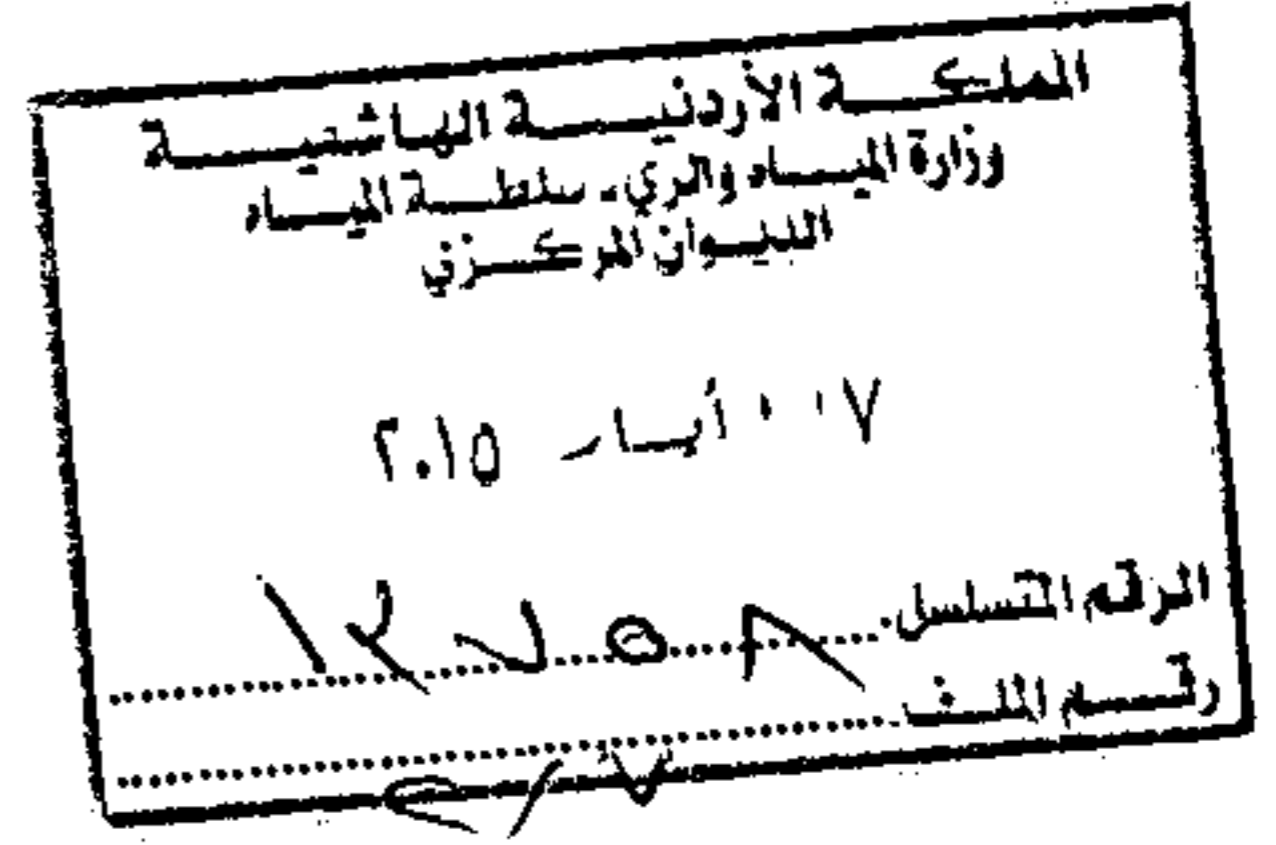


عطوفة أمين عام سلطة المياه



الموضوع : لجنة فنية لمراجعة مواصفات محابس المياه

إشارة إلى كتاب عطوفتكم رقم (٩١٥٨/٢/٧) تاريخ ٢٠١٤/٠٨/١٩ بخصوص تشكيل لجنة فنية لمراجعة وتحديث المواصفات الفنية لمحابس وردادات المياه لغايات طرح العطاءات .

