

DIES02995

User manual

CS 127 - CS 237 and CS 238 Powder Pumps

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CS 127 - CS 237 and CS 238 Powder Pumps

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1. Warning



WARNING : Connect the suction plunger to the ground by contact on the body (conductive plastic) equipped with its seal (conductive) and/or use conductive hoses for the air supply which must themselves be connected to the ground.

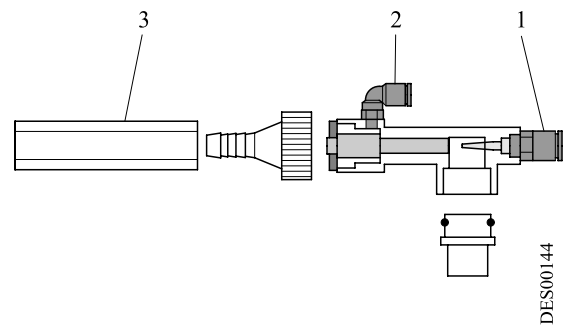
1.1. Marking



2. Description

The suction plunger piston (powder pump) is a drive-effect pump :

| | |
|---|-----------------------|
| 1 | Injection airdrives |
| 2 | Dilution air |
| 3 | Powder transport tube |



3. General characteristics

3.1. Pneumatical characteristics

To ensure a correct running of the equipment, the following pneumatical characteristics are required according to the NF ISO 8573-1 standard :

| | |
|---|---|
| Maximum dew point at 6 bar (90 psi) | class 4 : + 3 °C (38 °F) |
| Maximum granulometry of solid polluting agents | class 3 : 5 µm. |
| Maximum oil concentration | class 1 : 0,01 mg / m ₀ ³ * |
| Maximum concentration of solid pollutant agents | class 3 : 5 mg / m ₀ ³ * |

* : values are given for a temperature of 20 °C (68 °F), at the 1013 mbar atmospheric pressure.

3.2. Indicative flow characteristics

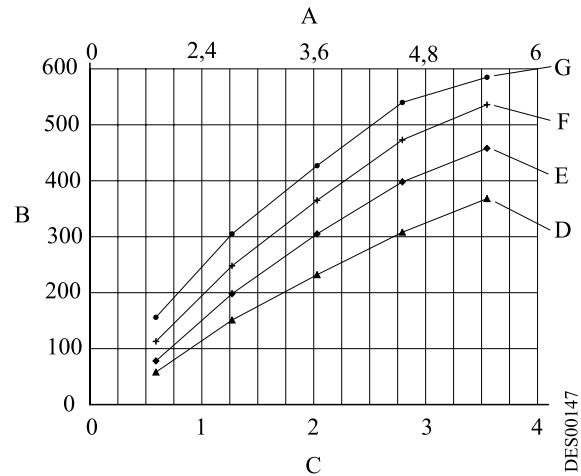
The CS 127 powder pump is connected to an projector or to a powdering gun.

3.2.1. Powder flow with a Dia. 11 mm tube

With an int Dia. 11 mm powder transport tube and dilution air adjusted as advised [see § 8 page 6](#) , characteristics are the following, according to the length of the tube:

| | |
|---|-----------------------------------|
| A | Injection air flow (m_0^3/h *) |
| B | Powder flow (g/min) |
| C | Injection air pressure (bar) |
| D | Transport tube length : 10 m |
| E | Transport tube length : 8 m |
| F | Transport tube length : 6 m |
| G | Transport tube length : 4 m |

* m_0^3/h : volumic flow at atmospheric pressure and at 20 °C (68 °F).

