Central conveying systems for granulate

METRO G

think materials management
**METRO G**

**CENTRAL CONVEYING SYSTEMS FOR GRANULATE**

METRO G is the most comprehensive and flexible material loader range on the market. It combines the best of two established material loader ranges – colortronic and motan. Whether simple or highly complex, METRO G’s modular building block system will provide you with an individual solution tailored to your demands.

A centralised conveying system offers substantial operational benefits and cost savings for plastics processors.

motan is a world leading supplier of complex centralised material feed systems. Each system is designed to suit your needs by taking into account individual factors such as throughput, materials types and plant layout. A wide selection of loaders with a variety of conveying options, controls, blowers and filter techniques allow the creation of the optimum system for your facility.

**Vacuum valve with implosion cleaning**

Guarantees constant and stable material conveying and reduces maintenance costs.

The mesh filter is automatically cleaned after each loading cycle by implosion. This guarantees a constant and reliable material conveying and reduces maintenance costs on the loader. Because the material loader is air-tight the conveying performance remains stable and there is no dust around the unit.
**Modular design**
No product redundancy - as your production requirements change so does the material loader. All material loaders are fully modular and can be matched to different throughputs and requirements depending on the application. Not only are there different material loader volumes but also different material inlet and outlet sizes which can be accurately adapted to suit throughputs and conveying distances. The option of either a glass or steel hopper body is available for most loaders.

**Machine loader version**
Perfect for conveying hygroscopic materials with small throughputs, or where space is limited, a machine loader version is available. The discharge module of the loader has no discharge flap and the unit must be mounted directly on the feed throat of the processing machine.

The benefit to you is that no machine supply hopper is required and very little material stays at the machine. This is especially important for dried materials as the residence time of the material is kept to an absolute minimum.

**Lid mounted vacuum valve**
Reliable operation even when conveying with high vacuums. The cast design with extra strong air cylinder makes this vacuum valve perfect for demanding conveying applications where a high material loading and high vacuum are required.

**Membrane vacuum valve**
This valve is contamination free - guaranteed. A membrane vacuum valve operates without the need for compressed air, instead it gets its energy from the conveying system, using vacuum to open and close the valve. This makes it ideal for clean room applications.
Interchangeable material inlet flaps
Optimum conveying capacity and minimum wear. The material loader inlet flaps are easily removable, and depending on your application, can be exchanged. The flaps make sure that multiple loaders can work together properly in a system. They limit the amount of vacuum required for a group of loaders connected to a coupling station. Thus, no check valves need to be installed in the material flow at the coupling station which would result in a reduction in conveying capacity and increased material abrasion. An additional benefit of the inlet flap is that it acts as a deflector plate at the material inlet and so protects the loader mesh filter and body from wear. Angled and special glass plated versions are available for extremely abrasive materials.

Tangential material inlet with trumpet air outlet
The ideal solution for fine or dusty materials. If the materials that you need to convey have a small granule size, are very dusty or contain angel-hair, then the METRO G loaders can be supplied with a tangential material inlet. During conveying this produces a cyclone effect which is perfect for separating different types of materials. With the “trumpet” air outlet, the exhaust air speed is well below the levitation speed so that no granules or particles can be carried back to the central dust filter.

Twin material inlets
Two material inlets for the proportioning of different materials. You can easily adjust the percentage and number of material layers per conveying cycle.
**Stainless steel discharge flap**
Because the large material outlet has a discharge flap which is made of stainless steel it is abrasion resistant and meets all requirements for medical or food packaging applications. The angled design increases the outlet area and helps with materials which may bridge.

**Dampened discharge flap**
Prevents material jamming and so vacuum loss. A spring loaded damper on the discharge flap prevents the flap from completely closing when not under vacuum. During pneumatic conveying any granules left lying on the discharge flap which might get trapped are first sucked away. With increasing vacuum, the flap is then pressed against the spring and will close completely.

