

SOLIDWORKS Certification Exam Guide & Practice Test



**CSWPA-SM: Certified
SOLIDWORKS Professional
Advanced Sheet Metal**

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About This Guide

This guide contains information, advice, and practice for obtaining your advanced professional certification in SOLIDWORKS Sheet Metal. Here, you will find:

- An overview of SOLIDWORKS Certifications
- Details about the CSWPA-SM Exam
- Advice on preparing for and taking the CSWPA-SM Exam
- A practice exam for the Primary Part portion of the CSWPA-SM
- An answer key to the practice exam
- Directions to useful SOLIDWORKS websites

The CSWPA-SM Certification

SOLIDWORKS Certifications are a benchmark to measure your knowledge and competency with SOLIDWORKS software. A certification helps you stand out from the crowd and showcases your expertise to businesses and professionals alike—a valuable asset in a competitive job market.

A few popular SOLIDWORKS Certifications include:

- CSWA: Certified SOLIDWORKS Associate
- CSWP: Certified SOLIDWORKS Professional
- CSWPA: Certified SOLIDWORKS Professional Advanced:
 - Sheet Metal
 - Weldments
 - Surfacing
 - Mold Tools
 - Drawing Tools
- CSWE: Certified SOLIDWORKS Expert
- CEPA: Certified Enterprise PDM Administrator

Why take the CSWPA-SM Exam?

The Sheet Metal certification sets you apart as a person who has successfully demonstrated their understanding of the set of SOLIDWORKS tools that aid in the design of sheet metal components. For hiring managers, it acts as a valuable assessment to attest for an individual's competency, thereby reducing the amount of time and energy required to research prospective candidates.

Passing four of the five CSWPA exams, along with the CSWP, is a prerequisite for taking the CSWE Exam to become a Certified SOLIDWORKS Expert.

All candidates receive electronic certificates, business card logos, and personal listing in the CSWP directory when they pass.

CSWPA-SM Exam Details

CSWPA-SM exam contains questions from the following topics:

- Linear Edge Flange
- Curved Edge Flange
- Miter Flange
- Closed Corner
- Gauge Tables
- Bending calculation options
- Bend Allowance
- Bend Deduction
- K-Factor
- Hem
- Jog
- Sketched Bend
- Forming Tool
- Unfold and Fold
- Flatten
- Convert to Sheet Metal Feature
- Hem Improvements
- Sheet Metal Cut List Properties

Total Questions: 15

Total Points: 145

Points Needed to Pass: 100

Maximum Time: 90 min

How to Prepare for the Exam

Don't let the exam questions take you by surprise! We recommend that you practice the skills in the "CSWPA-SM Exam Details" section above, and that you ask for help from experienced SOLIDWORKS users.

No details to the solutions for either this sample exam or the real test will be shared by the SOLIDWORKS Certification team. Please consult your SOLIDWORKS reseller, your local user group, or the on-line SOLIDWORKS forums at forum.solidworks.com to review any topics on the CSWPA-SM exam.

A great resource is the SOLIDWORKS website (solidworks.com).

- For training courses, go to **Home > Support > Training > SOLIDWORKS Courses**.
- To download models to practice on, go to **Home > Support > Training > SOLIDWORKS Training Files**
- You'll find a wealth of access to videos, tutorials, blogs, events, and fellow users in the SOLIDWORKS Community at **Home > Resource Center**

You can also log into my.solidworks.com to browse lessons, forums, models, and much more.

Last but not least, make use of this exam guide to review realistic exam questions, look over important topics, and familiarize yourself with the exam procedure.

How to Take This Practice Exam

1. You must be running SOLIDWORKS on the computer, both for the practice and actual test. SOLIDWORKS can only be installed with the Windows operating system.
2. Microsoft® Excel should be installed on the computer where you are running SOLIDWORKS to ensure that your Gauge Table functionality works properly for the exam.
3. To simulate real conditions, it is best NOT to print this exam.
In the real test, the VirtualTester client window runs concurrently with SOLIDWORKS, requiring you to switch between applications. Keep this document open and consult it while running SOLIDWORKS.
4. After each question, save a version of your model in a different file for later reference. This may also help you fix errors later on in the test.
5. The multiple choice will help you check that your model is on the right track. If your answer is not listed in the selections offered, it is likely that there is something wrong with your model.
6. This guide includes an answer key after the practice exam.
7. If you can complete this exam and get at least 5 out of 6 questions correct in less than 30 minutes, you should be ready to take the real CSWPA-SM exam.

