Utmost®
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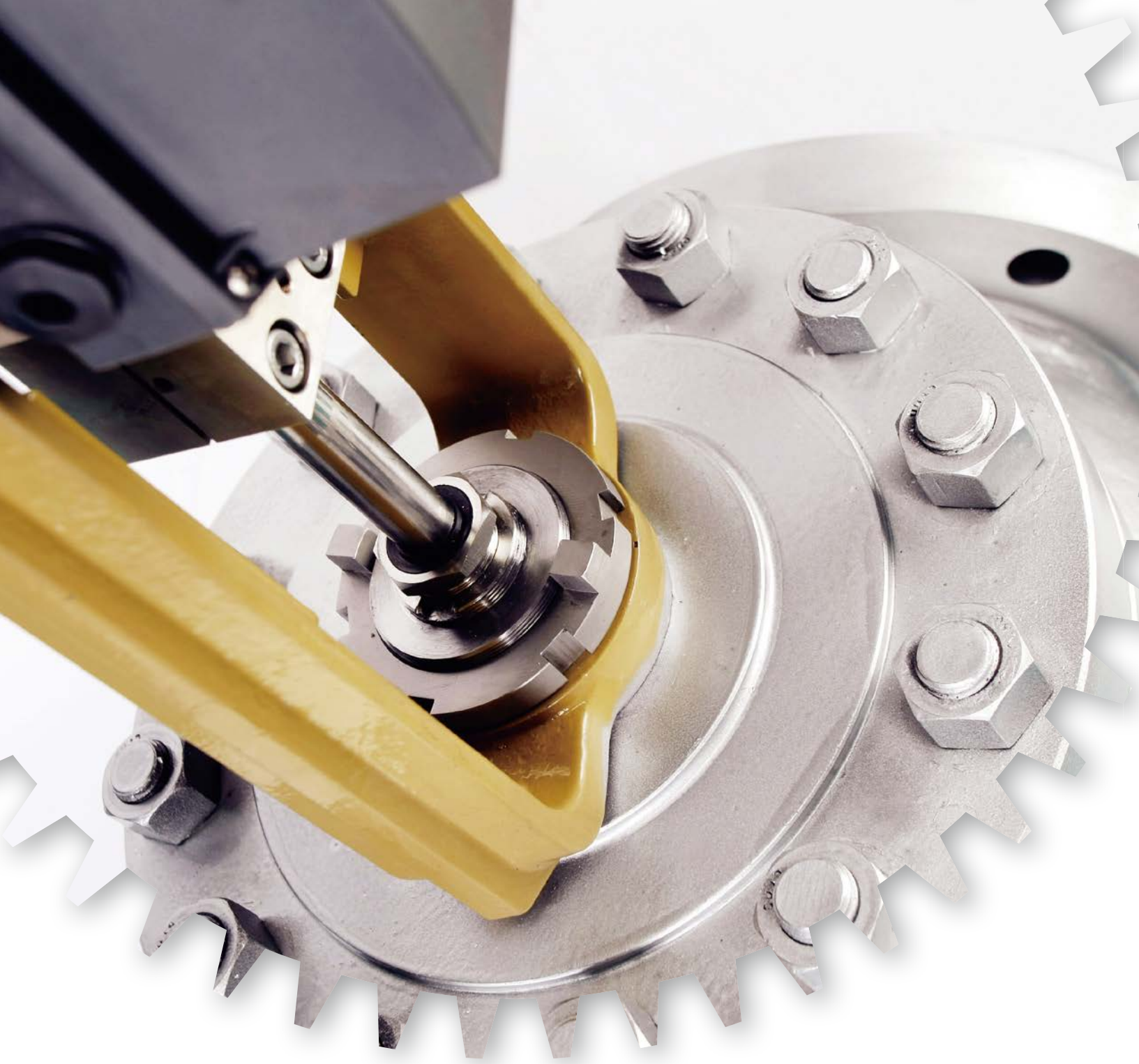
艾坦姆流体控制技术（北京）有限公司
Utmost Flow Control Tech.(Beijing) Co.,Ltd

