

SOLIDWORKS Certification Exam Guide & Practice Test



**CSWP-CAM: Certified
SOLIDWORKS Professional CAM**

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About This Guide

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

- An overview of SOLIDWORKS Certifications
- Details about the CSWP-CAM Exam
- Advice on preparing for and taking the CSWP-CAM Exam
- A Practice CSWP-CAM Exam and answer key
- Directions to useful SOLIDWORKS websites

The CSWP-CAM 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 Making
 - Drawing Tools
- CSWE: Certified SOLIDWORKS Expert
- CPPA: Certified PDM Professional Administrator

Why take the CSWP-CAM Exam?

The CAM certification is an exam that sets you apart as a person who has successfully demonstrated their ability to use SOLIDWORKS CAM tools and functionality. 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.

There is no prerequisite for taking this exam to become a CAM Certified SOLIDWORKS Professional.

All candidates receive an electronic certificate, business card logo, and personal listing in the CSWP directory when they pass.

CSWP-CAM Exam Details

The CSWP-CAM covers the following topics (based on CAM Standard functionality):

- Technology Database
- Automatic Feature Recognition (AFR)
- Interactive Feature Recognition (IFR)
- Define Machine
- Define Stock
- Define Coordinate System
- Define Machinable Features
- Simulate Toolpaths
- Post Process Toolpaths
- Extract Machinable Features
- Generate Operation Plan
- Generate Toolpaths and NC Code
- Modify Tools
- Machining Parameters
- Design Changes
- Create avoid and contain areas
- Save Operation Plan
- Operation Modification
- Interactive 2.5 Axis Mill Operations
- Machining Operations:
 - Rough Milling
 - Finish (Contour) Milling
 - Face Milling
 - Drilling
 - Center Drilling
 - Counterbore
 - Countersink
 - Multi-step Hole
 - Tap
 - Ream
- Engraving

- Corner Round and Chamfer Machining
- Machine using Waterjet, Plasma or Laser

Total Questions: 15

Total Points: 240

Points Needed to Pass: 180

Maximum Time: 180 minutes (3 hrs)

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 "CSWP-CAM 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 CSWP-CAM 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. 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.
3. 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.
4. 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.
5. This guide includes an answer key after the practice exam.
6. If you can complete this exam correctly in less than 30 minutes, you should be ready to take the real exam.

Taking the Real Exam

The real exam can be taken on your personal computer at a time of your choosing. The CSWP-CAM Exam is administered through the Tangix TesterPRO Client, an application that you may download from the SOLIDWORKS VirtualTester website. You will need a connection to the Internet throughout the exam.

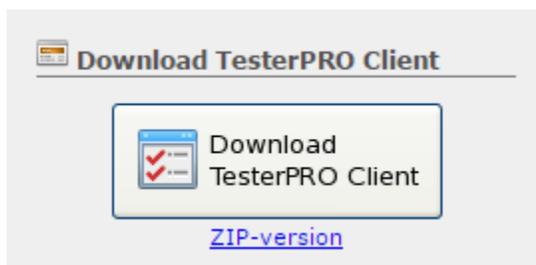
If you will be running the client on a separate computer from the one that is running SOLIDWORKS, make sure there is a way to transfer files from one computer to the other. You will be required to download SOLIDWORKS files during the real test to be able to correctly answer some of the questions.

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

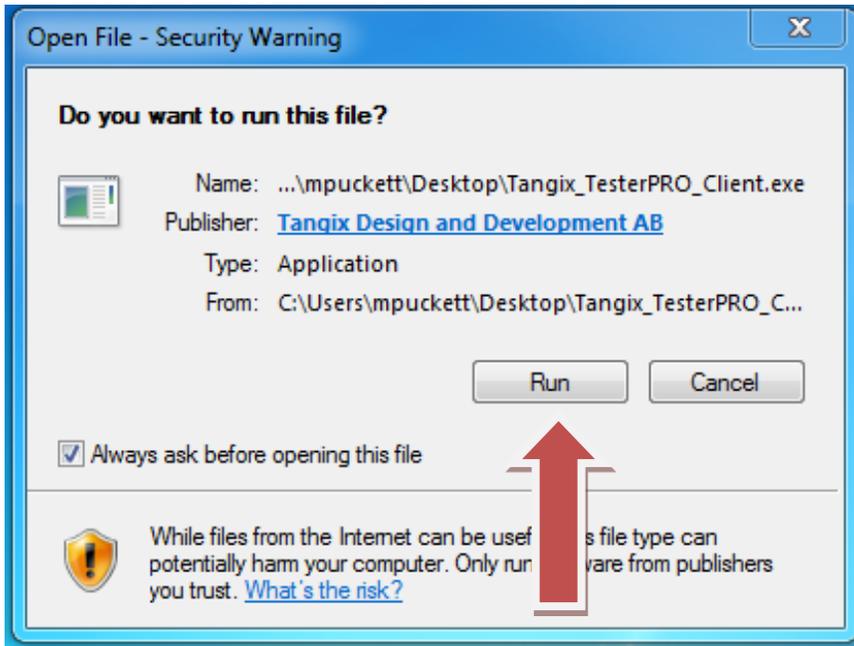
<http://my.SOLIDWORKS.com/mylearning/lessons/489/installing-and-viewing-the-test-software>

Alternatively, you may follow these steps:

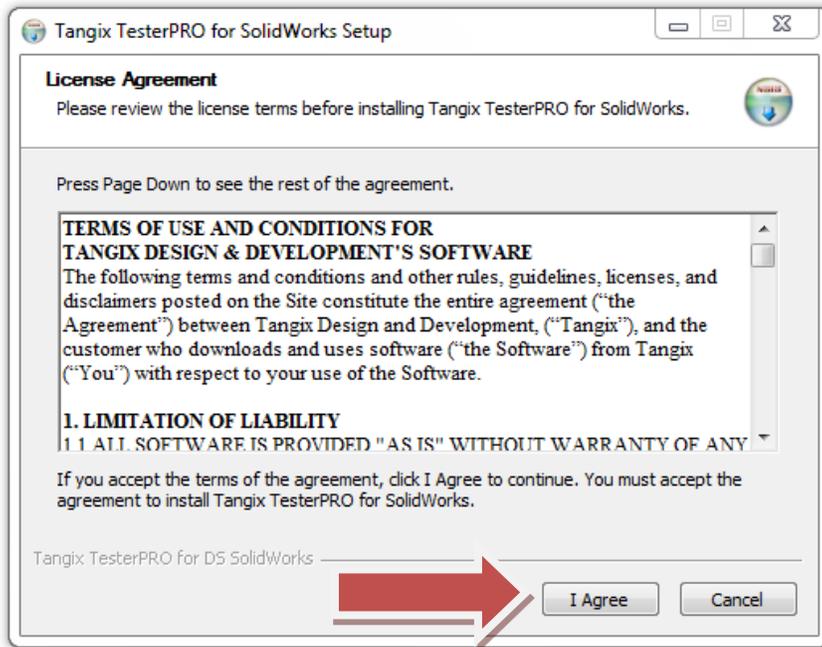
1. Visit the SOLIDWORKS VirtualTester Certification Center at <https://SOLIDWORKS.virtualtester.com/>.
2. Locate and click the button (right hand side of page) to download the Tangix TesterPRO Client:



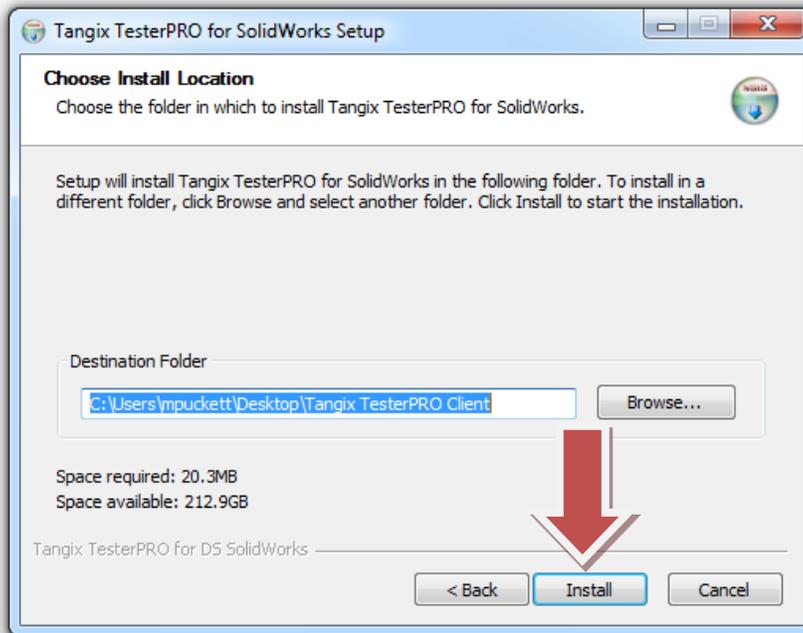
3. Open the downloaded folder and run the executable file:



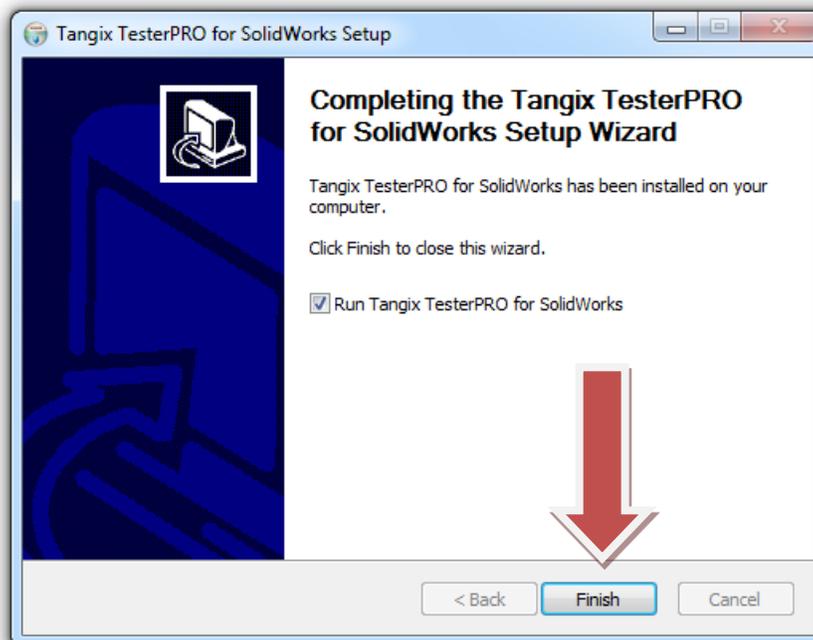
4. Agree to the License Agreement.



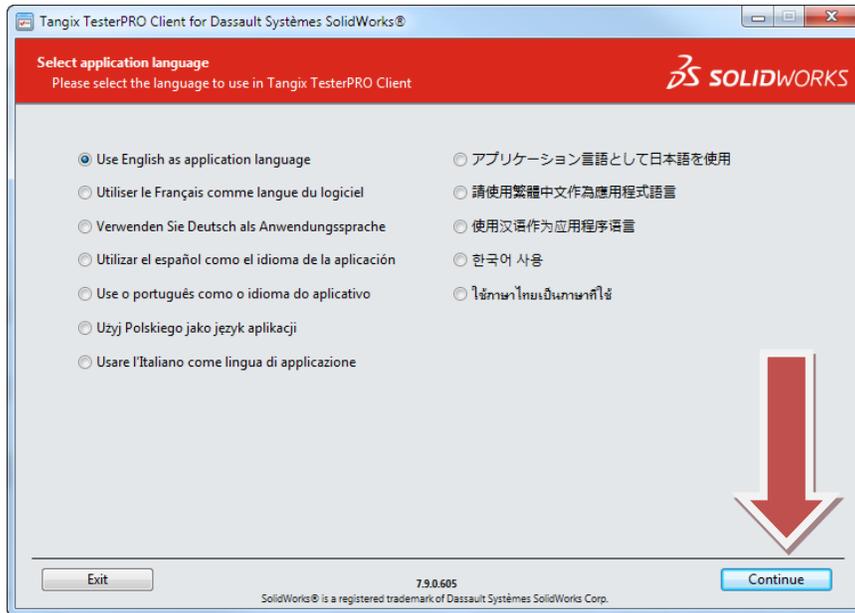
5. Click the install button.



