

DATE: 7/26/2017

Page: 5

BID NO.: 50-00120319

BID FORM
Non Public Works

All Public Work Projects are required to use the Louisiana Uniform Public Work Bid Form

All prices must be held firm unless an escalation provision is requested in this bid. Jefferson Parish will allow one escalation during the term of the contract, which may not exceed the U.S. Bureau of Labor Statistics National Index for all Urban Consumers, unadjusted 12 month figure. The most recently published figure issued at the time an adjustment is requested will be used. A request must be made in writing by the vendor, and the escalation will only be applied to purchases made after the request is made.

Are you requesting an escalation provision?

YES _____ NO X

MAXIMUM ESCALATION PERCENTAGE REQUESTED _____%

INITIAL BID PRICES WILL REMAIN FIRM THROUGH THE DATE OF _____.

For the purposes of comparison of bids when an escalation provision is requested, Jefferson Parish will apply the maximum escalation percentage quoted by the bidder to the period to which it is applied in the bid. The initial price and the escalation will be used to calculate the total bid price. It will be assumed, for comparison of prices only, that an equal amount of material or labor is purchased each month throughout the entire contract.

DELIVERY: FOB JEFFERSON PARISH

INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES

60-70 DAYS ARO

LOUISIANA CONTRACTOR'S LICENSE NO.: (if applicable) _____

THIS SECTION MUST BE COMPLETED BY BIDDER:

FIRM NAME: INDUSTRIAL - COMMERCIAL MOTORS & CONTROLS, LLC

ADDRESS: 731 S. SOLOMON ST.

CITY, STATE: NEW ORLEANS, LA ZIP: 70119

TELEPHONE: (504) 415-7288 FAX: (985) 727-7725

EMAIL ADDRESS: WPAPPAS@icmcllc.com

In the event that addenda are issued with this bid, bidders MUST acknowledge all addenda on the bid form. Bidder must acknowledge receipt of an addendum on the bid form as indicated. Failure to acknowledge any addendum on the bid form will result in bid rejection.

Acknowledge Receipt of Addenda: NUMBER: #1
NUMBER: #2
NUMBER: #3
NUMBER: _____

TOTAL PRICE OF ALL BID ITEMS: \$ 55,690⁰⁰

AUTHORIZED SIGNATURE: William Pappas

TITLE: PRESIDENT

William Pappas

Printed Name

SIGNING INDICATES YOU HAVE READ AND COMPLY WITH THE INSTRUCTIONS AND CONDITIONS.

NOTE: All bids should be returned with the BID NUMBER and BID OPENING DATE indicated on the outside of the envelope submitted to the Purchasing Department.

INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00120319

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	2.00	EA	<p>A ONE-TIME PURCHASE OF 24 INCH AND 36 INCH PLUG VALVES FOR THE JEFFERSON PARISH DEPARTMENT OF SEWERAGE</p> <p>0001 - Valve, plug, 24 inch x 42 inch face to face, ANSI 125 flanged, eccentric, cast iron body, solid ductile iron plug with nitrile elastomer coating, 100 percent port, nickel seat Item no. NS24FPV</p> <p>WITH ABOVE GROUND GEAR WITH INDICATOR AND HAND WHEEL. ALSO WITH UNATTACHED OPERATING NUT</p>	11,850 ⁰⁰	23,700 ⁰⁰
2	1.00	EA	<p>0002 - Valve, plug, 36 inch x 60 inch face to face, ANSI 125/150 flanged, eccentric, cast iron body, solid ductile iron plug with nitrile elastomer coating, 100 percent port, nickel seat Item no. NS36FPV</p> <p>WITH ABOVE GROUND GEAR WITH INDICATOR AND HAND WHEEL. ALSO WITH UNATTACHED OPERATING NUT</p> <p>QUOTING - WTR VALVES WATER TECHNOLOGY RESOURCES FULL SPECS ATTACHED NO EXCEPTIONS TAKEN</p>	31,990 ⁰⁰	31,990 ⁰⁰

CORPORATE RESOLUTION

EXCERPT FROM MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF
INDUSTRIAL-COMMERCIAL MOTORS & CONTROLS (I.C.M.C.)
INCORPORATED.

AT THE MEETING OF DIRECTORS OF I. C. M. C.
INCORPORATED, DULY NOTICED AND HELD ON 8/7/17,
A QUORUM BEING THERE PRESENT, ON MOTION DULY MADE AND SECONDED. IT
WAS:

RESOLVED THAT William Pappas, BE AND IS HEREBY
APPOINTED, CONSTITUTED AND DESIGNATED AS AGENT AND ATTORNEY-IN-
FACT OF THE CORPORATION WITH FULL POWER AND AUTHORITY TO ACT ON
BEHALF OF THIS CORPORATION IN ALL NEGOTIATIONS, BIDDING, CONCERNS
AND TRANSACTIONS WITH THE PARISH OF JEFFERSON OR ANY OF ITS AGENCIES,
DEPARTMENTS, EMPLOYEES OR AGENTS, INCLUDING BUT NOT LIMITED TO, THE
EXECUTION OF ALL BIDS, PAPERS, DOCUMENTS, AFFIDAVITS, BONDS, SURETIES,
CONTRACTS AND ACTS AND TO RECEIVE ALL PURCHASE ORDERS AND NOTICES
ISSUED PURSUANT TO THE PROVISIONS OF ANY SUCH BID OR CONTRACT, THIS
CORPORATION HEREBY RATIFYING, APPROVING, CONFIRMING, AND ACCEPTING
EACH AND EVERY SUCH ACT PERFORMED BY SAID AGENT AND ATTORNEY-IN-
FACT.

I HEREBY CERTIFY THE FOREGOING TO BE
A TRUE AND CORRECT COPY OF AN
EXCERPT OF THE MINUTES OF THE ABOVE
DATED MEETING OF THE BOARD OF
DIRECTORS OF SAID CORPORATION, AND
THE SAME HAS NOT BEEN REVOKED OR
RESCINDED.

