

# Shear Relief Valves

DEMCO<sup>®</sup> Style





## DRILLMAX®

**Performance.**

**Reliability.**

**Availability.**

Drillmax is a premier manufacturer of drill pipe float valves, gate valves, and shear relief valves. Since 1996, the company has grown organically, through a commitment to produce quality products and deliver on performance, reliability, and availability to customers in the oil and gas, water well, and air drilling industries.



## Drillmax Demco® Style Shear Relief Valves

Drillmax Demco® Style Shear Relief valves are known for their dependability and effectiveness and are installed on the discharge end of the mud pump. The 2" shear relief valve uses one size diameter pin. Shear setting is selected by inserting this pin in one of four locations indicated by the metal label on the body of the valve.

The 3" shear relief valve uses one of four different sized diameter pins to select the shear setting of the valve.

When pressure exceeds the preset limit of the pin, the pin is "sheared" relieving excess pressure and preventing costly repairs.

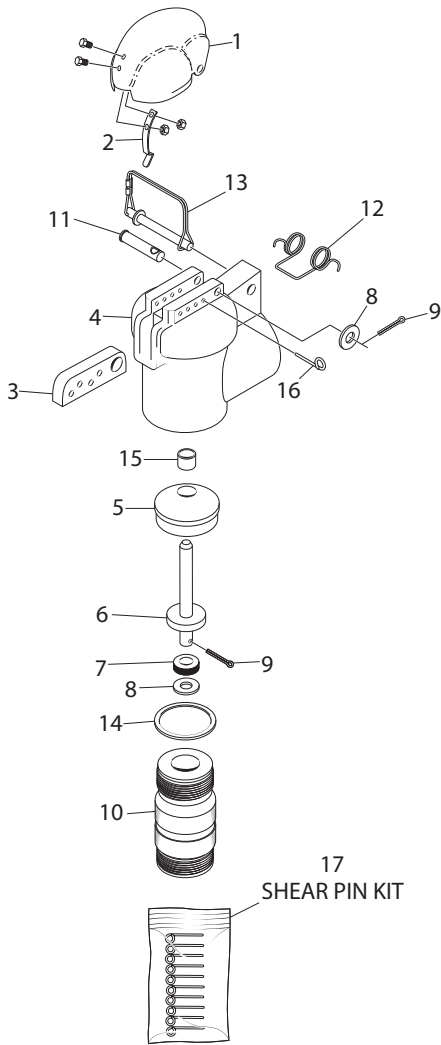
Relief Valve Steel Sub									
Size	PSI	Connection	Brand	Shear Relief Valve*		Minor Repair Kit♦		Major Repair Kit♦	
				Part Number	WT (lbs)	Part Number	WT (lbs)	Part Number	WT (lbs)
2"	1000	Threaded	Drillmax®	2656-10232	20.0	26561MNKIT	1.0	26561MKIT	1.5
	2750	Threaded	Drillmax®	1735-27232		173527MNKIT		173527MKIT	
	5000	Threaded	Drillmax®	1735-50232		17355MNKIT		17355MKIT	
3"	Shear	Threaded	Drillmax®	2404-50232	39.0	24045MNKIT	1.5	24045MKIT	2.5
	5000	1502 Union	Drillmax®	2404-50232-99	92.0	24045MNKIT		24045MKIT	
	7500	Threaded	Drillmax®	3750-75232	39.0	3750MNKIT		3750MKIT	
	7500	1502 Union	Drillmax®	3750-75232-99	92.0	3750MNKIT		3750MKIT	
Relief Valve Stainless Steel Sub									
2"	1000	Threaded	Drillmax®	2656-10233	20.0	26561MNKIT	1.0	26561MKIT	1.5
	2750	Threaded	Drillmax®	1735-27233		173527MNKIT		173527MKIT	
	5000	Threaded	Drillmax®	1735-50233		17355MNKIT		17355MKIT	
3"	5000	Threaded	Drillmax®	2404-50233	39.0	24045MNKIT	2.5	24045MKIT	2.5

\* Includes Shear Pin Kit Ref 17 (see page 4)

♦ Repair Kit details (see page 4)

