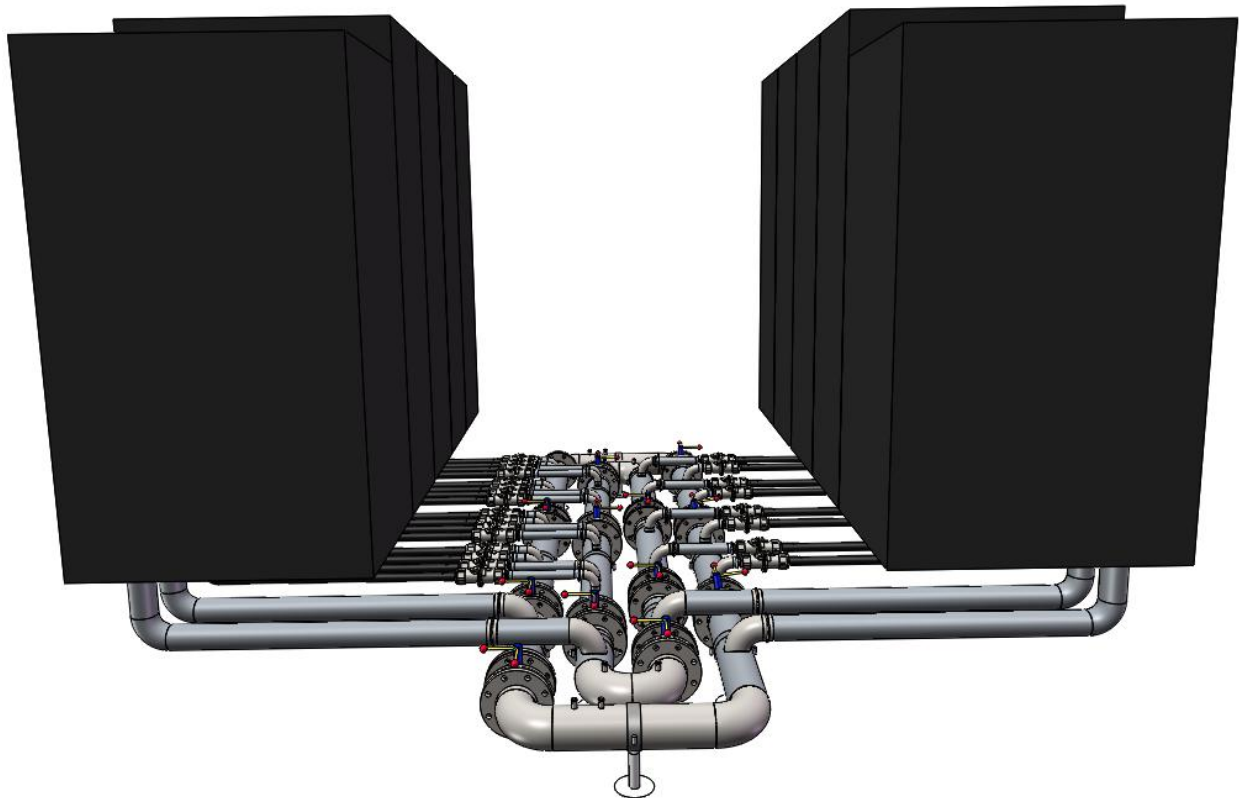


Secondary Piping



❖ Overview 概述

The secondary-side piping network interconnects the CDU and liquid-cooled racks. Coolant circulated by the CDU flows continuously through these pipes to every rack. After absorbing heat and rising in temperature, the fluid returns to the CDU via the same piping loop, where it is re-chilled before recirculating back to each rack. 二次侧管道将 CDU 和液冷机柜连接起来，CDU 输送的冷却液正是通过管道才能源源不断的输送到每个机柜，升温后再经过管道回到 CDU，被冷却后再重复输送至每个机柜。

