



INSTRUMENTS // BCC-3™

AUTOMATED BEEF CARCASS CLASSIFICATION

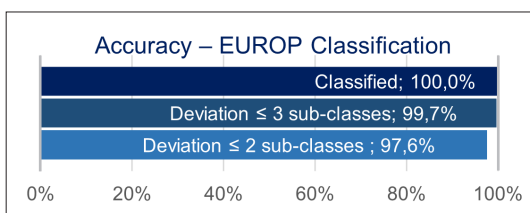
BCC-3™ sets the highest standards in fully automated beef carcass classification.

Each half-carcass is photographed simultaneously from all angles with 40 quality digital cameras. Powerful 3D image analysis software and classification algorithms then calculates the EUROP classification with previously unheard-of accuracy and reliability.

Frontmatec calls this '3rd generation automated beef carcass classification' which represents 20 years of technological advancement compared to the previous generation with a single camera and 2D imaging. Advanced technology makes BCC-3™ a future-proof investment with new enhancements and features to become available on a continuous basis.

Accuracy of EUROP classification

In the EU authorization trial, BCC-3™ obtained the highest scores ever obtained in an official validation of any automated beef carcass classification instrument.



Out of 952 carcasses, 100.0% received a classification score, and 97.6% of these were inside the acceptance criteria of

maximum 2 EUROP subclasses deviation from the median of 5 expert graders. 99.7% of the BCC-3™ classifications were inside a maximum of 3 EUROP subclasses deviation on both conformation and fatness.

Reliability and consistency

Since BCC-3™ has no moving parts and has built-in redundancies, down-time is extremely rare. Most years, the BCC-3™ installations have zero unplanned downtime.

Earlier generations of automated beef classification instruments had a reputation for degradation of performance over time under real-world conditions.

In contrast, BCC-3™ retains extremely high and stable accuracy and reliability year after year and without need for regular recalibrations.

Official payment classification data recorded by authorities over 8 weeks on a 4-year-old installation showed that 97.4% of all carcasses received a BCC-3™ classification that passed on both conformation and fatness.

Versatility

BCC-3™ is the only automated beef carcass classification instrument able to do EUROP classification on both split Beef carcasses and unsplit Veal carcasses. Since there is no carcass-contact, BCC-3™ can also be used for Kosher.

Differences in how a carcass is suspended, or how the forelimbs are tied up or not, or how a cut in the carcass is made prior to grading or not are also variations BCC-3™ has proved to be able to handle without compromising accuracy.

	Imaging column (8 pcs)	Control panel	Computer rack
Working temperature range	0°C to +45°C (32°F-113°F)	0°C to +45°C (32°F-113°F)	0°C to +45°C (32°F-113°F)*
Storage temperature range	0°C to +70°C (32°F-158°F)	-10°C to +60°C (14°F-140°F)	-40°C to +60°C (-40°F-140°F)
Relative humidity	0 to 100% condensing	0 to 100% condensing	5 to 95% non-condensing
Mechanical environment	2014/32/EU Class M2	2014/32/EU Class M2	2014/32/EU Class M1
Enclosure rating	IP65	IP69K	IP40
Maximum power consumption	1920 Watt	30 Watt	1980 Watt
Input voltage and frequency (single phase)	90 to 264 VAC 47 to 63 Hz	100 to 264 VAC 47 to 63 Hz	100/120/160/184 V to 284 VAC 40 to 70 Hz**
Resistance to airborne contaminants	ISA 71.04 Class GX	ISA 71.04 Class GX	ISA 71.04 Class G1
Size (HxWxD)	360x27.5x27.5 cm Min. standoff 15 cm	40x53x13 cm	119x62x204.5 cm
Weight	8 x 105 kg	17.5 kg	200 kg
Compliance with EN 1672-2 guidelines for hygienic design EMC	Yes	Yes	No
EMC	2014/32/EU Class E2	2014/32/EU Class E2	2014/32/EU Class E1

*Dew point must be below 29°C (84°F)
 **Without using batteries
 Technical data may be subject to changes

EU authorization

Already, BCC-3™ has EU authorization for payment classification in some countries.

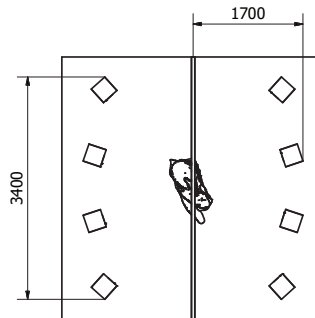
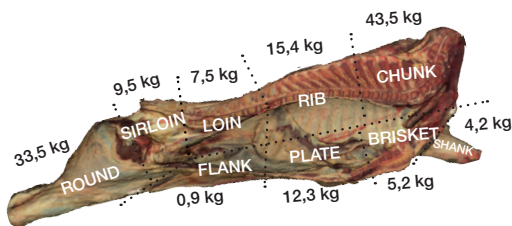
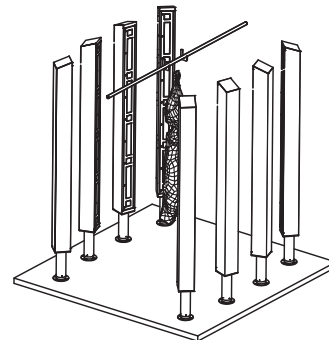
Is EU authorization needed in other countries, it only takes 5 weeks to complete a program for an EU authorization trial: 2 weeks collecting grading data with a national expert grader, 2 weeks developing a prediction model for BCC-3™ to match the national expert grader's way of classifying, and 1 week to conduct the validation trial with an international team of 5 expert graders.

Advanced applications

BCC-3™ is continuously adding new, optional applications to help plants optimize the value of each carcass that is processed or sold. Examples:

Primal weights: Estimations of bone-in and bone-out weight of carcass, the primals and commercial cuts. Used for production planning and decisions on which carcasses to sell bone-in.

Marbling: Identification of carcasses with high marbling. Used to pick carcasses for production of specialty products.



CONTACT

CN: shanghai@frontmatec.com
 +86 215 859 4850

DE: beckum@frontmatec.com
 +49 252 185 070

DK: smoerum@frontmatec.com
 +45 445 037 00

ES: barcelona@frontmatec.com
 +34 932 643 800

PL: grodzisk@frontmatec.com
 +48 22 734 55 51

UK: birmingham@frontmatec.com
 +44 121 313 3564

US: kansascity@frontmatec.com
 +1 816 891 2440