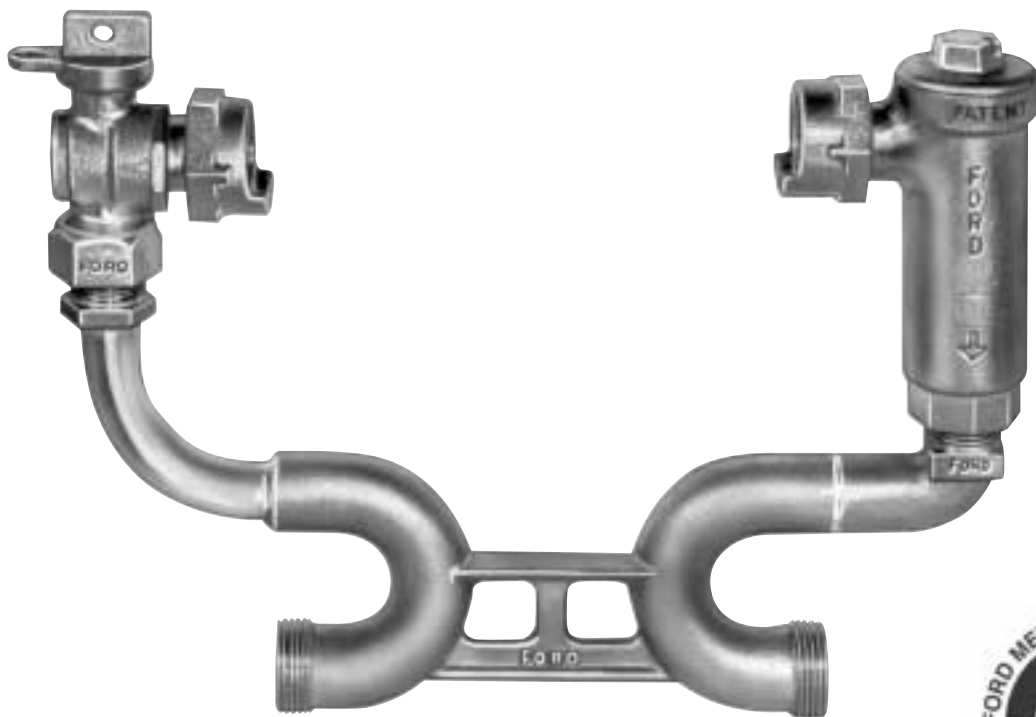
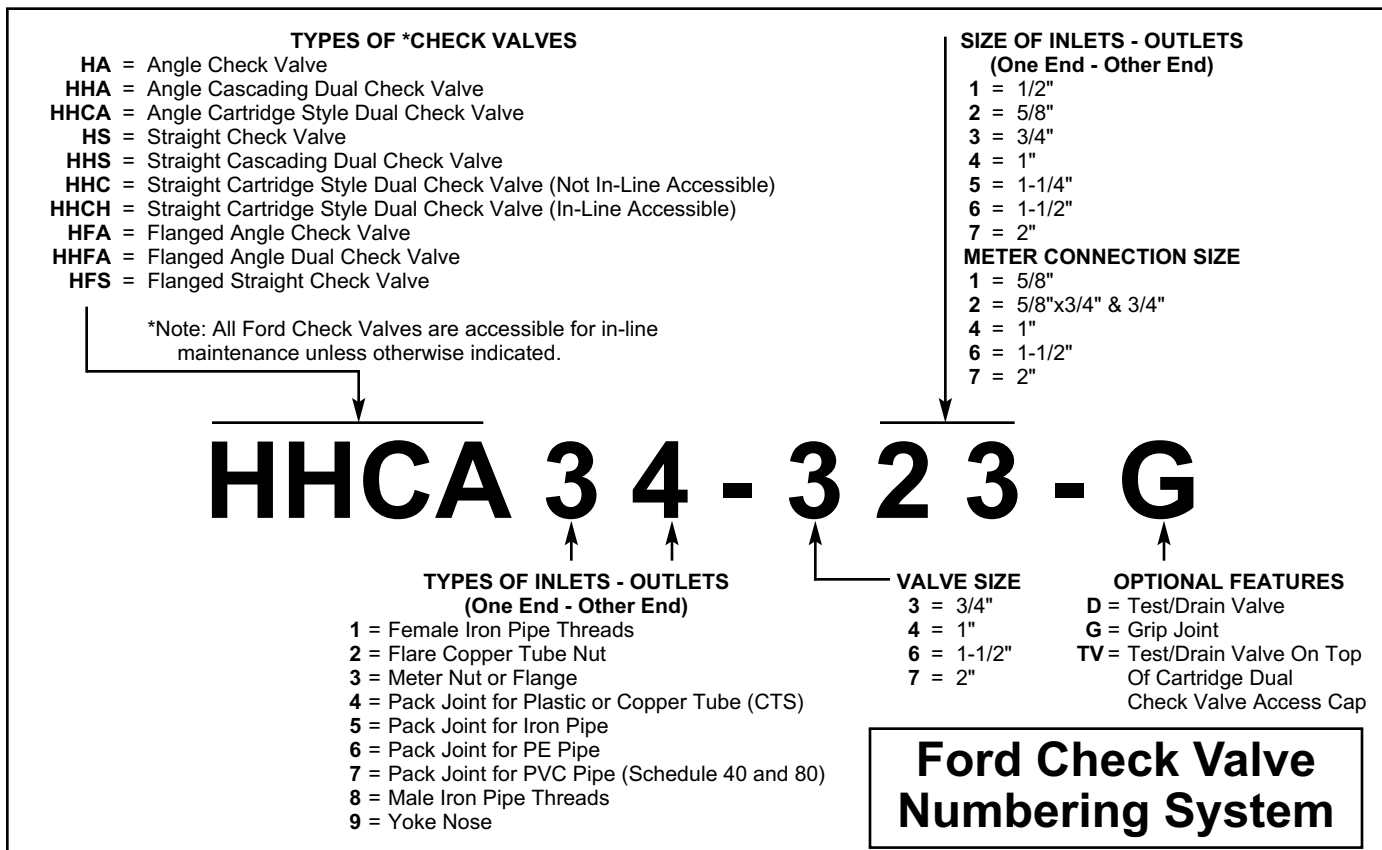


# Ford Check Valves, Retrossetters and Cut-in Check Valves



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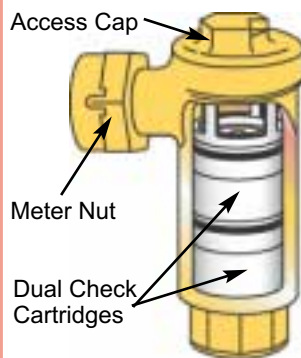
# Why Provide Residential Backflow Prevention?

## From EPA Cross-Connection Control Manual

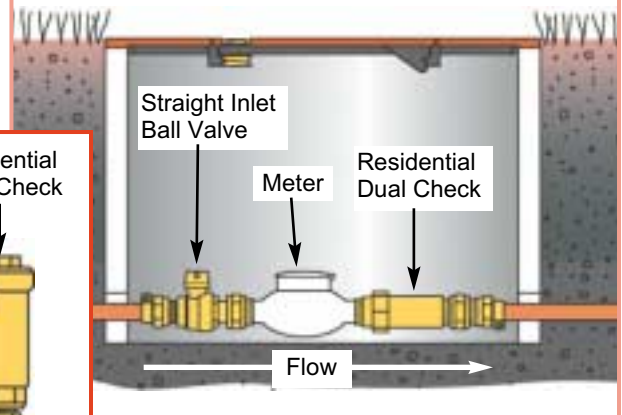
The need to furnish reliable and inexpensive back-siphonage and backpressure protection for individual residences resulted in the debut of the residential dual check. Protection of the main potable supply from household hazards such as home photograph chemicals, toxic insect and garden sprays, termite control pesticides used by exterminators, etc., reinforced a true need for such a device. Figure 26 shows a cutaway of the device.

It is sized for 3/4 and 1-inch service lines and is installed immediately downstream of the water meter. The use of plastic check modules and elimination of test cocks and gate valves keeps the cost reasonable while providing good, dependable protection. Typical installations are shown in Figures 27 and 28.

