

The background of the slide is a grayscale photograph of an industrial facility, likely a pharmaceutical manufacturing plant. It shows a complex network of pipes, structural beams, and equipment. A large, semi-transparent red rectangle is overlaid on the center of the image, serving as a backdrop for the title text.

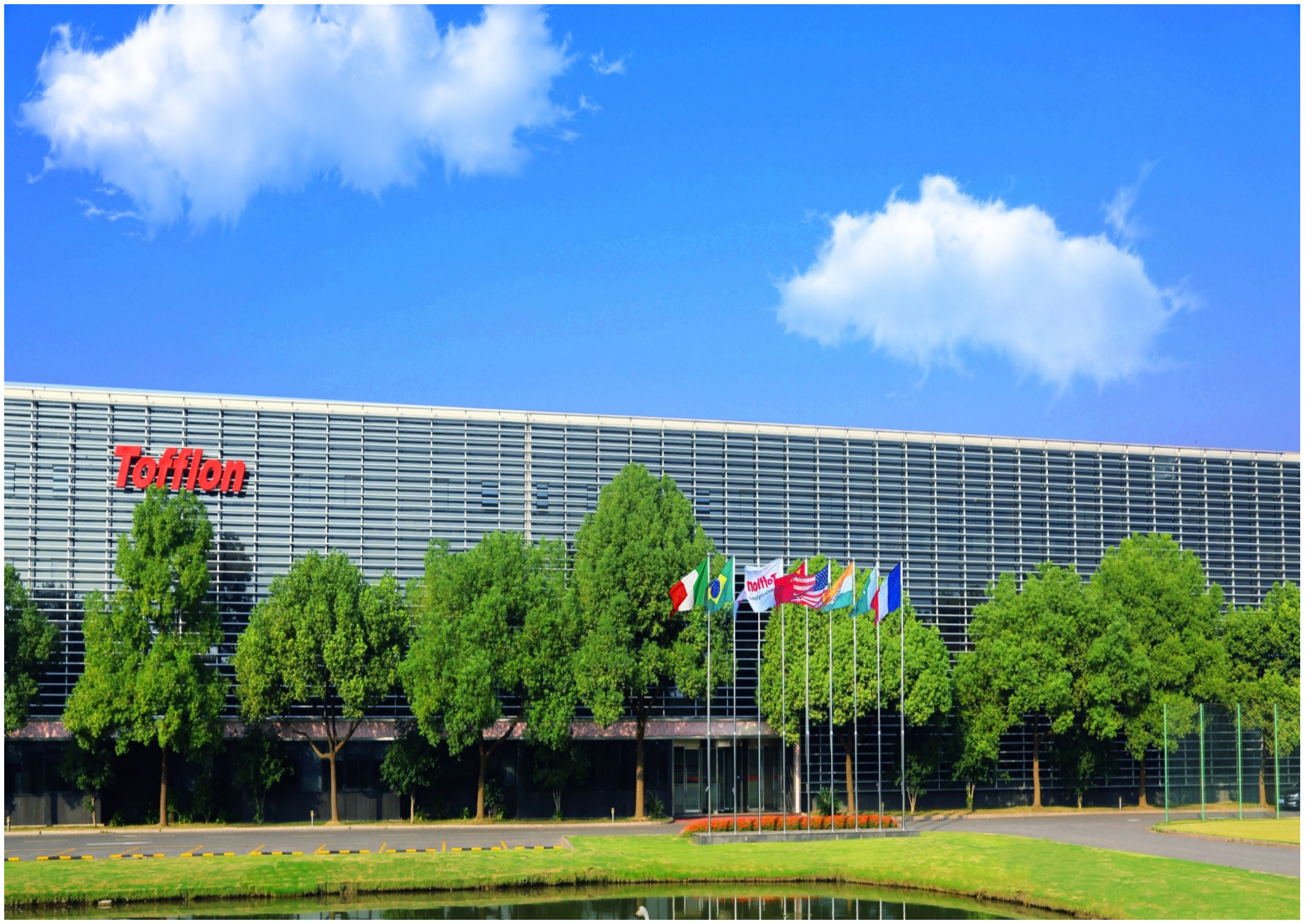
# **Tofflon Best Practice for Human Vaccine Manufacturing**

[www.tofflon.com](http://www.tofflon.com)



