



WORK INSTRUCTIONS FOR SEAL RING ENDURANCE TEST RIG

Doc No	QA/WI/18
Rev No	1
Date	27/10/2012

Purpose:- To Provide operating procedure for Seal Endurance test Rig

Scope:- Procedure to run Test Rig

1. For Leakage Test And Endurance test Of Duo Cone Seal

Instruments/ Guages:-

Responsibility:- QA In Charge

Cross Reference:- Product Data Sheet / Customer Procedure

Method:-

1 Check the machine electrical & hydraulic controls.

2 Check oil level.

3 Get the duo cone seal and check the Outer Diameter Of the Seal.

4 Fix the appropriate housing for seal on spindle.

5 Identify Face Load on face load testing machine.

6 Load the seals with toric ring Assembled condition in both the halves of housing

7 Apply load calculated as per above(5)

8 Identify the RPM From Test Plan.

9 Set The RPM from zero to desired no's

10 Start oil pump

11 Set The Cycle for 100 Hr. record the timer

Prepared By
QA Incharge

Approved By
QA Head

Remark



DUO CONE SEAL TEST PLAN

2013

Customer Name:

Part No:

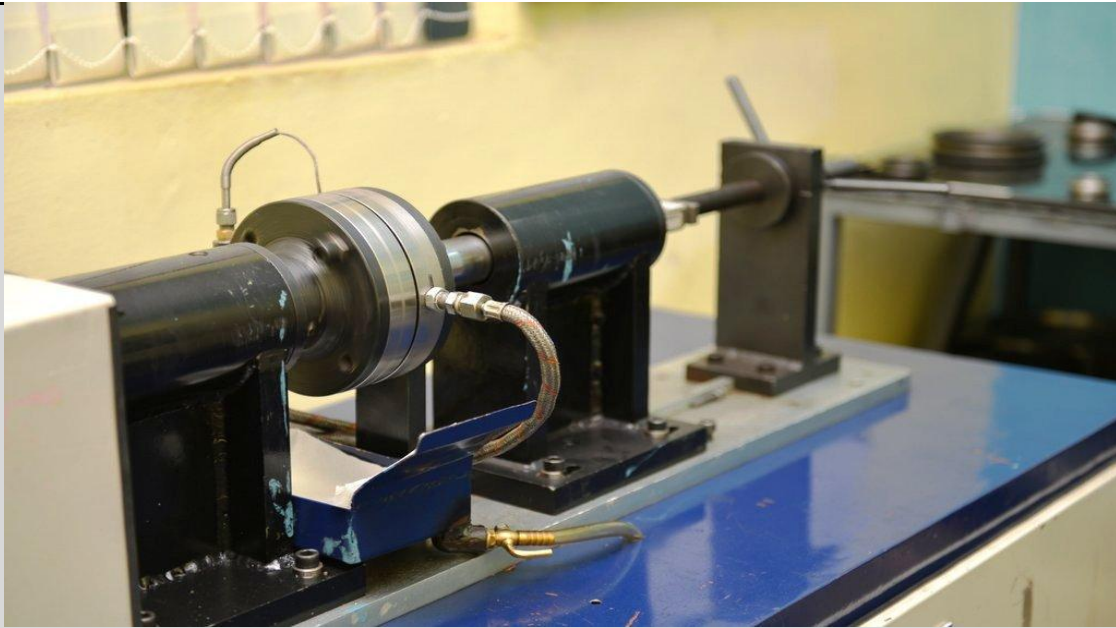
Sr.	TEST	Cycle	Test Indicators			
			Leakage	Contact Width	Elastometer Hardness	Dirt Entry in Oil
	Description	Test Cycle in Hrs				
1	Oil Leakage Test	100 HRS	✓			
2	Seal Contact Test	100 HRS	✓	✓		
3	High Temp Test	100 HRS	✓	✓	✓	
4	Face Load Test	100 HRS	✓	✓	✓	
5	Mud Test	1000 HRS	✓	✓	✓	✓
6	Dust Test	1000 HRS	✓	✓	✓	✓

