DATASCOPE

WMS FOR SYSPRO

MODEL BASED IMPLEMENTATIONS

DATASCOPE MODEL BASED IMPLEMENTATIONS

These standard DATASCOPE implementation models have been created over time to offer a range of standard implementation approaches that are proven and tested and are running at existing clients.

Selecting a standard model ensures that the implementation on site is effective and allows for less risk than in cases where new software development has been completed. Over 90% of new clients will be able to select a standard model with very little or no additional software development required.

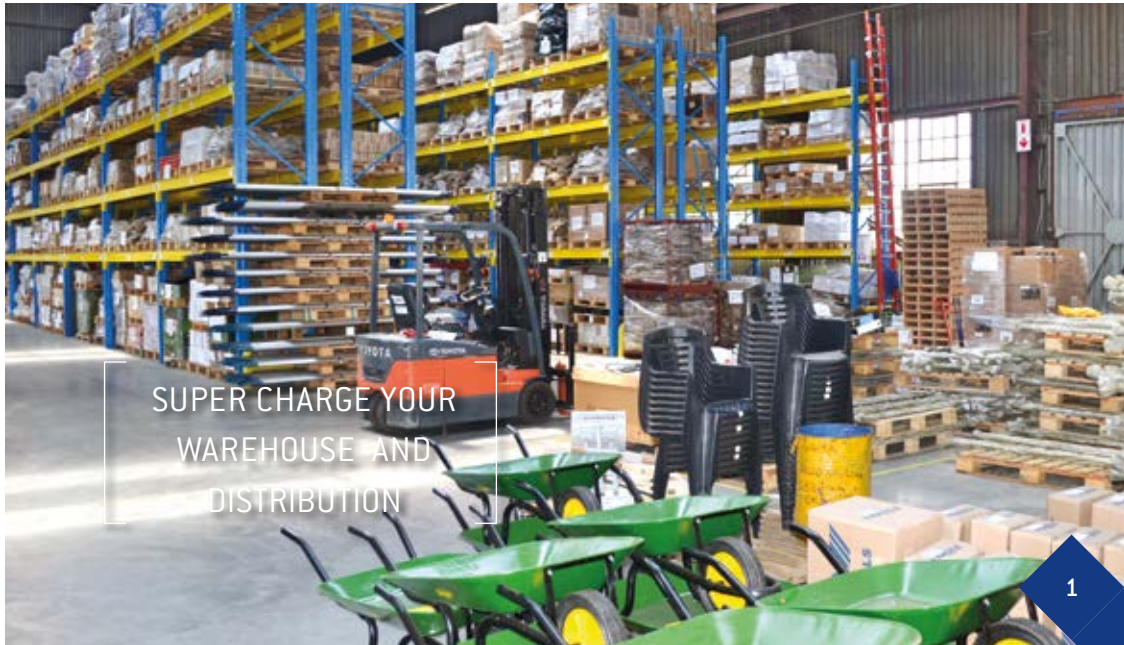
MODEL A - SIMPLE DISTRIBUTION CENTRE MODEL

Even the simpler distribution centre becomes difficult to control when the number of transactions increase to the point where manual transaction posting is simply inefficient. When this happens stock integrity is compromised and the effectiveness of the DC is badly affected.

In the simple DC model, DATASCOPE offers a full end to end WMS solution. This includes the following modules:

WAREHOUSE LAYOUT AND ZONING

Full warehouse layout management is offered. Setup of bin locations by type includes pick face bins, bulk locations, reach truck locations and receiving or marshalling bins. In the pick face locations, SKU's are linked to bins with minimum, reorder and maximum levels as



well as settings for the source warehouses for replenishment.

All bin labelling is created and printed from the software. Other labelling includes general product, carton and pallet labelling. Basically all warehouse labelling needs are managed from the software.

Within each SYSPRO warehouse the software allows the user to setup a detailed structure including Areas, Zones and Bin locations. These structures are used by the picking processes to optimise the movement of material handling equipment (MHE's) and manual floor based pickers.

