












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Level
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Pressure
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Flow
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Temperature
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Liquid Analysis
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Registration
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Systems Components
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Services
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Solutions

Sanitary process connections

27/04/2004

Slide 1

Endress+Hauser 
People for Process Automation

Sanitary process connections



DIN 11851

DIN 11864

SMS

DRD

Varivent

APV

E+H 65/85 mm

Clamp

E+H -"F"

Adapter DN 25

Dairy process connection DIN 11851

For Sensors:

Deltapilot S DB 50L
Multicap DC 11/DC21
Micropilot II
Liquiphant FTL 330 L/H; FTL 360/361
Cerabar PMC 135/531
Cerabar S PMC631/731
Deltabar S FMD 633
Promag H
Promass F/M/I
various. temp. sensors
pH-assembly CPA 441, 465
CLS 21, 30, 51, 52
SMARTEC CLD 130, Smartec S



The parts of the dairy process connection DIN 11851 from left to right:

nut, thread part, conical part , seal

PRO

- ◆ Widely used
- ◆ Low cost connection
- ◆ Quick mounting /dismounting

CONTRA

- ◆ No hygienic design
- ◆ No flushmount sensors possible

DIN 11851 - Installation examples

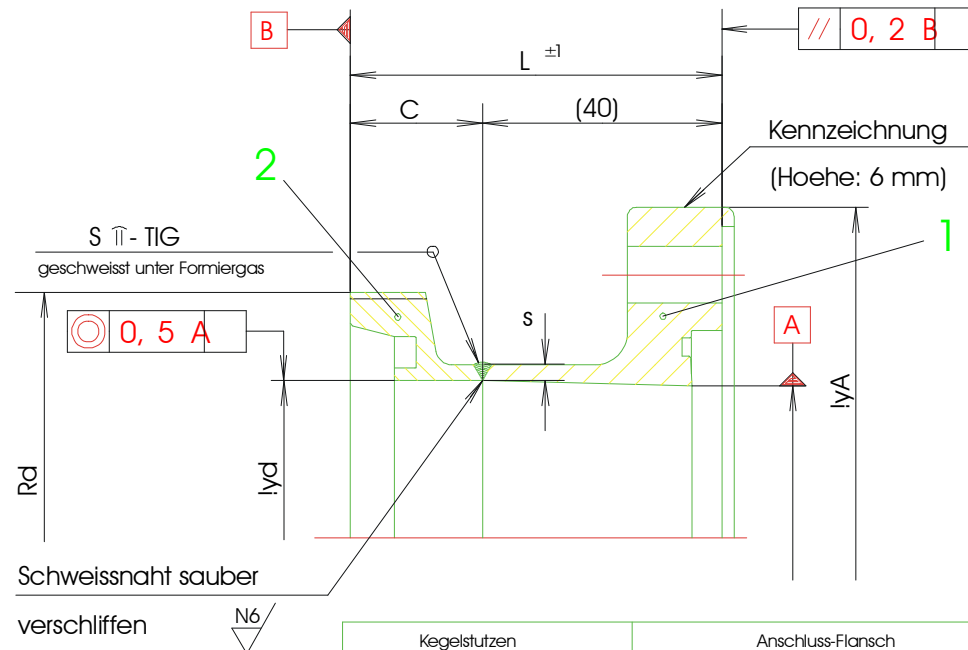


Magmeter Promag H with DIN 11851 process connection in the dairy



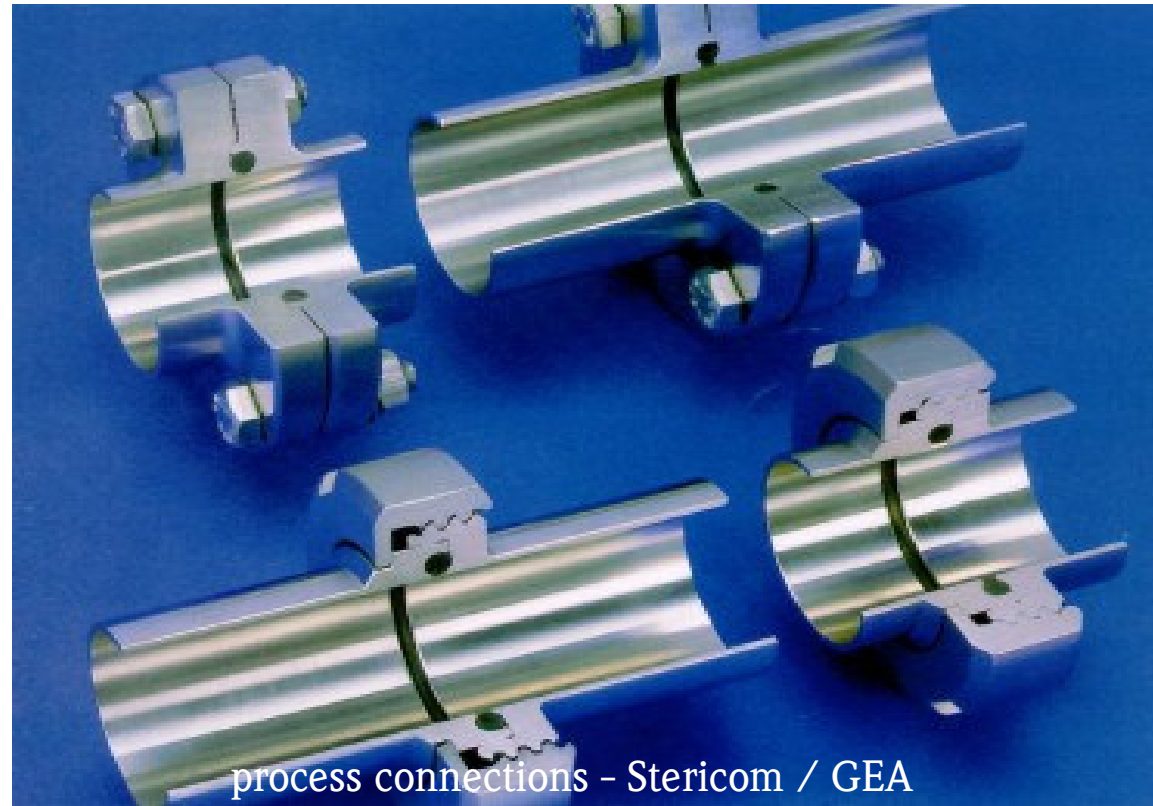
Massflowmeter Promass M with DIN 11851 process connections at the milk separator

