Simple, Reliable and Precise
Ideally suited to rugged environments
Ladle Weighing System

Increase Safety an Efficiency in your pro-
duction process by installing a Ladle
Weighing System!

Knowing the precise net weight of each
ladle will allow you to:

- Supervise and control the whole steel mak-
ing process with certain knowledge of the
  amounts and locations of Pig Iron and Steel
  within the process

- Calculate the most efficient amounts of
  Scrap and Alloys to be used
- Reduce spillage during the filling and pouring
  process
Typical Applications for the Ladle Weighing System:

- Ladle Turrets
- Ladle Ferries
- Fixed Mount Ladle Supports

Typical Solution:

**SCHENCK Weighbeams DWB 40 – 200 t** are installed between the base structure and the weighbridge, without need for modifications of the ladle supporting geometry.

**Weighing accuracy:**

The solution allows the total weight of the ladle to be measured with an accuracy up to ± 0.1 % of Full Scale.

**Benefits:**

- Simple installation – No double frame needed.
- Suitable for very harsh environments.
- Maintenance free – No additional bumpers or lift off protection.
- Compact design reduces shunt force influences from dust and slag.

**As long term partners of the steel industry worldwide let us help you to**

- Improve the **Profitability and Security** of your steelmaking process.
- Introduce **Efficiencies** into your system by utilising proven Weighing solutions.

**Arrange your – no cost – on site appraisal!**
Simple & Reliable Weighing Solution
The Radial Force Sensor DRA for lifting cranes, Ideally Suited for Upgrading Crane Spreader Beams

If you are working with cranes for transport of pig irons and steel, that have no integrated weighing installation, then this is the solution.

The most important functions of a weighing system integrated into the crane spreader beam for steel production are:

- After tapping from the converter and deslagging, the weighing installation transmits the precise crude steel net weight to the process control system. This input provides an optimal basis to calculate the amount of alloying materials to be added during the secondary metallurgy process.
- The accurate weighing enables the plant to add the minimal amount of alloys possible, by respecting the final composition of the steel.

An important advantage of the Radial Force Sensor DRA is:

- The scale detects and indicates unequal loading between the left and right sides of the spreader beam.

The entire integration into the spreader beam structure has been designed to minimize elements needed for the weighing feature. This leads to a very light execution of the spreader, which results in an enhanced net steel transport capacity of the existing crane.
Loadcell design:
We have developed, with our Radial Force Sensors DRA, a specific loadcell geometry perfectly adapted to the typical design of large spreader beams in the steel industry:

Typical Solution:
The DRA – Sensors are directly bolted between the two supporting plates of each spreader side and the central axle, on which the sheeves are suspended. In doing so we simply replace the conventional steel plate support by “weighing support” at the same position.

Weighing accuracy:
- The total weight of the ladle is measured with an accuracy up to ±0.1% of Full Scale.

Benefits:
- The stability of the crane remains untouched.
- The weighing system is completely bolted into the structure and is therefore maintenance free.
- The scale can easily be integrated into the existing installations.
- The weighing mechanics are arranged at a position well protected against dust and heat.

SCHENCK Engineered Weighing Solutions for heavy duty cranes up to 1000 tonnes are operational in many steel plants all over the world.
We use both classical Ring – Torsion loadcells RTN & now more often Radial Force Sensor DRA solutions, thus providing the above benefits by utilising our latest technological advances.
One crucial advantage of our innovative weighing solution is the reduced time & effort required to install it into cranes.
**Easy pig iron weighing**

**Railway Weighing Track for Torpedo cars**

**Improve the profitability and security of Your Blast Furnace by installing a Railway Weighing Track for Torpedo Cars!**

**Knowing the precise net weight of each Torpedo Car will allow you to:**

- Optimise the material flow to the steel plant, now that you are able to transmit the net weight of pig iron arriving there, at any early stage.
- Accurately and consistently fill each Torpedo Car, because the net weight of pig irons arriving from the Blast Furnace can be adjusted.