PURCHASE RECEIPTING

The receipting module includes all SYSPRO based receipts. Typically most receipts are Purchase Order based but the software also supports LCT receipts, SCT receipts, Job receipts, GIT receipts etc.

Each of these receipting processes can be processed via PC based entry screens of through mobile scanning devices. Each receipt processes the correct transaction automatically into SYSPRO on a real time basis. It also automatically prints tracking labels for the receipted product.

In DATASCOPE WMS we make use of a Tracking ID concept. Every trackable entity is barcode labelled with this TrackingID to give it a unique tracking number. This number will never repeat and is assigned to this pallet, drum or carton for the life of that traceable entity. In some EMS products this is referred to as a license plate.

PUT AWAY

Various put away strategies can be applied. In simple warehouses we may allow put away to any area or zone within the warehouse but in more complex warehouses we may apply on of the following put away strategies:

- *Zone Put Away* – The scanning process forces the put away into any bin in the products default zone
- *Zone Open Bin* – The scanning process forces the put away into a specific open bin location
- *Pick face* – the put away will direct straight to the pick face bin

CUSTOMER SALES ORDER RELEASE

The DATASCOPE WMS solution includes an advanced order releasing and stock reservation process. With many standard picking strategies and the ability to tailor new strategies the software allows the client to release wave based picks into the warehouse. Each picking slip release manages all aspects of reserved and available inventory in the warehouse. Depending on the reservation rule selected product can be automatically reserved from the most optimal picking locations.

As a simple example, the release of a sales order line may reserve full pallet quantities from high pallet locations in the bulk area of the warehouse while reserving the split packs from a dedicated pick face location on the warehouse floor. Many such rules exist. Some of these reservation rules run through over 10 layers of logic. These rules ensure that the picking process moves through the warehouse in the most optimal manner to speed up the process.

Released picking slips are printed as either a barcoded picking slips label or as a traditional A4 picking slip document. All picking is directed on the scanner. In more advanced models (see below) the picking slips can be assigned directly to scanners in various areas or the warehouse.

PICKING

Picking is all mobile scanner based and all transactions are posted live to SYSPRO. Every item picked is automatically transferred to the picking pallet linked to the selected picking slip and the inventory in bin transferred to an "in picking" SYSRO bin location.

Many settings apply to the picking processes. We can configure picking at pallet level, carton level or unit level. If products have a serial number barcoded on the product this can be captured during the picking process. In some cases the pick may need the ability to over pick or under pick which is catered for and is managed with various permission levels in the software.

In the Simple Distribution Model, picking slips are assigned to pickers and are picked from start to finish by a single picker. More advanced splitting of picking slips across the warehouse are managed by other models below.

CHECKOUT

The checkout module offers a range of checkout options. In the simplest form of operation this module is not implemented at all and therefore the completion of the picking process automatically released the sales order and invoices the product.

In the simple DC model the clients typically use the standard scanner based checkout. This process involves a checker in the warehouse based in the dispatch area scanning the picking slip or label to initiate the checkout. The software then loads each picked SKU and the checker is asked to count and confirm that the units delivered to the dispatch area match before the invoice is triggered.

In other models below we explain more advanced checkout module options

AUTOMATIC INVOICING

All invoicing through DATASCOPE WMS processes automatically in SYSPRO. The WMS software posts the invoice details to SYSPRO and awaits SYSPRO's confirmation and the SYSPRO invoice number. This invoice number is stored in DATASCOPE WMS against the picking slip detail.

The invoice printing is managed by an invoice printing service in DATASCOPE WMS. This process automatically logs into SYSPRO and processes the printing of the invoice to the linked invoice printer assigned to the checkout user's code. This means that we can print invoices to different invoice printers in different areas of the warehouse.

LOAD PLANNING

The load planning module offers a graphical display of all picking slips released by delivery route. Each picking slip line shown is colour coded to easily see what status the picking slips is currently in. The screen is used by the despatch department to expedite picking slips to ensure full loads on the delivery vehicles.

