BRITISH STANDARD

BS 7871:
Part 2 : 1998

Pneumatic conveying

Part 2. Glossary of equipment

ICS 01.040.53; 53.040.30

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee MHE/9, Continuous mechanical handling equipment, to Technical Committee MHE/9/-/1, Pneumatic conveying, upon which the following bodies were represented:

British Coal Corporation
Health and Safety Executive
Solids Handling and Processing Association Ltd.
Co-opted members

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 January 1998

Amendments issued since publication

Amd. No.	Date	Text affected

The following BSI references relate to the work on this standard:
Committee reference MHE/9/-/1
Draft for comment 97/706943 DC

ISBN 0 580 28629 0

Foreword

This Part of BS 7871 has been prepared by Technical Committee MHE/9. It is one of a series of standards being prepared on the subject of pneumatic conveying.

The other published Part of this standard is:

Part 1: Pneumatic conveying — Glossary of terms

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover and a back cover.

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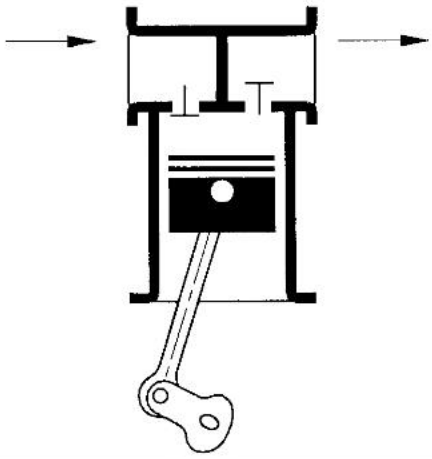
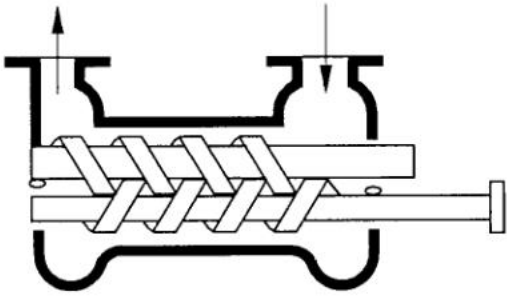
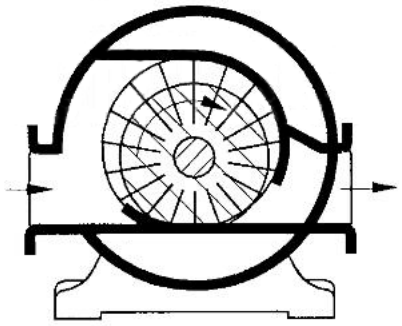
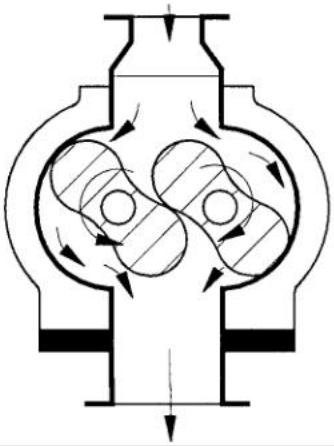
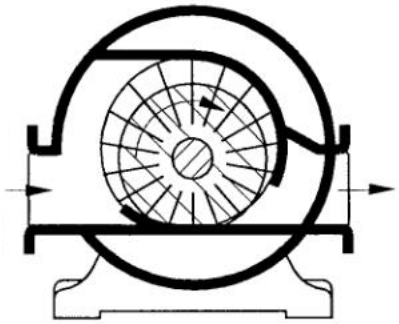
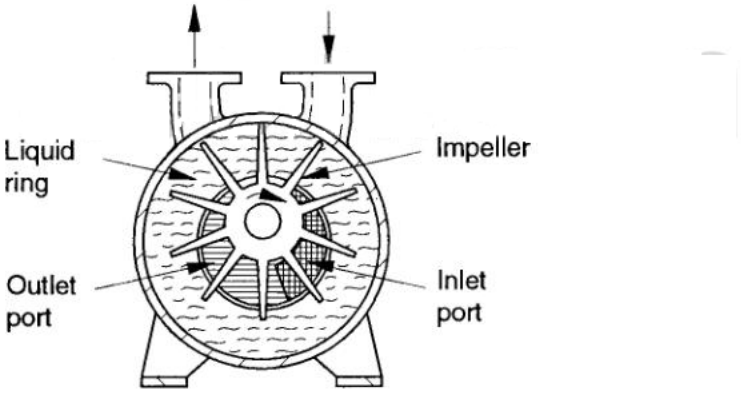
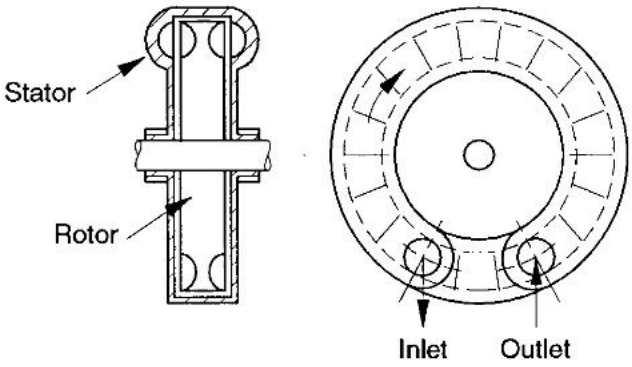
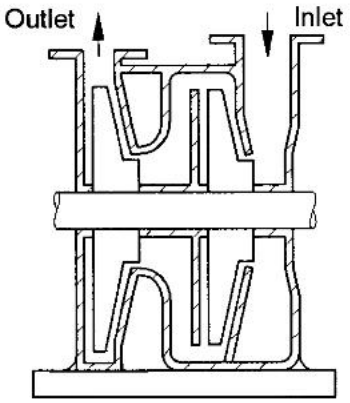
Section 1. Air and gas movers

