Volumetric Feeders, AccuRate Series

Volumetric feeding of bulk solids
- Feeding without internal agitation
- Gentle material conditioning
- Economical and simple integration
- Compact design

Application
Feeders of the AccuRate series are a special economical solution for volumetric feeding of bulk solids. With a feed rate range of 0.1 l/h to 8,000 l/h, these feed systems can be used for:
- continuous feeding
- batching and
- blending

of materials with up to 10 mm grain size.

No matter whether materials or additives are fed into the process, extruders or compounders, or a blend requires to be formed, feeders of the AccuRate series offer the right solution for almost any application.

Their simple, compact design does not only ensure easy service and maintenance but also economical integration into existing production plants.

Features
The AccuRate basic feeder comes with the following features:
- Housing (rugged welded structure) of stainless steel, with easily removable side panels
- Flexible hopper of (FDA-approved) TUFLEX vinyl
- “Massaging” paddle system
- Discharge unit (helix and nozzle in stainless steel)
- Vertical discharge head
- Protective grid
- DC or AC drive for helix and paddle (joint or separate)

For DC-drives, a wide choice of controllers is available.

Feed rate and agitation setpoints can be entered via potentiometer, with or without display, for continuous or batch mode. External presetting via analog signal input is also possible.

For optimum adaption of the feed system to the application, beside the basic feeder, a wide choice of feed equipment and accessories is available.

Function
Volumetric AccuRate feeders operate according to the “flexible-wall principle” introduced by Schenck-AccuRate more than 30 years ago.

Instead of the usual internal agitators, all feeders are fitted with two external paddles that gently massage the molded hopper. This ensures a continuous, even flow of material into the helix with a uniform bulk density. This avoids bridging and material build-up. Additionally, the flexible-wall principle ensures a constantly high filling degree of the helix.
Dimensions

AccuRate Feeder

Fitted With Extension Hopper

28 l hopper for Series 300
70/140 l hopper for Series 600
140/280 l hopper for Series 900

280 l hopper for Series 600
425 l hopper for Series 900

AccuRate Feeder

Free Standing Hopper

560 l hopper

1420 l hopper
### Feeder

<table>
<thead>
<tr>
<th>Feeder</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F*)</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>L</th>
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<tr>
<td>Series 300</td>
<td>86</td>
<td>305</td>
<td>295</td>
<td>330</td>
<td>386</td>
<td>102</td>
<td>267</td>
<td>330</td>
<td>368</td>
<td>305</td>
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<tr>
<td>Series 600</td>
<td>117</td>
<td>400</td>
<td>381</td>
<td>499</td>
<td>552</td>
<td>178</td>
<td>442</td>
<td>499</td>
<td>552</td>
<td>465</td>
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<tr>
<td>Series 900</td>
<td>176</td>
<td>593</td>
<td>470</td>
<td>750</td>
<td>801</td>
<td>305</td>
<td>616</td>
<td>672</td>
<td>725</td>
<td>622</td>
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</table>

*) Standard size; other lengths available as an option

### Hopper - Fitted

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<thead>
<tr>
<th>Feeder</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
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<tr>
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<td>283</td>
<td>362</td>
<td>664</td>
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<td>Series 600 - 70 liters</td>
<td>432</td>
<td>432</td>
<td>762</td>
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<tr>
<td>- 140 liters</td>
<td>362</td>
<td>718</td>
<td>1118</td>
<td></td>
<td></td>
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<tr>
<td>- 280 liters</td>
<td>762</td>
<td>762</td>
<td>1118</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Series 900 - 140 liters</td>
<td>584</td>
<td>584</td>
<td>1006</td>
<td></td>
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<tr>
<td>- 280 liters</td>
<td>413</td>
<td>413</td>
<td>1463</td>
<td></td>
<td></td>
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<tr>
<td>- 425 liters</td>
<td>870</td>
<td>870</td>
<td>914</td>
<td></td>
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<tr>
<td></td>
<td>762</td>
<td>1118</td>
<td>1168</td>
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### Hopper – Free Standing

