

Section 4: Metal Products, Machinery and Transport Equipment

Activities		Conditions	Incentives	Investment Promotion Division
4.1	Manufacture of metal products including metal parts			
4.1.1	Products from metal or alloy powder	Project must have sintering process.	A 3	3
4.1.2	Metal products or metal parts	Project must have metal forming process continuing from iron/steel casting process (using induction furnace) or iron/steel forging process, e.g. machining and stamping within the same project.	A 3	3
4.1.3	Other metal products including other metal parts	1. Continuous forming process from pressing, pulling casting or forging of non-ferrous metal within the same project.	A 4	3
		2. Forming process, e.g. machining and stamping.	B 1	3
4.2	Surface treatment or anodized surface treatment (except coating or coloring treatment for decoration purpose)			
4.2.1	Plating, Coating, modifying or changing the surface using Advanced Technologies		A 4	3
4.2.2	Plating, Coating, modifying or changing the surface using Basic Technologies		B 1	3
4.3	Heat Treatment	Cyanide is prohibited in the process of heat treatment.	A 4	3
4.4	Manufacture of multi-purpose engines and equipment	1. Project must have forming process of main engine parts, e.g. cylinder head, crank case, crankshaft, camshaft, connecting rod, piston and flywheel.	A 4	2
		2. Assembling of multipurpose engine or equipment.	B 1	2
4.5	Manufacture of machinery, equipment and parts			
4.5.1	Automation machinery and/or automation equipment with engineering design			

Activities		Conditions	Incentives	Investment Promotion Division
4.5.1.1	Automation machinery and/or automation equipment with engineering design, including automation system integration and control system configuration	Projects must have part forming process and/or with engineering design. Projects must have assembling process as approved by the Board.	A 1	2
4.5.1.2	Automation machinery and/or automation equipment with engineering design, including control system configuration		A 2	2
4.5.2	Machinery, equipment and parts and/or repair of mould and die		A 3	2
4.5.3	Assembling of machinery and machinery equipment		A 4	2
4.5.4	Assembling of Robots or Automation Equipment and/or Automation Parts		A 3	2
4.6	Manufacture of general automobile ^{1,2}	Not eligible for merit-based incentives.	B 1	2
4.7	Manufacture of automobile engines	1. Must have forming process of not less than 4 out of 5 parts as follows: Cylinder Head, Cylinder Block, Crankshaft, Camshaft and Connecting Rod. 2. Must have engine assembly process		
4.7.1	Manufacture of automobile engines		A 3	2
			A 4	2
4.7.2	Manufacture of motorcycle engines	1. Must have forming process as follows: Cylinder Head, Cylinder Block, Crankcase, Crankshaft, Camshaft, Camshaft and Connecting Rod.	A 3	2

1. This category is not eligible for a promotion under the measure to promote improvement in production efficiency by upgrading and replacing machinery for manufacturing according to Measures to Promote Improvement of Production Efficiency (Announcement of the Board of Investment No. 9/2560).

2. This category is not eligible for a promotion for additional rights and benefits to promote a utilization of modern machinery and robotics system for manufacturing (Announcement of the Board of Investment No. 10/2560)

Activities	Conditions	Incentives	Investment Promotion Division
	1.1 Must have forming process of not less than 4 out of 6 parts for manufacturing engine that have a cylinder capacity starting from 248 cc. but not exceeding 500 cc. 1.2 Must have forming process of not less than 2 out of 6 parts for manufacturing of engine that have a cylinder capacity of 500 cc. or more. 2. Must have engine assembly process.	(Yellow background for 1.1 and 1.2) A 4 (Green background for 2)	(Teal background for 1.1 and 1.2) 2 (Teal background for 2)
4.8 Manufacture of vehicle parts 4.8.1 Manufacture of vehicle parts using high technology including: 4.8.1.1 Substrate for Catalytic Converter 4.8.1.2 Electronic Fuel Injection System 4.8.1.3 Automotive Transmission 4.8.1.4 Electronic Control Unit (ECU) 4.8.2 Manufacture of automobile safety and energy-saving parts 4.8.2.1 Anti-Lock Brake System (ABS) or Electronic Brake Force Distribution (EBD) 4.8.2.2 Electronic Stability Control (ESC) 4.8.2.3 Regenerative Braking System 4.8.2.4 Idling Stop System 4.8.2.5 Autonomous Emergency Braking System 4.8.3 Manufacture of parts for Hybrid, Battery Electric Vehicle (BEV) and Plug-in Hybrid Electric Vehicles (PHEV)		(Orange background for 4.8.1.1-4.8.1.4, 4.8.2.1-4.8.2.5) A 2 (Teal background for 4.8.1.1-4.8.1.4, 4.8.2.1-4.8.2.5)	(Teal background for 4.8.1.1-4.8.1.4, 4.8.2.1-4.8.2.5)

