

Overview

- Level limit detection in bulk goods/ solids
- Compact unit
- Die-casted housing aluminium
- Wide range of applications, no maintenance
- Full, demand, empty detector
- ATEX, UKEX, IEC-Ex, FM, CSA, TR-CU, INMETRO, KC, CCC
- 1935/2004/EC
- 2011/65/EU
- Gas Ex and Dust Ex approvals
- Food grade materials
- RoHS conform

Series	VN 1000	VN 2000	VN 5000	VN 6000
	ATEX/ UKEX/ IEC-Ex/ TR-CU/ INMETRO/ KC/ CCC	ATEX/ UKEX/ IEC-Ex/ TR-CU/ INMETRO/ KC/ CCC	ATEX/ UKEX/ IEC-Ex/ FM/ CSA/ TR-CU/ INMETRO/ KC/ CCC	ATEX/ UKEX/ IEC-Ex/ FM/ CSA/ TR-CU/ INMETRO/ KC/ CCC
	Small housing	Small housing	Spacious housing	Spacious housing
	Short oscillating rods	Standard oscillating rods	Short oscillating rods	Standard oscillating rods
	Sensitivity >50 g/l (3 lb/ft³)	Sensitivity >20 g/l (1.2 lb/ft³)	Sensitivity >50 g/l (3 lb/ft³)	Sensitivity >20 g/l (1.2 lb/ft³)
	For extreme mech. load	Option >5g/l (0.3 lb/ft³)	For extreme mech. load	Option >5g/l (0.3 lb/ft³)
	For mounting in down pipes	Vibrasil® <5 g/l (0.3 lb/ft³)	For mounting in down pipes	Vibrasil® <5 g/l (0.3 lb/ft³)
	Advantageous design to avoid bridges		Advantageous design to avoid bridges	
	Also for interface applications		Also for interface applications	

Housing



Standard

Housing



Standard



d (flameproof)



de (flameproof/ increased safety)

		VN 1000	VN 2000	VN 5000	VN 6000
Approvals	CE/ UKCA/ TR-CU	•	•	•	•
	ATEX/ UKEX/ IEC-Ex/ INMETRO/ TR-CU/ KC/ CCC:				
	Zone 20/21	Dust Ignition Proof	•	•	•
	Zone 0	Intrinsic Safe	•	•	•
	Zone 1	Flameproof/ Increased Safety		•	•
	FM/ CSA:				
	General purp.			•	•
	Cl. II, III Div. 1	Dust Ignition Proof		•	•
	Cl. I Div. 1	Intrinsic Safe		•	•
	Cl. I Div. 1	Explosionproof		•	•
Electronics	Zone 0	Intrinsic Safe		•	•
	Zone 1	Flameproof/ Increased Safety		•	•
	Relais SPDT	19 .. 230 V AC 19 .. 55 V DC	•	•	•
	Relais DPDT	19 .. 230 V AC 19 .. 36 V/ 55 V DC	•	•	•
	PNP	18 .. 50 V DC	•	•	•
	2-wire without contact	19 .. 230 V AC/ DC	•	•	•
	NAMUR	IEC 60947-5-6 2-wire		•	•
	8/16 mA or 4-20 mA	12.5-30/36 V DC 2-wire	•	•	•

Overview

Extensions	VN ..020	Length of extension	165 mm (6.47")	235 mm (9.25")	165 mm (6.47")	235 mm (9.25")
		Ambient temperature	-40 .. +60°C (-40 .. +140°F)			
		Process temperature	-40 .. +150°C (-40 .. +302°F)			
		Process pressure	-1 .. +16 bar (-14.5 .. +232 psi)			
		Process connection material/ Extension ¹	1.4301 (304)/ 1.4541 (321) or 1.4404 (SS316L)/ (food grade)			
	VN ..030	Length of extension	300 .. 4,000 mm (11.8 .. 157")			
		Ambient temperature	-40 .. +60°C (-40 .. +140°F)			
		Process temperature	-40 .. +150°C (-40 .. +302°F)			
		Process pressure	-1 .. +16bar (-14.5 .. +232 psi)			
		Process connection material/ Extension ¹	1.4301 (304)/ 1.4541 (321) or 1.4404 (SS316L)/ (food grade)			
	VN ..040	Length of extension	1,500 mm (59") or 4,000 mm (157")			
		Ambient temperature	-40 .. +60°C (-40 .. +140°F)			
		Process temperature	-40 .. +150°C (-40 .. +302°F)			
		Process pressure	-1 .. +16bar (-14.5 .. +232 psi)			
		Process connection material/ Extension ¹	1.4305 (303)/ 1.4541 (321) or 1.4404 (SS316L)/ (food grade)			
	VN ..050	Length of extension	750 ... 20,000 mm (27.6" .. 787")			
		Ambient temperature	-25 .. +60°C (-13 .. +140°F) -20 .. +60°C (-4 .. +140°F) with Ex-approval			
		Process temperature	-25 .. +80°C (-13 .. +176°F)			
		Process pressure	-1 .. +6 bar (-14.5 .. +87 psi)			
		Process connection material/ Extension ¹	1.4305 (303)/ 1.4541 (321) Cable isolation: PUR (no food grade)			

⁽¹⁾ The listed or higher-quality corrosion-resistant materials can be used.
 Filler materials are not listed.

