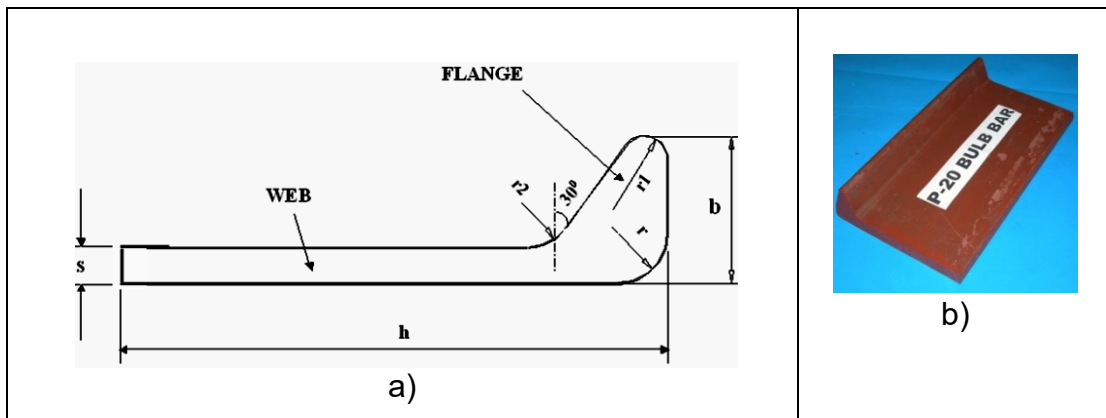


DMR-249A Grade Steel Bulb Bars for Naval Applications

Bulb bars are rolled product from feedstock (either billets or billets cut from semi-rolled continuous cast slabs) with an asymmetric cross-section and are used as stiffeners in ship construction. Post manufacturing by rolling, bulb bars are heat treated to achieve the required properties. Eleven different sections of bulb bars ranging from P6 to P24 (as per figure below) have been developed and productionized in length up to 12m. The number following P is the base width of the bulb bar section in centimeters (as per Table below). DMRL has worked on heat treatment optimization, straightening, microstructural evaluations etc. to meet strict requirements i.e. mechanical properties, dimensional tolerances and other criteria. The ToT seeking industry has to develop the roll pass design on its own for converting the feedstock to the bulb bars to meet dimensional requirements. Bulb bars have been accepted by the competent authority of Indian Navy and a Naval Construction Document: NCD 0249 Part-III Issue 1, April 2011 has been issued by Directorate of Naval Architecture (DNA), Integrated Headquarters (IHQ), MOD (Navy). DMR 249A steel Bulb bars are currently in routine production at approved manufacturers for use in construction of warships of Indian Navy.

Salient feature:

The bulb bars are used as hull stiffeners in construction of naval vessels and platforms by Indian navy/Shipyards.



