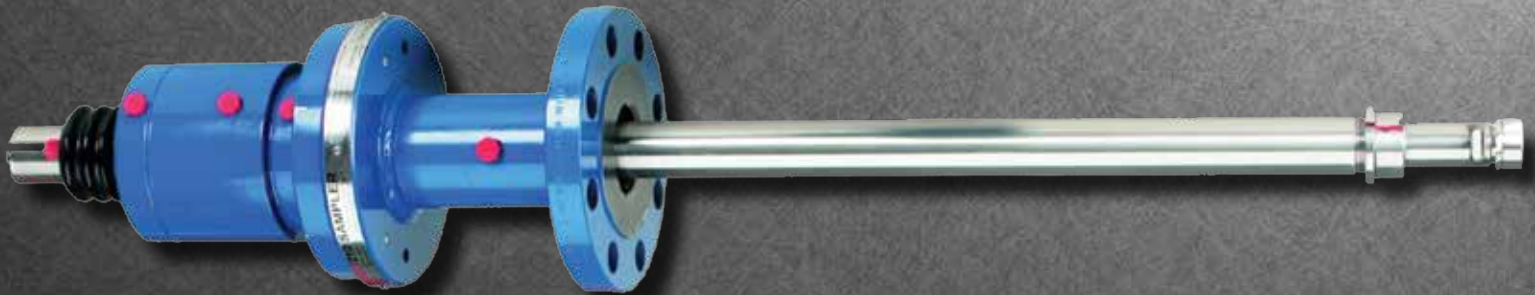


JISKOOT 210P-SD Probe and 210EH-SD Probe In-Line Sample Extractor

TECHNOLOGY



JISKOOT 210P-SD Probe and 210EH-SD Probe In-Line Sample Extractor

Cameron's JISKOOT™ 210-SD probe is the severe duty version of the 210 probe. It is designed for sampling applications where the fluid or process conditions are arduous or where longer maintenance intervals are required.

The 210-SD probe is a reliable and accurate sample extraction device, suitable for use as part of an in-line sampling system. Available in standard and hydraulic (210 EH) versions, it is the ideal solution for a wide range of liquid sampling applications from -20° C to 90° C (-4° F to 194° F) as standard, and optional -20° C to 200° C (-4° F to 392° F) extreme versions (details on request).

The 210P-SD probe is fitted with a robust, wear-resistant SD coating, providing extensive longevity over standard samplers. The main process seals have been upgraded and all components susceptible to erosion eliminated. The 210P-SD incorporates the unique three-stage positive displacement action giving accurate sampling irrespective of variations in process pressure or fluid viscosity.

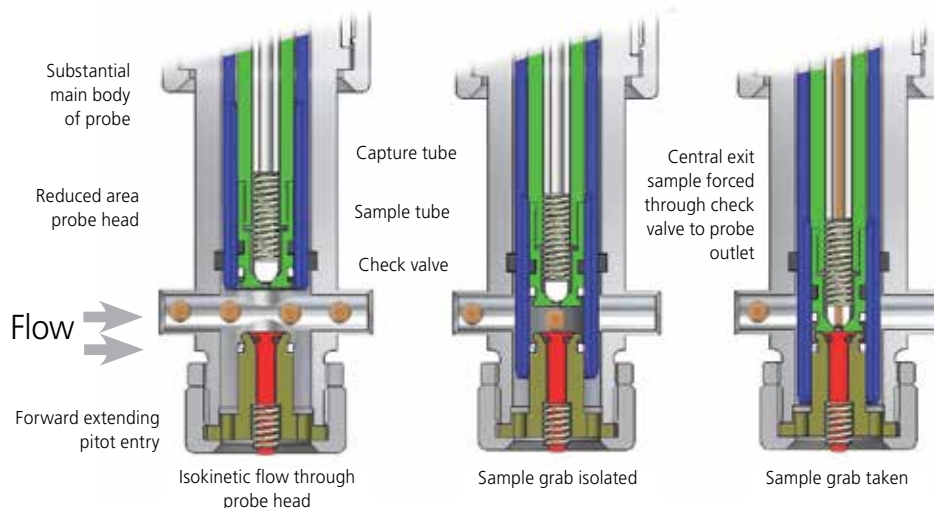
The mechanism that traps the sample is at the end of the insertion device and has a large, pitot style flow entry minimising bluff body effects and improving accuracy. Designed for use with 8" to 52" pipelines, it is available in three sizes to comply with current sampling standards.