1.1 Compressors

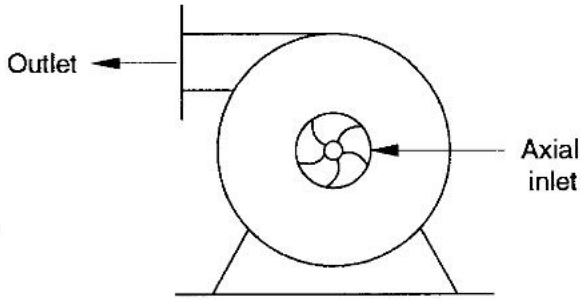
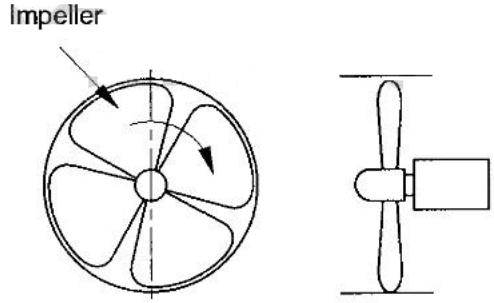
No.	Terms and definitions	Figures
1101	**reciprocating compressor** Compressor with one or more pistons moving in cyclinders to compress gas and eject it at a higher pressure.	
1102	**screw type compressor** Rotary compressor with left hand and right hand screws in close engagement, which entrain the gas and eject it at a higher pressure.	
1103	**multi-vane compressor** Rotary compressor with sliding vanes capable of creating a positive pressure at the outlet.	

1.2 Blowers/exhausters

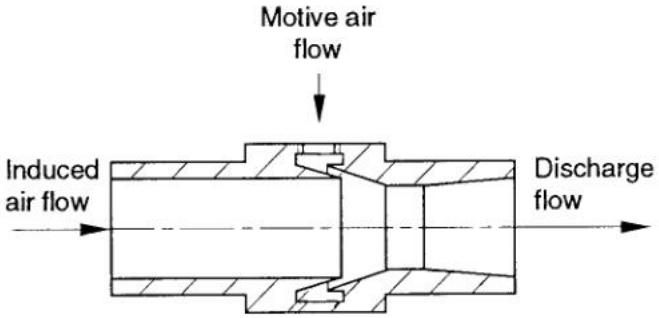
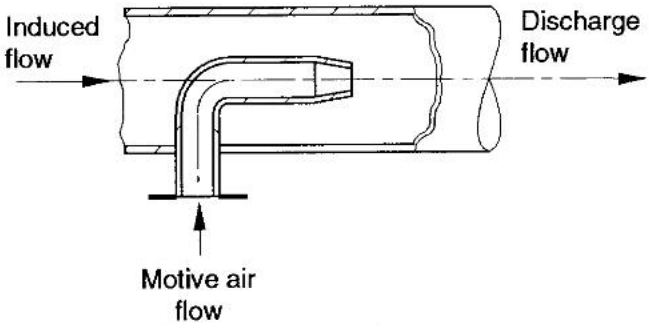
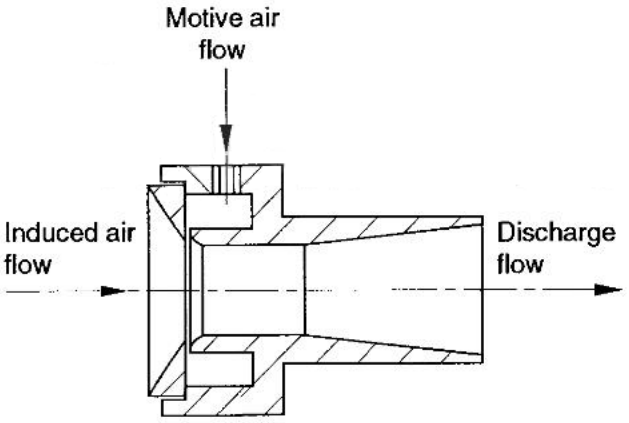
No.	Terms and definitions	Figures
1201	**roots type blower/exhauster** Positive displacement machine with synchronized lobed rotors in a housing, creating either a partial vacuum at the inlet, a pressure at the outlet, or both.	
1202	**multi-vane rotary blower/exhauster** Rotary machine with sliding vanes in the rotor to create a partial vacuum at the inlet and a positive pressure at the outlet.	
1203	**liquid ring-blower/exhauster** Multi-bladed rotor in an elliptical housing partially filled with liquid, which forms a seal.	
1204	**regenerative blower/exhauster** side channel blower/exhauster Externally vaned rotor, which rotates at high speed within an internally vaned housing. Gas entering spirals alternately between rotor and stator vanes and increases in pressure until it discharges through the outlet.	

