Fatal and non-fatal accidents in heavy electrical equipment in Japan in 1999-2021

heavy electrical equipment industry Code No.011401

Type of accidents in heavy electrical equipment in 1999-2021

Type of accidents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Type of accidents
fall from height	7	13	12	9	14	11	7	14	12	15	9	8	12	17	12	7	4	9	13	13	11	20	10	259	fall from height
falling to same level	15	23	14	11	11	15	20	18	11	12	12	11	15	15	11	17	18	16	12	15	11	17	17	337	falling to same level
crash	2	6	4	1	5		9	3	3	1	6	6	5	8	2	8	2	4	2	4	1	2	2	86	crash
struck by flying or falling object	11	14	10	10	15	20	10	4	7	13	5	10	8	10	7	7	13	7	9	5	8	8	7	218	struck by flying or falling object
collapse	5	6	3	3	3	4	6	4	7	3	3	5	2	1	7	1		4	1	6	1	1	4	80	collapse
crashed by	5	4	5	3	2	7	6	5	6	7	4	4	4	2	1	3	4	2	3		7	1	3	88	crashed by
caught in/between	26	25	25	32	35	21	28	36	25	32	15	19	18	19	17	17	29	27	25	17	19	21	19	547	caught in/between
cut	6	10	11	9	9	7	6	7	9	12	3	4	4	7	7	8	5	2	5	6	4	7	9	157	cut
injury to the sole of the foot			2																			1		3	injury to the sole of the foot
drown																									drown
contact to high/low-temperature	3	3	2	2	1	4	1	2	3	1	4		2	2	2	3		2	2	3	2	1	1	46	contact to high/low-temperature

contact to harmful substance				1		2		2	1			1				1			1		1		1	11	contact to harmful substance
electric shock	2	2		2	1	1	3	1		1	1		1	2	3	1	3		3			1	1	29	electric shock
explosion	1										1				1									3	explosion
burst																	1							1	burst
fire		1									1						2		2	1				7	fire
traffic accident (public road)	5	8	2		2	2	4	2	2	5	4	2	4	2	1	2	3	4		3		2		59	traffic accident (public road)
traffic accident (others)																					1			1	traffic accident (others)
reaction to motion/improper motion	9	8	9	14	6	9	11	19	15	13	8	13	14	14	12	17	8	12	12	13	17	20	15	288	reaction to motion/improper motion
others	2	1	1	1		1	2	1	1	2		1	1	1			1			1		1	11	29	others
unclassifiable				1							1			1					1			1		5	unclassifiable
total	99	124	100	99	104	104	113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,254	total

Causal agents (large) of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (L) agents
machine	24	32	26	29	32	27	22	28	25	27	15	13	13	13	19	18	28	19	26	15	19	20	25	515	machine
crane, conveying																									crane,

machine	10	15	11	6	12	10	20	12	11	25	9	6	9	11	9	10	11	10	4	10	9	10	8	248	conveying machine
other equipment	27	22	20	21	20	23	17	20	18	19	20	22	22	29	20	21	22	20	22	13	21	26	15	480	other equipment
temporary buildings, establishments	15	26	19	12	12	14	20	20	13	14	11	14	19	15	8	14	9	20	13	20	11	16	19	354	temporary buildings, establishments
substance, material	9	15	16	14	14	10	17	15	17	12	11	9	6	13	10	11	11	13	10	15	11	13	6	278	substance, material
load	8	9	3	10	7	7	7	9	8	11	6	11	5	12	6	5	3	1	10	5	5	8	5	161	load
environment				1	3	3				1	1	2	3		3	1	1	1		2	1	1		24	environment
others	6	5	5	6	4	10	10	14	10	8	4	7	13	8	8	12	8	5	6	7	6	10	22	194	others
total	99	124	100	99	104	104	113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,254	total

