DIFS – Integrated Folding System

We are pleased to announce the **Duplo Integrated Folding System**, a range of 5 modules that further extend the inline capabilities of the DC-445 and DC-645.

"Total finishing in one pass with one operator"

1. Overview

The Integrated Folding System is a range of 5 modules purpose built to extend the inline capabilities of the DC-645 and DC-445.   In addition to the current available features of cutting, creasing and perforating, one operator can now fully finish different applications from offset or digital presses such as greeting cards, CD covers, small format 'tent' cards, brochures and leaflets – IN ONE PASS.

The core module of the range is a Folder that includes two folding knives, allowing 7 common fold patterns for heavy weight sheets without toner cracking, a typical problem for conventional buckle type sheet folders.   Other modules in the DIFS range include two alternative versions of high capacity stackers and connecting conveyors.

These modules allow as many as 18 different configurations to be assembled, complementing the huge flexibility of these systems for finishing digital colour print and providing the best possible solution for the customer.

2. Modules

DC-F1   Folder

DC-SC1   Straight Conveyor

DC-CC1   Cross Conveyor

DC-ST1   Stacker (long)

DC-ST2   Stacker (short)

To build these modules into a system, requires various connecting kits. Depending on date of manufacture, the host machine (DC-445 or DC-645) may require some upgrades.

3. Features

The core module of the range, complements the matrix creasing rule of the DC-445 or DC-645 by folding with a knife between two rollers, like a bookletmaker. Jobs that do not require folding can pass through to the high capacity stacker or into a divert tray beneath. Although the Folder features a control panel, the set-up and management comes from the host machine.


• Designed for digital print

• Two folding knives

• 110 to 350gsm

• Automated set-up in seconds

• Programming from host machine

• Job Creator version2 for DC-645

• Handles multiple items per sheet

• Flat items (e.g.postcards) can pass through without folding

• Includes divert tray for clearing incomplete pieces or as an alternative receiving area for unfolded items

• 7 common fold patterns

1: No fold   **2**: V & reverse V   **3**: C (letter)   **4**: Z

**5**: Gate   **6**: Closed gate *1   **7**: Double parallel

*1 *(crease and manual fold for jobs with >2 folds)*
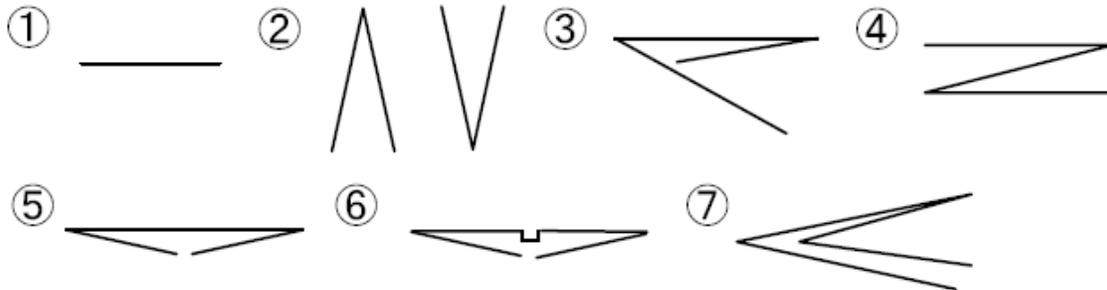
The simplest configuration possible is with the DC-445 DuCreaser and basic Short Stacker.   This system creates an economical and fast solution, processing 35ppm (A4, half fold).   Flat items can be collected in the stacker or more normally to the receiving tray below.   The addition of the SC module increases speed further to 50ppm.

Typical application
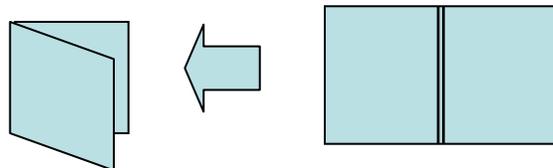
Folder with SC1 and DC-445

The next two modules are the **Straight Conveyor** and **Cross Conveyor**.   Typically these are used for transporting and synchronising items between other modules, making the system more efficient and creating greater flexibility and options for the user.

