

NEW PRODUCT DEVELOPMENT GUIDE



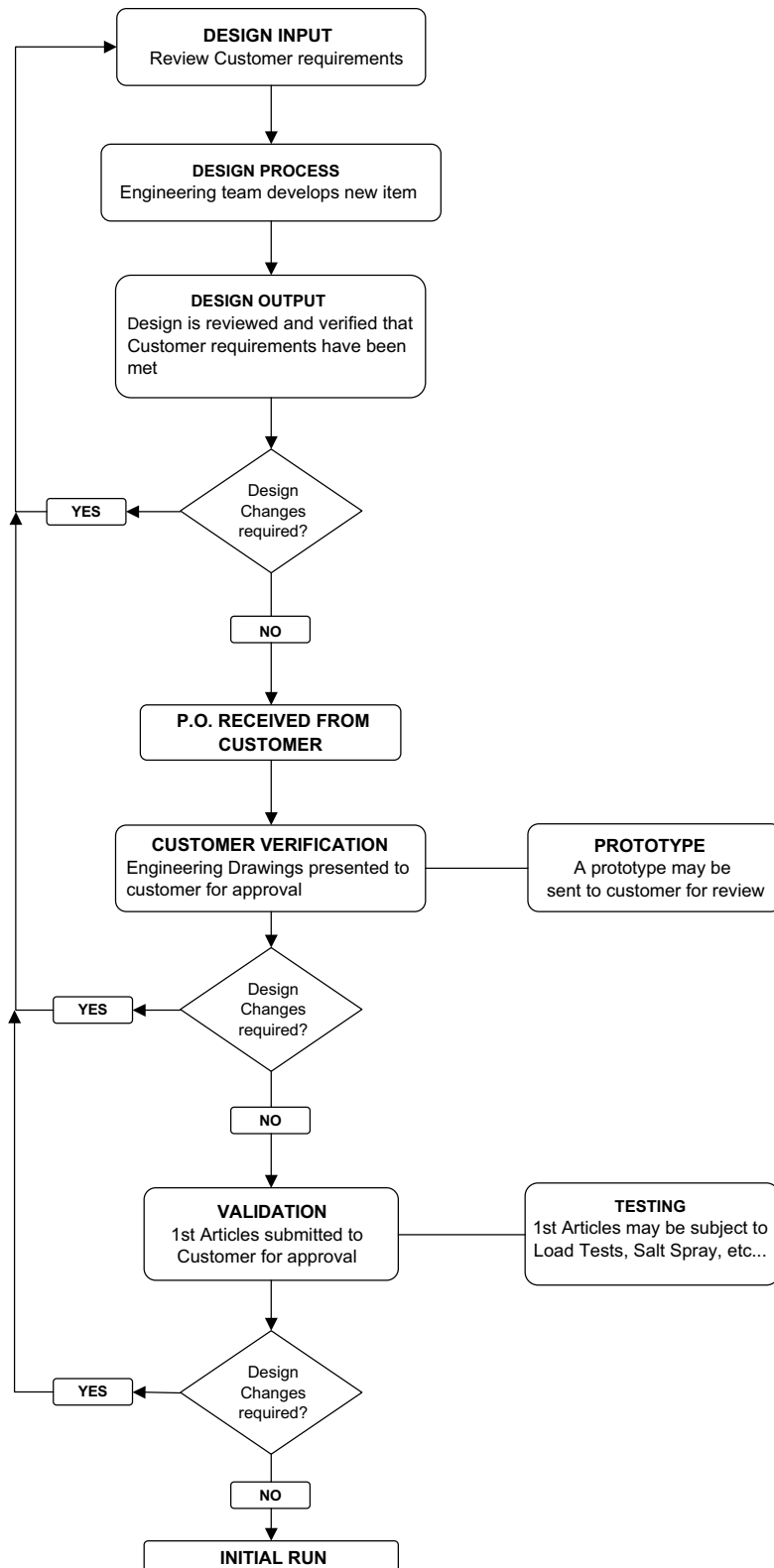
TABLE OF CONTENTS

Flow Chart	2
Design Inputs	3
Design Output	4
Customer Verification	5
Validation	6
Torque Test.	7
Prototyping Service	9