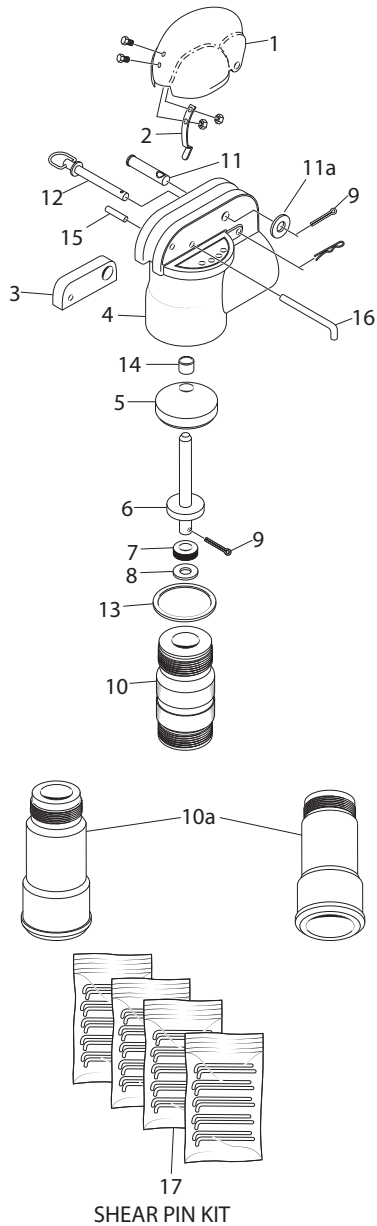
# Drillmax Shear Relief Valves PART NUMBER SPECIFICATIONS

## 2" Drillmax Shear Relief Valve Part Specifications 1000 PSI, 2750 PSI and 5000 PSI



Ref	Description & Material	Part Number		
		1000 PSI	2750 PSI	5000 PSI
1	Cover Tenzaloy™	2368	2368	2368
2	Latch Spring with Screws & Nuts	1720	1720	1720
3	Shear Bar 17-4PH SS	17065	17065	17065
4	Body A216 WCB Carbon Steel	17063-002	17062-002	17062-002
5	Cushion Buna N	2372	2372	2372
6	Stem 17-4PH SS	1927-003	1238-003	2373-003
7	Seal Buna N	2929	1240	1568
8	Washer Steel, plated	5884-0131316	5884-0131316	5884-0131316
9	Cotter Pin	5421-09312	5421-09312	5421-09312
10	Sub AISI 4130 Steel 303 SS	12379-002 12379-003	2930-002 2930-003	2374-002 2374-003
11	Pin, Shear Bar 1018 Steel	5418-37517	5418-37517	5418-37517
12	Cover Spring Spring Steel	2375	2375	2375
13	Pin, Cover 4140 Steel	5418-37537	5418-37537	5418-37537
14	Gasket Copper	2931	2931	2931
15	Bushing Bronze	17027	17027	17027
16	Shear Pin Controlled Steel Wire	17458-6	17459-10	17459-10
17	Shear Pin Kit Controlled Steel Wire	17458	17459	17459

## 3" Drillmax Shear Relief Valve Part Specifications 5000 PSI and 7500 PSI



Ref	Description & Material	Part Number	
		5000 PSI	7500 PSI
1	Cover Tenzaloy™	2937	2937
2	Latch Spring with Screws & Nuts	1720	1720
3	Shear Bar 17-4PH SS (Old part number)	17067 2672	17067 2672
4	Body A216 WCB Carbon Steel	2084T	2084T75
5	Cushion Buna N	2939	2939
6	Stem 17-4PH SS	1622	1623
7	Seal Buna N	1242	1243
8	Washer Steel, plated	5884-0191913	5884-0191913
9	Cotter Pin	5421-09312	5421-09312
10	Sub AISI 4130 Steel - Threaded 303 SS	2953 2950	2951 N/A
10a	Sub AISI 4130 Steel - 1502 Union	2953-SP-99-1502	2951-00-99-1502
11	Pin, Shear Bar 1018 Steel (Old part number)	5418-37527 5418-43735	5418-37527 5418-43735
11a	Washer, Shear Bar Pin Steel, plated	5881-0182214	5881-0182214
12	Pin, Cover 4140 Steel	2093	2093
13	Gasket Copper	2954	2954
14	Bushing Bronze	17028	17028
15	Spring Pin	5448-25025	5448-25025
16	Shear Pin Controlled Steel Wire	*	*
17	Shear Pin Kit Controlled Steel Wire	2955	2955