Taking the Real Exam

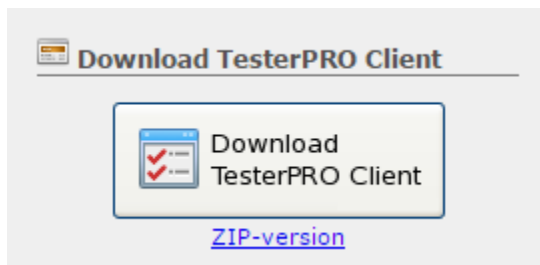
The real exam can be taken on your personal computer at a time of your choosing. The CSWPA-SM Exam is administered through the Tangix TesterPRO Client, an application that you may download from the SOLIDWORKS VirtualTester website.

To learn the testing procedure in VirtualTester, if you have a MySolidWorks account, please refer to this video:

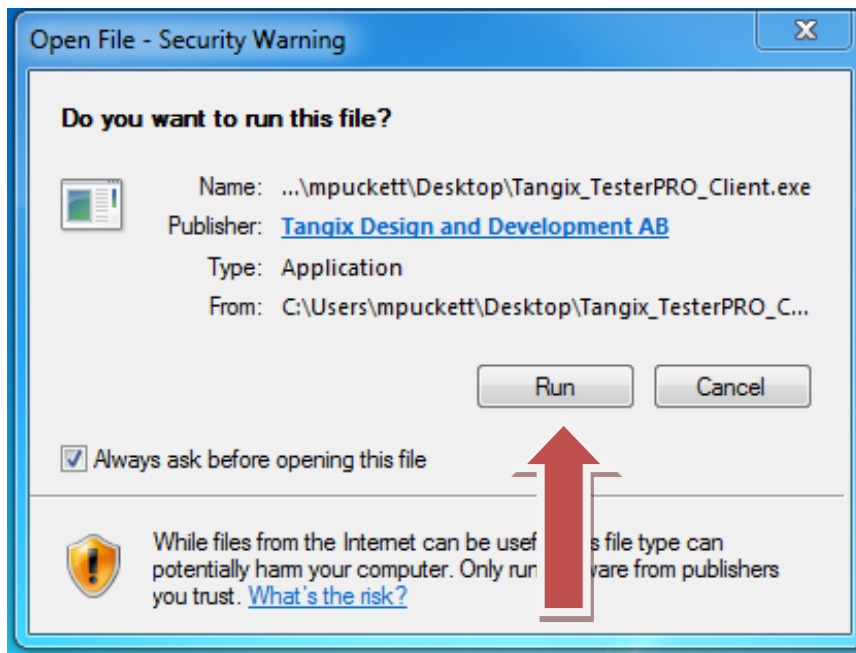
<http://my.solidworks.com/mylearning/lessons/489/installing-and-viewing-the-test-software>

Alternatively, you may follow these steps:

1. Visit the SOLIDWORKS VirtualTester Certification Center at <https://SOLIDWORKS.virtualtester.com/>.
2. Locate and click the button (right hand side of page) to download the Tangix TesterPRO Client:



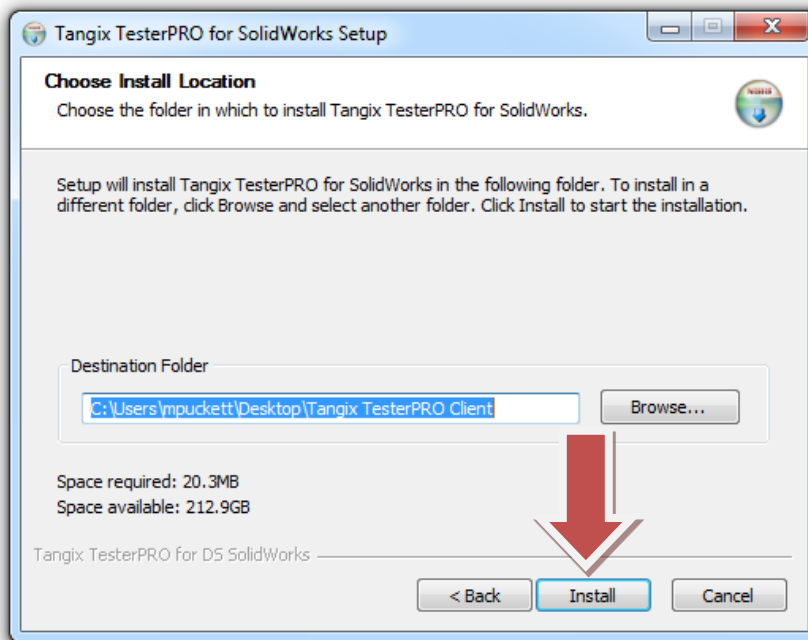
3. Open the downloaded folder and run the executable file:



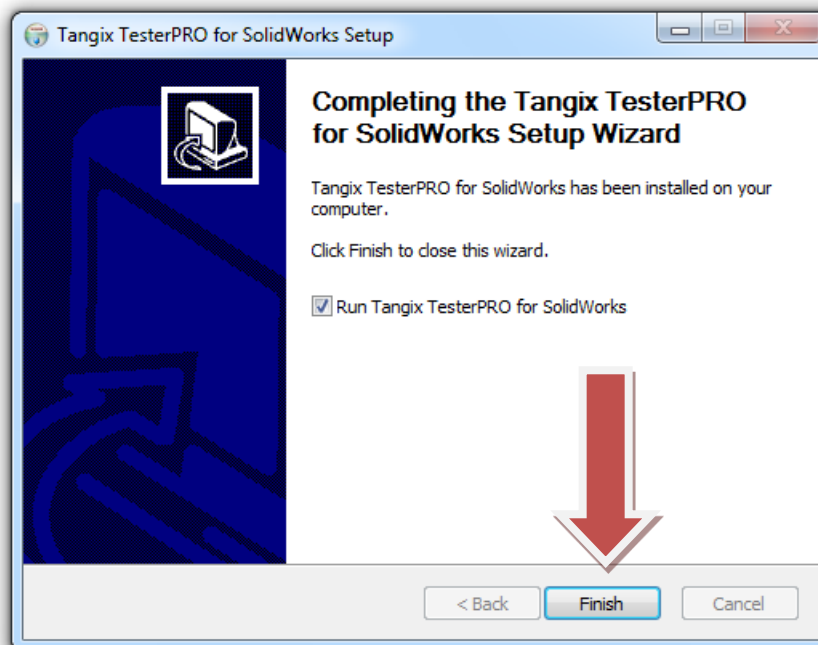
4. Agree to the License Agreement.



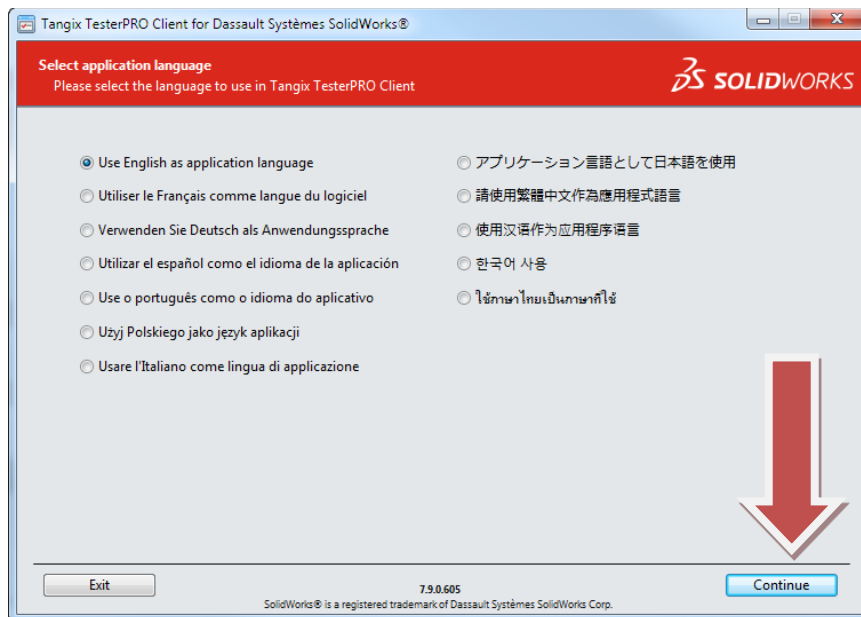
5. Click the install button.



