

Railways

Defence & Aerospace

Spares & Services for Power Plants

Industry 4.0 Solutions for Business Power Plants

International Operations for Thermal & Hydro power plants

Nuclear & Hydro

Coal to Chemical & Hydrogen

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Azadi Ka  
Amrit Mahotsav

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**BHEL**

# **BHEL SAMVAAD 3.0**

*for Development of local suppliers*

**Castings & Forgings**

09.11.2023

# Castings & Forging items seeking interest of local sources



Sl.	BHEL Unit	Item	Value per annum, (Rs Cr.)
<b>Forgings</b>			
1	HEEP Haridwar, HPEP Hyderabad	Rotor Forgings – (Weight: <b>30 MT to 86 MT</b> , Dia.: <b>1080 – 1256 mm</b> ; Length: <b>9000 – 13635 mm</b> )	49.0
2	HEEP Haridwar	LP Rotor Shaft Forgings – (Weight: <b>53 MT</b> , Dia: <b>1400 – 1910 mm</b> ; Length: <b>≥ 6500 mm</b> )	36.0
3	HEEP Haridwar, HPEP Hyd., HEP Bhopal	Retaining Ring Forgings (Ferrous) – (Weight: <b>33 kgs to 1800 kgs</b> )	22.0
4	HEP Bhopal	Retaining Ring Forgings (Non-Ferrous) – (Weight: <b>78 kgs to 255 kgs</b> )	1.0
<i>(ESR and Cold Expansion facility required)</i>			
5	HEEP Haridwar	IP Rotor Shaft Forgings – (Weight: <b>27.5 MT</b> , Dia <b>1160 mm X 3895 mm X 6257 mm</b> )	20.0
6	HEEP Haridwar	HP Rotor Shaft Forgings– (Weight: <b>16 MT</b> , Dia <b>800 mm X 2765 mm X 5475 mm</b> )	18.0
<i>(Water and air quenching of the rotor have resulted in cracks. Oil quenching is a proven method to achieve the parameters devoid of cracks)</i>			
7	HEP Bhopal	Forged Pelton Runner – (Weight: <b>10 MT</b> , Disc dia : <b>3050 mm</b> )	10.0
<b>Total</b>			<b>157.0</b>

## Castings & Forging items seeking interest of local sources



Sl.	BHEL Unit	Item	Value per annum, (Rs Cr.)
<b>Castings</b>			
1	HEEP Haridwar	Castings of IP Outer Casing – Nodular Grade – (Weight of one half: <b>29 MT to 42 MT</b> ) <i>(Inoculation facility required)</i>	20.0
2	HEP Bhopal	Centrifugal Castings – (Weight: <b>188 kgs</b> , Dia <b>1050 mm X 280 mm</b> ) <i>(low demand)</i>	0.5
<b>Total</b>			<b>20.5</b>

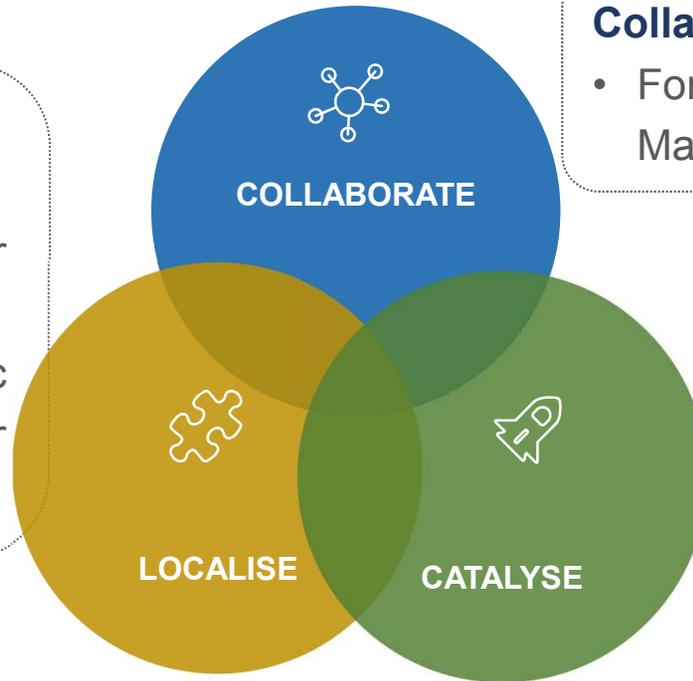
# BHEL's Framework for AatmaNirbharBharat