SC1 between DC-645 and Folder

When the Cross Conveyor is used <u>before</u> the folder, jobs that have been scored with the optional DC-645 Rotary Score Module are turned sideways and orientated correctly for the Folder.
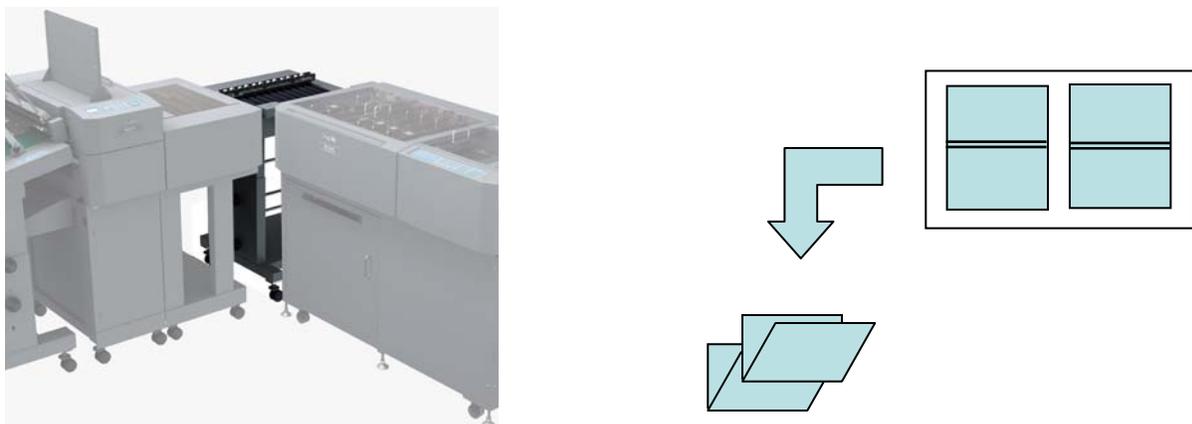
When the Cross Conveyor is used <u>after</u> the folder, jobs that have been creased with the standard Creaser Module are turned sideways and collected in one stack in ordered sequence. (Example System #13)
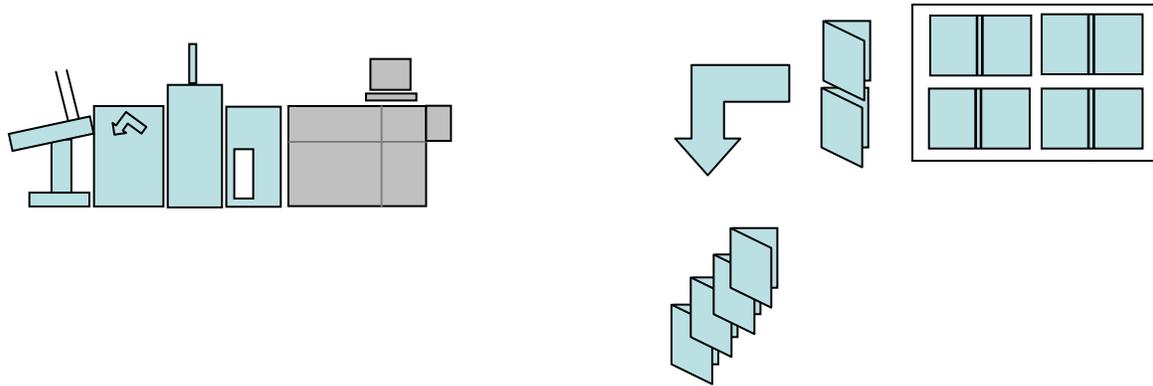
Systems can be configured that do not include the Folder, for example a Cross-Conveyor and Stacker for merging items into one ordered sequence, useful for photobook pages or direct mail.
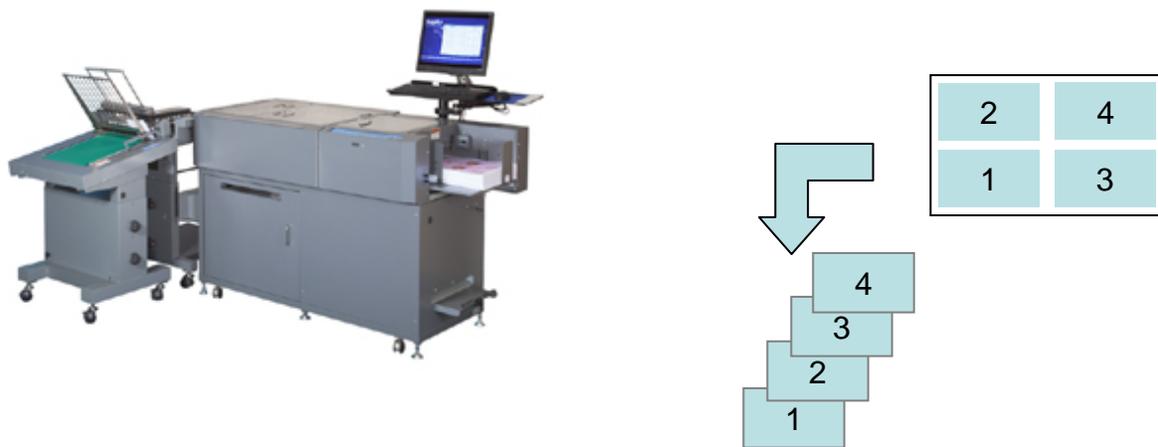
The last two modules are stackers and are located at the end of the system. They provide a huge increase over the standard delivery tray for the DC-445/DC-645, enabling a job such as postcards or business cards to be cut and stacked without needing the system to stop for unloading, increasing efficiency and reducing manual intervention.

