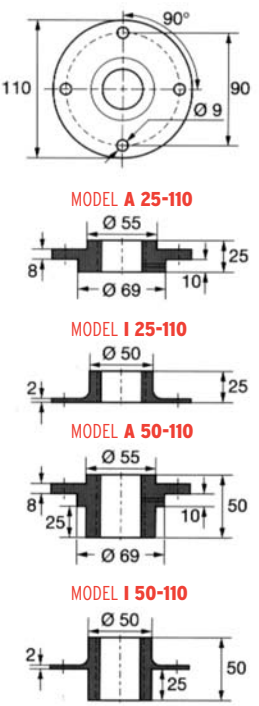
MODEL
H 25-200 CARBON STEEL
I 25-200 STAINLESS STEEL
For models IR 125 and 180.
H 50-200 CARBON STEEL.
I 50-200 STAINLESS STEEL
For models IR 125 and 180 and Extended models.
A 25-110 ALUMINIUM.

I 25-110 STAINLESS STEEL
For models IR-D.
A 50-110 ALUMINIUM
I 50-110 STAINLESS STEEL
For models IR-69, folding and extended models.
AC-25 ALUMINIUM
Square flange for models IR-D and IR-125.
AC-50 ALUMINIUM
Square flange for models IR-D, IR-125, IR-69, IR with folding blades and extended models.

FLANGES: Gas thread according to DIN 259. The flanges H 25-200, I 25-200 H 50-200 and I 50-200 have the right thickness for adapting to the majority of curved surfaces.







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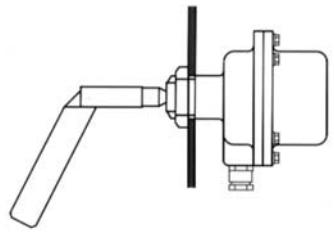
Models IR

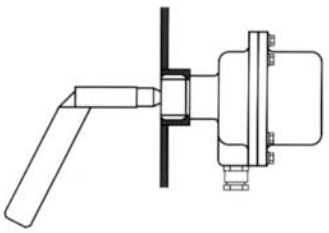
SIDE MOUNTING

Use IR-D models for high, intermediate or low levels in silos, hoppers and small or medium-sized containers. Use IR-DR models, of reinforced design, for low or intermediate levels in large capacity silos. It is also advisable to use this model when the specific gravity of the product to be controlled is greater than 1. When emptying the silo, the blades of these controllers, thanks to a clutch, remain in the direction of the silo outlet, offering minimum resistance to the downward movement of the product.



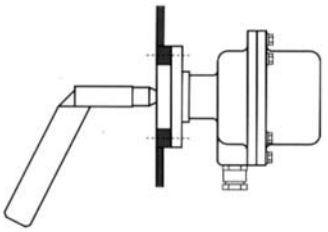
IR-D
Nut Mounting

Drill a 43 mm diameter hole in the plate. Introduce the blade through the hole and fasten the controller using a 1 1/4" nut (supplied on request).



IR-D
Sleeve Mounting

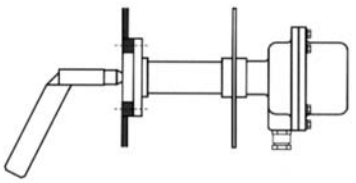
Drill a 43 mm diameter hole in the plating of the silo. Weld a 25 mm long sleeve with a 1 1/4" internal thread. The length of this sleeve plus the silo wall should not exceed 25 mm.



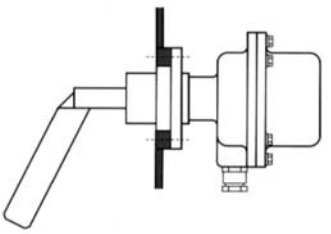
IR-D
Mounting with a 110 mm diameter Flange

1 - With four M8 screws to the wall of the silo, if it is thick enough.
2 - By welding a plate or a flange to the silo (see drawing).
3 - By welding four M8 studs to the wall of the silo.
4 - With four M8 bolts and nuts.

On request we supply gaskets manufactured in foamed rubber with a thickness of 8 mm, suitable for assembly on curved surfaces.