No.	Terms and definitions	Figures
1205	**multi-stage turbo blower/exhauster** Combination of rotors and stators designed to produce levels of vacuum or positive pressure depending upon the number of stages.	

1.3 Fans

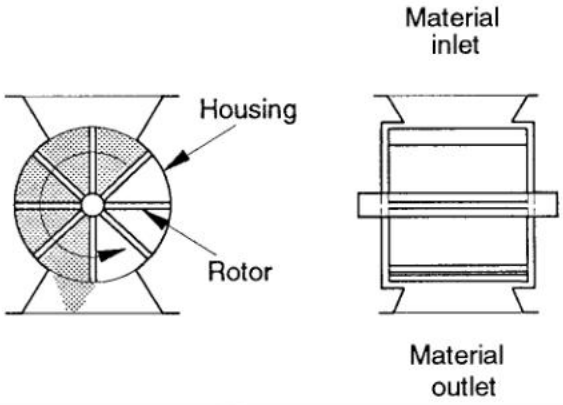
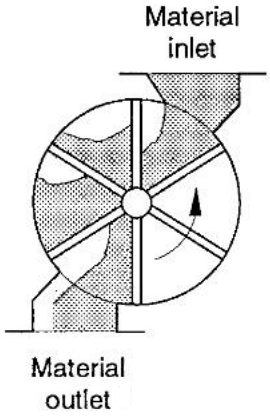
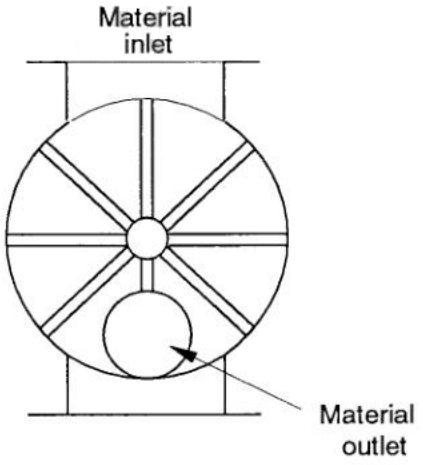
No.	Terms and definitions	Figures
1301	**centrifugal fan** Multi-bladed fan in a shaped housing, arranged to pump gas at relatively low pressure or vacuum.	
1302	**axial fan** One or more multi-bladed impellers in a pipe or duct, normally direct-coupled axially and capable of pumping large quantities of gas at very low pressure or vacuum.	

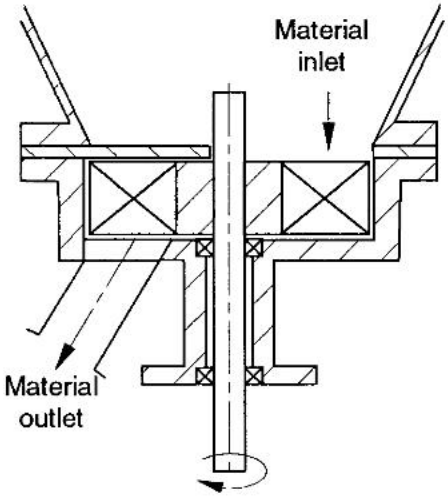
1.4 Other gas movers

No.	Terms and definitions	Figures
1401	**annular ejector/jet pump** Device which provides large volume, positive or negative low pressure gas flow using smaller volume higher pressure supply of motive gas. Motive gas is introduced around the periphery of the induced flow.	
1402	**axial ejector/jet pump** Device which provides large volume, positive or negative low pressure gas flow using smaller volume, higher pressure supply of motive gas. Motive gas is introduced axially.	
1403	**coanda effect jet pump** Device which provides large volume, positive or negative low pressure gas flow using smaller volume higher pressure supply of motive gas. Motive gas uses the coanda effect to direct the induced flow.	