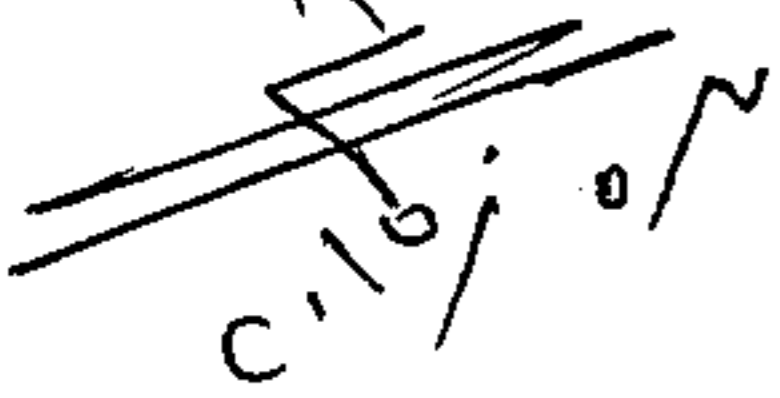
يرجى العلم بأن اللجنة المشكلة قامت بمراجعة المواصفات الفنية المستخدمة حالياً لغايات طرح العطاءات ، وقامت اللجنة بتحديثها وفقاً لأحدث المواصفات العالمية (DIN,EN,ISO,BS).

التنسيب :

تنسب اللجنة الفنية لعطوفتكم الموافقة على اعتماد مسودة المواصفة المحدثة والإيعاز لمن يلزم بتعميمها واستخدامها في عطاءات ومشاريع سلطة المياه .

واقبلوا الإحترام ،،،

المهندس محمد المومني



المهندس عصمت هلسه



المهندس معاوية الطراونة



المهندس أحمد القرعان




• المرفقات :

مسودة المواصفة الفنية المحدثة للمحابس والردادات .

مؤرخة


Water Authority of Jordan
سلطة المياه
Technical Specifications
المواصفات الفنية



Water Authority of Jordan سلطة المياه Technical Specifications المواصفات الفنية		
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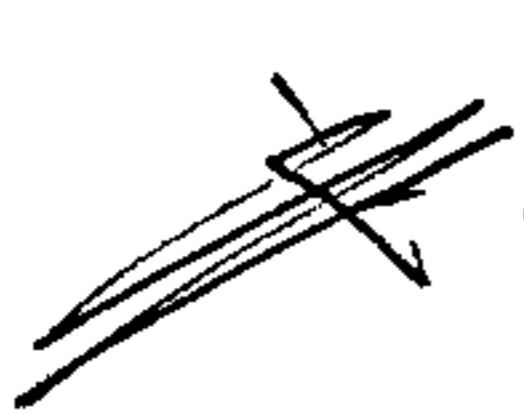
مديرية المواصفات والعقود

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1	Water valves	اللجنة	٢٠١٥/٥/١٢	اللجنة	٢٠١٥/٥/١٢	عطوفة الامين العام	٢٠١٥/٥/١٢
Version	Object of the update	Written by	Date	Checked by	Date	Approved by	Date
النسخة	موضوع التحديث	اسم الكاتب	التاريخ	المدقق	التاريخ	اعتمدت من	التاريخ


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- ii. BUTTERFLY VALVES
- iii. SWING CHECK VALVE
- iv. Ball Valve






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I. GATE VALVES


• GENERAL:

1. They shall comply with EN 1171 standard latest revision. For drinking water, valves from DN 50 to 2000mm, PN (16 , 25, 40) bars, shall also comply with EN 1074-2 standard latest revision.
2. All accessories and fittings (gasket, hand wheel GG25 or carbon steel, bolt and nut of A2, flanges EN 10922 Steel flanges type (01, 11, 12) shall be provided by the supplier, this is general requirements for all kinds of valve for each .
3. The valves shall be complete with mechanical position opening indicator with hand wheel from ductile cast iron fusion bonded epoxy powder coated with spur gearbox for sizes above DN 300
4. The supplier shall provide four detailed repair manuals for the gate valves supplied; and a letter of certification from the supplier verifying that all requirements of EN Standard and these Specifications have been met.