- Control the Growth of tare load before tapping starts, you manage the slag deposition onto the refractory surface, leading to optimised maintenance cycles.
- Optimise the maintenance cycles of Blast furnace, by using the information of the this weighing system, for example by supervising the tapping masses and flow rates over longer periods.
- Operate in a safer environment. The reliable, weight – dependant, overfilling control contributes to a safer tapping process.

**Keep in Motion**
Typical Application:

Every day some thousands tons of pig irons are leaving the Blast Furnace in the direction of the Steel plant. The Weighing Track monitors that movement by measuring the Torpedo weight:

- Directly at the tapping position of the Blast Furnace.
- By weighing half of the entire Torpedo Car.
- As a static weighing system during tapping.

Typical Solution:

Weighbeams DWB are installed between the existing rail clamps and the existing wooden or concrete sleepers.

Weighing accuracy:

- The weighing track itself achieves in installations an accuracy of ±0.15 % of Full Scale.
- The total gross weight of the torpedo car is determined in the common execution of a half car weighing to ±0.5 % of Full Scale.

Benefits:

- Reduced Civil’s work.
- No rail cut at the beginning and end of the weighing area.
- Complete installation can be executed in an extremely short time.
- All Torpedo Car types and rail profiles are suitable.

Maintenance free – as the scale is a completely bolted construction without elastomers, bumpers or hold downs.

Every investment, that improves efficiency of the Blast Furnace and leads to more reliable material flow supervision, has a very short time return. The Weighing Track is an important improvement opportunity for existing or new Blast Furnaces. Transform the actual sleepers under your Blast Furnace with very limited effort into “Weighing Sleepers” together with SCENCK.
A good end to every Continuous Casting Machine:

**Slab Weighing System on the hot roller conveyor**

NEW: Monitoring of each load cell signal by the DISOBOX

**SCHENCK roller conveyor scales** determine the production mass at the end of the continuous casting with the following advantages:

- Generation of a precise mass balance by an accurate determination of the weight of all single slabs.
- Exact facturisation with the warm rolling mill, option of legal-for-trade weighing system
- The time, when the slab stops for weighing, can be used for marking.
- Optimised control of the pre-warming furnace in the milling plant by contemporary and exact information about the delivered material masses.
- Minimal loss of time allied with minimal amount of maintenance by directly installing the scale under the roller conveyor without using a raising platform scale.
Design of the weighing unit:

Depending on the length of the slabs for each strand one or two roller conveyor frames including the roller drives are mounted on SCHENCK – Load cells RTN with elastomer mounts VEN.

A consequence of the very high output signal of the SCHENCK Load cells of 2,85 mV/V is, that sufficient signal remains despite the need to provide a high safety margin against vertical overloading.

In the horizontal direction, SCHENCK elastomer mounts compensate temperature lengthening of the roller conveyor without undue influence on the measuring signal.

Horizontal overloads are transferred through special arranged bumper checks.

Further characteristics of this weighing solution are:

- Clearly defined separation between vertical load input and horizontal bump load transmission, combined with a very good adjustability.
- Centrally placed horizontal bumpers avoid shunt forces caused by temperature lengthening of the roller conveyor.
- Use is possible in cold and warm roller tables up to 80 °C in the area of the load cells (Option 110 °C).
- The weighing position under the roller conveyor incorporates heat and dust protection.

Weighing Accuracy:

- Weighing is usually static.

The slab gross weight is determined after appr. 5 seconds with an accuracy of ± 0,1 % of Full Scale. Furthermore legal-for-trade applications according to OIML are possible.

NEW: the SCHENCK - DISOBOX

The DISOBOX is a field mounted A/D-converter. It is, as today's cable junction boxes, installed close to the load cells:

Each single analogue load cell signal is digitised and transferred to the weighing terminal Disomat B plus. The result are completely new functions and possibilities:

- The signal of each single load cell is monitored separately, thus simplifying the trouble shooting. Besides we can monitor from now on overloading of specific areas of the scale.
- The transmission of the weight values from the weighbridge to the control room occurs digitally and thereby fail-safe.

