

SOLIDWORKS®

SOLIDWORKS Drawings - ANSI

Dassault Systèmes SolidWorks Corporation
175 Wyman Street
Waltham, MA 02451 U.S.A.

© 1995-2020, Dassault Systemes SolidWorks Corporation, a Dassault Systèmes SE company, 175 Wyman Street, Waltham, Mass. 02451 USA. All Rights Reserved.

The information and the software discussed in this document are subject to change without notice and are not commitments by Dassault Systemes SolidWorks Corporation (DS SolidWorks).

No material may be reproduced or transmitted in any form or by any means, electronically or manually, for any purpose without the express written permission of DS SolidWorks.

The software discussed in this document is furnished under a license and may be used or copied only in accordance with the terms of the license. All warranties given by DS SolidWorks as to the software and documentation are set forth in the license agreement, and nothing stated in, or implied by, this document or its contents shall be considered or deemed a modification or amendment of any terms, including warranties, in the license agreement.

For a full list of the patents, trademarks, and third-party software contained in this release, please go to the Legal Notices in the SOLIDWORKS documentation.

Restricted Rights

This clause applies to all acquisitions of Dassault Systèmes Offerings by or for the United States federal government, or by any prime contractor or subcontractor (at any tier) under any contract, grant, cooperative agreement or other activity with the federal government. The software, documentation and any other technical data provided hereunder is commercial in nature and developed solely at private expense. The Software is delivered as "Commercial Computer Software" as defined in DFARS 252.227-7014 (June 1995) or as a "Commercial Item" as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in Dassault Systèmes standard commercial end user license agreement. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov. 1995) or FAR 52.227-14 (June 1987), whichever is applicable. The terms and conditions of the Dassault Systèmes standard commercial end user license agreement shall pertain to the United States government's use and disclosure of this software, and shall supersede any conflicting contractual terms and conditions. If the DS standard commercial license fails to meet the United States government's needs or is inconsistent in any respect with United States Federal law, the United States government agrees to return this software, unused, to DS. The following additional statement applies only to acquisitions governed by DFARS Subpart 227.4 (October 1988): "Restricted Rights - use, duplication and disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252-227-7013 (Oct. 1988)."

In the event that you receive a request from any agency of the U.S. Government to provide Software with rights beyond those set forth above, you will notify DS SolidWorks of the scope of the request and DS SolidWorks will have five (5) business days to, in its sole discretion, accept or reject such request. Contractor/ Manufacturer: Dassault Systemes SolidWorks Corporation, 175 Wyman Street, Waltham, Massachusetts 02451 USA.

Contents

Introduction

About This Course	2
Prerequisites	2
Course Design Philosophy	2
About the Training Files	3
Training Templates	3
Accessing Training Templates in SOLIDWORKS	3
Conventions Used in this Book	4
Windows OS	5
Use of Color	5
More SOLIDWORKS Training Resources	5
Local User Groups	5

Lesson 1:

Review of the Basics

Review of Essentials	8
Drawing System Options	9
Beginning a New Drawing	10
View Palette and Model Views	11
Detailing Techniques	11
Importing Design Annotations	12
Using Model Items	13
Dimensions in Drawings	14
Section Views	17
Detail Views	18
Moving Drawing Views	19
View Alignment	19

Moving Dimensions	20
Center Marks & Centerlines	21
Assembly Drawing Review	24
Bill of Materials Tables	25
Adding Balloons	30
Adding Sheets	31
Standard 3 View	31
Exercise 1: Simple Part	33
Exercise 2: Drawing Views	38
Exercise 3: Section Cutting Line Options	45
Exercise 4: Removed Section Views	54
Exercise 5: Assembly Practice	56
Exercise 6: Adding Annotations	65

Lesson 2:

Understanding Drawing Templates

Structure of a Drawing Document	74
Drawing Document	74
Drawing Sheet	75
Sheet Properties	75
Sheet Format	76
Edit Sheet Format	76
Understanding Drawing Templates	76
Why are Drawings Structured this Way?	78
Sheet Format Features	79
Notes Linked to Properties	80
Annotation Link Errors	81
Drawing Template Design Strategy	84
Designing a Drawing Template	86
Understanding Document Properties	87
Display Settings in Templates	90
Sheet Properties in Templates	91
Custom Properties in Templates	92
Save as Template	92
Defining Template Locations	93
Model Templates	95
Creating a Sample Model and Drawing	96
Exercise 7: Defining Units	99
Exercise 8: Designing Model Templates	103
Exercise 9: Designing a Drawing Template	107

Lesson 3:

Customizing the Sheet Format

Customize the Sheet Format	110
Completing the Title Block Sketch	112
Completing the Title Block Notes	113
Tips for Locating Notes	115
Adding a Company Logo	116