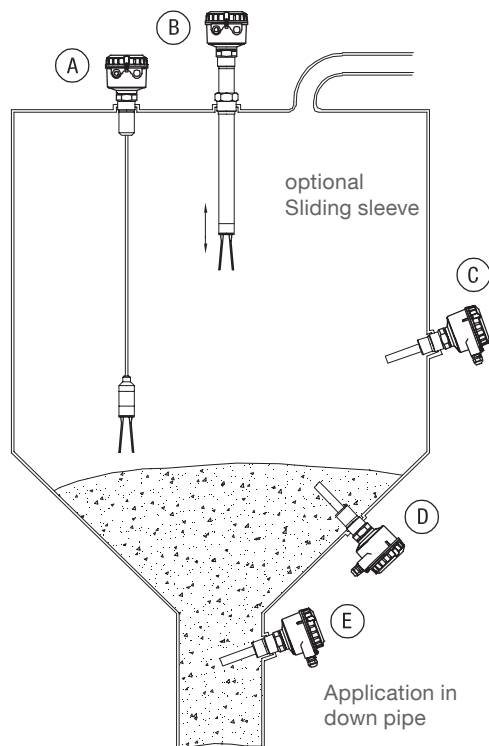
Cable entries (by default)

Depending on model selected, the following cable entries are supported:

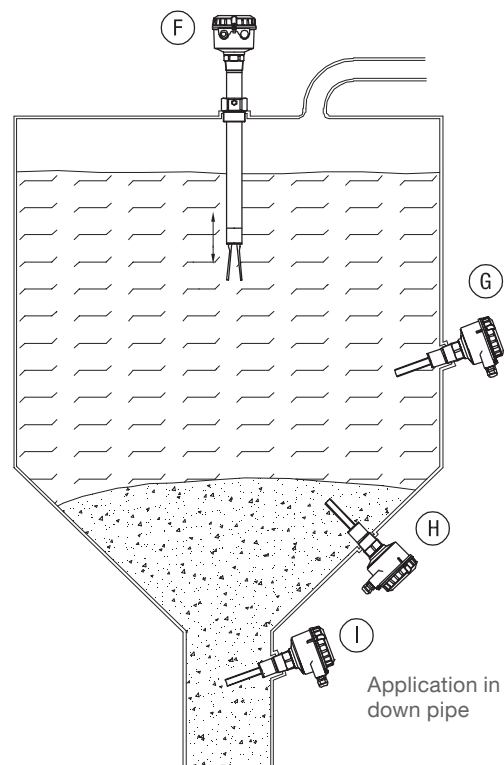
Version:	Cable entries:
Flameproof (pos.2 T,D,L,5)	M20 x 1.5 (1x open conduit + 1x blind plug)
FM and CSA (pos.2 M,N,P,S,U)	NPT ½" tapered ANSI B1.20.1 (1x open conduit + 1x blind plug)
All other versions	M20 x 1.5 (1x screwed cable gland + 1x blind plug)

Applications

Detection of solids



Detection of solids in water



	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
VN 1020			•	•	•		•	•	•
VN 1030		•	•			•	•		
VN 1040		•	•						
VN 1050	•								
VN 2020			•	•	•				
VN 2030		•	•						
VN 2040		•	•						
VN 2050	•								
VN 5020			•	•	•		•	•	•
VN 5030		•	•			•	•		
VN 5040		•	•						
VN 5050	•								
VN 6020			•	•	•				
VN 6030		•	•						
VN 6040		•	•						
VN 6050	•								

VN ..020 Short extension length

VN 1020



VN 2020



VN 5020

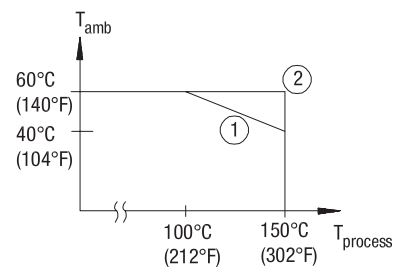
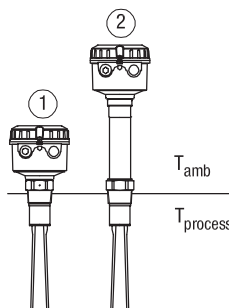


VN 6020



pos.3
 Temperature extended shaft
 applications up to 150°C (302°F)

- 1 without
- 2 with



VN ..030 Pipe extension

VN 1030



VN 2030



VN 5030



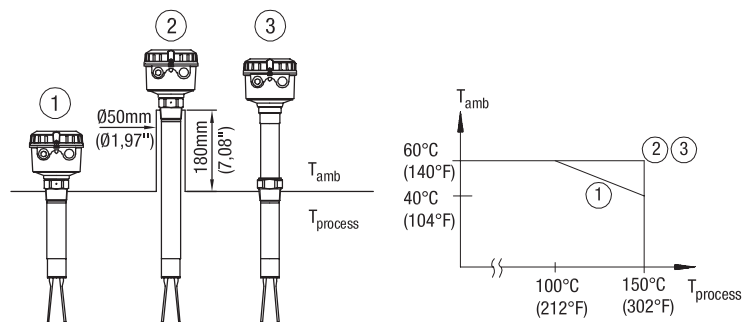
VN 6030



pos.3

Temperature extended shaft
 applications up to 150°C (302°F)

- 1 without
- 2 without and with extended socket
- 3 with



VN ..040 Pipe extension (screwed)

