

Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 1
Timestamp	20.01.2017 01:25 PM
Review number	1
Sales order number	
Contact person	---
eMail:	---
Phone	---
Fax	---

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Flowmeter

Flowmeter	Promass F 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8F3B1H-*****SAD1S*A1+DC
Meter Size	DN 100
Operating range min.	0 m3/h
Operating range max.	421,687 m3/h
Material (sensor) *	SS 1.4539 / 904L
Process connection*	PN 16 EN 1092-1 B1, 1.4404/316L Flange
PED category ** :	In observance of the selected process conditions and medium, Applicator categorizes this application as PED Art.4.3. Applicator suggests an instrument without PED option.

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.



Operating Conditions

	minimum	nominal	maximum	
Requested Flow	55	100	140	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		830		kg/m3
Viscosity		20		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	55	100	140	m3/h
Velocity	1,945	3,537	4,951	m/s
Velocity Max.	3,71	6,746	9,444	m/s
Pressure loss	75,03	204,93	364,95	mbar
Measured error Vol.***	0,1	0,1	0,1	%
Measured error Mass***	0,1	0,1	0,1	%
Meas. error Mass-Premium***	0,05	0,05	0,05	%
Reynolds No.	9 498	17 269	24 177	

Warnings

Messages

Applicator Sizing - Flow

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Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter	Promass F 300 / DM: 1	Promass F 300 / DM: 1	Promass F 300 / DM: 1	
Flow Principle	Coriolis (Promass)	Coriolis (Promass)	Coriolis (Promass)	
Meter Size	DN 80	DN 100	DN 150	
Process connection*	PN 40 EN 1092-1 B1, 1.4404/316L	PN 16 EN 1092-1 B1, 1.4404/316L	PN 16 EN 1092-1 B1, Alloy C22/2.4602	
Operating range min.	0	0	0	m3/h
Operating range max.	216,867	421,687	963,855	m3/h
Velocity at req. Flow min.	3,039	1,945	0,865	m/s
Velocity at req. Flow nom.	5,526	3,537	1,572	m/s
Velocity at req. Flow max.	7,737	4,951	2,201	m/s
Velocity max. at req. Flow min.	5,93	3,71	2,049	m/s
Velocity max. at req. Flow nom.	10,78	6,746	3,725	m/s
Velocity max. at req. Flow max.	15,09	9,444	5,215	m/s
Pressure loss at req. Flow min.	192,65	75,03	25,44	mbar
Pressure loss at req. Flow nom.	548,32	204,93	68,42	mbar
Pressure loss at req. Flow max.	997,83	364,95	120,75	mbar
Meas. error Vol. at req. Flow min.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow min.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Spec. Mass at req. Flow min.***	0,05	0,05	0,07	%
Meas. error Spec. Mass at req. Flow nom.***	0,05	0,05	0,05	%
Meas. error Spec. Mass at req. Flow max.***	0,05	0,05	0,05	%
Reynolds No.	21 832	17 269	12 833	
Warnings				

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***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

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TAG : Brazi 1

Timestamp: 20.01.2017 01:25 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass F 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 100

Operating range min. 0 m3/h

Operating range max. 421,687 m3/h

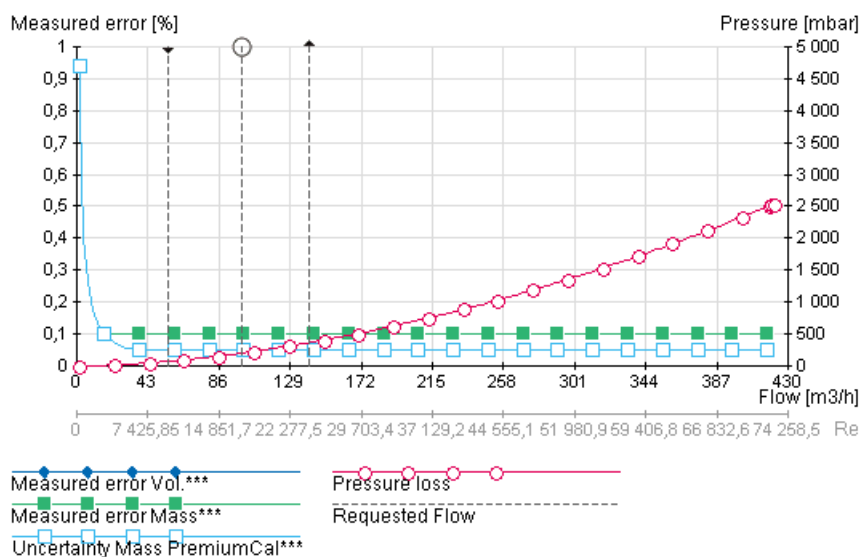
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 830 kg/m3

Viscosity 20 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	42,169	48,45	0,1	0,1	0,05
20	84,337	153,489	0,1	0,1	0,05
30	126,506	306,465	0,1	0,1	0,05
40	168,675	504,056	0,1	0,1	0,05
50	210,843	744,266	0,1	0,1	0,05
60	253,012	1 025,709	0,1	0,1	0,05
70	295,181	1 347,345	0,1	0,1	0,05
80	337,349	1 708,352	0,1	0,1	0,05
90	379,518	2 108,055	0,1	0,1	0,05
100	421,687	2 545,891	n.a.	n.a.	n.a.

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Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 2
Timestamp	20.01.2017 01:26 PM
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General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Operating Conditions

	minimum	nominal	maximum	
Requested Flow	30	200	250	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		830		kg/m3
Viscosity		20		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Flowmeter

Flowmeter	Promass F 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8F3B1F-*****THD1C*A1+DC****LK
Meter Size	DN 150
Operating range min.	0 m3/h
Operating range max.	963,855 m3/h
Material (sensor) *	Alloy C22/2.4602, ext.temp
Process connection*	PN 16 EN 1092-1 B1, Alloy C22/2.4602 Flange
PED category ** :	The Flowmeter is classified in Category II. Devices in this category need to be approved and tested to PED requirements.

