SPINE
FIBO

Automatic Visual Inspection,
Counting and Bottle Filling of
Tablets & Capsules & Softgels

SENSUM

Computer
Vision
Systems

SPINE FIBO

AUTOMATIC VISUAL INSPECTION, COUNTING AND BOTTLE FILLING OF TABLETS & CAPSULES & SOFTGELS

HIGHLIGHTS

- Multifunction machine for inspection, counting and bottle filling
- Exceptional 100 % visual inspection of tablets, capsules & softgels
- Product sorting before final counting and filling
- Easy adjustment for bottles of different size and type
- Filling bottles with count from 30 to 1000, and higher
- Capacity up to 165/100/10 bottles per minute at 30/100/1000 count
- Intuitive user-friendly graphical interface
- Ergonomic, compact design for simple cleaning and maintenance

REDUCE COSTS

SPINE FIBO combines the inspection performance of Sensum **SPINE** machine with high speed counting and bottle filling, that can be easily integrated into any new or existing bottle packaging line.

TWO PROCESSES COMBINED IN ONE

- 100 % inspection and counting with bottle filling
- Smaller footprint than conventional counters
- Lower number of operators
- Less material handling
- Less material storage

RELIABLE BOTTLE FILLING

- System with no flaps
- Double counting with camera and optical system
- Less rejected bottles: only good products are filled into bottles because defective products are sorted out beforehand
- Bottle filling speed is not decreased due to defects in batch
- Reliable and controlled handling of each individual product
- Reliable filling of very small products (less than 6 mm)
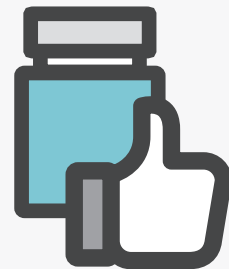
LOWER RISKS

- Removed risk of product damage after inspection and before bottle filling due to material handling
- Reduced risk of human error after inspection
- Removed risk that two products count as one
- Removed risk that a defective product (e.g. laminated tablet) is filled in the bottle
- Reduced clogging at bottle neck: products are filled into a bottle one by one

IMPROVE YOUR QUALITY BY SORTING OUT DEFECTS

ROUND TABLETS

thickness	chips	shape	dark dots	bright dots	colour deviation
chipped coating	edge chips	edge cracks	edge dark dots	engraving defects	print defects

OVAL AND OBLONG TABLETS

lamination	chips	cracks	coating defects	engraving defects	print defects

CAPSULES

holes	dents	joints	length	empty transparent	print defects

SOFTGELS

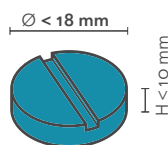|					
size	damaged seam	dirt	hair	bubbles	broken

AND MANY MORE ...

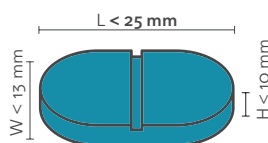# INSPECTION OF TABLETS, CAPSULES OR SOFTGELS

INDICATIVE INSPECTION SPEEDS

ROUND TABLETS

Ø (DIAMETER) IN MM	TABLETS / HOUR
13 - 18	210.000
10 - 12	420.000
8 - 9	520.000
< 8	630.000

Ø < 18 mm
H < 10 mm

OVAL AND OBLONG TABLETS

L (LENGTH) IN MM	TABLETS / HOUR
> 18	150.000
14 - 18	230.000
11 - 13	310.000
8 - 10	390.000
< 8	470.000

L < 25 mm
W < 13 mm
H < 10 mm

CAPSULES

SIZE	CAPSULES / HOUR
0 & 1 & 2	200.000
3 & 4 & 5	300.000

L < 28 mm
Ø < 10 mm
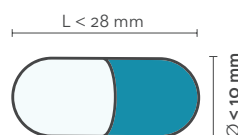
SOFTGELS

L (LENGTH) IN MM	SOFTGELS / HOUR
> 15	160.000
14 - 15	280.000
11 - 13	380.000
8 - 10	470.000
< 8	570.000

L < 28 mm
Ø < 10 mm
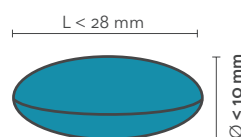
ACTUAL INSPECTION SPEED depends on the shape, size and type of tablets, capsules and softgels, and on the number of inspected features. In special cases, even higher inspection speeds might be possible with dedicated solution.