VN 1040



VN 2040



VN 5040

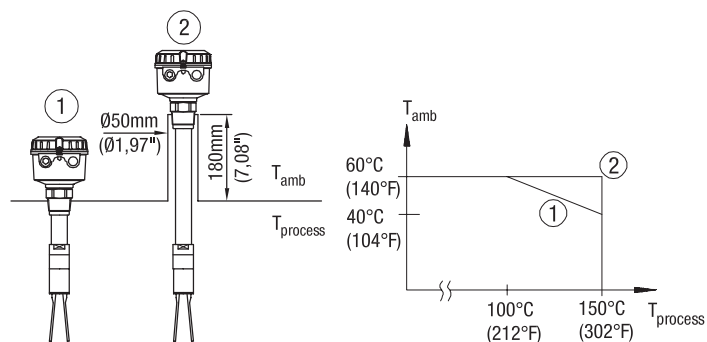


VN 6040



applications up to 150°C
 (302°F)

- 1 without extended socket
- 2 with extended socket



VN ..050 Cable extension

VN 1050



VN 2050



VN 5050

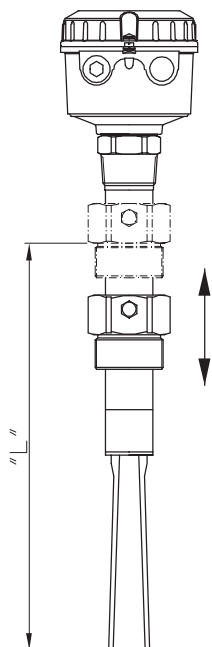


VN 6050



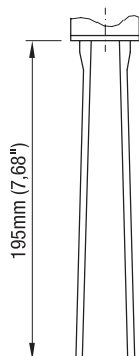
Options

pos.25
Sliding sleeve



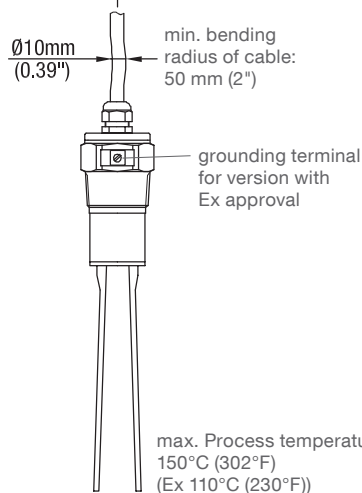
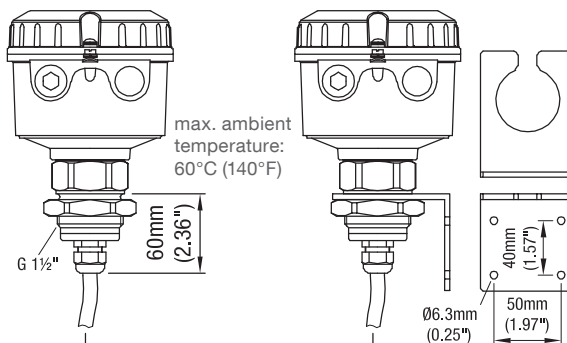
pos.26 x
Enhanced
sensitivity

pos.26 b
Vibrasil® 90

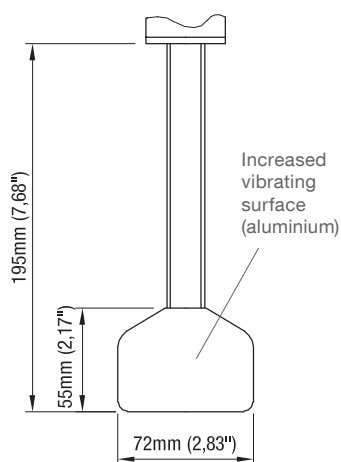


pos.26 1/2
Separate housing
without angle bracket

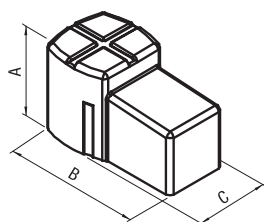
pos.26 3/4
Separate housing
with angle bracket



pos.26 a
Vibrasil® 70



pos.21
Weather protection
cover

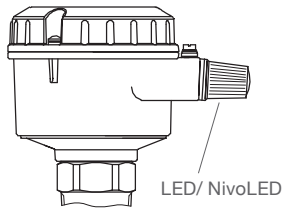


	VN 10..0 VN 20..0	VN 50..0 VN 60..0
A	100 mm (3.94")	130 mm (5.12")
B	165 mm (6.5")	200 mm (7.87")
C	88 mm (3.46")	125 mm (4.92")

Options

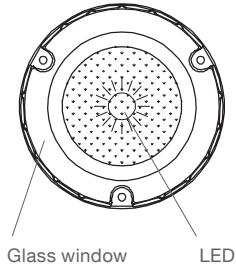
Signal lamp

pos.27 a,c,2,3,4
**LED/ NivoLED mounted
 in cable entry**

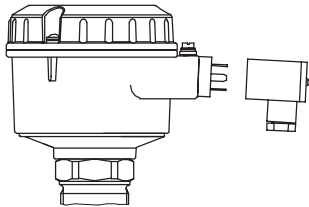


Connection of the wires to the internal terminals of the unit refer to documentation "Plugs and Signal lamps - Connecting diagram".