Causal agents (middle) of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Causal (M) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (M) agents
engine			1	1		3		1							1				2				1	10	engine
power transmission mechanism	1				1		2		1	1		1			1		1	2	2					13	power transmission mechanism
woodworking machine		1	2	1	2		1		2	1	2		1	1	1						2		1	18	woodworking machine

construction machine		1								1		1												3	construction machine
metal manufacturing machine	15	11	15	12	12	18	12	14	13	14	6	7	9	6	10	14	21	14	10	11	12	12	11	279	metal manufacturing machine
general machine	8	19	8	15	17	6	7	13	9	10	7	4	3	6	6	4	6	3	12	4	5	8	12	192	general machine
mobile silviculture machine																									mobile silviculture machine
crane	4	3	4	2	5		5	5	3	12	1		3	2	4		6	1	2	3	3		5	73	crane
conveying machine	1	3	5	4	5	7	11	5	7	8	5	3	3	6	4	6		6	2	4	5	7	3	110	conveying machine
vehicle	5	9	2		2	3	4	2	1	5	3	3	3	3	1	4	5	3		3	1	3		65	vehicle
pressure vessel		1		1	1			1						1										5	pressure vessel
chemical facilities							1	1							1									3	chemical facilities
welding equipment	2	1	2	1		2		1	3	1		2	1			3			2				1	22	welding equipment
kiln, caldron	1			1						1								1			2	1		7	kiln, caldron
electric equipment	4	3		1	2	1	6	1	1	1	4		2	3	2	3	4	3	3		1	2	2	49	electric equipment
human power machine, tools	4	6	4	4	5	5	2	2	3	7	6	7	4	2	3	2	5	4	1	3	3	4	3	89	human power machine, tools

tools	10	10	12	12	9	14	6	10	8	9	5	9	11	21	13	13	11	10	13	7	8	17	6	244	tools
other equipments, facilities	6	1	2	1	3	1	2	4	3		5	4	4	2	1		2	2	3	3	7	2	3	61	other equipments, facilities
temporary buildings, establishments	15	26	19	12	12	14	20	20	13	14	11	14	19	15	8	14	9	20	13	20	11	16	19	354	temporary buildings, establishments
hazards, harmful substances		2	1	2		3		2	2		2	1	1	1	1	1	3		4	1	1		1	29	hazards, harmful substances
materials	9	13	15	12	14	7	17	13	15	12	9	8	5	12	9	10	8	13	6	14	10	13	5	249	materials
load	8	9	3	10	7	7	7	9	8	11	6	11	5	12	6	5	3	1	10	5	5	8	5	161	load
natural environment				1	3	3				1	1	2	3		3	1	1	1		2	1	1		24	natural environment
other causal agent	1	1	1	1		2	5	2	3	3	1	3	7	1	1	1				1		1	11	46	other causal agent
no causal agent	5	4	4	5	4	8	4	12	7	3	2	4	5	7	7	11	8	5	5	6	6	8	11	141	no causal agent
unclassifiable							1			2	1		1						1			1		7	unclassifiable
total	99	124	100	99	104	104	113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,254	total

Causal agents (small) of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Causal (S) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (S) agents

engine			1					1							1				2				1	6	engine
power transmission mechanism					1		2		1	1		1			1		1	2	2					12	power transmission mechanism
circular sawing machine					1				1	1				1	1						1		1	7	circular sawing machine
band sawing machine							1														1			2	band sawing machine
wood planer machine																									wood planer machine
hollow chisel mortiser, wood borer																									hollow chisel mortiser, wood borer
chamfering machine, router, woodworking milling machine																									chamfering machine, router, woodworking milling machine
chain saw									1		1		1											3	chain saw
other woodworking machines			2		1						1													4	other woodworking machines
leveling, transporting or loading machine												1												1	leveling, transporting or loading machine
excavating machine																									excavating machine
foundation work machine																									foundation work machine

hardening machine																									hardening machine
demolition machine																									demolition machine
vehicle for high lift work																									vehicle for high lift work
other construction machines										1														1	other construction machines
lathe					1		1	1	1	4		1	4		1	2	1	1	1	3	2	2		26	lathe
drill press, milling machine			3		3		3	4	1	1	1	3	2	1	2	2	2	2	2	3			2	37	drill press, milling machine
grinding machine, buffing machine			3		1		2	1					1			3	4	2			1	3	2	23	grinding machine, buffing machine
power press			3		4		3	3	6	4	4	1	2	4	3	3	5	3	2		6	4	6	66	power press
forging pressure hammer							1																	1	forging pressure hammer
shearing machine			1		1		1		2	1					1			1	1	3	1	1		14	shearing machine
other metal manufacturing machines			5		2		1	5	3	4	1	2		1	3	4	9	5	4	2	2	2	1	56	other metal manufacturing machines
centrifugal machine																					1			1	centrifugal machine
mixer, grinder								1										1						2	mixer, grinder
roll machine (except printingroll machine)					1		1			1	1								2		1			7	roll machine (except printingroll machine)
injection molding																									injection molding