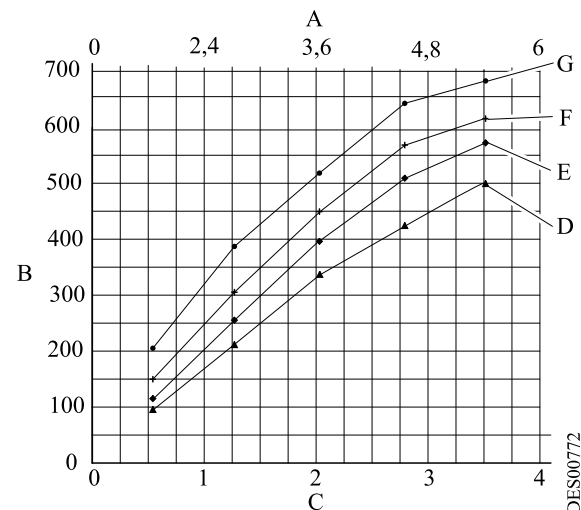


3.2.2. Powder flow with a Dia. 12 mm tube

With an int Dia. 12 mm powder transport tube and dilution air adjusted as advised, [see § 8 page 6](#) , characteristics are the following, according to the length of the tube:

| | |
|---|-----------------------------------|
| A | Injection air flow (m_0^3/h *) |
| B | Powder flow (g/min) |
| C | Injection air pressure (bar) |
| D | Transport tube length : 10 m |
| E | Transport tube length : 8 m |
| F | Transport tube length : 6 m |
| G | Transport tube length : 4 m |

* m_0^3/h : volumic flow at atmospheric pressure and at 20 °C (68 °F).



WARNING : The maximum lengths of powder transport tube advised are the following:

- 10 m for a Dia. 11 mm tube
- 15 m for a Dia. 12 mm tube

Injection air pressure should not be over 3 bar in order to prevent from a too early wear.

4. Diagrams

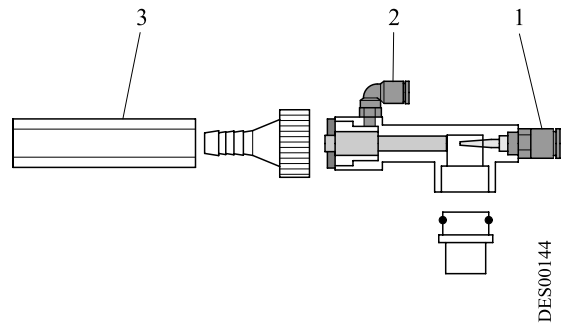
Not applicable.

5. Working characteristics

The powder pump is a drive-effect pump; a high-speed blast of air (powered in [1] - called "injection" air- drives the fluidized powder to the projector by a powder transport tube [3]. To ensure the regularity of low flow rates, additional air called "dilution" air can be added in the powder pump (in [2]).

The flow of powder provided by the powder pump varies with:

- the pressure of the "injection" air,
- the pressure of the "dilution" air,
- the length and the diameter of the powder transport tube,
- the height of the powder in the tank.
- Venturi wear



6. Tools

Not specific tools required.

7. Equipment installation

Install the powder pump as per the following:

- As near as possible from the projector or the gun.
- Respecting significant curves of the powder transport tube.

8. Powder pump adjustment

Actions listed here below give the following results:

| Action | Result |
|--|-----------------------|
| Injection air pressure increases | Powder flow increases |
| Dilution air pressure increases | Powder flow decreases |
| Powder transport tube length increases | Powder flow decreases |
| Powder transport tube diameter increases | Powder flow increases |
| Height of the powder in the tank increases | Powder flow increases |

9. Maintenance



WARNING : Cleaning must only be done using compressed air, a cloth or possibly a brush. Never use water to clean the equipment

The maintenance schedule indicated below is a rough guide. As the SAMES equipment is used, the user should draw up his own maintenance schedule.

