



संवाद
Sanwaad

Online Workshop

for **Development of Local Suppliers**
for **sourcing of engineering items & raw materials**

1st January 2021, 11.00 AM

#AatmaNirbharBharat



#VocalforLocal

Third Workshop – Consumables for Foundry Applications and Plates above 150 mm thickness

Hosted by Central Foundry Forge Plant (CFFP), BHEL , Haridwar

Major items for indigenization

Material	Application	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Nickel	Alloy steel Forgings	15	75021000	All steel foundries including SAIL, RINL, etc
Chromite Sand	Foundries	5	26100090	
Nitrided Low Carbon Ferro Chrome	Alloying addition in steel forgings	1	72024900	
Flourspar	Melting & refining of steel	1	25291010	
Carbon steel plates with grades with thickness above 150 mm Tk	Hydro turbine & generators.	16	-	-

Central Foundry Forge Plant

SAMVAAD

On Foundry items

(CFFP) : Central Foundry Forge Plant : An Introduction

Name of the Unit:	Central Foundry Forge Plant (CFFP)
Location:	Haridwar (Uttarakhand)
Year of Establishment	1976
Product Profile:	Castings & Forgings
Strategic Importance	Strategic Unit to manufacture and supply castings & forgings for Power Plant Equipment in material grades Plain Carbon Steel, Alloy Steel , Super Critical and Stainless Steel .

Achievements:

- **World's Heaviest Casting (21MT-single piece) with IN625 Super Alloy for AUSC Mission Project developed successfully**
- **Established Low Temperature high Impact castings (35J at -20°C or 27J at -40°C)**
- **Established manufacturing of Titanium Boron Stabilized Steel Bars (withstanding up to 565°C)**



CFFP Haridwar



Forging in process



Francis Runner Casting

Classification	Application (Butt Welding Combination for tubular products of Supercritical boilers)	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Nickel	Alloy steel Casting & forgings	15.0	75021000	All steel foundries including SAIL, RINL, etc

Chemical Composition

Element	% Min	% Max
Nickel	99.0	-
Cobalt	-	0.50

- **BHEL Specification**
 - [FF05061 Rev 02](#)
 - National Standard : IS:22782-1964 Primary Nickel
 - Chemical analysis through IS:2766-Part 1
- **Other Requirement:**
 - Size : 100X100 mm.
 - Size : 1MX1M
 - Requirement of Third Party Inspection



Classification	Application (Butt Welding Combination for tubular products of Supercritical boilers)	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Nitrided Low Carbon Ferro Chrome	Alloying addition in steel forgings	1.0	72024900	All steel foundries including SAIL, RINL, etc

Chemical Composition

Element	% Min	% Max
Chromium	60	67
Nitrogen	2.0	-
Silicon	-	1.0
Carbon	-	0.10
Sulphur	-	0.05
Phosphorus	-	0.05
Aluminium	-	0.1

• BHEL Specification

- [FF05069 Rev 01](#)
- National Standard : IS:1170-1992 Grande: FeCr 64N 300
- Chemical analysis through IS:1559-1992

• Other Requirement:

- Material should be free from extraneous contamination such as slag
- Sampling in accordance to IS 1472:1977



Classification	Application (Butt Welding Combination for tubular products of Supercritical boilers)	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Fluorspar Lumps	Melting & refining of steel	0.05	25291010	All steel foundries including SAIL, RINL, etc

Chemical Composition

Element	% Min	% Max
SiO ₂	-	4
Mixed Oxide	-	4
Sulphur	-	0.05
Effective CaF ₂ CaF ₂ (eff)=CaF ₂ - 2.5xSiO ₂	84	-

• BHEL Specification

- [FF05015 Rev 06](#)
- National Standard : IS: 4574
- Chemical analysis through IS:2411

• Other Requirement:

- Material should be free from extraneous contamination
- The test results are to be rounded off as per IS 2-1960 (reaffirmed 2000)



Classification	Application (Butt Welding Combination for tubular products of Supercritical boilers)	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Chromite Sand	Foundries	5.00	26100090	All steel foundries including SAIL, RINL, etc

