Fatal and non-fatal accidents in optical instruments in Japan in 1999-2022

optical instruments industry Code No.011303

Type of accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| fall from height | 7 | 3 | 3 | 4 | 2 | 3 | 3 | 5 | 6 | 8 | 4 | 5 | 5 | 5 | 2 | 4 | 5 | 3 | 5 | 4 | 4 | 3 | 6 | 4 | 103 |
| falling to same level | 9 | 8 | 7 | 11 | 15 | 11 | 13 | 12 | 11 | 17 | 3 | 5 | 11 | 12 | 18 | 11 | 10 | 12 | 14 | 12 | 17 | 16 | 11 | 9 | 275 |
| crash | 2 | 4 | 2 | 7 | 1 | 3 | 1 | 3 | 1 | 3 | 5 | 1 | 5 | 4 | 1 | 3 | 5 | 3 | 2 | 1 | 2 | 1 | 2 | 1 | 63 |
| struck by flying or falling object | 3 | 6 | 5 | 2 | 5 | 5 | 2 | 5 | 2 | 4 | 2 | 2 | 1 | 2 |  |  |  | 2 | 1 | 2 | 4 | 2 | 1 | 2 | 60 |
| collapse |  | 2 | 1 | 1 |  | 1 |  | 2 |  | 1 |  |  | 1 | 2 | 1 | 1 | 1 |  | 1 | 1 |  |  | 1 |  | 17 |
| crashed by | 4 | 2 | 1 |  |  | 1 | 2 |  |  | 3 | 1 | 1 | 1 | 3 |  |  | 3 |  | 1 | 4 | 1 | 1 |  | 2 | 31 |
| caught in/between | 24 | 26 | 23 | 25 | 19 | 29 | 25 | 23 | 22 | 16 | 6 | 9 | 12 | 12 | 6 | 12 | 4 | 8 | 10 | 11 | 9 | 7 | 3 | 7 | 348 |
| cut | 2 | 6 | 3 | 13 | 8 | 7 | 11 | 10 | 8 | 7 | 5 | 3 | 7 | 7 | 4 | 1 | 2 | 6 | 4 | 2 | 5 | 1 | 4 | 4 | 130 |
| injury to the sole of the foot |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| drown |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  | 1 |
| contact to high/low- | 1 | 2 | 3 | 1 | 1 |  | 1 | 3 | 2 |  | 2 |  |  | 2 |  | 1 | 2 |  | 1 |  | 1 |  | 2 |  | 25 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| temperature | | | | | | | | | | | | | | | | | | | | | | | | | |
| contact to harmful substance | 1 | | 1 | 2 | 2 | 2 | 2 | 2 | 4 | | | 2 | 4 | | | 1 | 1 | 1 | 2 | 1 | 1 | | 1 | | 30 |
| electric shock | 1 | 1 | 1 | 1 | 1 | | 1 | | | | | | | | | | | | | | 1 | | | 1 | 8 |
| explosion | | | | | | | | | | | | | | | | | | | | | | | | | |
| burst | | | | | | | | | | | | | | | | | | | | | | | | | |
| fire | | | | | | | 1 | | 1 | | | | 1 | | | | 2 | | | | | | | 1 | 6 |
| traffic accident (public road) | | | 1 | 1 | 2 | 3 | 1 | | | | 2 | 8 | 2 | | | 1 | | 1 | 1 | 1 | 1 | | | | 25 |
| traffic accident (others) | | | | | | | | | | | | | | | | | | | | | | | | | |
| reaction to motion/improper motion | 1 | 10 | 3 | 3 | 5 | 7 | 5 | 9 | 14 | 12 | 8 | 3 | 8 | 2 | 5 | 3 | 6 | 6 | 3 | 8 | 7 | 3 | 12 | 7 | 150 |
| others | 2 | | | | | | | | 2 | 1 | | | | | 1 | | | | | | 1 | 9 | | | 16 |
| unclassifiable | | 2 | | | | | | | | | | | | | | | | | | | | | | | 2 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Causal agents (large) of fatal and non-fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| machine | 28 | 30 | 22 | 37 | 18 | 26 | 30 | 34 | 25 | 17 | 8 | 9 | 15 | 15 | 7 | 10 | 6 | 10 | 10 | 11 | 17 | 9 | 7 | 11 | 412 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| crane, conveying machine | 1 | 1 | 5 | 2 | 2 | 6 | 2 | 2 | 1 | 5 | 3 | 11 | 2 | 1 | | 5 | 1 | 1 | 3 | 2 | 2 | 1 | 1 | | 60 |
| other equipment | 8 | 11 | 6 | 9 | 10 | 12 | 11 | 12 | 9 | 16 | 7 | 5 | 7 | 10 | 6 | 4 | 8 | 8 | 9 | 9 | 8 | 6 | 10 | 5 | 206 |
| temporary buildings, establishments | 7 | 12 | 9 | 13 | 19 | 15 | 12 | 8 | 13 | 18 | 7 | 5 | 13 | 11 | 15 | 11 | 10 | 12 | 12 | 14 | 11 | 13 | 13 | 11 | 284 |
| substance, material | 2 | 8 | 7 | 6 | 6 | 7 | 9 | 9 | 12 | 3 | 2 | 5 | 12 | 6 | 3 | 2 | 8 | 4 | 6 | 3 | 5 | 1 | 3 | 4 | 133 |
| load | 3 | 5 | 3 | 3 | 3 | 2 | 2 | 3 | 4 | 6 | 3 | 2 | 3 | 4 | 2 | 1 | 3 | 3 | 2 | 3 | 3 | | 4 | 4 | 71 |
| environment | 5 | | 2 | | | | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | | 1 | 2 | 2 | 3 | 1 | 1 | 2 | 35 |
| others | 3 | 6 | | 1 | 3 | 4 | 1 | 4 | 8 | 6 | 6 | 2 | 4 | 1 | 4 | 3 | 5 | 3 | 1 | 3 | 5 | 12 | 4 | 1 | 90 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Causal agents (middle) of fatal and non-fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| engine | | | | | | | | | | | | | | | | | | | | | | | | | |
| power transmission mechanism | | 1 | | | | 1 | | 1 | 1 | | 1 | | | 2 | | | | 1 | | | | 1 | | | 9 |
| woodworking machine | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| construction machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| metal manufacturing machine | 20 | 19 | 7 | 19 | 10 | 18 | 21 | 15 | 12 | 7 | 5 | 4 | 10 | 6 | 5 | 7 | 4 | 6 | 4 | 7 | 8 | 5 | 4 | 7 | 230 |
| general machine | 8 | 10 | 15 | 18 | 8 | 7 | 9 | 18 | 12 | 10 | 2 | 5 | 5 | 7 | 2 | 3 | 2 | 3 | 6 | 4 | 9 | 3 | 3 | 4 | 173 |
| mobile silviculture machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| crane | | 1 | 1 | | | 2 | | | | 1 | | | | | | | | | | | 1 | | | | 6 |
| conveying machine | 1 | | 3 | 1 | | 1 | | 2 | 1 | 1 | 1 | 2 | | 1 | | 3 | 1 | | 1 | | | 1 | | | 20 |
| vehicle | | | 1 | 1 | 2 | 3 | 2 | | | 3 | 2 | 9 | 2 | | | 2 | | 1 | 2 | 2 | 1 | | 1 | | 34 |
| pressure vessel | | | | | | | | | | | | | | | | | | | | | | | | | |
| chemical facilities | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | 2 |
| welding equipment | | | | | | 1 | | | | 1 | | | | | | | | | | | | | | | 2 |
| kiln, caldron | 1 | | 1 | | 1 | | | | | | | | | | | | | | | | | | | 1 | 4 |
| electric equipment | | 1 | | | 1 | | | | | | | | | | | 1 | | | | | | | | | 3 |
| human power machine, tools | 3 | 4 | 1 | 2 | 5 | 4 | 6 | 3 | 4 | 2 | 1 | | 1 | 3 | 2 | 1 | 2 | 1 | 4 | 3 | 2 | | 3 | 4 | 61 |
