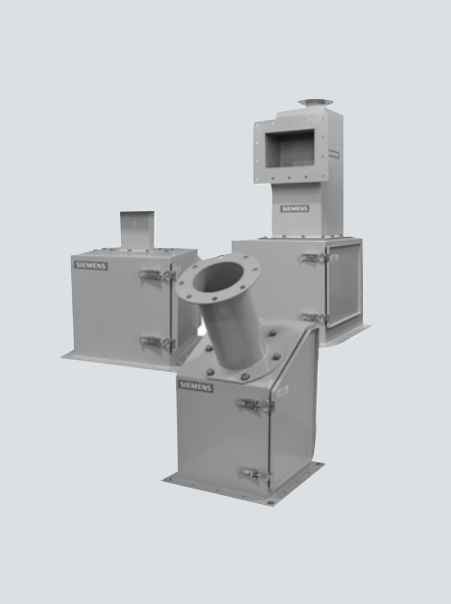


Solids Flowmeters

**6/2****Introduction**

6/6

LVDT Flowmeters

6/11

SITRANS WF100

6/16

SITRANS WF200 series

SITRANS WF300 series

6/23**Sensing heads**SITRANS WFS300 series
sensing heads**6/29****Sensing plates**

SITRANS Flowmeter sensing plates

Solids Flowmeters

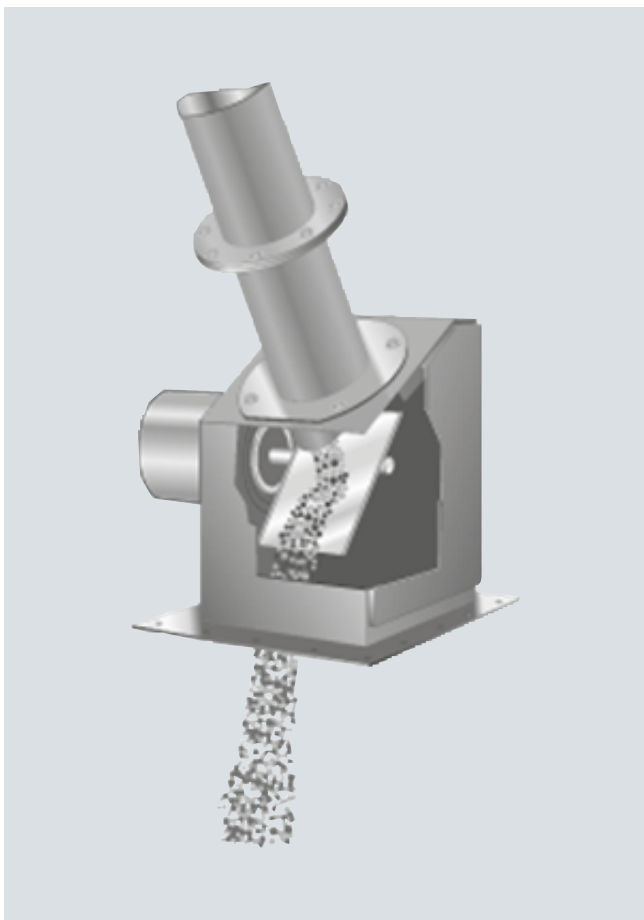
Introduction

Overview

SITRANS WF solids flowmeters monitor the rate of bulk material flow in a process. They continuously measure the impact force of the material under gravity feed conditions, and convert this signal into a flow rate used to control the rate into a process or blending operation. Solids flowmeters can function in stand-alone measuring operations, or they can interface to a facility's process control system using industry standard protocols.

Applications

SITRANS WF flowmeters measure any dry material from powders to granulates. Material densities range from puffed wheat to iron ore, while fluidity covers the spectrum from fluidized powder, such as fly-ash, to sluggish flowing material such as lathe turnings. Typical materials monitored include cement, gravel, coke, coal, minerals, wood chips, cereals, seeds, grains, soybean and rice hulls, unshelled peanuts, starch, sugar, potato flakes, grain tailings and screenings, and plastic pellets.



Solids flowmeter with sensing plate detail

Mode of operation

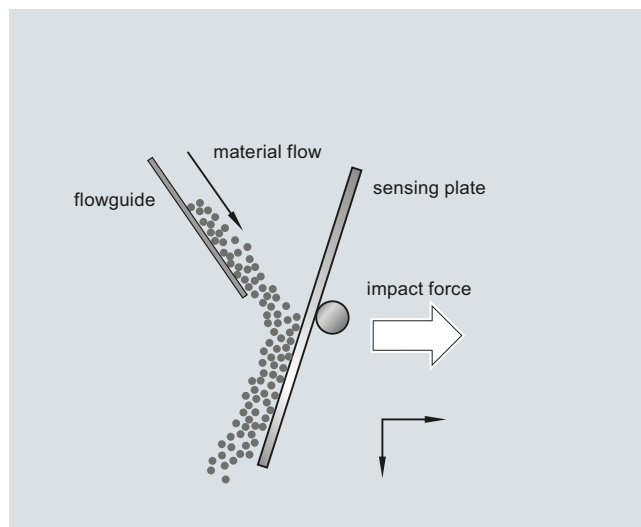
Flowmeters are installed in a gravity fed process. Entering the flowmeter through the flowguide, the material flow produces a mechanical deflection as it strikes the flowmeter's sensing plate. The SITRANS WF flowmeter converts the deflection into an electrical signal that feeds into an accompanying integrator, which instantaneously provides the flow rate and totalizes the weight.

SITRANS WF flowmeters measure only the horizontal force component of material flow striking the sensing plate. The horizontal force is dependent on particle mass and velocity, angle of particle impact against the plate, and the energy absorbing characteristics of the particle. The flowmeters respond to the mass or weight of the material striking the plate.

Because SITRANS WF flowmeter measures only the horizontal force, they are unaffected by vertical force changes caused by material buildup on the non-impact area of the sensing plate. Consequently, there is no zero drift, which in turn eliminates the need for frequent recalibration.

Siemens SITRANS WF product portfolio includes two basic types of impact flowmeters: the linear variable differential transformer (LVDT), and the strain gauge load cell. Each uses a different sensor to convert the horizontal force on the sensing plate to flow rate.

The totally enclosed design of SITRANS WF heavy-duty solids flowmeters eliminates product waste or contamination, and reduces plant maintenance. The dust-tight design creates a healthier work environment, especially when monitoring hazardous substances.



Mode of operation

Mode of operation (continued)

SIEMENS

Solids Flowmeter Application Questionnaire

Customer information

Contact: _____ Prepared By: _____
 Company: _____ Date: _____
 Address: _____ Notes on the Application: _____
 City: _____ Country: _____
 State/Province: _____ Zip/Postal Code: _____
 Phone: () _____ E-mail: _____ Fax: () _____

Material Information

Material being measured: _____ Particle size: _____ mm / inch / mesh
 Bulk density: _____ kg/m³ or lb/ft³ Moisture content: _____ %
 Angle of repose: _____ degrees Is material aerated? _____ Yes _____ No
 Material temperature: _____ °C/°F
 Material properties: Hygroscopic Corrosive Easily aerated Abrasive Other _____
 Material flow characteristics: Smooth Sluggish Sticky/Clumping Other _____

Application Information

(Supply sketch where possible showing pre-feed and out-feed device dimensions) Sketch attached

Feed rate: _____ maximum t/hr or kg/hr or lb/hr or LTPH or STPH
 _____ normal t/hr or kg/hr or lb/hr or LTPH or STPH
 _____ minimum t/hr or kg/hr or lb/hr or LTPH or STPH

Accuracy required: + / - _____ %

Pre-feed type: Rotary valve Belt Screw Vibratory pan Aerated gravity conveyor Bucket elevator Other (specify) _____

Flow rate: Constant Variable Pulsing Flowmeter will discharge into: _____

Headroom available: _____ ft / m Temperature at flowmeter: _____ max. _____ min. °C/°F

Sensing plate subjected to air flow: None Some Material test can be performed: Yes No

Estimated distance from pre-feed discharge to flowmeter: _____ mm / inches

Electrical classification in flowmeter environment: _____

Integrator Requirements

(indicate all that apply)

Power available: _____

Inputs required:

4 to 20 mA(specify) _____
 PID
 LVDT
 Load Cells (#): _____

Outputs required:

4 to 20 mA
 PID
 Remote totalizer
 Relays (#): _____

Communications:

AB Remote I/O
 DeviceNet
 PROFIBUS DP
 RS-232/RS-485 Modbus

Products suggested:

Preferred Construction

(flowguide and sensing plate enclosure): Painted mild steel 304 SS 316 SS Other (specify) _____

Solids Flowmeters

Introduction

Technical specifications

Solids flowmeter selection guide

Criteria	SITRANS WF100	SITRANS WF200	SITRANS WF250	SITRANS WF330	SITRANS WF340	SITRANS WF350
Typical industries	Food, grain, milling, animal feed, plastics, glass	Aggregates, grain, cement	Cement, mineral processing	Food, grain, milling, animal feed, chemicals, plastics, glass, cement, mineral processing	Food, grain, milling, animal feed, chemicals, plastics, glass, cement, mineral processing	Cement, mineral processing, mining
Typical applications	Monitoring of food ingredients, pet food blending, plastic pellet production, silica sand in glass making	Grinding mill rejects in cement, load-out of grains and seeds	Cement in aerated gravity conveyor	Fly-ash, lime dosing, cement flow and control in mining, flour stream monitoring	Fly-ash load-out, lime dosing, gypsum flow	Powders and granulates conveyed by aerated gravity conveyors, fly-ash load-out, precipitator dust
Typical capacity	3 ... 200 t/h (4 ... 220 STPH)	200 ... 900 t/h (220 ... 990 STPH)	200 ... 900 t/h (220 ... 990 STPH)	Sensing element dependent, see chart "Sensing element".	Sensing element dependent, see chart "Sensing element".	Sensing element dependent, see chart "Sensing element".
Volumetric capacity	444 m ³ /h (15680 ft ³ /h)	2000 m ³ /h (70629 ft ³ /h)	2000 m ³ /h (70629 ft ³ /h)	40 t/h: 90 m ³ /h (3178 ft ³ /h) 300 t/h: 290 m ³ /h (10241 ft ³ /h)	40 t/h: 96 m ³ /h (3390 ft ³ /h) 300 t/h: 230 m ³ /h (8122 ft ³ /h)	40 t/h: 73 m ³ /h (2578 ft ³ /h) 300 t/h: 283 m ³ /h (10000 ft ³ /h)
Maximum particle size	13 mm (0.5 inch)	25 mm (1 inch)	25 mm (1 inch)	Sensing element dependent, see chart "Sensing element".	Sensing element dependent, see chart "Sensing element".	Sensing element dependent, see chart "Sensing element".
Maximum process temperature	+65 °C (+150 °F)	+100 °C (+212 °F)	+100 °C (+212 °F)	+232 °C (+450 °F)		
Inlet sizes	100 ... 250 mm (4 ... 10 inch) in universal ANSI/DIN flanges	305 x 533 mm (12 x 21 inch) 305 x 635 mm (12 x 26 inch)	406 x 635 mm (16 x 25 inch) 508 x 940 mm (20 x 37 inch)	Sensing element dependent, see chart "Sensing element".	Sensing element dependent, see chart "Sensing element".	Sensing element dependent, see chart "Sensing element".
Accuracy¹⁾	± 1 % (33 ... 100 % of rate)	-	-	-	-	-
Repeatability	± 0.2 %	-	-	-	-	-
Options	304 or 316 stainless steel construction (meets FDA and USDA requirements for food processing)	304 or 316 stainless steel construction (meets FDA and USDA requirements for food processing)	304 or 316 stainless steel construction (meets FDA and USDA requirements for food processing)	<ul style="list-style-type: none"> • 304 or 316 stainless steel construction (meets FDA and USDA requirements for food processing) • Food grade epoxy coating on Sensing head 	<ul style="list-style-type: none"> • 304 or 316 stainless steel construction (meets FDA and USDA requirements for food processing) • Food grade epoxy coating on Sensing head 	<ul style="list-style-type: none"> • 304 or 316 stainless steel construction (meets FDA and USDA requirements for food processing) • Food grade epoxy coating on Sensing head
Sensing element	One triple beam parallelogram style, stainless steel, strain gauge load cell	Two triple beam parallelogram style, stainless steel, strain gauge load cells	Two triple beam parallelogram style, stainless steel, strain gauge load cells	Deflection measurement using LVDT (linear variable differential transformer)		
Sensing plate	<ul style="list-style-type: none"> • 304 stainless steel • option: 316 stainless steel 	<ul style="list-style-type: none"> • 304 stainless steel • option: 316 stainless steel 	<ul style="list-style-type: none"> • 304 stainless steel • option: 316 stainless steel 	<ul style="list-style-type: none"> • 304 stainless steel • option: 316 stainless steel 	<ul style="list-style-type: none"> • 304 stainless steel • option: 316 stainless steel 	<ul style="list-style-type: none"> • 304 stainless steel • option: 316 stainless steel
Liners	Liner options <ul style="list-style-type: none"> • PTFE • Polyurethane 	Liner options <ul style="list-style-type: none"> • Polyurethane • Alumina ceramic 	Liner options <ul style="list-style-type: none"> • Polyurethane • Alumina ceramic 	<ul style="list-style-type: none"> • Plasma A/R • PTFE • Polyurethane • Alumina ceramic 	<ul style="list-style-type: none"> • Plasma A/R • PTFE • Polyurethane • Alumina ceramic 	<ul style="list-style-type: none"> • Plasma A/R • PTFE • Polyurethane • Alumina ceramic
Approvals	CE , C-TICK, CSA, FM, ATEX, IEC Ex	CE , C-TICK, CSA, FM, ATEX, IEC Ex	CE , C-TICK, CSA, FM, ATEX, IEC Ex	CE , C-TICK	CE , C-TICK	CE , C-TICK,

¹⁾ Accuracy subject to: On factory approved installations the flowmeter system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for at least ten minutes running time.

