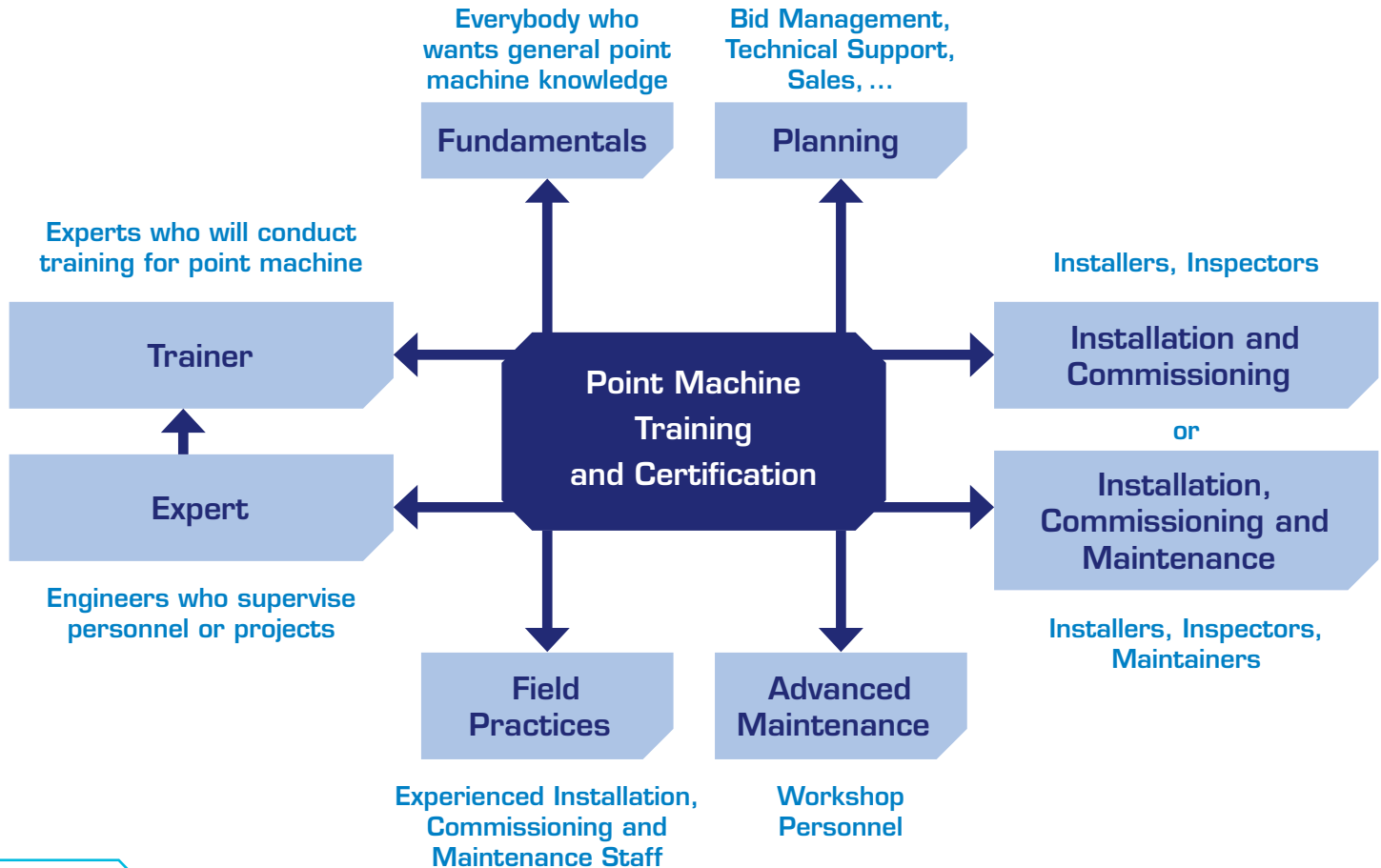


Point Machine Training and Certification



Point Machine Training Needs





Validity of certificates: 2 years

Courses and Certification Level – Overview

Course	Participant	Certificate	Expert	Trainer
Fundamentals	1 day		8 days	5 days
Planning	2 days	+1 day		
Installation and Commissioning	3 days	+1 day		
Installation, Commissioning and Maintenance	4 days	+1 day		
Advanced Maintenance	3 days	+1 day		
Field Practices	2 days			