IR-D
FOR PRODUCTS UP TO 150 ºC



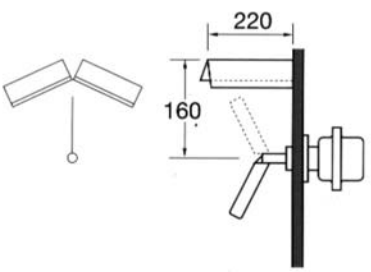
IR-DR
Mounting with a 110 mm diameter Flange

1 - With four M8 screws to the wall of the silo, if it is thick enough.
2 - By welding a plate or a flange to the silo (see drawing).
3 - By welding four M8 studs to the wall of the silo.
4 - With four M8 bolts and nuts.

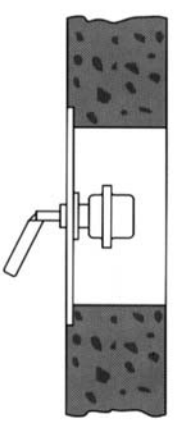
On request we supply gaskets manufactured in foamed rubber with a thickness of 8 mm, suitable for assembly on curved surfaces.

PROTECTIVE ROOF

When the flow of incoming material can strike the blades it is advisable to protect them with a protective roof. This protection is also advisable for low or intermediate levels when the specific gravity of the product to be controlled is greater than 1.5, and also when the product has a tendency to arch which can produce sudden and strong strikes against the blades.



MOUNTING ON CONCRETE SILOS



For controller models IR-D or IR-DR.
Make an opening in the wall, square or round, of around 300 mm. Attach a plate to the concrete, flush with the inner wall. Mount the controller by screwing the flange to this plate.

Rotary blade level control for bulk materials

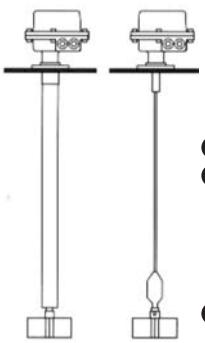
Models IR

VERTICAL MOUNTING ON THE UPPER PART OR THE CEILING

When mounting in the upper part, which is generally better, the length of the shaft can be extended whenever necessary. From 500 mm upwards it is advisable to use a 1 1/4" protective pipe.

The mounting in the upper part facilitates the use of large blades for products which are extremely light or for very fine powders.

Locate the blades low enough to assure that when they are covered and the stop signal has sounded, there is sufficient capacity in the silo for the transport system to remain free of product without producing clogging or spillage.



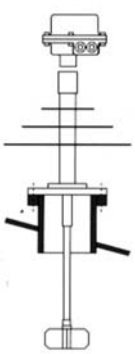
IR-BLADES 125 or 180 and IR CABLE

Mounting with a 200 mm diameter flange.

1. Drill a 140 mm diameter hole.
2. Introduce the controller. If the blades are 180 the controller should be insertedslightly tilted. Place the head in the required position and mark the six holes of the flange on the plate of the silo.
3. Remove the controller. Drill six holes for M6 screws, welding them to the plate of the silo. If the plate is thick enough thread the holes to M6 and screw them down.

Mounting with a 200/280 mm diameter flange on sloped ceilings.
Coupling with 140 mm internal diameter pipe for 125 blade.
Coupling with 200 mm internal diameter pipe for 180 blade.

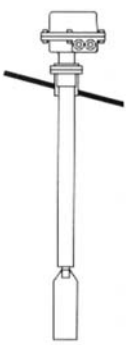
IR BLADES 125 or 180 FOR PRODUCTS UP TO 150 ºC



IR-69

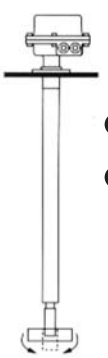
Stainless steel blade. On request, flexible blades for coarse products. Standard length 800 mm.
Mounting with 110 mm diameter flange.

1. Drill a 70 mm diameter hole.
2. Introduce the controller and place the head in the required position. Mark the holes of the flange on the plate of the silo.
3. Remove the controller. Make four holes for M8 screws, welding them to the plate of the silo. If the plate is thick enough thread the holes to M8 and screw them down.



IR-69

Mounting with 110 mm diameter flange on sloped ceilings.
Coupling with 70 mm internal diameter pipe, welded to the silo.



IR - FOLDING BLADE 180 or 250

Mounting with a 110 mm diameter flange.
Follow the instructions indicated in IR-69 for either flat or sloped ceilings.

1. Flex the blades until they are parallel with each other.
2. Introduce them through the 70 mm drill hole. When the blades are beyond drill hole they will recover their initial position due to the action of a torsion spring.

When removing the controller is necessary, the blades, when coming into contact with the obstacle of the exit, will bend to a vertical position and will be then easily removed.

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