ACUMEN
For your
Storage Operations

G-STOCK
Software Solution

Efficient Best Practice

Management of

Stores and Warehouse

Electroclass

G STOCK

Presentation

- ## *Core Features*

SPACE: Optimizes Stock Keeping Units (SKUs) through user friendly interface

TIME: Optimizes Time and Motion according to Warehouse Rules either in a stand alone mode, or linked-up to a central ERP or Master Software package

NUMBERS: Powerful, Fast, and Flexible Administration of Items and Inventory for Managers

LOADING AND PICKING (INCLUDING ORDER ENTRY)	*LOADING:* **EITHER** operators input directly into **G-STOCK** their transactions, **OR** operators execute loading following a pre-existing Goods Received list downloaded from the central ERP or Master Software – in the latter case double entry of data can be avoided. *PICKING:* **EITHER** operators input directly into **G-STOCK** their transactions, **OR** operators execute picking following a pre-existing ORDERS to SERVE list downloaded from the central ERP or Master Software – in the latter case double entry of data can be avoided.
ANALYSIS AND STATISTICS MADE EASY	Managers may at any time, use **QUERIES** to get information on any or all items managed in the database. Managers can also make use of the **STATISTICAL TOOLS** supplied in the Software package. Tabulating frequencies and occurrences will help managers set up their warehouse in the best way to minimise time and motion. Statistics are of great interest also to track consumption, inventories, and space usage.
OPTIMIZATION OF STOCK KEEPING UNITS (SKUS)	When a new item is created, the manager will define the key parameters of the item (dimensions, weight, ABC frequency category…). Thereafter, whenever the item is received, the software will suggest for the item a suitable location (SKU), ensuring optimal use of space. If a SKU is saturated, the software will introduce a second SKU for the item. Operators however keep control: the suggested location can either be accepted or overridden – so a "manual" organisation of the stores remains possible.

Remote Access to G-STOCK through e-G-STOCK

e-G-STOCK Software works over an Intranet, enabling you to perform certain tasks over the internet, including order entries and queries on inventories and work in process

▪ *Main Functions*

View Item parameters and inventories

View purchases and all supplier information

View and track work in process (goods-in-WIP, inventories, goods-on-client delivery)

Creation of requests for delivery to site

▪ *Operating Mode*

A Windows server manages this service, and users access it through a simple Internet navigator (Explorer, Firefox etc.).Connection to **G-STOCK** is achieved through your **G-STOCK** name and password. Once a user has been identified and authorized, a menu is offered, as in **G-STOCK**, which is suited to the user profile.

When a request to pick an item is issued, e-**G-STOCK** can automatically generate an order number.

Radio G-STOCK

▪ *What Radio G-STOCK achieves…*

Radio **G-STOCK** enables actions in the warehouse (picks, loads, returns, inventories) to be transacted directly on the warehouse floor without any paper printouts. Stock transactions can be logged by simple bar-code reading of both the location and the item number, and the next required transaction will come up on the handheld without going back to a fixed computer.

With Radio **G-STOCK**, warehouse clercs and operators are connected in real time with computer inventories and locations. It becomes possible to correct inventory errors, transfer items between locations, restock, load or pick, all without going back to a fixed base computer. For pallet racking, such a system is vital to efficiency, it improves efficiency on static shelving also.

Real time logging also means that managers in their offices have access to more accurate, up to date, real time information.

▪ *And how Radio G-STOCK achieves it…*

Radio **G-STOCK** relies on a 2.4 GHz radio system that links into an Ethernet 10Mbit network. Each antenna is connected via an RJ45 jack to a concentrator (node) of your network. The terminals used can be one of two types

- ▪ a handheld terminal with built-in bar code reader

- ▪ a radio terminal book with peripheral bar code readers. This solution is only practical on fork-lifts or similar devices

The Terminals connect to **G-STOCK** Radio via the site network. A Windows 2000/2003 server is required.