Chemical Composition

Element	% Min	% Max
Cr2O5	46	-
FeO	-	27
MgO	-	12
Al2O3	-	16.5
SiO2	-	1.1
CaO	-	0.5

• BHEL Specification

- [AA53627 Rev 04](#)
- National Standard : IS: 6788-1973
- Chemical analysis through IS: 1918 or equivalent

• Other Requirement:

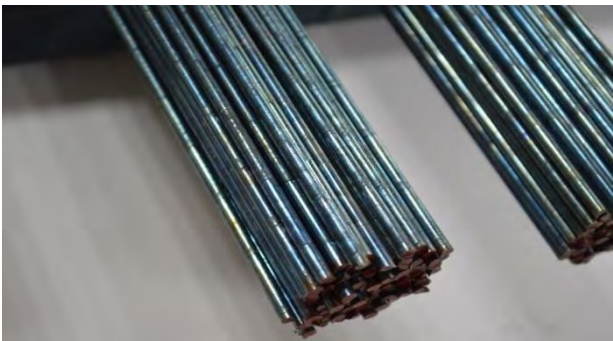
- Clay 0.5% max
- Moisture 0.2% max
- pH 6.5 to 8.0
- Turbidity 210 ppm max
- GFN AFS 45 to 55
- Fines 1.0% max
- Acid demand value



pH	3	4	5
ADV(max)	10ml	8ml	6ml

Classification	Application	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Extra Low Hydrogen type non Synthetic Covered Arc Welding Electrodes for Welding of GX12CrMoWVNbN1011 Steel	Electrodes Shall be suitable for Radiography quality welding of cast Steel GX12CrMoWVNbN1011 Steel.	0.12	83111000	No

- **Process** : Manual Arc Welding (Castings)
- **Dimension** :
 - Diameter of Rod : 3.2,4.00 and 5.00mm
 - Length of the Rod : 450 mm
- **Technical Properties** :
 - As per ASME Sec IIC –SFA 5.5 E9018-B9 (Modified)
 - Chemical requirement :
 - ASME SecIIC SFA 5.5, Class E9018B9
 - Usability :
 - Flows freely, uniformly without spatters

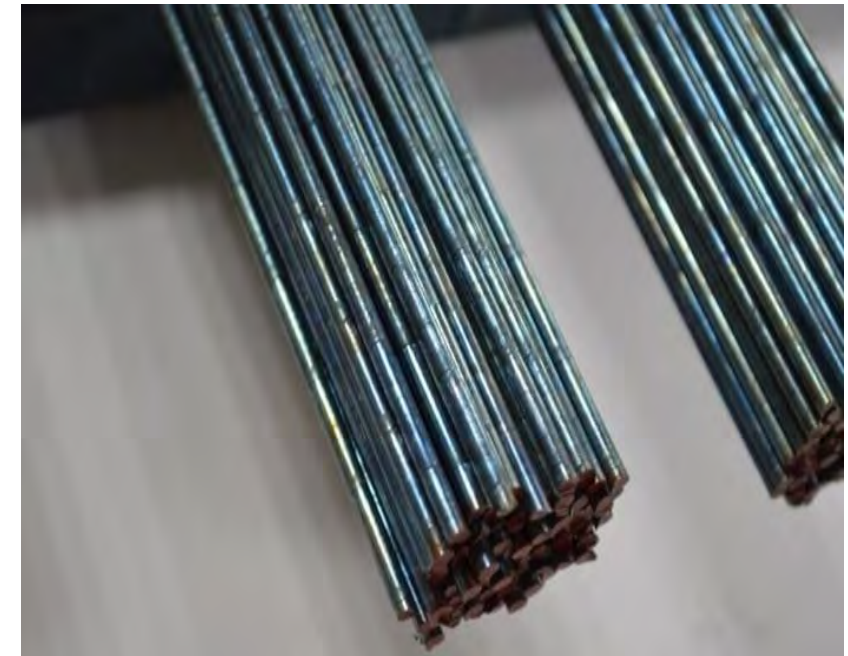


Carbon	0.08-0.13%	Molybdenum	0.9-1.1%
Manganese	0.5-1% (max)	Vanadium	0.18-0.23%
Silicon	0.18-0.5% (max)	Niobium	0.05-0.08% (max)
Chromium	25 – 30 %	Nitrogen	0.04-0.7% (max)
Tungsten	0.9-0.1.1 % (max)	Chromium	0.9-1.1 % (max)
Phosphorus	0.015% (max)		

