



天河水务 FZ、YZ 型铸铁镶铜闸门 TYPE-FZ、YZ CAST-IRON BRONZE-INLAID GATE

● 用途 Applications

铸铁镶铜闸门主要用于给排水、防汛、灌溉、水利、水电工程中，用来截止、疏通水流或起调节水位的作用。

我公司是生产该产品的专业厂家之一，多次对产品结构及加工工艺进行改进。目前已生产的最大规格达4m×6m，已形成规模生产，并有多种规格远销国外。

The cast-iron bronze-inlaid gate is mainly used to cut off/drain flow or adjust the water level in water supply and sewerage engineering, flood prevention, irrigation, hydraulic and hydropower engineering.

Our Company is one of the earliest factories producing this product. Improving the product structure for many times, it has been able to produce the largest ones with 4m×6m specification at present. And many specifications of gates have been sold far to other countries.

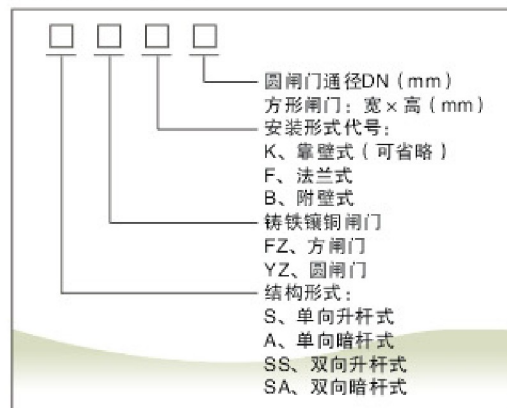


● 特点 Features

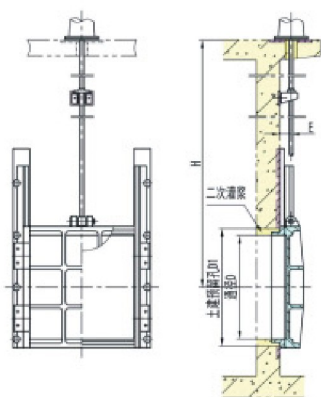
- 1、门体、门框等由灰铸铁（或球墨铸铁）制成，结构强度高，耐腐蚀性好，承压能力大（正向承压：0.1MPa）。
- 2、密封面采用青铜精密加工，密封性好，渗水量小：正向 0.72L/m·min；反向：1.25L/m·min。
- 3、品种齐全，适用范围广，安装调整方便。

- 1、The gate body and gate frame are made of gray cast-iron(or nodular cast iron). They have powerful structural strength, strong corrosion resistance and high bearing capacity (forward bearing : 0.1MPa).
- 2、The seal surface is made of bronze through precise processing. Good seal function and small leakage: forward leakage : 0.72L/m·min, backward leakage :1.25L/m·min.
- 3、Complete in varieties, vast in application and easy in installation and adjustment.

● 型号示例 Type and Its Indication

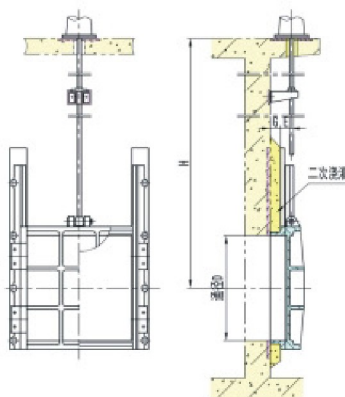


● 安装形式 Mounting Patterns



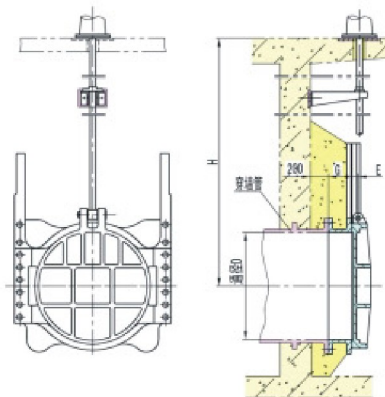
靠壁式（代号K）

土建预留孔比闸门通径略大，一般适用于 $\Phi 200 \sim \Phi 1200$ ， $\square 300 \sim \square 1000$ 之间的单向闸门的安装。