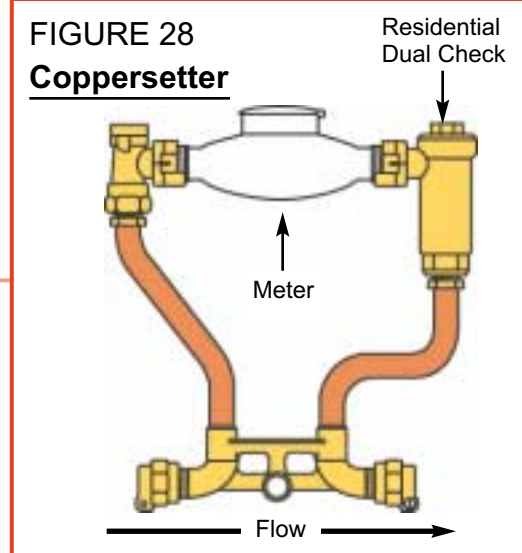
**FIGURE 26**  
**Residential Dual Check**



**FIGURE 27**  
**Residential Installation**



**FIGURE 28**  
**Coppersetter**



## Sample Dual Check Ordinance

Effective the date of acceptance of this Cross-Connection Control Program for the Town of ( ) all new residential buildings will be required to install a residential dual check device immediately downstream of the water meter. Installation of this residential dual check device on a retrofit basis on existing service lines will be instituted at a time and at a potential cost to the homeowner as deemed necessary by the department.

The owner must be aware that installation of a residential dual check valve results in a potential closed plumbing system within the residence. As such, provisions may have to be made by the owner to provide for thermal expansion within this closed loop system; i.e., the installation of thermal expansion devices and/or pressure relief valves.

# Delivering top quality water to the point of use is the responsibility of every utility.

## Ford Dual Check Valves can help you meet that responsibility.

A lot has changed since the “good old days” when a utility’s responsibility for water quality ended at the outlet of the water meter. The *Safe Drinking Water Act*, and a host of state and local regulations, now defines you as responsible for delivery of quality water to the faucet inside your customer’s home or business. The entry of objectionable or hazardous material into the customer’s plumbing may expose your utility, and you personally, to expensive and time consuming legal action.

Many state health agencies now require that dual check valves be installed on all new domestic services. A number of concerned utilities are putting dual checks on existing services, as well. All of these programs for dual check installation, whether mandated or not, are for the purpose of reducing utility liability and for protecting the end user. Ford Dual Check Valves are designed to make **your** program of domestic backflow protection simple and cost effective.

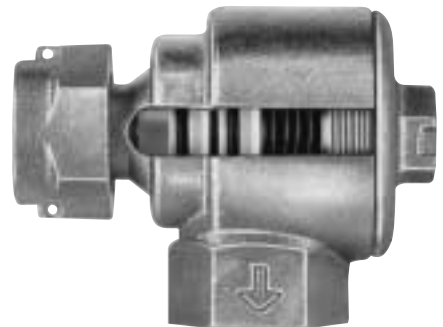
Ford Dual Check Valves are intended for service use as stipulated by ASSE-1024.

## Ford Dual Check Valves are designed for installation at the water meter for maximum convenience.

Formerly dual check valves were available only with threaded end connections, since they were designed for installation by the plumber. The working parts of these valves could not be inspected or replaced without removing the valve from the line, a time consuming and costly job. Ford Dual Check Valves were designed from the start to be installed at the outlet of the water meter. Available in straight and angle styles, most come with swivel meter nuts on the inlet side; they can be used by themselves at the outlet of the meter or can be located on the outlet side of a Ford Coppersetter or Resetter. Dual checks are also available with inlet yoke threads for direct attachment to a Ford Yoke Bar.

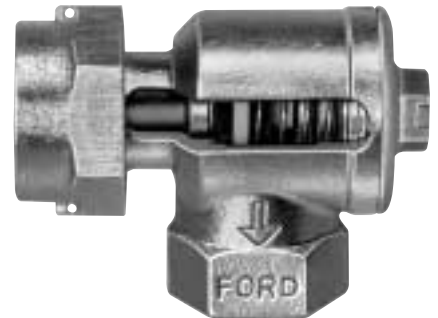
Ford Dual Check Valves were designed for ease of maintenance. Removable “O” ring sealed access caps allow for quick and easy inspection and replacement of the internal working parts, without removing the valve from the line. Since the valve is located at the outlet of the meter, your meter repair crews can assist with maintenance by looking for water flow out of the check when replacing the water meter. No water flow means that positive backflow protection is being provided by the dual check.

Ford Dual Check Valves are intended for service use as stipulated by ASSE-1024.



## Ford Single Check Valves provide deterrence for minimum requirements.

On services where an approved backflow preventer is not desired or required, a Ford Single Check Valve may be installed. A single check valve provides deterrence against hot water backflow from a water heater, which could damage the working parts of a water meter. They also keep water from the house plumbing from flowing into a meter pit or onto a basement floor when a meter is removed from service.



Ford Single Check Valves are available in in-line accessible angle and straight styles and in sizes from 3/4" through 2". They can be an integral part of a Ford Coppersetter, Pit Setter or Iron Yoke. See Catalog Sections F, FA and E.

## Ford is THE choice of Check Valves for Water Utilities

In planning your domestic service backflow protection program, remember that only Ford offers these important advantages:



1. The only full line of ASSE approved Dual Checks designed for use at the Water Meter.
2. The only full line of ASSE approved Dual Checks with removable access caps (in-line accessible) for easy maintenance.
3. ASSE approved Dual Checks available as integral parts of Ford Coppersetters, Resetters and Yokes.
4. Check Valves that offer the lowest water pressure head loss figures in the industry.
5. All Ford Check Valves are manufactured using only 85-5-5-5 waterworks brass.



Check assemblies are placed into valve bodies.



Ford check valves are tested on an environmentally safe "air-decay" tester.

# Cartridge Style Dual Check Valves

Ford Cartridge Dual Check Valves are approved by the American Society of Sanitary Engineering and meet or exceed **all** the requirements of ASSE Standard #1024 - 1994.



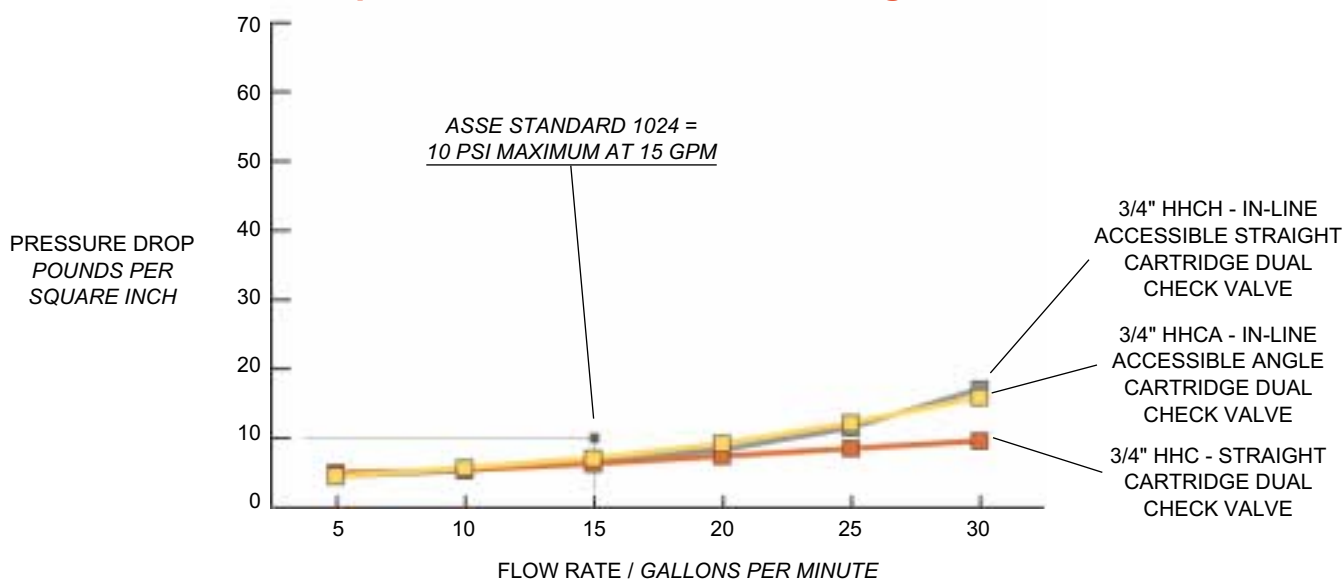
Water pressure head loss through the checks is lower than the maximum allowed by ASSE, insuring adequate delivery to your customers. Excellent corrosion resistance is provided by the use of stainless steel and acetal plastic working parts and a body cast from AWWA standard 85-5-5-5 brass.