Quality Policy

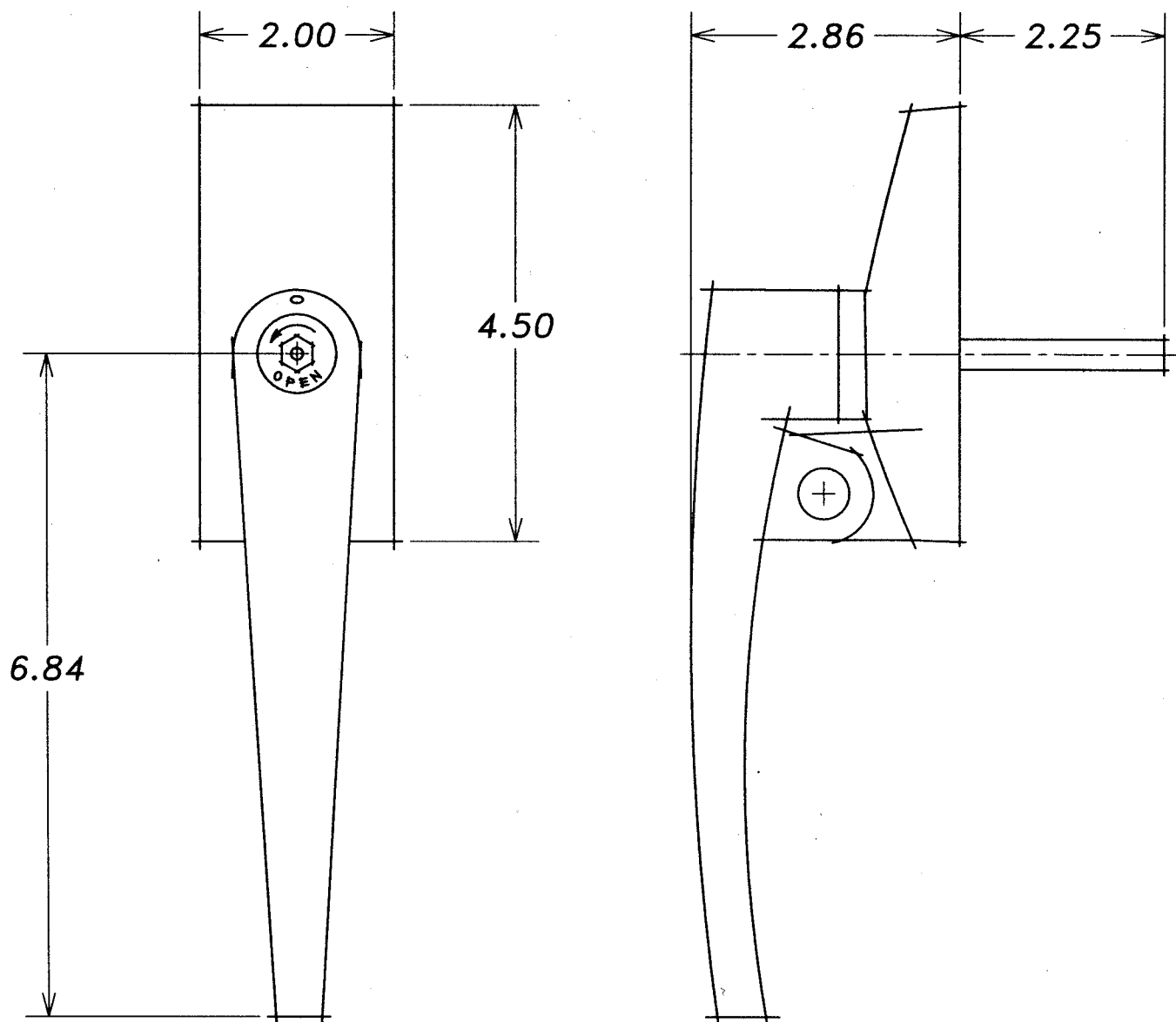
It is the policy of Sierra Pacific Engineering and Products to meet or exceed our customer's requirements in a consistent fashion by providing the highest quality products in the industry while making a reasonable profit. This policy is fully supported by a highly trained and skilled work force empowered to contribute actively to our continual improvement program and by a quality system in full compliance with the **ISO 9001** quality standard. Further, we pledge our commitment to maintaining safe and environmentally friendly working conditions as a responsible member of our community within which our business prospers and our employees reside.

Flow Chart



DESIGN INPUTS

A new design can be developed from your idea, sketch, or modification of an existing part.