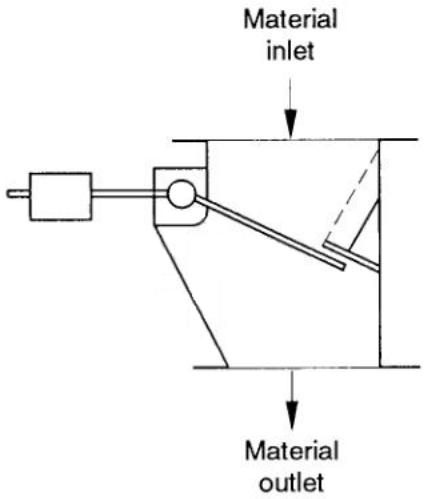
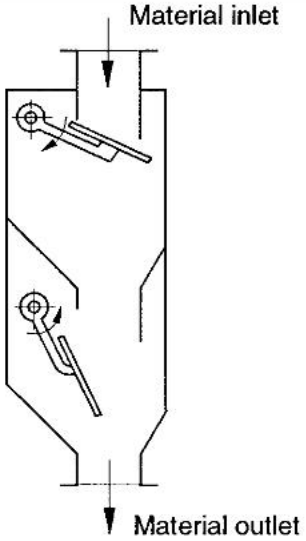
Section 2. Pipeline feeders

2.1 Rotary valves

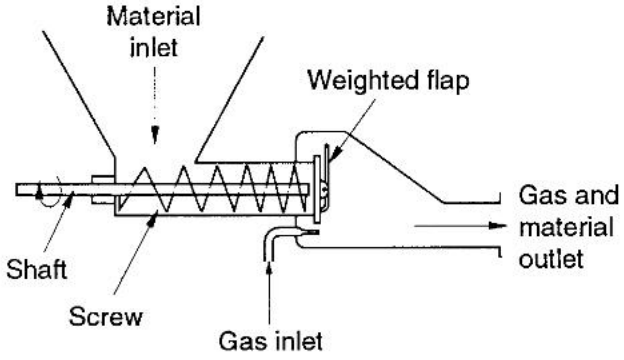
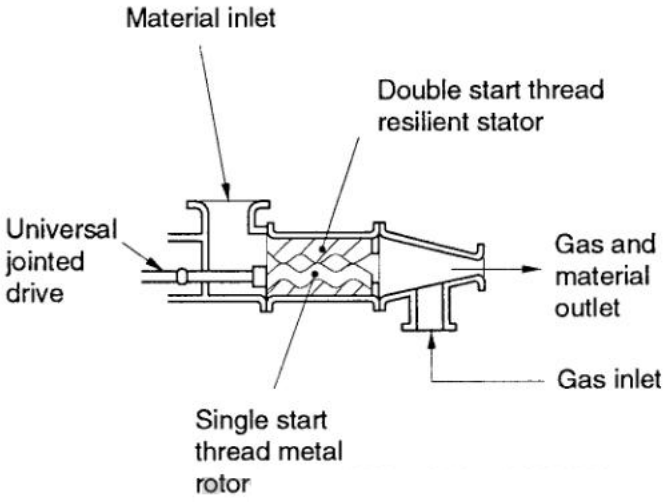
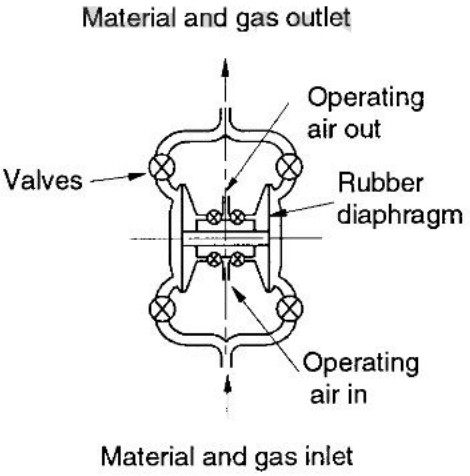
No.	Terms and definitions	Figures
2101	**drop through rotary valve** Rotary device to meter the material into a system whilst controlling the gas leakage through the valve. NOTE. The blades may be of helix form.	
2102	**off-set rotary valve** Rotary device to meter the material into a system, typically used for large particulate materials to reduce cutting of particles.	
2103	**blow through rotary valve** blowing seal Rotary device arranged to discharge material into the conveying pipe as the rotor blades pass the lowest position with the gas flowing through the rotor pocket. It is typically used for cohesive materials.	

No.	Terms and definitions	Figures
2104	**vertical axis rotary valve** Rotary device with vertical drive shaft to meter material into a system whilst limiting gas leakage through the valve.	