Alanna Begg

SECRETARY-TREASURER

8/7/17

DATE

Non-Public Works Bid

AFFIDAVIT

STATE OF Louisiana

PARISH/COUNTY OF Jefferson

BEFORE ME, the undersigned authority, personally came and appeared: William PAPPAS, (Affiant) who after being by me duly sworn, deposed and said that INDUSTRIAL-COMMERCE AGENT of MTRS & CONTROLS (Entity), 50-00120319 the party who submitted a bid in response to Bid Number 50-00120319, to the Parish of Jefferson.

Affiant further said:

Campaign Contribution Disclosures

(Choose A or B, if option A is indicated please include the required attachment):

Choice A _____ Attached hereto is a list of all campaign contributions, including the date and amount of each contribution, made to current or former elected officials of the Parish of Jefferson by Entity, Affiant, and/or officers, directors and owners, including employees, owning 25% or more of the Entity during the two-year period immediately preceding the date of this affidavit or the current term of the elected official, whichever is greater. Further, Entity, Affiant, and/or Entity Owners have not made any contributions to or in support of current or former members of the Jefferson Parish Council or the Jefferson Parish President through or in the name of another person or legal entity, either directly or indirectly.

Choice B X there are NO campaign contributions made which would require disclosure under Choice A of this section.

Debt Disclosures

(Choose A or B, if option A is indicated please include the required attachment):

Choice A _____ Attached hereto is a list of all debts owed by the affiant to any elected or appointed official of the Parish of Jefferson, and any and all debts owed by any elected or appointed official of the Parish to the Affiant.

Choice B X There are NO debts which would require disclosure under Choice A of this section.

Affiant further said:

That Affiant has employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the Affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for Affiant; and

[The remainder of this page is intentionally left blank.]

That no part of the contract price received by Affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the Affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for Affiant.

William Pappas
Signature of Affiant

William Pappas
Printed Name of Affiant

SWORN AND SUBSCRIBED TO BEFORE ME
ON THE 8th DAY OF August, 2017.

[Signature]
Notary Public

SOPHIA G. PAPPAS
Printed Name of Notary

Bar # 2780
Notary/Bar Roll Number

My commission expires at death.

[Print](#)

Notary Search - Detail

Name: MS. SOPHIA G. PAPPAS
Address: 3850 N. CAUSEWAY BLVD., STE 1700
METAIRIE, LA 70002
Phone: (504) 840-4900
Notary ID Number: 4448
Parish: ORLEANS with STATEWIDE JURISDICTION
Agency: N/A
Notary Type: Attorney
Bar Roll #: 2780
Status: Active
Commission Date: 10/27/1989
Oath Date: 10/16/1989
Surety Expiration Date: Not Required
Annual Report Current: Not Applicable

Notary Events

Name Change	Previous Name: SOPHIA PAPPAS BARNETT	Previous Commission Date: Unknown
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Deceased, Inactivated, Leave of Absence, Pre-Assessment Registration, Pre-Assessment Taken, Resigned, Retirement, and Revoked events are not available prior to February 11, 2012.

[Back to Search Results](#)[New Search](#)

**Request for Taxpayer
Identification Number and Certification**

Give form to the
requester. Do not
send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)
Industrial-Commercial Motors and Controls, LLC

Business name, if different from above

Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership
☒ Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶ ☐ Exempt payee
☐ Other (see instructions) ▶

Address (number, street, and apt. or suite no.)
PO Box 1842

City, state, and ZIP code
Mandeville, La. 70470

List account number(s) here (optional)
V# 268716

Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number
OR
Employer identification number
26 : 4136409

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here Signature of U.S. person ▶ *William L. Payne* Date ▶ *11/7/12*

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

July 27, 2017

Jefferson Parish, Louisiana

Bid No. 5000120319

24" and 36" Plug Valves

Specification Checklist

Plug Valves shall be as manufactured by Water Technology Resources (WTR Valves).

The WTR Plug Valves to be proposed are in complete accordance with the specifications. No exceptions are needed, and none are taken.

Specification	Yes	No
The Plug Valves shall be suitable for wastewater applications that include solids and abrasives.	X	
The Plug Valves shall have a 100% ported Eccentric Plug – In full compliance with AWWA C517 Standards.	X	
Plug Valves shall be Non-Lubricated, eccentric type – provided with an elastomer rubber, covering the entire plug seating surfaces, both front and back.	X	
The elastomer shall be specifically suitable for wastewater conditions.	X	
Plug Valves shall have flange x flange end connections – in full accordance with ANSI B16.1 Class 125/150 – including facing, drilling, and flange thickness.	X	
Ports shall be rectangular 100% full port area and shall be capable of being "pigged" with a soft pig, when required.	X	
Valve bodies shall be ASTM A536 Grade 65-45-12, Ductile Iron per AWWA C517. (Please note comparative data of Ductile Iron vs. Cast Iron. Also, please note Crispin offers Ductile Iron construction as an upgrade, more costly material.) <i>BUT WE WILL FURNISH CAST IRON AS SPECIFIED UNLESS DUCTILE IS REQUESTED</i>	X	
Valves shall be furnished with a welded, in overlay seat of 1/8" thickness, of not less than 99% nickel content, all in accordance with AWWA C517-09 – Section 4.3.3.4.	X	

Water Technology Resources – WTR Valves



July 27, 2017

The Plugs shall be one-piece solid construction provided with PTFE thrust bearings on the upper and lower bearing journals, designed to reduce torque and to prevent dirt and grit from entering the bearing and seal area.	X	
Valves shall be furnished with replaceable Stainless Steel, sintered sleeve type bearings – all conforming to AWWA C517 Standards. Bearings shall be of sintered, oil impregnated, type 316 Stainless Steel, ASTM A743 Grade CF-8M.	X	
Upper valve shaft packing shall be of the “Vee” type, in accordance with AWWA C517. Packing shall be fully adjustable and replaceable without having to remove the actuator from the valve.	X	
Worm Gear Operators shall be furnished and shall be constructed with a ductile iron quadrant, a one-piece input worm shaft, and axial needle roller bearings. The one-piece worm shaft shall be manufactured of corrosion resistant nitrotempered steel.	X	
The valves to be proposed shall be manufactured to achieve full drip tight performance at 150 psi working pressure.	X	
Each valve shall be factory tested, including – Hydrostatic and Seat Tests. Certified Factory Test results shall be provided to include – Proof of Design test results in accordance with AWWA C517 Standards.	X	
Plug Valves shall be Series PVAW as manufactured by WTR Valves – Minneapolis, Minnesota.	X	