If the CDU serves as the heart of the liquid cooling system, the secondary-side piping acts as its circulatory blood vessels. Critical performance metrics including leak-tight integrity, operational reliability, internal cleanliness, structural rigidity, and corrosion resistance of the piping directly govern the overall performance of the entire liquid cooling system. 如果说 CDU 是液冷系统的核心，那么二次侧管道就是系统的血管。管道的密封性、可靠性、洁净度、结构强度、耐腐蚀性等性能对整个液冷系统至关重要。

Secondary-side piping features highly customizable configurations, as its structural layout is closely tied to facility architecture, rack arrangement and dimensions, as well as CDU placement and footprint. 二次侧管道具有非常高的定制化属性，这是由于管道的结构形式与建筑结构、机柜布局和尺寸、CDU 的布局和尺寸息息相关。

JR cooling Tec. DLP secondary-side piping delivers superior custom flexibility with multi-dimensional configuration options, paired with rapid design and prototype turnaround capabilities. Additionally, we leverage standardized rack architectures to implement modular piping designs wherever feasible, boosting both quality consistency and production efficiency for piping assemblies. 晶锐二次侧管道具备高度灵活的定制化能力，可以在多个维度提供多种选项，并具备快速设计及打样的能力。此外，我们努力通过机柜的一致性来尽可能实现管道的模块化设计，继而提高管道设计和生产的质量与效率。

❖ Main Features 特点

● Clean 清洁

Inert gas shielded welding, full pickling and passivation, and ultrasonic cleaning are adopted to guarantee the internal cleanliness. 采用惰性气体保护焊接，整体酸洗钝化处理，超声波清洗等措施保证内部清洁度。

● Reliable 可靠

The main body is made of stainless steel for sturdy and durable performance. X-ray or borescope inspection is available to verify welding quality, and overall pressure testing ensures sealing performance. 本体采用不锈钢金属材料坚固耐用，X 射线或内窥镜检查保证焊接质量，整体耐压测试保证密封性。

● Flexible 灵活

Multiple configuration combinations are available to accommodate varying scopes of supply. The unit is compatible with butterfly valves, ball valves, sensors, air release valves and other components from a wide range of brands, and supports both top and bottom fluid connections. It works with PG25 and EG25 coolants. 多种配置组合，支持不同的供货范围，支持不同品牌的蝶阀、球阀、传感器、排气阀等零部件，支持上下接管。支持 PG25、EG25 冷却液。

● Fast Installation 安装快捷

All assemblies are prefabricated and equipped with pipe splicing joints and adjustable support brackets to enable rapid on-site connection. 预制化加工，配置管道拼接件，配置可调支架，便于现场快速连接。