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** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	30	200	250	m3/h
Velocity	0,472	3,144	3,93	m/s
Velocity Max.	1,118	7,45	9,313	m/s
Pressure loss	9,6	222,3	326,99	mbar
Measured error Vol.***	0,13	0,1	0,1	%
Measured error Mass***	0,13	0,1	0,1	%
Meas. error Mass-Premium***	0,13	0,05	0,05	%
Reynolds No.	3 850	25 666	32 083	

Warnings

Messages

Applicator Sizing - Flow

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TAG : Brazi 2

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Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter	Promass F 300 / DM: 1	Promass F 300 / DM: 1	Promass F 300 / DM: 1	
Flow Principle	Coriolis (Promass)	Coriolis (Promass)	Coriolis (Promass)	
Meter Size	DN 100	DN 150	DN 250	
Process connection*	PN 16 EN 1092-1 B1, Alloy C22/2.4602	PN 16 EN 1092-1 B1, Alloy C22/2.4602	PN 16 EN 1092-1 B1, Alloy C22/2.4602	
Operating range min.	0	0	0	m3/h
Operating range max.	421,687	963,855	2 650,6	m3/h
Velocity at req. Flow min.	1,061	0,472	0,17	m/s
Velocity at req. Flow nom.	7,074	3,144	1,132	m/s
Velocity at req. Flow max.	8,842	3,93	1,415	m/s
Velocity max. at req. Flow min.	2,024	1,118	0,507	m/s
Velocity max. at req. Flow nom.	13,49	7,45	3,382	m/s
Velocity max. at req. Flow max.	16,86	9,313	4,228	m/s
Pressure loss at req. Flow min.	27,9	9,6	2,22	mbar
Pressure loss at req. Flow nom.	678,51	222,3	55,01	mbar
Pressure loss at req. Flow max.	1 004,26	326,99	81,61	mbar
Meas. error Vol. at req. Flow min.***	0,1	0,13	0,35	%
Meas. error Vol. at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow min.***	0,1	0,13	0,35	%
Meas. error Mass at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Spec. Mass at req. Flow min.***	0,06	0,13	0,35	%
Meas. error Spec. Mass at req. Flow nom.***	0,05	0,05	0,05	%
Meas. error Spec. Mass at req. Flow max.***	0,05	0,05	0,05	%
Reynolds No.	34 539	25 666	17 293	
Warnings				

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Fax: ---

TAG : Brazi 2

Timestamp: 20.01.2017 01:26 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass F 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 150

Operating range min. 0 m3/h

Operating range max. 963,855 m3/h

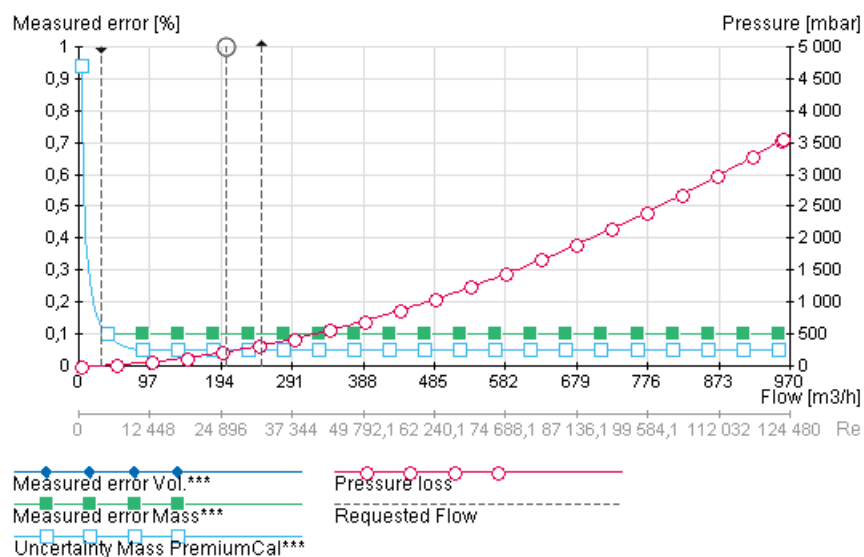
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 830 kg/m3

Viscosity 20 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	96,386	64,335	0,1	0,1	0,05
20	192,771	208,651	0,1	0,1	0,05
30	289,157	421,238	0,1	0,1	0,05
40	385,542	697,518	0,1	0,1	0,05
50	481,928	1 034,719	0,1	0,1	0,05
60	578,313	1 430,903	0,1	0,1	0,05
70	674,699	1 884,608	0,1	0,1	0,05
80	771,084	2 394,671	0,1	0,1	0,05
90	867,47	2 960,139	0,1	0,1	0,05
100	963,855	3 580,208	0,1	0,1	0,05

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 3
Timestamp	20.01.2017 01:27 PM
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Contact person	---
eMail:	---
Phone	---
Fax	---



General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Operating Conditions

	minimum	nominal	maximum	
Requested Flow	50	300	400	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		800		kg/m3
Viscosity		20		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Flowmeter

Flowmeter	Promass F 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8F3B2F-*****THD1C*A1+DC
Meter Size	DN 250
Operating range min.	0 m3/h
Operating range max.	2 750 m3/h
Material (sensor) *	Alloy C22/2.4602, ext.temp
Process connection*	PN 16 EN 1092-1 B1, Alloy C22/2.4602 Flange
PED category ** :	The Flowmeter is classified in Category II. Devices in this category need to be approved and tested to PED requirements.