Respectfully Submitted,

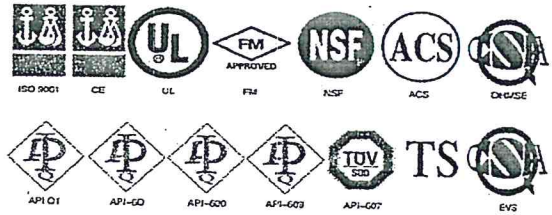

Matt Waldor

WATER TECHNOLOGY RESOURCES

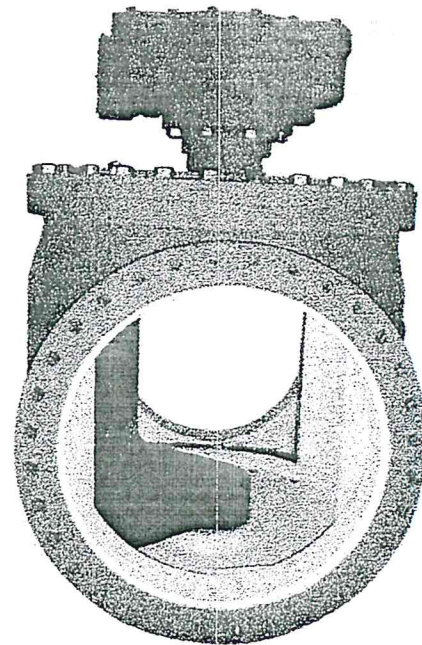
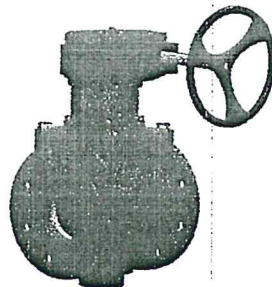
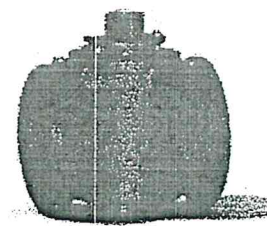
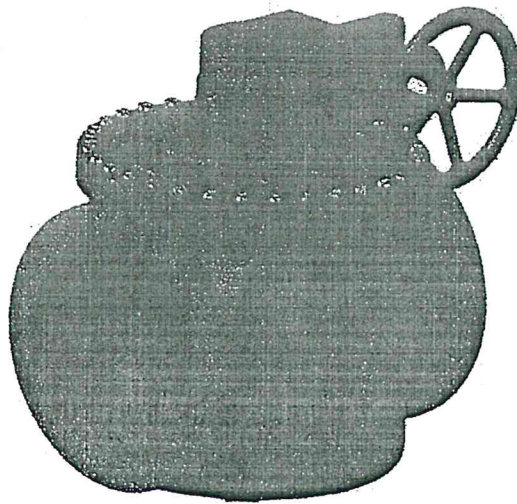
9201 E. Bloomington Fwy, Suite Z
Bloomington, MN 55420
(P) 952-641-9004 (F) 952-885-9173



COMPANY CERTIFICATE



AWWA C517 ECCENTRIC PLUG VALVES



WTR/Tianjin Water Valve Partnership

VERSION: 2014-09-EPV

WTR Valves

Eccentric Plug Valve

AWWA C-517

Design Features

- ♦ 2" Thru 72" size
- ♦ Ductile Iron Body, Bonnet, Plug and Collar
- ♦ 100% Full Port Opening - Circular 2" - 14" size
- ♦ Rectangular Port Design 16" and Larger Sizes
- ♦ Nickel welded (91%) Valve Seats (99% pure Nickel)
- ♦ Low profile seat design ensures extended seat life and results in reduced operating torques
- ♦ Self adjusting Stem Seals

WTR Valves

Eccentric Plug Valve

AWWA C-517

Design Features

- ♦ Radial and Thrust Bearings are manufactured from high grade sintered, oil impregnated, 316 stainless steel for extended service under demanding conditions. Bronze Shaft Bearing
- ♦ Reduced Torque by the use of upper and lower PTFE thrust washers
- ♦ Bonnet Seal is manufactured from high grade elastomers including EPDM, Nitrile, Neoprene and Viton
- ♦ Shaft seals of the "U" cup design, externally adjustable and replaceable without removal of the valve bonnet.
- ♦ Flanges conform ANSI B. 16.1 125/250

Eccentric Plug Valve

AWWA C-517

Design Features

- ◆ Ductile Iron Body, Bonnet, Plug and Collar
- ◆ 100% Full Port Opening
- ◆ Nickel welded (91%) Valve Seats (Nickel pure 99% content)
- ◆ Low profile seat design ensures extended seat life and results in reduced operating torques
- ◆ Self adjusting Stem Seals
- ◆ Bearings are manufactured from high grade sintered, oil impregnated, 316 stainless steel for extended service under demanding conditions.
- ◆ Reduced Torque by the use of upper and lower PTFE thrust washers
- ◆ Round Port Design for Full Flow when fully open, with minimal turbulence
- ◆ Bonnet Seal is manufactured from high grade elastomers including EPDM, Nitrile, Neoprene and Viton
- ◆ Shaft seals of the “U” cup design, externally replaceable without removal of the valve bonnet.
- ◆ Flanges conform ANSI B. 16.1 125/250



January, 2014

Eccentric Plug Valves

AWWA C-517/NSF61

- ◆ Round Full Port - 2"-12" ◆ Rectangular –
- ◆ Dead Tight Shut-off – Zero Leakage
- ◆ Flanged ◆ Mechanical Joint ◆ Grooved End ◆ Threaded

Materials of Construction

- ◆ Body – Ductile Iron/Cast Iron ◆ Plug – Ductile Iron
- ◆ Plug Coating – Encapsulated EPDM/Buna N/Viton
- ◆ Valve Seat – Welded Nickel Alloy
- ◆ Shaft Sealing – Self Adjusting "U" Cup Design
- ◆ Bearings – Oil Impregnated/Stainless Steel
- ◆ Grit Seal ◆ Fasteners – SS
- ◆ Actuators – Nut, Lever, Hand-wheel, Chain-wheel, Electric, Pneumatic
- ◆ Factory Tests/Inspection per AWWA C517

