

Glossary

2-D [ABBREV-U9] If an image is **2-D** (two-dimensional), it is displayed as a flat image on a page. dwuwymiarowy

3-D [ABBREV-U9] If an image is **3-D** (three-dimensional), it is displayed in space with height, width, and depth. trójwymiarowy

actuator [N-COUNT-U11] An **actuator** is a device that supplies power to a robotic manipulator. urządzenie uruchamiające, silownik

angle θ [N-UNCOUNT-U6] **Angle θ** is a measure of the difference in direction between two lines that meet at a point. kąt (pomiędzy dwiema półprostymi)

angular velocity [N-COUNT-U6] An **angular velocity** is a measure of something's degree of rotation over a particular amount of time. prędkość kątowa

arc length [N-COUNT-U6] An **arc length** is the distance between two points on the edge of a circle. długość łuku

arch [N-COUNT-U12] An **arch** is a curved structure with straight sides that supports the weight of something. łuk

artificial organ [N-COUNT-U15] An **artificial organ** is a self-contained device that is surgically placed inside a human body to replace a natural organ. sztuczny organ

automation [N-UNCOUNT-U11] **Automation** is a process in which mechanical or electronic devices replace human interactions in a process. automatyzacja

balanced geartrain [N-COUNT-U8] A **balanced geartrain** is a planetary geartrain in which forces are evenly distributed among multiple planet gears. pełnowartościowy układ kinetyczny sił zębatych

beam [N-COUNT-U12] A **beam** is a long, heavy piece of wood or metal that supports a roof or forms part of a structure. belka

biomechanics [N-UNCOUNT-U15] **Biomechanics** is the science that studies biological systems and organisms from a mechanical standpoint, often for medical applications. biomechanika

BioMEMS [ABBREV-U15] **BioMEMS** (biological microelectromechanical systems) is a MEMS device that is used to analyze or manipulate biological matter. technologia biomemów

bottom-up design [N-UNCOUNT-U10] **Bottom-up design** is a product development technique that focuses on implementing existing technology to solve a problem. projektowanie od dołu, projektowanie oddolne

B-rep [ABBREV-U9] A **B-rep** (boundary representation) is an image that is defined by its bordered surfaces. modelowanie bryłowe

brittle failure [N-COUNT-U13] A **brittle failure**, also called a fracture, is a material failure in which no bending or other deformation occurs before breakage. złamanie

BTU [ABBREV-U2] A **BTU** (British thermal unit) is a unit of measurement for heat energy, equal to the heat required to raise the temperature of 1 lb. of water by 1° F. brytyjska jednostka ciepła

buckle [V-I-U13] To **buckle** is to suddenly bend and collapse under stress. odkształcać

burn [V-I-U2] To **burn** is to combust or catch fire. palić się, płonąć

burn out [V-I-U4] To **burn out** is to cause damage or failure from overheating. wypalić się

CAD [ABBREV-U9] **CAD** (computer-aided design) is a form of industrial art that involves using a computer to create technical designs. projektowanie wspierane komputerowo

carbon fiber [N-UNCOUNT-U15] **Carbon fiber** is a strong woven material that is made of small strands of carbon atoms. włókno węglowe

carrier [N-COUNT-U8] A **carrier** is a link that connects the center of a sun gear to the center of a planetary gear. nośnik

catenary [N-COUNT-U12] A **catenary** is the curve assumed approximately by a heavy uniform cord or chain hanging freely from two points. krzywa łańcuchowa

center of rotation [N-COUNT-U6] A **center of rotation** is the central point that an object moves around when it rotates. środek obrotu

chemical energy [N-UNCOUNT-U1] **Chemical energy** is energy that is released by the interaction of chemical substances. energia chemiczna

column [N-COUNT-U12] A **column** is a tall, thick post that supports a building's roof, or may be used for decoration.
kolumna

combustion [N-UNCOUNT-U2] **Combustion** is the rapid conversion of fuel into heat and light through a chemical reaction. spalanie

