

V type ball valve



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Brief introduction

Zhejiang CHAODA Valve Co., Ltd. was founded in the year of 1984, covering an area of 38000m², including factory structural area of 22811m², with 382 staffs and 230 sets of various facilities, such as machining center, CNC lathe, CNC miller, common Lathe, boring machine, miller, driller, etc. In the year of 2004, CHAODA had a turnover of 15 million USD, of which 6 million USD was from exportation. The company possesses advanced and complete chemical, physical and pressure test equipments.

The company's management strictly complies with the up-to-dated enterprise system, and its quality management system is running well and perfect. The company has attached great importance to the introduction and education for the scientific and technical staffs. The engineers and technicians, amounting to one fourth of the total staffs, of the company have laid a solid foundation of the technical innovation. The company has set up an educational training center, and insisted on training and educating the staffs and the management personnel, so as to improve continuously the whole ability and skill of the staffs.

The company mainly manufactures the valves according to ANSI, API, MSS, JIS, DIN, BS, NF and Chinese GB standards. The main products include gate valve, globe valve, check valve, ball valve, plug valve, butterfly valve, special safety valve, strainer, flanges, etc. The size ranges from NPS 1/2 to NPS 64. The pressure ranges from class 150 to class 2500. The main materials of the products are WCB, WCC, C5, CA15, WC6, WC9, CF8, CF3, CF8M, CF3M, LCB, LCC, LC1, LC2, LC3, CN7M, A105, 304, 316, 304L, 316L, F11, F22, LF2, F51, etc. The products are widely used in the field of petroleum, chemical, metallurgical, power, fuel gas, city pipeline networks. The products have been exported to USA, Canada, Japan, Spain, France, Italy, England and other countries. With high content of technology and reliable quality, our products have gained good fame from the customers.

The company has set up an advanced informationization management system. Our LAN with 85 pieces of computers compose of the ERP and PDM management system.

Facing the furious competition of the valve market, we will fully exert our advantage on technology and management to improve continuously our product quality and manufacture high quality valve product to satisfy the customers.

