Dvel Series

Reliable Compact Reasonable

Data Sheet

VELOCITY MEASUREMENT FOR BULK SOLIDS

PROCESS COUPLING: DIN-FLANGE

Function

The velocity measurement **Dvel** is used to determine the velocity of bulk material like dust, powder or granulates which are being transported in pneumatic conveying systems or by gravity in pipelines.

Integrated into a control concept the value can be used to reduce product degradation / abrasion and to minimize the quantity of required conveying gas.

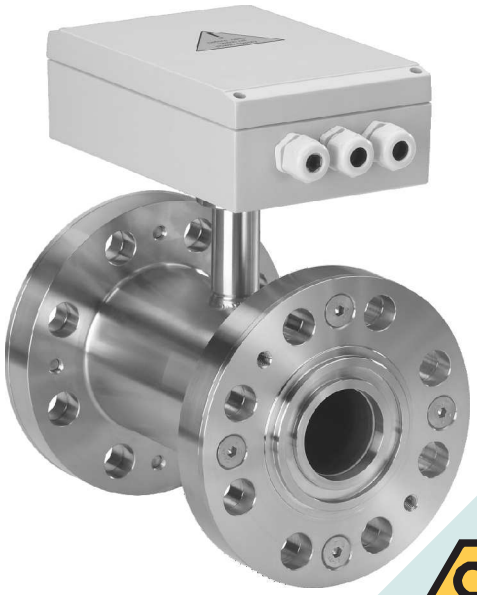
In combination with a concentration measurement the mass flow rate can be determined.

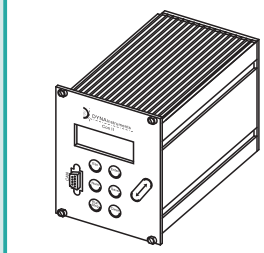
The measurement principle is based on the detection of moving solid particles. Nonmoving particles are not being detected. For a runtime measurement two sensors in the instrument record signals. The time which the product needs for the distance from sensor 1 to sensor 2 is calculated by means of the two signals using a correlation calculation. Since this is an absolute measured value, a calibration is not required.

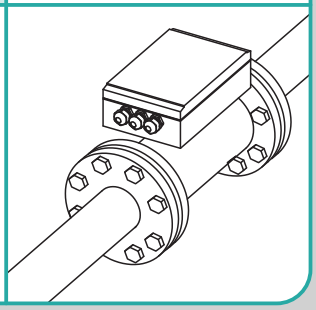
Adjustments to different products or process conditions are done automatically.

The device can not be used if the product creates an electrically conductive layer on the pipeline walls by abrasion or caking.

- Non-contact measurement
- Without calibration
- Maintenance-free







Technical Data

Measuring range	freely selectable	0.2...100 m/s
Accuracy	typically	1 % of the end value
Process	temperature	standard: max. 130°C (266°F)
	pressure	max. 64 bar (900 lbs)
Ambient cond.	temperature	-20°C...+70°C (-4°F...158°F)
	protection class	IP 67 (EN 60529)
	interference immunity	according to EN 61326-1
Materials	see overleaf	
Parameterization	via CAN-Bus	with DYNAcon / Notebook
Output	via CAN-Bus	through DYNAcon:
		value in m/s, failure,
		simulation value,
		limit status
CAN-Bus	transmission rate	40 kbaud
		cable length max. 1000 m
Supply voltage		18...36 V DC, max. 6 W
Damping		1-30 s, fast adaptation to rapid
		change of the value

Dvel Series

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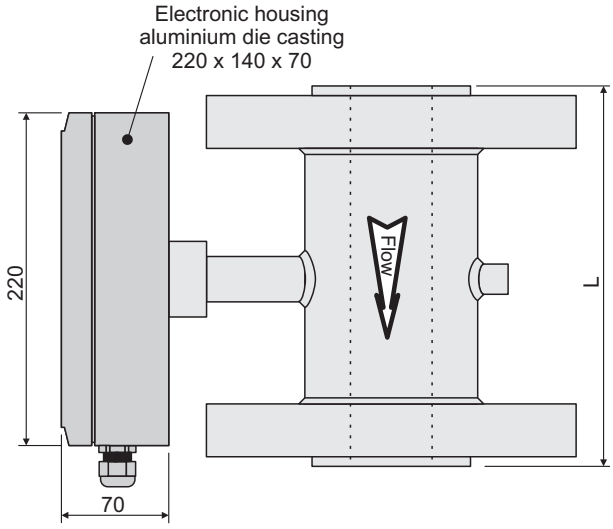
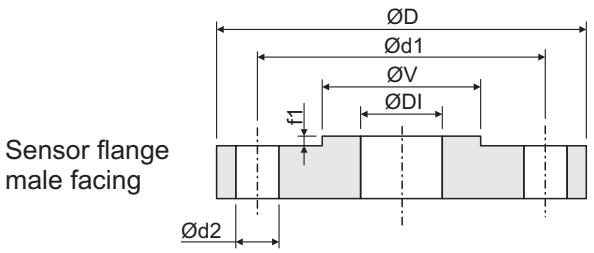
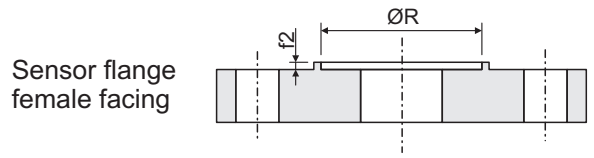
Dimensions in mm