# 艾坦姆
# G115/G155系列深冷控制阀
## Utmost G115 and G155 Series Cryogenic Control Valve



# 艾坦姆
# G115/G155 系列深冷控制阀

## Utmost G115 and G155 Series Cryogenic Control Valve

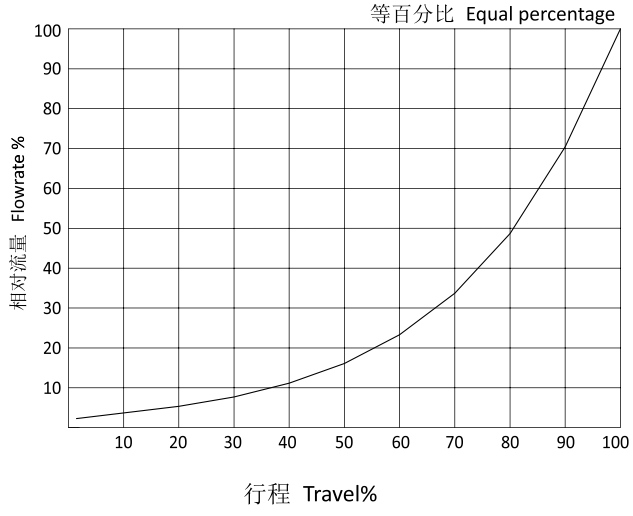
Utmost®

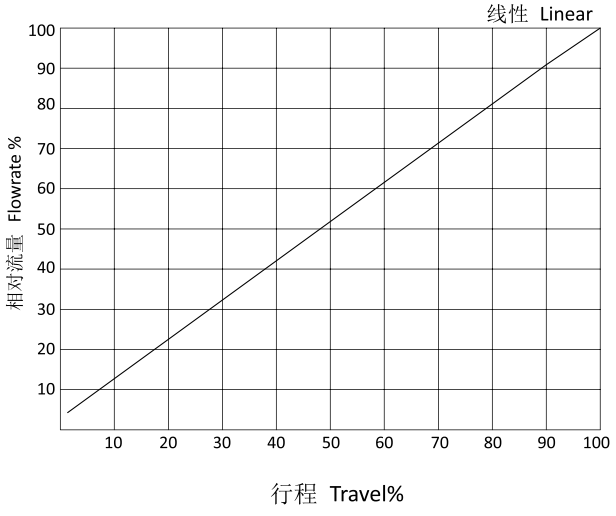
# G115,G155 系列低温控制阀技术数据
# Technical Data Sheet of G115 and G155 Series Cryogenic Control Valve

## 基本规格 General Data

| | | |
|---|---|---|
| 低温阀 Cryogenic Control Valve | G115/G115C- | G155C- |
| 公称尺寸 Nominal Size DN /NPS | DN15~DN400 1/2'' ～ 16'' | DN15~DN300 1/2'' ～ 12'' |
| 压力等级 Nominal Pressure PN / ANSI | PN16-40 ANSI 150/300 | PN63-250 ANSI 600-1500 |
| 流量特性 Characteristics | 等百分比或线性 Equal Percentage or Linear | |
| 可调比 Rangeability | 50:1 | |
| 阀芯导向 Plug Guide | 阀杆导向 Stem Guided,<br>双导向 Double Guiding | |
| 泄漏等级 Seat Leakage | 金属硬密封 IV 级 Metal sealing: IEC 60534-4 leakage class IV<br>金属硬密封 V 级 Metal sealing: IEC 60534-4 leakage class V | |
| 波纹管密封 Bellow Sealing (option) | 无缝双壁波纹管，标准材质 316SS<br>Seamless, double walled, made of 316SS | |
| 填 料 Packing | 聚四氟乙烯填料<br>PTFE Braided | |
| 执行机构 Actuator | 多弹簧执行机构 Multi-spring actuator | |
| 低温设计 Low Temperature Design (Option) | 最低到 -196°C Down to -196°C | |