6. Click the finish button.

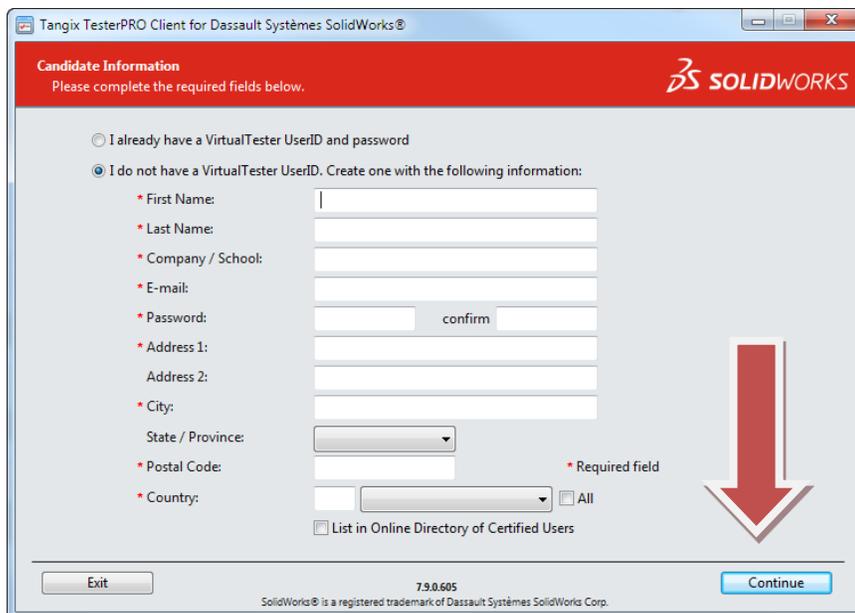


7. When you run the program, select your language and click Continue.



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

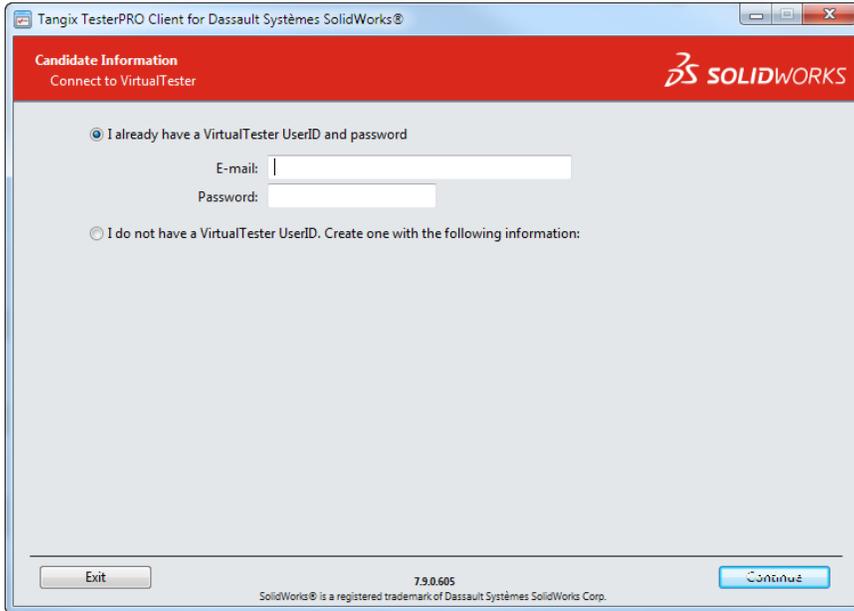
8. If this is your first exam, you will need to create an account. Fill in the required fields and click continue:



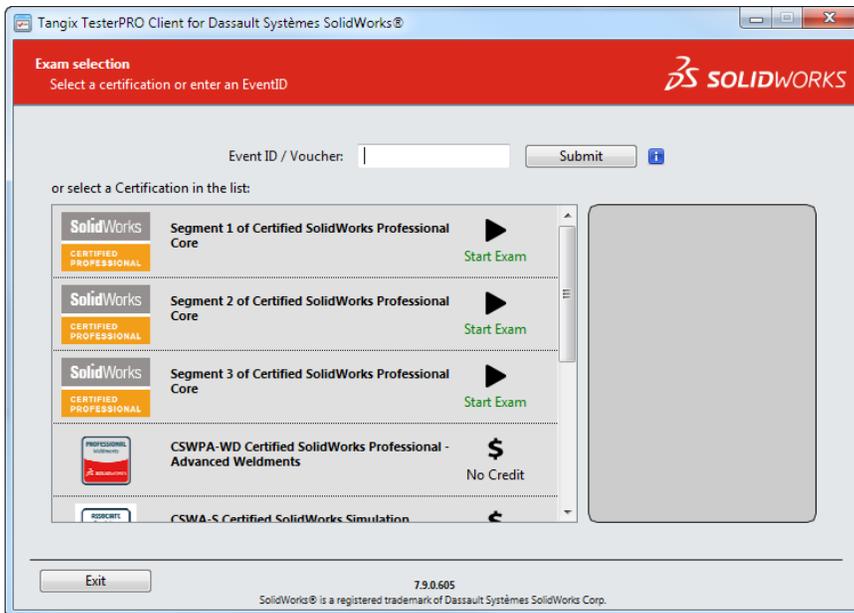
Write down your login credentials for future use!

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.



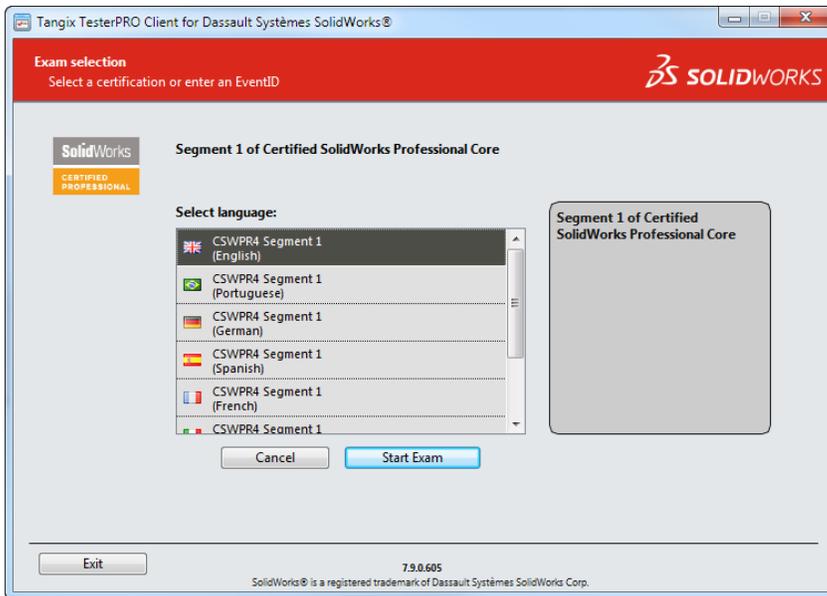
10. On the exam selection page select an exam that has the words 'Start Exam' next to it (only exams that you have credits for will show as available):



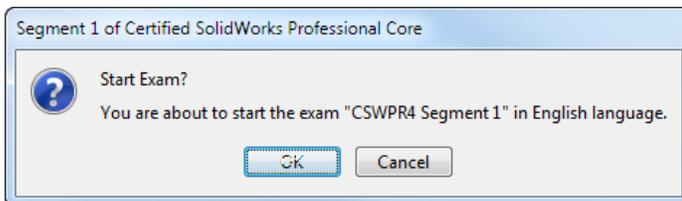
If you do not have credit for the exam, do one of the following:

- 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**.

