



**ALUTEC KK**

# ***Steel protective fencing***

**Security solutions for robotic  
workplaces and production lines.**





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# A comprehensive system security fence



The complex Aosaft steel security fencing system is designed to secure robotic workplaces, automated production lines, machines and warehouses.



## Properties

- flexibility, simplicity and speed of installation
- unlimited configuration options thanks to a range of accessories
- strength according to ISO 14120-2015 withstands an impact force of 1600J
- certified safety fencing that complies with the safety regulations for the prevention of accidents according to the Machinery Directive 2006/42/EC

## Use

The modular steel fencing system can be used wherever you need to quickly create your own fencing with minimal equipment. The system is suitable for securing robotic workplaces, automated production lines, machines and warehouses.

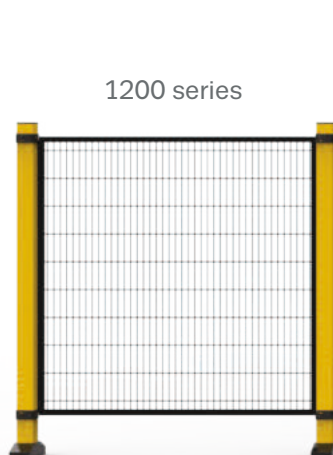
## Accessories

The system is designed with a wide range of accessories and fasteners.. Key accessories include doors (single-leaf, double-leaf), sliding and hinged doors and gates, folding doors and gates, locks (mechanical, security), blanks, mounting kits and more.

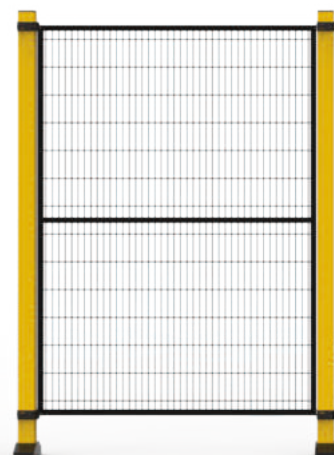
## Basic parameters

|                         |                  |
|-------------------------|------------------|
| square profile - column | 60 x 60 x 1,5 mm |
| square profile - mesh   | 20 x 20 x 1,2 mm |
| mesh - aperture         | 20 * 100 mm      |
| mesh - wire diameter    | 3 mm             |

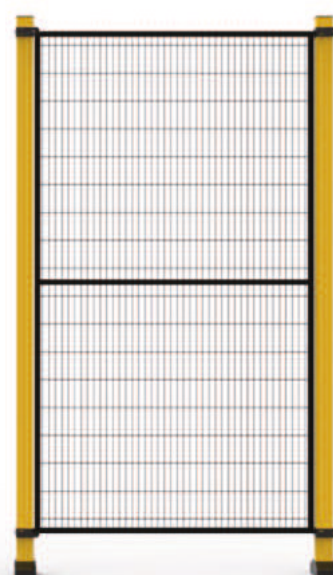
1200 series



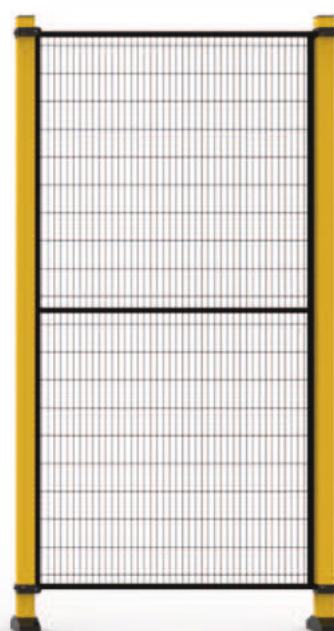
1600 series



2000 series



2200 series



## Basic colours

|                                                                                      |       |                          |
|--------------------------------------------------------------------------------------|-------|--------------------------|
|  | L1018 | standard color for posts |
|  | L1023 |                          |
|  | L7035 |                          |
|  | L9005 | base color of the panel  |

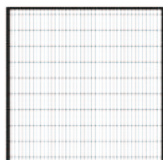
## Steel post



| code           | width (mm) | height (mm) | weight (kg) |
|----------------|------------|-------------|-------------|
| <b>OPS1200</b> | 60x60      | 1200        | 3,9         |
| <b>OPS1600</b> | 60x60      | 1600        | 4,9         |
| <b>OPS2000</b> | 60x60      | 2000        | 6,2         |
| <b>OPS2200</b> | 60x60      | 2200        | 6,7         |

