Organizing an efficient continuous measurement system and quality control by the belt conveyor
Step-Up freely according to your environment.
The digital system realizes stable and high precision measurement!

Kubota Belt Scale accurately and continuously performs real-time weighing of the total weight of any raw materials transported by conveyor. The system consists of a load detection equipment and a speed detection equipment installed in a conveyor and moreover the controller which displays transportation mass in the multiplate based on their data. This scale can be easily built into a new conveyor system or just as easily incorporated into existing systems. To meet a variety of needs, Kubota offers a wide variety of models to choose from. Make up of it for the rationalization of the measures work which is the basis to make more efficient production process and quality control level up.

Features
1. Digital techniques based on accumulated know how
   KUBOTA's long experienced know how of Belt Scale is injected in advanced electronic techniques of weigher and weight totalizer. Especially, the load detection equipment adopts the mechanism which can transmit a load to the load cell more correctly. Also, the weight totalizer is designed for easy data output, and calibration in addition to usual weight operation.

2. Full System-up by wide variety of the models and optional units
   The load detection equipment such as lower-mount models and upper-mount models. Single-suspension models and Double-suspension models can be chosen according to the structures of belt conveyer. Wide range of weighing capacity from 5 kg to 3000 kg.

3. Compact and easy maintenance
   The load detection equipment is compact by using the load cell. Also, it needs only a few consumables and a little maintenance work because of a small moving parts of lever. The touch button belt speed detector is also easy to install.

Konbata Belt Scale's model of KUBOTA Belt Scale

下部１形式（単体）
Type: Lower-mount single-suspension type
Model No.: LDC-60
型式: 60p (型式: LDC-60)
重量: 6 to 100kg

下部２形式（単体）
Type: Lower-mount single-suspension type
Model No.: LDC-20
型式: 20p (型式: LDC-20)
重量: 20 to 100kg

上部１形式（単体）
Type: Upper-mount single-suspension type
Model No.: LDC-10
型式: 10p (型式: LDC-10)
重量: 10 to 100kg

上部２形式（単体）
Type: Upper-mount single-suspension type
Model No.: LDC-20
型式: 20p (型式: LDC-20)
重量: 20 to 100kg

上部３形式（単体）
Type: Upper-mount double-suspension type
Model No.: LDC-30
型式: 30p (型式: LDC-30)
重量: 30 to 100kg

型式表示例

ベルトスケール

例、ベルトスケール

総重量計算方法（1）：また、コンベヤーの位置

コンベヤーの位置計算（1）：KFC-1000GT（コンベーラー位置）

モデル（1）

型式（1）：KFC-1000GT（コンバーター）

構成部

荷重発生装置

コンベアの計量ローラを組み込み、ベルト上の検量値の質量を

検出用コンバーター

重量計量用コンバーター

コンペレータ

型式

重量計量用コンバーター（1）：KFC-1000GT（コンベーラー位置）

4. タッチパネル

The weight detector is compact by using the load cell. Also, it needs only a few consumables and little maintenance work because of a small moving parts of lever. The touch button belt speed detector is also easy to install.

構成部

荷重発生装置

コンベアの計量ローラを組み込み、ベルト上の検量値の質量を

検出用コンバーター

重量計量用コンバーター

コンペレータ

型式

重量計量用コンバーター（1）：KFC-1000GT（コンベーラー位置）

4. タッチパネル
荷重検出装置
Load detection equipment

LC-D型（下部1本式）
コンベヤ上部に、ベルトの下側に組み込むタイプです。コンベヤ上部の取付が楽で、作業環境・安全面での確保も容易です。
計量ローラの形状はフラット型で、荷重をロードセルで直接検出
するシンプルな構造です。

The LC-D type (Lower-mount, Single-suspension type)
This compact unit offers installation on the inner side of the conveyor. It is instrumental for the improvement of work environment and safety securing, due to its good prospects on conveyor. It has a flat type weighing roller and simple structure which detects the weight directly by the load cell.

仕様表 Specification

<table>
<thead>
<tr>
<th>ベルト幅 (Belt width)</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>600</th>
<th>650</th>
<th>750</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td>キャリプレシタ (Carrier plate)</td>
<td>A</td>
<td>600, 800, 1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>フレームゲージ (Frame gauge)</td>
<td>B</td>
<td>650, 800, 740, 640, 850, 1040, 1030, 1190, 1280, 1480</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>標準重量 (Weight of the load detecting section)</td>
<td>C</td>
<td>22, 34, 22, 38, 20, 45, 47, 50, 57, 61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LC-R型（下部1本式）
LC-D型と同じ、ベルトの下側に組み込むコンパクトなタイプです。
計量ローラの形状はフラット型で、荷重検出はロードセルと
ところから支え合わせたローラ式機構ですから安定した計量精度
が確保できます。

LC-R type (Lower-mount, Single-suspension)
This compact type unit offers installation on the inner side of the conveyor which is the same as the LC-D type. It has a flat type weighing roller which secures a stable weighing accuracy because of the Roberval mechanism combined with a lever and a load cell.