**Discharge flap counterweight**
The counterweight of the outlet flap is mounted on the outside of the loader discharge module; this means that the actual status of the loading cycle is visible at all times. Service work can be easily and quickly carried out, as accessibility is excellent.

**De-dusting module**
Guarantees consistent material quality for critical applications. The de-dusting module removes dust and fines from the high performance engineering plastics directly at the hopper loader, sending them via the air flow to the central dust filter. These expensive materials, now dust-free, can be processed without further delay.

**Implosion valve for any application**
The reliable vacuum valve is suitable for light as well as higher pressures and offers with its powerful pneumatic cylinder the ideal solution for almost all uses. Silicone-free seals or a variant for high temperatures are possible. For clean room applications, the filter can be retrofitted without an adapter and with minimum effort.
**Material distribution**
- motan’s METROCONNET U and C material distribution system provides a fast and easy method of distributing material to the machine.
- Optimum security with the fully automatic METROLINK material selection and distribution system.

**Central vacuum stations**
- Various quiet and low-maintenance vacuum blowers and pumps also for high material throughputs.
- At blower failure automatic switchover to standby blower.
- Frequency-controlled conveying blower for gentle material conveying.
- Centralised dust collection with automatic filter cleaning and a large dust collection bin.

**Line purging**
- After each conveying cycle, thorough material line purging can be effected:
  - essential for the conveying of hygroscopic materials
  - for fast and trouble-free material changes
  - prevents line plugging in long vertical line segments.
- Choice of purging suction boxes or individual valves.

**Dry-air conveying**
- Closed loop conveying system.
- Losses in conveying air are compensated with dry air.
- Material temperature is maintained.
- No reabsorption of moisture.
**Loader controls**
From simple cost effective solutions to innovative state-of-the-art controls.

Three different control box options are available.
- **P box**: a simple plug connection with all other functions accessible at the central control.
- **S box**: status indication and an on/off switch are at the loader.
- **X box**: for integration of METRO-G loaders into existing colortronic conveying systems with status indication and an on/off switch.
- **C box**: the most advanced control box with alarm and status indication, on/off and other functions located directly at the loader.

**System controls**
From simple cost effective solutions to innovative state-of-the-art controls with Ethernet-based open network architecture.

Several different levels of automation are available for controlling the METRO G loaders.
- **SELVAC 2**: market-proven microprocessor-based control.
- **METROnet S**: a soft PLC conveying control for standard conveying systems.
- **METROnet AE and AN**: the ultimate networkable system toolkit for complex conveying systems with either a soft PLC or Siemens S7 PLC with WEBpanel and decentralised CAN-Bus nodes for the connection of peripheral equipment.

All METROnet controls are totally integrated in the CONTROLnet platform and can be linked to other controls via Ethernet.

**Material proportioning valve**
Accurate and reliable addition and mixing of regrind and virgin materials.

As an alternative to a twin inlet METRO-G material loader, the electro-polished stainless steel METROMIX proportioning valve can be connected to single inlet METRO G material loaders. You can easily adjust the percentage and number of material layers per conveying cycle. A large transparent access panel gives you easy access for cleaning.
## TECHNICAL DATA

<table>
<thead>
<tr>
<th>Fill volume - litres/cycle</th>
<th>METRO G 0.5i</th>
<th>METRO G 1.5i</th>
<th>METRO G 3i</th>
<th>METRO G 5i</th>
<th>METRO G 10i</th>
<th>METRO G 15i</th>
<th>METRO G 30i</th>
<th>METRO G 50i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>7</td>
<td>8</td>
<td>8.5</td>
<td>9</td>
<td>11.5</td>
<td>12</td>
<td>18.5</td>
<td>20.5</td>
</tr>
<tr>
<td>Mesh width - filter (µm)</td>
<td>500 (optional 1200)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressed air (bar)</td>
<td>4.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions (mm)