Prepared by:

MGB

Approved By:

JTK



Oil Leakage Test Details

SCOPE

This Test is to Check The Oil Leakage From The Seal

TEST CONDITION

The Seal is to be tested under Following Conditions

- | | |
|-----------------------------------|------------------|
| 1)Rotational Speed Of the Seal:- | 2 m/s |
| 2)Axial Load on The Seal:- | 2kg/cm2 |
| 3)Temperature Of the Inside Oil:- | Room Temperature |
| 4)Environmental Condition:- | Normal |

PROCEDURE

As per QA/WI/18

Test is Carried Out For 100hrs

Samples Are being Checked At the End Of The test

RESULT

If Leakage is not Observed During testing 100hrs, Seal is accepted

If Leakage is Observed During testing 100hrs Seal will Completely Fail

Prepared by:	MGB	Approved By:	JTK
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Seal Contact Test Details

SCOPE

This Test is to Check The Oil Leakage & wear of the seal at higher Speed

TEST CONDITION

The Seal is to be tested under Following Conditions

- | | |
|-----------------------------------|------------------|
| 1)Rotational Speed Of the Seal:- | 3 m/s |
| 2)Axial Load on The Seal:- | 2kg/cm2 |
| 3)Temperature Of the Inside Oil:- | Room Temperature |
| 4)Environmental Condition:- | Normal |

PROCEDURE

As per QA/WI/18

Test is Carried Out For 100hrs

Samples Are being Checked At the End Of The test

RESULT

If Leakage is not Observed During testing 100hrs, Seal is accepted

If Leakage is Observed During testing 100hrs Seal will Completely Fail

Sealing Area Of the Seal Should ot be Wear Out.

Prepared by:	MGB	Approved By:	JTK
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High Temperature Test Details

SCOPE

The test is to Determine The Effectiveness Of the Duo Cone Seal to with Stand Under High temperature Condition

TEST CONDITION

The Seal is to be tested under Following Conditions

- | | |
|-----------------------------------|---------|
| 1)Rotational Speed Of the Seal:- | 2 m/s |
| 2)Axial Load on The Seal:- | 2kg/cm2 |
| 3)Temperature Of the Inside Oil:- | 70° |
| 4)Environmental Condition:- | Normal |

PROCEDURE

As per QA/WI/18

Test is Carried Out For 100hrs

Samples Are being Checked At the End Of The test

RESULT

If Leakage is not Observed During testing 100hrs, Seal is accepted

If Leakage is Observed During testing 100hrs Seal will Completely Fail

Sealing Area Of the Seal Should not be Wear Out.

Elastomer (O-ring) Hardness Should not Be Decreased

Prepared by:	MGB	Approved By:	JTK
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High Temperature Test Details

SCOPE

The test is to Determine The Effectiveness Of the Duo Cone Seal to with Stand under High Load Condition

TEST CONDITION

The Seal is to be tested under Following Conditions

- | | |
|-----------------------------------|---------------------|
| 1)Rotational Speed Of the Seal:- | 2 m/s |
| 2)Axial Load on The Seal:- | 4kg/cm ² |
| 3)Temperature Of the Inside Oil:- | Room Temperature |
| 4)Environmental Condition:- | Normal |

