

Equipment

Catalog

Jahan Misagh Sanat

Sanat.co



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Weigh feeder

MODEL WFA 402



NIYANCELL
COMPANY

- Highly accurate and reliable design
- AC Gearmotor
- Low profile design
- Fully enclosed option
- Dust tight version
- 1:20 control range (95% turn down)
- Self aligning and tensioning weigh feeder

Application

Weighfeeders can be configured to continuously control the feed of material, measure a feed rate or batch a quantity of material into industrial process.

The sturdy, reliable design makes the WFS 400 suitable for the use in the following industries:

Quarry, Sand and Gravel

Chemical

Wheat and Grain

Livestock feeds

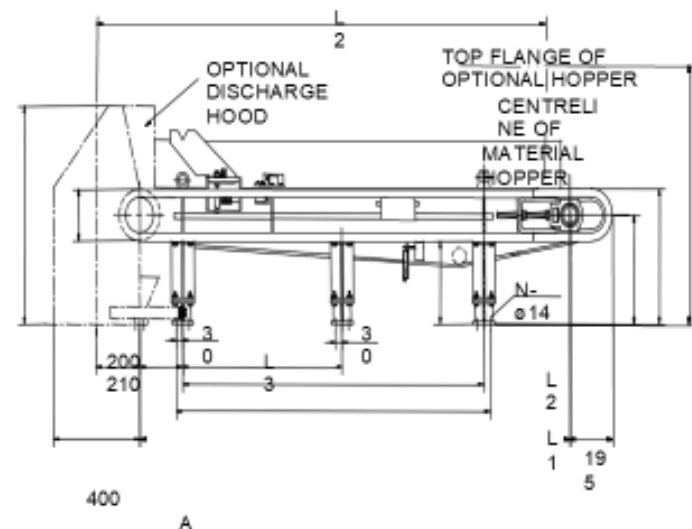
Mining and Minerals

Over volumetric feeding devices, the application of weigh feeders results in improved final product

Operating Principle

The belt load (q , kg/m) is accurately measured via a single weigh idler mounted on two stainless steel load cells. The non drive side of the motor is fitted with a speed sensor which accurately measures the speed (v , m/s). These two signals are then connected to the controller which accurately evaluates the feed rate (I , t/h). The controller then sends a closed loop control magnitude (PID, mA) to either direct coupled drive or the pre feeder.

The infeed hopper is configured to suit the specific material to be fed, including vibrating hoppers for wet/sticky material and dust settling chambers for fine materials prone to flushing.



Axle Centres (Nominal)								Belt widths				
A	1300	2000	2700	3500	4000	4500	5000	650	800	1000	1200	1400
L	760	1460	2160	2960	3460	3960	4460	800	950	1150	1350	1550
1								1010	1160	1360	1560	1760
L	700	1400	2100	2900	3400	3900	4400	1070	1220	1420	1620	1820
2								350	500	700	900	1100
L	N/A (two support legs)			1400	2100	2100	2100	850	1000	1200	1400	1600
3												
L	1200	1900	2600	3400	3900	4400	4900					
4												
N	8	8	8	12	12	12	16					
B												
D												
E												
F												
J												
H												

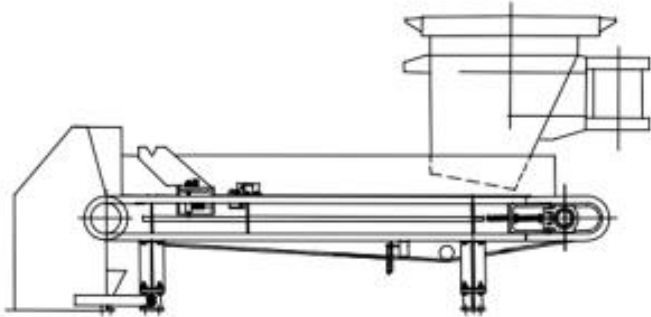
Weigh feeder

MODEL WFA 402

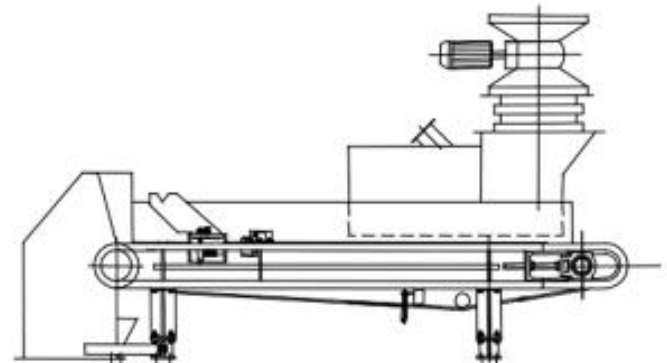


NIYANCELL
COMPANY

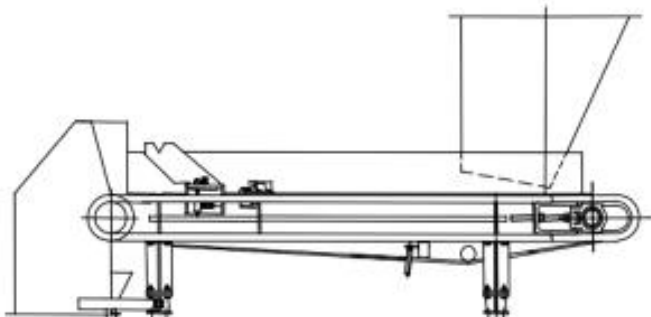
Dimensions and specifications are subject to change without notice. Material Feed Hopper Configurations



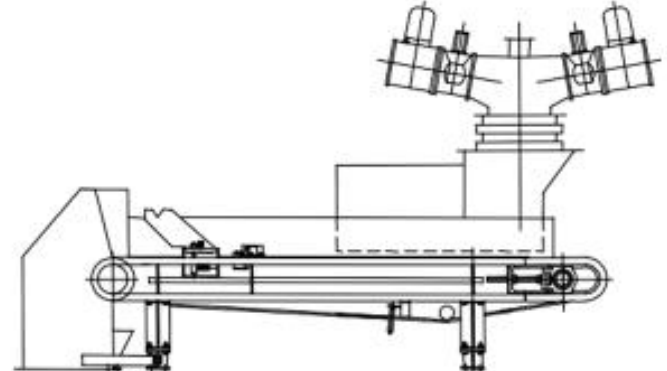
Discharge Hopper
for free flowing materials