Subject to a review of your site's infrastructure, it may be possible to put in a securitized network.
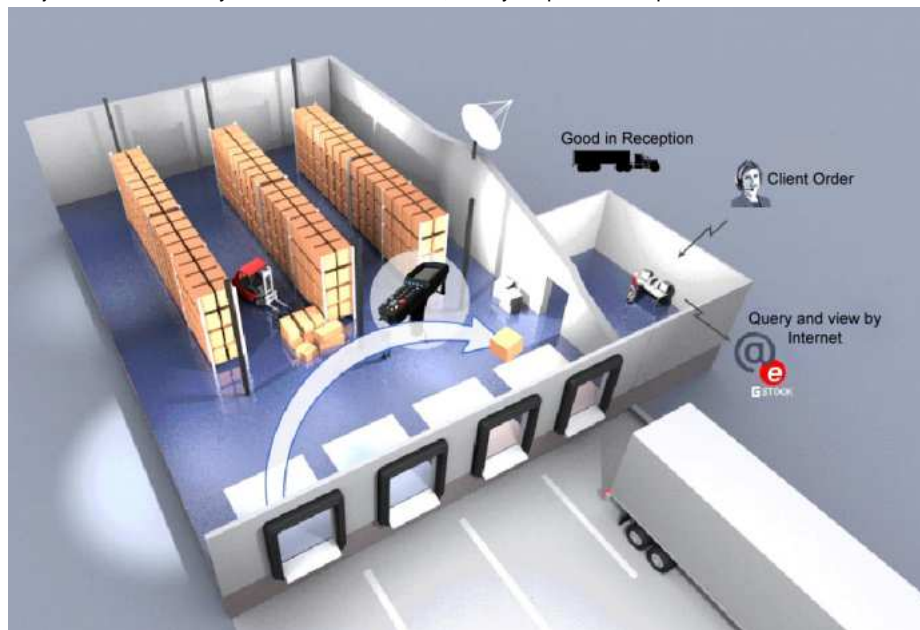
Computer Control of Automated Storage Machines

Scope of Computer Control…

Most Automated Storage Machines can be controlled by **G-STOCK** directly, provided that the have a open access (such as an RS-232 jack or a USB) that interfaces with a computer. A minority of Storage Machines are closed systems, with no interface between the machine controls and the outside world. Even in these cases, it will often be possible to retrofit a new set of controls onto the hardware, these controls being provided by Electroclass (or developed on a PLC). From there, it will be possible to take control of the machine through **G-STOCK**.

List Of Controlled Automated Devices

ELECTROCLASS software teams have extensive experience with controlling most of the machines in the market including all of the leading brands in the Automated Storage Universe. We are very confident that even if we encounter a machine not yet controlled, we will be able to propose a solution for taking control through **G-STOCK**.

Development Protocole

When Machine-specific Protocole development is required, the protocole development will appear as a separate paragraph in Electroclass offerings. This only occurs if the machine is not in our library of supported protocols. All Protocole development is in the form of a communication DLL – a separate "driver" called upon by your software.

This means that on arrival of a machine that was not in our library, only the DLL needs to be changed for the machine to be linked up to **G-STOCK** software. Upgrades and extensions are therefore made easy.

