

Expertise in steel



Specialised solutions from Schenck Process

Schenck Process Group – your partner worldwide



Acting locally to support your needs, the Schenck Process Group is working where you are.

With a global network of sites and competent partners, the name Schenck Process is synonymous throughout the world with process expertise and well-engineered measuring technology for industrial weighing, conveying, feeding, screening, automation and air filtration technology.

Our key competencies include planning processes, feeding bulk materials, controlling flows of material, recording flows of goods, weighing goods and automating transport processes.

Members of the Schenck Process Group are:

schenckprocess 

stock 
schenck process group

fairfield 
schenck process group

clydeprocess 
schenck process group

pentec 
schenck process group

schenckAccuRate 

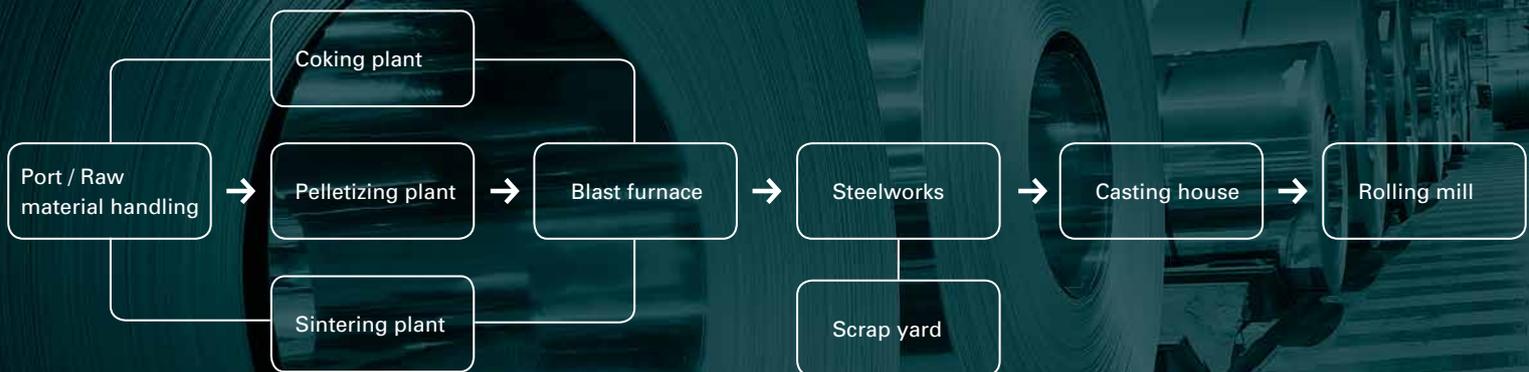
redler 
schenck process group

screenex 
schenck process group

macprocess 
schenck process group

The steel industry

From raw material to end product



Integrated steel works and electric steelworks all over the world rely on know-how and proven solutions from the Schenck Process Group to ensure the smooth processing of huge quantities of material.

- ❖ Good cost-effectiveness and low energy consumption
- ❖ High quality
- ❖ High process reliability and availability
- ❖ Environmentally compatible production processes

These are the requirements demanded by the steel industry and its customers. For this reason every project is preceded by a requirements analysis to identify the equipment required, the necessary engineering services and the work required for installation and commissioning. The resulting action plan often produces innovative new solutions.

Efficient processes for maximum quality

In ore smelting, the coke as the reducing agent has an important influence on the cost-effectiveness of the process and the quality of the final product.

The quality of the coke depends on the mixture of different coal qualities used, the measurement of actual coal use in the coking plant and optimum classification with screening machines.

In the coal mixing plant, weighfeeders or discharge feeders remove different types of coal from the bunkers to form the mixture in accordance with a specified recipe.

Example application:

Coking plant

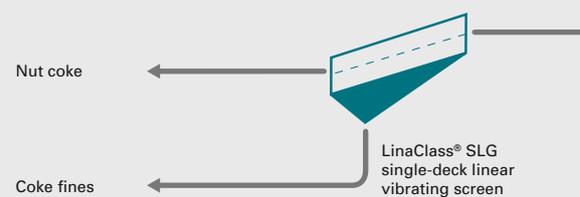
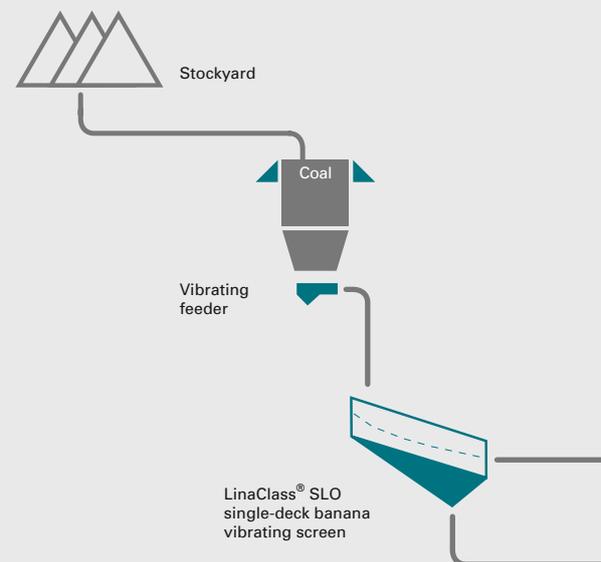
Our products at a glance

- ❖ **LinaClass® SLG** linear vibrating screen
- ❖ **LinaClass® SLO** banana screen
- ❖ **Vibrating feeders**
- ❖ **MULTIDOS®** belt weighfeeder
- ❖ **MechaTron®** loss-in-weight feeder
- ❖ **MULTIBELT®** belt weigher
- ❖ **Hopper scales**

Legend:

