HC Series Coupon Holders

for High Pressure (HP™ and MH™) Access Systems

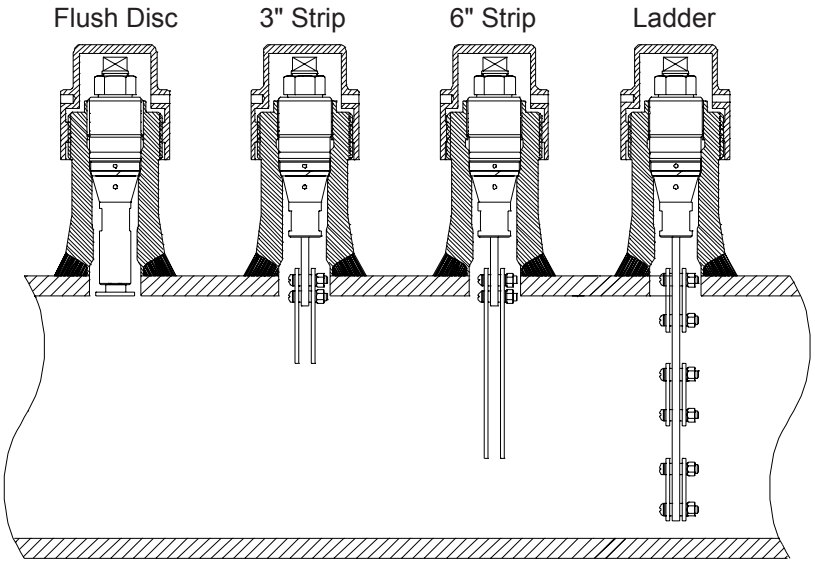

Figure 1. Various coupon holder styles on HP access fittings.

HC Series Coupon Holders are designed to be specifically compatible with either the HP™ or MH™ High Pressure Access Systems. The HP coupon holder can not be used with the MH system and vice versa. The HP coupon holder is attached to the solid plug assembly by means of a left-handed thread connection to ensure that it does not become loose during the retrieval procedure. The MH coupon holder is attached by means of a set screw arrangement and incorporates an orientation keyway feature to automatically align installed strip coupons parallel to the fluid flow.

Coupon holders are manufactured from 316L stainless steel to meet NACE MR-0175 requirements for sour service. Mounting hardware is also manufactured from stainless steel and is supplied with coupon holders. Insulators are fabricated from Nylon and are supplied with the coupons. Coupons are ordered separately. Calculated lengths are rounded down to the nearest 1/8".

Strip Coupon Holders

Strip coupon holders are designed to suspend a pair of 3" or 6" coupons in a vessel or pipe.

Calculating Strip Coupon Holder Length

After selecting the access fitting body style to be used, determine the pipe or pressure vessel size and select the coupon length and line position where the coupon will be located. Coupon holders can be sized to monitor the top, middle, or bottom of the line. Use the following formulas to calculate the required holder length.

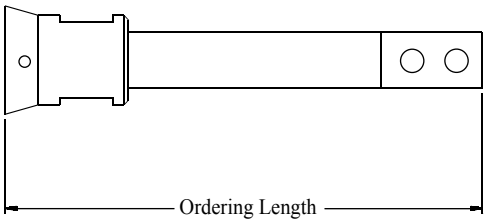

Figure 2. Strip coupon holder

With a **non-flanged** access fitting:
Top-of-the-line Monitoring: **L = (H + PW) - 2.5"**

One half of the coupon extends into the pipe and the process environment. The other half is positioned in the access fitting body cavity and may be used to monitor the formation of gas pockets.

Middle-of-the-line Monitoring: **L = (H + ½OD) - (2.5" + ½CL)**
The coupon is centered so that ½ of the coupon is positioned on either side of the pipe's centerline.

Bottom-of-the-line Monitoring: **L = (H + OD) - (2.75" + PW + CL)**
The coupon is positioned approximately ¼" off the bottom of the line.