machine			1									1													2	machine
food manufacturing machine																										food manufacturing machine
printing machine									1																1	printing machine
industrial robot																										industrial robot
other general power machines			7		16		6	12	8	9	6	3	3	6	6	4	6	2	10	4	3	8	12	131	other general power machines
felling machine																										felling machine
mobile logging machine																										mobile logging machine
skyline yarding machine																										skyline yarding machine
other mobile silviculture machine																										other mobile silviculture machine
crane			4		5		4	3	3	11	1		1	2	4		6	1	2	2	2		5	56	crane
mobile crane								1					1								1			3	mobile crane
derrick crane																									derrick crane
elevator, lift								1		1			1							1				4	elevator, lift
cargo lifting appliance																									cargo lifting appliance
gondola																									gondola
lumberyard equipment, logging cableway																									lumberyard equipment, logging cableway

simple skyline yarding equipment																									simple skyline yarding equipment
other powered crane							1																	1	other powered crane
truck							3		7	3	1	2		2	3	2		2	1	4	3	4	1	38	truck
forklift			4		3		5	3		2	2		2	2	1	1		2			2		1	30	forklift
railway equipment																									railway equipment
conveyor					2		2	1		2			1	1		1		2	1			3	1	17	conveyor
loader																									loader
straddle carrier																									straddle carrier
rough terrain hauler																									rough terrain hauler
other powered conveying machines			1				1	1		1	2	1		1		2								10	other powered conveying machines
cars, bus, motorcycle			2		2		4	2	1	5	3	3	3	3	1	4	5	3		3	1	3		48	cars, bus, motorcycle
railway vehicle																									railway vehicle
other vehicles																									other vehicles
boiler																									boiler
pressure vessel					1			1																2	pressure vessel
other pressure vessels														1										1	other pressure vessels
chemical facilities							1	1							1									3	chemical facilities
gas welding			1						2										1				1	5	gas welding

equipment																									equipment
arc welding equipment									1	1		1	1			1								5	arc welding equipment
other welding equipment			1					1				1				2			1					6	other welding equipment
kiln, caldron																		1			2	1		4	kiln, caldron
industrial dryer										1														1	industrial dryer
other kiln, caldron																									other kiln, caldron
transmission					1						2			1					1		1		2	8	transmission
electric power facilities							3	1			1			2	1	2	3	3	1			1		18	electric power facilities
other electrical equipment					1		3		1	1	1		2		1	1	1		1			1		14	other electrical equipment
human power cranes																	1							1	human power cranes
human power hauling equipment			1		3		1	1	2	4	5	5	3	1	1	2	2	4		2	1	3	2	43	human power hauling equipment
human power machine							1																	1	human power machine
hand tool			3		2			1	1	3	1	2	1	1	2		2		1	1	2	1	1	25	hand tool
ladder			5		6		3	6	6	4	5	4	3	11	7	6	4	5	6	5	6	13	4	109	ladder
slinging tool			3				2	1	1			1		1	2	3	1	2	2			2		21	slinging tool
other tools			4		3		1	3	1	5		4	8	9	4	4	6	3	5	2	2	2	2	68	other tools
other equipment,																									other equipment,