API 6D certificate

CE certificate



ISO 9001 certificate

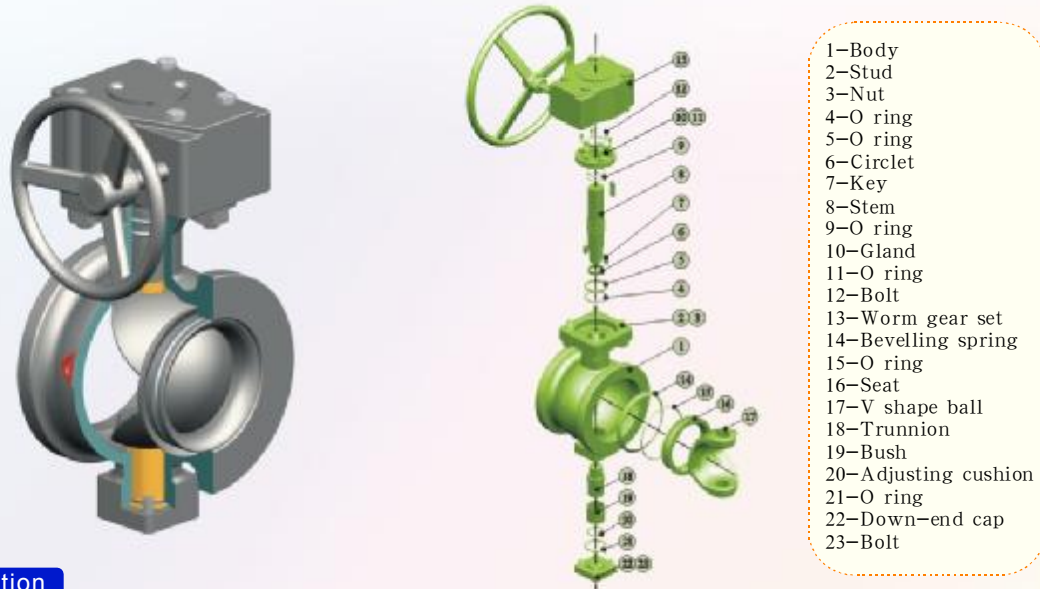
API 600 certificate



API 607 fireproofing certificate



Typical drawing of V type ball valve and parts composition



Application

V type ball valve is suitable for use on various kinds of pipelines of Class150 ~ Class300, and PN16 ~ PN40. There are two kinds of applications for V type ball valve according to customers' different requirement. One is used for cutting off or switching on the pipeline medium. The other is used as control valve for regulating the medium flow capacity in pipelines. Operation manners for cutting off type V type ball valve include manual, worm gear, pneumatic or electric actuators, where as for regulating type V type ball valve, operation manners are of pneumatic and electric actuators.

Of the application for metal to metal sealed v type ball valve, the temperature is in general $\leq 200^{\circ}\text{C}$. As specially ordering, the application temperature for metal to metal sealed v type ball valve can be $\leq 425^{\circ}\text{C}$ (carbon steel valve body) or $\leq 540^{\circ}\text{C}$ (valve body of stainless steel, CrMo steel, and CrMoV steel). For Soft Sealed V type ball valve, the application temperature is in general $\leq 180^{\circ}\text{C}$ (reinforced PTFE seat).

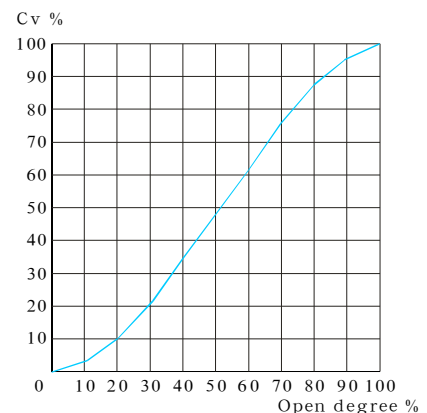
Connection type for V type ball valve is of wafer flanged connection.

Features

1. For V type ball valve, the bevelling spring or pillar spring loaded movable seat design has been employed, which is reliable in seal and of long service life as there in no such problems as clenching or disjoints.
2. It features the function of slipping between the ball with cutting edge and metal seat, which is particularly suitable for the medium containing fibre, solid particles, thick fluid, and so on.
3. As per different working conditions of customers, several kinds of advanced techniques have been employed separately for the ball and seat surface of metal to metal sealed ball valve, such as nickel base alloy by spraying welding (for hardness $\geq \text{HRC}60$), stellite alloy by ultra-sonic spraying coating (for max.hardness $\geq \text{HRC}70$), and specially hardened material etc., which are suitable for many kinds of critical working conditions.
4. When the valve is fully open, flow capacity is big, pressure loss is small, and the medium would not deposit in the body cavity.
5. Being impact in structure and extensive in common use, the cutting off V type ball valve features perfect sealing property and may replace gate valve, globe valve and general ball valve. For regulating V type ball valve, its regulating scope available is wide, and its regulating accuracy is high.

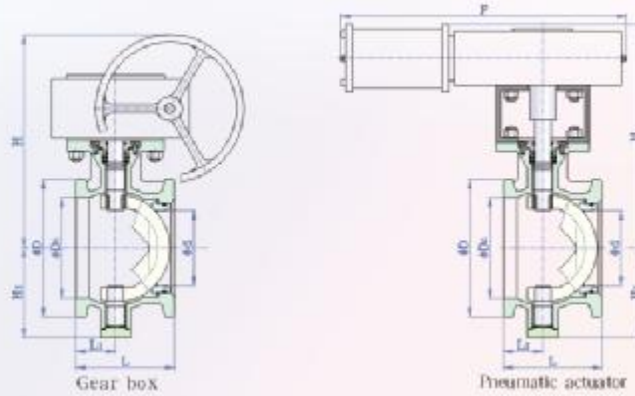
Relation between corresponding open and flow coefficient Cv