## Localise

Import substitution through

- in house engineering or manufacturing
- supporting domestic manufacturers for indigenization



## Collaborate

- For Technology and Manufacturing

## Catalyse

- Enable solutions for challenges faced in engineering and manufacturing
- Support domestic ecosystem with R&D and Testing infrastructure

**Indigenized offerings with Indigenized supply chain**

## Castings & Forging items indigenized in last 2 years

*(on account of Make in India efforts)*



Sl.	Item	Supplier, M/s	Value per annum, (Rs Cr.)
1	Hydrogenerator shaft forgings (36 MT)	L&T Special Steels and Heavy Forgings, Mumbai	20.0

# Retaining Ring Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Forgings	Rotor coils of Generator		HEEP Haridwar	9	85030090, 85030010	Siemens, WEG, Crompton Greaves, L&T
	Turbo-Generator	HY19372	HPEP Hyderabad	15		
	Generator/ Motors	BP19381/BP19383	HEP Bhopal	3		
Special Features of the job		Matl. Grade: <b>Ferrous</b> - X8CrMnN1818K/ X4CrNiMnMo N19138 / X4CrNiMnMo N19165, <b>Non Ferrous</b> - CuNi14Al3  Dimension 1 (F): OD: 1131 to 1320 mm, ID.: 991 to 1167 mm, <b>Weight:</b> 1000 to 1800 Kg Dimension 2 (F): OD: 700 to 1150 mm, <b>Thk.:</b> 60 to 80 mm, <b>Weight:</b> 33 to 1250 Kg Dimension 3 (F): OD: 403 to 1028 mm, ID: 350 to 981 mm, <b>Weight:</b> 33 to 203 Kg Dimension 4 (NF): OD: 594 to 1245 mm, ID: 544 to 1189 mm, <b>Weight:</b> 78 to 255 Kg				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No )
1.	Cold expansion of forging below 300 deg.	Cold Expansion Facility	No
2.	ESR steel is to be used	Steel Melting & Refining	Yes

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# Retaining Ring Forgings



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## Forging for Winding Support Ring

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Alloy Forging Steel Non Magnetic	To support over armature overhang of Exciter		HEEP Haridwar	0.60	85030090	
Special Features of the job		Chemical Composition (Major Elements): X8CrMnN1818K; Cr: 17.5 – 20.0; Mn: 17.5 – 20.0 Dimension: OD: 573 mm; ID: 520mm; Ht Range: 170 – 190 mm; Wt: 54 - 61 kg				
Sl.	Requirements of the job		Facility /Technology		Whether available in India (Yes / No )	
1.	Cold expansion of forging below 300 deg.		Cold Expansion Facility		No	
2.	ESR steel is to be used		Steel Melting & Refining		Yes	

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## Forging for Winding Support Ring



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# Rotor Wedges

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Extruded Profiles (CuNi 2Si )	Turbo-Generator	TG65811	HPEP Hyderabad	3.45	74099000, 85469090 85030010	
Special Features of the job		<ul style="list-style-type: none"> <li>• minimum 0.2% proof stress required is of the order of 520 N/mm<sup>2</sup>;</li> <li>• tensile strength of 590-750 N/mm<sup>2</sup></li> </ul>				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No )
1.	Precision Extrusion with close tolerances	Extrusion & heat treatment	No

