



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

SHEET: 1 OF 7

REV. DATE: 07/09/2017

REV. NO.: 00

DATE: 07/09/2017

QA PLAN NO: QA/HG/523

QGX-9

ITEM: THRUST BEARING SPRING TO DRAWING NO. 3255010 002

S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
1	RAW MATERIAL							S B	
A	Grude Chrome Vanadium Steel	Chemical Properties & Mechanical Properties	-	Lab Test	One Sample / Lot	Chrome Vanadium as per BP 10571	Lab TC	P V	
2	MANUFACTURING PROCESS								
A	Spring Coiling	Dimensions - OD, Dia. Of wire, No. of Turns, free length.	-	Linear Instruments	After Every 5 Nos. 1 nos. checked	BHEL Drg. No 3 255 01 01002	QCR	P V	
B	Grinding	Ground End, Parallelism & Perpendicularity	-	Linear Instruments	100%	BHEL Drg. No 3 255 01 01002	QCR	P V	
C	Heat Treatment	Hardness	-	Hardness Tester	1 nos. / Heat Lot	BHEL Drg. No 3 255 01 01002	QCR	P V	
D	Scrapping	Removal of Permanent Set	-	Scrapping Machine	100%	BHEL Drg. No 3 255 01 01002	QCR	P V	
E	Shot Peening	Increase Fatigue Life	-	Visual	100%	BHEL Drg. No 3 255 01 01002	QCR	P V	
F	Coating	Phosphating	-	Visual	100%	BHEL Drg. No 3 255 01 01002	QCR	P V	

 J S Yadav Sr. Engg.
 Ritesh Aggarwal Sr. Manager
 N. Agrawal
 HGCE HGME HGQ QA-HYDRO



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

SHEET: 2 OF 7

QA PLAN NO: QA/HG/523

DATE: 07/09/2017

REV. NO.: 00

REV. DATE: 07/09/2017

ITEM: THRUST BEARING SPRING TO DRAWING NO. 32550101002

S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
A	Load Test	Compress spring to 47.00 mm length	Major	Load Testing Machine	100%	Cl. 2(A) of BHEL Drg. No 3 255 01 01002	QCR	P	TPJ Witness 5% of the offered lot
B	Permanent set test	As per Cl. 2(B) of BHEL Drg. No 3 255 01 01002	-	Load Testing Machine	5 nos / heat lot	BHEL Drg. No 3 255 01 01002	QCR	P	
C	Perpendicularity, Ground Area & Parallelism	As per T.R. of BHEL Drg. No 3 255 01 01002	-	Linear Instruments	100%	BHEL Drg. No 3 255 01 01002	QCR	P	TPJ Witness 5% of the offered lot
E	Hardness	-	-	Hardness Tester	1 nos. / Heat Lot	BHEL Drg. No 3 255 01 01002	QCR	P	
F	MPI	Cracks	-	Every Batch	100%	BHEL Drg. No 3 255 01 01002	TC	P	
G	Visual Inspection	Shall be free from all surface defects	-	Every Batch	100%	BHEL Drg. No 3 255 01 01002	QCR	P	
H	Dimensions	All Dimensions as per BHEL Drg. No 3 255 01 01002	-	Dimensional	100%	BHEL Drg. No 3 255 01 01002	QCR	P	TPJ Witness 5% of the offered lot

