

Easy Navigation Notes: Each Chapter Heading and Subheading in the Table of Contents, and the buttons at page end are direct links.

“The first Pultex® Design Manual was published in 1973. The New and Improved Pultex® Pultrusion Global Design Manual of Standard and Custom Fiber Reinforced Polymer Structural Profiles, 2000 Edition, Volume 3 - Revision 3, Metric Version is a tool for engineers to specify Pultex® pultruded standard structural profiles. Creative Pultrusions, Inc. consistently improves its information to function as a solid reference for engineers.”

“No portion of this Design Manual may be reproduced in any form without the prior written consent of Creative Pultrusions, Inc.”

Volume 3 - Revision 3  
Copyright© 2000 by  
Creative Pultrusions, Inc.  
All Rights Reserved

Creative Pultrusions, Inc., Pultex® and Flowgrip® are registered trademarks of Creative Pultrusions, Inc. Superstud!™/Nuts!, Supergrate™, Tuf-dek™, and SuperLoc™ are trademarks of Creative Pultrusions, Inc.

**The New and Improved Pultex® Pultrusion Global Design Manual  
of Standard and Custom Fiber Reinforced Polymer Structural Profiles  
Metric Version  
Table of Contents**

Volume 3 Revision 3

	<b>Page Numbers</b>
<b>Sponsor Page</b> .....	1
<b>Chapter 1 Introduction To Pultrusion</b>	
Pultex® .....	1 – 2
Pultex® Pultrusion Process .....	2 – 3
Process Advantages .....	3
Raw Materials Used in the Pultrusion Process .....	3 – 4
Pultex® Resin Systems .....	4 – 5
<b>Chapter 2 Value Engineering</b>	
Design Benefits .....	1 – 2
Applications .....	2 – 3
Cost Analysis for Standard and Custom Profiles .....	3 – 4
Raw Material Advantages .....	4
Fabrication Advantages .....	4
Shipping Advantages .....	4
<b>Chapter 3 Physical And Mechanical Properties</b>	
Introduction to Design with Pultruded Composites .....	1
Fiber Properties .....	1
Resin Properties .....	2
Fillers .....	2
Metric Material Properties Sheets	
Material Properties of Pultex® Fiber Reinforced Polymer Structural Profiles .....	3 – 4
Material Properties of Pultex® Fiber Reinforced Polymer Flat Sheets .....	5 – 6
Material Properties of Pultex® Fiber Reinforced Polymer Rods and Bars .....	7
Material Properties of Superstud™/Nuts! Square Nuts Fiber Reinforced Polymer Fastener Systems .....	8
Material Properties of Isoplast™ Flanged Hex Nuts Fiber Reinforced Polymer Fastener Systems .....	9
Material Properties of Pultex® <b>SuperStructural</b> Profiles – Wide Flange and I-Sections .....	10 – 11
Material Properties of Pultex® <b>SuperStructural</b> Profiles – Angles .....	12 – 13
Procedures for Obtaining Properties .....	14 – 16
Safety Factors .....	16
Elements of Sections	
Metric Elements of Section .....	17 – 25

**The New and Improved Pultex® Pultrusion Global Design Manual  
of Standard and Custom Fiber Reinforced Polymer Structural Profiles  
Metric Version  
Table of Contents**

Volume 3 Revision 3

**Page Numbers**

**Chapter 4 Load Tables For Flexural Members And Connections**

Beam Deflections.....	1
Allowable Stresses.....	1 – 3
Lateral – Torsional Buckling.....	3 – 5
Beam Deflection Formula.....	6 – 8
Examples of Beam Selection of Pultex® Profiles used as Flexural Members.....	9 – 12
Nomenclature.....	13
Introduction to Pultex® <b>SuperStructural</b> Profiles.....	14
Comparison of Standard Structural Profiles and Pultex® <b>SuperStructural</b> Profiles.....	14 – 16
Metric Span/Deflection Ratio Conversion Tables.....	17 – 18
Metric Allowable Uniform Load Tables.....	19 – 62
Connections	
Metric Clip Connection Load Tables with Pultex® <b>SuperStructural</b> Profiles.....	63 – 67
Design Example Using the Clip Connection Charts.....	68
Moment of Capacity of Pultex® <b>SuperStructural</b> Angles.....	69 – 70
Designing a Connection with a Coped Flange.....	71
End Notes.....	72