With a **flanged** access fitting:
Top-of-the-line Monitoring: **L = (H + FG + MH + PW) - 2.5"**
Middle-of-the-line Monitoring: **L = (H + FG + MH + ½OD) - (2.5" + ½CL)**
Bottom-of-the-line Monitoring: **L = (H + FG + MH + OD) - (2.75" + PW + CL)**

Where:

- L = Coupon holder length
- H = Height of the access fitting body without a thread protector (MH = 5.5"/14 cm, HP = 5.25"/13.3 cm)
- PW = Pipe wall thickness
- OD = Outside diameter of the pipe
- CL = Effective length of the coupon (the portion of the coupon that is actually exposed to the process environment)
  For a 3" coupon, CL = 1.625" (4.13 cm)
  For a 6" coupon, CL = 4.750" (12.07 cm)
- FG = Gap between mating flange faces
- MH = Mating flange height from face to top of pipe

Disc Coupon Holders

Disc coupon holders are used with flush disc type coupons for measurement in either flush or non-intrusive configurations. They are available as fixed length or adjustable assemblies. These coupon holders offer the following advantages over strip coupon holders:

1) They can be mounted flush with the pipe wall so that process effects occurring at the pipe wall are closely simulated.
2) Holders properly sized to the flush position prevent coupon interference with pigging operations.
3) Orientation of coupons to process flow is not required.

Fixed Length Flush Disc Holder

The fixed length flush disc coupon holder may be sized so that the coupon is positioned flush with the pipe wall, or is extended into the line at the top, center, or bottom position.

The customer must specify holder length when ordering. For MH systems, minimum fixed length disc holder length is 2.875 inches (7.3 cm). For HP systems, minimum fixed length disc holder length is 2.5 inches (6.35 cm). Fixed length holders are available in increment lengths of 0.125 inches (3.2 mm).

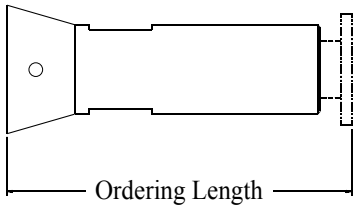

Figure 3. Fixed Length Flush Disc Coupon Holder

Adjustable Length Flush Disc Holder
Disc holder lengths start at 2.75" and are available in 1/8" increments. The holder's adjustable rod allows for a total travel length of 1.5". Example: A 3.25" holder would be adjustable from 3.25 to 4.75 inches.

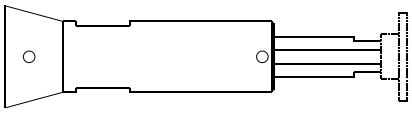

Figure 4. Adjustable Length Flush Disc Coupon Holder

Calculating Disc Coupon Holder Length
Select the access fitting body style and determine the pipe or vessel size and line position where the coupon will be located. Then use the appropriate formula below to calculate the required fixed length disc coupon holder.

With a **non-flanged** access fitting:
Flush Monitoring: **L = (H + PW) - (2.5")**
Middle-of-the-Line Monitoring: **L = (H + ½OD) - (2.375")**
Bottom-of-the-Line Monitoring: **L = (H + OD) - (PW + 2.75")**

With a **flanged** access fitting:
Flush Monitoring: **L = (H + PW + FG + MH) - (2.5")**
Middle-of-the-Line Monitoring: **L = (H + FG + MH + ½OD) - (2.375")**
Bottom-of-the-Line Monitoring: **L = (H + FG + MH + OD) - (PW + 2.75")**

Where:

L	=	Coupon holder length
H	=	Height of the access fitting body without a thread protector (MH = 5.5"/14 cm, HP = 5.25"/13.3 cm)
PW	=	Pipe wall thickness
OD	=	Outside diameter of the pipe
FG	=	Gap between mating flange faces
MH	=	Mating flange height from face to top of pipe

Ladder Strip Coupon Holders

Ladder strip coupon holders are designed to simultaneously monitor corrosion at various levels in a process line. This is a technique employed in large diameter pipelines (8" O.D. and greater) where corrosion may not be uniform across the diameter of the pipe, or in systems where flow is stratified.