\* the post also includes accessories (upper and lower clamping sleeve, post cover, anchoring base cover)

## Steel panel



| code           | width (mm) | height (mm) | weight (kg) |
|----------------|------------|-------------|-------------|
| <b>OPP0210</b> | 200        | 1000        | 2,1         |
| <b>OPP0310</b> | 300        | 1000        | 2,5         |
| <b>OPP0410</b> | 400        | 1000        | 3,0         |
| <b>OPP0510</b> | 500        | 1000        | 3,4         |
| <b>OPP0610</b> | 600        | 1000        | 3,8         |
| <b>OPP0710</b> | 700        | 1000        | 4,3         |
| <b>OPP0810</b> | 800        | 1000        | 4,8         |
| <b>OPP0910</b> | 900        | 1000        | 5,2         |
| <b>OPP1010</b> | 1000       | 1000        | 5,7         |
| <b>OPP1110</b> | 1100       | 1000        | 6,2         |
| <b>OPP1210</b> | 1200       | 1000        | 6,8         |

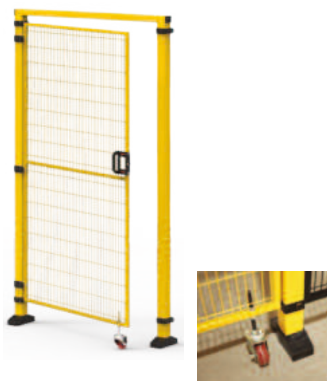
## Steel panel



| code           | width (mm) | height (mm) | weight (kg) |
|----------------|------------|-------------|-------------|
| <b>OPP0214</b> | 200        | 1400        | 2,9         |
| <b>OPP0314</b> | 300        | 1400        | 3,5         |
| <b>OPP0414</b> | 400        | 1400        | 4,2         |
| <b>OPP0514</b> | 500        | 1400        | 4,8         |
| <b>OPP0614</b> | 600        | 1400        | 5,4         |
| <b>OPP0714</b> | 700        | 1400        | 6,0         |
| <b>OPP0814</b> | 800        | 1400        | 6,6         |
| <b>OPP0914</b> | 900        | 1400        | 7,2         |
| <b>OPP1014</b> | 1000       | 1400        | 7,9         |
| <b>OPP1114</b> | 1100       | 1400        | 8,5         |
| <b>OPP1214</b> | 1200       | 1400        | 9,1         |
| <b>OPP0218</b> | 200        | 1800        | 3,7         |
| <b>OPP0318</b> | 300        | 1800        | 4,4         |
| <b>OPP0418</b> | 400        | 1800        | 5,2         |
| <b>OPP0518</b> | 500        | 1800        | 5,9         |
| <b>OPP0618</b> | 600        | 1800        | 6,5         |
| <b>OPP0718</b> | 700        | 1800        | 7,4         |
| <b>OPP0818</b> | 800        | 1800        | 8,1         |
| <b>OPP0918</b> | 900        | 1800        | 8,8         |
| <b>OPP1018</b> | 1000       | 1800        | 9,6         |
| <b>OPP1118</b> | 1100       | 1800        | 10,3        |
| <b>OPP1218</b> | 1200       | 1800        | 11,0        |
| <b>OPP1418</b> | 1400       | 1800        | 12,5        |
| <b>OPP0220</b> | 200        | 2000        | 4,1         |
| <b>OPP0320</b> | 300        | 2000        | 4,8         |
| <b>OPP0420</b> | 400        | 2000        | 5,7         |
| <b>OPP0520</b> | 500        | 2000        | 6,4         |
| <b>OPP0620</b> | 600        | 2000        | 7,2         |
| <b>OPP0720</b> | 700        | 2000        | 7,9         |
| <b>OPP0820</b> | 800        | 2000        | 8,5         |
| <b>OPP0920</b> | 900        | 2000        | 9,4         |
| <b>OPP1020</b> | 1000       | 2000        | 10,2        |
| <b>OPP1120</b> | 1100       | 2000        | 10,8        |
| <b>OPP1220</b> | 1200       | 2000        | 11,8        |
| <b>OPP1420</b> | 1400       | 2000        | 13,4        |