PROCEDURE

As per QA/WI/18

Test is Carried Out For 100hrs

Samples Are being Checked At the End Of The test

RESULT

If Leakage is not Observed During testing 100hrs, Seal is accepted

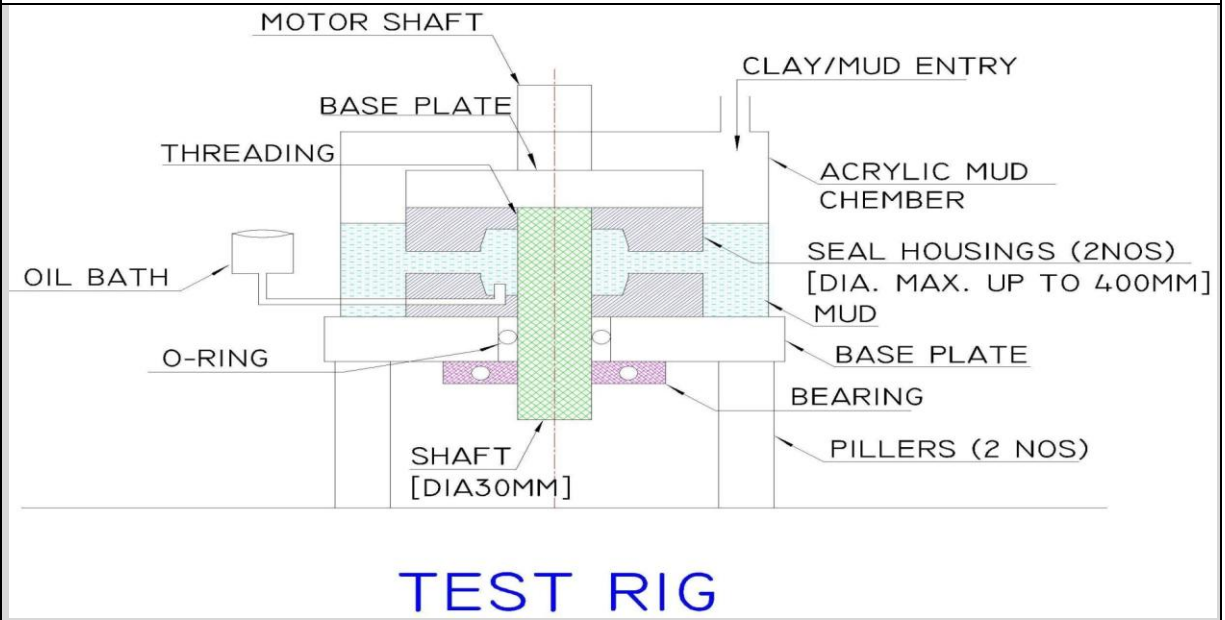
If Leakage is Observed During testing 100hrs Seal will Completely Fail

Sealing Area Of the Seal Should not be Wear Out.

Elastomer (O-ring) Hardness Should not Be Decreased

Prepared by: MGB

Approved By: JTK



Mud test Details

SCOPE

The test is to Determine The Effectiveness Of the Duo Cone Seal to with Stand Contamination Intrusion Under Aggressive Environmental Conditions

TEST CONDITION

The Seal is to be tested under Following Conditions

- | | |
|-----------------------------------|------------------|
| 1)Rotational Speed Of the Seal:- | 300 Rpm |
| 2)Axial Load on The Seal:- | 2kg/cm2 |
| 3)Temperature Of the Inside Oil:- | Room Temperature |
| 4)Environmental Condition:- | Mud Slurry tank |

Mud Slurry tank Containing A Mixture of the Following

- 1) 25 % Water
- 2) 65% Course Soil (43%Clay+15%Slit+7% Sand)+ Paddy Crop Residue
- 3) 5% 12-12-12 Fertiliser (Nitrosion/Phosphate/Pot Ash)
- 4) 5% Calcium Chloride