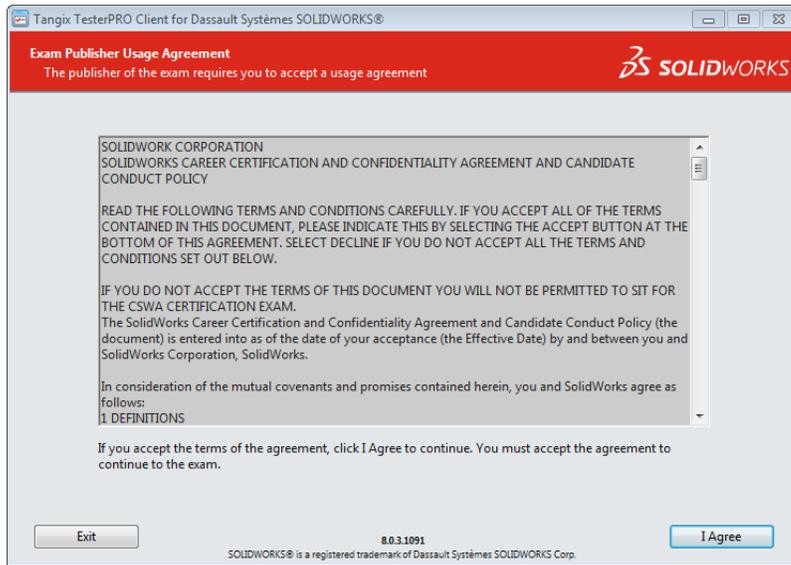
11. You may be asked to select a language. Select a language and click "Start Exam."



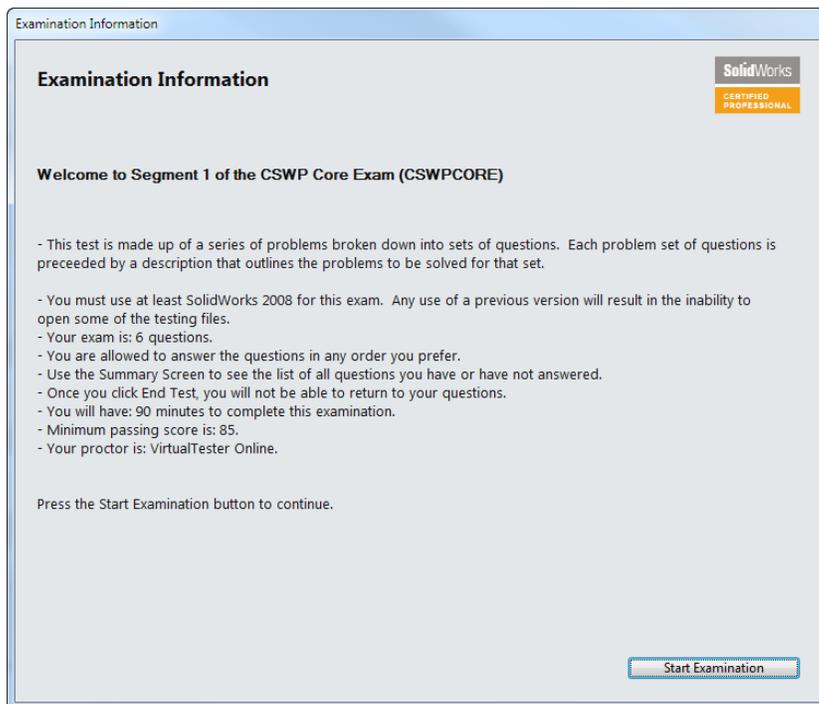
12. Confirm the exam you are about to begin:



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.

Test Questions

YOU MUST USE AT LEAST SOLIDWORKS 2018 FOR THIS SAMPLE EXAM.

Some of the Post Processors selected in this exam are not suitable for the intended manufacturing process, and are to be used for testing purposes only.

Do not modify any of the default machining parameters unless specified throughout this sample exam.

All tools have been supplied to you in the part model's active Tool Crib.



Question 1. Technology Database

You will be using your own Technology Database referred to as "TechDB" for the selected Machine, strategies, and tools referenced in this exam.

Step 1) Make a copy of your TechDB that comes out of the box with your SOLIDWORKS install, and rename it to: TechDB-SampleExam.cwdb

Default file location: C:\ProgramData\SOLIDWORKS\SOLIDWORKS CAM
YYYY\TechDB

Note: In the next step, it is recommended SOLIDWORKS is not running before making the change.

Step 2) Link your TechDB to this new file name you created in step 1. This will help prevent any alterations to your default TechDB or production environment.

When complete, please proceed to the Next question.

Use these images for Question 2.