• VALVE JOINTS:

- All valves shall have, flanged ends, mechanical joint ends or screw joints to fit the pipe run in which they are used, except valves installed on push-on joint pipe shall have mechanical joint ends unless otherwise specified and the flange design on request.
- Flanges shall be raised face rated and drilled according to EN 10922 PN (16 , 25 , 40)Bars and face to face length according to DIN 3202 series F15.



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• MATERIALS

- 1) Gate valve form size DN50mm and greater shall be Body wedge and bonnet of

The material for pressure range 16 to 40 bars shall be ductile iron as listed in table 1.

Material						
Today				Previously		
Code	Designation	Standard	Material No	Code	Designation	Standard
Ductile iron EN-GJS-400-15	EN-JS1030	EN 1563	5.3106	GGG-40	0.7040	DIN 1693-1
Ductile iron EN-GJS-500-7	EN-JS1050	EN 1563	5.3200	GGG-50	0.7050	DIN 1693-1
Ductile iron (EN-GJS-400-18-LT ¹)	EN-JS1025	EN 1563	5.3103	GGG-40.3	0.7043	DIN 1693-1


Table 1

- 2) Valve stem (shaft) shall be stainless steel with minimum 13% chromium for water system, 17% chromium for waste water system as listed in table below.

DESIGNATION	Material no	En standard
Stainless steels 316	1.4***	EN10088-1,2 or 3

- 3) Body, wedge and bonnet shall be of ductile cast iron GGG 40 or 50 according to DIN 1693. And Nut shall be of bronze CuSn12Ni .

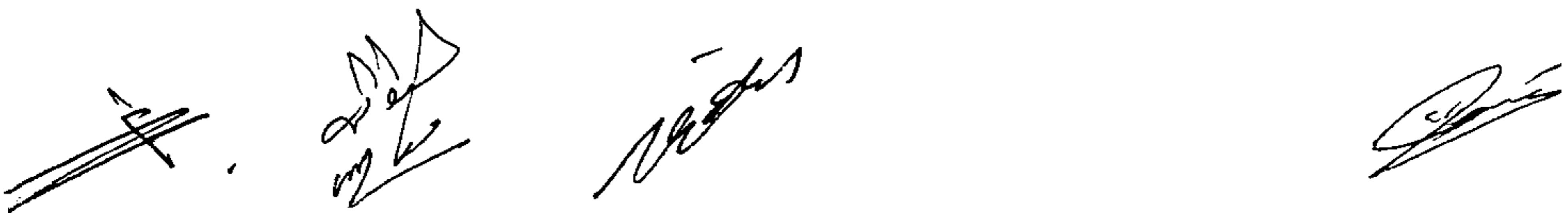



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- 4) Stem shall be of stainless steel 316 while stem sealing shall be of PTFE.
- 5) O-Ring made of EPDM for water system, NBR for wastewater system.
- 6) Bolting should be of stainless steel 316.
- 7) Hand wheel made of non wounding Steel or Ductile Cast Iron

