

# 基于 DELMIA 的输变电行业离散型生产物流仿真研究

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**摘要:** 本文通过对输变电行业中具有代表性的配电变压器生产物流进行仿真, 从而研究输变电行业离散型生产的仿真技术应用, 验证行业内车间工艺布局物流仿真的可实施性。本文针对某企业实际项目, 通过 DELMIA 软件进行配电变压器生产区域及厂内设备三维建模、车间物流仿真, 对工艺设计方案、各区域的生产节拍及设备利用率等进行仿真分析, 达到了仿真结果对于实际项目设计的数据支撑。

**关键词:** 输变电行业; 物流仿真; 生产节拍; 设备利用率; DELMIA

中图分类号: TM72 文献标识码: A

## Research on Discrete Production Logistics Simulation of Power Transmission and Transformation Industry Based on DELMIA

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**Abstract:** By simulating the production logistics of distribution transformers, which are representative in the power transmission and transformation industry, this paper studies the application of simulation technology for discrete production in the power transmission and transformation industry, and verifies the feasibility of workshop process layout logistics simulation in the industry. Aiming at the actual project of an enterprise, this paper uses DELMIA software to carry out three-dimensional modeling of distribution transformer production area and in plant equipment, workshop logistics simulation, and simulation analysis of process design scheme, production beat of each area and equipment utilization rate, so as to achieve the data support of simulation results for the actual project design.

**Keywords:** Power transmission and transformation industry; Logistics simulation; Production tempo; Equipment utilization rate; DELMIA

### 引言

GB/T41255-2022

### 1 项目概述

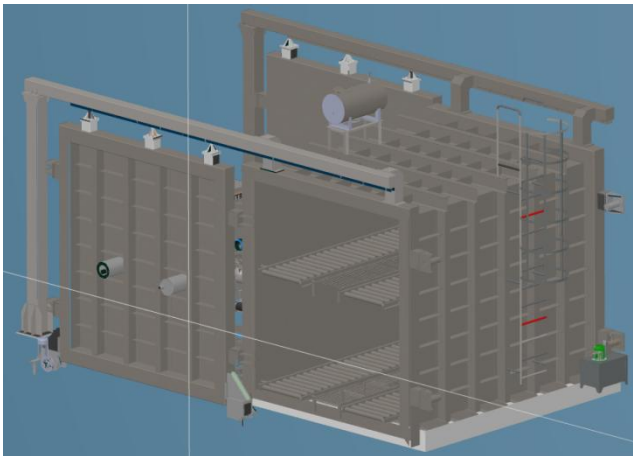
			87.8m
61.83m	5.5m	5459 m <sup>2</sup>	

DELMIA

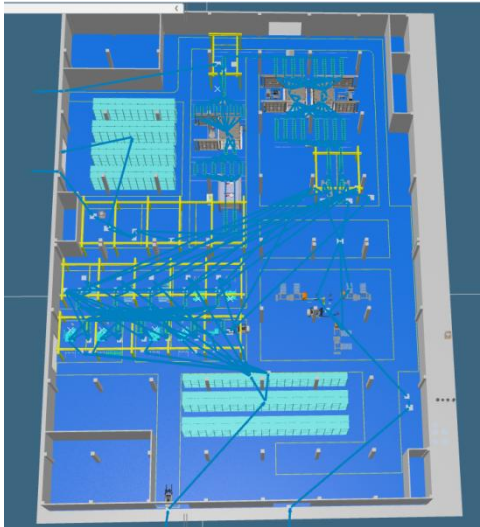
2 设备模型建立

SolidWorks CATIA

1



1

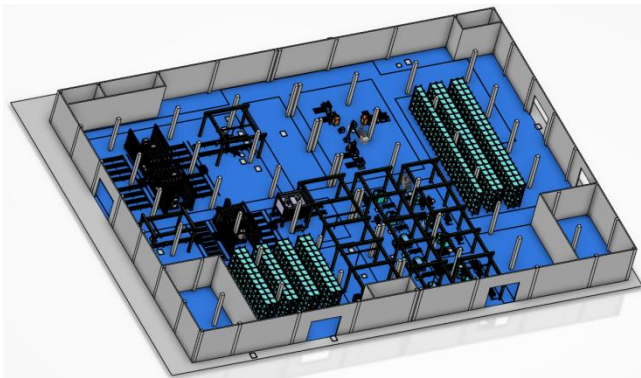


3

4.2

3 厂房物流模型搭建

DELMIA Plant Layout Design



2

Plant Layout Design



4

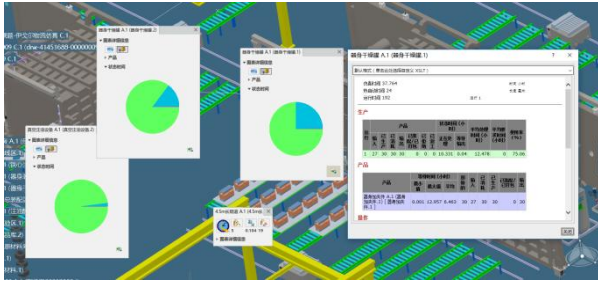
4 仿真分析  
4.1

NC

250

10

80



5  
5 仿真数据及结果

7 24h 182h



6

系统		产品	操作	AS n RWC
Out Zone.1				0
In Zone.1				182
In Zone.1				1344
In Zone.3				488