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# Rotor Wedges



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# Rotor Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Alloy Steel Forging	Generator Rotor		HEEP Haridwar	40	85030090, 85030010	L&T Siemens India
Forgings	Turbo-Generator	HY19471	HPEP Hyderabad	15		
Special Features of the job		Matl. Grade: 26NiCrMoV145, 15 Dimension 1: Dia.: 1080 – 1256 mm; Length: 9000 – 13635 mm; <b>Wt: 37.2 – 85.0 Ton</b> Dimension: OD: 1080 MM, Length: 10,000 MM, <b>Weight: 35-42 MT</b>				
Sl.	Requirements of the job			Facility /Technology	Whether available in India (Yes / No )	
1.	Heat treatment in vertical position or in horizontal position with rotation			Press of high capacity & Heat treatment facility	Not available for forging weight>35 ton	

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# Rotor Forgings



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## IP Rotor Shaft Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Alloy Steel Forging	IP Rotor of Steam Turbine	X12CrMoVWNb N10-1-1	HEEP Haridwar	20	84069000	
Special Features of the job		<p><b>Chemical Composition:</b>            C: 0.11 – 0.13; Mn: 0.4 – 0.5; Cr: 10.2 – 10.6; Mo: 1.0 – 1.1; W: 0.95 – 1.05; N: 0.045-0.060, Nb: 0.04-0.06, V: 0.15-0.25; Si: 0.12max; P: 0.012max; S: 0.005max</p> <p><b>Dimension: IP Rotor 1: Dia 1110mmX 3545mmX 5907mm; Delivery Weight: 27.5 Ton</b>  <b>IP Rotor 2: Dia 1140mmX 3895mmX 6257mm; Delivery Weight: 34.3 Ton</b></p>				
Sl.	Requirements of the job			Facility /Technology	Whether available in India (Yes / No )	
1.	Steel melting and secondary refining facility, Forging Press, Manipulator, Handling Capacity			Steel Melting & Forging		
2.	Vertical heat treatment facility			Vertical heat treatment		
3.	Testing facility			Testing		
4.	Creep test as part of vendor qualification			Long Term testing		

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# IP Rotor Shaft Forgings



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# HP Rotor Shaft Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Alloy Steel Forging	HP Rotor for Steam Turbine		HEEP Haridwar	18	84069000	Siemens India
Special Features of the job		<p><b>Chemical Composition:</b> X12CrMoVWNbN10-1-1            C: 0.11 – 0.13; Mn: 0.4 – 0.5; Cr: 10.2 – 10.6; Mo: 1.0 – 1.1; W: 0.95 – 1.05; N: 0.045-0.060, Nb: 0.04-0.06, V: 0.15-0.25; Si: 0.12max; P: 0.012max; S: 0.005max</p> <p><b>Dimension:</b> Dia 800mm X 2765mm X 5475mm      <b>Delivery Weight:</b> 15.9 Ton</p>				
Sl.	Requirements of the job			Facility /Technology	Whether available in India (Yes / No )	
1.	Steel melting and secondary refining facility, Forging Press, Manipulator, Handling Capacity					
2.	Vertical heat treatment facility					
3.	Testing facility					
4.	Creep test as part of vendor qualification					

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# HP Rotor Shaft Forgings



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# LP Rotor Shaft Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Alloy Steel Forging	LP Rotor for Steam Turbine		HEEP Haridwar	36	84069000	Siemens
Special Features of the job		Chemical Composition: 26NiCrMoV145; 26NiCrMoV115 C: ≤ 0.28; Ni: 3.4 – 3.8; Cr: 1.4 – 1.8; Mo: 0.30 – 0.45, S & P: ≤0.010 Dimension: Dia: 1400 – 1910mm; Rotor Length: ≥ 6500; Weight: 50 – 97 Ton				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No )
1.	Steel Melting & Refining Facility for ingot		
2.	Heat Treatment		
3.	Testing		

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# LP Rotor Shaft Forgings



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## Forging for Armature Clamping