• **DESIGN**

1. Resilient seat to EN 1074-2 and EN 1171 Wedge full lining with EPDM for water system and NBR for wastewater system process for pressure range 16 bars only.
2. Wedge will be equipped with polyamide gliders to protect the gate and body guides coating from wearing. Gliders should be preferably directly fixed to the Iron Gate and protection against corrosion of the wedge shall be assumed by the system glider/rubber.
3. Metal seated to EN 1074-2 and EN 1171 non resilient seat, tapered wedge design Flexible wedge type 700HJ or Split wedge=Type 700 JJ for pressure range greater than 16 bars.
4. Fully guided wedge for resilient and non-resilient gate valves.
5. Body/bonnet junction can be either realized with or without bolts, to avoid corrosion.
6. All bolts and nuts shall be of stainless steel 316
7. Face to face :
 - Face to face dimension for the pressure range up to 16 bars accordance to EN558-1 basic series 14 (previously DIN 3202 F4) ;
 - Face to face dimension for the pressure range 25 bars accordance to EN558-1 basic series 15 (previously DIN 3202 F5) ;
 - Face to face dimension for the pressure range 40 bars accordance to EN 558-1 basic series 15 (previously DIN3202-F5,).
8. Gate valve shall be designed with flanged end on both sides rising face according to EN 10922.




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5. Regarding all standards or technical characteristics described hereafter, the supplier is required to submit certificates from third party inspectors recognized by the governmental tender directorate, its latest issue, but limited to following internationally recognized and accredited companies :

- Bureau Veritas
- Lloyds
- SGS
- WRAS
- RSS



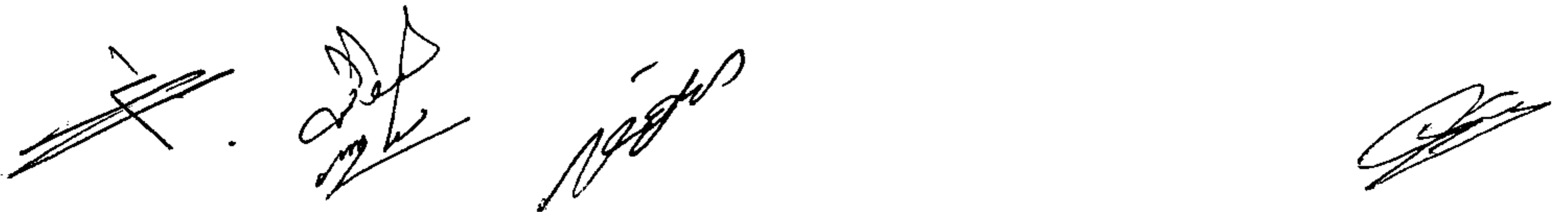




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9. Fixed stem seal (O ring seal) with minimum double O-Ring stem sealing and replaceable seal under pressure according to ISO 7259.
10. With draining plugs for waste water system.
11. Optional prepare for bypass for pressure range 40 bars.
12. Up to DN 200 the valves shall have a maximum operating torque of (DN) Nm. A gear box will be added if necessary to reach a maximum operating torque of 300 microns (The valve from size 200mm and grater shall mountain with gear unite for pressure rang 25 bar and grater).
13. Inside screw stem (NRS)
14. The valves shall be complete with mechanical position opening indicator with hand wheel from ductile cast iron fusion bonded epoxy powder coated with spur gearbox for sizes above DN 300.
15. Rotation of opening :
All valves shall open by turning to the left or counter clockwise, when viewed from the stem (clockwise closing).

COATING

- All internal and external ferrous metal surfaces shall be fully coated, blue color, holiday free, to a minimum thickness 300 microns at least with a hot epoxy powder coating or two part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water, and shall be in accordance with British, French or German drinking water national regulations.
- The valves shall be shot blasted before coating according to specifications and shall be coated inside and outside with fusion bonded epoxy powder minimum 300 microns in RAL 5015.
- The valves shall be complete with mechanical position opening indicator with hand wheel from ductile cast iron fusion bonded epoxy powder coated with spur gearbox for sizes above DN 300.