Star feeder with settling (dust control) chamber
for fine powders, meal or dust



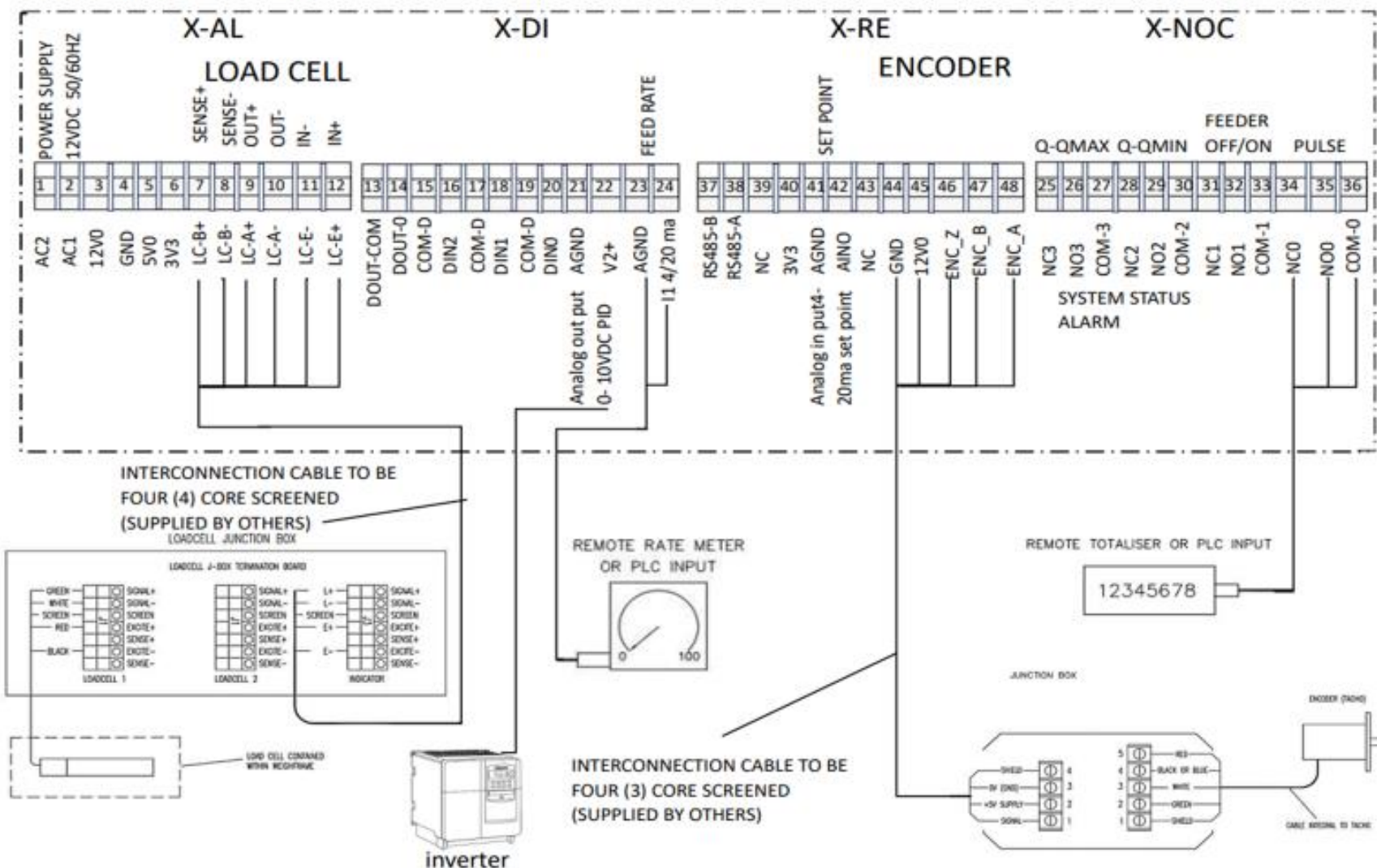
Vibrating Hopper for Wet/Sticky Mate



Flow Control Gate with settling chamber

Type: WF/WB 400/I/V

WEIGHING CONTROLLER NIYANCELL



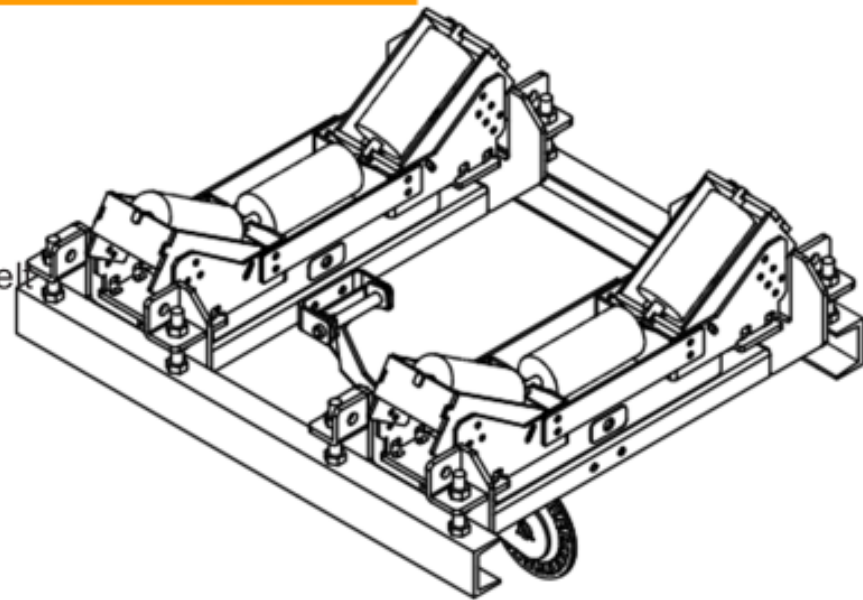
Modular Multi-Idler Belt

weigher model BSM 500



Features

- Simple installation
- Accurate (0.25%) and reliable design
- Stainless steel double ended shear beam load cell
- Optional jockey wheel speed sensor running on return belt
- Junction box with spring loaded push in terminals
- Zinc plated surface finish with all mounting hardware



Application

Belt Weighers are used for the continuous acquisition of flow rates and totalised amounts. Fitted in either new or existing belt conveyors, they can be employed for a variety of tasks:

- Measurement of production rates in plants
- Accountability of received and shipped amounts
- Maximum or minimum load limit alarms
- Batching, in loading stations
- Pre-feeder control
- The study design ensures a high degree of reliability and availability.

Options include

- Weigh quality idler sets with screw adjustment (for precise idler alignment, $\pm 0.2\text{mm}$)
- IP65 Cable junction box in 316 stainless steel
- Friction jockey wheel running on return belt

Operating Principle

The belt weigher comprises load cells that measure the load on the weigh length while a speed transducer acquires the belt speed. The controller calculates both the instantaneous load and the totalised amount. The BSM 500 features two stainless steel double ended shear beams mounted on each conveyor stringer. The modular design also results in a lighter construction better suited to the working range of the load cells.

Construction

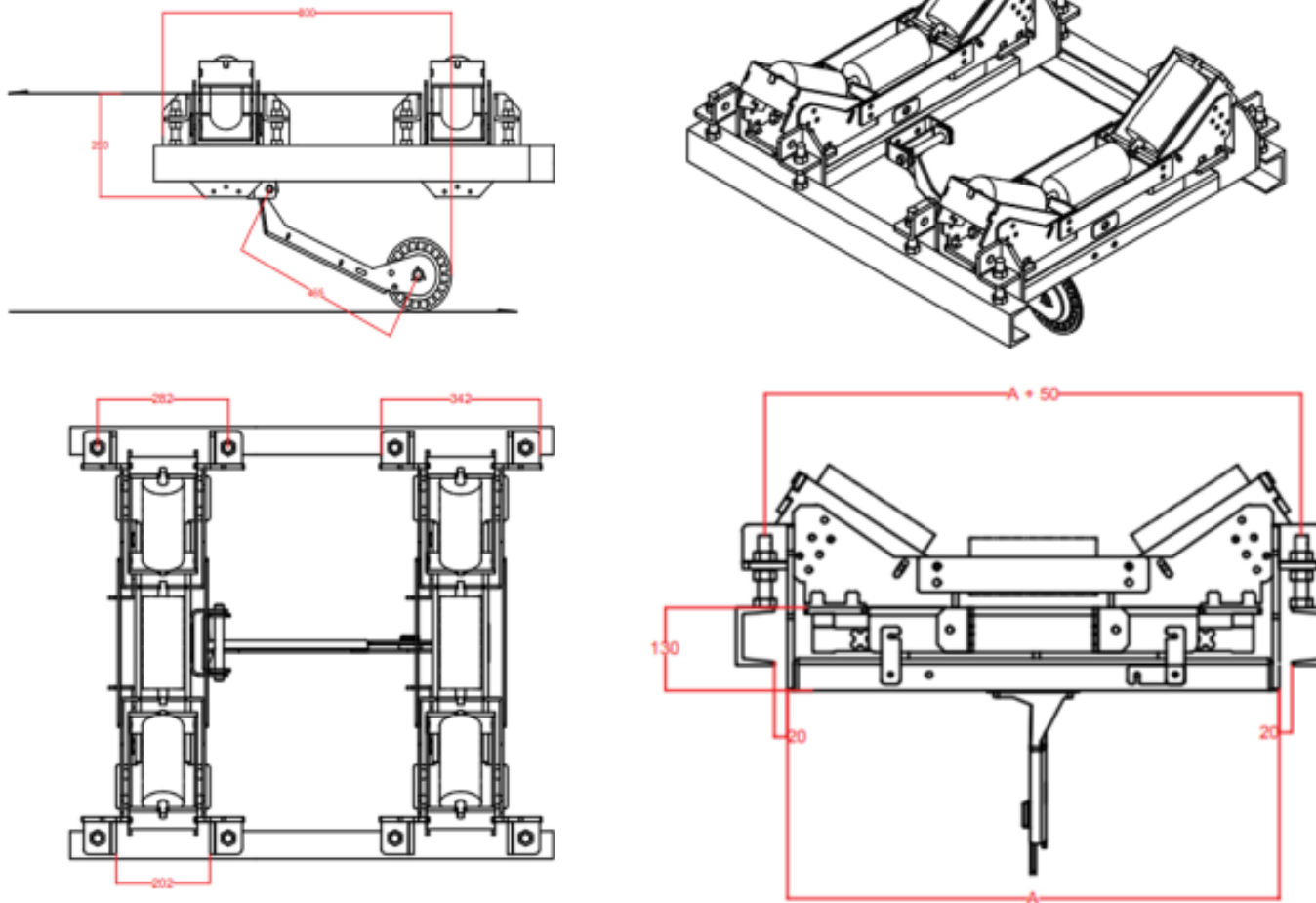
The standard belt weigher comprises:

