

BULK DENSITY SYSTEM - BDS™



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BULK DENSITY SYSTEM



Sampler model BDS™



Empty cup prior to sampling



Overfilled cup after sampling



Scraped cup prior to weighing

ANALYTICAL PARAMETERS



Bulk Density



Moisture Index (Resonance) *



External sample



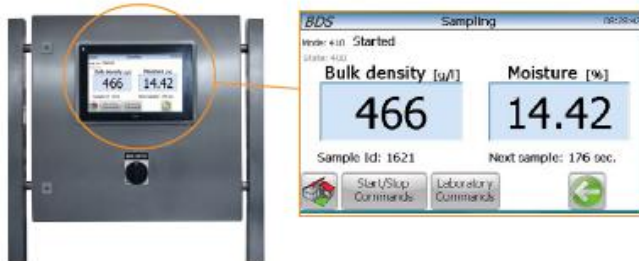
Temperature *



Visual product inspection*

ADVANTAGES

- Eliminates manual resources for sampling and analysis.
- Actual bulk density every 60 seconds.
- Full control of product quality.
- Improve performance of essential key process equipment such as extruders and dryers.



Control System for BDS™

* Option

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CONFIGURATE YOUR OWN SAMPLER



EXTERNAL SAMPLING

By-pass chute for external product release



BULK DENSITY

Loss-on-weight principle by means of high-performance load cell technology



MOISTURE (RESONANCE)

Moisture sensor based on resonance technology integrated in the sampling cup



TEMPERATURE

Infrared sensor for instant temperature measurement



VISUAL PRODUCT INSPECTION

Vision camera and software for presenting an image of the product in the sampling cup after for example extrusion

