



Scirocco II the flexible airslide

Scirocco II, the flexible airslide
Pneumatic conveying by fluidization
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Trelleborg Group leader in polymer solutions

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The group comprises 5 business areas

► Trelleborg Coated Systems



► Trelleborg Offshore & Construction



► Trelleborg Wheel Systems



► Trelleborg Industrial Solutions

► Trelleborg Sealing Solutions

Trelleborg Fluid Handling Solutions

Trelleborg Fluid Handling Solutions is part of Trelleborg Industrial Solutions.

With over 1,400 employees and a head office located in Clermont-Ferrand, France, Trelleborg Fluid Handling Solutions is a leading developer, manufacturer and supplier of low and medium pressure industrial hoses, oil and

marine hoses, rubber sheeting and matting and expansion joints based on advanced polymer technology.

We provide the optimum high performance solutions for every situation with production sites in France, Spain, Sweden, Brazil and Turkey.

Trelleborg Fluid Handling Solutions offers a very large range of competitive products, solutions and services that meet your needs and requirements for all types of applications.

Trelleborg Fluid Handling Solutions is organized around 9 applications areas:

- Oil and Gas
- Construction and Mining Equipment
- Energy
- Chemical, Pharmaceutical and Food
- Agriculture and Farms
- Environment and Cleaning Waste Water
- Processing Equipment and Machine Tools
- Industrial Transportation
- Life Sciences



They trust us ○ ○ ○



Fluidization

A fluidized product has the properties of a liquid.

When a gas goes through a bed of particles, it goes upward and creates free spaces. The particles move away from each others. Friction forces decrease progressively until the bed of particles has the properties of a liquid.

Only dry and small sized particules, such as cement, limestone, micro-silica, fly ash, etc. can be fluidized.

● ● ● Scirocco II hose: a new principle of fluidization

Already used in the airslides, the fluidization has never been applied inside a rubber hose until today. The operating principle of **Scirocco II** is not similar to that of one air slide application, but that of hundreds of small airslides. There are air supply channels at the lower wall of the hose. From these main channels small openings lead into small chambers, which are covered with felt. Thus, each chamber is supplied with air and works like an independent airslide.

Since each airslide is very small, very good fluidization is achieved. This specific design allows high performance:

a 4» Scirocco II can convey 60 tons an hour of cement !

Design of the fluidization hose:



Main air channels



Opening leads



Felt



Fluidized product

○ ○ ○ Scirocco II principles



Performances ● ● ●

In our test facility, we have tested a large range of materials. This full scale rig is equipped with a 1.5 m³ silo and a 6 m long 4" Scirocco II hose.

We can set up parameters such as:

- Scirocco II angle from + 0° to - 6°
- Fluidization pressure from 0 to 2 bars
- Fluidization air flow rate between 50 and 500 L/min

Thus it will discharge:

- Cement up to 60 tons/hour
- Fly ash up to 57 tons/hour
- Limestone up to 49 tons/hour
- Aluminium oxyde up to 52 tons/hour

The below table summarizes the maximum performance of our Scirocco II hose.

Red figures are all empirical results from test rig (6 m long 4" Scirocco II).

All other figures are calculated figures.

Materials	Cement		Limestone		Micro-silica		Fly ash		Aluminium	
Fluidization pressure	0.15 bar		0.15 bar		0.15 bar		0.15 bar		0.5 bar	
Fluidization air flow rate in the 4" Scirocco	140 L/min		170 L/min		170 L/min		100 L/min		360 L/min	
Inclination	0°	- 3°	0°	- 3°	0°	- 6°	0°	- 6°	0°	- 6°
Diameter	Flow capacity (tons/hour)									
76 mm	23	29	18	25	6	10	23	29	4	27
102 mm	45	60	38	49	14	20	45	57	13	52
152 mm	90	135	60	105	30	45	95	115	28	110
204 mm	190	240	150	190	55	80	170	210	50	200
254 mm	280	350	220	300	80	125	250	330	75	300

Advantages

Low installation costs

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- Flexible system.
- Light weight system.
- Small size compared to the flow capacity.
- Swivel flange.

Diameter	Weight	Bending radius
76 mm	5,7 Kg/m	600 mm
102 mm	6,9 Kg/m	800 mm
152 mm	10,2 Kg/m	1000 mm
204 mm	14,0 Kg/m	1300 mm
254 mm	18,0 Kg/m	2000 mm

Low running costs

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- Optimized air consumption
A 10 m long 4» **Scirocco II** needs only 14 m³ air to convey 60 tons of cement in one hour.

Reliability

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- No risk of plugging or clogging.
- No moving parts.
- No device sensitive to dusty environments (such as electrical motors, etc).
- Virtually no wear:
Thanks to the low conveying speed and fluidized material has low abrasion.

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Sealed system: no dust pollution

- Special design of the hose: gasket are 100 % integrated inside the hose.



End Feed



Top Feed

○ ○ ○ Scirocco II en applications



Mortar plant



Cement plant
10» Scirocco II for truck loading.



Micro-silica conveying
1 silo feeds 5 separate lines.



Cement plant
Scirocco II hose connected to a bucket elevator.



Cement plant
Scirocco II hose connected to an airslide.



Mortar plant





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