The unique angle design of the Ford Angle Cartridge Dual Check Valve (*U.S. PAT NO. 5148828*) features a removable "O" ring sealed cap **at the top of the valve**. This allows easy in-line access to the dual check assemblies for maintenance, inspection or replacement. As an added measure of protection, the Ford Angle Cartridge design will deter backflow **even if one of the cartridge assemblies is removed** from the valve body.

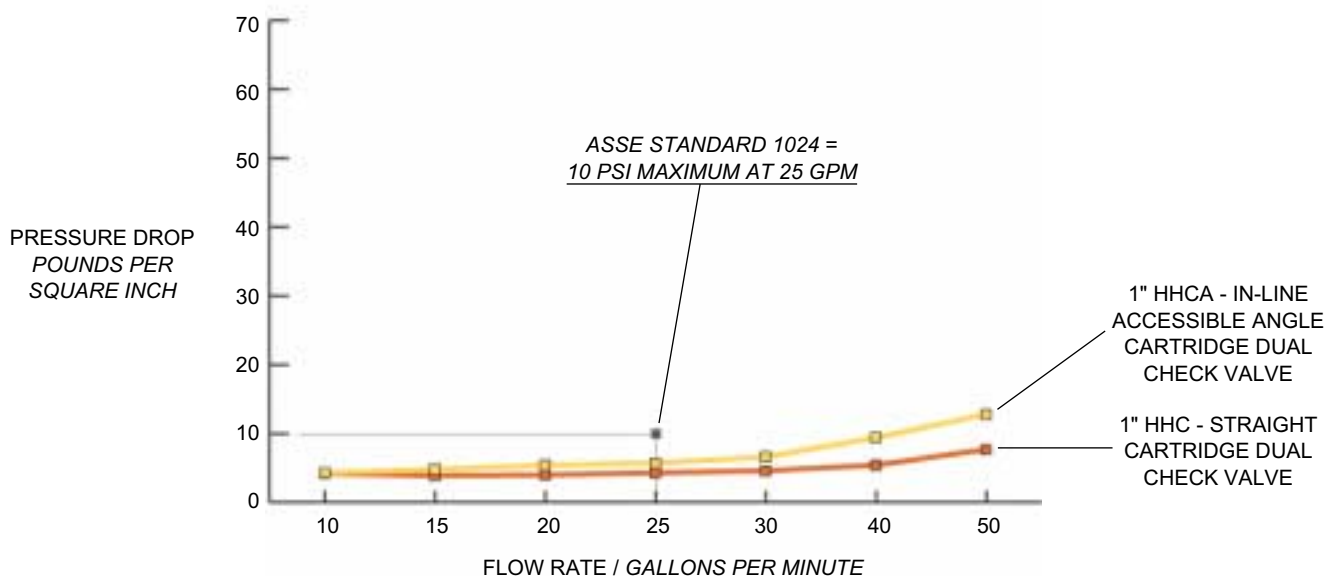
Ford Cartridge Dual Check Valves are available in in-line accessible angle and straight styles. They can be an integral part of a Ford Coppersetter, Pit Setter or Iron Yoke. See Catalog Sections F, FA and E.

Ford Dual Check Valves are intended for service use as stipulated by ASSE-1024.

## Pressure Drop - 5/8" x 3/4" and 3/4" Cartridge Dual Check Valves



## Pressure Drop - 1" Cartridge Dual Check Valves



See page 13 for 2" Dual Check Pressure Drop Chart.



# Cartridge Style Dual Check Valves

Angle Cartridge Style Dual Check Valves (In-Line Accessible) (U.S. PAT NO. 5148828)



HHCA31-323



HHCA34-323



HHCA92-323



HHCA94-323

## METER SWIVEL NUT INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHCA31-313	3/4"	5/8"	3/4"	1.7
HHCA31-323	3/4"	5/8"x3/4" and 3/4"	3/4"	1.8
HHCA31-344	3/4"	1"	1"	2.0
HHCA31-444	1"	1"	1"	3.1

## METER SWIVEL NUT INLET BY FLARE COPPER OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHCA32-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.3
HHCA32-444	1"	1"	1"	3.9

## METER SWIVEL NUT INLET BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)\* OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHCA34-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.2
HHCA34-444	1"	1"	1"	3.5

\***Grip Joint** for CTS is available. See options for ordering information

## METER YOKE INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHCA91-313	3/4"	5/8"	3/4"	1.7
HHCA91-323	3/4"	5/8"x3/4" and 3/4"	3/4"	1.7
HHCA91-344	3/4"	1"	1"	2.1
HHCA91-444	1"	1"	1"	3.0

## METER YOKE INLET BY FLARE COPPER OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHCA92-313	3/4"	5/8"	3/4"	2.2
HHCA92-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.8
HHCA92-424	1"	5/8"x3/4" and 3/4"	1"	-
HHCA92-444	1"	1"	1"	3.9

## METER YOKE INLET BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)\* OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
◆ HHCA94-313	3/4"	5/8"	3/4"	2.1
◆ HHCA94-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.1
◆ HHCA94-324	3/4"	5/8"x3/4" and 3/4"	1"	-
◆ HHCA94-414	1"	5/8"	1"	-
◆ HHCA94-424	1"	5/8"x3/4" and 3/4"	1"	-
◆ HHCA94-444	1"	1"	1"	3.8

\***Grip Joint** for CTS is available. See options for ordering information.

◆ Quick Joint is available. Add "-Q" to the end of this catalog number.

## Options Available

**Grip Joint** for CTS can be ordered by adding "-G" to the end of Catalog Number. EXAMPLE: HHCA34-444-G

A **three-port bleeder** valve configuration is available for the HHCA31-323 and HHCA31-444 valve (Catalog Numbers HHCA31-323-3TV and HHCA31-444-3TV). Contact the factory for availability.

**Drain/Test valve on top of the Access Cap** (drains Inlet) is available for all Cartridge Dual Check Valves with access caps. Add "D" to the Catalog Number. EXAMPLE: HHCA31-323D

# Cartridge Style Dual Check Valves (continued)

## Straight Cartridge Style Dual Check Valves (In-Line Accessible) (U.S. PAT NO. 5148828)



### METER SWIVEL NUT INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
*▲HHCH31-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.0

### METER YOKE INLET BY FEMALE IRON PIPE THREAD OUTLET

▲ HHCH91-313	3/4"	5/8"	3/4"	-
▲ HHCH91-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.0

▲ Indicates **Drain/Test Valve** (drains inlet) on the Access Cap (not on the side of the check valve). Add "-D" to the Catalog Number. Example: HHCH31-323-D.

\*An HHCH13-332 is available, which attaches to the **inlet** of the meter. It is similar in size and features to the HHCH31-323 except the water flow is reversed.

## Straight Cartridge Style Dual Check Valves (Not In-Line Accessible)



HHC31-323

### METER SWIVEL NUT INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHC31-313	3/4"	5/8"	3/4"	1.6
HHC31-323	3/4"	5/8"x3/4" and 3/4"	3/4"	1.7
HHC31-444	1"	1"	1"	2.7

### METER SWIVEL NUT INLET BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)\* OUTLET

HHC34-323	3/4"	5/8"x3/4" and 3/4"	3/4"	2.1
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### METER SWIVEL NUT INLET BY MALE IRON PIPE THREAD OUTLET

HHC38-313	3/4"	5/8"	3/4"	1.5
HHC38-323	3/4"	5/8"x3/4" and 3/4"	3/4"	1.6



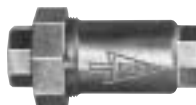
HHC33-311

### FEMALE METER THREAD INLET BY MALE METER THREAD OUTLET

HHC33-311	3/4"	5/8"	5/8"	1.5
HHC33-322	3/4"	5/8"x3/4" and 3/4"	5/8"x3/4" and 3/4"	1.5

### METER SWIVEL NUT INLET BY KORNERHORN THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHC30-320	3/4"	5/8"x3/4" and 3/4"	No. 1 Male Kornerhorn Thread for Pack Joint Assemblies (See Section B)	1.6



HHC11-333

### MALE IRON PIPE THREAD INLET BY KORNERHORN THREAD OUTLET

HHC80-330	3/4"	3/4"	No. 1 Male Kornerhorn Thread for Pack Joint Assemblies (See Section B)	-
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### FEMALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHC11-333	3/4"	3/4"	3/4"	1.6
HHC11-344	3/4"	1"	1"	1.3
HHC11-444	1"	1"	1"	2.5



HHC81-333

### MALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET

HHC81-333	3/4"	3/4"	3/4"	1.6
HHC81-344	3/4"	1"	1"	1.6
HHC81-444	1"	1"	1"	2.4

## Options Available

Straight Cartridge Check Valves for Kornerhorns are found on page 14 .