\* See page 4 Shear Relief Valve Pin and Repair Kits

# Drillmax Shear Relief Valves SHEAR PINS & REPAIR KITS

2" Shear Relief Valve Pins, Pin Kits and Repair Kits				
Ref	Description and Material	Part Number		
		1000 PSI	2750 PSI	5000 PSI
16	<b>Shear Pin (Each) - Controlled Steel Wire</b> - 1 each			
	<b>#6 Olive Colored Pin</b> 1000 PSI Valve - Can set to shear at; 400, 600, 800, 1000 PSI	17458-6	N/A	N/A
	<b>#10 Copper Colored Pin</b> 2750 PSI Valve - Can set to shear at; 1250, 1750, 2250, 2750 PSI 5000 PSI Valve - Can Set to shear at; 2300, 3200, 4100, 5000 PSI	N/A	17459-10	17459-10
17	<b>Shear Pin (Kit) - Controlled Steel Wire</b> - Each kit contains ten pins:			
	<b>#6 Olive Colored Pin</b> 1000 PSI Valve - Can set to shear at; 400, 600, 800, 1000 PSI	17458	N/A	N/A
	<b>#10 Copper Colored Pin</b> 2750 PSI Valve - Can set to shear at; 1250, 1750, 2250, 2750 PSI 5000 PSI Valve - Can Set to shear at; 2300, 3200, 4100, 5000 PSI	N/A	17459	17459
<b>Minor and Major Repair Kits</b>				
	<b>Minor Repair Kit</b> 7 PCS. - 1 ea of the following: Seal, Cushion, Stem, Bronze Bushing, Copper Gasket, Washer, Cotter Pin. Ref 7, 5, 6, 14, 13, 9	26561MNKIT	173527MNKIT	17355MNKIT
	<b>Major Repair Kit</b> 11 PCS. - 3 ea Seals, 3 ea Cushions, 1 ea Stem, 1 ea Bronze Bushing, 1 ea Copper Gasket, 1 ea Washer, 1 ea Cotter Pin. Ref 7, 5, 6, 14, 13, 9	26561MKIT	173527MKIT	17355MKIT



3" Shear Relief Valve Pins, Pin Kits and Repair Kits			
Ref	Description and Material	Part Number	
		5000 PSI	7500 PSI
16	<b>Shear Pin (Each) - Controlled Steel Wire</b> - #30, 1 Ea. Black #40, 1 Ea. Yellow #50, 1 Ea. Silver #55, 1 Ea. Olive #60, 1 Ea. Copper #60-1018, 1 Ea. Blue	2955-30 (2800 PSI)	2955-30 (4000 PSI)
		2955-40 (3200 PSI)	2955-40 (5500 PSI)
		2955-50 (4100 PSI)	2955-50 (6500 PSI)
		2955-55 (4500 PSI)	n/a
		2955-60 (5000 PSI)	2955-60 (7500 PSI)
		2955-60-1018 (5500 PSI)	n/a
17	<b>Shear Pin (Kit) - Controlled Steel Wire</b> - Each kit contains ten pins of the following: #30 Black #40 Yellow #50 Silver #60 Copper	2955	2955
		(2800 PSI)	(4000 PSI)
		(3200 PSI)	(5500 PSI)
		(4100 PSI)	(6500 PSI)
		(5000 PSI)	(7500 PSI)
<b>Minor and Major Repair Kits</b>			
	<b>Minor Repair Kit</b> 7 PCS. - 1 ea of the following: Seal, Cushion, Stem, Bronze Bushing, Copper Gasket, Washer, Cotter Pin. Ref 7, 5, 6, 14, 13, 9	24045MNKIT	3750MNKIT
	<b>Major Repair Kit</b> 11 PCS. - 3 ea Seals, 3 ea Cushions, 1 ea Stem, 1 ea Bronze Bushing, 1 ea Copper Gasket, 1 ea Washer, 1 ea Cotter Pin. Ref 7, 5, 6, 14, 13, 9	24045MKIT	3750MKIT