**Chapter 5 Load Tables For Compression Members**

Load Tables For Compression Members.....	1
Introduction.....	2
Pultex® Column Test Program.....	3 – 8
Nomenclature.....	9
Tables for Allowable Compressive Stresses and Loads.....	10
Metric Tables for Allowable Compressive Stresses and Loads.....	11 – 43
Biography.....	44 – 45

**Chapter 6 Environmental Considerations**

Temperature.....	1
Weathering.....	1
UV Stabilizers.....	1 – 2
Resistance to Chemicals and Reagents.....	2
Chemical Compatibility Guide.....	3 – 10

**The *New and Improved* Pultex® Pultrusion Global Design Manual  
of Standard and Custom Fiber Reinforced Polymer Structural Profiles  
Metric Version  
Table of Contents**

Volume 3 Revision 3

**Page Numbers**

**Chapter 7 Custom Profile Design**

Wall-Section Thickness .....	1
Radius Design .....	1
Shrinkage .....	2
Surface Appearance and Performance .....	2
Parting Lines .....	3
Localized Stiffening.....	3
Undercuts .....	3
Dimensional Tolerances.....	3
Designer Checklist.....	4 – 5
Notes .....	6

**Chapter 8 Quality Assurance And Standard Tolerances**

Quality Assurance System .....	1
Standard Tolerances.....	2 – 8

**Chapter 9 Fabrication Techniques**

Fabrication Techniques.....	1
Fabrication of Pultex® Structural Profiles.....	2 – 3
Adhesives/Bonding.....	3
Advantage of Adhesives.....	3 – 4
Bonded Shear Joint Concepts.....	4 – 5
Surface Preparations.....	5
Adhesives Comparison Guide used with Pultex® Profiles.....	6
Comparison of Joining Techniques.....	6
Machining Operations.....	7
Cutting Procedures .....	7
Operating Tips.....	7 – 8
Drilling .....	8
Grinding .....	9
Turning.....	9 – 10
Routing.....	10 – 11
Punching.....	11 – 12
Press Tonnage Requirements .....	12 – 14
Shear Angle in Punching.....	14
Other Useful Guidelines for Punching .....	14
Shearing.....	15

**The *New and Improved* Pultex® Pultrusion Global Design Manual  
of Standard and Custom Fiber Reinforced Polymer Structural Profiles  
Metric Version  
Table of Contents**

Volume 3 Revision 3

**Page Numbers**

Painting .....	15
Surface Preparation .....	16
Joining Pultex® Structural Profiles.....	17 – 19
Mechanical Fastenings.....	20 – 23
Notes .....	24
 <b>Chapter 10 Writing Specifications For Pultex® Structural Profiles</b>	
Writing Specifications .....	1 – 6
 <b>Appendices</b>	
Appendix A.....	1 – 2
Appendix B.....	3 – 4
 <b>Works Cited</b> .....	 1
 <b>Pultex® Product Availability List</b>	
Metric Pultex® Product Availability List .....	3 – 4

“Creative Pultrusions, Inc. believes the information put forth in this Design Manual to be as accurate and reliable as we can ascertain as of the date of publication. However, Creative Pultrusions, Inc. does not warrant that the information hereunder will not infringe the claims of any United States or other patents covering products or processes, or the use thereof in combination with other products or in the operation of any process.

User also agrees to indemnify and hold Creative Pultrusions, Inc. harmless from and against any and all losses, damages, and expenses (including attorney fees and other costs of defending any action) that Creative Pultrusions, Inc. may sustain or incur as a result of any claim, in connection with the use of the information in this manual.”