Point Machine Types & Characteristics



Point Machine Types & Characteristics

Characteristics	L700H	L710H	L910H	L826H
Trailable	✓	✓	✓	✓
Non-trailable	✓	✓	✓	✓
Installation between the rails				✓
Electro-Hydraulic Drive	✓	✓	✓	✓
Adjustable throwing stroke				✓
Adjustable throwing force				✓
Internal lock		✓	✓	
External lock	✓			✓

Courses and Certification



Point Machine – Fundamentals

Learning objectives

- > Understand the basics of point machines
- > Understand the electrical circuits
- > Understand the hydraulic system
- > Understand the mechanics

Duration

- > 1 day

Prerequisites

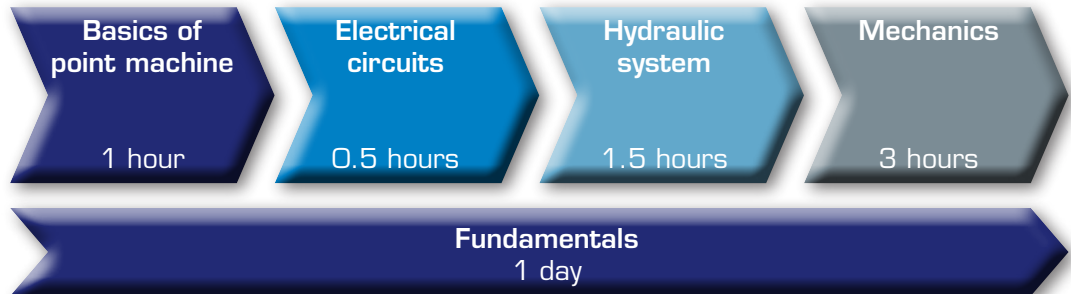
- > Basic railway signalling knowledge

Audience

- > Everybody who wants general point machine knowledge

Maximum number of participants

- > 16



Duration

> 2 days

Prerequisites

> Basic railway signalling knowledge

Audience

> Bid Management, Technical Support, Sales, ...

Maximum number of participants

> 16

Learning objectives

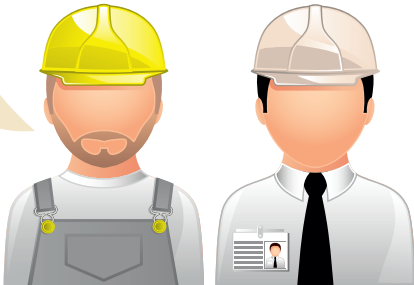
- > Understand the basics terms
- > Understand point machine characteristics
- > Know-how to calculate material lists
- > Apply point machine planning to a situation given



Point Machine – Installation and Commissioning

Learning objectives

- > Understand the fundamentals of point machines
- > Applying installation and commissioning



Duration

- > 3 days

Prerequisites

- > Basic railway signalling knowledge, safety for work gangs

Audience

- > Installers, inspectors

Maximum number of participants

- > 8

Fundamentals

1 day

Installation

1 day

Commissioning

1 day

Point Machine – Installation, Commissioning and Maintenance

Duration

- > 4 days

Prerequisites

- > Basic railway signalling knowledge, safety for work gangs

Audience

- > Installers, inspectors, maintainers

Maximum number of participants

- > 8

Learning objectives

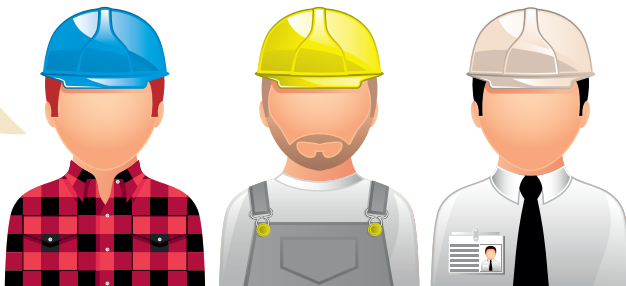
- > Understand the fundamentals of point machines
- > Applying installation and commissioning
- > Applying preventive and corrective maintenance



Point Machine – Advanced Maintenance*

Learning objectives

- > Understand the fundamentals of point machines
- > Applying advanced maintenance