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** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	50	300	400	m3/h
Velocity	0,283	1,698	2,264	m/s
Velocity Max.	0,846	5,073	6,764	m/s
Pressure loss	4,93	108,82	182,28	mbar
Measured error Vol.***	0,22	0,1	0,1	%
Measured error Mass***	0,22	0,1	0,1	%
Meas. error Mass-Premium***	0,22	0,05	0,05	%
Reynolds No.	4 323	25 940	34 586	

Warnings

Messages

Applicator Sizing - Flow

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Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter	Promass F 300 / DM: 1	Promass F 300 / DM: 1		
Flow Principle	Coriolis (Promass)	Coriolis (Promass)		
Meter Size	DN 150	DN 250		
Process connection*	PN 16 EN 1092-1 B1, Alloy C22/2.4602	PN 16 EN 1092-1 B1, Alloy C22/2.4602		
Operating range min.	0	0		m3/h
Operating range max.	1 000	2 750		m3/h
Velocity at req. Flow min.	0,786	0,283		m/s
Velocity at req. Flow nom.	4,716	1,698		m/s
Velocity at req. Flow max.	6,288	2,264		m/s
Velocity max. at req. Flow min.	1,863	0,846		m/s
Velocity max. at req. Flow nom.	11,18	5,073		m/s
Velocity max. at req. Flow max.	14,9	6,764		m/s
Pressure loss at req. Flow min.	21	4,93		mbar
Pressure loss at req. Flow nom.	432,96	108,82		mbar
Pressure loss at req. Flow max.	717,36	182,28		mbar
Meas. error Vol. at req. Flow min.***	0,1	0,22		%
Meas. error Vol. at req. Flow nom.***	0,1	0,1		%
Meas. error Vol. at req. Flow max.***	0,1	0,1		%
Meas. error Mass at req. Flow min.***	0,1	0,22		%
Meas. error Mass at req. Flow nom.***	0,1	0,1		%
Meas. error Mass at req. Flow max.***	0,1	0,1		%
Meas. error Spec. Mass at req. Flow min.***	0,08	0,22		%
Meas. error Spec. Mass at req. Flow nom.***	0,05	0,05		%
Meas. error Spec. Mass at req. Flow max.***	0,05	0,05		%
Reynolds No.	38 499	25 940		
Warnings				

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Chart Sheet

Flowmeter: Promass F 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 250

Operating range min. 0 m3/h

Operating range max. 2 750 m3/h

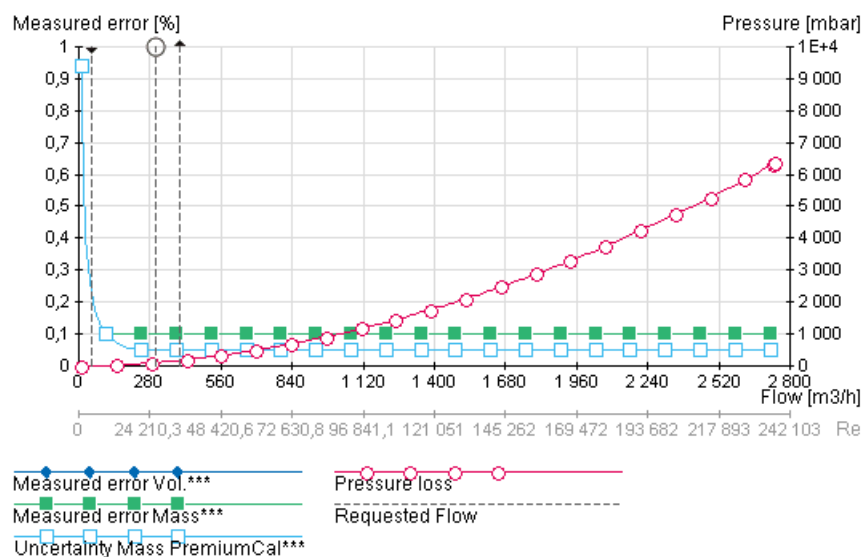
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 800 kg/m3

Viscosity 20 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	275	93,187	0,1	0,1	0,05
20	550	324,322	0,1	0,1	0,05
30	825	680,336	0,1	0,1	0,05
40	1 100	1 156,032	0,1	0,1	0,05
50	1 375	1 748,243	0,1	0,1	0,05
60	1 650	2 454,748	0,1	0,1	0,05
70	1 925	3 273,868	0,1	0,1	0,05
80	2 200	4 204,264	0,1	0,1	0,05
90	2 475	5 244,84	0,1	0,1	0,05
100	2 750	6 394,666	0,1	0,1	0,05

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Applicator Sizing - Condensed (Flow)

Project

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C.Project No.	0
Customer:	CONPET
TAG	Brazi 4
Timestamp	20.01.2017 01:29 PM
Review number	1
Sales order number	
Contact person	---
eMail:	---
Phone	---
Fax	---



General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Operating Conditions

	minimum	nominal	maximum	
Requested Flow	30	50	70	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		800		kg/m3
Viscosity		80		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Flowmeter

Flowmeter	Promass F 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8F3B80-*****THD2C*A1+DC****LK
Meter Size	DN 80
Operating range min.	0 m3/h
Operating range max.	225 m3/h
Material (sensor) *	Alloy C22/2.4602, ext.temp
Process connection*	PN 40 EN 1092-1, Alloy C22/2.4602 Flange
PED category ** :	The Flowmeter is classified in Category II. Devices in this category need to be approved and tested to PED requirements.

