

Leseprobe

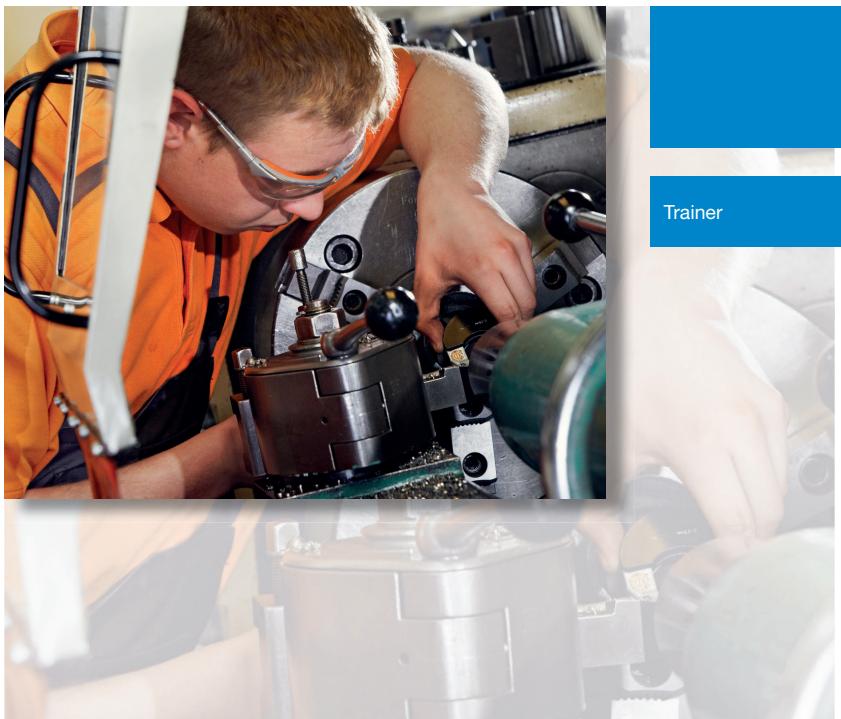
Christiani

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Operational training · Metal working

Machine-based material processing

Section: Turning



Trainer

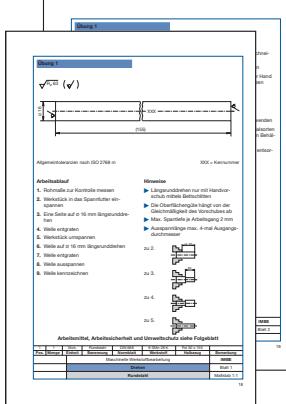
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Time (h)	Goals – Content – Schedule – Notes	Media
0.5	The course begins <ul style="list-style-type: none">▶ Welcome and introductions (from each trainee in turn)▶ Course schedule and organisation	Flip chart
0.5	<ul style="list-style-type: none">▶ Know your workplace (workshop tour)	
0.5	Course content: <ul style="list-style-type: none">▶ Machining▶ Machine lathes▶ Lathe tools/turning processes▶ Clamps and chucks▶ Turning parameters/materials▶ Cooling lubricants▶ Working techniques for machine lathes▶ Reading, using and preparing technical documents▶ Work planning▶ Checking, assessing and presenting the results▶ Maintaining the equipment▶ Health and safety, environmental protection and energy efficiency	Flip chart
	Trainer manual Turning	Metal working

Time (h)	Goals – Content – Schedule – Notes	Media
0.5	Objectives - Day One <ul style="list-style-type: none"> ▶ Short presentation on lathe turning ▶ Layout and operation of the lead shaft feed screw feed screw ▶ Preparing the lathe for operation ▶ Identifying workpiece clamping devices and clamping workpieces in a three-jaw chuck ▶ Identifying workpiece clamping devices and clamping lathe tools ▶ Identifying and selecting lathe tools ▶ Setting the rotational speed, feed and depth ▶ Measuring clamped workpieces ▶ Explaining and using health and safety regulations, and environmental protection measures ▶ Exercise 1: Preparing round bar steel 	Flip chart
4.0	Instruction/Discussion (exercise 1) <ul style="list-style-type: none"> ▶ Machining skill: Turning <ul style="list-style-type: none"> Manufacturing processes/cutting processes Material removal processes/turning processes ▶ Layout of the machine lathe (demonstration) <ul style="list-style-type: none"> Machine frame Headstock Feed gear mechanism Lathe bed Carriage, longitudinal slide, cross slide and top slide Tailstock Lead screw Feed shaft 	Library Slide 1 Slide 2 Slides 3 to 5
	Trainer manual Turning	Metal working

Time (h)	Goals – Content – Schedule – Notes	Media
	<ul style="list-style-type: none"> ▶ Machine lathe functions (demonstration) <ul style="list-style-type: none"> Power supply Switching on Switching off Manual feed Slide movements ▶ Preparing the lathe for operation (demonstration) <ul style="list-style-type: none"> Lubrication/cooling Feed to limit switch Chuck key Emergency stop switch Chip protection Workplace lighting Potential hazards when switching on ▶ Workpiece clamping devices <ul style="list-style-type: none"> Three-jaw chuck Four-jaw chuck Face plate Draw-in collet ▶ Workpiece clamping devices <ul style="list-style-type: none"> Clamping jaw Four-way tool post Quick-change tool post ▶ Clamping workpieces (demonstration) <ul style="list-style-type: none"> Clamping workpieces Incorrect clamping General advice on work safety 	<ul style="list-style-type: none"> Slide 3 Flip chart Slide 6 Slide 7
	Trainer manual	Metal working
	Turning	

Time (h)	Goals – Content – Schedule – Notes	Media
	<ul style="list-style-type: none">▶ Clamping tools (demonstration)<ul style="list-style-type: none">Clamping the toolAlignmentCentre heightIncorrect clamping▶ Lathe tools<ul style="list-style-type: none">Selection criteriaRight-hand and left-hand lathe toolsStraight lathe toolsOffset lathe toolsCurved lathe toolsTool life▶ Rotational speed, feed and depth setting<ul style="list-style-type: none">Interplay between parametersEffect on finish qualityEffect on tool lifeAdjustments (demonstration)▶ Measuring clamped workpieces (demonstration)<ul style="list-style-type: none">DeburringTechniques (universal caliper gauge)r)Reference temperatureWork safety▶ Health and safety regulations<ul style="list-style-type: none">Personal protective equipmentAccident prevention guidelinesOperating instructions	<p>Slide 8</p> <p>Slides 9 and 10</p> <p>Library Reference tables</p> <p>Slide 11</p> <p>Principles of manual machining: Checking: Measuring and gauging</p>
	<p>Trainer manual</p> <p>Turning</p>	<p>Metal working</p>

Time (h)	Goals – Content – Schedule – Notes	Media
1.0	<p>► Environmental protection measures</p> <p>Disposal of lubricants, chips and cleaning materials</p> <p>Location of waste disposal bins</p> <p>► Exercise 1: Round bar steel</p> <p>Assignment</p> <p>The trainees are to machine round bar steel in accordance with the given specifications (longitudinal straight turning)</p> 	Engineering data
0.5	Summary of Day One (technical discussion)	
0.5	Tidy up workplace	
	Trainer manual Turning	Metal working