

CS-1-Series Sliding Sleeve

CS-1-series sleeves are used to establish communication between the tubing string and the casing annulus for single- or multiple-tubing string completions.

APPLICATIONS

- Communication between the tubing string and the casing annulus for single- or multiple-tubing string completions
- Equalizing pressure between an isolated formation and the tubing string
- Spot acidizing and fracturing
- Killing a well
- Directing the flow from the casing to the tubing in alternate or selective completions

BENEFITS

- Choice of shift direction
- Choice of nipple profiles
- Material choices to suit most environments

FEATURES

- Includes backup sealing system
- Includes sizable chokes in the tubing to annulus communication ports
- Compact modular design
- Valve components are made of stainless steel or nickel alloys
- Available with Otis®- and Baker®-style landing nipple profiles

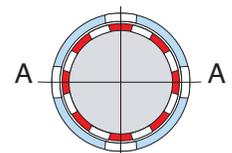
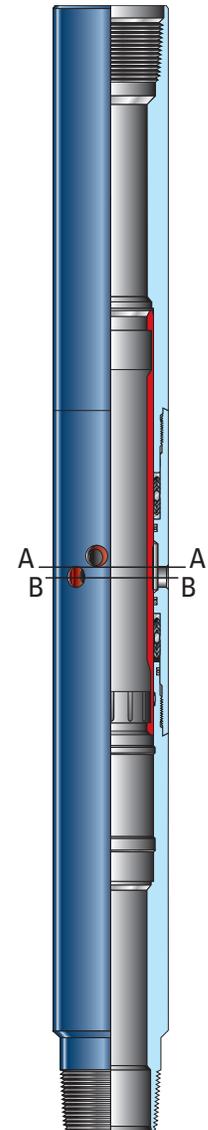
Other applications include equalizing pressure between an isolated formation and the tubing string, spot acidizing and fracturing, killing a well, and directing the flow from the casing to the tubing in alternate or selective completions. As an option, sizeable chokes can be installed on the sliding sleeve to adjust the flow rate through the opening to the tubing annulus.

The sliding sleeve components are manufactured from stainless steel or nickel alloys. These sliding sleeves feature primary and secondary seals to reduce the possibility of total seal failure, and equalizing slots in the inner sleeve permit gradual equalization between the tubing and casing annulus. These sleeves may be ordered with Otis®-style X-type and Baker®-style F- and R-type landing nipple profiles.

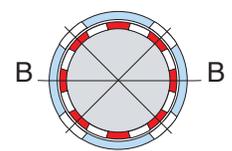
DESCRIPTION AND OPERATION

CS-1-series sliding sleeves can be opened or closed using a shifting tool and standard wireline and coiled tubing methods. The CS-1U sliding sleeve shifts up to open and down to close, and the CS-1D sliding sleeve shifts down to open and up to close. The sliding sleeve is assembled to, and forms part of, the tubing string. For all CS-1-series sliding sleeves with X, D, DB, and DS nipple profiles, separation tools and packoffs are available.

Equalizing pressure between the tubing and casing annulus is normally accomplished by applying pressure or filling the tubing or casing with fluid. The sliding sleeve can also be opened even if facilities for equalizing pressures beforehand are not available. This requires careful monitoring of tubing and annulus pressures while slowly opening the sleeve until equalization.



Section A-A



Section B-B

CS-1-Series Sliding Sleeve

CS-1-Series Sliding Sleeve Specifications

Tubing		Sliding Sleeves [†]						
OD (in. [mm])	Weight (lbm/ft)	Type	Max. OD (in. [mm])	Min. OD (in. [mm])	Flow Area Through Ports (in. ² [cm ²])	Pressure Rating (psi [kPa])		
2.375 [60.3]	4.7	CSX-1D	3.062 [77.8]	2.900 [73.7]	2.90 [18.7]	6,000 [41,369]		
		CSX-1U						
2.875 [73.0]	6.5	CSD-1D	3.702 [94.0]	2.250 [57.2]	4.15 [26.8]	6,000 [41,369]		
		CSDS-1D		4.24 [27.4]		7,720 [53,227]		
		CSX-1D		2.312 [58.7]	4.15 [26.8]	6,000 [41,369]		
		CSX-1D-B6						
		CS-1D		2.320 [58.9]				
		CS-1U		2.335 [59.3]				
		CSD-1U		2.188 [55.6]				
		CSX-1U		3.666 [93.1]			2.312 [58.7]	
3.500 [88.9]	9.3	CSD-1D	4.280 [108.7]	2.750 [69.9]			6.90 [44.5]	6,000 [41,369]
		CSDS-1D-HP	4.500 [114.3]	2.812 [71.4]				
		CSX-1D	4.280 [108.7]	2.750 [69.9]				
		CSX-1D-HP	4.500 [114.3]					
		CS-1U	4.280 [108.7]	2.838 [72.1]				
		CSD-1U		2.750 [69.9]				
		CSX-1U		2.812 [71.4]				
4.500 [114.3]	12.7	CSDB-1D	5.500 [139.7]	3.750 [95.3]	12.08 [77.9]	6,000 [41,369]		
		CSX-1D		3.812 [96.8]				
		CS-1U					5.588 [141.9]	
		CSDB-1U	5.500 [139.7]	3.750 [95.3]				
		CSX-1U		3.812 [96.8]				
				3.687 [93.6]				
5.500 [139.7]	17.0	CSDB-1D	6.250 [158.8]	4.312 [109.5]	15.90 [102.6]			
			6.265 [159.1]	4.437 [112.7]				
		CS-1D-SC	6.200 [157.5]	4.562 [115.9]		17.22 [111.1]	5,000 [34,474]	
7.000 [177.8]	29.0	CSDB-1U	6.560 [166.6]	4.625 [117.5]	15.90 [102.6]	6,000 [41,369]		
		CS-1U	8.265 [209.9]	5.953 [151.2]	28.57 [184.3]			

[†] Other sizes are available on request. Contact your local Schlumberger representative.

www.slb.com/completions