Also, if your machine can not be controlled, we can replace your electric panel in ours.
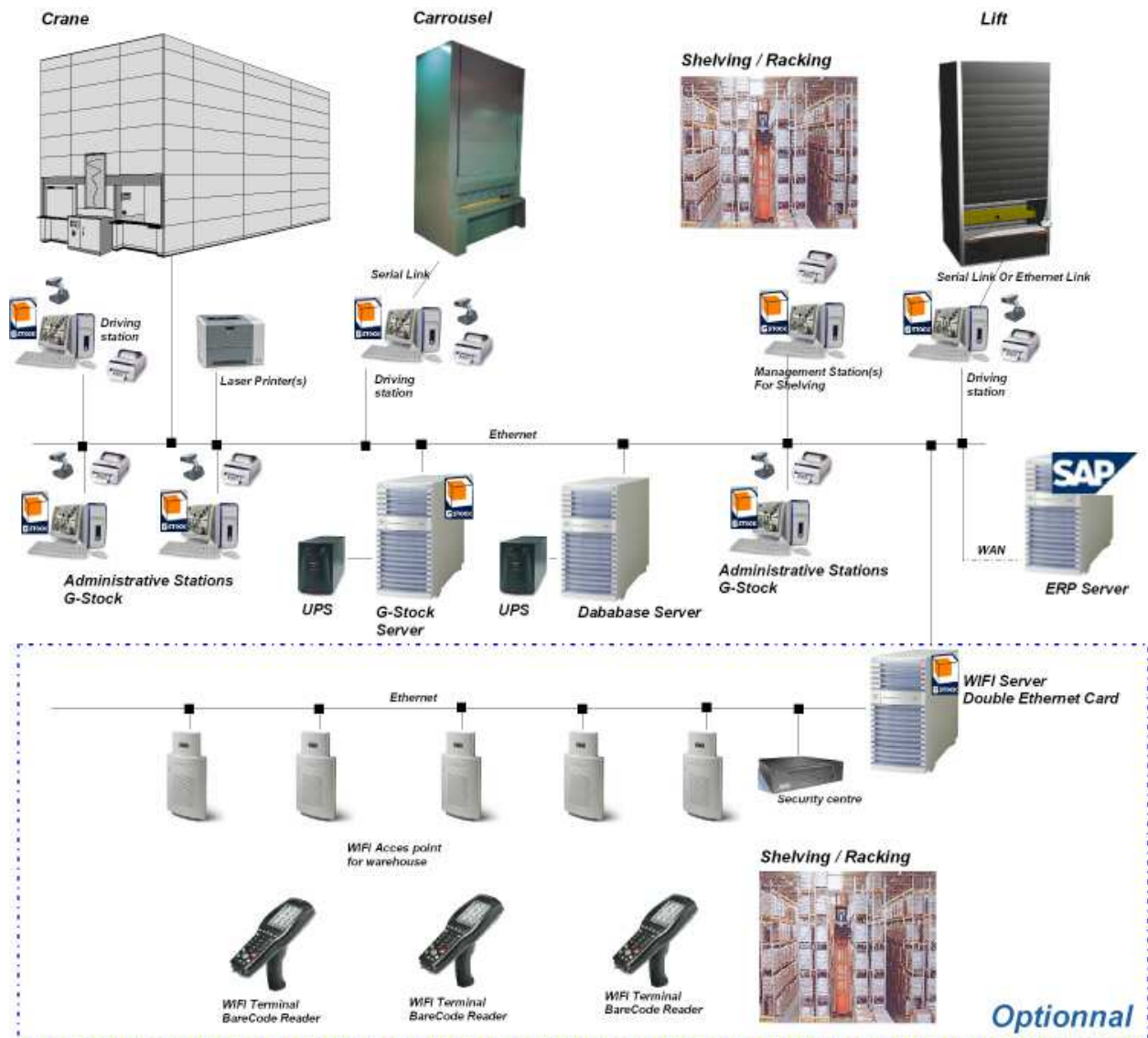
Classic Applications

■ *Production Stores*

The Central Stores of a Production Facility can be managed by **G-STOCK**. The software can ensure that Stock data is sound, and that Transactions are traceable. Pick lists for production orders, and load lists from purchasing/goods received are transferred directly from the central ERP or other Software managing the production process.

G-STOCK also allows urgent picks to be handled, with allocation to Production Orders or Service Orders.

Benefits from **G-STOCK** include fast response time and improved flexibility. It is also possible to issue automated reorders of items based on minimum quantity thresholds assigned by location (SKU).

■ *Order Picking*

A PICK CIRCUIT can be defined and printed by **G-STOCK**, moving the operator through pallet racking or other Storage systems, in such a way as to minimise length. Once the Picks have been accomplished, the operator can confirm the entire circuit in one transaction. A packing list slip is then issued for the order.

When receiving goods, **G-STOCK** automatically will propose a SKU with capacity suited to the pallet or other goods packaging format.