facilities			2		3		2	4	3		5	4	4	2	1		2	2	3	3	7	2	3	52	facilities
scaffolding													1								1			2	scaffolding
timbering																									timbering
stairs, landing stage			5		3		5	3	1	5	2	1	3		3	1	2	4	1	2	2	3	3	49	stairs, landing stage
opening									1		1		1									1		4	opening
roof, beam, haze, crossbeam, principal rafter			1															1						2	roof, beam, haze, crossbeam, principal rafter
working platform, boot board			2		1		5	2	4	1	3		4	3		4	1		1	3	2	1		37	working platform, boot board
passage			6		3		10	9	3	5	5	8	5	8	4	8	5	10	8	11	5	9	14	136	passage
building, establishment			3		1			4	3	2		3	2	1	1	1	1	3	2	2		1	1	31	building, establishment
other temporary buildings, establishments			2		4			2	1	1		2	3	3				2	1	2	1	1	1	26	other temporary buildings, establishments
explosive substance																									explosive substance
inflammable substance									1		1				1		2			1				6	inflammable substance
inflammable gas																									inflammable gas
harmful substance								2			1	1	1	1					1		1			8	harmful substance
radiation																									radiation
other hazards, harmful substances			1						1							1	1		3				1	8	other hazards, harmful substances

metal material			12		12		16	11	13	10	8	7	4	12	8	9	6	10	6	13	9	11	4	181	metal material
lumber, bamboo					2					1	1				1			1			1	1		8	lumber, bamboo
stone, sand, substance																									stone, sand, substance
other materials			3				1	2	2	1		1	1			1	2	2		1		1	1	19	other materials
load			2		5		6	7	3	8	4	9	5	9	6	3	2		9	4	4	5	2	93	load
machine/equipment as load			1		2		1	2	5	3	2	2		3		2	1	1	1	1	1	3	3	34	machine/equipment as load
natural ground, rock					1																			1	natural ground, rock
standing tree																									standing tree
water																									water
abnormal environment																									abnormal environment
high/cold temperature environment										1	1	1	1		2					1		1		8	high/cold temperature environment
other environments					2							1	2		1	1	1	1		1	1			11	other environments
other causal agent			1				5	2	3	3	1	3	7	1	1	1				1		1	11	41	other causal agent
no causal agent			4		4		4	12	7	3	2	4	5	7	7	11	8	5	5	6	6	8	11	119	no causal agent
unclassifiable							1			2	1		1						1			1		7	unclassifiable
total			100		104		113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	1,828	total

Workers age of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Age
19 years old or less	3	1	6	2	4	4	3	5	3	5	3	2	3	3	5	2	2		1	1	1	2	6	67	19 years old or less
20-29	19	32	17	19	17	18	23	24	19	19	13	15	14	19	19	27	11	18	16	14	13	12	12	410	20-29
30-39	18	30	12	20	17	13	27	30	27	32	14	25	20	23	18	12	26	16	22	18	14	17	15	466	30-39
40-49	24	25	17	21	24	19	18	20	24	24	16	23	19	19	14	23	26	18	19	15	22	22	27	479	40-49
50-59	29	23	39	29	33	38	29	26	19	22	18	13	20	23	17	12	16	23	19	24	16	33	26	547	50-59
60 years old or more	6	13	9	8	9	12	13	13	10	15	13	6	14	14	10	16	12	14	14	15	17	18	14	285	60 years old or more
total	99	124	100	99	104	104	113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,254	total

Workers' number of workplace of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Workers scale
9 workers or less	13	13	16	16	20	21	15	11	12	15	4	8	7	10	10	7	7	9	6	8	3	7	2	240	9 workers or less
10-29	25	25	19	20	23	16	19	23	29	16	16	13	18	21	13	13	22	9	11	14	14	16	22	417	10-29
30-49	11	20	8	9	11	10	14	19	10	14	11	12	5	4	11	8	4	12	9	15	9	7	10	243	30-49
50-99	20	17	23	21	15	17	16	18	15	16	17	10	11	17	9	13	14	18	12	11	17	23	19	369	50-99
100-299	12	23	8	16	16	19	23	18	11	29	11	21	21	21	20	29	26	13	22	21	23	23	20	446	100-299
300 workers or more	18	26	26	17	19	21	26	29	25	27	18	20	28	28	20	22	20	28	31	18	17	28	27	539	300 workers or more
total	99	124	100	99	104	104	113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,254	total