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Alloy Steel Forging Magnetic	To support armature Nonoverhang & core for 250MW Exciter		HEEP Haridwar	0.25	85030090	Siemens India
Special Features of the job		<u>Chemical Composition (Major Elements):</u> X8CrMnN1818K Cr: 17.5 – 20.0; Mn: 17.5 – 20.0  <u>Dimension:</u> OD: 635mm; ID: 393mm; Ht: 145mm				
Sl.	Requirements of the job			Facility /Technology	Whether available in India (Yes / No )	
1.	Steel Melting & Refining					
2.	Forging & Heat Treatment					
3.	Testing					

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## Forging for Armature Clamping



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# Hydro Generator Shaft Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr)		
Bottom Shaft Forgings	Hydro generator / LIS Motors	ASTM A668 GR-E / HG10035	HEP Bhopal	10 (approx.)	-	Voith Hydro, Andritz Hydro, GE
Special Features of the job		<p><b>Weight : 32 T – 70 T (approx.)</b></p> <p><b>Dimension- Length : 4 M- 5 M (approx.)</b></p> <p><b>Diameter (Max. at bearing) : 2 M – 3.5 M (approx.)</b></p> <p><b>Shaft diameter : 0.8 M – 1.2 M (approx.)</b></p>				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No)
1.	Forging facility as per specification/ drawing	Forging Facilities	Yes

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# Hydro Generator Shaft Forging



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## Forged Pelton Runner

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Stainless Steel Forging	Hydro Turbine	ASTM A473 Type S41500	HEP Bhopal	5 to 10 Cr.	84109000	
Special Features of the job		Weight: 10275 Kg, Forged Disc dia : 3050mm, 13-4 Stainless steel forging to ASTM A473 Type S41500 with high impact value of 120J at 0° C				
Sl.	Requirements of the job	Facility /Technology		Whether available in India (Yes / No )		
1.	High Quality Forged Runner Disc with high impact value requirement	Secondary refining facilities required to get sound quality forging				

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## Forged Pelton Runner



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# Castings of IP Outer Casing – Nodular Grade

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Nodular Casting	IP Outer Casing for Steam Turbine	GGG – 40.3	HEEP Haridwar	20	84069000	Siemens India
Special Features of the job		<b>Material Grade:</b> GGG, EN-GJS-400-18-RT (Nodular Cast Iron) <b>Delivery Weight:</b> 29 – 42 Ton (weight of one half)				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No )
1.	Melting		
2.	Pouring & Casting (Handling)		

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## Castings of IP Outer Casing – Nodular Grade



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# Centrifugal Castings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Casting	Generators	BP19989	HEP Bhopal	0.5	85030090, 85030010	Competitors - Siemens, TDPS
Special Features of the job		<b>Material Grade:</b> Cu Al Castings <b>Dimension (Outer Diameter X Inner Diameter X Height X Weight):</b> 1050 mm X 995 mm X 280 mm X 188 Kg				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No )
1.	Centrifugally cast Copper Aluminum Alloy is to be used. Rings are to be Centrifugally cast and rough machined.	Centrifugal Casting, Mechanical testing / NDT	Yes (with Size limitations)

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# Centrifugal Castings



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# Hydro Generator Shaft Forgings

BHEL					HSN Code	Details of other clients in India who require the job
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr )		
Bottom Shaft Forgings	Hydro generator / LIS Motors	ASTM A668 GR-E / HG10035	HEP Bhopal	10 (approx.)	-	Voith Hydro, Andritz Hydro, GE
Special Features of the job		Weight : 32 T – 70 T (approx.)  Dimension- Length : 4 M- 5 M (approx.) Diameter (Max. at bearing) : 2 M – 3.5 M (approx.) Shaft diameter : 0.8 M – 1.2 M (approx.)				

