Version 12

Ropeway Training Center
Course Program

Contents

Foreword

Dear ropeway operator,

Top safety, constant availability and optimal comfort are the hallmarks of any Doppelmayr ropeway. Well-trained operating personnel are a must when it comes to making sure it stays that way.

Together with our partner companies, we have put together a comprehensive training program which covers all areas of ropeway engineering. We are happy to tailor the courses to your needs.

Individual training programs can be arranged to address specific requirements.

We would be delighted to welcome you and your team onto our courses and look forward to the exciting and interesting days ahead. We wish every participant the greatest success.

The Doppelmayr Team

↗ Lower operating costs through trained personnel

View and book all training courses online

Training at the Ropeway Training Center in Dornbirn, on site or at your local branch

Doppelmayr offers courses for continuous-movement ropeways in Austria, at the Ropeway Training Center in Dornbirn, at your installation, or at your local branch.

There is a fully equipped Ropeway Training Center available for training in Dornbirn. The participants make direct contact with the Doppelmayr team and get to know the staff in the Customer Support department.

They also have the opportunity of speaking directly with the Doppelmayr engineers. An additional highlight of the course is a visit to the workshops and production facilities.

At your site, we can use the training container or work directly on the installation. Your nearest Doppelmayr office will be happy to provide information on local training facilities.

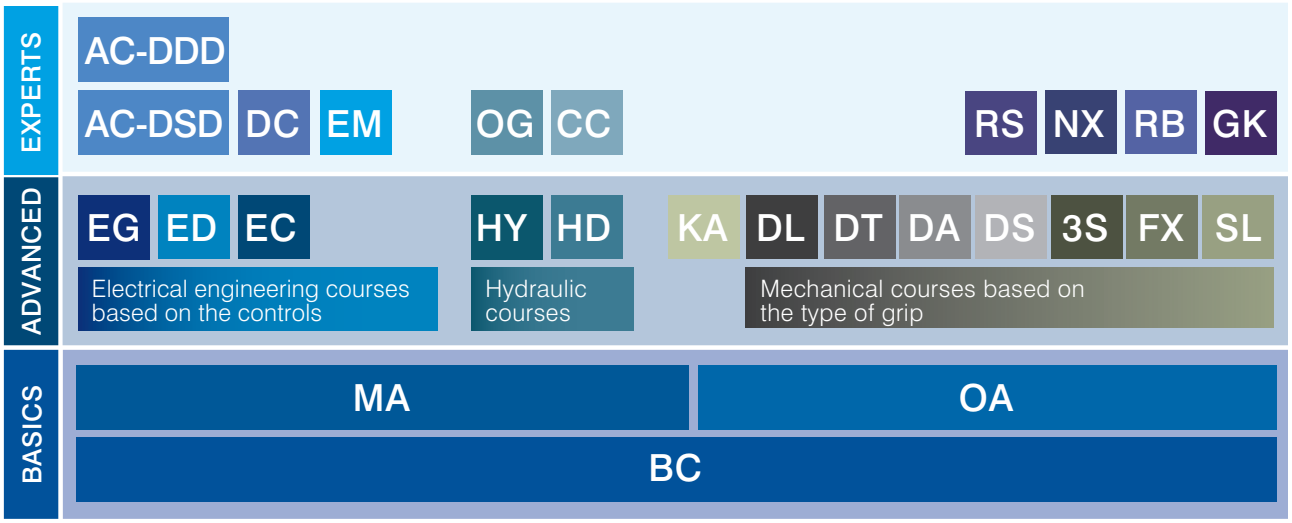
Ropeway Training Center, Bildgasse 12, Dornbirn

Training syllabus and overview for continuous-movement ropeways

The training program for your staff will depend on their learning objectives and existing knowledge. As welll as offering standard courses, we can also put together tailor-made courses. The courses can be taken individually or in succession.

The “BASICS” courses should be taken by all staff working on the ropeway installation. The “ADVANCED” courses are required for all staff who operate the installation or who carry out services. The “EXPERT” courses are designed to give additional detailed information.
In these courses, we differentiate between “electrical engineering”, “hydraulic”, and “mechanical” content.

The trainers are experienced engineers and technicians from different departments of the Doppelmayr Group, external experts, or experienced operations managers.



- **BC** Basic training
- **MA** Maintenance assistance
- **OA** Operating advisory
- **EG** Basic electrical engineering
- **ED** Electrical engineering Doppelmayr PSS 3000
- **EC** Electrical engineering Doppelmayr Connect
- **HY** Hydraulics and valves
- **HD** Advanced course in drives and hydraulics
- **KA** OMEGA IV cabin maintenance
- **DL** Mechanics of ropeway installations with D grips
- **DT** Mechanics of ropeway installations with DT grips
- **DA** Mechanics of ropeway installations with A grips
- **DS** Mechanics of ropeway installations with DS grips
- **3S** Mechanics of 3S ropeways
- **FX** Mechanics of fixed-grip ropeway installations
- **SL** Mechanics and electrical engineering for surface lifts
- **AC-DDD** AC drives, DDD, frequency converters
- **AC-DSD** AC drives, DSD, frequency converters
- **DC** ABB power converters, DCS 800 series
- **EM** Service and operation of drive machines
- **OG** Condition monitoring, lubricants, oil analysis, gear units
- **CC** Combustion engines
- **RS** Rope function and maintenance
- **NX** RPD Nexo rope position monitoring
- **RB** RPD rope position monitoring
- **GK** Surveys of ropeway installations

Courses, information, and supporting program

Your personnel are always in the best possible hands when attending our courses, not only in terms of achieving learning objectives but also when it comes to hospitality and support during the training period. For details of how the training courses are organized, please refer to the respective course program.

Lunch

The group goes together to a nearby restaurant. The mealtimes can be used for discussion between participants, with Doppelmayr technicians, customer service staff, and instructors.

Course days - afternoons, evening meals

The training in the afternoon (up to about 5.00 pm) takes place in the same way as in the morning. After the training, a visit is arranged to a ropeway installation (under the supervision of the operations manager) or a Doppelmayr facility, such as the electrical engineering workshop, Hohe Brücke plant, or the assembly shop. After this, we go together to a nearby restaurant.

Training days - mornings

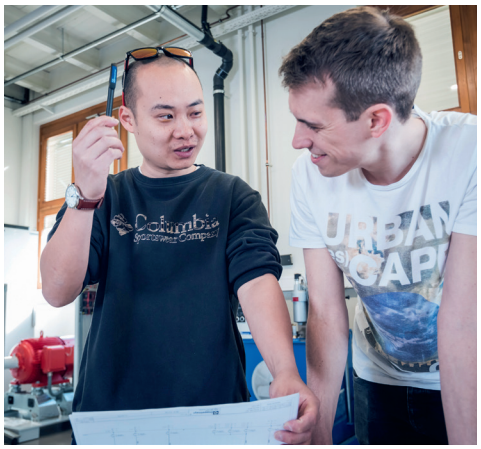
The training day begins at 8.30 am (or as stated in the respective course program). The instructors are experienced Doppelmayr staff, external instructors, staff from suppliers, or experienced operations managers. The courses are conducted in our training rooms and in our workshops. Depending on the instructor, subject matter, and learning objectives, courses switch between these facilities in order to give practical instruction without dispensing with the theory. Breaks and snacks are provided.

