

Roll Paper Specifications



Section A - Customer/Seller Related Information

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Notices

These specifications are derived from the RR Donnelley Roll Paper Specifications - Section A version 4.1, dated November 15, 2007. No changes have been made to the specifications except to change the name of the company from RR Donnelley to LSC Communications LLC or one of its subsidiaries (hereinafter referred to as "LSC").

To the extent that any specification included on a Purchase Order conflicts with any specifications contained herein, the Purchase Order shall govern.

To the extent that any specification contained in Section B of this document is in conflict with Section A, Section B shall prevail.

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Process Specifications

CUSTOMER FURNISHED PAPER

LSC plants must be provided a copy of all furnished paper orders at the same time this information is provided to the mill. This purchase order should provide the following information:

Purchase Order Number	Web Width(s)	Ship To Address
Supplier Name	Quantity Ordered Requested	Delivery Date
Manufacturer's Name	Roll Diameter	Mode of Shipment
Grade Name(s)	Maximum Roll Weight	Customer/Event Identifier
Basis Size/Basis Wt.	Core Type & Grade	Lot Number (Book Specific)
Forest Stewardship Council	Caliper/PPI (Book Specific)	

Unless specifically agreed to in writing, customer furnished paper is subject to a charge of \$10.00 per roll for LSC costs associated with unloading, processing, intermediate storage, and delivery to press.

Mill quality data is to be furnished to LSC upon request. Should paper be furnished designed for use in another print process or which does not carry a manufacturer's warranty (including but not limited to "Mill Seconds" or paper not in an original mill wrapper), we reserve the right to reject that paper. If we elect to use such paper, it will be subject to any additional costs, including press or bindery slowdowns and delays, added requirements due to excessive waste or other extraordinary press or bindery costs incurred.

Claims for defective paper will be the responsibility of the party that purchased the paper. LSC will at no charge assist customer in accumulating claim data, but may charge for assisting customer for mill claims.

Older paper has proven to be more problematic on press. At LSC discretion, paper is considered unusable if older than nine months for groundwood or eighteen months for freesheet. If paper older than these limits are run by LSC, additional charges for increased spoilage and reduced press speeds may apply.

Customer paper which remains as surplus or rejected is subject to disposal by LSC after a 30-day written notice is provided to the customer.

MILL ORDER ACKNOWLEDGEMENTS

LSC Plant(s) must be provided within 1 business day after the paper manufacturer accepts an order for work a copy of the mill order acknowledgement including:

Purchase Order Number	Color (if applicable)	LDC of Order
Mill Order Number	Web Width(s)	Requested Delivery Date(s)
Ordered Quantity	Roll Diameter(s)	Available/Make Date(s)
Normal, No Over, No Under	Basis Size and Weight(s)	Ship Date(s)
Price of Item(s)*	Customer/Event Identifier	Mode of Shipment(s)
Manufacturer's Name	Tare (core, wrapper, both)	Add'l Freight Costs*
Mill Location	Core Type & Grade	Ship To Address
Grade Name(s)	Core ID	3rd Party if applicable
Caliper/PPI (Book Specific)		

*LSC Purchased Paper Only

LSC purchased paper orders processed through Merchants/Brokers, require an additional copy of the mill's acknowledgements also be faxed or e-mailed to the LSC Buyer's attention.



SHIPMENT MANIFESTS

1. The Customer/Seller is responsible for sending LSC a copy of the shipment manifest by electronic transmission prepared and transmitted in accordance with either the papiNet standard delivery message or the Electronic Manifesting and Bar Coding of Paper Stock Shipments ("EMBARC") requirements prepared by the IDEAlliance. The EMBARC transmission data should be in 80-byte format. LSC is migrating all operations from EMBARC or ANSIx.12 to papiNet.
2. Roll lists must match the rolls delivered, with individual roll identifications and roll weights. Header information must include vehicle number, roll width, core size, basis weight, and purchase order number.
3. Non-receipt of an electronic manifest or receipt in a non-compliant format is subject to a manual data entry charge of \$100.00 per truck or \$200.00 per rail car.
4. LSC requests two copies of the manifest, one copy to be mailed (or electronically transmitted) with the bill of lading on the day of shipment to: "ATTN.: Roll Stock Receiving Clerk" of the receiving plant, and one copy to be taped to the top header of a doorway roll in the car or truck with the shipment.