combustion chamber [N-COUNT-U3] A **combustion chamber** is an enclosed space where fuel ignites and burns. komora spalania

composite [N-COUNT-U15] A **composite** is a material that consists of multiple other materials, each of which has drastically different properties. kompozyt

compound geartrain [N-COUNT-U8] A **compound geartrain** is a chain of multiple gears in which at least one shaft contains more than one gear. koło zębate wielowieńcowe

compress [V-T-U4] To **compress** something is to reduce its volume by pressing or squeezing it. spręzać

compression stroke [N-COUNT-U5] The **compression stroke** is a stage in the four-stroke cycle in which the piston moves to the top of the cylinder to compress the mixture of fuel and air. suw sprężania

concurrent engineering [N-UNCOUNT-U10] **Concurrent engineering** is a product development technique in which multiple stages of development occur simultaneously. projektowanie współbieżne

conduction [N-UNCOUNT-U2] **Conduction** is the process of transferring heat between substances that are in contact with each other. przewodnictwo, kondukcja

connecting rod [N-COUNT-U3] A **connecting rod** is a piece that connects a piston to a crankshaft, transferring motion as the piston moves up and down. korbówód

conserve [V-T-U1] To **conserve** something is to use little or none of it so that it will be available at a later time. oszczędzać

convection [N-UNCOUNT-U2] **Convection** is the transfer of heat by the circulation of molecular currents within a fluid such as air or water. konwekcja

convert [V-T-U1] To **convert** something is to change it into a different form or system. zmieniać, przekształcać

corrosion [N-UNCOUNT-U13] **Corrosion** is chemical damage to a metal object that causes it to disintegrate gradually over time. korozja, korodowanie

crankcase [N-COUNT-U3] A **crankcase** is a structural component below an engine's cylinders that houses the crankshaft. skrzynia korbowa

crankshaft [N-COUNT-U3] A **crankshaft** is the main shaft in an engine, and is moved by connecting rods. wał korbowy

crash test [N-COUNT-U14] A **crash test** is a destructive test that is used to determine the safety of a vehicle in a crash situation. test zderzeniowy

creep [N-UNCOUNT-U13] **Creep** is the tendency of objects to slowly bend, deform, or move under constant stress. odkształcanie

CSG [ABBREV-U9] **CSG** (constructive solid geometry) is a method of using primitive shapes to show volume within 3-D models. technika trójwymiarowego modelowania brył z wykorzystaniem prostych figur geometrycznych

cycle [N-COUNT-U4] A **cycle** is a process of performing a series of steps in a particular order repeatedly. cykl

cylinder [N-COUNT-U3] A **cylinder** is a round working part in an engine, inside which the piston moves. cylinder

cylinder head [N-COUNT-U5] A **cylinder head** is the part of a four-stroke engine that houses the valves and often contains vents for channeling excess heat away from the engine. głowica cylindra

deform [V-I-U13] To **deform** is to bend or change shape. deformować, zniekształcać

degree [N-COUNT-U6] A **degree** ($^{\circ}$) is a unit that measures angles, and is equal to 1/360 of a complete circle. stopień

design strategy [N-COUNT-U10] A **design strategy** is a plan that guides individuals or firms when designing products. strategia projektowania

dexterity [N-UNCOUNT-U11] **Dexterity** is the ability to manipulate something with hands or hand-like components. sprawność, zręczność (manualna)

Glossary

diesel [N-UNCOUNT-U3] **Diesel** is a dense liquid fossil fuel that becomes more viscous in cold temperatures. [olej napędowy](#)

direction [N-COUNT-U8] A **direction** is the angle or course along which something is facing, moving, or preparing to move. [kierunek](#)

drafting [N-UNCOUNT-U9] **Drafting** is the process of drawing designs and diagrams for industries like engineering, architecture, and manufacturing. [przygotowywanie wstępnej wersji/ szkicu](#)