- Fully floating weighing platforms
- Two double ended shear beam stainless steel load cell(s) of IP67 construction
- IP65 cable junction box
- IP65 Tail drum speed sensor
- Mounting and adjusting bolts

Modular Multi-Idler Belt weigher model BSM 500



Specifications



Applications

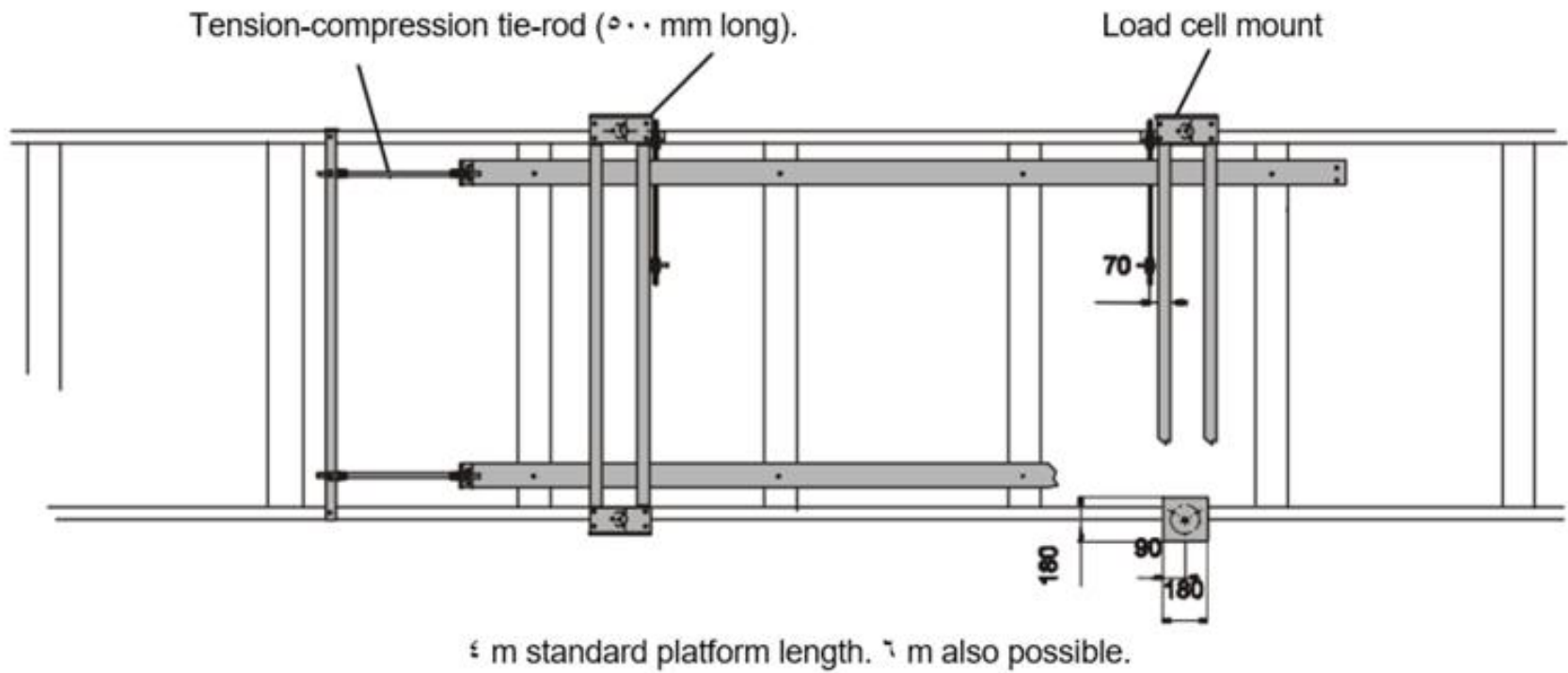
Belt widths	300 to 1200mm
Accuracy	±0/25% (subject to installation)
Idler troughing angle	20 to 35°
Belt Speed	0.1 to 3 metres per second
Idler Base Angle Size	50 x 50 to 90 x 90mm angle

Models & Configuration

	Model	Description	Part Number
Belt Scale	BSM.100	Belt Scale, 100kg capacity with junction box	NSM1600 8A
	BSM.200	Belt Scale, 200kg capacity with junction box	NSM1600 8B
	BSM.500	Belt Scale, 500kg capacity with junction box	NSM1600 8C
Controller (see separate datasheet)	WB 400	WB 400 controller in IP65 Mild Steel control box 220VAC	PS7901
	WF 400	WF400 controller in IP65 stainless steel control box 220VAC	PS7902
	5AN	4-20mA output for WB/WF 400 controller	PS48A1
	PS12	110-240VAC to 12VDC cabinet powersupply	PS177A1
Speed Sensor	TDS	Tail drum mounted speed sensor	PS3802
	JWS	Jockey wheel speed sensor	PS1401

All belt scales should be installed in accordance with our recommendations for the planning in of belt scales (NIYANCELL M0002) and the installation and

Modular Multi-Idler Belt weigher model BSM 500



NOTE:

All belt scales should be installed in accordance with our recommendations for the planning in of belt scales (NIYANCELL M0002) and the installation and

Modular Multi-Idler Belt weigher model MBM



Features

- Continuous bulk solids measurement in belt conveyor systems
- Suitable for flow rates up to 20,000 t/h
- Accuracy up to $\pm 0.25\%$
- Also legal-for-trade-version
- Suitable for IEC belt widths
- Suitable for use in ATEX explosion-zones
- Stainless steel four ended shear beam load cell
- Optional jockey wheel speed sensor running on return belt
- Junction box with spring loaded push in terminals
- Zinc plated surface finish with all mounting hardware

Construction

The standard belt weigher comprises:

- Fully floating weighing platforms
- Two double ended shear beam stainless steel load cell(s) of IP67 construction
- IP65 cable junction box
- IP65 Tail drum speed sensor
- Mounting and adjusting bolts

Options include:

- Weigh quality idler sets with screw adjustment (for precise idler alignment, $\pm 0.2\text{mm}$)
- IP65 Cable junction box in 316 stainless steel
- Friction jockey wheel running on return belt

Operating Principle

The belt weigher comprises load cells that measure the load on the weigh length while a speed transducer acquires the belt speed. The controller calculates both the instantaneous load and the totalised amount. The MBM features two stainless steel double ended shear beams mounted on each conveyor stringer. The modular design also results in a lighter construction better suited to the working range of the load cells.

Application

Belt Weighers are used for the continuous acquisition of flow rates and totalised amounts. Fitted in either new or existing belt conveyors, they can be employed for a variety of tasks:

- Measurement of production rates in plants
- Accountability of received and shipped amounts
- Maximum or minimum load limit alarms
- Batching, in loading stations
- Pre-feeder control
- The study design ensures a high degree of reliability and availability.