附壁式（代号B）

土建预留孔与闸门通径相同、适用于所有规格的单向及双向闸门的安装，推荐使用此种安装方式。

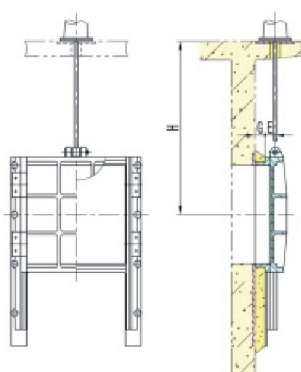


法兰式（代号F）

适用所有规格的单向及双向圆闸门的安装，法兰标准：GB9112-2000，PN0.25MPa。当穿墙管为钢管时，需与闸门法兰配制一只钢法兰，安装时两法兰装配后与穿墙管焊接。

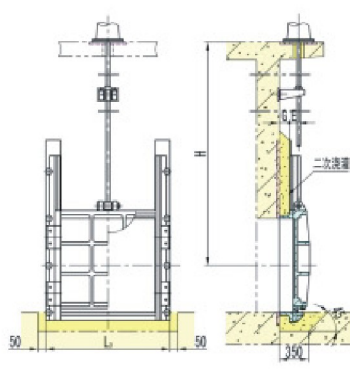


天河水务 FZ、YZ 型铸铁镶铜闸门 TYPE-FZ、YZ CAST-IRON BRONZE-INLAID GATE



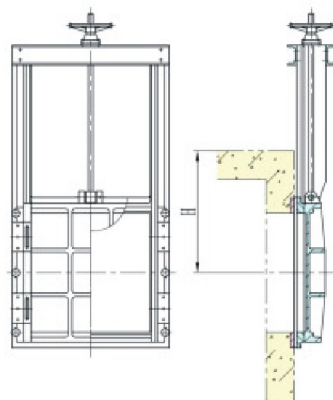
下开式 (代号X)

适用于上开时无空间的场合 $H < 1.5D + 300$, 只适用于单向闸门的安装。



平底式 (代号P)

适用于泥砂量较大, 特别是块状物容易在闸门前造成堵塞的场合, 或下部无安装空间的场合, 仅限于方闸门。

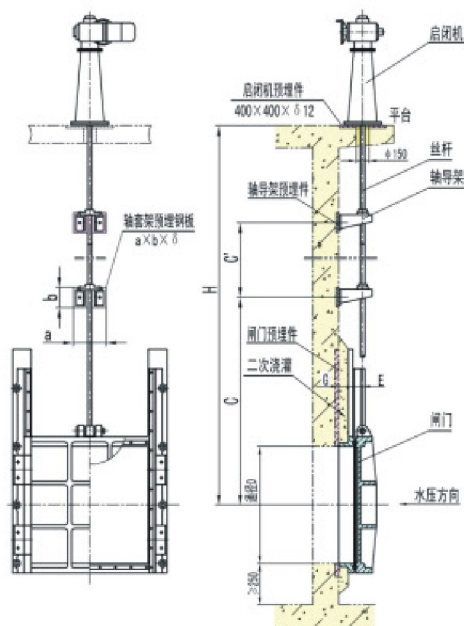


自撑式 (代号Z)

无需指定启闭机的型号, 仅需注明手动或电动即可, 适用于渠道安装。上部无密封要求或上部无法设定启闭机平台的场合, 仅限于方闸门。

● 闸门与启闭机布置图 (以附壁式为例)

The Arrangement Plan About Gate and Gate Lifting Device (take the wall-attached machine for example)



● 闸门启闭力的计算

Calculation for Start-Stop Force of Gate

启门力: $F_{启} = n \cdot (F + W_1 + W_2)$

闭门力: $F_{闭} = n \cdot (F - W_1 - W_2)$

式中:

W_1 —门体自重 (t)

W_2 —丝杆自重 (t)

n —系数 1.1 ~ 1.3, 闸门不经常操作时, 取大值, 反之取小值;

F —水压产生的阻力 (t)

$F = S \cdot h \cdot \mu \cdot \gamma / 1000$

γ —水的比重 $1.0 \times 10^3 \text{ kg/m}^3$

S —闸门板面积 (m^2)

方闸门: $S = a \cdot b$

a —闸门宽 (m)

b —闸门高 (m)