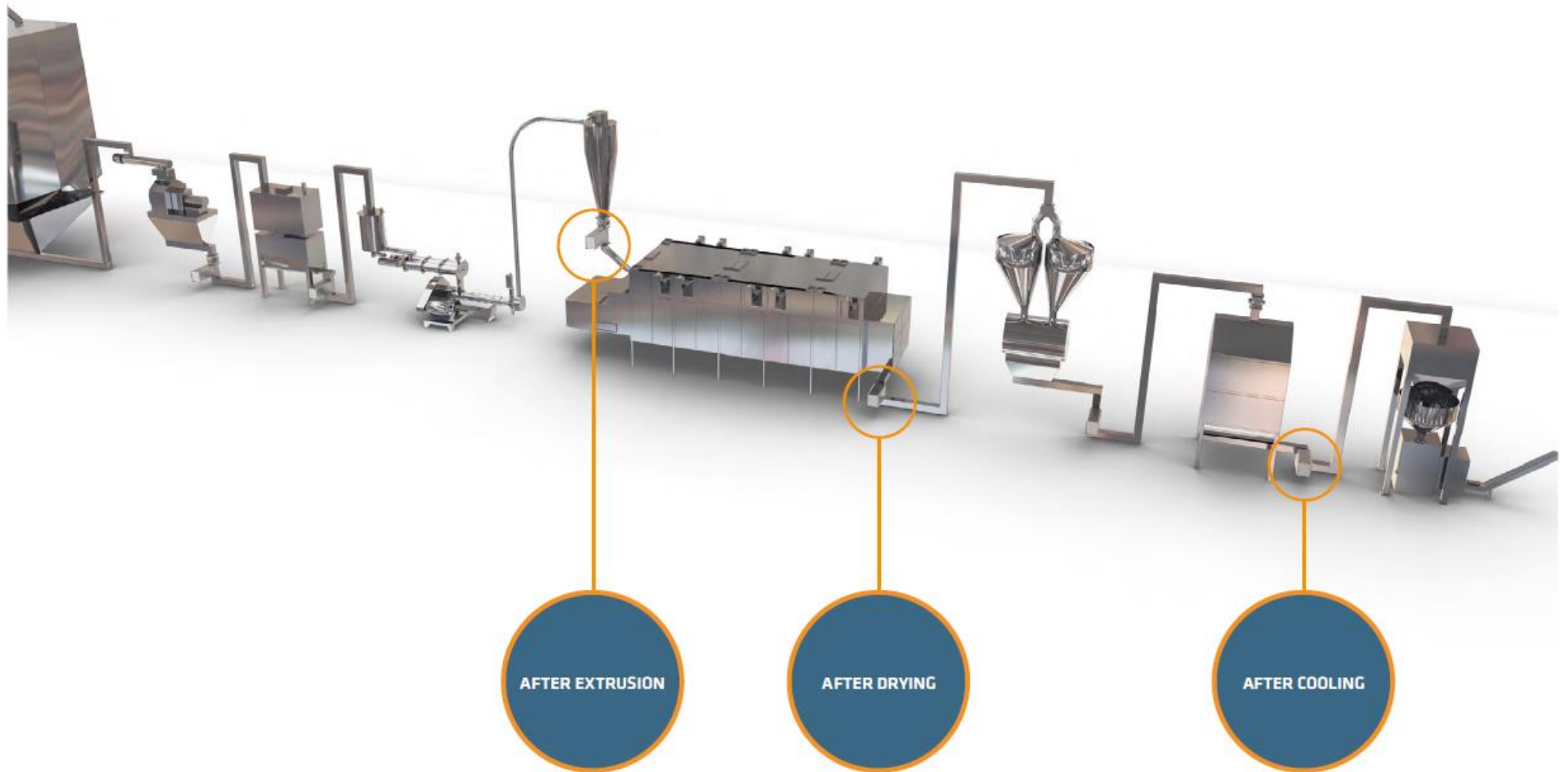
Description

The Bulk Density System provides frequent inline sampling and analysis of the bulk density as well as moisture index (option) and visual product inspection (option).

A very high measuring accuracy for all type of pellets ensures superior control of essential process equipment such as for example extruders and dryers. By frequent analysing the