SINGLE IDLER BELT SCALE

MODEL BSP 500



Features

- Simple installation
- Accurate (1%) and reliable design
- Stainless steel double ended shear beam load cell
- Optional jockey wheel speed sensor running on return belt
- Junction box with spring loaded push in terminals
- Zinc plated surface finish with all mounting hardware



Application

Belt Weighers are used for the continuous acquisition of flowrates and totalised amounts. Fitted in either new or existing belt conveyors, they can be employed for a variety of tasks:

- Measurement of production rates in plants
- Accountability of received and shipped amounts
- Maximum or minimum load limit alarms
- Batching, in loading stations
- Pre-feeder control
- The study design ensures a high degree of reliability and availability.

Options include:

- Weigh quality idler sets with screw adjustment (for precise idler alignment, $\pm 0.2\text{mm}$)
- IP65 Cable junction box in 316 stainless steel
- Friction jockey wheel running on return belt

Operating Principle

The belt weigher comprises load cells that measure the load on the weigh length while a speed transducer acquires the belt speed. The controller calculates both the instantaneous load and the totalised amount. The BSP.500 features two stainless steel double ended shear beams mounted on each conveyor stringer. The modular design also results in a lighter construction better suited to the working range of the load cells.

Construction

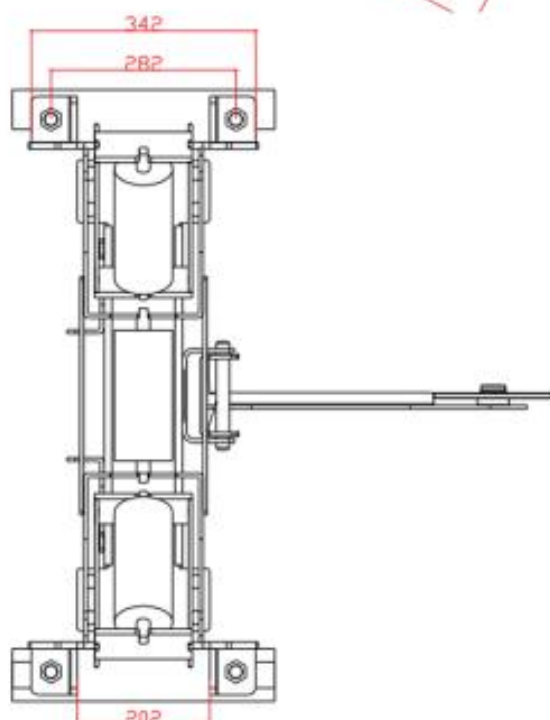
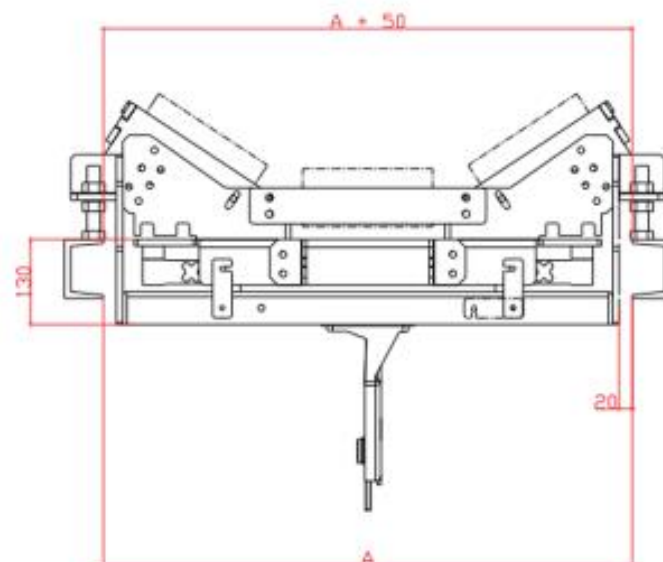
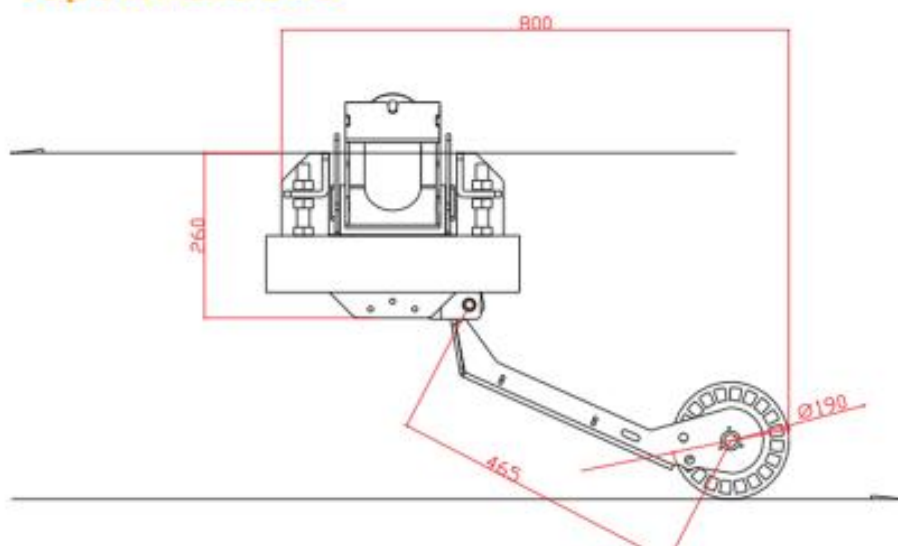
The standard belt weigher comprises:

- Fully floating weighing platforms
- Two double ended shear beam stainless steel load cell(s) of IP67 construction
- IP65 cable junction box
- IP65 Tail drum speed sensor
- Mounting and adjusting bolts

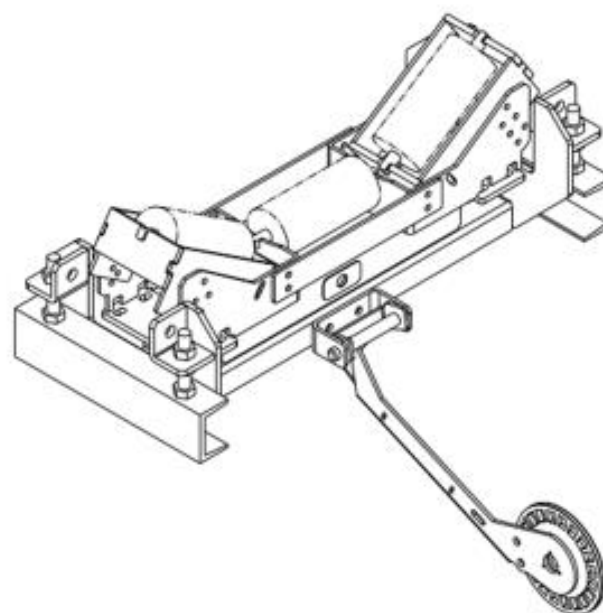
SINGLE IDLER BELT SCALE MODEL BSP 500



Specifications



A-internal distance of the conveyor frame 600....1500mm



Applications

Belt widths	300 to 1200mm
Accuracy	±1% (subject to installation)
Idler troughing angle	20 to 35°
Belt Speed	0.1 to 3 metres per second
Idler Base Angle Size	50 x 50 to 90 x 90mm angle

Models & Configuration

	Model		Description	Part Number
BeltScale	BSP.100		Belt Scale, 100kg capacity with junction box	NS16008A
	BSP.200		Belt Scale, 200kg capacity with junction box	NS16008B
	BSP.500		Belt Scale, 500kg capacity with junction box	NS16008C
Controller (see separate datasheet)	WB 400		WB 400 controller in IP65 Mild Steel control box 220VAC	PS7901
	WF 400		WF400 controller in IP65 stainless steel control box 220VAC	PS7902
Speed Sensor		5AN	4-20mA output for WB/WF 400 controller	PS48A1
			110-240VAC to 12VDC cabinet power supply	PS177A1
		TDS	Tail drum mounted speed sensor	PS3802
		JWS	Jockey wheel speed sensor	PS1401