| tools | 2 | 1 | 1 | 2 | 2 | 4 | 4 | 7 | 4 | 9 | 3 | 3 | 4 | 7 | 2 | 1 | 4 | 2 | 2 | 6 | 5 | 4 | 4 | | 83 |
| other equipments, | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| facilities | 2 | 5 | 3 | 4 | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 2 | 2 | | 2 | 1 | 2 | 5 | 3 | | 1 | 2 | 3 | | 51 |
| temporary buildings, establishments | 7 | 12 | 9 | 13 | 19 | 15 | 12 | 8 | 13 | 18 | 7 | 5 | 13 | 11 | 15 | 11 | 10 | 12 | 12 | 14 | 11 | 13 | 13 | 11 | 284 |
| hazards, harmful substances | | 4 | 2 | 1 | 1 | 2 | 3 | 4 | 7 | | 1 | 2 | 5 | 2 | | | 5 | 1 | 2 | 1 | 2 | | 2 | 1 | 48 |
| materials | 2 | 4 | 5 | 5 | 5 | 5 | 6 | 5 | 5 | 3 | 1 | 3 | 7 | 4 | 3 | 2 | 3 | 3 | 4 | 2 | 3 | 1 | 1 | 3 | 85 |
| load | 3 | 5 | 3 | 3 | 3 | 2 | 2 | 3 | 4 | 6 | 3 | 2 | 3 | 4 | 2 | 1 | 3 | 3 | 2 | 3 | 3 | | 4 | 4 | 71 |
| natural environment | 5 | | 2 | | | | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | | 1 | 2 | 2 | 3 | 1 | 1 | 2 | 35 |
| other causal agent | 2 | 1 | | | | | 1 | 1 | 1 | 3 | 1 | | 1 | | | | | 1 | 1 | | 3 | 9 | | | 25 |
| no causal agent | 1 | 5 | | | 3 | 4 | | 3 | 7 | 3 | 5 | 1 | 3 | 1 | 4 | 3 | 5 | 2 | | 3 | 2 | 3 | 4 | 1 | 63 |
| unclassifiable | | | | 1 | | | | | | | | 1 | | | | | | | | | | | | | 2 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Causal agents (small) of fatal and non-fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| engine | | | | | | | | | | | | | | | | | | | | | | | | | |
| power transmission mechanism | | | | | | | | 1 | 1 | | 1 | | | 2 | | | | 1 | | | | 1 | | | 7 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| circular sawing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| band sawing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| wood planer machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| hollow chisel mortiser, wood borer | | | | | | | | | | | | | | | | | | | | | | | | | |
| chamfering machine, router, woodworking milling machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| chain saw | | | | | | | | | | | | | | | | | | | | | | | | | |
| other woodworking machines | | | | | | | | | | | | | | | | | | | | | | | | | |
| leveling, transporting or loading machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| excavating machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| foundation work machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| hardening machine | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| demolition machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| vehicle for high lift work | | | | | | | | | | | | | | | | | | | | | | | | | |
| other construction machines | | | | | | | | | | | | | | | | | | | | | | | | | |
| lathe | | | 1 | | 2 | | 7 | 9 | 3 | 4 | | 2 | 2 | 5 | 2 | 2 | 1 | | 3 | 1 | 3 | 2 | 1 | | 50 |
| drill press, milling machine | | | 2 | | 2 | | 1 | 2 | 1 | 1 | | | 2 | | 2 | 1 | | 1 | | 2 | | | | 1 | 18 |
| grinding machine, buffing machine | | | 3 | | | | 2 | 2 | | | 1 | 2 | 1 | | 1 | | | 4 | 1 | 1 | 2 | 1 | 2 | | 23 |
| power press | | | 1 | | 5 | | 5 | 1 | 7 | 2 | 1 | | 1 | 1 | | 2 | 3 | 1 | | 3 | 2 | 1 | | 2 | 38 |
| forging pressure hammer | | | | | | | | | | | | | | | | | | | | | | | | | |
| shearing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| other metal manufacturing machines | | | | | 1 | | 6 | 1 | 1 | | 3 | | 4 | | | 2 | | | | | 1 | 1 | 1 | 4 | 25 |
| centrifugal machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| mixer, grinder | | | | | | | | | | | | | | | | | | | | | | | | | |
| roll machine (except printingroll machine) | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | 2 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| injection molding machine | | | 1 | | | | | | | | | | | | | | | | | 1 | | | | | 2 |
| food manufacturing machine | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 |
| printing machine | | | | | 1 | | | | | | | | | | | | | | | | | | | | 1 |
| industrial robot | | | | | | | 1 | | 1 | 1 | | | | | | | | | | | | | | | 3 |
| other general power machines | | | 14 | | 7 | | 7 | 17 | 11 | 9 | 2 | 5 | 5 | 7 | 2 | 3 | 2 | 3 | 6 | 3 | 9 | 2 | 3 | 4 | 121 |
| felling machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| mobile logging machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| skyline yarding machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| other mobile silviculture machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| crane | | | 1 | | | | | | | | | | | | | | | | | | 1 | | | | 2 |
| mobile crane | | | | | | | | | | | | | | | | | | | | | | | | | |
| derrick crane | | | | | | | | | | | | | | | | | | | | | | | | | |
| elevator, lift | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 |
| cargo lifting appliance | | | | | | | | | | | | | | | | | | | | | | | | | |
| gondola | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lumberyard equipment, logging cableway | | | | | | | | | | | | | | | | | | | | | | | | | |
| simple skyline yarding equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| other powered crane | | | | | | | | | | | | | | | | | | | | | | | | | |
| truck | | | 1 | | | | | | | | | | | 1 | | 1 | | | 1 | | | 1 | | | 5 |
| forklift | | | 1 | | | | | 2 | 1 | | 1 | | | | | | 1 | | | | | | | | 6 |
| railway equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| conveyor | | | 1 | | | | | | | 1 | | 2 | | | | | | | | | | | | | 4 |
