



AHK

Final Examination Part 1 – Summer 2020

**Standard Preparation List for
the Apprenticeship Training Company**

CNC Machining Professional

Instead of the items listed, alternatively comparable customary tools, measuring and auxiliary equipment can be used. **Parts marked with a – in the center column are NOT necessary for this examination.**

I Quality measuring equipment that must be provided by the training company for each test taker:

- | | | | |
|----|---|-----------------------|---------|
| 1. | 1 Caliper gauge, Form A | 150 mm | DIN 862 |
| 2. | 1 Caliper gauge, Form B | 200 mm | DIN 862 |
| 3. | 1 Caliper gauge, Form C | 135 mm | DIN 862 |
| 4. | 1 Outside micrometer | 0-25 25-50mm 50-75 mm | |
| 5. | 1 Depth micrometer | 0-25mm 25-50 mm | |
| 6. | 1 Bevel protractor or universal
bevel protractor | | |
| 7. | 1 Beveled steel square | 100 x 70 mm | |

II Tools that must be provided by the training company for each test taker:

- | | | | |
|----|--|-------|----------|
| 1. | 1 Marking tool | | |
| 2. | 1 Center punch | | |
| 3. | 1 Fitter's hammer | 300 g | DIN 1041 |
| 4. | 1 Rubber or plastic hammer | | |
| 5. | 1 Flat file | 150-3 | DIN 7261 |
| 6. | 1 Triangular file | 150-3 | DIN 7261 |
| 7. | 1 File brush or file cleaner | | |
| 8. | 1 Three square scraper or manual
deburrer | | |
| 9. | 1 sharpening stone or hand lapping
tool | | |

III Auxiliary equipment that must be provided by the training company for each test taker:

1. 1 Safety glasses
2. 1 Hair net, or hair pulled back safely so that it does not fall in face or near equipment
3. 1 Book of tables (to be provided by the test taker)
4. Non-programmable pocket computer not connected to a network without possibility of communicating with others (to be provided by test taker)



IV Test equipment that must be provided by the company for 1 to 5 test takers:

Parts marked with a – in the center column are not necessary for this examination.

1.	1 H7 limit gauge	10	
2.	1 Morse taper ring gauge	A4	DIN 229-2
3.	1 Morse spindle taper plug gauge	-	DIN 229-1
4.	1 Inside micrometer with measuring jaws	5-50 mm	
5.	1 Three-point inside micrometer or 1 inside fine micrometer for 40mm diameter (measuring accuracy .01 for Ø with adjustment accessories)		
6.	1 Block gauge	0-100 mm	
7.	1 Lever gauge for alignment with holder or dial gauge for alignment with holder		
8.	1 Threaded ring gauge (go/no-go) or threaded limit plug gauge	M12	
9.	1 Threaded limit plug gauge (go/no-go)	-	

Note: Instead of the items listed, alternatively comparable customary tools, measuring and auxiliary equipment can be used.

V Tools for manual material processing that must be provided for 1 to 5 test takers:

Parts marked with a – in the center column are NOT necessary for this examination.

1.	1 Set of marking stamps (Arabic numerals)	3 mm	
2.	1 Allen key	-	ISO 2936
3.	1 Screwdriver for slotted screws	-	DIN 5265
4.	1 Open-end wrench	-	
5.	1 Machine-tap with tap wrench	-	
6.	1 Die	M12	
7.	1 Tongs for circlip	-	DIN 5254
8.	1 Split pin drive	-	DIN 6450

In the case that the examination is assigned and performed as an in-company project, extensive planning and implementation documentation will be provided by the GACC Midwest as the administering organization and must be thoroughly completed to present to the exam board at assigned examination time. The completed practical project must also be prepared and presented. As an in-company project, tooling may vary significantly from tooling listed in the yellow preparation documentation provided here and alternative tooling must be documented in the planning and implementation documentation.



VI Tools for mechanical material processing that must be provided for each test taker:

**Parts marked with a – in the center column are NOT necessary for this examination.
Alternative tooling may be used.**

1.	1 Center drill	A2	DIN 333
2.	1 Twist drill	5.0 6.8 8.5 9.0 9.8 10.5 16 20 mm	
3.	1 Core drill	-	DIN 343
4.	1 Counterbore	-	DIN 373
5.	1 Countersink 90° or NC spot drill	5–10 10–15 15–20 mm	
6.	1 60° countersink	16	
7.	1 Machine reamer H7	10	DIN 212
8.	Lathe tool: Shank max. square 25 mm		
8.1	1 facing tool		DIN 4952
8.2	1 boring bar for turning	-	DIN 4953
8.3	1 boring bar for inside diameters and inside facing	-	DIN 4954
8.4	1 Offset side lathe tool		DIN 4960
8.5	1 Plunge cutting lathe tool	for a cut in 8 mm wide, 8 mm deep	DIN 4961
8.6	1 Plunge cutting lathe tool	-	DIN 4961
8.7	1 Bent angled lathe tool for facing	-	DIN 4965
8.8	1 Molded lathe tool for thread undercut outside, thread pitch		DIN 76-A
8.9	1 Molded lathe tool for undercut, outside		DIN 509
8.10	1 Molded lathe tool for undercut, inside	E 0.8 x 0.3	DIN 509
8.11	1 Molded lathe tool for locknut, outside	R2 convex	
8.12	1 Outer thread lathe tool Thread pitch	1.75	
8.13	1 Molded lathe tool	-	
8.14	1 Knurling tool RGE 1	-	DIN82
9	Milling tools		
9.1	1 Cylindrical milling cutter or 1 face mill	Ø63N Ø63 for face milling	DIN 1880
9.2	1 Slot milling cutter	A6 A8 A10 A12 A16	DIN 327
9.3	1 T-slot milling cutter with straight shank	16 x 8 or 18 x 8	DIN 851
9.4	1 End milling cutter for roughing	A8N A10N A12N A14N A20N A25N	DIN 844
9.5	1 End milling cutter for finishing	A8N A10N A12N A14N A20N A25N	DIN 844
9.6	1 Angular milling cutter with straight shank	D45 x 25N (for chamfer up to 5 mm)	DIN 1833

The DIN specifications of the tool refer to the HSS, as an alternative HM can also be used. It is possible to use comparable standard tools, inspection equipment and work equipment as an alternative to the listed items.

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