All belt scales should be installed in accordance with our recommendations for the planning in of belt scales (NIYANCELL M0002) and the installation and

SINGLE IDLER BELT SCALE MODEL BSS

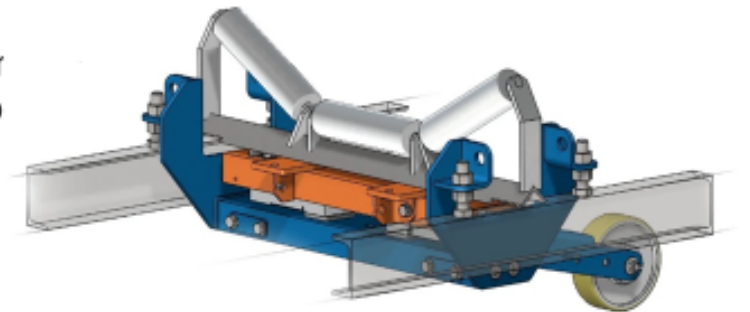


Automatic belt scales BSS are used to measure the material flow on the conveyor belt continuously.

Thanks to its simplicity, it is an economical solution that will work even in difficult working conditions.

Due to its small size, it is particularly suitable for installation in places where it is necessary to deal with small amount of space.

Despite the small dimensions, the design of the balance is rigid enough even for high loads and the shielded strain gauges are not exposed to damage.



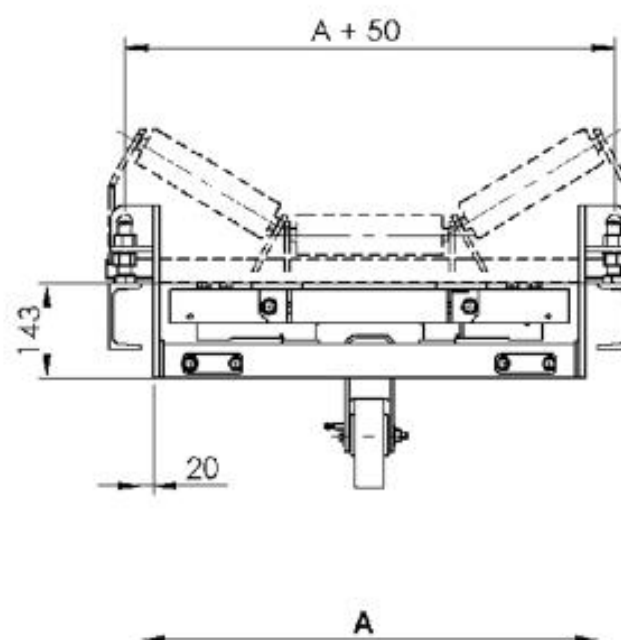
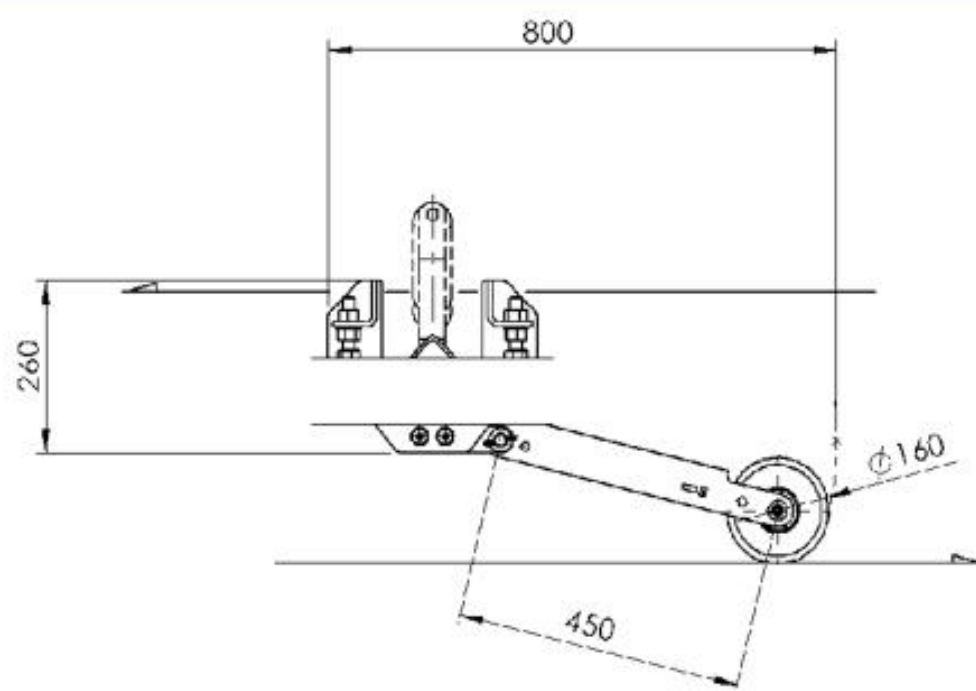
Advantages:

- The most affordable belt scale in our offer.
- Ability to easily adjust the weight level.
- Small amount of space needed for installation.

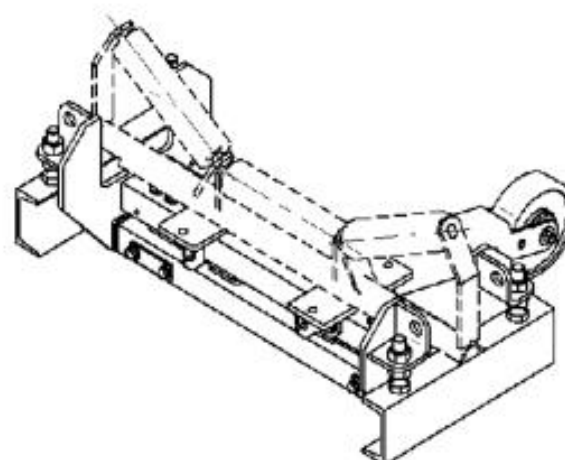
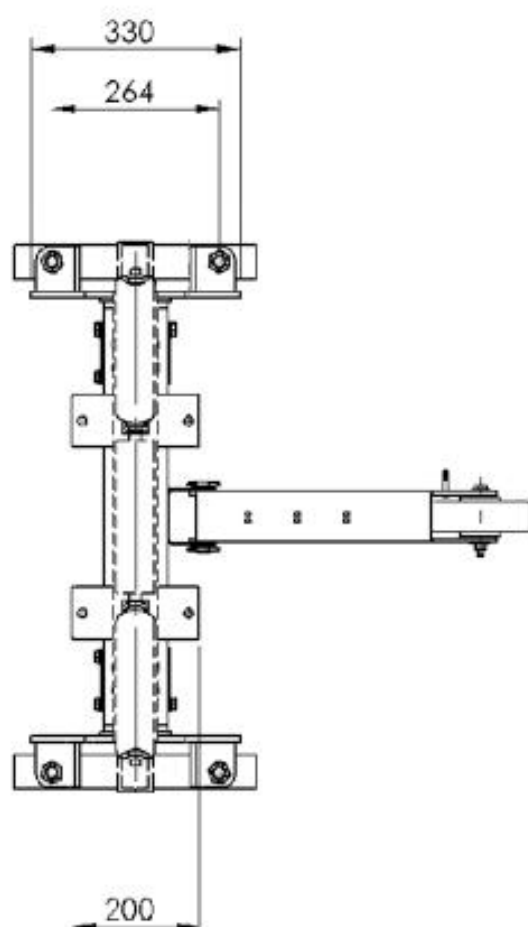
Technical parameters	Conveyor requirements	Measuring system
Maximum flow up to 4 000 [t/h]. $\pm 1 \div 2\%$ the range of 20-100% minimum load. Conveyor width 500 ÷ 1200 mm. Maximum ambient temperature up to 50 °C.	To achieve high accuracy the belts belt scale should be: 2-3 roller system. radial runout tolerance of idlers 0.2 mm within the balance; gravity pull. cover against the weather.	The belt scale is based on 2-3 c3 class load cells made of aluminium with IP67 tightness class. A speed measurement sensor in the form of a JWS, TDS or Whirling tachometric wheel is supplied with the scale.

