

# HELIX 3000 CREATING ITS OWN STANDARDS



**Kent Meters Limited**



# HELIX 3000

## CREATING ITS OWN STANDARDS

A new in-line helical vane (Woltmann) water meter with fundamental design changes provides the Helix 3000 with a dramatic increase in flow range performance. This meter not only conforms to relevant BS, ISO and EEC standards, but offers user benefits which greatly exceed these specifications.

### Development Concept

An ongoing development programme has shown that throating the meter body results in very significant improvements to the maximum continuous rating and, of equal importance, to the minimum accurate flow. A new rotor bearing system is incorporated which guarantees a longer working life.

Operating efficiency is increased by allowing smaller meters than the pipeline size to be fitted with resulting economies in pit sizes and maintenance. The sustained accuracy at low flows will also give improved revenue earning capacity in Public Authority installations.

When used as a district meter with a Kent PU 10 or PU 100 pulse unit its low flow capability allows minimum night flows to be measured and, in some cases, if correctly sized, step tests may be possible.

To ensure optimum accuracy, particularly when continuous flows between  $Q_n$  and  $K_n$  are expected, we recommend that a length of straight pipe equal to 10 times the nominal meter size to be fitted directly to the meter inlet.

### Lighter and Stronger

The body is cast in spheroidal graphite iron to BS 2789, 1973 420/12, which is 50% stronger than the grey cast iron previously used. This allows a thinner section casting, which is lighter in weight and offers corresponding benefits in handling and reduced transit costs.

### Standard Features

Interchangeable measuring mechanisms. Can be installed in horizontal, vertical or inclined pipelines without loss of accuracy.

Lengths to ISO standards or Kent length for interchangeability with Helix IM or Helix 2000 meters. The register can be rotated through 270° for ease of reading. The register lid has a locking facility and registration can be in litres ( $m^3$ ), Imperial Gallons, US Gallons or Cubic Feet.

Maximum working pressure 16 Bar with maximum working water temperature 50°C.

Flanges can be drilled to the following specifications:  
BS 10 tables C, D, E BS 4504 NP16  
BS 4622 NP10/16 ANSI B16 1/5 Table 125/150  
DIN 2532/3.

The magnetic drive between the measuring element and sealed register allows quick and easy attachment of Helix 2000 ancillary equipment.