Dairy process connection DIN 11851 - Promag H



Var.	DN	Kegelstützen DIN 11851			Anschluss-Flansch			
		d	Rd	C	Zch.-Nr.	Kennz.	A	L
-0000	25	26,0	52x1/6" "	28	318786-0001	DIN 11851	79,0	68
-0001	32	32,0	58x1/6" "	31	318786-0002	DIN 11851	85,0	71
-0002	40	38,0	65x1/6" "	32	318786-0004	DIN 11851	92,0	72
-0003	50	50,0	78x1/6" "	34	318786-0006	DIN 11851	105,0	74
-0004	65	66,0	95x1/6" "	38	318786-0008	DIN 11851	121,0	78
-0005	80	81,0	110x1/4" "	43	318786-0010	DIN 11851	147,0	83
-0006	100	100,0	130x1/4" "	52	318786-0012	DIN 11851	168,0	92

Aseptic process connection DIN 11864



PRO

- ◆ EHEDG conform design
- ◆ Fix or quick mount version
- ◆ For inline and insertion sensors

CONTRA

- ◆ Not widely used yet
- ◆ More expensive as DIN 11851

Process connection SMS

For Sensors:

Deltapilot S DB 50L

Multicap DC 11/DC21

Micropilot II

Liquiphant FTL 330 L/H; FTL 360/361

Cerabar PMC 135/531; Cerabar S

PMC631/731

Deltabar S FMD 633

Promag H

Promass F/M/I

various. temp. sensors

pH-assembly CPA 441, 465

CLS 21, 30, 51, 52, SMARTEC CLD 130,

Smartec S

SMS connection



PRO

- ◆ Widely used in Scandinavia and France
- ◆ Low cost connection
- ◆ Quick mounting /dismounting

CONTRA

- ◆ No hygienic design
- ◆ No flushmount sensors possible



DRD welding adapter for tanks

For Sensors:

Deltapilot S DB 50L
 Liquiphant FTL 330 L
 Micropilot II
 Cerabar PMC
 135/135Z/531
 Cerabar S PMC 631/731
 Deltabar S FMD 633



Flush mounting DRD-flange



Deltapilot S DB50L
with DRD-flange

PRO

- ◆ Flush mount sensors possible
- ◆ Common in food industry for process sensors
- ◆ Hygienic design

CONTRA

- ◆ For tanks only
- ◆ No inline sensor solution
- ◆ Due to big diameter not suitable for cones