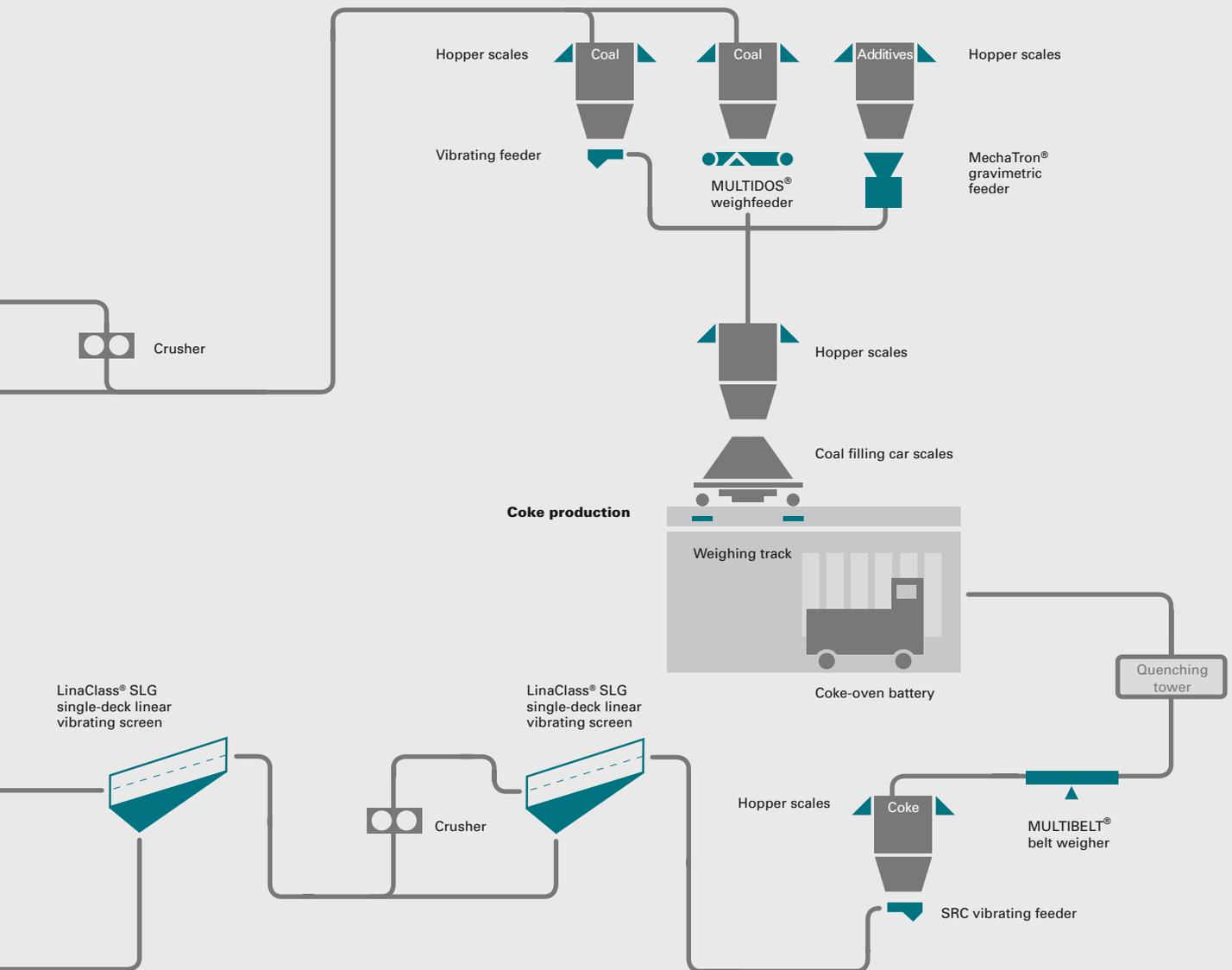


Process step covered by
Schenck Process Group



Correct filling of the coke-oven batteries depends on the load cells that weigh the bunkers on the vehicle or weighing tracks in its path. These ensure a high level of accuracy and complete balancing, thus making sure that materials are used economically.

Schenck Process vibration technology is used in the classification process that follows to precisely sort the coke into the required particle sizes. The equipment must be extremely resistant to wear and corrosion. Schenck Process linear vibrating screens have been delivering a high standard of performance for decades, making optimum use of fuel for the blast furnace.



High precision all down the line

The equipment used to pelletise iron ore needs to be capable of conveying, feeding, mixing and screening a wide range of materials under the toughest conditions. High handling speeds and high plant availability are both essential.

Here, Schenck Process solutions make a vital contribution to ensuring consistent quality and optimising the production process.

Example application:

Pelletizing plant

Our products at a glance

- ❖ **LinaClass® SLK/SLG** linear vibrating screen
- ❖ **Vibrating feeders**
- ❖ **MULTIDOS®** belt weighfeeder
- ❖ **MechaTron®** loss-in-weight feeder
- ❖ **MULTIBELT®** belt weigher
- ❖ **Hopper scales**
- ❖ **Train loader (TLO)** wagon loading system
- ❖ **MULTIRAIL® LegalWeight** dynamic train scales

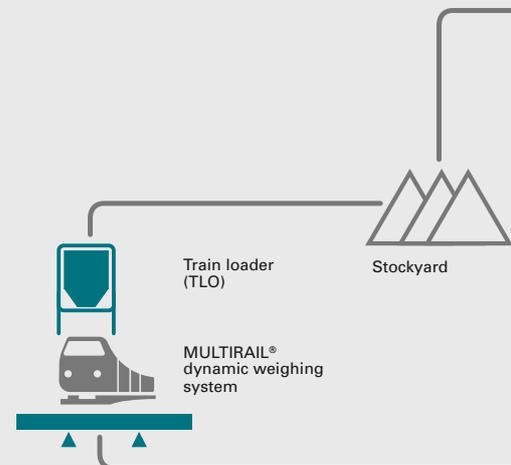
Legend:



Process step covered by
Schenck Process Group

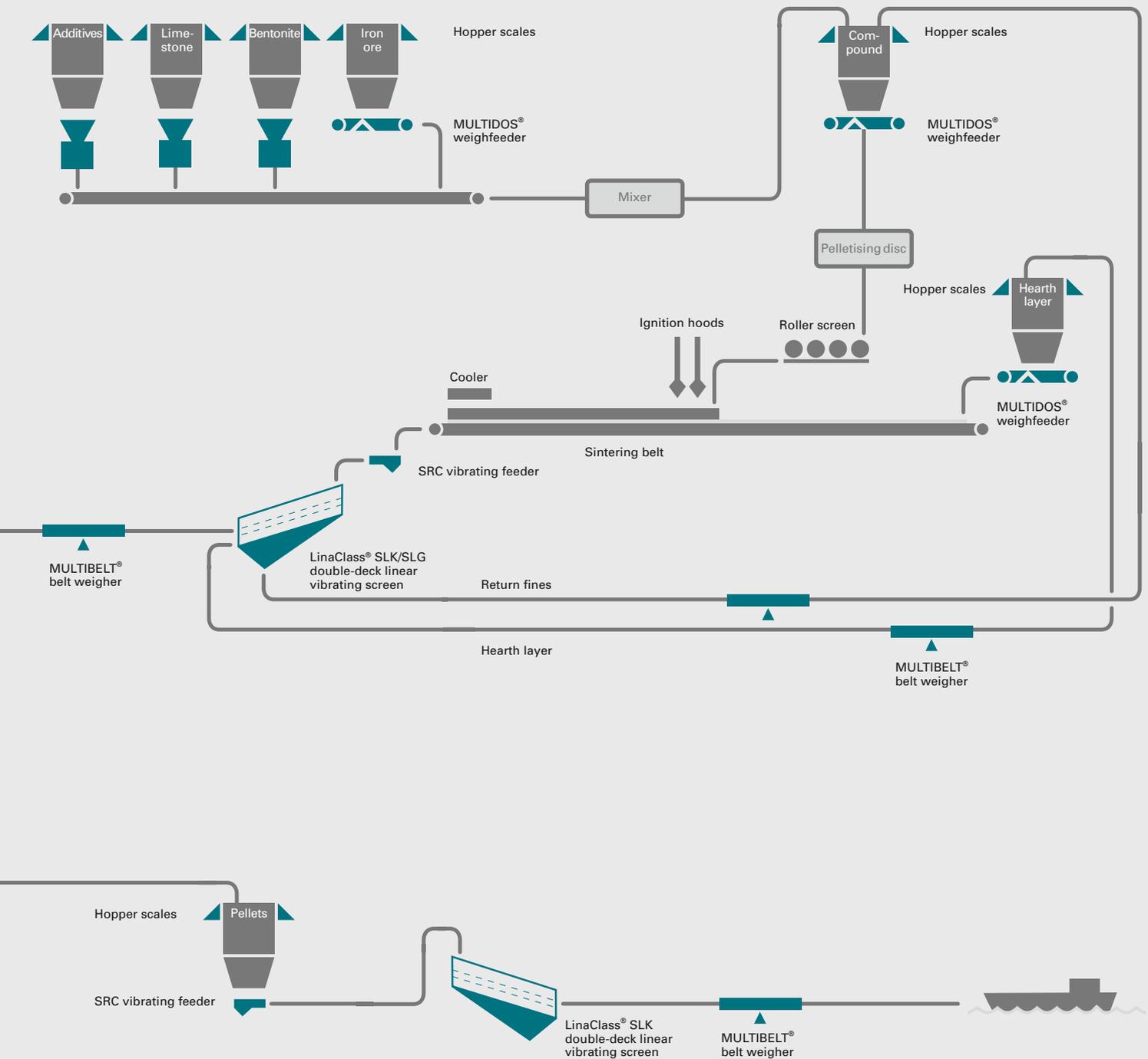
Hopper scales

MechaTron®
gravimetric
feeder



Schenck Process MULTIDOS® belt weighfeeders or MechaTron® loss-in-weight feeders are used for continuous gravimetric feeding of all the materials required to make the pellet mix. Minimised investment and follow-on costs (operating and maintenance costs), ease of installation and improved accuracy and quality of the end product are just some of the benefits that our products deliver.

Schenck Process LinaClass® vibratory equipment of the SLG and SLK types plays an essential role in the screening of iron ore pellets after burning and cooling and before loading. Our SRC type vibrating feeders are also used to discharge material from the bunkers and feed it to the screens.



Solutions for stable processes

Achieving consistent quality in steel production requires a wide range of materials to be accurately conveyed, mixed, fed and screened under the toughest conditions. High handling speeds and maximum availability of all components are essential.

Schenck Process solutions make a vital contribution to the optimisation of the production process.

Example application:

Sintering plant

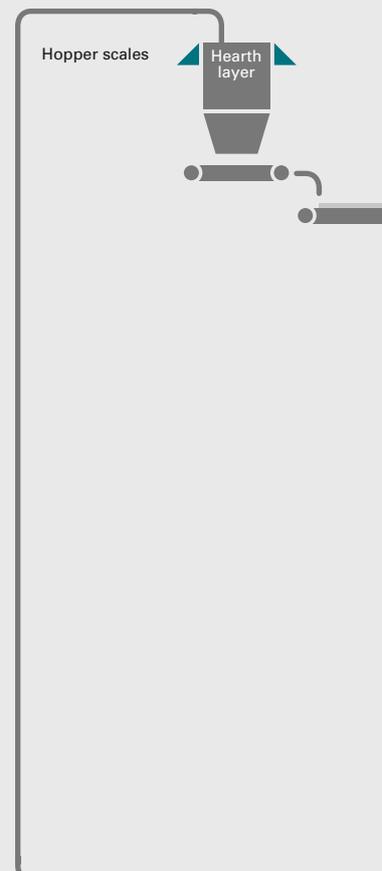
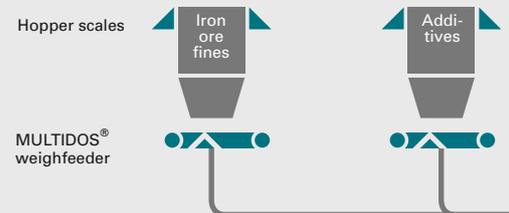
Our products at a glance

- ❖ **LinaClass® SLG/SLK** linear vibrating screen
- ❖ **LinaClass® SLH** hot screen
- ❖ **Vibrating feeders**
- ❖ **MULTIDOS®** belt weighfeeder
- ❖ **MechaTron®** loss-in-weight feeder
- ❖ **MULTIBELT®** belt weigher
- ❖ **Hopper scales**

Legend:

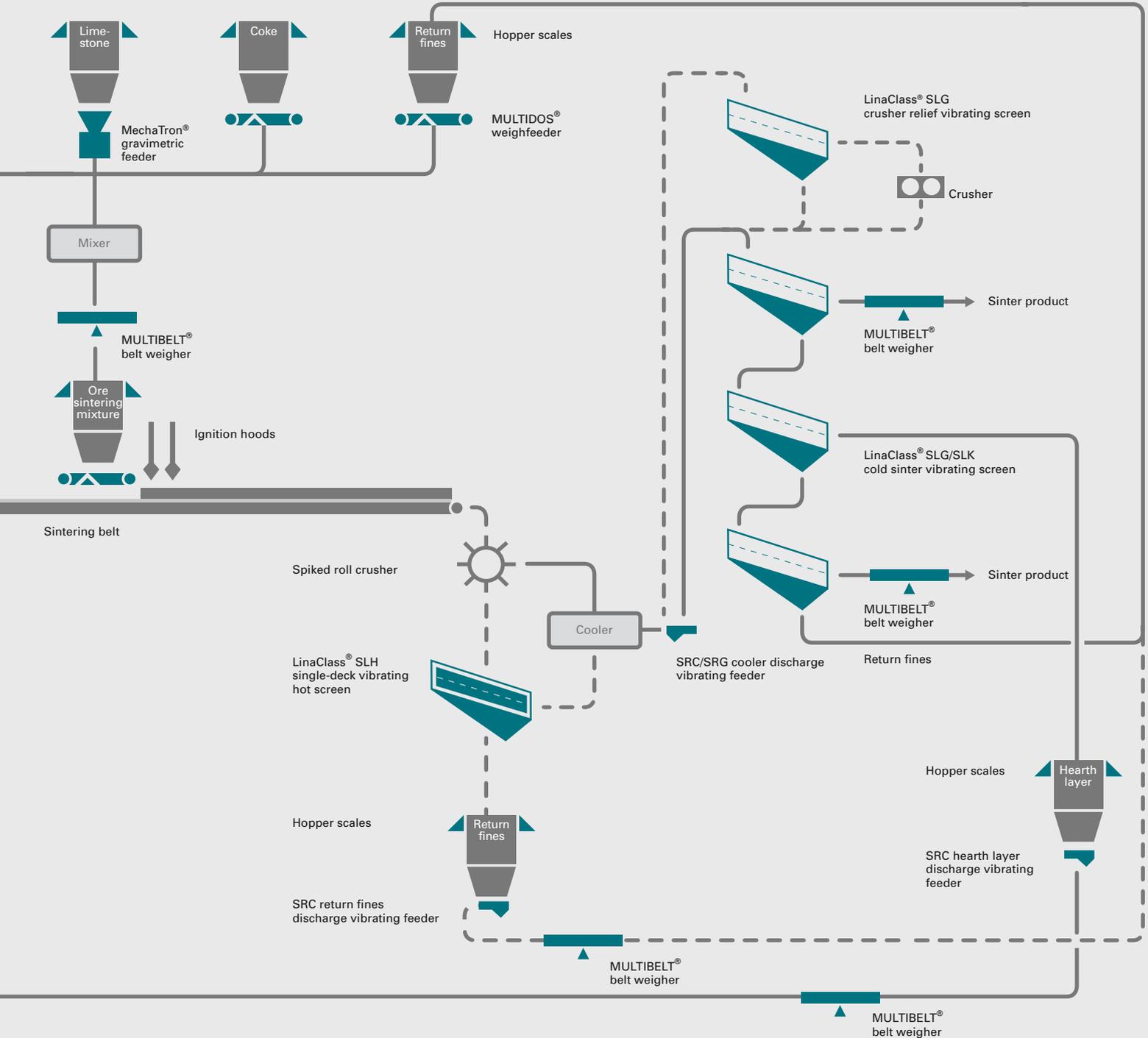


Process step covered by
Schenck Process Group



Schenck Process MULTIDOS® belt weighfeeders or MechaTron® loss-in-weight feeders are used for continuous gravimetric feeding of all the materials required to make the sintering mixture. Minimised investment and follow-on costs (operating and maintenance costs), ease of installation and improved accuracy and quality of the end product are just some of the benefits that our products deliver.

Schenck Process LinaClass® vibratory equipment of the SLH, SLG and SLK types plays an essential role in the screening of hot and cold return fines and the hearth layer and the classification of the sinter for addition to the blast furnace. Our SRC type vibrating feeders are also used to discharge material from the bunkers and feed it to the screens.



Focus on operating reliability

In the burdening process, stringent operating reliability and cost-effectiveness requirements apply.

This is where Schenck Process weighing and classification systems, with their high precision, come in.

From level measuring equipment for the day bins to hopper scales for setpoint-controlled feeding and monitoring measuring equipment, Schenck Process makes operations and processes work reliably.

Example application:

Blast furnace

Our products at a glance

- ❖ **LinaClass® SLG/SLK** linear vibrating screen
- ❖ **Vibrating feeders**
- ❖ **MULTIDOS®** belt weighfeeder
- ❖ **MULTIBELT®** belt weigher
- ❖ **Hopper scales**
- ❖ **MULTIRAIL® HotMetalWeight** torpedo train scales
- ❖ **Pulverised coal injection**
- ❖ **Top hopper scales**

Legend:



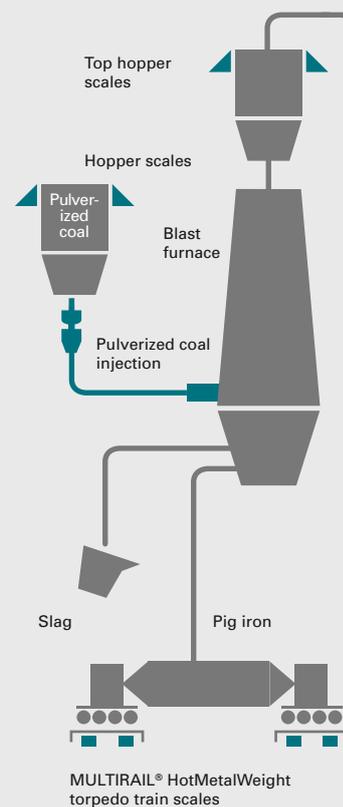
Process step covered by
Schenck Process Group

Burdening

Hopper scales

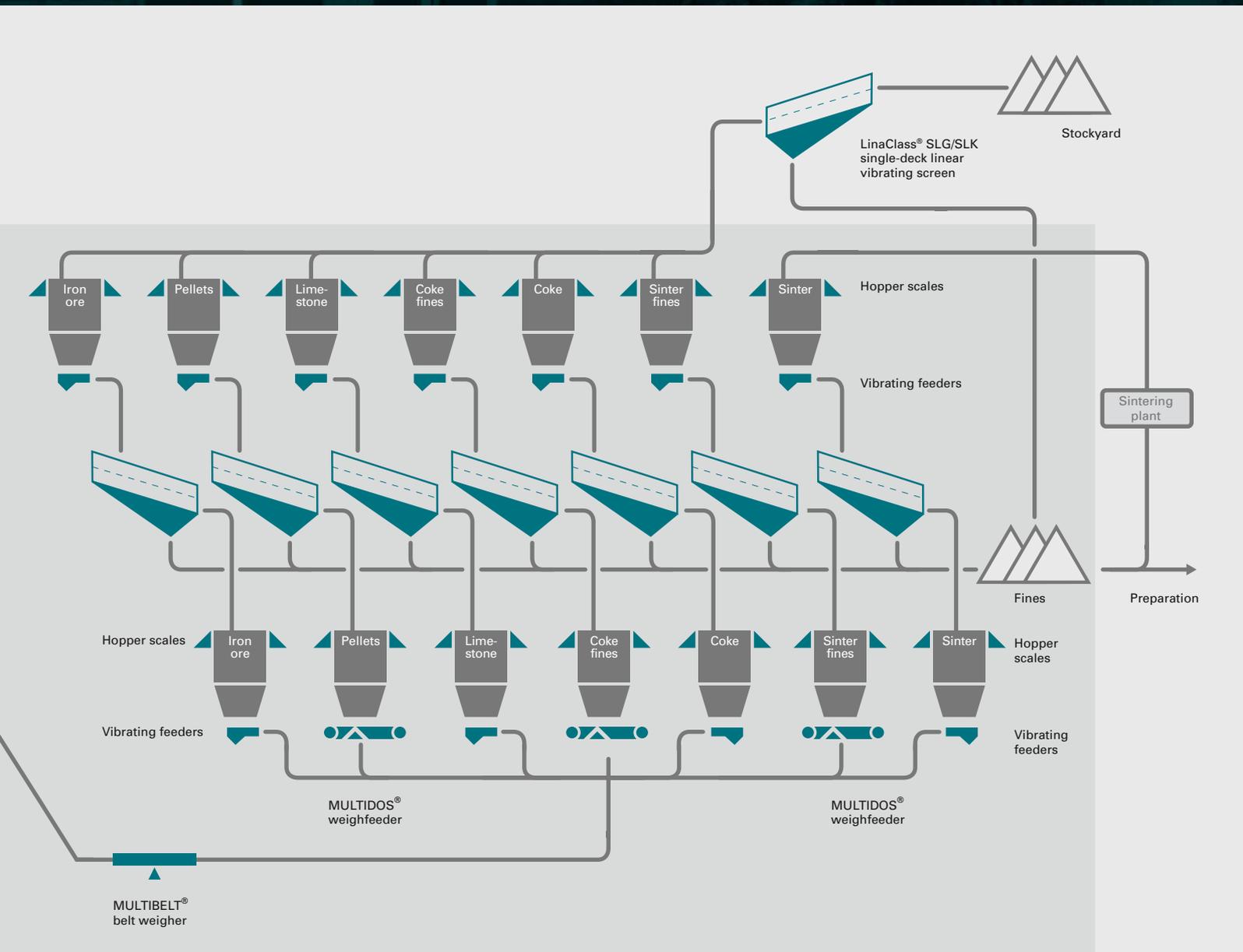
Vibrating feeders

LinaClass® SLG
single-deck linear
vibrating screens



Our products also balance mass flows, both individually and in relation to upstream and downstream production units.