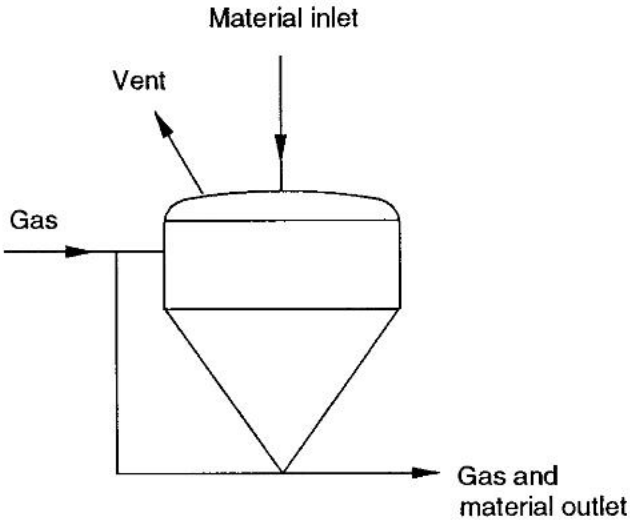
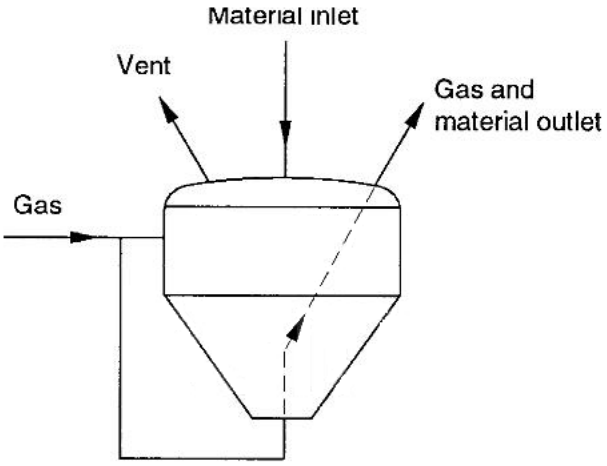
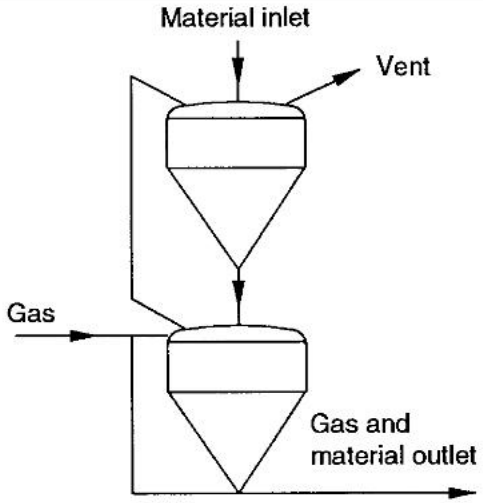
2.2 Flap valves

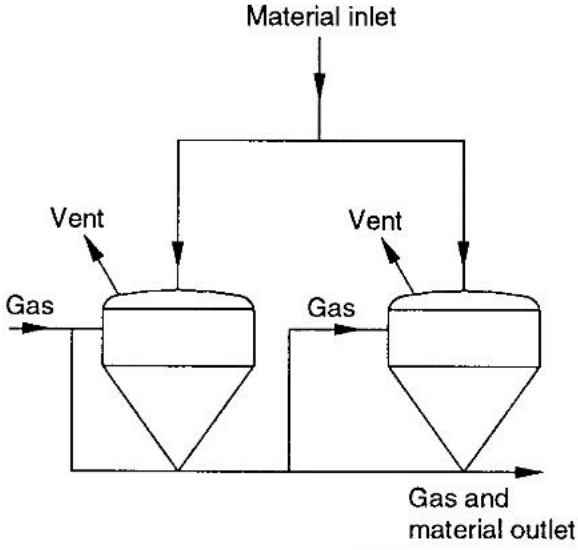
No.	Terms and definitions	Figures
2201	**counter-weighted flap valve** Valve to control the in-flow of material and the out-flow of gas.	
2202	**double flap valve** Upper and lower valves with alternating operation, to give almost continuous flow of material without reverse flow of gas.	