仕様表 Specification

<table>
<thead>
<tr>
<th>ベルト幅 (Belt width)</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>600</th>
<th>650</th>
<th>750</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1050</th>
</tr>
</thead>
<tbody>
<tr>
<td>キャリプレシタ (Carrier plate)</td>
<td>A</td>
<td>1000, 1200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>フレームゲージ (Frame gauge)</td>
<td>B</td>
<td>1340, 1490, 1730, 1930, 2220</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ごうかん幅 (Lever width)</td>
<td>C</td>
<td>1200, 1240, 1500, 1790, 2070, 2270</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>標準重量 (Weight of the load detecting section)</td>
<td>220, 225, 255, 246, 250, 270</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LS型（下部1本式）
コンベヤ上部にロードセルの重量検出装置を設置し、そこから1
組の役割で計量ローラを連接するタイプです。計量ローラはコン
ベヤ下部に取り付けます。新設時ももちろん、既存のコン
ベヤラインにも機構に組み込むことができます。

LS type (Upper-mount, Single-Suspension)
The load detection part (Weighing Box) is installed above the conveyor. It is connected with the weighing roller by a pair of suspending rod. The weighing roller is installed on the inner side of the conveyor belt. This scale can be easily built into a new conveyor system or just as easily incorporated into an existing systems. Also, a remote testing device can be installed inside a weighing box.

仕様表 Specification

<table>
<thead>
<tr>
<th>ベルト幅 (Belt width)</th>
<th>500</th>
<th>600</th>
<th>650</th>
<th>750</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1050</th>
<th>1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>機構構成 (Suspension rod spacing)</td>
<td>A</td>
<td>670, 720, 770, 910, 960, 1080, 1160, 1210, 1360</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

※製品は、マチネル製。*Painting color: Munsell 7.5YR 6/12
The LD type (Upper-mount, Double-suspension)

The load detection cent (weighing box) is installed above the conveyor line like LD type. It is connected with weighing roller by a couple of suspending rod. The weighing rollers are installed on the upper side of the conveyor belt. This scale can be easily incorporated into a new conveyor system or built as easily incorporated into an existing system. Also, a remote testing device can be installed inside a weighing box.

仕様表 Specification

<table>
<thead>
<tr>
<th>ベルト幅 (Belt width)</th>
<th>500</th>
<th>600</th>
<th>650</th>
<th>750</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1050</th>
<th>1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>呼称値 (Rated value)</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>千秋 (Carrier plate)</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>機体寸法 (Dimension)</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

速度検出装置

The speed detection equipment is touch roller type unit installed on the return belt, coupled with any load detection part such as L.W, L.C, L.S, and L.D.

仕様表 Specification

<table>
<thead>
<tr>
<th>ベルト幅 (Belt width)</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>600</th>
<th>650</th>
<th>750</th>
<th>800</th>
<th>900</th>
<th>1000</th>
<th>1050</th>
<th>1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>機体寸法 (Dimension)</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>26</td>
<td>28</td>
<td>28</td>
<td>28</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>37</td>
</tr>
</tbody>
</table>

コントローラ Controller

KFC-1000 Controller for the continuous measurement KFC-1000-5 Operation terminal

This controller totals transportation mass based on weight and speed signal. It has a variety of functions such as moisture rate compensation and display of transportation mass and data output. In KFC-1000, the controller part and the operation terminal for setting and adjustment are separated. Maximum 10 units of the controller can be operated by one operation terminal. Moreover, it is possible to install it at the best place in work site since it is acceptable to be 200m distance from the controller.
Operation panel

Option

Remote weight totalizer
Weight totalize printer
Preset counter
Flow meter
Meter relay
Pen recorder

Test chain
The test chain is used to maintain and keep the accuracy of belt scales.

Roller pitch (Roller pitch): 200mm

Features
- More efficient test is available, because the calculations and operations are simpler than tests with actual materials.
- Easy test by conveying capacities.
- Available to use for testing of other belt scales.
- High accuracy and long life ensured by precision processing of stringently selected materials.
- Smooth roller operation.