System Control	Weight execution	Options
• WB 400 • WF400V • WF400I	The scale is made of carbon steel, powder coated with polyester paint. On request can be made:	possibility of controlling the flow of material on the conveyor. the ability to control the loading of a portion of material

SINGLEIDLER BELTSCALE MODEL BSS



A - odległość wewnętrzną ramy przenośnika
A =



DISTRIBUTED BY :

Weighing Controller

NIYANCELL



WB400 Totalizing Belt Scale Indicator for Stand Alone Belt Weighers

- Functions
 - Totalizing counter Massflow display
- Modbus RTU (RS485)
- 1 serial port
- 4 relay outputs
- Pulse output for external counter
- Analog in put (4)-20 mA
- Analog outModbus RTU Modul
- put (4)-20 mA



APPLICATIONS

The WB400 Totalizing Belt Scale Indicator is designed for accurate and reliable measuring of material amount driven through a belt conveyor. Material weight and belt speed are used to count the massflow. Total amount of material is seen in the totalizing counter.

HARDWARE

WB400 stainless steel case has IP65 protection class. The device can be mounted on table or on wall. The device can also be mounted on control cabinet door.

WB400 has an easily readable illuminated LCD-display. The membrane keyboard has 16 keys. Parameters can be entered and calibration can be done easily with the display and the keyboard.

Z (Flow Rate / Total)

Shows the total load of data passing through the bar.

Q (Load)

Specifies the amount of active load on the weighing area that is felt by the load cells.

I (Feed Rate)

The pass rate of the bar is displayed according to the amount of load and its passing speed.

V (Speed)

calculates and displays the speed of movement of the bar according to the type of operation. This speed is read through the encoder and then calculated. In some cases, a constant speed mode can also be used.

MEASURING

The WB400 Totalizing Belt Scale Indicator continuously measures the material on the conveyor on the basis of weight and belt speed. A load cell measures the weight on the weighing roll and a speed transducer measures belt speed.

The massflow value can be seen in display and it can be read through analog output or Modbus RTU.

The amount of transferred material is continuously added to the totalizing counter. The counter value can be seen in display and it can also be read through the Modbus RTU.

The totalizing counter can be cleared by keyboard or by Modbus RTU

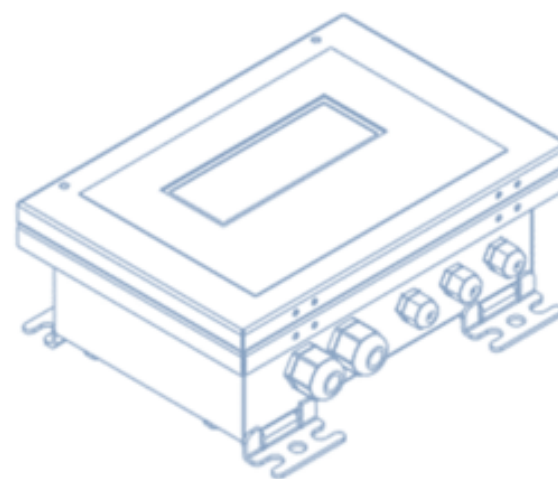
FIELD BUS INTERFACES

Serial port can be used to connect the device to a control system with Modbus/RTU protocol. The serial port type is RS-485.

INPUTS AND OUTPUTS

WB400 has the following inputs and outputs:

- 4 opto-isolated inputs, 12 V DC
- 1 Namur input for belt speed tachometer
- 4 relay outputs, 12 V DC
- 1 opto-isolated pulse output for external counter
- (4)-20 mA Analog output, 12-bit.



Analog output can be used to transfer mass flow information to control systems or secondary displays.

Totalizing counter value is transferred to pulse output.

Weighing Controller NIYANCELL



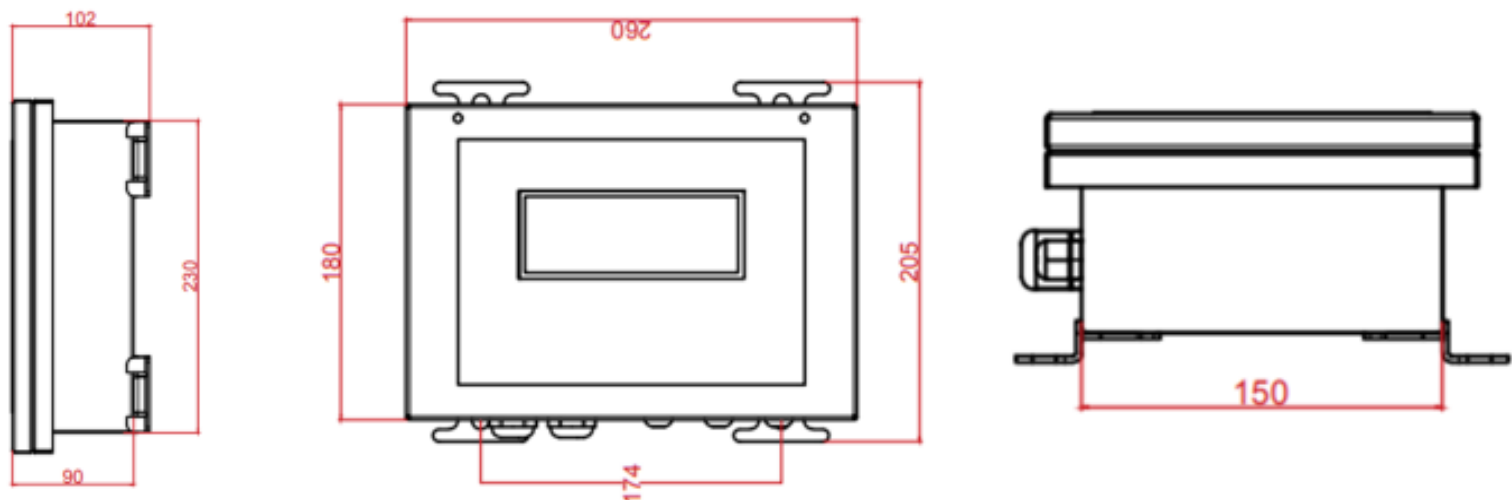
FUNCTIONS AND PARAMETERS :

All parameters can be viewed and modified in display. Parameter codes, values and also names are displayed.

All parameters and the calibration data are stored in non-volatile memory and remain unchanged in case of power failure.