2.3 Other feeders

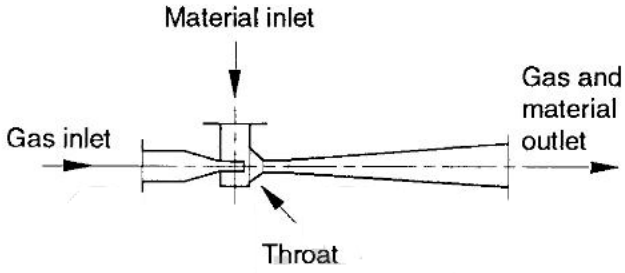
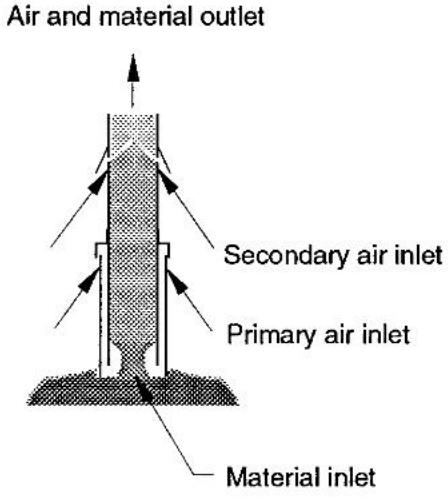
No.	Terms and definitions	Figures
2301	**pressure screw feeder** screw pump Feeder used in positive pressure systems. It compacts the material to form a seal against line pressure. NOTE. This feeder is only suitable for fine materials.	
2302	**positive displacement feeder** solids pump Feeder used in positive pressure systems. The seal is made by contact between the rotor and stator. NOTE. This feeder is only suitable for fine materials.	
2303	**double diaphragm pump** Combined air mover and feeder in the form of a mechanical reciprocating pump which handles both material and gas. NOTE. This feeder is only suitable for fine materials which can be readily fluidized.	

2.4 Feed vessels, blow tanks (pressurized feed vessels)

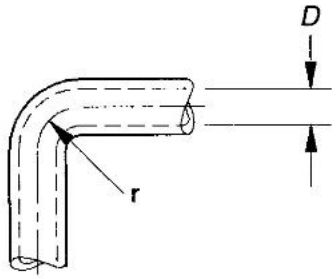
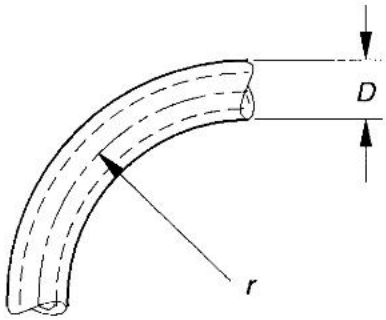
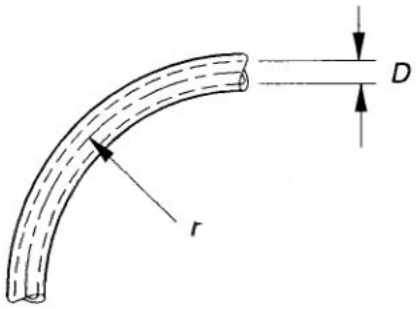
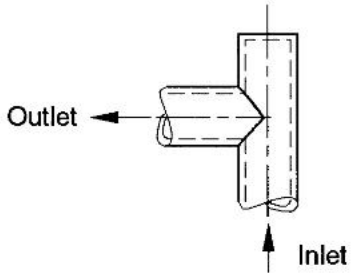
No.	Terms and definitions	Figures
2401	**bottom discharge tank** Single tank for batch operation. Material is discharged downwards by pressurization of the tank with air or gas. NOTE. Allows complete emptying.	
2402	**top discharge tank** Single tank for batch operation. Material is discharged upwards in a vertical or inclined pipe by pressurization of the tank with air or gas. NOTE. Some material tends to remain in the tank after discharge.	
2403	**continuous discharge tank, series arrangement** Two tanks arranged so that the first tank discharges, in batches, to the second, which discharges continuously into the conveying line. NOTE. Top or bottom discharge can be used.	

No.	Terms and definitions	Figures
2404	**twin tanks, parallel arrangement** Arrangement in which two tanks fill and discharge alternately, giving near continuous discharge into the conveying line. NOTE. Top or bottom discharge can be used.	

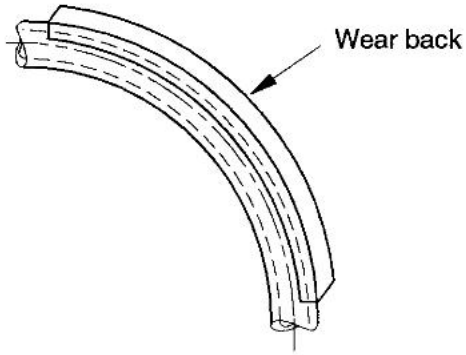
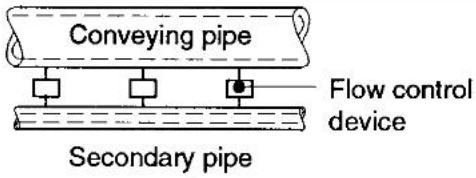
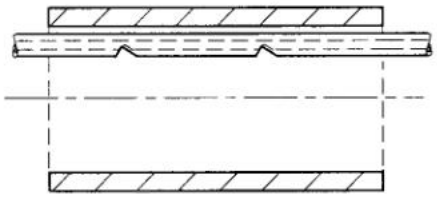
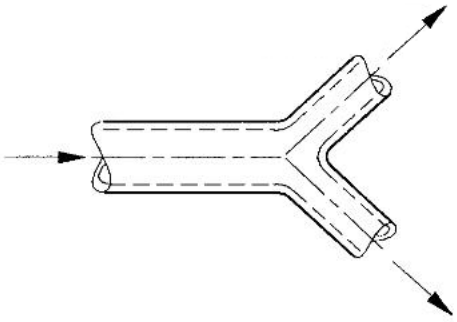
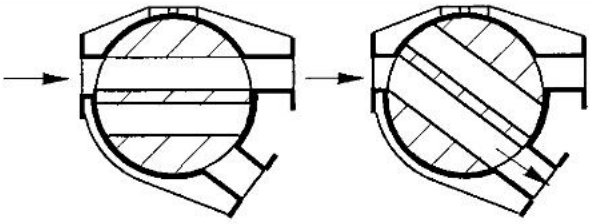
2.5 Other entrainment devices