Activities		Conditions	Incentives	Investment Promotion Division
4.8.3.1	Battery		A 2	2
4.8.3.2	Traction Motor		A 2	2
4.8.3.3	Air-condition system		A 2	2
4.8.3.4	Battery Management Systems (BMS)		A 2	2
4.8.3.5	Drive Control Units (DCU)		A 2	2
4.8.3.6	On-Board Charger		A 2	2
4.8.3.7	EV Connector with plug and socket		A 2	2
4.8.3.8	DC/DC Converter		A 2	2
4.8.3.9	Inverter		A 2	2
4.8.3.10	Portable Electric Vehicle Charger		A 2	2
4.8.3.11	Electrical Circuit Breaker		A 2	2
4.8.3.12	EV Smart Charging System Development		A 2	2
4.8.3.13	Front/rear axle for battery electric bus		A 2	2
4.8.4	Manufacture of rubber tire for vehicle		A 2	2
4.8.5	Manufacture of Fuel System Parts including			
4.8.5.1	Fuel Pump	Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.5.2	Injection Pump	Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.5.3	Injector	Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.5.4	Fuel Pipe/Tube		A 4	2
4.8.6	Manufacture of Transmission System Parts including			
4.8.6.1	Sun Gear		A 3	2

Activities	Conditions	Incentives	Investment Promotion Division	
4.8.6.2 Ring Gear	Projects must have part forming process and assembling process as approved by the Board.	A 3	2	
4.8.6.3 Shift Gear		A 3	2	
4.8.6.4 Transfer Case		A 3	2	
4.8.6.5 Torque Converter		Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.6.6 Carrier		Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.6.7 Propeller Shaft		Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.6.8 Drive Shaft		Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.6.9 Universal Joint		Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.6.10 Differential		Projects must have part forming process and assembling process as approved by the Board.	A 3	2
4.8.6.11 Transmission Case			A 3	2
4.8.7 Manufacture of Engine System Parts including				
4.8.7.1 Turbocharger	Projects must have part forming process and assembling process as approved by the Board.	A 3	2	
4.8.7.2 Turbocharger Parts including Turbine Blade, Turbine Housing and Bearing Housing		A 4	2	
4.8.7.3 Cylinder Head		A 4	2	
4.8.7.4 Cylinder Block		A 4	2	
4.8.7.5 Crankshaft		A 4	2	
4.8.7.6 Camshaft		A 4	2	
4.8.7.7 Connecting Rod		A 4	2	

Activities		Conditions	Incentives	Investment Promotion Division	
4.8.7.8	Valve	Projects must have part forming process and assembling process as approved by the Board.	A 4	2	
4.8.7.9	Piston		A 4	2	
4.8.7.10	Gear		A 4	2	
4.8.7.11	Starting Motor or Parts		A 4	2	
4.8.7.12	Alternator or Parts		Projects must have part forming process and assembling process as approved by the Board.	A 4	2
4.8.7.13	Rocker Arm		Projects must have part forming process and assembling process as approved by the Board.	A 4	2
4.8.7.14	Waste Gate Actuator		Projects must have part forming process and assembling process as approved by the Board.	A 4	2
4.8.8	Manufacture of Safety Parts including				
4.8.8.1	Air Bag/Safety Belt		A 4	2	
4.8.8.2	Airbag Inflator, Gas Generator, Gas Generant		A 3	2	
4.8.8.3	Parts for Air Bag, e.g. Initiator and Coolant Filter		A 4	2	
4.8.8.4	Parts for Safety Belt, e.g. Interlock and Retractor		A 4	2	
4.8.9	Manufacture of Brake System Parts including		Projects must have part forming process and assembling process as approved by the Board.		
4.8.9.1	Brake Booster		A 4	2	
4.8.9.2	Brake Caliper		A 4	2	
4.8.9.3	Brake Master Cylinder		A 4	2	
4.8.9.4	Brake Wheel Cylinder		A 4	2	
4.8.9.5	Wheel Hub		A 4	2	
4.8.9.6	Brake Pipe/ Tube		A 4	2	
4.8.9.7	Brake Set		A 4	2	
4.8.9.8	Brake Drum		A 4	2	

