

Truck Speed vs Scan density:

The degree of profiling achieved by the Laser system is depending on the scan speed of the scanners and speed of truck passing through the gate at the terminal. The profiling and scan rates of the laser scanning system are as follows

Truck speed (km/h)	Truck speed (miles/h)	Distance between Scans (mm)	Distance between Scans (inch)
2	1,242	13,8	0,54
5	3,105	34,5	1,36
10	6,21	69	2,71
15	9,31	103,5	4,07
20	12,42	138	5,43

Table 1: Truck speed Vs Distance between scans.

Classification of Damages on containers:

Type	Dimensions of damage	Location*	Description
Dent ¹	Depth > 60mm	T,L,R	Inbound from normal surface
	Depth > 50mm		Outbound from normal surface
Holes ²	Diameter > 100mm	T,L,R	Holes with >100mm diameter
Holes ³	Diameter > 50mm	T,L,R	Holes with >50mm diameter
Holes ⁴	Length >100mm, Width > 30 mm	T,L,R	Cutting holes along to the container
Holes ⁵	Length >50mm, Width > 90 mm	T,L,R	Cutting holes cross to the container
Holes ⁶	30mm < Diameter < 50mm,	T	Holes around corners castings (ROI: 0.8 m x 0.4 m)

* T = Top, L= Left, R= Right sides of the containers

Table 2: Classification of damages on the container

Assessment of practical limitation for LaseCDI:

Speed of truck	Dent ¹	Holes ²	Holes ³	Holes ⁴	Holes ⁵	Holes ⁶
< 5 km/h	✓	✓	✓	✓	✓	✓
5-10 km/h	✓	✓	✓	✓	✓	✓
10-20 km/h	✓	✓	✗	✓	✗	✗
> 20 km/h	✗	✗	✗	✗	✗	✗

Table 3: Performance evolution of damages over various ranges of truck speed

✓ : The detection rate of the LaseCDI is app. 97%.

✗ : The accuracy of the LaseCDI is less than app. 40%

If the speed of the truck through the gate increases the detection rate decreases.

The chance of false-positive occurrence **is app. 2% or less.**

Note:

- For the hole detection laser beam must penetrate into the holes of the container
- The travel of truck through the gate terminal should be possibly straight (not zig-zag) and not applying brakes during laser scanning