No.	Terms and definitions	Figures
2501	**venturi feeder or eductor** Feeder used for introducing material into systems working above atmospheric pressure. High gas velocity decreases the pressure in order to draw material into the throat whilst preventing the leakage of air or gas.	
2502	**suction nozzle** Feeder used for introducing material into systems working below atmospheric pressure. It is mainly used to reclaim material from a pile or where the top surface of material is accessible.	

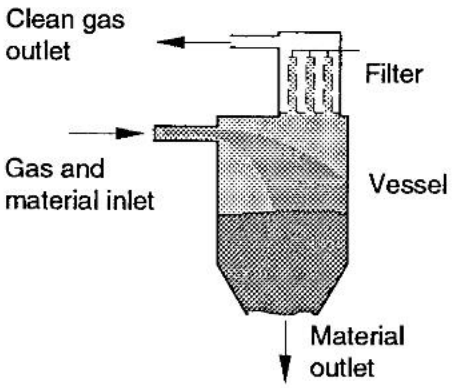
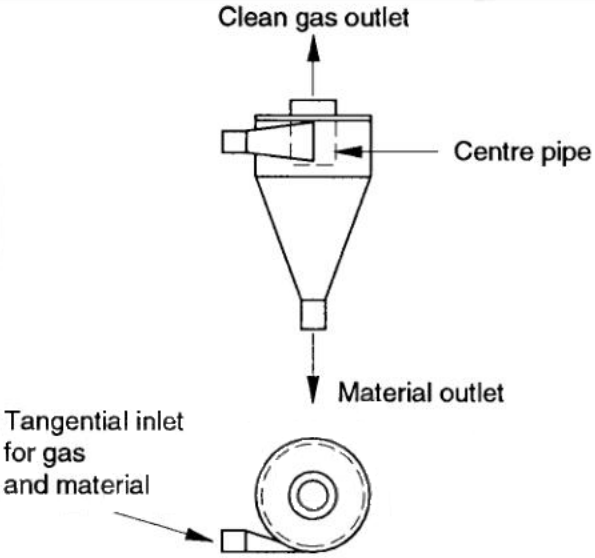
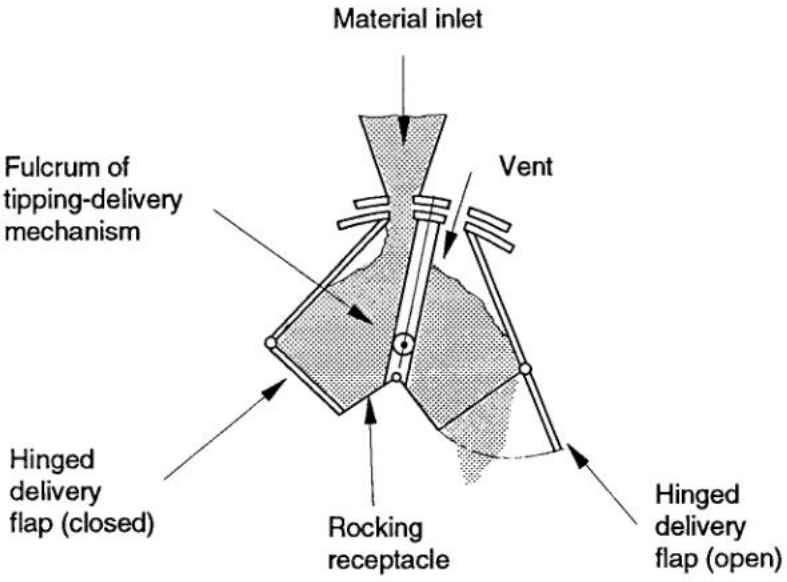
Section 3. Transfer equipment