pellet quality, problems in terms of over or under filled bags, mouth feel, starch gelatinization, bacteria growth and fat absorption are minimized.

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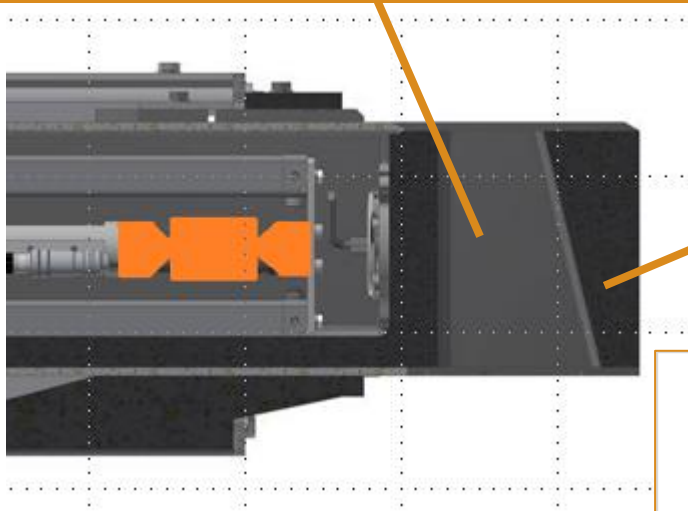
BULK DENSITY SYSTEM – WHERE TO MEASURE



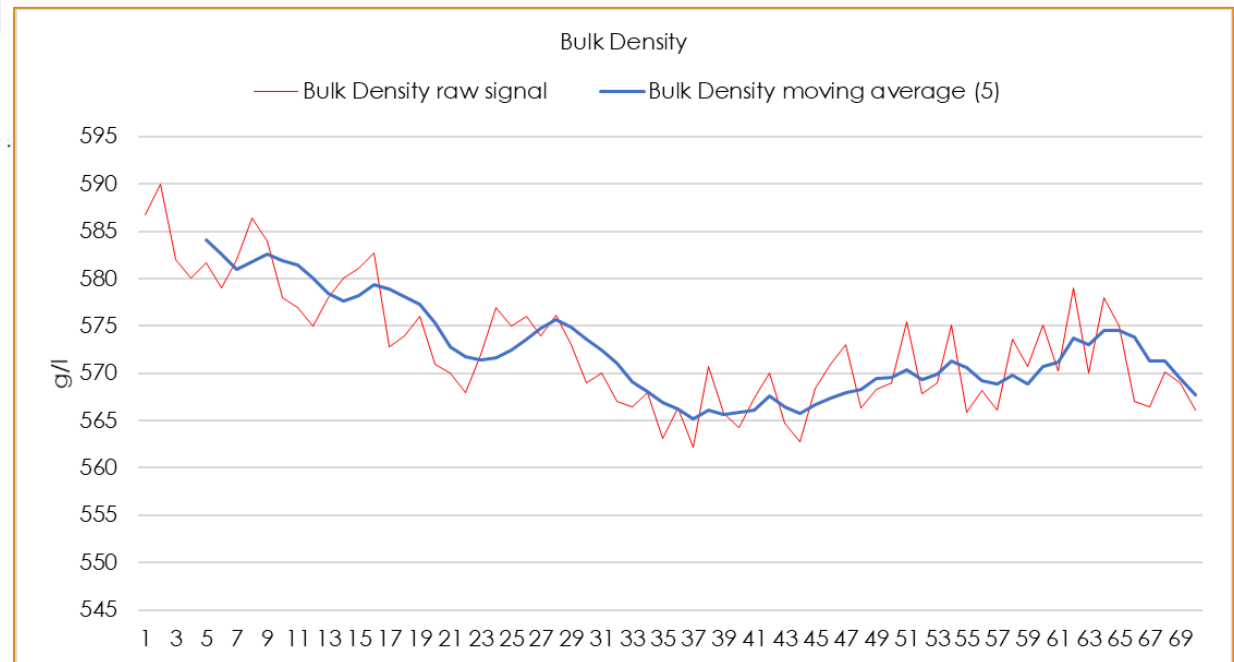
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BULK DENSITY MEASUREMENT