Month of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Month
January	7	11	6	6	15	10	10	10	12	4	9	6	5	13	6	8	6	6	7	10	6	10	8	191	January
February	7	14	12	10	12	12	10	13	10	12	6	5	10	5	9	9	7	10	10	4	10	11	3	211	February
March	6	11	6	6	7	13	9	10	3	12	6	6	10	13	7	5	13	10	10	7	7	7	10	194	March
April	7	13	13	9	8	8	5	5	6	12	12	6	5	4	4	7	6	7	9	6	8	6	9	175	April
May	7	12	5	12	6	10	10	6	8	5	7	10	7	10	3	4	7	11	5	10	8	6	7	176	May
June	7	10	12	5	9	8	11	4	9	13	6	5	10	10	3	8	5	4	9	7	6	11	9	181	June
July	13	5	5	7	13	6	8	11	8	8	4	7	6	8	6	11	9	9	7	11	12	12	4	190	July
August	10	12	9	10	6	13	6	8	15	8	4	6	3	6	12	8	7	4	7	8	8	10	17	197	August
September	6	5	9	8	6	6	10	11	10	12	5	14	10	12	9	12	11	5	3	6	8	8	10	196	September
October	11	8	8	10	8	4	10	20	4	13	10	9	10	7	10	9	4	5	9	8	3	7	6	193	October
November	11	14	8	9	11	8	15	9	5	8	5	5	10	9	5	7	8	10	9	5	5	5	10	191	November
December	7	9	7	7	3	6	9	11	12	10	3	5	4	4	9	4	10	8	6	5	2	11	7	159	December
total	99	124	100	99	104	104	113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,254	total

Prefecture of fatal and non-fatal accidents in heavy electrical equipment in 1999-2021

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Prefecture
Hokkaido	1	3	1					1	3		2		1			1		1		2	2	2	2	22	Hokkaido
Aomori								2	1			1	1		1	1				1				8	Aomori
Iwate							1			1	1		1										1	5	Iwate

Miyagi	1	1						4	1	1		3	2		1				2	1		1		18	Miyagi
Akita	1																				1			2	Akita
Yamagata	1	2	3		1		2	3	2	1	4	3	3	2	2	5	3		2	2		1	2	44	Yamagata
Fukushima	1		2		5		2	1	3	5	3	9	5	8	8	8	3	2	1	3	2	2	1	74	Fukushima
Ibaraki	7	9	4		3		4	8	5	7	5	3	8	7	9	8	4	5	3	2	2	4		107	Ibaraki
Tochigi		1			1		4	2	1	2	3	1	1	3		2	2	2	2	2	1	3	1	34	Tochigi
Gunma	2	3	1		2		5	4	2	2			2	2		1	5		3	2	1	3	6	46	Gunma
Saitama	2	3	8		5		3	6	4	1	3	2		1	4	2	1	4	1	3	2	2	2	59	Saitama
Chiba	4	5	2		3		2	1	1	1	2	1	1	2	3	2	2	4	2	2	1			41	Chiba
Tokyo	7	5	1				1	3	2	1		4	2	2	1		2	2	1	2	1	1	6	44	Tokyo
Kanagawa	10	5	8		3		8	3	8	11	6	8	4	4	3	4	4	2	10	9	5	1	15	131	Kanagawa
Niigata	2				4			4	1	3	3		2	2	1	2	4	3	1	1	6	4	7	50	Niigata
Toyama		1	1		1			3		4			1	1	2			1	3	2		2		22	Toyama
Ishikawa	3	3	2				3	4	3	5	2	1	3	3	3	4		2	2	2	3	3		51	Ishikawa
Fukui		1					2	1		1		1			1		1	1		3	3		1	16	Fukui
Yamanashi	2	11			10		4	7	4	4		2	2		4	5	2	1			1	3	4	66	Yamanashi
Nagano		3	3		4		3	1	1		1	3				1			1	3		2		26	Nagano
Gifu	8	6	2		2		4	1	1	1			2	1	1		2		2	2	3	1	7	46	Gifu
Shizuoka	3	2	8		6		4	6	9	2	4	6	3	7	1	4	7	10	10	6	2	6	4	110	Shizuoka
Aichi	6	6	10		4		7	6	8	8	4	2	4	5	5	3	3	4	8	7	5	9	9	123	Aichi
Mie	4	7	4		5		4	7	1	7		1	5	2	1	2	2	3	2	2		3	3	65	Mie
Shiga	2	5	2		2		1	1	2	4			1	1		1	2	1			1	1	1	28	Shiga
Kyoto	7	7	5		8		5	5	3	6	6	3		5	2		3	5	3	4	1	4	1	83	Kyoto