| loader | | | | | | | | | | | | | | | | | | | | | | | | | |
| straddle carrier | | | | | | | | | | | | | | | | | | | | | | | | | |
| rough terrain hauler | | | | | | | | | | | | | | | | | | | | | | | | | |
| other powered conveying machines | | | | | | | | | | | | | | | | 2 | | | | | | | | | 2 |
| cars, bus, motorcycle | | | 1 | | 2 | | 2 | | | 3 | 2 | 9 | 2 | | | 2 | | 1 | 2 | 2 | 1 | | 1 | | 30 |
| railway vehicle | | | | | | | | | | | | | | | | | | | | | | | | | |
| other vehicles | | | | | | | | | | | | | | | | | | | | | | | | | |
| boiler | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pressure vessel | | | | | | | | | | | | | | | | | | | | | | | | | |
| other pressure vessels | | | | | | | | | | | | | | | | | | | | | | | | | |
| chemical facilities | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 |
| gas welding equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| arc welding equipment | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 |
| other welding equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| kiln, caldron | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | 2 |
| industrial dryer | | | | | | | | | | | | | | | | | | | | | | | | | |
| other kiln, caldron | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| transmission | | | | | | | | | | | | | | | | | | | | | | | | | |
| electric power facilities | | | | | | | | | | | | | | | | | | | | | | | | | |
| other electrical equipment | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | 2 |
| human power cranes | | | | | | | | | | | | | | | | | | | | | | | | | |
| human power hauling equipment | | | 1 | | 2 | | 5 | 1 | 2 | 1 | | | | 2 | | | 2 | | 4 | 2 | 1 | | 2 | 2 | 27 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| human power machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| hand tool | | | | | 3 | | 1 | 2 | 2 | 1 | 1 | | 1 | 1 | 2 | 1 | | 1 | | 1 | 1 | | 1 | 2 | 21 |
| ladder | | | | | 1 | | | 7 | 3 | 3 | 1 | | 4 | 3 | 1 | | 1 | 1 | 1 | 1 | 3 | | 4 | | 34 |
| slinging tool | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | 2 |
| other tools | | | 1 | | 1 | | 4 | | 1 | 6 | 2 | 3 | | 4 | 1 | 1 | 3 | 1 | 1 | 5 | 1 | 3 | | | 38 |
| other equipment, facilities | | | 3 | | 1 | | 1 | 2 | 1 | 3 | 3 | 2 | 2 | | 2 | 1 | 2 | 5 | 3 | | 1 | 2 | 3 | | 37 |
| scaffolding | | | | | | | | | | | | | | | | | | | | | | | | | |
| timbering | | | | | | | | | | | | | | | | | | | | | | | | | |
| stairs, landing stage | | | | | 2 | | 3 | 1 | 2 | 3 | 4 | 4 | 5 | 4 | 2 | 3 | 2 | 3 | 3 | 1 | 2 | 2 | 3 | 2 | 51 |
| opening | | | | | | | | | | | | | | | | | | | 1 | | | | | | 1 |
| roof, beam, haze, crossbeam, principal rafter | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | 2 |
| working platform, boot board | | | 1 | | 1 | | 3 | 1 | 1 | 3 | | | 2 | 2 | | 1 | 3 | 2 | 3 | | 2 | | 2 | 3 | 30 |
| passage | | | 4 | | 11 | | 5 | 5 | 7 | 11 | 2 | 1 | 3 | 5 | 9 | 5 | 4 | 5 | 3 | 12 | 6 | 9 | 8 | 6 | 121 |
| building, establishment | | | 2 | | 4 | | | 1 | 2 | | | | 2 | | 1 | | | 1 | 2 | 1 | 1 | | | | 17 |
| other temporary buildings, | | | 1 | | 1 | | 1 | | 1 | 1 | 1 | | 1 | | 2 | 2 | 1 | 1 | | | | 2 | | | 15 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| establishments | | | | | | | | | | | | | | | | | | | | | | | | | |
| explosive substance | | | | | | | | | | | | | | | | | | | | | | | | | |
| inflammable substance | | | 1 | | 1 | | 1 | | 2 | | 1 | | 1 | 1 | | | 2 | | | | 1 | | 1 | 1 | 13 |
| inflammable gas | | | | | | | | | | | | | | | | | | | | | | | | | |
| harmful substance | | | 1 | | | | 2 | 4 | 5 | | | 2 | 3 | 1 | | | 1 | 1 | 2 | | | | 1 | | 23 |
| radiation | | | | | | | | | | | | | | | | | | | | | | | | | |
| other hazards, harmful substances | | | | | | | | | | | | | 1 | | | | 2 | | | 1 | 1 | | | | 5 |
| metal material | | | 3 | | 2 | | 1 | 4 | 2 | 1 | | 3 | 4 | 3 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 38 |
| lumber, bamboo | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| stone, sand, substance | | | | | | | | 1 | | | | | | | | | | | | | | | | | 1 |
| other materials | | | 2 | | 3 | | 5 | | 3 | 2 | 1 | | 3 | 1 | 2 | 1 | | 2 | 2 | | | | | 2 | 29 |
| load | | | 2 | | 2 | | 2 | 2 | 2 | 3 | 3 | 1 | 3 | 2 | 2 | | 3 | 2 | 2 | 3 | 2 | | 3 | 4 | 43 |
| machine/equipment as load | | | 1 | | 1 | | | 1 | 2 | 3 | | 1 | | 2 | | 1 | | 1 | | | 1 | | 1 | | 15 |
| natural ground, rock | | | | | | | | | | | | | | | | | | | | | | | | | |
| standing tree | | | | | | | | | | | | | | | | | | | | | | | | | |
| water | | | | | | | | | | | | | | | | | | | | | | | | | |
| abnormal | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| environment | | | | | | | | | | | | | | | | | | | | | | | | | |
| high/cold temperature environment | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 |
| other environments | | | 2 | | | | 1 | 2 | 1 | 1 | 2 | | 2 | 3 | 1 | 2 | | 1 | 2 | 2 | 3 | 1 | 1 | 2 | 29 |
| other causal agent | | | | | | | 1 | 1 | 1 | 3 | 1 | | 1 | | | | | 1 | 1 | | 3 | 9 | | | 22 |
| no causal agent | | | | | 3 | | | 3 | 7 | 3 | 5 | 1 | 3 | 1 | 4 | 3 | 5 | 2 | | 3 | 2 | 3 | 4 | 1 | 53 |
| unclassifiable | | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Workers age of fatal and non-fatal accidents in optical instruments in 1999-2022