(Ref 17)  
3" Shear Pin Kit ten each of  
#30, #40, #50 & #60 pins



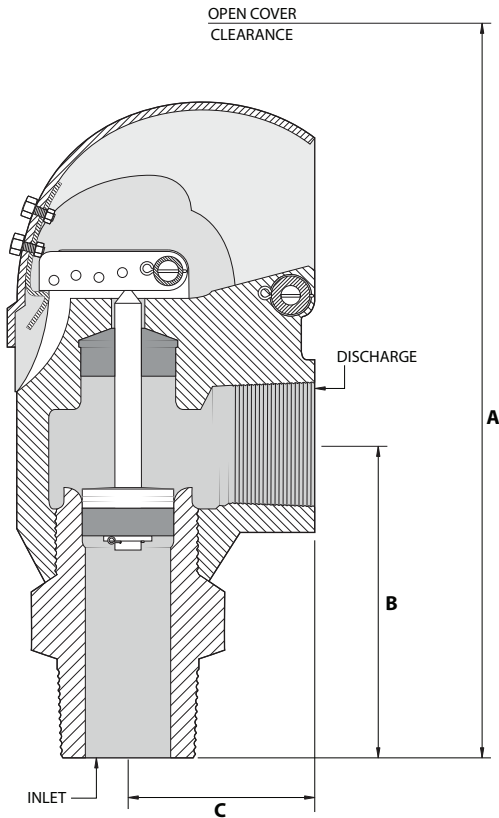
Minor Repair Kit



Major Repair Kit

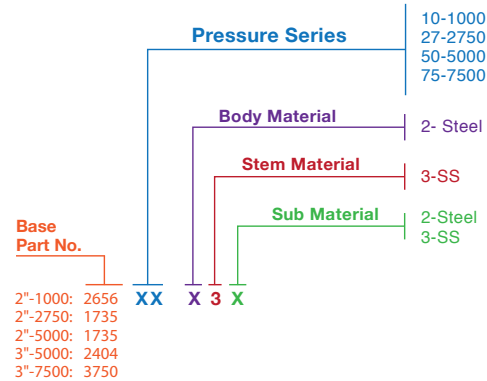


# Drillmax Shear Relief Valves TECHNICAL SPECIFICATIONS



Dimension Connection Weight	Size - Pressure (PSI)		
	2"-1000	3"-5000	3"-5000
	2"-2750	3"-7500	3"-7500
	2"-5000		
A	11"	15 <sup>3</sup> / <sub>8</sub> "	20 <sup>3</sup> / <sub>4</sub> "
B	4 <sup>3</sup> / <sub>4</sub> "	6 <sup>7</sup> / <sub>8</sub> "	11 <sup>7</sup> / <sub>8</sub> "
C	3 <sup>3</sup> / <sub>8</sub> "	4 <sup>5</sup> / <sub>8</sub> "	14 <sup>3</sup> / <sub>8</sub> "
Thread/Union	2" API LP	3" API LP	3" 1502
Shipping Weight	20 lbs.	40 lbs.	92 lbs.

## Assembly Part Number



## Valve Pressure Settings

Valve Size and Pressure	Shear Pin Number & Color	Settings (PSI) (Use One Shear Pin Only)
2" - 1000	#6 - Olive	400, 600, 800, 1000
2" - 2750	#10 - Copper	1250, 1750, 2250, 2750
2" - 5000	#10 - Copper	2300, 3200, 4100, 5000
3" - 5000	#30 - Black	2800
	#40 - Yellow	3200
	#50 - Silver	4100
	#55 - Olive	4500
	#60 - Copper	5000
	#60-1018 - Blue	5500
3" - 7500	#30 - Black	4000
	#40 - Yellow	5500
	#50 - Silver	6500
	#55 - Olive	7000
	#60 - Copper	7500

Shear Pin Number	Pin Diameter (IN) +/- 0.002
#6	.113
#10	.148
#30	.190
#40	.225
#50	.243
#55	.250
#60	.262

The  $C_v$  values below can be used in the formulas:

$$Q = C_v \sqrt{\frac{\Delta P (8.34)}{D}} \quad \Delta P = \left(\frac{Q}{C_v}\right)^2 \times \frac{D}{8.34}$$

Q = Gallons per minute of flow through the valve  
 $\Delta P$  = Pounds per square inch pressure drop across the valve  
 D = Density of fluid in pounds per gallon

Valve Size	$C_v$
2" - 1000	92
2" - 2750	52
2" - 5000	23
3" - 5000	56