● Simple Operation & Maintenance 运维简便

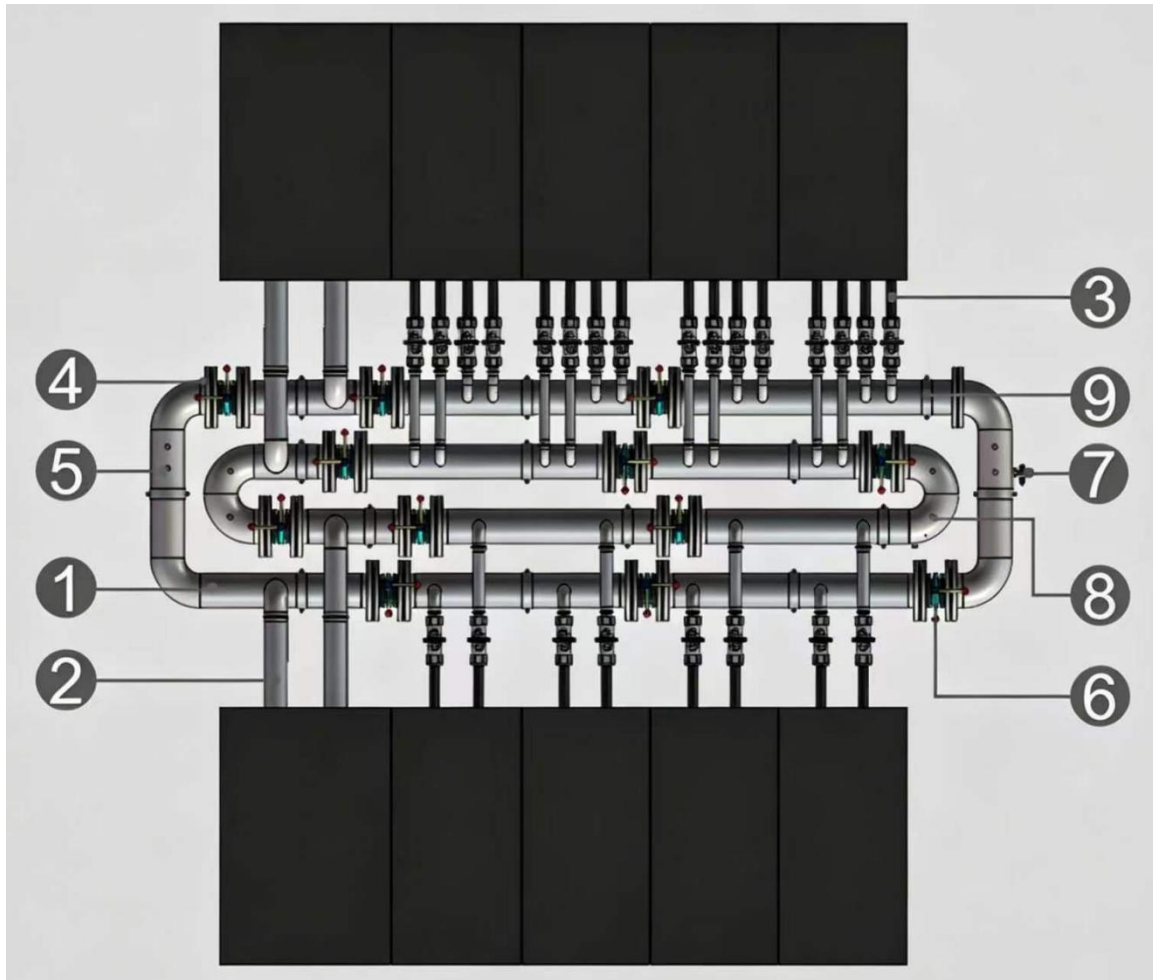
Built-in automatic air release valves quickly vent trapped air at high points, while drain valves facilitate easy evacuation of internal coolant fluid. 配置自动排气阀可快速排除最高点气体，排水阀可方便的排除内部液体。

● 模数化设计

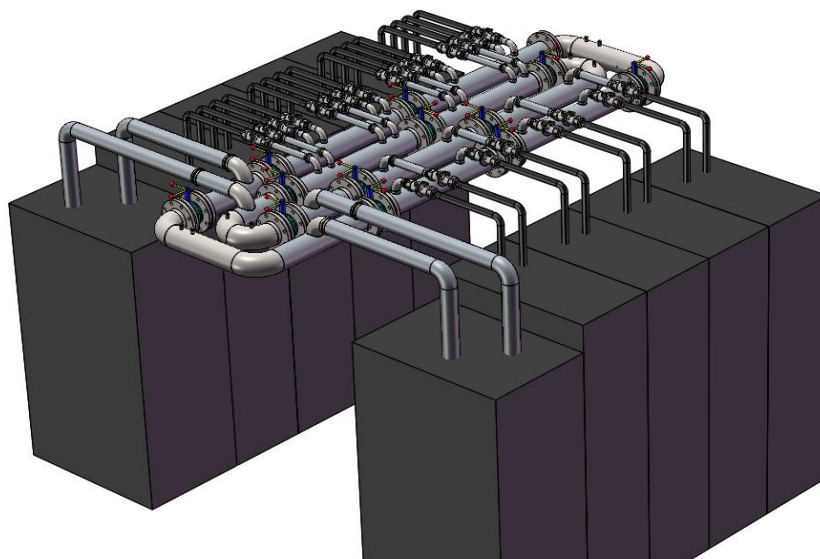
The DLP secondary-side piping system adopts a modular design based on rack quantities. Two racks form one standard module set, which can be duplicated to match the total number of racks. This modular approach boosts consistency and efficiency in piping design and manufacturing. DLP 二次侧管道基于机柜数量进行了模数化设计，每 2 个机柜作为 1 组，然后根据机柜数量进行复制，提高管道设计和生产的质量与效率。