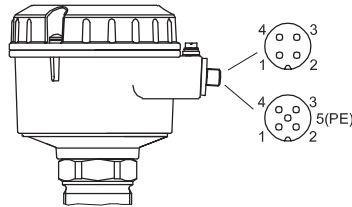
pos.27 b
**LED (glass window
 in lid)**



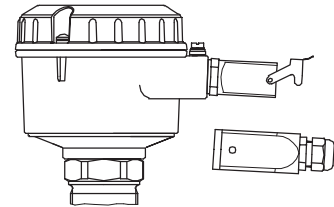
Plug



pos.29 x
Valve connector
 max. 230 V
 Enclosure plastic
 Protection IP65
 $-40\text{ °C} \leq T_a \leq +125\text{ °C}$



pos.29 a,b
Plug M12
 max. 25 V (4-pole), 60 V (5-pole)
 Enclosure brass
 Protection IP66
 $-25\text{ °C} \leq T_a \leq +80\text{ °C}$



pos.29 c
Plug Han 4A
 max. 230 V
 Enclosure zinc
 Protection IP65
 $-40\text{ °C} \leq T_a \leq +125\text{ °C}$

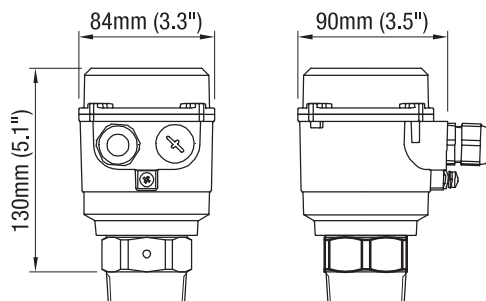
Connection of the plug wires to the internal terminals of the unit refer to documentation "Plugs and Signal lamps - Connecting diagram".

