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NOTICE (सूचना)

सन्दर्भ: 5001/1/उपकरण/Magnetic Barrier Laboratory Separator/2024-25/ **दिनांक: 14.05.2024**

सेवा में

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विषय:- "साम्पतिक वस्तु प्रमाण-पत्र" (**PROPRIETARY ARTICLE CERTIFICATE**) के आधार पर "चुंबकीय बाधा प्रयोगशाला विभाजक" "(MAGNETIC BARRIER LABORATORY SEPARATOR)" (विस्तृत विवरण अनुलग्नक-1) को क्रय करना आपेक्षित हैं | जिसका विवरण निम्न तालिका-'क' के अनुरूप हैं -

तालिका-'क'

क्र. सं.	विवरण	आवश्यक मात्र	ईएमडी की लागत	सुरक्षा जमा राशि
01	"चुंबकीय बाधा प्रयोगशाला विभाजक" {विस्तृत विनिर्देश अनुलग्नक-I} "MAGNETIC BARRIER LABORATORY SEPARATOR" **(Detailed specifications are as Annexure-I)**	01	लागू नहीं	लागू नहीं

सर्वजन को सूचित किया जाता है कि संस्थान द्वारा उपरोक्त तालिका-'क' के अनुरूप आपेक्षित उपकरण को (PAC) आधार पर क्रय करना हैं | यदि कोई उपभोक्ता/फर्मदाता/बोलीदाता, उक्त उपकरण **"चुंबकीय बाधा प्रयोगशाला विभाजक" "(MAGNETIC BARRIER LABORATORY SEPARATOR)"** को **(विस्तृत विवरण अनुलग्नक-1)** के अनुरूप अपनी प्रतिभागिता करना चाहता हैं | वह 21 दिनों के भीतर-भीतर अपना पक्ष/प्रार्थना-पत्र/ई-मेल (पूर्ण विनिर्देशो के साथ) दी गई ई-मेल आई०डी० जैसे store_gen@wihg.res.in, stores@wihg.res.in, पर कर सकता हैं | उक्त सूचना (Notice) 21 दिनों (***दिनांक: 15.05.2024 से दिनांक: 04.06.2024 तक***) तक प्रभाव में रहेगी |

भंडार एवं क्रय अधिकारी

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TECHNICAL SPECIFICATIONS OF MAGNETIC BARRIER LABORATORY SEPARATOR

Description: Supply, installation, testing & commissioning of **Magnetic Barrier Laboratory Separator** along with its accessories: (1) Vibrator & Feed Control (2) Regulated Power Supply (3) Step Down Transformer (4) Low Field Control Accessory (5) Collection box (6) 2 Chute Braces and all the necessary accessories.

Application: Continuous precise magnetic separation of dry materials by exploiting the slight differences in paramagnetic or diamagnetic susceptibility.

Technical specifications of Magnetic Barrier Laboratory Separator

Material characteristics			
a)	Minerals to be handled	Minerals containing paramagnetic & diamagnetic, minerals e.g. Sulphides, Magnetite, Pyrrhotite, Barium, Beryllium, Graphite, Diamond, Silicon, Zircon, Apatite etc.	
b)	Feed size	30 mesh to 400 mesh size granules.	
c)	Feed Mechanism	It should be designed to feed granular materials to the separation area that will be inclined on the different range of side slopes and front slopes according to the type of separation. Feeding troughs for the Paramagnetic & Diamagnetic materials should be different and all of them to be supplied along with the equipment.	
Magnetic Barrier Laboratory Separator			
a)	Mechanical	Chute	Polished metallic surface should be very smooth, conductive and rigid to act as platform for free flow of materials, since the separation depends on the a relationship between gravitational and magnetic forces.
		Slope Settings	Magnetic Barrier system with spirit level, scale and adjustable forward and side slope
		Side slopes inclination range	Adjustable -30° to +90° from horizontal
		Slope mechanism	lever / handle driven
b)	Magnetic	Max magnetic energy gradient	37.5 x10^7 Gauss^2/cm
		Max field intensity	20,000 Gauss maintained for extended operations at room temperature/~25°C or lower ambient temperature.
		Field Sensor	Magnet should include a dedicated field sensor and should provide signal when system generates a magnetic field.