Arrival

All the accommodation is organized by us. Your staff arrive in Vorarlberg, check in directly at the hotel (arrival before the first day of the course) or come direct to the training rooms (arrival on the first day of the course). Should you send your team by train (to Dornbirn), we would be happy to pick them up.

Departure

Guests who came in their own cars leave directly from the training room. Guests who came by air or train are taken back to the respective airport or train station.

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Training container

A large proportion of the training courses can also take place on site using the training container, which can be equipped to cater for specific needs. The advantage: no interference with the existing installation. The training container is provided on loan and can be shipped quickly and easily.

Frequency converter (8)

The AC course can take place using the container on site.

Hydraulic unit for brakes (4)

Demonstration of and exercises with the functioning of the hydraulic unit, opening and closing of the brakes and valve adjustment.

Service brake (6) and emergency brake (7)

Adjustment and disassembly according to the operation and maintenance instructions.

Grips (3)

Depending on your installation type, we provide the correct grip type including tools and assembly devices. The participants practice grip dismantling and reassembly and carry out pull tests.

Control system including drive (1) and return machinery (1A)

We provide the training container with the control system Doppelmayr Connect or PSS 3000. The participants perform practical exercises including troubleshooting and reading circuit diagrams.

Rope tensioning system (2)

This training unit simulates the rope tensioning system and is used to perform practical exercises such as cylinder relocation.

Container (9)

The container is a commercially available 20ft high cube shipping container which can be shipped quickly and easily. For optimum access to the teaching equipment, it can be opened at the front and on the side. The equipment can be lifted out and positioned on the floor in front of the container by means of a forklift truck, and put into operation right away.

Grip force tester (5)

Demonstration and sensor adjustment of the grip force testing equipment.

BC Basic training

This practical course is directed at newcomers to the ropeway sector with the aim of understanding the ropeway system from the bottom up. The basic function principles of the ropeway and its parts are explained. The characteristics of safety devices and the associated components are looked at separately. In addition, the BC course provides the fundamentals for operating a ropeway and the responsibilities that go with it. The optimum group size is between five and ten participants.

Location: Training room (theory) and your installation (practice)

Duration: The entire course lasts 5 days

After the course:
Support and advice on ropeway operation in the form of the OA Operation Advisory can be booked to follow on from this course. For more in-depth training, please book the MA Maintenance Assistance course or attend one of our courses on specific assembly groups.

Course content

- Overview of ropeway systems
- Components of a ropeway
- Components of a detachable ropeway
- Monitoring of ropeway functions
- Monitoring the functions of a detachable ropeway
- Hazards and environmental factors
- Team and organization
- Operational checks
- Handling the operation and maintenance manual
- Fundamentals of the Doppelmayr Connect control system

COURSE DATA:
service.doppelmayr.com


Eiger Express
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MA Maintenance assistance

The aim of this course is to help your maintenance crew to achieve efficient maintenance of the ropeway installatiion. The optimum group size is five to ten persons.

Your team carries out maintenance on their own while the instructor is present. In case of uncertainties or doubts, the instructor will intervene to correct the team and to give useful tips. The work should preferably be carried out in conjunction with a deployment of our service team.

Location: Your installation

Duration of the assistance:
The duration of the assistance can be selected freely but should be based on the modules selected and the intended maintenance plan. The Doppelmayr Customer Support team would be glad to help you with the planning.

After the course:
The decision on which employees can be deployed for the planned tasks is the sole responsibility of the operations manager in charge. Follow-on or in-depth training courses can be booked according to the roles of the individual employees.

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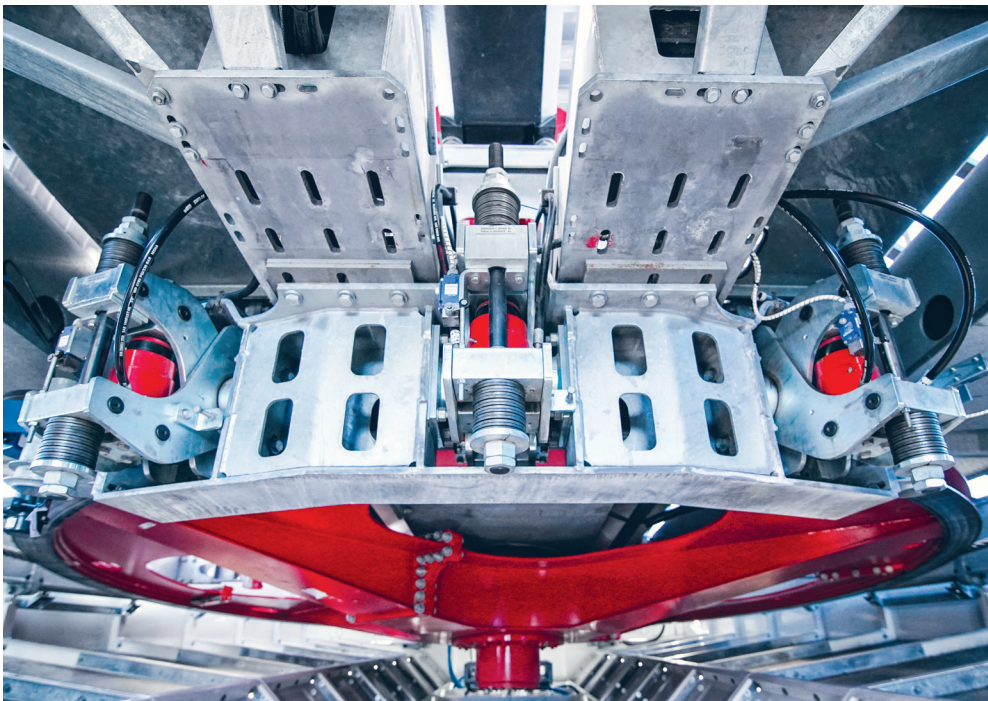


Modules

- **Sheave assembly maintenance**
  Visual inspection of the components, lifting off the rope, replacing and maintaining the sheaves, lubrication, checking the rope guidance, assessment of the wear criteria, adjustment of the safety devices, documentation

- **Grip maintenance**
  Demounting, stripping down and cleaning the components, visual inspection of the components, replacing wear parts, lubrication and assembly of the components, checking the grip force documentation

- **Inspection of the grip opening/closing equipment**
  Position and twisting of the rope in the stations, position of all rails of the grip opening/closing equipment, position of the safety devices in the grip opening/closing equipment, correct handling of the measuring gauges, documentation

- **Maintenance of the station equipment**
  Inspection, replacement and correct tensioning of V-belts for PTO drives and tire conveyors, rope lifting in the station, calibration of the grip force testing unit, inspection and maintenance of clutches for carrier spacing regulation, inspection of opening, closing and locking rails for carriers, inspection of drive system alignment, use of the correct lubricants

- **Maintenance of hydraulic systems and rope tensioning unit**
  Operation and visual inspection of the hydraulic systems, relocating the tension carriage, replacing the brake pads, cleaning the components and visual inspection in accordance with the maintenance manual, bleeding the brake systems, documentation

OA Operation advisory

The overall objective of the advisory is safe operation and high availability of the ropeway. It is aimed at the operating personnel of your installation. The instructors are experienced ropeway operations managers. Group size is based on the planned operations management. However, this should not exceed one shift at a time.