\* blanks are part of the panel

## Hinged steel door (R / L) - with reinforcement



| code           | Hole width (mm) | overall width (mm) | height (mm) | weight (kg) |
|----------------|-----------------|--------------------|-------------|-------------|
| <b>OPD0820</b> | 800             | 950                | 2000        | 26,8        |
| <b>OPD1020</b> | 1000            | 1150               | 2000        | 27,8        |
| <b>OPD1220</b> | 1200            | 1350               | 2000        | 29,2        |
| <b>OPD1520</b> | 1500            | 1650               | 2000        | 31,4        |
| <b>OPD0822</b> | 800             | 950                | 2200        | 27,7        |
| <b>OPD1022</b> | 1000            | 1150               | 2200        | 29,4        |
| <b>OPD1222</b> | 1200            | 1350               | 2200        | 31,0        |
| <b>OPD1522</b> | 1500            | 1650               | 2200        | 33,4        |

## Double hinged steel door with reinforcement



| code           | Hole width (mm) | overall width (mm) | height (mm) | weight (kg) |
|----------------|-----------------|--------------------|-------------|-------------|
| <b>OPD1620</b> | 1600            | 1760               | 2000        | 35,5        |
| <b>OPD2020</b> | 2000            | 2160               | 2000        | 38,5        |
| <b>OPD2420</b> | 2400            | 2560               | 2000        | 41,3        |
| <b>OPD3020</b> | 3000            | 3160               | 2000        | 45,7        |
| <b>OPD1622</b> | 1600            | 1760               | 2200        | 37,3        |
| <b>OPD2022</b> | 2000            | 2160               | 2200        | 40,7        |
| <b>OPD2422</b> | 2400            | 2560               | 2200        | 43,9        |
| <b>OPD3022</b> | 3000            | 3160               | 2200        | 48,7        |

## Hinged steel door (R / L) - without reinforcement



| code           | Hole width (mm) | overall width (mm) | height (mm) | weight (kg) |
|----------------|-----------------|--------------------|-------------|-------------|
| <b>OPD0816</b> | 800             | 950                | 1600        | 18,1        |
| <b>OPD1016</b> | 1000            | 1150               | 1600        | 19,4        |
| <b>OPD1216</b> | 1200            | 1350               | 1600        | 20,6        |
| <b>OPD1516</b> | 1500            | 1650               | 1600        | 22,5        |

## Double hinged steel door - without reinforcement



| code           | Hole width (mm) | overall width (mm) | height (mm) | weight (kg) |
|----------------|-----------------|--------------------|-------------|-------------|
| <b>OPD1616</b> | 1600            | 1760               | 1600        | 27,5        |
| <b>OPD2016</b> | 2000            | 2160               | 1600        | 30,1        |
| <b>OPD2416</b> | 2400            | 2560               | 1600        | 32,5        |
| <b>OPD3016</b> | 3000            | 3160               | 1600        | 36,3        |

\* all types of doors are delivered assembled

## Single sliding doors (L/R)



| code      | Hole width (mm) | overall width (mm) | height (mm) | weight (kg) |
|-----------|-----------------|--------------------|-------------|-------------|
| OPV0820.P | 800             | 1840               | 2000        | 51,0        |
| OPV1020.P | 1000            | 2240               | 2000        | 55,0        |
| OPV1220.P | 1200            | 2640               | 2000        | 59,0        |
| OPV1520.P | 1500            | 3000               | 2000        | 70,0        |
| OPV0822.P | 800             | 1840               | 2200        | 53,7        |
| OPV1022.P | 1000            | 2240               | 2200        | 58,0        |
| OPV1222.P | 1200            | 2640               | 2200        | 62,4        |
| OPV1522.P | 1500            | 3000               | 2200        | 73,7        |

## Double sliding doors



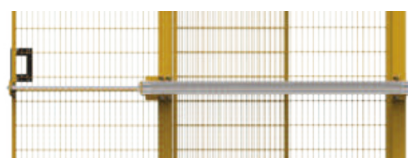
| code      | Hole width (mm) | overall width (mm) | výška (mm) | weight (kg) |
|-----------|-----------------|--------------------|------------|-------------|
| OPB1420.P | 1400            | 3130               | 2000       | 81,6        |
| OPB1620.P | 1600            | 3530               | 2000       | 86,0        |
| OPB2020.P | 2000            | 4330               | 2000       | 95,8        |
| OPB2420.P | 2400            | 5130               | 2000       | 104,0       |
| OPB3020.P | 3000            | 6330               | 2000       | 125,3       |
| OPB1422.P | 1400            | 3130               | 2200       | 96,0        |
| OPB1622.P | 1600            | 3530               | 2200       | 90,3        |
| OPB2022.P | 2000            | 4330               | 2200       | 101,0       |
| OPB2422.P | 2400            | 5130               | 2200       | 109,6       |
| OPB3022.P | 3000            | 6330               | 2200       | 131,7       |