TRUCK SHIPMENTS: because truck deliveries arrive quickly, we require the following information be faxed immediately following the release of the truck.

- Originators Purchase Order Number
- Web width of shipment
- Trailer number/carrier
- Routing
- Estimated date of delivery
- Roll Manifest

5. Information pertaining to manifests, delivery instructions and appointments is detailed on individual Plant Spec Sheets in Section B.
6. Roll size and weight should be in inches and pounds. Inclusion of metric measurements is optional.
7. Use LSC's 'ship-to-codes' in the manifest transmissions to LSC's plants and outside warehouses. The 'ship-to-codes' field should be left justified in record type 1M, positions 41-50.
8. LSC requires that suppliers of FSC certified paper provide their FSC certification number and the amount of FSC content in the paper on electronic communications, manifests and invoices, and on roll labels.

QUANTITY DELIVERY TOLERANCES

-0% Under specified quantity

Not more than one roll more than specified quantity

Paper exceeding these tolerances is subject to rejection of product and/or additional charges.

DELIVERY CHANGE NOTIFICATION

Deviations from the planned delivery are to be immediately communicated to the LSC division in writing and to the appropriate contact noted in section B.

DELIVERY WINDOW

Deliveries are to be made on scheduled date or not more than six (6) calendar days earlier.

Deliveries more than six (6) calendar days prior to LSC requested/mutually agreed upon delivery date are subject to early delivery charges for capital and/or storage at rates set forth herein, or at the prevailing rate at another location including applicable handling and freight. The minimum debit for early delivery is \$100 per purchase order.

If paper arrives after the agreed upon delivery date, the paper may be refused. LSC reserves the right to recover costs associated with maintaining customer schedules.



PAPER SPECIFICATIONS

BASIS WEIGHT TOLERANCE

Average basis weight for an order should not exceed the basis weight indicated on the order. Where customer furnished paper is found to be heavy, LSC will adjust the paper requirements and customers will be billed for costs incurred by LSC resulting from heavy paper. The actual basis weight by order and the measured lineal feet on each roll must be provided. LSC will monitor basis weights through yield analysis measurements. In the event that LSC yield analysis indicates that basis weights varied from nominal weights, LSC reserves the right to make claims against the paper supplier for increased costs resulting from basis weight variances. Such claims will be administered over the same timeframe under which LSC is held accountable to customers for waste allowance management, per LSC contracts with customers.

WEB BREAK TOLERANCES

LSC is migrating to measurement of defects per 10 million linear feet. For plants that have made the transition, we will allow 3 breaks per 10 million linear feet for offset presses and 1.5 breaks per ten million linear feet for roto presses before charging supplier for excess breaks.

For LSC plants that have not made the transition to linear feet, the following will apply:

Non-Book Web Break Standards

# Rolls Run	WB/100 Rolls (Non-Telecom)	WB/100 Rolls (Telecom Only)
1-49 Rolls	Case by Case Basis	Case by Case Basis
50+ Rolls	3.0	2.0

Book Web Break Standards

Basis Weight Range	WB/100 Tolerance	WB/100 Reject Limit
18-19 #	9	11
20-23 #	7	10
24-26 #	6	9
27-30 #	4	8
31-40 #	3	6
41+ #	2	4

- Chargeable Web Breaks are those in excess of the standards listed above.
- A roll may be rejected upon 2 paper caused and/or paper suspected web breaks.
- Any order or an identifiable portion of the order which is running at paper caused WB's in excess of 10/100 rolls or 10/10 million feet is subject to rejection of all remaining rolls. If replacement stock cannot be provided within a time frame allowing completion of presswork on schedule, customer/seller may be subject to LSC's recovery of all associated costs such as replacement of stock of a similar grade, paper converting, press salvage, trimming, etc.
- Press cost per chargeable web break are as follows:

Description	\$/Web Break
Gravure	\$750.00
Offset	\$500.00
Directory	\$400.00

Additionally, 2250 impressions of waste will be added for each chargeable break.