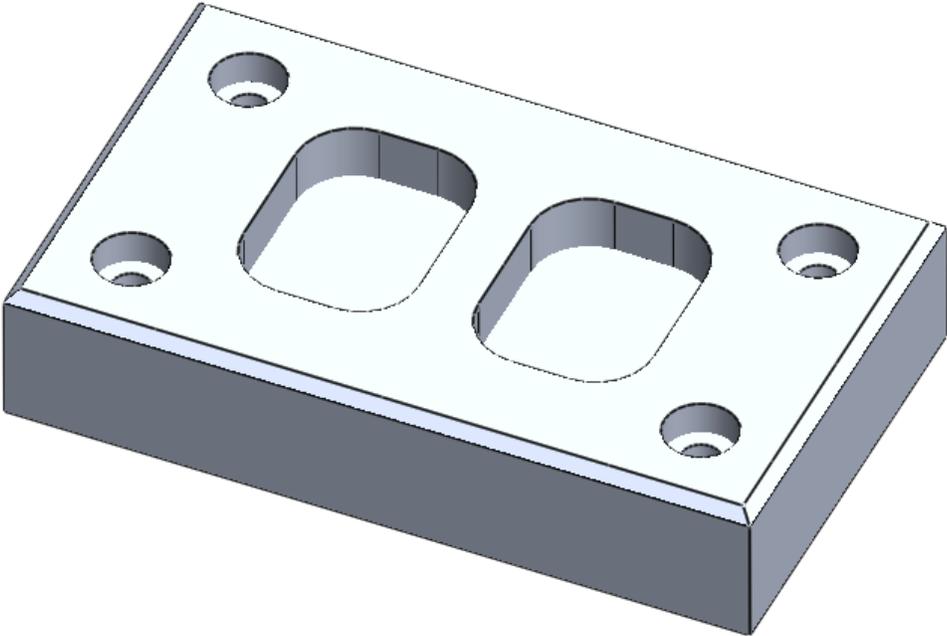


Image 1

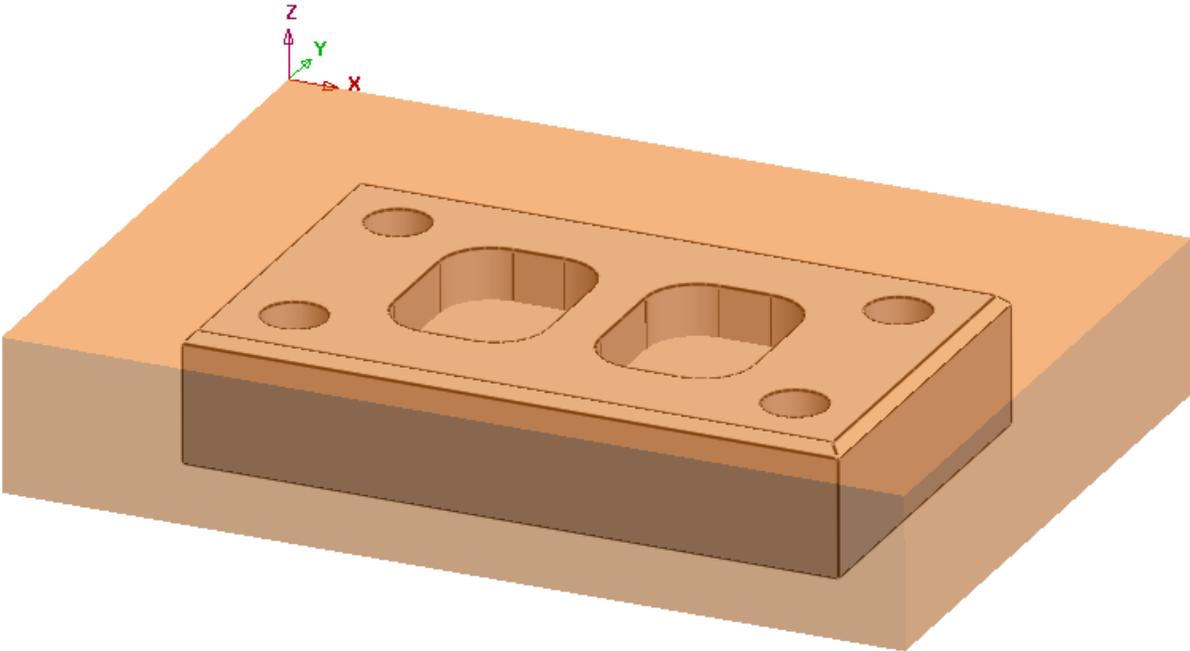


Image 2

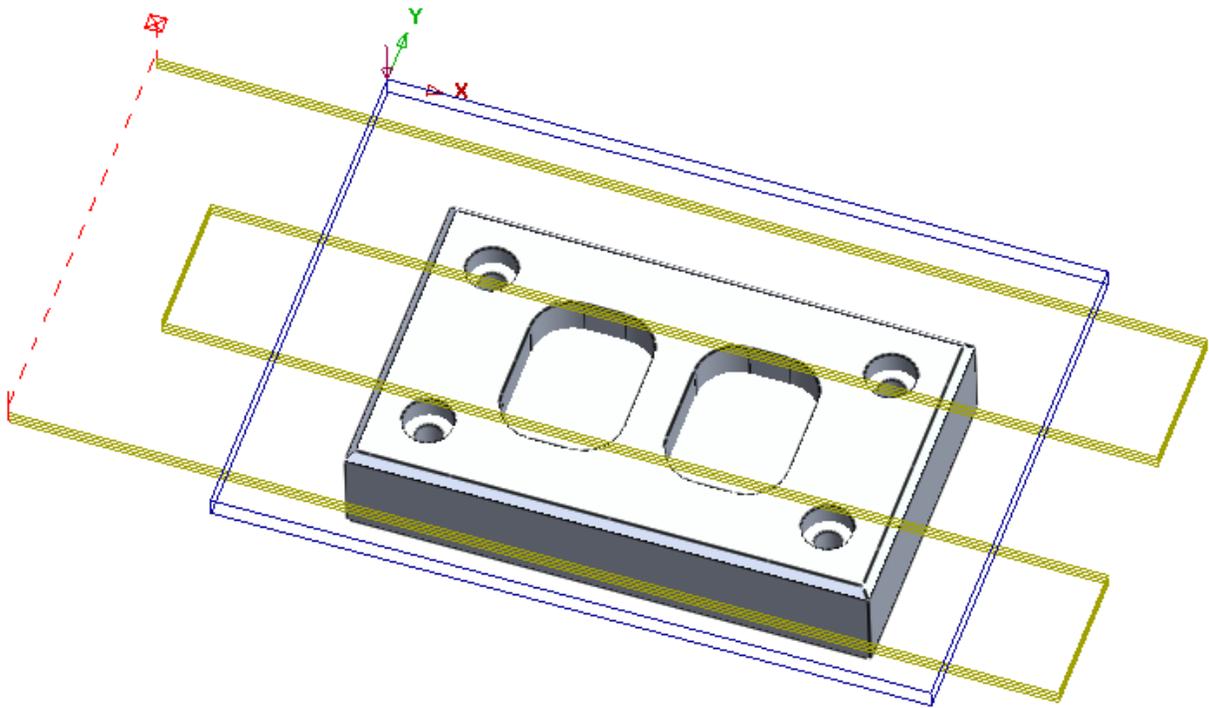


Image 3

Question 2. Facing

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Machine Name: Mill - Metric

Post Processor: Mill\ACRAMATIC-2100

Step 1) Open the attached part file: CAM-01.SLDPRT

Step 2) Select the appropriate Machine, and Post Processor for this question using the details above. Do not use any other tools other than the tools supplied to you in the part model's active Tool Crib.

Step 3) Define stock.

Material: 6061-T6, Aluminum

Stock Type: Extruded Sketch

Use the sketch named "STOCK" from the FeatureManager Design Tree.

Depth: 60.00mm

Stock Size should be:

X: 350mm Y: 250mm Z: 60mm

Step 4) Define Coordinate System.

Define the coordinate system to use the Upper Left stock position, as shown in image 2. Make sure the Z-direction is correct.