Vibrating feeders continually transport the flow of additives and in the stockhouse, linear vibrating screens ensure continuous, economic operation of the blast furnaces.



High-efficiency weighing and feeding technology for all relevant process stages

The global consolidation of the steel industry demands optimised processes. Weighing and feeding systems have always played an important part in economical and safe steel production: from the mass control and feeding of raw materials to the processing of pig iron and crude steel to the sale of the finished products.

The weighing and feeding systems used for internal control in the production area (scrap yard, blast furnace, converter, EAF and continuous casting machine) have to operate in a particularly harsh environment. They handle weights of 1 to 1000 tonnes, sometimes at extreme temperatures.

Example application:

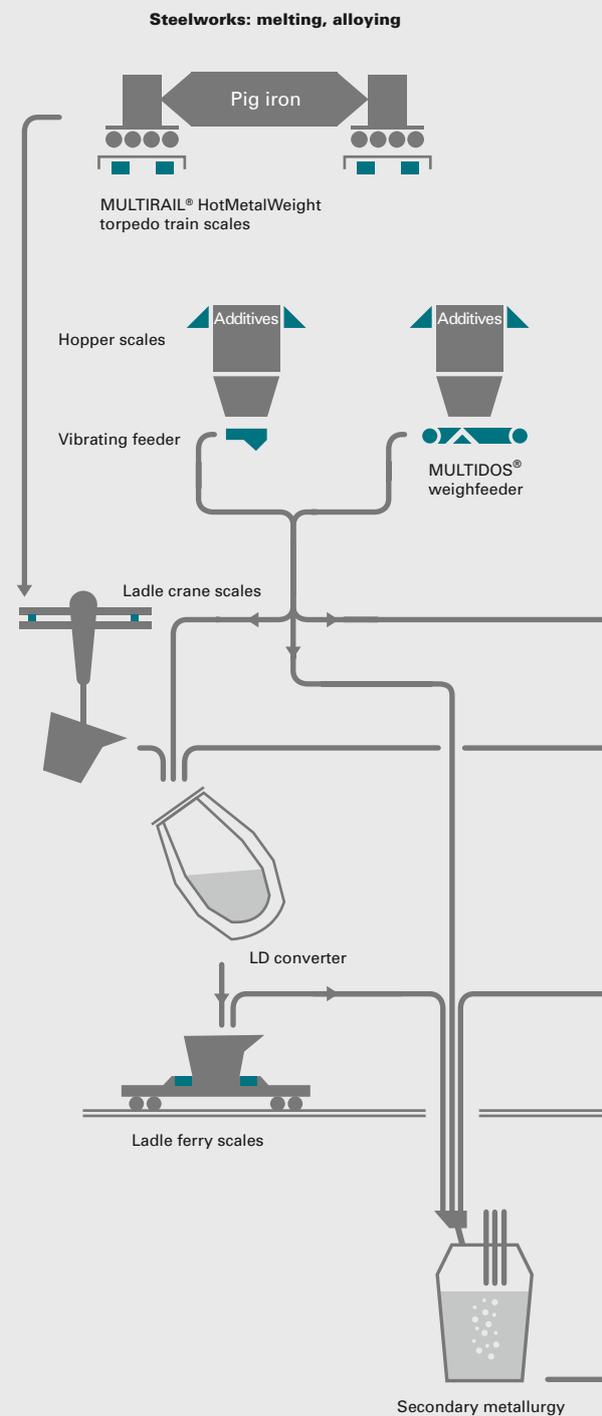
Scrap yard, steelworks, casting house, rolling mill

Our products at a glance

- ❖ **Vibrating feeders**
- ❖ **MULTIDOS®** belt weighfeeder
- ❖ **Hopper scales**
- ❖ **Ladle ferry scales**
- ❖ **Scrap ferry scales**
- ❖ **Platform scales**
- ❖ **MULTIRAIL® LegalWeight** dynamic train scales
- ❖ **MULTIRAIL® HotMetalWeight** torpedo train scales
- ❖ **Crane scales**
- ❖ **Ladle turret scales**
- ❖ **Tundish scales**
- ❖ **Roller table scales**
- ❖ **Coil scales**
- ❖ **Platform scales for bar iron**

Legend:

Process step covered by
Schenck Process Group

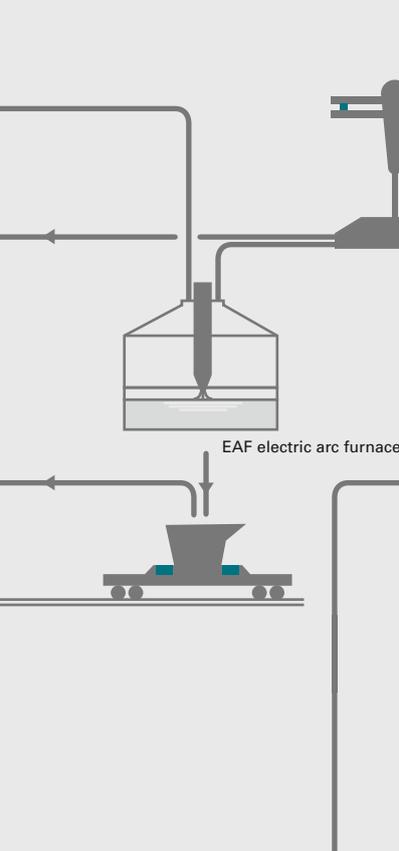
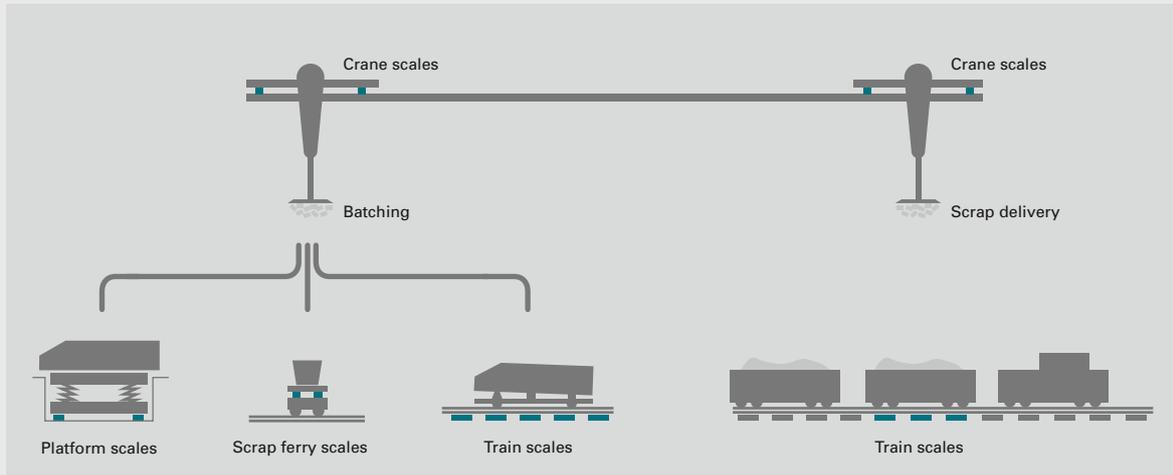