For real-time tracking of Stock movements, **G-STOCK** connected to the Radio module provides a fully functional solution.**G-STOCK** imprime un plan de cheminement retraçant les palettes ou produits à sortir en organisant la tournée au plus court. Une fois le picking terminé, l'opérateur valide sa tournée en une seule fois. Un bordereau récapitulatif des sorties (bordereau de colisage) est alors émis pour cette commande.

Lors des réceptions, **G-STOCK** propose automatiquement en fonction de chaque capacité de produit les emplacements les plus appropriés pour chaque palette.

G-STOCK permet la connexion du **module radio** permettant une utilisation en temps réel des mouvements de stocks.

■ *Maintenance Store*

Maintenance equipment can be managed and tracked by **G-STOCK**. Consumption of items logged to a cost centre can then be forwarded to the company accounting software.

Machine-specific accounting is possible, so that relevant repair statistics can be generated.

Parts Missing or below threshold can be automatically reordered and **G-STOCK** keeps track of stockouts and passed-date deliveries.

■ *Self Services Stores*

24-hour 7/7 Availability can be achieved with **G-STOCK**, in association with automated storage machines, while still tracking the picking operator and the cost-centre account.

User-authorization groups allow you to control what items may be picked by which persons.

Hardware and Infrastructure

▪ *Recommended Central Server*

We recommend a Windows 2000/2003 dedicated server, fitted with a UPS, Virus Protection Software, and a Backup. The database can be stored on another server.

Processor	**XEON** or superior
Live memory (RAM)	**4 Go**
Hard Disk capacity	**10 Go**
DVD ROM reader	48X
Operating System	**Windows 2000/2003**

Automated storage machines, while still tracking the picking operator and the cost-centre account.

▪ *Recommended Workstation*

Processor	Dual Core
Live memory (RAM)	1 Go
Hard Disk capacity	10 Go
CD ROM reader	48X
Interfaces Storage machines	**RS232** required for exchange with Automated
Display	SVG1 **15" / 17" Flat**
Operating System	**Windows 2000 / XP pro**
Network	10/100 Mbits

▪ *Printer for Bar-Code Labels*

G-STOCK is conceived for printing BAR-CODE labels as needed while loading or picking items. The labels are very versatile. They can be tailored to your requirements by your own application managers. Windows printer drivers are required on all workstations where such printers are connected.

▪ *Radio Handheld Terminals (For Radio Applications)*

Handheld Terminal WIFI / Batch MC3090 :

Handheld Symbol WIFI Terminal with integrated trigger handle is conceived for printing BAR-CODE labels as needed while loading or picking items. The labels are very versatile. They can be tailored to your requirements by your own application managers. Windows printer drivers are required on all workstations where such printers are connected.

1. Radio Handheld WIFI / Batch MC 3090

2. Docking station with 4 positions Ethernet / Additional Battery

Codereader	Laser
Keyboard	38 alphanumeric keys
Operating System	Windows CE / pocket
Touchscreen	Coulour 320 x 320
Memory	64Mo Flash / 64 Mo RAM
Display	SVG1 15" / 17" Flat
Operating System	Windows 2000 / XP pro

▪ *Network and Database*

G-STOCK requires an underlying network in order to function. Normally, it will use the Enterprise network, unless a dedicated independent network is specified by the client. **G-STOCK** builds on a database. Standard implementations are based on SQL-Server and on Oracle. Requests for other databases will be considered; normally it will be possible to implement **G-STOCK** on other databases, but not without additional cost.

Remote Queries or Requests through **e-G-Stock Intranet**

SERVER

PERIPHERALS
Printer, Bar Code reader, Bar Code Printer, Back Up Weighing System, Radio...

G-STOCK: a more Detailed Description

Let us lead you around **G-STOCK**, our Stores Management Software.

It is suitable for all sorts of storage, whether static (pallet racking, shelving, massive floor storage) or automated (vertical or horizontal carousels, lifts, Miniload crane systems, Massive Automated Storage and Retrieval Systems.

