

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
A	Released per PD# 12156	07/21/94	DH
B	Changed per EDR# 13407, Revised Sections 6.3, 6.2.1, 6.2.8, 6.5, 6.6, Added Sections 4.4.3, 4.4.4, 6.3.3, 6.3.4, 6.7 Delete Appendix C and Change D to C	10/19/94	DH
C	Changed per PD# 15397, Modified Section 6.1, 6.2.9, 6.4.1, 6.4.7.1, 6.4.7.2, 6.4.8.1, 6.4.8.2	04/21/95	
D	Changed per DES# 31333, Remove Section 5 Modified all Sections to include Blaster printer, Modified Section 6.2.3, Deleted Section 6.4.8, Added Appendix E and Section 6.2.12	04/21/97	JL
E	Completely revised procedure to allow for common for all production printers. References to an OCR stripe on all label drawings are to be ignored. This procedure supercedes and replaces SP-11516-01 (obsolete) per PD# 55049	03/03/00	JL
F	Changed per PD# 59839, Added Section 4.6 Label to Label Definition, Modify Section 6.2.4 Core ID, Modify Section 6.2.5 Roll OD, Modify Section 6.2.12 Label to Label Spacing Deleted Section 6.3.3	08/07/00	JL
G	Changed title of spec, From: LABEL SPECIFICATION FOR SYMBOL PRODUCTION PRINTERS, To: LABEL DESIGN GUIDELINES AND SPECIFICATION FOR SYMBOL PRINTERS, Revised sect 6.3, Added sections showing minimum border and print sizes that the vendors can hold. PER PD #63828	7/24/03	M JONES/M SAVONA
H	Revised section 6.1 Field Titles, 6.2 MFG label material call used, 6.7.2 Note, Removed Appendix A and replaced it with Appendix B, Appendix B was Appendix C and was revised, Appendix C was Appendix D. RoHS compliance note has been added to MFG, Shipping & Laminate label material callouts. Per PD 64832	10/05/05	M JONES



GUIDELINE: FOR SYMBOL LABELS AND SPECIFICATION FOR LABELS USED ON PRINTERS

DOC. NO: SP-10083-01

SHEET 1 OF 11

REVISION: H

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LABEL SPECIFICATIONS FOR SYMBOL PRODUCTION PRINTERS

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1.0 Purpose:

To define the parameters required for all label stock used on Symbol Technologies production printers.

2.0 Scope:

This procedure must be used whenever a label document/drawing is generated or labels are purchased to be used on a production Printer.

3.0 References:

- 3.1 EN-12421-01 Guidelines for documenting and releasing artwork.
- 3.2 EN-10845-01 Procedure: supplier artwork approval.
- 3.3 SP-12509-01 Specification for Environmental Compliance.

4.0 Definitions:

- 4.1 O.D. - Outside diameter
- 4.2 I.D. - Inside diameter
- 4.3 Critical Dimension - Dimensions that are critical to function. Used to designate those dimensions that affect the location of printing, placement of labels into printer, and placement of printed label onto unit.
- 4.4 Reference Dimension - Dimension not critical to function. Used to locate artwork or text.
- 4.5 Production Printer – All printers used to produce manufacturing or/and box labels in production.
- 4.6 Label to Label Spacing – The space between labels on a carrier. If the label is a single label, label to label spacing is measured from the bottom of each label to the top of the following label. If the label is part of a set of labels on the same carrier, label to label spacing is measured from the bottom of the last label in the set to the top of the first label in the new set.

5.0 Responsibility:

- 5.1 The Purchasing department is responsible for communicating these specifications to all production label suppliers.
- 5.2 The label Supplier is responsible for providing label/carrier material that conforms to these specifications. The Supplier is responsible for providing sample label/carrier material for Symbol Technologies, Inc. for approval and shall provide Symbol Technologies, Inc. with advance notice of material changes.
- 5.3 The Quality department is responsible for inspecting to these specifications.
- 5.4 The Technical Services Regulatory Engineering is responsible for designing labels that conform to these specifications.