Location: Your installation

Requirements:
The ropeway can remain open for passenger service. Employees must have previously undergone training on how to behave in case of emergency and have received safety instruction. The team must be able to operate the ropeway in accordance with the learning objectives as described in the course BC Basic Training.

Duration of the advisory:
The length of the operation advisory can be selected freely. This should be done depending on the special features of the ropeway. Decisive factors include whether the ropeway is operated in several shifts and how many teams are envisioned in total.

After the advisory:
The decision on which employees can be deployed for the planned tasks is the sole responsibility of the operations manager in charge. Follow-on or in-depth training courses can be booked according to the roles of the individual employees.

COURSE DATA:
service.doppelmayr.com

Course Content

- Support for the team during daily operational checks and inspection runs as well as general operations management.
- Helpful information regarding natural hazards, safety instructions, passenger flows and general measures for the protection of employees.
- Tips regarding the manning of stations, communications and suitable means of communication.
- Support during practice operation with the emergency drive and the associated precautionary measures.
- Basic instruction on how to carry out and document maintenance work.

EG Basic electrical engineering

This course explains the fundamentals of electrical engineering for ropeways. This basic knowledge is required for the electrical engineering courses EC and ED.

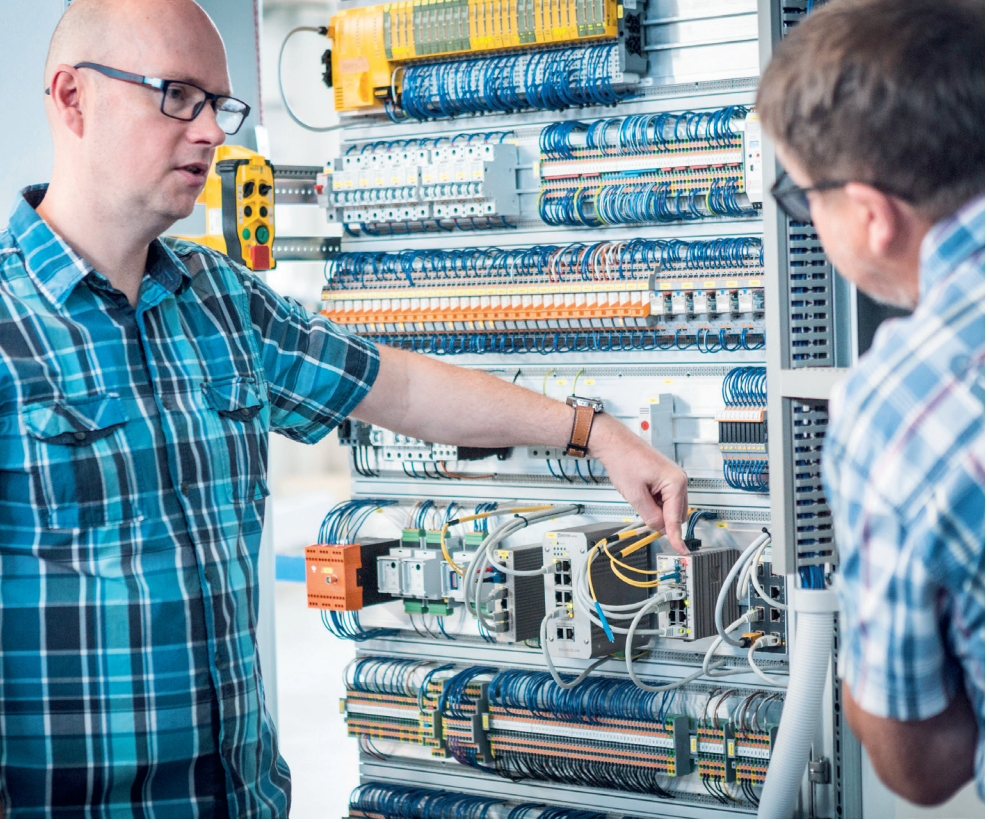
Location: Dornbirn, Austria

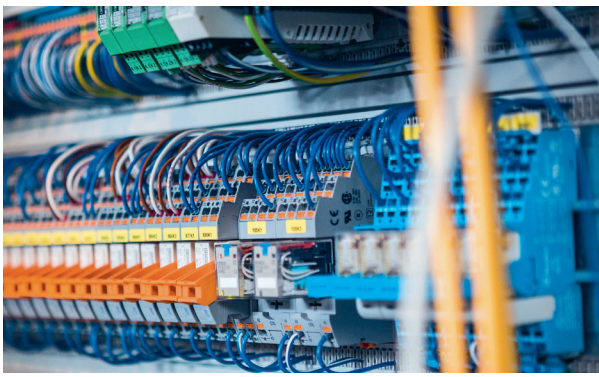
Please bring: No special equipment required

Requirements: None

Duration: 3 days

COURSE DATA:
service.doppelmayr.com





Course Content

- Electrical power
- Voltage – current – resistance
- Conductors – semiconductors – insulators
- Direct current
- Alternating current – three-phase – frequency
- The dangers of electricity – first aid – safety rules
- Safety measures, circuit breakers
- Energy storage: batteries, capacitors (charging)
- Lightning protection
- Doppelmayr Connect:
  Electrical components and their functions, electrical symbols, circuit diagrams, junction diagrams and parts lists, sensor and actuator technology
- Doppelmayr Control System PSS 3000:
  Electrical components and their functions, electrical symbols, circuit diagrams, junction diagrams and parts lists
- Handling measuring devices
- Physical units
- Principle of an electrical circuit
- Ohm's law
- Kirchhoff's law
- Series connection and parallel connection
- Layout of simple circuits
- Electrical components in the control cabinet

ED Electrical Engineering Doppelmayr PSS 3000

This course is aimed at electrical technicians working on ropeway installations with the Doppelmayr control system PSS 3000. Non-electrical technicians can take part provided they have completed the course EG Basic Electrical Engineering.

