

Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 280	
		TECHNICAL SPECIFICATION FOR		Rev. No. 00
		CONCRETE DRIVE-IN/FLUSH/BULLET ANCHORS		Page 1 of 3

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CONCRETE DRIVE-IN/FLUSH/BULLET ANCHORS

1.0 INTRODUCTION & SCOPE

1.1 The intent of this document is to specify minimum specification requirements for procurement of **Concrete Drive-in/ Flush/ Bullet Anchors**.

1.2 The purpose of these anchors is to screw-in the threaded tie-rod, after embedding the anchor in concrete. This threaded tie rod is in turn used for fixing of HVAC ducts/ pipe supports/ cable tray supports and other service utilities.

1.3 These anchor's shall be inserted into a pre- drilled hole and then fixed in concreted using a setting tool. These anchors shall be installed on the bottom-side of the concrete. Supplier is to ensure that the anchor is suitable for the application.

1.4 **Scope of supply shall also include the Setting tool for the Anchors. 1 Setting tool for every 1000 nos of Anchors, subjected to a minimum of 1 setting tool per order, shall be supplied.**

1.5 All the codes/standards mentioned in this specification shall be of latest issue.

2.0 INPUTS & STANDARDS

2.1 DESIGN:

- The anchors shall be inserted into a pre- drilled hole in concrete and then embedded in concreted using a setting tool.
- The concrete stud anchor shall carry cracked concrete and fire approval.
- Anchors shall be designed as per ETA code & Supplier shall ensure that anchors shall meet the cracked concrete requirements.
- The minimum Load bearing capacity of each individual bolt shall be as per the below table for minimum concrete strength of M25 in cracked concrete.

Sl.no	Size of Anchor	Tensile Load (kN)	Shear Load (kN)
01	M8	3.3	3.9
02	M10	5.1	4.1
03	M12	7.1	11.1

- Concrete Stud anchors shall be designed as per ETAG-001 code & Supplier shall ensure that anchors shall meet the cracked concrete requirements. The Anchor should be third party tested, possess ETA approval

2.2 MATERIAL AND DIMENSIONAL DETAILS :

- The anchors should be of cold formed carbon steel (minimum grade 5.8 as per IS 1367 Part 3), galvanised to minimum 5 microns as per IS 1367 Part 11 / EN ISO 4042 & internally threaded.
- Technical details of the anchor shall be as follows:
 - Size/length as mentioned in Material description.
 - Threaded – Internally; for fixing a threaded rod.

Form No:	LAYOUTS & PIPING ENGINEERING PROJECT ENGINEERING & SYSTEMS DIVISION	PREPARED	CHECKED	APPROVED	DATE
		 PARAMESH	 V UDAY	 SRIKANTH G	02.11.19

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COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.		2.3 IMPORTANT NOTES: ▪ Vendors' scope is limited to Supply of these anchors ▪ Applications shall be in Wide range of applications, which includes cracked concrete. ▪ Anchors should be cold formed carbon steel & Galvanized. Fastenings includes in highly safety-relevant or dynamic applications, which includes applications in power plants. ▪ The internal thread should enable the fixing of conventional threaded rods which are of metric ISO standard thread. ▪ No damage should happen to the thread when tapping in and expanding ▪ Application of this anchors shall be in Minimum concrete strength of M25. The supplied anchor stud should be suitable for this concrete strength as a minimum. ▪ Vendor to follow latest relevant Indian and International Standards for Anchor Fasteners. ▪ Vendor shall furnish the following along with their offer ○ Model of the Anchor being quoted. ○ Catalogue of the Anchor indicating the technical details. ○ Maximum load bearing capacity of Stud Anchor. ▪ Post order, vendor shall furnish the data sheets of Stud anchor for approval along with the installation instructions such as ○ Diameter of hole to be provided in concrete ○ Drill bit to be used ○ Anchor embedment depth & fixing details or any other details necessary for completion of installation at site etc. 3.0 INSPECTION Scope of inspection shall be as called for in the data sheets enclosed / specified in the purchase order / approved quality plan. Inspection agency shall be BHEL / BHEL Third Party Inspection agency. 4.0 TEST CERTIFICATES: Three copies of all the test certificates required as per this document shall also be furnished. 5.0 PACKING AND MARKING 5.1 All the items shall be packed suitably in closed wooden cases / hard cardboard boxes, enclosed in a moisture resistant wrapping in order to avoid damage, ingress of moisture & corrosion during transit and storage. Suitable supports shall be provided inside the cases in order to avoid internal movement. Each packing case must contain 2 copies of the shipping list giving details of all the contents of the case. 5.2 The following marking shall be done on each packing case minimum on two sides and also at the top: ▪ Complete address of the consignee and destination as per BHEL Purchase Order. ▪ BHEL Purchase Order Number (c) Number of pieces in each packing case ▪ Net Weight ▪ Gross Weight ▪ Packing case number and total number of packing ▪ Arrow indicating top of the packing case.		

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6.0 WARRANTY

Vendor shall warranty all supplies against the defects due to manufacturing effecting performance for a period of sixty month from the date of supply and shall repair/ replace promptly, without cost, any part or parts of the material that fails within said period.

7.0 DOCUMENTATION:

Bidder shall confirm in their bid for compliance in all respect for the submission of documents along with no. of copies (indicated in brackets) to be submitted at various stages to Purchaser as indicated below:

Sl No	Description	Along with Offer	After placement of Order	After Supply completion
1	Leaflet / catalogue for the offered item indicating complete cross sectional arrangement, binding dimensions, bill of materials with material specification details	I (1)		
2	GA Drawing.	I (1)	A (4)	
3	Quality Assurance Plan (QAP)	I (1)	A (4)	
4	Any deviations to this standard	A (1)		
5	Shelf life of each item in scope of supply and recommended storage precautions		I (3)	
6	Test Certificates		I (5)	
7	Warrantee Certificate		I (2)	
8	Installation, maintenance, safety procedures, catalogues, list of spares if any, contact addresses of vendor & dealers, phone nos. etc).		I (2)	I (4)

Note: I: For Information

A: For Approval

RECORD OF REVISIONS

Rev. No.	Date	Revision Details	Revised	Approved
00	02.11.2019	First Issue	--	--