Sample volume 1,8 Liter

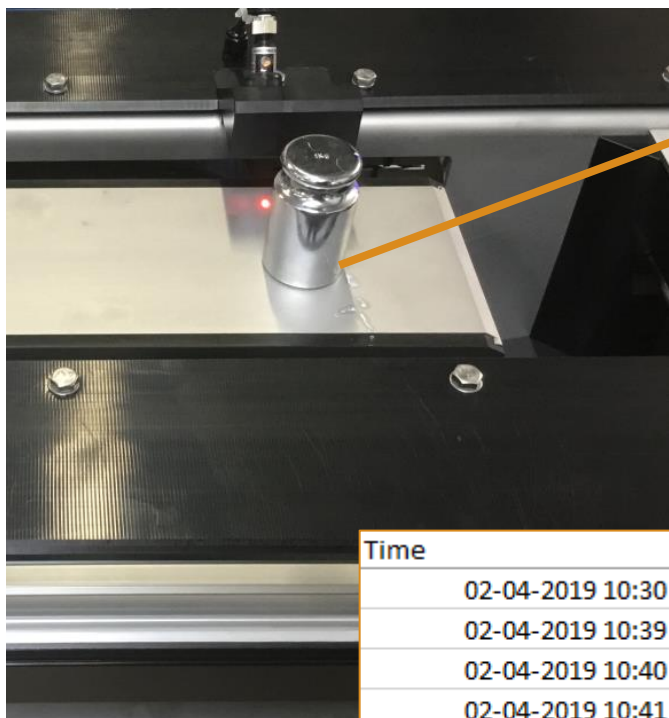


Conical shape of sample cup



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BULK DENSITY MEASUREMENT

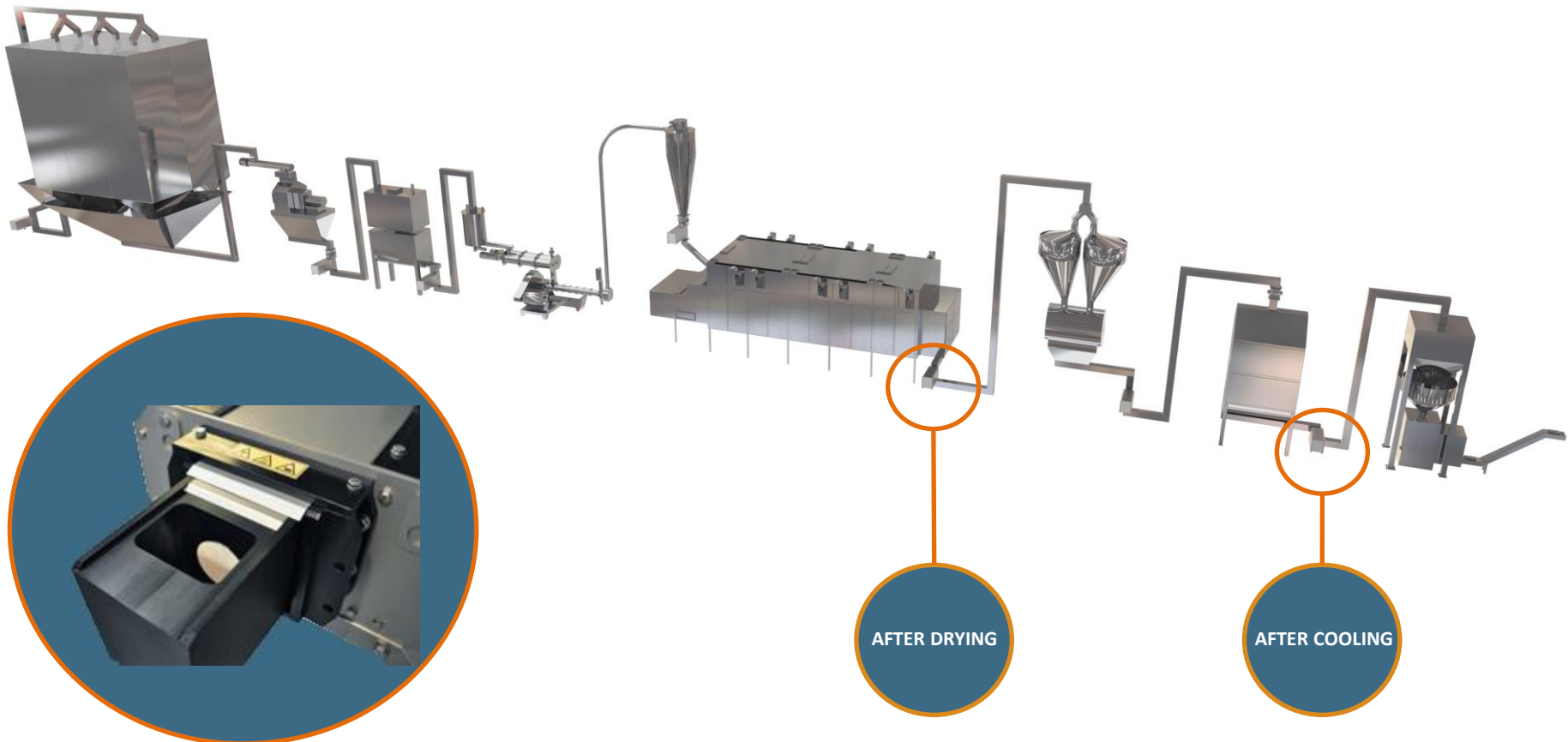


1kg load is used for test of weighing accuracy

Time	SampleId	ProductCode	ProductName	DensityGroup	MoistureGroup	Filling	Weight	Density
02-04-2019 10:30	0	0		0	0	0	0	0
02-04-2019 10:39	1	0		0	0	100	1002	541
02-04-2019 10:40	2	0		0	0	100	1000	540
02-04-2019 10:41	3	0		0	0	100	1000	540
02-04-2019 10:42	4	0		0	0	100	1000	540
02-04-2019 10:42	5	0		0	0	100	1001	541
02-04-2019 10:43	6	0		0	0	100	1000	541
02-04-2019 10:44	7	0		0	0	100	1004	544
02-04-2019 10:44	8	0		0	0	100	1000	540
02-04-2019 10:45	9	0		0	0	100	999	540
02-04-2019 10:49	10	0		0	0	100	1002	541