Technical specifications (continued)

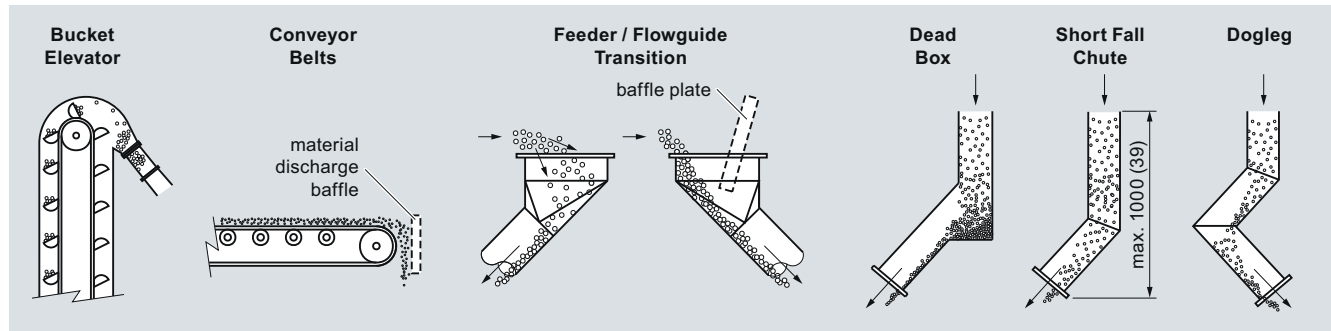
Sensing element

	SITRANS WF330	SITRANS WF340	SITRANS WF350
Capacity range			
• SITRANS WFS300	0.2 ... 40 t/h (0.2 ... 44 STPH)	0.2 ... 40 t/h (0.2 ... 44 STPH)	0.2 ... 40 t/h (0.2 ... 44 STPH)
• SITRANS WFS320	20 ... 300 t/h (22 ... 330 STPH)	20 ... 300 t/h (22 ... 330 STPH)	20 ... 300 t/h (22 ... 330 STPH)
Particle size (max.)			
• SITRANS WFS300	12 mm (0.5 inch)	12 mm (0.5 inch)	3 mm (0.13 inch)
• SITRANS WFS320	25 mm (1 inch)	25 mm (1 inch)	3 mm (0.13 inch)
Inlet sizes			
• SITRANS WFS300	50 ... 250 mm (2 ... 10 inch) (ASME or DIN flanges)	<ul style="list-style-type: none"> • 76 x 152 mm (3 x 6 inch) • 102 x 254 mm (4 x 10 inch) • 127 x 305 mm (5 x 12 inch) 	<ul style="list-style-type: none"> • 203 x 203 mm (8 x 8 inch) • 203 x 305 mm (8 x 12 inch)
• SITRANS WFS320	150 ... 400 mm (6 ... 16 inch) (ASME or DIN flanges)	<ul style="list-style-type: none"> • 127 x 406 mm (5 x 16 inch) • 152 x 508 mm (6 x 20 inch) 	<ul style="list-style-type: none"> • 305 x 254 mm (12 x 10 inch) • 305 x 356 mm (12 x 14 inch) • 305 x 508 mm (12 x 20 inch)

Common flowmeter infeed types

A solids flowmeter's performance will be as repeatable and consistent as the flow of material it is measuring. The following arrangements are typical of pre-feed chute configurations used to ensure consistent flow patterns. Arrangements will vary depending on the upstream equipment or chute work. Applications

should be reviewed by a Siemens solids flowmeter specialist to achieve best results. During initial setup, use pre-weighing or post-weighing of material samples to calibrate the flowmeter and verify accuracy using the material sample weights.



Dimensions in mm (inch)

Solids Flowmeters

LVDT Flowmeters

SITRANS WF100

Overview



SITRANS WF100 flowmeter is a low to medium capacity flowmeter for various product sizes, densities, and fluidities in restricted spaces.

Benefits

- Flowrates from 1 to 200 t/h (1 to 220 STPH)
- Continuous monitoring of the material flow without interrupting the process
- Dust-tight construction: suitable for use in hazardous areas and in washdown applications that require frequent cleaning
- Minimal maintenance or recalibration after the initial installation and material tests

Application

WF100 is unaffected by corrosive, abrasive, or hot materials. Handling various product sizes, densities, and fluidities including fine powders such as sugar, the WF100 helps to improve final product, increase operating efficiency, and realize significant cost savings.

Dry bulk solids enter the flow guide producing a mechanical deflection as they strike the flowmeter sensing plate before continuing through the process un-hindered. The WF100 converts the deflection into an electrical signal that feeds into an accompanying integrator, which instantaneously displays the flow rate and totalizes the weight.

Key applications

- Cement, wood chips
- Cereals
- Seeds
- Grains
- Soybean and rice hulls
- Unshelled peanuts
- Starch
- Sugar, potato flakes
- Grain tailings and screenings
- Plastic pellets

Selection and Ordering data	Order No.	Order No.
SITRANS WF100 Impact solids flowmeter for low to medium capacity applications. Low cost compact unit improves processing, increases efficiency and provides significant cost savings.	C) 7MH7186- ■■■■■ - ■ A	C) 7MH7186- ■■■■■ - ■ A
Flowguide size (Universal flat-faced flange fits ASME/DIN flanges) 4 inch (100 mm) ¹⁾ 6 inch (150 mm) ²⁾ 8 inch (200 mm) ³⁾ 10 inch (250 mm) ⁴⁾	1 2 3 4	1 0 1 1 1 2 1 3 1 4 1 5
Fabrication Mild steel, painted 4 inch (100 mm) flowguide AISI 304 stainless steel 4 inch (100 mm) flowguide AISI 304 stainless steel with PTFE coated infeed 4 inch (100 mm) flowguide AISI 316 stainless steel 4 inch (100 mm) flowguide AISI 316 stainless steel with PTFE coated infeed 4 inch (100 mm) flowguide Mild steel, painted 6 inch (150 mm) flowguide AISI 304 stainless steel 6 inch (150 mm) flowguide AISI 304 stainless steel with PTFE coated infeed 6 inch (150 mm) flowguide AISI 316 stainless steel 6 inch (150 mm) flowguide AISI 316 stainless steel with PTFE coated infeed 6 inch (150 mm) flowguide Mild steel, painted 8 inch (200 mm) flowguide AISI 304 stainless steel 8 inch (200 mm) flowguide AISI 304 stainless steel with PTFE coated infeed 8 inch (200 mm) flowguide AISI 316 stainless steel 8 inch (200 mm) flowguide AISI 316 stainless steel with PTFE coated infeed 8 inch (200 mm) flowguide Mild steel, painted 10 inch (250 mm) flowguide AISI 304 stainless steel 10 inch (250 mm) flowguide AISI 304 stainless steel with PTFE coated infeed 10 inch (250 mm) flowguide AISI 316 stainless steel 10 inch (250 mm) flowguide AISI 316 stainless steel with PTFE coated infeed 10 inch (250 mm) flowguide	A B C D E F G H J K L M N P Q R S T U V	Sensing plate fabrication 4 inch (100 mm) AISI 304 Stainless steel 4 inch (100 mm) AISI 304 Stainless steel with PTFE coating 4 inch (100 mm) AISI 304 Stainless steel with polyurethane coating 4 inch (100 mm) AISI 316 Stainless steel 4 inch (100 mm) AISI 316 Stainless steel with PTFE coating 4 inch (100 mm) AISI 316 Stainless steel with polyurethane coating 6 inch (150 mm) AISI 304 Stainless steel 6 inch (150 mm) AISI 304 Stainless steel with PTFE coating 6 inch (150 mm) AISI 304 Stainless steel with polyurethane coating 6 inch (150 mm) AISI 316 Stainless steel 6 inch (150 mm) AISI 316 Stainless steel with PTFE coating 6 inch (150 mm) AISI 316 Stainless steel with polyurethane coating 8 inch (200 mm) AISI 304 Stainless steel 8 inch (200 mm) AISI 304 Stainless steel with PTFE coating 8 inch (200 mm) AISI 304 Stainless steel with polyurethane coating 8 inch (200 mm) AISI 316 Stainless steel 8 inch (200 mm) AISI 316 Stainless steel with PTFE coating 8 inch (200 mm) AISI 316 Stainless steel with polyurethane coating 10 inch (250 mm) AISI 304 Stainless steel 10 inch (250 mm) AISI 304 Stainless steel with PTFE coating 10 inch (250 mm) AISI 304 Stainless steel with polyurethane coating 10 inch (250 mm) AISI 316 Stainless steel 10 inch (250 mm) AISI 316 Stainless steel with PTFE coating 10 inch (250 mm) AISI 316 Stainless steel with polyurethane coating
Load cell, stainless steel [17-4 PH (1.4568) construction with 304 (1.4301) stainless steel cover] 2 lb (0.9 kg) 5 lb (2.3 kg) 10 lb (4.5 kg) 20 lb (9.1 kg) Not specified (Only for quotation purposes, not a valid ordering option)	A B C D X	2 0 2 4 2 5 2 0 2 4 2 5 3 0 3 1 3 2 3 3 3 4 3 5 4 0 4 1 4 2 4 3 4 4 4 5
		Approvals Standard: CE, C-TICK CSA/FM Class II, Div. 1, Groups E, F, G and Class III ATEX II 2D, Ex tD A21 IP65 T70 °C, CE, C-TICK, IECEx, Ex tD A21 IP65 T70 °C
		Further designs Please add "-Z" to Order No. and specify Order code(s). Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 16 characters), specify in plain text. Manufacturer's Test Certificate: According to EN 10204-2.2 Inspection Certificate Type 3.1 per EN 10204
		Order Code Y15 C11 C12

Solids Flowmeters

LVDT Flowmeters

SITRANS WF100

Selection and Ordering data (continued)

SITRANS WF100

Impact solids flowmeter for low to medium capacity applications. Low cost compact unit improves processing, increases efficiency and provides significant cost savings.

Instruction manual

English

German

Note: The instruction manual should be ordered as a separate item on the order.

Additional instruction manuals

Solids Flowmeter Application Guide, English

Solids Flowmeter Application Guide, German

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

Spare parts

WF100 4 inch (100 mm) sensing plate
304 standard

WF100 6 inch (150 mm) sensing plate
304 standard

WF100 8 inch (200 mm) sensing plate
304 standard

WF100 10 inch (250 mm) sensing plate
304 standard

WF100 4 inch (100 mm) sensing plate
316 standard

WF100 6 inch (150 mm) sensing plate
316 standard

WF100 8 inch (200 mm) sensing plate
316 standard

WF100 10 inch (250 mm) sensing plate
316 standard

WF100 4 inch (100 mm) sensing plate
304 PTFE lined

WF100 6 inch (150 mm) sensing plate
304 PTFE lined

WF100 8 inch (200 mm) sensing plate
304 PTFE lined

Order No.

C) **7MH7186-**

 A

C) **7ML1998-5NB01**

C) **7ML1998-5NB31**

C) **7ML1998-5GK01**

C) **7ML1998-5GK31**

7MH7723-1KN

7MH7723-1KP

7MH7723-1KQ

7MH7723-1KR

7MH7723-1KS

7MH7723-1KT

7MH7723-1KU

7MH7723-1KV

7MH7723-1KW

7MH7723-1KX

7MH7723-1KY

Order No.

C) **7MH7186-**

 A

7MH7723-1LA

7MH7723-1LB

7MH7723-1LC

7MH7723-1LD

7MH7723-1LE

7MH7723-1LF

7MH7723-1LG

7MH7723-1LH

7MH7723-1LJ

7MH7723-1LK

7MH7723-1LL

7MH7723-1LM

7MH7723-1LN

7MH7723-1LP

7MH7723-1LQ

7MH7723-1LR

7MH7723-1LS

7MH7725-1EU

7MH7725-1EV

7MH7725-1EW

7MH7725-1EX

7MH7725-1EX

7MH7723-1LT

SITRANS WF100

Impact solids flowmeter for low to medium capacity applications. Low cost compact unit improves processing, increases efficiency and provides significant cost savings.