6. Click the finish button.

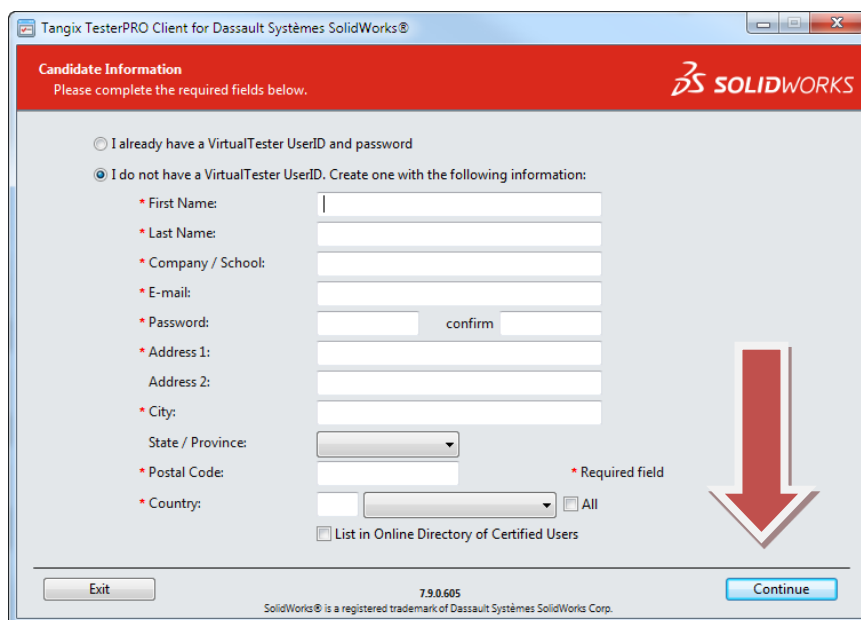


7. When you run the program, select your language and click Continue.



If you have already taken a SOLIDWORKS Certification Exam, skip to step 9.

8. If this is your first exam, you will need to create an account. Fill in the required fields and click continue:



Write down your login credentials for future use!

Skip to step 10.

9. If you have already taken a SOLIDWORKS Certification Exam, select the option below, fill in your credentials, and click continue.

The screenshot shows the 'Candidate Information' window of the Tangix TesterPRO Client. The window has a red header bar with the SolidWorks logo and the text 'Candidate Information' and 'Connect to VirtualTester'. Below the header, there are two radio button options. The first option, 'I already have a VirtualTester UserID and password', is selected. Below this option are input fields for 'E-mail:' and 'Password:'. The second option is 'I do not have a VirtualTester UserID. Create one with the following information:'. At the bottom of the window, there are 'Exit' and 'Continue' buttons. The version number '7.9.0.605' and a trademark notice are also visible.

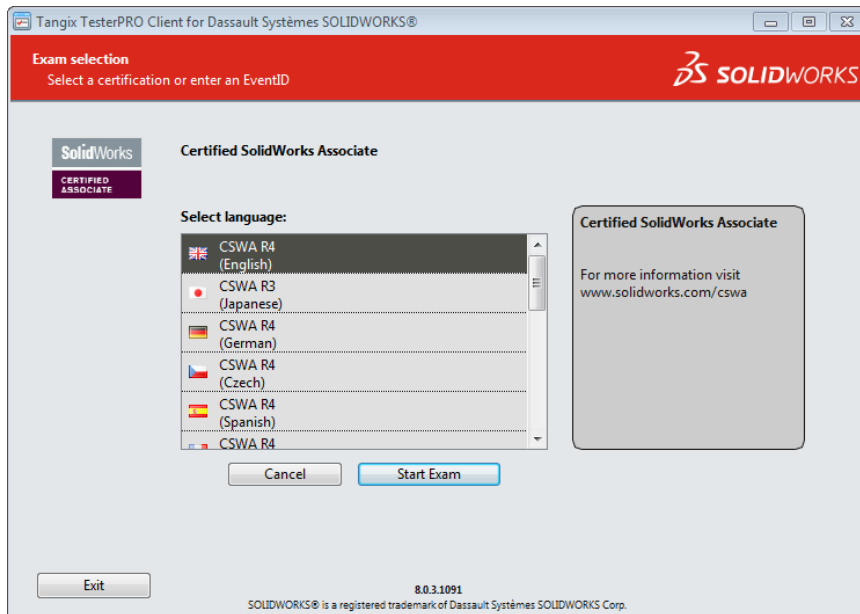
10. On the exam selection page select an exam that has the words 'Start Exam' next to it (only exams that you have credits for will show as available):

The screenshot shows the 'Exam selection' window of the Tangix TesterPRO Client. The window has a red header bar with the SolidWorks logo and the text 'Exam selection' and 'Select a certification or enter an EventID'. Below the header, there is an input field for 'Event ID / Voucher:' with a 'Submit' button. Below this, there is a section titled 'or select a Certification in the list:'. This section contains a list of exams. The first three exams are 'Segment 1 of Certified SolidWorks Professional Core', 'Segment 2 of Certified SolidWorks Professional Core', and 'Segment 3 of Certified SolidWorks Professional Core'. Each of these exams has a 'Start Exam' button next to it. The fourth exam is 'CSWPA-WD Certified SolidWorks Professional - Advanced Weldments', which has a '\$' icon and 'No Credit' text next to it. The fifth exam is 'CSWA-S Certified SolidWorks Simulation', which has a '\$' icon. At the bottom of the window, there are 'Exit' and 'Continue' buttons. The version number '7.9.0.605' and a trademark notice are also visible.