The requirements are many and varied:

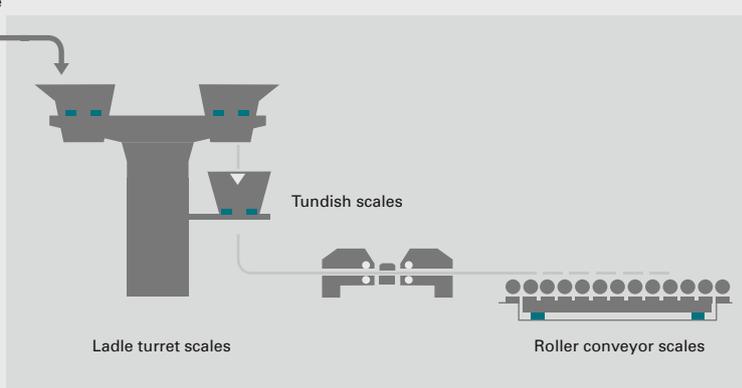
- ❖ Production control to achieve stable quality parameters
- ❖ Measuring and optimising production efficiency
- ❖ Internal cost allocation

Weighing and feeding systems from Schenck Process operate accurately, reliably and with little maintenance throughout their service life. Schenck Process develops, designs and manufactures direct weighing technologies for specially adapted load cells for steel production in house. This enables us to respond optimally to our customers' growing requirements.

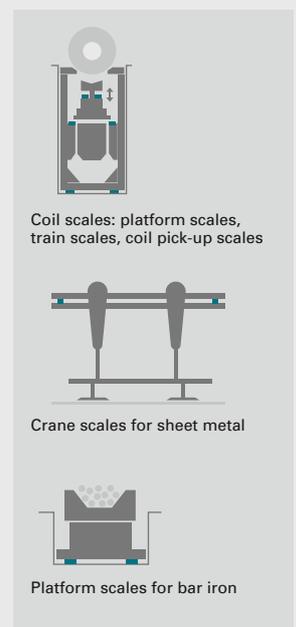
Scrap yard: preparation of scrap charge



Casting house: casting, moulding



Rolling mill: rolling, shaping



Vibration technology

Expertise in bulk material handling

Accurate bulk material separation is essential for a high-quality end product. To this end, Schenck Process delivers the complete solution from one source.

- ❖ The experts at the Schenck Process TestCenter will find the perfect solution for your individual screening job.
- ❖ Our vibratory equipment masters even the most difficult bulk materials. Wet or dry, large chunks or the finest particles. No matter whether it's ore, coal, coke, pellets, sinter, hot sinter heated to as much as 1050°C, limestone or other bulk materials used in the steel industry.
- ❖ Tailored to your specific screening job, we provide screen panels for all vibratory equipment.

→ SCREENING



LinaClass® SLG/SLK/SLS

Linear vibrating screens

- ❖ Width up to 4500 mm
- ❖ Length up to 11 500 mm
- ❖ Directed-force exciters
- ❖ Single-, double- and triple-deck versions

→ SCREENING



LinaClass® SLH

Hot screen

- ❖ Screening hot material (up to 1050°C)
- ❖ Special screen panel fixing system
- ❖ Suitable for the harshest conditions
- ❖ Width up to 4000 mm
- ❖ Length up to 8340 mm

