

SPLIT SET® Stabilizers SS-46

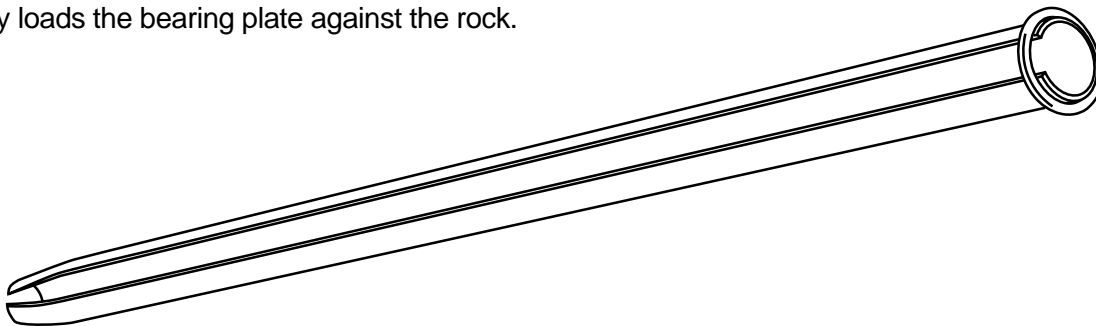
Specifications and performance

The Split Set stabilizer is a slotted steel tube, with one end tapered for easy insertion into a drill hole. The other end has a welded ring flange to hold the bearing plate.

The stabilizer is inserted into a hole slightly smaller in diameter than the tube, using a simple driver tool fitted to the drill. As the tube enters, its diameter is compressed and the slot partially closes. This exerts radial forces along the length of contact with the rock, providing the friction which holds the rock together. The driving force of the drill actively loads the bearing plate against the rock.

International Rollforms' Split Sets feature a patented "Ring Indexing" feature. This allows for determining the length of an installed Split Set.

Tubes and plates are available standard or galvanized, made in accordance with ASTM F 432-95 where applicable. Code stampings on the tube show its size, date and place of manufacture, and heat lot of steel.



Model SS-46 Split Set stabilizers are 1.8 in. (46 mm) in diameter.

SS-46 stabilizers are typically packaged 150 per pallet.

Also see Utility Hangers on page 2.

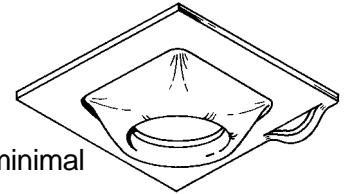
SS-46 tube		Standard		Galvanized			
Length Inches	(mm)	Weight		Comm. No.	Weight		Comm. No.
		Lb.	(kg)		Lb.	(kg)	
36	(914)	5.7	(2.6)	90322470	6.0	(2.7)	90322660
42	(1067)	6.6	(3.0)	90322777	6.9	(3.1)	90322785
48	(1219)	7.6	(3.5)	90322769	7.9	(3.6)	90322751
60	(1524)	9.4	(4.3)	90321811	9.9	(4.5)	90322330
72	(1829)	11.3	(5.1)	90321522	11.8	(5.4)	90322348
78	(1981)	12.2	(5.5)	90322132	12.8	(5.8)	90322678
84	(2134)	13.1	(6.0)	90321530	13.8	(6.3)	90321753
90	(2286)	14.1	(6.4)	90322140	14.8	(6.7)	90322686
96	(2438)	15.0	(6.8)	90321548	15.7	(7.1)	90321761
102	(2591)	15.9	(7.2)	90322157	16.7	(7.6)	90322694
108	(2743)	16.8	(7.6)	90321555	17.7	(8.0)	90321779
114	(2896)	17.8	(8.1)	90322165	18.7	(8.5)	90322702
120	(3048)	18.7	(8.5)	90321563	19.6	(8.9)	90321787
126	(3200)	19.6	(8.9)	90322173	20.6	(9.4)	90322710
132	(3353)	20.6	(9.4)	90322306	21.6	(9.8)	90322355
138	(3505)	21.5	(9.8)	90322181	22.6	(10.3)	90322728
144	(3658)	22.4	(10.2)	90322314	23.5	(10.7)	90322363