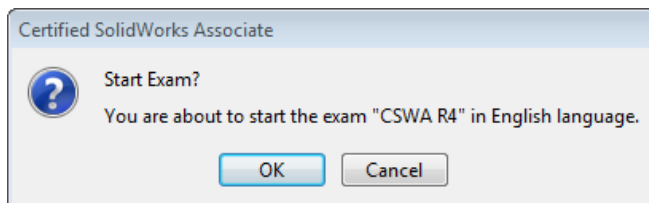
If you do not have credit for the exam, do one of the following:

- If you have an Event ID or Voucher, type it into the field on this page and click "Submit."
- Purchase an exam credit online. This may be found on solidworks.com:
Click **Support > Certification > Exam Registration**.

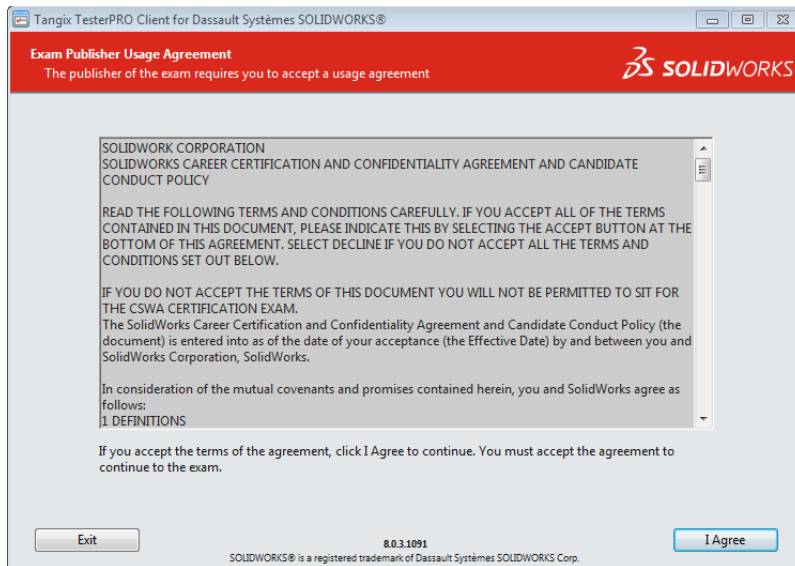
11. You may be asked to select a language. Select a language and click "Start Exam."



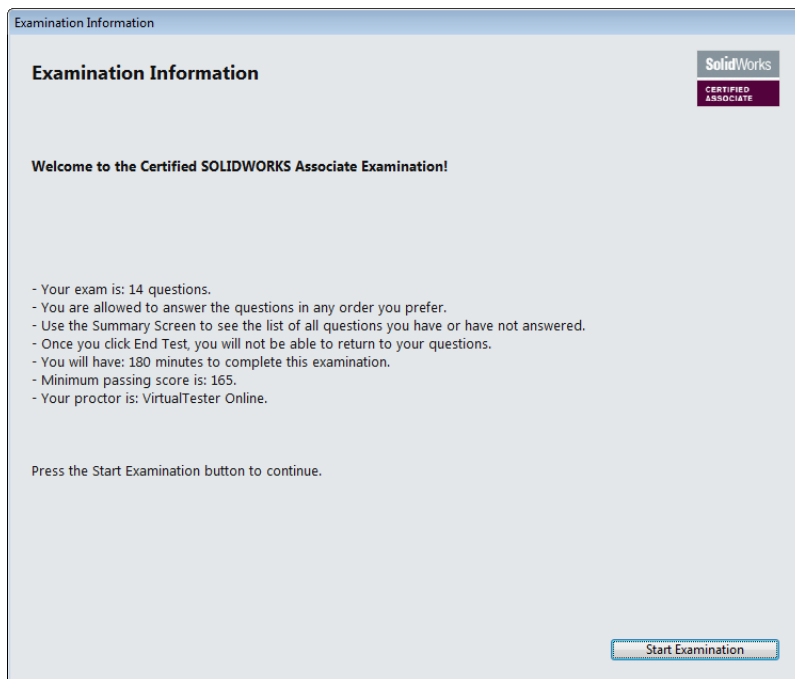
12. Confirm the exam you are about to begin:



13. Agree to the Confidentiality Agreement and Candidate Conduct Policy.

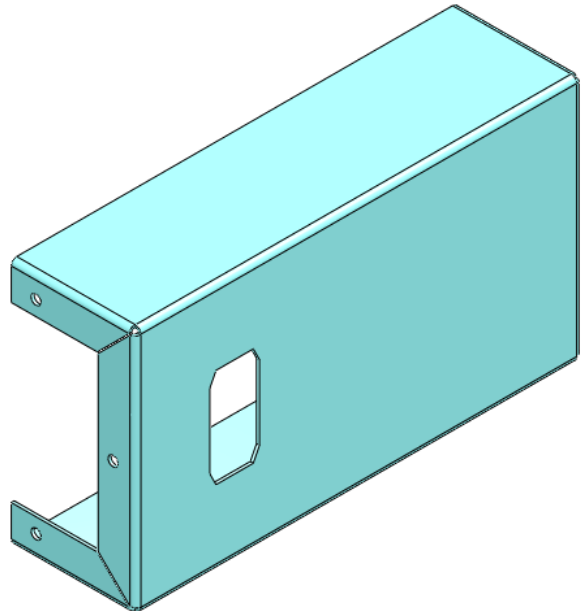


14. On the Examination Information page, read the information and then click "Start Examination", this will begin the timed portion of your exam.



