Kam® KCS™
Custody Spool

Kam® Simple Precision™

KAM LRW SPECIFICATIONS

Media:	**Crude oil, condensate, refined products**
Material:	**Wetted parts–316 stainless steel**, hastelloy, and PEEK**
	Enclosure–Copper-free aluminum
Fluid temperature:	**32°F to 176°F (0°C to +80°C)**
Ambient temperature:	**-4°F to 131°F (-20°C to 55°C)**
Power requirements:	**24 VDC**
Power consumption:	**12 watts**
Available ranges:	**0-3%, 0-5%, 0-10%**
Accuracy:	**+/- 0.03% up to 3% water**
	+/- 0.05% from 3-5% water
	+/- 0.1% from 5-10% water
Repeatability:	**± 0.01%**
Resolution:	**± 0.01%**
Min. detection:	**100 ppm**
Outputs:	**4–20 mA**
	Alarm or relay
	RS232/RS485
Temp. correction:	**Automatic**
Pressure ratings:	**ANSI 150, 300, 600, 900**
Density correction:	**Compensates for changes across entire API gravity range***
Flow conditions:	**Well mixed in accordance with KAM recommendations**
Hazardous approvals:	**PTB 08 ATEX 1026**
	II 2 G Ex db IIB T6 Gb
	IECEx PTB 19.0048
	Ex db IIB T6 Gb

***requires live density input**
**** seal housing for 2" MNPT Models is Carbon Steel.**

IAS™ SPECIFICATIONS

Media:	Crude oil, condensate, refined products
Material:	Wetted parts- SS316 PEEK bottom seal, Viton O-rings
Power:	Pneumatic, hydraulic
Process temp.:	-40°F to 350°F (-40°C to 177°C)
Viscosity:	1-500 cSt
Pressure:	ANSI 150, 300, 600
Sample size:	0.5 ml – 5 ml
Sample rate:	20 samples per minute max.
Pipe size:	1" to 30" (50 mm to 2440 mm)
Avail. models:	Flow through, fixed insertion, insertable/retractable
Weight:	From 30 lbs. (13.6 kg)

E-IAS™ SPECIFICATIONS

Media:	Crude oil and condensate, refined products
Materials:	Wetted parts- SS316, PEEK bottom seal, Viton O-rings
Process temp.:	-40°F to 350°F (-40°C to 177°C)
Viscosity:	1-500 cSt
Pressure:	285 psi/ANSI 150
Ambient temp.:	-4°F to 113°F (-20°C to 45°C)
Sample size:	0.5, 1, 1.5 or 2 cc
Sample rate:	20 samples per minute max.
Pipe size:	1 – 30"
Avail. models:	Flow through, fixed insertion, insertable/retractable
Weight:	From 30 lbs (13.6 kg)
Motor:	High-torque stepper motor
Electrical:	120 VAC 2.0A RMS 50/60 Hz single phase
Safety Approval:	UL Class I, Div 1, Groups C and D

FOR MORE INFORMATION ON KAM PRODUCTS

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KAM CONTROLS IS AN
ISO 9001:2015 CERTIFIED COMPANY

Kam® KCS™
Custody Spool

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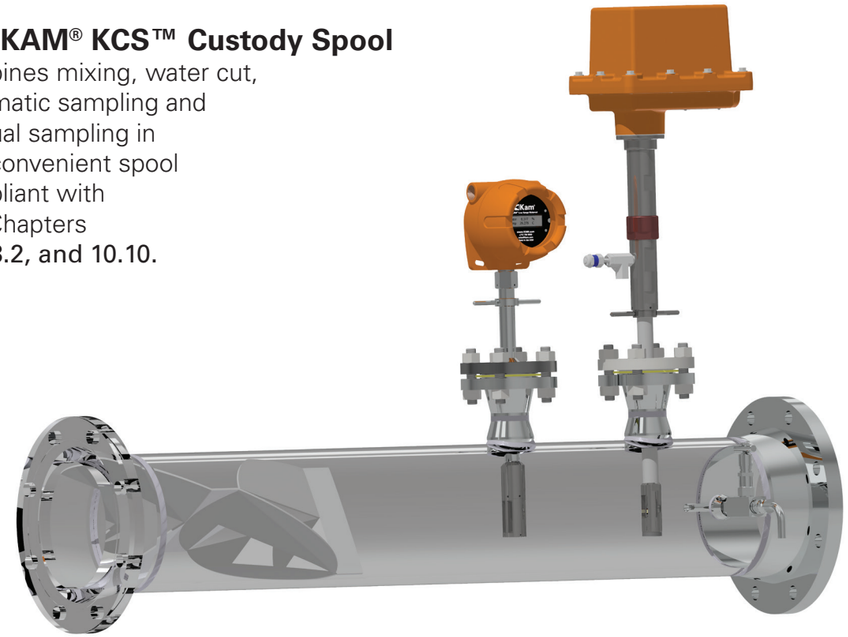
The KAM® KCS™ Custody Spool
combines mixing, water cut, automatic sampling and manual sampling in one convenient spool compliant with API Chapters **8.1, 8.2, and 10.10.**



CUSTODY TRANSFER EVOLVED

API Chapter 10.10 now allows water cut meters (commonly called BS&W) to be used as a secondary method in custody transfer applications.

By combining the KAM® LRW™ density-compensated water cut meter with a KAM® sample probe and a manual sample probe all on a single mixing spool, the KAM® KCS™ provides a convenient, complete solution with all components in a single flow profile.