General List of Activities Eligible for Investment Promotion

Activities		Conditions	Incentives	Investment Promotion Division
4.8.10	Manufacture of Suspension System Parts including	Projects must have part forming process and assembling process as approved by the Board.		
4.8.10.1	Shock Absorber		A 4	2
4.8.10.2	Ball Joint		A 4	2
4.8.10.3	Leaf / Coil Spring		A 4	2
4.8.11	Manufacture of Steering System Parts including	Projects must have part forming process and assembling process as approved by the Board.		
4.8.11.1	Power Steering Pump / Motor		A 4	2
4.8.11.2	Rack and Pinion Steering		A 4	2
4.8.12	Manufacture of Cooling System Parts including	Projects must have part forming process and assembling process as approved by the Board.		
4.8.12.1	Water Pump		A 4	2
4.8.13	Manufacture of Exhaust System Parts including	Projects must have part forming process and assembling process as approved by the Board.		
4.8.13.1	Catalytic Converter		A 4	2
4.8.13.2	Exhaust Catalyst		A 4	2
4.8.13.3	Exhaust Manifold		A 4	2
4.8.14	Manufacture of Air Conditioning System Parts including	Projects must have part forming process and assembling process as approved by the Board.		
4.8.14.1	Air Compressor		A 4	2
4.8.15	Manufacture of Body Parts Using Ultimate Tensile Strength Steel	Projects must use Ultimate Tensile Strength (UTS) Steel higher than 700 MPa.	A 4	2
4.8.16	Manufacture of Ball Bearing for Vehicles		A 4	2
4.8.17	Manufacture of other vehicle parts		B 1	2
4.9	Building or repair of ships	Projects must obtain ISO 14000 within 2 years from starting date of operation.		
4.9.1	Building or repair of ships not less than 500 tons gross		A 2	2
4.9.2	Building or repair of ships less than 500 tons gross (only steel or fiber glass ships with installed engine and equipment)		A 2	2

Activities	Conditions	Incentives	Investment Promotion Division
<p>4.10 Manufacture and/or repair of rolling stocks, parts or equipment for rail system</p> <p>4.10.1 Manufacture of trains and/or rolling stocks, e.g. passenger cars and cargo cars, etc.</p> <p>4.10.1.1 Manufacture of trains and/or rolling stocks, e.g. passenger cars and cargo cars, that requires engineering design.</p> <p>4.10.1.2 Manufacture of trains and/or rolling stocks, e.g. passenger cars and cargo cars.</p> <p>4.10.2 Repair of trains or parts, or rail system equipment.</p> <p>4.10.3 Manufacture of rail system parts or equipment, i.e.</p> <ul style="list-style-type: none"> - Main structure - Rolling stocks - Cab and equipment - Bogie - Break system and/or major parts - Couplers - Air condition and ventilation system and/or major parts - Air compressor and distributor and/or major parts - Door system and/or major parts - Lighting system and/or major parts - Communication and observation systems and/or major parts - Controlling and signaling systems and/or major parts - Electric power and distribution system - Track and parts 	<p>1. Project must have engineering design process.</p> <p>2. Project must conform to international standard or related government agencies' specifications.</p> <p>Project must conform to international standard or related government agencies' specifications.</p> <p>Project must have overhaul or repair activities using high level of technology.</p>	<p>A 1</p> <p>A 2</p> <p>A 3</p> <p>A 2</p>	<p>2</p> <p>2</p> <p>2</p> <p>2</p>
<p>4.11 Manufacture or repair of Aircraft, or Aerospace Devices and Equipment</p> <p>4.11.1 Manufacture of Aircraft or Aircraft Parts such as airframe, critical parts, appliance equipment or other components</p>		<p>A 1</p>	<p>2</p>

Activities	Conditions	Incentives	Investment Promotion Division
4.11.2 Manufacture of Onboard devices or equipment (except disposable and reusable aircraft utilities and supplies) such as seats, life vests, trolley, galley, etc.	Must be approved by related agencies such as Geo-Informatics and the Space Technology Development Agency (Public Organization).	A 3	2
4.11.3 Repair of Aircraft or Aircraft parts.		A 2	2
4.11.4 Repair of Onboard Devices or Equipment (except disposable and reusable aircraft utilities and supplies)		A 4	2
4.11.5 Manufacture of Aerospace Devices and Equipment such as devices or equipment related to rockets/spacecraft/ space vehicles/propulsion units and auxiliary equipment, etc.		A 1	2
4.11.6 Aerospace Operating Systems such as search, detection, navigation, guidance, aeronautical, nautical systems and instruments, etc.		A 1	2
4.12 Manufacture of motorcycles (except less than 248 cc engine displacement) ^{1,2}	<p>1. Project must have forming process of engine parts, as follows: Cylinder Head, Cylinder Block, Crankshaft, Crankcase, Camshaft and Connecting Rod</p> <p>1.1 For manufacturing motorcycles with more than 248 cc engine displacement but less than 500 cc, project must have forming of not less than 4 out of 6 parts.</p> <p>1.2 For manufacturing of motorcycles with more than 500 cc engine displacement, project must have forming of 2 out of 6 parts.</p>	A 3 (must follow conditions 1-3)	2

