

ND

ELECTRONIC PROCESS WEIGHING MACHINES



PAGLIERANI

mechatronics at its best

Paglierani World

Paglierani offers you
10 fundamental
benefits
for strengthening
your business.



SINGLE PARTNER

From a single machine to a complete line, from a simple standard system to a custom solution, Paglierani is your single partner to **reduce costs and risks** in the realisation of a high-performance plant.

99.9% RELIABILITY

Standard machines industrially constructed, almost a century of know-how in the weighing and bagging field are your guarantees of **high-performance and reliable machines**, perfectly **coordinated** with **the upstream and downstream machinery**.



3

EVEN IN AGGRESSIVE ENVIRONMENTS

For use in aggressive environments, the machines are treated with **anti-corrosion painting** cycles and the parts in contact with the product are in **stainless steel**, nuts and bolts included.



4

SAFETY AND REGULATORY COMPLIANCE

Perimeter protection and light curtains guarantee the most complete **extrinsic safety** while **intrinsic safety** is ensured by the machine's construction type.



5

ITALIAN MADE

All Paglierani products are **designed, produced and assembled in Italy**, in our plants. With an all-Italian know-how to guarantee the highest quality level.



6

REFERENCES ALL OVER THE WORLD

Our installations have been improving our customers' business **since 1926**. Almost a century of experience in the field and hundreds of **references across the globe**.



PRE-SHIPMENT TESTING

Prior to shipment, all machines are **pre-assembled, connected and tested**. Thus ensuring their proper functioning and high performance. During this procedure, **the customer may attend all tests**.

USER-FRIENDLY & SMART

Machines and complete lines that are **easy to use, quick to clean and simple to maintain**. Constantly monitored remotely with the **on-line service**.

TECHNOLOGY AND SUSTAINABILITY

Our machines are designed to guarantee **optimal use of energy** and deliver the highest performance with **minimal consumption**.

ORIGINAL SPARE PARTS. ANYTIME AND ANYWHERE

The high and constant availability of original spare parts, **guaranteed for machines' entire lifecycle**, makes Paglierani a totally reliable partner, with **fast deliveries anywhere in the world**. And your business is guaranteed to never stop.

ND Series electronic process weighing machines.

High precision for accurate control of process performances.

WEIGHING PRECISION: +/- 0.1%

The use of load cells (OIML approved, 3000 divisions) and the special weighing cycle guarantee outstanding precision (+/- 0.1%).

Paglierani weighing machines are approved by the weights and measures offices in the main countries (list available on request).

RUGGED CONSTRUCTION

The high quality of the materials used and the impressive design and construction experience of Paglierani, mechatronics firm and industry leader, guarantee reliability and unbeatable performance.

Weighing machines are extremely tough, built to work NON-STOP, 24 hours a day

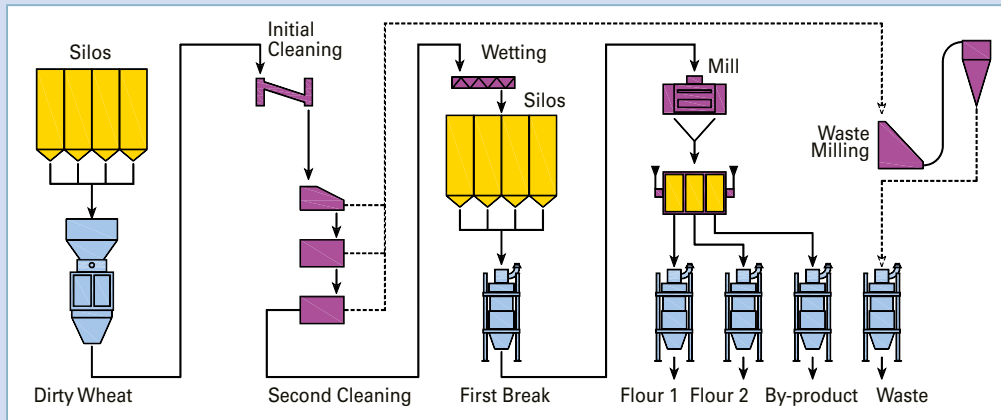
MINIMAL MAINTENANCE

The elimination of moving parts and easy access to internal components deliver minimal, trouble-free maintenance.

APPLICATIONS

IN-PROCESS

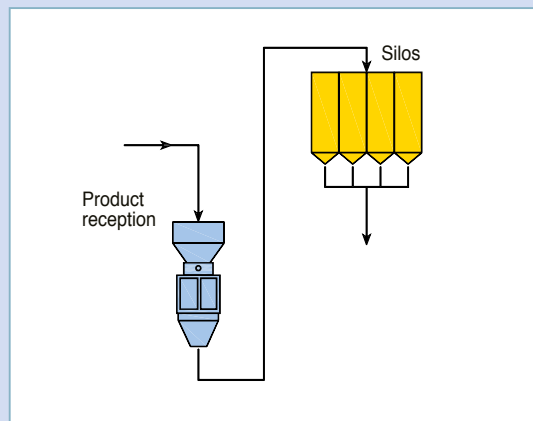
For controlling quantities of incoming and finished products for instantaneous, continuous control of process plant performance.