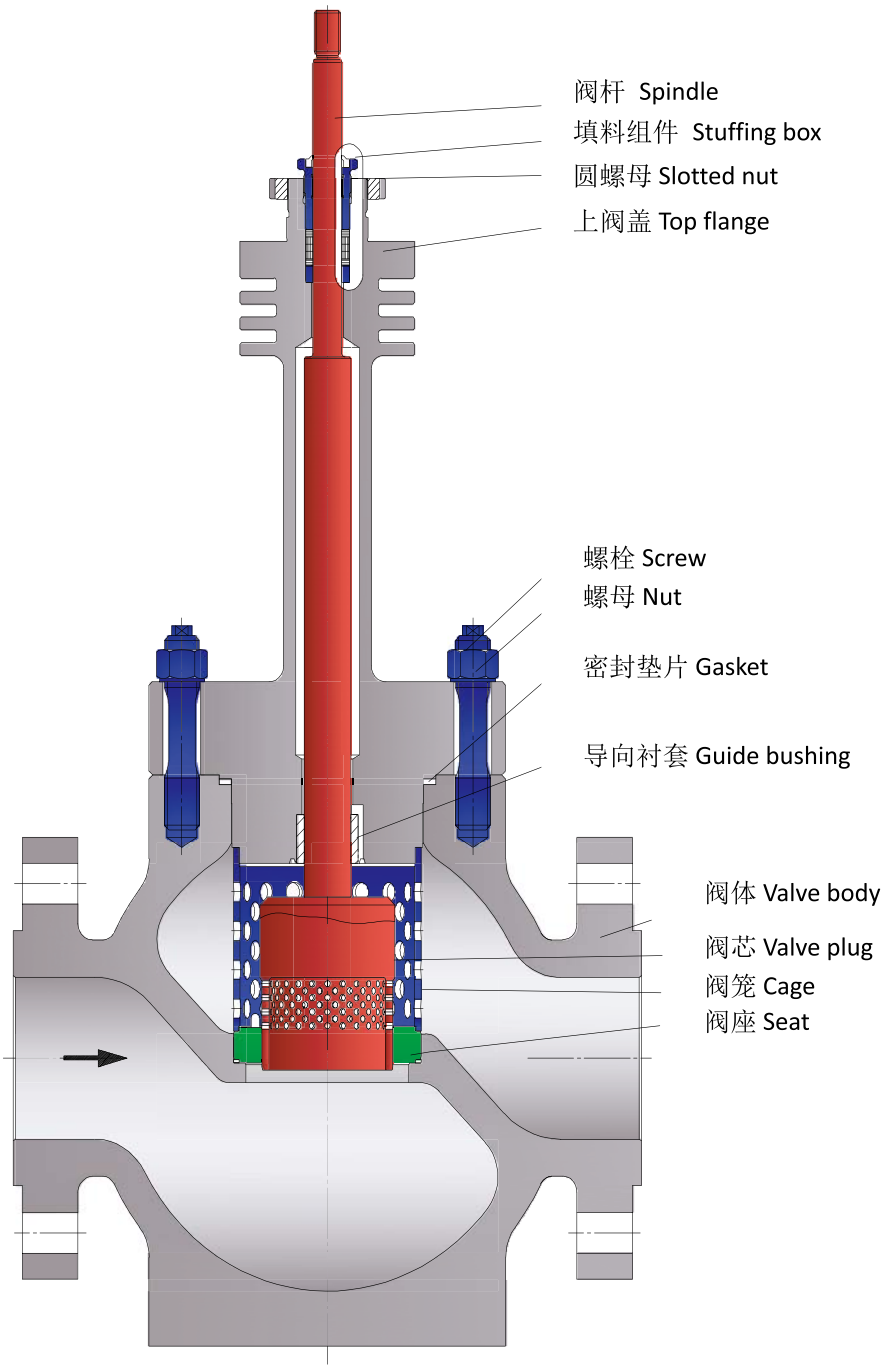
## 低温控制阀流量特性曲线
## Cryogenic Control Valve Flow Characterisitic flow chart(Equal percentage/Linear)



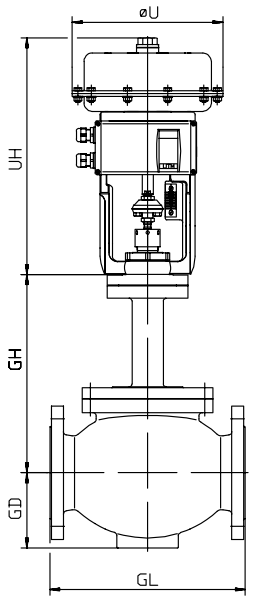
# G115,G155 系列低温控制阀技术数据
# Technical Data Sheet of G115 and G155 Series Cryogenic Control Valve