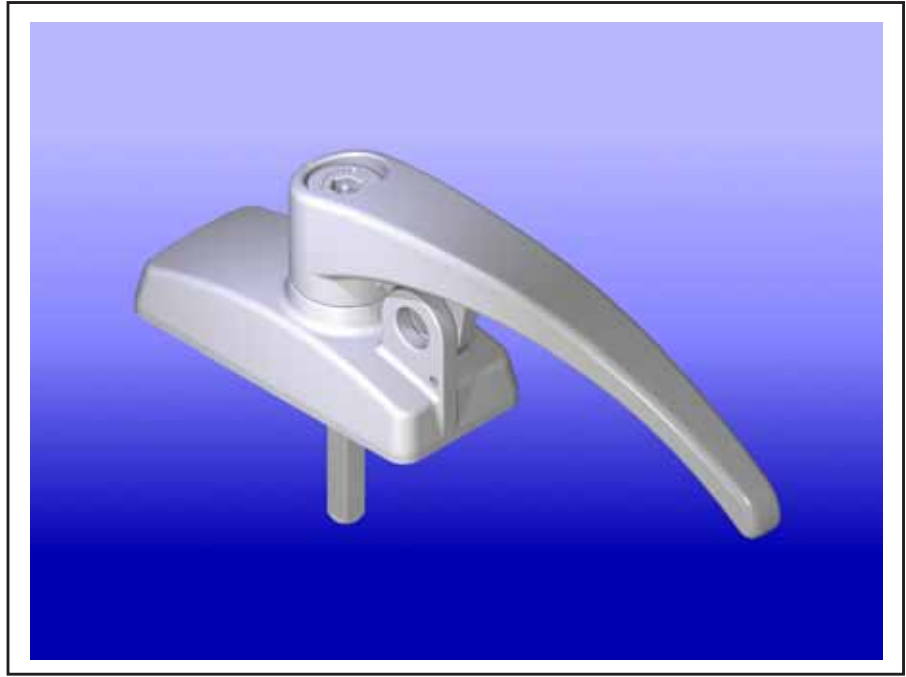


Sketch submitted by customer along with his requirements. Handle is to pass Belcore GR-487 specifications.

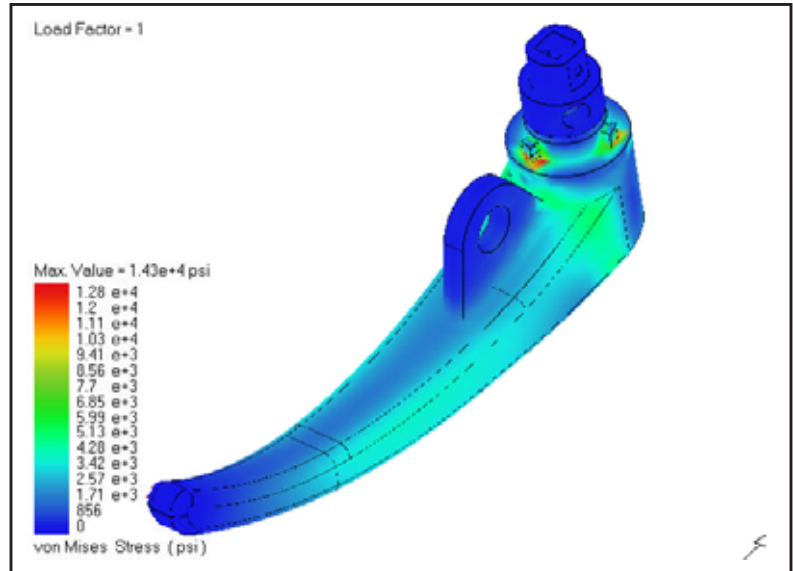
Upon receiving your requirements, our engineering team will design the new product, utilizing the latest CAD tools, including 3D modeling & finite element analysis software.



Our engineering team developed a new handle from customer's sketch and specifications.



