

High Mast Fatigue

Current as of March 18, 2008

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Sample:

24-3-12-TX-VG-A

Geometry:

Results:

Length: 174 1/4

All lengths measured in inches

Test 1

Sr	12
Smean	16
Cycles	4,034,441
Location:	Runout

Test 2

Sr	18
Smean	
Cycles	68,923
Location:	Runout

Inside Diameter	
Flats	Corners
1	
2	
3	
Average	23.346 23.5755

Base Plate		
Weld		
Thickness	Wall	Baseplate
2.979	27/32	17/32
2.969	25/32	15/32
2.973	7/8	1/2
2.974	0.833	0.500

Loads: (average modulus for A and B)

Modulus 136.810 in³ P_{max} 34.165 kip
 P_{min} 15.53 kip

S_{max} 22 ksi
 S_{min} 10 ksi

Collar		
Weld		
Height	Wall	Collar
12 3/8	1 2/16	5/16
12 5/16	1	13/32
	1 1/32	6/16
12.344	1.052	0.365

Sample:

24-3-12-TX-VG-B

Geometry:

Results:

Length: 174

All lengths measured in inches

Test 1

Sr	12
Smean	16
Cycles	4,034,441
Location:	Baseplate Weld

Test 2

Sr	18
Smean	
Cycles	68,923
Location:	Runout

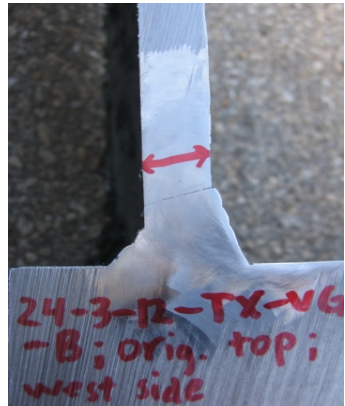
Inside Diameter	
Flats	Corners
1	
2	
3	
Average	23.385 23.718

Base Plate		
Weld		
Thickness	Wall	Baseplate
2.978	31/32	11/32
2.968	1	15/32
3.003	15/16	5/16
2.983	0.969	0.375

Loads: (average modulus for A and B)

Modulus	136.810 in ³	P _{max}	34.165 kip
S _{max}	22 ksi	P _{min}	15.53 kip
S _{min}	10 ksi		

Collar		
Weld		
Height	Wall	Collar
12 1/4	15/16	7/16
12 1/2	15/16	15/32
	7/8	8/16
12.375	0.917	0.458



Sample:

24-3-12-TXS-VG-A

Geometry:

Results:

Length: 174 1/8

All lengths measured in inches

Test 1

Sr	18
S _{mean}	22
Cycles	540,520
Location:	Baseplate Weld

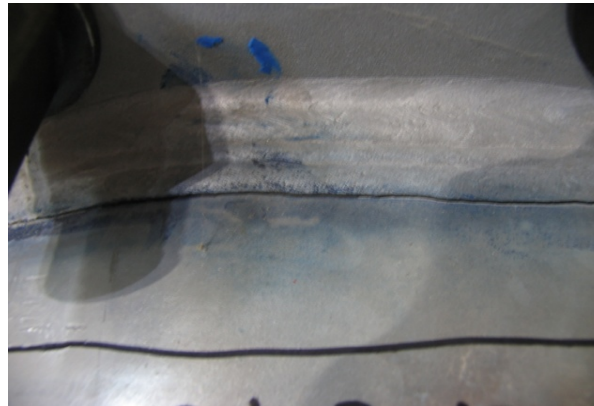
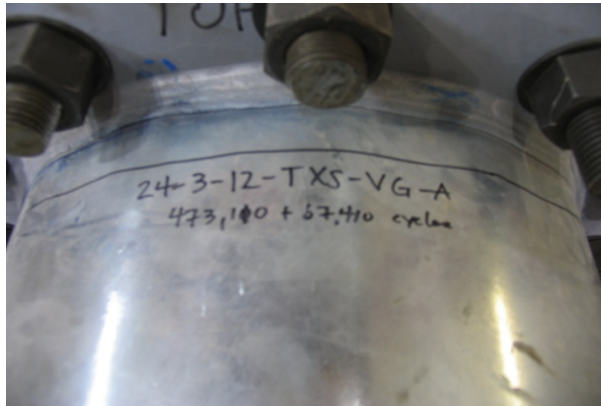
Inside Diameter	
Flats	Corners
1	
2	
3	
Average	23.250 23.467

Base Plate		
Weld		
Thickness	Wall	Baseplate
3.009	1 1/8	9/16
3.005	1 1/8	9/16
3.004	1 3/32	19/32
3.006	1.115	0.573

Loads: (average modulus for A and B)

Modulus	134.410 in ³	P _{max}	47.259 kip
		P _{min}	19.818 kip
S _{max}	31 ksi		
S _{min}	13 ksi		

Collar		
Weld		
Height	Wall	Collar
12 1/2	1	6/16
12 3/8	1	3/8
	31/32	6/16
12.438	0.990	0.365



Sample:

24-3-12-TXS-VG-B

Geometry:

Results:

Length: 174 3/16

All lengths measured in inches

Test 1

Sr	18
S _{mean}	22
Cycles	910,296
Location:	Weld Toe

Inside Diameter	
Flats	Corners
1	
2	
3	
Average	23.250

Base Plate		
Weld		
Thickness	Wall	Baseplate
3.012	1 1/16	1/2
3.010	1 3/32	9/16
3.016	1 1/16	11/16
3.013	1.073	0.583

Loads: (average modulus for A and B)

Modulus	134.410 in ³	P _{max}	47.259 kip
		P _{min}	19.818 kip
S _{max}	31 ksi		
S _{min}	13 ksi		

Collar		
Weld		
Height	Wall	Collar
12 1/8	12/16	7/16
12 1/2	29/32	13/32
	15/16	7/16
12.313	0.865	0.417