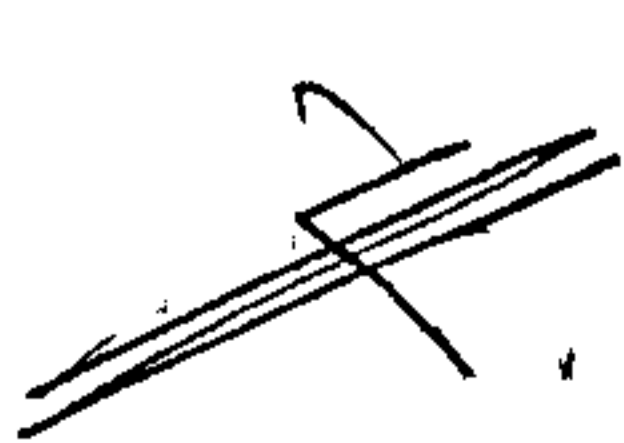
Technical Specifications for Water Valves	المواصفات الفنية لمحابس وردادات المياه	Date of Issue تاريخ الاصدار / /	
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- **MARKINGS**


Markings shall be in accordance with EN 19 and shall include (size, working pressure, name of manufacturer, and year of manufacture).

- **TEST**

1. Final production tests in accordance with EN 1074-2 or EN 12266-1 (when EN 1074-2 not applicable).
2. Elastomers used in Drinking Water use valves will be in accordance W270 OR British, French German drinking water national regulations.
3. Life cycle test



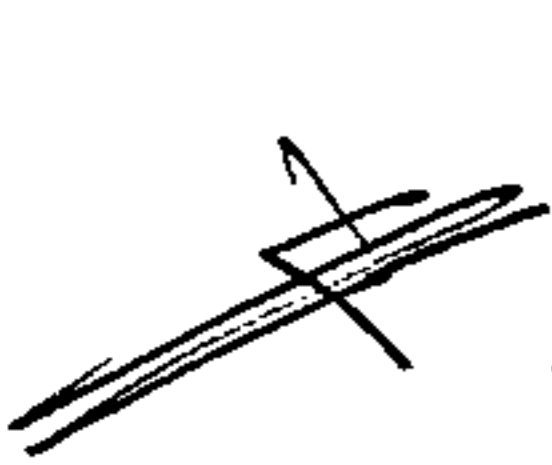



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II. BUTTERFLY VALVES

• GENERAL

1. Butterfly valves shall comply with EN 593 standard latest revision. For drinking water valves from DN 50 to 2000mm, PN (16 , 25 , 40)Bars shall also comply to EN 1074-2 standard latest revision. Butterfly valves shall be of the tight closing, metal seat type with recess-seat. Rubber gasket will be fixed on the butterfly and replaceable without removing the shafts.
2. Directions of flow shall be satisfactory for applications involving valve operation after long periods of inactivity. Valves being tight in the two ways will be preferred.
3. Valve discs shall rotate 90 degrees from the full open position to the tight shut position. Obturator disc will be of double accentuated type.
4. The valves shall have the possibility for horizontal and vertical installation by changing the lever position only.





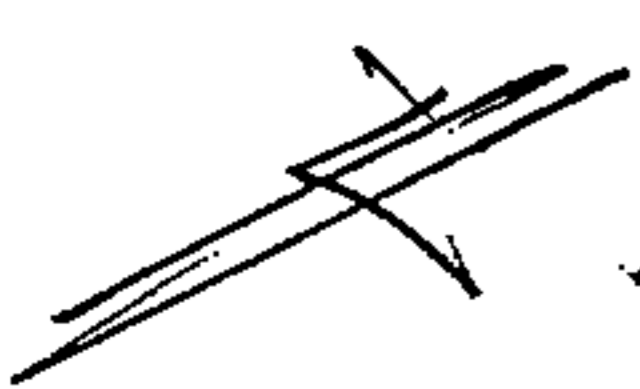

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5. the supplier is required to submit certificates from third party inspectors recognized by the governmental tender directorate, its latest issue, but limited to following internationally recognized and accredited companies:


- Bureau Veritas
- Lloyds
- SGS
- WRAS
- RSS

- **MATERIALS**

Body and butterfly for Pressure range (16 , 25 ,40)Bar shall be ductile iron as listed in table 2.