Location: Dornbirn, Austria

Please bring: No special equipment required

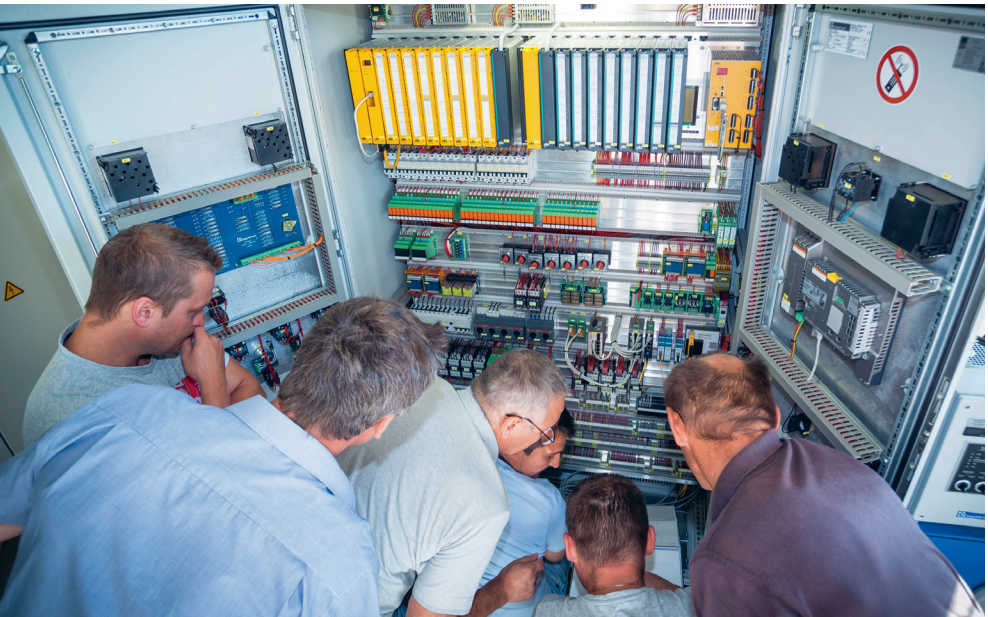
Requirements: Knowledge of fundamentals as described in the course EG Basic Electrical Engineering

Duration: 2.5 days

Course Content

- Safety circuits
- Signal transmission
- Start-up conditions
- Brake control for stepped and modulated brakes
- Drive control for DC and AC drives
- Distance measurement by means of impulses
- Carrier spacing monitoring
- Anti-collision system
- Carrier marking CIS
- Grip force tester, theory and calibration
- PSS 3000
- Practical exercises

COURSE DATA:
service.doppelmayr.com



EC Electrical Engineering Doppelmayr Connect

This course is aimed at electrical technicians working on ropeway installations with the Doppelmayr Connect control system. Non-electrical technicians can also take part, provided that they have completed the course EG Basic Electrical Engineering.

Location: Dornbirn, Austria

Please bring: No special equipment required

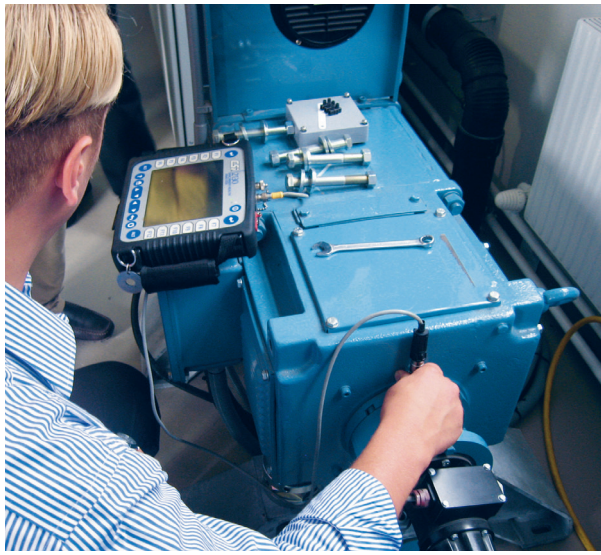
Requirements: Knowledge of fundamentals as described in the course EG Basic Electrical Engineering

Duration: 3.5 days

Course Content

- Operating concept
- Visualization
  - Notification Center
  - Solution Center
  - WLAN and tablet
- Deactivation concept
- Remote maintenance - IT security
- Data transmission, bus system
- Brake concept and safety circuits
- Brake control for stepped and modulated brakes
- Control for hydraulic rope tensioning
- Control for main drive
- Control for emergency drive
- Control for conveyors in the stations
- Anti-collision system and carrier spacing monitoring
- Grip force tester, theory and calibration
- Cabin door and restraining bar monitoring
- RFID carrier identification
- Fire mode
- Practical exercises
- PSS 4000
- Using the operation and maintenance manual

EM Service and operation of drive machines



The course is organized for maintenance technicians from ropeway operating companies in collaboration with the companies SPM Instrument Int. GmbH and Spalt Elektromechanik und -maschinenbau GmbH. Participants gain an overview of the early warning signs of equipment failure and of which measured values, such as vibrations and temperature, can be used for diagnostics.

Spalt Elektromechanik und -maschinenbau GmbH is an authorized distributor for ABB motors and ELIN motors, and specializes in the inspection, maintenance, repair and recommissioning of electric motors. Thanks to their many years of experience, this company's experts can provide helpful tips for avoiding failures. The course content relating to SPM monitoring is provided by one of our specialists and an expert from SPM Instrument Int. GmbH. Please also note the course "OG Condition Monitoring, Lubricants, Oil Analysis, Gear Units", which covers similar topics.

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: Basic knowledge of electrical engineering

Duration: 2 days

Course Content – Part 1

- Basics
  Maintenance concepts, design and function of AC and DC machines, collector and carbon brushes, measuring methods and limit values, step-by-step description of a full machine service

- Practical exercises
  Measurement of insulation resistance and winding resistance, surge voltage measurement on a DC machine, measurement of collector concentricity on a DC machine, vibration measurement, laser optical alignment

Course Content – Part 2

- SPM monitoring
  Basics of shock impulse monitoring with the SPM system, how measurements are to be taken and at what intervals, practical exercises on a motor and on our test rig

COURSE DATA:
service.doppelmayr.com

DC ABB power converters, DCS 800 series

Doppelmayr, in conjunction with ABB, arranges power converter courses for electricians who work in ropeway companies. ABB supplies rectifiers and DC motors for Doppelmayr ropeway installations. This course explains the operating principle of rectifiers in this series.

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: Solid electrical engineering knowledge

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content

- DC as drive component, rectifiers in general
- 2Q/4Q motoring/generating torque
- From AC to DC, firing angle
- Power supply configurations and filter options
- Signal conditioning and I/Os
- Fault analyses Fxxx, Axxx
- DC motor – handling and maintenance

AC-DDD AC drives, DDD, frequency converters

This course is aimed at electricians in ropeway companies. This course explains the operating principle of AC drives, in particular the DDD Doppelmayr Direct Drive. You will learn how this technology is used by Doppelmayr.

