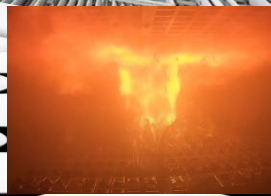
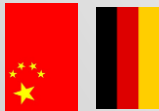
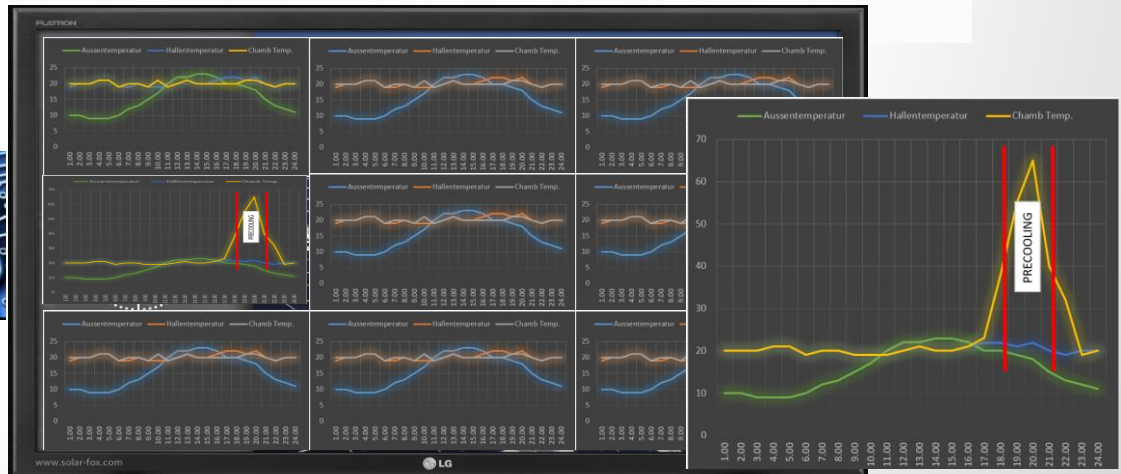
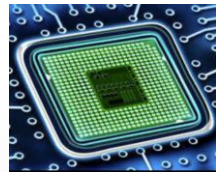




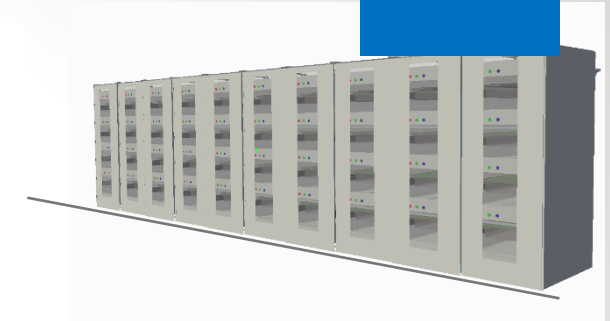
2054 "Safe Smart Warehouse"





Structure design

1. Modular design
2. Modular: Total system is easy to expand and modify
3. Modular: Easy replacement in case of damages
4. Multifunction chamber
5. Single chamber, changeable
6. Single tower, changeable
7. Thermal insulation possible
8. Controlled heat transfer to neighboring tower
9. Back up , (Manual retrieval) integrated
10. Frontside, (Stacker side) closing possible

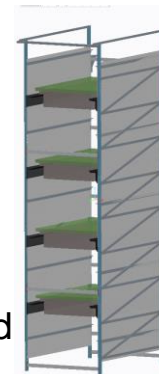


Firefighting system:

1. Directly integrated into the storage system
2. Top and Below sprinkler possible, (Maximum Cooling)
3. Temperature related Pre-cooling

Waste water collector:

1. Single Chamber water collector
2. Total waste water drainage system



Power supply

1. Integrated cable channel system
2. Additional cables can be added easily

Aircondition

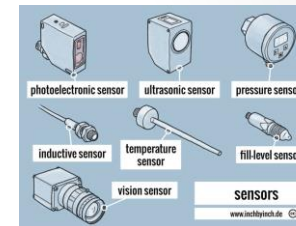
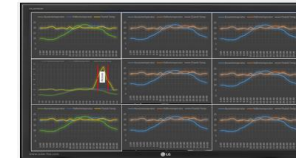
1. Single Chamber air condition can be added



display of status

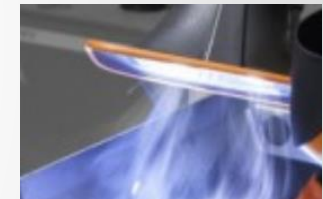
Single chamber

1. Temperature
2. Temperature history of the last 8 hours
3. Thermal image
4. Thermal image history of the last 8 hours
5. Smoke history
6. Humidity history
7. Module history, storage and retrieval data
8. Structure, thermal stress information



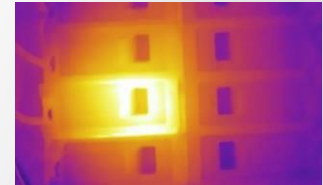
Smoke

1. Single Chamber smoke exhaust system



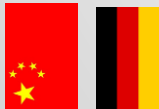
Status control

1. Single Chamber status control
2. Temperature
3. Thermal image
4. Smoke
5. Humidity
6. Thermal stress on the structure indicator
7. Additional Sensor technology can easily implemented



Aircondition

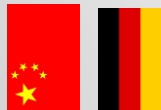
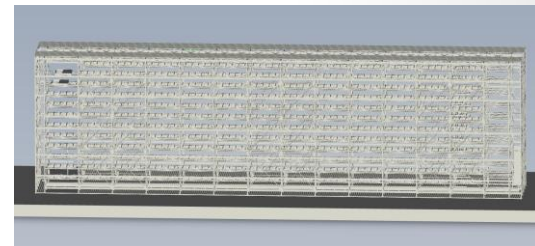
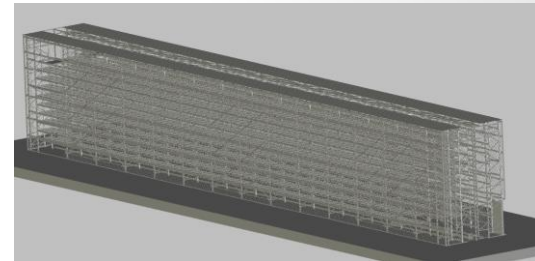
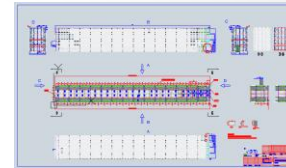
1. Single Chamber air condition can be added



STANDARDS:

EUROPE:

1. DIN 15350-1992 Rail roadway stacking crane steel structure calculation specification
2. EN 292 1-3 General European Standards - General Principles of Design
3. EN 528 Storage and Retrieval Machines - Safety
4. FEM 9.001 terminology / dictionary storage and retrieval machines
5. FEM 9.101 Terminology / Storage and Retrieval Machine Definitions
6. FEM 9.221 Performance data, reliability and effectiveness of roadway stacker
7. FEM 9.222 Reliability and acceptance of systems containing roadway stackers and other equipment
8. FEM 9.311 calculation bases for RBG supporting structures
9. FEM 9.512 calculation bases for RBG engines
10. FEM 9.753 Security Specifications for Access Machines
11. FEM 9.754 safety rules for storage and retrieval machines
12. FEM 9.831 Calculation bases for RBG in the HBW area: Tolerances, deformations, free dimensions in the high-bay warehouse
13. FEM 9.832 Calculation bases for RBG in the AKL area: Tolerances, deformations, free dimensions in the automatic small parts warehouse
14. FEM 9.851 Proof of Performance for Storage and Retrieval Machines - Seasons
15. CE