| Age | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 years old or less | 1 | 4 | 6 | 3 | 2 | 1 | 2 | 1 | | 2 | 2 | 3 | 2 | | | | | 1 | 2 | | 2 | | | | 34 |
| 20-29 | 16 | 12 | 12 | 17 | 18 | 14 | 18 | 25 | 19 | 11 | 5 | 9 | 16 | 9 | 2 | 4 | 9 | 7 | 8 | 9 | 8 | 2 | 7 | 4 | 261 |
| 30-39 | 9 | 18 | 8 | 14 | 13 | 18 | 11 | 20 | 24 | 21 | 9 | 11 | 16 | 14 | 6 | 12 | 4 | 9 | 13 | 10 | 7 | 5 | 1 | 3 | 276 |
| 40-49 | 12 | 18 | 10 | 13 | 10 | 17 | 12 | 13 | 12 | 15 | 11 | 3 | 10 | 7 | 14 | 7 | 9 | 9 | 13 | 12 | 17 | 8 | 11 | 12 | 275 |
| 50-59 | 13 | 18 | 13 | 17 | 13 | 14 | 18 | 8 | 11 | 18 | 8 | 10 | 10 | 16 | 14 | 12 | 11 | 13 | 4 | 12 | 14 | 21 | 14 | 11 | 313 |
| 60 years old or more | 6 | 3 | 5 | 7 | 5 | 8 | 7 | 7 | 7 | 5 | 3 | 4 | 4 | 5 | 2 | 3 | 8 | 3 | 5 | 4 | 6 | 7 | 10 | 8 | 132 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Workers' number of workplace of fatal and non-fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 workers or less | 20 | 17 | 8 | 7 | 10 | 17 | 12 | 10 | 10 | 3 | 4 | 5 | 5 | 9 | 2 | 2 | 6 | | 2 | 3 | 3 | 3 | 5 | 4 | 167 |
| 10-29 | 8 | 12 | 15 | 12 | 17 | 14 | 14 | 15 | 7 | 13 | 5 | 4 | 7 | 8 | 5 | 4 | 4 | 5 | 5 | 7 | 8 | 6 | 4 | 6 | 205 |
| 30-49 | 5 | 8 | 7 | 13 | 6 | 10 | 10 | 16 | 3 | 5 | 3 | 3 | 8 | 8 | 3 | 5 | 4 | 7 | 7 | 4 | 10 | 3 | 5 | 8 | 161 |
| 50-99 | 6 | 8 | 9 | 10 | 7 | 12 | 4 | 4 | 13 | 17 | 11 | 4 | 10 | 4 | 7 | 5 | 7 | 6 | 9 | 6 | 6 | 4 | 3 | 2 | 174 |
| 100-299 | 13 | 18 | 8 | 23 | 10 | 12 | 16 | 14 | 22 | 22 | 9 | 19 | 11 | 8 | 9 | 7 | 9 | 13 | 10 | 17 | 7 | 10 | 15 | 10 | 312 |
| 300 workers or more | 5 | 10 | 7 | 6 | 11 | 7 | 12 | 15 | 18 | 12 | 6 | 5 | 17 | 14 | 12 | 15 | 11 | 11 | 12 | 10 | 20 | 17 | 11 | 8 | 272 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Month of fatal and non-fatal accidents in optical instruments in 1999-2022