| Size | | Relative open degree | | | | | |
|------|-----|----------------------------|-----|-----|------|------|------|
| | | 10% | 30% | 50% | 70% | 90% | 100% |
| DN | NPS | Flow volume coefficient Cv | | | | | |
| 25 | 1 | 0.5 | 2 | 5.2 | 10 | 19 | 28 |
| 40 | 1½ | 1.2 | 5.7 | 15 | 30 | 54 | 81 |
| 50 | 2 | 1.9 | 8.8 | 23 | 46 | 83 | 125 |
| 65 | 2½ | 3.2 | 14 | 39 | 76 | 138 | 208 |
| 80 | 3 | 4.4 | 20 | 54 | 106 | 192 | 290 |
| 100 | 4 | 7 | 33 | 86 | 170 | 308 | 465 |
| 125 | 5 | 10 | 46 | 122 | 240 | 436 | 658 |
| 150 | 6 | 13 | 60 | 157 | 310 | 564 | 850 |
| 200 | 8 | 21 | 97 | 255 | 503 | 915 | 1380 |
| 250 | 10 | 33 | 152 | 401 | 792 | 1440 | 2170 |
| 300 | 12 | 46 | 216 | 572 | 1130 | 2050 | 3090 |





Main sizes and weights of wafer V type ball valve



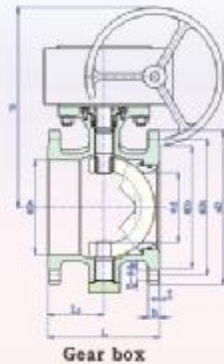
| Pressure stage | Size | | Dimensions (mm) | | | | | | | | | Weight (kg) | |
|-------------------|------|-----|-----------------|----|-----|-----|-----|-----|-----|----------|--------------------|-------------|--------------------|
| | DN | NPS | L | L1 | d | D | Dc | H1 | F | H | | Gear box | Pneumatic actuator |
| | | | | | | | | | | Gear box | Pneumatic actuator | | |
| Class 150 PN20 | 25 | 1 | 50 | 25 | 19 | 65 | 38 | 57 | 400 | 200 | 222 | 8 | 18 |
| | 40 | 1½ | 60 | 25 | 32 | 84 | 49 | 63 | 400 | 205 | 228 | 10 | 20 |
| | 50 | 2 | 75 | 32 | 38 | 103 | 60 | 92 | 400 | 225 | 248 | 14 | 23 |
| | 65 | 2½ | 85 | 38 | 51 | 122 | 75 | 100 | 400 | 235 | 255 | 18 | 27 |
| | 80 | 3 | 100 | 45 | 64 | 135 | 89 | 108 | 400 | 260 | 270 | 22 | 30 |
| | 100 | 4 | 115 | 50 | 76 | 173 | 113 | 117 | 400 | 270 | 278 | 30 | 38 |
| | 125 | 5 | 135 | 55 | 102 | 195 | 140 | 140 | 455 | 320 | 335 | 39 | 46 |
| | 150 | 6 | 160 | 65 | 127 | 220 | 164 | 177 | 455 | 340 | 358 | 52 | 59 |
| Class 300 PN50 | 200 | 8 | 200 | 80 | 152 | 277 | 205 | 200 | 700 | 390 | 405 | 68 | 80 |
| | 250 | 10 | 240 | 92 | 203 | 337 | 259 | 252 | 700 | 420 | 449 | 95 | 120 |
| | 25 | 1 | 50 | 25 | 19 | 72 | 38 | 57 | 400 | 200 | 222 | 9 | 19 |
| | 40 | 1½ | 60 | 25 | 32 | 94 | 49 | 63 | 400 | 205 | 228 | 12 | 22 |
| | 50 | 2 | 75 | 32 | 38 | 110 | 60 | 92 | 400 | 225 | 248 | 16 | 25 |
| | 65 | 2½ | 85 | 38 | 51 | 128 | 75 | 100 | 400 | 235 | 255 | 20 | 29 |
| | 80 | 3 | 100 | 45 | 64 | 147 | 89 | 108 | 400 | 260 | 270 | 25 | 33 |
| | 100 | 4 | 115 | 50 | 76 | 179 | 113 | 117 | 400 | 270 | 278 | 30 | 38 |
| Class 150 PN20 | 125 | 5 | 135 | 55 | 102 | 214 | 140 | 140 | 455 | 320 | 335 | 45 | 52 |
| | 150 | 6 | 160 | 65 | 127 | 249 | 164 | 177 | 455 | 340 | 358 | 60 | 67 |
| | 200 | 8 | 200 | 80 | 152 | 305 | 205 | 200 | 700 | 390 | 405 | 80 | 92 |
| | 250 | 10 | 240 | 92 | 203 | 359 | 259 | 252 | 700 | 420 | 449 | 110 | 135 |