As a world-wide partner in steel industries and an experience of many years in varying applications we would like to support You to optimise your processes with the help of our weighing technology. Send us your details for new installations or modifications.

We look forward to your enquiry!
Always trouble with flexible cable connections?

SCHENCK solutions for wireless transmission of weighing data from mobile weighing systems:

Example for a typical cable connection between a ladle ferry and the building:

From the ladle ferry, which moves over ± 30 meters, a cable catenary is connected to the stationary connection box at the building.

This flexible cable connection is problematic in many aspects (as already the above photo indicates):

- it can burn because of slag splashes
- it can be damaged mechanically by the steel plant environment
- it can break due to its continuous movement
- the data transmission close to the cable for the motor power can cause electromagnetic interspersion (EMC)

In this NEWS we present to You our actual solutions for wireless signal transmission of weighing data:

- Infrared
- Radio modem
- WLAN

The benefit in wireless data transmission particularly is based on

- an extreme reduction of repair and maintenance costs, and
- in a remarkable enhanced availability and reliability of Your mobile weighing systems.
1) **Infrared data transmission**

This solution is used, if an intervisibility between transmitter and receiver is possible:

Essential characteristics are:

- Simple alignment, adjustment and handling.
- The transmitter distance in steel plants reaches up to 200 meters.
- There are no EMC problems at all, for example close to electric arc furnaces.
- Influence of dust or daylight variations are handled well by the modern systems.
- The service temperature range is up to 50°C.
- An infrared equipment is cost-efficient.

Schenck has realised infrared data transmission for example in ladle ferries for pig iron transport. The alignment of light transmitter and receiver is easy for these rail-based vehicles.

2) **Radio data transmission with two or more radio modems**

This data transmission is characterised by the following features:

- Normally, it is carried out as a point to point connection (cable substitute), for example used, if an intervisibility is not possible.
- Under favourable ambient conditions distances up to 300 meters are realisable.
- It is also possible, that several weighing systems send to one central fixed receiver.
- Dust, even in big quantities, is no problem.
- The service temperature range is up to 60°C.
- The application today is easy, because no special radio frequencies must be requested.

The transmitting unit gets the weighing data for example over a RS 232 interface from the Disomat B plus, which is installed on the ladle ferry, and gives them in the same format via the radio receiver at the fixed position to a large display or the customers EDP.

3) **Radio data transmission with WLAN**

This data transmission has following additional advantage:

- Enormous reduction of the energy consumption for the weighing components.
- The small and rugged DISOBOX is installed on the ladle ferry or, in case of a crane, on the crossbeam,
- the DISOMAT B plus for the weight display, the communication with the PLC and all further functions is installed stationary and well protected.

You should not be troubled any longer with defect measuring cables, just remove them, with solutions of SCHENCK ! We look forward to Your inquiry for new projects or modernisation !

For example, this technique is successfully used on mobile scrap trailers. Since those trailers do not feature an own energy supply for the weighing technique, special accumulators are installed inside. The accumulators were dimensioned by Schenck, so that a charging of 24 hours is sufficient for one week of operation.

This combination of power supply with accumulators and wireless data transmission leads to complete wireless weighing systems, in other words, the wireless LAN of weighing systems!

New possibilities generated by new SCHENCK products:

In future, the SCHENCK DISOBOX offers new possibilities for a more comfortable wireless power and data transmission. This are the new features:
The ladle turret represents one of the major important elements of the modern steel production. The weighing system inside the turret fulfils the following important functions:

- long term reliable control of the level of liquid steel inside the ladle
- precise mass flow balancing of the steel output at the passage between liquid and solid steel

Especially for that application SCHENCK has developed the new Weighdisc WDI:

the installation inside the turret structure is realised extremely simple by bolting the sensor between the steel structure and a small weighbridge

That arrangement contains the following advantages compared to other solutions:

- maintenance-free installation without elastomers, mounts, bumpers or hold-downs
- very flat design, that makes the Weighdisc well suited for modernisation
- transmission of all horizontal forces

Weighdisc WDI 25 – 200 t

It is self-evident, that the Weighdisc WDI due to its easy and rough design is perfectly suited for other applications such as furnace or silo weighing systems as well.