| Month | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | 2 | 4 | 6 | 5 | 7 | 6 | 6 | 6 | 5 | 8 | 5 | 6 | 9 | 6 | 3 | 4 | 2 | 5 | 2 | 4 | 6 | 4 | 5 | 5 | 121 |
| February | 15 | 9 | 8 | 3 | 4 | 10 | 9 | 7 | 8 | 13 | 1 | 1 | 8 | 7 | 5 | 5 | 3 | 4 | 4 | 6 | 6 | 1 | 4 | 3 | 144 |
| March | 4 | 3 | 5 | 8 | 2 | 5 | 5 | 6 | 8 | 4 | 4 | 1 | 7 | 6 | 3 | 2 | 8 | 1 | 2 | 3 | 6 | 2 | 2 | 1 | 98 |
| April | 5 | 4 | 5 | 7 | 6 | 3 | 6 | 4 | 5 | 5 | 4 | 1 | 5 | 4 | 6 | 4 | 2 | | 6 | 7 | 3 | 6 | 3 | 6 | 107 |
| May | 1 | 6 | 3 | 8 | 7 | 7 | 3 | 3 | 6 | 5 | 4 | 1 | 3 | 2 | 1 | 2 | 2 | 2 | 3 | 2 | 3 | 5 | 4 | 5 | 88 |
| June | 4 | 7 | 4 | 3 | 10 | 4 | 3 | 3 | 4 | 3 | | 3 | 5 | 3 | 2 | 4 | 3 | 5 | 7 | 1 | 5 | 3 | 7 | 2 | 95 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 2 | 7 | 2 | 4 | 3 | 6 | 8 | 9 | 6 | 7 | 3 | 3 | 2 | 3 | 4 | 2 | 4 | 1 | 2 | 5 | 6 | 2 | 3 | 2 | 96 |
| August | 4 | 9 | 6 | 8 | 6 | 9 | 7 | 6 | 11 | 7 | 4 | 4 | 3 | 4 | | 3 | 4 | 7 | 3 | 5 | 6 | 2 | 3 | 3 | 124 |
| September | 3 | 5 | 8 | 13 | 10 | 6 | 9 | 10 | 2 | 9 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | 2 | 3 | 2 | 2 | 1 | 2 | 3 | 121 |
| October | 7 | 6 | 5 | 3 | 3 | 7 | 4 | 7 | 5 | 6 | 2 | 1 | 1 | 5 | 4 | 2 | 3 | 6 | 1 | 5 | 3 | 5 | 4 | 1 | 96 |
| November | 4 | 6 | | 3 | 1 | 6 | 4 | 6 | 6 | 1 | 4 | 12 | 5 | 4 | 2 | 3 | 4 | 4 | 5 | 4 | 4 | 9 | 3 | 2 | 102 |
| December | 6 | 7 | 2 | 6 | 2 | 3 | 4 | 7 | 7 | 4 | 2 | 2 | 6 | 2 | 4 | 3 | 2 | 5 | 7 | 3 | 4 | 3 | 3 | 5 | 99 |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Prefecture of fatal and non-fatal accidents in optical instruments in 1999-2022