Classification	Application	Requirement p.a. (Rs Cr)	HSN Code	Whether required by other clients
Extra Low Hydrogen type non Synthetic Covered Arc Welding Electrodes for Welding of GX12CrMoWVNbN1011 Steel	Electrodes Shall be suitable for Radiography quality welding of cast Steel GX12CrMoWVNbN1011 Steel.	0.12	83111000	No

- Mechanical Properties :- The Mechanical Properties of weld metal deposited using the electrodes after SR the test plate assembly at $740^{\circ}\text{C} \pm 10^{\circ}\text{C}$ for 120 minutes shall be as follow

Yield Strength (at 0.2% proof stress)	530MPa(Min)
UTS	650-850MPa
%Elongation	17%min.
%Reduction in area	40%min.
Impact Strength (Charpy V notch at 20°C)	35 joules min.
Hardness	210-265 BHN



Raw Material – Carbon Steel plates >150mm thick

BHEL					HSN Code	Whether required by other clients
Classification	Application	Specification	Unit	Requirement p.a. (Rs Cr)		
Carbon steel plates with grades with thickness above 150 mm Tk	Hydro turbine & generators.	ASTM A 537 Cl .II, ASTM A 516 Gr. 70 & IS 2062	HEP, Bhopal	16	-	-

BHEL support for Development of Suppliers



24x7 Online portal for registration 

- Simple registration form
- Timebound evaluation



Product development support

- Drawings, specifications
- Tooling

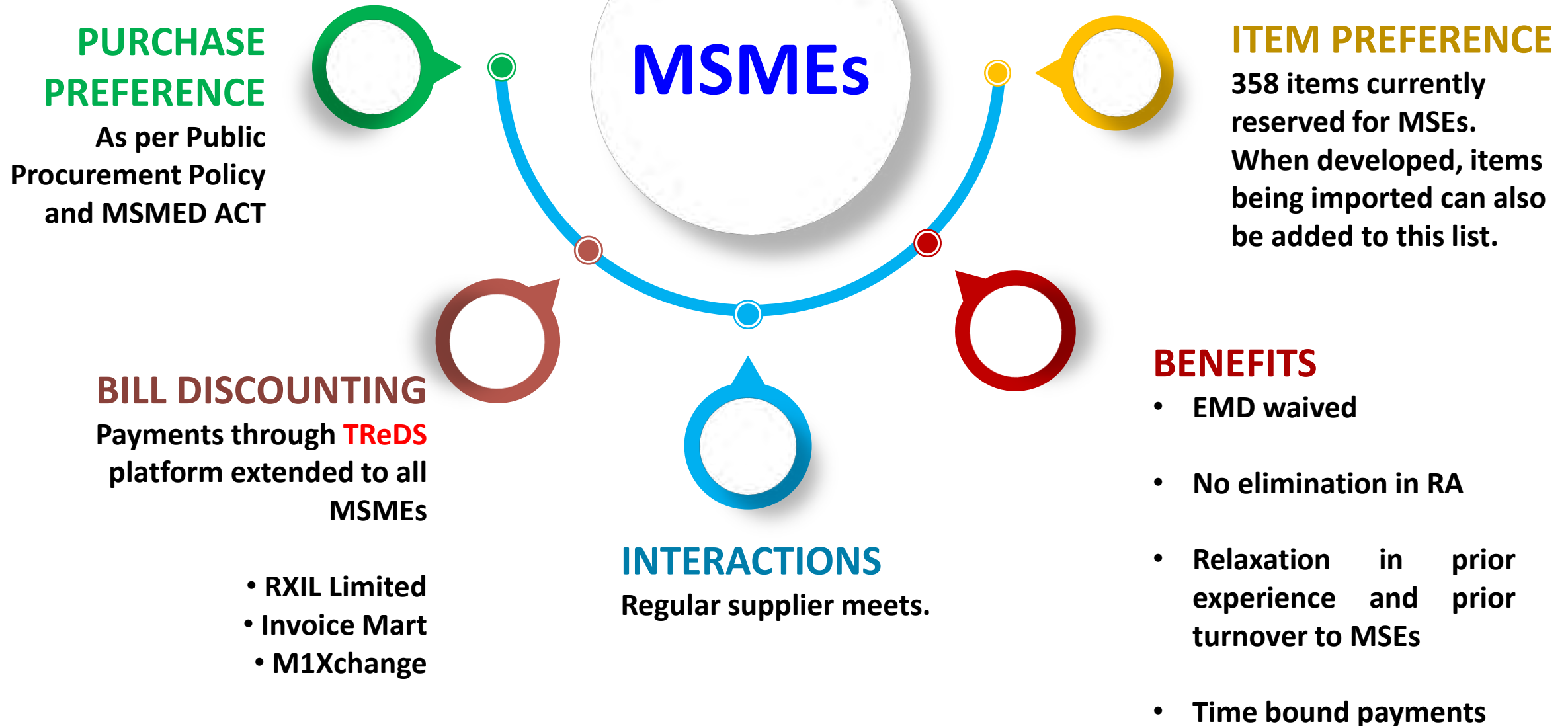


Hand holding with R&D and type testing



No LD/ penalty for developmental orders

BHEL support for MSMEs



BHEL support for Start-ups



BENEFITS

**Relaxation in prior
experience and turnover**



STARTUP RUNWAY

**BHEL is tendering its
requirements on GeM
wherein Startups can
supply goods as per the
Startup Runway on GeM**

Calendar for BHEL SAMVAAD

[Detailed list](#)

SNO	Category of Material	Date	Day	TIME
1	Raw Materials-Special/ Alloy/ Electrical Steel	29.12.2020	Tuesday	10:00 AM - 12:00 PM
2	Consumables for Foundry Applications	01.01.2021	Friday	10:00 AM - 12:00 PM