Keep in Motion
The Weighdisc WDI completes the huge number of different SCHENCK force sensors, especially developed for the hard requirements of the Steel and Heavy Industries:

The most important products are:

**Weighbeams DWB 11.5 - 200 t**

**Loadcells RTN 1 - 470 t plus mounts**

**Radial Force Transducers DRA 20-80t**

Measuring axes, Measuring eyes and tailor-made Force Transducers.

Due to this large range of weighing components and our experiences of many years we are able to work out optimal weighing solutions for different applications between 1t and 3.000 t regarding accuracy, reliability and capital investment.

We look forward to your inquiry!

**Applications:**

Ladle turret, ladle cars (see HI-News 01/2003) and scrap ferries with the following features:

- accuracy up to ± 0.1 % F..S.
- service temperature up to 150 °C

**Applications:**

- Legal for trade Coil Weighing Systems
- Legal for trade Slab Weighing Systems (see HI-News 04/2003)
- Legal for trade platform scales and weighbridges
- Legal for trade Crane Scales
- Hopper weighing systems

**Applications:**

- Crane Weighing Systems (see HI-News 02/2003)
Improve The communication with Your Belt Weighers!

The features of the new generation of the SCHENCK INTECONT PLUS

Belt Weighers are important measuring devices for mass balancing in the raw material logistics of coke, sinter and Direct Reduction plants. Thousands tons of coal, iron ore, DRI / HBI and additives are weighed continuously under difficult environmental and installation conditions at high speed with an accuracy between 0,25 and 1 %.

Besides in the widespread area of the plants the installation places of the Belt Weighers are not always easily accessible. For these reasons employees of production and maintenance departments appreciate to be informed about the operation condition of the various Weighing Systems constantly by using modern data transmission technologies.

Here Schenck offers the following solutions:

1) Actual Information via SMS

Multibelt INTECONT PLUS

See the advantages:

- Warnings and alarm messages of the connected Belt Weighers are automatically transmitted without any delay as SMS – information to the operator;
- Important operating data such as actual feedrate or actual belt-speed can be sent on demand or in cyclic mode
- no cable connection required;
- the information is available everywhere
- in the GSM network;
- daily reports about the conveyed masses can be requested at every time
2) Continuous communication via Ethernet interface

Advantages of that solution are:

- all connected Belt Weighers can be controlled at every time from every customer PC or control system;

The new generation of the INTECONT PLUS offers these new possibilities. It is at the same time

- functional compatible with the previous version and
- equipped with different additional features:

Hardware overview of the new INTECONT PLUS:

The following Fieldbus – Interfaces are available:

- Modbus
- 3964 R (S7)
- DeviceNet
- Ethernet

Use these new features to improve the communication and supervision by simple upgrade or exchange of the INTECONT PLUS components. That easy and simple modernisation will enhance Your process security respectively.
Steel scrap today is so expensive, that an exact, durable and reliable weighing technology on the scrap yard can save money for a steel plant by

- an economical use of the valuable raw material scrap and
- an accurate charging of electrical furnace or converter for the desired steel quality.

The weighing technology on the scrap yard counts among the superiors weighing tasks in the steel plant because of the following reasons:

- extreme impact load by the today’s usual direct loading of the moulds/scrap baskets on the weighing system
- very rough handling without maintenance staff
- risk of shunt forces by scrap pieces.

In this news, we want to present to You the current Schenck solutions for those weighing tasks, which we substantially realize as scrap car, bridge- or track scales:

1) Weighing Mechanics

The photo on the left side shows a railway car for scrap transport with a total weight of 200 t. The task consisted in an integration of a weighing system, which can compose the individual sorts according to the respective requirement of the converter on the spacious scrap yard.

The photo on the right side shows the same car after the weighing modification.