WF100 10 inch (250 mm) sensing plate
304 PTFE lined

WF100 4 inch (100 mm) sensing plate
316 PTFE lined

WF100 6 inch (150 mm) sensing plate
316 PTFE lined

WF100 8 inch (200 mm) sensing plate
316 PTFE lined

WF100 10 inch (250 mm) sensing plate
316 PTFE lined

WF100 4 inch (100 mm) sensing plate
304 polyurethane lined

WF100 6 inch (150 mm) sensing plate
304 polyurethane lined

WF100 8 inch (200 mm) sensing plate
304 polyurethane lined

WF100 10 inch (250 mm) sensing plate
304 polyurethane lined

WF100 4 inch (100 mm) sensing plate
316 polyurethane lined

WF100 6 inch (150 mm) sensing plate
316 polyurethane lined

WF100 8 inch (200 mm) sensing plate
316 polyurethane lined

WF100 10 inch (250 mm) sensing plate
316 polyurethane lined

WF100 load cell spare 2 lb

WF100 load cell spare 5 lb

WF100 load cell spare 10 lb

WF100 load cell spare 20 lb

WF100 load cell spare 2 lb CSA, FM, ATEX, IEC Ex

WF100 load cell spare 5 lb CSA, FM, ATEX, IEC Ex

WF100 load cell spare 10 lb CSA, FM, ATEX,
IEC Ex

WF100 load cell spare 20 lb CSA, FM, ATEX,
IEC Ex

WF100 load cell spare 20 lb CSA, FM, ATEX,
IEC Ex

WF calibration pulley with hardware and cable spare

1) Available with fabrication options A to E and sensing plate options 10 to 15 only

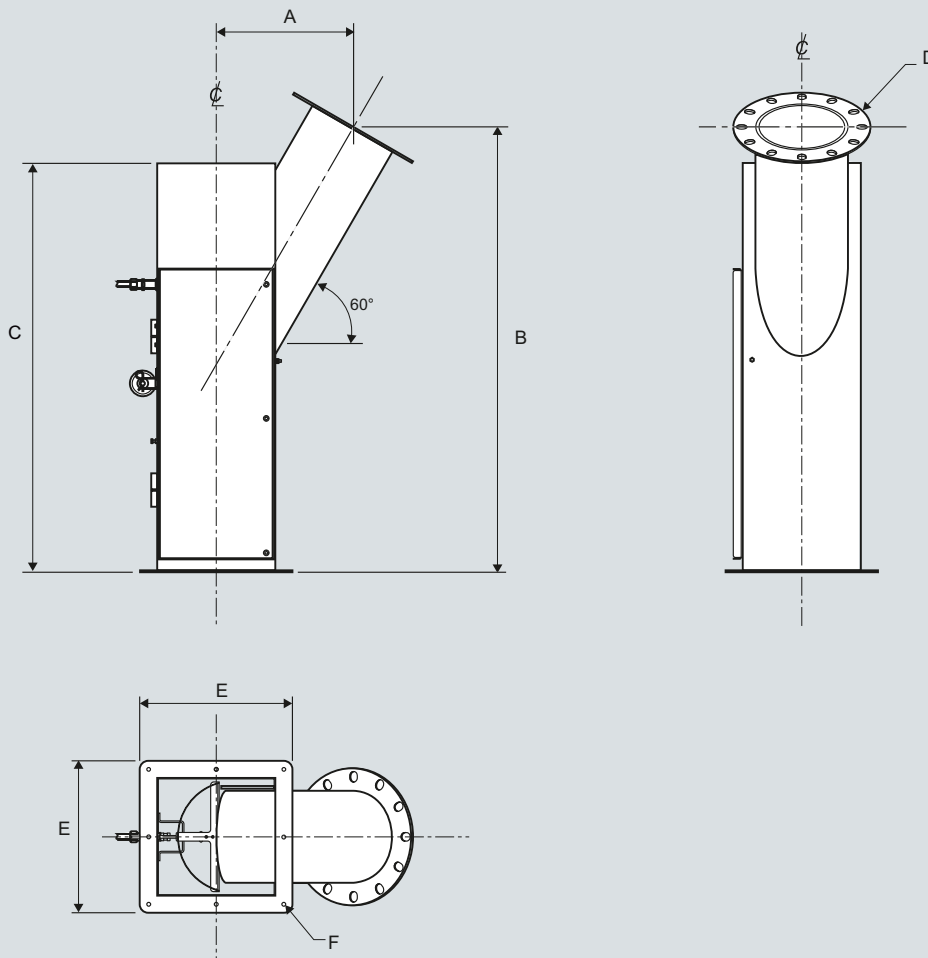
2) Available with fabrication options F to K and sensing plate options 20 to 25 only

3) Available with fabrication options L to Q and sensing plate options 30 to 35 only

4) Available with fabrication options R to V and sensing plate options 40 to 45 only

C) Subject to export regulations AL: N, ECCN: EAR99.

Dimensional drawings



WF100 dimensions

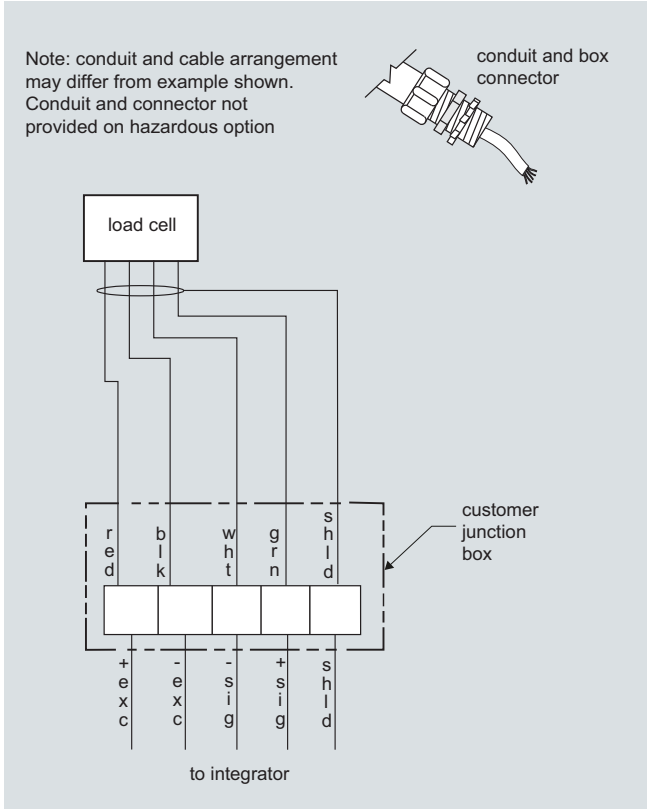
	A	B	C	D (flange)	E	F (8 places)
4 inch (100 mm)	8 inch (203.2 mm)	23.5 inch (596.9 mm)	21.87 inch (555.5 mm)	Ø ASME 4 inch DIN 100 mm	11.25 inch (285.8 mm)	Ø 0.43 inch (11 mm)
6 inch (150 mm)	10 inch (254 mm)	33 inch (838.2 mm)	31.12 inch (790.4 mm)	Ø ASME 6 inch DIN 150 mm	13.35 inch (339.1 mm)	Ø 0.43 inch (11 mm)
8 inch (200 mm)	14 inch (355.6 mm)	46 inch (1168.4 mm)	42.62 inch (1082.5 mm)	Ø ASME 8 inch DIN 200 mm	16.5 inch (419.1 mm)	Ø 0.43 inch (11 mm)
10 inch (250 mm)	16 inch (406.4 mm)	52 inch (1320.8 mm)	48.74 inch (1238.1 mm)	Ø ASME 10 inch DIN 250 mm	19 inch (482.6 mm)	Ø 0.43 inch (11 mm)

Solids Flowmeters

LVDT Flowmeters

SITRANS WF100

Schematics



WF100 connections

Overview



SITRANS WF200 and WF250 flowmeters are medium to high capacity flowmeters for various product sizes, densities, and fluidities.

Benefits

- For specialized pre-feed applications
- Sensing element mounted outside process
- Flowrates from 200 to 900 t/h (220 to 990 STPH)
- Continuously monitoring of the material flow without interrupting the process
- Dust-tight construction: suitable for use in hazardous areas and in washdown applications that require frequent cleaning
- Minimal maintenance or recalibration after the initial installation and material tests

Application

Operating with a microprocessor based integrator package, the WF200 series flowmeters display flow rate, totalized flow, and rate alarms. Outputs are 0/4 to 20 mA proportional to rate and contact closure for remote totalization. Dry bulk solids enter the flowmeter before continuing through the process unhindered. The load cells convert the horizontal force of the deflection into an electrical signal. The integrator processes this into flowrate and integrated total weight. The sensing process is immune to the effect of product build-up as only the horizontal force is measured.

With load cells located externally to the process, the WF200 series flowmeters measure high capacities with a maximum rate of 900 t/h (990 STPH). For high capacity aerated gravity conveyor pre-feed, the WF250 has a maximum rate of 900 t/h (990 STPH).

Key applications

- Aggregates
- Grain
- Cement
- Mineral processing

Solids Flowmeters

LVDT Flowmeters

SITRANS WF200

Selection and Ordering data

SITRANS WF200 series flowmeters

SITRANS WF200 and WF250 flowmeters are medium to high capacity flowmeters for various product sizes, densities, and fluidities. WF250 features aerated style designed for air slide gravity conveyors.

Model

SITRANS WF200

500 t/h maximum design capacity

900 t/h maximum design capacity

SITRANS WF250, aerated style

500 t/h maximum design capacity

900 t/h maximum design capacity

Construction

Painted mild steel

304 stainless steel for model option 1

304 stainless steel for model option 2

304 stainless steel for model option 3

304 stainless steel for model option 4

316 stainless steel for model option 1

316 stainless steel for model option 2

316 stainless steel for model option 3

316 stainless steel for model option 4

Sensing plate liner

None (standard 304 stainless steel, 316 for construction options F to J)

Polyurethane

For model options 1 and 3

For model options 2 and 4

Alumina ceramic tiles

For model options 1 and 3

For model options 2 and 4

Load cell

50 lb

100 lb

Not specified (for quotation purposes only, not a valid ordering option)

Approvals

CE, C-TICK

CSA/FM Class II, Div. 1, Groups E, F, G and Class III

ATEX II 2D, Ex tD A21 IP65 T70 °C, CE, C-TICK,

IEC Ex, Ex tD A21 IP65 T70 °C

Further designs

Please add "-Z" to Order No. and specify Order code(s).

Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 16 characters), specify in plain text.

Manufacturer's Test Certificate:

According to EN 10204-2.2

Inspection Certificate Type 3.1 per EN 10204

Instruction manual

English

German

Note: The instruction manual should be ordered as a separate item on the order.

Additional instruction manuals

Solids Flowmeter Application Guide, English

Solids Flowmeter Application Guide, German

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

Order No.

C) **7MH7115-**
- 0

1

2

3

4

A

B

C

D

E

F

G

H

J

A

B

C

D

E

1

2

0

1

2

Order Code

Y15

C11

C12

Order No.

C) **7ML1998-5NC01**

C) **7ML1998-5NC31**

C) **7ML1998-5GK01**

C) **7ML1998-5GK31**

Order No.

C) **7MH7115-**
- 0

SITRANS WF200 series flowmeters

SITRANS WF200 and WF250 flowmeters are medium to high capacity flowmeters for various product sizes, densities, and fluidities. WF250 features aerated style designed for air slide gravity conveyors.