Sl.	Requirements of the job	Facility /Technology	Whether available in India (Yes / No )
1.	Forging facility as per specification/ drawing	Forging Facilities	Yes

# Hydro Generator Shaft Forging



**“NATIONAL FACILITIES FOR  
CASTINGS & FORGINGS”**



## Proposed Products for “National Facility for Castings & Forgings”



Steel, Mining & Metallurgy	Power	Defence & Aerospace	Nuclear & Space	Ship Building	Machine Tools & Others
<ul style="list-style-type: none"> <li>• Copper Tuyeres</li> <li>• Hammer Head</li> <li>• Upper &amp; Lower Shoe</li> <li>• Liner</li> <li>• Pusher Ram</li> <li>• Ingot Moulds</li> <li>• Slag Cups</li> <li>• Bottom Shell</li> <li>• SG Iron Castings</li> <li>• Forged Rolls for Rolling application</li> </ul>	<ul style="list-style-type: none"> <li>• HP, IP, LP &amp; TG Rotor</li> <li>• Hydro shafts</li> <li>• Discs</li> <li>• Retaining &amp; Forged rings</li> <li>• Pelton Runner, Inner Casings</li> <li>• SG Iron Castings (IP Outer)</li> <li>• Super alloy for AUSC</li> <li>• Wind mill shafts &amp; Forged Rolls</li> <li>• Tube Sheets</li> <li>• Nozzles/ Blooms</li> <li>• Closed die forgings (Turbine Blades)</li> </ul>	<ul style="list-style-type: none"> <li>• A/P- Bracket,</li> <li>• Turret Castings</li> <li>• Bomb Shell</li> <li>• NAB Propeller casting</li> <li>• 155/52 Caliber gun barrel</li> <li>• Nuclear Submarine Hull</li> <li>• Closed die forgings (Ti &amp; Al Alloy Forgings)</li> </ul>	<ul style="list-style-type: none"> <li>• Pressure Vessel</li> <li>• Tube Sheets</li> <li>• Hawse Pipe</li> <li>• Closed die forgings (Ti &amp; Al Alloy Forgings)</li> </ul>	<ul style="list-style-type: none"> <li>• Rudder Stock &amp; Castings</li> <li>• Propeller Shaft</li> <li>• Bulkheads</li> <li>• Shell Lip</li> <li>• Deck Lip</li> <li>• Hatchway</li> </ul>	<ul style="list-style-type: none"> <li>• Spindle Stand</li> <li>• Mill Housing</li> <li>• Roll Chocks</li> <li>• Cylinder Liner</li> <li>• Shredder Hammer</li> <li>• Gear Blanks</li> <li>• Sprocket</li> <li>• Spider Wheel</li> <li>• G B Housing</li> </ul>

# Suggestive Format for Demand aggregation of CASTINGS at Country level



Type	Name of Items being Imported	HSN Code	Matl. Grade	Approx. Weight/Weight Range (MT)	Approx. Dimension / Dimension Range (in mm)	Actual Imports done in last 3 years						Approx. Requirement in Future Years per annum										
						2022-23		2021-22		2020-21		2023-24		2024-25		2025-26		2026-27		2027-28		
						Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	
Grey Iron	Item 1																					
	.....																					
	Item n																					
SG Iron	Item 1																					
	.....																					
	Item n																					
Steel	Item 1																					
	.....																					
	Item n																					
Others	Item 1																					
	.....																					
	Item n																					
<b>Total</b>																						