<table>
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<tr>
<th>Feeder</th>
<th>S</th>
<th>U</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series 600 - 560 liters</td>
<td>2020, 2325, 2360, 2935</td>
<td>587, 892, 1197, 1502</td>
<td>1220</td>
</tr>
<tr>
<td>1420 liters</td>
<td>2604, 2909, 3213, 3519</td>
<td>1220</td>
<td></td>
</tr>
<tr>
<td>Series 900 - 560 liters</td>
<td>2020, 2325, 2360, 2935</td>
<td>557, 762, 1067, 1372</td>
<td>1220</td>
</tr>
<tr>
<td>- 1420 liters</td>
<td>2604, 2909, 3213, 3519</td>
<td>1220</td>
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Technical Data

### AccuRate Feeders

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<th>Series</th>
<th>300</th>
<th>600</th>
<th>900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum feed rate</td>
<td>~0.1 l/h – 105 l/h</td>
<td>1 l/h – 1.300 l/h</td>
<td>30 l/h – 8.000 l/h</td>
</tr>
<tr>
<td>Setting range</td>
<td>1 : 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexible hopper capacity - without extension hopper</td>
<td>9 dm³</td>
<td>25 dm³</td>
<td>75 dm³</td>
</tr>
<tr>
<td>Helix diameter - available</td>
<td>Ø 6, 10, 13, 19, 25 mm</td>
<td>Ø 13, 19, 25, 35, 45, 57 mm</td>
<td>Ø 57, 76, 102 mm</td>
</tr>
<tr>
<td>Helix standard length - from feeder front</td>
<td>102 mm</td>
<td>178 mm</td>
<td>305 mm</td>
</tr>
<tr>
<td>Maximum helix extension</td>
<td>~ 300 mm</td>
<td>~ 1.220 mm</td>
<td>~ 1.220 mm</td>
</tr>
<tr>
<td>Drive motor</td>
<td>0.09 kW DC</td>
<td>0.18 kW DC</td>
<td>0.55 kW DC</td>
</tr>
<tr>
<td></td>
<td>0.09 kW AC</td>
<td>0.18 kW AC</td>
<td>1.1 / 1.5 kW AC</td>
</tr>
<tr>
<td>Motor protected to</td>
<td></td>
<td></td>
<td>IP 54</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>230 V (AC)</td>
<td>230 V (AC)</td>
<td>230 V / 400 V (AC)</td>
</tr>
<tr>
<td>Weight</td>
<td>~ 30 kg</td>
<td>~ 65 kg</td>
<td>~ 145 kg</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td></td>
<td></td>
<td>- 20°C bis + 40°C</td>
</tr>
<tr>
<td>Material temperature</td>
<td></td>
<td></td>
<td>max. 80°C</td>
</tr>
<tr>
<td>Bulk density</td>
<td></td>
<td></td>
<td>γ ~ 0.1 – 3 kg/l</td>
</tr>
<tr>
<td>Grain size</td>
<td></td>
<td></td>
<td>up to 10 mm</td>
</tr>
<tr>
<td>Flow properties</td>
<td></td>
<td></td>
<td>free flowing to sluggish</td>
</tr>
</tbody>
</table>

### Accuracy

The normal accuracy achieved with AccuRate feeders is between ± 1.5 and 2.5% of setpoint.

### Additional Requirements

The variants and options described in this brochure are only a small part of the AccuRate feeders program. Should you have specific needs, e.g. for:
- special hopper designs for the food and pharmaceutical industries
- dust-tight connection to BIG-BAG stations
- extension hoppers for manual bag discharge

... please tell us your requirements.

### Order Data

To be able to process your order smoothly and quickly, please let us know the application data below.

#### Material Data

Material:.........................
Material density:.......... [kg/l]
Grain size:............... [mm]
Flow properties:............