名称	产量				库存				平均库存量(平均)		平均库存量(最大)	
	输入	行内	行外	总计	最大	平均	最小	总计	最大	平均	最小	总计
初始库存 A.1 (初始库存 A.1)	184	28	184	38	0	0	0	0.372	0	187.338	0	0.003
初始库存 A.1 (初始库存 A.1)	13	320	10	336	0	0	0	0.026	0	187.372	0	0.003
初始库存 A.1 (初始库存 A.1)	6	384	6	396	0	0	0	0.317	0	187.363	0	0.003
初始库存 A.1 (初始库存 A.1)	336	336	336	336	0	0	0	185	0	0	0	0.5
初始库存 A.1 (初始库存 A.1)	336	0	0	0	336	0	0	0.023	0.117	187.361	0	1.003
初始库存 A.1 (初始库存 A.1)	672	336	672	336	0	0	0	187.367	0.003	0	0	0.5
初始库存 A.1 (初始库存 A.1)	336	0	0	0	336	0	0	0.023	0.117	187.361	0	1.003
初始库存 A.1 (初始库存 A.1)	472	336	472	336	0	0	0	117.937	0.003	90.46	0	0.5
初始库存 A.1 (初始库存 A.1)	13	320	10	336	0	0	0	0.028	1.426e-034	187.372	0	0.003
初始库存 A.1 (初始库存 A.1)	0	0	0	236	0	0	0	29.38	0.118	138.502	0.003	0
初始库存 A.1 (初始库存 A.1)	672	336	672	336	0	0	0	187.367	0.003	0	0	0.5
初始库存 A.1 (初始库存 A.1)	336	0	0	0	336	0	0	0.023	0.117	187.361	0	1.003
初始库存 A.1 (初始库存 A.1)	0	280	0	280	0	0	0	0.028	4.817e-001	187.370	0.003	0
初始库存 A.1 (初始库存 A.1)	0	384	0	372	0	0	0	0.023	1.379e-034	187.379	0.003	0
初始库存 A.1 (初始库存 A.1)	7	234	7	235	0	0	0	0.039	1.802e-034	187.368	0.003	2
初始库存 A.1 (初始库存 A.1)	0	0	0	291	0	0	0	43.894	0.281	122.944	0.003	0
初始库存 A.1 (初始库存 A.1)	582	291	582	291	0	0	0	145.505	20	2.495	0	0.5
初始库存 A.1 (初始库存 A.1)	291	0	0	0	291	0	0	3.913	0.291	194.895	0	1.334
初始库存 A.1 (初始库存 A.1)	0	0	0	272	0	0	0	95.405	0.266	0	117.495	0.003
初始库存 A.1 (初始库存 A.1)	544	272	544	272	0	0	0	135.961	38.441	3.898	0	0.5
初始库存 A.1 (初始库存 A.1)	266	0	0	0	266	0	0	21.316	0.263	146.260	0	1.109
初始库存 A.1 (初始库存 A.1)	0	0	0	235	0	0	0	29.492	0.082	0	142.238	0.003
初始库存 A.1 (初始库存 A.1)	241	0	0	0	244	0	0	50.762	0.003	117.153	0	0.879
初始库存 A.1 (初始库存 A.1)	0	384	0	336	0	0	0	0.037	0	187.363	0.003	0
初始库存 A.1 (初始库存 A.1)	5	100	5	273	0	0	0	0.014	0	187.466	0.003	0
初始库存 A.1 (初始库存 A.1)	336	236	336	336	0	0	0	189	0	0	0	0.3
初始库存 A.1 (初始库存 A.1)	336	0	0	0	336	0	0	0.023	0.117	187.361	0	1.003

1

												%		
63	378	63	378	0	0	0	0	0	94.486	0	73.514	1.5	0	56.242
36	210	35	212	0	0	0	0	0	52.663	0	115.337	1.5	0	31.347
14	84	14	82	0	0	0	0	0	21	0	147	1.5	0	12.5

2

									( )					%
	330	330	330	330	0	0	0	0	134.014	33.467	0.518	12	3.042	79.77
	330	330	330	330	0	0	0	0	133.465	34.092	0.443	13.418	3.099	79.443

3

									( )				( )	%
A.1 ( .2)	1328	664	1328	664	0	0	0	0	166.532	1.064	0.405	2.145	0.013	99.126

5 结束语

Delmia

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