Spare parts

Load cell, 50 lb, stainless steel

Load cell, 100 lb, stainless steel

Load cell, 50 lb, stainless steel, CSA/FM/ATEX/IEC EX

Load cell, 100 lb, stainless steel, CSA/FM/ATEX/IEC EX

WF calibration pulley with hardware and cable spare

WF200 series bearing with plate mount shaft, standard, spare

WF200 series bearing with plate mount shaft, stainless steel, spare

WF200 series sensing plate support cables, spare

WF250 series sensing plate support cables, spare

WF200 sensing plate 500 TPH 304, standard

WF200 sensing plate 900 TPH 304, standard

WF250 sensing plate 500 TPH 304, standard

WF250 sensing plate 900 TPH 304, standard

WF200 sensing plate 500 TPH 304, polyurethane lined

WF200 sensing plate 900 TPH 304, polyurethane lined

WF250 sensing plate 500 TPH 304, polyurethane lined

WF250 sensing plate 900 TPH 304, polyurethane lined

WF200 sensing plate 500 TPH 304, ceramic lined

WF200 sensing plate 900 TPH 304, ceramic lined

WF250 sensing plate 500 TPH 304, ceramic lined

WF250 sensing plate 900 TPH 304, ceramic lined

WF200 sensing plate 500 TPH 316, standard

WF200 sensing plate 900 TPH 316, standard

WF250 sensing plate 500 TPH 316, standard

WF250 sensing plate 900 TPH 316, standard

WF200 sensing plate 500 TPH 316, polyurethane lined

WF200 sensing plate 900 TPH 316, polyurethane lined

WF250 sensing plate 500 TPH 316, polyurethane lined

WF250 sensing plate 900 TPH 316, polyurethane lined

WF200 sensing plate 500 TPH 316, ceramic lined

WF200 sensing plate 900 TPH 316, ceramic lined

WF250 sensing plate 500 TPH 316, ceramic lined

WF250 sensing plate 900 TPH 316, ceramic lined

C) **7MH7725-1AC**

C) **7MH7725-1AD**

C) **7MH7725-1DT**

C) **7MH7725-1DU**

7MH7723-1LT

7MH7723-1LU

7MH7723-1LV

7MH7723-1LW

7MH7723-1LX

7MH7723-1LY

7MH7723-1MA

7MH7723-1MB

7MH7723-1MC

7MH7723-1MD

7MH7723-1ME

7MH7723-1MF

7MH7723-1MG

7MH7723-1MH

7MH7723-1MJ

7MH7723-1MK

7MH7723-1ML

7MH7723-1MM

7MH7723-1MN

7MH7723-1MP

7MH7723-1MQ

7MH7723-1MR

7MH7723-1MS

7MH7723-1MT

7MH7723-1MU

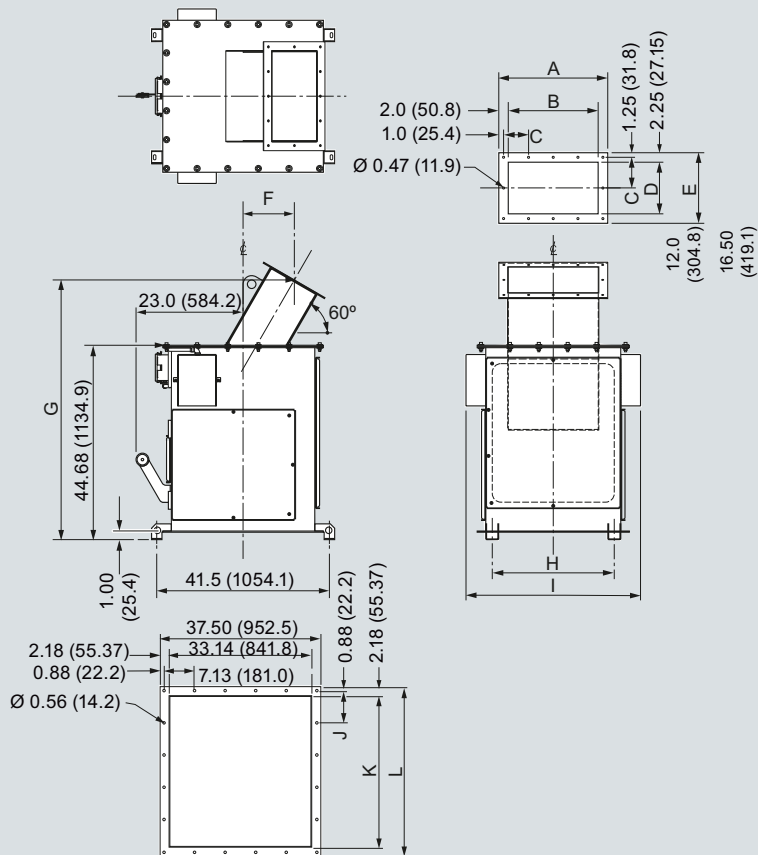
7MH7723-1MV

7MH7723-1MW

7MH7723-1MX

7MH7723-1MY

Dimensional drawings



	500 t/h	900 t/h
A	25.0 (635.0)	30.0 (762.0)
B	21.0 (533.4)	26.0 (660.4)
C	5.75 (146.1), × 4	7.0 (177.8), × 4
D	12.0 (304.8)	12.0 (304.8)
E	16.5 (419.1)	16.5 (419.1)
F	11.97 (304.1)	14.86 (377.4)
G	59.0 (1498.6)	64.0 (1625.6)
H	29.13 (739.8)	35.13 (892.2)
I	40.68 (1033.3)	46.68 (1185.7)
J	6.75 (171.5), × 5	6.63 (168.3), × 6
K	31.14 (791.0)	37.14 (943.4)
L	35.5 (901.7)	41.5 (1054.1)

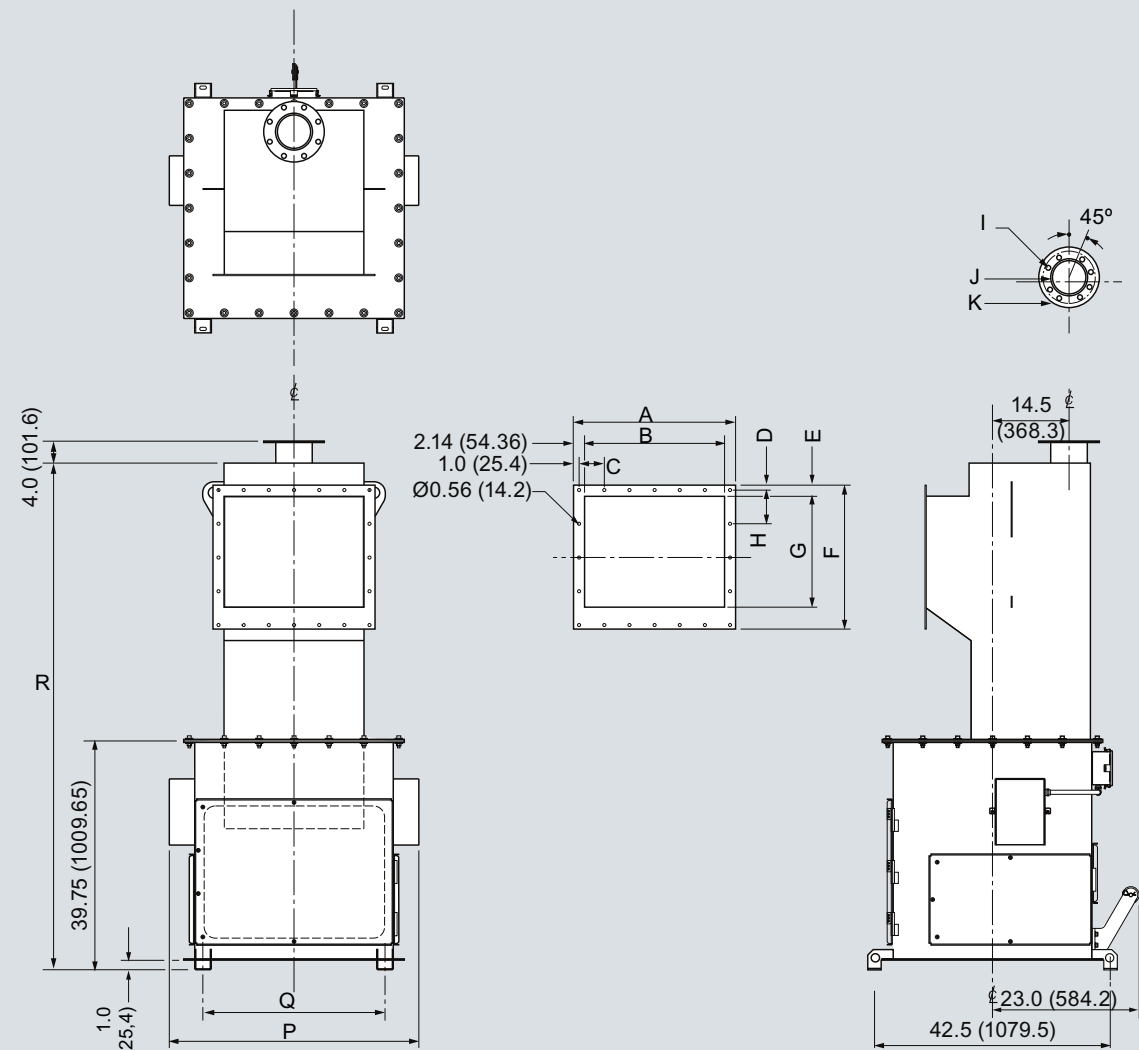
WF200, dimensions in inch (mm)

Solids Flowmeters

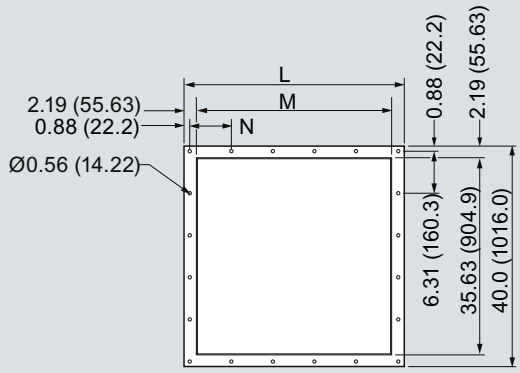
LVDT Flowmeters

SITRANS WF200

Dimensional drawings (continued)



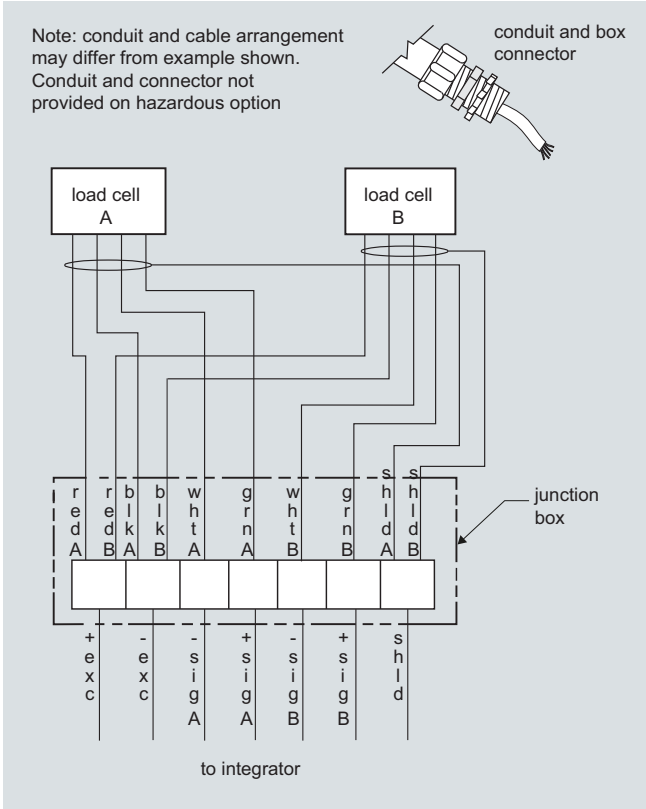
6



	500 t/h	900 t/h		500 t/h	900 t/h
A	29.37 (746.0)	41.27 (1048.2)	I	Ø0.75 (19.1), x 8	Ø0.88 (22.2), x 8
B	25.10 (637.5)	37.0 (939.8)	J	Ø4.07 (103.4)	Ø6.07 (154.1)
C	4.56 (115.9), x 6	6.56 (166.62), x 6	K	Ø9.0 (228.6)	Ø11.0 (279.4)
D	0.74 (18.8)	0.94 (23.8)	L	40.0 (1016.0)	52.0 (1320.8)
E	3.13 (79.5)	3.19 (81.03)	M	35.63 (904.9)	47.63 (1209.7)
F	22.38 (568.3)	26.38 (669.9)	N	6.31 (160.3), x 6	7.13 (181.0), x 7
G	16.13 (409.8)	20.0 (508.0)	P	45.18 (1147.6)	57.18 (1452.4)
H	5.13 (130.2), x 4	6.13 (155.6), x 4	Q	33.0 (838.2)	45.0 (1143.0)
			R	81.88 (2079.75)	91.0 (2311.4)

WF250, dimensions in inch (mm)

Schematics



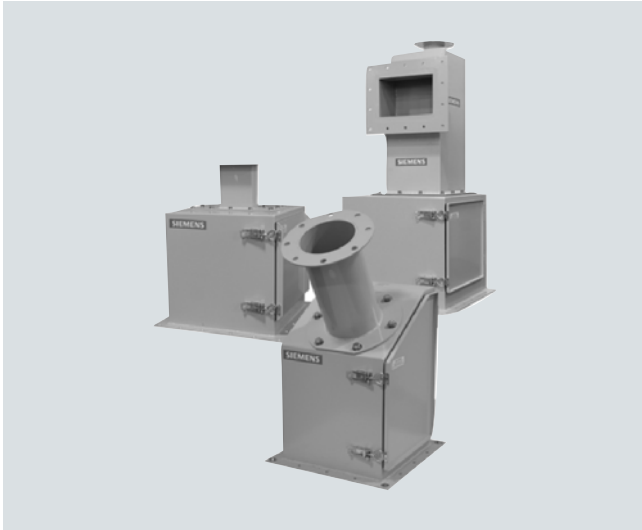
WF200 and WF250 connections

Solids Flowmeters

LVDT Flowmeters

SITRANS WF300 series

Overview



SITRANS WF300 series are low to medium capacity flowmeters for various product sizes, densities, and fluidities.

Benefits

- For specialized pre-feed applications
- Sensing element mounted outside process
- Flowrates from 0.2 to 300 t/h (0.2 to 330 STPH)
- Continuously monitoring of the material flow without interrupting the process
- Dust-tight construction: suitable for use in hazardous areas and in washdown applications that require frequent cleaning
- Minimal maintenance or recalibration after the initial installation and material tests

Application

With weighing mechanics located externally, the WF300 series solids flowmeters are unaffected by corrosive, abrasive, or hot materials. Handling a wide range of product sizes, densities, and fluidities including fine powders such as cement, they operate at process temperatures to +230 °C (+450 °F). The flowmeters help to improve final product, increase operating efficiency, and realize significant cost savings.