BLANKET BUILD-UP TOLERANCE (OFFSET PRESSES)

Paper coating build-up should not require blanket cleaning more often than 250,000 impressions for coated paper or 200,000 impressions for uncoated paper. More frequent blanket washes will result in paper rejection or additional manufacturing charges.

FOLD STRENGTH

Paper fold strength must be adequate for normal pressroom and bindery conditions.

DECKLE (LOG) POSITION

Unless approved by LSC in advance, no more than 50% of each shipment may be end deckle position rolls.

MULTIPLE MILL RUNS

Paper manufactured during different mill runs can require changes in press conditions and may result in greater spoilage and process variability. Unless approved by LSC, all paper received in each shipment should be from no more than one mill manufacturing run. If more than one manufacturing run is received in a shipment, LSC reserves the right to reject that shipment or add additional charges.

PPI TOLERANCE

Paper with PPI variation which is either greater than +/- 2.5% or which results in +/- 1/16" final book bulk variation is subject to rejection of product and/or additional charges for rework and extra waste.



ROLL SPECIFICATIONS

MAXIMUM / MINIMUM ROLL DIAMETERS

1. Acceptable delivery is at the requested diameter +0", -2", subject to individual plant roll weight handling limitations (see Section B).
2. The Customer/Seller will be responsible for all necessary slab waste, labor, or for rewinding and freight costs if applicable.
3. Rolls received with diameters smaller than 2" less than specified diameter are subject to an additional handling charge to the owner or shipper of the paper of \$12.00 per roll; \$15 per roll if 79" or wider.

ROLL WIDTH

Variation in roll width will be minus 0" to plus 1/16".

SPLICES

1. Splices must not fail.
2. Tension variations experienced at mill splices must be kept to a minimum to prevent excessive spoilage and compromised quality. A poor performing splice is one that creates more than 20 culled signatures. Excessive waste due to poor performing splices on customer furnished paper may result in an adjustment to job requirements. Excessive waste due to poor performing splices may result in a debit to recover the costs of additional waste.
3. Maximum 3 splices per roll or 20 splices per 100 rolls.
4. Splices will be no closer than 1" to each other and no closer than 1" from the outside edge of the roll or 5" from the core, including splice from new reel windup.
5. All splices will be clearly marked (including those prior to coater) on one end (both ends preferred) with a stenciled arrow pointing to and identifying the splice. No paper splice markers shall be used.
6. All splices should be put up on a diagonal across the web such that a deviation is achieved of at least 1 inch in 30 inches from a horizontal line across the web.
7. The number of splices should be indicated on the roll label.

PACKAGING AND LABELING

BAR CODING - adherence to the IDEAlliance 132-1997 is required

ROLL LABEL FORMAT – adherence to the IDEAlliance 1132-1997 is required

1. LSC requests that a second label be firmly attached to a header on each roll. We prefer an additional 3rd label on the opposite side of the roll from the first label.
2. LSC requires that all labels contain the PO and Customer/Event Identifier (use Roll Label Description Field). The receiving plant must approve exceptions to this requirement in advance.
3. The number of splices is to be indicated on the Roll Label (Use Optional Field).
4. LSC's preference is to have the Core I.D. (3" or 6") noted on the label (use optional field).
5. Roll size and weight information should be in inches and pounds (metric optional).