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6.0 Process: For Labels being used in Symbol printers

6.1 FIELD TITLES

The following field titles are to be used as required:

mod for model number (**p/n** for 1c products)

s/n for serial number (only for the case that the human readable serial number does not appear right below the barcode of the serial number)

(s)s/n for serial number barcode

MFD: Represents manufacture day, month, year and revision of part number (ie: 12SEP03 X).

Symbol Logo or Symbol Technologies, Inc. Holtsville, NY 11742 (Zip code is optional)

Regulatory information and graphics as required (contact Regulatory Engineering for specific regulatory requirements)

Minimum dimensions required for printable information on label is found in Appendix B.

6.2 NOTES

The following notes are to be included:

6.2.1 MATERIAL

General

6.2.1.1 **LABELS SHALL HAVE A SURFACE THAT PROVIDES ADEQUATE ADHESION FOR CLEAR PRINTING WITH NO VOIDS WHEN USED WITH POLY-RESIN THERMAL TRANSFER RIBBONS ON SYMBOL PRODUCTION PRINTERS. If the supplier can not test the label material for print quality or label sensing on Symbol's production printers with Symbol's production ribbon, then samples shall be sent to the Systems Team for qualification.**

6.2.1.2 **LABELS SHALL BE FREE OF WARPS, INDENTS, PERFORATION IMPRINTS AND CURLING. THE LABEL SURFACE SHALL BE FREE OF ADHESIVE, CONTAMINANTS, AND FOREIGN DEBRIS.**

MFG Label

3M WHITE POLYESTER LABEL PRODUCT FM052502, LAMENATED WITH 1 FASSON® 1 MIL CLEAR SUPER COLD SEAL™ PLUS WITH S-385 PERMANENT ADHESIVE. 1.5 MIL POLYESTER SPEC# 75787

OR

3M WHITE POLYESTER LABEL PRODUCT FM052502, OVERLAMINATE MATERIAL FM05280N WITH P1212 ADHESIVE.

See Symbol specification SP-12509-01 for mandatory requirements regarding environmental compliance (including, but not limited to RoHS).

Shipping and Other Paper Labels

COATED THERMAL TRANSFER (WHITE) FACE STOCK WITH PERMANENT ADHESIVE FOR CORRUGATED SURFACES.

See Symbol specification SP-12509-01 for mandatory requirements regarding environmental compliance (including, but not limited to RoHS).

6.2.2 **ARTWORK TO BE SUPPLIED BY SUPPLIER AND TO BE JUSTIFIED WITHIN THE LABEL DIMENSIONS.**

6.0 Process: For Labels being used in Symbol printers – cont'd

6.2.3 **LABEL DIMENSIONS**

6.2.3.1 **MAXIMUM LABEL PRINTABLE WIDTH OF 4.09 INCHES (104mm).** The printable area of the label shall not exceed 4.03 inches since this is the width of the print head.

6.2.3.2 **MAXIMUM LABEL LENGTH OF 7 INCHES.** The length of the label shall not exceed 7 inches.

6.2.3.3 **LABEL HORIZONTALLY CENTERED ON CARRIER.** The label shall be centered horizontally on the carrier with at least .0625 inch carrier left and right margins. **The horizontal center of the label shall be within .005 inches of the horizontal center of the carrier.** (Appendix C)

6.2.4 **ROLL CORE ID of 1.5 +-0.10 INCHES.** The core is to be a non-contaminating material.

6.2.5 **ROLL MAXIMUM OD OF 4.5 INCHES.** Width of roll is to be the same width as carrier. The roll shall be loosely wound to prevent adhesive migration, label adhesion to the back of the carrier, and perforation indentations on the labels.

6.2.6 **STI PART NO., REVISION, QUANTITY PER ROLL, DATE OF MANUFACTURE, SUPPLIER NAME AND SUPPLIER NUMBER TO APPEAR ON CORE.**

6.2.7 **ROLL OUT POSITION #5** (Diagram shown also), Per label copy position chart (APPENDIX A).