DIN-Flange DF

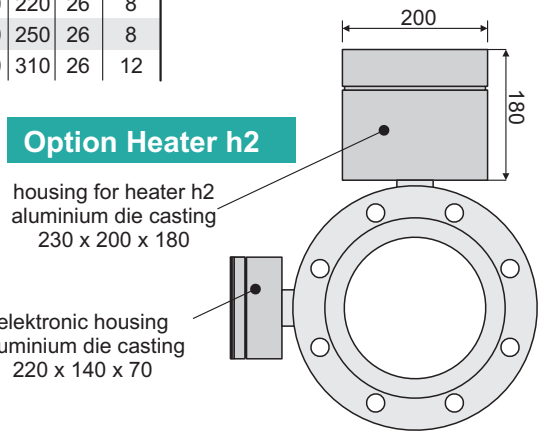
						PN 10				PN 16				PN 25				PN 40				PN 64			
DN	L	ØV	ØR	f1	f2	ØD	Ød1	Ød2	Anz.	ØD	Ød1	Ød2	Anz.	ØD	Ød1	Ød2	Anz.	ØD	Ød1	Ød2	Anz.	ØD	Ød1	Ød2	Anz.
10	250	34.9	35	4	3	90	60	14	4	90	60	14	4	90	60	14	4	90	60	14	4	100	70	14	4
15	250	39.9	40	4	3	95	65	14	4	95	65	14	4	95	65	14	4	95	65	14	4	105	75	14	4
20	250	50.9	51	4	3	105	75	14	4	105	75	14	4	105	75	14	4	105	75	14	4	130	90	14	4
25	250	57.9	58	4	3	115	85	14	4	115	85	14	4	115	85	14	4	115	85	14	4	140	100	18	4
32	250	65.9	66	4	3	140	100	18	4	140	100	18	4	140	100	18	4	140	100	18	4	155	110	22	4
40	250	75.9	76	4	3	150	110	18	4	150	110	18	4	150	110	18	4	150	110	18	4	170	125	22	4
50	250	87.9	88	4	3	165	125	18	4	165	125	18	4	165	125	18	4	165	125	18	4	180	135	22	4
65	250	109.9	110	4	3	185	145	18	4	185	145	18	4	185	145	18	8	185	145	18	8	205	160	22	8
80	250	120.8	121	4	3	200	160	18	8	200	160	18	8	200	160	18	8	200	160	18	8	215	170	22	8
100	250	149.8	150	4.5	3.5	220	180	18	8	220	180	18	8	235	190	22	8	235	190	22	8	250	200	26	8
125	250	175.8	176	4.5	3.5	250	210	18	8	250	210	18	8	270	220	26	8								
150	300	203.7	204	4.5	3.5	285	240	22	8	285	240	22	8	300	250	26	8								
200	350	259.7	260	4.5	3.5	340	295	22	8	340	295	22	12	360	310	26	12								
250	350	312.6	313	4.5	3.5	395	350	22	12	405	355	26	12												
300	400	363.6	364	4.5	3.5	445	400	22	12	460	410	26	12												
350	400	421.5	422	5	4	505	460	22	16	520	470	26	16												
400	450	473.5	474	5	4	565	515	26	16	580	525	30	16												







Option Heater h2



Ordering key Dvel_DF/a/b/c/d/e/f/g/h/i/k

* = Standard

a: Flange form
- 1: male and female facing
- 3: female facing on both sides
- * 5: male facing on both sides

b: Nominal pressure PN
10, 16, 25, 40, 64 bar

c: Nominal diameter DN
10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400

d: Inner diameter DI
in mm
Standard:
* 10.0 / 15.0 / 20.0 / 25.0 / 28.1 /
* 38.0 / 40.0 / 42.7 / 50.0 / 54.0 /
* 54.7 / 59.0 / 60.3 / 62.7 / 65.0 /
* 67.4 / 80.0 / 83.3 /
* 100.0 / 107.9 / 125.0 / 133.6 /
* 150.0 / 160.9 / 200.0 / 210.9 /
* 250.0 / 263.0 / 300.0 / 312.9 /
* 350,0 / 400,0

e: Material of housing
- * 00: Steel galvanized, chromated, varnished
- 10: Stainless steel 1.4301 / AISI 304
- 20: Stainless steel 1.4571 / AISI 316 Ti
- 21: Stainless steel 1.4541 / AISI 321
- 22: Stainless steel 1.4435 / AISI 316 L (Mo+)

f: Material of sensor pipe
- * 01: glass fiber reinforced epoxy resin
- 02: glass fiber reinforced vinyl ester epoxy resin
- 20: PTFE
- 30: PEEK
- 50: PVC51: PA
- 52: PE
- 54: UHMW PE
- 55: POM
- 56: PVDF

g: Material of seals
- 00: Nitrile butadiene rubber (NBR)
- * 10: fluorinated rubber (FPM/FKM)
- 20: Silicon (MH)

h: Options
without: no options
h2: heater (processes with humidity)

i: Atex temperature group
- 1: process temperature -30°C...+160°C temperature class T3 , T160°C
- 2: process temperature -15°C...+120°C temperature class T4, T120°C
- 3: process temperature -15°C...+70°C temperature class T4, T120°C

k: Certificates
without: Version for non-hazardous
Ex2: Version for the use in ATEX zone 2 and/or 22
II 3G Ex nA IIB T4 Gc
II 3D Ex tc IIIB T100°C Dc IP65

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Technical data subject to change without notice.

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