- **H**
  - METRO G 0.5i: 527
  - METRO G 1.5i: 529
  - METRO G 3i: 599
  - METRO G 5i: 628
  - METRO G 10i: 692
  - METRO G 15i: 732
  - METRO G 30i: 832
  - METRO G 50i: 1132
- **H (with open lid)**
  - METRO G 0.5i: 731
  - METRO G 1.5i: 730
  - METRO G 3i: 800
  - METRO G 5i: 858
  - METRO G 10i: 923
  - METRO G 15i: 1046
  - METRO G 30i: 1164
  - METRO G 50i: 1464
- **B**
  - METRO G 0.5i: 290
  - METRO G 1.5i: 295
  - METRO G 3i: 295
  - METRO G 5i: 295
  - METRO G 10i: 338
  - METRO G 15i: 338
  - METRO G 30i: 338
  - METRO G 50i: 338
- **Ø d1**
  - METRO G 0.5i: 170
  - METRO G 1.5i: 170
  - METRO G 3i: 170
  - METRO G 5i: 170
  - METRO G 10i: 200
  - METRO G 15i: 200
  - METRO G 30i: 200
  - METRO G 50i: 200
- **Ø d2**
  - METRO G 0.5i: 45/50
  - METRO G 1.5i: 45/50
  - METRO G 3i: 45/50
  - METRO G 5i: 45/50
  - METRO G 10i: 45/50/60
  - METRO G 15i: 45/50/60
  - METRO G 30i: 45/50/60
  - METRO G 50i: 45/50/60
- **Ø d3**
  - METRO G 0.5i: 38/45/50
  - METRO G 1.5i: 38/45/50
  - METRO G 3i: 38/45/50
  - METRO G 5i: 38/45/50
  - METRO G 10i: 45/50/60
  - METRO G 15i: 45/50/60
  - METRO G 30i: 45/50/60
  - METRO G 50i: 45/50/60
- **m1**
  - METRO G 0.5i: 11
  - METRO G 1.5i: 7
  - METRO G 3i: 7
  - METRO G 5i: 7
  - METRO G 10i: 7
  - METRO G 15i: 7
  - METRO G 30i: 7
  - METRO G 50i: 7
- **Ø m2**
  - METRO G 0.5i: 130
  - METRO G 1.5i: 215
  - METRO G 3i: 215
  - METRO G 5i: 215
  - METRO G 10i: 240
  - METRO G 15i: 240
  - METRO G 30i: 240
  - METRO G 50i: 240
- **Ø m3**
  - METRO G 0.5i: 44
  - METRO G 1.5i: 170
  - METRO G 3i: 170
  - METRO G 5i: 170
  - METRO G 10i: 200
  - METRO G 15i: 200
  - METRO G 30i: 200
  - METRO G 50i: 200
- **Ø m4**
  - METRO G 0.5i: 100
  - METRO G 1.5i: 195
  - METRO G 3i: 195
  - METRO G 5i: 195
  - METRO G 10i: 225
  - METRO G 15i: 225
  - METRO G 30i: 225
  - METRO G 50i: 225

Subject to technical changes.

## BENEFITS OF CENTRAL CONVEYING SYSTEMS

- **Material savings**
  - Typically, at least a 1-2% saving in raw material costs as a result of reduced spillage and contamination.
- **Reduced materials handling labour**
  - By centralising material storage, the cost of material handling is reduced considerably.
- **Maintenance**
  - motan centralised systems not only require less maintenance than stand-alone systems, but also have lower maintenance costs.
- **More space**
  - A centralised material feed system releases production floor space for additional moulding machines and results in a tidier, uncluttered facility.
- **Safety and cleanliness**
  - Reduced material spillage, no cleaning of filters on the machine and raw materials no longer need to be brought to the machine (no fork trucks etc.). Consequently, the production area is a much cleaner and safer place for personnel.
- **Energy savings**
  - A centralised conveying system uses approximately 80% less energy compared to machine-dedicated stand-alone systems.

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