## Suspended door (L/R)



| code      | Hole width (mm) | overall width (mm) | výška (mm) | weight (kg) |
|-----------|-----------------|--------------------|------------|-------------|
| OPV0816.Z | 800             | 2050               | 1600       | 46,5        |
| OPV1016.Z | 1000            | 2450               | 1600       | 52,5        |
| OPV1216.Z | 1200            | 2850               | 1600       | 59,5        |
| OPV1516.Z | 1500            | 3450               | 1600       | 70,3        |
| OPV0820.Z | 800             | 2050               | 2000       | 52,9        |
| OPV1020.Z | 1000            | 2450               | 2000       | 60,0        |
| OPV1220.Z | 1200            | 2850               | 2000       | 66,6        |
| OPV1520.Z | 1500            | 3450               | 2000       | 78,5        |
| OPV0822.Z | 800             | 2050               | 2200       | 54,1        |
| OPV1022.Z | 1000            | 2450               | 2200       | 61,1        |
| OPV1222.Z | 1200            | 2850               | 2200       | 68,0        |
| OPV1522.Z | 1500            | 3450               | 2200       | 82,0        |

Choice of door closing:  
manual, pneumatic or  
electric



pneumatic opening



electric opening

\* all types of doors are delivered assembled

## Double suspended door



| code             | Hole width (mm) | overall width (mm) | výška (mm) | weight (kg) |
|------------------|-----------------|--------------------|------------|-------------|
| <b>OPB1616.Z</b> | 1600            | 3930               | 1600       | 82,2        |
| <b>OPB2016.Z</b> | 2000            | 4730               | 1600       | 95,8        |
| <b>OPB2416.Z</b> | 2400            | 5530               | 1600       | 108,5       |
| <b>OPB1620.Z</b> | 1600            | 3930               | 2000       | 92,6        |
| <b>OPB2020.Z</b> | 2000            | 4730               | 2000       | 106,3       |
| <b>OPB2420.Z</b> | 2400            | 5530               | 2000       | 121,3       |
| <b>OPB1622.Z</b> | 1600            | 3930               | 2200       | 99,3        |
| <b>OPB2022.Z</b> | 2000            | 4730               | 2200       | 113,5       |
| <b>OPB2422.Z</b> | 2400            | 5530               | 2200       | 126,8       |

## Folding door (L/R)



| code             | Hole width (mm) | overall width (mm) | výška (mm) | weight (kg) |
|------------------|-----------------|--------------------|------------|-------------|
| <b>OPV1820.S</b> | 1800            |                    | 2000       | 39,5        |
| <b>OPV2420.S</b> | 2400            |                    | 2000       | 50,5        |
| <b>OPV1822.S</b> | 1800            |                    | 2200       | 41,5        |
| <b>OPV2422.S</b> | 2400            |                    | 2200       | 53,5        |

## Doule open folding door



| code             | Hole width (mm) | overall width (mm) | výška (mm) | weight (kg) |
|------------------|-----------------|--------------------|------------|-------------|
| <b>OPB3620.S</b> | 3600            |                    | 2000       | 63,5        |
| <b>OPB4820.S</b> | 4800            |                    | 2000       | 86,0        |
| <b>OPB3620.S</b> | 3600            |                    | 2200       | 66,5        |
| <b>OPB4820.S</b> | 4800            |                    | 2200       | 91,0        |

\* all types of doors are delivered assembled

### Mechanical lock

code: OPZM01

weight: 3,4 kg



### Mechanical lock

code: OPZM03

weight: 1,2 kg



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### Security lock PILZ me4.2/4AS

code: OPZP01

weight: 1,5 kg



### Security lock PILZ me5s

code: OPZP02

weight: 2,1 kg



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### Safety switch XCSA702+XCSZ01