❖ Comprise 组成



No.	Part	No.	Part	No.	Part
①	Body 本体	②	CDU Port CDU 接口	③	Rack Port 机柜接口
④	Flange/ Connection Assembly 法兰/连接件	⑤	Threaded Fitting 螺纹接头	⑥	Valve 阀门
⑦	Drain Valve 排液阀	⑧	Air Bleeder 排气阀	⑨	Pipe Support Bracket 管道支架



❖ Configuration Table 配置表

You may select options based on your requirements, underlined items in the table are recommended. Should you have needs beyond the scope of this table, please let us know, and we will accommodate them to the fullest extent possible. 您可以根据需要选择选项，表中有下划线的选项为推荐选项如果有超出此表范围的需求，敬请告知，我们会尽可能满足。

No.	Part 部件	Item 项目	Option 选项
1	Body 本体	Spec.规格	OD≤500mm NPS (ASME B36.19) , DN (GB B-Series)
		Material 材质	<u>SUS304</u> , <u>SUS316</u>
		Operating Pressure 工作压力	<u>116psi(8bar)</u> , <u>145psi(10bar)</u>
		Port Location 位置	Top Ports 顶部, <u>Bottom Ports 底部</u>
2	CDU Port. CDU 接口	Spec.规格	Flange, Tri-Clamp ferrule, Grooved Coupling
		Qty.数量	As Required 根据需要
3	Rack Port. 机柜接口	Spec.规格	Tri-Clamp ferrule OD 卡盘: φ50.5mm, φ64mm, φ77.5mm Barb Fitting 宝塔: 1", 1.5", 2"
		Qty.数量	As Required 根据需要
4	Flange/ Connection Assembly	Spec.规格	Flange, Tri-Clamp ferrule, Grooved Coupling
		Qty.数量	As Required 根据需要
5	Threaded Fitting 螺纹接头	Spec.规格	G Thd. 螺纹: 1/4", 3/8", 1/2" UNF Thd. 螺纹: 7/16"~20, 9/16"~18 Barb Fitting 宝塔接头: 1/4", 3/8", 1/2", 5/8", 3/4", 1"
		Qty.数量	As Required 根据需要
6	Main Valve 主阀	Spec.规格	Double Flange Butterfly Valve, Wafer Butterfly Valve, 3-Piece Butterfly Valve 双法兰蝶阀、对夹式蝶阀、三片式蝶阀
		Material 材质	Valve Body: SUS304, SUS316, Cast Iron; Valve Disc: SUS304, SUS316
		Qty.数量	As Required 根据需要
7	Drain Valve 排水 阀	Spec.规格	G Thd. 螺纹: 1/4", 3/8", 1/2" UNF Thd. 螺纹: 7/16"~20, 9/16"~18 Barb Fitting 宝塔接头: 1/4", 3/8", 1/2", 5/8", 3/4", 1"
		Qty.数量	As Required 根据需要
8	Air Bleeder 排气 阀	Qty.数量	2 ~ 4pcs
		Diversion Tube 导流管	Not Equipped 不配置, Material 材质:Silicone, PU
9	Pipe Support Bracket 管道支架	Spec.规格	Single-Point Clamp 单点抱箍, U-Bolt U 型螺栓
		Qty.数量	As Required 根据需要