Weighing, Bagging and Palletizing in a Modern Flour Mill

Issam Baydoun
Regional Sales Manager
Parent company: Premier Tech Ltd, Canada

Employees worldwide: 1500

Turnover 2006: 267 Mio USD

Industrial Groups and Business Units

- Horticulture and Agriculture Group
- Premier Horticulture (PHL)
- Premier Tech Biotechnologies (PTB)
- Industrial Equipment Group (IEG)
- Premier Tech Systems (PTS)
- Chronos Richardson Systems Europe (CRSE)
- Chronos Richardson Systems Asia (CRSA)
- Environmental Technologies Group (ETG)
- Premier Tech Environment (PTE)
- Premier Tech Water France (PTWF)
Worldwide Presence:

- Rivière-du-Loup, CANADA
- Brea, USA
- Hennef, GERMANY
- Viry-Châtillon, FRANCE
- Nottingham, UNITED KINGDOM
- Parma, ITALY
- Bangkok, THAILAND
The Industrial Equipment Group has worldwide about 650 employees:

- 120 in Europe
- 30 in Asia
- 500 in North America
INUSTRIAL EQUIPMENT GROUP

Chronos Richardson Systems Europe

- Parma, Italy
- Viry-Châtillon, France
- Nottingham, United Kingdom
- Hannaf, Germany
1881: Foundation of „Hennefer Maschinenfabrik Reuther und Reisert“ Hennef

1982: The „Chronos-Werk Reuther & Reisert“ is renamed in Chronos Richardson GmbH

2002: Acquisition by Premier Tech, Canada.

2007: company is renamed in Chronos Richardson Systems GmbH
Chronos =

Time

Accuracy

Speed
Reliability

Chronos Weigher as the world’s first automatic Weigher to be calibrated
• Since more than 100 years supplier in the milling industry

• Systems supplier for weighing, bagging, palletising and load securing systems.

• Milling systems for extraction, monitoring and controlling.

• More than 300 references in the milling industry worldwide
• Process 1: Receiving
• Process 2: Dirty & Clean Wheat Blending
• Process 3: First Break Weigher
• Process 4: Flour Extraction Rate Monitoring
• Process 5: Bran & Screening Weighing
• Process 6: Bagging, Palletizing
• Process 7: Shipping
• Process 8: Overall Mill Control
PROCESS 1: RECEIVING

Receiving Scale
CHRONO-WEIGH™ AW/VW
CHRONO-TRONIC™ Bulk 9

Fulfill today’s weighing requirements for accuracy, performance and reliability

Electronically controlled weighers for receiving & shipping bulk materials

<table>
<thead>
<tr>
<th>Scale</th>
<th>Size</th>
<th>Weighing range (kg)</th>
<th>Performance</th>
<th>Net weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW/VW</td>
<td>101/220</td>
<td>5-100</td>
<td>50</td>
<td>280</td>
</tr>
<tr>
<td>AW/VW</td>
<td>201/400</td>
<td>10-200</td>
<td>100</td>
<td>600</td>
</tr>
<tr>
<td>AW/VW</td>
<td>301/500</td>
<td>10-300</td>
<td>140</td>
<td>620</td>
</tr>
<tr>
<td>AW/VW</td>
<td>501/750</td>
<td>25-500</td>
<td>180</td>
<td>750</td>
</tr>
</tbody>
</table>
Task: Controlling, recording and blending

Electronical Net Weigher CHRONO-WEIGH™ E55 G/K or Advanced Process Weigher Type APW

<table>
<thead>
<tr>
<th></th>
<th>Net weigher</th>
<th>55</th>
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</thead>
<tbody>
<tr>
<td>Weighing range</td>
<td>E25</td>
<td></td>
</tr>
<tr>
<td>5-30 kg</td>
<td>10-50 kg*</td>
<td></td>
</tr>
<tr>
<td>Hopper size</td>
<td>30/50/80</td>
<td>50/80/120/160/220</td>
</tr>
<tr>
<td></td>
<td>* on request up to 100 kg</td>
<td></td>
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</tbody>
</table>
CHRONO-BULK™ APW

High accuracy weighing for optimum mill performance

Hygienic design for modern flour Mill

Neat compact design, minimum surface

Operation in extraction, monitoring, controlling or totalising modes
WEIGHER CONTROLLER

- High accuracy
- High speed
- Reliable
PROCESS 6: BAGGING & PALLETIZING FLOUR

**Open-Mouth Bagging**

### Semi-automatic solutions
- Vibratory packer with manual bag placing
- Carousel with 4 or 6 spouts and manual bag placing