Options

- ◆ Extended Stem Floor Stand ◆ Glass Lined
- ◆ Stainless Steel ◆ Electrical Devices

Additional Plug Valve Designs

- ◆ API ◆ ASME B16.10 ◆ Lubricated
- ◆ Special Alloys ◆ High Pressure/Temperature

WTR Valves

Eccentric Plug Valve

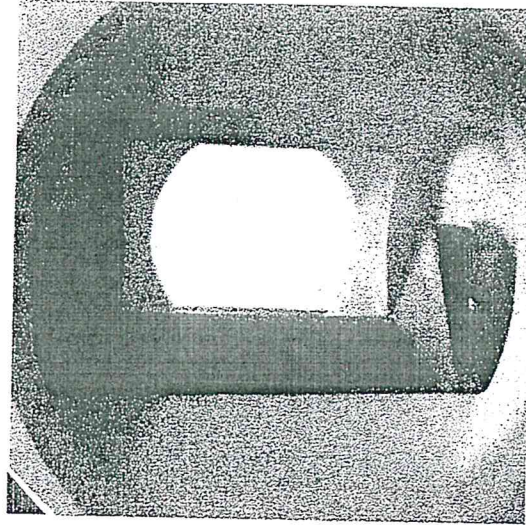
AWWA C-517

Design Features

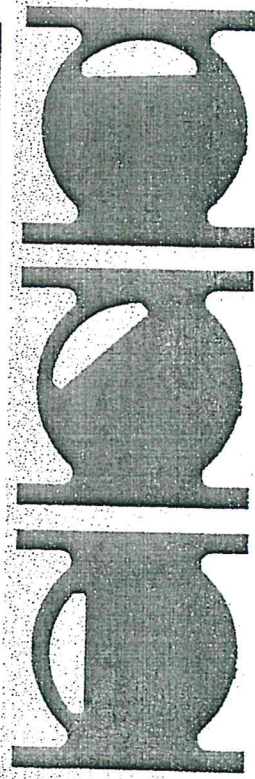
- ♦ Radial and Thrust Bearings are manufactured from high grade sintered, oil impregnated, 316 stainless steel for extended service under demanding conditions. Bronze Shaft Bearing
- ♦ Reduced Torque by the use of upper and lower PTFE thrust washers
- ♦ Bonnet Seal is manufactured from high grade elastomers including EPDM, Nitrile, Neoprene and Viton
- ♦ Shaft seals of the "U" cup design, externally adjustable and replaceable without removal of the valve bonnet.
- ♦ Flanges conform ANSI B. 16.1 125/250

ADVANCED FULL PORT ECCENTRIC PLUG VALVE

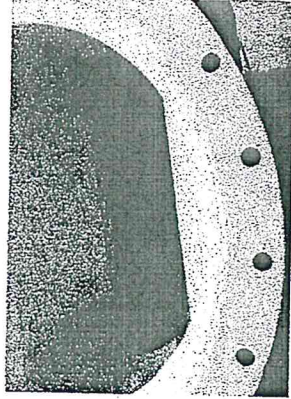
Full port design of our EP series plug valves provide a 100% pipeline opening area and high flow capacity. Rectangular opening and eccentric plug design provide positive shut off with wear resistant action and low torque. Without need for exact alignment, plug shut off position has wider tolerances and reliable seat. See below picture.



100% RECTANGULAR PORT OPENING
PROVIDES HIGH FLOW CAPACITY

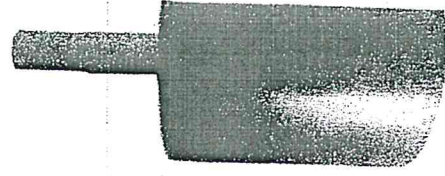


LONGER LIFE AND LESS MAINTENANCE



Welded Nickel/SS Seat Surface
Provides Protection for Corrosion
Damage of the Plug Face.

The seat surface is welded with 95% pure Nickel or stainless steel 316. This will help to protect the plug face from being damaged by corrosion of the seat surface. The raised seat surface ensure the plug rubber face only contact with the Nickel or Stainless Steel. This can prolong the life of the rubber encapsulated Heavy Duty Construction Rugged construction and advanced design features maximize the valve performance and extend service life to provide reliability at the lowest possible usage cost.



One Piece Ductile Iron Plug with
Full Rubber Encapsulation Provide
Extended Plug Life.

One piece casted ductile iron plug provides added strength and best journal alignment. The plug is rotated out of the flow path when the valve opens, this will extend plug life. Fully rubber encapsulated plug face provides dead-tight shut off without using sealing lubricants. Resilient plug design also provides bi-directional seal with the full rated fluid pressure.

WIDE RANGE OF SIZES, PRESSURES, MATERIALS

We offer from 4inch (DN100) to 72inch (DN1800) eccentric plug valves in pressure rating 150/250 class (PN10/PN16) and various materials to choose upon customers' requests or application needs.

Full Top Access Cover

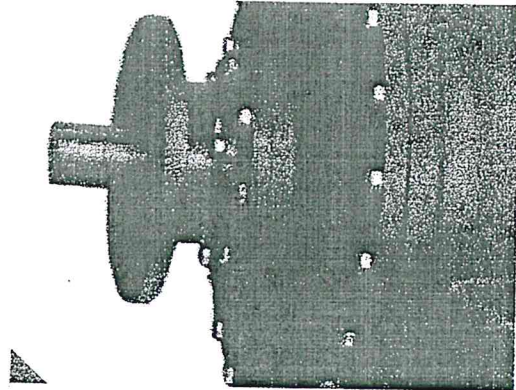
Allows inspection or maintenance without removing the valve from the line.

Corrosion Resistant Bearings

Heavy duty stainless steel 316 bearings are permanently lubricated. And used in both up and bottom journals.

Corrosion Resistant Coatings

Various corrosion resistant coatings are available upon request. Coating thickness can be determined by applications.