SS-46 plate	Standard		Galvanized	
Dimensions Inches (mm)	Weight Lb. (kg)	Comm. No.	Weight Lb. (kg)	Comm. No.
<i>Domed plate</i> 6 x 6 x 0.16 (150 x 150 x 4)	1.7 (0.8)	90324575	1.8 (0.8)	90322389
<i>Domed plate, Australian version</i> 6 x 6 x 0.16 (150 x 150 x 4)	1.7 (0.8)	90322280	1.8 (0.8)	90322371

Domed bearing plate

Split Set domed bearing plates uniquely combine high strength with light weight, and are integral parts of the Split Set system. Plates meet ASTM F-432-95 standards for Grade 3 plates where

applicable, providing a load capacity of 15 tons (13.7 metric tons) with minimal deflection.



Domed bearing plate

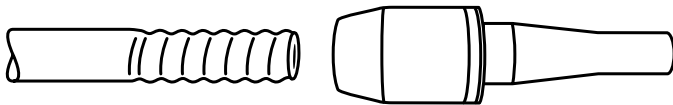
Installing the SS-46 stabilizer

The SS-46 tube has a nominal outside diameter of 1.8 inches (46 mm). The length chosen should be the same as with other types of rock bolts, and installed with the same spacing.

The stabilizer is installed with the same drill used to make the hole. Model SS-46 Split Set stabilizers are commonly installed with jumbos. Almost any mounted percussive or hydraulic drill will have sufficient impact power for installing SS-46 stabilizers.

SS-46 drivers	Thread size		Weight	Comm. No.
	Inches	(mm)	Lb. (kg)	
	1-1/4	(32)	4.4 (2.0)	90322448
	1-1/2	(38)	4.4 (2.0)	90322496
	T-38	(38)	5.0 (2.3)	90322587

Special tools are available on request.



Typical rope-threaded driver

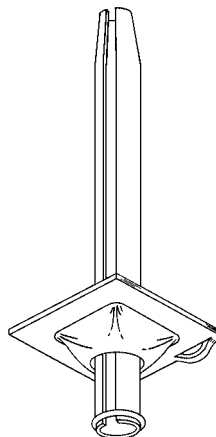
SS-46 driver tools

A simple driver tool adapts the drill for easy stabilizer insertion. One end fits the tube; the other fits the rope-threaded drill steel.

All genuine Split Set driver tools are made of high-strength heat-treated alloy steel, designed for long life, and precision-made for the proper fit.

SS-46 utility hangers

Split Set utility hangers are available in 18 and 24-inch (46 and 61-cm) tube lengths to support light loads such as cables, vent tubing, and pipes.



SS-46 utility hangers				
Length In. (mm)	Weight Lb. (kg)	Comm. No.		
<i>Standard</i>				
18 (457)	3.0 (1.4)	90322561		
24 (610)	3.9 (1.8)	90322579		
<i>Galvanized</i>				
18 (457)	3.1 (1.4)	90322645		
24 (610)	4.1 (1.9)	90322652		

SS-46 installation and pull testing

Bit selection and drilling

To select the correct drill bit diameter for meeting the recommended initial anchorage of 6 to 9 tons, drill several holes with bit diameters ranging from 1-5/8 to 1-3/4 inch (41 to 45 mm). Drill each hole at least 2 inches (5 cm) longer than the bolt length. Number each hole and record the bit size.

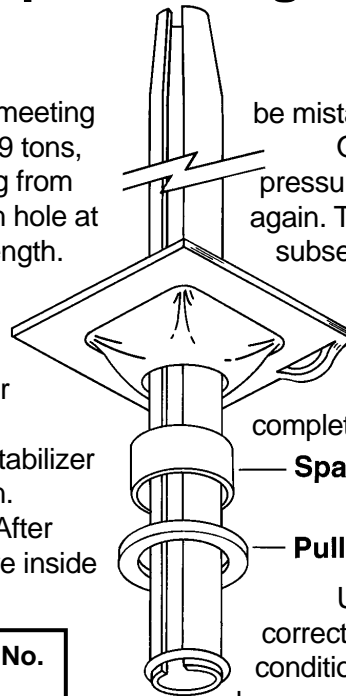
In soft ground, a bit may drill a hole larger than its diameter. In hard abrasive ground, the hole may be the same diameter as the bit.