c)	Electrical	Low-field current controls	Low Field Control Unit capable for regulating and monitoring current from 0 to 100 mA in coils of separator and pulsing the current, allowing selection and repetition of frequencies ranging from about 3 to 35 Hertz (Hz).
		Strong field current controls	Variable auto-power supply capable for regulating and monitoring the current above 0.1 A up to 1.8 Ampere should allow magnetic separation for long periods (up to 8 hours continuous operation). Max field intensity up to 20,000 Gauss should be maintained with the power supply for extended period of operations at 23°C or lower ambient temperature.
		Vibration Regulations	Vibration control unit capable of regulating the intensity of vibration as desired for the separation. Vibration control unit should be capable of controlling both vibration for Feed & Chute.
d)	Control	Voltage	220-240V A.C, at 50/60 Hz for the regulated power supply and Low Field Control. Suitable transformer to reduce 220-240V A.C to 110-120 V A.C. at 50/60 Hz for the vibrator control only.
e)	Accessories	Regulated power supply, Low field control unit accessory, Transformer to reduce 230 volts To 115 volts Chute Braces (Countries with 50Hz.), Vibrator Control Unit for feeds, Power Cables, collection boxes	

It should be used for separating a mixture of diamagnetic and weakly paramagnetic mineral grains. The magnetic system should be inclined so that the gravity urges particles toward the far side of the chute and down its length. The light colored diamagnetic grains are to be deflected along the magnetic barrier, while the darker paramagnetic grains should pass through it and out of the field in the channel on the far side of the divider. It should have the capability for providing separations according to slight differences in either paramagnetic or diamagnetic susceptibility.

Separation in the Barrier field : The equipment should run continuously and the stream of particles traveling through field of the Magnetic Barrier Laboratory Separator should split by the opposed magnetic and non magnetic forces. Material is to be moved by gravity across the field, through the succession of sheets of ascending magnetic force, towards the region of maximum transverse force.

Particles of like susceptibility encounter like magnetic force per unit volume. Particles having susceptibility such that magnetic force opposing their motion exceeds gravitational force are deflected in the vicinity of the sheet of maximum transverse force, while particles having susceptibility that is weaker or of opposite sign pass through it. A component of gravity urges both fractions toward a mechanical divider and out of the field.

Diamagnetic Separations : Many of the more valuable elements or inorganic compounds are diamagnetic in relatively pure state, including, for example, barium, beryllium, bismuth, boron, carbon (including graphite and diamonds), germanium, gold, silicon, zircon and others. Most organic compounds are diamagnetic.

Relatively pure natural diamonds should be separated from diamonds with inclusions of other minerals for classifying and grading, and for separating synthetic from natural diamonds.

It should consist of the following:-

1. Regulated power supply with voltage and current regulation and automatic cross-over.
2. Magnetic Barrier system with spirit level, scale and adjustable forward and side slope.
3. Regulated magnetic field control should allow ascending magnetic energy gradient across the width of supply channel.
4. Working with 220-240V A,C, at 50 Hz or suitable Transformer to reduce 220-220V A.C to 115V A.C. at 50/60 Hz.
5. Capability for diamagnetic separation of material.
6. Low Field Control Unit including the capability for regulating and monitoring of pulsed current from 0 to 100 milliampere (mA) in coils of separator to allow selection and repetition of frequencies ranging from 3 to 35 Hertz (Hz).
7. Material should be visible as it enters the magnetic field and undergoes separation allowing more rapid determination of the effectiveness of the separation.
8. It should allow separations exploiting weaker paramagnetic susceptibilities, either separating particles of one more diamagnetic susceptibility from those of a slightly different diamagnetic susceptibility or from weakly paramagnetic susceptibility or from non-magnetic particles.
9) Installation & Training for 2 days should be provided in the laboratory.
10) Warranty - 12 months from the date of installation.
11) Bidders should have record of supplied <u>Magnetic Barrier Laboratory Separator,</u> regarding this relevant documents should be submitted with the bid alongwith satisfactory installation & training certificate(s).

12) Accessories required along with the equipment :

SL. No.	Description of Items	Qty. No's
1.	Chute	2
2.	Chute Screws	4
3.	Chute Levelling Screw	4
4.	Feed Trough Bracket	2
5.	Feed Trough Clamp	2
6.	Bracket Thumbwheel	2
7.	Chute Cover	20
8.	Plastic Piece	20
9.	Discharge Cover	2
10.	Discharge Plate Screw	2
11.	Hopper Plate	2
12.	Hopper Gate	2
13.	Gate & Plate Screw	2
14.	Vibration Dampener	2
15.	Feed Trough Assy.	2
16.	Diamagnetic Feed Trough	2
17.	Vibrator Control Assembly	01

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