MODEL B - TYPICAL LOT TRACEABLE DISTRIBUTION CENTRE

In the typical lot traceable warehouse there are a number of key aspects that need to be managed to ensure that the oldest lots are picked and distributed first. Also there is an aspect of expiry date control to ensure that any product nearing its expiry date is highlighted and sold on a discount basis before it expires.

The Lot Traceable DC operates as described in the processes found in the Simple DC model above but all transactions are controlled with the selected lot number.

Typical Lot Traceable warehouses are found in the Food, Pharmaceutical and Chemical industries.

Due to the complexity that lot tractability adds to a warehouse, it is almost impossible to manage a lot based warehouse manually. Many food and chemical companies have implemented DATASCOPE WMS for the simple reason of been able to control their lots/ batches effectively.

Beside all transactions supporting SYSPRO based lot numbers, the software also offers various reports to manage lot expiry dates.

MODEL C - KANBAN FACTORY (RFID)

The Kanban solution is an advanced solution developed for repetitive manufacturing operations which are looking to take their existing manual Kanban system to the next level.

All component warehouses, raw material warehouse and finished goods warehouses are operated as normal in the "traditional" WMS processes. In other words, PO receipt or Sales order picking is run in a normal WMS environment as described in the Simple DC model above.

The manufacturing process however are managed using RFID tagged Kanban cards. The high level transaction processing is managed in the software as follows:

KANBAN CARD CREATION – The software allows a planning department to create new Kanban cards, assign RFID tags and configure the RFID tag to the specific card. Each Kanban card is actually just another TrackingID in the DATASCOPE WMS solution.

KANBAN BOARD – The software allows the planning department to manage the number of Kanban cards on the various planning boards. By activating and inactivating cards the planners can increase or decrease the manufacture of inventory.

MACHINE BASED SCANNING – At each production machine or within close proximity to production units RFID readers are installed. As each machine produces another Kanban carton full of product, a Kanban card is placed in a sleeve on the Kanban carton and the carton is moved past the RFID reader. In many cases this reader is placed on the side of a slide/gravity conveyer. In other instances the Kanabn cards are taken off the

THE KANBAN SOLUTION IS AN ADVANCED SOLUTION DEVELOPED FOR REPETITIVE MANUFACTURING OPERATIONS

cartons at a logical point and manually swiped at a RFID reader.

Every time a card is read at the RFID station it will process a backflush of product from a WIP warehouse in SYSPRO into a typical inventory controlled warehouse. This transaction also activates the Kanban card and updates its quantity to the standard Kanban pack size.

PICKING – The picking of Kanban cards operates in the normal DATASCOPE WMS processes as each Kanban card is actually just another reusable TrackingID in the software.

BACK TO PLANNING BOARD – as soon as the product is picked for a sales order or to be used in the next production process, the card is removed from the product and is scanning in the planning office back to the planning board.

This solution should not be implemented unless the client already has an effective Kanban system in operation.

MODEL D - ADVANCED CONVEYOR AND VOICE PICKING

This is the most advanced DATASCOPE WMS solution. It involves using Voice based picking to cartons which move through zones on a conveyer systems.

The solution is currently in operation in an apparel distribution centre and in a cosmetics distributor. The solution is applicable to any large DC where there is a high volume of carton based fine picking across a wide SKU range.

In this model a conveyer system can be used at the receiving area to automatically sort incoming cartons of product for improved put away into a bulk storage racking area. As cartons are received off this conveyer each carton is scan onto a pallet. This scanned data is used to process the required purchase order receipt. This module is not mandatory to the solution.

In the main picking area the conveyer would “snake” through zones. Each zone would comprise of many pick faces and would be laid out based on product picking volumes. In a simple conveyer operation each zone would be allocated with a mix of high, medium and low running SKU’s. In more advanced warehouses the conveyer may snake through a CLS high volume picking area before moving to medium and slow moving zones.