Dimensions

Housing versions

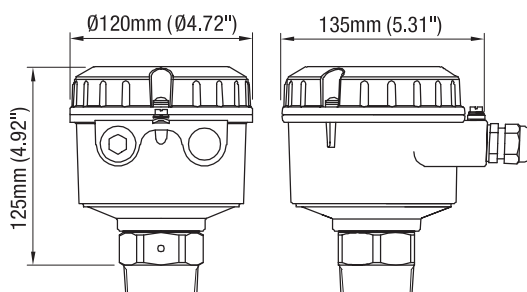
Series VN 1000/ 2000

Standard



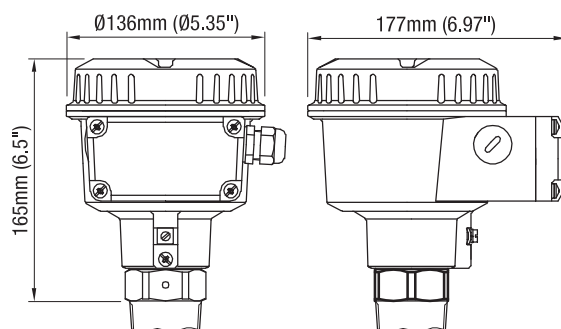
Series VN 5000/ 6000

Standard



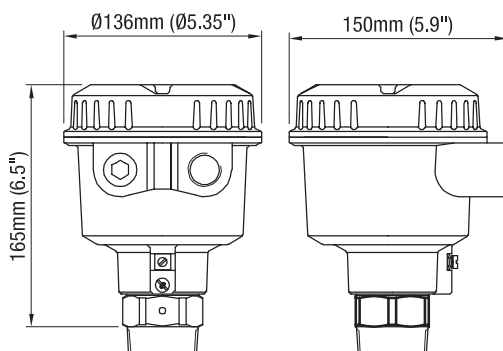
de

Explosionproof with increased safety terminal box



d

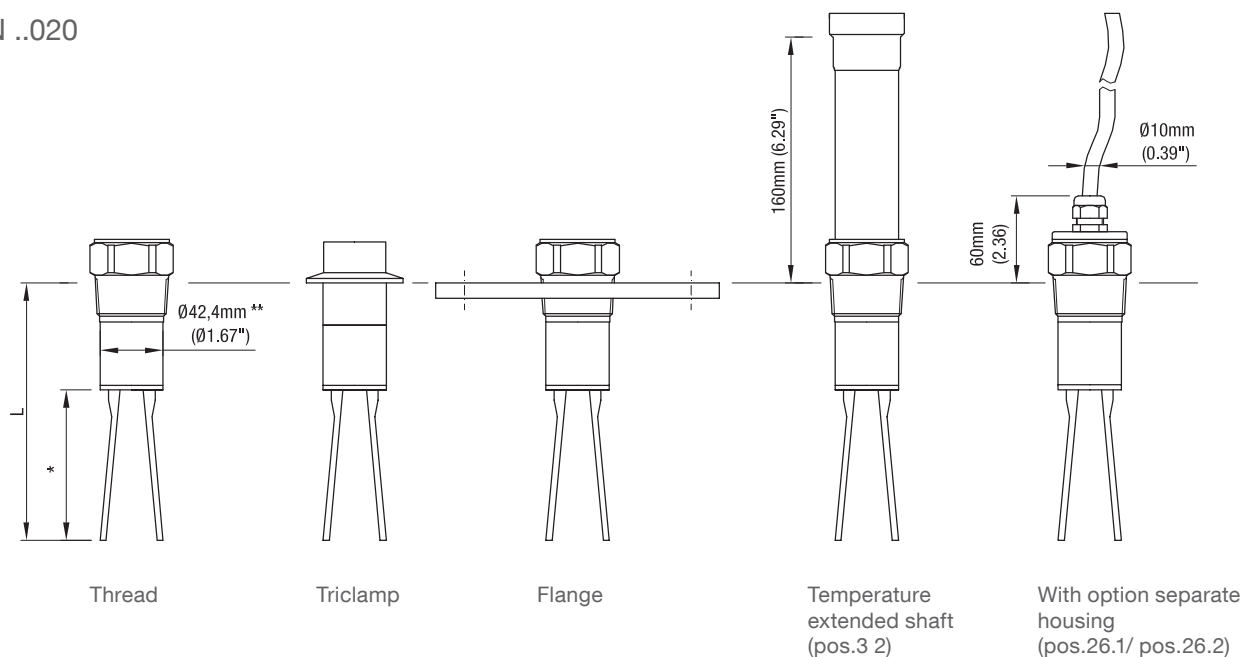
Flameproof/ explosionproof



Dimensions

Extensions

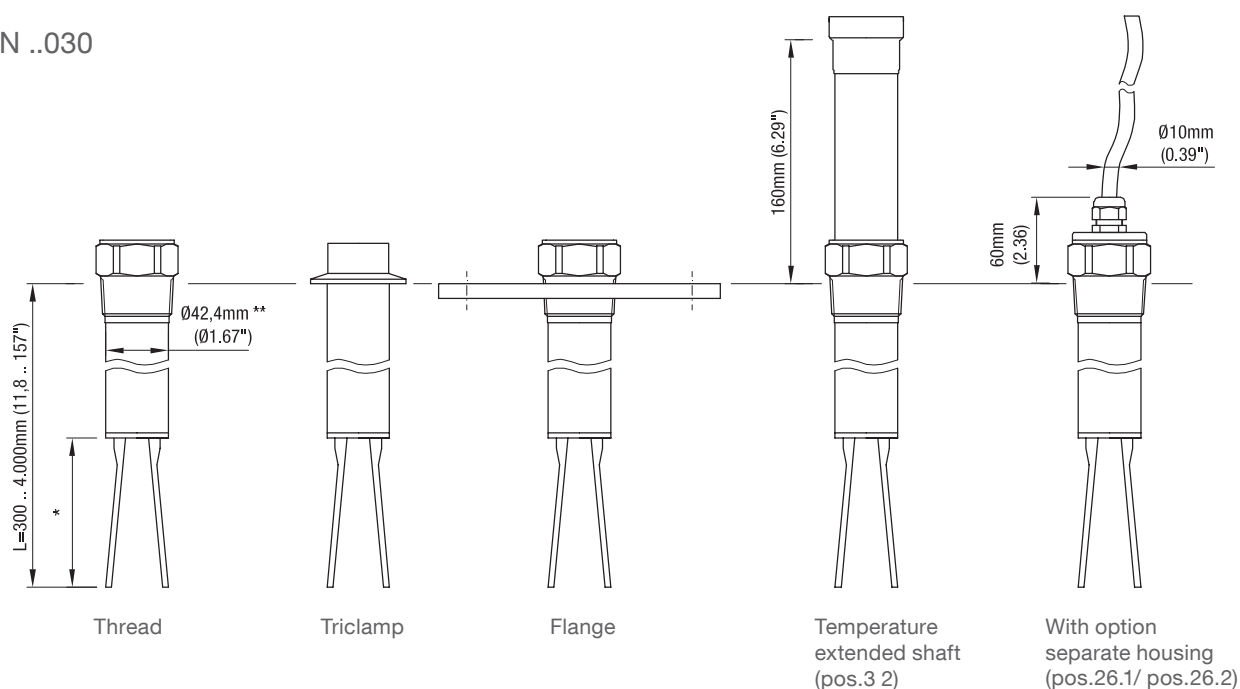
VN ..020



	L	
	without option	with option: Enhanced sensitivity (pos.26 x) Vibrasil® 70 (pos.26 a) Vibrasil® 90 (pos.26 b)
VN 1020 VN 5020	165 mm (6.5")	
VN 2020 VN 6020	235 mm (9.25")	260 mm (10.24")