| Prefecture | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hokkaido | | | | | | | | | | | 1 | | 1 | | | | 1 | | | | | 1 | | | 4 |
| Aomori | 4 | | 3 | | 2 | | 1 | 2 | 5 | 3 | 1 | | | 2 | 1 | 1 | 3 | 5 | | 1 | | | | | 34 |
| Iwate | | 1 | 2 | | | | | 1 | 5 | | 3 | 2 | 1 | 1 | | 1 | | | | | 1 | 3 | 1 | 1 | 23 |
| Miyagi | 1 | 1 | 1 | | 1 | | 3 | 4 | 3 | 2 | 3 | 1 | 1 | 1 | 2 | | 1 | | 2 | 2 | 1 | | 2 | 1 | 33 |
| Akita | 3 | 8 | 3 | | 4 | | 1 | 5 | 4 | 3 | 4 | 1 | 4 | 3 | 3 | 2 | 1 | 1 | 1 | 2 | 3 | 3 | | | 59 |
| Yamagata | 2 | 2 | 3 | | | | 1 | 3 | 1 | 3 | 1 | 2 | 1 | 1 | 2 | | 1 | 3 | 1 | 2 | 2 | | | 1 | 32 |
| Fukushima | 2 | 4 | 1 | | 2 | | 6 | 9 | 6 | 2 | 3 | 3 | 9 | 1 | 6 | 3 | 3 | 6 | 6 | 4 | 4 | 2 | 8 | 3 | 93 |
| Ibaraki | 2 | 1 | 3 | | 1 | | 4 | 1 | 4 | 2 | | 8 | | 1 | | 1 | 1 | 1 | 1 | | 3 | | 1 | | 35 |
| Tochigi | 2 | 7 | | | 2 | | 2 | 3 | 4 | 7 | | 2 | 5 | 5 | 4 | 9 | 4 | 3 | 7 | 3 | 6 | 14 | 2 | 3 | 94 |
| Gunma | | | 1 | | | | | | | 1 | 1 | | | 1 | | | | | | | 1 | 1 | | 1 | 7 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Saitama | 3 | 5 | 3 | | 3 | | 5 | 2 | 2 | 6 | 1 | 5 | 2 | 4 | 2 | 2 | 1 | 2 | 2 | 1 | 3 | | 3 | 4 | 61 |
| Chiba | 1 | | | | | | 1 | | 1 | | 1 | 1 | | 1 | | | | 1 | 3 | | | 1 | 1 | 2 | 14 |
| Tokyo | 6 | 1 | 2 | | 7 | | 7 | 3 | 4 | 4 | 5 | | 5 | 1 | | | 2 | 1 | 1 | 1 | 1 | | 3 | | 54 |
| Kanagawa | 3 | 1 | 2 | | 3 | | | 4 | 1 | 3 | 2 | 1 | 2 | 3 | 2 | 2 | | 1 | 3 | 2 | 2 | 2 | 2 | 4 | 45 |
| Niigata | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 2 | 2 | | | 1 | 2 | 3 | | 1 | 1 | 23 |
| Toyama | | | | | | | | 1 | | | | | | | | | | | | | | | | | 1 |
| Ishikawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fukui | 15 | 15 | 5 | | 9 | | 6 | 4 | 11 | 10 | 4 | 4 | 6 | 4 | 5 | 5 | 6 | 7 | 2 | 11 | 9 | 8 | 2 | 3 | 151 |
| Yamanashi | 1 | 1 | 1 | | 1 | | 2 | 4 | 1 | 2 | 1 | | 2 | 2 | 1 | 2 | | 1 | 1 | 1 | 1 | | | 2 | 27 |
| Nagano | 1 | 14 | 8 | | 5 | | 14 | 12 | 4 | 6 | 3 | 1 | 9 | 6 | 4 | 5 | 7 | 3 | 11 | 5 | 6 | 1 | 9 | 9 | 143 |
| Gifu | | | | | | | | 1 | | 1 | | | | | | | | | | 4 | | | | | 6 |
| Shizuoka | 1 | 1 | 2 | | 2 | | 1 | 1 | | | | | | | | | 1 | 1 | 1 | | | | | | 11 |
| Aichi | 1 | 4 | 3 | | 3 | | 2 | 4 | 5 | 4 | 2 | | 3 | 6 | 1 | 1 | 2 | 2 | | 4 | 1 | 3 | 3 | | 54 |
| Mie | | | 1 | | | | 2 | | | | | 1 | | | 1 | | | | | | | | | | 5 |
| Shiga | 2 | 2 | | | 2 | | 1 | 2 | 1 | | | | | | | 1 | | | | | | | | | 11 |
| Kyoto | 2 | | | | 2 | | 3 | 1 | | | | 1 | | | | | | | | | | 2 | 2 | | 13 |
| Osaka | 1 | 2 | 3 | | 3 | | 1 | 1 | 2 | 7 | | 5 | 1 | 3 | 1 | | 3 | 1 | 1 | | | 1 | 1 | | 37 |
| Hyogo | 1 | 1 | | | | | | 2 | | 1 | | | | | | | | | | | | | | | 5 |
| Nara | | | 1 | | 1 | | | | | | 1 | | | | | | | | | | | | | | 3 |
| Wakayama | 1 | | | | 1 | | 1 | 2 | 1 | 2 | | | 1 | 1 | 1 | | 1 | | 1 | | | | | | 13 |
| Tottori | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shimane | | | | | | | | | | | | | | | | | | | | | | | | | |
| Okayama | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | 2 |
| Hiroshima | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yamaguchi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tokushima | | | | | | | | | 1 | | | | | | | | | | | | | | | | 1 |
| Kagawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ehime | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| Kochi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fukuoka | | | | | | | 1 | | 1 | | | | 1 | | | | | | | 1 | | | 1 | 1 | 6 |
| Saga | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nagasaki | | | 1 | | | | | | | | | 1 | 1 | | | | | 1 | | | 1 | | | | 5 |
| Kumamoto | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oita | | | 2 | | 5 | | 1 | 1 | 4 | 2 | | | 2 | 3 | | 1 | 2 | | | | 1 | 1 | | 2 | 27 |
| Miyazaki | 1 | | | | 1 | | 1 | | | | 1 | | | | | | 1 | 2 | | 1 | 5 | | 1 | | 14 |
| Kagoshima | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Okinawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| total | 57 | 73 | 54 | 71 | 61 | 72 | 68 | 74 | 73 | 72 | 38 | 40 | 58 | 51 | 38 | 38 | 41 | 42 | 45 | 47 | 54 | 43 | 43 | 38 | 1,291 |