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	30	50	70	m3/h
Velocity	1,658	2,763	3,868	m/s
Velocity Max.	3,234	5,391	7,547	m/s
Pressure loss	111,6	250,16	431,63	mbar
Measured error Vol.***	0,1	0,1	0,1	%
Measured error Mass***	0,1	0,1	0,1	%
Meas. error Mass-Premium***	0,05	0,05	0,05	%
Reynolds No.	1 637	2 729	3 821	

Warnings

Messages

Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 4

Timestamp: 20.01.2017 01:29 PM

Review number: 1

Sales order number:

Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter	Promass F 300 / DM: 1	Promass F 300 / DM: 1	Promass F 300 / DM: 1	
Flow Principle	Coriolis (Promass)	Coriolis (Promass)	Coriolis (Promass)	
Meter Size	DN 50	DN 80	DN 100	
Process connection*	PN 40 EN 1092-1, Alloy C22/2.4602	PN 40 EN 1092-1, Alloy C22/2.4602	PN 16 EN 1092-1 B1, Alloy C22/2.4602	
Operating range min.	0	0	0	m3/h
Operating range max.	87,5	225	437,5	m3/h
Velocity at req. Flow min.	4,244	1,658	1,061	m/s
Velocity at req. Flow nom.	7,074	2,763	1,768	m/s
Velocity at req. Flow max.	9,903	3,868	2,476	m/s
Velocity max. at req. Flow min.	7,848	3,234	2,024	m/s
Velocity max. at req. Flow nom.	13,08	5,391	3,373	m/s
Velocity max. at req. Flow max.	18,31	7,547	4,722	m/s
Pressure loss at req. Flow min.	573,54	111,6	50,83	mbar
Pressure loss at req. Flow nom.	1 322,21	250,16	109,25	mbar
Pressure loss at req. Flow max.	2 324,18	431,63	183,45	mbar
Meas. error Vol. at req. Flow min.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow min.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Spec. Mass at req. Flow min.***	0,05	0,05	0,06	%
Meas. error Spec. Mass at req. Flow nom.***	0,05	0,05	0,05	%
Meas. error Spec. Mass at req. Flow max.***	0,05	0,05	0,05	%
Reynolds No.	4 251	2 729	2 159	
Warnings	1. Cavitation may occur at max. process conditions and nom. pressure 2. Cavitation may occur at the following process conditions(worst case): max. process conditions and min. pressure			

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

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***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 4

Timestamp: 20.01.2017 01:29 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass F 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 80

Operating range min. 0 m3/h

Operating range max. 225 m3/h

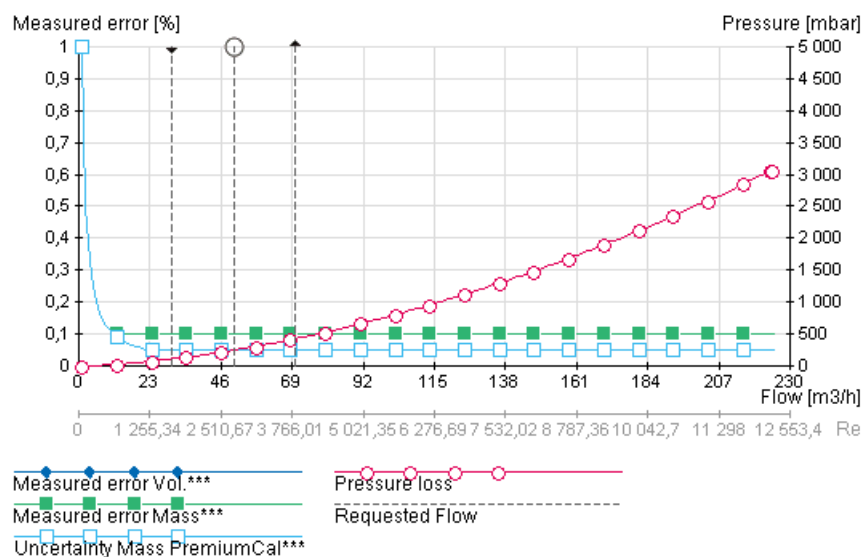
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 800 kg/m3

Viscosity 80 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	22,5	71,679	0,1	0,1	0,05
20	45	211,353	0,1	0,1	0,05
30	67,5	406,721	0,1	0,1	0,05
40	90	653,072	0,1	0,1	0,05
50	112,5	947,597	0,1	0,1	0,05
60	135	1 288,359	0,1	0,1	0,05
70	157,5	1 673,907	0,1	0,1	0,05
80	180	2 103,101	0,1	0,1	0,05
90	202,5	2 575,01	0,1	0,1	0,05
100	225	3 088,855	0,1	0,1	0,05

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 5
Timestamp	20.01.2017 01:31 PM
Review number	1
Sales order number	
Contact person	---
eMail:	---
Phone	---
Fax	---



General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Operating Conditions

	minimum	nominal	maximum	
Requested Flow	30	50	70	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		835		kg/m3
Viscosity		150		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Flowmeter

Flowmeter	Promass F 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8F3B80-*****THD2C*A1+DCLK**LK
Meter Size	DN 80
Operating range min.	0 m3/h
Operating range max.	215,569 m3/h
Material (sensor) *	Alloy C22/2.4602, ext.temp
Process connection*	PN 40 EN 1092-1, Alloy C22/2.4602 Flange
PED category ** :	The Flowmeter is classified in Category II. Devices in this category need to be approved and tested to PED requirements.