## 低温控制阀结构图及部件图
## Sectional Drawing of Cryogenic Control Valve



# G115,G155 系列低温控制阀技术数据
# Technical Data Sheet of G115 and G155 Series Cryogenic Control Valve

## G115 系列低温控制阀重量和外形尺寸
## Weights and dimensions of G115 Series Cryogenic Control Valve



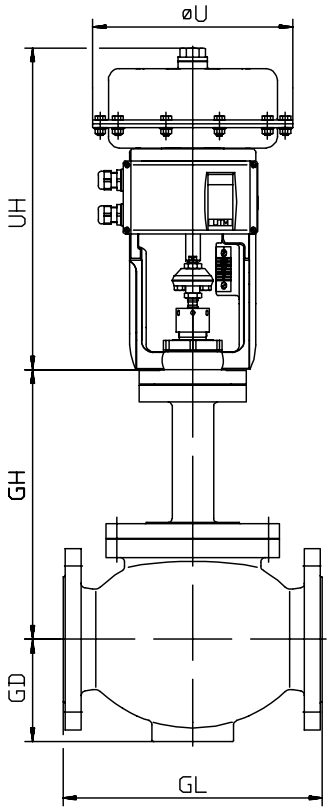

## 重量和尺寸 Weights and dimensions

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G115 系列<br>G115 series | 公称尺寸 DN<br>压力等级 ANSI NPS | | 15<br>1/2'' | 20<br>3/4'' | 25<br>1'' | 32<br>- | 40<br>1 1/2'' | 50<br>2'' | 65<br>- | 80<br>3'' | 100<br>4'' |
| | GL PN10-PN40 | | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 |
| | GL Class 150 RF | | 178 | 181 | 184 | - | 222 | 254 | - | 298 | 352 |
| | GL Class 150 RTJ | | - | - | 197 | - | 235 | 267 | - | 311 | 365 |
| | GL Class 300 RF | | 190 | 194 | 197 | - | 235 | 267 | - | 317 | 368 |
| | GL Class 300 RTJ | | 202 | 206 | 210 | - | 248 | 282 | - | 333 | 384 |
| | DEK5 | | ** 按需提供 On request | | | | | | | | |
| | GD | | 48 | 59 | 62 | 70 | 78 | 83 | 93 | 106 | 136 |
| UT 型执行机构<br>Actuator Type UT | ØU | UT I | 270 | | | | | | | | |
| | | UT II | 400 | | | | | | | | |
| | | UT III | 400 | | | | | | | | |
| | UH | UT I | 346 | | | | | | | | |
| | | UT II | 482 | | | | | | | | |
| | | UT III | 618 | | | | | | | | |
| | UHV | UT I | 508 | | | | | | | | |
| | | UT II | 651 | | | | | | | | |
| | | UT III | 888 | | | | | | | | |
| | Weight* ca. kg | UT I | 20 | 22 | 23 | 24 | 31 | 33 | 41 | 70 | 93 |
| | | UT II | 45 | 47 | 48 | 49 | 56 | 58 | 66 | 95 | 118 |
| | | UT III | 50 | 52 | 53 | 54 | 61 | 63 | 71 | 100 | 123 |

*) **重量** Weight: **执行机构不含手轮的重量** Actuator weight without hand wheel
**) **按需提供** On request

# G115,G155 系列低温控制阀技术数据
# Technical Data Sheet of G115 and G155 Series Cryogenic Control Valve

## G115 系列低温控制阀重量和外形尺寸
## Weights and dimensions of G115 Series Cryogenic Control Valve



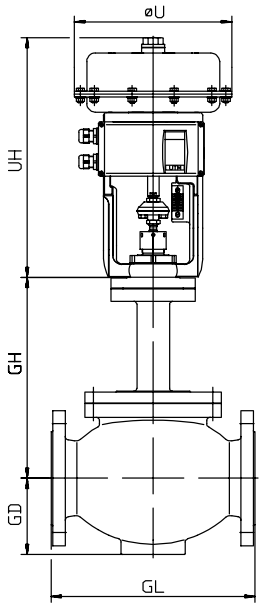

## 重量和尺寸 Weights and Dimensions

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| G115 系列<br>G115 series | 公称尺寸 DN<br>压力等级 ANSI NPS | | 150<br>6'' | 200<br>8'' | 250<br>10'' | 300<br>12'' | 350<br>14'' | 400<br>16'' |
| | GL PN10-PN40 | | 480 | 600 | 730 | 850 | 980 | 1100 |
| | GL Class 150 RF | | 451 | 543 | 673 | 737 | 889 | 1016 |
| | GL Class 150 RTJ | | 463.5 | 556 | - | - | - | - |
| | GL Class 300 RF | | 473 | 568 | 708 | 775 | 927 | 1057 |
| | GL Class 300 RTJ | | 489 | 584 | | | | |
| | DEK5 | | ** 按需提供 On request | | | | | |
| | GD | | 190 | 240 | 305 | 335 | 395 | 445 |
| UT 型 /UTA 型执行机构<br>Actuator Type UT/UTA | ØU | UT III | 400 | | | | | |
| | | UTA | 598 | | | | | |
| | UH | UT III | 618 | | | | | |
| | | UTA | 1100 | | 1363 | | | 1580 |
| | UHV | UT III | 888 | | | | | |
| | Weight* ca. kg | UT III | 200 | 260 | | | | |
| | | UTA | 340 | 400 | 460 | 760 | 850 | 1500 |