This software manages for you:

- Identification of Items
- Stock and inventory of items,
- Location in Stock Keeping Units (SKUs) of all sorts,
- Optimisation of the loading and picking transactions.
- Traceability
- Tracking of different sorts including
    - Batch Number
    - Expiry Date
    - Serial numbers

This last function is essential to the ability to withdraw, quarantine, segregate or apply other special treatments to subsets of items.

All information in **G-STOCK** can be easily retrieved – by viewing, printing or data export. A number of fields are relatively open (to facilitate for example correction of input mistakes). QUERIES can be generated from the database, and can be saved, by any end-user with manager authority.

General

G-STOCK organises materials flow in each of the Stores Zoned area.

G-STOCK permanently keeps a complete tally of Storage Locations (SKUs), of occupied or free space, and gives managers and operators precise information to manage the stores properly. . It can assign one or several items to a location or SKU – according to a control parameter which is defined at setup as explained below.

Bulk Locations or Single Reference Locations

G-STOCK manages two types of locations.

Type ONE is a SINGLE REFERENCE location. When batch numbers are managed, it is a SINGLE REFERENCE, SINGLE BATCH NUMBER location. No two different items (and no two different batch numbers of the same item) may share the same location.

This is the setup parameter applied whenever items are physically separated (as in a plastic bin)

Type TWO is a BULK location or a MULTI-REFERENCE location.

In such locations, **G-STOCK** allows the storage of multiple references. The location is declared "FULL" by operators when the location cannot take any more items.

This mode is typical of bulk items, or of miscellaneous items stored on a palette, in a shelf, or in a bin of an automated machine.

▪ *Volume And Location Management*

G-STOCK manages all space, whether empty or occupied. The same item can be stored in several locations of different types or specification. Locations can be assigned randomly, or there can be a pre-defined layout that is respected, according to the desires of the Stores manager, in order to fit his operating modes.

G-STOCK will, during the loading process, propose locations for items following rules. From the item dimensions, **G-STOCK** will locate a suitable location (or a sub location, if locations are shared). Operators may however assign locations manually, in this case the software checks that the location assigned fits (is consistent with dimensions).

G-STOCK will, during the picking process, select the location to be picked from (assuming multiple locations), according to the rules laid-down for the item (e.g. FIFO or other picking rules). These rules may however be overridden by the operator, who may manually choose the location to pick from.

G-STOCK allows consultation, printouts, and downloads of information on free and occupied locations directly from the software screens.

▪ *Fine Tuning Of Item Information Set*

G-STOCK allows you to fine-tune the set of information on items to be managed.

Typically, the information managed will cover the definition and management rules of an item.

A classical information set would include:

- Stores identification
- Item part number or reference
- Item Long and short names
- Supplier
- Alias
- Storage unit (units, kilograms, litres, metres …)
- Type of packaging
- Unit weight
- Rules for storage (following Tools, Consumables (MRO), Expiry date sensitive, Batch management, Serial number …)

G-STOCK ensures the traceability of items in store, and will track

- Quantities by location

- Batch numbers

- Serial Numbers

- Goods Received Notes on loads,

- Job number or cost centre on picks

- Expiry dates

- Packaging numbers

G-STOCK furthermore keeps history on all stock transactions (see Audit Trail section)

▪ *Looking Up An Item*

When in need of an ITEM, it is possible to look it up through

- ▪ Internal Company part number
- ▪ Supplier part number
- ▪ Item Name
- ▪ Item family / category

Once the item has been identified, all related information (inventory, history, locations, batches etc…) can be directly viewed.

▪ *Location Assignment And Flow Optimisation*

G-STOCK's Location (SKU) management can be customised from one location to the next in order to use the method best suited to workflow optimisation and warehouse organisation.