The practice exam begins on the next page.

The images below are to be used to answer Questions 1-5.



1. Design this part in SOLIDWORKS using Sheet Metal features.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part Origin: Arbitrary

Part Material: Aluminum, 1060 Alloy

Material Density: 0.0027 g/mm³

Sheet Metal Thickness: 1.20 mm

Inner Bend Radius: 1.00 mm

Trim Side Bends = ON (If applicable)

A = 180

B = 100

C = 50

D = 15

Measure the mass of the part.

What is the overall mass of the part (grams)?

NOTE: Save a version of your part before proceeding to the next question, in case the part needs to be reviewed later.

2. Update parameters of the initial part.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part Origin: Arbitrary

Part Material: Aluminum, 1060 Alloy

Material Density: 0.0027 g/mm³

Sheet Metal Thickness: 1.20 mm

Inner Bend Radius: 1.00 mm

Trim Side Bends = ON (If applicable)

A = 200

B = 110

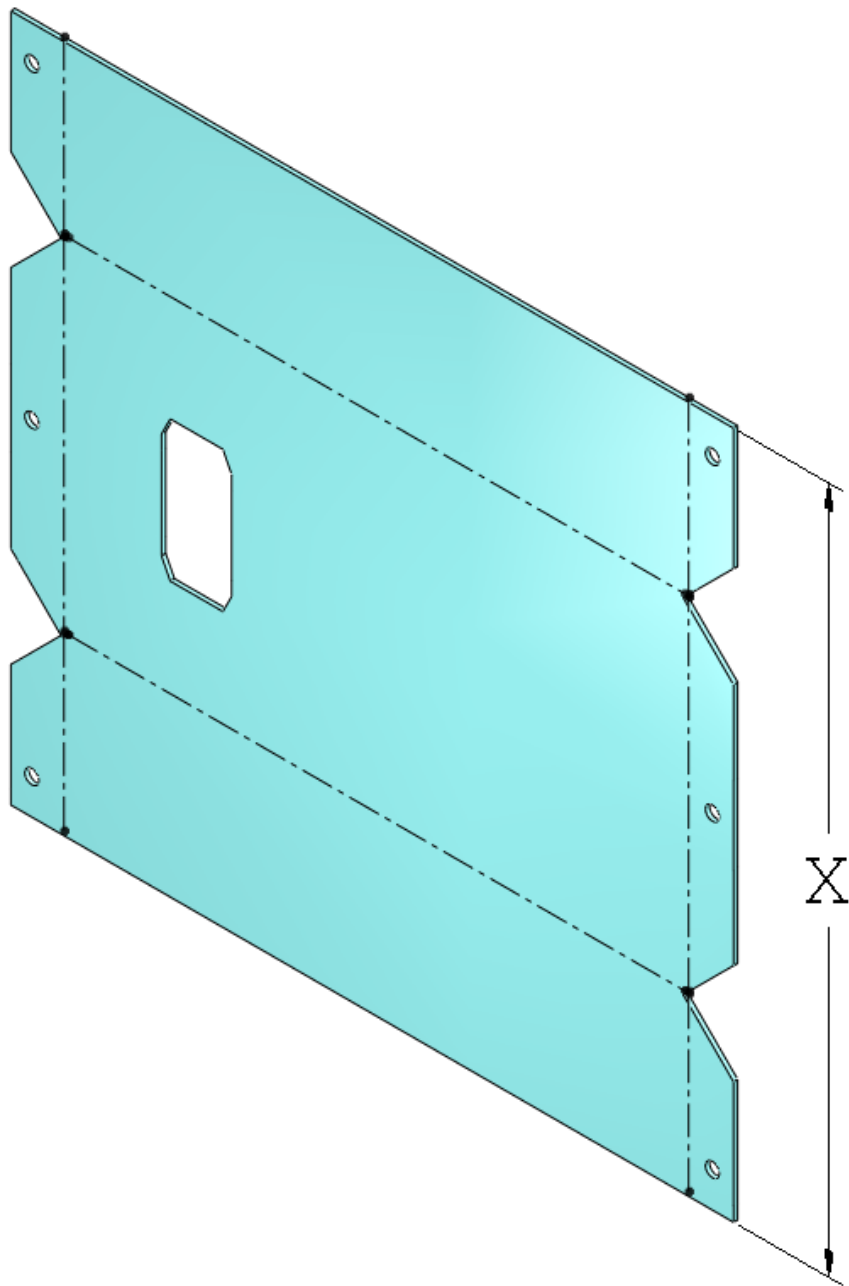
C = 40

D = 18

Measure the mass of the part.