To begin with we recommend the following maintenance schedule:



WARNING : In order to avoid the powder rinsing up to the control valve, the "injection" air tubes and the "dilution" air tubes must be disconnected before cleaning the powder pump.

| Maintenance frequency | Action |
|--|--|
| Between 40 and 60 hours of work | Change the powder pump "venturi" ejector, clean if necessary. Check that the powder pump injector is clean. If it is dirty, clean it. |
| Between 150 and 300 hours of work (or more). | Change the powder pump injector. Change powder pump porous washer. |

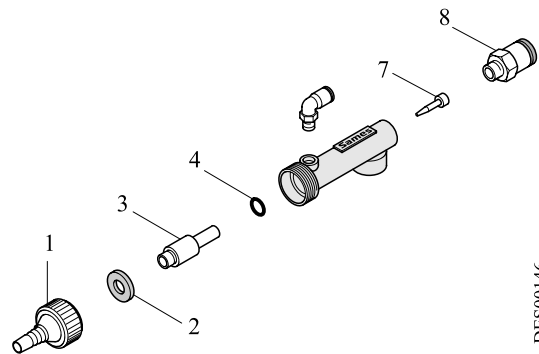
9.1. Dismantling the «venturi» ejector

- Unscrew the powder output nozzle (1)
- Remove the porous ring (2)
- Remove the «venturi» ejector (3).

9.2. Re-assembly of the «venturi» ejector

- Put the "venturi" ejector (3) in the pump body.
- Screw the powder output nozzle (1).

Check the state of the O-ring (4). Replace it if necessary. It is essential to check that the O-ring (4) is in place



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9.3. Dismantling the air injector

- Unscrew fitting (8).
- Remove the air injector (7).

9.4. Re-assembly of the air injector

- Put the air injector (7) in the pump body.
- Screw the fitting (8) back in place.



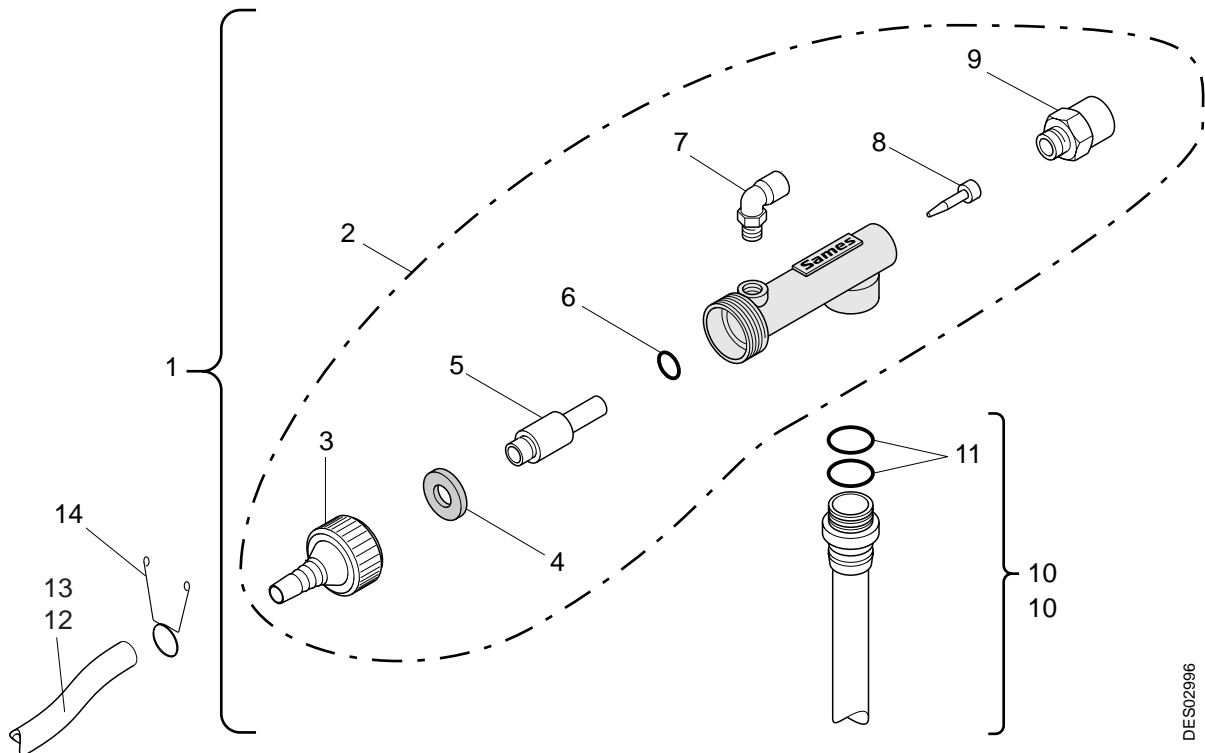
WARNING : Check of air injector, which should not be expanded, air outlet opening must be perfectly concentric.