### Fully automatic solutions
- Vibratory packer with automatic bag placing
- Carousel with 4 or 6 spouts and automatic bag placing

**Screw Feeding**
- Single Screw Feeder SS
- Double Screw Feeder DS

[www.chronosrichardson.com](http://www.chronosrichardson.com)
Weighing System: CHRONO-WEIGH™ E 55 (Screw Feeder)
Weigher Control: CHRONO-TRONIC™ SpeedAC NXT
Output: max. 300 bags/hr.
Product compaction: Vertical movement of spout
Type: Semi automatic or fully automatic

- Compact design, fast, accurate, user-friendly
- Microprocessor weighing controller for scales
- 32 bit technology
Available as 4 or 6-spout carousel

Bag types:
open-mouth bags, pillow type

Bag material:
paper, PE or PP

Bag sizes:
Width: 430 – 600 mm
Length: 600 – 1200 mm
<table>
<thead>
<tr>
<th>TECHNICAL DATA:</th>
<th>K4</th>
<th>K6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighing:</td>
<td>one net weigher</td>
<td>two net weigher</td>
</tr>
<tr>
<td>Output:</td>
<td>up to 550 bags / hour</td>
<td>up to 950 bags/hour</td>
</tr>
<tr>
<td>Power consumption:</td>
<td>10kW</td>
<td>15 kW</td>
</tr>
<tr>
<td>Power supply:</td>
<td>3AC / 400V-50 Hz</td>
<td>3AC / 400V-50 Hz</td>
</tr>
<tr>
<td></td>
<td>others upon request</td>
<td>others upon request</td>
</tr>
<tr>
<td>Air consumption:</td>
<td>ca. 40 NL/min</td>
<td>ca. 50 NL/min</td>
</tr>
<tr>
<td>Operating pressure:</td>
<td>6 bar</td>
<td>6 bar</td>
</tr>
<tr>
<td>Operating temperature:</td>
<td>+5°C to +35°C</td>
<td>+5°C to +35°C</td>
</tr>
<tr>
<td>Noise level:</td>
<td>75 dbA</td>
<td>75 dbA</td>
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</tbody>
</table>
FEATURES & BENEFITS

• Ability to handle different types of bags

• Solid construction

• Easily interchangeable bag spouts

• PLC control system with user-friendly operator interface

• Precise net weighing technology using the SpeedAC controller

• Low-maintenance components and assemblies

• Clean working conditions due to limited dust escape in the filling area
OPTIONAL MODULES

• Sweeping device in carousel area

• Powered height adjustment of the outfeed conveyor

• Automatically adjustable possing device

• Automatic bag placer
OPERATION PROCESS

K 4 operation

K 6 operation
TYPICAL LAYOUT
View on the entire carousel bagging system.
The empty bag is placed onto the spout.
The bag is filled and possed.
The filled bag is placed onto a belt conveyor.
The bag is transferred in upright position into the bag closing device.
PLC control system with user-friendly operator interface
FULLY AUTOMATIC BAGGING CAROUSEL

CHRONO-FILL™ K 1000

High-speed carousel, up to 1,000 bags/hour

6-spout system, places, fills and densifies at the same time

Bag placer with high volume blower and suction cup

3 vertical posser for densification

Bag types:
Paper, mixed textile, PE or woven PP

Bag magazine capacity:
Up to 400 bags (10 piles)
FULLY AUTOMATIC BAGGING CAROUSEL

CHRONO-FILL™ K 1000

FEATURES & BENEFITS

• Fully automated system reducing direct labour costs
• Reliable system due to its rugged construction and clean production
• Can handle various open-mouth bag materials and sizes
• Quick changeover of bags
• Precise bag top control from filling to closing
• Retaining of lateral gussets throughout the operation
• PLC with user-friendly operator interface
• Hygienic version

www.chronosrichardson.com
OPTIONAL MODULES

• Enhanced dust control and aspiration
• Motorized height adjustment of vertical posser
• Sweeping device in carousel area
• Labelling or marking device
• Manual bag placing for bags being not suitable for automatic bagging
• Suction cups for bag placer
FULLY AUTOMATIC BAGGING CAROUSEL K 1000

- Filling and compacting
- Release of bag
- Bag transfer
High Speed Solution
K 1000 with palletizing System
BAGGING & PALLETISING FLOUR

Valve Bagging

Semi-automatic Solutions
- Valve bagger with manual bag placing
- Valve bag pressure air flow packer with manual bag placing

Fully automatic Solutions
- Valve bagger with automatic bag placing
- Valve bag pressure flow air packer with automatic bag placing

Closing Device: Ultrasonic closure

Valve bagger with automatic bag placing
Valve packer for filling valve bags with using air pressure.