*) 重量 Weight: 执行机构不含手轮的重量 Actuator weight without hand wheel
**) 按需提供 On request

# G115,G155 系列低温控制阀技术数据
# Technical Data Sheet of G115 and G155 Series Cryogenic Control Valve

## G155 系列低温控制阀重量和外形尺寸
## Weights and Dimensions of G155 Series Cryogenic Control Valve

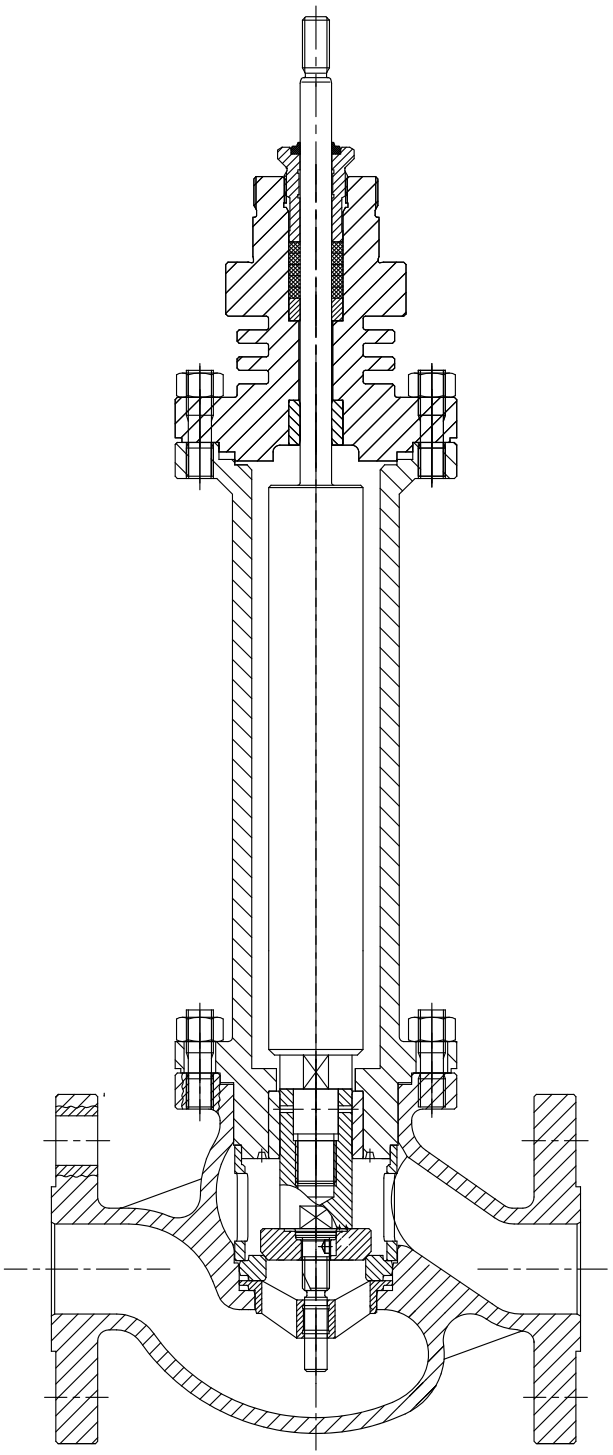



## 重量和尺寸 Weights and dimensions

| 根据 DIN EN 1092-1 或 ANSI class 600/900/1500 RF/RTJ 标准的法兰连接的阀门尺寸 (mm)<br>Dimensions (in mm) for valve c/w flanges acc. to DIN EN 1092-1 or ANSI Class 600/900/1500 RF/RTJ | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| G155 系列<br>G155 series | 公称尺寸 DN 压力等级 ANSI NPS | | 25<br>1“ | 40<br>1 ½“ | 50<br>2“ | 80<br>3“ | 100<br>4“ | 150<br>6“ | 200<br>8“ |
| | GL PN63/100/160 | | 230 | 260 | 300 | 380 | 430 | 550 | 700 |
| | GL PN250 | | 260 | 300 | 350 | 450 | 520 | 700 | 800 |
| | GL Class 600 RF | | 216 | 241 | 292 | 356 | 432 | 559 | 660 |
| | GL Class 600 RTJ | | 216 | 241 | 295 | 359 | 435 | 562 | 664 |
| | GL Class 900 RF | | 254 | 305 | 368 | 381 | 457 | 610 | 737 |
| | GL Class 900 RTJ | | 254 | 305 | 372 | 384 | 460 | 613 | 740 |
| | GL Class 1500 RF | | 254 | 305 | 368 | 470 | 546 | 705 | 832 |
| | GL Class 1500 RTJ | | 254 | 305 | 372 | 473 | 549 | 711 | 842 |
| | DEK5 | | ** 按需提供 On request | | | | | | |
| | GD | | 190 | 240 | 305 | 335 | 395 | 445 | 540 |
| UT 型 /UTA 型执行机构<br>Actuator Type<br>UT/UTA | ØU | UT I | 270 | | | | | | |
| | | UT II | 400 | | | | | | |
| | | UT III | 400 | | | | | | |
| | | UTA | 596 | | | | | | |
| | UH | UT I | 361 | | | | | | |
| | | UT II | 482 | | | | | | |
| | | UT III | 618 | | | | | | |
| | | UTA | 1100 | | | | | | |
| | UHV | UT I | 508 | | | | | | |
| | | UT II | 651 | | | | | | |
| | | UT III | 888 | | | | | | |
| | Weight* ca. kg | UT I | 34 | 42 | | | | | |
| | | UT II | 59 | 67 | 97 | 126 | 161 | | |
| | | UT III | 64 | 72 | 102 | 131 | 166 | 322 | 612 |
| | | UTA | 204 | 212 | 242 | 271 | 306 | 462 | 752 |

