

GENERAL

The use of corrosion coupons is the most common method of measuring internal corrosion, and is critical to establishing a monitoring baseline.

The ladder strip coupon holder is specifically designed to be used in larger pipelines where corrosion conditions cannot be adequately monitored by a single pair of coupons. Ladder holders typically hold two or three pairs of coupons, to monitor the top, middle and bottom of line locations.

While monitoring the pipeline, the ladder coupon holder may also monitor corrosion rates and forms in an attached trap assembly. By using the ladder coupon holder assembly, it becomes possible to determine the rate and forms of corrosion in a situation where the medium causes non-uniform corrosion in a cross section of pipe. Non-uniform corrosion may be due to velocity or multi-phase effects (where more than one phase flows in a line).

With the use of the Caproco access fitting, retriever and service valve, the ladder strip coupon holder allows for easy, rapid changing of coupons without system shutdown.

APPLICATION

The ladder strip coupon holder attaches to the bottom of the Caproco solid plug assembly. A left-handed thread connection ensures that the holder cannot come loose when the plug is unscrewed from the access fitting. The holder replaces the packing

retaining nut on the solid plug, retaining the packing as well as holding the coupons in the desired monitoring position.

Ladder coupon holders can be accommodated in lines with a minimum nominal diameter of 6" (152mm). Coupon holders 7" - 11" (178-279mm) long hold two pairs of coupons, while holders longer than 11" can accommodate three pairs of coupons. Where a line is less than 6" nominal diameter, the standard strip coupon holder is recommended.

One advantage of the Caproco ladder strip coupon holder design is its one-piece construction. Some designs in the market consist of a body welded to a head, which can be susceptible to operating conditions and may eventually separate.

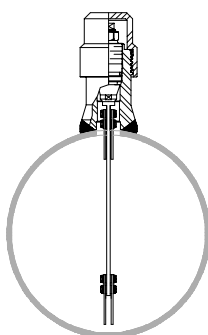
The Caproco ladder strip coupon holder is supplied complete with mounting hardware. Coupon insulation comes pre-installed on the coupons.

SPECIFICATIONS

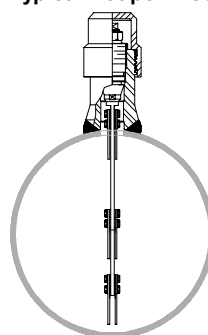
Caproco ladder strip coupon holders are manufactured from 316 stainless steel. All mounting hardware and set screws are made from stainless steel.

Maximum Operating Pressure	3,600 psi (24.8 MPa)
Maximum Operating Temperature	500°F (260°C)

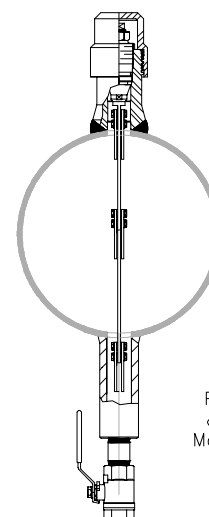
Typical Coupon Positioning



Top & Bottom
Monitoring



3 Phase
Monitoring



Pipeline
& Trap
Monitoring

ORDERING INFORMATION

The following information is necessary to calculate the Ladder Coupon Holder length (L) required:

- A** = Access Fitting Top (cover off) to External Pipe/Vessel Wall
- B** = Pipe or Vessel Wall Thickness
- C** = Actual (not nominal) Pipe ID
- D*** = Distance from External Pipe/Vessel Wall to External Bottom of Trap
- E*** = Trap Bottom Wall Thickness

Coupon Length, if not standard (standard length is 3" / 76.2mm)

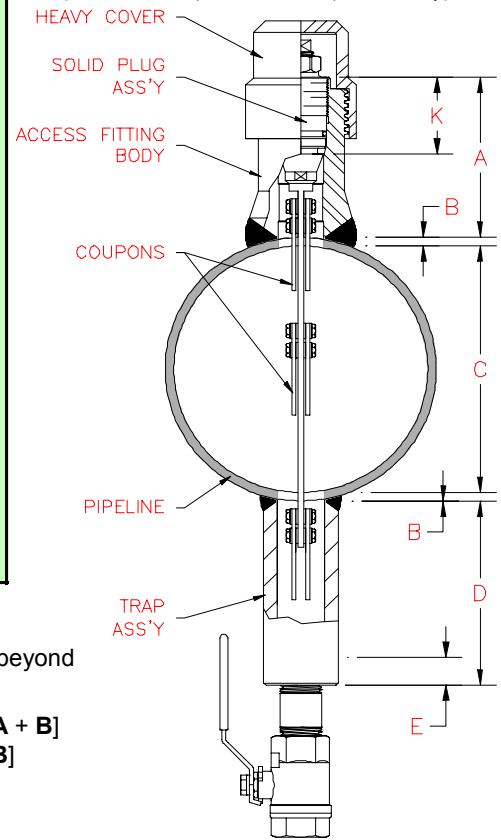
* (Required for installations into Traps only)