The ST1 Long Stacker is floor standing and has a 400mm capacity, about 330 folded cards. The ST2 Short Stacker attaches to the preceding module and has a smaller 200mm capacity. Otherwise, they are identical and can both collect folded and flat items.

ST1 Long Stacker   *ST2 Short Stacker*

4. Options

Hand Feed (HFO-01) for Straight Conveyor : for finishing short runs creased elsewhere. Other features and applications to be announced.

Stacker 2 extension (STE-01) : Allows items longer than 475mm to be stacked neatly.

## 5. Possible Configurations With DC-445 DuCreaser

(For further details and connecting kits see separate document)
(BASE for DC-445 MUST be the new 883-63B)

SYSTEM DC-445 #1   445 F1 ST1
("SYSTEM A")
(as system #2 with long stacker)
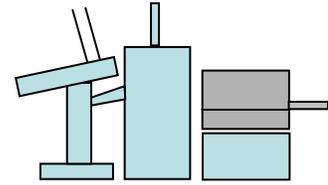
SYSTEM DC-445 #2   445 F1 ST2

("SYSTEM B")

(Simple basic creaser/folder system)
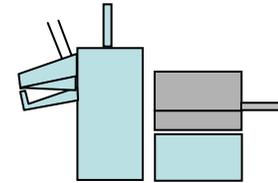
SYSTEM DC-445 #3   445 SC1 F1 ST1

(Addition of SC increases speed

from 35 to 50 items/minute)
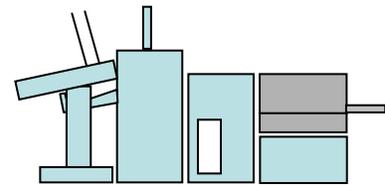
SYSTEM DC-445 #4   445 SC1 F1 ST2

(as system #3, with short stacker)
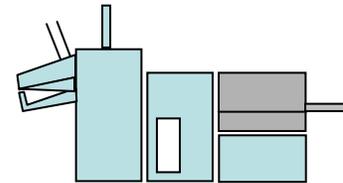
SYSTEM DC-445 #5   445 ST1

(Stacking only as alternative to standard delivery tray)
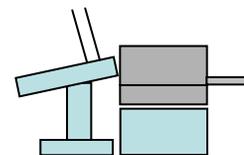
SYSTEM DC-445 #6   445 ST2

(as system #5, with short stacker)
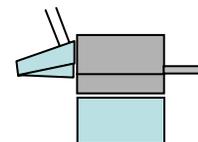
6. Possible Configurations With DC-645

(For further details and connecting kits see
separate document)

SYSTEM DC-645 #7   645 SC1 F1 ST1
*(Simple basic creaser/folder system)*
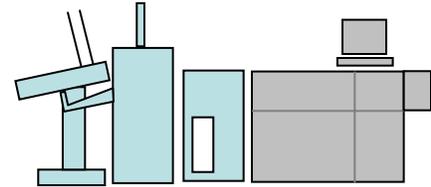
SYSTEM DC-645 #8   645 SC1 F1 ST2