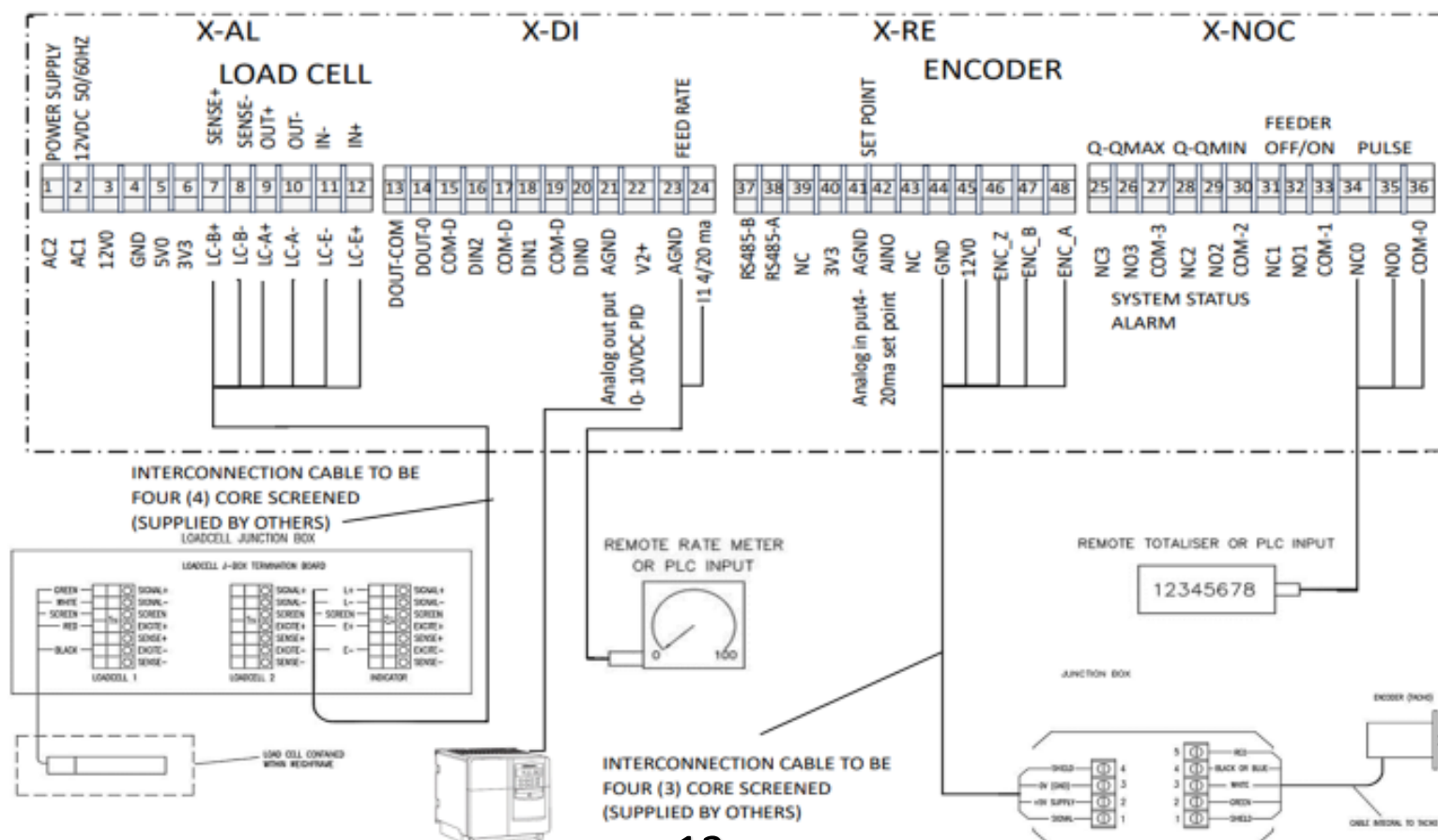
belt scale design and manufacture results in greater accuracy. To help the user maintain the accuracy and performance of the belt scale, this guideline provides recommendations for the proper application of belt scales under specific conveyor and environmental conditions. The guide is meant to be read chronologically to both teach and build on the knowledge of how certain aspects of the application can compound with others to create create performance from the scale.

NIYANCELL WF 400 / WB 400 Dimension



Type: WF/WB 400/I/V

WEIGHING CONTROLLER NIYANCELL



Speed Sensor JWS



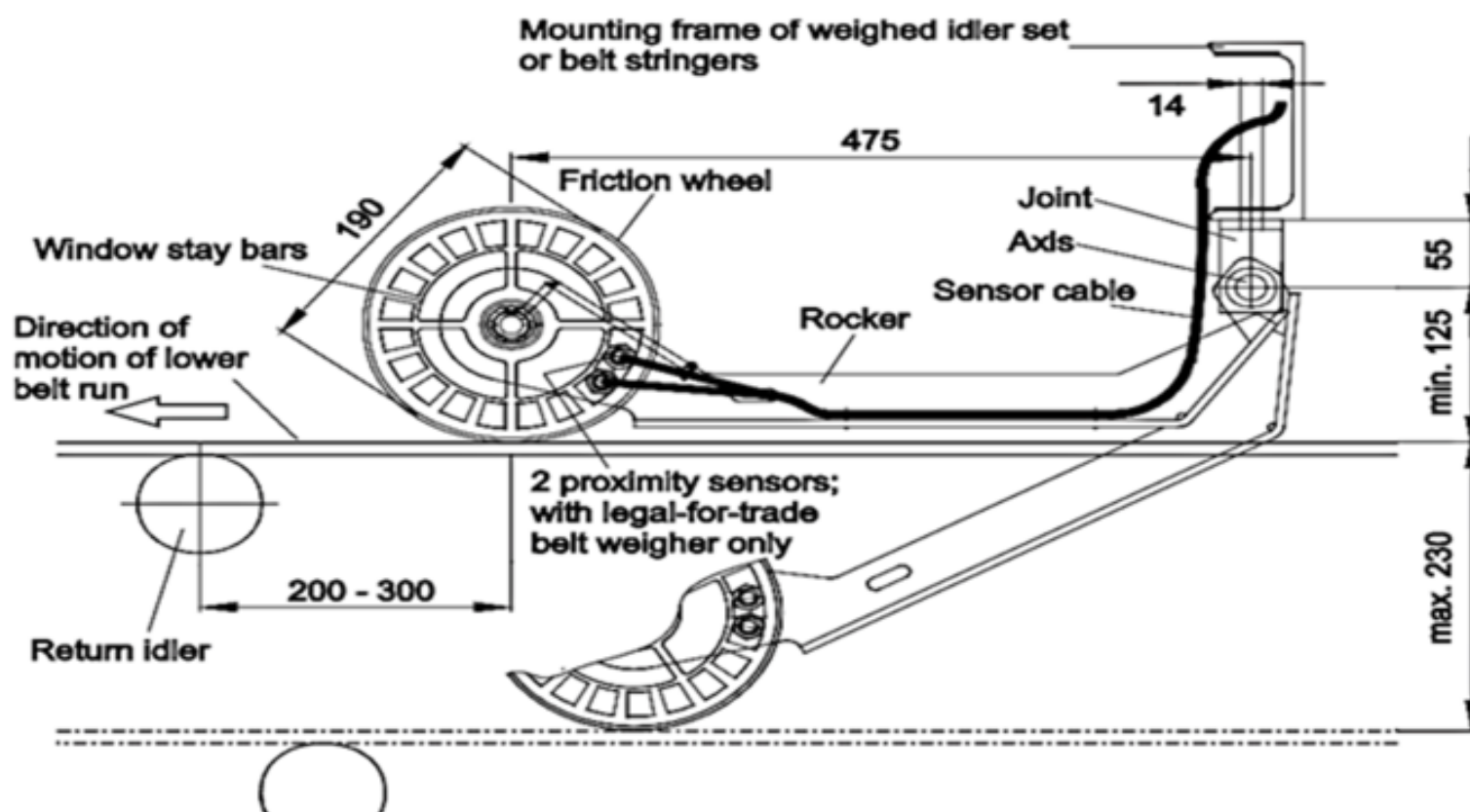
NIYANCELL
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Application The JWS speed sensors are designed for measuring the belt speed of belt conveyor systems. They are used as optional equipment for NIYANCELL-type belt weighers

Function The pulse wheel runs on the interior of the empty, returning belt of a belt feeder system with a rubber ring . Under its own weight, the wheel is friction-locked against the belt and is made to rotate by the belt movement. The non-slip motion means that the wheel circumferential velocity corresponds to the belt speed. The rotational speed of the wheel is registered by a sensor that records the speed by means of transmitting a signal through an alternating series of windows and bars, recording a frequency that corresponds to the belt speed of the belt conveyor system. This frequency is transmitted to the evaluation electronics where it is analyzed .

Design The speed sensor consists of a rocker that can be pivoted around an axis. The axis is mounted in a bracket that is attached to the machine (belt conveyor) to be monitored. The measuring wheel is attached to this rocker and runs slip- free on the belt to be measured. The belt speed is measured as a frequency signal through windows in the measuring wheel and with one or two (legal-for-trade) proximity sensor/s and processed using an evaluation device.

The JWS speed sensor is manufactured entirely of a highly corrosion-resistant galvanized steel and in the ATEX – certified model made of 1.4301 stainless steel.