### Optional Features

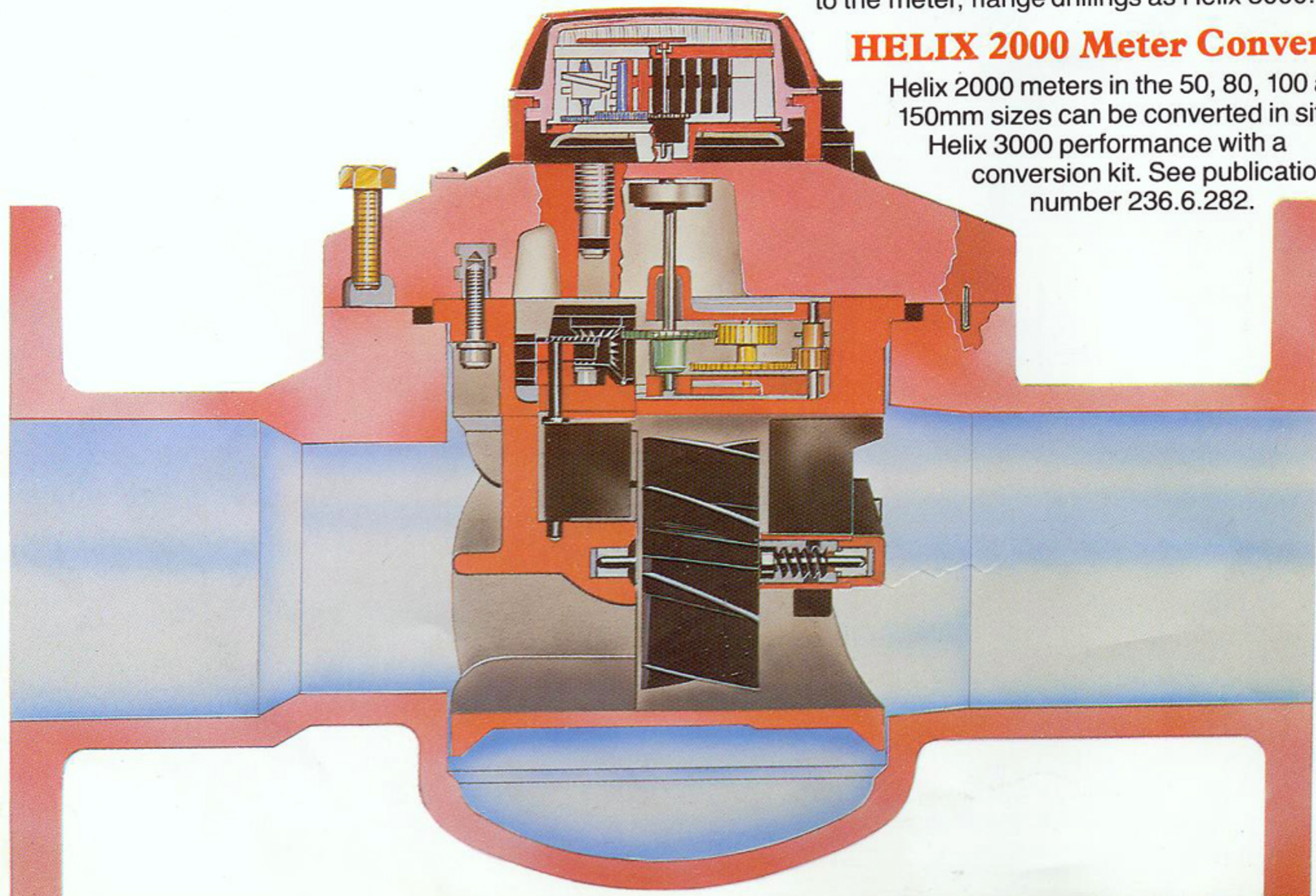
**Kent pulse units** with submersible or waterproof connections and three metres of cable are available in two versions, PU 10 providing 10 pulses, and PU 100 providing 100 pulses per revolution of the register centre pointer. They can be fitted, without interrupting the supply, for use with Kent Remote Totaliser, Kent Batching Unit.

**Extended registers** can be supplied in 150mm increments from 460mm to 1830mm.

**2000 strainer** a low head-loss device designed to prevent large particles in the supply from causing damage to the meter, flange drillings as Helix 3000.