Installation examples



CO₂ - head pressure measurement at the fermentation tank in the brewery with Deltapilot S DRD-flange



Varivent Inline housing

For Sensors:

Deltapilot S DB 50L

Liquiphant FTL 330 L

Micropilot II

Cerabar PMC 135/135Z/531//

Cerabar S PMC 631/731

various. temp. sensors (ST
14/44/74/76)

pH-assembly Probit CPA 441, CPA
465

CLS 51, 52, SMARTEC CLD 130/132



PRO

- ◆ Can hold two sensors in one housing
- ◆ Options for small pipes
- ◆ Quick connect with clamps

CONTRA

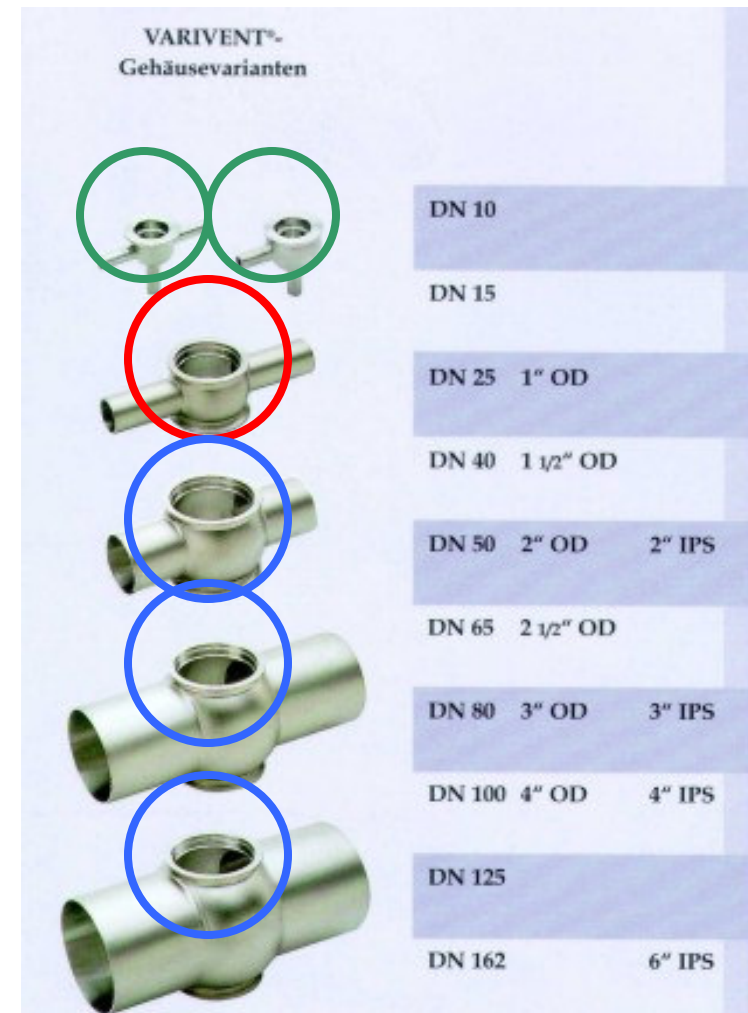
- ◆ Dead volume
- ◆ For insertion sensors only

Varivent housing

The speciality of the inline housing is that there is one process connection size for several pipe sizes. This means:

- **Varivent Typ 1** is valid for pipe diameters of DN 10 and DN 15
- **Varivent Typ 2** is valid for pipe diameters of DN 25
- **Varivent Typ 3** is valid for pipe diameters from DN 40 up to DN 162

This means e.g. that a Cerabar pressure transmitter with Varivent connection can be mounted in pipe sizes of DN 40 - DN 162.



E+H sensors are not available for all sizes.

Installation examples



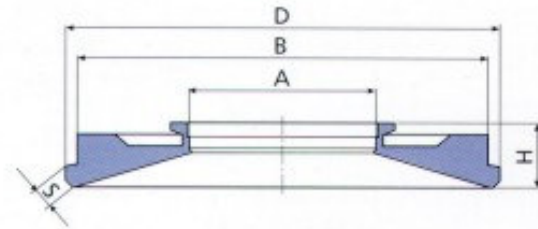
Connection of a inductive conductivity sensor CLS 51 with Varivent-housing

Pressure measurement in a pharmaceutical unit with Cerabar S PMC731, Varivent-housing