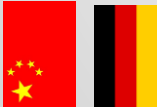


CHINA:

1. GB 12265.3-1997 Mechanical safety to avoid the minimum spacing of various parts of the human body
2. GB 2894-1996 safety signs
3. GB 2894-2008 Safety signs and guidelines for their use
4. GB 3811-2008 Code for Design of Cranes
5. GB 50009-2001 Building Structure Load Code (2005 Edition)
6. GB 50009-2012 Code for Building Structure Loads
7. GB 50011-2010 Code for seismic design of buildings
8. GB 50016-2012 Code for Fire Protection Design of Buildings
9. GB 50017-2003 Code for Design of Steel Structures
10. GB 50018-2008 Technical specification for cold-formed thin-walled steel structures
11. GB 50057-94 Design Code for Lightning Protection of Buildings (2000 Edition)
12. GB 50084-2018 Code for Design of Automatic Sprinkler System (2018 Edition)
13. GB 50116-98 Code for Design of Automatic Fire Alarm System
14. GB 50140-2005 Code for Design of Building Fire Extinguisher Arrangement
15. GB 50176-93 Code for Thermal Design of Civil Buildings
16. GB 50205-2001 Code for Construction Quality Acceptance of Steel Structure Engineering Safety distance for upper limbs touching danger zone
17. GB 50231-2009 General Specifications for Construction and Acceptance of Mechanical Equipment Installation Engineering
18. GB 50254-1996 Code for Construction and Acceptance of Low-Voltage Electrical Apparatus in Electrical Installation Engineering
19. GB 50270-2010 Conveying equipment installation engineering construction and acceptance specification
20. GB 50339-2003 Quality acceptance code for intelligent building engineering
21. GB 5226.2-2002 Machinery Safety Machinery Electrical Equipment Part 32 Technical Conditions for Hoisting Machinery
22. GB 6067-85 Safety Regulations for Hoisting Machinery
23. GB 6807-2001 Technical conditions for phosphating treatment of iron and steel workpieces before painting
24. GB 8567-2006 Computer Software Documentation Specification
25. GB/T 12504-1990 Computer Software Quality Assurance Plan Specification
26. GB/T 12505-1990 Specification for Computer Software Configuration Management Plan
27. GB/T 13306-2011 Signale
28. GB/T 13423-1992 Evaluation Criteria for Software for Industrial Control
29. GB/T 14079-1993 Software Maintenance Guide
30. GB/T 14085-1993 Information Processing System Computer System Configuration Diagram Symbols and Conventions
31. GB/T 14394-2008 Computer Software Reliability and Maintainability Management
32. GB/T 9385-2008 Computer Software Requirements Specification Specification
33. GBJ 52-1983 Code for Design of Industrial and Civil Power Supply Systems
34. GBJ 54-1983 Low-voltage power distribution equipment and circuit design specifications
35. GBJ 65-83 Grounding design code for industrial and civil power installations
36. GBJ 87-85 Code for Design of Noise Control in Industrial Enterprises
37. JB 5319.2-1991 Safety Code for Rail Roadway Stacking Cranes
38. JB/T11270-2011 Technical conditions for combined steel structure shelves in three-dimensional warehouses
39. JB/T 2960-1999 roadway stacking crane type and basic parameters
40. JB/T 5323-91 Technical Specifications for Welded Steel Structure Shelves in Three-dimensional Warehouse
41. JB/T 7016-1993 Technical Conditions for Rail Roadway Stacking Cranes
42. JB/T 7016-93 Technical Conditions for Rail Roadway Stacking Cranes
43. JB/T 9018-1999 Code for design of track-type high-rise rack warehouse
44. JB/T 9018-2011 Design specification for automated three-dimensional warehouse
45. ZBJ 83015-89 Code for Design of High Rack Warehouse
46. CECS 23-1990 Code for design of steel shelf structure

Note:

If the above standards have the latest standards, the latest standards shall prevail.





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