code: OPZS01

weight: 1,8 kg



### Schneider security lock XCSE312+XCSZ01

code: OPZS02

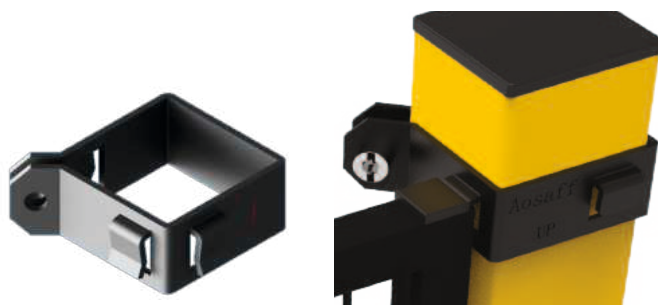
weight: 2,9 kg



### Up snap ring

code: OPA001

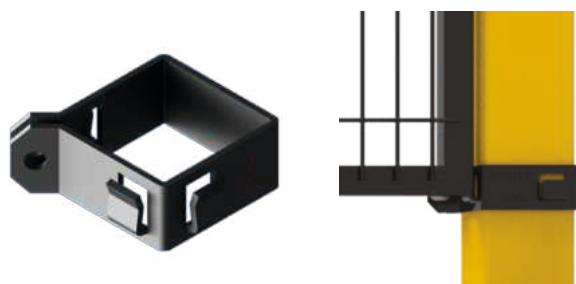
weight: 0,2 kg



### Down snap ring

code: OPA002

weight: 0,2 kg



### Snap ring set 4 ks

code: OPA003

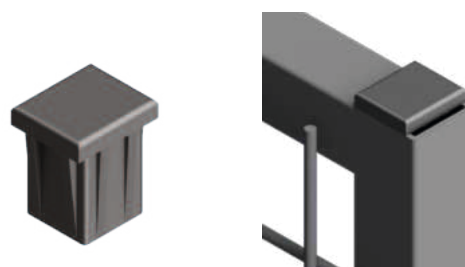
weight: 0,8 kg



### Plug steel panel 20x20 mm

code: OPA004

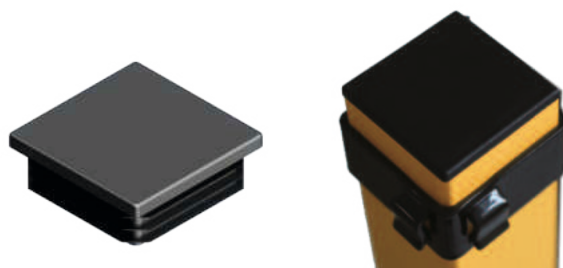
weight: 0,002 kg



### Plug steel post 60x60 mm

code: OPA005

weight: 0,02 kg



### Plug for anchoring base steel post

code: OPA006

weight: 0,7 kg



### Mounting kit

code: OPA007

weight: 4,0 kg





According to ISO 14120-2015, it can withstand an impact force of 1600J



The color difference shall be measured by the instrumental method in accordance with the provisions of standards GB/T 11186.2-1989 and GB/T 11186.3-1989, and the sampling test shall be carried out by a spectrophotometer.



The thickness of the spray layer is in accordance with GB/T 26941.1-2011. The sampling check shall be carried out with a layer thickness gauge.



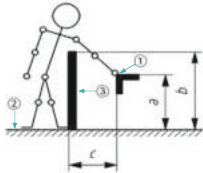
Corrosion resistance test according to ISO9227.

# Product standardisation

GB23821-2009 Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs

## Reaching over protective structures — High risk

Dimension in mm



- a -- height of hazard zone  
b -- height of protective structure  
c -- horizontal safety distance to hazard zone  
① -- hazard zone (nearest point)  
② -- reference plane  
③ -- protective structure

| Height of hazard zone a | Height of protective structure b            |      |      |      |      |      |      |      |      |
|-------------------------|---------------------------------------------|------|------|------|------|------|------|------|------|
|                         | 1000                                        | 1200 | 1400 | 1600 | 1800 | 2000 | 2200 | 2400 | 2500 |
|                         | Horizontal safety distance to hazard zone c |      |      |      |      |      |      |      |      |
| 2600                    | 900                                         | 800  | 700  | 600  | 600  | 500  | 400  | 300  | 100  |
| 2400                    | 1100                                        | 1000 | 900  | 800  | 700  | 600  | 400  | 300  | 100  |
| 2200                    | 1300                                        | 1200 | 1000 | 900  | 800  | 600  | 400  | 300  | 0    |
| 2000                    | 1400                                        | 1300 | 1100 | 900  | 800  | 600  | 400  | 0    | 0    |
| 1800                    | 1500                                        | 1400 | 1100 | 900  | 800  | 600  | 0    | 0    | 0    |
| 1600                    | 1500                                        | 1400 | 1100 | 900  | 800  | 500  | 0    | 0    | 0    |
| 1400                    | 1500                                        | 1400 | 1100 | 900  | 800  | 0    | 0    | 0    | 0    |
| 1200                    | 1500                                        | 1400 | 1100 | 900  | 700  | 0    | 0    | 0    | 0    |
| 1000                    | 1500                                        | 1400 | 1000 | 800  | 0    | 0    | 0    | 0    | 0    |
| 800                     | 1500                                        | 1300 | 900  | 600  | 0    | 0    | 0    | 0    | 0    |
| 600                     | 1400                                        | 1300 | 800  | 0    | 0    | 0    | 0    | 0    | 0    |
| 400                     | 1400                                        | 1200 | 400  | 0    | 0    | 0    | 0    | 0    | 0    |
| 200                     | 1200                                        | 900  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 0                       | 1100                                        | 500  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |

Notes : 1. Protective structures less than 1 000 mm in height are not included because they do not sufficiently restrict movement of the body.  
2. Protective structures lower than 1 400 mm should not be used without additional safety measures.

## Reaching through regular openings — Persons of 14 years of age and above

Dimension in mm

| Part of body                     | Illustration | Opening           | Safety distance $S_r$ |            |            |
|----------------------------------|--------------|-------------------|-----------------------|------------|------------|
|                                  |              |                   | Slot                  | Square     | Round      |
| Fingertip                        |              | $e \leq 4$        | $\geq 2$              | $\geq 2$   | $\geq 2$   |
|                                  |              | $4 < e \leq 6$    | $\geq 10$             | $\geq 5$   | $\geq 5$   |
| Finger up to knuckle joint       |              | $6 < e \leq 8$    | $\geq 20$             | $\geq 15$  | $\geq 5$   |
| Hand                             |              | $8 < e \leq 10$   | $\geq 80$             | $\geq 25$  | $\geq 20$  |
|                                  |              | $10 < e \leq 12$  | $\geq 100$            | $\geq 80$  | $\geq 80$  |
|                                  |              | $12 < e \leq 20$  | $\geq 120$            | $\geq 120$ | $\geq 120$ |
|                                  |              | $20 < e \leq 30$  | $\geq 850$ (broken)   | $\geq 120$ | $\geq 120$ |
|                                  |              | $30 < e \leq 40$  | $\geq 850$            | $\geq 200$ | $\geq 120$ |
| Arm up to junction with shoulder |              | $40 < e \leq 120$ | $\geq 850$            | $\geq 850$ | $\geq 850$ |

The bold lines within the table delineate that part of the body restricted by the opening size.

Note : If the length of the slot opening is  $\leq 65$  mm, the thumb will act as a stop and the safety distance can be reduced to 200 mm.

Passed the Intertek professional test and received EU CE certification.



**intertek**  
Total Quality Assurance

# Test Verification of Conformity

Verification Number: 210804079GZU-VOC001

On the basis of the referenced test report(s), sample(s) tested of the below product have been found to comply with the standards harmonized with the directives listed on this verification at the time the tests were carried out. Other standards and Directives may apply to the product. This verification is part of the full test report(s) and should be read in conjunction with it <them>.

Once compliance with all product relevant  mark declarations are verified, including any relevant e.g. risk assessment and production control, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to products identical to the tested sample(s).

|                                             |                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant Name & Address:                   | Jinan Aotuo Automation Co., Ltd.<br>No.355, Huade Road, Jinan Economic Development Zone, Jinan City, Shandong Province, China                                                                                                                                                      |
| Product Description:                        | Fence                                                                                                                                                                                                                                                                              |
| Ratings & Principle Characteristics:        | See appendix pages                                                                                                                                                                                                                                                                 |
| Models/Type References:                     | AJW Series (Wire Mesh Fence)<br>AAP Series (Polycarbonate Panel Fence)                                                                                                                                                                                                             |
| Brand Name:                                 | Aosoff                                                                                                                                                                                                                                                                             |
| Relevant Standards/Directives:              | EN ISO 12100: 2010 Safety of machinery – General principles for design - Risk assessment and risk reduction<br>EN ISO 14120:2015 Safety of machinery – Guards – General requirements for the design and construction of fixed and movable guards<br>Machinery Directive 2006/42/EC |
| Verification Issuing Office Name & Address: | Intertek Testing Services Shenzhen Ltd. Guangdong Branch<br>Room G2, & 101/A201/E301/F401/E501/E601/L701/E801 of Room D1 1-B/F, No. 7-2, Capiex Road, Science City, GEETOO, Guangzhou, Guangdong, China                                                                            |
| Date of Tests:                              | 10 August, 2021                                                                                                                                                                                                                                                                    |
| Test Report Number(s):                      | 19053101GZU-G01, G02, G03, G04 R1 dated Aug. 10, 2021.                                                                                                                                                                                                                             |