| Nominal pressure | DN | | 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 |
|------------------|--------------------|--------------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| PN16 | Dimensions (mm) | L | 50 | 60 | 75 | 85 | 100 | 115 | 135 | 160 | 200 | 240 |
| | | L1 | 25 | 25 | 32 | 38 | 45 | 50 | 55 | 65 | 80 | 92 |
| | | F | 400 | 400 | 400 | 400 | 400 | 400 | 455 | 455 | 700 | 700 |
| | | H1 | 57 | 63 | 92 | 100 | 108 | 117 | 140 | 177 | 200 | 252 |
| | | H | Gear box | 200 | 205 | 225 | 235 | 260 | 270 | 320 | 340 | 390 |
| | Pneumatic actuator | | 222 | 228 | 248 | 255 | 270 | 278 | 335 | 358 | 405 | 449 |
| | Weight (kg) | Gear box | 9 | 11 | 15 | 19 | 23 | 29 | 39 | 52 | 67 | 93 |
| | | Pneumatic actuator | 19 | 21 | 24 | 28 | 31 | 37 | 46 | 59 | 79 | 118 |
| PN25 | Dimensions (mm) | L | 50 | 60 | 75 | 85 | 100 | 115 | 135 | 160 | 200 | 240 |
| | | L1 | 25 | 25 | 32 | 38 | 45 | 50 | 55 | 65 | 80 | 92 |
| | | F | 400 | 400 | 400 | 400 | 400 | 400 | 455 | 455 | 700 | 700 |
| | | H1 | 57 | 63 | 92 | 100 | 108 | 117 | 140 | 177 | 200 | 252 |
| | | H | Gear box | 200 | 205 | 225 | 235 | 260 | 270 | 320 | 340 | 390 |
| | Pneumatic actuator | | 222 | 228 | 248 | 255 | 270 | 278 | 335 | 358 | 405 | 449 |
| | Weight (kg) | Gear box | 9 | 11 | 15 | 19 | 23 | 30 | 40 | 54 | 70 | 98 |
| | | Pneumatic actuator | 19 | 21 | 24 | 28 | 31 | 39 | 49 | 64 | 85 | 124 |
| PN40 | Dimensions (mm) | L | 50 | 60 | 75 | 85 | 100 | 115 | 135 | 160 | 200 | 240 |
| | | L1 | 25 | 25 | 32 | 38 | 45 | 50 | 55 | 65 | 80 | 92 |
| | | F | 400 | 400 | 400 | 400 | 400 | 400 | 455 | 455 | 700 | 700 |
| | | H1 | 57 | 63 | 92 | 100 | 108 | 117 | 140 | 177 | 200 | 252 |
| | | H | Gear box | 200 | 205 | 225 | 235 | 260 | 270 | 320 | 340 | 390 |
| | Pneumatic actuator | | 222 | 228 | 248 | 255 | 270 | 278 | 335 | 358 | 405 | 449 |
| | Weight (kg) | Gear box | 11 | 13 | 18 | 23 | 27 | 35 | 47 | 60 | 83 | 118 |
| | | Pneumatic actuator | 22 | 24 | 29 | 36 | 38 | 48 | 62 | 78 | 98 | 154 |