**Grip Joint for CTS** can be ordered by adding "-G" to the end of Catalog Number. EXAMPLE: HHC34-323-G



# Cascading Dual Check Valves

Ford Dual Check Valves with a cascading check design are approved by the American Society of Sanitary Engineering and meet or exceed **all** the requirements of ASSE Standard #1024.



Water pressure head loss through the checks is lower than the maximum allowed by ASSE, insuring adequate delivery to your customers. Excellent corrosion resistance is provided by the use of stainless steel and acetal plastic working parts and a body cast from AWWA standard 85-5-5-5 brass.

The low head loss characteristics and compact size of these Dual Check Valves is made possible by the unique "cascading" check design. Each check assembly is sealed by means of an "O" ring, and guide pins on the face of the plunger insure positive centering of the "O" ring on the seat. This means a positive water tight seal against backpressure and backsiphonage.

Ford cascading dual check valves are available in in-line accessible angle and straight styles. They can be an integral part of a Ford Coppersetter, Pit Setter or Iron Yoke. See Catalog Sections F, FA and E.

Ford Dual Check Valves are intended for service use as stipulated by ASSE-1024.

## Angle Cascading Dual Check Valves (In-Line Accessible)

### WITH METER SWIVEL NUT INLET



HHA31-313

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE & TYPE	
HHA31-313	3/4"	5/8"	3/4" FIP	1.6
Δ HHA31-323	3/4"	5/8"x3/4" and 3/4"	3/4" FIP	1.7
HHA31-344	3/4"	1"	1" FIP	2.0
HHA32-323	3/4"	5/8"x3/4" and 3/4"	3/4" Fl. Cop.	2.2
◆ HHA34-323	3/4"	5/8"x3/4" and 3/4"	3/4" CTS P.J.	2.1

\***Grip Joint** for CTS is available. See options for ordering information.

◆ Quick Joint is available. Add "-Q" to the end of this catalog number.

### WITH METER YOKE INLET FOR IRON YOKE SETTINGS



HHA91-323

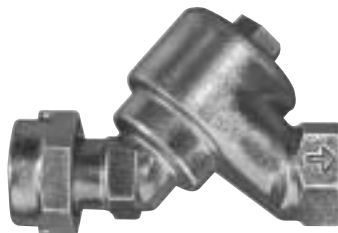
CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE & TYPE	
Δ HHA91-313	3/4"	5/8"	3/4" FIP	1.5
Δ HHA91-323	3/4"	5/8"x3/4" and 3/4"	3/4" FIP	1.5
HHA91-344	3/4"	1"	1" FIP	2.1
Δ HHA92-313	3/4"	5/8"	3/4" Fl. Cop.	2.1
Δ HHA92-323	3/4"	5/8"x3/4" and 3/4"	3/4" Fl. Cop.	2.1
Δ HHA94-313	3/4"	5/8"	3/4" CTS P.J.	2.0
Δ HHA94-323	3/4"	5/8"x3/4" and 3/4"	3/4" CTS P.J.	2.0
HHA96-313	3/4"	5/8"	3/4" P.J. for PE Pipe	2.0
HHA96-323	3/4"	5/8"x3/4" and 3/4"	3/4" P.J. for PE Pipe	2.0

\***Grip Joint** for CTS and PEP is available. See options for ordering information

Δ Available with Drain/Test Valve. Add "D" to end of catalog number. Example: HHA31-323D

## Straight Cascading Dual Check Valves (In-Line Accessible)

### WITH METER SWIVEL NUT INLET



HHS31-323

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE & TYPE	
HHS31-313	3/4"	5/8"	3/4" FIP	1.8
HHS31-323	3/4"	5/8"x3/4" and 3/4"	3/4" FIP	1.9
HHS31-344	3/4"	1"	1" FIP	2.2
HHS38-323	3/4"	5/8"x3/4" and 3/4"	3/4" MIP	1.9
HHS30-320	3/4"	5/8"x3/4" and 3/4"	No. 1 Male Kornehorn Thread for Pack Joint Assemblies (see Catalog Section "B")	1.9

### WITH METER YOKE INLET FOR IRON YOKE SETTINGS



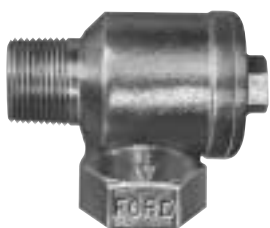
CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE & TYPE	
HHS91-313	3/4"	5/8"	3/4" FIP	1.9
HHS91-323	3/4"	5/8"x3/4" and 3/4"	3/4" FIP	1.9
HHS91-344	3/4"	1"	1" FIP	2.4

# Ford Single Check Valves

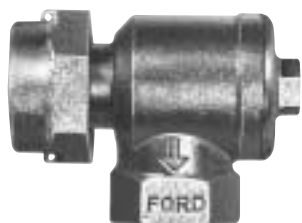
On services where an approved backflow preventer is not desired or required, a Ford single check valve may be installed. A single check valve provides deterrence against hot water backflow from a water heater, which could damage the working parts of a water meter. They also keep water from the house plumbing from flowing into a meter pit or onto a basement floor when a meter is removed from service.

Ford single check valves are available in in-line accessible angle and straight styles and in sizes from 3/4" through 2". They can be an integral part of a Ford Coppersetter, Customsetter or Iron Yoke. See Catalog Sections F and E.

## Angle Check Valves (In-Line Accessible)



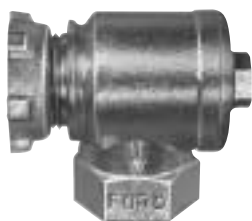
HA81-333



HA31-323



HA34-323



HA91-323

### MALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	INLET SIZE	OUTLET SIZE	
HA81-333	3/4"	3/4"	3/4"	1.1

### METER SWIVEL NUT INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
ΔHA31-313	3/4"	5/8"	3/4"	1.3
ΔHA31-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.4
ΔHA31-444	1"	1"	1"	1.7

### METER SWIVEL NUT INLET BY FLARE COPPER OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HA32-313	3/4"	5/8"	3/4"	1.7
HA32-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.8
HA32-444	1"	1"	1"	2.4

### METER SWIVEL NUT INLET BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)\* OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HA34-313	3/4"	5/8"	3/4"	1.6
HA34-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.8
HA34-444	1"	1"	1"	2.0

\***Grip Joint** for CTS is available. See options for ordering information

### METER YOKE INLET BY IRON YOKE SETTINGS

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE & TYPE	
ΔHA91-313	3/4"	5/8"	3/4" FIP	1.3
ΔHA91-323	3/4"	5/8"x3/4" & 3/4"	3/4" FIP	1.3
ΔHA91-444	1"	1"	1" FIP	1.8
ΔHA92-313	3/4"	5/8"	3/4" Fl. Cop.	1.7
ΔHA92-323	3/4"	5/8"x3/4" & 3/4"	3/4" Fl. Cop.	1.7
ΔHA94-313	3/4"	5/8"	3/4" P.J./CTS	1.6
ΔHA94-323	3/4"	5/8"x3/4" & 3/4"	3/4" P.J./CTS	1.6
HA96-313	3/4"	5/8"	3/4" P.J./PEP	1.6
HA96-323	3/4"	5/8"x3/4" & 3/4"	3/4" P.J./PEP	1.6

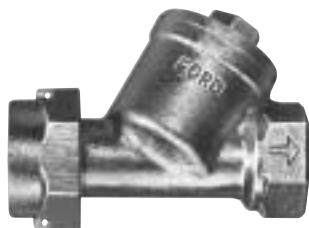
## Options Available

**Grip Joint** for CTS or PEP can be ordered by adding "-G" to the end of Catalog Number. EXAMPLE: HA34-323-G

Δ Indicates **Drain/Test Valve** available. Add "D" to Catalog Number. EXAMPLE: HA31-323D