PROCEDURE

As per QA/WI/18

Test is Carried Out For 1000hrs

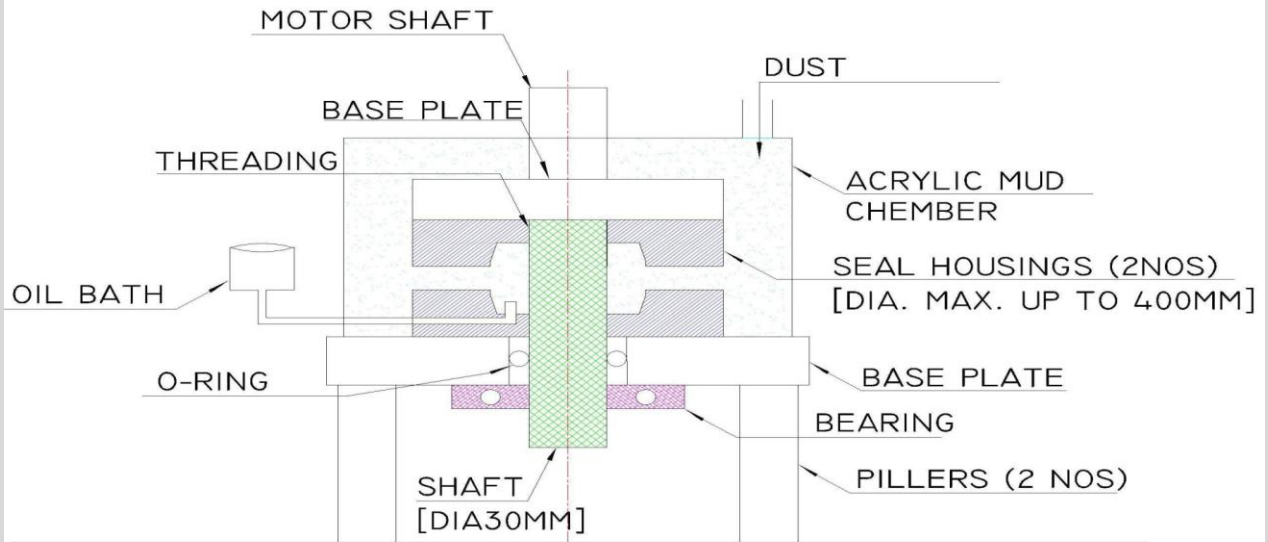
Samples Are being Checked after Every 200 hrs Of Teasting

RESULT

Report On Contamination level using the Scale of 1-5

- 1- No Significant Contamination. No evidence of water or slurry within the oil inside the seal
- 2- Light Contamination. Small Ammount of water or slurry is present within the oil inside the seal
- 3- Medium Contamination. Moderate Amount of water or slurry is present within the oil inside the seal
- 4- High Contamination. Large amount of slurry is present within the oil inside the seal
- 5- Complete Seal Faliure. Very large amounts of slurry are present within the oil inside the seal

Prepared by:	MGB	Approved By:	JTK
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TEST RIG

Mud test Details

SCOPE

The test is to Determine The Effectiveness Of the Duo Cone Seal to with Stand Contamination Intrusion Under Aggressive Environmental Conditions

TEST CONDITION

The Seal is to be tested under Following Conditions

- | | |
|-----------------------------------|---------------------|
| 1)Rotational Speed Of the Seal:- | 300 Rpm |
| 2)Axial Load on The Seal:- | 2kg/cm ² |
| 3)Temperature Of the Inside Oil:- | Room Temperature |
| 4)Environmental Condition:- | Dusty Env. |

Dusty Env. is Created by Using Ac Fine Dust As per SAEJ726 a

PROCEDURE

As per QA/WI/18

Test is Carried Out For 1000hrs

For First 500 Hours- Dust temperature is noramel

For rest Of The 500 Hrs temperature of the Dust Increased to 50°

Samples Are being Checked after 500 hrs Of Teasting

RESULT

Report On Contamination level using the Scale of 1-5

- 1- No Significant Contamination. No evidience of Dust within the oil inside the seal
- 2- Light Contamination. Small Ammount of Dust is present within the oil inside the seal
- 3- Medium Contamination. Moderate Amount of Dust is present within the oil inside the seal
- 4- High Contamination. Large amount of Dust is present within the oil inside the seal
- 5- Complete Seal Faliure. Very large amounts of Dust is present within the oil inside the seal

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