3	Welding Consumables of Special Grade	05.01.2021	Tuesday	10:00 AM - 12:00 PM
4	Castings & Forgings	08.01.2021	Friday	10:00 AM - 12:00 PM
5	Components-Mechanical	12.01.2021	Tuesday	10:00 AM - 12:00 PM
6	Insulating Materials	15.01.2021	Friday	10:00 AM - 12:00 PM
7	Components - Electrical & Electronics	19.01.2021	Tuesday	10:00 AM - 12:00 PM
8	Components – Solar	22.01.2021	Friday	10:00 AM - 12:00 PM
9	Systems & Packages	27.01.2021	Tuesday	10:00 AM - 12:00 PM

[Click here for filling up your details regarding your participation](#)

For any queries, please contact us on samvaad@bhel.in

Enrollment for BHEL SAMVAAD – Online Form submission

BHEL SAMVAAD

"An interaction forum with local industry for strengthening the cause of Aatma Nirbhar Bharat"

*Required

Supplier Name and address *

Your answer

Contact person Name *

Your answer

Contact person's email address *

Your answer

Contact person's Mobile No. *

Your answer

Category of Material (Kindly select your option, so that VC link invite is shared with you separately for the scheduled date and time) *

- ☐ Raw Materials-Special/ Alloy/ Electrical Steel - 29.12.2020 - 10:00 AM - 12:00 PM
- ☐ Consumables For Foundry Applications - 01.01.2021 - 10:00 AM - 12:00 PM
- ☐ Welding Consumables of Special Grade - 05.01.2021 - 10:00 AM - 12:00 PM
- ☐ Castings & Forgings - 08.01.2021 - 10:00 AM - 12:00 PM
- ☐ Components-Mechanical - 12.01.2021 - 10:00 AM - 12:00 PM
- ☐ Insulating Materials - 15.01.2021 - 10:00 AM - 12:00 PM
- ☐ Components - Electrical & Electronics - 19.01.2021 - 10:00 AM - 12:00 PM
- ☐ Components - Solar - 22.01.2021 - 10:00 AM - 12:00 PM
- ☐ System & Packages - 27.01.2021 - 10:00 AM - 12:00 PM

List of items proposed to be developed for BHEL *

Your answer

Submit



Thank You

Write to samvaad@bhel.in to convey your interest