10. Troubleshooting

| Symptoms | Probable causes | Remedies |
|---|---|--|
| The powder does not come out of the gun. | Insufficient "injection" air flow. | see § 3.2 page 5 |
| | Insufficient air flow from the compressed air system. | see § 3.2 page 5 |
| | The powder transport tube is blocked. | Clean the powder transport tube with compressed air. |
| | The powder pump is not correctly connected to its support. | Put the powder pump properly into place by pushing it to the bottom of its support. |
| | The powder pump is not correctly connected to its support. | Put the powder pump properly into place by pushing it to the bottom of its support. |
| The powder comes out in an insufficient quantity. | The gun is not correctly adjusted, "dilution" air flow is too high. | Reduce dilution air flow. |
| | The powder pump "venturi" ejector is worn out. | Change "venturi" ejector. |
| | The powder transport tube is partially blocked. | Clean the powder transport tube with compressed air. |
| | The powder transport tube is not properly adapted. | Increase the diameter and shorten the length of the powder transport hose (e.g. 3m, Dia. 11 mm). |
| | The flow of the "dilution" air is too high or not high enough. | Adjust the flow of the "dilution" air. Clean the porous ring (refer to chapter 5). |
| Irregular powder pattern | Worn parts of the CS 237 | Change worn parts (injector, venturi ejector, porous ring, seal washer) see § 11.2.1 page 11 |
| | Adjustment of the CS 237 not correct | see § 11.2.1 page 11 |