*) 重量 Weight: 执行机构不含手轮的重量 Actuator weight without hand wheel
**) 按需提供 On request

## G115,G155 系列低温控制阀特点
## General structures and features of G115 and G155 Series Cryogenic Control Valve

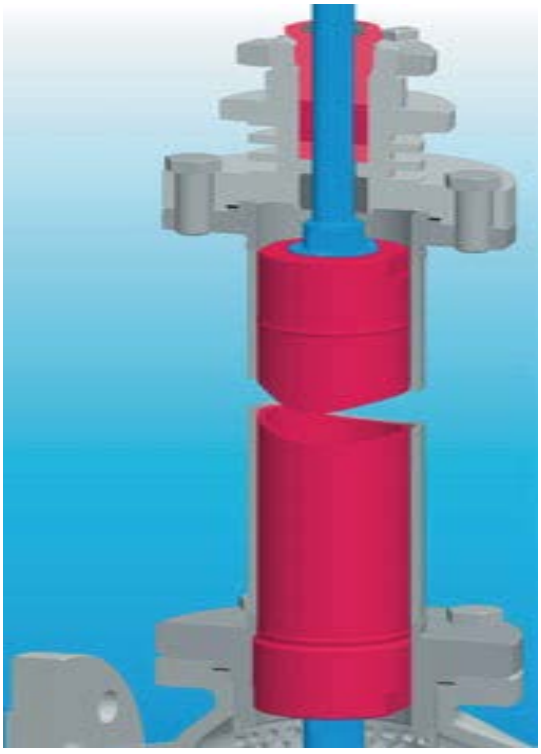


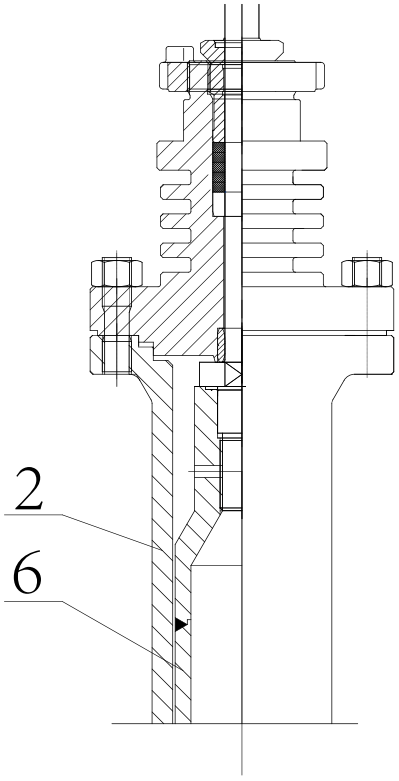
与传统控制阀设计不同的是：艾坦姆低温控制阀的阀芯和阀杆延伸段采用双导向，下导向位于阀座下方，这种设计可以确保更加可靠的密封和减少震动，该种设计中的导向和阀芯能够很容易地更换，每一个被磨损的部件都可以单独更换。阀座通过阀笼实现压紧式固定。上阀盖采用延长式设计，可以保证填料在远离低温介质的情况下正常工作。绝热柱和上阀盖延伸段为薄壁设计可以减少热传导。延伸段的长度根据工况的要求而定。简单的几何组合形式的阀座和阀杆可以使用更加耐磨损的材料。阀座可以双面使用，阀芯为抗震动设计，阀杆可以与阀芯随意搭配，甚至可以采用不同种材料与阀芯配套。

Differ from traditional design, Utmost® cryogenic control valve trim and stem extension adopt double guiding design, which is able to guarantee quick replacement and better sealing force as well as less vibration. The worn parts also be replaced individually. The valve seat is fixed by the retainer. The special designed extension bonnet is able to guarantee the performance of packing set away from cryogenic medium. Insulating valve stem could reduce the heating transfer which designed according to request operation condition. More wear resistant material been selected for seat and stem, formed by simplified geometric design. The valve plug is anti-vibration design. The valve stem could match the plug by various type and material.