圆闸门: $S = \pi \cdot D^2 / 4$

D —闸门通径 (m)

h —闸孔中心至最高水位高度 (m)

μ —密封面的摩擦系数, 一般取 0.3。

● 轴导架布置说明

Arrangement Description About Mast Support

一般当 $H \geq 5\text{m}$ 时须设置轴导架, 轴导架的位置必须以闸门全开为原则, C 与 C' 应符合下列要求:

1、 $D \leq 1700$

$1.5D + 300 \leq C \leq 3000$

$C' = 2500 \sim 3000$

2、 $D > 1700$

$1.5D + 300 \leq C \leq 1.5D + 600$

$C' = 3000 \sim 3500$

其中:

D —圆闸门通径或方闸门洞口高度 (mm)

● 轴导架预埋钢板尺寸

The Size of Pre-Embedded Steel Plate In Mast Support (mm)

规格	$\Phi 200 \sim \Phi 1200$	$\Phi 1200 \sim \Phi 2200$	$> \Phi 2200$
尺寸	$\square 300 \sim \square 1000$	$\square 1200 \sim \square 2200$	$\square 2400 \sim \square 3500$
$a \times b \times \delta$	$300 \times 200 \times \delta 12$	$400 \times 300 \times \delta 15$	$500 \times 300 \times \delta 15$



● 预埋螺栓

- 直接在一次土建中预埋，位置及垂直度要求高；
- 适用于螺栓数量较少，闸门规格不大的场合，如： $\Phi 300 \sim \Phi 1200$ ；
- 需与土建中的配筋焊固。

● 预留孔洞

- 预留孔深度不小于 200mm;
- 适用于墙壁较厚时;
- 预留孔径不小于 $80 \times 80\text{mm}$ 。

● 穿墙孔

The diagram illustrates a bolted joint. A bolt with a diameter of Φd_1 and a length of l is shown passing through a plate of thickness t . The bolt is secured with a nut and washer on the left side. The plate is shown with a cross-hatched pattern.

- 适用于闸门壁背面有操作空间的场合；
- 预留孔径不宜小于 $80 \times 80\text{mm}$ 。

● 预埋钢板

A technical diagram of a bolted joint. A bolt with diameter Φd_1 and length l is shown passing through a plate of thickness t . The bolt is secured with a nut and washer on the opposite side. The plate is shown with a cross-hatched pattern.

- 适用于各种场合
- 在螺栓孔处预埋块状 (100×100) 或条状钢板, 安装闸门时将地脚螺栓与钢板焊固;
- 钢板背面需配筋, 锚筋截面总和大干螺栓直径, 焊接牢固。

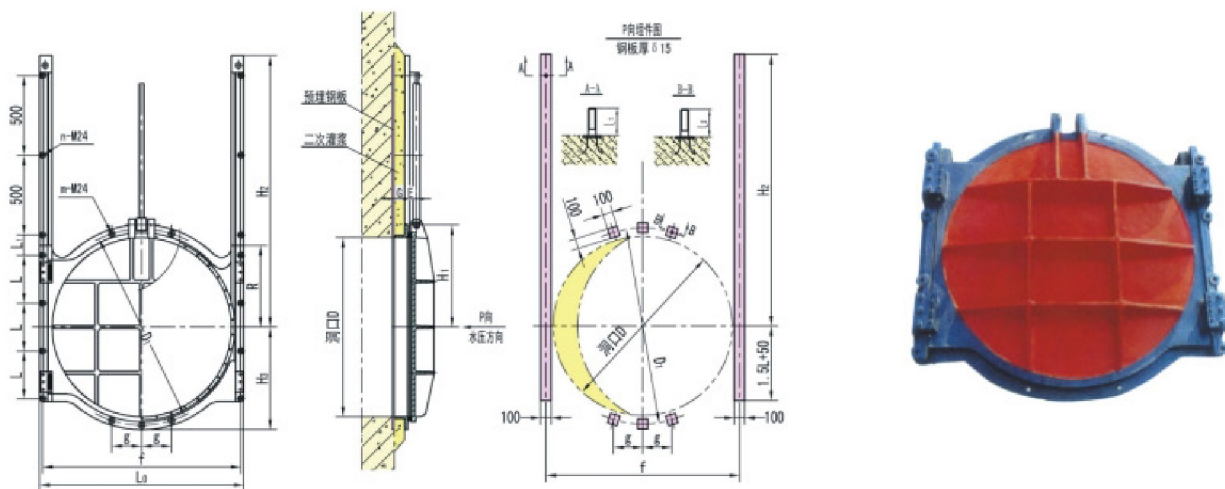
通径D	D ₁	E	G	L	L ₀	H ₀	H ₁	H ₂	地脚螺栓 l	4 - Φd ₁
Φ200	Φ270	55	90	220	370	415	160	145	30	4 - M12
Φ300	Φ380	60	100	300	470	560	210	190	35	4 - M12
Φ400	Φ480	70	100	400	590	715	270	245	40	4 - M16
Φ500	Φ580	70	100	500	730	875	320	295	40	4 - M16
Φ600	Φ680	70	120	600	820	1020	380	345	40	4 - M16
Φ700	Φ780	75	120	700	940	1200	430	410	40	4 - M16
Φ800	Φ890	80	120	800	1040	1350	490	460	45	4 - M20
Φ900	Φ990	85	120	900	1156	1505	540	515	45	4 - M20
Φ1000	Φ1090	90	120	1000	1250	1655	590	565	45	4 - M20
Φ1200	Φ1300	95	120	1200	1440	1985	700	670	45	4 - M24