Well to recognize is now integrated weighing system and the fact, that the reconstruction means no changes for the crane operator concerning loading and handling sequence.

In this case the mechanical detail solution consisted of the installation of

- Schenck weighbeams DWB 40 t with one bolted special elastomer mount and
- an integrated overload limit stop

between the weighing bridge and the vehicle frame.
The following illustration shows the mechanical structure of this bearing point:

After an elastic suspension under load of approx. 5 mm the integrated limit stop relieves the weighbeams and the elastomer mounts. Because of the solutions principle, even largest impact loads e.g. a drop of 5 t compact scrap iron from 5 m height can be transferred without damage. Accordingly, an additional absorption frame to protect the weighing system today is no more necessary.

Further advantages of this solution are:
- integrated shock dampening with an energy absorbing displacement of 5 mm
- very durable structure and simple installation.

This mechanical solution is to be used particularly in weighbridges or in scrap iron ferries, which have no own energy absorption system or drive on very uneven tracks. Alternatively, we also apply the approved double-frame solution by using Schenck load cells RTN if required.

2) Weighing accuracy

The usual accuracy definitions relating to the full scale often are not sufficient for the tasks of a scrap yard shop. On the basis of a scrap basket weight of 100 t and net contents of 80 t, the weighing range amounts to 180 t. Even a high total accuracy of +/- 0.1 % of the weighing range permits an error of +/- 180 kg.

On the other hand, for the practical operation on the scrap yard, it is important to measure also small masses of a certain scrap sort during the loading. After taring before loading, Schenck secures accuracies up to +/-1 % of the actual value on the basis of a minimum loading of for example 5 t.

An individual loading of approx. 10 t takes place accordingly with a high accuracy of maximum +/- 100 kg weight value deviation.

3) Power supply

As the photos on page 1 clarify, mobile weighing systems e.g. scrap trailers or scrap ferries often have no own power supply. The new Schenck weighing electronics Disobox allows modern solutions on the electrical part because of its low energy consumption. For example, an accumulator capacity of 40 Ah is sufficient for a continuous operating time of the weighing system of 5 days. Depending on the requirements, we offer modern and low-maintenance lead- or NiCd-accumulators, both for reloading on board or also for the change full against empty.

4) Data communication

In this power supply of such mobile weighing systems with accumulators a wireless data communication with our radio-modems is already included. Those permit to send the weighing data along the track way to a fix point, so that trailing cable are not to be needed. At the stationary radio modem a weighing terminal Disomat Bplus is installed, to take over all further tasks of data processing and communication with the users control system. Further tasks of data processing e.g. the batch control, data communication to the loading cranes or the balancing round off our offer for an optimal weighing technology at the scrap yard.

5) Could we make you curious?

Then you could check once more, whether your scrap yard weighing technology meets the today’s requirements and possibilities for the increase of economy and material input. We shall be glad to assist you in this matter.

Measuring and Process Systems
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SCHENCK Weighing Systems for teeming and ladle transfer cranes: Installation solutions inside the crane trolley

The heavy cranes carrying ladles filled with pig iron or liquid steel represent the most important transport device in every steel plant. As these cranes transfer the ladles to different locations of the steel making process, the installation of an weighing system inside leads to essential benefit for the entire mass totalling and production data acquisition and control.

In this NEWS we like to present to You the different principal installation places for crane weighing solutions inside the crane trolley. Integrating scales there is characterised by the following advantages, compared to the second principally suited location for crane weighing systems, the spreader beam scales:

- no problems with the fixed mounted cable passages
- reduced dynamic load and temperature charges

In order to define the different installation places for our Weighing Systems please have a look below at the typical drawing of the trolley of a heavy load teeming or ladle transfer crane:

At the next page we will present to You the following installation locations for weighing systems and their different features based on the drawings of executed systems:

1. Double frame weighing
2. Wheel base platform weighing
3. Upper sheeve block weighing
These three different locations are characterised by the following different features:

1. **Double frame weighing:**
   - Accuracy: better than +/- 0.1 % F.S.
   - optimal mechanical arrangement for new designed and manufactured cranes
   - Problem in case of revamping of existing cranes:
     - vertical installation space required for the additional weighing frame
     - modification effort regarding material and time
   - installation of standard Loadcells RTN

2. **Wheel base platform weighing:**
   - Accuracy: up to +/- 0.1 % F.S.
   - optimal solution for the revamping of existing cranes:
     - additional installation space only 200-300 mm
   - transmission of all dynamic forces related to the crane operation by Weighbeams DWB mounted fixed between the trolley frame and the wheel base

3. **Upper sheeve block weighing for the main hoist:**
   - Accuracy: up to +/- 0.2 % F.S.
   - optimal solution for revamping due to the minimised mechanical modification effort by supporting the compact upper pulley sheeve block onto standard Load Cells RTN

4. **Upper sheeve block weighing for the auxiliary hoist:**
   - Accuracy: up to +/- 1-2 % F.S.
   - very simple solution for example by using Measuring Axles MAC inside the upper sheeve block of the auxiliary hoist of teeming cranes
   - usually for the control of the teeming process the accuracy of this system is sufficient

This short overview should indicate, that besides the classical double frame SCHENCK has long years of experience with different weighing solutions suited for modernisation of existing cranes as well. These special weighing solutions are optimised to meet the plant requirements of maximum weighing reliability and minimum modification time availability. We would be glad to check the cranes in Your plant in order to find to the most reliable and economical weighing solution for an improved future production mass management and control.
SCHENCK MULTIDOS® MTD Weighfeeders have for many years reliably fulfilled various arduous feeding applications achieving accuracies of ± 0.25% to ± 0.5%.

Additionally, for applications within harsh operating environments like steel and cement plants or plants with favourable environmental conditions e.g. within the chemical industry, the MULTIDOS® is often required to either stabilise or further optimise the feeding accuracy to better than ± 0.25%. For such applications we employ a fully automatic On-Stream Calibration System called KME.

One such application for KME On-Stream Calibration is the feeding of Coke in a Sinter Plant where avoiding incorrect dosing rates leads directly to process improvements (minimising fines) and logistical cost savings (minimising usage of the infeed material itself, Coke).

To facilitate KME On-Stream Calibration the complete MULTIDOS® and upstream feed hopper are mounted on SCHENCK Load Cells.

By means of a second weighing electronic e.g. DISOCONT® VSE the process accuracy is continually monitored and if necessary slightly adjusted automatically.

The KME On-Stream Calibration process takes place in the background to the equipment control and as such does not interfere with the normal operation of the Weighfeeder. The SCHENCK weighing electronic simply takes care of the whole task with no additional interface required to the DCS or local plant control system.

KME On-Stream Calibration compensates for the following deviations with respect to zero point and span of the MULTIDOS® MTD:
- Material build-up and deposition on the belt
- Temperature variation effects

Additionally, the continuous self-control achieved by KME increases the operational security and availability of the process critical Weighfeeders and therefore represents an important Quality Management System tool (in accordance with DIN ISO).
SCHENCK MULTIDOS®
– The Modular Weighing Solution:

The MULTIDOS® family of Weighfeeders was launched in 1999 and presently over 2000 systems have been successfully commissioned the world over throughout the process industries. The Mechanical structure of the MULTIDOS® MTD is based on over 50 years of experience in the design and manufacture of gravimetric and continuous feeding systems for use in harsh and demanding process environments.

The major reason for the success of MULTIDOS® MTD is its modular construction that allows the generation of a tailor-made, application specific solution by easily and cost-effectively combining the following modules:

- Discharge-Aid Roller to equalise the material flow at point of discharge
- Integral Chain Conveyor to clean mounting surface
- Second integrated Weighing Module positioned beneath the infeed hopper for level monitoring purposes (possible for free-flowing materials, by using suitable hoppers and an additional pre-feeder)
- MULTIDOS® Weighfeeder centre module
- Infeed hopper
- Belt Conveyor (complete with integral weighing module)
- Discharge Hood
- Rear and Side Enclosures

With the incorporation of a dust extraction system connected to the unit’s discharge hood, the MULTIDOS® forms a completely dust-tight enclosure. This valuable option provides enhanced environmental protection to both operators and the surrounding process area, important considerations in our modern times. Additionally, ATEX compliant units are available as an option.