BOTTLE FILLING AFTER INSPECTION AND SORTING

BOTTLE SPECIFICATIONS

HEIGHT: up to 200 mm

WIDTH: 35-130 mm

INDICATIVE BOTTLE FILLING SPEEDS

COUNT PER BOTTLE	BPM (BOTTLES PER MINUTE)
30	165
60	165
100	100
500	20
1000	10

Actual speeds depend on the inspection speed of the product.

YOUR FILLING SPEED FORMULA:

$$BPM = \frac{INSPECTION\ SPEED\ (PR/H)\ \text{(See inspection speed page)}}{60\ MIN \times (COUNT\ PER\ BOTTLE)}$$
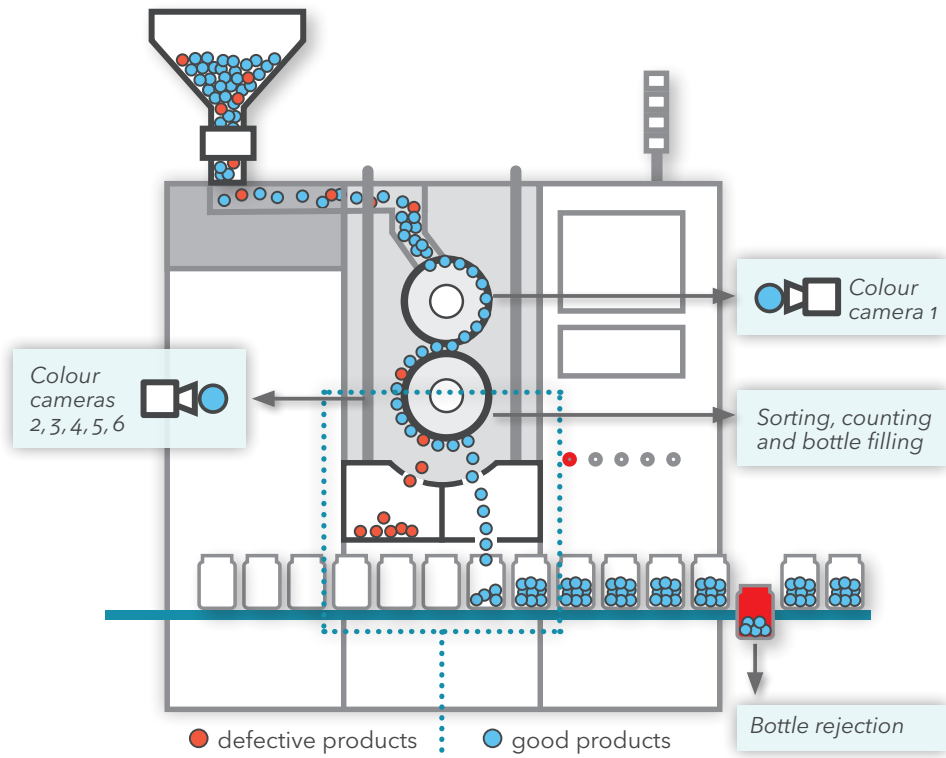
Indicative bottle filling speeds are the upper limit for actual performance.