Location: Dornbirn, Austria

Please bring: No special equipment

Requirements: Solid electrical engineering knowledge

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1, Mechanics

- Basic principles, flywheel masses, brake concept, product training on service and emergency brakes, bullwheels with bearing assembly and coupling, grease and lubrication, cooling unit

Course Content – Part 2, Electrical Engineering

- Electromagnetic compatibility
- Redundancy concept including module and fan replacement
- Preventive maintenance
- Converter modules for main drive, ABB ACS880, structure, function, and operation
- Signal conditioning and I/Os
- Frequency converters for auxiliary drives ABB ACS580
- Structure of the power cabinets
- Safety devices, such as emergency drive, rope position and axle monitoring
- Encoders
- Standard AC drives
- Description of the most important parameters - help with diagnosis
- Practical exercises and operation of the devices
- Storage of replacement devices

AC-DSD AC drives, DSD, frequency converters

This course is aimed at electricians in ropeway companies. This course explains the operating principle of AC drives, in particular the DSD Doppelmayr Sector Drive. You will learn how this technology is used by Doppelmayr.

Location: Dornbirn, Austria

Please bring: No special equipment

Requirements: Solid electrical engineering knowledge

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1, Mechanics

- Basic principles, flywheel masses, brake concept, product training on service and emergency brakes, bullwheels with bearing assembly and coupling, grease and lubrication, gearbox, safety devices for drives

Course Content – Part 2, Electrical Engineering

- Electromagnetic compatibility
- Redundancy concept, module and fan replacement
- Preventive maintenance
- Converter modules for main drive, Vacon NX, structure, function and operation
- Structure of the power cabinets
- Safety devices such as maintenance switch, emergency drive, rope position and bearing monitoring, axle monitoring
- Encoders
- Use by DSD
- Standard AC drives
- Description of the most important parameters, help with diagnosis
- I/O cards with NX (programming)
- Explanation of DriveSync
- Practical exercises and operation of the devices
- Storage of replacement devices

HY Hydraulics and valves

This course is suitable for all operation and maintenance personnel on all ropeway types. Participants acquire the basic knowledge required for the course HD Advanced Course in Drives and Hydraulics.

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: None

Duration: 3 days

COURSE DATA:
service.doppelmayr.com

Course Content

- What is hydraulics?
  The basic physics behind hydraulics, hydrodynamics, transmission of forces, law of hydraulic flow, fluid flow
- Hydraulic components 1
  Pumps, motors, cylinders
- Hydraulic components 2
  Pressure valves, control valves, flow valves
- Hydraulic accessories
- Symbols according to DIN ISO 1219
- Basic hydraulic circuits
  Function, design, systematic troubleshooting

HD Advanced course in drives and hydraulics

Building on from the fundamental principles of hydraulics, Doppelmayr offers the Advanced Course in Drives and Hydraulics for operation and maintenance personnel on the ropeway types fixed-grip and detachable ropeways, 3S ropeways and reversible aerial tramways with Doppelmayr equipment. This course can be followed by type-specific courses (FX, DT, DA, DS, 3S or DL).

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: Basic knowledge of hydraulics, an ideal prerequisite is the Doppelmayr course HY Hydraulics and Valves

Duration: 2.5 days

Course Content – Part 1

- Drives, bullwheels, rope tensioning
  Product training on service and emergency brakes of all years of construction, bullwheels with bearings and couplings, universal shafts, gearboxes, safety devices for drives, grease

Course Content – Part 2

- Hydraulics
  Reading complex hydraulic circuit diagrams, hydraulic units of different years of construction, troubleshooting on practice units, assessment of oil quality, filtration

COURSE DATA:
service.doppelmayr.com

OG Condition monitoring, lubricants, oil analysis, gear units

Maintenance technicians and specialists in ropeway operating companies learn how to avoid gearbox damage, maximize uptime, extend maintenance intervals and perform optimal planning of scheduled downtime. They are given an overview of preventive maintenance measures and the early warning signs of equipment failures.

Participants gain an insight into the way in which experts work in the case of oil analyses and gearbox inspections, and find out who they can contact if in doubt. The theoretical principles are illustrated with the help of clear examples from practice. This course is organized in collaboration with the company Oildoc and the David Wimmer firm of consulting engineers.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: Basic knowledge of lubricants and ropeway gearboxes

Duration: 2.5 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- **Condition monitoring using oil analysis**
  Lubrication fundamentals, routine checks and special analyses, scope of inspection
- **How lubrication works**
  Fundamental principles of lubricating film formation, hydrodynamics, hydrostatics, elastohydrodynamic lubrication, key parameters of a lubricant
- **Lubricant fundamentals**
  Introduction, comparison of mineral oils and synthetic oils and their uses, gearbox oils, requirements to be met by lubricants for gear units, manufacturer's approvals, special gearbox oils, additives as ingredients of lubricants for specific applications
- **Taking samples**
  Where, when, how often, containers and equipment, examples, sample form and information on the sample
- **Lubricant in practical use**
  Lubricant aging, changes, causes of contamination, ingress of other oil, mixing
- **Oil analysis – testing methods**
  Methods used to determine wear, contamination, oil condition, relevance and applications of the most important methods
- **Basic principles for evaluation of the analysis results**
  Basic procedure, limit values and trend assessment
- **Oil analysis in practice I**
  Role and properties of gearbox oils, standardized oil types and their applications
- **Oil analysis in practice II**
  Role and properties of hydraulic oils, standardized oil types and their applications
- **Oil analysis in practice III**
  Role and properties of lubricants for combustion engines, specifications and OEM approvals, limit values, trend analysis
- **Lubricating grease and condition monitoring**
  Lubricating grease and lubricating oil – the difference, condition monitoring using grease analysis – testing methods, evaluation of lab reports

Course Content – Part 2

- **Gearbox technology for ropeways**
  Maintenance and preventive measures, gearbox lubrication and lubricants as gearbox design criterion and as source of information
- **Operations-dependent and plannable maintenance time frame**
  through constant monitoring of operating parameters
- **Recording and evaluating the signal chain**
  Plain text recommendations
- **Endoscopy**
  Quality of equipment, experience of personnel and top-level evaluation of results
- **Gearbox inspection: possibilities and limits**
  Periodic inspections, endoscopy, condition monitoring, various damage scenarios

CC Combustion engines

This course deals with the technology, functioning, maintenance and service of the most common combustion engines used on Doppelmayr ropeways. It focuses in particular on Cummins and Caterpillar engines. The basic functioning of the various combustion engines will be explained along with electrical and mechanical engineering fundamentals.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 0.5 day

COURSE DATA:
service.doppelmayr.com


Finkenberger
Almbahnen
ZILLERTAL · TIROL

GK Surveys of ropeway installations

The course gives operations managers a comprehensive overview of the state of the art in surveying and looks, in particular, at aspects that are specific to ropeways. Subjects covered include surveying fundamentals, different measuring methods and action required as a consequence of the measurements obtained in the case of landslides, permafrost and undercutting. Well-known experts from the surveying offices AVT Imst, DI Fleischmann Hallein/Salzburg and AVD Dornbirn contribute to the course.