# Single Check Valves (continued)

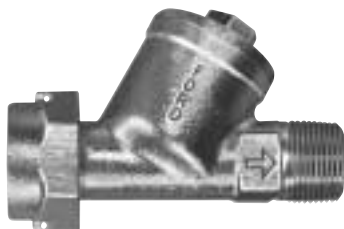
## Straight Check Valves (In-Line Accessible)



HS31-323

### METER SWIVEL NUT INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HS31-313	3/4"	5/8"	3/4"	1.3
ΔHS31-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.4
ΔHS31-444	1"	1"	1"	1.7



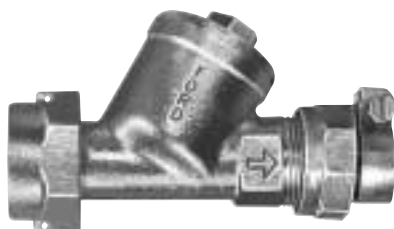
HS38-323

### METER SWIVEL NUT INLET BY MALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
ΔHS38-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.3
HS38-444	1"	1"	1"	1.7

### METER SWIVEL NUT INLET BY FLARE COPPER OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HS32-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.8



HS34-323

### METER SWIVEL NUT INLET BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)\* OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HS34-323	3/4"	5/8"x3/4" & 3/4"	3/4"	1.8

\***Grip Joint** for CTS is available. See options for ordering information



HS11-333

### FEMALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	INLET SIZE	OUTLET SIZE	
HS11-333	3/4"	3/4"	3/4"	1.2
HS11-444	1"	1"	1"	1.4
HS11-666	1-1/2"	1-1/2"	1-1/2"	5.6
HS11-777	2"	2"	2"	7.9

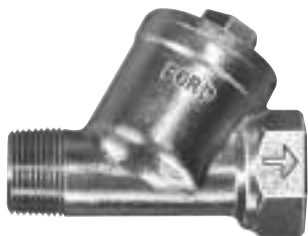
## Options Available

**Grip Joint** for CTS can be ordered by adding "-G" to the end of Catalog Number. EXAMPLE: HS34-323-G

Δ Indicates Drain/Test Valve available. Add "D" to Catalog Number. EXAMPLE: HS31-323D

# Single Check Valves (continued)

## Straight Check Valves (In-Line Accessible)



HS81-333

### MALE IRON PIPE THREAD INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	INLET SIZE	OUTLET SIZE	
△ HS81-333	3/4"	3/4"	3/4"	1.2
△ HS81-444	1"	1"	1"	1.4

### MALE IRON PIPE THREAD BY PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS)

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	INLET SIZE	OUTLET SIZE	
HS84-333	3/4"	3/4"	3/4"	-



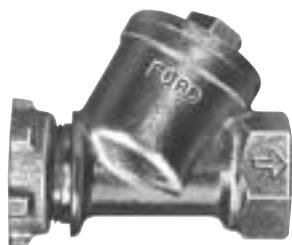
HS88-333

### MALE IRON PIPE THREAD BOTH ENDS

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	INLET SIZE	OUTLET SIZE & TYPE	
HS88-333	3/4"	3/4"	3/4"	1.2

### PACK JOINT FOR COPPER OR PLASTIC TUBING (CTS) BOTH ENDS

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	INLET SIZE	OUTLET SIZE & TYPE	
HS44-333	3/4"	3/4"	3/4"	1.9



HS91-323

### METER YOKE INLET BY FEMALE IRON PIPE

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	METER INLET SIZE	OUTLET SIZE & TYPE	
△ HS91-313	3/4"	5/8"	3/4" FIP	1.3
△ HS91-323	3/4"	5/8"x3/4" & 3/4"	3/4" FIP	1.3
HS91-344	3/4"	1"	1" FIP	-
HS91-444	1"	1"	1" FIP	1.8

## Options Available

**Grip Joint for CTS** can be ordered by adding "-G" to the end of Catalog Number. EXAMPLE: HS44-333-G

△ Indicates **Drain/Test Valve available**. Add "D" to Catalog Number. EXAMPLE: HS91-323D

# Ford Check Valves and Dual Check Valves with Flanged Inlet for 1-1/2" and 2" Meters



## Angle Dual Check Valves (In-Line Accessible)

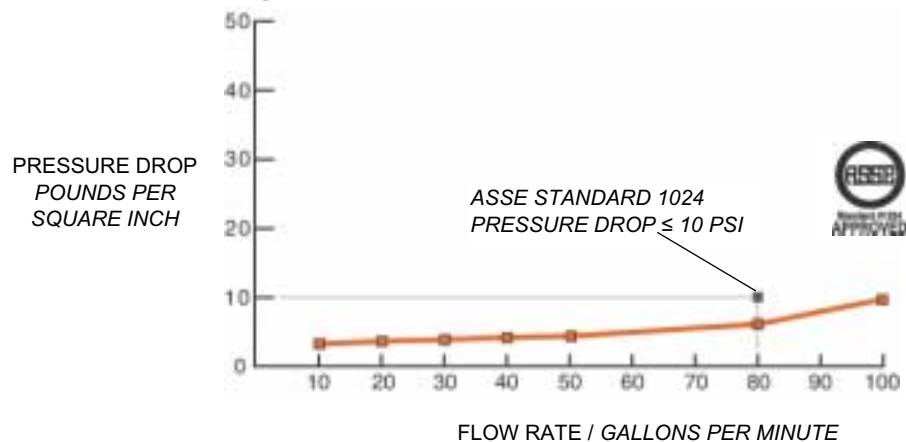
ASSE Approved

### METER FLANGE INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HHFA31-777	2"	1-1/2" and 2"	2"	-

A **three-port bleeder** valve configuration is available for the HHFA31-777 valve (Catalog Number HHFA31-777-3TV). Contact the factory for availability.

## Pressure Drop Test - 2" HHFA Dual Check Valves



## Angle Check Valves (In-Line Accessible)

### METER FLANGE INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE	
HFA31-666	1-1/2"	1-1/2"	1-1/2"	6.5
HFA31-777	2"	1-1/2" and 2"	2"	8.1



## Straight Check Valves (In-Line Accessible)

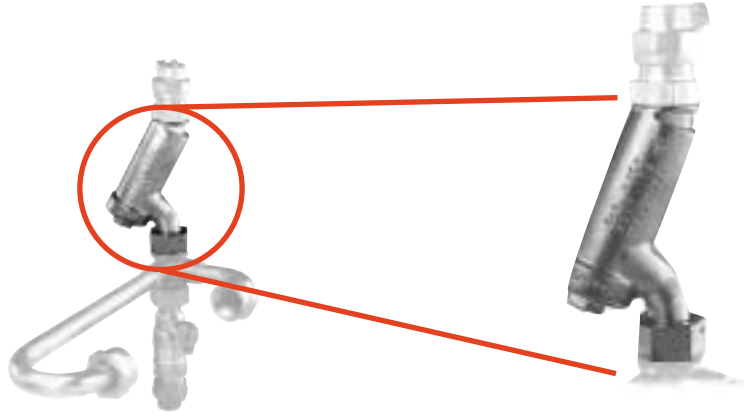
### METER FLANGE INLET BY FEMALE IRON PIPE THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			LENGTH	APPROX. Wt. LBS.
	VALVE SIZE	METER SIZE INLET	OUTLET SIZE		
HFS31-666	1-1/2"	1-1/2"	1-1/2"	5-1/8"	6.9
HFS31-777	2"	1-1/2" and 2"	2"	5-7/8"	9.1

## Options Available

**Meter Support Brackets** to support meter during installation are available on 1-1/2" and 2" flanged valves at additional cost. ADD "-MSB" to the Catalog Number. EXAMPLE: HFA31-666-MSB.