Speed Sensor JWS



Hysteresis		Max. 10%of sensing distance							
Standard sensingtarget		8×8×1mm (iron)		12×12×1mm (iron)		18×18×1mm (iron)	25×25×1mm (iron)	30×30×1mm (iron)	40×40×1mm (iron)
Setting distance		• to 1/4mm	• to 1/8mm	• to 1/8mm	• to 1/4mm	• to 3/8mm	• to 5/8mm	• to 1mm	• to 1 1/4mm
Power supply (operating voltage)		12-24VDC3 (12-24VDC3)							
Leakage current		Max. 0.6mA							
Response frequency ^①		1/10kHz	1kHz	1/10kHz	100Hz		100Hz	100Hz	100Hz
Residual voltage ^②		Max. 3.5V (non-polarity type is Max. 5V)							
Affection by Temp.		Max. ±10%for sensing distance at ambient temperature 20°C (for PRT08 Series: ±20%Max.)							
Control output		1 to 100mA							
Insulation resistance		Over 50MΩ (at 500VDC megger)							
Dielectric strength		1500VAC 50/60Hz for 1 minute							
Vibration		1mm amplitude at frequency of 10 to 200Hz (for 1 min) in each X, Y, Z direction for 1 hours							
Shock		500m/s ² (approx. 50G) in X, Y, Z direction for 1 times							
Indicator		Operation indicator: Red LED							
Environ-ment	Ambient temperature	-25 to 70°C, storage: -30 to 80°C							
	Ambient humidity	35 to 95% RH, storage: 35 to 95% RH							
Protection circuit		Surge protection circuit		Surge protection circuit, Over-current protection circuit					
Protection structure		IP67 (IEC standard)							
Cable		Ø3.5mm, 3-wire, 2m (AWG24, Core diameter:0.08mm,Number of cores: 40, Insulator diameter: Ø1mm)		Ø4mm, 2-wire, 2m		Ø5mm, 2-wire, 2m			
				(AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm)					
Material		Case/Nut: Nickel plated brass, Washer: Nickel plated iron, Sensing surface: Polybutylene terephthalate, Standard cable (black): Polyvinyl chloride (PVC), Oil resistant cable (gray): Oil resistant polyvinyl chloride (PVC)							
Approval		CE							
Weight ^③		Approx. 64g (approx. 52g)		Approx.84g (approx. 72g)		Approx.122g (approx. 110g)		Approx.207g (approx. 170g)	

Speed Sensor TDS



NIYANCELL
COMPANY

The speed sensor monitors the belt speed. It is directly coupled to a rotating shaft

(the bend pulley) which drives a signal generator. The speed sensor submits an output signal at a frequency directly proportional to the shaft speed. It is typically installed on a non-driven pulley of a belt conveyor for detecting belt speed.

Mechanical Data

Housing

Flange	clamping flange
- Max. operating speed	5000 rpm
Housing	Ø 50 mm

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. ≤ 1.5 Ncm at ambient temperature
Shaft	Ø 8 mm
Max. Permissible shaft load radial	50 N
Max. Permissible shaft load axial	30 N

Electrical Data

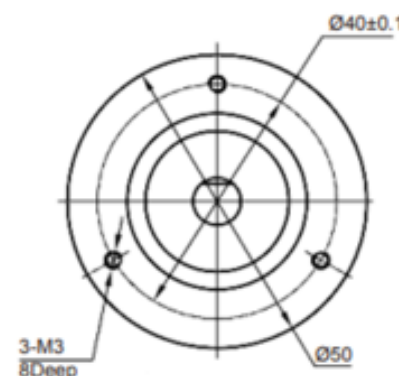
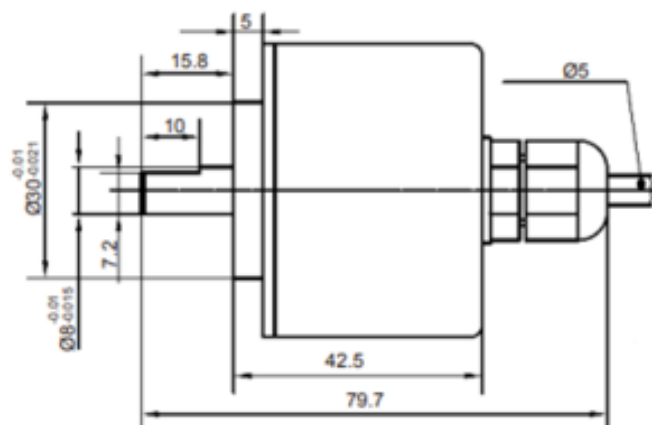
Power supply/Current consumption	4.75VDC up to 5.25VDC / 60-100mA
Power supply/Current consumption	8VDC up to 26VDC / 60-80mA
Output circuit	TTL TTL + inv HTL HTL + inv
Pulse Frequency	TTL ≤ 5000 ppr: max. 300kHz HTL ≤ 5000 ppr: max. 300kHz
Channels	ABN and inverted signals
Load	60-100 mA/channel (depends on output circuit)
Accuracy	
Phase offset	90° $\pm$ max. 12.5% of the period duration

General Data

Weight	approx. 200 g
Connections	cable
Protection rating (EN 60529)	IP65
Operating temperature	-30°C ~+85°C
Storage temperature	-35°C ~+95°C
Shock	980 m/s ² , 3Dx3times, 6ms
Vibration	49 m/s ² , 10-200Hz, 3Dx120min

Technical Specifications Ambient Temperature: -30° to 80° C (-22° to 176° F) Enclosure: IP65 Detecting Speed Range: 20 to 280 rpm

Cable connection L2 (IP65) with 2 m cable



Description

L2 axial, shield and connected (IP65)

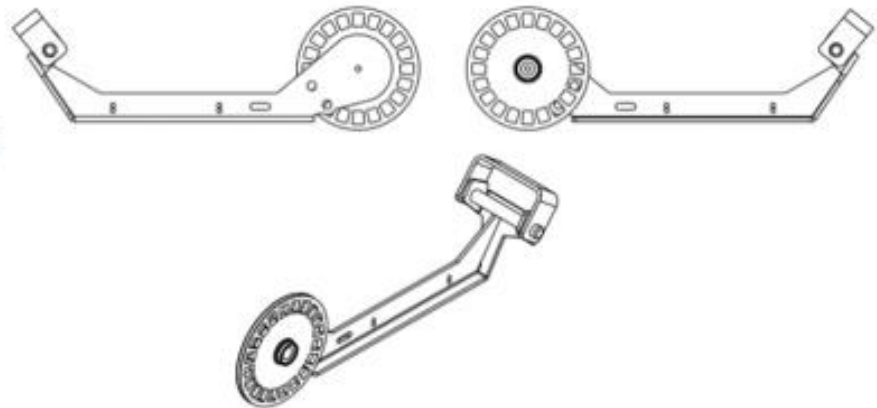
Assignment

Description	L2	L2
Output circuit	H05/H24	R05/R24
GND	BU	BU
(+) Vcc	BN	BN
A	BK	BK
B	WH	WH
N	OG	OG
A inv.	-	RD
B inv.	-	GY
N inv.	-	YE
Shield	Shield	Shield

Speed Sensor TDS



- Robust encoder with small dimension
- Reliable sturdy design
- Small Size & Easy Mounting



Shaft size					
08	8 mm				
Pulses per revolution PPR					
1024	0~5000 PPR Above 5000 PPR on request				
Channels					
ABN	ABN, ABN inverted signals				
Power Supply					
H24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key
	up to 5000	4,75 - 5,25	TTL (Push-pull)	-	H05
		4,75 - 5,25	TTL + inv. (Line Driver)	-	R05
		8 - 26	HTL (Push-pull)	-	H24
		8 - 26	HTL + inv. (Line Driver)	-	R24
Electrical connectons					
L2	Description				Order key
	Cable length (2 m standred)				L2
	axial, shield and connected (IP65)				
Cable length					
	Description			Order key	
	Cable length			XXX = Decimeter	

Jahan Misagh Sanat

Sanat.co

