

Board Circular No..... /2010

All Addl. General Managers,
Deputy General Managers,
Asst. General Managers,
Secretary to the Board of Management,
Managers/Chief Engineers/Chief Accountants,
Chemists/Sociologists,
Other Heads of Divisions including
OICs

Testing at Site and Acceptance of “DI Pipes, Fittings & Valves” and “Pumps, M&E Equipment” after Delivery to Site

When contract price of supply of DI Pipes, Fittings & Valves and Chemicals exceeds Rs.25 million, Letter of Credit for the supply will be opened by NWSDB and Pre-shipment Inspections and Testing at manufacture’s factory will be done by NWSDB Engineers.

Similarly for pumps and accessories with a capacity of above 30 kW are inspected and tested at Manufacturer’s factory by NWSDB Engineers prior to shipping.

It was observed that after delivery of these above goods to site, Testing at site and Acceptance are not done in a proper manner.

In order to assure the quality of goods and pumps received to site, the respective Pre-shipment Inspection and Testing Teams shall inspect the goods when they are delivered to site, carryout the required Site Tests and submit an Acceptance Report to the Relevant Section/ Project Director with a copy to the respective DGM (RSC). All assistants to carry out site inspections and testing shall be co-ordinated and arranged by the recipient of goods.

This Site Testing and Acceptance Report from the respective Pre-shipment Inspection and Testing Teams should also be an essential requirement for the final payment with respect to the above goods and pumps.

The formats to be used for the,

- (i) Pre-shipment Inspection and Testing at Manufacturer’s Factory and
- (ii) Site tests and acceptance report by the Inspection Team

are attached with this circular and also given in respective SBDs in the NWSDB Web site at www.waterboard.lk/downloads.htm.



General Manager

- CC :
01. Chairman
 02. Vice Chairman
 03. Working Director
 04. DGM (Audit)

Guidelines for the Final Acceptance Report of Pump and Motor Assembles at NWSDB Sites by the Inspection Team

Activity / Test	Measurements / Value / observation Comments
01. Preparation of list of finalised and agreed list of parameters, delivery scope, submittals etc. of parameters, after PC–Procurement Committee approval, any subsequent amendments.	
02. Manufacturer	
Country of Origin	
Make	
Model	
Delivery of Test reports (3 rd party / Manuf./ client.)	
03. Compliance of the whole delivery scope with finalised client's requirements.	
04. Compliance of the specification of equipment , spare , tools, submittals etc.	
05. Compliance of the installation with the manufacturer's recommendations.	
06. Compliance of the test instruments with properly carried out calibration.	
07. Suitability of the instrumentation for measurement, logging, processing etc of the test data with regard to range, accuracy, least count etc.	
08. Observation of the whole set-up after running the assembly until stabilisation.	

Activity / Test	Measurements / Value / observation Comments
09. Get the measurements for 05 operating points.	
1. Shut off 2. Oper. Point 3. Max. recommended Point 4. a point between (1) & (2) above 5. a point between (2) & (3) above	
1. Current 2. Voltage 3. Power drawn by motor 4. Flow rate 5. Suction pressure 6. Delivery pressure	
10. Tabulate measurements , calculations	
Flow rate Pressure Power drawn by pump Power drawn by motor Pump efficiency Overall efficiency (any other particular to this contract)	
11. Any deviations of the test results from the submitted test reports (3 rd party / manif./ client)	
12. Observations / Comments on the deviations.	
13. Acceptance / rejection of the equipment with justifications.	

**GUIDELINES FOR ACCEPTANCE REPORT FOR PIPES AND FITTINGS
AT SITE FOLLOWED BY THE PRE-SHIPMENT INSPECTION BY THE
INSPECTION TEAM**

Place of Inspection :

Date of Inspection :

Parameters to be checked

Markings to casted on, painted or cold stamped

Wall Thickness

Length of straight pipes

Straightness

External Coating (Visual Inspection on Quality)

Internal Coating (Visual Inspection on Quality)

Condition of Pipes & Fittings

(a) Warping or shrinkage

(b) Surface or other defects detrimental to functionality :

SITE INSPECTION OF DI PIPES & FITTINGS

CHECK LIST

GENERAL				
Item	Description	lettering size acceptable	Legible	Remarks
Markings	Pipe Material			
	Year of Manufacture (Last Two Digits)			
	Manufacturers Identification Mark/Name			
	Nominal Diameter in mm			
	Class Designation / SDR			
	Quality Standard & Product Conformity certificate			
	Client Identification			
	Socket Penetration Lines (2 Lines)			
	In case of Fittings, these marks shall appear on the body of each fitting together with its main characteristics such as angle of bend, pressure rating of flange etc.			