LEGEND

S - Supplier B - BHEL/ Nominated Inspection Agency TC - Test Certificate

P - Perform W - Witness V - Verification QCR - Quality Control Record

J S Yadav Sr. Engg.
Rishabh Sr. Manager
HGM 2/9/17HGM (N. Agrawal)
QA-HYDRO

QUALITY ASSURANCE DEPARTMENT									
QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.									
QA PLAN NO: QA/HGI/523		DATE: 07/09/2017		REV. NO.: 00		REV. DATE: 07/09/2017		SHEET: 3 OF 7	
ITEM: Top Retaining Plate Drg. No - 4-255-01-01004									
S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
1 INCOMING INSPECTION									
RAW MATERIAL									
A	As per AA 10108	Chemical Properties & Mechanical Properties	-	Lab Test	One Sample / Lot	As per BHEL Drg. 4-255-01-01004	Lab TC	P	V
2 FINAL INSPECTION									
A	Dimensions	All Dimensions as per BHEL Drg. 4-255-01-01004	-	Dimensional	100%	As per BHEL Drg. 4-255-01-01004	QCR	P	W TPI Witness 5% of the offered lot
B	Surface Protection	As per BHEL Drg. 4-255-01-01004	-	Visual	100%	As per BHEL Drg. 4-255-01-01004	QCR	P	V
				Coating meter	20%	As per BHEL Drg. 4-255-01-01004	QCR	P	V
C	Visual Inspection	Shall be free from all surface defects	-	Every Batch	100%	As per BHEL Drg. 4-255-01-01004	QCR	P	V
LEGEND									
S - Supplier B - BHEL/ Nominated inspection Agency TC - Test Certificate									
P - Perform W - Witness V - Verification QCR - Quality Control Record									
<i>[Signature]</i> J S Yadav Sr. Engg. HGE <i>[Signature]</i> Rishabh Rajshree Sr. Manager HGM <i>[Signature]</i> N. Agrawal QHC QA-HYDRO									



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

SHEET: 4 OF 7

REV. DATE: 07/09/2017

REV. NO.: 00

DATE: 07/09/2017

QA PLAN NO: QA/HG/523

QGX-9

ITEM: Bottom Retaining Plate Drg. No - 4-255-01-01005

S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
1	INCOMING INSPECTION								
	RAW MATERIAL								
A	As per AA 10108	Chemical Properties & Mechanical Properties	-	Lab Test	One Sample / Lot	As per BHEL Drg. 4-255-01-01005	Lab TC	P	V
2	FINAL INSPECTION								
A	Dimensions	All Dimensions as per BHEL Drg. 4-255-01-01005	-	Dimensional	100%	As per BHEL Drg. 4-255-01-01005	QCR	P	W
B	Surface Protection	As per BHEL Drg. 4-255-01-01005	-	Visual	100%	As per BHEL Drg. 4-255-01-01005	QCR	P	V
				Coating meter	20%	As per BHEL Drg. 4-255-01-01005	QCR	P	V
C	Visual Inspection	Shall be free from all surface defects	-	Every Batch	100%	As per BHEL Drg. 4-255-01-01005	QCR	P	V

LEGEND

S - Supplier B - BHEL/ Nominated Inspection Agency TC - Test Certificate

P - Perform W - Witness V - Verification QCR - Quality Control Record

J S Yadav
Sr. Engg.
HGE

8/19/17
HGM

QA/HG/523
QIIG (N. Agrawal)

QA-HYDRO



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

QA PLAN NO: QA/HG/523		DATE: 07/09/2017		REV. NO.: 00		REV. DATE: 07/09/2017		SHEET: 5 OF 7					
QGX-9		ITEM: Screw M16 Drg. No - 4-255-01-01006											
S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS				
INCOMING INSPECTION													
1 RAW MATERIAL													
A		As per AA 10108		Chemical Properties & Mechanical Properties		Lab Test	One Sample / Lot	As per BHEL Drg. 4-255-01-01006	Lab TC	P	V	W	TPI Witness 5% of the offered lot
2 FINAL INSPECTION													
A		Dimensions		All Dimensions as per BHEL Drg. 4-255-01-01006		-	Dimensional	100%	QCR	P	W	V	
B		Surface Protection		As per BHEL Drg. 4-255-01-01006		-	Visual	100%	QCR	P	V	V	
C		Visual Inspection		Shall be free from all surface defects		-	Coating meter	20%	QCR	P	V	V	
						-	Every Batch	100%	QCR	P	V	V	
LEGEND													
S - Supplier B - BHEL/ Nominated Inspection Agency TC - Test Certificate													
P - Perform W - Witness V - Verification QCR - Quality Control Record													
J S Yadav Sr. Engrs HGE													
R. Jethi Sr. Manager HGM													
N. Agrawal QA-HYDRO													
Date: 13/9/17													