DT (Destructive Testing) [ABBREV-U14] **DT (Destructive Testing)** is a category of materials analysis that assesses the properties of materials by increasing the intensity of the test until the material fails. [badania niszczące](#)

ductile failure [N-COUNT-U13] A **ductile failure**, also called a yield, is a material failure in which some measure of bending or deformation occurs before breakage. [zniszczenie ciągliwe](#)

elastic potential energy [N-UNCOUNT-U1] **Elastic potential energy** is the energy stored in an object as it is stretched or bent and is released as the object returns to its original shape. [energia sprężystości](#)

elasticity theory [N-UNCOUNT-U12] **Elasticity theory** is an approach to structural analysis that focuses on the way objects deform under loads. [teoria sprężystości](#)

element [N-COUNT-U12] An **element** is an important, basic part of something. [część, składnik](#)

enabling device [N-COUNT-U11] An **enabling device** is a manually activated mechanism that allows motion when engaged and immediately stops motion when disengaged. [urządzenie uaktywniające, urządzenie uruchamiające](#)

end-effector [N-COUNT-U11] An **end-effector** is a gripping tool or other device at the end of a manipulator. [chwytak](#)

energy efficiency [N-UNCOUNT-U1] **Energy efficiency** is the ratio between the amount of energy used and the useful output of that energy. [wydajność energetyczna](#)

energy quality [N-UNCOUNT-U1] **Energy quality** is the contrast between different forms of energy and their ability to perform useful work. [jakość energii](#)

engine block [N-COUNT-U3] An **engine block** is the main structural component of an engine, and contains its cylinders. [kadłub silnika](#)

exhaust [N-UNCOUNT-U4] **Exhaust** is the escaping gas or vapor that is emitted from fuel combustion. [spaliny](#)

exhaust stroke [N-COUNT-U5] The **exhaust stroke** is a stage in the four-stroke cycle in which the piston returns to the top of the cylinder and forces the mixture of fuel and air out through the open exhaust valve. [suw wydechu](#)

exhaust valve [N-COUNT-U5] An **exhaust valve** is an opening in an engine that releases exhaust from the cylinder after ignition. [zawór wylotowy](#)

exploded view [N-COUNT-U9] An **exploded view** is a diagram that shows the parts of something slightly separated from each other so that each component is displayed clearly. [widok zespołu rozebranego \(ukazuje wzajemne położenie części\)](#)

extensometer [N-COUNT-U14] An **extensometer** is a sensor in a materials testing machine that measures how much a sample stretches under tension. [ekstensometr](#)

failure analysis [N-UNCOUNT-U13] **Failure analysis** is the process of collecting information in order to determine the cause of a failure. [analiza uszkodzeń](#)

failure rate [N-COUNT-U13] A **failure rate** is a measure of how frequently a mechanical system or component will fail. [wskaźnik awaryjności](#)

failure theory [N-UNCOUNT-U13] **Failure theory** is the science of predicting the circumstances under which solid materials fail. [teoria uszkodzeń materiałów](#)

fatigue [N-UNCOUNT-U13] **Fatigue** is the progressive weakening or damage of a material under repeated forces. [zmęczenie materiału](#)

finite element method [N-COUNT-U12] The **finite element method** is an approach to structural analysis that focuses on numerical analysis and probabilities. [metoda elementów skróconych](#)

fire [V-T-U4] To **fire** something is to create a spark which ignites fuel in an engine. [zapalać](#)

flow line [N-COUNT-U11] A **flow line** is a sequence of machines that are arranged to perform a series of operations in a particular order. linia przepływowa

force deflection [N-UNCOUNT-U14] **Force deflection** is a measure of the temporary deformation of a structural component when a load is applied. siła ugięcia

four-stroke engine [N-COUNT-U5] A **four-stroke engine** is a type of internal combustion engine that uses four piston strokes to complete a power cycle, and is commonly used in automobiles and aircraft. silnik czterosuwowy

fracture [N-COUNT-U13] A **fracture**, also called a brittle failure, is a material failure in which no bending or other deformation occurs before breakage. złamanie

frictional loss [N-UNCOUNT-U7] **Frictional loss** is the amount of power that is lost while overcoming the friction between two surfaces. straty energii spowodowane tarciem