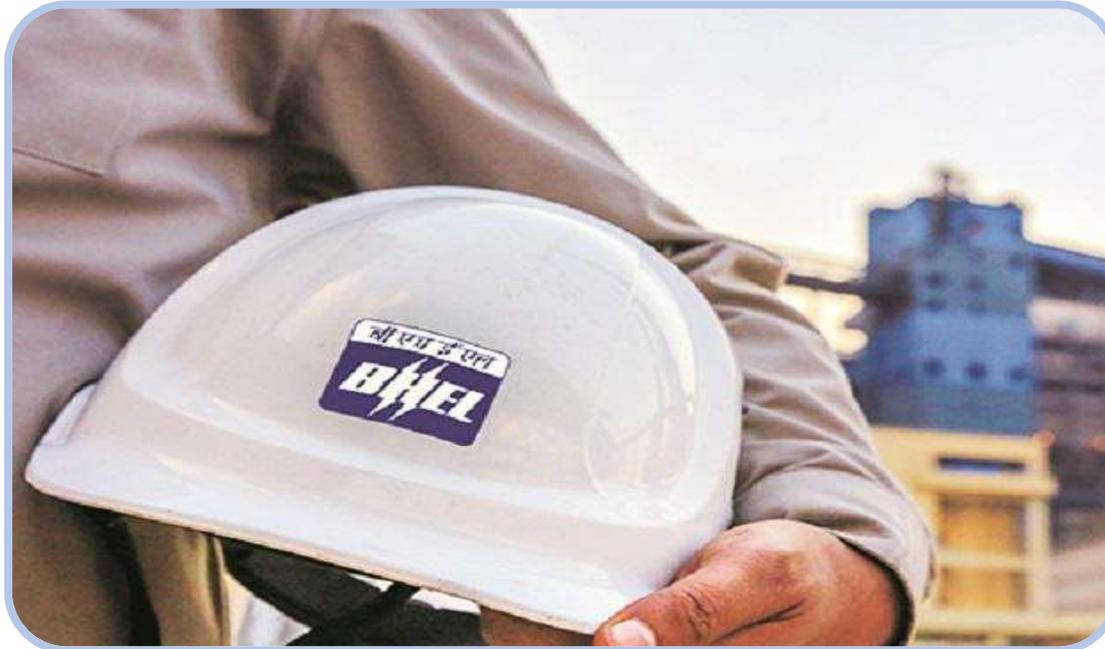
\*Physical-MT/Nos. Financial-Rs. Crs,

# Suggestive Format for Demand aggregation of FORGINGS at Country level



Type	Name of Items being Imported	HSN Code	Matl. Grade	Approx. Weight/Weight Range (MT)	Approx. Dimension / Dimension Range (in mm)	Actual Imports done in last 3 years						Approx. Requirement in Future Years per annum									
						2022-23		2021-22		2020-21		2023-24		2024-25		2025-26		2026-27		2027-28	
						Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Open Die Forgings	Item 1																				
	.....																				
	Item n																				
Closed Die Forgings	Item 1																				
	.....																				
	Item n																				
Others	Item 1																				
	.....																				
	Item n																				
<b>Total</b>																					

\*Physical-MT/Nos. Financial-Rs. Crs,



**THANK YOU**

# Backup

## ASSISTANCE REQUIRED FROM GOVERNMENT

- **Funding of entire proposed Investment of Rs. 4,875 Crores by Government of India**
- **Arrangement of specific Import data for Castings and Forgings imported into the country in last 3 years along with its specification (Item name, Material grade, weight, size, quantity and value)**
- **Likely Demand aggregation (Physical and Financial) at Country level for various types of Castings and Forgings for next 5 years under various sectors**
- **Support of DPIIT is requested for above data.**
- **Specific procurement guidelines for this dedicated setup of “National Facility for Castings & Forgings” to all industries (Public & Private) across India from Government of India to make it economical & viable**
- **In order to fast-track the project completions, exemption from restrictions under rule 161 (iv) & 144 (xi) of GFR 2017 be permitted for P&M required in this facility**
- **Promotion of India as preferred destination for supplies of Castings and Forgings across the Globe**

# TENTATIVE INVESTMENT SUMMARY

□ Cr.