Example of integration of ND weighing machines in the milling process.
N.B.: First Break = WGL Dosing Machine

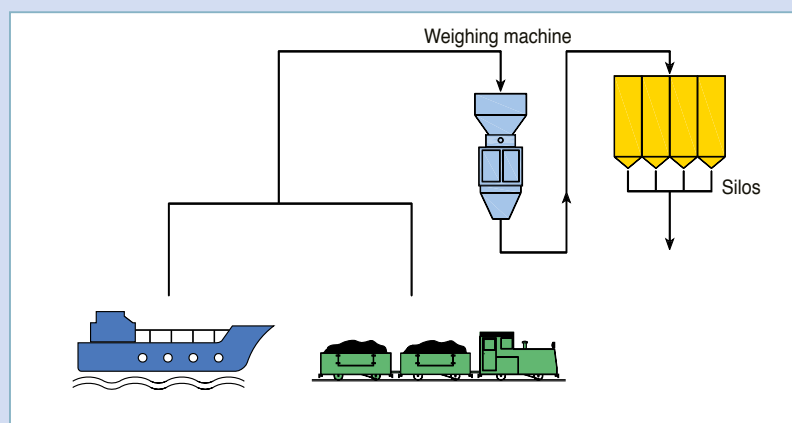
ON RECEIPT OF PRODUCT

To check and record the quantity transferred to the storage and process plant.



DURING UNLOADING OF SHIPS OR TRAINS

To record the quantity of product.



TUBULAR

For weighing machines model:
ND 25 - ND 70 - ND 120 - ND 170 - ND 220

Their airtight tubular form makes these weighing machines ideal for applications requiring compliance with the strictest hygiene standards.

There are no parts where contamination may occur.

All control devices (load cells, pneumatic cylinders and limit switches) are on the outside, preventing direct contact with the product and wear of the components themselves.



1

CONSTRUCTION TYPE

TRADITIONAL “JACKETED SCALE”.



For weighing machines model:
ND 320 - ND 470 - ND 850 - ND 1350 - ND 2100

In these traditional weighing machines, the external framework encloses the weighing container, while the external jacket (easily opened for access for maintenance and cleaning) provides airtight protection.

The weighing container is complete with pneumatically operated double hatch on the bottom for batch discharge.



2

QUALITY OF MATERIALS

The standard version is in **carbon steel painted with food-approved paints**.

A special anti-contamination version has contact parts only in **AISI 304 stainless steel**.

For aggressive environments and applications, units are in **AISI 304 or AISI 316 stainless steel** throughout

FLOW-RATE

The flow-rate achievable depends on the product (specific weight and particle size) and the weight required.

FLOW RATE IN TONNES ACHIEVABLE PER HOUR*

	ND 25	ND 70	ND 120	ND 170	ND 220	ND 320	ND 470	ND 850	ND 1350	ND 2100
Cereals (S.W. 0.7)	2,4	6	12	15	22	40	60	100	200	300
Flour (S.W. 0.6)	2	5	10	13	18	n.a.	n.a.	n.a.	n.a.	n.a.
Semolina (S.W. 0.6)	2,4	6	12	14	20	35	50	80	150	220
Milling by-products (S.W. 0.3)	n.a.	2,5	5	6,5	9	n.a.	n.a.	n.a.	n.a.	n.a.
Waste from grain cleaning (S.W. 0.25)	n.a.	2	5	6	8	n.a.	n.a.	n.a.	n.a.	n.a.
Sugar (S.W. 0.85)	2,4	6	12	14	22	40	55	80	180	220
Plastic granules (S.W. 0.7)	2	5	10	12	18	35	40	60	n.a.	n.a.

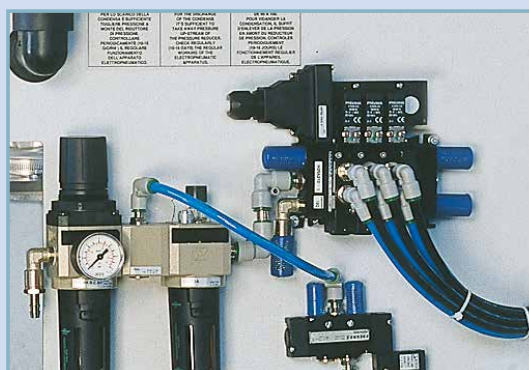
* Guideline table

S.W. = kg/dm³

n.a. = not applicable

PNEUMATIC CONTROL EQUIPMENT

The pneumatic system is complete with FRL unit and solenoid valves. It is easily accessible for maintenance.