(as #7, with Short Stacker)
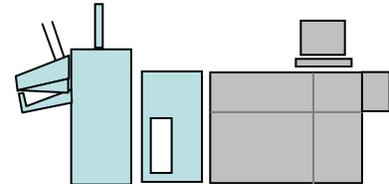
SYSTEM DC-645 #9   645 CC1 F1 ST1
*(Only available as special order*
Use System #11)
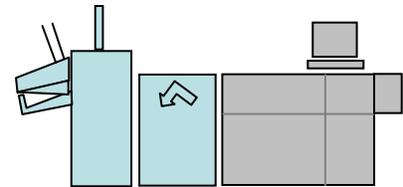
SYSTEM DC-645 #10   645 CC1 F1 ST2
*(Only available as special order*
Use System #12)
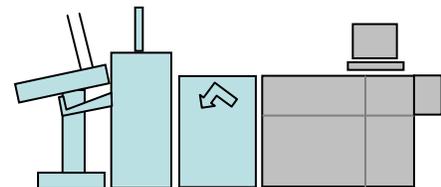
SYSTEM DC-645 #11   645 CC1 SC1 F1 ST1
(Fold items processed with Rotary Score Module)
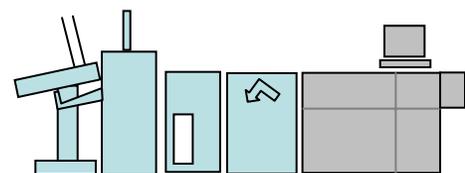
SYSTEM DC-645 #12   645 CC1 SC1 F1 ST2

*(as system #11, with Short Stacker)*
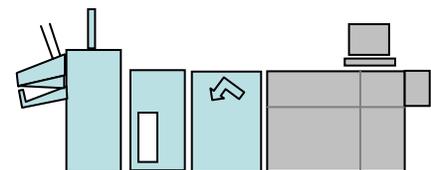
SYSTEM DC-645 #13   645 SC1 F1 CC1 ST1

(merge folded items to one stack)
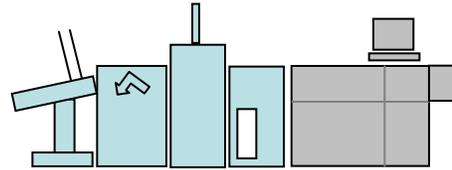
SYSTEM DC-645 #14   645 SC1 F1 CC1 ST2

*(as system #13, with Short Stacker)*
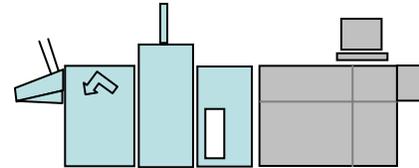
SYSTEM DC-645 #15   645 ST1

(Simple high capacity stacking to

Replace standard receiving tray)
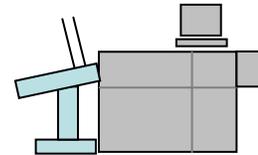
SYSTEM DC-645 #16   645 ST2

(as system #15, with Short Stacker)
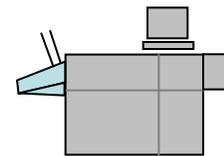
SYSTEM DC-645 #17   645 CC1 ST1

(Sort and stack sequentially printed items)
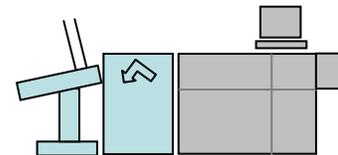
SYSTEM DC-645 #18   645 CC1 ST2

(as system #17, with Short Stacker)
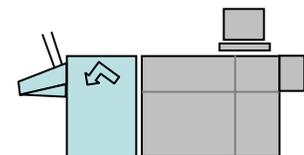
7. Factors Relevant To DC-615/DC-615Pro

References may be found concerning connection of the IFS to the DC-615.
Although this is technically possible, Duplo International has decided at this time
(October 2009) that the current exchange rates and comparison of cost between
DC-615 and IFS is not attractive. Therefore; no time has been spent on technical
appraisal nor on stocking relevant kits.   This situation will be reviewed according
to market demand, in which case please inform your Regional Sales Manager or
Peter.Dyson@duplointernational.com

8. Connection Kits

The host machine needs an inline kit for interfacing to the IFS modules. Modules
connect to each other with various connection kits that include electrical wiring
and mechanical connections.   These are all listed in section 13.