ROLL STENCILING

1. Roll Number Stencils should be on at least one end of the unwrapped roll within 12" from the core unless stated otherwise on purchase order or in plant specific requirements.
2. Rolls must have arrow showing unwind direction.





WRAPPERS/WRAPPING

1. Rolls will be well wound with even tension and wrapped in a manner that protects the printing paper against damage from transit and the elements — this applies to the wrapper and header material.

In order to keep the paper at its original humidity, packaging material must have a sufficient water and water vapor barrier layer. Plastic wrap is not acceptable.

WVTR (Water/Vapor Transmission rate) of < 5 GSM/24 hrs (grams per square meter within 24 hours) at laboratory conditions (73 degrees F/50% RH) prescribed by the TAPPI 448 test, and,

WVTR of < 30 GSM/24 hrs at the elevated conditions (100 degrees F/90% RH) prescribed by the ASTM F1249 test.

2. If two rolls to a package

- a. The 2 rolls in a package are to be from the same log position, of equal diameters, and in a strong package free of wrinkles.
- b. Each roll is to be stenciled separately.
- c. The outer wrapper of each 2-roll package should contain 2 roll labels, 1 positioned for each roll on the same side of the package.

ROLL WEIGHTS

1. Roll labels and manifests should provide both gross and net weights.
2. Net weights are printing paper only with tare being the combined weight of the wrapper, headers, core and core plugs.
3. Rolls Wrapped Two per Package - We require that accurate roll weight be provided for each roll.
4. Maximum roll weights are detailed in Section B by plant.

CORE SPECIFICATIONS

Please see "Section B: Plant Information" of the "LSC Communications LLC Paper Roll Specifications" for core specifications required by each plant.



Transportation Specifications

CARRIER LOADING INFORMATION

(ALL LOADS)

1. Rolls must be loaded keeping the mill label in a similar position from roll-to-roll as well as have all mill labels oriented in the proper direction so they can be read.
2. Nobilge loading — Load all rolls on end, unless prior approval is given by the receiving Plant for other loading patterns (i.e., Special Techniques for 3 meter rolls – See Plant Spec Sheet).
3. LSC has a strong preference to have all roll stock shipped by log position. That is, if LSC is receiving two cuts from a log and it is multiple carload order, place all #1 position in one car and #2's in another car. If this is not possible, clustering of positions (brake end to air end) should be aggressively pursued by the mill during the loading process. We are often asked by Technical Service personnel to segregate rolls for troubleshooting purposes. Failure to ship by log position can hinder LSC's ability to accommodate those requests. Running by log position on press enhances press performance and reduces waste.

(RAIL CAR LOADING)

4. LSC prefers cars with 10' or wider doors and with cushion under frame.
5. Rolls of paper will be loaded using guidelines prescribed in the Association of American Railroads Pamphlet 39, or other specific loading and bracing methods which have received approval of the American Railroads Freight and Damage Prevention Division.
6. Where double decking is used, a minimum of (X) inches (specified by each Plant - see specific Plant information - Section B) of clear space is required. This is measured from the top of the top deck of paper to the underside of the rail car roof at the eaves.
7. Multiple tiers in the doorway of the car are allowed under certain conditions and only as specified in Pamphlet 39. Risers will be used and clearance levels maintained.

(TRUCK LOADING)

4. No double decking unless there is a minimum of (X) inches (specified by each Plant - see specific Plant information - Section B) of clear space between the tops of the top deck of paper to the underside of the trailer roof's lowest point.
5. No double decking in the doorway of the trailer.
6. Over the road trailers must be able to withstand the weight of a hoist unloading the rolls, up to 260 PSI and 27,000 pounds total weight.

CLAIMS FOR CUSTOMER FURNISHED PAPER

Claims will be processed according to the customer contract or established operational procedures between the customer and LSC. In the absence of a written agreement, the customer will assume all responsibility for submitting, documenting and processing claims.