## G115,G155 系列低温控制阀特点
## General structures and features of G115 and G155 Series Cryogenic Control Valve

### 1. 防止低温结冰
### Prevent freezing at low temperature






低温阀门设计为高度抗结冰形式。薄壁绝热柱（上图中 2 所示）和延伸式阀杆（上图中 6 所示）设计可减少热传导，此外阀杆延伸段填充珍珠岩可将热传导降到最低。绝热柱（包含住阀杆延伸段）与阀体为法兰连接，结构紧凑。配合良好的垫片安装形式，可保证密封可靠性。上阀盖和绝缘室之间的径向间隙被减少到最小，延伸的阀杆被设计成抑制对流传热形式，这样即使热声引起的上阀盖和绝热柱间环面的振动也不会有热传导。这样设计热量损失低，能保证不结冰。

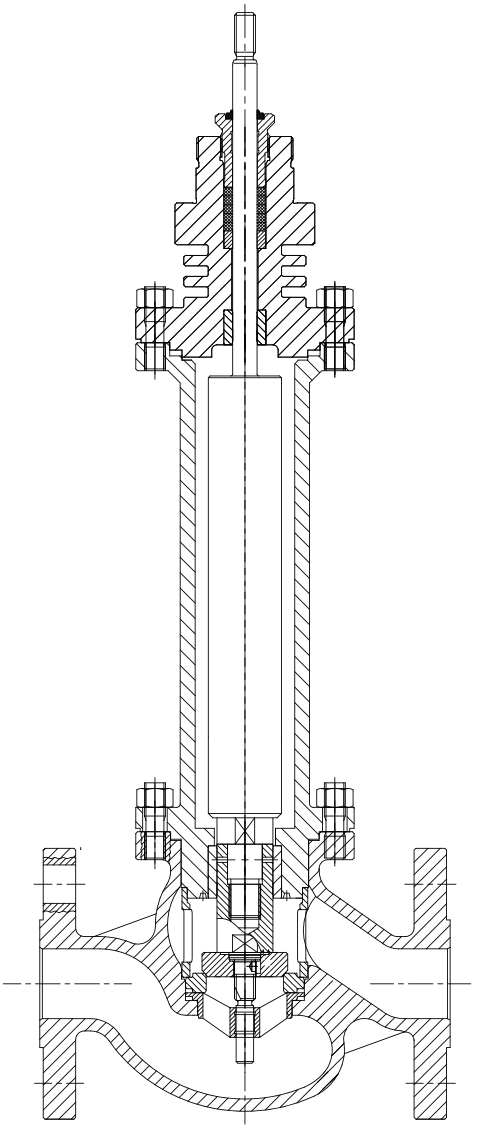
Cryogenic valves are designed to be highly frost resistant.Thin-walled adiabatic columns (shown in figure 2 below) and extended stem (shown in figure 6 below) are designed to reduce heat conduction, and perlite filling of stem extension segments minimizes heat conduction.Adiabatic column (including stem extension section) and valve body are flanged, compact structure.Well matched gasket installation form, can ensure the reliability of sealing.The radial clearance between the upper cover and the insulation chamber is reduced to a minimum, and the extended stem is designed to prevent convection so that there is no heat transfer even if the thermally induced vibration of the torus between the upper cover and the adiabatic column.This is designed to keep heat loss low and ice free.

## G115,G155 系列低温控制阀特点
## General structures and features of G115 and G155 Series Cryogenic Control Valve

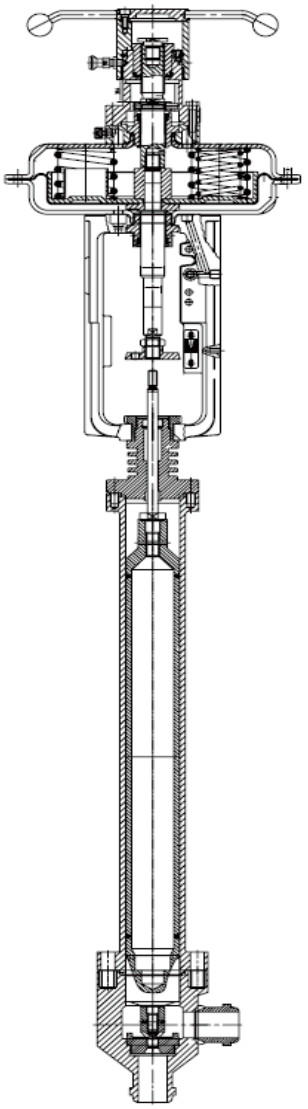
### 2. 艾坦姆冷箱低温阀顶抽特殊设计特点
### Utmost cold box low temperature valve top pumping special design features