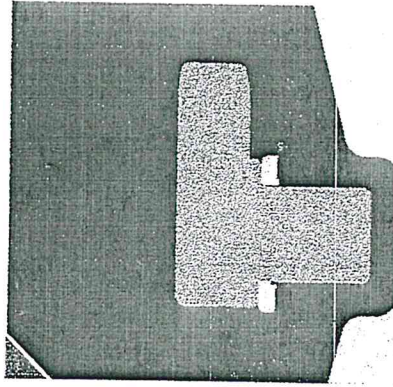


OPEN WINDOW YOKE DESIGNED FOR EASY ADJUSTMENT OF PACKINGS.

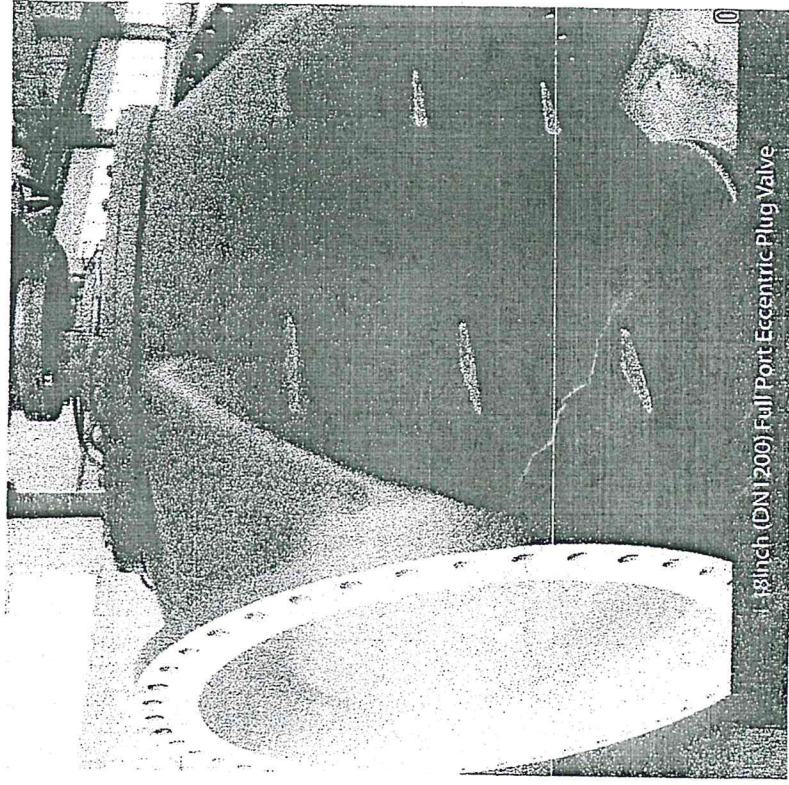
There are two opened windows on the yoke for adjusting the packing gland without moving the actuator. This could save the cost of fixing the valves on site and ensure a longer life of sealing. For underground applications, the windows will be closed to protect the packings.

V-type Packing

Field adjustable V-type packing rings ensure a reliable seal and maintenance free for most applications.



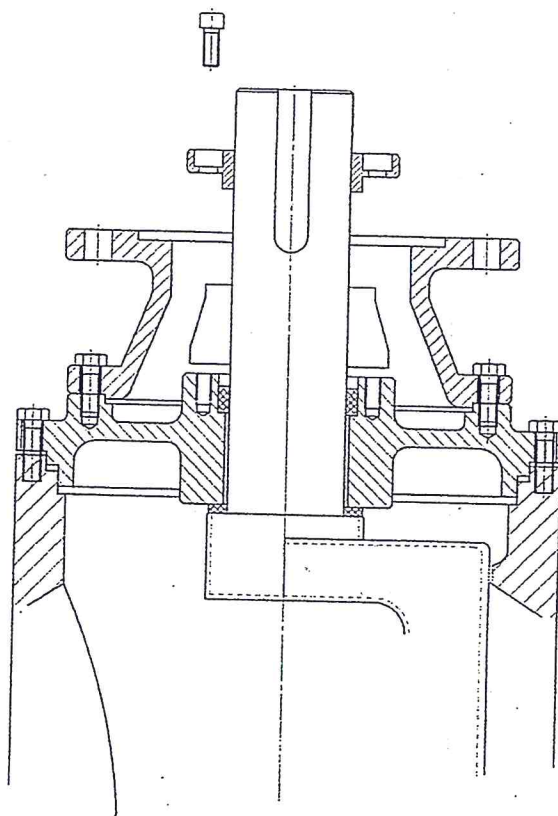
GRIT PREVENTERS EXTEND PACKING AND BEARING LIFE BY MINIMIZING CONTACT WITH ABRASIVE LINE MEDIA



Design Features

Simple Packing Replacement

AWWA C517 Series Valves use a standard ISO valve stem size. This combined with industry standard stack heights allows for the use of off-the-shelf packing. The packing gland and retention design further allows for the replacement of the packing without removing the valve from the line. In some cases the line pressure can be maintained. All service can be performed without any special training.



Easy Packing Removal

Design Standards

Construction	AWWA C517 ASME B16.34 API 598
Coatings	AWWA C550
Connections	ANSI B16.1 Class 125* ANSI B16.5 Class 150 ANSI/AWWA C111/A21.11 ISO 7005
Laying Length	AWWA C517 Short* ISO 5752
Classifications	150A 150B* 250B
Bonnet	MSS SP-101* ISO 5211
Stem Diameter	ISO 5211
Key Size	ISO R773