S. No.	Project	Business Segment	Tentative Investment
<b>(A) If 8 projects identified are taken up separately</b>			
1	Retaining Rings & Forged Rings	Power Sector	375
2	NAB (Nickel Aluminium Bronze) Propeller Casting	Defence & Aerospace, Shipping	149
3	SG Iron Castings	Power Sector & Industry Sector	243
4	HP, IP, LP, TG rotors, Hydro Shafts & forgings (Including Advance Ultra Super Critical Power Plant)	Power Sector & Industry Sector	2475
5	155/52 Caliber gun barrel & Propeller Shafts	Defence & Aerospace, Ship Building	840
6	Alloy 625 castings for AUSC	Power Sector	82
7	Wind mill shafts & Forged Rolls	Power Sector & Steel	1420
8	Closed die forgings by installing 35,000T Closed Die forge Press and 12,000T Isothermal Press (Titanium/Aluminium Alloy Forgings etc.)	Nuclear & Space, Defence & Aerospace, Power Sector	1209
<b>Sub-Total</b>			<b>6793</b>
<b>(B)</b>	<b>Investment in case all of above projects are sanctioned together for creation of "National Facilities for Castings &amp; Forgings"</b>	<b>All of the above</b>	<b>4875</b>

**Proposal (B) with all above 8 projects together with a reduced optimised investment of Rs. 4,875 Crores will be a beneficial proposition leading to ~saving of Rs. 1900 Crores as against proposal (A) of Rs. 6793 Crores**

## Strategic Edge of CFFP, BHEL, Haridwar for setting up “National Facility for Castings & Forgings”



- Capability to make Steel Castings as low as 0.5MT to as high as 60 MT single piece and Cast-fabricated castings up to 120 MT weight
- Developed and manufactured 20.7 MT weight Alloy 625 Casting, one of the heaviest castings in the category
- Capability to make Forgings upto 36 MT in different material grades
- Available know how from M/s Sheffield Forge masters, UK and M/s Creusot Loire, France to manufacture forgings in different material grades through open die forging
- Capable of melting and handling higher capacity liquid metal and experienced in special grade, e.g. P-91 (Tungsten Grade) and alloy 625, castings of bigger size
- Highly skilled engineers having requisite knowledge base
- Well equipped with production/testing facilities
- Sufficient vacant land available (approx. 1300 Acres) near existing factory area for future expansion

# Castings- Market Overview

## CASTINGS Global Scenario

- Global metal casting market, valued at USD 26.55 billion in 2021, projected to grow at a **CAGR of 8.7%** from 2022 to 2030
- China's Dominance ~50% in Worldwide Production
- Restrictions on Chinese import, post pandemic has enhanced **opportunities** for Indian players
- Castings market share is dominated by Automotive Industry followed by Valves & **Heavy equipment's**
- Iron Castings (Cast Iron/ Grey Iron & Ductile Iron) is having maximum share (i.e. 67 %) of castings globally

## Indian Casting Market and Scope for CFFP

- **The import content in Castings in India is quite high (1000+ in million USD) indicating lack of manufacturing facilities attributed to technology/ capacity gaps/ higher cost**
  - Indian Market is dominated by Small & Medium sized units with only few large units catering to Indian Industry demands
  - **The market share of Heavy Equipment's itself works out to USD 4.2 billion (i.e. Rs 31,500 Crores) at global level indicating ample opportunity Casting manufacturers**
-

# Forgings- Market Overview

## FORGINGS Global Scenario

- Global metal forging market, valued at USD 74.36 billion in 2021, projected to grow at a **CAGR of 7.7%** from 2022 to 2030
- Forgings market share is dominated by Automotive Industry followed by Defence & Aerospace
- **Closed Die forging** process dominates the forging requirements in India (~70%) followed by Open die forging (~17%)

## Indian Forging Market and Scope for CFFP

- **The Indian forging industry has an annual output of about 20 lakh metric ton worth Rs 45,000-50,000 crore (FY2021 approx.)**
- India has about close to 400 forging units, of which 80 to 82% can broadly be categorized as tiny and small enterprises, 10% are medium sized and the remaining being large scale.
- **CFFP caters to open Die Forgings i.e.17% market segment**
- These factors validates the need of a “National Facilities of Castings & Forgings” for India to become self reliant under “AatmaNirbhar Bharat” drive for import substitution