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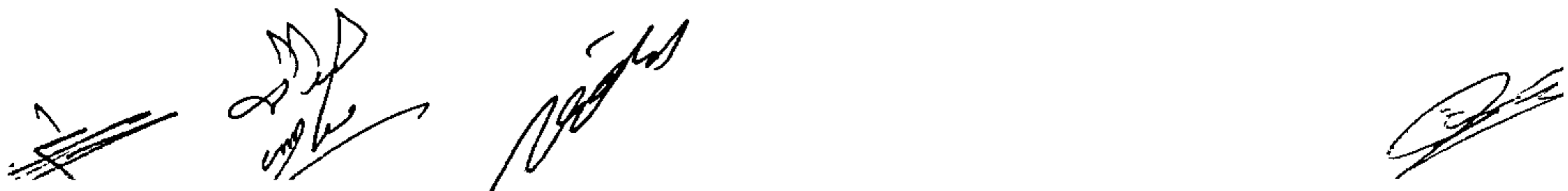
Material						
Today				Previously		
Code	Designation	Standard	Material No	Code	Designation	Standard
Ductile iron EN-GJS-400-15	EN-JS1030	EN 1563	5.3106	GGG-40	0.7040	DIN 1693-1
Ductile iron. EN-GJS-500-7	EN-JS1050	EN 1563	5.3200	GGG-50	0.7050	DIN 1693-1
Ductile iron. (EN-GJS-400-18-LT ¹)	EN-JS1025	EN 1563	5.3103	GGG-40.3	0.7043	DIN 1693-1


Table 2

- 1) Valve shaft shall be stainless steel minimum 13% chromium for water system 17% chromium for waste water system.

Designation	Material no	En standard
Stainless steels 316	1.4***	EN10088-3

- 2) Sealing seat ring (metal sealing corrosion and wear resistance sealing surface) shall welded-on or rolled on the body and made of :
- Stainless steel.
 - Chrome-nickel
 - Bronze for wastewater only.
 - (EN 10088 -3/2,2.0975,2.1020,Ni)
- 3) Internal bolts shall be stainless steel minimum A2 according to EN 10088-2/3.
- 4) O-Ring and seat gasket shall be made of EPDM used in Drinking Water system and will be in accordance with British, French or German national regulations for water system.



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• DESIGN

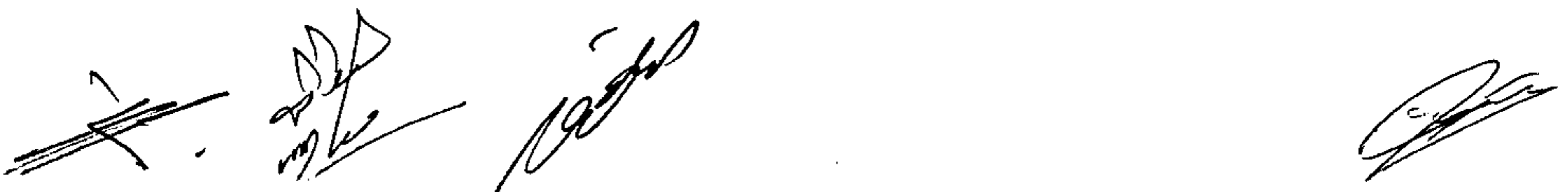
1. Face to face to EN 558-1 basic series14 and (previously DIN 3020 F4).
2. With Flanged end on both sides rising face accordance to EN 1902-1 or 2.
3. With gear box featuring position indicator (for non buried valves) and mechanical stops.
4. Bearing sealing with minimum double O-Ring on both sides.
5. Disk with close disk eyes.
6. Tight in both side.
7. Valves shall be suitable for installation in either horizontal or vertical position.
8. Double eccentric bearing of disk butterfly valve.


• COATING

All internal and external ferrous metal surfaces shall be fully coated, blue color, holiday free, to a minimum thickness 250 microns at least with a hot epoxy powder coating or two part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water, and shall be in accordance to W270 OR British, French German drinking water national regulations.

