

# G6 – Optimum Versatility

## SPECIFICATIONS *(Subjected to change without prior notice)*

### Standard Features

- Stack-tube to tape
- Stack-tube to tube (2 tubes)
- Quick-change Kit c/w auto-sensor-clean, auto-piggyback-clear and auto-ID
- Programmable 2-tube sort-bin

### Optional Features

- On-track mark/2D inspection
- In-pocket mark/2D inspection c/w counter-reflection-algorithm & auto-unit-replacement
- On-track mark/2D/3D inspection
- Seal inspection
- Post-seal unit mark/2D inspection
- OCR&V (Optical Character Recognition & Verification)
- Package defect inspection
- Auto-focus & auto-zoom on any inspection
- Open/short electrical test contact
- Functional electrical test contact
- Open/short tester with self-teach feature
- Stack-tube to stack-tube
- Programmable multi-tube sort-bin

### Package Handling Capability

- Any package from tube medium through quick-change kit

### Sprint Rate

- 9000 UPH minimum (Stack-tube to tape, SOIC Narrow body, on-track mark/2D/3D inspection)

### Performance

- Jam rate better than 1/3000 (incoming material dependent)
- Machine Uptime > 95% (total available time minus scheduled down time)

### Taping Capability

- Seal type: Heat or pressure seal
- Carrier tape width from 8 to 56 mm (other sizes are optional)
- Auto-release carrier tape spool input
- Adjustable seal pressure, temperature & dwell time
- Interchange-able seal blade with various length & width to suite specific sealing requirement

### Facility Requirement:

- Power: 110/230 VAC, 60/50 Hz, 2000 watt max
- Compressed Air: 5 bar (74 psi) minimum at maximum flow-rate of 450 L/min (16 cfm)

### Typical Change-over Time

- QuickChange Kit: 5 mins
- Carrier Tape: 3 mins
- Vision Calibration: 10 mins (5 mins with optional auto-focus/zoom)
- Software Recall: 1 mins
- Mechanical realignment: 0 – 10 mins (option dependent)

### Inspection Capability

- Mark Criteria: missing mark, wrong marking, mark angle, orientation, etc.
- Lead Criteria: bend, pitch, span, skew, coplanarity, standoff, lead count, missing lead etc.
- Package Criteria: Scratch, crack, void, chip etc.
- Accuracy: up to 12 micron (0.3 mil) at 3 sigma
- Repeatability: static 3D GRR <= 6%, dynamic 3D GRR <= 10%
- Variable light source solution: manual or programmable (can be stored & recalled) of light intensity and direction for optimum illumination

### Dimension & Weight

- Width: 907 mm (35.7") typical, 1,100 mm (43.3") with stack-tube output option
- Depth: 1031 mm (40.6") typical, 1,533 mm (60.4") with stack-tube output option
- Height: 1,800 mm (70.9") typical
- Weight: 200 kg (440 lb) typical

*Representative Information:*

# G6

SOIC  
NARROW  
BODY  
VIS  
DYNAMICS

**Gravity-Feed  
Electrical Test,  
Vision Inspection,  
& Taping System**

Highest Speed in Its Class

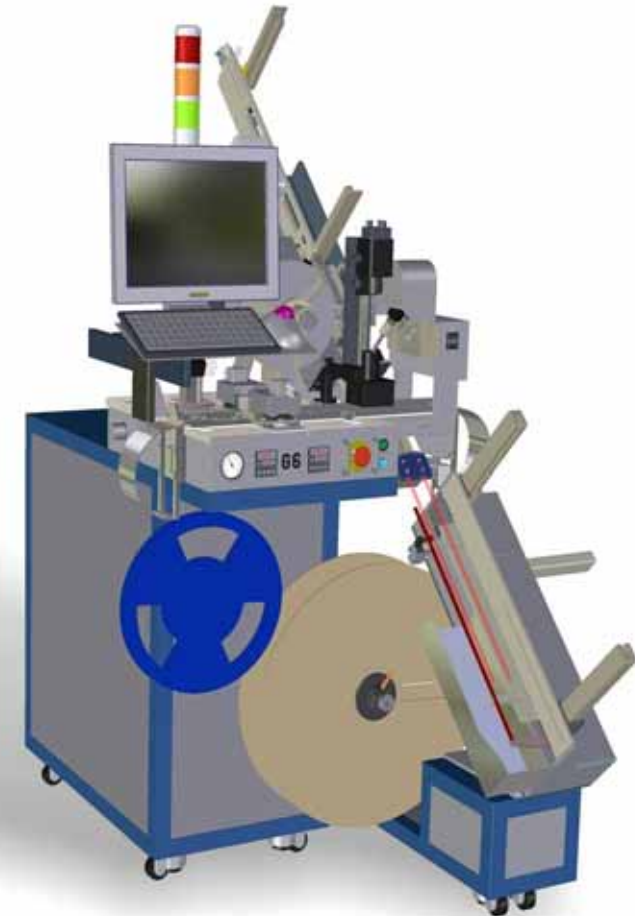
Unlimited Package Handling Capability with the Industry's Best Change-over Time

Complete Inspection Solution

Electrical Test Option

Smallest Footprint

Unmatched Cost/Performance



*Graphic includes optional items & is accurate at print time*

**VISDYNAMICS** Research

## Optimum Versatility

The plug-&-play quick-change kit allows unlimited package handling capability: anything that is gravity feed-able. Versatility is only one of its obvious advantages. It also guarantees forward compatibility of future packages, eliminating potential capital expenditure in today's rapid changes of package form factor.



## Best Change-over Time

Package to package change over can be done within 10-30 minutes. Our innovation in master referencing enables the plug-&-play QuickChange kit to be alignment free in change-over – customer may move the kit around any G6 with very minimal realignment.