Drive into each hole an SS-46 Split Set stabilizer fitted with a pull collar and spacer as shown. Record the driving time for each stabilizer. After insertion, observe the amount of slot closure inside each stabilizer.

SS-46 pull collar and spacer set	Weight		Comm. No.
	lb.	(kg)	
	0.5	(0.2)	90321647

To determine anchorage, perform a pull test (page 4). Align the pull tester with the stabilizer, and pressurize it until the stabilizer slips in the hole.

Watch to be sure that it is actually the stabilizer that has slipped. (When building up the pull load on the stabilizer, various adjustments may occur such as realignment of the tester housing, bearing plate settling, or localized rock crushing. These must not



be mistaken for tube slippage.)

Once the bolt has slipped in the hole, pressurize the tester pump until the bolt slips again. The same pull load should cause subsequent slippage.

Interpreting test data

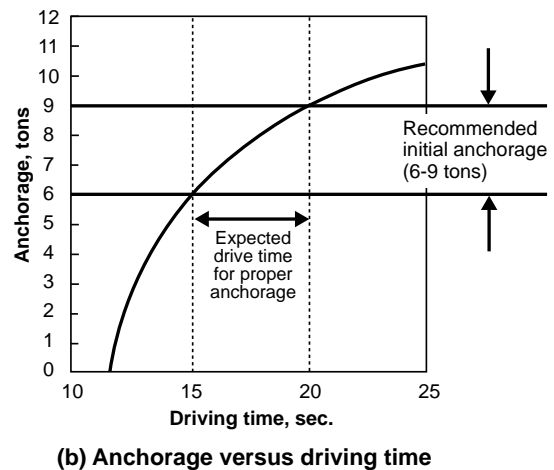
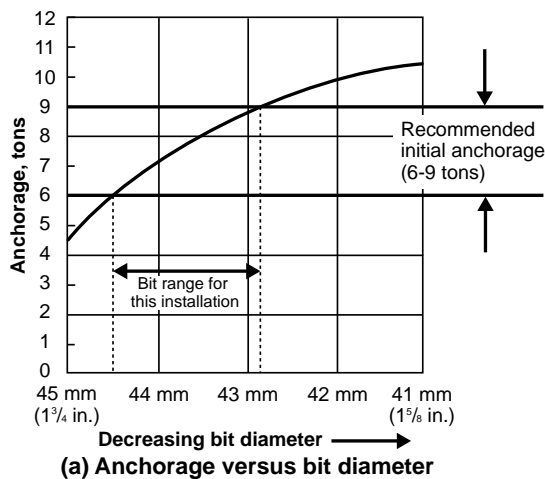
After the above pull tests are completed, draw two graphs:

- (a) Anchorage versus bit diameter.
- (b) Anchorage versus driving time.

Use the first graph to determine the correct bit size for your particular ground condition. As the bit wears, the hole will become smaller and friction will increase until the bit is replaced or the drill can't drive the bolt completely.

Use the second graph to establish correct driving time required for this ground and bolt length. With a given bit, drill, bolt length, rock characteristic and constant pressure, insertion time will be proportional to initial anchorage.

It's important to establish this data for use in later spot checks, to assure that proper installation techniques are still being used.