On release of each sales order the DATASCOPE WMS software will take every sales order line and first compare the ordered quantity against the products standard pack size in the bulk warehouse area. Where the software can pick full cartons from bulk it will release barcoded carton labels for these picks. Any quantity less than the standard pack size will be cubed into a range of different sized carton and will be induced onto the conveyer system to be picked in the pick face zones. Pick face picked cartons will be barcode labelled and inducted onto the conveyer system at the induction station and will flow down the conveyer. The conveyer system will be equipped with in-line scanners at each zone. As the carton arrives at the zone the in-line scanner will scan the carton label and based on this will divert the carton into the zone for picking or flow the carton on to the next zone.

Any carton arriving in a zone will be picked using a voice picking device (can also be picked on a scanner). The voice system has two modes of operation, one is a single carton pick where the picker reads the carton number and proceeds to pick the required products from this zone. The second option is a trolley picking process where the picker first reads a number of cartons onto a trolley then moves through the racks picking various units in pick face bin sequence into the correct cartons on the trolley.

The voice systems makes use of check digits to ensure that the picker goes to the correct bin for picking. Also, a scanning option is available to double check the actual product in the bin. If this is turned on the voice kit is paired to a Bluetooth scanner and the kit will require the picker to scan one item as he/she removes the inventory from the bin.

In the case where the picker cannot pick the required units as the bin is empty a short pick will be performed. The software immediately then looks for an alternative bin location in the same zone where this missing product can be found. If more inventory is found the software will generate a new reservation and will take the picker back to this bin for picking.

Once the carton has moved through all required zones and all the picking is complete, it will flow down the conveyer to a checkout area. Here we can perform an in-line mass check on the carton and pass or fail the carton. At the same time the software compares the original

requested items to pick to what has actually been picked. If either of these checks fail the carton will be diverted into a QA check area. Missing items can be picked via a scanner to correct the carton or the carton can be over written as a short pick and placed back on the conveyer.

Typically the carton now gets closed in a lidding process and then flows into the despatch area. Here the DATASCOPE WMS software can sort the cartons into various despatch spurs. In each spur the despatch staff scan each carton and place it together with its associated cartons in a bin location. When the last carton arrives the scanner pops up a warning to the user to show that the order is complete and gives the invoice number. The user will collect the invoice and attach this to the last carton before handing the order over to a logistics service provider to perform the delivery.

MODEL E - MHE DIRECTED DISTRIBUTION CENTRE

The MHE (Material Handling Equipment) directed DATASCOPE WMS model is used by advanced warehouse where the main constraining element in the picking process is expensive material handling equipment.

In this mode of operation the sales order releasing process with analyse every order line being released for picking and will assign the picking function to the most appropriate MHE.

As an example. A typical MHE type distribution centre may have bin locations at floor level where multiple SKU's are held in multiple locations at carton level. Then the warehouse may have a mix of broken pallets of single or multi SKU pallets and full single SKU pallets at a higher level.

When the order is released, any fully reserved single SKU pallet can be picked using a traditional reach truck. This pick is simple as it involves simply picking the entire pallet. Any high level pick requiring a number of cartons off a pallet would be assigned to a man up picking device while any mixed carton or unit picking from the floor level would be assigned to a picker using a pallet jack.

As orders are released to the warehouse the picking slips are queued by MHE type. As a picker completes a picking slips he/she will click a "fetch now" option on the scanner and the next picking slip for that pickers MHE type will automatically be assigned to him/her. Various priority sort orders can be applied at this point.

The picker names can also be moved from one MHE type to another depending on the work load by MHE.

MODEL F - DISTRIBUTION CENTRE WITH AREA-BASED PICKING

The Area Based DC is similar to the MHE model but is different in the sense that the released picking slips are automatically released to each area of the warehouse.