By installing the 210-SD probe through an isolation valve, it can be inserted and withdrawn under process conditions with the aid of a JISKOOT hydraulic extractor.

Established as one of the key instruments in the sampling process for fiscal transfer and quality assessment, the 210-SD probe has a vast worldwide installed base and is seen as one of the most reliable platforms on which to build a sampling system.



Three-Stage Positive Displacement Action



Specifications

Fluids sampled	Crude oil, refined hydrocarbons (including non-lubricating products) and non-corrosive chemicals			
Viscosity range	0.5 to 8000 cSt			
Process temperature range	Standard: -4° F to 194° F (-20° C to 90° C) optional -4° F to 392° F (-20° C to 200° C)			
Ambient temperature range	-4° F to 149° F (-20° C to 65° C)			
Max. operating pressure (standard materials of construction)	Class	100° F (38° C)	122° F (50° C)	212° F (100° C)
	150#	19.6	19.2	17.7
	300#	49.6	48.1	42.2
	600#	102	100	93
Configuration	In-line withdrawable (non-standard flanges available on request)			
Pipeline size range	Sizes A, B and C – see diagram for suitability			
Mounting arrangements	3" nominal bore – flanged – ANSI class 150, 300 or 600 - RF or 600# RTJ (other standard flanges available on request, see suitability table below)			
Max. pipeline velocity	Size A: 9.4 m/s, Size B: 6.9 m/s, Size C: 4.8 m/s (dependent on viscosity)			
Sample grab size (nominal)	1.04cc or 2.04cc (conversion kits available)			
Grab size repeatability	Better than ± 2%			
Grab size adjustment	1cc version/2cc version ± 10%			
Max. grab rate ³	210P-SD: 120 grabs/min		210EH-SD: 50 grabs/min (fitted with 1/2" NB)	
Capture time	Less than 250 ms (pneumatic)			
Sample outlet connection	1/8" NPT female			
Standard materials	Seal housing: ASTM A350 LF2 carbon steel (316 available) ¹ as class construction Wetted parts: 316/304 stainless steel, (NACE certification available) ¹ Standard seals: Graphite filled P.T.F.E., Standard O-ring: Viton® (Kalrez available) ¹			
Operating standards and CE compliance	ISO 3171, API 8.2, IP 6.2, PED - 97/23/EC, 2006/42/EC			
Approximate weight	210P-SD: 84 lb (38 kg)		210EH-SD: 86 lb (39 kg)	

Actuation data

Actuation method	Pneumatic	Hydraulic
Supply range ²	4 to 10 bar/60 to 145 psi, (air)	20 l/min at 7 barg
Consumption (30 grabs/min) ²	210P-SD: 0.47 ft ³ /min [ACFM] - (0.8m ³ /hr)	210EH-SD: 7.62 l/min at 30 gpm
Actuator connections	2 x 1/4" NPT female	

¹ Charges made for these items

² ACFM reflects the actual swept volume for 30 sample cycles without allowance for interconnection piping

³ Maximum grab rate, consumption, seal life and supply requirements are dependant on process conditions (i.e., line pressure and fluid viscosity)

210 Probe Suitability For Line Sizes (API 8.2)

FITTED TO VALVE*		8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"	38"	40"	42"	44"	46"	48"	50"	52"		
2" 150#	A																									
	B																									
2" 300#	A																									
	B																									
3" 150#	A																									
	B																									
3" 300#	A																									
	B																									
	C																									
3" 600#	B																									
	C																									
	C																									
3" 900#	B																									
	C																									

Dim 'A' - Distance from top of pipeline to mounting flange. (incorporating pipe stub and standard length ball valve)
 *2" versions are special order only, 2" full-bore ball valve must be used; 300# interchangeable with 600#; 600# supplied as standard

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HSE Policy Statement

At Cameron, we are committed ethically, financially and personally to a working environment where no one gets hurt and nothing gets harmed.