Step 5) 2) Extract Machinable Features.

Extract the following machinable features and strategies:

Face [Finish]

Perimeter-Open Pocket [Rough-Finish]

Rectangular Pocket Group [Rough-Finish]

Counterbore Hole Group 1 [Drill]

Note: You will make a custom machining strategy for the Counterbore hole group in one of the next several questions.

Step 6) Generate an Operation Plan for all features except the Counterbore Hole Group1. Do not create an Operation Plan for the Counterbore Holes at this time.

Step 7) Sort Operations.

Sort by:

Face

Rough

Finish (Contour Mill)

Step 8) Modify the Facing operation parameters.

Facing Tool: 100MM 9FL FACE MILL

F/S defined by: Library

Z feedrate: 25%

Leadin feedrate: 75%

Max stepover: 70%

Min Side offset: 20%

Max side offset: 30%

First Cut amount: 3.0mm

Max Cut amount: 3.0mm

Final Cut amount: 0mm

Cut Method: Climb

Clearance Plan: Top of Feature, Distance: 3mm

Step 9) Generate Toolpaths for the Facing operation. Refer to image 3.

What is the Estimated Machining Time in minutes for the Facing operation?

Include Feed, Rapid and Non Cutting.

- A) 7.54
- B) 8.01
- C) 9.25
- D) 10.08

Use this image for Question 3.

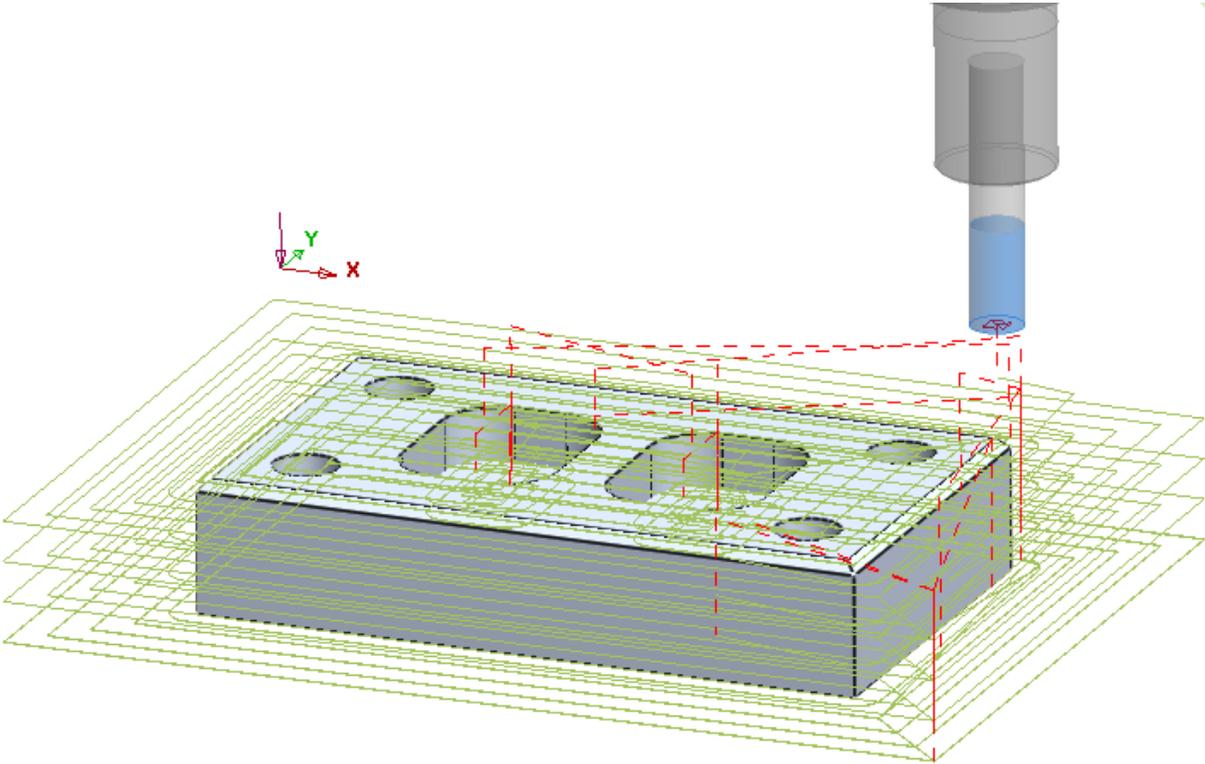


Image 1

Question 3. Roughing

Use the part from the previous question to modify the Roughing operations for Mill Part Setup1.

Step 1) Modify ALL Roughing operation parameters for Mill Part Setup1 using the following information:

Tip: Combine roughing operations to save time.

Roughing Tool: 20MM CRB 2FL 38 LOC

F/S Defined by: Library

Z feedrate: 25%

Leadin feedrate: 75%

Roughing Pattern: Pocket Out

Side parameter, Stepover: 60%

Cut Method: Conventional

First Cut amount: 70%

Max Cut amount: 100%

Final Cut amount: 0.20mm

Clearance Plane: Top of Feature, Distance: 5mm

Entry Method: Ramp, angle: 5.00 degrees

Apply Ramp entry method to ALL.

Step 2) Generate toolpaths for the roughing operations. Refer to image 1 in this question.

What is the Estimated machining time in minutes for the Roughing operation?
Include time for Feed, Rapid, and Non Cutting.

- A) 67.01
- B) 74.84
- C) 86.86
- D) 96.60

Use this image for Question 4.