特殊拥有专利技术的双壁式的延伸型结构，结构形式简单，可顶抽，不用特殊工装、维修方便。

Special patented double wall extended structure, simple structure, can top pumping, no special tooling, easy maintenance.



低温



超低温

# G115,G155 系列低温控制阀特点
# General structures and features of G115 and G155 Series Cryogenic Control Valve

## 低温控制阀部件清洁
## Parts Cleaning of Cryogenic Control Valve

艾坦姆公司针对低温调节阀，都将严格进行脱脂处理，执行标准遵循 DIN8964 “德国 DIN 标准协会研究所冷冻技术 (FNKä) 标准委员会”标准。

For all the cryogenic valves, Utmost is strictly doing the degrease process for each cryogenic valve, following the same standard with DIN 8964 standard.

艾坦姆采用先进的超声波脱脂技术，对所有和低温介质接触的阀门部件进行禁油、脱脂处理。

Adopt advanced sub-sonic degreasing technolygy, all valve parts contact with medium strictly process the degreasing process.

按照标准 DIN 8964-1 规定，可溶解的（油脂和油类物质）残余量不得超过 40 $mg/m^2$ 。

According to DIN 8964-1 standard requirenments, maximum dissolvable grease content should be less than 40 $mg/m^2$ .

艾坦姆流体控制技术（北京）有限公司拥有自己的无尘车间，所有低温调节阀的脱脂、装配、检测、包装均在无尘车间内完成。

Utmost owned Non-dust room where all the cryogenic valves‘ degreasing,assembling,Inspection, testing and packing process are finished.

# G115,G155 系列低温控制阀特点
# General structures and features of G115 and G155 Series Cryogenic Control Valve

## 低温控制阀清洁检测与耐压试验
## Cleaning Inspection and Pressure testing of Cryogenic Control Valve

所有低温阀部件均经过严格的清洁检测，使用白炙光进行定性测试，用波长在 0.32 到 0.4 微米的紫外线跟踪检测，再用白色滤纸检测是否还有非荧光碳氢化合物。

All parts of cryogenic valve doing strictly leaning inspection,First qualitative testing process under bright light flowing is the purification tracing with with ultraviolet light of wave lengths between 0,32 μm through 0,4 μm and then adopt white filtrate paper to recognize non-fluorescent carbon.

通过随机检查洁净值是否超出规定的极限来检测清洁过程的有效性，被检验的部分先用蒸馏水喷雾湿润，如果表面（特别是在洗净区域）没有油或油脂，几秒钟内会形成连续水膜，如果有油或者油脂则水膜是不连续的。这个测试与 30 到 60 mg/ $m^2$ 净化极限值是等效的。

Randomly check process to confirm the specified limit of purification is exceeded or not, which process is finished by moisturizing test, the examined part is wetted with of spried distilled water, a continuous aqueous film is formed on the surface for a few seconds if there are no oil or grease, otherwise the film is discontinued especially in the areas of purification. This test is equal to the purification limit of 30 to 60 mg/$m^2$ .

艾坦姆低温阀在出厂前均采用特殊的耐压试验和泄漏试验，整个试验将在无尘车间进行，采用清洁氮气进行试验，试验标准将依据 DIN 8964 标准进行。同时采用真空包装，严格执行 DIN 8964 标准，确保长期存放时，内部表面存水不得超过 50 mg/ $m^2$ 。

All Utmost®cryogenic valves doing special pressure and leakage testings using clean nitrogen before delivery, the whole process is finished in the Non-dust room, the test is in accordance with DIN 8964 standards. Vacuum packaging to ensure long-term storage, the internal surface of the water less than 50 mg / $m^2$, which is strictly follow DIN 8964 standards requirements.

**Note**:

**Note**:

Utmost®
品质与艺术完美结合

不仅仅是性能卓越的产品. . . . . .
艾坦姆还通过技术方案和综合的售后服务体系，
增强产品价值，为您的工厂提供全面支持！

More than just excellent products!
Utmost also supply technical solution and integrated after service system to increase products value and fully support your factory!

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Annoucement: The data of this brochure comes from standard valve in theory and measurement, data updates without notice.

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