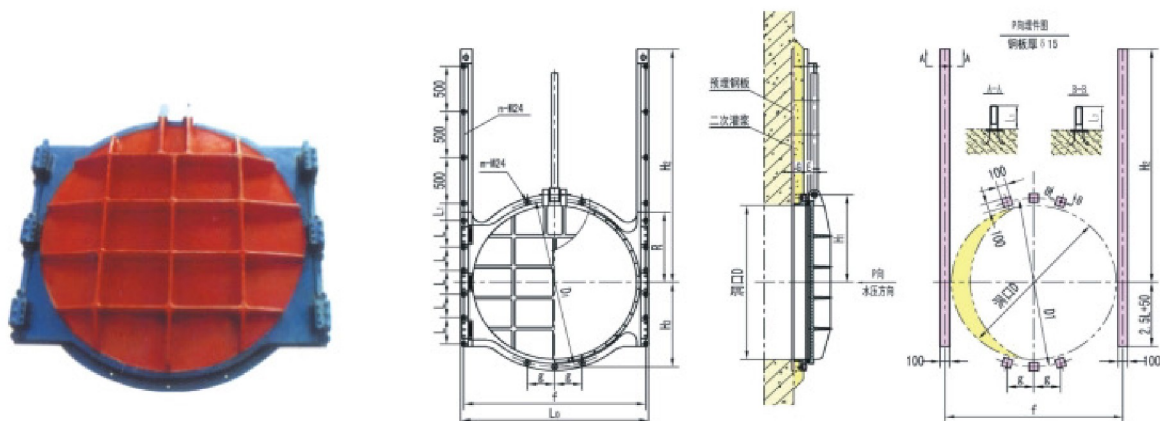


● SYZ型圆闸门规格与外形尺寸表(mm) Table for Norm, Outline and Size of Type SYZ Ground Gate

通径D	g	E	G	R	D ₁	f	L	L ₀	L ₁	ℓ ₁	ℓ ₂	H ₁	H ₂	H ₃	n	m
Φ1400		95	120	670		1570	380	1630	255	270		850	2005	815	14	
Φ1500	250	104	100	700	Φ1680	1680	400	1750	250	250	135	875	2060	875	14	4
Φ1600	275	104	100	770	Φ1775	1780	430	1850	275	250	135	925	2120	925	14	4
Φ1700	285	110	120	775	Φ1870	1880	450	1950	275	285	155	970	2130	975	14	6
Φ1800	300	110	110	820	Φ1970	1980	480	2050	275	275	150	1025	2175	1030	14	6
Φ2000	400	124	120	875	Φ2180	2200	310	2270	275	295	155	1150	2780	1135	20	6
Φ2200	440	124	120	930	Φ2380	2400	330	2470	275	295	155	1250	2835	1230	24	6
Φ2500	500	120	150	1130	Φ2690	2700	280	2770	315	295	155	1400	3035	1385	24	6
Φ2700	550	120	150	1220	Φ2890	2900	300	2970	325	295	155	1500	3125	1485	24	6