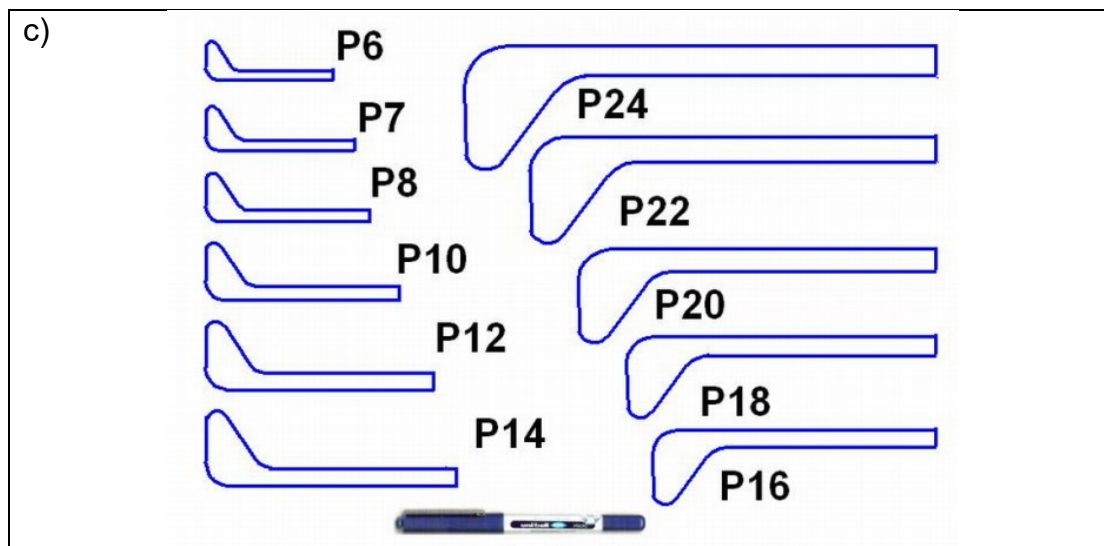


Figure: (a) Schematic of bulb bar cross-section indicating the main sectional parameters, (b) sample piece of bulb bar and (c) relative sizes of the eleven sections required

Table: Dimensions of representative bulb bars				
Bulb bar Section	h (mm)	b (mm)	s (mm)	r, r1, r2 (mm)
P7	70	21	5.0	3.5
P12	120	30	6.5	5.0
P24a	240	52	12.0	9.0
P24b	240	54	14.0	9.0

Min facility/Capability required at the time of submission:

Profile Rolling Mill consisting of:

- Reheating furnace with high temperature capacity (1250oC)
- Profile rolling mill and expertise to make asymmetric section rolling
- Hot/Cold straightening facility
- Cutting facility

Heat treatment facility of rolled bulb bars consisting of:

- Austenitization furnace of suitable length and temperature capacity
- Water quenching facility with agitation
- Tempering furnace of suitable length and temperature capacity

Testing/Inspection/Acceptance facilities consisting of:

- Ultrasonic inspection
- Surface grinding
- Chemical analysis, gas content, macro-etching
- Tensile testing, Sub-zero impact testing
- Metallography facility

Requirement of Technology Absorption Certificate:

The bulb bars of sections **P6, P16 & P24** shall be rolled subjected to the following acceptance tests and satisfactory compliance of same is necessary for issuance of the certificate.

S.No	Acceptance criteria
1.	Tensile properties
2.	Microstructure
3.	Sub-zero impact testing at -60°C
4.	Ultrasonic examination
5.	Dimensional inspection & surface quality

Interested Industries are requested to apply against this EoI to following address:-

Director

Defence Metallurgical Research Laboratory
Kanchanbagh P.O.
Hyderabad 500 058
Phone: (040) 2458 6486, 2434 0365
E-mail: director[dot]dmrl[at]gov[dot]in
Fax: (040) 2434 0683

A copy of the interest may be sent to the following address without any attachment:

Director

Directorate of Industry Interface & Quality Management (DIIQM)

Room No. 447, DRDO Bhawan, DRDO HQrs,
Rajaji Marg, New Delhi-110011
Phone: 011-23013209/23015291
Fax: 011-23793008
Email: director-diiqm-hqr[at]gov[dot]in

All industries are requested to fill in the form given below and provide supporting documents (as applicable). Kindly provide the reference of page no. of supporting document in the relevant field of form. The list of documents to be attached is provided in Annexure – I.