Operating with the appropriate SITRANS WFS sensing head and a micro-processor-based integrator package, the WF300 series flowmeters provide a display of the flow rate, totalized flow, and alarms. Outputs are 0/4 to 20 mA proportional to rate, and open collector output for remote totalization.

Dry bulk solids enter the flow guide producing a mechanical deflection as they strike the flowmeter sensing plate before continuing through the process unhindered. The LVDT in the sensing head converts the deflection of the horizontal force into an electrical signal. The integrator processes this signal into a display of flowrate and integrated total weight. The weighing process is immune to the effect of product build-up as only the horizontal force is measured.

SITRANS WF330 flowmeters are totally enclosed, with external weighing mechanics, operating with corrosive, abrasive or hot materials. SITRANS WF350 series operates with aerated gravity conveyors, and includes integral vents and baffles for air separation. For applications with little available headroom, the SITRANS WF340 series flowmeters provide the answer.

Solids Flowmeters

LVDT Flowmeters


SITRANS WF300 series

Selection and Ordering data	Order No.	Order No.
SITRANS WF330 Low to medium capacity solids flowmeters for various product sizes, densities, and fluidities, particularly fine powders. A sensing plate, sensing head and integrator are required to complete the system.	C) 7MH7102- 	SITRANS WF330 Low to medium capacity solids flowmeters for various product sizes, densities, and fluidities, particularly fine powders. A sensing plate, sensing head and integrator are required to complete the system.
Version Base mount, 40 t/h (44 STPH) maximum design capacity Side mount, 40 t/h (44 STPH) maximum design capacity Base mount, 300 t/h (330 STPH) maximum design capacity	1 2 3	Instruction manual English German French Note: The instruction manual should be ordered as a separate item on the order.
Flowguide size No flowguide 2 inch ASME flange pattern ¹⁾ 4 inch ASME flange pattern ¹⁾ 6 inch ASME flange pattern ²⁾ 8 inch ASME flange pattern ²⁾ 10 inch ASME flange pattern ²⁾ 12 inch ASME flange pattern ³⁾ 14 inch ASME flange pattern ³⁾ 16 inch ASME flange pattern ³⁾ DN 50 flange pattern ¹⁾ DN 100 flange pattern ¹⁾ DN 150 flange pattern ²⁾ DN 200 flange pattern ²⁾ DN 250 flange pattern ²⁾ DN 300 flange pattern ³⁾ DN 350 flange pattern ³⁾ DN 400 flange pattern ³⁾	A B C D E F G H J K L M N P Q R S	Additional instruction manuals Solids Flowmeter Application Guide, English Solids Flowmeter Application Guide, German This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library. 1) For version 1 and 2 only. 2) For version 1, 2 or 3. 3) For version 3 only. C) Subject to export regulations AL: N, ECCN: EAR99.
Flowguide construction No flowguide Mild steel, polyester painted Mild steel, epoxy painted with zinc primer ¹⁾ Mild steel, epoxy painted with zinc primer ³⁾ 304 (1.4301) stainless steel ¹⁾ 304 (1.4301) stainless steel ³⁾ 316 (1.4401) stainless steel ¹⁾ 316 (1.4401) stainless steel ³⁾	A B C D E F G H	SITRANS WF340 Compact vertical flow, low to medium-capacity solid flowmeters for various product sizes, densities, and fluidities, particularly fine powders. A sensing plate, sensing head and integrator are required to complete the system.
Cabinet construction Mild steel, polyester painted Mild steel, epoxy painted with zinc primer ¹⁾ Mild steel, epoxy painted with zinc primer ³⁾ 304 (1.4301) stainless steel ¹⁾ 304 (1.4301) stainless steel ³⁾ 316 (1.4401) stainless steel ¹⁾ 316 (1.4401) stainless steel ³⁾	1 2 3 4 5 6 7	Version Base mount, 40 t/h (44 STPH) max. design capacity Side mount, 40 t/h (44 STPH) max. design capacity Base mount, 300 t/h (330 STPH) max. design capacity
Further designs Please add "-Z" to Order No. and specify Order code(s). Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max. 16 characters), specify in plain text. Manufacturer's Test Certificate: According to EN 10204-2.2 Inspection Certificate Type 3.1 per EN 10204	Order Code Y15 C11 C12	Flowguide size No flowguide (5 x 16 inch model) 3 x 6 inch (76 x 152 mm) ¹⁾ 4 x 10 inch (102 x 254 mm) ¹⁾ 5 x 12 inch (127 x 305 mm) ¹⁾ 5 x 16 inch (127 x 406 mm) ²⁾ 6 x 20 inch (152 x 508 mm) ²⁾ No flowguide (WF340-300 6 x 20 inch model)
		Flowguide construction No flowguide Mild steel, polyester painted 304 (1.4301) stainless steel ¹⁾ 304 (1.4301) stainless steel ²⁾ 316 (1.4401) stainless steel ¹⁾ 316 (1.4401) stainless steel ²⁾ Mild steel, polyester painted with PTFE liner Mild steel, polyester painted with abrasion resistant liner 304 (1.4301) stainless steel, with PTFE liner ¹⁾ 304 (1.4301) stainless steel, with PTFE liner ²⁾ Mild steel, epoxy paint with zinc primer ¹⁾ Mild steel, epoxy paint with zinc primer ²⁾ Other flowguide materials available upon request

Solids Flowmeters

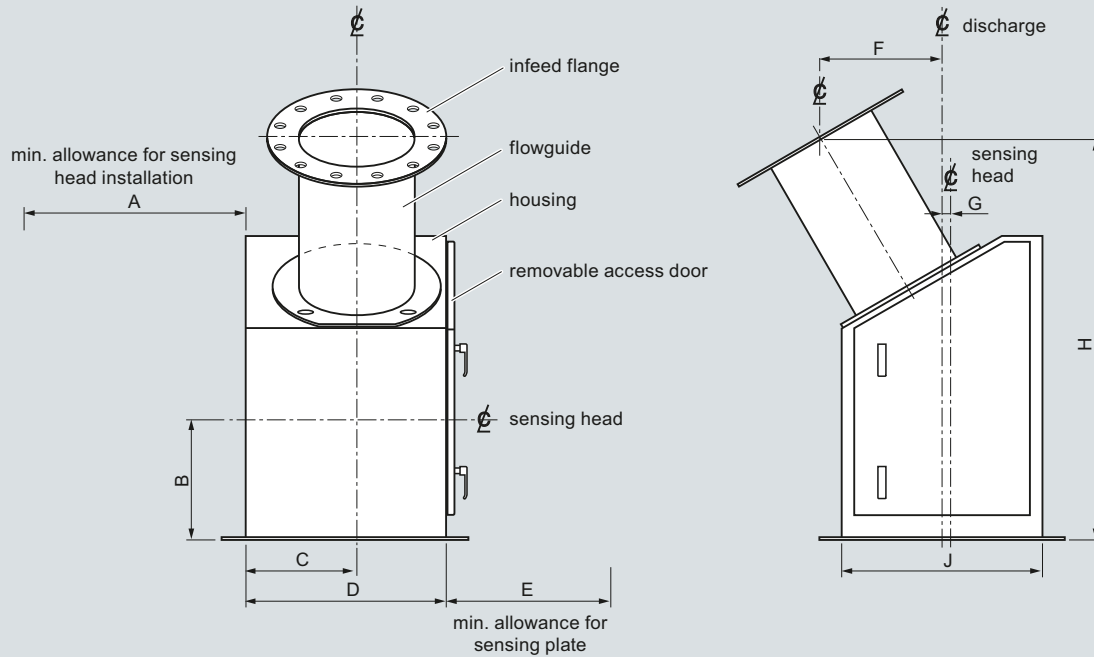
LVDT Flowmeters

SITRANS WF300 series

Selection and Ordering data (continued)	Order No.	Order No.
SITRANS WF340 Compact vertical flow, low to medium-capacity solid flowmeters for various product sizes, densities, and fluidities, particularly fine powders. A sensing plate, sensing head and integrator are required to complete the system.	C) 7MH7104- 	SITRANS WF350 Low to medium capacity flowmeters for powders conveyed by aerated gravity conveyors. A sensing plate, sensing head and integrator are required to complete the system.
Cabinet construction Mild steel, painted 304 (1.4301) stainless steel ¹⁾ 304 (1.4301) stainless steel ²⁾ 316 (1.4401) stainless steel ¹⁾ 316 (1.4401) stainless steel ²⁾ Mild steel, epoxy paint with zinc primer ¹⁾ Mild steel, epoxy paint with zinc primer ²⁾	0 1 2 3 4 5 6 7	Version 40 t/h (44 STPH) maximum design capacity 300 t/h (330 STPH) maximum design capacity
Further designs Please add "-Z" to Order No. and specify Order code(s). Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 16 characters), specify in plain text. Manufacturer's Test Certificate: According to EN 10204-2.2 Inspection Certificate Type 3.1 per EN 10204	Order Code Y15 C11 C12	Flowguide size 8 inch (203 mm), 40 t/h (0.2 to 44 STPH) version 10 inch (254 mm), 300 t/h 12 inch (305 mm), 40 t/h (0.2 to 44 STPH) version 14 inch (356 mm), 300 t/h 20 inch (508 mm), 300 t/h
Instruction manual English German Note: The instruction manual should be ordered as a separate line on the order.	Order No. C) 7ML1998-5CU01 C) 7ML1998-5CU31	Flowguide construction Mild steel, polyester painted 304 (1.4301) stainless steel 316 (1.4401) stainless steel
Additional instruction manuals Solids Flowmeter Application Guidelines, English Solids Flowmeter Application Guidelines, German This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.	Order No. C) 7ML1998-5GK01 C) 7ML1998-5GK31	Cabinet construction Mild steel, polyester painted 304 (1.4301) stainless steel 316 (1.4401) stainless steel
¹⁾ For versions 1 and 2 only. ²⁾ For version 3 only. C) Subject to export regulations AL: N, ECCN: EAR99.		Flowguide construction Mild steel, polyester painted 304 (1.4301) stainless steel 316 (1.4401) stainless steel
		Venting flange ASME flange pattern DIN flange pattern
		Further designs Please add "-Z" to Order No. and specify Order code(s). Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 16 characters), specify in plain text. Manufacturer's Test Certificate: According to EN 10204-2.2 Inspection Certificate Type 3.1 per EN 10204
		Instruction manual English German Note: The instruction manual should be ordered as a separate item on the order.
		Additional instruction manuals Solids Flowmeter Application Guide, English Solids Flowmeter Application Guide, German This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.
		Order Code Y15 C11 C12
		Order No. C) 7ML1998-5CV01 C) 7ML1998-5CV31
		Order No. C) 7ML1998-5GK01 C) 7ML1998-5GK31
		C) Subject to export regulations AL: N, ECCN: EAR99.

Dimensional drawings

SITRANS WF300 series



Model	A	B	C	D	E	F	G	H	J
40 t/h (44 STPH)	686 (27)	356 (14)	254 (10)	457 (18)	610 (24)	279 (11)	25 (1)	914 (36)	457 (18)
300 t/h (330 STPH)	1042 (41)	457 (18)	305 (12)	610 (24)	610 (24)	330 (13)	38 (1.5)	1270 (50)	610 (24)

40 t/h version inlet sizes

51 (2)	102 (4)	152 (6)	203 (8)	254 (10)
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300 t/h version inlet sizes

152 (6)	203 (8)	254 (10)	305 (12)	356 (14)	406 (16)
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SITRANS WF300 series, dimensions in mm (inch)

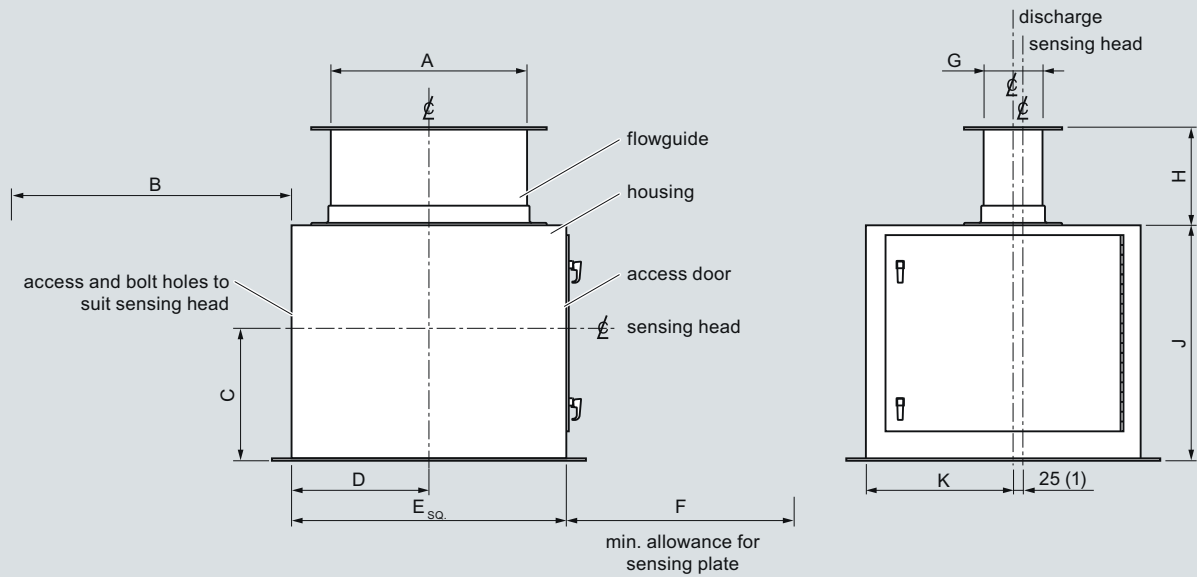
Solids Flowmeters

LVDT Flowmeters

SITRANS WF300 series

Dimensional drawings (continued)