KEY COMPONENTS

- KAM® SMS™ Static Mixing Spool calculated for specific process conditions
- KAM® LRW™ Low Range Water Cut with automatic density compensation
- KAM® IAS™ or E-IAS™ pneumatic or electrical drive sample probes
- Manual sample point

KAM® KCS™ LIT 0326

Kam® KCS™
Custody Spool

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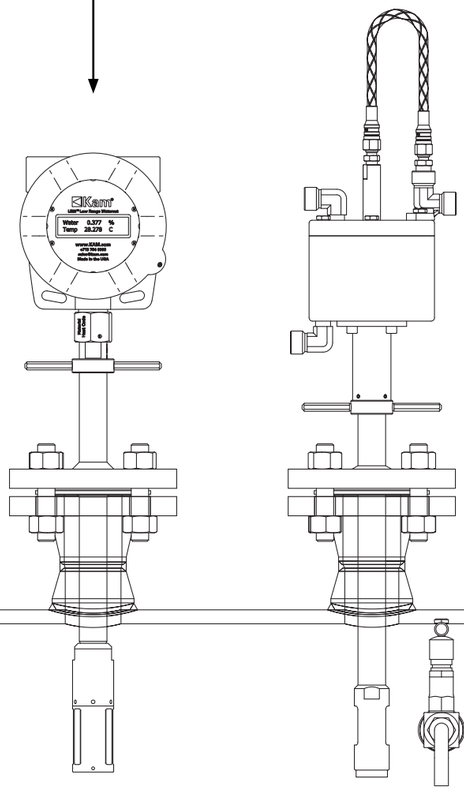
THE KAM® LRW™ LOW RANGE WATER CUT METER

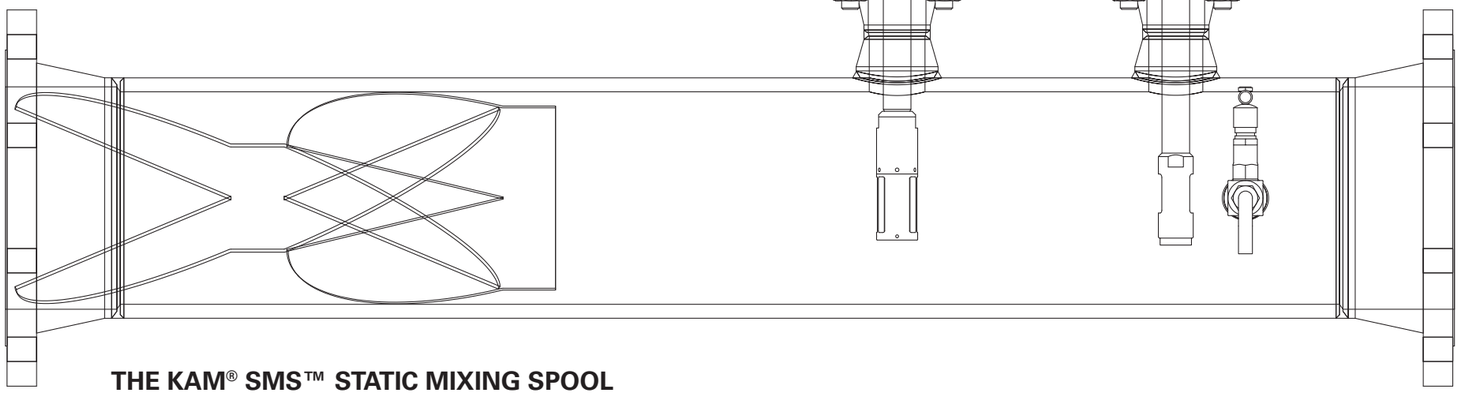
The KAM® LRW™ provides industry leading accuracy with automatic density compensation* from the heaviest of crudes all the way to condensate. Employing a patented microwave resonance technology, the LRW™ offers a compact form factor with maximum installation flexibility for lines anywhere from 1" to 30". In larger diameter lines, an insertable/retractable model can even be installed through an isolation valve under process conditions.

Available ranges:	0-3%, 0-5%, 0-10%
Accuracy:	± 0.03% up to 3% water
	± 0.05% from 3-5% water
	± 0.1% from 5-10% water

Flow through, fixed insertion, and insertable models available.

* Requires live density input





THE KAM® SMS™ STATIC MIXING SPOOL

Custom sized based on your specific process conditions, the SMS™ **consolidates mixing** for both water cut and sampling into a single spool and, crucially, a single flow profile. Per 10.10 both the water cut and sampling must pass an initial water-injection test. Placing them in a single profile eliminates unnecessary uncertainty and ensures that comparisons are always apples to apples.

Manual sample point for calibration, verification and water-injection tests per API 8.2 and 10.10.

KAM® ISOKINETIC AUTOMATIC SAMPLERS

With both pneumatic (IAS) and electric (E-IAS) samplers available, the KAM® KCS™ offers ultimate flexibility per application requirements. Both samplers feature a positive displacement design, guaranteeing consistent sample volume even in varying flow conditions. And like the LRW™, KAM® sample probes offer multiple models suited to varying line sizes and requirements.

KAM® IAS™ ISOKINETIC AUTOMATIC SAMPLER

Power:	Pneumatic, hydraulic
Sample size:	0.5 ml – 5 ml (per customer requirements)
Sample rate:	Up to 20/minute
Models:	Flow through, fixed insertion, insertable

KAM® E-IAS™ ELECTRIC ISOKINETIC AUTOMATIC SAMPLER

Motor:	High-torque stepper motor
Electrical requirements:	120 VAC 2.0A RMS
Bite size:	0.5, 1, 1.5 or 2 cc
Sample rate:	Up to 20/minute
Models:	Flow through, fixed insertion, insertable