6.2.8 **WASTE TO BE REMOVED FROM ROLL.**

6.2.9 **PERFORATION TO BE USED:** 0.15625" CUT 0.03125" HOLD

6.2.10 **CARRIER PERFORATION LOCATION TO BOTTOM OF LABEL DIMENSION IS 0.125 INCH UNLESS SPECIFIED ON THE LABEL DRAWING.**

6.2.11 **LABEL TO LABEL SPACING ON CARRIER DIMENSION IS 0.475 TO 0.600 INCHS UNLESS SPECIFIED ON THE LABEL DRAWING.**

The following notes are to be included with information pertaining to specific labels.

6.2.12 **COLORS ARE TO BE SPECIFIED**

6.2.13 **FONTS ARE TO BE SPECIFIED**

6.2.14 **NUMBER OF LABELS PER ROLL ARE TO BE SPECIFIED 500, 1000, or 1500** which ever fits best on a loosely wound roll and does not exceed the roll maximum OD specification.

6.0 Process: For Labels being used in Symbol printers – cont'd

6.3 LABEL SUPPLIER TOLERANCES AND CONSTRAINS

- 6.3.1 **Die to Die** dimensions are to have a tolerance of:
± 0.010"
- 6.3.2 **Print to Die** dimensions are to have a tolerance of:
± 0.015"
- 6.3.3 Minimum thickness for borders: .06"
- 6.3.4 Minimum rule line for positive or reverse prints: .004"
- 6.3.5 Minimum size type for positive or reverse prints: 4 point
- 6.3.6 Minimum size type when using extra bold or extra light fonts: 4 point
- 6.3.7 **Perforation to bottom of Label** dimension is to have a tolerance of:
± 0.045"
- 6.3.8 Reference dimensions are to be in parenthesis.
- 6.3.9 All other dimensions are to be considered critical.

6.4 CARRIER DIMENSIONS

- 6.4.1 **CARRIER WIDTH MINIMUM 1 INCH, MAXIMUM 5 INCHES.** The carrier must be **at least .0625 inches wider than the label material.** The carrier **must not exceed 5 inches in width.**
- 6.4.2 **CARRIER THICKNESS .003 INCHES (.06mm) TO .0075 INCHES (.17mm).** The printer senses the top of the label through the carrier. The 'top of label' sensor can detect the label reliably when the carrier is of normal thickness and translucency. If the label cannot be reliably sensed through the carrier, then the carrier must be notched to permit thick carrier sensing.
- 6.4.3 **CARRIER NOTCH SPECIFICATIONS: A notch is rarely needed for most label/carrier combinations.** The printer senses the top of the label through the carrier near the center of the print head. However, if the label cannot be reliably sensed through the carrier, then a rectangular hole shall be die cut in the carrier to permit thick carrier sensing. (Appendix C)
 - 6.4.3.1 **NOTCH HORIZONTAL POSITIONIONING: THE CENTER OF THE NOTCH IS THE CENTER OF THE CARRIER.** The 'top of label' sensor is positioned to sense the label at the center of the print head.
 - 6.4.3.2 **NOTCH VERTICAL POSITIONING IS AT THE TOP OF THE LABEL (+0.020 –.0 inches).** The notch signals the printer that the top of the label is approaching.
 - 6.4.3.3 **NOTCH WIDTH .512 INCH (13MM).** (+-.100 inches)
 - 6.4.3.4 **NOTCH LENGTH .118 INCH (3MM).** (+-.050 inches).

6.0 Process: For Labels being used in Symbol printers – cont'd

6.5 LAMINATE

Laminate shall be applied if the label is placed in a location on the product where it is likely to encounter any wear or come into contact with the operator. To ensure durability of the information printed on the manufacturing label (@ final assembly), an additional laminate is required with the following specifications:

6.5.1 A separate drawing and part number is required.

6.5.2 Overall dimensions are **0.005"** smaller (on each side) than the corresponding label.

6.5.3 **MATERIAL: 3 MIL THK VELVET LEXAN (TEXTURE 8B35-112) USING 1 MIL THK FLEXCON V29 ADHESIVE ON A 1.5 MIL POYESTER LINER.**

See Symbol specification SP-12509-01 for mandatory requirements regarding environmental compliance (including, but not limited to RoHS).