** welding seam max. $\varnothing 43.8\text{ mm}$ (1.72")

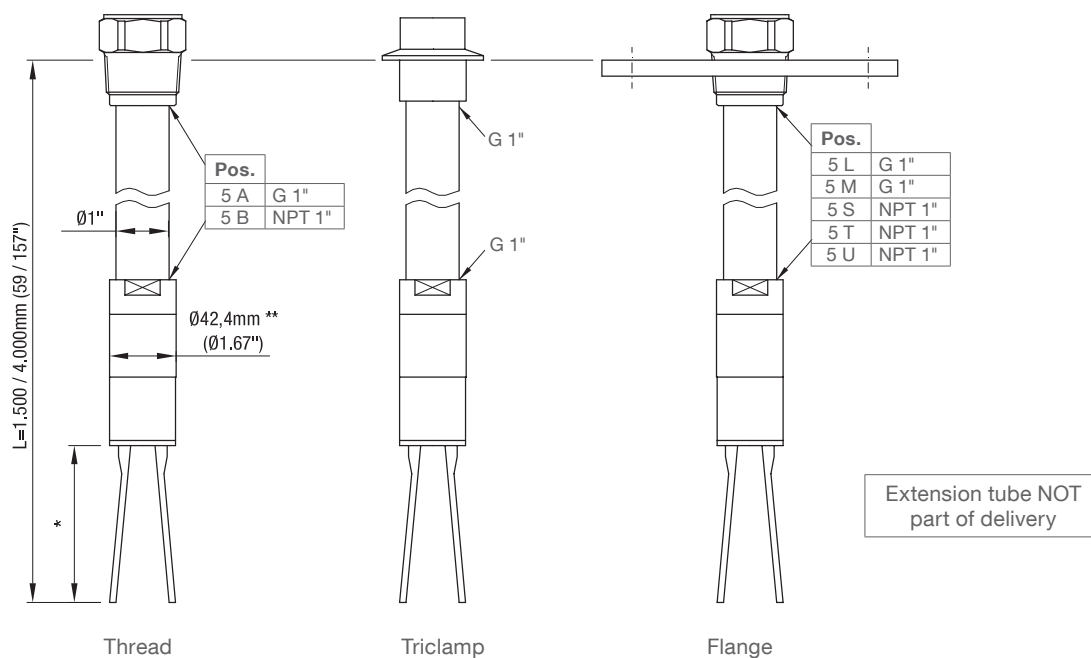
VN ..030



** welding seam max. $\varnothing 43.8\text{ mm}$ (1.72")

Dimensions

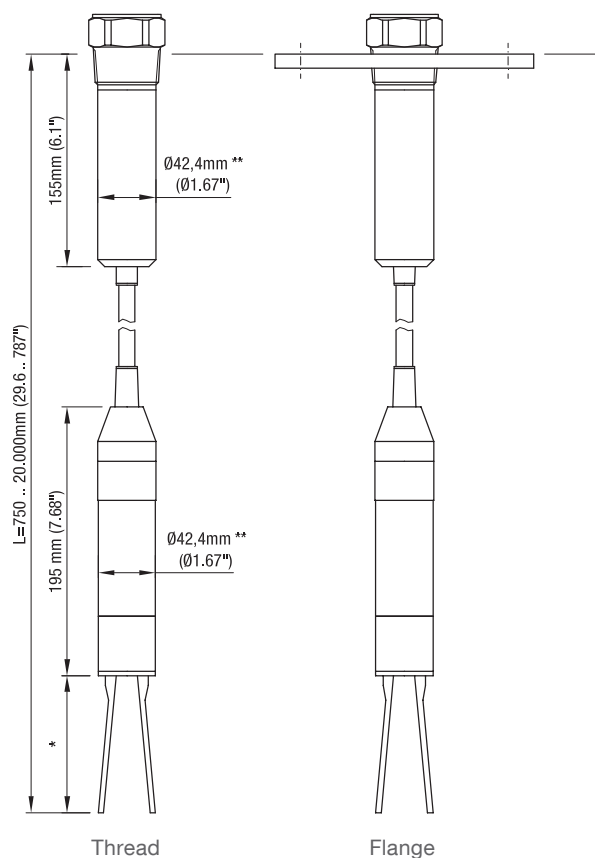
VN ..040



* see below right

** welding seam max. Ø43.8 mm (1.72")

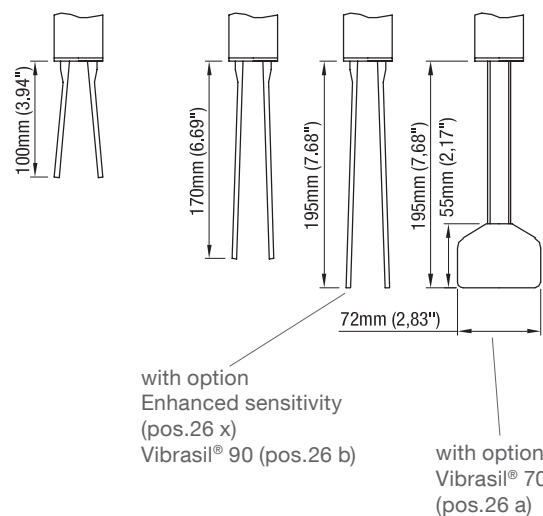
VN ..050



* Length of oscillating rods

VN 10..0
 VN 50..0

VN 20..0
 VN 60..0



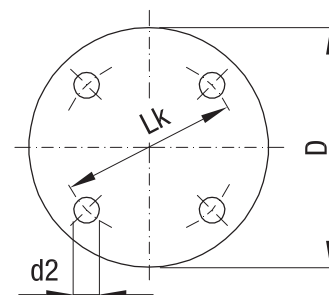
* see below right

** welding seam max. Ø43.8 mm (1.72")

Dimensions

Flanges

Code	type	number of holes	d2	Lk	D	T (thickness)
L	Flange DN100 PN6	4	18 mm (0.71")	170 mm (6.69")	210 mm (8.27")	16 mm (0.63")
M	Flange DN100 PN16	8	18 mm (0.71")	180 mm (7.09")	220 mm (8.66")	20 mm (0.79")
S	Flange 2" 150lbs	4	19.1 mm (0.75")	120.7 mm (4.75")	152.4 mm (6.01")	19.1 mm (0.75")
T	Flange 3" 150lbs	4	19.1 mm (0.75")	152.4 mm (6.01")	190.5 mm (7.5")	23.9 mm (0.94")
U	Flange 4" 150lbs	8	19.1mm (0.75")	190.5mm (7.5")	228.6mm (9")	23.9mm (0.94")