3D Rendering



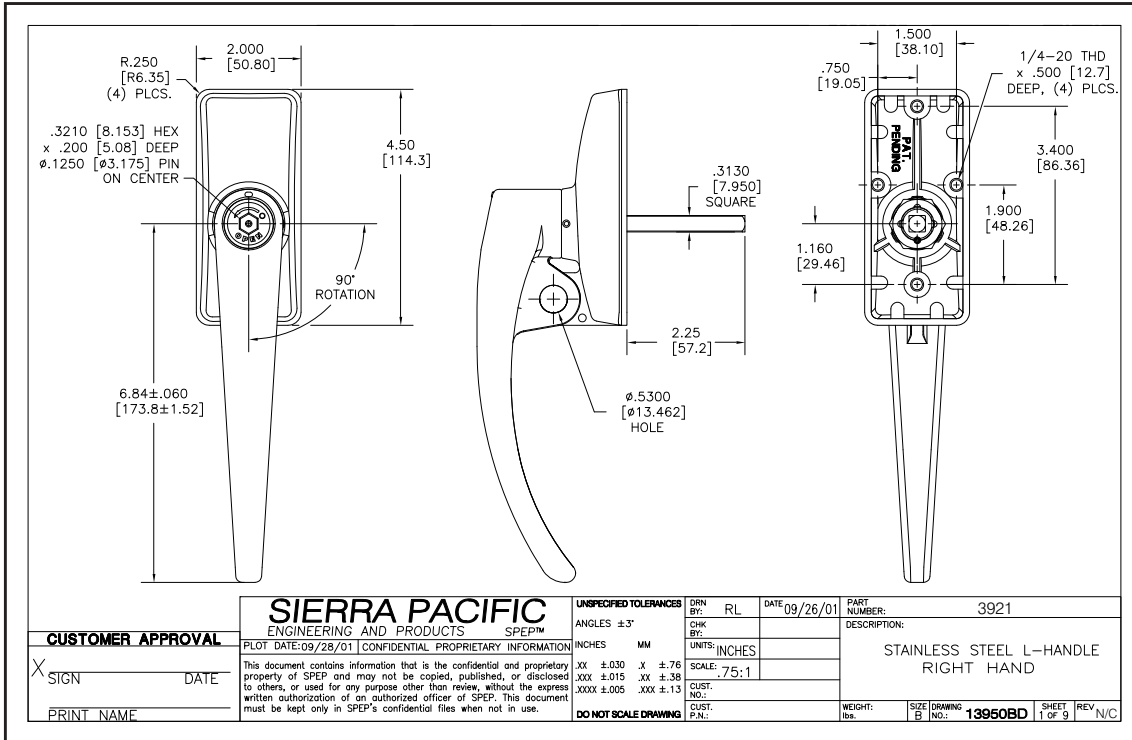
FEA Model



An FEA was conducted to determine if new design would meet Belcore GR-487 specifications.

CUSTOMER VERIFICATION

Upon completion of the design, you will be supplied with engineering drawings and/or 3D renderings and prototypes for approval.



Engineering Drawing



Before proceeding with tooling, an engineering drawing and prototype was sent to customer for review and approval.



ABS or Acrylic Prototype

First Articles are inspected by our quality control department before submitting them to you for review.

If you require additional testing, SPEP will submit samples to an independent laboratory. Testing may include:

- **salt spray**
- **tensile, load or impact testing**
- **cycle testing**
- **spectroscopy**



Investment Casted Stainless
Steel Handle



First articles were inspected and sent to laboratory for verification that Belcore GR-487-core specification was met.

**ISO 9001
CERTIFIED**

LABORATORY TEST REPORT

October 22, 2001

SIERRA PACIFIC ENG & PRODUCTS
3144 East Maria Street
Rancho Dominguez CA 90221

Your P.O. Number: O-MP-100 Test Item: Handle Assembly

Our Report Number: LTR1770 Part Number: 3921

Reference Document: Bellcore GR-487-Core

Two (2) Locks, part number 3921, S/N's 1 and 2, were subjected to torque testing in accordance with Bellcore GR-487-CORE.

RESULTS:

S/N 1: Torque test on lock (plug) in the open direction. An increasing torsional load was placed on the lock (plug) in the open direction until the lock (plug) stripped.

S/N 2: Torque test on handle in the open direction with the assembly locked. An increasing torsional load was placed on the handle (with the handle assembly locked) in the open direction until the lock failed.

Tested by:


Kurt Freed, Test Technician

Approved by:

 
A.S. Brockamp, Quality Assurance Manager

KF/mm

DISCLAIMER

This test report represents Independent Testing Laboratories, Inc. findings and conclusions based upon the conduct of the test and procedures described herein with respect only to the particular products(s) or components (s) which were provided to Independent Testing Laboratories, Inc. The complete text of this Disclaimer is available upon request.



First articles passed customer requirements and design was approved for production.

TORQUE TEST

**ISO 9001
CERTIFIED**



Torque Test On Actuator



Torque Test On L-handle

PROTOTYPING SERVICE

An prototype model may be provided to you for evaluation from one of our two machines. The model will allow you to touch, hold and evaluate precise physical models of the new design within days.

You can review designs and identify errors early in the design cycle, thus reducing tooling costs & lead time.



The Fused Deposition Modeler (FDM) can build parts of up to 8" x 8" x 12" at a .010" layer thickness out of ABS plastic.

The Multi-Jet Modeler (MJM) can build parts of up to 11.75" x 7.3" x 8" at a .001" layer thickness out of Acrylic plastic.

PROTOTYPING SERVICE



The FDM parts require removal of the supports after completion of the build by dissolving them away in the cleaning station.



The MJM parts require removal of the supports after completion of the build by melting them away in the cleaning oven.



If you need an prototype, please feel free to contact your sales representative or log on to our web site at speg.com



Final ABS prototype
L-handle assembly ready
for customer review.

Final Acrylic prototype
L-handle assembly ready
for customer review.



**Innovative Design Solutions
To Your Specifications**

SIERRA PACIFIC

ENGINEERING AND PRODUCTS

THREE LOCATIONS NATIONALLY

Los Angeles, CA
4041 Via Oro Ave
Long Beach, CA 90810

Dallas, TX

Chicago, IL

Toll free:
800-433-5554

In Calif:
(310) 608-0693

Fax:
(310) 608-0952

Web site:
www.SPEP.com