PART-1

General Information

(Please enclose documents in support of information provided)

1.	Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category)		
2.	Name of the industry/ organization		
3.	Complete Address and other details		
	Registered Office State Phone No Fax Email Website		
	Factory State Phone No Fax Email Website		
4.	Point of Contact Name Designation Address Mobile No Ph No Email ID		
5.	NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc Name Designation Address Mobile No Ph No Email ID		
6.	Date of Incorporation of company		
7.	Foreign Direct Investment in company (if any in %)		
8.	Shareholding pattern		
9.	Turn over as per Audited Balance Sheet for the preceding three years. Year _____ Year _____ Year _____		
10.	Annual budget for R&D during last three years (if any) Year _____ Year _____		

	Year _____		
11.	Income Tax returns for the preceding three years period Year _____ Year _____ Year _____		
12.	Nature of company DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit		
13.	Category of industry Large Scale, Medium Scale, Small Scale, Micro, Startup		
14.	MSME Registration No		
15.	Certificates of registration as a manufacturing unit, if any.		
16.	If Startup, DPIIT Registration No		
17.	UDYOG AADHAR No		
18.	PAN Number		
19.	Details of Industrial license for defence manufacturing issued by DPIIT (if any)		
20.	Details of PESO license (if any)		
21.	GST Number		
22.	Nature of business Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others		
23.	Details of current products and services Products and services Supplied (please specify Govt/ Domestic market/ Export)		
24.	Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).		
25.	Details of registration with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association (Attach relevant copies of registration letters)		
26.	Have you already taken any technology from DRDO (If yes, give details attaching separate sheet) Name of the Technology, Lab, Year, License number & Status		
27.	ISO/ ISI certification or any other certification (If yes, give details)		
28.	Relevant clearances form the authorities/ ministries (if any)		

29.	Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.		
30.	Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.		

PART-2

Infrastructure and other Information

1.	Total area of factory Covered (m ²), Uncovered (m ²), Bonded space available (m ²)	
2.	Ownership of factory Self-owned, partnership, rental	
3.	Electric power Sanctioned Installed Standby (if any)	
4.	Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise	
5.	Name of bank & A/c No Name of bank A/c type A/c no Address of the bank Phone: Email:	

6. Details of current products:

S.No	Type	Description	Licensed/installed capacity	Annual production for preceding 3 years

7. Details of foreign collaboration, if any

S.No	Product	Name and address of collaborator	Year	Remarks

8. Details of products developed for services

S.No	Nomenclature of stores	Order No. and date	Remarks

9. Please give details of important facilities & infrastructure as per following format for:

- (a) Production
- (b) Unconventional, special m/c
- (c) Testing & quality control facilities

S.No	Description of m/c	Make & model	Qty	Date of purchase	Remarks

10. Furnish the following details with relevant certificates and documents

- (a) R&D facilities available :
- (b) Inspection quality control of raw material components :
- (c) Assistance from central agency for testing / calibration etc.:
- (d) laboratory and drawing office facility :

11. Principal customers:

S. No	Name & address	S.O No and date	Date of last supply	Products supplied	Value

12. Future plans (if any) in respect of expansion programme/ installation of additional machines/ test facilities etc.

13. Name of the technology requested for transfer

(give self-assessment of your capability to absorb the technology)

14. Details of employee as on date on firm's pay roll

PERMANENT				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

TEMPORARY				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers			

	Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

DECLARATION

I / we confirm that the information furnished in Part 1 & 2 above is correct. In the event of any information given by me / us is found incorrect / false at any time, I / we understand our EoI for ToT will be cancelled/ rejected without notice, beside any other appropriate action against me / us.

Industry seal

Authorized signatory

Name(s) in capital

Designation and seal of authorized signatory

Date:

Place:

List of supporting documents to be attached with EoI:

- a. Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- b. Certificates of registration as a manufacturing unit, if any.
- c. Audited Balance Sheet for the preceding three years.
- d. Income Tax returns for the preceding three-year period
- e. Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- f. Annual budget for R&D during last three years.
- g. Numbers and details of IPR or patents, etc., held by the company.
- h. Number of technically or professionally qualified personnel employed.
- i. Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- j. Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- k. List of testing and support equipment.
- l. ISO/ ISI certification or any other certification.
- m. Relevant clearances from the authorities/ ministries (if any).
- n. Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- o. Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- p. Industrial license for defence manufacturing issued by DPIIT (if any).
- q. PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc.
- r. Undertaking from company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel is involved in any corrupt practices, unfair means/ illegal activities.