# Check Valves for Kornerhorn Applications



## Straight Cartridge Style Dual Check Valve for Kornerhorn (In-Line Accessible)

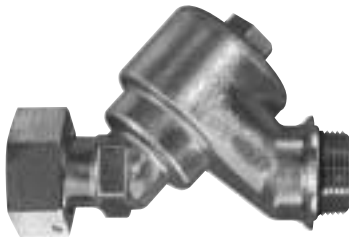
### FEMALE KORNERHORN THREAD SWIVEL NUT INLET BY MALE KORNERHORN THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
*KH-HHCH-1	3/4"	No. 1 Female Kornerhorn	No. 1 Male Kornerhorn	2.0
**KH-HHCH-1-D	3/4"	No. 1 Female Kornerhorn	No. 1 Male Kornerhorn	2.1

NOTE: \* For Pack Joint Assemblies for PET, PEP, PVC and Iron Pipe, refer to Catalog Section B.

\*\* D indicates Test/Drain Valve on top of Access Cap.

## Straight Cascading Dual Check Valve for Kornerhorn (In-Line Accessible)

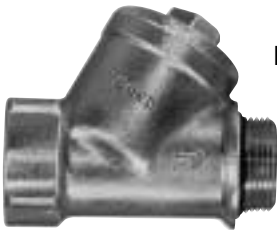


### FEMALE KORNERHORN THREAD SWIVEL NUT INLET BY MALE KORNERHORN THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
*KHHCV-1	3/4"	No. 1 Female Kornerhorn	No. 1 Male Kornerhorn	1.9

NOTE: \*For Pack Joint Assemblies for PET, PEP, PVC and Iron Pipe, refer to Catalog Section B

## Straight Single Check Valve for Kornerhorn (In-Line Accessible)



### FEMALE KORNERHORN THREAD INLET BY MALE KORNERHORN THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. Wt. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
*KHCV-1	3/4"	No. 1 Female Kornerhorn	No. 1 Male Kornerhorn	1.3

NOTE: \*For Pack Joint Assemblies for PET, PEP, PVC and Iron Pipe, refer to Catalog Section B



# Check Valves for Special Applications

## Straight Cartridge Style Dual Check Valve (Not In-Line Accessible)



### METER SWIVEL NUT INLET BY MALE KORNERHORN THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
*HHC30-320	3/4"	5/8"x3/4" and 3/4"	No. 1 Male Kornerhorn	1.6

NOTE: \* For Pack Joint Assemblies for PET, PEP, PVC and iron pipe, refer to Catalog Section B.

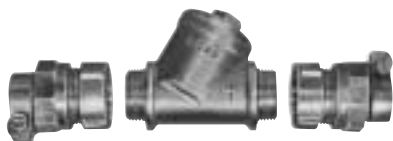


### MALE IRON PIPE THREAD INLET BY MALE KORNERHORN THREAD OUTLET

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
* HHC80-330	3/4"	3/4" Male Iron Pipe	No.1 Male Kornerhorn	—

NOTE: \* For Pack Joint Assemblies for PET, PEP, PVC and iron pipe, refer to Catalog Section B.

## Straight Cut-In Check Valves — Single and Dual Checks (In-Line Accessible)

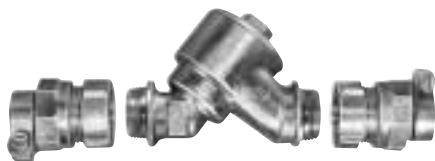


\*HS00-300 Single Check Valve  
Two Removable PJA4-13 Pack Joint  
Assemblies ordered separately

### SINGLE CHECK VALVE FOR REMOVABLE PACK JOINT ASSEMBLIES

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
* HS00-300	3/4"	No. 1 Male Kornerhorn	No. 1 Male Kornerhorn	1.2

NOTE: \* For Pack Joint Assemblies for PET, PEP, PVC and iron pipe, refer to Catalog Section B.



\*HHS00-300 Dual Check Valve  
Two Removable PJA4-13 Pack Joint  
Assemblies ordered separately

### CASCADING DUAL CHECK VALVE FOR REMOVABLE PACK JOINT ASSEMBLIES

CATALOG NUMBER	DESCRIPTION			APPROX. WT. LBS.
	VALVE SIZE	SIZE INLET & TYPE	OUTLET SIZE & TYPE	
* HHS00-300	3/4"	No.1 Male Kornerhorn	No. 1 Male Kornerhorn	1.7

NOTE: \* For Pack Joint Assemblies for PET, PEP, PVC and iron pipe, refer to Catalog Section B.

# Check Valve Repair Kits

## Internal Working Parts and Gaskets

Check valves are mechanical devices subject to fouling, wear and mineral deposits. Inspection and maintenance are critical for continued operation.

CATALOG NUMBER	DESCRIPTION
<b>FOR SINGLE CHECKS</b>	
HRK-3	3/4" and 1" "HA", "HS" and 3/4" Kernerhorn Check Valve Repair Kit
HRK-6	1-1/2" "HS", "HFA" and "HFS" Check Valve Repair Kit
HRK-7	2" "HS", "HFA" and "HFS" Check Valve Repair Kit
<b>FOR DUAL CHECKS</b>	
HHARK-1	5/8" HHA31-313 Dual Check Valve Repair Kit
HHRK-3	3/4" "HHA" and "HHS" Dual Check Valve Repair Kit
HHCRK-3	3/4" "HHCA" and "HHC" Cartridge Style Dual Check Valve Repair Kit
HHCRK-4	1" "HHCA" and "HHC" Cartridge Style Dual Check Valve Repair Kit
HHRK-7	2" "HHFA" Dual Check Valve Repair Kit

Ford Check Valves have the type of valve imprinted on the valve body.  
Example: "HA", "HS", "HFA", "HFS", "HHA", "HHS", "HHC" or "HHCA"

### Dual Cartridge Check Repair Kit

Item	Description	Quantity
1	HHCA Access Cap O-Ring (Angle Style)	1
2	HHC Flat Gasket (Straight Style)	1
3	Check Valve Assembly	2

### Dual Cascading Check Repair Kit

Item	Description	Quantity
1	Access Cap O-Ring	1
2	Check Valve Assembly (4 separate items)	1
3	Rubber Damper	1

# Ford Retrosetters

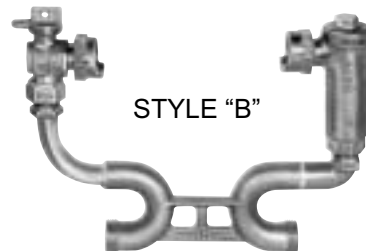
## The Convenient Way to Install Single or Dual Check Valves in Existing Meter Services!

Installing single or dual check valves in existing services can be inconvenient, involving plumbing work and expensive labor. In some situations, installation may be impossible, due to existing meter setting space constraints. Ford **Retrosetters** eliminate most of these problems at a very reasonable cost.

Each style of **Retrosetter** is designed for a specific application and one of them should solve **your** particular check valve installation problem.

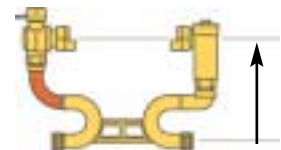
The Ford **Resetter**, available in **Catalog Section "F"**, is available with check valves. The Ford **Resetter** provides another method of installing check valves into existing meter services.

**Style "B" Retrosetter** - Designed for most retrosetting applications, the Style "B" Retrosetter positions the meter directly above the centerline of the service.

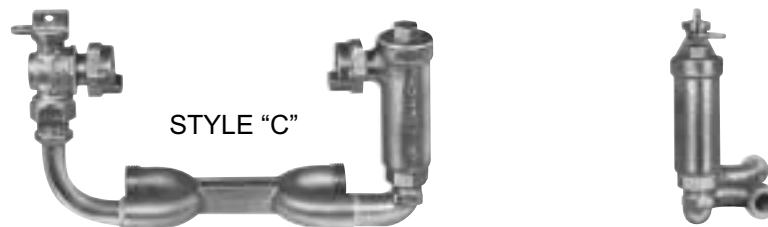


Approximate Height the Meter will be raised for style "B" Retrosetter

OUTLET VALVE TYPE	METER SIZE	METER RAISED THIS AMOUNT
Single & Cascading Style	5/8", 5/8" x 3/4" & 3/4"	6"
Single & Cascading Style	1"	8-3/8"
Cartridge Style	5/8", 5/8" x 3/4" & 3/4"	7-1/4"
Cartridge Style	1"	8-3/8"

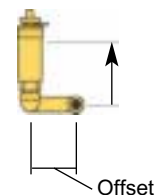


**Style "C" Retrosetter** - The Style "C" Retrosetter is designed for setting where space is very tight or where it is desirable to keep the height of the meter after resetting as shallow as possible. The Style "C" **Retrosetter** offsets the meter from the service line.