FSW (friction stir welding) [ABBREV-U15] **FSW (friction stir welding)** is a metal-joining technique that fuses the two metals with pressure instead of melting them. zgrzewanie tarciowe z przemieszaniem

fuel [N-UNCOUNT-U4] **Fuel** is any material that is used to produce energy, usually by burning it. paliwo

fuel injection pump [N-COUNT-U3] A **fuel injection pump** is a device that feeds fuel into the combustion chamber of a diesel engine. pompa wtryskowa

fuel-to-oil ratio [N-COUNT-U4] A **fuel-to-oil ratio** is the relationship between the amounts of oil and fuel that are used in an engine. proporcja benzyny do oleju w silniku dwusuwowym

gasoline [N-UNCOUNT-U3] **Gasoline** is a liquid fossil fuel that is highly volatile and does not become more viscous in cold temperatures. benzyna

gearset [N-COUNT-U7] A **gearset** is a pair of gears that fit together. zespół kół zębatych

glow plug [N-COUNT-U3] A **glow plug** is a device that aids combustion in diesel engines by heating cylinders. świeca żarowa

gravitational potential energy [N-UNCOUNT-U1] **Gravitational potential energy** is the energy stored in an object relative to its elevation and is released as the object falls to Earth. energia potencjalna

grind [V-I-U7] To **grind** is to rub against something else roughly. trzeć

hardness test [N-COUNT-U14] A **hardness test** is a destructive test that is used to determine a material's resistance to permanent deformities, such as scratches and indentations. próba twardości (materiału)

head [N-COUNT-U3] A **head** is a structural component at the top of an engine that covers the tops of the cylinders, holds the spark plugs, and often contains valves. głowica

head gasket [N-COUNT-U5] A **head gasket** is a ring that seals an engine's cylinder head to maintain the proper interior pressure and prevent substances from leaking in or out. uszczelka głowicy

heat [N-UNCOUNT-U2] **Heat** is a form of energy that produces high temperatures and occurs during the release of kinetic energy. ciepło

hydraulic [ADJ-U11] If something is **hydraulic**, it creates power through the movement of a fluid, such as water. hydraulicny

idler gear [N-COUNT-U8] An **idler gear** is a gear in a geartrain that does not change the speed or torque of the geartrain as a whole. koło zębate pośrednie

IGES [ABBREV-U9] The **IGES** (Initial Graphics Exchange Standard) is an intermediate data exchange design system that represents 3-D analytical geometry, and uses particular formats for annotations and graphics-related data. wstępna specyfikacja wymiany danych graficznych

ignite [V-T-U5] To ignite something is to cause something to burn. powodować zapłon

inlet [N-UNCOUNT-U4] An **inlet** is a valve where air, fuel, and oil enter a combustion chamber. wlot, otwór wlotowy

input torque [N-UNCOUNT-U7] **Input torque** is the amount of torque that a gear receives from an outside source, such as a motor. moment wejściowy

Glossary

intake stroke [N-COUNT-U5] The **intake stroke** is a stage in the four-stroke cycle in which the piston moves to the bottom of the cylinder, drawing fuel and air into the combustion chamber. [suw ssania](#)

intake valve [N-COUNT-U5] An **intake valve** is an opening that allows air and fuel to enter an engine's cylinder. [zawór wlotowy](#)

joint [N-COUNT-U11] A **joint** is a place where two things are joined together in a way that allows movement. [przegub, złącze](#)

kinetic energy [N-UNCOUNT-U1] **Kinetic energy** is energy that is active or moving. [energia kinetyczna](#)

lab-on-a-chip [N-COUNT-U15] A **lab-on-a-chip** is an integrated circuit that is designed to perform one or more laboratory fluid-handling functions. [laboratorium chipowe](#)