Duration

- > 3 days

Prerequisites

- > Basic railway signalling knowledge, safety for work

Audience

- > Workshop personnel

Maximum number of participants

- > 8

Fundamentals

1 day

Advanced
Maintenance

2 days

Duration

- > 2 days

Prerequisites

- > Basic railway signalling knowledge, safety for work gangs and point machine

Audience

- > Installation, commissioning and maintenance personal and inspection personal

Maximum number of participants

- > 8

Learning objectives

- > Share field practices
- > Practical instructions additional to manual
- > Tips and hints for faster maintenance
- > Knowing preventive and corrective maintenance



Share Field Practices

1.5 hours

Practical Instructions

3 hours

Tips and Hints

1.5 hours

Preventive Maintenance Experience

3 hours

Corrective Maintenance Experience

3 hours

Point Machine – Certification

Theoretical certification

- > Participants have to prove that they have the theoretical background to fulfill certification level
- > Exams are according to the learning objectives

Hands-on certification

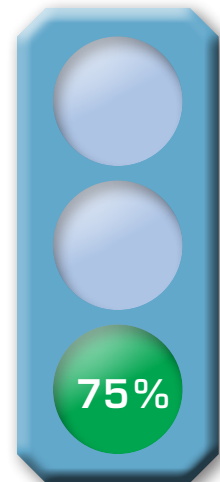
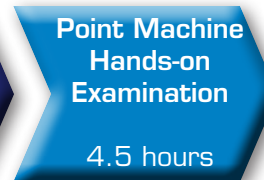
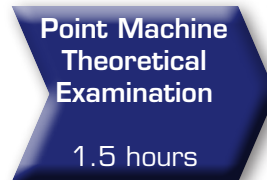
- > Participants have to prove that they are able to conduct the practical contents to fulfill the certification level
- > Exams are according to the learning objectives

Duration

- > 1 day

Prerequisites

- > Completion of appropriate course



Duration

- > 8 days (including 1 day of certification)

Prerequisites

- > Basic railway signalling knowledge

Audience

- > Engineers who supervise personnel or projects and need thorough understanding

Maximum number of participants

- > 4

Expert course certification

- > Comprehensive knowledge and deep practice in installation, commissioning and maintenance
- > Enable engineers to be certified as point machine expert



Point Machine – Certified Trainer*

Trainer certification for Certified Experts

> Specific training preparation

Supported preparation of test training through mentor (Train the Trainer Skills)

> Trainer skills

Proven through test training of one specific course out of Fundamentals, Installation Commissioning and Maintenance

> Debriefing

Feedback and wrap-up discussion, graduation

Duration

> 5 days

Prerequisites

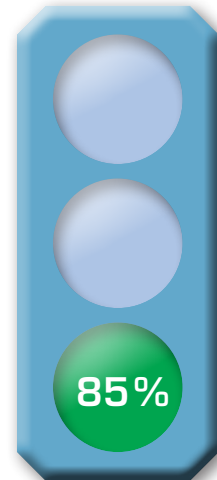
> Certified Expert

Audience

> Engineers who will conduct training for point machines and need a thorough understanding

Maximum number of participants

> 1



Validity

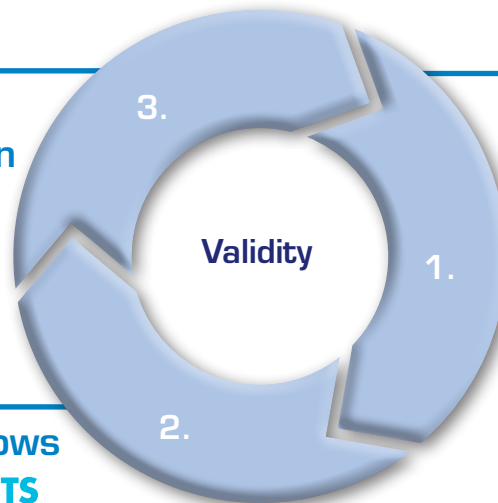
- > 2 years, project-related, country-related

Validity extension

- > Renewal of Certification through knowledge review for all Certificates
- > Optional refresher courses for preparation of all re-certification available

