

# Models ILWT & ILWS In-line Weighing System

- **A new type of in-process mass measuring system - equally suitable for inventory measurement and process control**
- **A patented load cell sensor ensures that product is never in contact with the measuring elements**
- **Extremely high resolution and linearity - matching conventional load cell systems**
- **Immunity to pipework and steelwork effects makes for simple and low-cost installations**
- **Unaffected by pressure, temperature, conductivity, dielectric, foam or vapour - works accurately where sonar systems would fail**
- **Safe or hazardous area operation**
- **Programmable via Hart® interface**
- **Integral display/transmitter or compatible with most weight transmitters**
- **Can measure mass, level, density and interface**



Model ILWT with integral transmitter

## A new concept in mass measurement

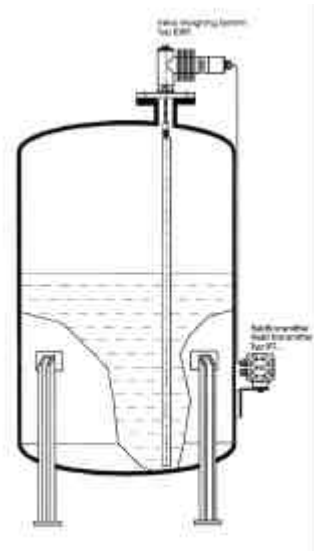
In-line Weighing Systems offer the precision of load cells but can be employed where a conventional load cell system would be difficult to install.

In contrast with mass-flow meters, they provide direct contents measurement, rather than an inferred result. Unlike sonar systems, they are not affected by surface-foam, vapour, pressure, temperature or signal reflections from internal tank baffles etc.

## Principle of operation

The measuring principle is the determination of the weight of a displacer suspended inside the vessel.

As the vessel fills, the buoyancy effect (equal to the weight of the fluid displaced) causes the effective weight of the displacer to be reduced. A high precision load cell weighs the displacer and its output provides a direct measure of the mass of product within the vessel.



## ILWT installed in vertical storage vessel

### Patented load cell design

At the heart of each ILWS and ILWT system is a purpose designed load cell which can operate accurately and reliably at extremely high temperatures and pressures. By placing the measuring elements on the outside of the tubular body, they are isolated from process contamination and the novel design provides a complete and maintenance-free seal.

### Transmitter

The Model ILWT incorporates a weight transmitter with a 4.5 digit LCD display. Software algorithms include a 20-point linearisation to compensate for vessel profile. The intrinsically safe transmitter can be set-up and calibrated using function keys or remotely (from a safe area) by PC using the HART® protocol.

The Model ILWS does not have an integral transmitter and can be used with most weight indicators and controllers in safe or hazardous area applications.

### Installation & calibration

A one inch threaded connection is provided. Optionally, flange connections can be provided.

In-line Weighing Systems can be provided factory calibrated or an in-situ calibration can be performed.