*Standard Option



American Water Works
Association

Material Options

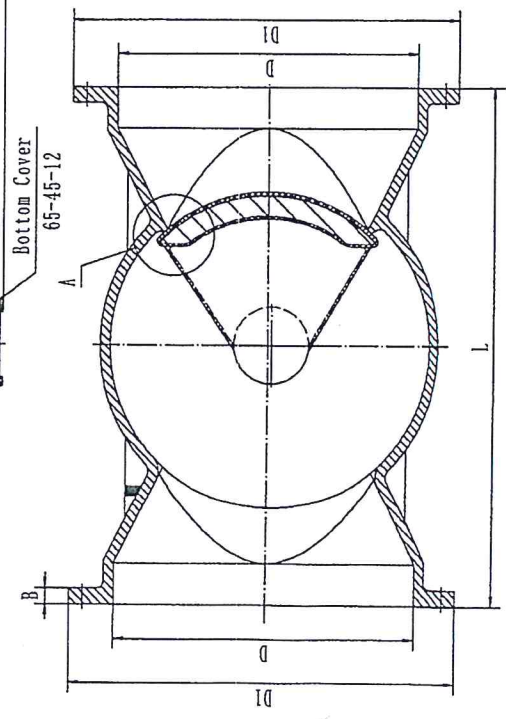
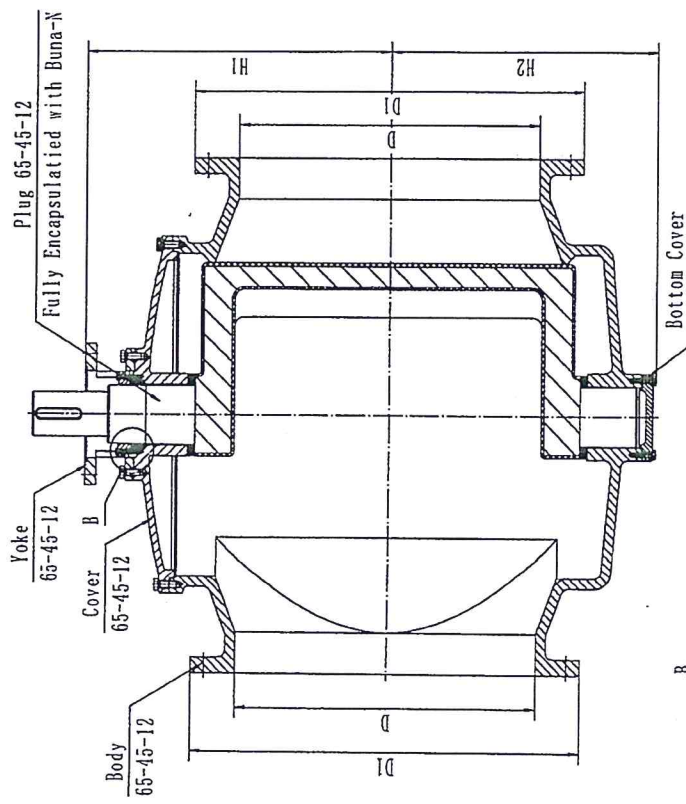
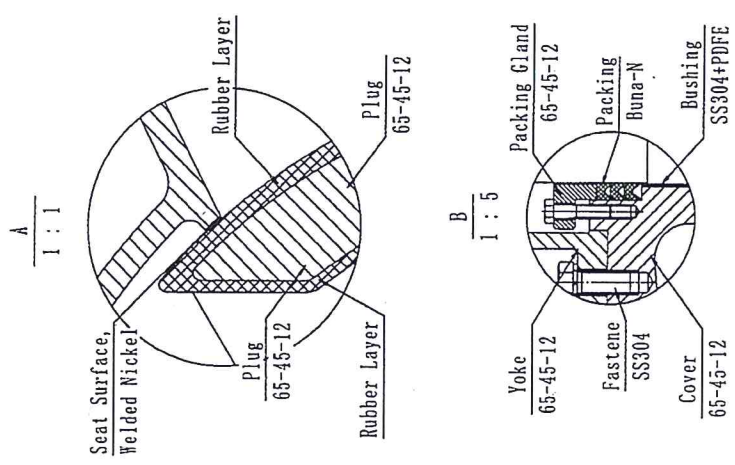
Body and Bonnet	<input type="checkbox"/> ASTM A536 65-45-12*
	<input type="checkbox"/> ASTM A126
	<input type="checkbox"/> ASTM A351 CF8
	<input type="checkbox"/> ASTM A351 CF8M
	<input type="checkbox"/> ASTM A216 WCB
Plug and Stem	ASTM A536 65-45-12*
	ASTM A126
	ASTM A216 WCB
Seat	<input type="checkbox"/> 90% Nickel Welded Overlay
	<input type="checkbox"/> Stellite
Seal	<input type="checkbox"/> NBR*
	<input type="checkbox"/> EPDM
	<input type="checkbox"/> FPM
O-Rings	<input type="checkbox"/> EPDM*
	<input type="checkbox"/> PTFE
	<input type="checkbox"/> NBR

Bushings	SS304 Reinforced PTFE*
	Bronze
	ASTM A276 316
Bearings	<input type="checkbox"/> PTFE*
	<input type="checkbox"/> Viton
	<input type="checkbox"/> Nylon
Packing	EPDM*
	PTFE
	NBR
Exterior Hardware	<input type="checkbox"/> Zinc Plated CS*
	<input type="checkbox"/> SS304
	<input type="checkbox"/> SS316
Key	ASTM 1045

*Standard Option
Other Materials Available Upon Request

Seal Selection Guide

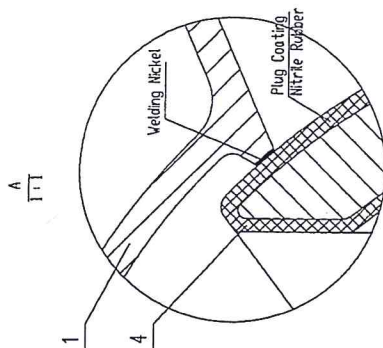
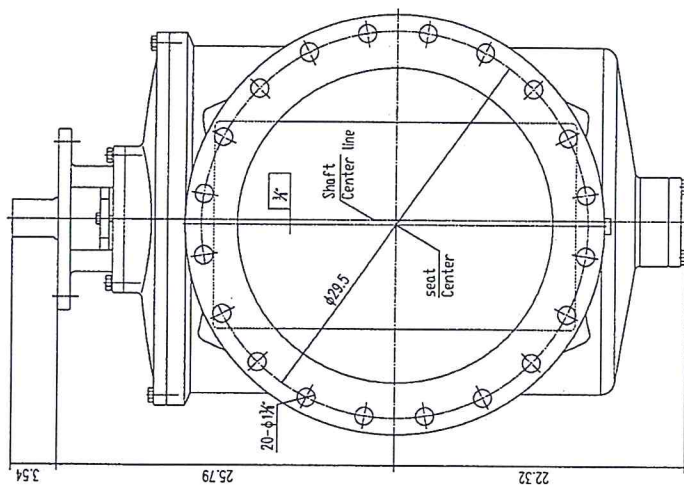
Designation	Common Name(s)	Composition	Min/Max Temperature Range	General Properties	Resistant to:	Attacked by:
PTFE	Teflon®	Polytetrafluoroethylene	-100 F / 450 F	Excellent abrasion resistance and chemically inert	Acids, harsh inorganic and organic chemicals, oils, oxidizing agents, and solvents	Molten alkali metals and fluorine at high temperatures
EPDM, EPM	EPDM	Ethylene-propylene-diene; Ethylene-propylene	-40 F / 300 F	Excellent ozone, chemical, and aging resistance. Poor resistance to petroleum-based fluids.	Animal and vegetable oils, ozone, strong and oxidizing chemicals.	Mineral oils and solvents, aromatic hydrocarbons.
NBR	Buna-N	Nitrile-butadiene	-30 F / 250 F	Excellent resistance to petroleum-based fluids. Good physical properties.	Many hydrocarbons, fats, oils, greases, hydraulic fluids, chemicals.	Ozone (except PVC blends), ketones, esters, aldehydes, chlorinated and nitro hydrocarbons.
FPM	Viton®	Hexafluoropropylene-vinylidene fluoride	-10 F / 400 F	Excellent oil and air resistance both at low and high temperatures. Very good chemical resistance.	All aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils.	Ketones, low molecular weight esters and nitro containing compounds.



