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Conveyor Belts / Pneumatic Conveying

- Conveyor Belts
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Pressure pneumatic conveyor system DFP



Description

Nowadays, pneumatic conveyor systems are used in many fields of the bulk goods industry. These goods range from dusty ($\varnothing = 0-0.5$ mm) to coarse-grained solids ($\varnothing = >10$ mm). The conveying capacity reaches from a few kilograms up to two hundred tons per hour or more.

The conveying pipe diameter varies from <50 mm to >500 mm. Conveying distances up to 1000 m can be reached.

The pressure tank has become widely accepted for the pneumatic conveying with high pressure (big conveying distances) and a high concentration of goods (big conveying capacity).



In case of poorly flowing materials, it is possible to increase the conveying capability by special measures (cone aeration, mechanic discharging units).

According to conveying material and conveying distance, center discharge by gravity (connection of conveying pipe below discharge cone) or top discharge (connection of conveying pipe from above to the standpipe rising into the pressure tank) as well

as different pressure ratio of top, bottom or supplementary air inlet are chosen.

Loading of the pressure tank can be either done in free fall or by using suitable mechanic conveyors.

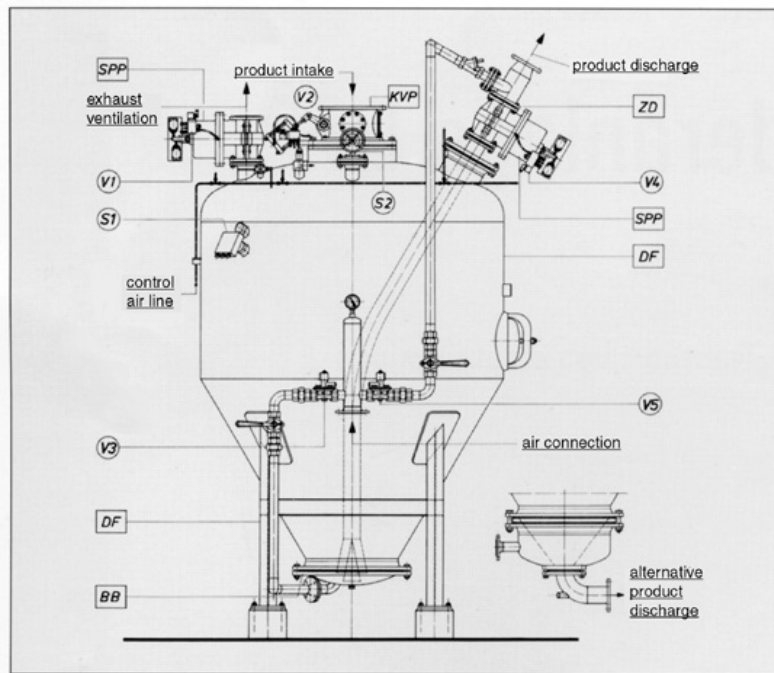
The pressure tank always works discontinuously. For that, a buffer tank is placed above the pressure tank when conveying continuous material. For bigger conveying capacities, two pressure tanks can be connected in parallel. During filling the first one, the second one will be emptied, and so, an almost continuous conveying can be reached. The average availability of a single pressure tank is 50%, and approx. 90% when two pressure tanks are connected in parallel.

The conveying capacity of a pressure tank is defined by the net volume of the tank as well as by the diameter of the conveying pipe. Due to the different densities, grain sizes, grading and other physical characteristics of bulk goods, it is not possible to give precise details on conveying capacity, even when pipe diameter and pressure tank volume ($V1 + V2$) are known.

Layout

The conveyor system consists of the pressure tank with all necessary instruments. It will be connected to the air pressure supply and the electric control.

Dimension Drawing



Pressure vessel DF: Pressure vessel for high pressure conveyance

Cone type stopper KVP: Pressure tight stopper for material charging holes

Special hose valve SP: Closing element in pneumatic conveyor line

Bottom aerator BB: Lower closure on pressure vessel and fluidisation

Supplementary nozzle ZD: Compression or carrier gas into conveyor line

Dimension Table

type	volume liter				measurement in mm										
	V1+V2	V1	V2	V3	A	B	C	ØD	E	F	G	H	H1	R	
DF 1,0/0,5*	500	200	300	130	420	400	360	1000	3-foot-stand radius = 560	-	-	1380	1130	350	
DF 1,0/1,0	1000	200	800	130	420	1050	360	1000		-	-	2030	1780	350	
DF 1,4/1,0*	1000	580	420	330	765	275	420	1400		-	-	1680	1430	500	
DF 1,4/1,5	1500	580	920	330	765	605	420	1400		-	-	2010	1760	500	
DF 1,4/2,0	2000	580	1420	330	765	275	420	1400	3-foot-stand radius = 750	-	-	2340	2090	500	
DF 1,8/2,0*	2000	1280	720	680	1115	285	530	1800		1100	1100	2120	1870	600	
DF 1,8/3,0	3000	1280	1720	680	1115	685	530	1800		1100	1100	2520	2270	600	
DF 1,8/4,0	4000	1280	2720	680	1115	1085	530	1800		1100	1100	2920	2670	600	
DF 1,8/5,0	5000	1280	3720	680	1115	1485	530	1800		1100	1100	3320	3070	600	
DF 2,0/3,0*	3000	1760	1240	920	1285	405	570	2000		1100	1100	2450	2200	700	
DF 2,0/4,0	4000	1760	2240	920	1285	725	570	2000		1100	1100	2770	2520	700	
DF 2,0/5,0	2000	1760	3240	920	1285	1045	570	2000		1100	1100	3090	2840	700	
DF 2,2/4,0*	4000	2360	1640	1220	1460	435	610	2200	3-foot-stand radius = 750	-	-	1300	2690	2440	740
DF 2,2/5,0	5000	2360	2640	1220	1460	705	610	2200		-	-	1300	2960	2710	740
DF 2,2/6,0	6000	2360	3640	1220	1460	975	610	2200		-	-	1300	3230	2980	740
DF 2,5/6,0	6000	3480	2520	1760	1720	525	610	2500		-	-	1300	3100	2850	800
DF 2,5/8,0	8000	3480	4520	1760	1720	925	610	2500		-	-	1300	3500	3250	800
DF 2,5/10,0	10000	3480	6520	1760	1720	1325	610	2500		-	-	1300	3900	3650	800

* Mounting of manhole to cylinder is not possible as pressure tank is too small.

V1 - air volume

V2 - material volume

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