Defining the Border	118
Setting Anchors.	121
Exit Edit Sheet Format Mode	122
Title Block Fields	123
Exercise 10: Customizing a Sheet Format	126
Lesson 4:	
Saving and Testing the Sheet Format File	
Understanding Sheet Format Properties	128
Understanding Sheet Format Behavior.	129
Saving the Sheet Format.	131
Reload Sheet Format.	132
Defining Sheet Format Locations.	133
Testing the Sheet Format	134
Testing Sheet Format Properties.	136
Testing Default Values	139
Exercise 11: Saving and Testing a Sheet Format	141
Lesson 5:	
Creating Additional Sheet Formats and Templates	
Creating Additional Sheet Formats.	144
Drawing Templates with Sheet Formats.	148
Other Drawing Template Items.	149
Property Tab Builder.	150
The Property Tab Builder UI	151
Defining Property Tab Template Locations	154
Additional Property Tab Options	155
Properties.txt File	157
Exercise 12: Create a New Sheet Format Size	159
Exercise 13: Drawing Templates with Sheet Formats	160
Exercise 14: Predefined Views.	161
Exercise 15: Property Tab Templates and Properties.txt	167
Lesson 6:	
Advanced Options for Drawing Views	
Advanced Drawing Views	170
Showing Hidden Edges.	172
Drawing View Properties Dialog	172
Broken-out Section View	175
Editing Broken-out Section Views	176
Auxiliary View	176
Rotating Views	178
Crop View	178
Understanding View Focus.	179
Editing Crop Views	180
Advanced Views for Assemblies	182
Section Scope	182

Alternate Position View	185
Editing Alternate Position Views	187
Using Configurations	188
Using Display States	189
Custom View Orientations	191
New View	192
Relative View	193
3D Drawing Views	194
Exercise 16: View Practice	196
Exercise 17: Auxiliary Views	201
Exercise 18: Broken Views	205
Exercise 19: Heater Assembly	212
Exercise 20: Pivot Conveyor	215
Exercise 21: Housing	220
Lesson 7:	
Understanding Annotation Views	
Understanding Annotation Views	230
Understanding Annotation Behavior	232
What are Annotation Views?	232
Annotations Folder	232
Default Annotation Views	233
Annotations View Visibility	234
Insert Annotation View	235
Editing Annotation Views	237
Annotation Update	240
Annotations Folder in Drawings	241
Exercise 22: Editing Annotation Views	242
Lesson 8:	
Advanced Detailing Tools	
Detailing Tools	248
Annotation Views vs. Model Items	249
Using Annotation Views in Existing Drawing Views	250
Combining Annotation Views and Model Items	253
Parametric Notes	255
Dimension Types	257
Chamfer Dimension	258
Ordinate Dimensions	259
Ordinate Dimension Options	261
Baseline Dimensions	262
Chain Dimensions	262
Baseline Dimension Alignment	265
Autodimension	265

Arranging Dimensions	266
Using Dimension Handles	268
Aligning Linear Diameter Dimensions.	269
Location Labels.	271
Exercise 23: Detailing Practice.	273
Exercise 24: Dimension Types	277
Exercise 25: Chain Dimensions	284
Exercise 26: Arranging Dimensions.	288
Lesson 9:	
Using Layers, Styles and the Design Library	
Using Layers.	294
Layer Properties Dialog	295
Automating Layers	297
Dimension Styles	299
Styles in the PropertyManager	299
Styles in the Dimension Palette	301
Annotations in the Design Library	302
Design Library Shortcuts	304
Adding Notes to the Design Library.	306
Building a Custom Note Block.	307
Flag Note Bank.	309
Exercise 27: Using Layers	312
Exercise 28: Dimension Styles	317
Exercise 29: Annotations and the Design Library	320
Lesson 10:	
Advanced Options for BOM Tables	
Tables in SOLIDWORKS.	330
Bill of Materials Properties.	330
Displaying the BOM Assembly Structure	333
Modifying a Table.	338
Saving a Table Template.	340
Properties in BOM Tables.	341
BOM Quantity	342
BOM Part Numbers	342
Child Component Display	345
BOM Component Options	346
Balloon Indicator	347
Exercise 30: Bill of Materials.	349
Exercise 31: Magnetic Lines.	363
Lesson 11:	
Additional SOLIDWORKS Tables	
Additional SOLIDWORKS Tables.	370
Inserting a Hole Table.	370
Adjusting Hole Table Settings	372

Splitting a Table	374
Using a Revision Table	375
Markup	376
Adding a Revision	377
Leader Annotation Options	379
Design Tables in Drawings	382
Exercise 32: Hole Table	383
Exercise 33: Revision and Design Tables	387

Lesson 12:**Additional Drawing Tools**

Reusing Drawings	398
Replace Model	400
Another Technique	401
Open with a New Reference	401
Save As with References	404
Pack and Go	407
DrawCompare	408
DrawCompare Options	408
SOLIDWORKS Design Checker	410
SOLIDWORKS Task Scheduler	410
Updating Custom Properties	410
Exercise 34: Open with New Reference	413
Exercise 35: Save As with References	418
Exercise 36: Pack and Go	422
Exercise 37: SOLIDWORKS Task Scheduler	427
Exercise 38: SOLIDWORKS Design Checker	429

Lesson 13:**Managing Performance**

Managing Performance	438
Performance Evaluation	438
Open Progress Indicator	439
Detailing Practices	443
System Options & Document Properties	446
Open Options	448
Open Modes	448
Selecting Sheets	449
Detached Drawings	451
Detached Drawings vs. Detailing Mode	454
Loading the Model	454
Hardware and Performance	455
Additional Considerations	456
Quick Reference Guide	458
Exercise 39: Detached Drawing	459