

# ESP Cable Protector

## -Control Line Protector

Senoil's ESP cable protectors are used to protect any configuration of ESP cables, control lines, encapsulated bundles, and etc in wellbore. Protectors use channels to prevent control lines or cables when assembly through tubing coupling. during completion service.

### Applications

- Well Completion service
- Artificial Lift
- Intelligent Wells



### Features

- Fit tubing size from 2-3/8" to 5-1/2"
- Fit various coupling specification
- Multi channels can be adopted to protect esp cables and control lines at same time
- Carbon Steel and Stainless Steel can satisfy various wellbore

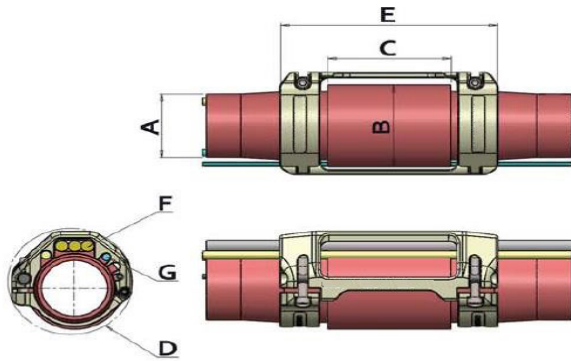
## Main Specification

Protector	Type	Tubing Size	Coupling	Cable	Control line
Casting Stamping	Cross Coupling	2-3/8"	EUE	#1 FLAT	Φ1/4"
		2-7/8"	VAM TOP	#2 FLAT	Φ1/8"
		3-1/2"	NEW VAM	#3 FLAT	Φ3/8"
	Mid Joint	4"	VAGT	#1 Round	11x11mm
	Banded	4-1/2"	FOX	#2 Round	...
		5"	OTIS	#3 Round	
		...	...	...	



## Cross Coupling Protectors --- Casting

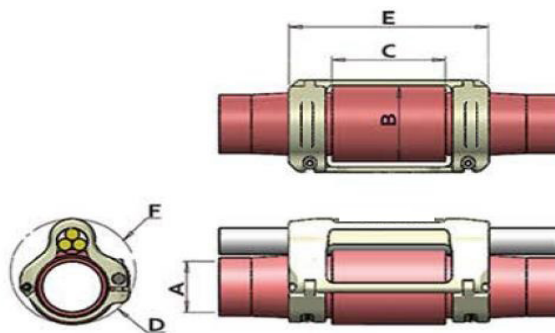
### Flat Channel



A Tubing O.D.      B Coupling O.D.  
 C Coupling Length    D Running O.D.  
 E Protector Length    F Cable Size  
 G Control Line

Tubing	Coupling Specification	Running O.D	Protector Length	Cable Specification	Control Line
2-3/8"	EUE	4.54"-4.61"	8.82"	AWG #1 16X47 AWG #2 15X45 AWG #4 14X40 AWG #5 13X38	1/8" 1/4" 3/8"
2-7/8"		5.03"-5.10"	9.21"		
3-1/2"		5.71"-5.77"	9.69"		
4"		6.21"-6.27"	9.96"		
4-1/2"		6.71"-6.75"	10.20"		

### Round Channel

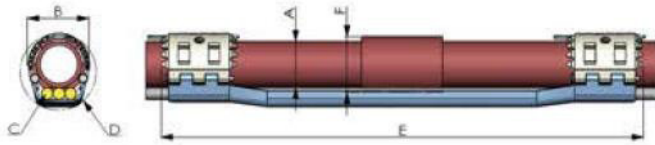


A Tubing O.D.      B Coupling O.D.  
 C Coupling Length    D Running O.D.  
 E Protector Length    F Cable Size  
 G Control Line

Tubing	Coupling Specification	Running O.D	Protector Length	Cable Specification	Control Line
2-3/8"	EUE	5.34"-5.41	8.82"	AWG #1 Φ40 AWG #2 Φ38 AWG #3 Φ36 AWG #4 Φ34	1/8" 1/4" 3/8"
2-7/8"		5.83"-5.90"	9.21"		
3-1/2"		6.51"-6.57"	9.69"		
4"		7.01"-7.07"	9.96"		
4-1/2"		7.31"-7.35"	10.20"		

## Cross Coupling Protectors ---Stamping

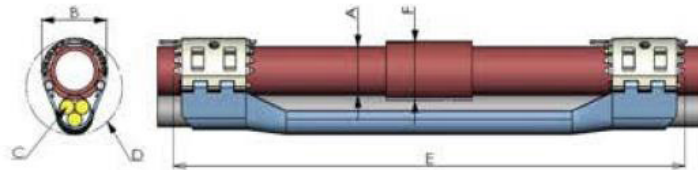
### Flat Channel



**A** Tubing O.D.      **B** Collar O.D.  
**C** Cable Size      **D** Running O.D.  
**E** Protector Length      **F** Coupling O.D.