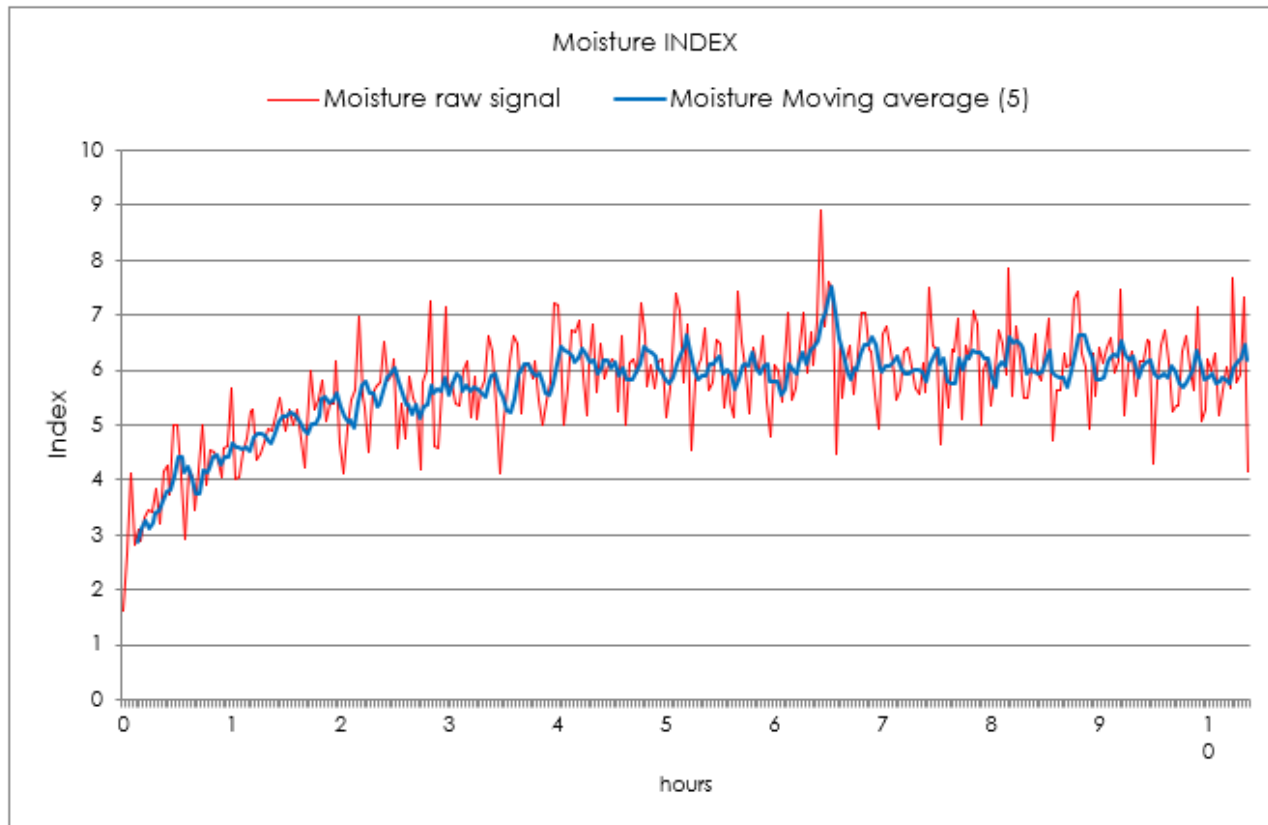
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MOISTURE INDEX AND BULK DENSITY MEASUREMENT



