

## Type 525 Metalex Paddlewheel Flow Sensor



### Product description

The type 525 Metalex Paddlewheel Flow Sensor combines stainless steel construction with insertion paddlewheel technology. The result is a highly reliable sensor suitable for operation at extreme pressures and temperatures. The Tungsten Carbide shaft and carbon fiber reinforced PTFE bearing provides excellent wear resistance for extended service.

A comprehensive fitting program allows installation in steel lines with the mini-block for small diameters, and either the mini-tap or saddle for pipes up to DN300 (12 in.). The self-generating output signal allows use with the battery operated flow totalizer 8150.

### Features

- For up to 103 bar (1500 psi @ safety factor 1.5) pressure
- For up to 149 °C (300 °F) temperature
- DN15 to DN300 (½ to 12 in.) pipe range
- Simple installation
- Self-powered/no external power required
- 316 SS body
- Tungsten Carbide or SS shaft
- 7.6 m (25 ft) cable included
- Operating range 0.5 to 6 m/s (1.6 to 20 ft/s)



### Applications

- Boiler Feedwater Monitoring
- HVAC
- Chemical Transport
- Heat Exchangers
- Reverse Osmosis
- Cooling Systems
- Not Suitable for Gases

## Technical Details

### General

Operating Range	0.5 to 6 m/s	1.6 to 20 ft/s
Pipe Size Range	DN15 to DN300	½ to 12 in.
Linearity	±1% if max. range @ 25 °C (77 °F)	
Repeatability	±0.5% of max. range @ 25 °C (77 °F)	
Min. Reynolds Number Required	4500	

### Wetted Materials

Sensor Body	316 SS (ACI type CF-8M per ASTM A351), DIN 17440	
Rotor Material	17-4PH-1 Stainless Steel	
Rotor Shaft	Tungsten Carbide GRP 1 or 316 stainless steel	
Retainers (2)	316 stainless steel (1.4401)	
Rotor Bearings (2)	Carbon fiber reinforced PTFE	
Gasket	KLINGER sil C-4401 (supplied with fitting)	

### Electrical

Frequency	39 Hz per m/s nominal	12 Hz per ft/s nominal
Amplitude	5 to 8 mV p-p per Hz	
Source Impedance	11.6 KΩ	
Cable Length	7.6 m (25 ft), can be extended up to 61 m (200 ft)	
Cable type	Cable (per foot) 2 cond. w/shield, 22 AWG	

### Max. Temperature/Pressure Rating

Socket Weld or Weld-On Mini-Tap Fittings	103 bar (1'500 psi @ safety factor 1.5) @ 149 °C (300 °F)	
Strap-on Saddle Fitting	21 bar (305 psi) @ 66 °C (151 °F)	
Operating Temperature	-18 °C to 149 °C	0 °F to 300 °F

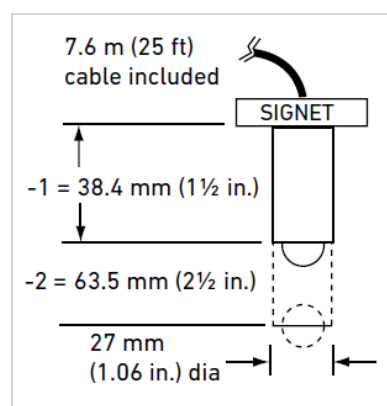
### Shipping Weight

P525-1/ -1S	0.723 kg	1.6 lb
P525-2/ -2S	0.774 kg	1.7 lb


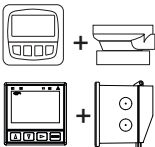

### Standards and Approvals

RoHS compliant, China RoHS
Manufactured under ISO 9001, ISO 14001 and ISO 45001

## Dimensions



## System Overview

Panel Mount	Pipe, Tank, Wall Mount	Automation System
GF Instruments - 8150 - 9900 - 9900-1BC - 9950	GF Instruments - 8150 with 3-8050 Universal Mount Kit - 9900-1 - 9900-1BC with Rear Enclosure - 9950	- 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller
		

### Type 525 Metalex Flow Sensor



GF Fittings



All sold separately

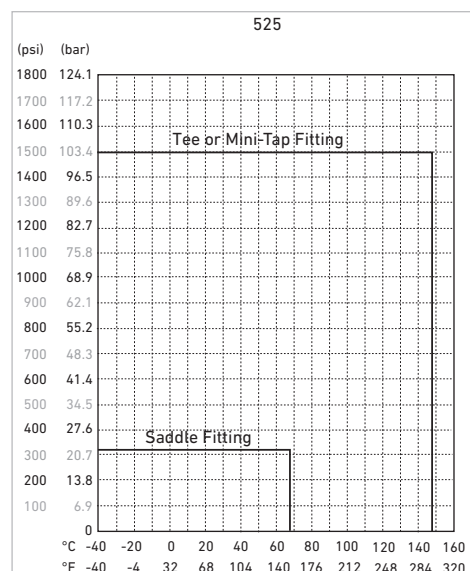
## Application Tips

- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments. See Accessories section.
- Use the Socket Weld or Weld-on Mini-Tap fittings for sensor installation in pressures up to 1500 psi (103 bar). Sensor plug can be used to plug installation fitting after extraction of sensor from pipe.

## Pressure-temperature diagram

### Note

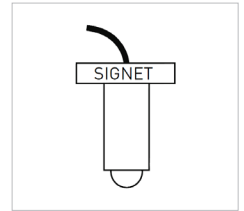
The pressure-temperature diagrams are specifically for the GF sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.



## Ordering Information

Mfr. Part	No./Code	Sensor Style	Rotor Shaft Material
Metalex Flow sensor for high pressures and temperatures			
P525-1	198 801 494	Used with ½ to 1 inch socket-weld mini-tap fittings**	Tungsten Carbide
P525-2	198 801 495	Used with 1¼ to 12 inch weld-on mini-tap fittings**	Tungsten Carbide
P525-1S	159 000 963	Used with ½ to 1 inch socket-weld mini-tap fittings**	316 Stainless Steel
P525-2S	159 000 964	Used with 1¼ to 12 inch weld-on mini-tap fittings**	316 Stainless Steel

\*\* See Fittings section



## Accessories and Replacement Parts

### Ordering Notes

- 1) Each sensor option is used with a different fitting based on pipe size.
- 2) Fittings must be ordered separately.
- 3) See fittings section for more information.

Mfr. Part	Code	Description
P52509	198 801 501	Rotor kit (rotors, stainless steel shaft, bearings, retainers)
P52509-2	159 000 480	Rotor kit (rotors, tungsten carbide shaft, bearings, retainers)
P52504-1	198 801 500	Rotor shaft, Stainless Steel (1.4401)
P52504-2	198 820 023	Rotor shaft, Tungsten Carbide
P52618	159 000 493	Gasket
P52503	198 820 013	Bearing, carbon fiber reinforced PTFE
P52527	159 000 481	Retainers, Stainless Steel
P52628	159 000 504	Fitting cap kit (cap and gasket)
P51589	159 000 476	Conduit adapter kit
5523-3222	159 000 393	Cable (per foot) 2 cond. w/shield, 22 AWG

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