SITE INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test		Length of Straight Pipes and Fittings				
Description of Item : DI Pipes (SS/DF) , Fittings						
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						

SITE INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test Straightness (using go / nogo gauge)						
Description of Item : DI Pipes (SS/DF)						
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						

Supplier to arrange go/nogo gauge

SITE INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test		Internal & External Diameter of Pipes & Fittings				
Description of Item : DI Pipes (SS/DF) , Fittings						
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						

SITE INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test Wall Thickness of Pipes & Fittings						
Description of Item : DI Pipes (SS/DF), Fittings						
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						

SITE INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test		Internal Coating (Visual Inspection)		
Bill No:				
Description of Item : DI Pipes (SS/DF) , Fittings				
Sample No	Item of testing	Physical condition	Whether acceptable	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				

SITE INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test		External Coating (Visual Inspection)		
Description of Item : DI Pipes (SS/DF), & Coating for fittings and Accessories				
Sample No	Item of testing	Physical condition	Whether acceptable	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				

Rubber Rings / Gaskets

Physical Parameter

- 1. Dimensions :.....
- 2. Diameter :.....
- 3. Appearance :.....
- 4. Packing :.....

Conclusion at the end of the Inspection :

According to Testing and Physical Observation we have done the materials at Manufacturer's Factory and materials available at site are same.

.....
Name & Designation

.....
Name & Designation

**PRE-SHIPMENT INSPECTION OF DI PIPES & FITTINGS
BY NWSDB ENGINEERS - CHECK LIST**

Name & Location of the Factory

- Pipe : -
-
- Fittings : -
-
- Valves : -
-
- Couplings :-
-
- Adaptors :-
-
- Flanged Pipes : -
-

(Requirement - Pipes and fittings should be manufactured by same manufacturer or manufacturing group.)

Applicable Standards

- Manufacturing Standards : (ISO 2531 : 1998/BSEN 545: 2006)
- Of pipes & Fittings
- Manufacturing Standards of Joint Rings : (BSEN 681-1/ISO)
- Quality Assurance Standards : (ISO 9001: 2008)

Parameters to be checked

- Markings to casted on, painted or cold stamped
- Mechanical Properties, Hardness, Elongation,
- Hydrostatic Pressure Tests
- Wall Thickness
- Length of straight pipes
- Straightness
- External Coating
- Internal Coating
- Testing of Welded Flanges
- Chemical Composition of Pipes & Fittings (Composition of metals).
- Condition of Pipes & Fittings
 - Warping or shrinkage
 - Surface or other defects detrimental to functionality :
 - Satisfactory/Unsatisfactory
 - Handling of pipes, Fittings after production :
 - Satisfactory/Unsatisfactory

Inspection Procedure

- Witness testing a sample with Factory QC Team : Yes/No
- Witness testing with Independent Inspection Agency : Yes/No

PRE-SHIPMENT INSPECTION OF DI PIPES & FITTINGS

CHECK LIST

Mark Yes or No in the Remarks Column as Appropriate

Date of Inspection

Technical Specifications Clause No.	Description	Values as per Specifications	Satisfactory/Unsatisfactory	Remarks
GENERAL				
Quality Assurance	Availability of Valid Quality Standard Certificates	ISO 9001:2008		
Independent Inspection	Availability of Inspection Agency. Certificate before Shipment	-		
Markings	Pipe Material (Ductile Iron)	-		
	Year of Manufacture (Last Two Digits)	-		
	Manufacturers Identification Mark/Name	-		
	Nominal Diameter in mm	-		
	Class Designation	-		
	Quality Standard & Product Conformity certificate	-		
	Client Identification	-		
	Socket Penetration Lines (2 Lines)	-		
	In case of Fittings, these marks shall appear on the body of each fitting together with its main characteristics such as angle of bend, pressure rating of flange etc.	-		
Material Characteristics				
	Mechanical Properties			
	Minimum Tensile Strength	420 N/mm ²		
	Minimum Bending Strength	Table B1 BSEN-545 2006		
	Modulus of Elasticity	14- 18 N/mm ²		
	Brinell hardness for pipes	230HB		
	Brinell hardness for fittings	250 HB		

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

(3 of 13)

Test		Hydrostatic Test									
Bill No:			Item No. & Qty.				Sample size:				
Description of Item : DI Pipes (SS/DF)			Class :				Dia x Length :				
Tech Spec Clause No:			Reference Standard : BSEN545:2006 - Clause 6.5 & Table 14 ISO 2531:1998 - Clause 6.5 & Table 10								
Sample No	Item of Testing	Test Condition						Deviation	Tolerance Allowed	Comply?	Remarks
		Flexible joints		Push-fit joints		Flanges & flanged joints					
		+ve int. pressure	-ve int. pressure	+ve ext. Pressure	Dynamic int. pressure	Flanged joints	Screwed & welded flanges				
1											
2											
3											
4											
5											
6											
7											
8											
9											
Inspection & Testing Witnessed by											
Name : 1.						Name : 2.					
Signature: 1.						Signature: 2.					
Date :											

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test							Length of Straight Pipes and Fittings						
Bill No:			Item No. & Qty.				Sample size:						
Description of Item : DI Pipes (SS/DF) , Fittings			Class :				Dia x Length :						
Tech Spec Clause No:			Reference Standard : BSEN545:2006 – Clause 4.2.3 & Table 3,4,5,6				ISO 2531 :1998 - Clause 4.2.3 & Tables 2,3,4,5						
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks							
1													
2													
3													
4													
5													
6													
7													
8													
9													
Inspection & Testing Witnessed by													
Name : 1.					Name : 2.								
Signature: 1.					Signature: 2.								
Date :													