## About Tofflon









25<sup>+</sup>

超过25年制药行业制造经验

Years of Experience

40<sup>+</sup>

产品遍布全球40多个国家及地区

Countries & Regions

2,000<sup>+</sup>

服务全球2000多家制药企业

Pharmaceutical Customers

8,000<sup>+</sup>

8000多台套设备及系统遍布全球

Equipments & Systems Installations Worldwide

Tofflon Global Footprints



# **Tofflon Vision**

**What We Learn Today and Tomorrow in  
The Science of Drug Manufacturing and  
Process Equipment Manufacturing  
For the Future of  
Smart Pharma Factory Building**

# Tofflon Innovation

## Drug Development

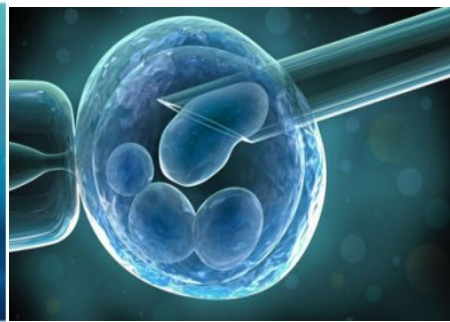
Small Molecules



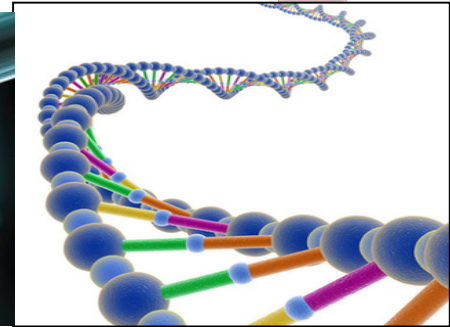
Large Molecules



Stem Cell

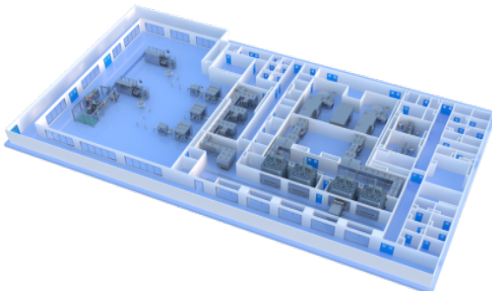


Tissue  
Regeneration

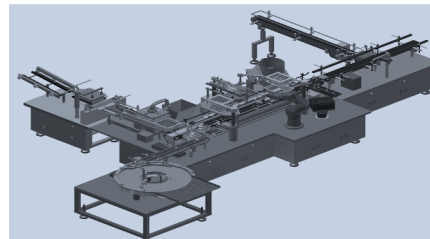


## Drug Manufacturing

Large-scale Mfg (Generics)



Flexible Mfg (Biotech)



Cell Therapy Mfg





# Tofflon Innovative Solutions

❖ **Process Scale-up and Technology Transfer**

❖ **Advanced Drug Manufacturing**

❖ **Next Generation Drug Manufacturing**

(Continuous Mfg. & Smart Mfg.)



