

# MARKET survey

## 05/2017

### Suppliers of systems and moulds & inspection systems for caps and closures

For this issue 5/2017 PETplanet Insider interviewed the market participants in the system for the production of closure sector. It includes both: The machine manufacturers and the mould suppliers. We also add as a new special feature a survey reading closure inspection systems!

Intravis GmbH, Netstal, Corvaglia, Sacmi Imola, IMD Ltd., Milacron c/o Mold Masters, Sumitomo (SHI) Plastics Machinery, z-werkzeugbau-GmbH, Husky Injection Molding Systems and Pressco Technology Inc.

*Although the publishers have made every effort to ensure that the information in this survey is up to date, no claims are made regarding completeness or accuracy.*

- Preforms & preform inspection
- Recycling plants & washing units
- Palletising & shrink film machinery
- Caps & closure systems & CC inspection**
- Labelling & marking systems
- Recycling: Cutting plants
- Filling equipment & filling inspection
- Resins, additives
- Compressors
- SBM machinery & quality inspection

### Closure moulds

Company name	Corvaglia Mould AG	z- Werkzeugbau	Husky Injection Molding Systems Ltd.	
Postal address	Hörnlistr. 14 8360 Eschlikon, Switzerland	Dr.-Walter-Zumtobel-Strasse 9 6850 Dornbirn, Austria	500 Queen St S Bolton, ON, CAN L7E 5S5	
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Web site address	www.corvaglia.ch	www.z-moulds.com	www.husky.co	
Contact name	Mr Albert Brunner	Mr Michael Fink	Mr Michael White	Mr Henry Zhang,
Function	Director Sales & Service	VP Sales & Marketing	Business Manager, Beverage Closures	Dir. of Bus. Devlp., Medical & Specialty Packaging
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<b>Filling good</b>				
- beverages	Carbonated soft drinks and non-carbonated pressurised & non-pressurised beverages including water, juices, teas, milk/dairy, coffee, beer, isotonic, energy drinks, etc.	Carbonated and non-carbonated drinks, water, juices, etc.	Screw-on beverage closures for water, carbonated, hot-fill and aseptic beverage types	Specialty closures including flip-top for personal care, sports caps, detergent, edible oil, carton closures and pouch fitments
- other	Edible oil, detergents, other filling goods possible upon request	Edible oil, dairy, beer, etc.		
- individual cap solutions	Possible upon request	Personal care and household products		
<b>Closure</b>				
-type	Flat top & sports closures for beverages from 26 to 48mm neck finishes, e.g. Alaska, 1810, 1881, 29/25, 30/25, 33 HF, 33 ACF, 38 HF, 38 ACF	All single-piece standard closure dimensions for all neck finishes, sports closures, flip-tops, push-pulls, multi-component closures...	Screw-on (moulded-in TE band), Screw-on (Post-mould slit TE band)	Specialty closures including flip-top for personal care, sports caps, detergent, edible oil, carton closures and pouch fitments
-material	HDPE (PP for transparent parts)	HDPE, LDPE, PP, TPE, ...	HDPE	
-weight	Starting from 0.8g	Lowest from 0.8g	>0,7g	
<b>Moulds</b>				
Clamping dimensions/cavities	24 - 96 cavities	16 - 128 cavities	Standard cavitations = 32cav - 96cav, 594mm x 1,045mm - 695mm x 1,050mm	Custom cavitations depending on customer need and application being moulded; capability for high cavitation moulds
Preferred hot runner suppliers	Various	Mold Masters	Husky	Husky
Special features	Closure design approvals from all major beverage brand owners; most economical closure designs for private labels	Several patented technologies for most efficient closure production	Horn-pin less design for high output, simple, & robust operation; integrated cooling manifolds for balanced flow & pressure (quick connect/disconnect) HT-S6 hot runner for optimal gate quality / minimal flow lines / fast colour change	eIMC in-mould closing technology for flip-top closures; part optimisation and fast prototyping capabilities