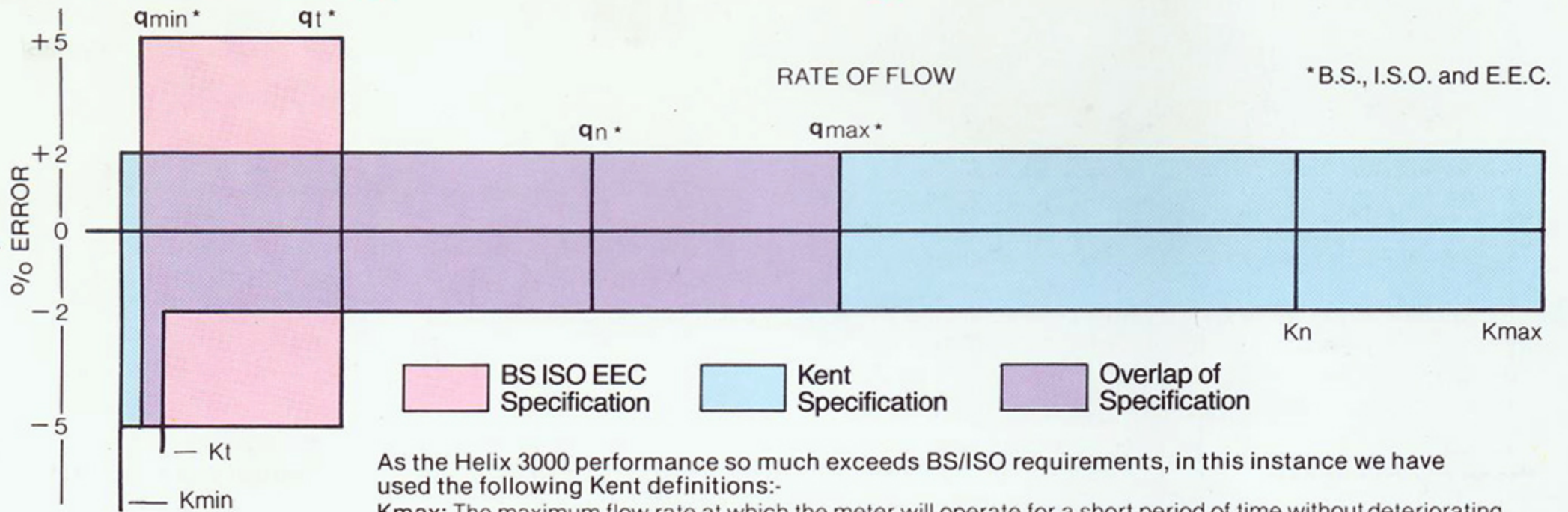
### HELIX 2000 Meter Conversion

Helix 2000 meters in the 50, 80, 100 and 150mm sizes can be converted in situ to Helix 3000 performance with a conversion kit. See publication number 236.6.282.





## Helix 3000 – B.S., I.S.O. and E.E.C. comparison chart



As the Helix 3000 performance so much exceeds BS/ISO requirements, in this instance we have used the following Kent definitions:-

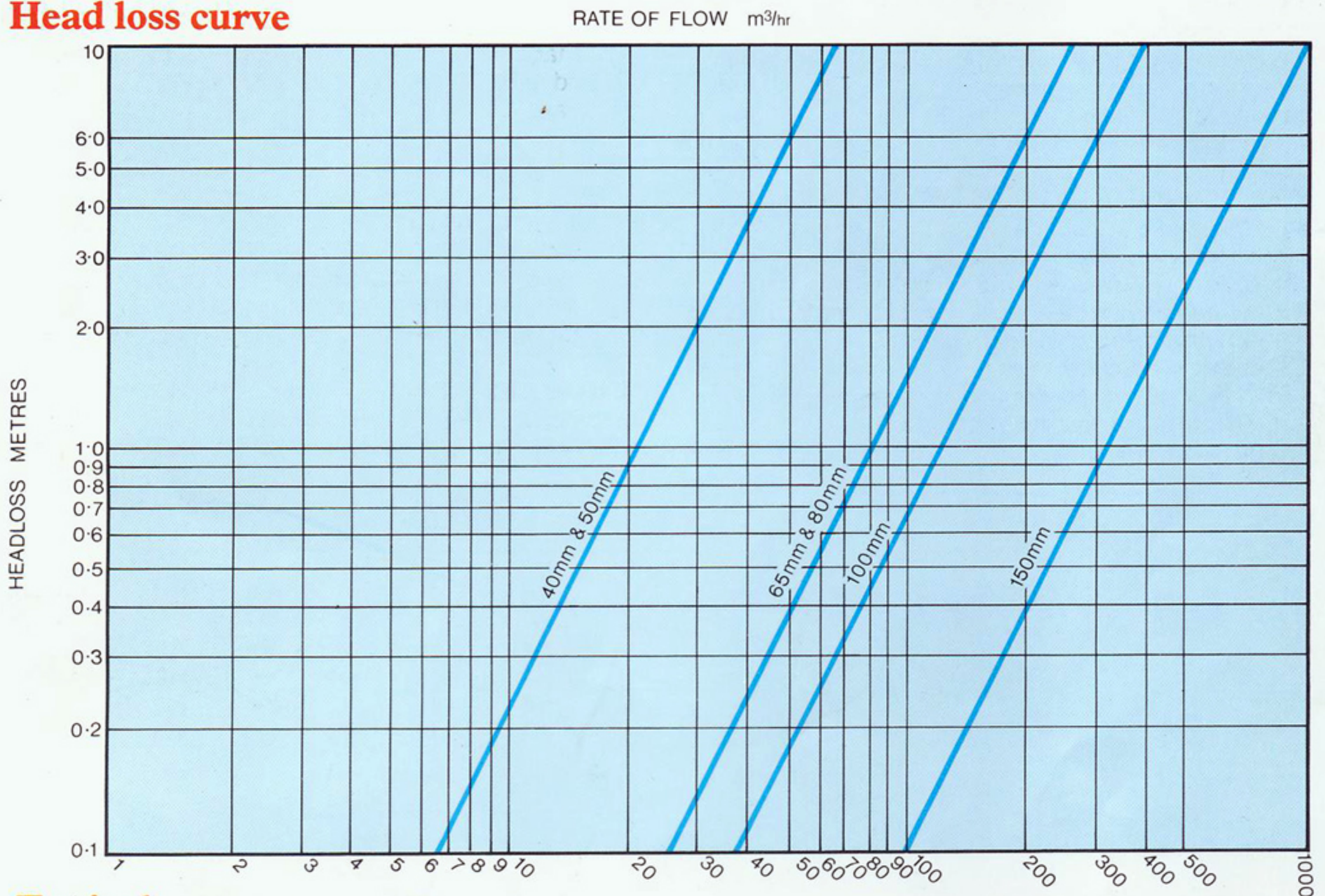
K<sub>max</sub>: The maximum flow rate at which the meter will operate for a short period of time without deteriorating.