DN	D	D1	D2	n-d	L	B	H	H1	H2
18	18	25.00	22.75	16-1.250	21.50	1.06	40.2	19.7	17.1
20	20	27.50	25.00	20-1.250	23.50	1.12	42.5	21.3	18.4
24	24	32.00	29.50	20-1.375	42.00	1.19	51.7	25.8	22.3
30	30	38.75	36.00	28-1.375	51.00	1.88	59.7	29.5	25.5
36	36	46.00	42.75	32-1.625	60.00	2.38	73.9	35.8	31.9

This technical drawing shows a cross-sectional view of a mechanical assembly. The central component is a thick-walled cylinder with an inner diameter of $\phi 362$. It is surrounded by a flange or housing with a thickness of 21 units. The assembly is mounted on a base plate with a total width of 42 units. Various components are labeled with numbers and letters:

- 1**: Base plate
- 2**: Flange/housing
- 3**: Bolt/nut assembly
- 4**: Washer/spacer
- 5**: Nut/bolt head
- 6**: Seal/O-ring
- 7**: Gasket/sealant
- B1, B2, B3, B4, B5, B6, B7**: Bolts/nuts securing the assembly
- 8**: Flange/housing
- R11.8**: Radius dimension
- $\phi 362$** : Inner diameter of the central cylinder
- $\phi 23.6$** : Outer diameter of the central cylinder
- 42**: Total width of the base plate
- 21**: Thickness of the flange/housing
- 2.41**: Small radial dimensions at the top and bottom edges.

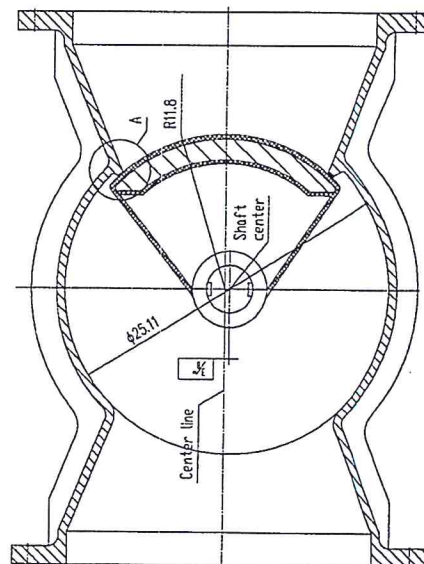
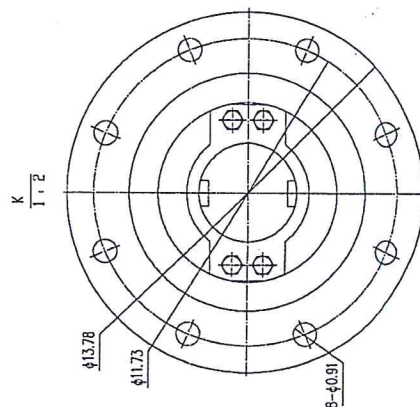


Technical requirement

1. Size 24", Pressure 150PSI(1.035MPa)
2. Temperature less than 176 °F
3. Water flow way area is 100%
4. Nitrile rubber Plug Coating, thickness not less than 8mm.
5. Valve body inside and outside coating meet AWWA C550.
6. Valve design & test meet AWWA C507
7. Valve shaft torque value is 16,000 N.m

Note: Dimensions in inches

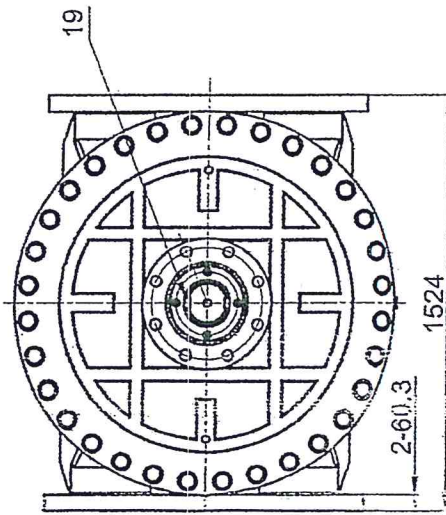
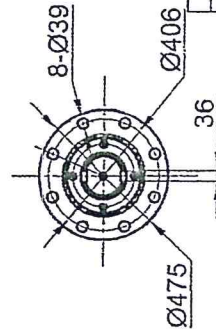
Item	Name	Material	Remark
B7	O-Ring	NBR	
B6	Ball	SS304	
B5	Y-type Packing	NBR	
B4	Bolt	SS304	
B3	Bolt	SS304	
B2	O-Ring	NBR	
B1	Bolt	SS304	
8	Lower	Ductile Iron 65-45-12	
7	Gasket	PDFE	
6	Bushing	PDFE	
5	Gland	Ductile Iron 65-45-12	
4	Plug	Ductile Iron 65-45-12-NBR	
3	Bracket	Ductile Iron 65-45-12	
2	Bonnet	Ductile Iron 65-45-12	
1	Body	Ductile Iron 65-45-12	