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

QA PLAN NO: QA/HG/523		DATE: 07/09/2017		REV. NO.: 00		REV. DATE: 07/09/2017		SHEET: 6 OF 7	
ITEM: Seru-Set Hex Socket Cone Point M-6 Drg. No - 4-299-01-01004									
S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
INCOMING INSPECTION									
1 RAW MATERIAL									
A	As per IS 1367 (Part-V) 1980 Class 45 H	Chemical Properties & Mechanical Properties	-	Lab Test	One Sample / Lot	As per BHEL Drg. 4-299-01-01004	Lab TC	P	V
2 FINAL INSPECTION									
A	Dimensions	All Dimensions as per BHEL Drg. 4-299-01-01004	-	Dimensional	100%	As per BHEL Drg. 4-299-01-01004	QCR	P	V
B	Surface Protection	As per BHEL Drg. 4-299-01-01004	-	Visual	100%	As per BHEL Drg. 4-299-01-01004	QCR	P	V
				Coating meter	20%	As per BHEL Drg. 4-299-01-01004	QCR	P	V
C	Visual Inspection	Shall be free from all surface defects	-	Every Batch	100%	As per BHEL Drg. 4-299-01-01004	QCR	P	V
LEGEND									
S - Supplier B - BHEL/Nominated inspection Agency TC - Test Certificate									
P - Perform W - Witness V - Verification QCR - Quality Control Record									
<i>[Signature]</i> J S Yadav Sr. Engrg. Sr. Manager HGE <i>[Signature]</i> N. Agrawal OHG <i>[Signature]</i> Addl. Engrg. QA-HYDRO									



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

SHEET: 7 OF 7

QGX-9

QA PLAN NO: QA/HG/523

DATE: 07/09/2017

REV. NO.: 00

REV. DATE: 07/09/2017

ITEM: Pre-Loaded Spring to BHEL Drg. No as mentioned in enquiry/PO.

S.N.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	FORMAT OF RECORD	AGENCY	REMARKS
1	FINAL INSPECTION								
A	Pre-Loading	Load as per preloaded thrust bearing spring assy. to BHEL Drg. No as mentioned in enquiry/PO.	Major	Load Testing Machine	100%	As per preloaded thrust bearing spring assy. to BHEL Drg. No as mentioned in enquiry/PO.	QCR	P	W
B	Identification	Preloading in Kg to be Stamped	-	Visual	100%	As per preloaded thrust bearing spring assy. to BHEL Drg. No as mentioned in enquiry/PO.	QCR	P	V
C	Dimensions	All Dimensions as per preloaded thrust bearing spring assy. to BHEL Drg. No as mentioned in enquiry/PO.	-	Dimensional	100%	As per preloaded thrust bearing spring assy. to BHEL Drg. No as mentioned in enquiry/PO.	QCR	P	W
D	Visual Inspection	Shall be free from all surface defects	-	Visual	100%	As per preloaded thrust bearing spring assy. to BHEL Drg. No as mentioned in enquiry/PO.	QCR	P	V
2									
A	Preservation & Packing	Label, Box condition, Packing Qty, per Bag	-	Visual	100%	Relevant standard	QCR	P	V

LEGEND

S - Supplier B - BHEL/ Nominated inspection Agency TC - Test Certificate

P - Perform W - Witness V - Verification QCR - Quality Control Record

J.S. Yadav
Sr. Engrg.
HGE

8/10/17
HGM

N. Agrawal
OHG (N. Agrawal)

13/10/17
QA-HYDRO