K<sub>n</sub>: The flow rate at which the meter will operate satisfactorily under normal conditions of use, i.e. under steady or intermittent flow conditions.

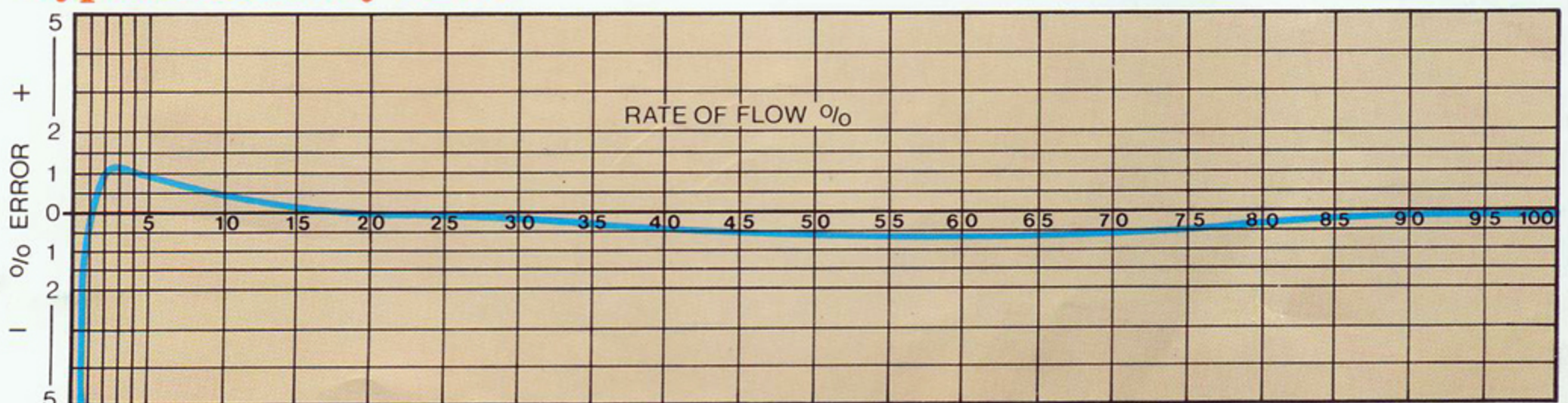
K<sub>t</sub>: The flow rate at which the maximum permissible error of the water meter changes in value.

K<sub>min</sub>: The lowest flow rate at which the meter is required to give indications within the maximum permissible error tolerance of +2% —5%.

## Head loss curve



## Typical accuracy curve



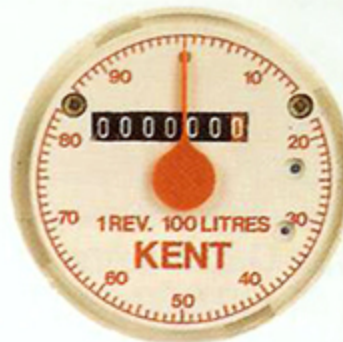


# Specification

## Construction

Body: Top cover 150mm only	Spheroidal graphite iron to BS2789 1973 420/12
Top cover 40, 50, 65, 80, 100mm	Glass filled polyacetal resin
Joint plate 150mm only	Glass filled polyacetal resin
Measuring element	'Noryl' polyphenylene oxide
Rotor	Polypropylene
Rotor spindle	Tungsten carbide
Rotor bearings	PTFE compound
Rotor thrust bearings	Stainless steel and ceramic
Worm wheel spindle	Stainless steel
Drive magnet spindle	Stainless steel
Gearing	Polyacetal resin
Counter housing	Glass filled Polypropylene
Counter Lid	Poly Acetal
Body coating	Two pack epoxy enamel

## Easy to Read Counter



Conforming to EEC requirements, the sealed register provides a clearly legible, seven figure straight reading counter incorporating a centre sweep hand which enables precise readings to be taken.