What is the overall mass of the part (grams)?

Use the images below for questions 3 and 4.



3. Update parameters of the initial part.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part Origin: Arbitrary

Part Material: Aluminum, 1060 Alloy

Material Density: 0.0027 g/mm³

Sheet Metal Thickness: 1.20 mm

Inner Bend Radius: 1.00 mm

Trim Side Bends = ON (If applicable)

Apply a K-Factor of 0.40 and flatten the part

A = 180

B = 100

C = 50

D = 15

Measure the indicated distance X as seen in the image.

What is the measured distance (X) of the part (mm)?

4. Update parameters of the initial part.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part Origin: Arbitrary

Part Material: Aluminum, 1060 Alloy

Material Density: 0.0027 g/mm³

Sheet Metal Thickness: 1.20 mm

Inner Bend Radius: 1.00 mm

Trim Side Bends = ON (If applicable)

Apply a K-Factor of 0.32 and flatten the part

A = 200

B = 110

C = 40

D = 18

Measure the indicated distance X as seen in the image.

What is the measured distance (X) of the part (mm)?

5) Update parameters of the initial part.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part Origin: Arbitrary

Part Material: Aluminum, 1060 Alloy

Material Density: 0.0027 g/mm³

Sheet Metal Thickness: 1.20 mm

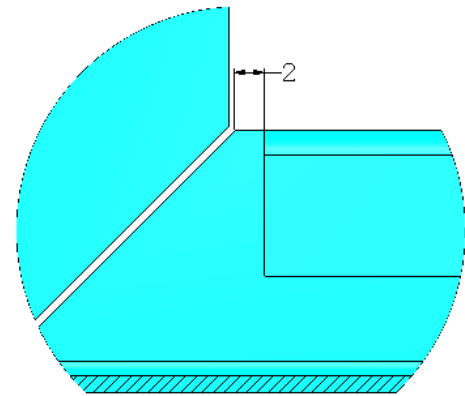
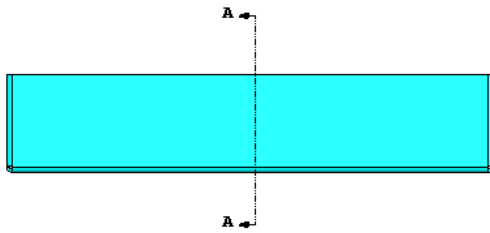
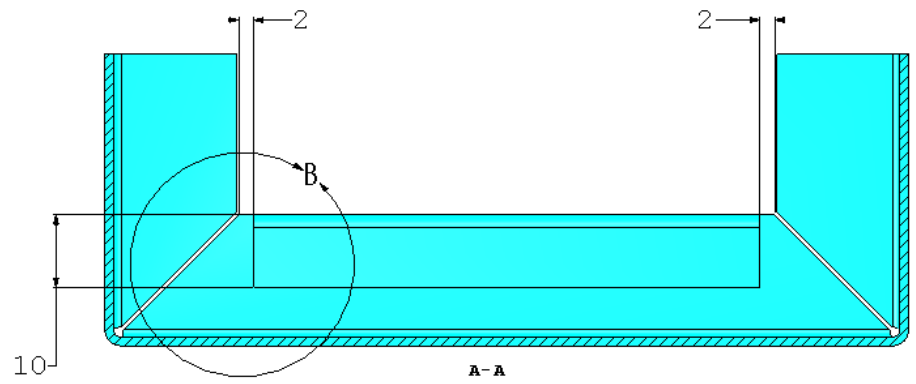
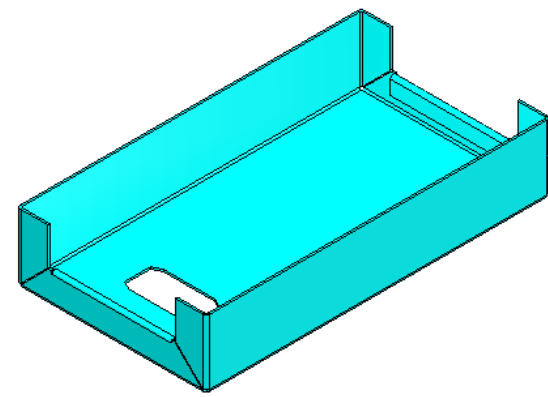
Inner Bend Radius: 1.00 mm

Trim Side Bends = ON (If applicable)

Using the same parameters as given in Question 4, measure the Bounding Box Area of the part

What is the Bounding Box Area of the part (mm²)?