Further Optional Components:

- Discharge-Aid Roller to equalise the material flow at point of discharge
- Integral Chain Conveyor to clean mounting surface
- Second integrated Weighing Module positioned beneath the infeed hopper for level monitoring purposes (possible for free-flowing materials, by using suitable hoppers and an additional pre-feeder)

Technical data of the MULTIDOS MTD-M:

- feed rate: up to 1.500 m³/h resp. 1.000 t/h;
- feed rate adjustment range: 1:10, optional max. 1:50;
- belt conveying speed: max. 0.5 m/s;
- belt width: 300 - 2000 mm;
- distance pulley to pulley: 1.500 - 10.000 mm;
- material temperature: 80 °C (optional 170 °C);
- ambient temperature: -10 - 50 °C.

These technical data are covered by the three product families MULTIDOS – L, - M and – H.
What kind of infeed hoppers are suited for which kind of material?

The optimum choice of infeed hopper is based on a combination of application know-how and a sound knowledge of material handling and SCHENCK brings this to the table.

In the steel and heavy industries, depending upon material properties, the following combinations of infeed hoppers are frequently used.

**Direct extraction hopper**

for free flowing, lump and chunky material:
- metal pellets, sinter fines, granulates with a grain size of 0.5 - 5mm;
- lump coal with 5 - 50 mm grain size;
- Coke from 0.1- 0.5 mm grain size;
- burden.

**Vibrating feed hopper**

for bridging material respective moderately flowing and slightly sluggish material:
- lump coal with fines;
- dolomite, limestone;
- iron ore concentrate.

**Apron feeder**

for adhesive, plastic, sticky and very sluggish flowing material:
- lead ore.

**Flow gate with settling chamber**

for fluidizable material:
- limestone meal;
- betonite.

**Rotary feeder with settling chamber**

for flushing material:
- iron ore concentrate with grain size of 0.1 - 0.5 mm;
- blast furnace dust.
MechaTronic – The SCHENCK Design for Modern Weighfeeders:

Another important new feature of the MULTIDOS® Weighfeeder is the new MechaTronic concept.

MechaTronic is the integration of mechanics and electronics into one single state-of-the-art weighfeeding unit. Both motor and weighfeeder controls can be integrated into the MULTIDOS® so that commissioning can be accomplished by simply bringing power and communications to the unit. Easily accessible from the side of the MULTIDOS®, MechaTronic is close to the bulk material itself:

- COMPACT DRIVE = AC-Drive with integrated frequency converter
- MEASUREMENT = DISOCONT® VSA Control, Measurement and Supervisory Systems
- LOCAL CONTROL = DISOCONT® VLB (Optional)

This modern configuration contains the following advantages for installation, commissioning and operation:

Quick Installation and Commissioning:
- Minimum customer preparation required for the mechanical installation;
- Extremely reduced cabling;
- No control cubicle required;
- Plug and Play commissioning (prepared by and tested at SCHENCK);
- Simple activation of all industrial fieldbus serial comms facilitating easy integration to customer’s PLC;
- Enhanced PC based calibration assisted by SCHENCK’s EasyServe® commissioning and diagnostics tool.

Safe and reliable operation:
- direct control of all important weighing data and functions at the Weighfeeder;
- no problems with electromagnetic interference by the optimised cabling and the digital data transmission;
- mechanics in robust and nearly maintenance-free design.

Special Note: The classical execution of the electronics inside a separated control cubicle will additionally still be available in future.

Economical, easy of use, safe, robust and precise these modern features characterise the MULTIDOS® Weighfeeder. Already realised on many site across the world - now come put us to the test.