

ELECTRICAL TRACTION G C GARG

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What is the principle of electric traction? The system which use electrical power for traction system i.e. for railways, trams, trolleys, etc. is called electrical traction. The track electrification refers to the type of source supply system that is used while powering the electric locomotive systems.

What are the types of electric traction? Electric-traction systems can be broadly divided into those using alternating current and those using direct current. With direct current, the most popular line voltages for overhead wire supply systems have been 1,500 and 3,000. Third-rail systems are predominantly in the 600–750-volt range.

What is the meaning of traction in electricity? Introduction: By electric traction is meant locomotion in which the driving (or tractive) force is obtained from electric motors. It is used in electric trains, tramcars, trolley buses and diesel-electric vehicles etc.

What is the electric traction system of a locomotive? Electric traction systems use a series of electrical power for moving any locomotive, tram, trolley or industrial train. The process of electrifying tracks come down to the supply system that powers the locomotive.

What is the major drawback of electric traction? High capital cost. Problem of supply failure. Additional equipment is required for achieving electric braking and control.

What are the 4 principles of traction? The grip or hold on the patient's body must be adequate and secure. Provision for counter traction must be made. There must be minimal friction on the cords and pulleys. The line and magnitude of the pull, once correctly established, must be maintained.

What are the 3 types of traction? It uses weights, pulleys, and ropes to gently put pressure on and pull a bone or injured body part back into the right position. 1 There are two main types of traction: skeletal traction and skin traction. A third kind, cervical traction, is used to help stabilize fractures in the neck.

Which motor is most commonly used for electric traction? The dc series motor is most suitable for traction services because it has the following properties: DC series motor develops high torque at low speeds, and low torque at high speeds, this is the essential requirement of a traction unit.

Is the electric traction motor AC or DC? The DC motor was the mainstay of electric traction drives on electric and diesel-electric locomotives, street-cars/trams and diesel electric drilling rigs for many years. It consists of two parts, a rotating armature and fixed field windings surrounding the rotating armature mounted around a shaft.

What is the voltage of electric traction? Railway electrification systems using alternating current (AC) at 25 kilovolts (kV) are used worldwide, especially for high-speed rail.

Which type of power supply is used in electric traction? It can use either DC (direct current) or AC (alternating current), the former being, for many years, simpler for railway traction purposes, the latter being better over long distances and cheaper to install but, until recently, more complicated to control at train level.

What are the applications of electric traction? Traction motors are used in electrically powered rail vehicles such as electric multiple units and other electric vehicles such as electric milk floats, elevators, conveyors, and trolleybuses, as well as vehicles with electrical transmission systems such as diesel-electric, electric hybrid vehicles and battery electric ...

What are the different types of electric traction?

How do train locomotives get traction? There are alternatives, like the cog railways that carry trains up steep mountains, but most freight and passenger trains use simple “adhesion” for traction; just the steel-on-steel friction and nothing else.

Which motors are used in traction trains? DC series motor is extensively used for electric traction in railways, trams, and trolleys. DC motors are used on trains because of their high torque and good speed control.

What is the physics behind traction? Tractive force, also known as traction, is the force used to generate motion between a body as well as a tangential surface via dry friction, though the shear force of the surface is also commonly used. Traction can also refer to the maximum tractive force between a body and a surface as limited by available friction.

What are the principles of traction control system? The traction control system (TCS) detects if a loss of traction occurs among the car's wheels. Upon identifying a wheel that is losing its grip on the road, the system automatically applies the brakes to that individual one or cut down the car's engine power to the slipping wheel.

What is the objective of electric traction? Advantages of electric traction systems: It is cleanest of all other types of systems of traction; Due to this only it is ideally suitable for the underground and tube railways. No need of storage of coal and water that in turn reduces the maintenance cost as well as the saving of high-grade coal.

What is the principle of electronic stability control? Electronic stability control systems use automatic computer-controlled braking of individual wheels to assist the driver with maintaining control of the car in critical driving situations. ESC helps prevent a vehicle from “spinning out” or “plowing out” due to the loss of road traction caused by slipping wheels.

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The Ultimate Chemical Equations Handbook: Teacher Edition

Q1: What makes the Teacher Edition unique? A: The Ultimate Chemical Equations Handbook: Teacher Edition is designed specifically for educators, providing comprehensive guidance and resources to teach chemical equations effectively. It includes detailed lesson plans, teaching tips, student activities, and assessment tools to support both novice and experienced teachers.

Q2: How does the handbook help teachers understand chemical equations? A:

The handbook provides a deep understanding of the principles underlying chemical equations. Teachers will learn about balancing equations, predicting products, and the role of stoichiometry in understanding chemical reactions. The explanations are clear and concise, with numerous examples and practice problems to reinforce concepts.

Q3: What student activities and resources are available? A:

The handbook offers a wide range of engaging student activities, such as equation balancing puzzles, simulation exercises, and interactive experiments. These activities foster student understanding and encourage critical thinking. Additionally, the handbook includes downloadable resources, such as answer keys, worksheets, and presentation slides, to streamline teaching.

Q4: How does the handbook support assessment? A:

The handbook provides a variety of assessment tools to evaluate student comprehension. Multiple-choice quizzes, short answer questions, and problem-solving exercises assess students' mastery of chemical equation balancing and stoichiometry. Rubrics and grading guidelines are included to support fair and consistent grading practices.

Q5: What are the benefits of using the Teacher Edition? A:

The Teacher Edition empowers educators to confidently teach chemical equations, instilling a strong foundation in their students. It saves teachers valuable time by providing ready-made lesson plans and resources. By using this comprehensive handbook, teachers can create engaging and effective learning experiences that foster student success in understanding and applying chemical equations.

Simulating Bird Strike on Aircraft Composite Wing Leading Edge

Q1: Why is simulating bird strike important for aircraft safety? A1:

Bird strikes can cause significant damage to aircraft structures, potentially compromising safety. Simulations allow engineers to assess the effects of bird strikes and design wings that can withstand these impacts.

Q2: How are bird strikes simulated? A2:

Simulations involve firing bird-shaped projectiles of varying sizes and weights at composite wing leading edges. These

projectiles mimic the impact of actual bird strikes, creating realistic damage patterns.

Q3: What are the key parameters measured during simulations? A3: Simulations measure various parameters, including impact force, displacement, and damage extent. These data are used to evaluate the wing's resistance to bird strikes and identify areas of vulnerability.

Q4: What benefits can be gained from simulating bird strikes? A4: Simulations provide insights into the failure mechanisms of composite wings under bird strike loads. They help engineers optimize wing designs, improve impact resistance, and reduce the risk of catastrophic damage.

Q5: How are simulation results used in practice? A5: Simulation results are used to develop design guidelines and certification requirements for aircraft wings. They inform engineers about the necessary material properties, thickness, and reinforcements to ensure the wing's ability to safely withstand bird strikes.

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