WEIGHING ELECTRONIC CONTROL UNIT

Can be installed on-board the unit or remote, in the zone considered most suitable for monitoring of the data processed. It is completely enclosed in an airtight case and also incorporates the electronic circuit boards. It is extremely user-friendly and the programming procedure involves “guided steps” (machine/operator dialogue).

The ECU has a weight autolearning programme and is able to save and display the following information:

- Hourly flow-rate t/h.
- Instantaneous flow-rate t/h.
- Batches weighed.
- Total kg.
- Daily total kg.
- Previous day total kg.
- Preset kg.



OPERATING PRINCIPLE

The product is weighed into a container and then discharged into the (process) circuit by means of a discharge hopper (optional).

- The **feeder device**, which uses the same operating principle for all types of product (both powder and granular), comprises a helmet-type pneumatic gate valve. It is opened at the start of the weighing cycle and closed when the target weight is reached.
- The **weighing container**, supported by load cells (2 for ND 25 - ND 70 - ND 120 - ND 170 - ND 220 - ND 320 or 3 cells for ND 470 - ND 850 - ND 1350 - ND 2100) collects the product for weighing and discharges it when the weight is reached.

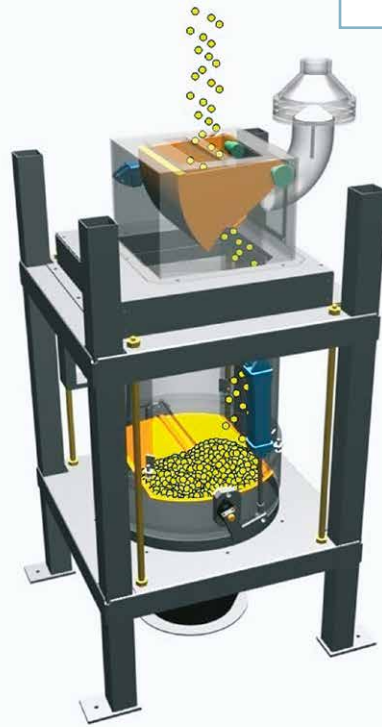
WEIGHING CYCLE

STEP 0



At the start of the cycle, the container is emptied to remove any product left inside it.

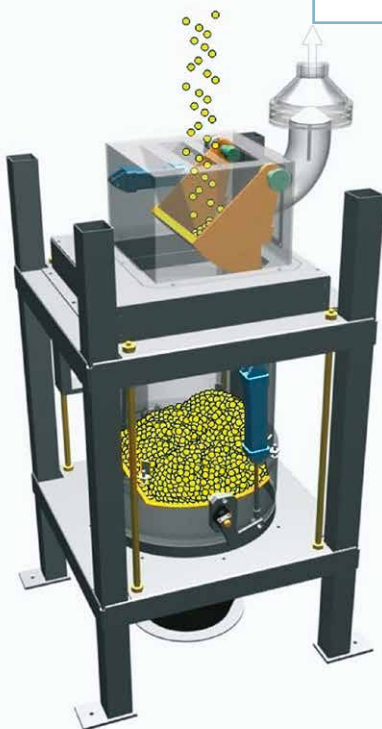
STEP 1



Once the container has been emptied, the system performs self-calibration, after which the intake gate valve opens to load the product for weighing.

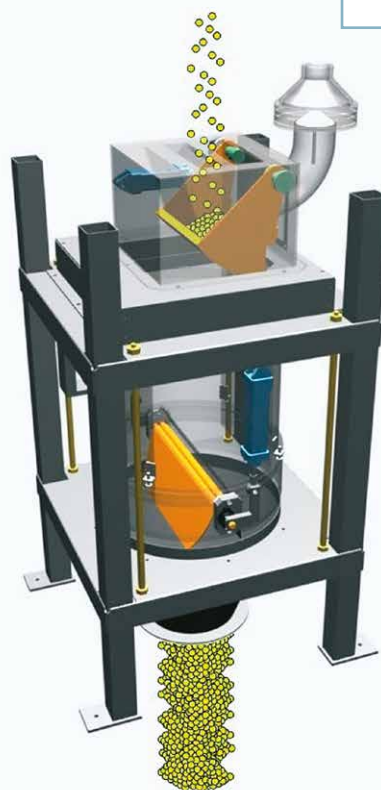
WEIGHING CYCLE

STEP 2



Once the set weight is reached, the intake gate valve is closed and the actual quantity of product in the container is checked.

STEP 3



After checking, the product is discharged into the loading hopper and the weight reading is saved.

The cycle restarts from Step 1.

EC DIRECTIVE

ND Series weighing machines are constructed in accordance with European Community directives and are distributed with the CE marking.