Detailed Ex-markings

Code	Certificate	Housing
pos.2 0	CE/ UKCA	Standard
pos.2 W	ATEX II 1/2D Ex ta/tb IIIC T! Da/Db	Standard
pos.2 Y	ATEX II 1G Ex ia IIC T! Ga and 1/2G Ex ia IIC T! Ga/Gb ATEX II 1/2D Ex ta/tb IIIC T! Da/Db	Standard
pos.2 R	ATEX II 2G Ex db eb ia* IIC T! Gb and ATEX II 1/2D Ex ta/tb IIIC T! Da/Db	de
pos.2 T	ATEX II 2G Ex db ia* IIC T! Gb and ATEX II 1/2D Ex ta/tb IIIC T! Da/Db	d
pos.2 A	IEC-Ex ta/tb IIIC T! Da/Db	Standard
pos.2 B	IEC-Ex ia IIC T! Ga and Ex ia IIC T! Ga/Gb IEC-Ex ta/tb IIIC T! Da/Db	Standard
pos.2 C	IEC-Ex db eb ia* IIC T! Gb and IEC-Ex ta/tb IIIC T! Da/Db	de
pos.2 D	IEC-Ex db ia* IIC T! Gb and IEC-Ex ta/tb IIIC T! Da/Db	d
pos.2 M	FM/ CSA general purpose	Standard
pos.2 N	FM/ CSA DIP Cl. II, III Div. 1 Gr. E,F,G CSA Ex DIP A20/21	Standard
pos.2 P	FM/ CSA IS Cl. I, II, III Div. 1 Gr. A-G FM Cl. I Zone 0 and 0/1 AEx ia IIC CSA Cl. I Zone 0 and 0/1 Ex ia IIC and CSA Ex DIP A20 and A20/21	Standard
pos.2 S	FM Cl. I Zone 1 AEx de [ia]* IIC and FM/ CSA Cl. II,III Div. 1 Gr. E,F,G CSA Cl. I Zone 1 Ex de [ia]* IIC and CSA Ex DIP A20/21	de
pos.2 U	FM XP-IS Cl. I,II,III Div. 1 Gr. B-G* and FM Cl. I Zone 1 AEx d [ia] IIC* CSA XP-IS Cl. I,II,III Div. 1 Gr. B-G* CSA Cl. I Zone 1 Ex d [ia]* IIC and CSA Ex DIP A20/21	d
pos.2 E	TR-CU Ex ta/tb IIIC T120°C...T150°C Da/Db X	Standard
pos.2 V	TR-CU 0Ex ia IIC T6...T3 Ga X and Ga/Gb Ex ia IIC T6...T3 X Ex ta/tb IIIC T80°C...T150°C Da/Db X	Standard
pos.2 K	TR-CU 1Ex d e [ia]* IIC T4...T3 Gb X Ex ta/tb IIIC T120°C...T150°C Da/Db X	de
pos.2 L	TR-CU 1Ex d [ia]* IIC T4...T3 Gb X Ex ta/tb IIIC T120°C...T150°C Da/Db X	d

* ia or IS is not available for versions VN ..020 without temperature extended shaft (pos.3 1).
 In this case no intrinsic safe connection between Electronic module and Vibrating fork is used).

Detailed Ex-markings

Code		Certificate	Housing
pos.2 2	+pos.20 a	INMETRO Ex ta/tb IIIC T! Da/Db	Standard
pos.2 3	+pos.20 a	INMETRO Ex ia IIC T6...T3 Ga IP6X und Ex ia IIC T6...T3 Ga/Gb Ex ta/tb IIIC T! Da/Db	Standard
pos.2 4	+pos.20 a	INMETRO Ex db eb ia* IIC T4...T3 Gb Ex ta/tb IIIC T! Da/Db	de
pos.2 5	+pos.20 a	INMETRO Ex db ia* IIC T4...T3 Gb Ex ta/tb IIIC T! Da/Db	d
pos.2 2	+pos.20 b	KC Ex t IIIC T!	Standard
pos.2 5	+pos.20 b	KC Ex d [ia] IIC T! Ex t IIIC T!	d
pos.2 2	+pos.20 c	CCC Ex ta/tb IIIC T! Da/Db	Standard
pos.2 3	+pos.20 c	CCC Ex ia IIC T! Ga and Ex ia IIC T! Ga/Gb Ex ta/tb IIIC T! Da/Db	Standard
pos.2 4	+pos.20 c	CCC Ex db eb ia* IIC T! Gb and Ex ta/tb IIIC T! Da/Db	de
pos.2 5	+pos.20 c	CCC Ex db ia* IIC T! Gb and Ex ta/tb IIIC T! Da/Db	d
pos.2 2	+pos.20 e	UKEX II 1/2D Ex ta/tb IIIC T! Da/Db	Standard
pos.2 3	+pos.20 e	UKEX II 1G Ex ia IIC T! Ga und 1/2G Ex ia IIC T! Ga/Gb UKEX II 1/2D Ex ta/tb IIIC T! Da/Db	Standard
pos.2 4	+pos.20 e	UKEX II 2G Ex db eb ia* IIC T! Gb und UKEX II 1/2D Ex ta/tb IIIC T! Da/Db	de
pos.2 5	+pos.20 e	UKEX II 2G Ex db ia* IIC T! Gb und UKEX II 1/2D Ex ta/tb IIIC T! Da/Db	d

* ia or IS is not available for versions VN ..020 without temperature extended shaft (pos.3 1).
 In this case no intrinsic safe connection between Electronic module and Vibrating fork is used).