Depending on date of manufacture, the host machine may need some additional
upgrades.

Refer to the Excel file. Tab#1 shows items needed for each system. Select
desired system and all components required are in the list below:

System name and number >

Elements for this system   >

Possible upgrades and   >

options needed

Example:

SYSTEM DC-645 #7   645 SC1 F1 ST1
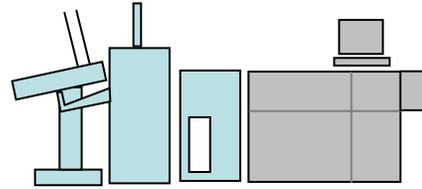
DCK-03 : DC-645 inline kit

DCK-13: connection kit 645-SC1

DCK-25: connection kit F1/CC-ST1

(no connection kit required between SC1 and F1. See below)

HF-01 Hand feed is a relevant option (for the Straight Conveyor)

Guide P9-M3251 and Plate P9-M1232 may be required as an upgrade

Also, refer to the Excel file. Tab#2 is a check, explaining how to find the number of the connection kit required between two modules.

Determining which connection kit (DCK-XX) is required

			DC-445 Inline kit (always required)	DC-645 Inline kit (always required)	Folder1	Straight Conveyor SC1	Cross Conveyor CC1	Stacker1 (Long) ST1	Stacker2 (short) ST2
		(second number) INTO	445	645	F	SC	CC	ST1	ST2
(First number) FROM			1	1	2	3	4	5	6
DC-445	445	1	01			*D	*A		15 & A	16
DC-645	645	1		03		13 & B	14 & B	15 & B	16
Folder1	F	2						24	25	26
Straight Conveyor SC1	SC	3			*B				
Cross Conveyor CC1	CC	4			42	43		25	46&60
Stacker1 (Long) ST1	ST1	5							
Stacker2 (short) ST2	ST2	6							

Principle — Each element of the IFS system is assigned a number. Example, Folder is item 2

Example — Read from left side:
A Cross Conveyor (4) connects to a Folder (2) with kit DCK-42
If reversed, Folder (2) feeding into Cross Conveyor (4) needs kit DCK-24

Key
*A additional upgrade parts may be required depending on DC-445 serial number (refer previous page)
*B additional upgrade parts may be required depending on DC-645 serial number (refer previous page)
*C SC>F1 no additional connecting parts required
*D 445>F1 no additional connecting parts required
        This connection is not possible

9. Technical Details

All of the components are described in the "Product Data Sheet" available on the Duplo PTC "Product Technical Centre"

Cutting & Slitting

Select DC-445 or DC-645

Select On-line accessories

Product data sheet is in right hand menu

The Product Data Sheet contains floorplan details of systems, each component, dimensions and weights.

10. Combination Systems

One of the key features of the DC-645 is its flexibility to handle a broad range of applications.   It may be that folded applications need to be produced, for example, from both the standard creasing rule (System #7) and the Rotary Score Module (System #11).   In this case, switching between two alternative configurations can be achieved by one operator (or two is better).   The floor should be hard and level.

i.   Start. Operator is using straight inline system (System #7). CC is not being used

CC

ST1	F	SC	DC-645
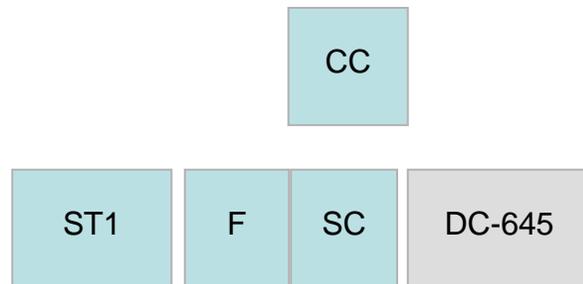
ii. Power off and unplug some cables