laws of thermodynamics [N-PHRASE-U2] The **laws of thermodynamics** are four rules explaining the natural behavior of heat energy. [zasady termodynamiki](#)

lifecycle assessment [N-COUNT-U10] A **lifecycle assessment** is a way of evaluating the total environmental impact of a product or service. [ocena wpływu produktu lub usługi na środowisko naturalne](#)

macroscopic failure [N-UNCOUNT-U13] **Macroscopic failure** is a failure that is caused by a change in a material's ability to support weight or store energy. [usterka makroskopowa](#)

manifold model [N-COUNT-U9] A **manifold model** is a 3-D solid model that maintains the dimensions of an object by including only bordered surfaces. [model 3D, który zachowuje wymiary obiektu, uwzględniając wyłącznie powierzchnie graniczne](#)

manipulator [N-COUNT-U11] A **manipulator** is a part of a robot that acts as an arm and controls the movement of something. [manipulator robotyczny](#)

manufacturing process management [N-UNCOUNT-U10] **Manufacturing process management** is an area of product lifecycle management that focuses on determining how products will be made. [zarządzanie procesem produkcji](#)

material intensiveness [N-UNCOUNT-U10] **Material intensiveness** is a measure of the toxicity and amount of a material required to make a product. [intensywność materiału \(miara określająca ilość danego materiału, niezbędną do wytworzenia określonego produktu oraz substancji toksycznych, które powstaną w trakcie jego produkcji\)](#)

material life extension [N-UNCOUNT-U10] **Material life extension** is the act of ensuring that a product's materials are still useful after the product is worn out. [przedłużenie życia materiału \(zapewnienie, że materiał, z którego został wykonany produkt będą nadal użyteczne po jego zużyciu\)](#)

material selection [N-UNCOUNT-U10] **Material selection** is the stage of product development in which a designer decides what materials to make a product with. [dobór materiału](#)

materials testing machine [N-COUNT-U14] A **materials testing machine** is a device for testing the force deflection and stress-strain relationship of a particular material. [urządzenie do badania wytrzymałości materiałów](#)

mechanical energy [N-UNCOUNT-U1] **Mechanical energy** is the combination of kinetic and potential energy in a machine. [energia mechaniczna](#)

mechanics of materials [N-UNCOUNT-U12] **Mechanics of materials** is an approach to structural analysis that focuses on the way the materials behave under stress. [wytrzymałość materiałów \(dziedzina wiedzy inżynierskiej\)](#)

mechanosynthesis [N-UNCOUNT-U15] **Mechanosynthesis** is a type of chemical synthesis in which the outcome is controlled by mechanical intervention. [mechanosynteza](#)

mechatronics [N-UNCOUNT-U15] **Mechatronics** is an engineering field that combines principles from mechanical, electrical, computer, and software engineering to develop useful new products and technologies. [mechatronika](#)

MEMS [ABBREV-U15] A **MEMS** (microelectromechanical system) is a very small mechanical component that is used in electronic devices. [mikroukład elektromechaniczny](#)

mesh point [N-COUNT-U8] A **mesh point** is the point at which two gears come together. [punkt zazębienia](#)

metallographic test [N-COUNT-U14] A **metallographic test** is a non-destructive test that is used to examine the properties of metal by studying samples under a microscope. [badania metalograficzne](#)

metallurgical failure analysis [N-UNCOUNT-U13] **Metallurgical failure analysis** is the study of a mechanical system to determine the cause of failure of a metal part. analiza uszkodzeń mechanicznych metalu

microscopic failure [N-UNCOUNT-U13] **Microscopic failure** is a failure that is caused by the presence of visible or microscopic cracks in a material. mikropęknięcie (defekt materiału spowodowany uszkodzeniami widocznymi gołym okiem lub przy pomocy mikroskopu)

mix [V-T-U4] To **mix** two or more things is to combine them. łączyć, mieszać

model [N-COUNT-U9] A **model** is a small or non-functional version of something that has the same features and scaling as the regular version. model (czegoś)

nanotechnology [N-UNCOUNT-U15] **Nanotechnology** is a branch of mechanical engineering that involves microscopic devices. nanotechnologia