The major strategies used are:

- ▪ Least use of space (requiring locations to be indistinctly allocatable)
- ▪ Minimise time to access (mapping parts according to A,B,C frequency observations)
- ▪ Set Locations (to fit organisational requirements)

All locations, used or empty, are managed by **G-STOCK**

- ▪ One Item may be assigned to multiple locations.
- ▪ One location have one or several items assigned to it (according to a setup parameter setting).
- ▪ Locations may be manually reserved or pre-allocated by the manager
- ▪ Locations may be assigned by frequency of call-up (a **G-STOCK** distinctive feature)
- ▪ The layout of the locations and the mapping of items can be graphically visualised.

Locations will by default be allocated in a space saving mode by **G-STOCK**

- ▪ Subject to rules laid down, the software will assign items to appropriate addresses or sublocations.
- ▪ When picking, **G-STOCK** will pick following standard rules laid down, but the operator can override these rules.

▪ *Types Of Transactions Managed By G-STOCK*

G-STOCK manages six fundamental transaction types:

- ▪ Loads (putting items in)
- ▪ Picks (taking items out)
- ▪ Returns (putting back an item temporarily picked previously)
- ▪ Moves or Location reassignment (moving an item from one location to another)
- ▪ Stock take (correcting calculated inventory values by observation and counting)

G-STOCK												
File	Load	Picking	Back	Inventory	Transfer	Prescription	Consultation	Statistics	Configuration	Manager	Window	?

List of G-STOCK menus

▪ *Item Management Modes*

We specify here the methods of managing items that can be used in **G-STOCK**

Batch Management Mode

G-STOCK manages product batches. Every time items are loaded, the batch of the items must be filled in, either by the operator, or by transfer of data from some other file. **G-STOCK** will then assign a different location for each batch number. This function can either be switched on or off for each item number (part number).

Expiry Dates And FEFO Mode

G-STOCK manages product expiry dates. Every time items are loaded, the expiry date of the items must be filled in, either by the operator, or by transfer of data from some other file. **G-STOCK** will then assign a different location for each expiry date. This function can either be switched on or off for each item number (part number).

When an item is picked, **G-STOCK** will propose the item whose expiry date is the closest (FEFO means First-Expired-First-Out), but the operator is allowed to override the suggestion and select an item with a different expiry date.

Expiry Dates And FEFO Mode

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When an item is picked, **G-STOCK** will propose the item whose expiry date is the closest (FEFO means First-Expired-First-Out), but the operator is allowed to override the suggestion and select an item with a different expiry date.

FIFO mode

For non perishable items, **G-STOCK** in FIFO mode will automatically suggest to pick from locations where the loads are oldest. To avoid wasting space, FIFO can be optimised for items having the same qualitative properties (batch, expiry°. In such cases, the software must put the items in the same location. This function can either be switched on or off for each item number (part number).

Serial Number Management Mode

G-STOCK is able to manage items with serial numbers. In this case, for items that carry serial numbers (and only for such items) **G-STOCK** will require at time of loading the input of serial numbers. **G-STOCK** will check that the input quantity of serial numbers matches the quantity of items loaded.

Likewise, when picking **G-STOCK** will require input of a specific serial number. It is possible either to choose manually which serial number, or to let **G-STOCK** suggest a serial number, on a FIFO basis for example.

This mode ensures that all serial numbers are accounted for, and that all inventory and picks are traceable. The serial number mode of functioning can be switched on or off at the item level.

Screen for setting parameters for the management mode for a given article.

Data Input And Validation Mode

G-STOCK is able to manage data through bar-codes. This applies to:

- Identification of the reference, part-number, or item-number on all transactions

- Identification of the batch number and/or serial number where applicable

- Identification of the location which has been pre-labelled with a bar-code tag.