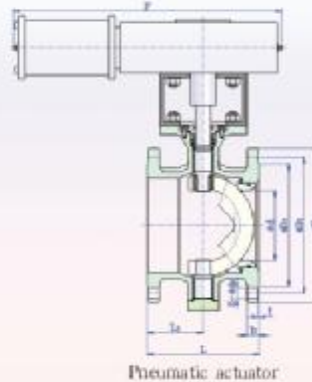




Main sizes and weights of flange connection V type ball valve



Gear box



Pneumatic actuator

| Pressure stage | Size | | Dimensions (mm) | | | | | | | | | | | | | Weight (kg) | | |
|-------------------|------|-----|-----------------|----------------|-----|-----|----------------|----------------|----------------|------|-----|-------------------|----------------|-----|----------|--------------------|----------|--------------------|
| | DN | NPS | L | L ₁ | d | D | D ₁ | D ₂ | D _c | b | f | Z-φd ₀ | H ₁ | F | H | | Gear box | Pneumatic actuator |
| | | | | | | | | | | | | | | | Gear box | Pneumatic actuator | | |
| Class 150 PN20 | 25 | 1 | 102 | 51 | 19 | 108 | 79.5 | 51 | 38 | 11.5 | 1.6 | 4-15 | 57 | 400 | 200 | 222 | 11 | 21 |
| | 40 | 1½ | 114 | 57 | 32 | 127 | 98.5 | 73 | 49 | 14.5 | 1.6 | 4-15 | 63 | 400 | 205 | 228 | 14 | 24 |
| | 50 | 2 | 124 | 62 | 38 | 152 | 120.5 | 92 | 60 | 16 | 1.6 | 4-19 | 92 | 400 | 225 | 248 | 20 | 29 |
| | 65 | 2½ | 145 | 72.5 | 51 | 178 | 139.5 | 105 | 75 | 17.5 | 1.6 | 4-19 | 100 | 400 | 235 | 255 | 24 | 33 |
| | 80 | 3 | 165 | 82.8 | 64 | 190 | 152.5 | 127 | 89 | 19.5 | 1.6 | 4-19 | 108 | 400 | 260 | 270 | 33 | 41 |
| | 100 | 4 | 194 | 97 | 76 | 229 | 190.5 | 157 | 113 | 24 | 1.6 | 8-19 | 117 | 400 | 270 | 278 | 49 | 57 |
| | 125 | 5 | 210 | 105 | 102 | 254 | 216 | 186 | 140 | 24 | 1.6 | 8-22 | 140 | 455 | 320 | 335 | 59 | 66 |
| | 150 | 6 | 229 | 114.5 | 127 | 279 | 241.5 | 216 | 164 | 25.5 | 1.6 | 8-22 | 177 | 455 | 340 | 358 | 80 | 87 |
| | 200 | 8 | 243 | 121.5 | 152 | 343 | 298.5 | 270 | 205 | 29 | 1.6 | 8-22 | 200 | 700 | 390 | 405 | 108 | 120 |
| Class 300 PN50 | 25 | 1 | 102 | 51 | 19 | 124 | 89 | 51 | 38 | 17.5 | 1.6 | 4-19 | 57 | 400 | 200 | 222 | 13 | 23 |
| | 40 | 1½ | 114 | 57 | 32 | 156 | 114.5 | 73 | 49 | 21 | 1.6 | 4-22 | 63 | 400 | 205 | 228 | 16 | 26 |
| | 50 | 2 | 124 | 62 | 38 | 165 | 127 | 92 | 60 | 22.5 | 1.6 | 8-19 | 92 | 400 | 225 | 248 | 22 | 31 |
| | 65 | 2½ | 145 | 72.5 | 51 | 190 | 149 | 105 | 75 | 25.5 | 1.6 | 8-22 | 100 | 400 | 235 | 255 | 26 | 35 |
| | 80 | 3 | 165 | 82.5 | 64 | 210 | 168.5 | 127 | 89 | 29 | 1.6 | 8-22 | 108 | 400 | 260 | 270 | 37 | 45 |
| | 100 | 4 | 194 | 97 | 76 | 254 | 200 | 157 | 113 | 32 | 1.6 | 8-22 | 117 | 400 | 270 | 278 | 55 | 63 |
| | 125 | 5 | 210 | 105 | 102 | 279 | 235 | 186 | 140 | 35 | 1.6 | 8-22 | 140 | 455 | 320 | 335 | 65 | 72 |
| | 150 | 6 | 229 | 114.5 | 127 | 318 | 270 | 216 | 164 | 37 | 1.6 | 12-22 | 177 | 455 | 340 | 358 | 95 | 102 |
| | 200 | 8 | 243 | 121.5 | 152 | 381 | 330 | 270 | 205 | 41.5 | 1.6 | 12-25 | 200 | 700 | 390 | 405 | 138 | 150 |
| Class 300 PN50 | 250 | 10 | 297 | 148.5 | 203 | 445 | 387.5 | 324 | 259 | 48 | 1.6 | 16-29 | 252 | 700 | 420 | 449 | 185 | 210 |
| | 300 | 12 | 338 | 169 | 254 | 521 | 451 | 381 | 300 | 51 | 1.6 | 16-32 | 270 | 700 | 510 | 550 | 240 | 285 |