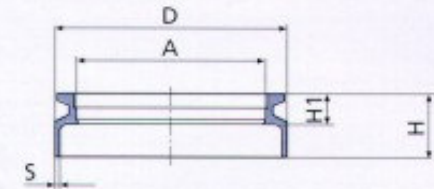


Varivent tank adapter



Nennweite Nominal Size	A	B	D	H	S
N 50/40	68	155	165	24,5	max. 8
G 100	123	215	225	27,5	max. 8

Varivent Tank adapter Form 2



Nennweite Nominal Size	A	D	H	H1	S
U 50/40	68	85	25	12	2
U 100/125	123	154	30	15	2

Varivent Tank adapter Form 1

PRO

- ◆ Solution for tank mount sensors
- ◆ Flush mount design
- ◆ Quick connect with clamps

CONTRA

- ◆ Diameter of connection
- ◆ For insertion sensors only



APV Inline housing

For Sensors:

Deltapilot S DB 50L

Liquiphant FTL 330 L

Micropilot II

Cerabar PMC 135/135Z/531// Cerabar

S PMC 631/731

various. temp. sensors (TST
14/44/74/76)

pH-assembly Probit CPA 441, CPA 465

CLS 51, 52, SMARTEC CLD 130/132



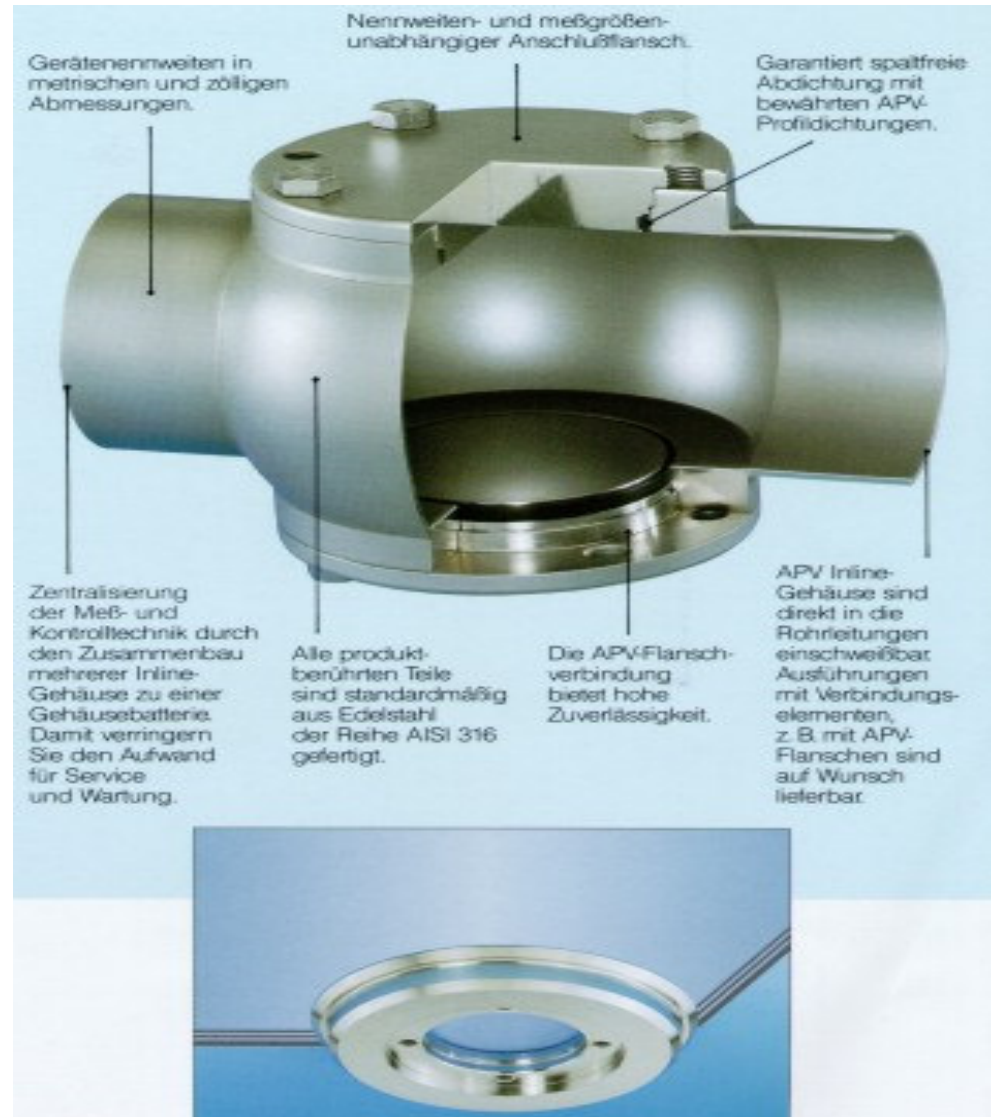
PRO

- ◆ Can hold two sensors in one housing
- ◆ Flush mount sensors

CONTRA

- ◆ Dead volume
- ◆ For insertion sensors only
- ◆ No quick connect design

APV Inline housing



27/04/2004

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Endress+Hauser process adapter 65mm