SS-46 pull tester		
Description	Weight Lb. (kg)	Comm No.
Pull tester assembly	49.0 (22.3)	90321597
Mechanical portion	15.0 (6.8)	90321902
Hydraulic portion	34.0 (15.5)	90321910
<i>Hydraulic parts</i>		
Cylinder	17.5 (8.0)	90321852
Gage	1.3 (0.6)	90321860
Pump	10.5 (4.8)	90321878
Hydraulic hose	4.3 (2.0)	90321886
Gage adapter	0.4 (0.2)	90321894
<i>Mechanical parts</i>		
Claw	3.4 (1.5)	90321605
Housing	6.5 (3.0)	90321613
Bushing	1.3 (0.6)	90321837
Spindle	3.4 (1.5)	90321845
Hex nut	0.4 (0.2)	95084711

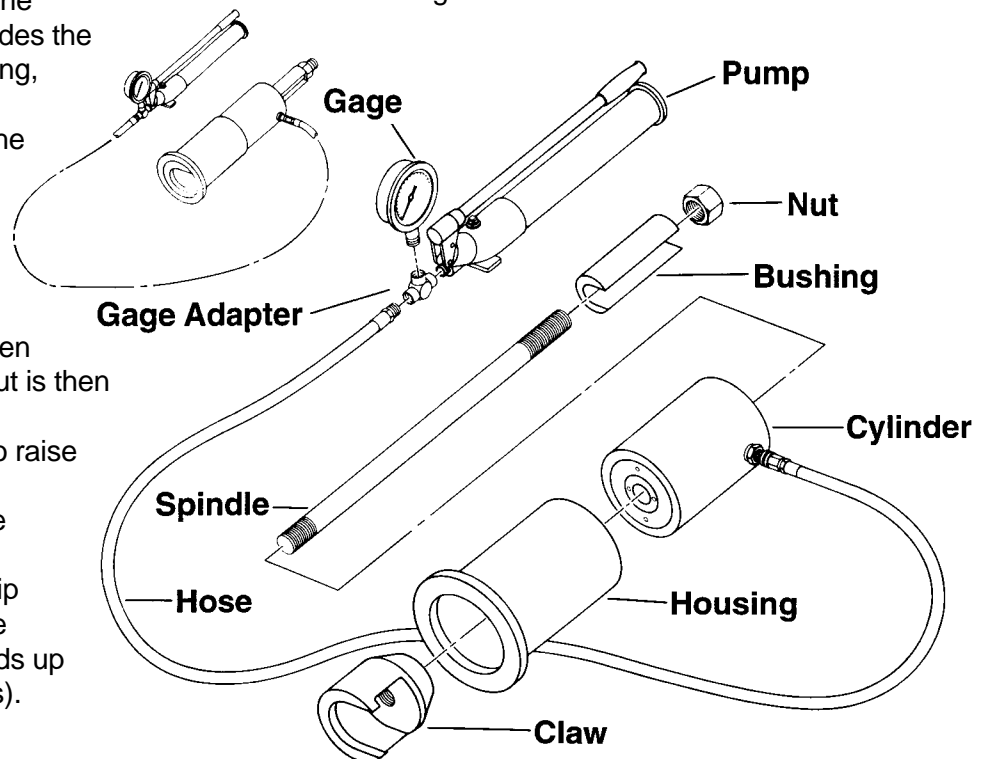
SS-46 pull test equipment

The pull tester consists of two assemblies: the hydraulic portion which includes the cylinder, gage, pump, hose and adapter; and the mechanical portion which includes the claw, housing, U-shaped bushing, spindle and nut.

With the bushing removed, the claw can be slid over the pull collar which has been installed with the stabilizer. When the housing and cylinder are raised, the bushing can be inserted between the nut and the cylinder. The nut is then tightened to take up slack.

The pump is then actuated to raise cylinder pressure, pulling the stabilizer slightly out of the hole through the bearing plate.

Maximum gage reading at slip indicates the holding force. The device can be used for slip loads up to 20 US tons (18.2 metric tons).



Application Engineering Service

The Split Set stabilizer is a unique rock stabilization and support system. It interacts with the rock differently from other rock bolts. For this reason, the Split Set Group offers a free application engineering service to assist you in the selection of the proper Split Set configuration for your needs. We will also assist in determining the best way to use your existing equipment for the job, the best drilling procedure, and appropriate tools and accessories for your equipment and space limitations.

We urge you to take advantage of this service. Our sales representative will be pleased to make the arrangements.

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