SYZ1400 ~ SYZ1800



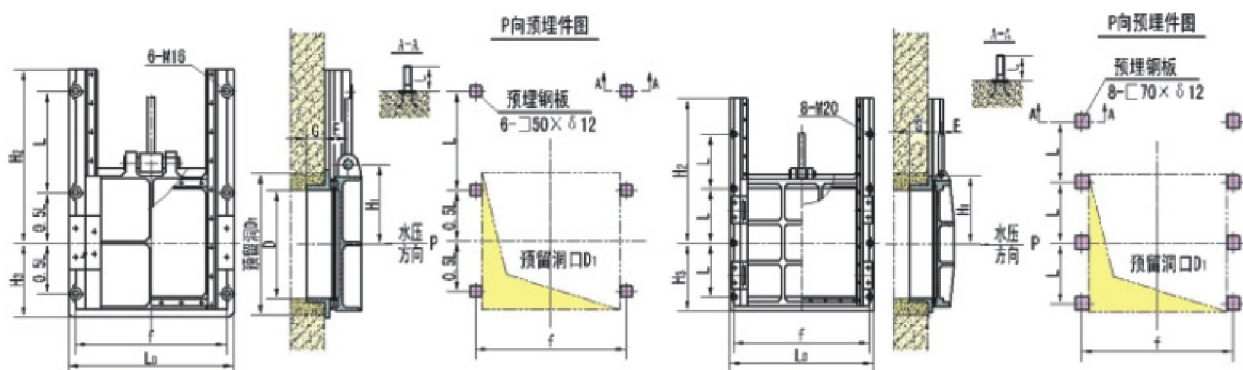
SYZ2000 ~ SYZ2700



●SFZ型方闸门规格与外形尺寸表(mm) Tables for Norm, Outline and Size of Type SFZ Square Gate

(mm)

通径D	l	D ₁	G	E	f	L	L ₀	H ₁	H ₂	H ₃
□300	100	□365	50	60	416	280	456	220	480	205
□400	100	□465	50	60	516	350	556	290	630	255
□500	110	□565	50	65	616	450	656	340	750	310
□600	125	□680	70	75	750	300	790	380	800	350
□700	125	□780	70	75	850	350	890	440	850	410
□800	130	□880	80	83	960	400	1010	505	1200	505
□900	130	□980	80	83	1060	450	1110	555	1050	550
□1000	145	□1080	80	90	1160	500	1240	610	1350	605

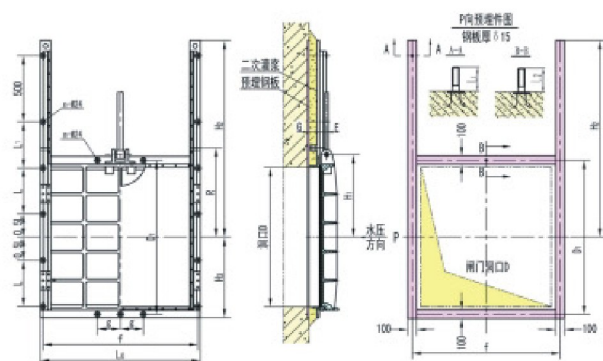


SFZ300-SFZ500

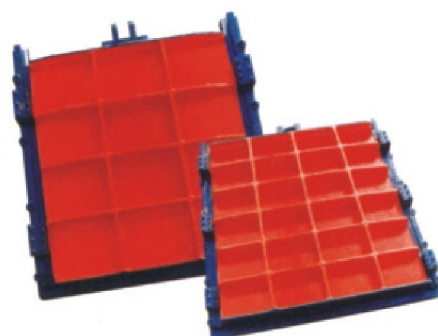
SFZ600-SFZ1000

(mm)