Desired Coupon Positions:

- Top of Line, half in Flowing Stream
- Top of Line, all in Flowing Stream
- Centered in Middle of Line
- Extended to 1/4" / 6.4mm above Bottom of Line
- Whole of Coupon in Top of Trap
- Extended to 1/2" / 12.7mm above Bottom of Trap

Note: Standard coupon when fitted, extends 1 3/4" (44.5mm) beyond end of Coupon Holder

LADDER STRIP COUPON HOLDER ASSEMBLY
(To Monitor Pipeline and Trap Assembly)

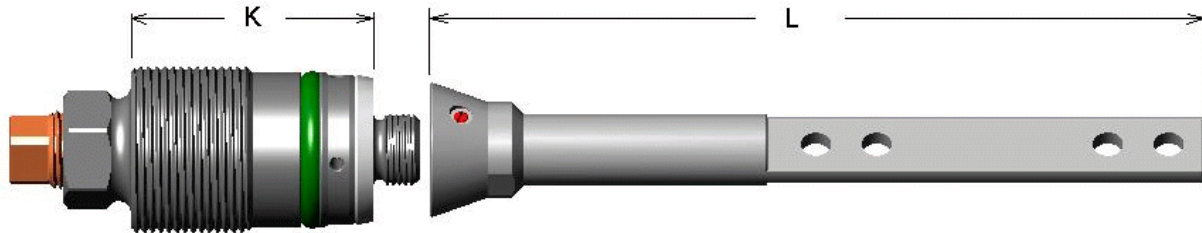


K = Plug dimension from top of external threads to bottom of primary packing = 2 1/2" (63.5 mm)

L = $A + B + C - [F + 1 1/2"]$ (38.1mm)]

Note: For lines larger than 12" (305mm), subtract an additional 1/4" (6.4mm).

Extension of coupon into trap beyond pipe or vessel wall
 $= L + K + 1.75" (44.5mm) - [A + B]$
 $= L + 4.25" (108mm) - [A + B]$



Ladder Strip Coupon Holder Selection Chart

Length Inches	mm	Part Number	Length Inches	mm	Part Number	Length Inches	mm	Part Number	Length Inches	mm	Part Number	Length Inches	mm	Part Number
7	177.8	10270	11	279.4	10286	15	381.0	10302	19	482.6	10318	23	584.2	10334
7 1/4	184.2	10271	11 1/4	285.8	10287	15 1/4	387.4	10303	19 1/4	489.0	10319	23 1/4	590.6	10335
7 1/2	190.5	10272	11 1/2	292.1	10288	15 1/2	393.7	10304	19 1/2	495.3	10320	23 1/2	596.9	10336
7 3/4	196.9	10273	11 3/4	298.5	10289	15 3/4	400.1	10305	19 3/4	501.7	10321	23 3/4	603.3	10337
8	203.2	10274	12	304.8	10290	16	406.4	10306	20	508.0	10322	24	609.6	10338
8 1/4	209.6	10275	12 1/4	311.2	10291	16 1/4	412.8	10307	20 1/4	514.4	10323	24 1/4	616.0	10339
8 1/2	215.9	10276	12 1/2	317.5	10292	16 1/2	419.1	10308	20 1/2	520.7	10324	24 1/2	622.3	10340
8 3/4	222.3	10277	12 3/4	323.9	10293	16 3/4	425.5	10309	20 3/4	527.1	10325	24 3/4	628.7	10341
9	228.6	10278	13	330.2	10294	17	431.8	10310	21	533.4	10326	25	635.0	10342
9 1/4	235.0	10279	13 1/4	336.6	10295	17 1/4	438.2	10311	21 1/4	539.8	10327			
9 1/2	241.3	10280	13 1/2	342.9	10296	17 1/2	444.5	10312	21 1/2	546.1	10328			
9 3/4	247.7	10281	13 3/4	349.3	10297	17 3/4	450.9	10313	21 3/4	552.5	10329			
10	254.0	10282	14	355.6	10298	18	457.2	10314	22	558.8	10330			
10 1/4	260.4	10283	14 1/4	362.0	10299	18 1/4	463.6	10315	22 1/4	565.2	10331			
10 1/2	266.7	10284	14 1/2	368.3	10300	18 1/2	469.9	10316	22 1/2	571.5	10332			
10 3/4	273.1	10285	14 3/4	374.7	10301	18 3/4	476.3	10317	22 3/4	577.9	10333			

Holders of any length or material available upon request
 Spare Parts: Mounting Hardware Set (P/N 10647)

- Two sets supplied for holders up to 11" and 3 sets for 11.25" and longer