

## Thinking About Your Shipping Box

Ranpak's unique PadPak<sup>®</sup> cushioning and FillPak<sup>®</sup> void fill materials have the proven versatility to handle every packaging application from cushioning to wrapping to void fill to blocking and bracing. Our team of Package Engineers are experts at utilizing a variety of packing techniques to devise a customized solution to your packaging challenge. All of Ranpak's Package Engineering services are offered at no cost to you.

## Designing a Packaging Solution That's Right for You



June 16, 2008  
 Mr. Joe Smith  
 ABC Company  
 7990 Auburn Rd.  
 Concord Township, OH 44077

Subject: PadPak<sup>®</sup> Package Designs for Aircraft Cylinder Heads

Dear Mr. Smith:

We designed PadPak<sup>®</sup> packages for three aircraft cylinder heads (2 small and 1 large) provided by your company. In addition, we also conducted an ISTA vibration test on these PadPak<sup>®</sup> designs. Following are descriptions of the PadPak<sup>®</sup> designs, test procedure and results.

**PadPak<sup>®</sup> Package Design for Small Cylinder Heads:**

1. We used an RSC - 200 lb. test, double wall corrugated container with inside dimensions of 10-1/2" x 9" x 14".
2. Produced two (2) - 78 inch pads. Folded each pad in half to create a double thickness. Placed the two double thick pads across the top of the box to form a "cross" configuration as shown.
3. Placed the cylinder head in the center of the crossed pads and lowered it down into the bottom of the box.




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**TESTING** - In our ISTA (International Safe Transit Association) certified lab, we conduct testing to ensure our package design conforms to industry standards, giving you the peace of mind that comes with knowing your product will arrive safely. One of approximately 300 in North America, our lab features drop and vibration testing and other sophisticated equipment to insure that the pack design being tested meets your needs and carrier requirements.

Customer: ABC Company		PadPak L.C. - 155L, single ply	
Rolls per roll	Linear Feet	Rolls per roll	Linear Feet
24	815.7	75	2,005
<b>Cellular Air Wrap:</b>			
Cellular Air Wrap height (inches)		12	
Bundle width (inches)		48.00	
Bundle length (feet)		205.00	
<b>PadPak<sup>®</sup> vs. Cellular Air Wrap</b>			
<b>PadPak<sup>®</sup></b>		<b>Cellular Air Wrap</b>	
24	Rolls per roll	1	Shipped by the bundle
815.70	Linear feet per roll / bundle	1,000	Square feet per bundle
75.00	Cubic feet per roll / bundle	41.67	Cubic feet per bundle
55.50	Rolls required per week	100	Current number of bundles used weekly
55.50	Rolls/bundles of Ranpak <sup>®</sup>	100	Bundles of Cellular Air Wrap
<b>MATERIAL COST</b>			
\$98.00	Cost per roll / bundle	\$10.00	Cost per bundle
\$0.083	Cost per linear foot	\$0.059	Cost per square foot
\$0.997	Cost per cubic foot	\$1.416	Cost per cubic foot
<b>MATERIAL COST PER PACK</b>			
\$5.87	Linear feet used per pack	81.33	Square feet used per pack
5.37	Cubic feet used per pack	3.39	Cubic feet used per pack
\$4.933	Material cost per package	\$4.758	Material cost per package
<b>PACKING COST</b>			
\$0.00	Seconds to pack one box	\$20.00	Seconds to pack one box
\$0.00	Labor rate (\$)	\$0.00	Labor rate (\$)
\$0.00	Packing cost per package	\$0.00	Packing cost per package
<b>INCOMING MATERIAL HANDLING</b>			
55.50	Rolls per week	100	Bundles per week
1.00	Minutes needed to unload one roll	1.00	Minutes needed to unload one bundle
2.32	Minutes needed to unload weekly usage	100.00	Minutes needed to unload weekly usage
\$20.00	Labor rate (\$)	\$20.00	Labor rate (\$)
\$0.00	WEEKLY COST	\$20.00	WEEKLY COST
<b>WAREHOUSING</b>			
2.08	Floor space (9'7" occupied per roll or bundle)	7.88	Floor space (9'2" occupied per standard size bundle of Cellular Air Wrap)
55.50	Rolls used per week	100	Bundles used per week
110.00	Total ft <sup>2</sup> of warehouse space occupied	788.00	Total ft <sup>2</sup> of warehouse space occupied
\$0.20	Average cost per ft <sup>2</sup> of warehouse space	\$0.20	Average cost per ft <sup>2</sup> of warehouse space
\$0.00	WEEKLY COST	\$0.00	WEEKLY COST
<b>INTERNAL MATERIAL HANDLING</b>			
55.50	Rolls used per week	100	Bundles used per week
3.00	Minutes needed to retrieve and load one roll	3.00	Minutes needed to retrieve one bundle
166.08	Minutes needed to retrieve and load one weekly usage	300.00	Minutes needed to retrieve one weekly usage
\$20.00	Labor rate (\$)	\$20.00	Labor rate (\$)
\$0.00	WEEKLY COST	\$0.00	WEEKLY COST
<b>SUMMARY</b>			
\$4.933	Material cost per package	\$4.758	Material cost per package
\$0.00	Packing cost per package	\$0.00	Packing cost per package
\$0.00	Incoming handling (per week)	\$20.00	Incoming handling (per week)
\$0.00	Warehousing cost (per week)	\$0.00	Warehousing cost (per week)
\$0.00	Internal handling (per week)	\$0.00	Internal handling (per week)
2.000	Number of boxes packed per week	2.000	Number of boxes packed per week
\$9.867	COST PER PACKAGE (RANPAK)	\$7.316	COST PER PACKAGE (CELLULAR AIR WRAP)

**DESIGN** - Simply send in your product as you pack it today, and we'll take care of the rest. Your product will be sent back to you in PadPak or FillPak, and we will also provide you with a detailed report of how it was packed.

**ANALYSIS** - We analyze your current packaging and benchmark this against our own package design recommendations. We include the estimated cost of the current interior packaging materials and provide new box specifications, if necessary.

## RANPAK PACKAGING LAB EQUIPMENT

### DROP TESTER

- 150 lb. capacity
- 12" to 72" drop height
- 3 channels of instrumentation



### VIBRATION TABLE

- 48" x 48" table
- 2,500 lb. capacity
- 1 hz to 250 hz range
- Sine and random capability



# Thinking About Your Operation

Ranpak converters, the most adaptable packaging systems on the market, can be customized to fit any workplace situation, including high or low volume, automated or manual environments, integrated workstations or standalone units. Our System Engineers can develop a plan to integrate our system into your unique working environment. All of Ranpak's System Engineering services are offered at no cost to you.

## Making Our Systems Flow Smoothly with Your Operation

### PadPak® Engineering Solutions



### FillPak® Engineering Solutions