## Standards ISO 4064/BS 5728/EEC Specification

Size of meter	mm	40	50	† 65	80	100	150
Q <sub>max</sub> maximum peak flow ±2%	m <sup>3</sup> /h	*	30	50	80	120	300
Q <sub>n</sub> Recommended continuous flow ±2%	m <sup>3</sup> /h	*	15	25	40	60	150
Q <sub>t</sub> Transitional flow ±2%	m <sup>3</sup> /h	*	4.5	7.5	8	12	30
Q <sub>min</sub> minimum flow ±5%	m <sup>3</sup> /h	*	1.2	2	1.2	1.8	4.5
Starting flow (approximately)	m <sup>3</sup> /h	*	0.27	0.36	0.36	0.33	1.06
Head loss at Q <sub>max</sub>	bars	*	0.20	0.04	0.09	0.08	0.09
Maximum dial registration	millions of m <sup>3</sup>	*	1	1	1	1	10

## HELIX 3000 Performance

	Kmax	m <sup>3</sup> /h	45	45	170	170	284	568
Maximum peak flow ±2%	Kmax	m <sup>3</sup> /h	45	45	170	170	284	568
Kent recommended continuous flow ±2%	Kn	m <sup>3</sup> /h	36	36	136	136	227	455
Transitional flow ±2%	Kt	m <sup>3</sup> /h	0.91	0.91	1.40	1.40	2.27	4.55
Minimum flow + 2% - 5%	Kmin	m <sup>3</sup> /h	0.68	0.68	1.14	1.14	1.59	3.41
Starting flow (approximately)		m <sup>3</sup> /h	0.27	0.27	0.36	0.36	0.33	1.06
Head loss at maximum flow	Kmax	bars	0.43	0.43	0.42	0.42	0.51	0.31
Maximum dial registration		millions of m <sup>3</sup>	1	1	1	1	1	10
Centre pointer registration		litres	100	100	100	100	100	1000
Pulse Unit PU10		litres/pulse	10	10	10	10	10	100
Pulse Unit PU100		litres/pulse	1	1	1	1	1	10

## Dimensions

Overall length Kent std.			311	311	368	413	483	502
Overall length BS5728/ISO4064	L1	mm	300	300	300	350	350	500
Height from centre line to bottom	H1	mm	80	86	99	106	123	148
Height from centre line to top Lid open	H2	mm	214	214	227	227	246	290
	Lid closed	H3	mm	137	137	150	150	169
Width	L2 + L3	mm	188	188	188	201	230	292
Weight (approximately) BS5728/ISO 4064 length		kg	9.5	10.5	13.0	15	19.5	41.5

Each pulse unit adds 53mm to heights H2 & H3

Weight of each pulse unit 0.9Kg

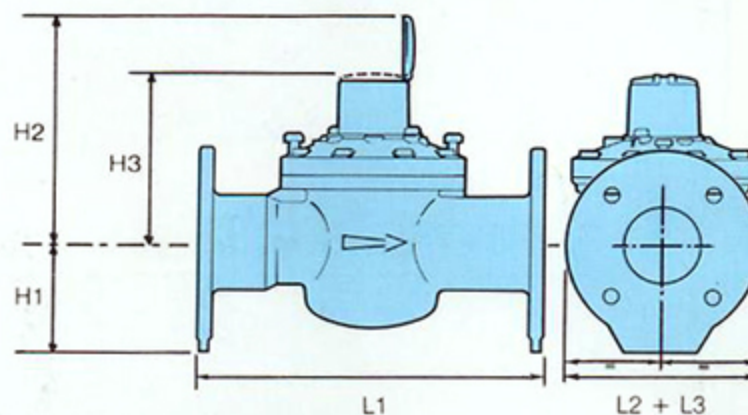
\* No ISO/BS specification for 40 mm meters.

† 60/65mm also available.

Alternative body materials.

Patent Pending

The Company's policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice.



**ABB**  
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