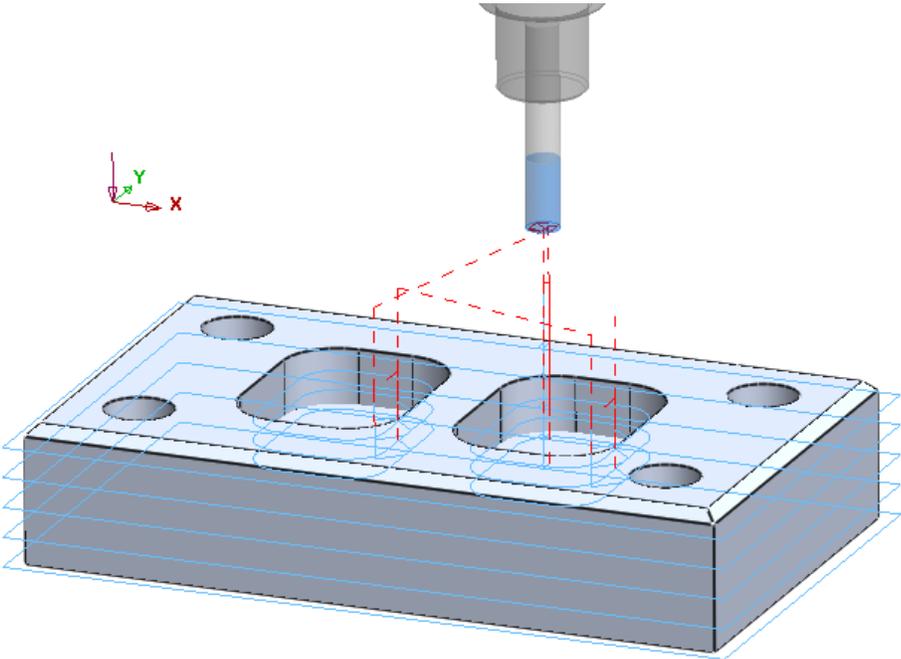


Image 1

Question 4. Finishing

Use the part from the previous question to modify the Finishing operations for Mill Part Setup1.

Step 1) Modify ALL Finishing operation parameters for Mill Part Setup1 using the following information:

Tip: Combine all finishing operations to save time.

Finishing Tool: 12MM CRB 2FL 25 LOC

F/S Defined by: Library

Z feedrate: 25%

Leadin feedrate: 75%

Cut Method: Climb

First Cut amount: 50%

Max Cut amount: 100%

Final Cut amount: 0

Clearance Plane: Top of Feature, Distance: 5mm

Entry Method: None

Leadin type: Perpendicular

Leadin overlap: 1mm

Leadout type: Same as leadin

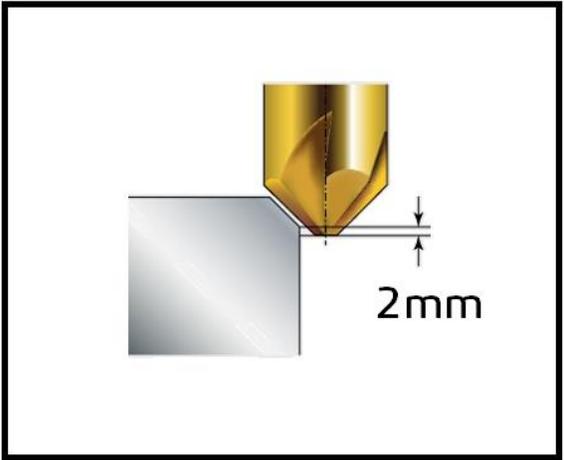
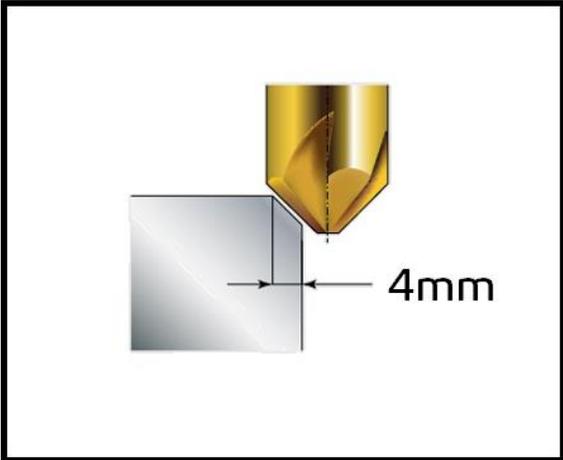
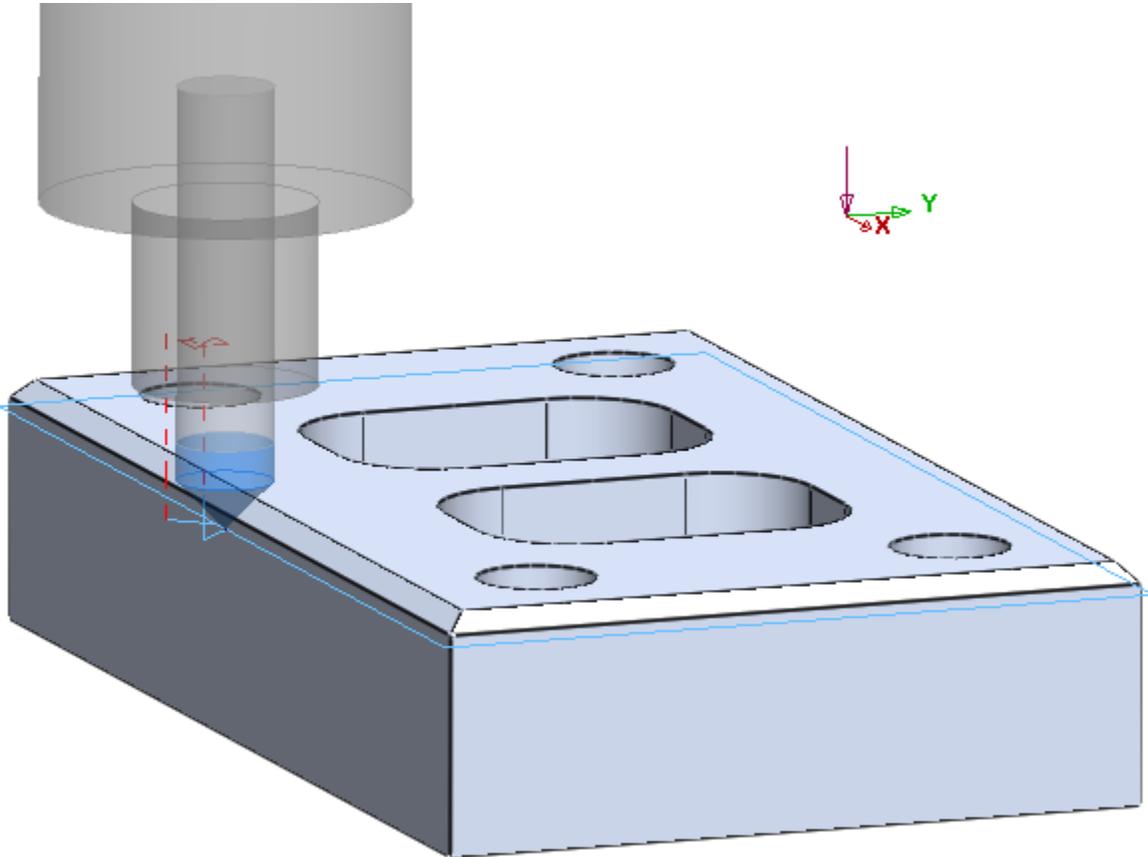
Apply leadin/out to All.