**Tofflon  
Innovations  
For Vaccine  
Manufacturing**



# Tofflon Upstream Capabilities

**Tofflon**

Wave Bioreactor



SUB



Cell Bank & Isolators



## Upstream Solutions

Incubator System



Bioreactors



Vessel System



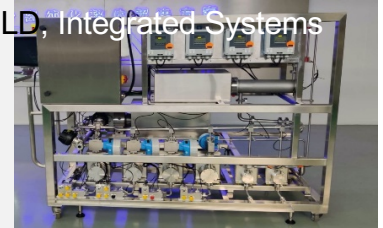
# Tofflon Downstream Capabilities

**Tofflon**

Freeze & Thaw systems



ILC, ILD, Integrated Systems



Chromatography column & Systems



**Downstream  
Solutions**

TFF Systems



Hollow Fiber systems

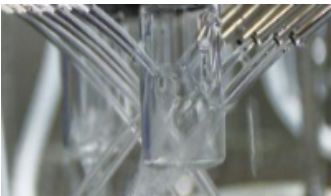
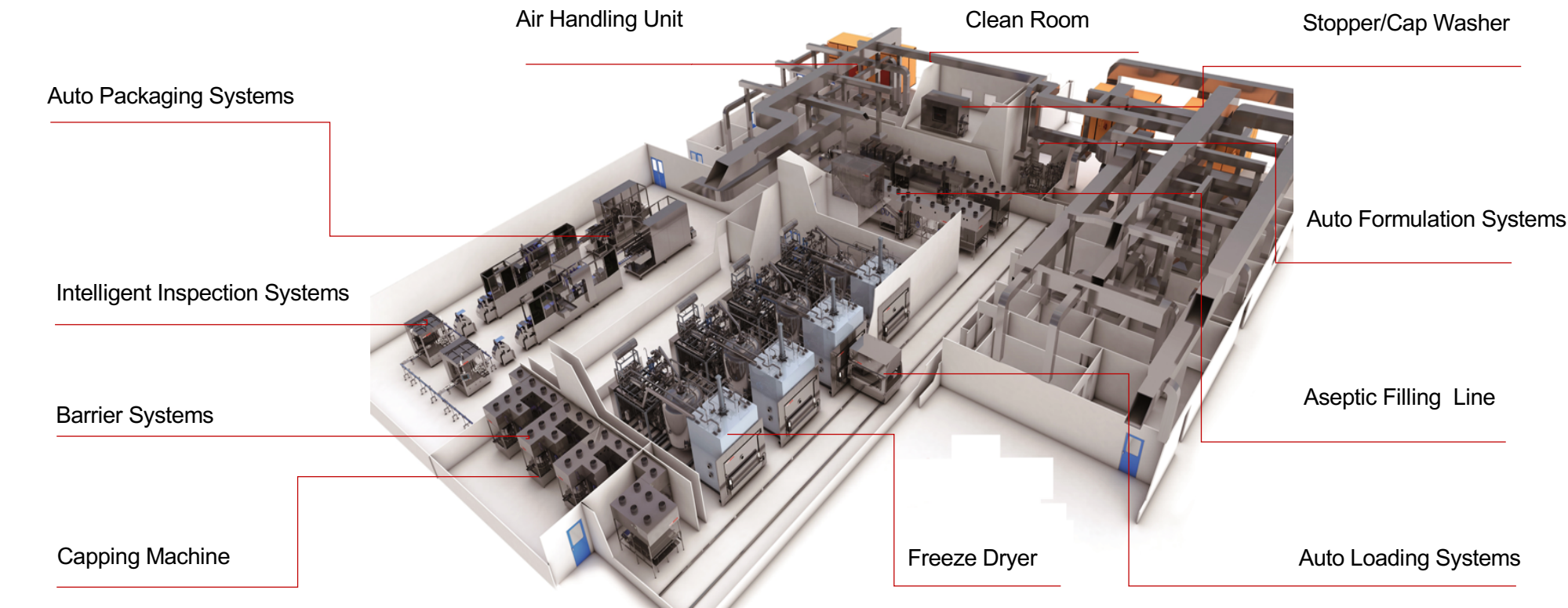


Vessel System





# Tofflon Fill & Finish Capabilities



Washing & Drying



Rubber Cleaning



Filling



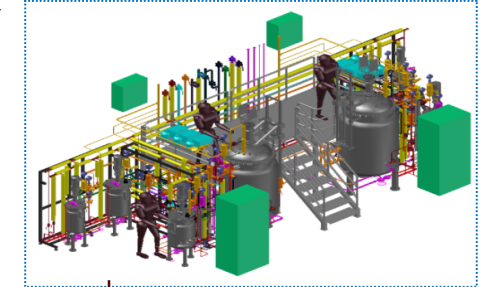
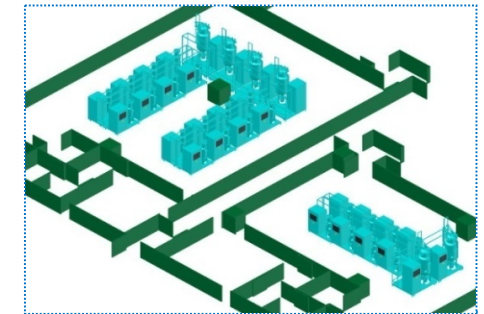
Capping