Deltapilot S DB 50L



Flush process adapter 65mm for Deltapilot S

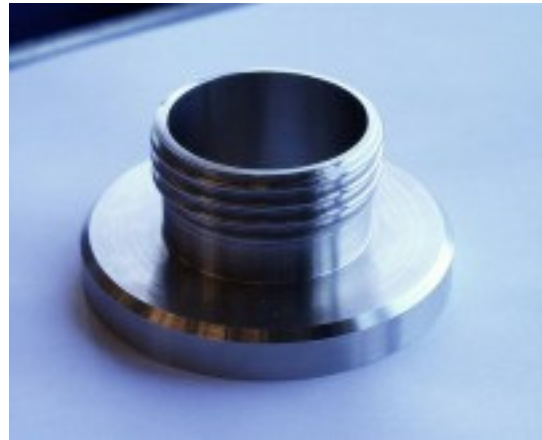
PRO

- ◆ Small dimensions
- ◆ Flush mount sensors
- ◆ Quick connect

CONTRA

- ◆ E+H standard only
- ◆ For Deltapilot only
- ◆ sensitive to deformation when welding

Endress+Hauser process adapter 85mm



Deltapilot S DB 50L



Flush process adapter 85mm for Deltapilot S

PRO

- ◆ Small dimensions
- ◆ Flush mount sensors
- ◆ Simple to weld in

CONTRA

- ◆ E+H standard only
- ◆ For Deltapilot only
- ◆ Bigger than 65 mm version

Endress+Hauser adapter - installation examples



Level measurement at the fermentation tank in the brewery with Deltapilot S DB50L



CO₂-head pressure measurement at the fermentation tank with Deltapilot S DB50L

Clamp connection DIN32676 and ISO2852

For Sensors:

Deltapilot S DB 50L
 Multicap DC21/11/12
 Liquiphant FTL 330 L/H, FTL 360/361
 Micropilot II
 Cerabar PMC 135/ Cerabar S PMC 631/731
 Deltabar S FMD 633
 Promag A/ Dosimag A/Promag H
 Promass F/M/I
 pH-assembly Proprofit CPA 465
 CLS 15,51,52
 SMARTEC CLD 130, Smartec S CLD 132