COMMUNICATION OPTIONALS

In addition to the machine's default communication equipment, the following are available:
- MODBUS TCP/IP - 232 PROFINET - 232 ETHERNET IP

HARDWARE AND SOFTWARE PACKAGE FOR PRINTOUT AND EXTRACTION YIELD MANAGEMENT

The stand-alone yields system, without PLC, acquires and processes the data from the scales. Open to the company's data processing systems, it allows easy access to data from Excel or ERP systems.



SHORT-TERM INDICATORS (>1 sec., <30 sec.)

The following are displayed for each scale:

- The flow-rate value (T/h).
- The scale status (stopped, running, alarm...).

And for product and by-product scales:

- Yield in relation to B1 (%).
- Overall yield on all products (%).

Products	Quantity	Yield on B1	Average on period	Average on working time	Yield on total products
B1	150 T	150 T/h	120 T/h	120 T/h	85.1 %
Mixing	0 T	0 T/h	20.5 T/h	20.5 T/h	14.5 %
Additive 1	0 T	0 T/h	0.5 T/h	0.5 T/h	0.4 %
Additive 2	0 T	0 T/h	0.5 T/h	0.5 T/h	0.4 %
Total products	140.5 T	93.7 %	20.5 T/h	20.5 T/h	99.6 %
Total byproducts	0.5 T	0.3 %	0.5 T/h	0.5 T/h	0.4 %
Total All Products	141 T	94 %	141 T/h	141 T/h	

Milling Loss 6 %

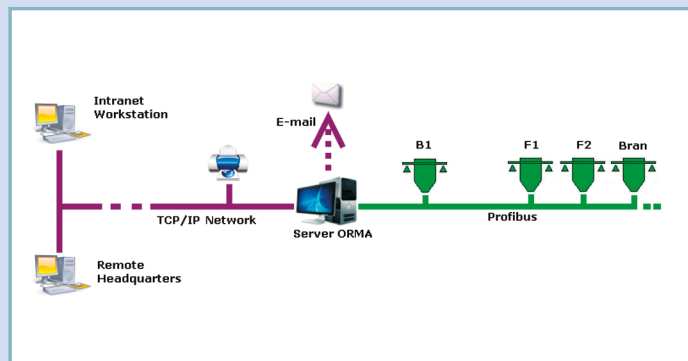
Notes:

LONG-TERM INDICATORS (>1 hour, <10 years)

The data are saved in a powerful database, so instantaneous or long-term reports can be produced.

AUTOMATIC DISTRIBUTION OF YIELD REPORTS

Regular reports can be sent to the printer or a list of email addresses.

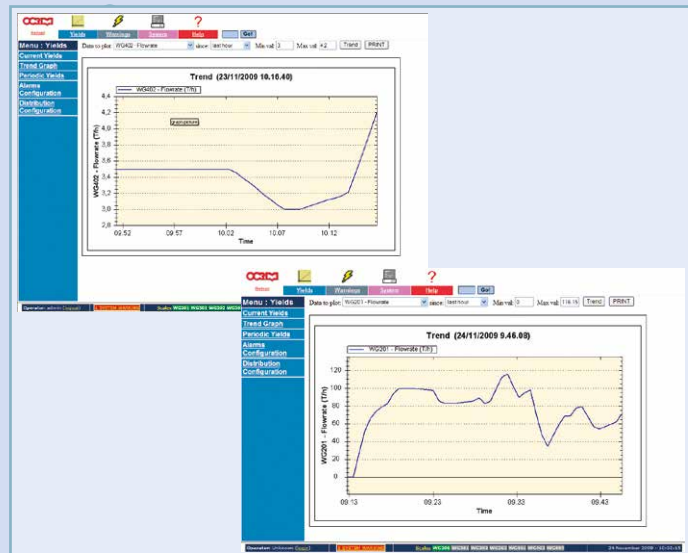


YIELDS GRAPHS

The graph shows the trend of the indicators between a minimum of 1 hour and a maximum of 24 hours.

The plottable indicators are:

- The flow-rate value (T/h).
- The B1 yield of each product (%) and the relative alarm thresholds.
- The yield in relation to overall total of each product (%) and the relative alarm thresholds.
- All B1 yields simultaneously (%).
- All overall yields on all products simultaneously (%).



HARDWARE AND SOFTWARE REQUIREMENTS

- 1 PC.
- Operating system Microsoft Windows XP Professional or Windows 2003 Server - Web Edition for system with more than 3 users SIMULTANEOUSLY.
- Master Profibus communication card.
- Software.
- Scales connected to the OPC server by means of MPI-PROFIBUS communication bus (minimum 3, maximum 11).
- 1 laser printer (optional).



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**WEIGHING, PACKING FILLING, PALLETISING &
STRETCH WRAPPING SYSTEMS.**

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