Osaka	4	2	1		8		10	13	3	8	6	8	7	5	5	8	6	4	4	3	7	7	3	122	Osaka
Hyogo	5	8	10		4		8	4	1	6	4	4	6	10	5	5	9	8	3	5	2	3	3	113	Hyogo
Nara									1															1	Nara
Wakayama	1		2				1					1					1	1						7	Wakayama
Tottori	1	3			1			1					1			1	1		1			1	1	12	Tottori
Shimane										1	3	1	1	1										7	Shimane
Okayama		1			1		3	2	1	1	1		3	2	1	1	2		1		1	3		24	Okayama
Hiroshima	2	3			5		3	3	7	2	4	4	5	7	3	4	3	3	3	3	7	5	2	78	Hiroshima
Yamaguchi		1			1			1	2	1	3	1	1	2	1	1	3	2	6		1		1	28	Yamaguchi
Tokushima		2			1		2		1								2							8	Tokushima
Kagawa	3	2	1		2				1	1					1	1	3	3			1	5	1	25	Kagawa
Ehime	2	2	1				1		3	2		2			3	4			2	1	3	1	4	31	Ehime
Kochi			1																					1	Kochi
Fukuoka	2	7	10		6		8	6	7	10	3	2	5	8	7	9	8	8	8	10	11	14	6	155	Fukuoka
Saga	1				1		2	1		1		1	1	2	1		1	2	2	1	1	2		20	Saga
Nagasaki	1	1	3				2	2	5	4	2	3	2		1	1		2	1	1	4	3	3	41	Nagasaki
Kumamoto	1	1			1		1			1		2	2	2	1			3				2		17	Kumamoto
Oita					1		1		1	1	1		1			1	1							8	Oita
Miyazaki		1			2						1	1	1	1			1						1	9	Miyazaki
Kagoshima	1	1	3		1		1														1		1	9	Kagoshima
Okinawa	1		1				1	1	3					3	1				1		1		1	14	Okinawa
total	99	124	100		104		113	118	102	117	77	84	90	101	83	92	93	89	91	87	83	104	100	2,051	total

Fatal and non-fatal accidents mean fatal and non-fatal injuries and occupational diseases with work absence of 4 days and more. Data of 2011 year include fatal and non-fatal accidents caused by Great East Japan Earthquake in 2011.

Data sources: https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm (MHLW, Japan)

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Fatal accidents in heavy electrical equipment in Japan in 1999-2021

heavy electrical equipment industry Code No.011401

Type of fatal accidents in heavy electrical equipment in 1999-2021

Type of accidents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Type of accidents
fall from height		1																						1	fall from height
falling to same level										1														1	falling to same level
crash																									crash
struck by flying or falling object																									struck by flying or falling object
collapse	1																							1	collapse
crashed by								1			1													2	crashed by
caught in/between			1					1										1	1			1		5	caught in/between
cut																									cut

injury to the sole of the foot																									injury to the sole of the foot
drown																									drown
contact to high/low-temperature																									contact to high/low-temperature
contact to harmful substance																									contact to harmful substance
electric shock		1																					1	2	electric shock
explosion															1									1	explosion
burst																	1							1	burst
fire																									fire
traffic accident (public road)		2			1																			3	traffic accident (public road)
traffic accident (others)																									traffic accident (others)
reaction to motion/improper motion																									reaction to motion/improper motion
others									1	1														2	others
unclassifiable																									unclassifiable
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Causal agents (large) of fatal accidents in heavy electrical equipment in 1999-2021

Causal (L) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (L) agents
machine			1															1	1					3	machine
crane, conveying machine		2			1			1			1													5	crane, conveying machine
other equipment		2						1		1					1		1					1	1	8	other equipment
temporary buildings, establishments																									temporary buildings, establishments
substance, material																									substance, material
load	1																							1	load
environment																									environment
others									1	1														2	others
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Causal agents (middle) of fatal accidents in heavy electrical equipment in 1999-2021