NDT (Non-Destructive Testing) [ABBREV-U14] **NDT (Non-Destructive Testing)** is a category of materials analysis that assesses the properties of materials without damaging them. próba nieniszcząca

NFF (No Fault Found) [ABBREV-U14] **NFF (No Fault Found)** is a situation in failure analysis in which the cause of failure cannot be determined. nie znaleziono przyczyny usterki (sytuacja, w której analiza usterki nie doprowadziła do ustalenia jej przyczyny)

nonbuilding structure [N-COUNT-U12] A **nonbuilding structure** is a load-bearing structure that is not intended for human occupancy. konstrukcja nośna, która nie jest częścią budynku mieszkalnego

non-manifold model [N-COUNT-U9] A **non-manifold model** provides detailed surfaces and edges within a solid model, in addition to the bordered surfaces. model z szczegółowym zarysem powierzchni i kątów wraz z granicami powierzchni

output torque [N-UNCOUNT-U7] **Output torque** is the amount of torque that a gear receives from the machine's load. wyjściowy moment obrotowy

packaging [N-UNCOUNT-U10] **Packaging** is the act of putting products in wrappers or containers, or the wrappers or containers themselves. opakowanie, pakowanie

payload [N-COUNT-U11] A **payload** is the size or weight of something that a robot is capable of manipulating. ładunek

PDES [ABBREV-U9] **PDES** (Product Description Exchange for STEP) is a data exchange format that contains geometry, functions, and process plans for a product. wymiana danych o produkcji za pomocą systemu STEP

pendant [N-COUNT-U11] A **pendant** is a mobile input device that is connected to a robot's control system, and may be used to control the robot from some distance away. kasa sterownicza

photorealistic rendering [N-COUNT-U9] A **photorealistic rendering** is a still or moving image that shows very realistic representations of objects and processes. renderowanie realistyczne

piston [N-COUNT-U3] A **piston** is a cylindrical plug that moves up and down in a cylinder during engine operation. tłok

piston ring [N-COUNT-U3] A **piston ring** is a metal ring that fills the space between a piston and a cylinder wall, so that fuel cannot pass through the gap. pierścień tłokowy

pitch [N-COUNT-U7] A **pitch** is the distance between a point on one tooth of a gear and the same point on the next tooth. tu: odstęp między zębami w kole zębatym

pitch circle [N-COUNT-U7] A **pitch circle** is an imaginary circle that passes through a gear's mesh points. koło podziałowe

pitch radius [N-COUNT-U7] A **pitch radius** is the distance from the center of a gear to the edge of its pitch circle. promień skoku koła zębatego

pivot point [N-COUNT-U6] A **pivot point** is a point on a mechanism around which something turns. punkt obrotu

planet gear [N-COUNT-U8] A **planet gear** is a gear that travels around the sun gear in a planetary geartrain. koło zębate przekładni planetarnej (obiegowej)

planetary geartrain [N-COUNT-U8] A **planetary geartrain** is a system of connected gears in which one or more gears travel around a central stationary gear, similar to the motion of planets around a star. przekładnia planetarna; przeklania obiegowa

Glossary

planned obsolescence [N-UNCOUNT-U10] **Planned obsolescence** is the process of producing products that require frequent replacement. [planowane postarzanie produktu](#)

plate [N-COUNT-U12] A **plate** is a flat element that is used in construction. [phyta](#)

pneumatic [ADJ-U11] If machinery is **pneumatic**, it uses pressurized gas to control mechanical motion. [pneumatyczny](#)

power [N-UNCOUNT-U1] **Power** is a quantity indicating the rate at which energy is consumed or transferred. [moc](#)