6.5.4 Laminate is to be supplied on a continuous carrier (Roll out position #1 - APPENDIX A).

6.5.5 Laminate carrier dimensions should follow section 6.5 and the core width is to match the width of the carrier.

6.5.6 Quantity per roll to be specified.

6.5.7 Part No., Rev, and quantity to appear on core.

6.5.8 Waste to be removed from roll.

NOTE: This laminate will be applied during final assembly after the manufacturing label has been applied. This laminate is not to be confused with the laminate material in the base stock as mentioned in 6.2.1.

6.6 Ribbon

6.6.1 Symbol Part # 50-12500-070 (RIBBON:BLK,TT,RUB-PROOF,PR) is to be used when printing the above labels on the Eltron model TLP3642PSDOM/C thermal transfer printer.

6.7 Label Design Guidelines

The following are guidelines for label design for Symbol Production Printers. These guidelines take into account allowable label material variations as received from the supplier and normal printer to printer variations.

6.7.1 **PRINT TO LABEL EDGE MINIMUM SPACING .060 INCH.** Labels shall be designed to allow at a minimum .060 inch spacing between the all label edges and any production printing.

6.7.2 **PRINT TO PREPRINTED TEXT AND MARKINGS MINIMUM SPACING .075 INCH.** Labels shall be designed to allow at minimum .060 inch spacing between the all preprinted text and markings and production printing.

6.7.3 **TOP-OF-LABEL RULE:** Labels shall be designed to present a flat 'top-of-label' center for the printer to sense. Labels that have an arched or irregular shaped center top, or that have low center where the sides are higher than the center of the top may be

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difficult for the printer to sense. A flat-topped kiss-cut section shall be added to the top of those labels to provide a stable flat 'top-of-label' center for the printer to sense.

6.7.4 **PRINTED INFORMATION MINIMUM DIMENSIONS ARE IN APPENDIX B.**

6.0 Process: For Labels being used in Symbol printers — cont'd

6.8 Finished Label Print Inspection Tolerance

6.8.1 **FINISHED LABELS SHALL HAVE AT A MINIMUM .010 INCH SPACING BETWEEN PRODUCTION PRINTING AND ALL LABEL EDGES, PREPRINTED TEXT, AND PREPRINTED MARKINGS.** The guidelines were selected to maintain at least a .010 inch separation between production printed text and markings and all edges of the label and any preprinted text or/and markings.

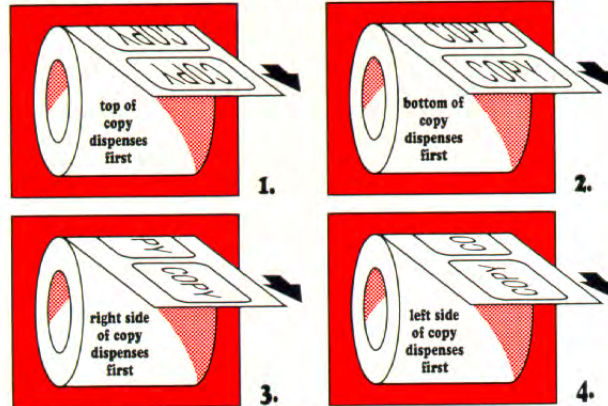
7.0 Records

None for this procedure.

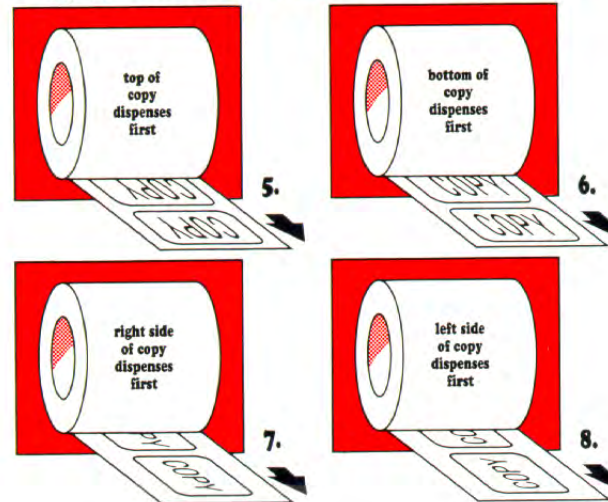
APPENDIX A

LABEL COPY POSITION CHART

Copy positions: 1-4-labels wound out



Copy positions: 5-8-labels wound in



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APPENDIX B

MINIMUM SPACING REQUIREMENTS for printable information by the Production Printer All dimensions in inches