SITRANS WF340 series

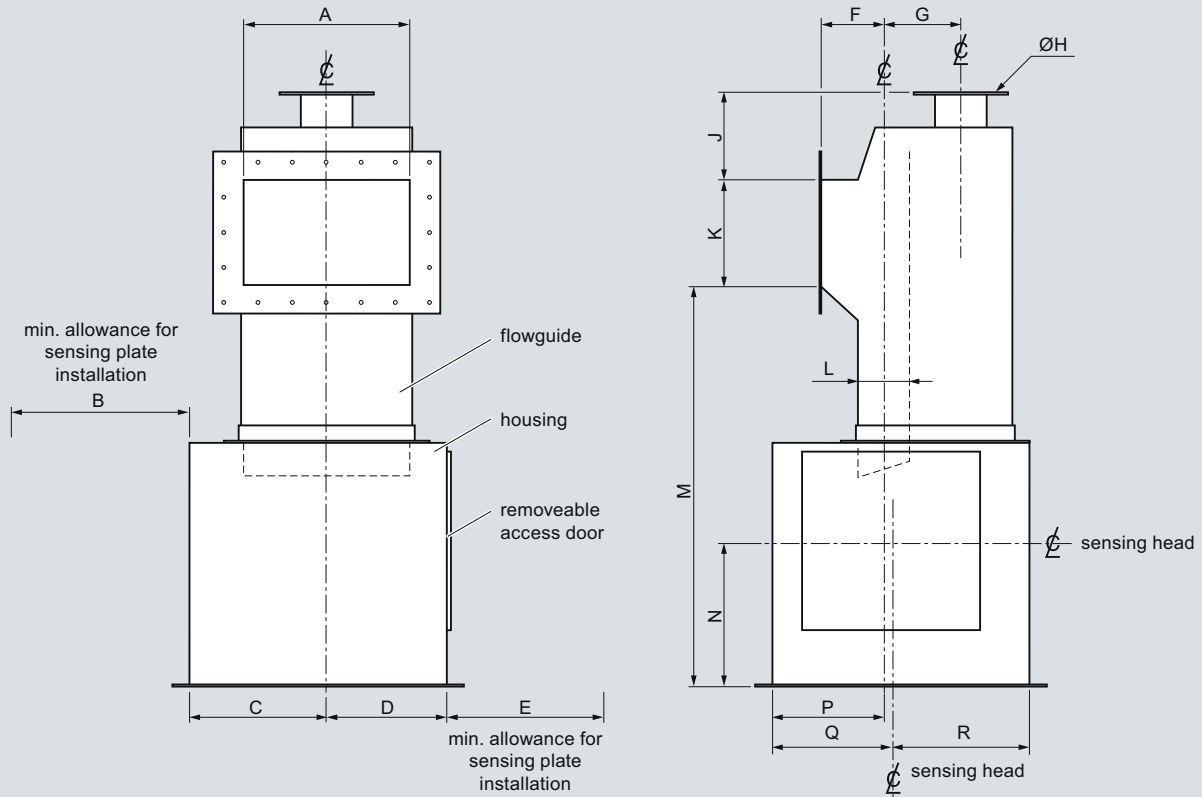


Size	A	B	C	D	E	F	G	H	J	K
40 t/h (44 STPH)	152 (6)	686 (27)	304 (12)	254 (10)	508 (20)	457 (18)	76 (3)	203 (8)	508 (20)	254 (10)
40 t/h (44 STPH)	254 (10)	686 (27)	304 (12)	254 (10)	508 (20)	457 (18)	102 (4)	203 (8)	508 (20)	254 (10)
40 t/h (44 STPH)	305 (12)	686 (27)	304 (12)	254 (10)	508 (20)	457 (18)	127 (5)	203 (8)	508 (20)	254 (10)
300 t/h (330 STPH)	406 (16)	1041 (41)	343 (13.5)	305 (12)	610 (24)	762 (30)	127 (5)	254 (10)	610 (24)	330 (13)
300 t/h (330 STPH)	508 (20)	1041 (41)	343 (13.5)	356 (14)	711 (28)	762 (30)	152 (6)	254 (10)	610 (24)	381 (15)

SITRANS WF340 series, dimensions in mm (inch)

Dimensional drawings (continued)

SITRANS WF350 series



Size	A	B	C	D	E	F	G	H
40 t/h (44 STPH)	203 (8)	686 (27)	305 (12)	254 (10)	711 (28)	127 (5)	203 (8)	102 (4)
40 t/h (44 STPH)	305 (12)	686 (27)	305 (12)	254 (10)	711 (28)	127 (5)	203 (8)	102 (4)
300 t/h (330 STPH)	254 (10)	1041 (41)	406 (16)	356 (14)	889 (35)	191 (7.5)	229 (9)	152 (6)
300 t/h (330 STPH)	356 (14)	1041 (41)	406 (16)	356 (14)	889 (35)	191 (7.5)	229 (9)	152 (6)
300 t/h (330 STPH)	508 (20)	1041 (41)	406 (16)	356 (14)	889 (35)	191 (7.5)	229 (9)	152 (6)

Size	J	K	L	M	N	P	Q	R
40 t/h (44 STPH)	229 (9)	203 (8)	76 (3)	914 (36)	305 (12)	229 (9)	229 (9)	330 (13)
40 t/h (44 STPH)	229 (9)	203 (8)	102 (4)	914 (36)	305 (12)	229 (9)	229 (9)	330 (13)
300 t/h (330 STPH)	254 (10)	305 (12)	127 (5)	1168 (46)	419 (16.5)	330 (13)	356 (14)	406 (16)
300 t/h (330 STPH)	254 (10)	305 (12)	152 (6)	1168 (46)	419 (16.5)	330 (13)	356 (14)	406 (16)
300 t/h (330 STPH)	254 (10)	305 (12)	178 (7)	1168 (46)	419 (16.5)	330 (13)	356 (14)	406 (16)

SITRANS WF350 series, dimensions in mm (inch)

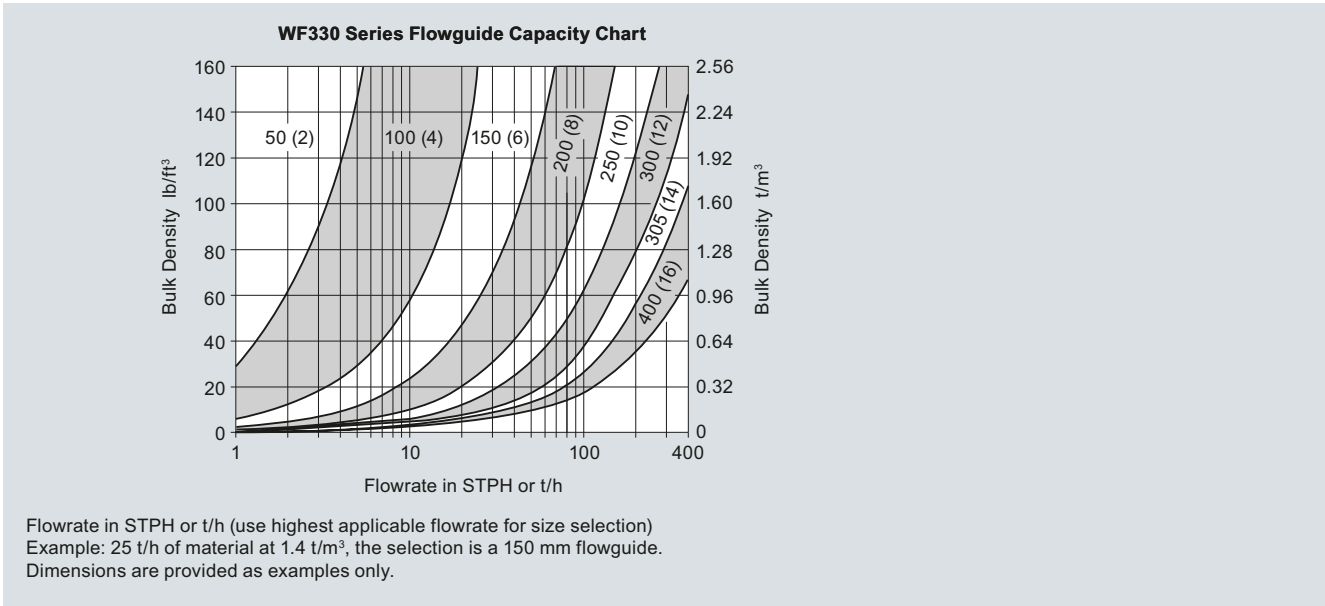
Solids Flowmeters

LVDT Flowmeters

SITRANS WF300 series

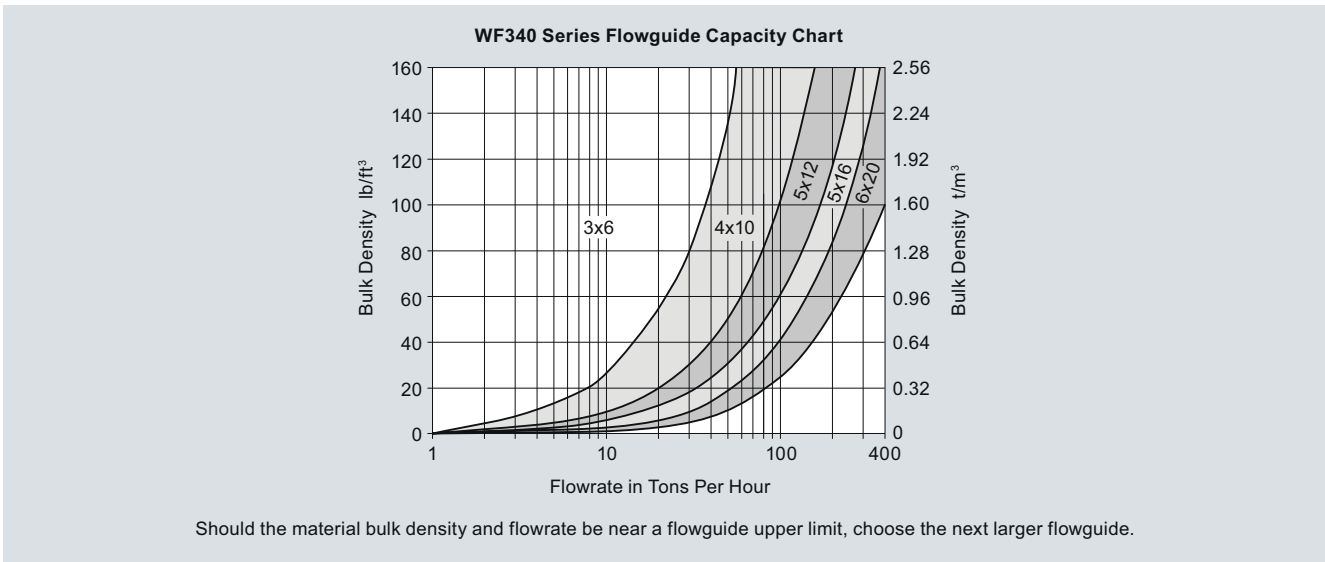
Characteristic curves

SITRANS WF330 series



SITRANS WF330 series flowguide capacity chart

SITRANS WF340 series



SITRANS WF340 series flowguide capacity chart

6

Overview



SITRANS WFS300 and WFS320 sensing heads are out-of-the-process sensing elements for SITRANS WF300 series solids flowmeters.

Application

SITRANS WFS300 and WFS320 sensing heads are used in applications such as product rationing, batch load-out, and process feed rate control, the WFS series of sensing heads has been field-proven in thousands of applications with some units providing over a quarter century of reliable performance. The WFS sensing heads use only the horizontal force created by impact of product upon the sensing plate and then apply the horizontal deflection to a highly reliable linear variable differential transformer (LVDT).

Friction-less pivots exclude the vertical force from the sensing process and the LVDT travel range is controlled by a coil spring selected for the specified full-scale flow rate. A viscous fluid damper provides mechanical damping in the event of pulsating flows.

The LVDT converts the horizontal movement, proportional to the impact forces into an electrical signal, which is converted by the integrator to time-based flow rate indication and totalling. This method of sensing material flow has been proven best in thousands of applications all over the world.