Step 2) Generate toolpaths for the finishing operations. Refer to image 1 in this question.

What is the Estimated machining time in minutes for the Finishing operation?
Include time for Feed, Rapid, and Non Cutting.

- A) 5.98
- B) 6.77
- C) 7.48
- D) 8.73

Use these images for Question 5.



Question 5. Chamfers

Use the part from the previous question to answer this question.

Step 1) Create the feature, operation, and toolpath required to machine the chamfers using the following information.

Feature Strategy: Finish

Tool: 20MM DIA X 90DEG Countersink.

F/S Defined by: Library

Z feedrate: 25%

Leadin feedrate: 75%

Chamfer Machining Parameters:

Length: 4.0mm

Clearance: 2.00mm

Feature Edge: Outer edge

Clearance Plane: Top of Feature, Distance: 3mm

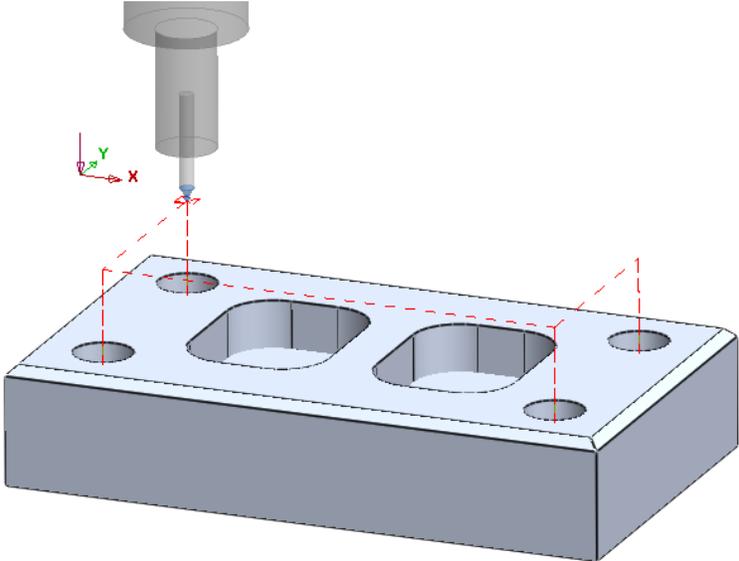
(Refer to the images in this question)

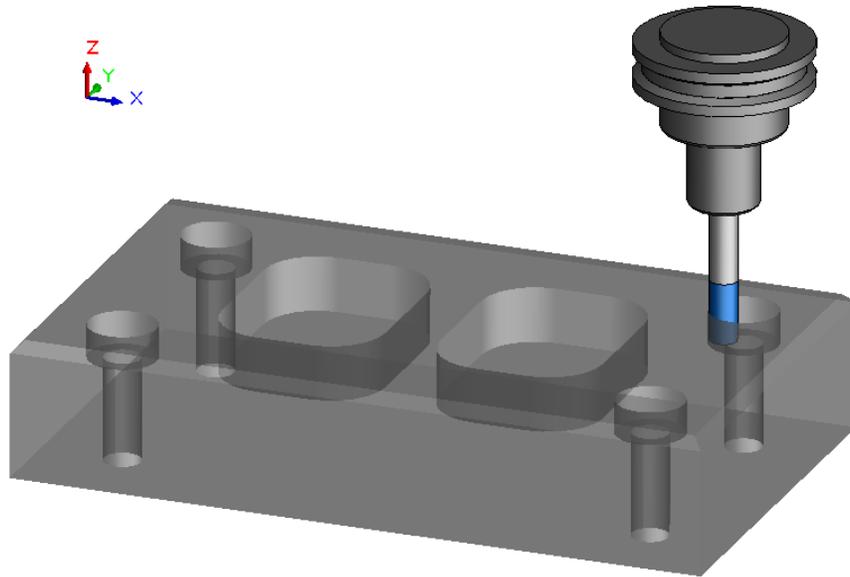
Step 2) Simulate toolpaths to ensure the tool is not cutting into the part.

What is the Toolpath Length for "Feed" in millimeters for the Chamfers?
Do not include "Rapid."

- A) 705.48
- B) 780.65
- C) 860.94
- D) 950.22

Use these images for Question 6.





Question 6. Drilling Op - Counterbores

Use the part from the previous question to create a custom machining strategy for the Counterbore Holes.

Step 1) Use interactive mill operations to generate an operation plan for the Counterbore Hole features using the following operation sequences and associated parameters.

Op1: Center Drill – 6MM DIA x 60 DEG,
F/S Defined by: Library
Type: Spot Drilling
Dwell: 1
Clearance Plane: Top of Feature, Distance: 3mm
Machining Depth: 5.00mm

Op2: Drill – 13.50MM DIA x 118 DEG,
F/S Defined by: Library
Type: Pecking
Sub. peck amount: 10.00mm
Dwell: 0
Clearance Plane: Top of Feature, Distance: 3mm
Machining Depth: 55.00mm

Op3: Hole Contour Mill -- 10.00mm DIA Flat End,
F/S Defined by: Library
Z feedrate: 25%
Leadin feedrate: 75%
Side Parameter, Rough pass previous allowance: 0mm
Cut method: Climb
First Cut: 6mm
Max Cut: 6mm
Final cut: 0mm
Clearance Plane: Top of Feature, Distance: 3mm
Cylinder Hole DIA: 25.00mm
Machining Depth: 12.00mm
Entry method: None
For Leadin/out point, Disable: Gouge Check
Leadin type: Perpendicular
Leadout type: Same as leadin
Apply leadin/out to All

Step 2) Generate toolpaths for the Counterbore Hole operations.

Tip: Simulate toolpaths as necessary to verify machining depths.

Step 3) Save Operation Plan.

Create a new strategy for this Counterbore Hole Group1 feature and named it: Counterbore-sample.

What is the Estimated "Total" machining time in minutes for Mill Part Setup1?
Include Toolpath, and Tool Change.

- A) 86.16
- B) 90.77
- C) 96.82
- D) 100.32

END OF TEST

Answer Key

- 1) N/A
- 2) B
- 3) A
- 4) D
- 5) C
- 6) A

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 Mold Making (CSWPA-MM) exam?

The CSWPA-MM exam is a comprehensive, non-proctored online exam that tests an individual's ability to use SOLIDWORKS Mold Tools functionality with mold making industry knowledge.

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

The CSWPA-MM test is an online test that can be taken on any computer that has SOLIDWORKS 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 CSWP-CAM?

There is a 14-day waiting period before retaking the CSWP-CAM exam. The user will also 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 CSWP-CAM exam?

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>