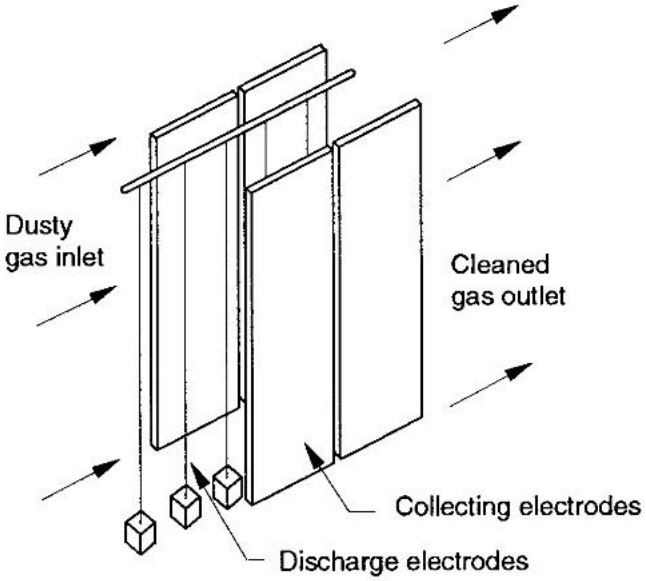
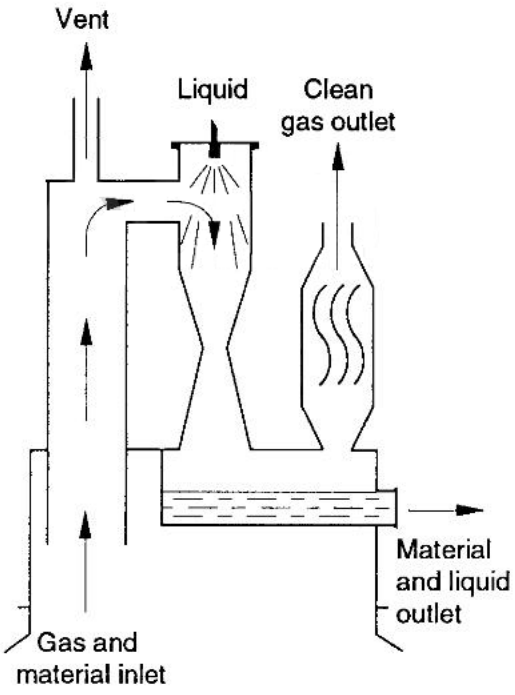
No.	Terms and definitions	Figures
3001	**elbow**[1)] Section of pipe incorporated into the transfer line to change the direction of flow. The ratio *r*/*D* is typically 2.	
3002	**short radius bend**[1)] Section of pipe incorporated into the transfer line to change the direction of flow. The ratio *r*/*D* is typically in the range 2 to 6.	
3003	**long radius bend**[1)] Section of pipe incorporated into the tranfer line to change the direction of flow. The ratio *r*/*D* is typically greater than 6.	
3004	**blind tee bend**[1)] Section of pipe incorporated into the transfer line to change the direction of flow. NOTE. This device gives some wear resistance but has a greater pressure loss.	

[1)] Can be manufactured or lined with materials different to the pipeline to counter wear.

No.	Terms and definitions	Figures
3005	**wear back bend** A pipe similar to a radius bend, but incorporating reinforcement along the back of the bend to counter wear. There are numerous ways in which this reinforcement can be applied.	
3006	**conveying line gas injectors** Series of gas injectors placed at intervals along the conveying pipe for the purpose of injecting additional gas to assist conveying in certain specialist applications.	
3007	**internal gas by-pass pipe** Lengths of perforated gas pipe incorporated within the main pipe to assist conveying in certain specialist applications.	
3008	**flow splitter** Device which divides the flow into a number of alternative conveying lines simultaneously. NOTE. There are many types as well as the one shown.	
3009	**flow diverter** Device in which the material flow in a conveying line can be diverted from one line into an alternative line. NOTE. There are many types as well as the one shown.	

Section 4. Gas/material separators

No.	Terms and definitions	Figures
4001	**filter** Device which uses porous material to separate solid particles from the gas after initial separation in the vessel.	
4002	**cyclone** Device to impart rotary motion to the gas stream thereby causing the entrained particles of material to be separated by centrifugal force and gravity.	
4003	**tipper seal** Reciprocating device for discharging material from a receiver of hopper without breaking down the vacuum.	

No.	Terms and definitions	Figures
4004	**precipitator** Separating device which operates by charging fine particles of material and attracting them to collecting electrodes. The collecting electrodes are cleaned by rapping and material falls into a collecting hopper.	 Note. Casing and collecting hoppers not shown
4005	**wet scrubber** Device which washes gas with a spray or sheet of liquid (usually water) to entrap particulates and fumes in the liquid. NOTE. The figure shows the simplest open type where water sprayed into the venturi induces the gas to flow into the scrubbing section. Many other types are available including types with mechanical arrangements for eliminating liquid mist from the exhaust gases.	

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