Benefits

- Easy installation with modular assembly
- $\pm 1\%$ accuracy (or better) with high repeatability
- Totally enclosed, dust-tight, flow metering of bulk solids
- Sensing mechanism is outside the process, protected from contamination
- No zero drift, due to unique sensing mechanism
- Low maintenance; only the sensing plate is in the process
- No restriction of product flow

Technical specifications

	WFS300	WFS320
Mode of operation		
Measuring principle	Deflection measurement using LVDT (linear variable differential transformer)	
Typical application	For use in all WF300 series flowmeters	
Flow input		
Maximum particle size	13 mm (0.5 inch)	25 mm (1 inch)
Minimum flow rate	0 ... 0.2 t/h (0 ... 0.2 STPH)	0 ... 20 t/h (0 ... 22 STPH)
Maximum flow rate	0 ... 40 t/h (0 ... 44 STPH)	0 ... 300 t/h (0 ... 330 STPH)
Performance		
Accuracy ¹⁾	$\pm 1\%$ or better of full scale, higher accuracy with linearizing features offered by integrators	
Repeatability	$\pm 0.2\%$	$\pm 0.2\%$
Specified range	33 ... 100 %	33 ... 100 %
Medium conditions		
Ambient temperature		
• Without internally mounted LVDT card	-40 ... +60 °C (-40 ... +140 °F)	-40 ... +60 °C (-40 ... +140 °F)
• With optional internally mounted LVDT card	-40 ... +50 °C (-40 ... +122 °F)	-40 ... +50 °C (-40 ... +122 °F)
Maximum product temperature	+232 °C (+450 °F)	+232 °C (+450 °F)
Design	Aluminum body, fiberglass cover, 304 (1.4306) stainless steel sensing plate	
Options	Epoxy paint coating of external aluminum casting surfaces Internally mounted LVDT conditioner card for use with SF500 integrator Externally mounted LVDT conditioner card in NEMA 4 (IP65) enclosure for use with Milltronics SF500 or SIWAREX FTC integrator when sensing head is mounted in hazardous areas or with high ambient temperatures	
Approvals	CE, C-TICK, CSA, FM	CE, C-TICK, CSA, FM

¹⁾ Accuracy subject to: On factory approved installations the flowmeter system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for at least ten minutes running time.

Solids Flowmeters

Sensing heads

SITRANS WFS300 series sensing heads

Selection and Ordering data	Order No.	Order No.
SITRANS WFS300 Sensing Head Out-of-the-process sensing element for 40 t/h (44 STPH) solids flowmeters. A flowguide, sensing plate and integrator are required to complete the system. Order flowguide, sensing plate and integrator separately.	C) 7MH7110-	C) 7MH7110-
Mounting Base Side Base, CSA/FM Class I, Div 1 Groups C and D; Class II, Div 1 Groups E, F and G Side, CSA/FM Class I, Div 1 Groups C and D; Class II, Div 1 Groups E, F and G Note: Externally mounted LVDT Conditioner in NEMA 4 enclosure required for use with SF500 or SIWAREX FTC and mounting option 3 and 4. See optional equipment.	0 1 3 4	Instruction manual English German French Solids flowmeter Application Guidelines, English Solids flowmeter Application Guidelines, German Note: The instruction manual should be ordered as a separate item on the order. This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.
Range (Range spring size/leaf spring thickness/viscosity of damping fluid) C2/A2/1000 C3/A2/1000 C4/A2/1000 C5/A2/1000 C6/A2/1000 C7/A2/1000 C8/A2/3000 C9/A2/3000 C10/A2/3000 C11/A3/5000 C12/A3/5000 C13/A3/5000 C14/A3/5000 C0/A2/500 C0/A3/500 C10/A3/3000	A B C D E F G H J K L M N P Q R	Order No. 7ML1998-5CW01 7ML1998-1CW31 7ML1998-5CW11 7ML1998-5GK01 7ML1998-5GK31
Gasketing Silicone Silicone, light duty PTFE	A B E	Calibration hanger weights 20 g (0.04 lb) 50 g (0.1 lb) 100 g (0.2 lb) 200 g (0.4 lb) 500 g (1.1 lb) 1000 g (2.2 lb) 2000 g (4.4 lb) 5000 g (11 lb)
Coating (process side only) None, standard aluminum Epoxy - white/aluminum, external castings only	0 1	7MH7724-1AC 7MH7724-1AD 7MH7724-1AE 7MH7724-1AF 7MH7724-1AG 7MH7724-1AH 7MH7724-1AJ 7MH7724-1AK
Sensing head mounted LVDT conditioner Not required ¹⁾ Required for use with SF500 or SIWAREX FTC integrator ²⁾	0 1	
Further designs Please add "-Z" to Order No. and specify Order code(s). Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 16 characters), specify in plain text. Manufacturer's Test Certificate: According to EN 10204-2.2	Order Code Y15 C11	

Selection and Ordering data (continued)	Order No.
SITRANS WFS300 Sensing Head Out-of-the-process sensing element for 40 t/h (44 STPH) solids flowmeters. A flowguide, sensing plate and integrator are required to complete the system. Order flowguide, sensing plate and integrator separately.	C) 7MH7110-
<i>Spare Parts</i>	
LDVT conditioner in NEMA 4 enclosure (to interface SF500 or Siwarex FTC and LVDT sensor)	C) 7MH7723-1AJ
Silicone inner diaphragm	F) 7MH7723-1DN
Silicone outer diaphragm	F) 7MH7723-1DP
PTFE inner diaphragm	F) 7MH7723-1AL
PTFE outer diaphragm	F) 7MH7723-1AM
LVDT transformer and core, standard spare	7MH7723-1DS
Encapsulated LVDT replacement kit	C) 7MH7723-1DE
LVDT transformer and core, standard spare	7MH7723-1DS
Damping fluid, 1000 CS, 1 lb bottle	C) 7MH7723-1EU
Damping fluid, 3000 CS, 1 lb bottle	C) 7MH7723-1EV
Damping fluid, 5000 CS, 1 lb bottle	C) 7MH7723-1EW
Range spring assembly, C2	7MH7723-1EX
Range spring assembly, C3	7MH7723-1EY
Range spring assembly, C4	7MH7723-1FA
Range spring assembly, C5	7MH7723-1FB
Range spring assembly, C6	7MH7723-1FC
Range spring assembly, C7	7MH7723-1FD
Range spring assembly, C8	7MH7723-1FE
Range spring assembly, C9	7MH7723-1FF
Range spring assembly, C10	7MH7723-1FG
Range spring assembly, C11	7MH7723-1FH
Range spring assembly, C12	7MH7723-1FJ
Range spring assembly, C13	7MH7723-1FK
Range spring assembly, C14	7MH7723-1FL
Leaf spring, A2, kit	7MH7723-1BN
Leaf spring, A3, kit	7MH7723-1BP
Circuit card, LVDT, internal mount	C) 7MH7723-1ET
WFS300 replacement o-ring kit	F) 7MH7723-1DC

¹⁾ For use with Compu Series integrators or when externally mounted LVDT conditioner required. See Note under Mounting on page 6/24.

²⁾ Applicable for mounting options 0 and 1 only.

C) Subject to export regulations AL: N, ECCN: EAR99.

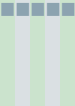
F) Subject to export regulations AL: 91999, ECCN: N.

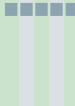
Solids Flowmeters

Sensing heads

SITRANS WFS300 series sensing heads

Selection and Ordering data (continued)

Order No.	Order No.
SITRANS WFS320 Sensing Head	C) 7MH7112-
Out-of-the-process sensing element for use with 300 t/h (330 STPH) flowmeters. A flowguide, sensing plate and integrator are required to complete the system. Order flowguide, sensing plate and integrator separately.	
Classification	
Non-hazardous	1
Hazardous, CSA/FM Class I, Div 1 Groups C and D; Class II, Div 1 Groups E, F and G,	2
Note: Externally mounted LVDT conditioner in NEMA 4 enclosure required for use with SF500 or Siwaxex FTC and classification option 2. See calibration hanger weights.	
Range (range spring size/viscosity of damping fluid)	
D1/1000 Position 1	A
D1/1000 Position 2	B
D1/1000 Position 3	C
D2/1000 Position 1	D
D2/1000 Position 2	E
D2/1000 Position 3	F
D3/3000 Position 1	G
D3/3000 Position 2	H
D3/3000 Position 3	J
D4/5000 Position 1	K
D4/5000 Position 2	L
D4/5000 Position 3	M
D5/5000 Position 1	N
D5/5000 Position 2	P
D5/5000 Position 3	Q
Gasketing	
Silicone	A
PTFE	D
Other gasketing available upon request	
Coating (process side only)	
None, standard aluminum	0
Epoxy - white/aluminum, external castings only	1
Other coatings available upon request.	
Sensing head mounted LVDT conditioner	
Not required ¹⁾	0
Required for use with SF500 or Siwaxex FTC integrator ²⁾	1
Further designs	Order Code
Please add "-Z" to Order No. and specify Order code(s).	
Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/identification (max 16 characters), specify in plain text.	Y15
Manufacturer's Test Certificate: According to EN 10204-2.2	C11

Order No.	Order No.
SITRANS WFS320 Sensing Head	C) 7MH7112-
Out-of-the-process sensing element for use with 300 t/h (330 STPH) flowmeters. A flowguide, sensing plate and integrator are required to complete the system. Order flowguide, sensing plate and integrator separately.	
Instruction manual	
English	C) 7ML1998-5CX01
German	C) 7ML1998-1CX31
Note: Instruction Manual should be ordered as a separate item on the order.	
This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.	
Calibration hanger weights	
20 g (0.04 lb)	C) 7MH7724-1AC
50 g (0.1 lb)	C) 7MH7724-1AD
100 g (0.2 lb)	C) 7MH7724-1AE
200 g (0.4 lb)	C) 7MH7724-1AF
500 g (1.1 lb)	C) 7MH7724-1AG
1000 g (2.2 lb)	C) 7MH7724-1AH
2000 g (4.4 lb)	7MH7724-1AJ
5000 g (11 lb)	7MH7724-1AK
Spare Parts	
LVDT conditioner in NEMA 4 enclosure to interface SF500 and LVDT sensor)	C) 7MH7723-1AJ
Silicone inner diaphragm	F) 7MH7723-1DQ
Silicone outer diaphragm	F) 7MH7723-1DR
PTFE inner diaphragm	F) 7MH7723-1BA
PTFE outer diaphragm	F) 7MH7723-1BB
LVDT transformer and core, standard spare	7MH7723-1DS
Encapsulated LVDT replacement kit	C) 7MH7723-1DE
Damping fluid, 1000 CS, 1 lb bottle	C) 7MH7723-1EU
Damping fluid, 3000 CS, 1 lb bottle	C) 7MH7723-1EV
Damping fluid, 5000 CS, 1 lb bottle	C) 7MH7723-1EW
Range spring assembly, D1	7MH7723-1FM
Range spring assembly, D2	7MH7723-1FN
Range spring assembly, D3	7MH7723-1FP
Range spring assembly, D4	7MH7723-1FQ
Range spring assembly, D5	C) 7MH7723-1GJ
Leaf spring kit, 4 required	C) 7MH7723-1BQ
Circuit card, LVDT, internal mount	C) 7MH7723-1ET
WFS320 replacement o-ring kit	F) 7MH7723-1DD
WFS320 Taper Pin, spare	7MH7723-1GD

¹⁾ For use with Compu series integrators or when externally mounted LVDT conditioner required. See Note under Classification.

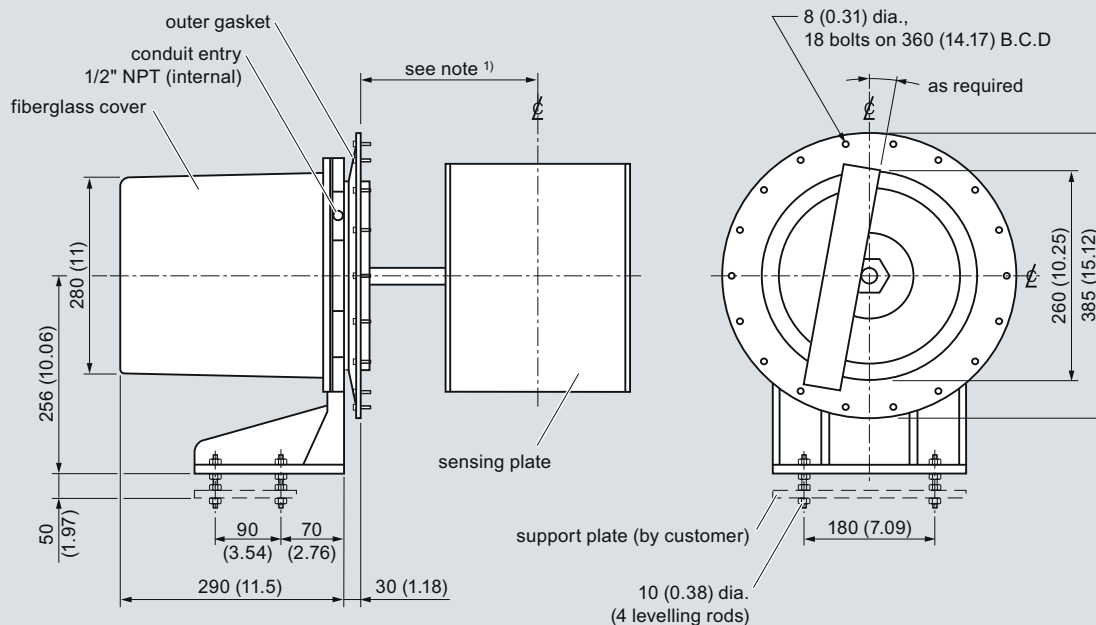
²⁾ Available with classification option 1 only

C) Subject to export regulations AL: N, ECCN: EAR99.