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test		Straightness				
Bill No:		Item No. & Qty.		Sample size:		
Description of Item : DI Pipes (SS/DF)		Class :		Dia x Length :		
Tech Spec Clause No:		Reference Standard : BSEN545:2006 – Clause 4.2.4 ISO 2531 :1998 -Clause 4.2.4				
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						
Inspection & Testing Witnessed by						
Name : 1.			Name : 2.			
Signature: 1.			Signature: 2.			
Date :						

PRE -SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test							Internal & External Diameter of Pipes & Fittings						
Bill No:			Item No. & Qty.				Sample size:						
Description of Item : DI Pipes (SS/DF) , Fittings			Class :				Dia x Length :						
Tech Spec Clause No:			Reference Standard : BSEN545:2006 – Clause 4.2.2 ISO 2531 :1998 - Clause 4.2.1										
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks							
1													
2													
3													
4													
5													
6													
7													
8													
9													
Inspection & Testing Witnessed by													
Name : 1.						Name : 2.							
Signature: 1.						Signature: 2.							
Date :													

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test						
Wall Thickness of Pipes & Fittings						
Bill No:		Item No. & Qty.		Sample size:		
Description of Item : DI Pipes (SS/DF), Fittings		Class :		Dia x Length :		
Tech Spec Clause No:		Reference Standard : BSEN545:2006 – clause 4.2.1 ISO 2531 :1998 - Clause 4.2.2				
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						
Inspection & Testing Witnessed by						
Name : 1.			Name : 2.			
Signature: 1.			Signature: 2.			
Date :						

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test							Internal Coating (Strength & Thickness)						
Bill No:			Item No. & Qty.			Sample size:							
Description of Item : DI Pipes (SS/DF) , Fittings			Class :			Dia x Length :							
Tech Spec Clause No:			Reference Standard : BSEN545:2006 – Clause 4.4.3 & 4.5			ISO 2531 :1998 - Clause 4.4.2 & 4.5.2							
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks							
1													
2													
3													
4													
5													
6													
7													
8													
9													
Inspection & Testing Witnessed by													
Name : 1.			Name : 2.										
Signature: 1.			Signature: 2.										
Date :													

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test External Coating (Thickness of Zinc Mass & Paint coating)						
Bill No:		Item No. & Qty.			Sample size:	
Description of Item : DI Pipes (SS/DF), & Coating for fittings and Accessories		Class :			Dia x Length :	
Tech Spec Clause No:		Reference Standard : BSEN545:2006- clause 4.4.2 & 4.5 ISO 2531 :1998 - clause 4.4.1 & 4.5.1				
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						
Inspection & Testing Witnessed by						
Name : 1.			Name : 2.			
Signature: 1.			Signature: 2.			
Date :						

PRE –SHIPMENT INSPECTION OF DI PIPES & FITTINGS - CHECK LIST

Test		Chemical Composition				
Bill No:		Item No. & Qty.		Sample size:		
Description of Item : DI Pipes (SS/DF)		Class :		Dia x Length :		
Tech Spec Clause No:		Reference Standard : BSEN545:2006 & ISO 2531 :1998				
Sample No	Item of testing	Physical/Measured Value	Deviation	Tolerance Allowed	Comply?	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						
Inspection & Testing Witnessed by						
Name : 1.			Name : 2.			
Signature: 1.			Signature: 2.			
Date :						

INSPECTION OF DI PIPES & FITTINGS
CHECK LIST

Technical Specifications Clause No.	Description	Requirements as per Specifications	Satisfactory/Unsatisfactory	Remarks
HANDLING OF PIPES AND FITTINGS AFTER PRODUCTION				
	Packing			
	Handling			
	Stacking			
	Inspection by Factory/Inspection Authority			
	Transport Arrangements within manufacturers Country			
	Shipping Arrangements			
	Freight Insurance Arrangements			
CONCLUSION AT THE END OF THE INSPECTION TOUR				
	Total Process of Production, Testing, Packing, Handling, Insurance and Freight Arrangements Satisfactory			

Observations :

Signature 1

Signature 2

Name & Designation 1:

Name & Designation 2:

Rubber rings / Gaskets

Physical Parameter

- 5. Dimensions :.....
- 6. Diameter :.....
- 7. Hardness :.....
- 8. Appearance :.....
- 9. Lot Numbers :

Quality

- 1. Product Conformity certificate
- 2. ISO 9001:2008 certificate

Packing Arrangements

- 1. Inspection by Independent Inspection Agency :
- 2. Shipping Arrangements :.....

Sample No	Diameter	Thickness mm	Hardness	Appearance	Deviation	Tolerance allowable	Whether Comply	Remarks

Product conformity certificate available acceptable :
(witness the original certificate)

ISO 9001;2008 Quality Management System certificate available and acceptable:
(witness the original certificate)