Printer parameters for text:

NOTE:

Font:	Standard	There is no difference between upper & lower case spacing at this size
Font Size:	#1 (smallest imbedded)	
Pitch:	300DPI	

The following is required information that is printed on demand (usually after a unit is verified to meet all specifications to insure integrity of unit - measurement in inches):

Model #: 0.88 w X .040 h (16 characters)

Serial #: 0.48 w X .040 h (8 characters - human readable)

Barcoded Serial #: 1 dimensional

The following specifications are for the standard Symbol 8 character (2 alpha & six digits) serial number printing. Custom serial numbers may vary width requirements. Note: Many scanners will not read H.D. bar codes.

Std Density Unit Label	1.25 w X .13 h (ratio= 2:6, code 128 B, 10 mil)
Std Density Unit Label	1.70 w X .13 h (ratio= 2:6, code 39, 1 mil)
*Hi Density Unit Label	0.75 w X .13 h (ratio= 1:1, code 128 B, 8 mil)
*Std Density Box Label	1.30 w X .30 h (ratio= 1:2, code 39, 6 mil)
Std Density Box Label	1.70 w X .13 h (ratio= 2.5:1, code 39, 11 mil)
Std Density Box Label	2.50 w X .30 h (ratio= 2:6, code 128 B, 10 mil)
Med. Density Box Label	1.25 w X .30 h (ratio= 1:1, code 128 B, 5 mil)

*=Most Common Barcodes Used in Symbol Production

2 dimensional

<u>Minimum Height</u>	<u>Minimum Width</u>
1.19 w X .11 h	1.03 w X .17 h
No truncation	No truncation
Redundancy	Redundancy
Error Correction	Error Correction

SPACING BETWEEN LINES SHOULD BE (AT A MINIMUM): .015

In some cases, field titles may be printed during the same sequence as the required manufacturing information. The minimum requirements for spacing are as follows:

MFD:	0.53 w X .04 h
(S) S/N:	0.30 w X .04 h
MOD:	0.16 w X .04 h
NY 11716	0.35 w X .04 h
Made in XXXX	0.50 w X .04 h
Symbol Technologies, Inc.	1.09 w X .04 h

Again, these fields are optional for printing during final assembly. They can be part of the printing plate of the label die set of the supplier. These can be printed by the production printer if required (i.e. a blank label is used to print all information in house that is required. This opens up opportunity for flexibility of using the same label across multiple products with varying information on it).

APPENDIX C

Figure 1 shows the standard label/carrier relationship and reference terminology for dimensions. The center line (C/L) of the label is positioned on the center line of the carrier. The carrier is at least .125 inch wider than the label allowing at a minimum .0625 inch left and right margins.

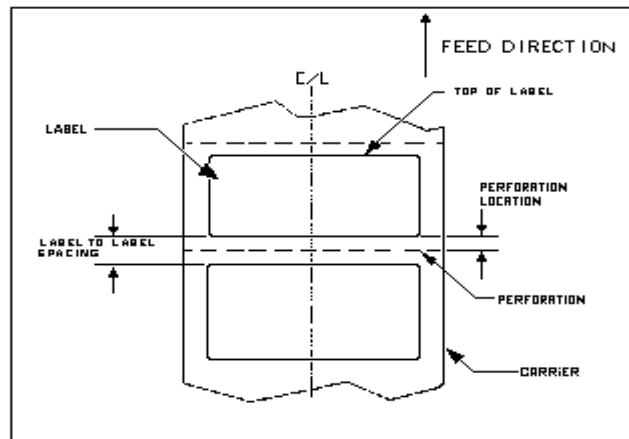


FIGURE 1