• MARKINGS





Markings shall be in accordance with EN 19 and shall include (size, working pressure, name of manufacturer, and year of manufacture).




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• TEST

- 1 Final production tests in accordance with EN 1074-2 or EN 12266-1 (when EN 1074-2 not applicable) ;
- 2 Elastomers used in Drinking Water use valves will be in accordance with British, French or German drinking water national regulations.
- 3 Life cycle test

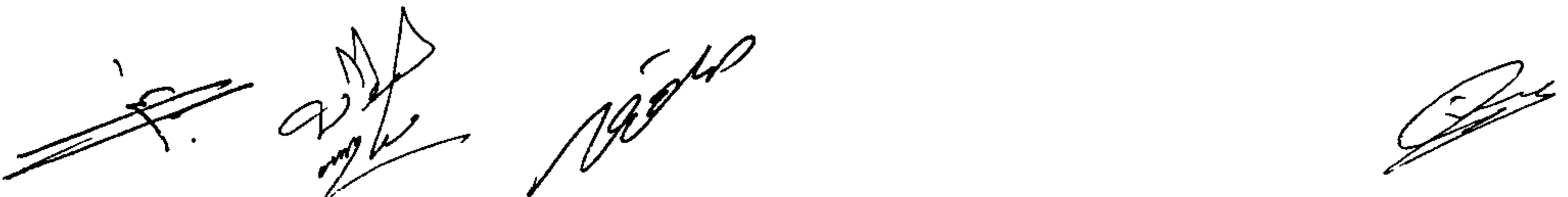
   


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III. SWING CHECK VALVE

- GENERAL

1. Check Valves shall be all of ductile cast iron body and obturator.
2. The Check Valve shall be of the full body double flanged type, with a full size domed access cover and only two moving parts, the flexible disc and the disc accelerator.
3. The disc accelerator shall be of one piece construction and provide rapid closure of the valve in high head applications. The disc accelerator shall be enclosed within the valve and shall be field adjustable and replaceable without removal of the valve from the line. The disc accelerator shall be securely held in place by being captured between the cover and disc. It shall be formed with a large radius to allow smooth movement over the disc surface
4. Completely clear of the waterway when valve is full open, permitting a "full flow" thru the valve equal to the nominal pipe diameter.
5. They shall comply with EN Standard latest revision or equivalent.



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• MATERIALS

1) Body and cover shall be

The material for pressure range 16-40 bars shall be ductile iron according to DIN 1693 as listed in table 3.

Material					
Today			Previously		
Code	Designation	Standard	Code	Designation	Standard
Ductile iron EN-GJS-400-15	EN-JS1030	EN 1563	GGG-40,50	0.7040	DIN 1693-1
Ductile iron (EN-GJS-400-18-LT ¹)	EN-JS1025	EN 1563	GGG-40,3	0.7043	DIN 1693-1

Table 3

1) Check Valve stem (shaft) shall be stainless steel with minimum 13% chromium for water system, 17% chromium for waste water system,

Designation	Material no	EN Standard
Stainless steels	1.4***	EN10088-3

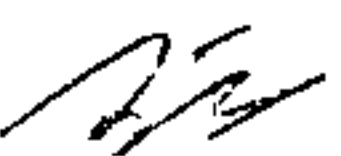
2) Seraing desk lever ductile caste iron. EN 1563- EN-JS1030- EN-GJS-400-15.


3) Gunplay of SS316

4) (Stem nut / bearing) made of

a) aluminum bronze or tin alloy gunmetal ;

b) brass,


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- c) Non dezincification brass
- 5) Sealing disk seal(body and wedge seat Ring)-Metal sealing corrosion and wear resistance sealing surface-welded-on made of :
- Stainless steel, EN 10088-3.
 - Bronze.
 - Ni.
- 6) Draining plugs of brass, aluminum bronze or tin alloy gunmetal.
- 7) O-Ring made of EPDM for water system.
- 8) Bolts, nuts and washers shall be of stainless steel 316.