Tubing	Coupling Specification	Collar O.D.	Running O.D.	Protector Length	Cable Specification
2-3/8"	EUE	3.19"	3.85"-3.96"	25.2"	AWG #1 16X47 AWG #2 15X45 AWG #4 14X40 AWG #5 13X38
2-7/8"		3.7"	4.39"-4.5"		
3-1/2"		4.33"	5.05"-5.16"		
4"		4.8"	5.52"-5.64"		
4-1/2"		5.315"	5.99"-6.11"		

### Round Channel

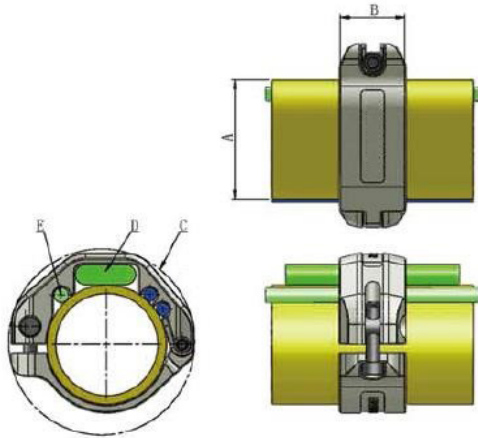


**A** Tubing O.D.      **B** Collar O.D.  
**C** Cable Size      **D** Running O.D.  
**E** Protector Length      **F** Coupling O.D.

Tubing	Coupling Specification	Collar O.D.	Running O.D.	Protector Length	Cable Specification
2-3/8"	EUE	3.19"	4.49"-4.73"	25.2"	AWG #1Φ40 AWG #2Φ38 AWG #3Φ36 AWG #4Φ34
2-7/8"		3.7"	5.05"-5.29"		
3-1/2"		4.33"	5.73"-5.97"		
4"		4.8"	6.23"-6.47"		
4-1/2"		5.315"	6.71"-6.95"		

## Mid Joint Protectors ---Casting

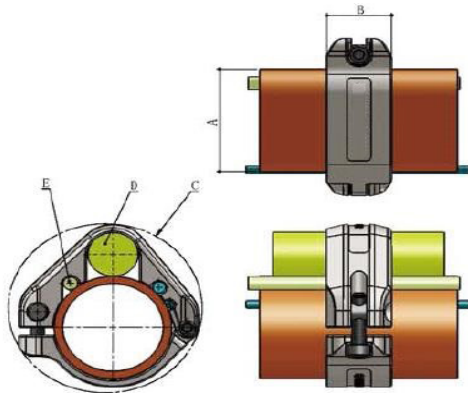
### Flat Channel



- A Tubing O.D.
- B Protector Length
- C Running O.D.
- D Cable Size
- E Control Line

Tubing	Running O.D	Protector Length	Cable Specification	Control Line
2-3/8"	4.3"	1.78"	AWG #1 16X47 AWG #2 15X45 AWG #4 14X40 AWG #5 13X38	1/8" 1/4" 3/8"
2-7/8"	4.79"			
3-1/2"	5.47"			
4"	5.95"			
4-1/2"	6.43"			

### Round Channel

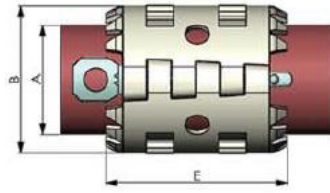
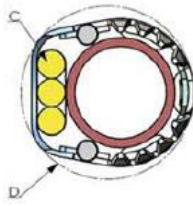


- A Tubing O.D.
- B Protector Length
- C Running O.D.
- D Cable Size
- E Control Line

Tubing	Running O.D	Protector Length	Cable Specification	Control Line
2-3/8"	4.66"	1.78"	AWG #1Φ40 AWG #2Φ38 AWG #3Φ36 AWG #4Φ34	1/8" 1/4" 3/8"
2-7/8"	5.12"			
3-1/2"	5.73"			
4"	6.22"			
4-1/2"	6.69"			

## Mid Joint Protectors ---Stamping

### Flat Channel



**A** Tubing O.D.

**B** Collar O.D.

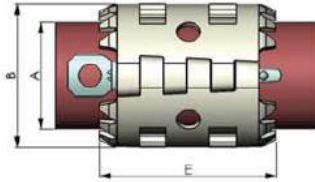
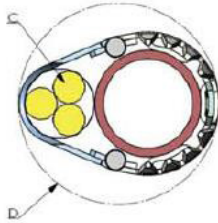
**C** Cable Size

**D** Running O.D.

**E** Protector Length

Tubing	Collar O.D.	Running O.D.	Protector Length	Cable Specification
2-3/8"	3.19"	3.62"-3.73"	3.94"	AWG #1 16X47 AWG #2 15X45 AWG #4 14X40 AWG #5 13X38
2-7/8"	3.70"	4.09"-4.2"		
3-1/2"	4.33"	4.69"-4.8"		
4"	4.8"	5.16"-5.27"		
4-1/2"	5.315"	5.65"-5.76"		

### Round Channel



**A** Tubing O.D.

**B** Collar O.D.

**C** Cable Size

**D** Running O.D.

**E** Protector Length

Tubing	Collar O.D.	Running O.D.	Protector Length	Cable Specification
2-3/8"	3.19"	4.24"-4.48"	3.94"	AWG #1 $\Phi$ 40 AWG #2 $\Phi$ 38 AWG #3 $\Phi$ 36 AWG #4 $\Phi$ 34
2-7/8"	3.70"	4.74"-4.98"		
3-1/2"	4.33"	5.37"-5.61"		
4"	4.8"	5.86"-6.10"		
4-1/2"	5.315"	6.37"-6.61"		