11. Spare parts

11.1. CS 127 powder pump

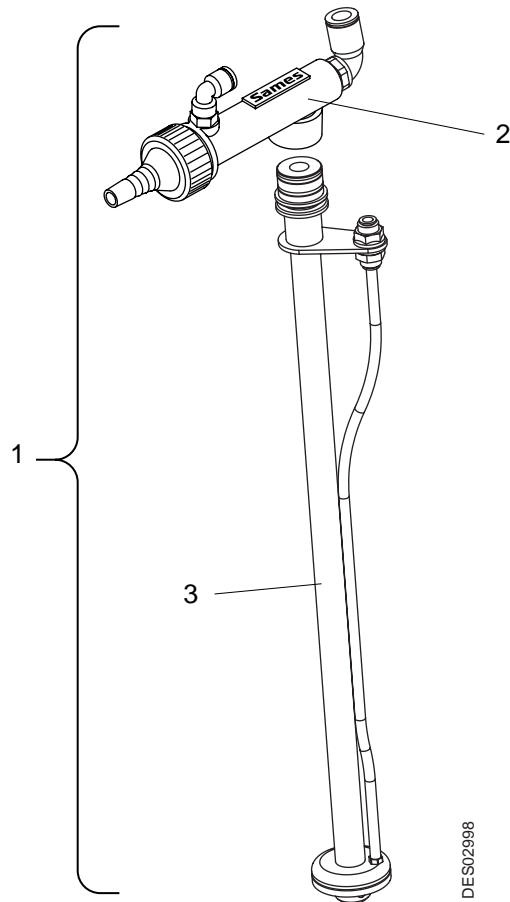


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| Item | Part number | Description | Qty | Sale unit |
|------------|---|---|----------|-----------|
| 1 | 1526400 | CS 127 powder pump | 1 | 1 |
| 2 | 1526398 | CS 127 powder pump without tube | 1 | 1 |
| 3 | 545192 | Powder outlet end piece | 1 | 1 |
| 4 | 444490 | Porous ring | 1 | 2 |
| 5 | 547880 | Venturi ejector (gray) | 1 | 10 |
| 5' | 1407467 | Venturi ejector (white) | 1 | 1 |
| 6 | J2CTPC139 | O-ring | 1 | 10 |
| 7 | F6RLCS367 | Elbow fitting | 1 | 1 |
| 8 | 544808 | Air injector | 1 | 5 |
| 9 | F6RLUS199 | Straight fitting | 1 | 1 |
| 10 | 1526399 | Powder pump tube with O-ring (11) | 1 | 1 |
| 10' | 1406209 | Powder pump tube with O-ring (11) (option for PVV booth only) | 1 | 1 |
| 11 | J2CTPB253 | O-ring | 2 | 10 |
| 12 | see § 11.5 page 15 | Powder hose | 1 | - |
| 13 | see § 11.5 page 15 | Powder hose (option for PVV booth only) | - | - |
| 14 | 1406394 | Powder hose tightening clamp (option for PVV booth only) | 1 | 1 |

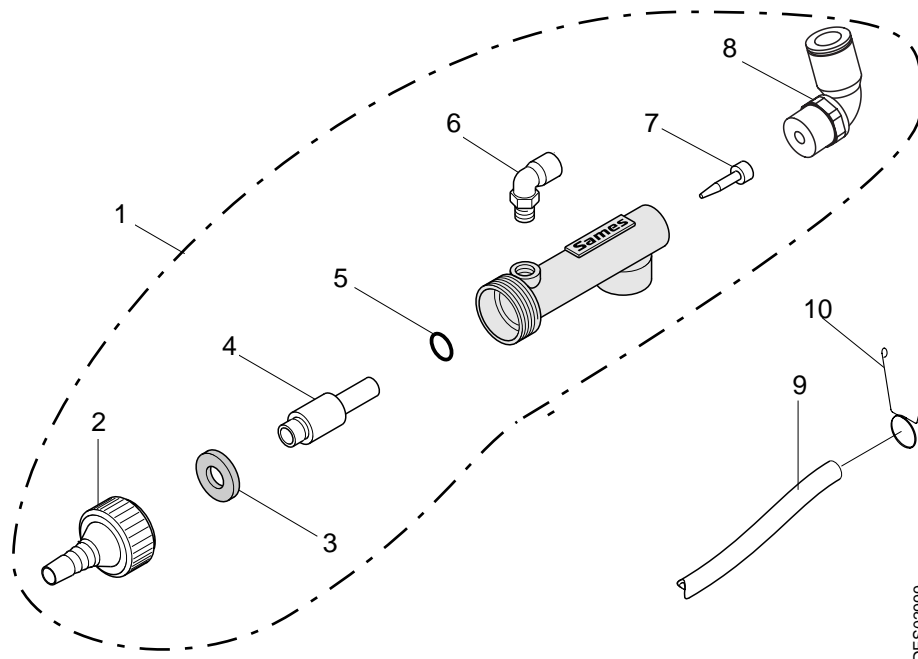
Nota: The tube (P/N: 1526399) must be cut at a length of 470 mm when the CSV 427 tank is used.
Nota: The white venturi tube 1407467 is to be used in the case of high powder flows, or with low grain size particle average, or with powder with low impact fusion characteristics.

11.2. CS 237 Powder pump



| Item | Part number | Description | Qty | Sale unit |
|------|-------------|--|-----|-----------|
| 1 | 1526401 | CS 237 powder pump | 1 | 1 |
| 2 | 1526202 | CS 237 powder pump without tube (see § 11.2.1 page 11) | 1 | 1 |
| 3 | 1526203 | CS 237 equipped powder pump tube (see § 11.2.2 page 12) | 1 | 1 |