Use the following images for Question 6.



DETAIL B

6. Update parameters of the initial part.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part Origin: Arbitrary

Part Material: Aluminum, 1060 Alloy

Material Density: 0.0027 g/mm³

Sheet Metal Thickness: 1.20 mm

Inner Bend Radius: 1.00 mm

Hem Gap Distance: 1.00mm

Remove the round holes in the flanges of the part

Create two symmetrical hems bent into the interior of the part as shown

Using the parameters given in Question 4, measure the mass of the part

What is the mass of the part (grams)?

END OF TEST

Answer Key

1. 125.60 grams \pm 0.50 grams
2. 133.37 grams \pm 0.50 grams
3. 195.85 mm \pm 0.50 mm
4. 185.55 mm \pm 0.50 mm
5. 42963.25 mm² \pm 100 mm²
6. 138.13 grams \pm 0.50 grams

Frequently Asked Questions

Below is a series of common questions regarding SOLIDWORKS Certifications. To peruse more FAQs, please visit the SOLIDWORKS Certification FAQ page under **Home > Support > Certification > FAQ**.

1. What is the Certified SOLIDWORKS Professional Advanced Sheet Metal (CSWPA-SM) exam?

The CSWPA-SM exam is a comprehensive, non-proctored online exam that tests an individual's understanding of the set of SOLIDWORKS tools that aid in the design of sheet metal components.

2. What resources do I need to take the CSWPA-SM?

The CSWPA-SM test is an online test that can be taken on any computer that has SOLIDWORKS and Microsoft® Excel running and a connection to the Internet. **You are responsible for providing your own working copy of SOLIDWORKS. A commercial license of SOLIDWORKS or the SOLIDWORKS Student Edition will be adequate for the exams.**

The test runs in its own client window separate from SOLIDWORKS. You can either run the exam software on the same computer as your SOLIDWORKS software or in a separate computer next to the one running SOLIDWORKS. Please note that if you are taking the test on a separate computer that you have some means to transfer files from the computer running the testing client to the computer running SOLIDWORKS. Dual monitors are recommended but not required.

As stated above, an internet connection is required for the exam. At this point there are no provisions for a stand-alone exam.

3. What is the policy on retaking the CSWPA?

There is a 30-day waiting period before retaking the CSWA and any Advanced CSWP exam. There is a 14-day waiting period before retaking any CSWP segment exam. Also, the user will be required to purchase another exam credit to retake the test.

4. What do I receive when I pass the exam?

You will receive certificates for each exam that you pass. You receive an email that directs you to our electronic certificate access page. There you can login and download your electronic certificate(s) and electronic business card logo(s); CSWPs also receive discounts to partner products and SOLIDWORKS World events. For more information refer to www.solidworks.com/cswp.

5. Can the exam be paused?

No. Once started, exams cannot be paused.

6. I took the exam and my Internet connection failed when the test ended. How do I report my results now?

The tester software will retry to connect for ~2 minutes. If the connection is still not available, an error message will be displayed and a TXT file will be saved on your desktop. The name of the file is: Tangix_TesterPro_Error_Date_Time.

Please send this file to support@tangix.com

7. Will my answers be lost if my computer crashes? Will I lose my testing credit/have to pay again if my computer crashes?

You will have to start the examination over and no refund will be available. Once you click 'take exam' your exam credit will be redeemed and we cannot refund your payment or voucher. If your computer crashes, your answers are not recoverable.

8. Which commercial version of the software should I use to take the CSWPA exams?

For all exams, the minimum version necessary is listed on the information page of that exam. Please go to <http://www.solidworks.com/certification> and click on the individual exam information page links on the left.

9. Will a certificate be mailed out to me once I pass an exam?

SOLIDWORKS no longer mails out certificates to individuals who have passed an exam. We have made it a simple download that you can print from your computer so you no longer have to wait to receive it. To print your certificate, simply visit www.virtualtester.com/solidworks/user.php. On that page, simply click the "Print My Certificate" button and follow the on-screen instructions. Please note that not all exams have printable certificates.

Helpful Sites

SOLIDWORKS Home:

www.solidworks.com

SOLIDWORKS Resource Center:

<http://www.solidworks.com/sw/resources.htm>

SOLIDWORKS YouTube Channel:

<https://www.youtube.com/user/solidworks>

MySOLIDWORKS:

my.solidworks.com

Training Pages:

<http://www.solidworks.com/sw/support/software-training-certification.htm>