Inspection



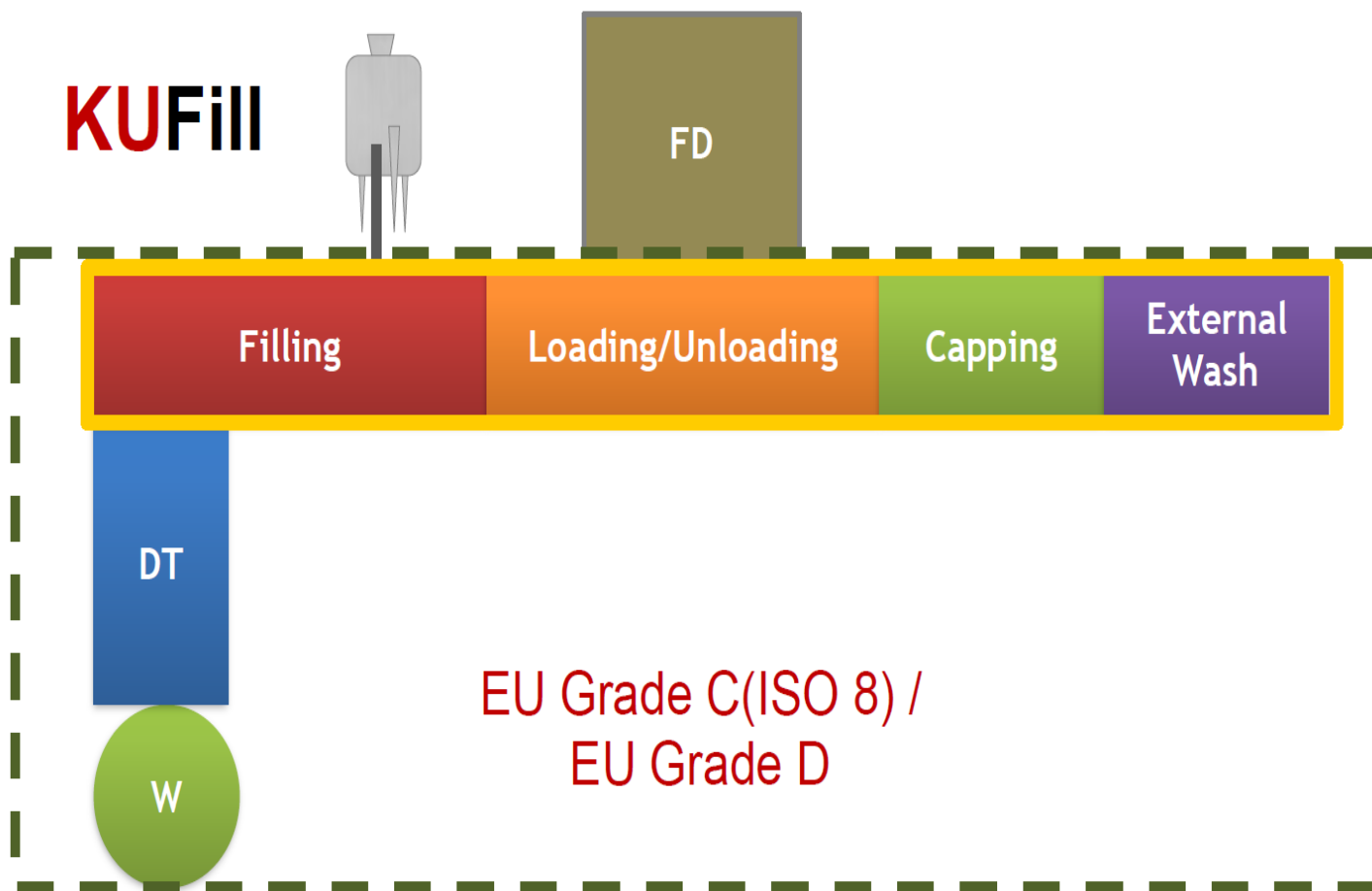
Packaging

**Tofflon**

## 3D Configuration







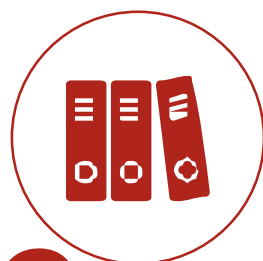
- Freeze Dryer
- Row-by-Row
- Isolator
- Auto Solution Preparation Systems (ASPS)
- Filling Line (Washer, Tunnel, Filler, Capper, External Washer)
- DCS

## ❑ What Advantages KUFill Is Offering

- cGMP Compliance
- Modular Building Interfaces
- Automation and Isolation
- Systems Integration
- Modular Equipments
- Expandable Factory
- More New Technologies
- Integrated Project Management
- Added Value Technical Support and Service