11.2.1. CS 237 Powder pump

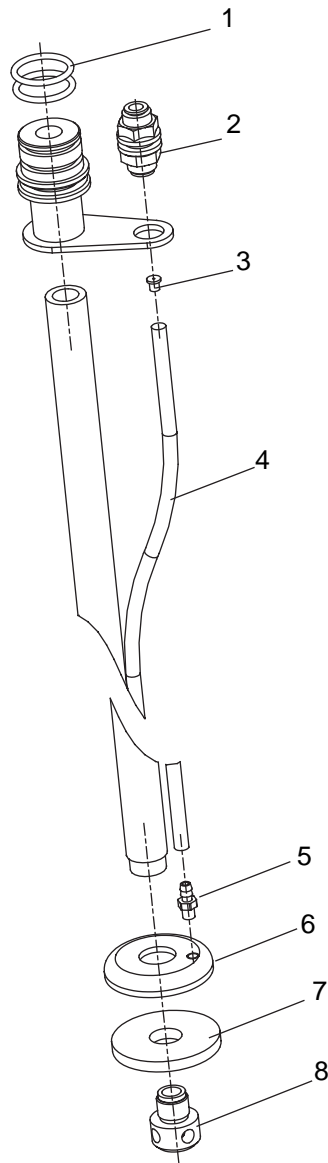


DES020999

| Item | Part number | Description | Qty | Sale unit |
|------|---|--|-----|-----------|
| 1 | 1526202 | CS 237 powder pump without tube | 1 | 1 |
| 2 | 545192 | Powder outlet end piece | 1 | 1 |
| 3 | 444490 | Porous ring | 1 | 2 |
| 4 | 547880 | Venturi ejector (gray) | 1 | 10 |
| 4' | 1407467 | Venturi ejector (white) | 1 | 1 |
| 5 | J2CTPC139 | O-ring | 1 | 10 |
| 6 | F6RLCS367 | Elbow fitting | 1 | 1 |
| 7 | 544808 | Air injector | 1 | 5 |
| 8 | F6RLCS393 | Elbow fitting | 1 | 1 |
| 9 | see § 11.5 page 15 | Powder hose | 1 | - |
| 10 | 1406394 | Powder hose tightening clamp (option for PVV booth) | 1 | 1 |

Nota: The white venturi tube 1407467 is to be used in the case of high powder flows, or with low grain size particle average, or with powder with low impact fusion characteristics.