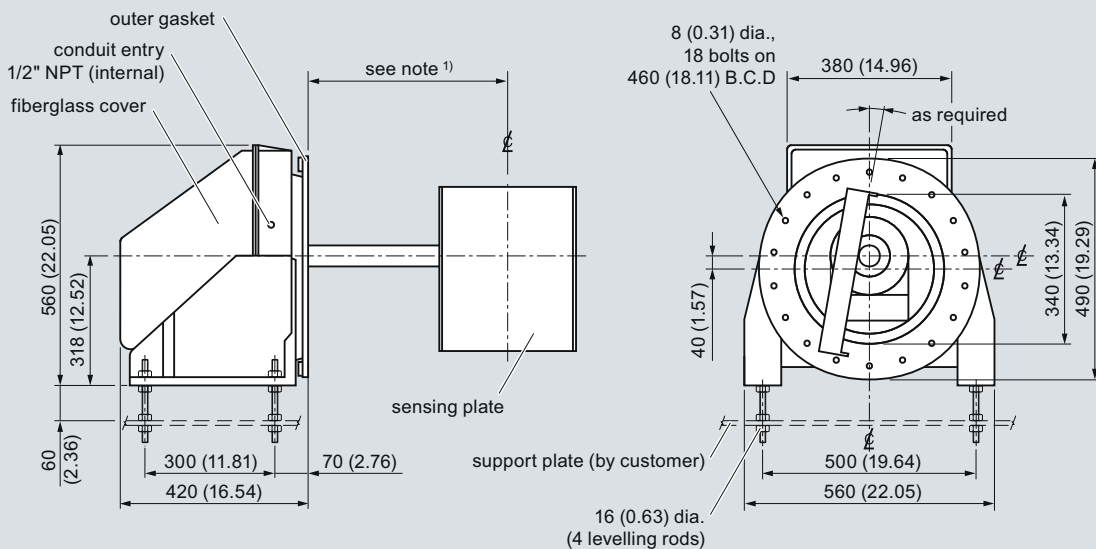
F) Subject to export regulations AL: 91999, ECCN: N.

Dimensional drawings

WFS300 Sensing Head



WFS320 Sensing Head



Notes:

- 1) Refer to flowmeter drawing for sensing head mounting hole to flowguide centerline dimension.
- 2) Sensing head support plate should be rigid and independent of flowmeter housing.
- 3) Ensure outer gasket seals dust tight to flowmeter housing wall.

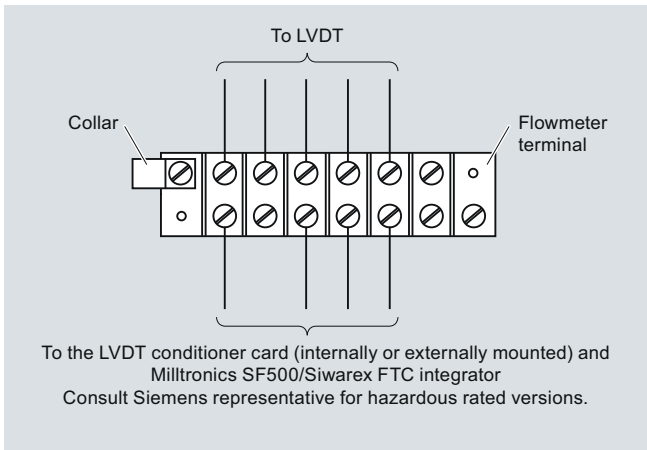
WFS300 series sensing head dimensions in mm (inch)

Solids Flowmeters

Sensing heads

SITRANS WFS300 series sensing heads

Schematics



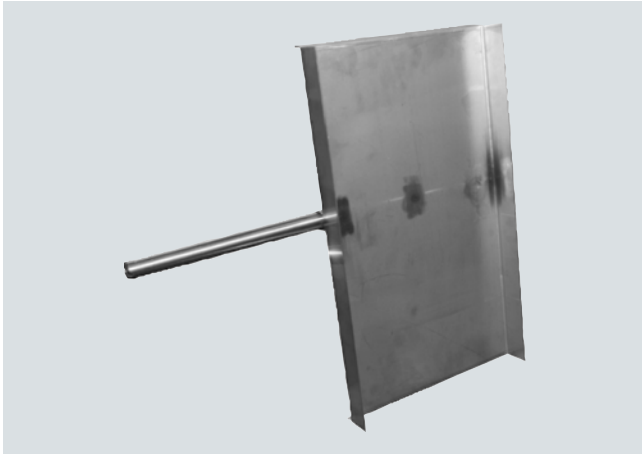
SITRANS WFS300 series connections

Solids Flowmeters

Sensing plates

SITRANS Flowmeter sensing plates

Overview



The sensing plate transfers the impact force to the sensing head of the flowmeter.

Selection and Ordering data

Selection and Ordering data	Order No.
SITRANS Flowmeter Sensing Plates	C) 7MH7114-
The sensing plate transfers the impact force to the sensing head of the flowmeter.	0
Version	
WF330, 40 t/h, base mount or sid emount	1
WF340, 40 t/h, base mount or side mount	3
WF350, 40 t/h, base mount or side mount	4
WF330, 300 t/h	5
WF340, 300 t/h	6
WF350, 300 t/h	7
C-40	8
Plate size	
18 x 10 inch (457.2 x 254 mm), for version option 1 with 2, 4 or 6 inch (50.8, 101.6 or 152.4 mm) flowguide ¹⁾	A
20 x 12 inch (508 x 304.8 mm), for version option 1 with 8 inch (203.2 mm) flowguide ¹⁾	B
20 x 14 inch (508 x 355.6 mm), for version option 1 with 10 inch (254 mm) flowguide ¹⁾	C
22 x 12 inch (558.8 x 304.8 mm), for version option 5 with 6 or 8 inch (152.4 or 203.2 mm) flowguide ¹⁾	D
24 x 16 inch (609.6 x 406.4 mm), for version option 5 with 10 or 12 inch (254 or 304.8 mm) flowguide ¹⁾	E
24 x 20 inch (609.6 x 508 mm), for version option 5 with 14 or 16 inch (355.6 or 406.4 mm) flowguide ¹⁾	F
12 x 12 inch (304.8 x 304.8 mm), for version option 4 with 8 inch (203.2 mm) flowguide ²⁾	G
16 x 14 inch (406.4 x 355.6 mm), for version option 4 with 12 inch (304.8 mm) flowguide ²⁾	H
14 x 18 inch (355.6 x 457.2 mm), for version option 7 with 10 inch (254 mm) flowguide ²⁾	J
18 x 20 inch (457.2 x 508 mm), for version option 7 with 14 inch (355.6 mm) flowguide ²⁾	K
24 x 22 inch (609.6 x 558.8 mm), for version option 7 with 20 inch (508 mm) flowguide ²⁾	L
12 x 10 inch (304.8 x 254 mm), for version option 3 with 3 x 6 inch (76.2 x 152.4 mm) flowguide ³⁾	M

SITRANS Flowmeter Sensing Plates

The sensing plate transfers the impact force to the sensing head of the flowmeter.

14 x 14 inch (355.6 x 355.6 mm), for version option 3 with 4 x 10 inch (101.6 x 254 mm) flowguide ³⁾	N
16 x 16 inch (406.4 x 406.4 mm), for version option 3 with 5 x 12 inch (127 x 304.8 mm) flowguide ³⁾	P
18 x 20 inch (457.2 x 508 mm), for version option 6 with 5 x 16 inch (127 x 406.4 mm) flowguide ³⁾	Q
20 x 24 inch (508 x 609.6 mm), for version option 6 with 6 x 20 inch (152.4 x 508 mm) flowguide ³⁾	R
12 x 12 inch (304.8 x 304.8 mm), for C-40 with 6 inch (152.4 mm) flowguide ⁴⁾	S
12 x 14 inch (304.8 x 355.6 mm), for C-40 with 10 inch (254 mm) flowguide ⁴⁾	T

Plate material

304 (1.4301) stainless steel ⁵⁾	A
304 (1.4301) stainless steel ⁶⁾	B
316 (1.4401) stainless steel ⁷⁾	C
316 (1.4401) stainless steel ⁶⁾	D
304 (1.4301) stainless steel, heavy-duty ⁷⁾	E
304 (1.4301) stainless steel, heavy-duty ⁶⁾	F
316 (1.4401) stainless steel, light-duty ⁸⁾	G
316 (1.4401) stainless steel, heavy-duty ⁷⁾	H
316 (1.4401) stainless steel, heavy-duty ⁶⁾	J

Plate liner

No liner	1
Polyurethane ⁷⁾	2
Polyurethane ⁶⁾	3
PTFE ⁷⁾	4
PTFE ⁶⁾	5
Alumina ceramic tiles ⁷⁾	6
Alumina ceramic tiles ⁶⁾	7
Plasma A/R ⁷⁾	8
Plasma A/R ⁶⁾	0

Further designs

Please add "-Z" to Order No. and specify Order code(s).

Inspection Certificate Type 3.1 per EN 10204

Instruction manual

Solids Flowmeter Application Guidelines, English C) **7ML1998-5GK01**

Solids Flowmeter Application Guidelines, German C) **7ML1998-5GK31**

Note: Instruction Manual should be ordered as a separate item on the order.

This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

¹⁾ See 7MH7102, page 6/17.

²⁾ See 7MH7106, page 6/18.

³⁾ See 7MH7104, page 6/18.

⁴⁾ Available as spare part only.

⁵⁾ Available with flowmeter version 1 ... 4 and 8 only.

⁶⁾ Available with flowmeter version 5 ... 7 only.

⁷⁾ Available with flowmeter version 1 ... 4 only.

⁸⁾ Available with flowmeter version 1, 2 and 3 only.

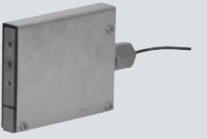


C) Subject to export regulations AL: N, ECCN: EAR99.

Solids Flowmeters

Sensing plates

SITRANS Flowmeter sensing plates

Selection and Ordering data (continued)

Order No.			Order No.
Flowmeter spare load cells			
<u>Millflo flowmeters stainless steel, with hardware</u>			
1 lb (0.5 kg)			
2 lb (0.9 kg)	C) PBD-23900176		
5 lb (2.3 kg)	C) PBD-23900177		
10 lb (4.6 kg)	C) 7MH7725-1AA		
20 lb (9.2 kg)	C) 7MH7725-1AB		
	Replace with 2 lb		
<u>Millflo L, M, and MA series flowmeters stainless steel, with hardware</u>			
50 lb (22.7 kg)	C) 7MH7725-1AC		
100 lb (45.4 kg)	C) 7MH7725-1AD		
<u>Millflo 304 stainless steel sensing plates</u>			
100 mm (4 inch)	PBD-25570-1AA0		
150 mm (6 inch)	PBD-25570-2AA0		
200 mm (8 inch)	PBD-25570-3AA0		
250 mm (10 inch)	PBD-25570-4AA0		
250 mm (10 inch) light duty	PBD-25570-5AA0		
300 mm (12 inch)	PBD-25570-6AA0		
<u>Millflo 304 stainless steel, PTFE coated sensing plates</u>			
100 mm (4 inch)	PBD-25570-1BA0		
150 mm (6 inch)	PBD-25570-2BA0		
200 mm (8 inch)	PBD-25570-3BA0		
250 mm (10 inch)	PBD-25570-4BA0		
250 mm (10 inch) light duty	PBD-25570-5BA0		
300 mm (12 inch)	PBD-25570-6BA0		
<u>Millflo 304 stainless steel, polyurethane lined sensing plates</u>			
100 mm (4 inch)	PBD-51027413		
150 mm (6 inch)	PBD-51027371		
200 mm (8 inch)	PBD-51027463		
250 mm (10 inch)	PBD-51027486		
300 mm (12 inch)	PBD-51027369		
<u>Millflo 316L stainless steel sensing plates</u>			
100 mm (4 inch)	PBD-25570-1AB0		
150 mm (6 inch)	PBD-25570-2AB0		
200 mm (8 inch)	PBD-25570-3AB0		
250 mm (10 inch)	PBD-25570-4AB0		
250 mm (10 inch) light duty	PBD-25570-5AB0		
300 mm (12 inch)	PBD-25570-6AB0		
<u>Millflo 316L stainless steel, PTFE coated sensing plates</u>			
100 mm (4 inch)	PBD-25570-1BB0		
150 mm (6 inch)	PBD-25570-2BB0		
200 mm (8 inch)	PBD-25570-3BB0		
250 mm (10 inch)	PBD-25570-4BB0		
250 mm (10 inch) light duty	PBD-25570-5BB0		
300 mm (12 inch)	PBD-25570-6BB0		

C) Subject to export regulations AL: N, ECCN: EAR99.