iii. The Stacker is disconnected and rolled away (or remains attached to the Folder if the short stacker is used, making it heavier to move)
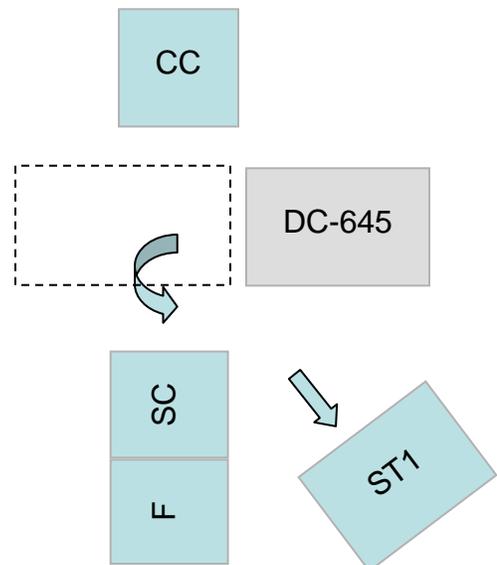
iv. The Folder and Straight Conveyor remain permanently attached together, are unplugged and rolled away from the DC-645

CC

	DC-645

SC

F

ST1

v. The Cross Conveyor is attached
(Locates on alignment pins plus one
thumb screw to keep firm)

CC   DC-645

SC

F

ST1
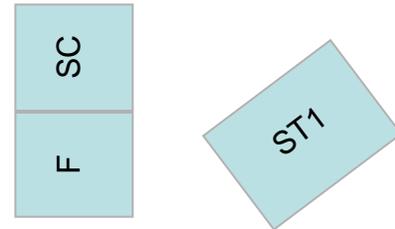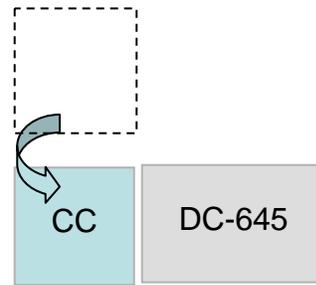
vi. The Straight Conveyor with Folder is
moved into position (Locates on
alignment pins plus one thumb
screw to keep firm)

vii. The Stacker is repositioned

viii. Reconnect, power on and restart
system (System #11)
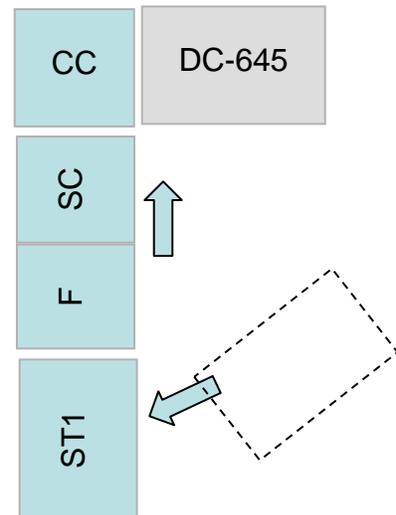
This should take no more than 10
minutes even for a large system
such as this.

To be sure all parts are available,
order all connection kits needed for
System#7 and System #11.

CC   DC-645

SC

F

ST1

11. Floorplans

System floorplans are included in the Product Data Sheet. Individual modules:

	Model name	Equipment dimension(in use) W x D x H (mm)
1	**DC-F1**	757x822x1493
2	**DC-SC1**	701x558x1085
3	**DC-CC1**	790x730x1040-1160* (*The height differs depending on configuration)
4	**DC-ST1**	710x693x1330-1451* (*The height differs depending on configuration)
5	**DC-ST2**	411x508x452