Bar-code input cha be switched on or off at the item level, enabling **G-STOCK** to manage both items that are bar-code identified and items that are not.
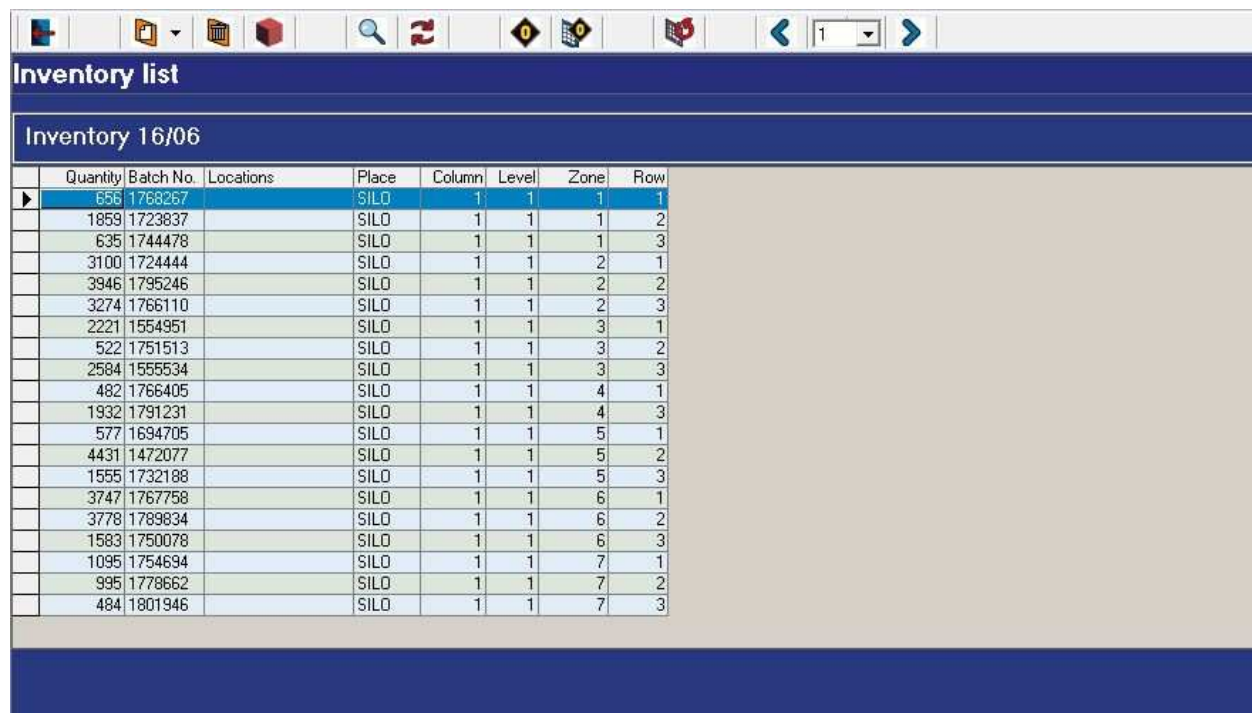
STOCK TAKES (GB) or INVENTORIES (US)

G-STOCK enables managers to use manifold strategies for stock takes (inventories in US English).

Various criteria may be established in order to conduct a stock take, such as:

- Physical Stores

- Subsets of locations (SKUs)

- Subsets of part numbers (item numbers, references)

- Items with transactions registered within a given time frame

- By expiry date

- And generally following any QUERY issued for items

Once the lists for the stock take have been established, operators can input directly to **G-STOCK** quantities counted, batch numbers, expiry dates and serial numbers. **G-STOCK** will flag directly to the operator any discrepancies observed. This real-time information allows the stock taker to recount on the spot to confirm his observation (avoiding wasting time coming back to locations where discrepancies are observed).

Inventory list

Inventory 16/06

Quantity	Batch No.	Locations	Place	Column	Level	Zone	Row
656	1768267		SILO	1	1	1	1
1859	1723837		SILO	1	1	1	2
635	1744478		SILO	1	1	1	3
3100	1724444		SILO	1	1	2	1
3946	1795246		SILO	1	1	2	2
3274	1766110		SILO	1	1	2	3
2221	1554951		SILO	1	1	3	1
522	1751513		SILO	1	1	3	2
2584	1555534		SILO	1	1	3	3
482	1766405		SILO	1	1	4	1
1932	1791231		SILO	1	1	4	3
577	1694705		SILO	1	1	5	1
4431	1472077		SILO	1	1	5	2
1555	1732188		SILO	1	1	5	3
3747	1767758		SILO	1	1	6	1
3778	1789834		SILO	1	1	6	2
1583	1750078		SILO	1	1	6	3
1095	1754694		SILO	1	1	7	1
995	1778662		SILO	1	1	7	2
484	1801946		SILO	1	1	7	3

It is also possible in **G-STOCK** to conduct stock takes "on the fly" by counting an item at the time of loading or picking.