			Assembly Drawing	
			Plug valve	
			Revise	Date
				AWWA C517-150

As provided,

- 1.Design standard: ANSI/AWWA C517
- 2.Connection flange: ASME B16.1 CLASS125
- 4.Face to face: ANSI/AWWA C517 long type
- 3.Test standard: ANSI/AWWA C517
- 4.Working pressure: 150psi



Test	Shell test		1.5MPa
	Seal test.		1.0MPa
Working pressure	150psi(1.0MPa)		
Temperature	0.6-66°C		
Medium	Sewage, waste water or water		
19	Key	Carbon steel	
18	Washer	Zinc plated carbon steel	
17	Bolt	Zinc plated carbon steel	
16	Bottom cover	ASTM A536 65-45-12	
15	Bottom seal	EPDM	
14	Bushing	Bronze	
13	Antifriction unit	Bronze	
12	Cover	ASTM A536 65-45-12	
11	Washer	Zinc plated carbon steel	
10	Bolt	Zinc plated carbon steel	
9	Screw	Zinc plated carbon steel	
8	Packing gland	ASTM A536 65-45-12	
7	Packing ring	Bronze	
6	V packing ring	EPDM	
5	Seal	EPDM	
4	Bushing	Bronze	
3	Antifriction unit	Bronze	
2	Plug	ASTM A536 65-45-12+EPDM	
1	Body	ASTM A126B+NI	
No.	Name	Material	

[illegible]

36" full port plug valve

Central Certification CERT Program

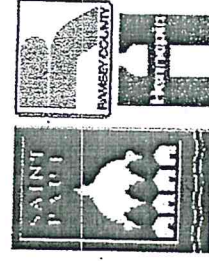
CERT Number 2016-20101266

This is to confirm that

Water Technology Resource, Inc.

is recertified as Small and Woman Business Enterprise (S/WBE)
Your certification with the CERT Program is valid for three years. Your company's certification expiration date is
May 9, 2019

Signed: *[Signature]*
Certification Specialist



Date: *May 9, 2016*

WATER TECHNOLOGY RESOURCES - WTR VALVES

9201 E. Bloomington Fwy Suite Z
Bloomington, MN 55420
Phone: 952-641-9004 Fax: 952-885-9173
Toll Free: 888-620-9007
Email: contact@wtrvalves.com



Notations

A) We prefer Ductile Iron in lieu of Cast Iron for the valve body.

Cast Iron Specification ASTM A126 Class B

- Physical Properties
 - Minimum tensile strength 31,000 psi
 - Minimum traverse strength 3,300 lbs
 - Minimum deflection (12" Centers) .12 in
- Chemical Analysis (percent)
 - Phosphorus (maximum) .75
 - Sulfur (maximum) .15

Ductile Iron ASTM A536

- Minimum tensile strength 65,000 psi
- Minimum yield strength 45,000 psi
- Elongation 10-12%

1. Ductile Iron (DI) is a stronger material and its strength is rated at approximately double the strength of Cast Iron.
2. DI is a more flexible material, less brittle, and less subject to cracking.
3. DI is also easier to machine and is more corrosion resistant.

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Difference Between Ductile Iron and Cast Iron

Posted on March 5, 2011 by Clarisse



Ductile Iron vs Cast Iron

Ductile iron and cast iron are used in the metal industry on an everyday basis. However, the two alloys have different characteristics which results in them being used for various purposes.

Ductile Iron

Ductile iron was firstly created during the mid 1940's by Keith Millis through incorporating the ferrous alloy with magnesium treatment. This shows the structural alteration of graphite, since in the development of this material, the graphite creates spherical nodules which restricts the development of fissures thereby resulting in increased malleability. It is usually utilized as a water main pipe due to its durability and resistance to corrosion.

Cast Iron

Cast iron has a vast range of properties that are being cast into shape as opposed to being formed. Its production consists of re-melting pig iron and steel scrap and adding different alloys in it during the procedure. Some of those that are added are carbon and silicon. It usually contains high amount of silicon in addition to the already high carbon content. Sulfur and manganese are also added to provide strength and solidity to the metal.

Difference between Ductile Iron and Cast Iron

Cast iron is usually used for engineering and construction structures because of its stability, while ductile iron is utilized for water pipes due to its durability. Ductile iron is a newer material which is more favored, not just in terms for a water pipe fixture but also for engine parts such as crankshafts and connecting rods, plus various brakes and steering components due to its strength, reliability and flexibility. Their main difference lies in the presence of graphite, since it causes cracks, which softens the alloy, it is an important component for ductile iron but in the case of cast iron, it is eliminated.

We see these materials each day, though a regular person might not know the difference. The important thing is that they are made for a purpose and that they provide the needed support that they are developed for in the first place.

In brief:

- Cast iron is usually used for engineering and construction structures because of its stability, while ductile iron is utilized for water pipes due to its durability.
- Ductile iron is a newer material which is more favored, not just in terms for a water pipe fixture but also for engine parts such as crankshafts and connecting rods, plus various brakes and steering components due to its strength, reliability and flexibility.

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ductile ~~iron~~ vs cast iron

Ductile iron ~~can~~ be bent without breaking, whereas cast iron is brittle and breaks when bent.

As ductile iron can be bent, it can be made into different shapes and forms. But one cannot make out different shapes and forms using cast iron. While ductile iron is flexible, cast iron is not.

When comparing the two, cast iron corrodes more quickly than ductile iron.

Ductile iron consists of iron, carbon, silicon, manganese, magnesium, phosphorous and sulphur. Tin and ~~copper are also~~ sometimes found.

Ductile iron also consists of nodular graphite, which gives it flexibility.

Cast iron mainly consists of carbon and silicon.

With regard to practical uses, ductile iron pipes are used in sewer and water lines. This is because they are much stronger than cast iron.

Moreover, ductile iron is better than cast iron in difficult terrains.

Ductile iron is mainly used in the automobile industry such as trucks, tractors and oil pumps. Cast iron is mainly seen in the construction industry.

It was Keith Millis who discovered ductile iron in 1943. Cast iron has been in use for many centuries. China is credited with the invention of cast iron in the 4th century BC. It was used first for making weapons, pots, ploughshares and pagodas. The western people knew cast iron only in the late 14th century.

Summary