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	30	50	70	m3/h
Velocity	1,658	2,763	3,868	m/s
Velocity Max.	3,234	5,391	7,547	m/s
Pressure loss	157,46	341,26	576,71	mbar
Measured error Vol.***	0,1	0,1	0,1	%
Measured error Mass***	0,1	0,1	0,1	%
Meas. error Mass-Premium***	0,05	0,05	0,05	%
Reynolds No.	873	1 455	2 038	

Warnings

Messages

Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 5

Timestamp: 20.01.2017 01:31 PM

Review number: 1

Sales order number:

Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter	Promass F 300 / DM: 1	Promass F 300 / DM: 1	Promass F 300 / DM: 1	
Flow Principle	Coriolis (Promass)	Coriolis (Promass)	Coriolis (Promass)	
Meter Size	DN 50	DN 80	DN 100	
Process connection*	PN 40 EN 1092-1, Alloy C22/2.4602	PN 40 EN 1092-1, Alloy C22/2.4602	PN 16 EN 1092-1 B1, Alloy C22/2.4602	
Operating range min.	0	0	0	m3/h
Operating range max.	83,832	215,569	419,162	m3/h
Velocity at req. Flow min.	4,244	1,658	1,061	m/s
Velocity at req. Flow nom.	7,074	2,763	1,768	m/s
Velocity at req. Flow max.	9,903	3,868	2,476	m/s
Velocity max. at req. Flow min.	7,848	3,234	2,024	m/s
Velocity max. at req. Flow nom.	13,08	5,391	3,373	m/s
Velocity max. at req. Flow max.	18,31	7,547	4,722	m/s
Pressure loss at req. Flow min.	782,58	157,46	75,53	mbar
Pressure loss at req. Flow nom.	1 742,61	341,26	156,95	mbar
Pressure loss at req. Flow max.	2 999,45	576,71	257,98	mbar
Meas. error Vol. at req. Flow min.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Vol. at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow min.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow nom.***	0,1	0,1	0,1	%
Meas. error Mass at req. Flow max.***	0,1	0,1	0,1	%
Meas. error Spec. Mass at req. Flow min.***	0,05	0,05	0,06	%
Meas. error Spec. Mass at req. Flow nom.***	0,05	0,05	0,05	%
Meas. error Spec. Mass at req. Flow max.***	0,05	0,05	0,05	%
Reynolds No.	2 267	1 455	1 151	
Warnings	1. Cavitation may occur at max. process conditions and nom. pressure 2. Cavitation may occur at the following process conditions(worst case): max. process conditions and min. pressure			

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

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***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 5

Timestamp: 20.01.2017 01:31 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass F 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 80

Operating range min. 0 m3/h

Operating range max. 215,569 m3/h

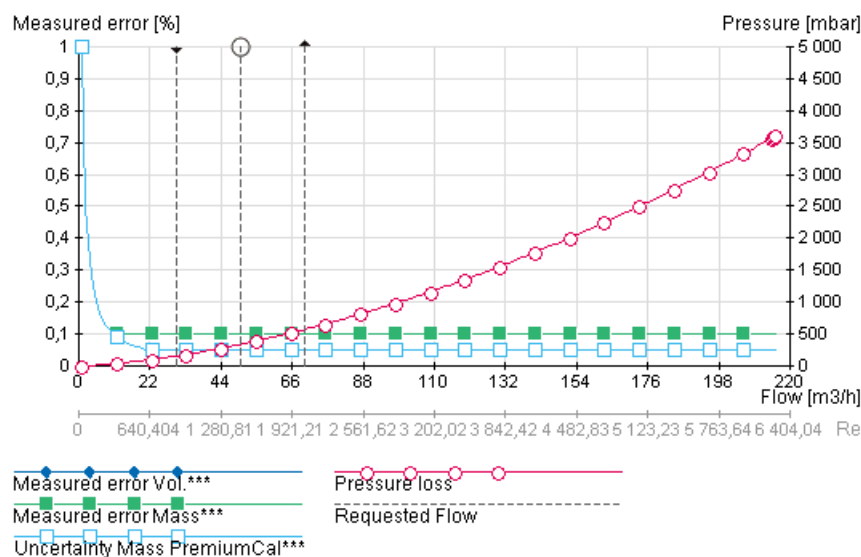
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 835 kg/m3

Viscosity 150 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	21,557	96,982	0,1	0,1	0,05
20	43,114	271,878	0,1	0,1	0,05
30	64,671	509,188	0,1	0,1	0,05
40	86,228	802,901	0,1	0,1	0,05
50	107,784	1 149,445	0,1	0,1	0,05
60	129,341	1 546,36	0,1	0,1	0,05
70	150,898	1 991,811	0,1	0,1	0,05
80	172,455	2 484,358	0,1	0,1	0,05
90	194,012	3 022,825	0,1	0,1	0,05
100	215,569	3 606,232	0,1	0,1	0,05

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 6
Timestamp	20.01.2017 01:32 PM
Review number	1
Sales order number	
Contact person	---
eMail:	---
Phone	---
Fax	---

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Flowmeter

Flowmeter	Promass F 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8F3B2F-*****THD1C*A1+DC
Meter Size	DN 250
Operating range min.	0 m3/h
Operating range max.	2 634,73 m3/h
Material (sensor) *	Alloy C22/2.4602, ext.temp
Process connection*	PN 16 EN 1092-1 B1, Alloy C22/2.4602 Flange
PED category ** :	The Flowmeter is classified in Category II. Devices in this category need to be approved and tested to PED requirements.

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.



Operating Conditions

	minimum	nominal	maximum	
Requested Flow	30	200	250	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		835		kg/m3
Viscosity		600		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	30	200	250	m3/h
Velocity	0,17	1,132	1,415	m/s
Velocity Max.	0,507	3,382	4,228	m/s
Pressure loss	15,89	199,3	276,49	mbar
Measured error Vol.***	0,35	0,1	0,1	%
Measured error Mass***	0,35	0,1	0,1	%
Meas. error Mass-Premium***	0,35	0,05	0,05	%
Reynolds No.	86	576	721	

Warnings

Messages

Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 6

Timestamp: 20.01.2017 01:32 PM

Review number: 1

Sales order number:

Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter	Promass F 300 / DM: 1	Promass F 300 / DM: 1		
Flow Principle	Coriolis (Promass)	Coriolis (Promass)		
Meter Size	DN 150	DN 250		
Process connection*	PN 16 EN 1092-1 B1, Alloy C22/2.4602	PN 16 EN 1092-1 B1, Alloy C22/2.4602		
Operating range min.	0	0		m3/h
Operating range max.	958,084	2 634,73		m3/h
Velocity at req. Flow min.	0,472	0,17		m/s
Velocity at req. Flow nom.	3,144	1,132		m/s
Velocity at req. Flow max.	3,93	1,415		m/s
Velocity max. at req. Flow min.	1,118	0,507		m/s
Velocity max. at req. Flow nom.	7,45	3,382		m/s
Velocity max. at req. Flow max.	9,313	4,228		m/s
Pressure loss at req. Flow min.	70,26	15,89		mbar
Pressure loss at req. Flow nom.	892,17	199,3		mbar
Pressure loss at req. Flow max.	1 233,72	276,49		mbar
Meas. error Vol. at req. Flow min.***	0,13	0,35		%
Meas. error Vol. at req. Flow nom.***	0,1	0,1		%
Meas. error Vol. at req. Flow max.***	0,1	0,1		%
Meas. error Mass at req. Flow min.***	0,13	0,35		%
Meas. error Mass at req. Flow nom.***	0,1	0,1		%
Meas. error Mass at req. Flow max.***	0,1	0,1		%
Meas. error Spec. Mass at req. Flow min.***	0,13	0,35		%
Meas. error Spec. Mass at req. Flow nom.***	0,05	0,05		%
Meas. error Spec. Mass at req. Flow max.***	0,05	0,05		%
Reynolds No.	856	576		
Warnings				

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 6

Timestamp: 20.01.2017 01:32 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass F 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 250

Operating range min. 0 m3/h

Operating range max. 2 634,73 m3/h

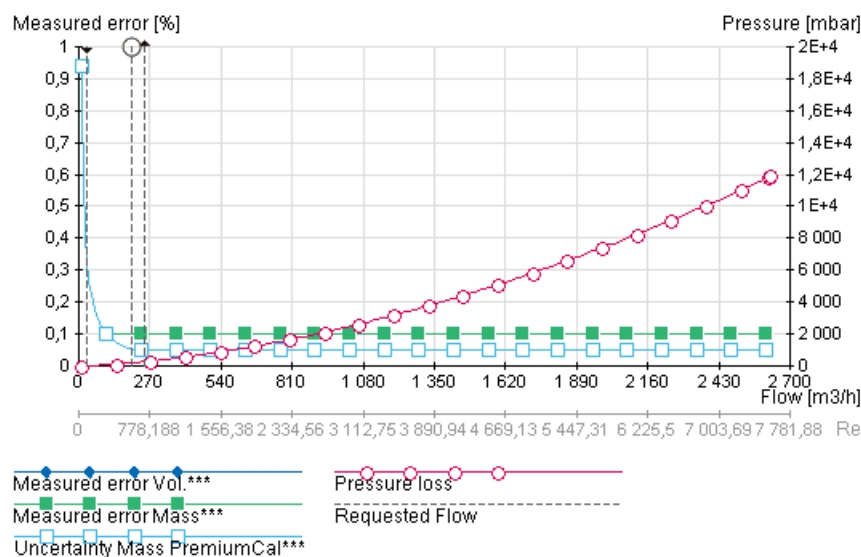
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 835 kg/m3

Viscosity 600 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	263,473	298,88	0,1	0,1	0,05
20	526,946	859,693	0,1	0,1	0,05
30	790,419	1 632,316	0,1	0,1	0,05
40	1 053,892	2 597,375	0,1	0,1	0,05
50	1 317,365	3 743,327	0,1	0,1	0,05
60	1 580,838	5 062,205	0,1	0,1	0,05
70	1 844,311	6 548,056	0,1	0,1	0,05
80	2 107,784	8 196,192	0,1	0,1	0,05
90	2 371,257	10 002,792	0,1	0,1	0,05
100	2 634,731	11 964,654	0,1	0,1	0,05

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 7 Import
Timestamp	20.01.2017 01:34 PM
Review number	1
Sales order number	
Contact person	---
eMail:	---
Phone	---
Fax	---



General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Operating Conditions

	minimum	nominal	maximum	
Requested Flow	150	200	800	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		835		kg/m3
Viscosity		100		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Flowmeter

Flowmeter	Promass X 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8X3B3F-*****SADAS*A1+DC
Meter Size	DN 300 < DN 350
Operating range min.	0 m3/h
Operating range max.	4 910,18 m3/h
Material (sensor) *	SS 1.4404/316L, ext. temp.
Process connection*	PN 10 EN1092-1-B1 (DIN2501), 316L/1.4404 Flange
PED category ** :	In observance of the selected process conditions and medium, Applicator categorizes this application as PED Cat I. Due to guidelines for low-voltage, Applicator suggests an instrument without PED option.

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	150	200	800	m3/h
Velocity	0,589	0,786	3,144	m/s
Velocity Max.	1,268	1,691	6,764	m/s
Pressure loss	20,66	32,1	298,76	mbar
Measured error Vol.***	0,14	0,1	0,1	%
Measured error Mass***	0,14	0,1	0,1	%
Meas. error Mass-Premium***	0,14	0,1	0,05	%
Reynolds No.	1 297	1 729	6 917	

Warnings

Messages

*The user is responsible for the selection of process-wetted materials in view of their corrosion resistance. Endress+Hauser makes no guarantees and assumes no liability for the corrosion resistance of the materials selected here for the application described above.

** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 7 Import

Timestamp: 20.01.2017 01:34 PM

Review number: 1

Sales order number:

Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter		Promass X 300 / DM: 1	Promass X 300 / DM: 1	
Flow Principle		Coriolis (Promass)	Coriolis (Promass)	
Meter Size		DN 300 < DN 350	DN 350	
Process connection*		PN 10 EN1092-1-B1 (DIN2501), 316L/1.4404	PN 10 EN1092-1-B1 (DIN2501), 316L/1.4404	
Operating range min.		0	0	m3/h
Operating range max.		4 910,18	4 910,18	m3/h
Velocity at req. Flow min.		0,589	0,433	m/s
Velocity at req. Flow nom.		0,786	0,577	m/s
Velocity at req. Flow max.		3,144	2,31	m/s
Velocity max. at req. Flow min.		1,268	1,268	m/s
Velocity max. at req. Flow nom.		1,691	1,691	m/s
Velocity max. at req. Flow max.		6,764	6,764	m/s
Pressure loss at req. Flow min.		20,66	21,35	mbar
Pressure loss at req. Flow nom.		32,1	33,38	mbar
Pressure loss at req. Flow max.		298,76	321,96	mbar
Meas. error Vol. at req. Flow min.***		0,14	0,14	%
Meas. error Vol. at req. Flow nom.***		0,1	0,1	%
Meas. error Vol. at req. Flow max.***		0,1	0,1	%
Meas. error Mass at req. Flow min.***		0,14	0,14	%
Meas. error Mass at req. Flow nom.***		0,1	0,1	%
Meas. error Mass at req. Flow max.***		0,1	0,1	%
Meas. error Spec. Mass at req. Flow min.***		0,14	0,14	%
Meas. error Spec. Mass at req. Flow nom.***		0,1	0,1	%
Meas. error Spec. Mass at req. Flow max.***		0,05	0,05	%
Reynolds No.		1 729	1 729	
Warnings				

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***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 7 Import

Timestamp: 20.01.2017 01:34 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass X 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 300 < DN 350

Operating range min. 0 m3/h

Operating range max. 4 910,18 m3/h

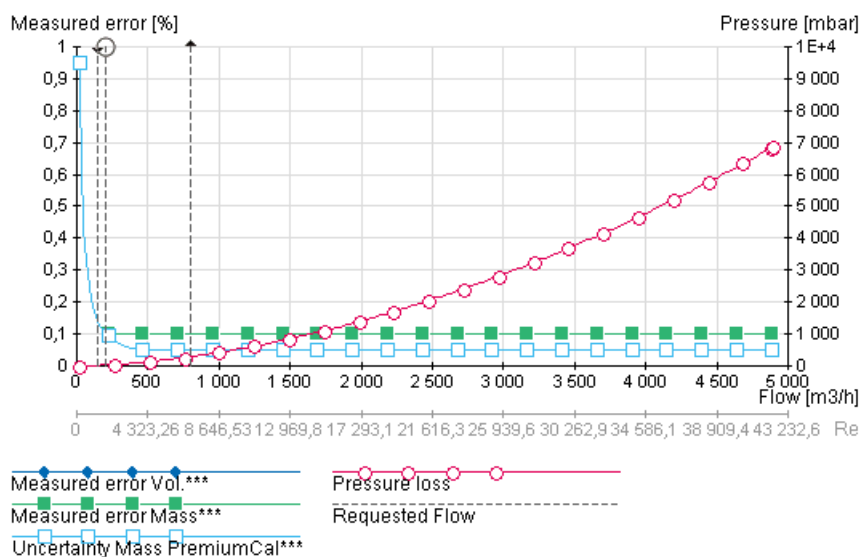
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 835 kg/m3

Viscosity 100 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	491,018	133,66	0,1	0,1	0,05
20	982,036	421,2	0,1	0,1	0,05
30	1 473,054	838,466	0,1	0,1	0,05
40	1 964,072	1 376,167	0,1	0,1	0,05
50	2 455,09	2 028,722	0,1	0,1	0,05
60	2 946,108	2 792,255	0,1	0,1	0,05
70	3 437,126	3 663,85	0,1	0,1	0,05
80	3 928,144	4 641,205	0,1	0,1	0,05
90	4 419,162	5 722,433	0,1	0,1	0,05
100	4 910,18	6 905,95	0,1	0,1	0,05

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Condensed (Flow)

Project

Project	10016679 / Oil Metering (Coriolis)
C.Project No.	0
Customer:	CONPET
TAG	Brazi 8 Total
Timestamp	20.01.2017 01:35 PM
Review number	1
Sales order number	
Contact person	---
eMail:	---
Phone	---
Fax	---



General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-
State	Liquid
Character	Suspension
Abrasivity	Not abrasive
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)
Fluid Type	Newtonian
Atmospheric Pressure	1,0132 bar_a
Standard	EN/DIN/ISO

Operating Conditions

	minimum	nominal	maximum	
Requested Flow	100	200	800	m3/h
Pressure		3		bar_g
Temperature		15		°C
Density		835		kg/m3
Viscosity		600		cSt
Sound velocity	1 681	1 681	1 681	m/s
Pressure (min/max)	2		3	bar_g
Temp. (min/max)	5		35	°C
Vapor Pressure	0,0072	0,0145	0,0506	bar_a

Flowmeter

Flowmeter	Promass X 300 / DM: 1
Flow Principle	Coriolis (Promass)
Extended order code	8X3B3F-*****SADAS*A1+DC
Meter Size	DN 300 < DN 350
Operating range min.	0 m3/h
Operating range max.	4 910,18 m3/h
Material (sensor) *	SS 1.4404/316L, ext. temp.
Process connection*	PN 10 EN1092-1-B1 (DIN2501), 316L/1.4404 Flange
PED category ** :	In observance of the selected process conditions and medium, Applicator categorizes this application as PED Cat I. Due to guidelines for low-voltage, Applicator suggests an instrument without PED option.

Sizing and Calculated Results

	minimum	nominal	maximum	
Requested Flow	100	200	800	m3/h
Velocity	0,393	0,786	3,144	m/s
Velocity Max.	0,846	1,691	6,764	m/s
Pressure loss	34,31	85,42	622,45	mbar
Measured error Vol.***	0,21	0,1	0,1	%
Measured error Mass***	0,21	0,1	0,1	%
Meas. error Mass-Premium***	0,21	0,1	0,05	%
Reynolds No.	144	288	1 153	

Warnings

Messages

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** The PED category is an Endress+Hauser recommendation and depends on the fluid category, process data as well from the max. permissible pressure of the selected pressure rating. The fluids of the Applicator data base are classified to 67/548/EWG.