Causal (M) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (M) agents

engine																										engine
power transmission mechanism																										power transmission mechanism
woodworking machine																										woodworking machine
construction machine																										construction machine
metal manufacturing machine			1																						1	metal manufacturing machine
general machine																			1	1					2	general machine
mobile silviculture machine																										mobile silviculture machine
crane								1			1														2	crane
conveying machine		1																							1	conveying machine
vehicle		1			1																				2	vehicle
pressure vessel								1																	1	pressure vessel
chemical facilities															1										1	chemical facilities
welding equipment																										welding equipment

kiln, caldron																						1		1	kiln, caldron
electric equipment		2																					1	3	electric equipment
human power machine, tools																									human power machine, tools
tools										1														1	tools
other equipments, facilities																	1							1	other equipments, facilities
temporary buildings, establishments																									temporary buildings, establishments
hazards, harmful substances																									hazards, harmful substances
materials																									materials
load	1																							1	load
natural environment																									natural environment
other causal agent										1														1	other causal agent
no causal agent									1															1	no causal agent
unclassifiable																									unclassifiable

total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Causal agents (small) of fatal accidents in heavy electrical equipment in 1999-2021

Causal (S) agents	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Causal (S) agents
engine																									engine
power transmission mechanism																									power transmission mechanism
circular sawing machine																									circular sawing machine
band sawing machine																									band sawing machine
wood planer machine																									wood planer machine
hollow chisel mortiser, wood borer																									hollow chisel mortiser, wood borer
chamfering machine, router, woodworking milling machine																									chamfering machine, router, woodworking milling machine
chain saw																									chain saw
other woodworking machines																									other woodworking machines

leveling, transporting or loading machine																									leveling, transporting or loading machine
excavating machine																									excavating machine
foundation work machine																									foundation work machine
hardening machine																									hardening machine
demolition machine																									demolition machine
vehicle for high lift work																									vehicle for high lift work
other construction machines																									other construction machines
lathe																									lathe
drill press, milling machine																									drill press, milling machine
grinding machine, buffing machine																									grinding machine, buffing machine
power press			1																					1	power press
forging pressure hammer																									forging pressure hammer
shearing machine																									shearing machine
other metal manufacturing machines																									other metal manufacturing machines

centrifugal machine																									centrifugal machine
mixer, grinder																									mixer, grinder
roll machine (except printingroll machine)																			1					1	roll machine (except printingroll machine)
injection molding machine																									injection molding machine
food manufacturing machine																									food manufacturing machine
printing machine																									printing machine
industrial robot																									industrial robot
other general power machines																		1						1	other general power machines
felling machine																									felling machine
mobile logging machine																									mobile logging machine
skyline yarding machine																									skyline yarding machine
other mobile silviculture machine																									other mobile silviculture machine
crane											1													1	crane
mobile crane								1																1	mobile crane
derrick crane																									derrick crane
elevator, lift																									elevator, lift

cargo lifting appliance																										cargo lifting appliance
gondola																										gondola
lumberyard equipment, logging cableway																										lumberyard equipment, logging cableway
simple skyline yarding equipment																										simple skyline yarding equipment
other powered crane																										other powered crane
truck		1																							1	truck
forklift																										forklift
railway equipment																										railway equipment
conveyor																										conveyor
loader																										loader
straddle carrier																										straddle carrier
rough terrain hauler																										rough terrain hauler
other powered conveying machines																										other powered conveying machines
cars, bus, motorcycle		1			1																				2	cars, bus, motorcycle
railway vehicle																										railway vehicle
other vehicles																										other vehicles
boiler																										boiler

pressure vessel								1																	1	pressure vessel
other pressure vessels																										other pressure vessels
chemical facilities															1										1	chemical facilities
gas welding equipment																										gas welding equipment
arc welding equipment																										arc welding equipment
other welding equipment																										other welding equipment
kiln, caldron																							1		1	kiln, caldron
industrial dryer																										industrial dryer
other kiln, caldron																										other kiln, caldron
transmission		1																						1	2	transmission
electric power facilities		1																							1	electric power facilities
other electrical equipment																										other electrical equipment
human power cranes																										human power cranes
human power hauling equipment																										human power hauling equipment
human power machine																										human power machine