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: Basic knowledge of ropeway engineering

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content

Fundamentals

- Terminology
- Reference systems, scales
- Measuring methods, measuring instruments, accuracies
- The “cadastre” – concept, history
- Country-specific standards
- Results

The cadastre

- Fundamentals, projection systems, Survey Act, forest registry, forest clearance permit
- Law and land register (Austria, Germany, Switzerland)
- Cadastral map
- Boundary negotiation, boundary disputes (plot boundary, cadastral community boundaries, national boundary, etc.)
- Easements
- Supervisory authority (district administrative authority, province, ministry)

Project engineering and building survey

- Land and terrain survey for ropeway project engineering purposes
- Stakeout of the projected locations for structures, pegs, report
- Additional stabilization of measuring points
- Alignment of foundations, steelwork (entrance beams, supports, mushroom-shaped drive station)
- Alignment of ropeway installation (stations, sheave assemblies)
- Control survey (initial survey and follow-up survey) of completed structures

Operations-related survey and special features

- Design of suitable measuring points
- Ground movements, subsidence, slope discontinuity, geology, permafrost
- Ski trail planning, trail lengths
- Ground compensation
- GIS
- Snow management
- Effects of solar radiation on towers
- Additional benefits of geodata (geology, geomorphology, etc.)
- Geodetic monitoring
- Wear (sheave assembly)
- Inclination of sheave assembly to compensate for subsidence


SNOW
SPACE
SALZBURG
Best of Mountains

RS Rope function and maintenance

For advanced maintenance technicians and specialists in ropeway operating companies, this course offers in-depth insights into the function, inspection and maintenance of the steel ropes used on ropeways.

Location: Dornbirn, Austria
Romanshorn, Switzerland

Please bring: ID card or passport,
no special equipment required

Requirements: Basic knowledge of the structure and function of steel ropes

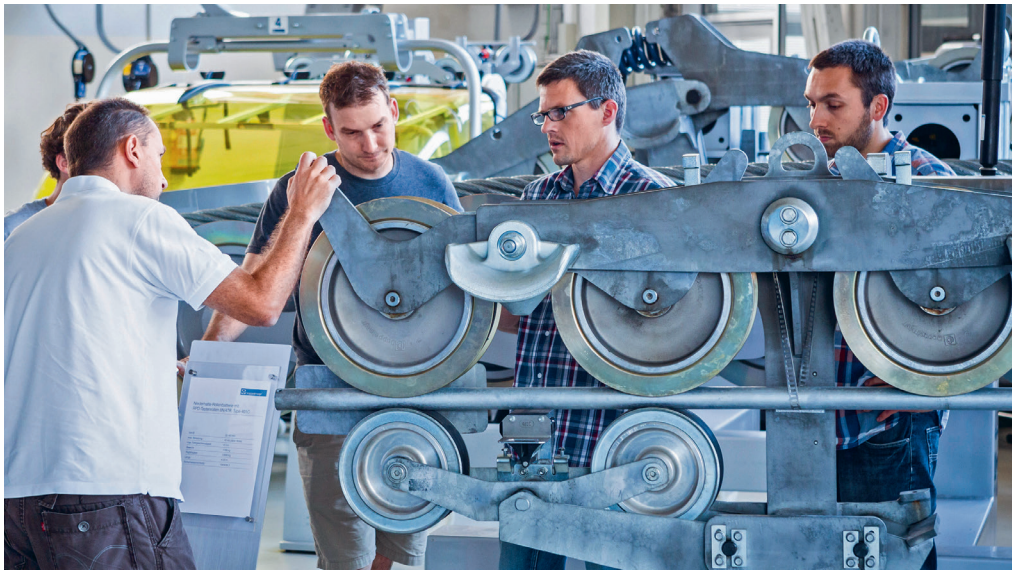
Duration: 2.5 days

COURSE DATA:
service.doppelmayr.com

Course Content

- Rope manufacture from wire to rope
- Technical fundamentals, structure and function of steel ropes
- Difference between DSB wire rope requirements and EN 12927
- Rope installation, rope splice, rope maintenance
- Visit to the Fatzer rope manufacturing facility
- Test rig and testing lab at Fatzer: practical work on the moving rope, rope maintenance, influence of shear force on wire
- Rope testing – equipment for electromagnetic testing/visual inspection
- Rope damage, damage assessment, workshop, rope repair
- What does it take to obtain a durable splice? Measures, splice damage, splice lubrication

RB RPD rope position monitoring



Ideal for the operation and maintenance personnel on ropeways with RPD system. Participants learn the fundamentals and are shown how the system works as well as how it is operated and maintained on the basis of practical examples.

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: Knowledge of fundamentals as described in the course EG Basic Electrical Engineering

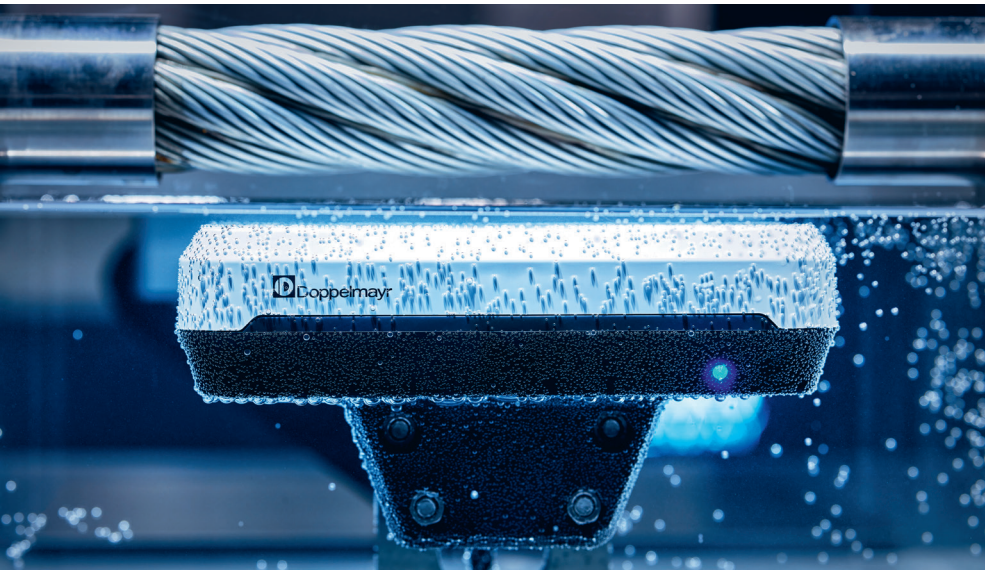
Duration: 1 day

Course Content

- Fundamentals and functions of the RPD system
- Switch setting
- Demonstration on the presentation stand
- Operation of the control system

COURSE DATA:
service.doppelmayr.com

NX RPD Nexo rope position monitoring



This course is aimed at the operation and maintenance personnel on ropeways with the RPD Nexo system. Participants learn the fundamentals and are shown how the system works as well as how it is operated and maintained on the basis of practical examples.