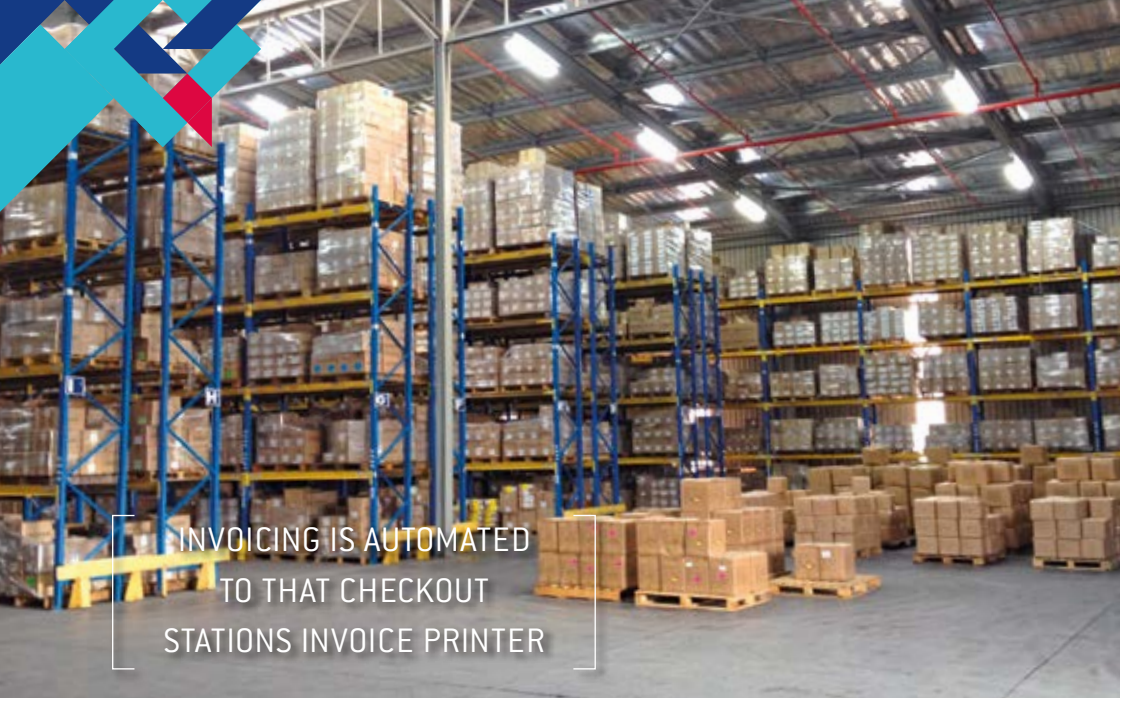
In other words if we have a very large warehouse we may structure the warehouse with 8 or 10 areas. Within each area we would have multiple zones and within the zines multiple bin locations.

As the order is released into a picking slip the reserved lines for picking area grouped by area. The pickers based in each area will use the scanner based "Fetch Now" function to load the next picking slip onto their name for their area.

Each area will then pick then order independently and will moved the picked products down the checkout area. During the picking process tote labels are placed on each carton of product so that the checkout area can associate the picked cartons to the original order.

At the checkout stations the cartons are handed over for final check and invoice. The scanner can be used to assign a pick to a checkout station so that we can see where the product has been placed. Also the QA audit scan function is sometimes used here to allow the checkout to pre-check totes delivered to this area.

As the totes are moved to the actual checkout station, the tote label is scanned and the PC based WMS screen shows all detailed relating to this tote (including what has been picked into it) as well as showing related totes that are complete for this order. The checkout is allowed to check and release to invoice just this tote or can pull the linked totes together and can check all of them before releasing the invoice.



The check can be a combination of physical unit checking and or mass based checking. At this time the actual carton mass is entered and the data passed to the LSP (Logistics service provider).

Invoicing is automated to that checkout stations invoice printer. The physical cartons are sealed, the invoice is place in a sleeve on the outside of one of the cartons. Each carton is given a new printed barcode customer delivery label printed as part of the checkout. These labels are used by the LSP for delivery details.