Approximate Height the Meter will be raised for style "C" Retrosetter

OUTLET VALVE TYPE	METER SIZE	METER RAISED THIS AMOUNT	OFFSET
Single & Cascading Style	5/8", 5/8" x 3/4" & 3/4"	3-1/2"	2-1/2"
Single & Cascading Style	1"	5"	3-3/8"
Cartridge Style	5/8", 5/8" x 3/4" & 3/4"	4-3/4"	2-1/2"
Cartridge Style	1"	5"	3-3/8"



# Ford Retrosetters

## Quick and Easy Installation

All **Retrosetters** consist of a bottom bar, with inlet and outlet meter threads, which fits exactly into the space occupied by the meter. The meter is re-installed on top of copper arms with an attached swivel meter nut (or an Angle Ball Valve or Angle Key Valve with a meter nut) on the inlet and a single or dual check with a meter nut at the outlet. The entire installation takes only a few minutes to complete.

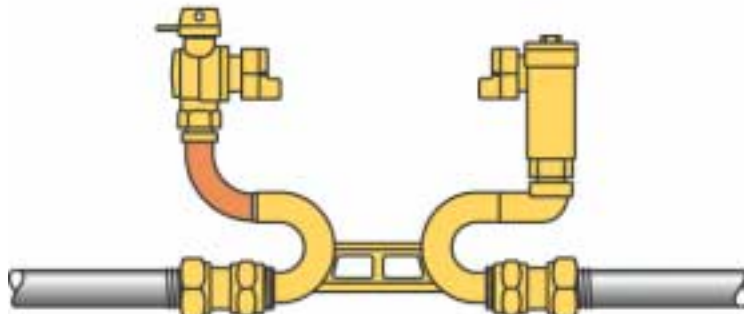
ONE



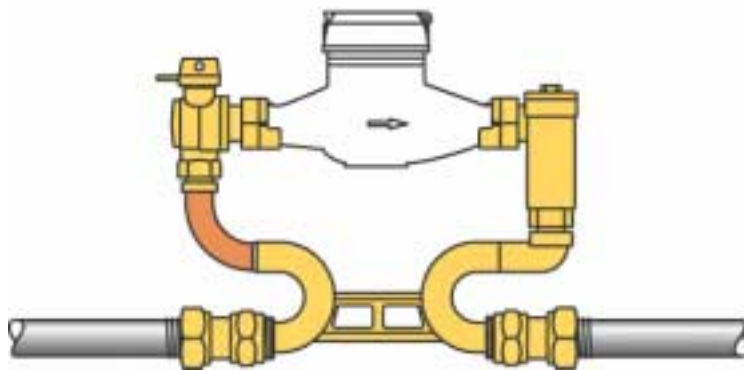
TWO



THREE



FOUR

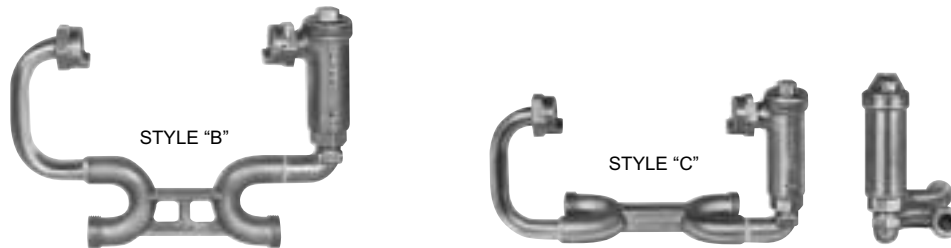


Four rubber meter gaskets are included, one for each swivel nut and two for the bottom bar.

# Ford Retrosetters

Retrosetters have either an inlet key valve, inlet ball valve or no inlet valve. Outlet valve options include single check, dual check or cartridge dual check valve.

## Retrosetter with no inlet valve



### ANGLE SINGLE CHECK VALVE ON OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BH	5/8"	B	3.9
RETRO-1CH	5/8"	C	3.9
RETRO-2BH	5/8"x3/4"	B	4.1
RETRO-2CH	5/8"x3/4"	C	4.1
RETRO-3BH	3/4"	B	-
RETRO-3CH	3/4"	C	-
RETRO-4BH	1"	B	7.1
RETRO-4CH	1"	C	7.1

### ANGLE DUAL CHECK VALVE ON OUTLET

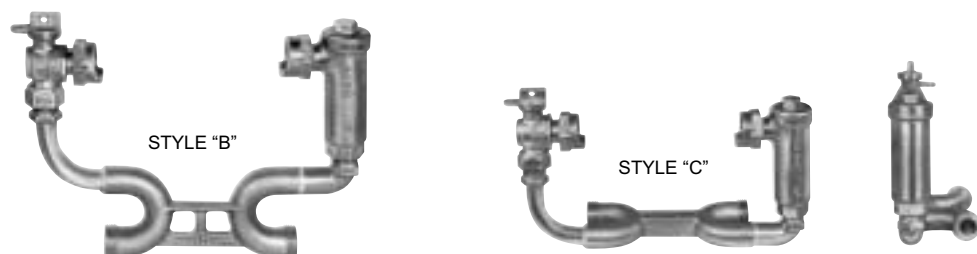
CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BHH	5/8"	B	4.1
RETRO-1CHH	5/8"	C	4.1
RETRO-2BHH	5/8"x3/4"	B	4.4
RETRO-2CHH	5/8"x3/4"	C	4.4
RETRO-3BHH	3/4"	B	-
RETRO-3CHH	3/4"	C	-
RETRO-4B3HH	1"	B	7.3
RETRO-4C3HH	1"	C	7.3

### ANGLE CARTRIDGE DUAL CHECK VALVE ON OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BHC	5/8"	B	4.6
RETRO-1CHC	5/8"	C	4.6
RETRO-2BHC	5/8"x3/4"	B	4.8
RETRO-2CHC	5/8"x3/4"	C	4.8
RETRO-3BHC	3/4"	B	-
RETRO-3CHC	3/4"	C	-
RETRO-4BHC	1"	B	9.8
RETRO-4CHC	1"	C	9.8

# Ford Retrosetters (Continued)

## Retrosetter with Angle Ball Valve on inlet



### ANGLE BALL VALVE ON INLET AND ANGLE SINGLE CHECK VALVE ON OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BVBH	5/8"	B	3.9
RETRO-1CVBH	5/8"	C	3.9
RETRO-2BVBH	5/8"x3/4"	B	4.1
RETRO-2CVBH	5/8"x3/4"	C	4.1
RETRO-3BVBH	3/4"	B	-
RETRO-3CVBH	3/4"	C	-
RETRO-4BVBH	1"	B	7.9
RETRO-4CVBH	1"	C	7.9

### ANGLE BALL VALVE ON INLET AND ANGLE DUAL CHECK VALVE ON OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BVBHH	5/8"	B	5.1
RETRO-1CVBHH	5/8"	C	5.1
RETRO-2BVBHH	5/8"x3/4"	B	5.4
RETRO-2CVBHH	5/8"x3/4"	C	5.4
RETRO-3BVBHH	3/4"	B	-
RETRO-3CVBHH	3/4"	C	-
RETRO-4BVB3HH	1"	B	9.3
RETRO-4CVB3HH	1"	C	9.3

### ANGLE BALL VALVE INLET AND ANGLE CARTRIDGE DUAL CHECK VALVE OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BVBHC	5/8"	B	5.7
RETRO-1CVBHC	5/8"	C	5.7
RETRO-2BVBHC	5/8"x3/4"	B	5.9
RETRO-2CVBHC	5/8"x3/4"	C	5.9
RETRO-3BVBHC	3/4"	B	-
RETRO-3CVBHC	3/4"	C	-
RETRO-4BVBHC	1"	B	11.5
RETRO-4CVBHC	1"	C	11.5



# Ford Retrosetters (Continued)

## Retrosetter with Angle Key Valve on inlet



### ANGLE KEY VALVE ON INLET AND ANGLE SINGLE CHECK VALVE ON OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BVH	5/8"	B	4.7
RETRO-1CVH	5/8"	C	4.7
RETRO-2BVH	5/8"x3/4"	B	5.0
RETRO-2CVH	5/8"x3/4"	C	5.0
RETRO-3BVH	3/4"	B	-
RETRO-3CVH	3/4"	C	-
RETRO-4BVH	1"	B	8.6
RETRO-4CVH	1"	C	8.6