• DESIGN

- Face to face to EN 558-1 basic series 48 or 14 (previously DIN 3020 F6 and F4)
- Flanges shall be drilled according to ISO 2531 and face to face length shall be according to BS5153 .
- Soft sealing or metal sealing with lever.
- Inclined disk.
- Glands shall be O-ring (4" through 6") and conventional packing (8" through 30").
- When specified, for application conditions of rapid flow reversal or vertical installation, check valve shall be equipped with adjustable outside lever & spring or lever & weight to accomplish faster closing and to minimize lamming effect.




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7. Bosses shall be provided on check valves which may be tapped for draining or used for by-pass. When tapping is required, boss designation and size of tap should be stated, draining plugs should install.
8. Check Valves shall be suitable for installation in either horizontal or vertical position. Increasing check valves shall be available in accordance with the provisions of this specification.

• COATING

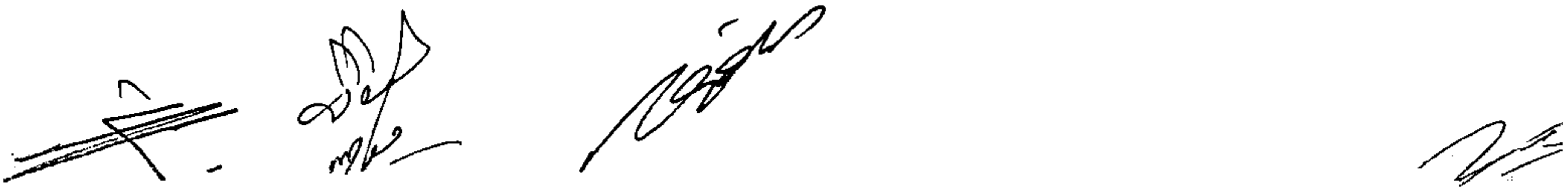
All internal ferrous metal surfaces shall be fully coated, blue color, holiday free, to a minimum thickness 300 microns with a two part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water, and shall be coated in accordance with British, French or German national regulations.


• MARKINGS

Markings shall be in accordance with EN 19 and shall include size, working pressure, and cast arrow to indicate direction of flow, name of manufacturer, and year of manufacture.

• TEST

1. Final inspection test in acc. With EN 12266-1 (DIN 3230 PART 4 and part 5 PG1,PG2)
2. Elastomers used in Drinking Water use valves will be in accordance to W270 OR British, French or German drinking water national regulations.



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IV. Ball Valve


• GENERAL

1. Pressure rate for nominal size $(\frac{1}{2})''$, $(\frac{3}{4})''$, $1''$, $2''$ is 16 bars.
2. Completely clear of the waterway when valve is full open, permitting a "full flow" thru the valve equal to the nominal pipe diameter.
3. They shall comply with (European Standards) EN latest revision.

• MATERIALS

NO	PART NAME	MATERIAL
1	BODY	NICKLE or CHROME-PLATED FORGED BRASS. DIN EN 12165:98 CW 617N.
2	BALL	BRASS DIN EN 12164:98 CW 614N
3	STEM	BRASS DIN EN 12164:98 CW 614N
4	SEAT	PTFE
5	GASKET	PTFE or NPR
6	HANDLE	CARBON STEEL SHEET PVC INSULATED
7	HANDLE NUT	CARBON STEEL
8	HANDLE SLEEVE	VINYL GRIP

(Handwritten signatures and marks)

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- **DESIGN**

1. Full bore ball valve.
2. One screwed female parallel thread for both side as Norma ISO228/1 (BS21) EN10226
3. Lever operated.

- **COATING**

The external body should be coated according to EN 13028.

- **MARKINGS**

Markings shall be in accordance with EN 19 and shall include size, working pressure, and name of manufacturer.

- **TEST**

Final inspection test in according With EN 12266-1.