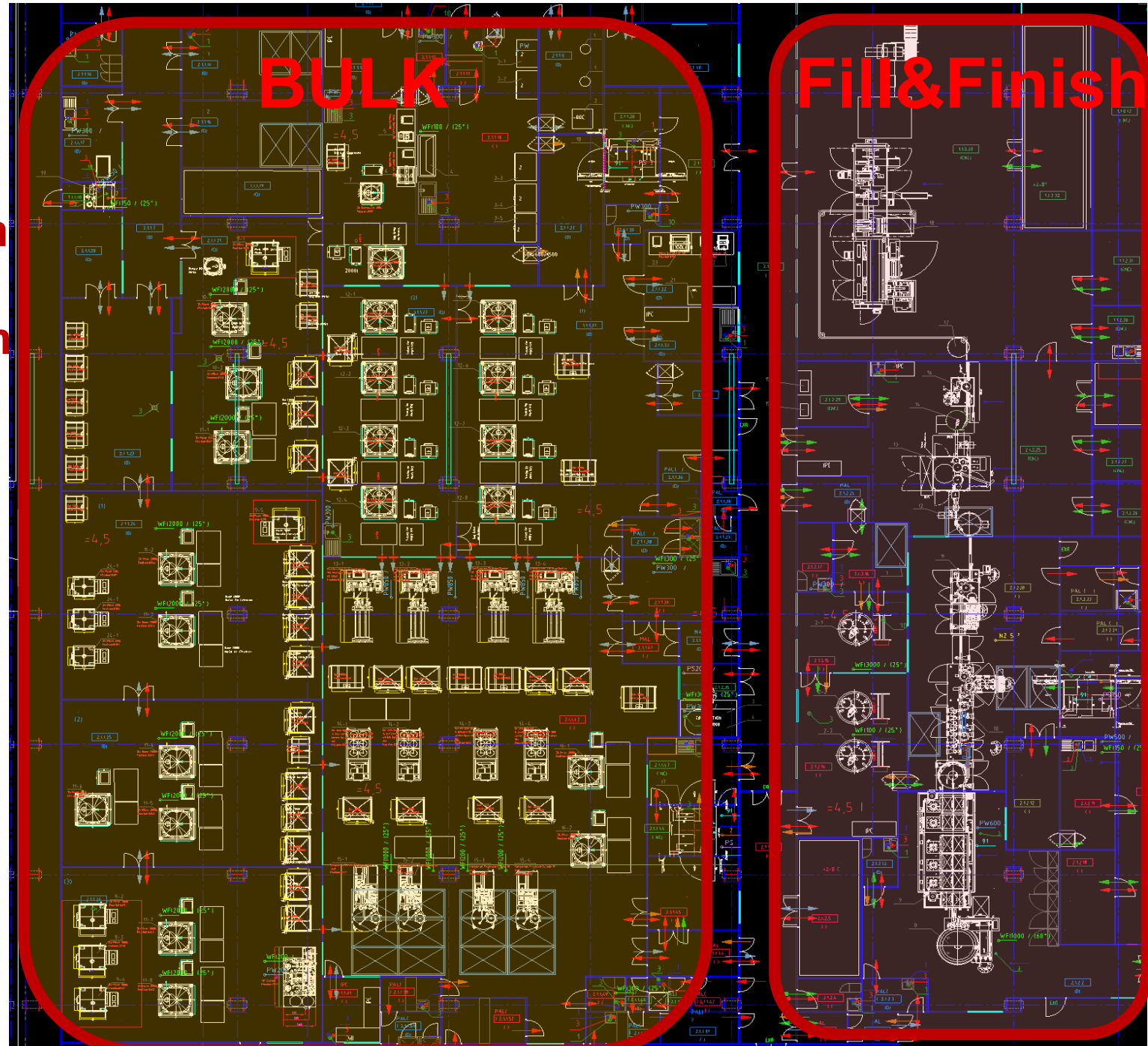




# Case Study

## Strengths :

- ◆ Turnkey project
- ◆ Integrated solution
- ◆ Multiply planform
- ◆ Disposable system
- ◆ Fast Delivery
- ◆ Flexible operation





# Case study 2 :Inactivated Vaccine

**Product :** Inactivated Vius vaccine

**Problem statement :**

Closed and contained operation for handling of virus



- In production for virus inoculation, virus distribution, harvesting fluid handling, in QC for QC purpose viz virus sterility inspection, mycoplasma inspection, titer and other experiments
- Isolator designed with incubator cart to transfer material from isolator to incubator through RPT port.
- Considered sterility requirements and toxicity protection requirements for isolator.
- The internal dimensions of the isolator chamber are reasonably customized according to the different equipment, which are involved in different process.
- Separate air supply and separate air exhaust for isolator to ensure that isolator has no effect on the control of the differential pressure in the laboratory.

**Tofflon Vision:  
Smart Pharma Factory Builder**



**Warmly Welcome  
To Tofflon**