Determining specifications
- Weight selection
  Chose the test chain with 80% capacity of belt scales, because the material weight do not exceed the capacity of belt conveyor scale. If necessary, the adjustment at 40% capacity of belt scale is available.
- Length
  The weighing length plus 3 times of the pitch of carrying roller is necessary for test chain. The pitch of carrying roller is set to the multitude the roller pitch (200mm) of test chain.

Test chain
- Test chain storage box (made of iron) included.
- Test chain loading device at belt scale also available.
安装和负载检测部分的安装条件

To secure precise weighing accuracy as the specification, take care the following conditions for installation of load detecting part.

- Use the weight type belt tensioner.
- Prevent the unsteadiness of weighing roller by the wind.
- Prevent the high temperature by the direct sunlight, radiation heat and so on.
- Use the simple design for shape of belt conveyor.
- Do not install the load detection part at the bending part.
- In joining the belts, it is more than 2 lines and comfort and join each works on joining part, and adjust the thickness of the joining part to the belt.

条件中的带式输送机

<table>
<thead>
<tr>
<th>项目</th>
<th>内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>形状</td>
<td>长型</td>
</tr>
<tr>
<td>名称</td>
<td>无</td>
</tr>
<tr>
<td>兔尾</td>
<td>无</td>
</tr>
<tr>
<td>长度</td>
<td>(m)</td>
</tr>
<tr>
<td>用途</td>
<td>连接</td>
</tr>
<tr>
<td>长度</td>
<td>(m)</td>
</tr>
<tr>
<td>原材料</td>
<td>无</td>
</tr>
<tr>
<td>规格</td>
<td>无</td>
</tr>
<tr>
<td>使用条件</td>
<td>无</td>
</tr>
<tr>
<td>橡胶</td>
<td>无</td>
</tr>
<tr>
<td>長さ</td>
<td>无</td>
</tr>
<tr>
<td>用途</td>
<td>无</td>
</tr>
<tr>
<td>使用条件</td>
<td>LS型</td>
</tr>
<tr>
<td>原材料</td>
<td>无</td>
</tr>
<tr>
<td>规格</td>
<td>无</td>
</tr>
<tr>
<td>使用条件</td>
<td>无</td>
</tr>
</tbody>
</table>

 CONDITION OF BELT CONVEYOR

<table>
<thead>
<tr>
<th>Bad example</th>
<th>Good example</th>
</tr>
</thead>
<tbody>
<tr>
<td>ケイックアップ Take up</td>
<td>15~70m以下</td>
</tr>
<tr>
<td>コンベヤブリッジ Conveyor bridge</td>
<td>15~70m以下</td>
</tr>
<tr>
<td>コンベヤ傾斜 Inclination of conveyor</td>
<td>18°/3内</td>
</tr>
<tr>
<td>コンベヤ形状 Shape of conveyor</td>
<td>18°/2内</td>
</tr>
</tbody>
</table>

18°以上の傾斜があれば、検量値がスリップするため正確な計量値は確保できません。

it is difficult to obtain a correct weight because of the slip of the material out of conveyor if the inclination is more than 18°.
Technical Terms of Belt Scale

Weigh length and weighing roller

‘Weigh length’ is effective length of scope to be weighed by load detection section. ‘Weighing roller’ is a carrier roller to which weight on the weigh length is loaded.

Weighing capacity per weigh length

‘Weighing capacity’ is maximum allowable load on the weigh length and is derived from the following equation.

\[ C = \frac{Q \times L}{0.06 \times V} \] (kg)

\[ C : \text{Weighing capacity(kg)} \]
\[ Q : \text{Maximum weighing capacity of the belt scale (t/h)} \]
\[ L : \text{Weigh length (m)} \]
\[ V : \text{Belt speed (m/min)} \]

Flow rate

‘Flow rate’ is ratio (%) of feeding capacity (t/h) to maximum weighing capacity Q (t/h).

Flow rate will be 100% when ‘Load factor’ is 100% and the conveyor is running at specified speed V (m/min), but it will be 0% when the conveyor stops, even though the Load factor is 100%.

Weight testing device, Testing weight, Remote testing device

‘Weight testing device’ is provided for easy testing of weight detection section by loading proportional “Testing weight” instead of loading actual weight on the conveyor.

The “Weight testing device” is provided for all Belt Scale of KUBOTA as standard specification, enabling three point check of 30%, 60% and 90% load factor by manual operation. As optional specification, “Remote testing device” is also available, having loading and unloading device of one-point proportional “Testing weight” by motor control.

1本吊の場合 In case of single suspension

2本吊の場合 In case of double suspension

Specification are subject to change without notices.