Location: Dornbirn, Austria

Please bring: No special equipment required

Requirements: Knowledge of fundamentals as described in the course EG Basic Electrical Engineering

Duration: 1 day

Course Content

- Fundamentals and functions of the RPD Nexo system
- Switch setting
- Demonstration on the presentation stand
- Operation of the control system including diagnostic functions


250 kg


Don't lift on this side!

DL Mechanics of ropeway installations with D grips

This course provides basic knowledge for the operation and maintenance of D-Line ropeway installations. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.
The course can be combined with the HD Advanced Course in Drives and Hydraulics that takes place immediately before it.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- Line equipment
  Sheave assemblies, line structures, rope, interaction of the assembly groups

Course Content – Part 2

- Carriers with D grips
  D grip, practical exercises, chairs, hangers, cabins

Course Content – Part 3

- Station equipment for installations with D grips
  Operation sequence in the stations, opening and closing line, tire conveyors, safety devices, grip force tester, anti-collision system, carrier spacing, opening and closing of carrier doors, bubbles and restraining bars

DT Mechanics of ropeway installations with DT grips

This course provides basic knowledge for the operation and maintenance of detachable ropeway installations with DT grips. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.
The course can be combined with the HD Advanced Course in Drives and Hydraulics that takes place immediately before it.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- Line equipment
  Sheave assemblies, line structures, rope, interaction of the assembly groups

Course Content – Part 2

- Carriers with DT grips
  DT grip, practical exercises, chairs, hangers, cabins

Course Content – Part 3

- Station equipment for installations with DT grips
  Operation sequence in the stations, opening and closing line for DT grips, tire conveyors, safety devices, grip force tester, anti-collision system, carrier spacing, opening and closing of carrier doors, bubbles and restraining bars

DA Mechanics of ropeway installations with A grips

This course provides basic knowledge for the operation and maintenance of ropeway installations with A grips. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.
The course can be combined with the HD Advanced Course in Drives and Hydraulics that takes place immediately before it.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- Line equipment
  Sheave assemblies, line structures, rope, interaction of the assembly groups

Course Content – Part 2

- Carriers with A grips
  A grips, practical exercises, chairs, hangers, cabins

Course Content – Part 3

- Station equipment for installations with A grips
  Operation sequence in stations, opening and closing line for A grips, tire conveyors, safety devices, grip force tester, anti-collision system, carrier spacing, opening and closing of carrier doors, bubbles and restraining bars

DS Mechanics of ropeway installations with DS grips

This course provides basic knowledge for the operation and maintenance of detachable ropeway installations with DS grips. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.
The course can be combined with the HD Advanced Course in Drives and Hydraulics that takes place immediately before it.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- Line equipment
  Sheave assemblies, line structures, rope, interaction of the assembly groups

Course Content – Part 2

- Carriers with DS grips
  DS grip, practical exercises, chairs hangers, cabins

Course Content – Part 3

- Station equipment for installations with DS grips
  Operation sequence in stations, opening and closing line for DS grips, tire conveyors, safety devices, grip force tester, anti-collision system, carrier spacing, opening and closing of carrier doors, bubbles and restraining bars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3S Mechanics of 3S ropeways

This course provides basic knowledge for the operation and maintenance of 3S ropeway installations. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.
The course can be combined with the HD Advanced Course in Drives and Hydraulics that takes place immediately before it.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

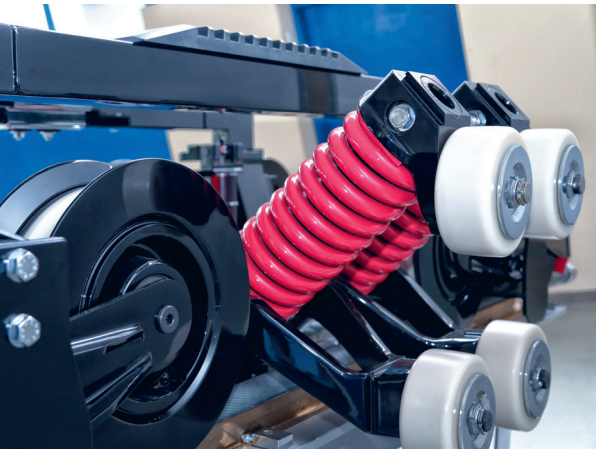
Requirements: None

Duration: 2.5 days

Course Content

- Carrier, carriage, detachable grip, practical exercises
- Station equipment
- Track ropes, haul rope, track rope relocation process
- Rope saddles, haul rope sheaves
- Slack carriers for haul rope, relocation process

COURSE DATA:
service.doppelmayr.com



FX Mechanics of fixed-grip ropeway installations

This course provides basic knowledge for the operation and maintenance of fixed-grip ropeway installations. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.
The course can be combined with the HD Advanced Course in Drives and Hydraulics that takes place immediately before it.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 1 day

Course Content

- Line equipment
  Sheave assemblies, line structures, rope, interaction of the assembly groups
- Carriers
  Fixed grips, chairs, hangers, cabins (if necessary), practical exercises

COURSE DATA:
service.doppelmayr.com

SL Mechanics and electrical engineering for surface lifts

This course provides basic knowledge for the operation and maintenance of surface lifts. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.

Course Content

- Ropes, grips for surface lifts, towing outfits
- Rope guidance, tensioning devices, drives
- Function tests, electrical engineering for surface lifts

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

KA OMEGA IV cabin maintenance

This course provides basic knowledge for the operation and maintenance of OMEGA IV cabins. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.

Location: Dornbirn, Austria

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 1.5 days

COURSE DATA:
service.doppelmayr.com

Course Content

- Fundamentals

  Safety components and functions in the cabin, maintenance in accordance with maintenance checklist, replacement of spare parts such as window panes, flip-out and hopper windows, cabin bumpers, opening lever and push-pull cable. Door mechanism, platforms and cabin guide, seat benches, ski protection glazing. Cleaning and care of cabins.

- Practical exercises

  Fitting and removal of suspension rods, door adjustment and checking the door closing force, adjustment of the door opener and checking the door lock, inspection in accordance with instructions, procedure following exceptional occurrences

Courses at the Ropeway Training Center in Uetendorf

At the new Ropeway Training Center in Uetendorf, Switzerland, Garaventa offers training for reversible aerial tramways and funicular railways. People attending the two-day courses acquire basic knowledge for the operation and maintenance of these two ropeway systems. Direct contact with the training team gives course participants the opportunity to get to know their contacts and customer support at Garaventa.

NEW!
Ropeway Training Center in Uetendorf, Glütschbachstraße 94


Bergbahnen
Meiringen-Hasliberg
Haslital
BERNER OBERLAND
Garage Wenger
INTERLAKEN
2

ATW Reversible aerial tramways

This course provides basic knowledge for the operation and maintenance of reversible aerial tramways. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.