### ANGLE KEY VALVE ON INLET AND ANGLE DUAL CHECK VALVE ON OUTLET

CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BVHH	5/8"	B	5.0
RETRO-1CVHH	5/8"	C	5.0
RETRO-2BVHH	5/8"x3/4"	B	5.3
RETRO-2CVHH	5/8"x3/4"	C	5.3
RETRO-3BVHH	3/4"	B	-
RETRO-3CVHH	3/4"	C	-
RETRO-4BV3HH	1"	B	8.8
RETRO-4CV3HH	1"	C	8.8

### ANGLE KEY VALVE ON INLET AND ANGLE CARTRIDGE DUAL CHECK VALVE ON OUTLET

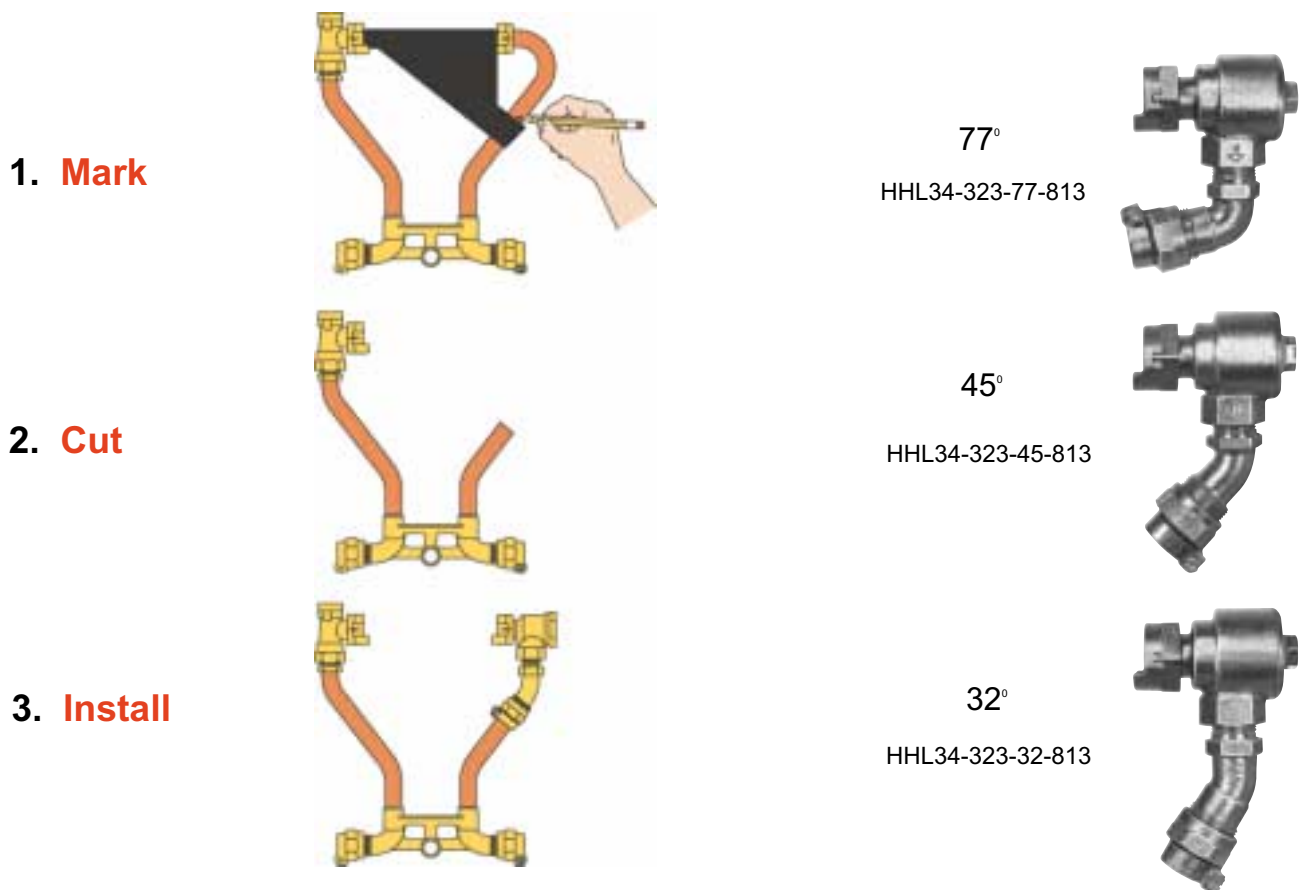
CATALOG NUMBER	METER SIZE	STYLE	APPROX. WT. LBS.
RETRO-1BVHC	5/8"	B	5.5
RETRO-1CVHC	5/8"	C	5.5
RETRO-2BVHC	5/8"x3/4"	B	5.8
RETRO-2CVHC	5/8"x3/4"	C	5.8
RETRO-3BVHC	3/4"	B	-
RETRO-3CVHC	3/4"	C	-
RETRO-4BVHC	1"	B	11.0
RETRO-4CVHC	1"	C	11.0

# Ford Cut-in Check Valve Assemblies

## For Retrofitting into Existing Ford Coppersetters and Resetters

Ford Check Valves can be retrofitted on existing Ford setters without soldering, flaring or threading. By using one of three Pack Joint cut-in ells, practically every size and type of 5/8", 5/8"x3/4", and full 3/4" Ford Coppersetter or Resetter, can be retrofitted with a check valve. The ell and check valve come as an assembled unit, ready to install on the setter.

To simplify installation, template drawings are available upon request to indicate the proper outlet leg cutting location for the check valve installation. The pictures below illustrate the proper cut-in procedure. A cut-in can be accomplished in just a few minutes with simple hand tools.



### Ordering Information for Cut-in Check Valve Assemblies

To insure proper fit, specify the size, style and height of the Ford setter you want to retrofit. For example, the 77 degree ell (**HHL34-323-77-813**) is supplied for all 7" high setters. The 45 degree ell (**HHL34-323-45-813**) fits all 9" high setters except in the 90 series, where it fits all heights. The 32 degree ell (**HHL34-323-32-813**) is for all setters 12" or higher (except 90 series).

#### Note:

**Retrofit Assemblies are available for single check valves and cascading dual check valves only. Cartridge dual checks are not available as a cut-in assembly.**

# Ford Cut-in Check Valve Assemblies

## Cut-In Check Valve Assemblies for Ford Coppersetters and Resetters (With “HA” Style Check Valves)



HL34-323-77-813

CATALOG NUMBER	METER SIZE	SETTER HEIGHT
HL34-313-77-813	5/8"	7"
HL34-313-45-813	5/8"	9" & ALL 90 Series
HL34-313-32-813	5/8"	12" and Higher
HL34-323-77-813	5/8"x3/4"	7"
HL34-323-45-813	5/8"x3/4"	9" & ALL 90 Series
HL34-323-32-813	5/8"x3/4"	12" and Higher
HL34-444-68	1"	90 Series only

## Cut-In Dual Check Valve Assemblies for Ford Coppersetters and Resetters (With “HHA” Style Dual Check Valves)



HHL34-323-32-813

CATALOG NUMBER	METER SIZE	SETTER HEIGHT
HHL34-313-77-813	5/8"	7"
HHL34-313-45-813	5/8"	9" & ALL 90 Series
HHL34-313-32-813	5/8"	12" and Higher
HHL34-323-77-813	5/8"x3/4"	7"
HHL34-323-45-813	5/8"x3/4"	9" & ALL 90 Series
HHL34-323-32-813	5/8"x3/4"	12" and Higher
HHL34-344-68	1"	90 Series only

# Section I

# Ford Check Valves, Retrosetters and Cut-In Check Valves

## Warranty

All merchandise is warranted to be free from defects in material and factory workmanship. We will provide, free of charge, new products in equal quantities for any that prove defective within one year from date of shipment from our factory. Manufacturer shall not be liable for any loss, damage, or injury, direct or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use and user assumes all risk and liability whatever in connection therewith. No claims for labor or consequential damage will be allowed. The foregoing may not be changed except by agreement signed by an officer of the manufacturer.

### **Please Note:**

The Ford Meter Box Company considers the information in this catalog to be correct at the time of publication. Items and option availability, including specifications, are subject to change without notice. Please verify that your product information is current.



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