#### Feed Rate Range

from ......................... [kg/h]
to .......................... [kg/h]

#### Drive Design

AC drive  □
DC drive  □

#### Extension Hopper

Volume .........................[l]

Should you order an option which requires size or length to be indicated, please specify in your order.
AccuRate Feeders – Series 300

**Basic Variants**

**Basic variants,**
including discharge unit (helix and nozzle) in standard design (diameter depending on feed rate)
- DC drive (0.09 kW) including power controller with digital potentiometer in stainless steel housing
- AC drive (0.09 kW for 3 x 230V) without drive control

**Variants**

**Dual drive**
Separate drive motor to be used with sluggish materials, big extension hoppers, big feed rate range (> 5:1) and helix extended to > 50% of standard length
- DC version – separate DC drive and extended control
- AC version – separate AC drive

**Quick-disconnect system,**
for easy exchange of flexible hopper in case of frequent cleaning or product change

**Food/pharmaceutical industries design** (to FDA and USDA)
With sealed bearings, ground welds, polished helix, flexible (white) hopper and quick-disconnect system

**Control Options for DC motors**

**Control with Potentiometer**

**Display and Touchpad Potentiometer**

**Wall-mounting housing for control system**
IP65 in carbon steel painted or stainless steel

**Analog input,** 4-20 mA / 0-10V
Feeder control via external setpoint

**Batch timer,** for setting of batching time, volumetric mode

**Remote start/stop contact**

**Feed Unit/ Tube Options** (length and size to be indicated in your order)

**Additional discharge unit** (helix and nozzle),
for extension of feed rate range in particular standard length (Series300: 102 mm)
diameter in accordance with desired feed rate extension

**Helix and nozzle extension,** to max. 300 mm
Stainless steel; length (from feeder front) to be specified in your order

**Nozzle support with Series 300,** we recommend support for stainless steel downturn.

**Side nozzle discharge,** for flushing material, to improve feeding constancy

**Outlet shut-off gate,** pneumatically actuated, suitable for batching

**Stainless steel Dust Elbow** (in place of vinyl)

**Extension Hoppers, Stainless Steel**
28 liters
**AccuRate Feeders – Series 600**

### Basic Variants

- **Basic variants**, including discharge unit (helix and nozzle) in standard design (diameter depending on feed rate)
  - DC drive (0.18 kW) including power controller with digital potentiometer in stainless steel housing
  - AC drive (0.18 kW for 3 x 230V) without drive control

### Variants

#### Dual drive
Separate drive motor to be used with sluggish materials, big extension hoppers, big feed rate range (> 5:1) and helix extended to > 50% of standard length

- DC version – separate DC drive and extended control
- AC version – separate AC drive

#### Quick-disconnect system,
for easy exchange of flexible hopper in case of frequent cleaning or product change

#### Food/pharmaceutical industries design (to FDA and USDA)
With sealed bearings, ground welds, polished helix, flexible (white) hopper and quick-disconnect system

### Control Options for DC motors

- **Control with Potentiometer**
- **Display and Touchpad Potentiometer**
- **Wall-mounting housing for control system**
- **IP65 in carbon steel painted or stainless steel**
- **Analog input**, 4-20 mA / 0-10V
  - Feeder control via external setpoint
- **Batch timer**, for setting of batching time, volumetric mode
- **Remote start/stop contact**

### Feed Unit/ Tube Options (length and size to be indicated in your order)

- **Additional discharge unit** (helix and nozzle), for extension of feed rate range in particular standard length (Series 600: 178 mm) diameter in accordance with desired feed rate extension
- **Helix and nozzle extension**, to max. **1220 mm**
  - Stainless steel; length (from feeder front) to be specified in your order
- **Nozzle support with Series 600**, we recommend min. 300 mm length or if a stainless steel dust elbow is used.
- **Side nozzle discharge**, for flushing material, to improve feeding constancy
- **Outlet shut-off gate**, pneumatically actuated, suitable for batching
- **Stainless steel Dust Elbow** (in place of vinyl)

### Extension Hoppers, Stainless Steel

- 70 liters; fitted onto feeder
- 140 liters; fitted onto feeder
- 280 liters; fitted onto feeder
- 560 liters; free standing
- 1420 liters; free standing
AccuRate Feeders – Series 900

Basic Variants

Basic variants, including discharge unit (helix and nozzle) in standard design (diameter depending on feed rate)
- DC drive (0.55 kW) including power controller with digital potentiometer in stainless steel housing
- AC drive (1.1 / 1.5 kW for 3 x 230V or 3 x 400V) without drive control