power stroke [N-COUNT-U5] The **power stroke** is a stage in the four-stroke cycle in which heat ignites the compressed fuel and air, forcing the piston downward. [suw rozprężania](#)

pressure [N-UNCOUNT-U5] **Pressure** is force that is produced when something pushes or squeezes something else. [ciśnienie](#)

product data management [N-UNCOUNT-U10] **Product data management** is an area of product lifecycle management that focuses on maintaining and organizing product information throughout the development process and into the product's useful life. [zarządzanie danymi produktu](#)

product lifecycle extension [N-UNCOUNT-U10] **Product lifecycle extension** is the act of making a product last longer so it does not have to be replaced. [wydłużenie cyklu czasu życia produktu](#)

product management [N-UNCOUNT-U10] **Product management** is an area of product lifecycle management that focuses on planning, marketing, and predicting market success of a product. [zarządzanie produktem](#)

prosthetic [N-COUNT-U15] A **prosthetic** is an artificial body part that is designed to take the place of a missing body part, such as an arm or a leg. [protetyczny](#)

radian [N-COUNT-U6] A **radian** is a unit that measures angles, and represents the angle formed by an arc length that equals the circle's radius. [radian](#)

radiation [N-UNCOUNT-U2] **Radiation** is energy emission in the form of a wave of particles. [promieniowanie](#)

radius [N-COUNT-U6] A **radius** is the distance between the center of a circle or sphere and its outer edge. [promień](#)

revolution [N-COUNT-U4] A **revolution** is a complete 360° rotation that returns something to its starting position or orientation. [tu: obrót \(np. wału korbowego\)](#)

revolution [N-COUNT-U6] A **revolution** is a full rotation of something, so that a point along the edge completes a circle and returns to its starting location. [pełny obrót](#)

rigidity [N-UNCOUNT-U15] **Rigidity** is a material's stiffness or resistance to deformation. [sztywność, twardość](#)

ring gear [N-COUNT-U8] A **ring gear** is a fixed internal gear that encircles a planetary geartrain. [żebatka pierścieniowa](#)

rivet [N-COUNT-U15] A **rivet** is a permanent metal fastening device that works by deforming and expanding during installation, preventing removal. [nit](#)

robotics [N-UNCOUNT-U11] **Robotics** is the science of designing and manufacturing robots. [robotyka](#)

rotational motion [N-UNCOUNT-U6] **Rotational motion** is the movement of an object in a circle around its center. [ruch obrotowy](#)

RPM [ABBREV-U6] **RPM** (revolutions per minute) are the number of complete rotations around an axis that something can complete in one minute. [obroty na minutę](#)

RPS [ABBREV-U6] **RPS** (revolutions per second) are the number of complete rotations around an axis that something can complete in one second. [obroty na sekundę](#)

serial [ADJ-U8] If something is **serial**, it is part of a series or collection. [seryjny](#)

serial robot [N-COUNT-U11] A **serial robot** is a robot that consists of a linear series of parts connected by joints. [manipulator szeregowy \(rodzaj robota\)](#)

shell [N-COUNT-U12] A **shell** is a strong, curved element that is used in construction. [tu: obudowa](#)

shift fork [N-COUNT-U7] A **shift fork** is a mechanism that slides a gear along a splined shaft. [widełki przesuwne](#)

simple geartrain [N-COUNT-U8] A **simple geartrain** is a chain of three or more gears in which each shaft bears only one gear. [prosta przekładnia żebata](#)

slip [V-I-U7] To **slip** is to move accidentally from a location. *zsuwać się*

spark plug [N-COUNT-U3] A **spark plug** is a device that creates an electrical spark to ignite fuel. *świeca zapłonowa*

specific heat [N-UNCOUNT-U2] **Specific heat** is the amount of heat required to raise the temperature of a particular material. *ciepło właściwe*

speed [N-UNCOUNT-U7] **Speed** is the rate at which something moves. *sztybkość, prędkość*

spider [N-COUNT-U8] A **spider** is a carrier that is specially designed to accommodate multiple planet gears. *ramię w przekładni obiegowej (planetarnej); również: carrier, arm*