hand tool																									hand tool
ladder																									ladder
slinging tool																									slinging tool
other tools										1														1	other tools
other equipment, facilities																	1							1	other equipment, facilities
scaffolding																									scaffolding
timbering																									timbering
stairs, landing stage																									stairs, landing stage
opening																									opening
roof, beam, haze, crossbeam, principal rafter																									roof, beam, haze, crossbeam, principal rafter
working platform, boot board																									working platform, boot board
passage																									passage
building, establishment																									building, establishment
other temporary buildings, establishments																									other temporary buildings, establishments
explosive substance																									explosive substance
inflammable substance																									inflammable substance

inflammable gas																									inflammable gas
harmful substance																									harmful substance
radiation																									radiation
other hazards, harmful substances																									other hazards, harmful substances
metal material																									metal material
lumber, bamboo																									lumber, bamboo
stone, sand, substance																									stone, sand, substance
other materials																									other materials
load																									load
machine/equipment as load	1																							1	machine/equipment as load
natural ground, rock																									natural ground, rock
standing tree																									standing tree
water																									water
abnormal environment																									abnormal environment
high/cold temperature environment																									high/cold temperature environment
other environments																									other environments
other causal agent										1														1	other causal agent

no causal agent									1															1	no causal agent
unclassifiable																									unclassifiable
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Workers age of fatal accidents in heavy electrical equipment in 1999-2021

Age	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Age
19 years old or less	1																							1	19 years old or less
20-29		1			1						1													3	20-29
30-39		1						1																2	30-39
40-49		1	1						1						1		1		1			1		7	40-49
50-59		1						1		1								1						4	50-59
60 years old or more										1													1	2	60 years old or more
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Workers' number of workplace of fatal accidents in heavy electrical equipment in 1999-2021

Workers scale	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Workers scale
9 workers or less										1														1	9 workers or less
10-29		2																	1					3	10-29
30-49	1																						1	2	30-49
50-99								1										1						2	50-99

100-299					1						1													2	100-299
300 workers or more		2	1					1	1	1					1		1					1		9	300 workers or more
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Month of fatal accidents in heavy electrical equipment in 1999-2021

Month	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Month
January		1							1						1									3	January
February			1																					1	February
March		1																1				1		3	March
April																									April
May		1																						1	May
June																									June
July	1									1														2	July
August											1								1				1	3	August
September																									September
October								1		1														2	October
November		1			1																			2	November
December								1									1							2	December
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Prefecture of fatal accidents in heavy electrical equipment in 1999-2021

Prefecture	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	total	Prefecture
Hokkaido																									Hokkaido
Aomori																									Aomori
Iwate																									Iwate
Miyagi																									Miyagi
Akita																									Akita
Yamagata																									Yamagata
Fukushima																						1		1	Fukushima
Ibaraki		1							1						1									3	Ibaraki
Tochigi		1																						1	Tochigi
Gunma																									Gunma
Saitama																									Saitama
Chiba																									Chiba
Tokyo																									Tokyo
Kanagawa											1						1							2	Kanagawa
Niigata																									Niigata
Toyama																									Toyama
Ishikawa																									Ishikawa
Fukui																									Fukui
Yamanashi		1																						1	Yamanashi
Nagano																									Nagano
Gifu	1																							1	Gifu

Shizuoka																									Shizuoka
Aichi			1							1													1	3	Aichi
Mie																									Mie
Shiga																									Shiga
Kyoto																									Kyoto
Osaka					1																			1	Osaka
Hyogo		1																1	1					3	Hyogo
Nara																									Nara
Wakayama																									Wakayama
Tottori																									Tottori
Shimane																									Shimane
Okayama																									Okayama
Hiroshima								1																1	Hiroshima
Yamaguchi										1														1	Yamaguchi
Tokushima																									Tokushima
Kagawa																									Kagawa
Ehime																									Ehime
Kochi																									Kochi
Fukuoka																									Fukuoka
Saga																									Saga
Nagasaki																									Nagasaki
Kumamoto																									Kumamoto
Oita																									Oita

Miyazaki																									Miyazaki
Kagoshima																									Kagoshima
Okinawa								1																1	Okinawa
total	1	4	1		1			2	1	2	1				1		1	1	1			1	1	19	total

Data sources: https://anzeninfo.mhlw.go.jp/user/anzen/tok/anst00.htm (MHLW, Japan)

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