| Nominal pressure | DN | | 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
|--------------------|-----------------|--------------------|-----|-----|-----|------|------|-----|-----|-------|-------|-------|-----|
| PN16 | Dimensions (mm) | L | 102 | 114 | 124 | 145 | 165 | 194 | 210 | 229 | 243 | 297 | 338 |
| | | L ₁ | 51 | 57 | 62 | 72.5 | 82.8 | 97 | 105 | 114.5 | 121.5 | 148.5 | 169 |
| | | F | 400 | 400 | 400 | 400 | 400 | 400 | 455 | 455 | 700 | 700 | 700 |
| | | H ₁ | 57 | 63 | 92 | 100 | 108 | 117 | 140 | 177 | 200 | 252 | 270 |
| | H | Gear box | 200 | 205 | 225 | 235 | 260 | 270 | 320 | 340 | 390 | 420 | 510 |
| | | Pneumatic actuator | 222 | 228 | 248 | 255 | 270 | 278 | 335 | 358 | 405 | 449 | 550 |
| | Weight (kg) | Gear box | 12 | 15 | 21 | 24 | 34 | 47 | 57 | 79 | 105 | 144 | 186 |
| Pneumatic actuator | | 22 | 25 | 30 | 33 | 42 | 55 | 64 | 86 | 117 | 169 | 231 | |
| PN25 | Dimensions (mm) | L | 102 | 114 | 124 | 145 | 165 | 194 | 210 | 229 | 243 | 297 | 338 |
| | | L ₁ | 51 | 57 | 62 | 72.5 | 82.5 | 97 | 105 | 114.5 | 121.5 | 148.5 | 169 |
| | | F | 400 | 400 | 400 | 400 | 400 | 400 | 455 | 455 | 700 | 700 | 700 |
| | | H ₁ | 57 | 63 | 92 | 100 | 108 | 117 | 140 | 177 | 200 | 252 | 270 |
| | H | Gear box | 200 | 205 | 225 | 235 | 260 | 270 | 320 | 340 | 390 | 420 | 510 |
| | | Pneumatic actuator | 222 | 228 | 248 | 255 | 270 | 278 | 335 | 358 | 405 | 449 | 550 |
| | Weight (kg) | Gear box | 12 | 15 | 21 | 24 | 36 | 50 | 61 | 85 | 118 | 154 | 200 |
| Pneumatic actuator | | 22 | 25 | 30 | 33 | 44 | 58 | 68 | 92 | 125 | 179 | 247 | |
| PN40 | Dimensions (mm) | L | 102 | 114 | 124 | 145 | 165 | 194 | 210 | 229 | 243 | 297 | 338 |
| | | L ₁ | 51 | 57 | 62 | 72.5 | 82.8 | 97 | 105 | 114.5 | 121.5 | 148.5 | 169 |
| | | F | 400 | 400 | 400 | 400 | 400 | 400 | 455 | 455 | 700 | 700 | 700 |
| | | H ₁ | 57 | 63 | 92 | 100 | 108 | 117 | 140 | 177 | 200 | 252 | 270 |
| | H | Gear box | 200 | 205 | 225 | 235 | 260 | 270 | 320 | 340 | 390 | 420 | 510 |
| | | Pneumatic actuator | 222 | 228 | 248 | 255 | 270 | 278 | 335 | 358 | 405 | 449 | 550 |
| | Weight (kg) | Gear box | 12 | 15 | 21 | 26 | 38 | 54 | 65 | 89 | 130 | 170 | 220 |
| Pneumatic actuator | | 22 | 25 | 30 | 35 | 46 | 62 | 73 | 96 | 137 | 184 | 267 | |



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Ball Valve

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