TECHNICAL DATA

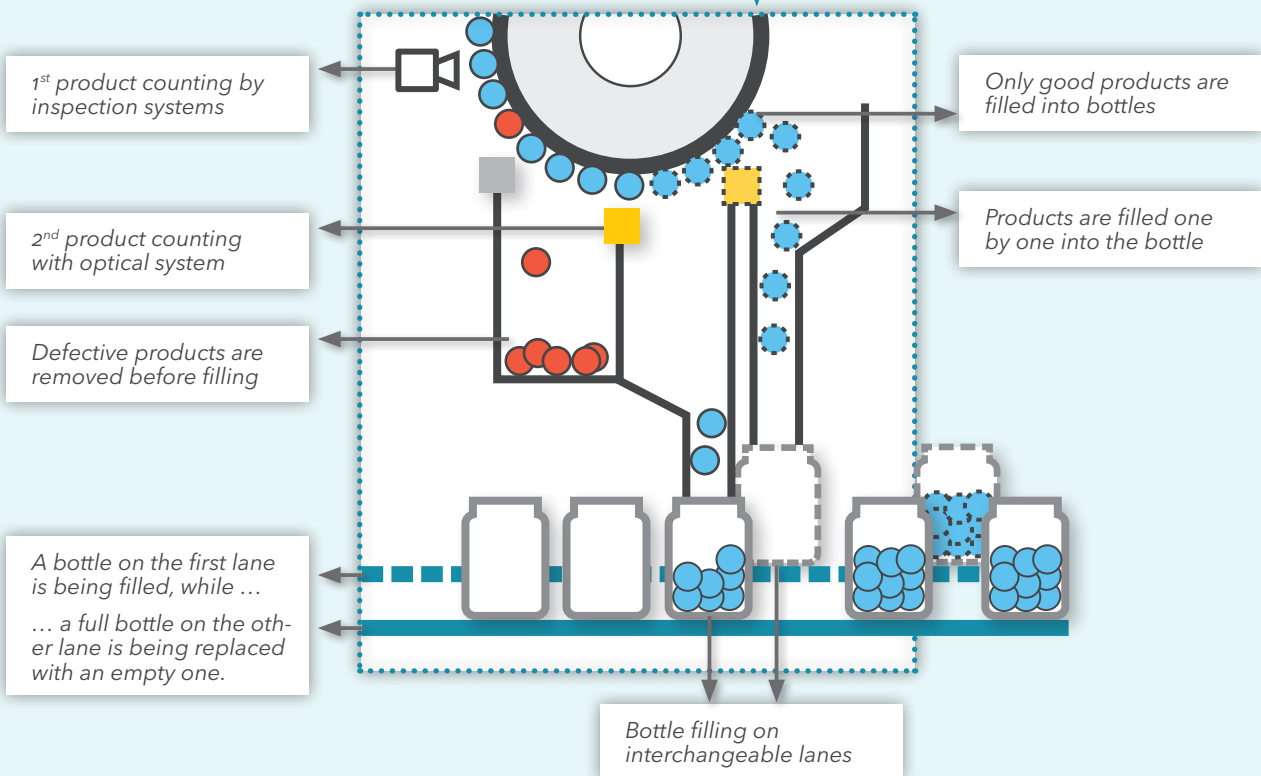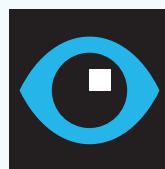| APPLICATION	INSPECTION QUALITY	TYPICAL ELECTRICAL CONNECTION	COMPRESSED AIR	DIMENSIONS L × W × H	WEIGHT	CONSTRUCTION
Tablets, capsules and softgels	Same as Sensum **SPINE** machine	400/230V	7 Bar, 100 Nm³/h	L = 2560 mm W = 860 mm H = 2145 mm	1300 kg	CE, GMP, FDA acceptable materials

CONTINUOUS AND RELIABLE BOTTLE FILLING

Sensum **SPINE** FIBO automatically inspects the entire surface of products with 6 visual systems at high speed. The inspected products with defects are removed before bottle filling. The good products are **counted and filled** into bottles. Miscounted bottles are automatically **rejected** from the packaging line.

Colour camera 1

Colour cameras 2, 3, 4, 5, 6

Sorting, counting and bottle filling

● defective products   ● good products

Bottle rejection

EFFICIENT BOTTLE FILLING WITHOUT FLAPS

1st product counting by inspection systems

Only good products are filled into bottles

2nd product counting with optical system

Products are filled one by one into the bottle

Defective products are removed before filling

A bottle on the first lane is being filled, while …

… a full bottle on the other lane is being replaced with an empty one.

Bottle filling on interchangeable lanes

SENSUM

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ABOUT SENSUM:

We develop, produce and sell innovative automatic visual inspection solutions for the pharmaceutical industry. We have a strong R&D cooperation with the Imaging Technologies Lab, Department of Electrical Engineering, University of Ljubljana to keep in touch with the latest scientific developments.

BROCHURE