Recertification
when the certification
expires

Valid certification allows
access to **myPRODUCTS**



Certification granted
after successful
certification test

Refresher and Upgrade Courses

Refresher Courses

Planning

> 0.5 days + 0.5 days of Certification

Installation and Commissioning

> 1 day + 0.5 days of Certification

Installation, Commissioning and Maintenance

> 1.5 days + 0.5 days of Certification

Advanced Maintenance

> 1 day + 0.5 days of Certification

Certified Expert

> 2 days + 1 day of Certification

Certified Trainer

> 1 day + 1 day of Certification

Upgrade Courses

Upgrade

- > Refers to a system upgrade of point machines
- > Available for all types of point machines

Course Outline



Point Machine – Fundamentals

Course reference	KPP6131E
Teaching language	English or German
Course duration	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	16
Audience	Everybody who wants general point machine knowledge

Prerequisites	Basic railway signalling knowledge
Objectives	By the end of this course, participants will be able to: <ul style="list-style-type: none">• understand the basics of point machine• understand the electrical circuits• understand the hydraulic system• understand the mechanics
Course contents	<ul style="list-style-type: none">• Basics of point machine• Electrical circuits• Hydraulic system• Mechanics

Point Machine – Planning

Course reference	KPP6136E
Teaching language	English or German
Course duration	12 hours (2 days)
Certification	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	12
Audience	Bid Management, Technical Support, Sales, ...
Prerequisites	Basic railway signalling knowledge

Objectives	By the end of the course, participants will be able to: <ul style="list-style-type: none">• understand the basics terms• understand point machine characteristics• know-how to calculate materials list• apply point machine planning to a situation given
Course contents	<ul style="list-style-type: none">• Basic terms• Point machine characteristics• Material list• Apply point machine planning
Certification	Theoretical and practical examination

Point Machine – Installation and Commissioning

Course reference	KPP6132E
Teaching language	English or German
Course duration	18 hours (3 days)
Certification	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	8
Audience	Installers and inspectors of point machines

Prerequisites	<ul style="list-style-type: none">• Basic railway signalling knowledge• Safety for work gangs• Point machine fundamentals
Objectives	By the end of this course, participants will be able to: <ul style="list-style-type: none">• understand the fundamentals of point machine• apply installation and commissioning
Course contents	<ul style="list-style-type: none">• Basics of point machine• Electrical circuits• Hydraulic system• Mechanics• Installation• Commissioning
Certification	Theoretical and practical examination

Point Machine – Installation, Commissioning and Maintenance

Course reference	KPP6133E
Teaching language	English or German
Course duration	24 hours (4 days)
Certification	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	8
Audience	Installers, inspectors and maintainers of point machines

Prerequisites	<ul style="list-style-type: none"> • Basic railway signalling knowledge • Safety for work gangs • Point machine fundamentals
Objectives	<p>By the end of this course, participants will be able to:</p> <ul style="list-style-type: none"> • understand the fundamentals of point machine • apply installation and commissioning • apply maintenance
Course contents	<ul style="list-style-type: none"> • Basics of point machine • Electrical circuits • Hydraulic system • Mechanics • Installation • Commissioning • Maintenance
Certification	Theoretical and practical examination

Point Machine – Advanced Maintenance*

Course reference	KPP6134E
Teaching language	English or German
Course duration	18 hours (3 days)
Certification	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	8
Audience	Workshop personnel

Prerequisites	<ul style="list-style-type: none"> • Basic railway signalling knowledge • Safety for work gangs • Point machine fundamentals
Objectives	<p>By the end of this course, participants will be able to:</p> <ul style="list-style-type: none"> • understand the fundamentals of point machine • apply advanced maintenance
Course contents	<ul style="list-style-type: none"> • Basics of point machine • Electrical circuits • Hydraulic system • Mechanics • Advanced maintenance
Certification	Theoretical and practical examination

Point Machine – Field Practices

Course reference	KPP6137E
Teaching language	English or German
Course duration	12 hours (2 days)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	8
Audience	Installation, commissioning and maintenance personal and inspection personal

Prerequisites	<p>Participation in courses:</p> <ul style="list-style-type: none"> • KPP6136E Point machine planning • KPP6132E Installation and Commissioning, or • KPP6133E Installation, Commissioning and Maintenance or • KPP6134E Advanced Maintenance • Minimum 1 year experience with this product
Objectives	<p>By the end of the course, participants will be able to:</p> <ul style="list-style-type: none"> • share field practices • know practical instructions • know tips and hints • know preventive and corrective maintenance experience
Course contents	<ul style="list-style-type: none"> • Share field practices • Practical instructions • Tips and hints • Preventive and corrective maintenance experience

