



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

QGX-9

QA PLAN NO: QA/HG/523

DATE: 07/09/2017

REV. NO.: 00

REV. DATE: 07/09/2017

SHEET: 1 OF 7

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
1	RAW MATERIAL							S	B	
A	Grade 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	

JS
J S Yadav
Sr. Engg.

Rishabh
Rishabh Gajthiya
Sr. Manager
HGE

HGM
HGM

N. Agrawal
N. Agrawal
QHIG

Aachan
Aachan
13/9/17
QA-HYDRO



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QGX-9	QA PLAN NO. QA/HG/523	DATE: 07/09/2017	REV. NO.: 00	REV. DATE: 07/09/2017	SHEET: 2 OF 7					
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	W	TPI 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	W	
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	W	TPI Witness 5% of the offered lot
E	Hardness	-	-	Hardness Tester	1 nos / Heat Lot	BHEL Drg. No 3 255 01 01002	QCR	P	W	
F	MPI	Cracks	-	Every Batch	100%	BHEL Drg. No 3 255 01 01002	TC	P	V	
G	Visual Inspection	Shall be free from all surface defects	-	Every Batch	100%	BHEL Drg. No 3 255 01 01002	QCR	P	V	
H	Dimensions	All Dimensions as per BHEL Drg. No 3 255 01 01002	-	Dimensional	100%	BHEL Drg. No 3 255 01 01002	QCR	P	W	TPI 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. Engrs. HGE Ritesh Gajdhare Sr. Manager HGM 8/9/17 N. Agrawal HGM Anil Kumar 13/9/17 QA-HYDRO										



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QA PLAN NO: QA/HG/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							S	B	
	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

[Signature]
J S Yadav
Sr. Engg.

[Signature]
Ritesh Gajthiya
Sr. Manager
HGE

[Signature]
8/9/17
HGM

[Signature]
(N. Agrawal)
QHGM

[Signature]
13/9/17
QA-HYDRO



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

QGX-9

QA PLAN NO: QA/HG/523

DATE: 07/09/2017

REV. NO.: 00

REV. DATE: 07/09/2017

SHEET: 4 OF 7

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							S	B
	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 Y - Verification QCR - Quality Control Record

[Signature]
J S Yadav
Sr. Engrg.

[Signature]
Ritesh Gajthiya
Sr. Manager
HGE

[Signature]
8/9/17
HGM

[Signature]
ONG (N. Agrawal)

[Signature]
13/9/17
QA-HYDRO



QUALITY ASSURANCE DEPARTMENT

QA PLAN FOR PRELOADED THRUST BEARING SPRING ASSY.

QGX-9	QA PLAN NO: QA/HG/523	DATE: 07/09/2017	REV. NO.: 00	REV. DATE: 07/09/2017	SHEET: 5 OF 7					
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	
1	INCOMING INSPECTION							S	B	
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	
2	FINAL INSPECTION									
A	Dimensions	All Dimensions as per BHEL Drg. 4-255-01-01006	—	Dimensional	100%	As per BHEL Drg. 4-255-01-01006	QCR	P	W	TPI Witness 5% of the offered lot
B	Surface Protection	As per BHEL Drg. 4-255-01-01006	—	Visual	100%	As per BHEL Drg. 4-255-01-01006	QCR	P	V	
				Coating meter	20%	As per BHEL Drg. 4-255-01-01006	QCR	P	V	
C	Visual Inspection	Shall be free from all surface defects	—	Every Batch	100%	As per BHEL Drg. 4-255-01-01006	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. Engrs HGE Rishabh Rajshree Sr. Manager HGM N. Agrawal OHG Aashish 13/9/17 QA-HYDRO										



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QA PLAN NO: Q/HG/523

DATE: 07/09/2017

REV. NO.: 00

REV. DATE: 07/09/2017

SHEET: 6 OF 7

ITEM: Scrw-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
1	INCOMING INSPECTION							S	B
	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

J S Yadav
Sr. Engr.
HGE

Ritesh Gajjar
Sr. Manager
HGE

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HGM

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QHG (N. Agrawal)

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QA-HYDRO



QUALITY ASSURANCE DEPARTMENT

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QGX-9

QA PLAN NO: QA/HG/523

DATE: 07/09/2017

REV. NO.: 00

REV. DATE: 07/09/2017

SHEET: 7 OF 7

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							S	B	
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	TPI Witness 10% of the offered lot
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. Engg. HGE

 Ritesh Gajshinge
 Sr. Manager HGM

 N. Agrawal
 OHG

 Aashish
 QA-HYDRO