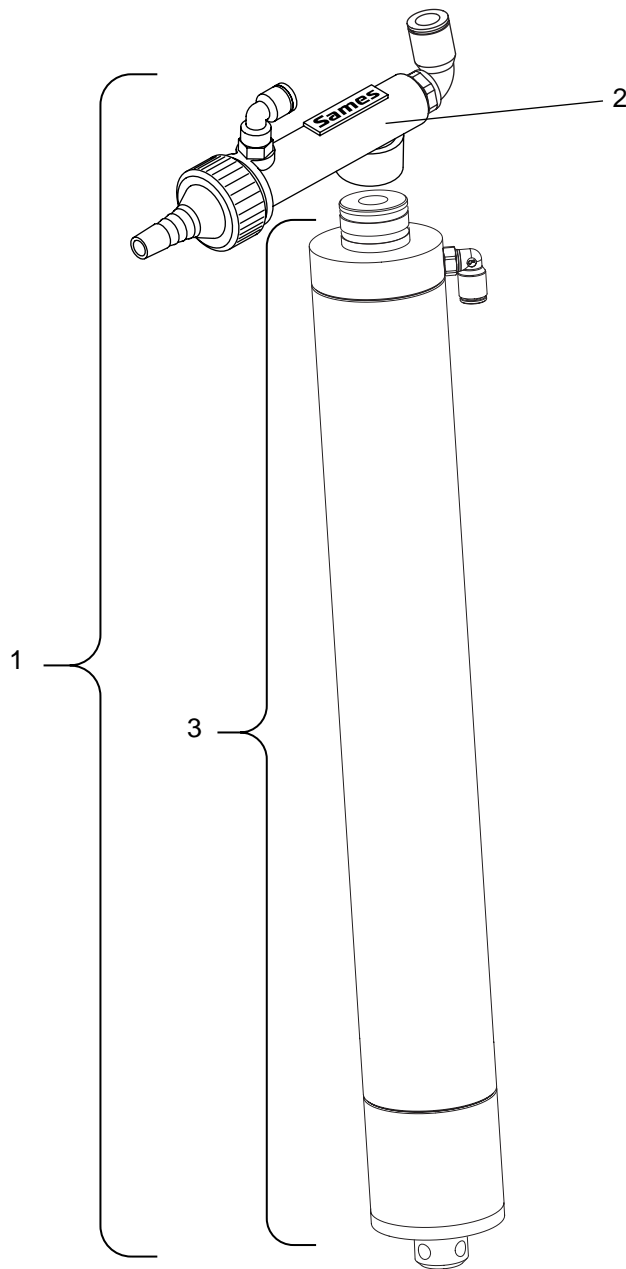
11.2.2. Equipped powder pump tube



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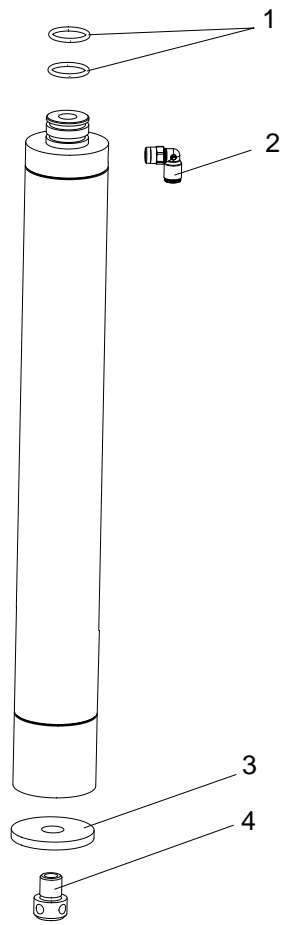
| Item | Part number | Description | Qty | Sale unit |
|------|----------------|--------------------------------|----------|-----------|
| | 1526203 | CS 237 powder pump tube | 1 | 1 |
| 1 | J2CTPB253 | O-ring | 2 | 10 |
| 2 | F6RLGS296 | Bulkhead union | 1 | 1 |
| 3 | 1411688 | Restrictor | 1 | 1 |
| 4 | U1CBBJ001 | 4/6 yellow hose | 0,395 | m |
| 5 | F3PPER119 | Fitting | 1 | 1 |
| 6 | 1411649 | Fluidisation and suction head | 1 | 1 |
| 7 | 1411648 | Fluidisation washer | 1 | 1 |
| 8 | 1411651 | Suction nozzle | 1 | 1 |

11.3. CS 238 Powder pump



| Item | Part number | Description | Qty | Sale unit |
|------|-------------|--|-----|-----------|
| 1 | 910008574 | CS 238 powder pump | - | 1 |
| 2 | 1526202 | CS 237 powder pump without tube (see § 11.2.1 page 11) | 1 | 1 |
| 3 | 910008659 | CS 238 equipped powder pump tube (see § 11.3.1 page 14) | 1 | 1 |

11.3.1. CS 238 equipped powder pump tube



DES04719

| Item | Part number | Description | Qty | Sale unit |
|------|------------------|---|-----|-----------|
| | 910008659 | CS 238 equipped powder pump tube | - | 1 |
| 1 | J2CTPB253 | O-ring | 2 | 10 |
| 2 | F6RLCS367 | Male fitting | 1 | 1 |
| 3 | 900005739 | Porous ring | 1 | 1 |
| 4 | 1411651 | Suction nozzle | 1 | 1 |

11.4. Maintenance set for CS 127 or CS 237 powder pumps

| Part number | Description | Qty | Sale unit |
|----------------|---------------------------------|----------|-----------|
| 1517824 | Maintenance set included | 1 | 1 |
| 444490 | Porous ring | 5 | - |
| 547880 | Venturi ejector (gray) | 20 | - |
| 544808 | Air injector | 5 | - |

11.5. Powder hoses

| Part number | Description | Qty | Sale unit |
|--------------------|--|------------|------------------|
| U1GMBS163 | PU colorless powder hose, 10 mm for specific application | - | m |
| U1FGBA092 | EAV colorless powder hose, 11 mm for manual application | - | 50 m |
| U1FGBA034 | EAV grey powder hose, 12 mm for automatic application | - | 50 m |