Fatal and non-fatal accidents mean fatal and non-fatal injuries and occupational diseases with work absence of 4 days and more.

Data of 2022 year do not include Covid-19 cases. Data of 2020 & 2021 year include Covid-19 cases. Fatal and non-fatal data are same situation.

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.html (MHLW, Japan)

Return to https://www.jisha.or.jp/english/statistics/2022e_industry.html

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Fatal accidents in optical instruments in Japan in 1999-2022

optical instruments industry Code No.011303

Type of fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| fall from height | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| falling to same level | | | | | | | | | | | | | | | | | | | | | | | | | |
| crash | | | | | | | | | | | | | | | | | | | | | | | | | |
| struck by flying or falling object | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| collapse | | | | | | | | | | | | | | | | | | | | | | | | | |
| crashed by | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 |
| caught in/between | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| cut | | | | | | | | | | | | | | | | | | | | | | | | | |
| injury to the sole of the foot | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| drown | | | | | | | | | | | | | | | | | | | | | | | | | |
| contact to high/low-temperature | | | | | | | | | | | | | | | | | | | | | | | | | |
| contact to harmful substance | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| electric shock | | | | | | | | | | | | | | | | | | | | | | | | | |
| explosion | | | | | | | | | | | | | | | | | | | | | | | | | |
| burst | | | | | | | | | | | | | | | | | | | | | | | | | |
| fire | | | | | | | | | | | | | | | | | | | | | | | | | |
| traffic accident (public road) | | | | | | | | | | | | | | | | | | | | | | | | | |
| traffic accident (others) | | | | | | | | | | | | | | | | | | | | | | | | | |
| reaction to motion/improper motion | | | | | | | | | | | | | | | | | | | | | | | | | |
| others | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| unclassifiable | | | | | | | | | | | | | | | | | | | | | | | | | |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Causal agents (large) of fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| machine | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | 2 |
| crane, conveying machine | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| other equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| temporary buildings, establishments | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| substance, material | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| load | | | | | | | | | | | | | | | | | | | | | | | | | |
| environment | | | | | | | | | | | | | | | | | | | | | | | | | |
| others | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Causal agents (middle) of fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| engine | | | | | | | | | | | | | | | | | | | | | | | | | |
| power transmission mechanism | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| woodworking machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| construction machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| metal manufacturing machine | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | 2 |
| general machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| mobile silviculture machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| crane | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| conveying machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| vehicle | | | | | | | | | | | | | | | | | | | | | | | | | |
| pressure vessel | | | | | | | | | | | | | | | | | | | | | | | | | |
| chemical facilities | | | | | | | | | | | | | | | | | | | | | | | | | |
| welding equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| kiln, caldron | | | | | | | | | | | | | | | | | | | | | | | | | |
| electric equipment | | | | | | | | | | | | | | | | | | | | | | | | | |
| human power machine, tools | | | | | | | | | | | | | | | | | | | | | | | | | |
| tools | | | | | | | | | | | | | | | | | | | | | | | | | |
| other equipments, | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| facilities | | | | | | | | | | | | | | | | | | | | | | | | | |
| temporary buildings, establishments | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| hazards, harmful substances | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| materials | | | | | | | | | | | | | | | | | | | | | | | | | |
| load | | | | | | | | | | | | | | | | | | | | | | | | | |
| natural environment | | | | | | | | | | | | | | | | | | | | | | | | | |
| other causal agent | | | | | | | | | | | | | | | | | | | | | | | | | |
| no causal agent | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| unclassifiable | | | | | | | | | | | | | | | | | | | | | | | | | |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Causal agents (small) of fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| engine | | | | | | | | | | | | | | | | | | | | | | | | | |
| power transmission mechanism | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| circular sawing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| band sawing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| wood planer machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| hollow chisel mortiser, wood borer | | | | | | | | | | | | | | | | | | | | | | | | | |
| chamfering machine, router, woodworking milling machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| chain saw | | | | | | | | | | | | | | | | | | | | | | | | | |
| other woodworking machines | | | | | | | | | | | | | | | | | | | | | | | | | |
| leveling, transporting or loading machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| excavating machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| foundation work machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| hardening machine | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| demolition machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| vehicle for high lift work | | | | | | | | | | | | | | | | | | | | | | | | | |
| other construction machines | | | | | | | | | | | | | | | | | | | | | | | | | |
| lathe | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| drill press, milling machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| grinding machine, buffing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| power press | | | | | | | | | | | | | | | | | | | | | | | | | |
| forging pressure hammer | | | | | | | | | | | | | | | | | | | | | | | | | |
| shearing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| other metal manufacturing machines | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 |
| centrifugal machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| mixer, grinder | | | | | | | | | | | | | | | | | | | | | | | | | |
| roll machine (except printingroll machine) | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| injection molding machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| food manufacturing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| printing machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| industrial robot | | | | | | | | | | | | | | | | | | | | | | | | | |
| other general power machines | | | | | | | | | | | | | | | | | | | | | | | | | |
| felling machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| mobile logging machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| skyline yarding machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| other mobile silviculture machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| crane | | | | | | | | | | | | | | | | | | | | | | | | | |
| mobile crane | | | | | | | | | | | | | | | | | | | | | | | | | |
| derrick crane | | | | | | | | | | | | | | | | | | | | | | | | | |
| elevator, lift | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| cargo lifting appliance | | | | | | | | | | | | | | | | | | | | | | | | | |
| gondola | | | | | | | | | | | | | | | | | | | | | | | | | |