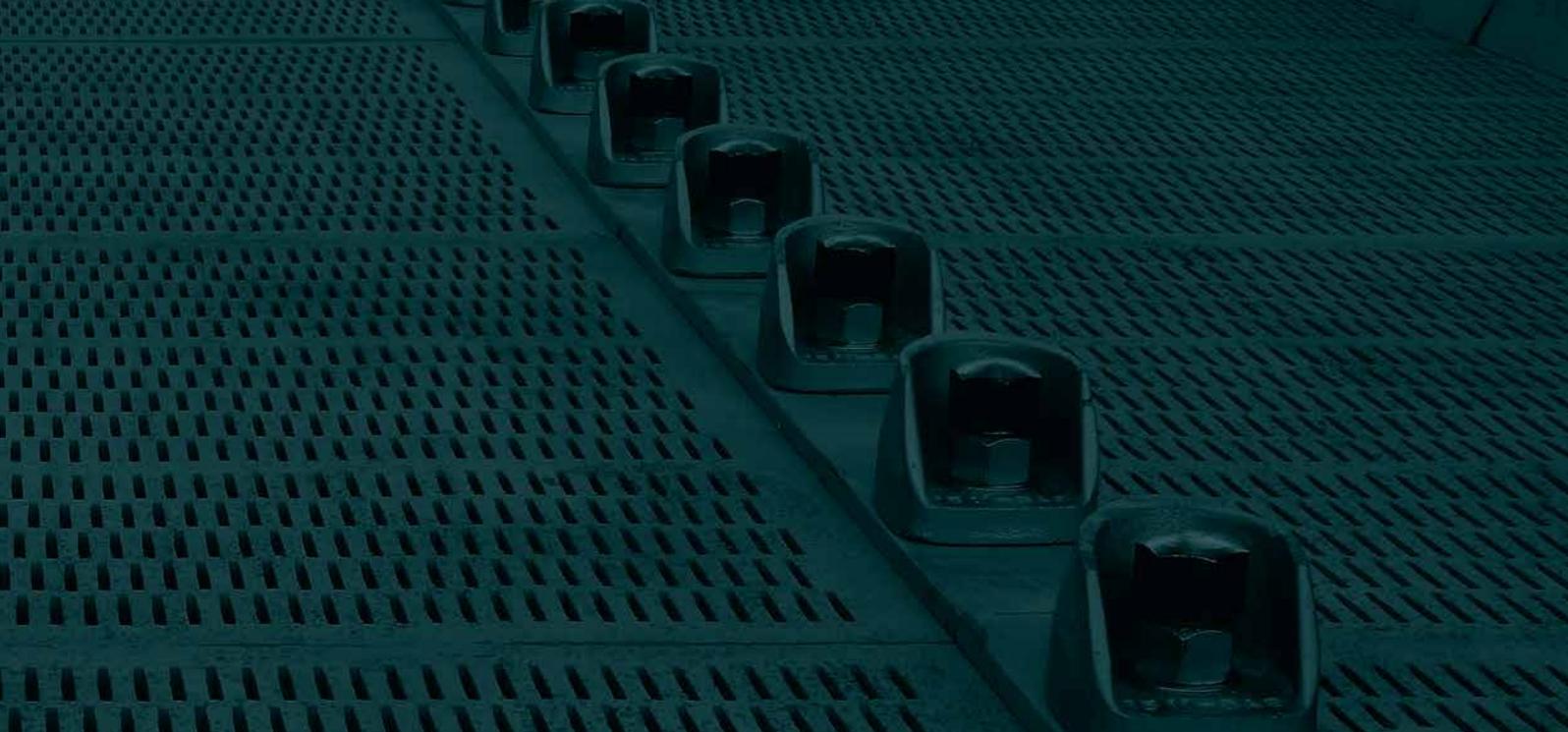
→ SCREENING



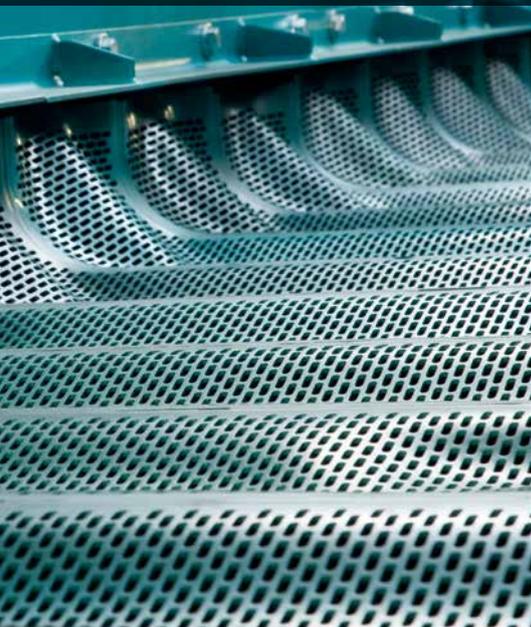
LinaClass® SLO

Banana screen

- ❖ Different inclinations for screening large quantities with a high proportion of fine material
- ❖ Width up to 4500 mm
- ❖ Length up to 10 800 mm
- ❖ Robust directed-force exciter
- ❖ Single- and double-deck versions



→ SCREENING



→ SCREENING



→ SCREENING



FlexaClass SFX

Flip-flop screen

- ❖ Screening of sticky, wet, hard-to-screen materials
- ❖ Selectivity with moisture content of more than 12%
- ❖ Self-cleaning through dynamic vibration
- ❖ Reduced screen acceleration means less stress on the screen body
- ❖ Easy to assemble and quick access to screen mats
- ❖ Panel width up to 2500 mm

LinaClass® SLR

Crusher relief screen

- ❖ Charge and relief of crushers with one machine
- ❖ Width up to 2800 mm
- ❖ Length up to 8500 mm

Screen panels

- ❖ Panels made from highly wear-resistant polyurethane, system panels and steel panels
- ❖ Maximum dimensional accuracy through mechanical rework
- ❖ Shore hardnesses of 55 to 90 Shore A

Weighing and feeding technology

Maximum precision in bulk material handling

Weighing, feeding and conveying equipment handles a range of bulk materials from the finest to the toughest with very high accuracy. The harsher the environment, the more robust the technical systems need to be.

Schenck Process weighing modules, for example, calculate the highly precise addition of alloying agents in electric steelworks or the exact weight of a ladle weighing several tonnes in a continuous casting plant. Intelligent weighing and feeding systems allow direct feeding and precise measurement. All logistics are handled by loading and automation systems.

Our weighing, feeding and conveying systems measure weight, force and material throughput. They offer robustness, precision and reliability – and are built to withstand the harshest conditions.

→ CONVEYING



→ FEEDING



→ FEEDING



Vibrating feeders SRC/SPB/SMA

- ❖ Straight or trapezoidal feeder troughs
- ❖ Directed-force exciters, unbalance motors or magnetic exciters
- ❖ Proven design
- ❖ Various wear protection options available

MULTIDOS®

Belt weighfeeder

- ❖ Feed rate up to 1500 t/h
- ❖ Maximum accuracy $\pm 0.25\%$
- ❖ Mechatronic version also available
- ❖ Long experience with many important industrial bulk materials

MechaTron®

Loss-in-weight feeder

- ❖ Safe discharge with integrated agitator
- ❖ Feed and extension hoppers made of acid- and corrosion-resistant steel
- ❖ Integrated measurement, control and monitoring electronics
- ❖ High feed accuracy and consistency, better than $\pm 0.5\%$



→ FEEDING

→ WEIGHING

→ WEIGHING

MULTICOR® K

- Pulverised coal feeding
- ❖ Pulsation-free feeding
 - ❖ High feed consistency = high process stability and efficient combustion
 - ❖ Feeding independent of external factors
 - ❖ Engineering, material discharge, feeding and measurement from one supplier

MULTIBELT®

- Belt weigher
- ❖ Precise mass flow measurement
 - ❖ Standard and customised versions available
 - ❖ Accuracy up to $\pm 0.25\%$
 - ❖ Optional: legal-for-trade design

Hopper scales

- ❖ For hoppers up to 3000 t
- ❖ Legal-for-trade accuracy
- ❖ Large overload capacity
- ❖ Maintenance-free design



→ WEIGHING



Scrap ferry & ladle ferry

- ❖ Large overload capacity, easy installation, minimum maintenance
- ❖ High level of weighing accuracy:
 - up to $\pm 0.1\%$ of weighing range final value
 - up to $\pm 1\%$ of actual value of loaded scrap

→ WEIGHING



Platform scales or weighbridges

- ❖ Concrete or welded construction
- ❖ For heavy-duty vehicles up to 200 t
- ❖ Legal-for-trade accuracy

→ WEIGHING



MULTIRAIL® LegalWeight

Dynamic train scales

- ❖ High-precision, legal-for-trade weighing
- ❖ Up to 15 km/h
- ❖ No need for foundations or interruption of track
- ❖ Temperature range of -40°C to $+70^{\circ}\text{C}$



→ WEIGHING



→ WEIGHING



→ WEIGHING

Crane scales

- ❖ Precise weighing during working process
- ❖ Automatic weighing and simple operation
- ❖ Modular electronics and passive measuring elements
- ❖ Proven, hermetically encapsulated load cells or sensors
- ❖ Numerous successful examples of installation in trolley or spreader beam

Weighing sensors

- ❖ At a glance:
 - ring-torsion load cells RTN, weighbeam DWB and weighdisc WDI
- ❖ Accuracies of $\pm 0.1\%$ up to maximum calibrated precisions of C5 class
- ❖ Rated loads of 130 kg to 470 t
- ❖ Service temperatures up to 150°C
- ❖ Customised load cells from a single source