Point Machine – Certified Expert

Course reference	KPP6143E
Teaching language	English or German
Course duration	42 hours (7 days)
Certification	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	4
Audience	Engineers who supervise personnel or projects and need thorough understanding
Prerequisites	<ul style="list-style-type: none"> • Basic railway signalling knowledge • Safety for work gangs • Basic point machine knowledge

Objectives	<p>By the end of this course, participants will be able to:</p> <ul style="list-style-type: none"> • understand the fundamentals of point machine • apply installation and commissioning • apply maintenance and advanced maintenance • apply field practice
Course contents	<ul style="list-style-type: none"> • Basics of point machine • Electrical circuits • Hydraulic system • Mechanics • Installation • Commissioning • Maintenance • Advanced maintenance • Fault finding • Frequently made mistakes
Certification	Theoretical and practical examination

Point Machine – Certified Trainer

Course reference	KPP6163E
Teaching language	English or German
Course duration	18 hours (3 days)
Certification	12 hours (2 days)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	1
Audience	Engineers who will conduct training for point machine and need a thorough understanding

Prerequisites	<ul style="list-style-type: none"> • Successful expert Certification • Basics in presentation methods • Tendency to free lecture
Objectives	<p>By the end of this course, participants will be able to:</p> <ul style="list-style-type: none"> • teach Fundamentals, Installation and Commissioning, Maintenance and Advanced Maintenance • teach field practice
Course contents	<ul style="list-style-type: none"> • Basics of adult education • Test teaching in front of real audience • Feedback analysis • Trainer coaching
Certification	Test teaching

Point Machine – Refresher course

Course reference	KPP61XXE_Refresher
Teaching language	English or German
Course duration	0.5 to 2 days
Certification	0.5 to 1 day
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	8
Audience	Installers, inspectors and maintainers of point machines who need to refresh their knowledge

Prerequisites	<p>Participation in courses:</p> <ul style="list-style-type: none"> • KPP6136E Point machine planning • KPP6132E Installation and Commissioning, or • KPP6133E Installation, Commissioning and Maintenance or • KPP6134E Advanced Maintenance
Objectives	<p>By the end of this course, participants will be able to:</p> <ul style="list-style-type: none"> • do their tasks related to Installation, Commissioning or Maintenance • have the full knowledge refreshed
Course contents	<ul style="list-style-type: none"> • Installation • Commissioning • Maintenance • Advanced maintenance
Certification	Theoretical and practical examination

Point Machine – Upgrade course

Course reference	KPP6135E
Teaching language	English or German
Course duration	6 hours (1 day)
Training methods	Lecture and hands-on practice using most advanced presentation techniques with suitable media
Max. number of participants	8
Audience	Installers, inspectors and maintainers on previous versions of point machines

Prerequisites	Participation in courses: <ul style="list-style-type: none">• KPP6136E Point machine planning• KPP6132E Installation and Commissioning, or• KPP6133E Installation, Commissioning and Maintenance or• KPP6134E Advanced Maintenance
Objectives	By the end of this course, participants will be able to: <ul style="list-style-type: none">• understand the difference between latest and previous versions of point machines• understand changes in their job tasks due to the point machine changes
Course contents	<ul style="list-style-type: none">• Installation• Commissioning• Maintenance• Advanced maintenance

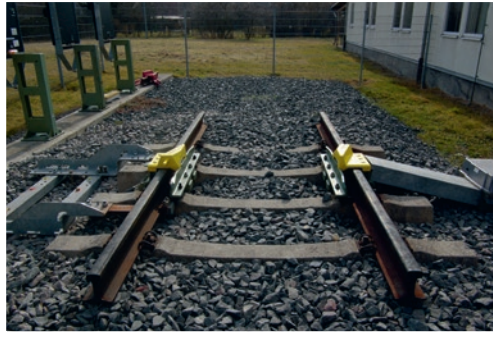
Point Machine – Training facility in Arnstadt factory



Point Machine – Production



Point Machine – Training location at Arnstadt factory



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Thales Deutschland
Transportation Systems
Thalesplatz 1
71254 Ditzingen
Germany
E-Mail: products@thalesgroup.com
www.thalesgroup.com/germany