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

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

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| human power machine | | | | | | | | | | | | | | | | | | | | | | | | | |
| hand tool | | | | | | | | | | | | | | | | | | | | | | | | | |
| ladder | | | | | | | | | | | | | | | | | | | | | | | | | |
| slinging tool | | | | | | | | | | | | | | | | | | | | | | | | | |
| other tools | | | | | | | | | | | | | | | | | | | | | | | | | |
| other equipment, facilities | | | | | | | | | | | | | | | | | | | | | | | | | |
| scaffolding | | | | | | | | | | | | | | | | | | | | | | | | | |
| timbering | | | | | | | | | | | | | | | | | | | | | | | | | |
| stairs, landing stage | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| opening | | | | | | | | | | | | | | | | | | | | | | | | | |
| roof, beam, haze, crossbeam, principal rafter | | | | | | | | | | | | | | | | | | | | | | | | | |
| working platform, boot board | | | | | | | | | | | | | | | | | | | | | | | | | |
| passage | | | | | | | | | | | | | | | | | | | | | | | | | |
| building, establishment | | | | | | | | | | | | | | | | | | | | | | | | | |
| other temporary buildings, | | | | | | | | | | | | | | | | | | | | | | | | | |

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| establishments | | | | | | | | | | | | | | | | | | | | | | | | | |
| explosive substance | | | | | | | | | | | | | | | | | | | | | | | | | |
| inflammable substance | | | | | | | | | | | | | | | | | | | | | | | | | |
| inflammable gas | | | | | | | | | | | | | | | | | | | | | | | | | |
| harmful substance | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| radiation | | | | | | | | | | | | | | | | | | | | | | | | | |
| other hazards, harmful substances | | | | | | | | | | | | | | | | | | | | | | | | | |
| metal material | | | | | | | | | | | | | | | | | | | | | | | | | |
| lumber, bamboo | | | | | | | | | | | | | | | | | | | | | | | | | |
| stone, sand, substance | | | | | | | | | | | | | | | | | | | | | | | | | |
| other materials | | | | | | | | | | | | | | | | | | | | | | | | | |
| load | | | | | | | | | | | | | | | | | | | | | | | | | |
| machine/equipment as load | | | | | | | | | | | | | | | | | | | | | | | | | |
| natural ground, rock | | | | | | | | | | | | | | | | | | | | | | | | | |
| standing tree | | | | | | | | | | | | | | | | | | | | | | | | | |
| water | | | | | | | | | | | | | | | | | | | | | | | | | |
| abnormal | | | | | | | | | | | | | | | | | | | | | | | | | |

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| environment | | | | | | | | | | | | | | | | | | | | | | | | | |
| high/cold temperature environment | | | | | | | | | | | | | | | | | | | | | | | | | |
| other environments | | | | | | | | | | | | | | | | | | | | | | | | | |
| other causal agent | | | | | | | | | | | | | | | | | | | | | | | | | |
| no causal agent | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| unclassifiable | | | | | | | | | | | | | | | | | | | | | | | | | |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Workers age of fatal accidents in optical instruments in 1999-2022

| Age | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 years old or less | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20-29 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | 2 |
| 30-39 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40-49 | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| 50-59 | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| 60 years old or more | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | 2 |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Workers' number of workplace of fatal accidents in optical instruments in 1999-2022

| 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 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 workers or less | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | | 2 |
| 10-29 | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 30-49 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50-99 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100-299 | | | | | | 1 | | | | | | | | | 1 | | | | | | | | | | 2 |
| 300 workers or more | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Month of fatal accidents in optical instruments in 1999-2022

| Month | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| February | | | | | | | | | | | | | | | | | | | | | | | | | |
| March | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| April | | | | | | | | | | | | | | | | | | | | | | | | | |
| May | | | | | | | | | | | | | | | | | | | | | | | | | |
| June | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 |

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| July | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| August | | | | | | | | | | | | | | | | | | | | | | | | | |
| September | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| October | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| November | | | | | | | | | | | | | | | | | | | | | | | | | |
| December | | | | | | | | | | | | | | | | | | | | | | | | | |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

Prefecture of fatal accidents in optical instruments in 1999-2022

| Prefecture | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hokkaido | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aomori | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| Iwate | | | | | | | | | | | | | | | | | | | | | | | | | |
| Miyagi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Akita | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yamagata | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| Fukushima | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ibaraki | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tochigi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gunma | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Saitama | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | 2 |
| Chiba | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tokyo | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kanagawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| Niigata | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toyama | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ishikawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fukui | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yamanashi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nagano | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| Gifu | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shizuoka | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aichi | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 |
| Mie | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shiga | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kyoto | | | | | | | | | | | | | | | | | | | | | | | | | |
| Osaka | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyogo | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nara | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wakayama | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tottori | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Shimane | | | | | | | | | | | | | | | | | | | | | | | | | |
| Okayama | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hiroshima | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yamaguchi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tokushima | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kagawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ehime | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kochi | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fukuoka | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saga | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nagasaki | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kumamoto | | | | | | | | | | | | | | | | | | | | | | | | | |
| Oita | | | | | | | | | | | | | | | | | | | | | | | | | |
| Miyazaki | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kagoshima | | | | | | | | | | | | | | | | | | | | | | | | | |
| Okinawa | | | | | | | | | | | | | | | | | | | | | | | | | |
| total | | 1 | 1 | | | 2 | | | | | | | | | 1 | | | | | | 1 | | | | 6 |

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

Return to https://www.jisha.or.jp/english/statistics/2022e_industry.html