12. Job Creator

For the DC-645, Job Creator version 2.x is needed.   This includes the features needed for programming and adjusting the set-up of the IFS modules.
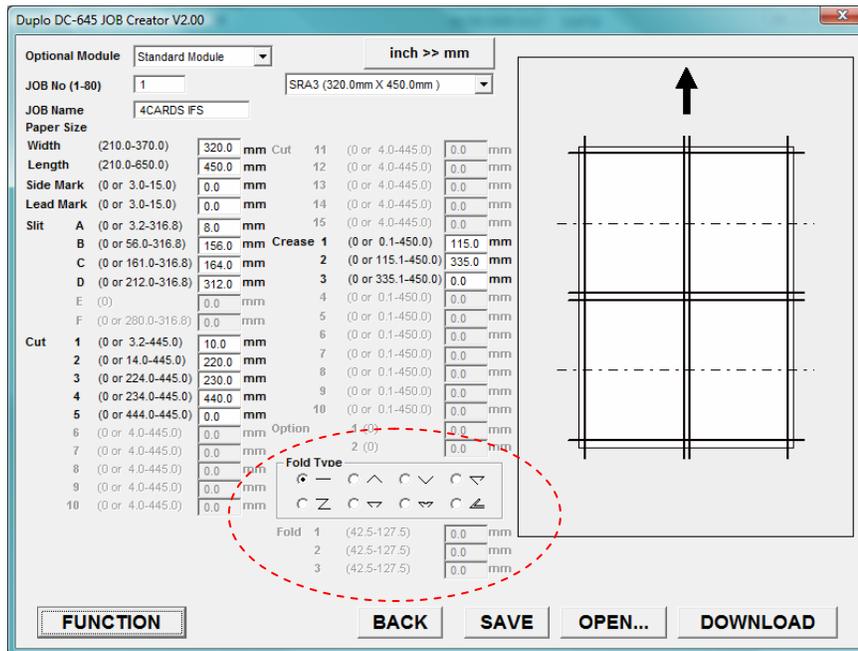
This is packed as standard with the DC-645 for machines built after August 2009, from serial number 0809***.   Latest EEproms for the DC-645, IFS modules and Job Creator are all available now for download from the PTC website.

13. Order Details

IFS Modules

	Model no.	Code No.	Package dimension (W x D x H mm)	Net weight (kg)	Gross weight (kg)
1	DC-F1	883-73	945 × 570 x 1500	96	120
2	DC-SC1	883-85	800 x 700 x 1250	65	91
3	DC-CC1	883-87	915 x 880 x 1270	78	105
4	DC-ST1	883-75	805 x 790 x 1180	54	83
5	DC-ST2	883-83	710 x 530 x 610	21	26

Connecting Kits and Options

	Model no.	Code No.	Package dimension (W x D x H mm)	Net weight (kg)	Gross weight (kg)
1	DCK-01	80C-10958	580 x 260 x 150	1.5	2.2
3	DCK-03	80C-10804	580 x 260 x 150	1.0	1.6
4	DCK-13	80C-10805	700 x 270 x 210	4.5	5.2
5	DCK-14	80C-10959	580 x 260 x 150	0.8	1.4
6	DCK-15	80C-10960	580 x 260 x 150	0.7	1.2
7	DCK-16	80C-10961	550 x 500 x 180	2.5	3.9
8	DCK-24	80C-10962	700 x 270 x 210	2.0	2.7
9	DCK-25	80C-10963	580 x 260 x 150	1.1	1.6
10	DCK-26	80C-10964	550 x 500 x 180	5.2	6.6
11	*DCK-42 **	*80C-10965*	*700 x 270 x 210*	*1.4*	*2.1*
12	DCK-43	80C-10966	700 x 270 x 210	1.9	2.6
13	DCK-46	80C-10967	550 x 500 x 180	9.3	10.7
14	DCK-60	80C-10968	380 x 260 x 110	0.4	0.7
15	HFO-01	To confirm			
16	STE-01	To confirm			

* DCK-42 by special order only

14. Images

Available from the MRC website

645 ST1.tif	645 CC ST1.tif	645 SC F ST2.tif	645 CC SC F ST1.tif	IFS Folder open.tif
IFS CC with RSM.tif	IFS ST1 1xfolded cards.tif	IFS CC with cards.tif	IFS ST1 business cards.tif	IFS SC hand feed.tif
IFS ST1.tif	IFS ST2.tif	IFS ST2 2xfolded cards.tif	IFS ST1 3Xcards.tif	645 SC F ST1.tif
445 F ST2 stacker in.jpg	445 F ST2 stacker out.jpg	445 F ST2 infeed.jpg	445 F ST2 outfeed.jpg	
445 SC F ST2.jpg				

15. Video

Available from the MRC website.   5 minutes in length, showing 5 different configurations with applications.   To request original source material to enable editing or translations, contact   MRC@duplointernational.com.

16. Fact Sheet

Separately for DC-445 systems and DC-645 systems. Available November.

17. Brochure

Separately for DC-445 systems and DC-645 systems. Available December.

18. Detailed Launch Pack

Including sales training and competitive information. Available November.

19. Press Release

Available from the MRC website.

20. Product Manager

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