PRO

- ◆ Quick connect
- ◆ Widely used in US
- ◆ For inline or insertion sensors

CONTRA

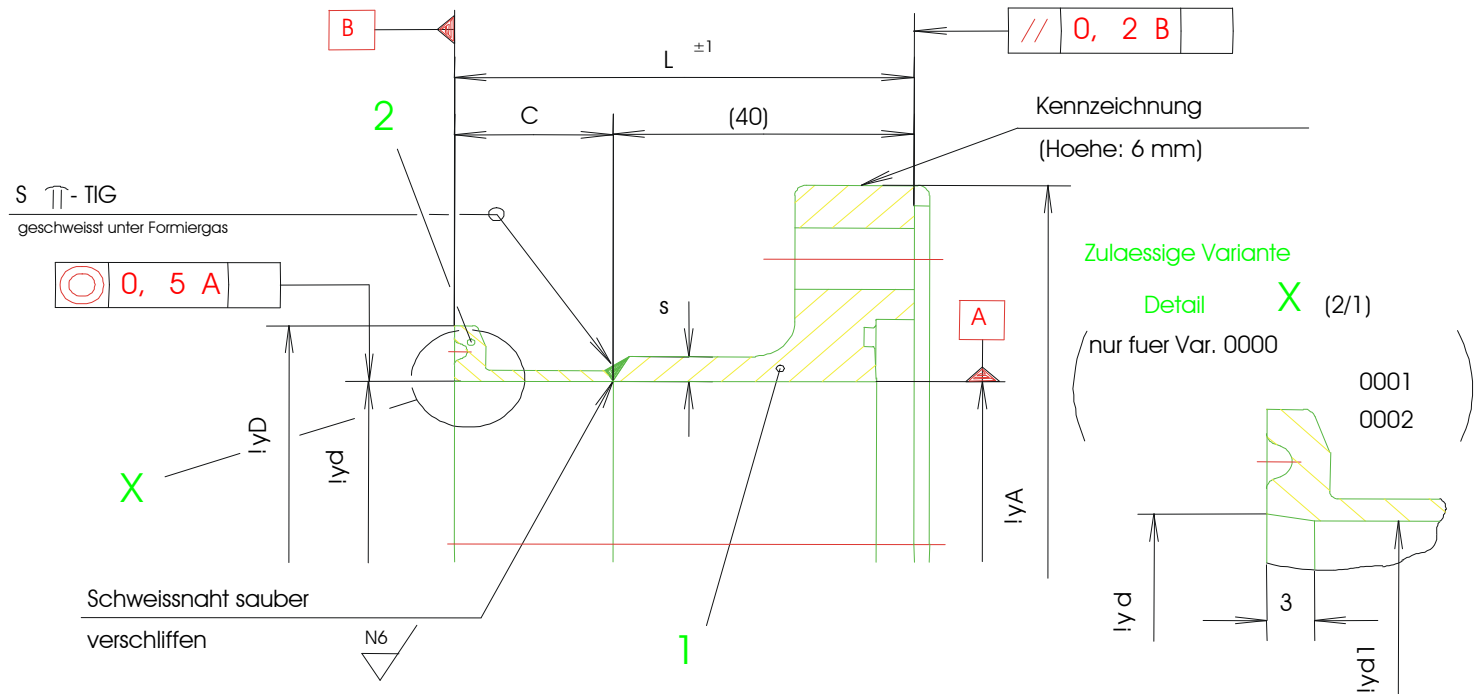
- ◆ Many standards
- ◆ No flush mount design

Tri-Clamp connection - installation examples



Phase separation with
inductive conductivity sensor
CLS 51, Tri-clamp connection

Clamp connection ISO2852 - Promag H



Var.	DN	Einlegeteil ISO 2852			Anschluss-Flansch				
		d	D	C	Zch.-Nr.	Kennz.	A	L	d1
-0000	1"	22,6	50,5	28,50	318786-0000	ISO 2852	75,0	68,50	22,1
-0001	1 1/2"	35,6	50,5	28,50	318786-0003	ISO 2852	92,0	68,50	34,8
-0002	2"	48,6	64,0	28,50	318786-0005	ISO 2852	105,0	68,50	47,5
-0003	2 1/2"	60,3	77,5	28,50	318786-0007	ISO 2852	121,0	68,50	-
-0004	3"	72,9	91,0	28,50	318786-0009	ISO 2852	147,0	68,50	-
-0005	4"	97,6	119,0	28,50	318786-0011	ISO 2852	168,0	68,50	-

Endress+Hauser process adapter "F"

For Sensors:

Liquiphant FTL 333L/H, Liquiphant M



Liquiphant FTL 330H with flush process connection "F"



Liquiphant FTL 330H with flush process connection "F"

PRO

- ◆ Quick connect
- ◆ Very small dimensions
- ◆ Sensor can be rotated
- ◆ Flush mount design

CONTRA

- ◆ For Liquiphant only

Endress+Hauser process adapter "F"

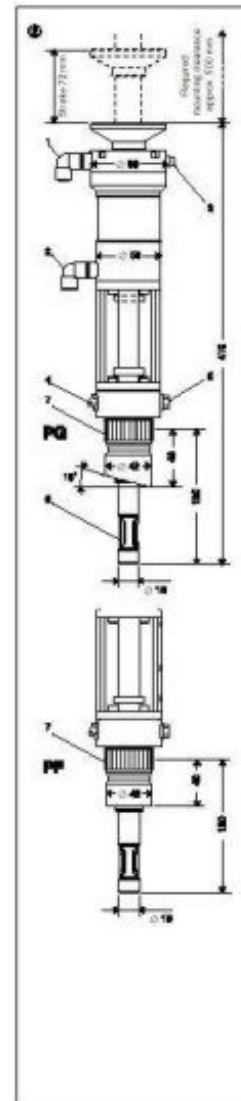


Level switch at a fermentation tank with Liquiphant FTL 330L process connection "F"



Process adapter DN25

For Sensors:
pH-assembly CPA 460, 465



pH-armature CPA 465
with Adapter DN 25

PRO

- ◆ Small dimensions
- ◆ Hygienic design

CONTRA

- ◆ For CPA's only
- ◆ Not established in food yet