BDSTTM

MOISTURE INDEX AND BULK DENSITY MEASUREMENT

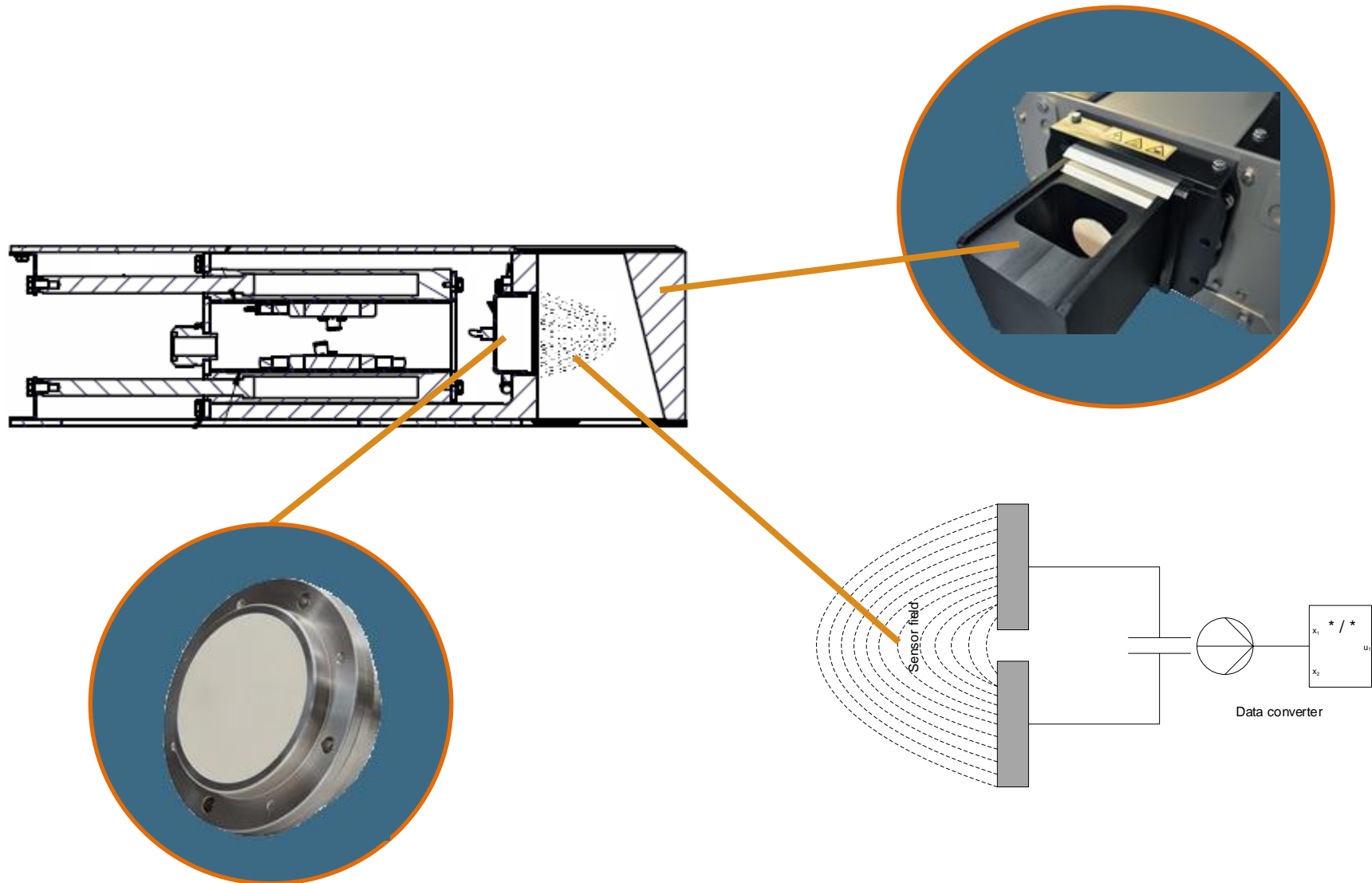


Moisture sensor integrated
inside sample cup



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MOISTURE MEASUREMENT PRINCIP



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MOISTURE QUICK CALIBRATION

BDS Moisture - Quick calibration 08:09:19

Analyzer
Mode: 412 **Started (in local mode)**

Moisture measurements, [%]

	Sample result:	Laboratory result:	Difference:
1.	0.00	0.00	0.00
2.	0.00	0.00	0.00
3.	0.00	0.00	0.00

Scaling
Actual Trim (Offset value) -2.996 ← (Calculated/theoretical Trim 0.000)

Clear all / New calib. **Perform Sample** Update Trim/Offset

BDS Moisture - Quick calibration 10:00:27

Analyzer
Mode: 412 **Started (in local mode)**

Moisture measurements, [%]

	Sample result:	Laboratory result:	Difference:
1.	8.54	6.78	1.76
2.	8.64	6.85	1.79
3.	8.50	6.65	1.85

Scaling
Actual Trim (Offset value) -2.996 ← (Calculated/theoretical Trim -4.796)

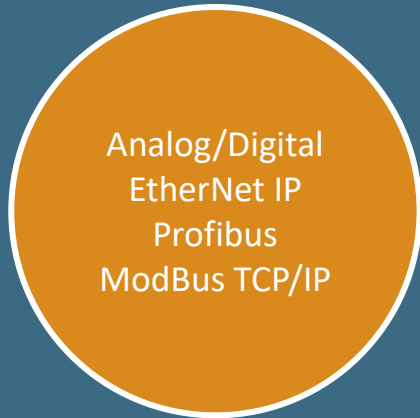
Clear all / New calib. Perform Sample **Update Trim/Offset**



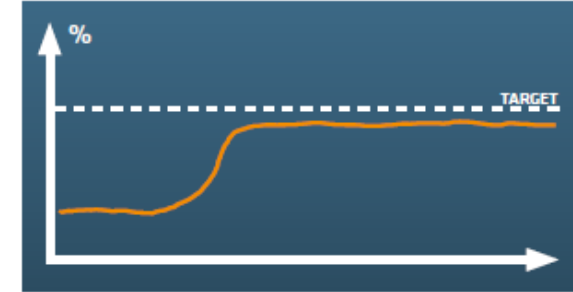
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BULK DENSITY SYSTEM