通径D	g	E	G	R	D ₁	f	L ₀	L	L ₁	l ₁	l ₂	H ₁	H ₂	H ₃	n	m
□1200	—	105	80	825	—	1370	1430	400	475	225	—	792	1825	715	12	—
□1400	—	100	80	925	—	1580	1640	450	500	225	—	893	1925	815	12	—
□1500	250	115	80	1000	1670	1680	1750	500	500	245	125	940	2000	875	12	4
□1600	265	115	100	1085	1770	1780	1840	530	540	245	125	975	2085	925	12	4
□1700	600	115	100	1050	1850	1880	1950	570	560	245	125	1055	2200	975	12	6
□1800	600	112	100	1135	1970	1980	2050	600	635	245	125	1105	2285	1020	12	4
□1900	400	125	120	1200	2070	2100	2170	375	525	290	150	1175	2600	1085	18	6
□2000	400	125	120	1250	2180	2200	2270	400	500	290	155	1225	2650	1135	18	6
□2200	400	125	120	1300	2400	2400	2500	420	500	285	155	1320	2695	1245	18	10
□2400	400	125	120	1380	2580	2580	2650	480	430	290	155	1420	2780	1330	18	12
□2500	400	130	120	1425	2700	2700	2800	400	500	285	155	1460	3325	1400	24	12
□2600	400	130	120	1525	2800	2800	2880	575	500	295	155	1510	3425	1440	20	12
□2800	600	130	140	1650	3020	3030	3130	400	500	320	210	1610	3540	1550	24	8
□3000	500	125	120	1725	3200	3200	3300	550	600	295	155	1710	3620	1650	20	12
□3500	700	170	180	2050	3730	3750	3850	700	700	365	225	1975	3950	2105	22	10



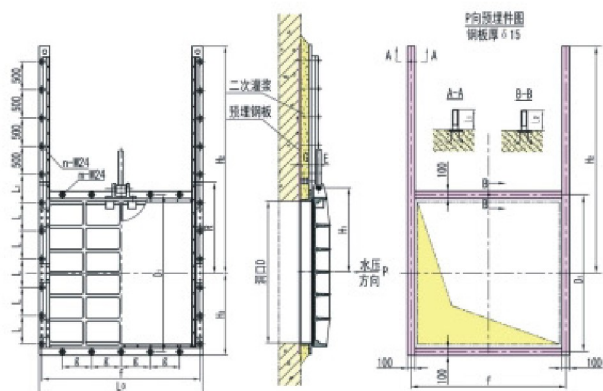
SFZ1200-SFZ1800



● AYZ 型暗杆闸门外形及尺寸参数

Tables for Outline and Size Parameters of Type AYZ One-Rising-Stem Gate

通径 DN (mm)	外形尺寸 (mm)					
	D1	D2	n-Φd1	A0	F	E
Φ300	420	480	10-Φ22	973	150	145
Φ400	524	582	12-Φ24	1222	150	149
Φ500	639	706	12-Φ28	1481	150	179
Φ600	725	780	20-Φ20	1616	150	174
Φ700	854	928	16-Φ31	1635	150	180
Φ800	960	1034	20-Φ31	2085	150	187
Φ900	1073	1156	20-Φ34	2276	150	217
Φ1000	1179	1262	24-Φ34	2590	180	209



SFZ2000-SFZ3500

● 订货说明 Requirements for Order

1. 订货时请详细注明型号、规格、安装及结构形式和闸门中心到平台距离H。
2. 本公司系列闸门正向承压水头 $\leq 10\text{m}$ ，超过此水头时，需特殊订货。当闸门两面均承受水压且反向水头大于3m时，请选用双向闸门，其安装必须采用附壁式方式，埋件同单向闸门，但G小于120的应按120取。
3. 闸门门体及门框材料一般用灰铸铁制造，若需要球墨铸铁闸门或不锈钢焊接闸门，请注明。
4. 地脚螺栓由用户自备，需要时请注明。
5. 为了更好地服务于用户，非标规格的闸门，我公司可为用户提供预埋件详图。

1. Please note the type, specification, installing and structural forms and the value of "H", which is the distance between the center of the gate and the platform in detail.
2. The forward bearing water head of supplied serial gates is $\leq 10\text{m}$. If the water head exceeds this value, special order is required. If both sides of the gate under water pressure and the value of backward water head is more than 3m, please choose two-way gate. The installation must be wall-attached; embedding is the same to one-way gate. If the value of G is lower than 120, please choose 120 as reference.
3. Body and frame of the gate are generally made of grey cast iron. Please note, if nodular cast iron or stainless steel welding gates are needed.
4. Foundation bolts supplied by customers themselves; please note if you need.
5. For the gates of non-standard specification, detail drawings for pre-embedded parts can be supplied.



AYZ型



AFZ型