The holder body is a single blade containing holes spaced along its length for mounting the coupons. Special strip coupons are used with ladder holders. These coupons have a mounting hole at each end for secure mounting. Coupons are arranged so that three pairs may be mounted on the holder; one pair at the top, one pair at the center, and one pair at the bottom. A minimum holder length of 26 cm (10.25") is required to mount three pairs of coupons. Mounting procedures for ladder strip coupons are the same as for standard 2-hole strip coupons.

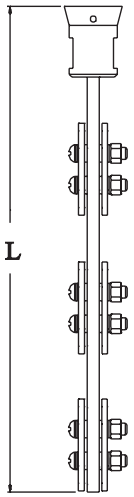

Figure 5. Ladder Strip Coupon Holder

Calculating Ladder Strip Coupon Holder Length

The following formulas are used to calculate the required, overall length of ladder strip coupon holders. These formulas automatically provide for coupon placement.

With a **non-flanged** access fitting:

L = (H + OD) - (PW + 2.75")

With a **flanged** access fitting:

L = (H + FG + MH + OD) - (PW + 2.75")

Where:

L = Coupon holder length
H = Height of the access fitting body without a thread protector
PW = Pipe wall thickness
OD = Outside diameter of the pipe
FG = Gap between mating flange faces
MH = Mating flange height from face to top of pipe

Multiple Disc Coupon Holders

Multiple Disc Coupon Holders are suitable for pipes with O.D. greater than 6.00". Multiple Disc Holders allow coupons to be placed at a specific level in multi-phase or stratified flow. The coupons are insulated from the holder rod by Delrin Shoulder Washers. Delrin Spacers are used to provide insulation between coupons. Materials of construction satisfy the requirements of NACE MR-0175.

Calculating Multiple Disc Coupon Holder Length

With a **non-flanged** access fitting:

L = (H + OD) - (PW + 2.75")

With a **flanged** access fitting:

L = (H + FG + MH + OD) - (PW + 2.75")

Round down to the nearest 1/8"

Where:

L = Coupon holder length
H = Height of the access fitting body without a thread protector (MH = 5.5", HP = 5.25")
PW = Pipe wall thickness
OD = Outside diameter of the pipe
FG = Gap between mating flange faces
MH = Mating flange height from face to top of pipe

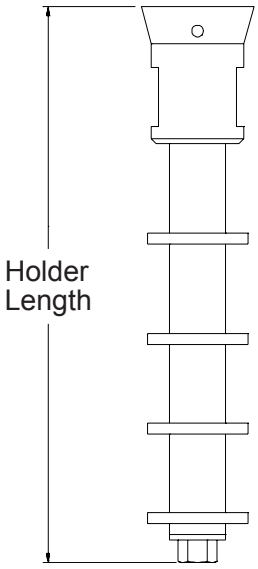

Figure 6. Multiple Disc Coupon Holder

High Pressure Coupon Holder Ordering Information

Model					
HC	High Pressure Coupon Holder				
	Coupon Type				
	1	Strip (HP)			
	2	Strip (MH)			
	3	Flush disc - fixed length (HP)			
	4	Flush disc - adjustable (HP)			
	5	Flush disc - fixed length (MH)			
	6	Flush Disc - adjustable (MH)			
	7	Ladder (HP)			
	8	Ladder (MH)			
	C	Multiple disc (HP)			
	D	Multiple disc (MH)			
		Type			
		1 Welded 2 Non-welded	Coupon holders less than 4" will automatically be non-welded.		
			Alloy		
			XXX	Use Code in Alloy Chart	
				Length (Round calculated length down to the nearest 1/8")	
				XXXX	Length in inches, stated in 2 decimal place format. Length must be greater than 2" and is given in increments of 1/8" (Ex: 3 1/8" = 0312)
HC	**1**	**1**	**158**	**0312**	**Example of Probe Ordering #**

Alloy Chart		
Code	**Description**	**UNS #**
158	316 SS	S31600
A12	C276	N10276

For alloys, sizes, or other special requirements not listed, contact our sales department.

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