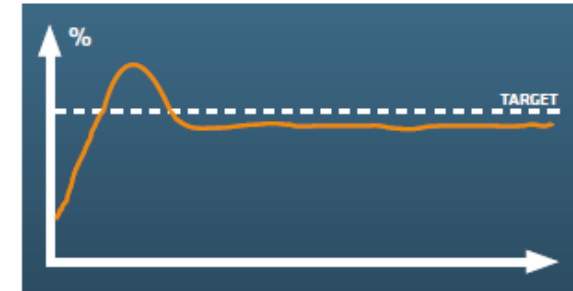
INTERFACE TO CUSTOMER CONTROL SYSTEM



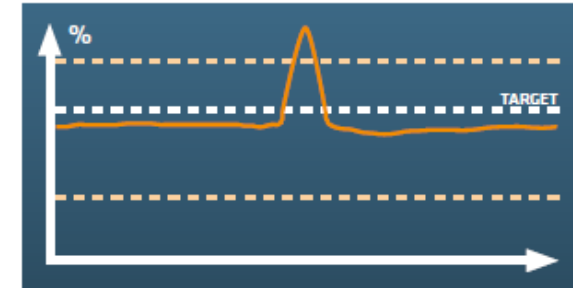
REDUCE GIVE-AWAY



IMPROVE START-UP PROCEDURE

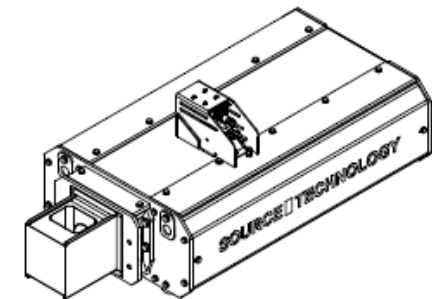
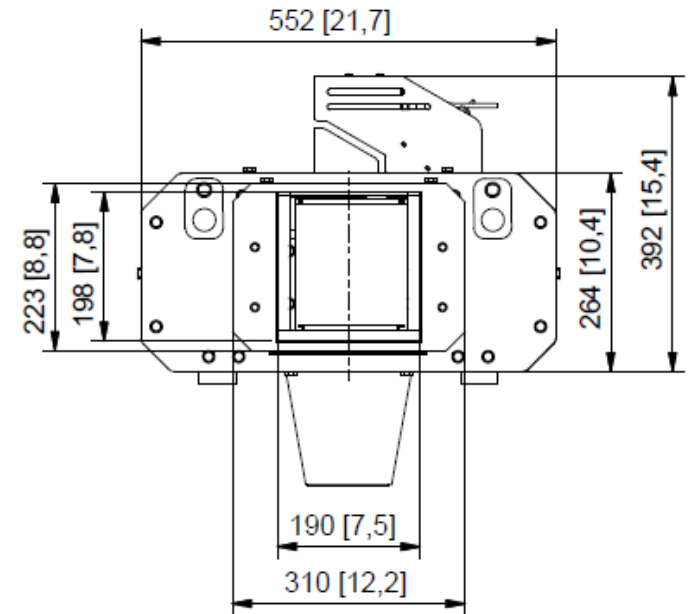
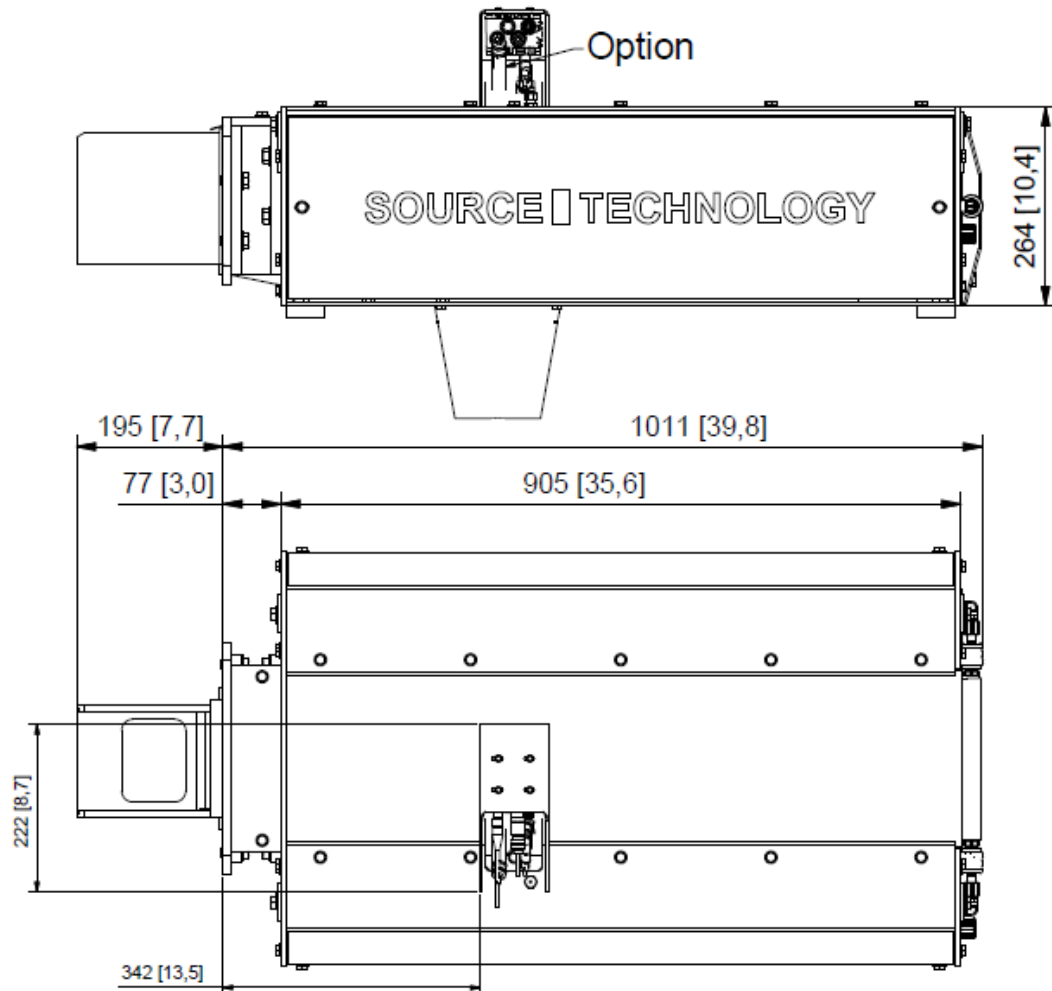