MODEL G - CARTON OR TOTE DRIVEN DISTRIBUTION CENTRE

In many distribution centres the client would like to pick product directly into barcode labelled cartons or totes.

The carton and tote driven model again makes use of all standard DATASCOPE WMS functionality as described in the Simple DC model but during the picking process it differs.

As pick slips are released the software will either ask the user to assign a carton or tote. All items picked are scanning onto this carton or tote. Once full, the picker will simply select “next carton” or “next tote”.

At the checkout stage one of two checkout processes can be implemented. One is a mass based check where each carton or tote is simply mass checked to confirm the content. When the product is of a high value we can implement a SKU based mass check. Here every stock item is unpacked and mass checked. The second option is a key board wedge scanned check.

Each carton or tote is placed on a scale and the mass checked. Then the software expects the user to scan every item in this carton as a second check.

Once all cartons or totes linked to this order have been checked the software prompts the checker to complete and invoice the order. The invoicing takes place automatically in SYSPRO and the invoice documentation is printed to the correct checkout station. At this point detailed delivery carton labels and a packing slip is printed.

The completed order is handed over to the LSP (Logistics services provider) and at the same time the DATASCOPE WMS software passes over the orders details in a web service connection.

MODEL H - SHARED INVENTORY AND NON STOCKED PROJECT-BASED DC

For those clients running SYSPRO in a shared inventory environment with multiple sales companies in SYSPRO all working off a single shared inventory base, DATASCOPE WMS as a solution to manage this.

In this case all sales orders are loaded into SYSPRO as normal in the various sales companies. As these orders are released for picking in DATASCOPE the software seamlessly releases picking slips for the different companies to the DC in a common format. The pickers in this environment have no idea that they are actually picking orders across different SYSPRO companies.

The picking processes are remain standard through to the checkout area. At checkout the scanner based checkout would be installed. This checkout is intelligent enough to automatically release and invoice the order in the correct SYSPRO Company and to trigger the invoice print to the correct company based invoice printer.

Coupled with this solution is a full non stocked management module. Sales orders can be taken on for non-stocked items in SYSPRO. The SYSPRO software will automatically prompt to create a linked purchase order for these goods. At the time of receipting the good from the supplier, the receipt is processed in DATASCOPE WMS as normal but in this case the software prompts the user to print a barcoded label for these goods. This label prints the linked sales order number, customer, delivery address and other details. These labels are placed on the goods so that they are not mistakenly sold to an incorrect customer.

Once the product has been labelled it is move directly into the dispatch area. If this products was ordered together with other stocked items the DATASCOPE WMS solution checkout is intelligent and will request the checker to collect the non-stocked items from the dispatch cage. The checkout then releases and invoices all items.

A further function allows for picking on project orders. In this mode a single large sales order is released into picking slips as the inventory becomes available in stock. These picking slips are picked and routed to a project checkout area. Once the last picking slips comes through the software prompts the checker to confirm that all items have been picked. The checkout scanner process now loops through each linked picking slip to ensure that all goods are correct before printing the SYSPRO invoice.

MODEL I - LOT TRACEABLE FACTORY

The Lot Traceable Factory model is designed for DATSCOPE implementations in various manufacturing environments. It is particularly strong in any manufacturing that involves blending and packaging operations such as in the food and chemical industries.

This model uses standard DATASCOPE transactions for raw material control and finished goods control but is has a number of special features for manufacturers. One feature is the quality control module that can be used to place receipted inventory on hold while a quality process is managed in the software. On completion of this process the inventory is released from QC hold and can flow on to downstream operations.

An advanced job picking module reserves inventory in standard pack sizes from a bulk warehouse while creating a linked picking slip for the remaining quantities in a pick face warehouse. This process allows for neat and effective inventory control in the main raw materials warehouse as all product is stored in standard pack sizes.

Receipting of manufactured product's back be processed as job receipts or backflush transactions. Again a QC process can be followed before product is moved on.

Lot tactility is maintain throughout the process if the product is flagged in SYSPRO as tracable.

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