Weighing and feeding electronics

- Suited to measuring, controlling, feeding and feedback work in all industries
- ❖ Legal-for-trade design
 - ❖ Temperature range -30°C to +60°C
 - ❖ Scope for connecting up industrial fieldbuses
 - ❖ Wireless communication via Bluetooth
 - ❖ Clear user guidance on the backlit LCD with graphics



→ CONVEYING



Mechanical conveying and MoveMaster®

bulk conveying

- ❖ Tube belt conveyor
- ❖ U belt conveyor
- ❖ Corrugated belt conveyor
- ❖ Smooth material handling
- ❖ Horizontal transport and elevating
- ❖ Maintenance-optimised design
- ❖ Trough chain conveyor

→ CONVEYING



Pneumatic conveying / injection

- ❖ For difficult (abrasive or fragile) materials
- ❖ For temperatures up to 450°C
- ❖ Feed rates of over 300 t/h
- ❖ For distances over 2 km
- ❖ Low maintenance requirements

→ RECEIVING



IntraBulk®

Truck unloading

- ❖ Receiving buffer hopper and apron conveyor as link to the continuous process
- ❖ Dust extraction systems
- ❖ Quick discharge, safe operation



Process
Advanced
Service
System

PASS

Complete solutions for your requirements

Looking for after-sales solutions? Our extensive Process Advanced Service System (PASS) provides you with after-sales services – customised to your specific requirements.

The framework of our PASS program is designed with you in mind. With the guidance of our experienced after-sales team, you can create PASS packages comprising original spare and wear parts, various services and high quality components to meet your needs.

PASS is based on a modular principle – you can pick and choose any individual PASS product or a combination of products. Four categories help to easily find appropriate PASS products.

We will happily provide you with individual consultation, either as part of a PASS contract or on individual enquiry.

Whatever Full Service means to you – let's create it together!

Our PASS service categories

PASS Repair

PASS Inspection

PASS Management

PASS Support

Schenck Process TestCenters worldwide

Test results you can rely on.



No matter what materials you use, processes need to run smoothly. When processing your products, if you want complete peace of mind that materials and machines are perfectly matched, realistic tests in our TestCenters are what you need.

Which feeder is best for which bulk material?
How can you select the ideal screen panel for maximum screening efficiency? What needs to be noted for pneumatic conveying, dust collection and feeding? And what requirements do alternative fuels place on feeding and conveying systems?

Schenck Process operates TestCenters around the globe which are tailored to your individual challenges. Two of these centres are in Darmstadt. Additional test facilities can be found at our Locations in the UK, Austria, the Czech Republic and the USA.

The test results gained will help you determine optimum processes and thereby ensure successful production results.



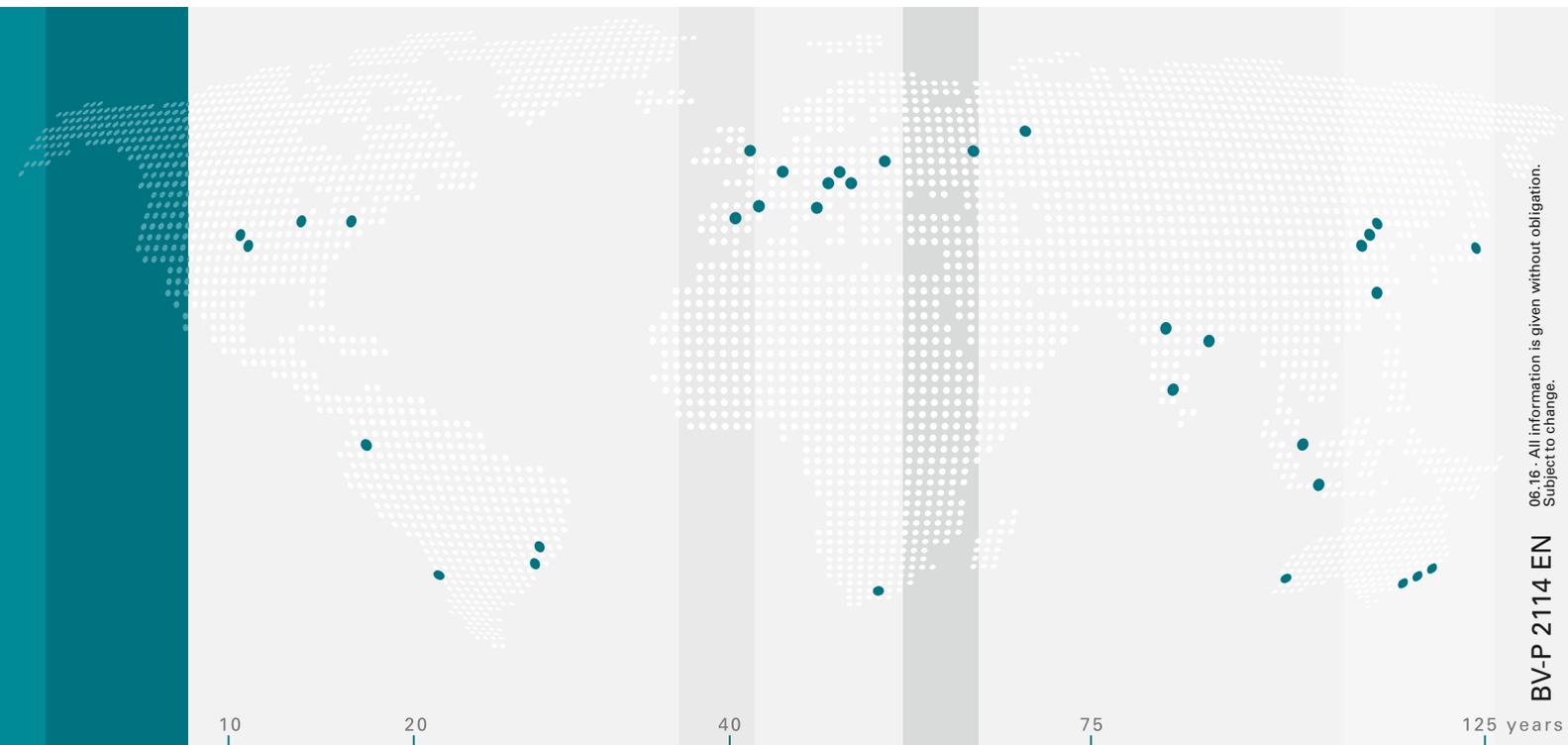
Which screen panel is suited to your bulk material?
The experts at the screening TestCenter will find the perfect solution for your screening job.

Our service

- ❖ Material screening tests
- ❖ Material analysis (analytical screening, analysis of material characteristics)
- ❖ Detailed report with full results

You benefit from

- ❖ Analysis of your application
- ❖ Identification of the optimum screen panel for maximum screening efficiency
- ❖ Quality check and dimensional accuracy testing – for maximum product quality



06.16 - All information is given without obligation.
Subject to change.

BV-P 2114 EN

The Schenck Process Group is a global leader in
industrial weighing and feeding technology /// screening and separation systems for bulk material /// dust collection
and air filtration technology /// pneumatic and mechanical materials handling /// automation and diagnosis technology

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we make processes work