## Plug & Play

To minimize human related error, G6 recognizes the QuickChange kit and recalls all relevant configuration parameters automatically, and protects these parameters from intentional or unintentional miss setting. Best of all, this flexibility is achieved at no expense of other important performance attributes. For instance, its sprint rate rivals those so called “high speed, dedicated” handlers!



Other advantages of QuickChange kit

- Flexibility in production line with wide variety of packages.
- A perfect platform for new package pilot run.

## Highest Speed in Its Class

With precise timing management and other hardware/software design innovation, we are able to sprint the machine to unprecedented speed in practical conditions. Please note that minimum UPH is stated instead of the arguable “up to ...”.

## Pushing Uptime

High sprint rate with mediocre uptime is useless. Again, innovations play a big part here. Here are some examples,

- Auto-cleaning feature on critical optical sensors eliminates the need to clean them regularly.

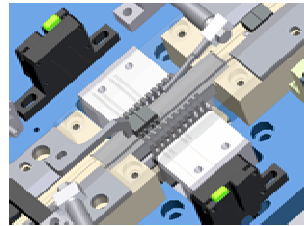
- Auto-clear clears “piggy back” problem caused by imperfect in-coming packages with end flashes.

## Extensive List of Options

We understand every customer has different needs, and does not want to pay for redundant features. Therefore G6 is designed with extensive list of options, and this list will only get longer in time. Most options are in modular form that upgrading can be done at a later time, covering most imaginable hardware, software and inspection needs.

## Electrical Test Option

One can't judge a book by its cover: to supplement vision inspection, electrical test option ensures the right content. To maintain G6's superior taping speed, we recommend open/short test option. Customer may also opt for an open/short tester that has self-teach feature capable of “learning” the open/short pattern of a KGU (Known Good Unit), freeing programming effort and expensive full blown tester.

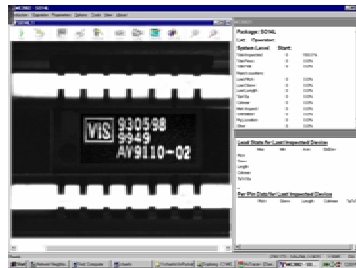


## Complete Inspection Solution

The most successful inspection solution implementation consists of careful mix of mechanical innovation, advanced mathematic manipulation and leading age imaging technology. Having all the crucial substances in one roof, we are able to provide the industry with some of the best inspection solutions.

## On-track 2D/3D/Mark Inspection

Our unique one-camera approach eliminates optical instability caused by complicated optical setup and tuning of the multi-camera system. Another point to note is optical stability does not mean perfect optical setup, as commonly assumed in majority of the 3D inspection in the market. In order to achieve exceptional accuracy and repeatability, our 3D measurement is the result of dynamics precision combined with complex trigonometry calculation that compensating for x-y-z shift (instead of just z-axis alone) as well as other

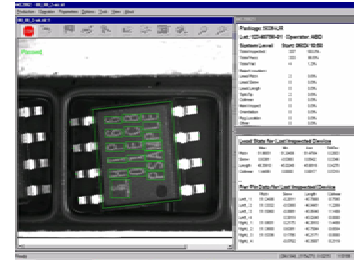


optical “noises” (e.g. non-telecentricity caused by lens curvature). This is the reason that we commit to dynamics GRR while many are still struggling with static GRR.



## In-pocket Inspection

In-pocket inspection offers the ultimate visual mechanical quality assurance but most machine makers are too afraid to incorporate it due to complexity in reject management and unacceptable vision under/over rejection caused by high degree of unit movement in the pocket.



## Auto In-pocket Unit Replacement – Best Solution for In-pocket Reject Management

G6 innovative auto-unit-replacement mechanism does not need additional hardware to function. It effectively removes the in-pocket inspection reject, sort to reject bin, and replace a fresh unit, all done within seconds and is totally setup/alignment free.



## Auto In-pocket Unit Positioning

Unit in the pocket has high degree of freedom and this is bad news for vision system. Worse, when any lead is touching the pocket side wall, it is “extended” by pocket reflection, resulting in vision over-rejection. G6 tackles this problem by simply repositioning the unit to ease vision inspection.

## Programmable Light Source

Our programmable light source allows fine tuning of light intensity and illumination direction in order to achieve the best illumination result. When set, these parameters can be stored and recalled with ease. This

feature provides optimum illumination for every inspection condition in one lighting setup that user does not have to compromise illumination quality for practicality.

## Pre-seal & Post-seal Inspection



To further guarantee production lot integrity, some customers want to verify the unit after (post) seal. Depends on the cover tape transmissibility & sealing method, criteria such as seal quality, unit orientation, mark & 2D lead measurement may be done.

## Absolute Visual Mechanical Quality Assurance

Conventionally, machine operator teaches the vision system using the first unit as reference for the rest. Most of the time this is fine but quality accident happens in the least expected way, for instance, the whole lot had been marked wrongly or worse, somebody swap the lot traveler. This is where optional OCR&V (optical character recognition & verification) would help. The system compares the taught marking to mark instruction stored in the customer host computer and prompt if they do not match. This system can be further extended to automatically configure the controller for the intended package type.

## Who's the Slimmest of Them All?

None in the market offers so many in such a compact footprint, well, except for those who are not concerned about real estate.

## Exceptional Value

We are firm believer of innovation and do not equate technology to exotic gadgetries! Proven off-the-shelf parts are being used where ever possible. This not only guarantees reliability, they are actually of good-value mass-produce parts, and this saving is passed down to our customers. Coupled with extensive list of option modules, there is solution for budget user (that upgrades could be added should needs arise) up to the most demanding in performance & quality assurance.

To know more of how we can improve your productivity & quality, please contact us or our regional representative.