Variants

Dual drive
Separate drive motor to be used with sluggish materials, big extension hoppers, big feed rate range (> 5:1) and helix extended to > 50% of standard length
- DC version – separate DC drive and extended control
- AC version – separate AC drive

Quick-disconnect system, for easy exchange of flexible hopper in case of frequent cleaning or product change

Food/pharmaceutical industries design (to FDA and USDA)
With sealed bearings, ground welds, polished helix, flexible (white) hopper and quick-disconnect system

Control Options for DC motors

Control with Potentiometer

Display and Touchpad Potentiometer

Wall-mounting housing for control system
IP65 in carbon steel painted or stainless steel

Analog input, 4-20 mA / 0-10V
Feeder control via external setpoint

Batch timer, for setting of batching time, volumetric mode

Remote start/stop contact

Feed Unit/Tube Options (length and size to be indicated in your order)

Additional discharge unit (helix and nozzle), for extension of feed rate range in particular standard length (Series 900: 305 mm) diameter in accordance with desired feed rate extension

Helix and nozzle extension, to max. 1220 mm
Stainless steel; length (from feeder front) to be specified in your order

Nozzle support with Series 900, we recommend min. 400 mm length or if a stainless steel dust elbow is used.

Side nozzle discharge, for flushing material, to improve feeding constancy

Outlet shut-off gate, pneumatically actuated, suitable for batching

Stainless steel Dust Elbow (in place of vinyl)

Extension Hoppers, Stainless Steel

140 liters; fitted onto feeder
280 liters; fitted onto feeder
425 liters; fitted onto feeder
560 liters; free standing
1420 liters; free standing
Theoretical Federates
All mentioned feed rates are theoretical feed rates based on a filling efficiency of 100 %. In practice the filling efficiency can be reduced by 20 – 30 %, depending on material properties and application.

### Open Helix [l/hr]

<table>
<thead>
<tr>
<th>Helix O.D. [mm]</th>
<th>Pitch [mm]</th>
<th>Sizes by Series</th>
<th>Helix Speed [rpm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>300 600 900</td>
<td>1 10 20 40 60 80 100 120 140 160</td>
</tr>
<tr>
<td>13</td>
<td>6,5</td>
<td></td>
<td>0,0374 0,374 0,748 1,50 2,24 2,99 3,74 4,49 5,24 5,98</td>
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<tr>
<td>13</td>
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<td>1,85 18,5 37,1 74,1 111 148 185 222 259 296</td>
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<td>44</td>
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<td>1,83 18,3 36,6 73,1 110 146 183 219 256 293</td>
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<td>4,04 40,4 80,8 162 242 323 404 485 566 646</td>
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<td>8,46 84,6 169 338 507 677 846 1015 1184 1353</td>
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<td>9,26 92,6 185 371 556 741 926 1112 1297 1482</td>
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### Helix With Center Rod [l/hr]

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<th>Helix O.D. [mm]</th>
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<th>Sizes by Series</th>
<th>Helix Speed [rpm]</th>
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<tbody>
<tr>
<td></td>
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<td>300 600 900</td>
<td>1 10 20 40 60 80 100 120 140 160</td>
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<td>6</td>
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<td>0,0067 0,0677 0,135 0,271 0,406 0,541 0,677 0,812 0,948 1,08</td>
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<td>10</td>
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<td>0,151 1,51 3,02 6,0 9,1 12,1 15,1 18,1 21,1 24,1</td>
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<td>1,55 15,5 31,0 61,9 93 124 155 186 217 248</td>
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<td>1,45 14,5 29,0 57,9 87 116 145 174 203 232</td>
</tr>
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<td>3,14 31,4 62,7 125 188 251 314 376 439 502</td>
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<td>2,69 26,9 53,8 108 161 215 269 323 376 430</td>
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<td>8,11 81,1 162 324 486 648 811 973 1135 1297</td>
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<td>102</td>
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<td>44,5 445 890 1781 2671 3562 4452 5343 6233 7124</td>
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</tbody>
</table>

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