**Signature**



**Name:** Michael Wang

**Position:** Assistant Technical Manager

**Date:** 10 August, 2021

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GFT-QP-116 (10 April 2020)

**ISO quality management system certification was obtained.**



# MANAGEMENT SYSTEM CERTIFICATE

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|                                            |                                                |                                             |
|--------------------------------------------|------------------------------------------------|---------------------------------------------|
| Certificate No:<br>182196-2013-AQ-00C-Risk | Initial certification date:<br>31 August, 2013 | Valid:<br>31 August, 2016 - 31 August, 2021 |
|--------------------------------------------|------------------------------------------------|---------------------------------------------|

This is to certify that the management system of

**Jinan Aotto Automation Co., Ltd.**

No.355 Huade Road, Jinan Economic Development Zone, Jinan, P.R. China  
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:  
**GB/T 19001-2016/ISO 9001:2015**

This certificate is valid for the following scope:

**Design, Manufacturing, Sales, Commissioning and Service of Automation Equipment.**  
**Design, Manufacturing, Sales and Installation Services of Security Fence**

Place and Date:  
Shanghai, 20 August, 2020





For the issuing officer:  
 RNY GJ - Business Assurance  
 Suite A, Building 5, No.1591 Hongqiao  
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 200356, P.R. China  
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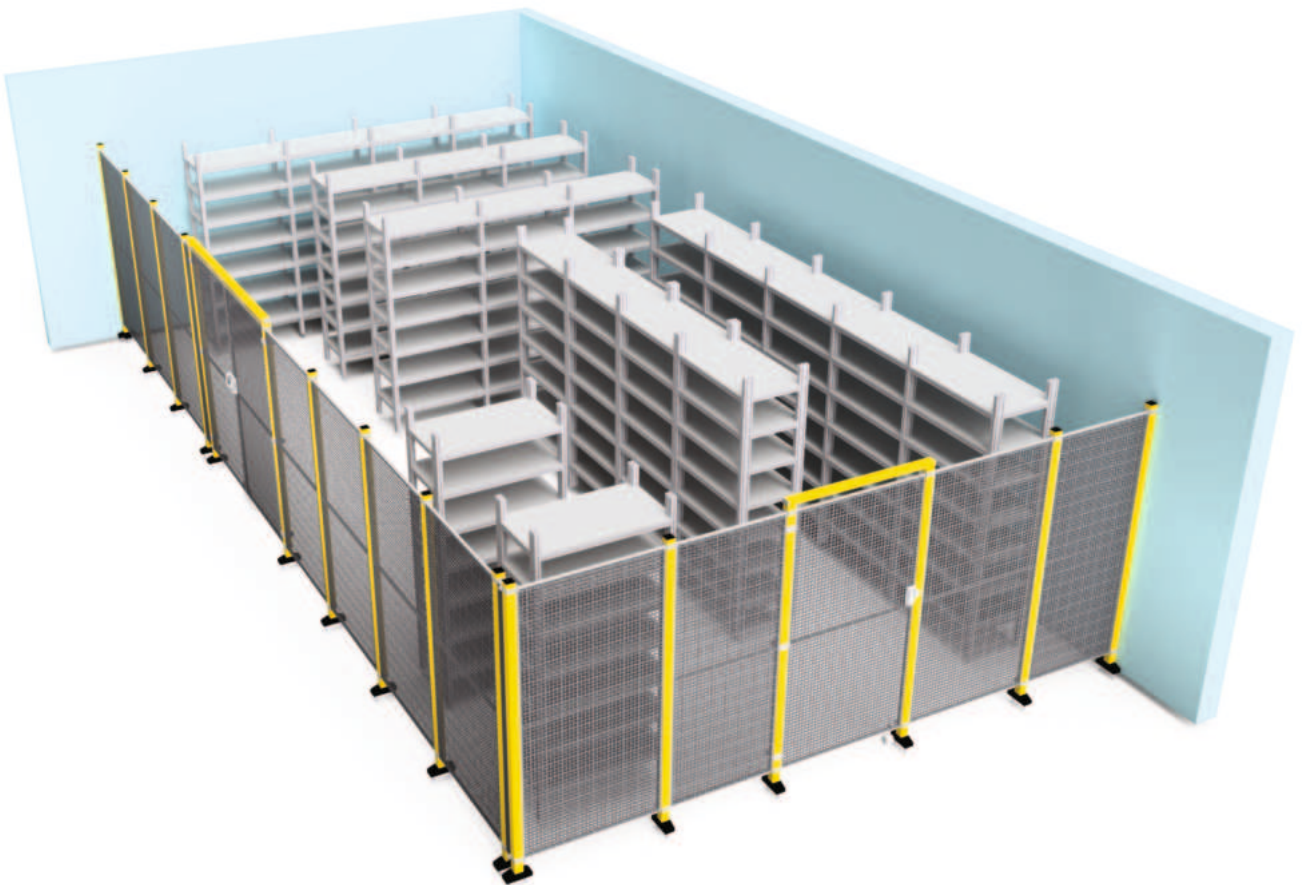
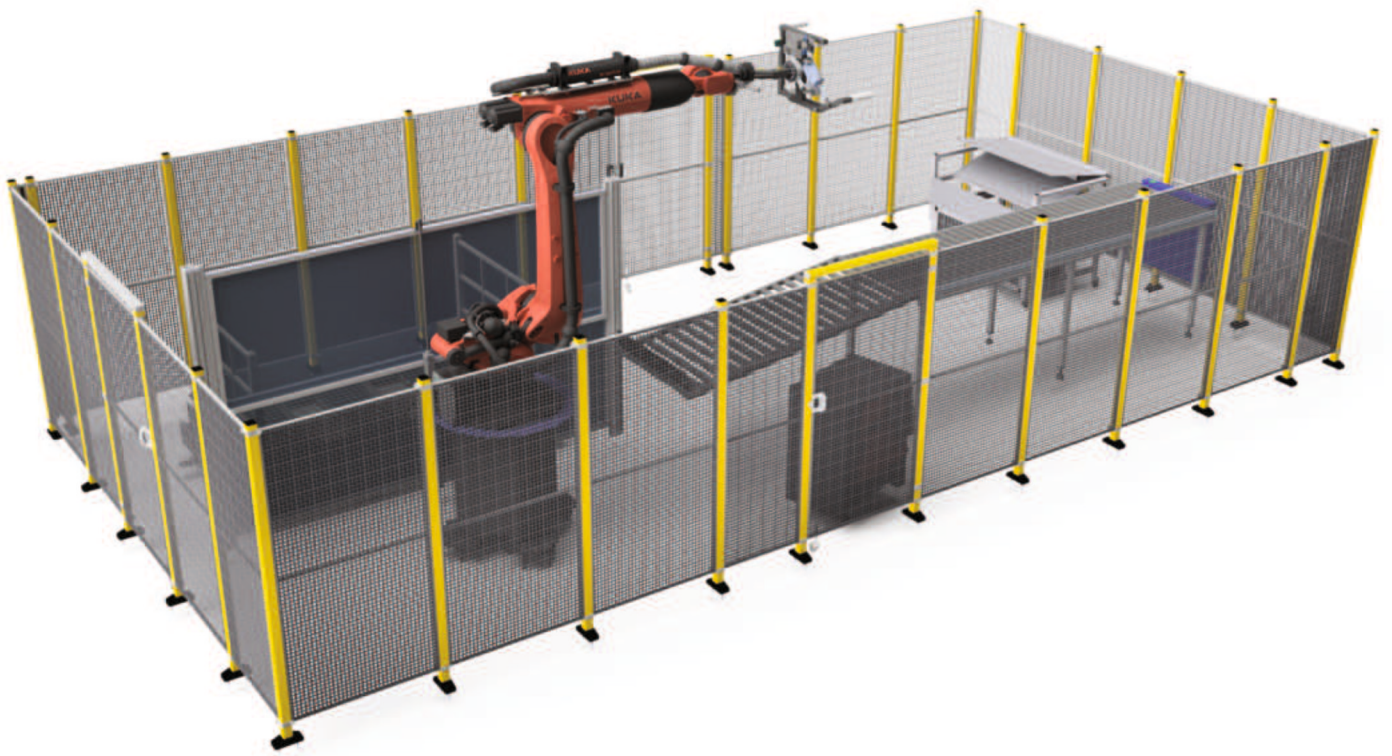


See Back to a copy of the ISO 9001

**Zhu Han Ping**  
 Management Representative

Look at Sufficient of conditions as set out in the Certification Agreement may render this Certificate invalid.

01/24/2019 10:07:17 www.kva-division.com R.0.0. 2002-02-01. 2013-08. 04/29/2019 17:07 01/24/2019 10:07 101-1133702000 assurance.dnv-gl.com







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