Journal of Movements

It is possible to do rolling (continuous) stock takes, and to conduct simultaneous stock takes on several warehouse locations or machines. **G-STOCK** logs inventory information, and keeps a journal of stock takes.

Historical movements

Selection criteria

| Date of Movement | Higher Equal | 21/05/2009 | | | |

☐ Picking ☐ INVENTOR ☐ TRANSFER
☑ Entry ☐ BACK ☐ Loan ☐ VU

19332

Date of Movement	Reference	Description	Quantity	Quantity Requested	QteStockEmpl	Quantity in	Pre values assig
04/06/2009 08:49:40	519896	BG MQ 200 52	1	1	0	3	
04/06/2009 08:49:40	519896	BG MQ 200 52	1	1	1	4	
04/06/2009 08:49:22	747666	PASSIFLEUR * NT 9812 RP 931110 C1C:	1	1	1	11	
04/06/2009 08:49:22	747666	PASSIFLEUR * NT 9812 RP 931110 C1C:	1	1	0	10	
04/06/2009 08:49:13			1	1	0	0	
04/06/2009 08:49:13	043812	CITRAL EQ *RP 043809 A 7/1/88	203	203	0	6	
04/06/2009 08:48:59	962529	DEO KYLLI * VERSION SMN DU 662728	1	1	1	1	
04/06/2009 08:48:59	962529	DEO KYLLI * VERSION SMN DU 662728	1	1	0	0	
04/06/2009 08:48:40	67E110	KRACK EX483846*IFRA DU 955831 EXC	1	1	1	28	
04/06/2009 08:48:40	67E110	KRACK EX483846*IFRA DU 955831 EXC	1	1	0	27	
04/06/2009 08:48:08	122160	ALC FURFURYLIC	1	1	0	0	
04/06/2009 08:48:08	122160	ALC FURFURYLIC	176	0	176	176	
04/06/2009 08:48:04	AD0768	AU COIN DU FEU	1	1	1	1	
04/06/2009 08:48:04	AD0768	AU COIN DU FEU	1	1	0	0	
04/06/2009 08:47:55	042742	ALLYL AMYLGLYCOLATE*AB*	380	0	380	401	
04/06/2009 08:47:55	042742	ALLYL AMYLGLYCOLATE*AB*	1	1	0	21	
04/06/2009 08:47:37	043812	CITRAL EQ *RP 043809 A 7/1/88	203	0	203	209	
04/06/2009 08:47:37	043812	CITRAL EQ *RP 043809 A 7/1/88	1	1	0	6	
04/06/2009 08:47:35	95F652	EXQUISE	1	1	1	7	
04/06/2009 08:47:35	95F652	EXQUISE	1	1	0	6	
04/06/2009 08:47:17	708718	TUBERATE DE METHYLE DPG * = 3625	1	1	1	21	
04/06/2009 08:47:17	708718	TUBERATE DE METHYLE DPG * = 3625	1	1	0	20	
04/06/2009 08:47:03	041970	ADOXAL *	27	0	27	25716	
04/06/2009 08:47:03	041970	ADOXAL *	1	1	0	25689	
04/06/2009 08:47:00	690504	VERVEINE	1	1	1	48	
04/06/2009 08:47:00	690504	VERVEINE	1	1	0	47	
04/06/2009 08:46:40	679497	NEUTRAL SANS ODEUR	1	1	1	146	
04/06/2009 08:46:40	679497	NEUTRAL SANS ODEUR	1	1	0	145	

Miscellaneous Statistic

G-Stock can provide statistics such

- Statistics on movements (by type, quantities or by frequency of movement)

- Occupancy rate for a warehouse or a place

- Personal queries, …