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2. This category is not eligible for a promotion for additional rights and benefits to promote a utilization of modern machinery and robotics system for manufacturing (Announcement of the Board of Investment No. 10/2560)

Activities	Conditions	Incentives	Investment Promotion Division
	2. Project must have structural welding process and spray painting process. 3. Investment plan for manufacturing and utilization of parts must be submitted and approved by the Board.	B 1 (must follow conditions 2-3)	2
4.13 Manufacture of Fuel Cells		A 2	2
4.14 Fabrication industry or platform repair for petroleum industry 4.14.1 Fabrication industry or platform repair with engineering design 4.14.2 Fabrication industry or platform repair for petroleum industry		A 3 A 4	3 3
4.15 Manufacture of science equipment 4.15.1 Scientific equipment using high technology 4.15.2 Other scientific equipment	Scientific equipment must be able to measure parameter value, process data and self-report the result or automatically measure and control the parameter.	A 2 A 3	2 2
4.20 Manufacture and/or repair of vehicles and weapon systems for national defence 4.20.1 Tanks, armoured cars or combat vehicles 4.20.2 Combat-facilitating vehicles 4.20.3 Specific parts used in the manufacture and/or repair in Activity 4.20.1 and 4.20.2	1. Must be manufactured and/or repair according to the requirements of a stability agency 2. Must meet the industrial or military standards specified by the Ministry of Defence 3. In case of repair, it must be major repair and/or repair using advanced technology	A 2 A 2 A 2	
4.21 Manufacture and/or repair of unmanned systems for national defence and parts used in the manufacture and/or repair 4.21.1 Unmanned ground systems (UGS) such as unmanned ground vehicles (UGV), robots for military operations and small robots, etc. 4.21.2 Unmanned maritime systems (UMS) such as unmanned surface vehicles (USV) and unmanned underwater vehicles (UUV), etc.	1. Must be manufactured and/or repair according to the requirements of a stability agency 2. Must meet the industrial or military standards specified by the Ministry of Defence 3. In case of repair, it must be major repair and/or repair using advanced technology	A 1 A 1	

Remarks: Activities 4.16 - 4.19 have expired.

Activities	Conditions	Incentives	Investment Promotion Division
<p>4.21.3 Unmanned aircraft systems (UAS) such as fixed wing unmanned vehicles, rotor unmanned vehicles and fixed wing/rotor vehicles, etc.</p> <p>4.21.4 Specific parts used in the manufacture and/or repair in Activity 4.21.1 - 4.21.3 such as main structures, mechanical arms, handles, communication systems, camera systems, computer systems, electrical systems, batteries, etc.</p>		<p>A 1</p> <p>A 1</p>	
<p>4.22 Manufacture and/or repair of weapons and exercise-facilitating equipment for national defence and parts</p> <p>4.22.1 Manufacture and/or repair of weapons</p> <p>4.22.1.1 Firearms</p> <p>4.22.1.2 Ammunition</p> <p>4.22.1.3 Rocket systems including control systems, firing vehicles or rocket leading items</p> <p>4.22.2 Simulation and virtual training systems such as virtual training facilitating systems for combat vehicles, personal weapon and unit weapon training field systems, Joint Theater Level Simulation systems (JTLS), etc.</p> <p>4.22.3 Specific parts used in the manufacture and/or repair in Activities 2.22.1 and 2.22.2</p>	<ol style="list-style-type: none"> Must be manufactured and/or repair according to the requirements of a stability agency Must meet the industrial or military standards specified by the Ministry of Defence In case of repair, it must be major repair and/or repair using advanced technology Activity 4.22.1 must be in accordance with the Private Weapon Manufacturing Factory Act B.E. 2550 (A.D. 2007) and have Thai shareholders of no less than 51 percent of the registered capital. Activity 4.22.2 must have its own system design or software development 	<p>A 2</p> <p>A 2</p> <p>A 2</p> <p>A 1</p> <p>A 2</p>	
<p>4.23 Manufacture and/or repair of combat facilitating equipment such as bullet-proof and flak-proof vests, armours or bullet-proof and flak-proof shields</p>	<ol style="list-style-type: none"> Must be manufactured and/or repair according to the requirements of a stability agency Must meet the industrial or military standards specified by the Ministry of Defence In case of repair, it must be major repair and/or repair using advanced technology 	<p>A 2</p>	