Electrical installation

Universal voltage

Relay SPDT

Power supply:

19 .. 230 V 50 - 60 Hz +10% 8 VA
 19 .. 55 V DC +10% 1.5 W

Signal output:

Floating relay SPDT

VN 1000/ 2000:

AC max. 253 V, 4 A, 500 VA at $\cos \Phi = 1$

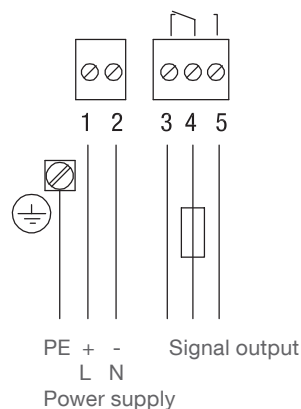
DC max. 253 V, 4 A, 60 W

VN 5000/ 6000:

AC max. 250 V, 8 A, non inductive

DC max. 30 V, 5 A, non inductive

Fuse: max. 10 A, slow or fast, HBC, 250 V



Universal voltage

Relay DPDT

Power supply::

19 .. 230 V 50 - 60 Hz +10% 18 VA
 19 .. 55 V (36 V*) DC +10% 2 W

Signal output:

Floating relay DPDT

VN 1000/ 2000:

AC max. 253 V, 4 A, 500 VA at $\cos \Phi = 1$

DC max. 253 V, 4 A, 60 W

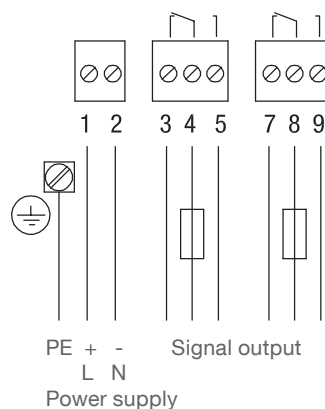
VN 5000/ 6000:

AC max. 250 V, 8 A, non inductive

DC max. 30 V, 5 A, non inductive

Fuse: max. 10 A, slow or fast, HBC, 250 V

* Version with intrinsic safe connection between electronic module and vibration fork (see pos.4 in price list)



3-wire

PNP

Power supply:

18 .. 50 V DC +10% 1.5 W

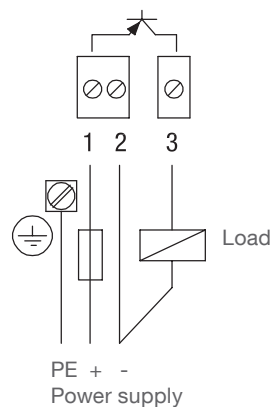
Fuse: max. 4 A, slow or fast, HBC, 250 V

Signal output:

max. 0.4 A

Load for example:

PLC, relay, contactor, bulb



Electrical installation

2-wire

without contact

Power supply:

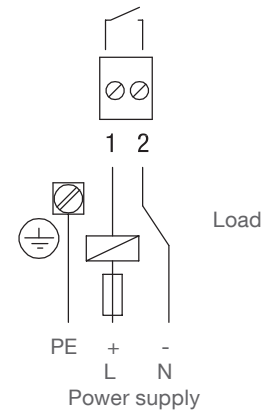
19 .. 230V 50/ 60 Hz +10% 1.5 VA
 19 .. 230V DC +10% 1 W

Load:

min. 10 mA
 max. 0.5 A permanent
 (detailed ratings see
 "Technical data")

Load for example:
 relay, contactor, bulb

Fuse: max. 4 A, slow or fast, HBC, 250 V



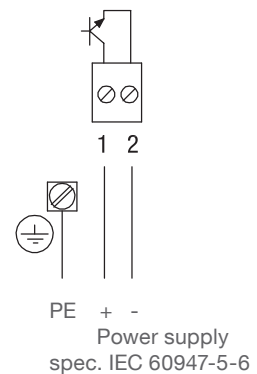
NAMUR

IEC 60947-5-6

Power supply:

ca. 7 .. 9 V DC
 intrinsic safe
 (applicable as well for non-intrinsic safe
 applications)
 (spec. IEC 60947-5-6)

<1mA or >2.2 mA
 (spec. IEC 60947-5-6)



8/16 mA or 4-20 mA

Power supply:

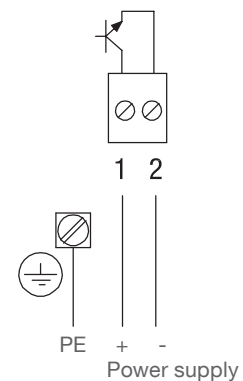
Non intrinsic safe version:
 12.5 .. 36 V DC +0%

Intrinsic safe version:
 12.5 .. 30 V DC +0%

Signal output

Setting 8/16 mA:
 8 mA or 16 mA

Setting 4-20 mA:
 Output current depends on the
 vibration amplitude of the fork: 6 mA for
 dampened vibration and 20 mA for full
 vibration.



8/16 mA

Power supply:

12.5 .. 36 V DC +0%

Signal output

8 mA or 16 mA