stress test [N-COUNT-U14] A **stress test** is a destructive test that determines a material's strength under different types of stress. *próba obciążeniowa*

stress-strain curve [N-COUNT-U14] A **stress-strain curve** is the relationship between the amount of force applied to a material and its corresponding deformation. *krzywa naprężenia*

structural analysis [N-UNCOUNT-U12] **Structural analysis** is the study and assessment of structures and their ability to bear loads. *analiza strukturalna*

structural load [N-COUNT-U12] A **structural load** is the amount of weight or pressure that a structure supports. *obciążenie*

sump [N-COUNT-U3] A **sump** is a reservoir that collects oil at the bottom of an engine. *misa olejowa*

sun gear [N-COUNT-U8] A **sun gear** is a stationary central gear in a planetary geartrain that transfers rotation to the rest of the machine. *koło centralne, koło główne w przekładni obiegowej*

support [V-T-U12] To **support** something is to bear its weight or prevent it from collapsing. *podpierać*

systems engineering [N-UNCOUNT-U10] **Systems engineering** is an area of product lifecycle management that focuses on meeting consumer needs and requirements and coordinating relevant disciplines in a project. *projektowanie systemowe*

technical drawing [N-COUNT-U9] A **technical drawing** is a precise, realistic drawing of something. *rysunek techniczny*

thermal conductivity [N-UNCOUNT-U2] **Thermal conductivity** is the relative ability of a material to transfer heat. *przewodność cieplna*

thermal energy [N-UNCOUNT-U1] **Thermal energy** is energy that is released by the movement or vibration of a material's atoms or molecules. *energia termiczna*

thermal shock [N-UNCOUNT-U13] **Thermal shock** is a common cause of material failure that occurs when an object is subjected to sudden changes in temperature. *szok termiczny*

thermodynamics [N-UNCOUNT-U2] **Thermodynamics** is the science of heat energy and its application for performing work. *termodynamika*

top-down design [N-UNCOUNT-U10] **Top-down design** is a product development technique that focuses on the ideal function of a product rather than the use of existing technology. *projektowanie oddolne*

torque [N-UNCOUNT-U7] **Torque** is the force that causes an object to turn around a point. *moment obrotowy*

torque ratio [N-COUNT-U7] A **torque ratio** is the relationship between a gearset's output torque and its input torque. *stosunek między wyjściowym momentem obrotowym a momentem wejściowym*

two-stroke engine [N-COUNT-U4] A **two-stroke engine** is an internal combustion engine that only requires one revolution of the crankshaft to complete a power cycle. *silnik dwusuwowy*

two-stroke oil [N-UNCOUNT-U4] **Two-stroke oil** is an oil added to the fuel of a two-stroke engine to provide extra lubrication. *olej do silników dwusuwowych*

valve [N-COUNT-U3] A **valve** is a device that controls the flow of fluid by opening and closing. *zawór*

velocity ratio [N-COUNT-U7] A **velocity ratio** is the relationship between a gearset's output speed and its input speed. *stosunek prędkości wejściowej do prędkości wyjściowej w przekładni obiegowej*

weld verification [N-UNCOUNT-U14] **Weld verification** is an NDT technique that is used to confirm the strength and integrity of a weld. *badanie spoin (np. spawów)*

work [N-UNCOUNT-U1] **Work** is a quantity that indicates the transfer of energy, measured by multiplying force by the distance the energy travels. *praca*

Glossary

work [N-UNCOUNT-U1] **Work** is a quantity that indicates the transfer of energy, measured by multiplying force by the distance the energy travels. **praca**

work envelope [N-COUNT-U11] A **work envelope** is the area that can be reached by a robot's end-effector. **obszar zasięgu robota** ?

yield [N-COUNT-U13] A **yield**, also called a ductile failure, is a material failure in which some measure of bending or deformation occurs before breakage. **uszkodzenie materiału** ?