## TECHNICAL SPECIFICATION

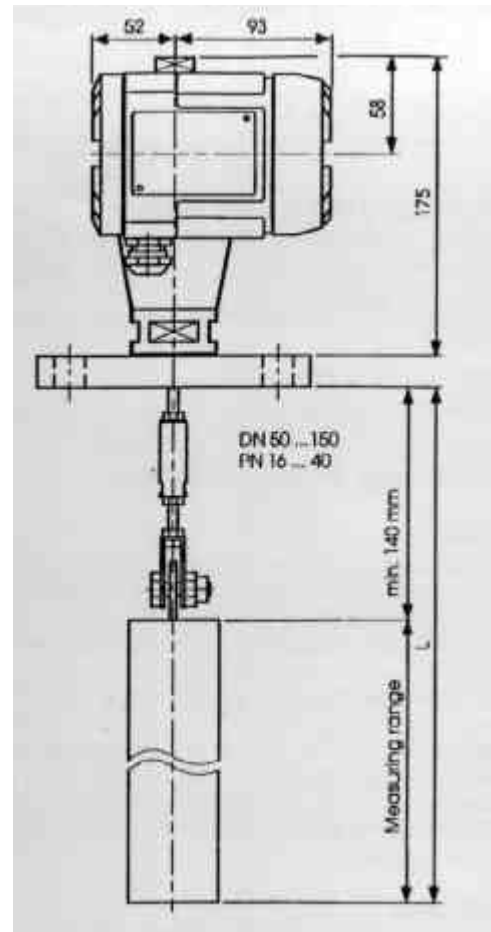
## DIMENSIONS

### Model ILWS - Inline Weighing System

<b>Measured variables</b>	Mass, level, density, interface (according to application)
<b>Measuring range</b>	Max. 20 m
<b>Non-linearity</b>	<± 0.05%
<b>Hysteresis</b>	< 0.05%
<b>Zero signal tolerance</b>	< 0.1%
<b>Operating pressure</b>	-1 .. + 40 bar (optionally 100 bar)
<b>Operating temperature</b>	max. + 300 °C
<b>Ambient temperature</b>	-40 .. +70 °C
<b>Temperature influence</b>	<± 0.01% FS/K
<b>Load cell data</b>	
<b>Sensitivity</b>	0.8 .. 1.0 mV/V
<b>Impedance</b>	2,000 Ω
<b>Max. excitation</b>	15 V
<b>Process connection</b>	G 1", DN 50 .. 150 PN 16 .. 40
<b>Materials of manufacture</b>	
<b>Transducer housing:</b>	Stainless steel 316L or Hastelloy C
<b>Flange</b>	Stainless steel 316L, Galvanised Steel or Hastelloy C
<b>Displacer body</b>	Stainless steel 316L, Hastelloy C, PVC, PP, PVDF or PTFE
<b>Certification</b>	Ex ia IIC T6, PTB no. EX-96.D.2030.X
<b>Protection</b>	IP65 (external parts)

### Model ILWT - Inline Weighing System including Type IFT Intelligent Field Transmitter

<b>Output</b>	4 .. 20 mA, max. burden 850 Ω with HART® protocol
<b>Power supply</b>	12 .. 30 Vdc, two-wire
<b>Display</b>	4.5 digit (plus five digit set-up display)
<b>Conversion rate</b>	0.65 per sec.
<b>Linearisation</b>	20 point
<b>Transmitter functions</b>	Span, units, linearisation, reverse action, damping, automatic zero maintenance, alarm, password protection
<b>Set-up and calibration</b>	Can be supplied factory calibrated or may be set-up in situ using either three function keys on the transmitter or by PC with Windows based configuration software. The use of the HART® protocol allows remote set-up - major benefit when the instrument will be sited in a hazardous area.
<b>Ambient temperature</b>	-25 .. +65°C (display -10°C)
<b>Materials of manufacture</b>	
<b>Electronics housing:</b>	Aluminium casting coated with acrylic lacquer RAL5007
<b>Certification</b>	Ex ia IIC T6/Ex ia IIB T6, PTB no Ex-96.D.2020.X
<b>EMC</b>	According to EN 50 081-2 & EN 50 082-2
<b>Protection</b>	IP65
<b>Field transmitter mounting</b>	Transmitter can be mounted onto the load cell or remotely for simple access



Drawing shows ILWT with optional flange adaptor (standard ILWT has a G "1" male threaded connector) - detailed drawing available on request.



BS EN ISO 9001:2000 Cert No: FM 11445

# NOVA WEIGH

**European Head Office  
United Kingdom**

Nova Weigh Limited, North Moons Moat  
Redditch, Worcestershire B98 9PB  
Tel: +44 (0)1527 67557 Fax +44 (0)1527 60213  
e-mail: sales@novaweigh.co.uk

Visit us on the web [www.novaweigh.co.uk](http://www.novaweigh.co.uk)

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