## Closure insection

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Inspection system	CapWatcher III	CapWatcher SC (Specialty Closures)	Integrated CapWatcher Systems
Inspection speed	Up to 252,000 objects / hour	Up to 62,000 objects / hour	Up to 79,200 objects / hour
Inspection method	Non destructive	Non destructive	Non destructive
Inspected objects	Standard closures: carbonated & non carbonated beverage, single- or multithread, with TE band, one-piece	Specialty closures: flip top, sports caps (incl. push-pull), tube, for chemical industry, assembled closures Inserts: dosing inserts, liners, child protection	Standard closures: for carbonated & non carbonated, one-piece, single- or multithread, with TE band, specialty closures: sports caps
Inspected parameters:			
-Inner inspection	Spots & contamination on the inside of the head plate, colour deviations, flow lines, liner inconsistencies	Contamination, colour deviations on the inside, flow lines	Contamination, colour, brightness, spots
-Outer inspection	Contamination on the side wall and on the head plate, colour, dark & bright spots on the outer wall, flow lines and printings on the head plate, printed image, registration shifts, position (printed image)	Contamination on the outer wall, colour, scratches & pressure marks	Contamination, colour, spots, brightness
-Geometry	Diameter, diameter & ovality of TE band and ovality of seal cone, closure height, gate, gate length, horizontal & vertical long shots, open & closed short shots, curvature of head plate, missing or damaged TE band, damaged flaps, turned up flaps, damaged seal cone, slitted & folded closures	Diameter and ovality (e.g. closure, seal cone): closure height, assembly faults, missing components, damaged components, damaged seal cone, vertical long shots, open & closed short shots, horizontal/radial long shots, missing or damaged TE band, damaged flaps, turned up flaps, damaged pull tabs and missing or damaged quality seal	Diameter and ovality, rotational position, outer dimensions, short shots, long shots, long shots at the mouth, contour deviations, contour & surface defects of the mouth ring, missing or damaged TE band, handle fold, open closure
-Cavity number reading	Cavity number reading, cavity related statistics (also for microhole defects), closure sorting according to cavity number, automatic selection of cavity fonts	Cavity number reading, cavity related statistics, closure sorting according to cavity number, automatic selection of cavity fonts	Cavity number reading, cavity related statistics, closure sorting according to cavity number, automatic selection of cavity fonts
-Microhole inspection	Microholes in the area of the injection gate (inspected with HV)		
-Additional inspection criteria for inserts		Missing components, closure height (only metering inserts), diameter & ovality, flow lines	
Further inspection options			
Installation:			
Stand-alone (offline)	Yes	Yes	
Inline	Yes	Yes	Yes, CapWatcher technology integrated into assembly machine
Software features:	Data base connection; reject rate monitoring; production monitoring with IntraVisualizer; integrated control of up- and downstream equipment; integrated trend statistics with pre-warning; ColorCameras	Data base connection; reject rate monitoring; production monitoring with IntraVisualizer; integrated control of up- and downstream equipment; integrated trend statistics with pre-warning; ColorCameras	Data base connection; reject rate monitoring; production monitoring with IntraVisualizer; integrated trend statistics with pre-warning; ColorCameras

## Systems for caps

Company name	Netstal-Maschinen AG	Milacron c/o Ferromatik Milacron GmbH
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### Systems for cap/closure production

Model	Elion	Evos	Ferromatik Electric
Procession technology	Injection moulding	Injection moulding	Injection moulding
Clamp force	175 - 420t	300 - 550t	1,500 - 6,500kN
Cycle time (guaranteed 98% closure system efficiency for):	2.0s	2.3s	
- High speed production: closure type/weight/cavities: caps/min	"29/25"/1.2g/96/2880	"29/25"/1.2g/96/2504	1881/1.6 - 1.9 g/ 2.9 seconds +/- 5%
- Individual cap solution: closure type/weight/cavities: caps/min			
Drive concept	hybrid / electric	hydraulic / hybrid	Electrical
Energy consumption (kwh/kg)	0.48	0.73	Under 0.20 kWh/kg (based Ferromatik Electric with 48 cavity mould)
Preferred mould makers	various		
Special features	Dedicated CAP Systems including mould and all peripheral equipment; air condition, conveyors, cap cooler, chute, quality vision, box changer etc.		Special ejector design dedicated for caps, modular machine concept, high level of customisation