Electronically controlled weighing system and a low-pressure air filler.

Weighing range from 10 to 50 kg production rate of up to 500 bags per hour for 25 kg bags.
Basic components: infeed screw, impeller and packing device.

Auger packer for filling valve bags

Single and multiple arrangements possible.
VALVE BAGGING SYSTEM CHRONO-FILL™ VSP

**Weighing System**: CHRONO-WEIGH™ E 55 (Screw Feeder)

**Control**: CHRONO-TRONIC™ SpeedAC NXT

**Output max.**: 240 bags/hr. with 1 spout

**max.**: 800 bags/hr. with 4 spouts

**Product compaction**: Integrated vertical compacting device

**Type**: Semi automatic or fully automatic

**Sealing**: CHRONO-SEAL™ VVU
Palletizing Systems

- High Level Palletizer
- Compact Palletizer
- Robot Palletizer
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<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>10</td>
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</tbody>
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The image shows a palletized arrangement of items, with labels 2, 3, 4, 5, 6, 7, 8, and 10 indicating the position of the items on the pallet.
CHRONO-PAL™ PL 1200H, 1600H, 2500H
High Level Palletizer for capacities up to 2,500 bags per hour.
CHRONO-PAL™ PL 400C, 600C, 900C, 1200C

Compact Palletizer with an integration of a standard palletizer and a robot palletizer. Capacities up to 2,400 bags per hour.
CHRONO-PAL™ PL RP-Series
Flexible Robot Palletizing system for flour bags
Electronically controlled Weighers for receiving & shipping materials

- Stainless steel contact parts with pure load cell system reduces maintenance cost

- Fulfills today’s weighing requirements for accuracy, performance and reliability
PROCESS 8: OVERALL MILL CONTROL

EXAMPLE

Central control board

Ethernet Connection

Weigher 1

Weigher 2

Weigher 3

Weigher 4

Weigher 5

Bagging System
PROCESS 8: OVERALL MILL CONTROL

CHRONO-TRONIC™ PC 555
Function: Monitoring and Controlling Milling Processes
PROCESS 8: OVERALL MILL CONTROL

Process control system for computer aided supervision, control, data acquisition in milling operations.

To record data in mills generated by Weighers and other peripheral devices.

Processes are supervised and monitored directly through digital network.

Central data processing provides clear information

Improved plant operation efficiency!
PROCESS 8: CHRONO-TRONIC™ PC 555
FEATURES & BENEFITS

Easy operation, convenient system control
- Central data processing for clear information
- Provides full data logging and trending
- Improved plant operation efficiency
- Reduced operational workload and errors
- Multi-lingual feature
- Online documentation
- Remote link via modem
- Up to 32 Weigher can be monitored per PC
PROCESS 8: CHRONO-TRONIC™ PC 555

OPTIONS

Connection to plant PLCs
• Ethernet interface
• Touch screen monitor
• Multi-operation points
• Internet or plant Intranet connectivity
• Multi-line or milling sections
• UPS powder supply
• Bar-code reading or printing
• Recipe or formula management
We are at your disposal - Worldwide.

Our total capability includes:
- project management,
- design,
- manufacturing,
- installation,
- commissioning,
- full service back-up,
SERVICE PARTNERSHIP

Service partnership with Chronos Richardson Systems. Your key to optimum equipment performance.

We can help you achieve your profit goals by increasing equipment availability and accuracy.

You can select from our extensive range of services, from complete maintenance to periodic support.

WWW.CHRONOSRICHARDSON.COM
Full Customer Services Back-up:

Long-term vision of support through extended hours, *spares deliveries* and all other services such as:

- System optimization service
- Training (on and off-site)
- Upgrades
- Retrofits
- Help desk assistance
- Preventative maintenance.....etc.
An integrated modem in the packaging system provides connection with one of our technicians to give suggestions or modify the machine programme online.
COMPLETE INTEGRATION CAPABILITIES

From one supplier

Chronos Richardson Systems is able to provide the total Bagging solutions for its partners from raw product feeding to the wrapped pallet – 100% automated

Advantages -

Better communications/integration between pieces of equipment
Engineering services and 3D layout designing
One contact for service
Equipment monitoring capability
Thank you for your attention

Issam Baydoun
Regional Sales Manager

Mobile: + 961 (3) 377424