ALARM WHEN OUT OF SPECIFICATIONS



BDSM

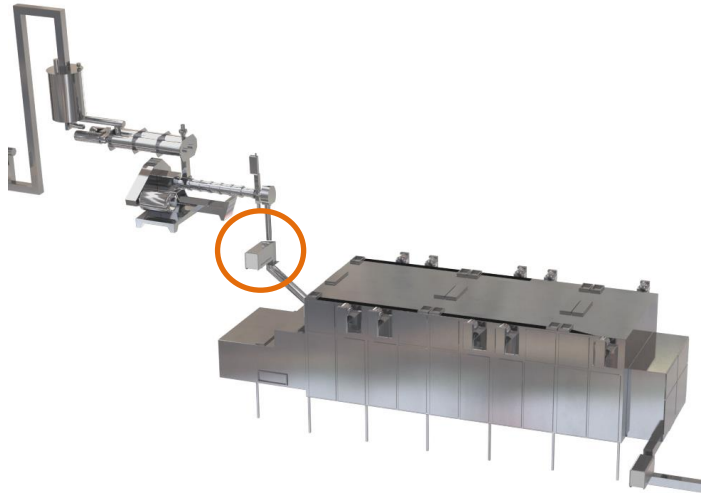
BULK DENSITY SYSTEM – DIMENSIONS



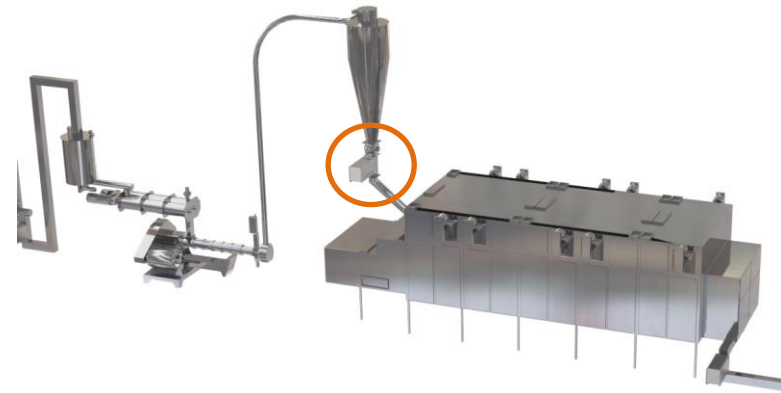
Challenges

Installation of equipment

Risk of flash-off steam will damage the sampling equipment



Sampling after pneumatic transport ensures flash-off steam has been removed



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BULK DENSITY SYSTEM ON YOU-TUBE



[CLICK HERE TO WATCH VIDEO ON YOU-TUBE](#)