Location: Uetendorf, Switzerland

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- Drives and brakes
  Motors, gearbox, drive bullwheels, brakes, emergency drives

Course Content – Part 2

- Station equipment
  Rope guidance versions, rope tensioning, station bumpers, infrastructure

Course Content – Part 3

- Line equipment
  Towers, track rope supports, rope sheaves

Course Content – Part 4

- Carriers
  Carriages, haul rope fixings, track rope brakes, hangers, cabins

FUL Funicular railways

This course provides basic knowledge for the operation and maintenance of funicular railways. It is directed at operation and maintenance personnel. Course content includes fundamentals, function, wear reduction, maintenance tips and experience.

Location: Uetendorf, Switzerland

Please bring: Work clothes and safety shoes

Requirements: None

Duration: 2 days

COURSE DATA:
service.doppelmayr.com

Course Content – Part 1

- **Drives and brakes**
  Motors, gearbox, drive bullwheels, brakes

Course Content – Part 2

- **Station equipment**
  Rope guidance versions, rope tensioning, station bumpers, infrastructure

Course Content – Part 3

- **Line equipment**
  Route construction, line structures, rope sheaves

Course Content – Part 4

- **Carriers**
  Carriage types, haul rope fixings, rail brakes, cars

Costs

Attendance fee for courses at the Ropeway Training Center

The attendance fees for courses can be found on our website (**service.doppelmayr.com/training/**). These fees cover the instructors, all course and working documents, snacks during breaks, lunch and dinner, and the transportation required for the course. Transfers to and from the airport will be charged according to the costs incurred.

Accommodation

You will be accommodated at a hotel. The price per night is also stated on our website. Please pay for any extras, such as parking, minibar, telephone, internet, etc., when checking out of the hotel. For further information, do not hesitate to contact us.

Cancellation conditions for courses

The cancellation charge for the seminar is 50% of the costs up to 14 days prior to course start and 100% of the costs thereafter.

Billing

The course fees and hotel costs are payable on receipt of the invoice.

Costs for courses on site

Courses are tailored to the respective learning objectives and requirements. Costs will be billed on the basis of the cost estimate. The costs for courses on site cover the following: course costs per person and day or course costs per day; travel and accommodation costs for trainers and guest speakers; transport and loan charge for the container if booked; where applicable, costs of seminar rooms and translators.

Important: subsidies

Subsidies may be available in your own country or grants from the EU to finance the course costs, subject to specific conditions. Please contact the appropriate agencies for further information.

General Information

Instructors

The instructors are engineers and technicians from different specialist areas within the Doppelmayr Group or external experts. As well as presenting the technical content of courses, they are also willing to discuss topics and questions raised by the participants.

Minimum number of participants and course cancellations

Minimum number of participants: 8. Courses will be cancelled if fewer than 8 people register for them. For this reason, please check whether the course will be taking place before purchasing flight tickets, etc. and before setting out on your journey.

Registration and queries

Please register online via our website at **service.doppelmayr.com/training/course-list** or by email to **training@doppelmayr.com**. Registrations are requested no later than 14 days before the start of the course. Confirmation of registration will be sent by return.

Covid-19

Training courses will be held in accordance with the regulations of the Austrian Federal Government and the recommendations of the Austrian Economic Chamber, as amended from time to time. The appropriate Covid-19 hygiene supplies are provided.

Ropeway installation number and job descriptions

Please state the job descriptions of the participants and the installation number of the ropeway on which they work. This will enable our instructors to prepare themselves in accordance with your requirements.

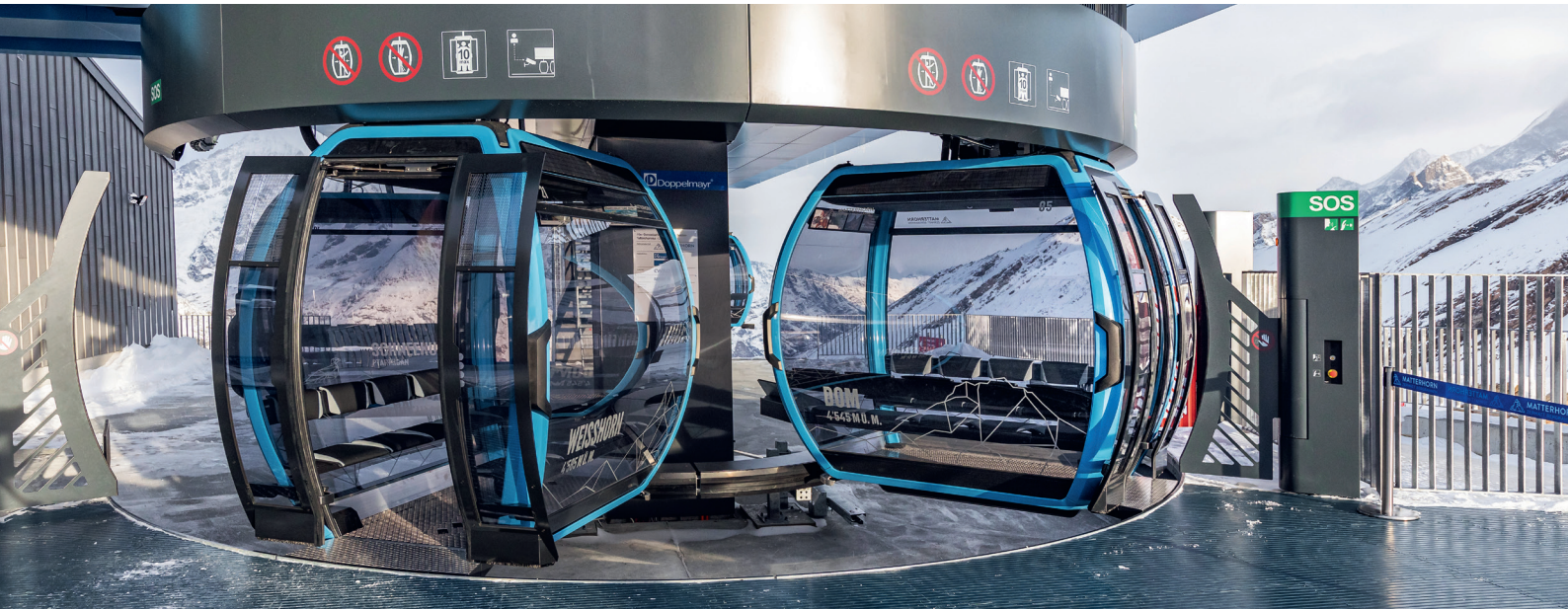
Website

Please refer to our website for course details and the latest information on our courses:
service.doppelmayr.com/training/

Note

Responsibility for ropeway operations lies with the respective operator. Doppelmayr Seilbahnen GmbH accepts no liability whatsoever as a result of the training program and the information provided therein, insofar as no intent or gross negligence exists on the part of Doppelmayr Seilbahnen GmbH. The respective national statutory requirements are to be complied with and are not the subject of this training program.

We look forward to your participation!



COMPETENCE ON SITE

Your contacts

All training courses and dates are listed and can be booked online at **service.doppelmayr.com/training/**. In case of questions regarding the courses in Dornbirn or on site, please contact the Ropeway Training Center or your local branch office.

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Lünersee

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