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 8 Total

Timestamp: 20.01.2017 01:35 PM

Review number: 1

Sales order number:

Tri-Size Sheet

General Parameters

Fluid	Oil, Crude (Mexico) -MODIFIED-		
State	Liquid		
Character	Suspension	Atmospheric Pressure	1,0132 bar_a
Abrasivity	Not abrasive	Standard	EN/DIN/ISO
Fluid Group (PED)	Dangerous Fluid (Fluid group 1)		
Fluid Type	Newtonian		

Sizing and Calculated Results

	Next Smaller Size	Current Size	Next Bigger Size	
Flow meter		Promass X 300 / DM: 1	Promass X 300 / DM: 1	
Flow Principle		Coriolis (Promass)	Coriolis (Promass)	
Meter Size		DN 300 < DN 350	DN 350	
Process connection*		PN 10 EN1092-1-B1 (DIN2501), 316L/1.4404	PN 10 EN1092-1-B1 (DIN2501), 316L/1.4404	
Operating range min.		0	0	m3/h
Operating range max.		4 910,18	4 910,18	m3/h
Velocity at req. Flow min.		0,393	0,289	m/s
Velocity at req. Flow nom.		0,786	0,577	m/s
Velocity at req. Flow max.		3,144	2,31	m/s
Velocity max. at req. Flow min.		0,846	0,846	m/s
Velocity max. at req. Flow nom.		1,691	1,691	m/s
Velocity max. at req. Flow max.		6,764	6,764	m/s
Pressure loss at req. Flow min.		34,31	34,4	mbar
Pressure loss at req. Flow nom.		85,42	86,18	mbar
Pressure loss at req. Flow max.		622,45	641,68	mbar
Meas. error Vol. at req. Flow min.***		0,21	0,21	%
Meas. error Vol. at req. Flow nom.***		0,1	0,1	%
Meas. error Vol. at req. Flow max.***		0,1	0,1	%
Meas. error Mass at req. Flow min.***		0,21	0,21	%
Meas. error Mass at req. Flow nom.***		0,1	0,1	%
Meas. error Mass at req. Flow max.***		0,1	0,1	%
Meas. error Spec. Mass at req. Flow min.***		0,21	0,21	%
Meas. error Spec. Mass at req. Flow nom.***		0,1	0,1	%
Meas. error Spec. Mass at req. Flow max.***		0,05	0,05	%
Reynolds No.		288	288	
Warnings				

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Applicator Sizing - Flow

Project : 10016679 / Oil Metering (Coriolis)

Customer: CONPET

Contact person: ---

Phone: ---

eMail: ---

C.Project No.: 0

Fax: ---

TAG : Brazi 8 Total

Timestamp: 20.01.2017 01:35 PM

Review number: 1

Sales order number:

Chart Sheet

Flowmeter: Promass X 300 / DM: 1

Flow Principle Coriolis (Promass)

Meter Size DN 300 < DN 350

Operating range min. 0 m3/h

Operating range max. 4 910,18 m3/h

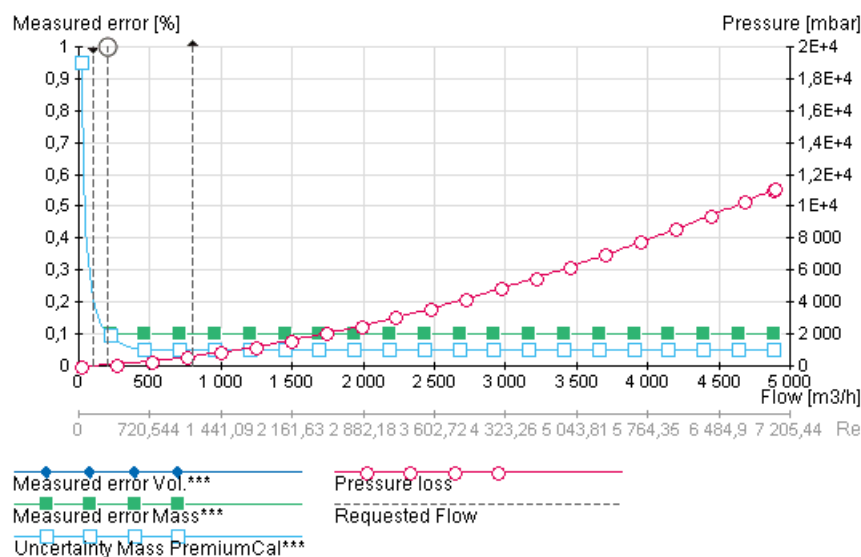
Fluid Oil, Crude (Mexico) -MODIFIED-

Pressure 3 bar_g

Temperature 15 °C

Density 835 kg/m3

Viscosity 600 cSt



Flow rate(%)	Flow rate (m3/h)	Pressure loss (mbar)	Measured error Volume(%)***	Measured error Mass(%)***	Meas. error Mass-Premium (%)***
10	491,018	302,083	0,1	0,1	0,05
20	982,036	849,46	0,1	0,1	0,05
30	1 473,054	1 590,258	0,1	0,1	0,05
40	1 964,072	2 504,761	0,1	0,1	0,05
50	2 455,09	3 581,279	0,1	0,1	0,05
60	2 946,108	4 811,77	0,1	0,1	0,05
70	3 437,126	6 190,233	0,1	0,1	0,05
80	3 928,144	7 711,957	0,1	0,1	0,05
90	4 419,162	9 373,103	0,1	0,1	0,05
100	4 910,18	11 170,46	0,1	0,1	0,05

***For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025 apply. Further information in technical documentation.

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