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PRANAY ENTERPRISES
An ISO 9001 Company

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**BEYOND
INNOVATION**



Company Profile

Pranay Enterprises is an innovative engineering and manufacturing company having Fourteen years experience in the mining related products. We obtain innovative designs and know how from National R&D organizations for products that will be useful for production, safety and quality in mines. We are associated with CMRI, NRDC, NIRM, ECIL and others. We obtained DGMS approval for Hydro Mechanical cogs, Green Roof Strong props, Miner Detection Kit and Strata Movement Warning System for your underground mines roof support

Pranay Enterprises is ever engaged in obtaining know-how and adopting innovative techniques and technologies for improved performance in mines with regard to safety, Quality, Productivity and Economic operations..

Our current range of products includes.

- Hydro Mechanical Steel Cogs (Developed by CMRI) DGMS Approved
- Green Roof Strong Prop (DGMS Approved)
- Strata Movement Warning System (DGMS Approved)
- Miner Detection System (DGMS Approved)
- Resin Capsule (DGMS Approved)
- Microprocessor Based Solidstate Controller
- Truck Mounted Vibrating Screen
- On-line Coal Ash Monitor

Hydro Mechanical Steel Cogs

(Developed by CMRI) DGMS Approved

The hydro mechanical steel cogs for underground mining applications have been designed by The Central Mining Research Institute at Dhanbad. Necessity for such design arose as wood which are being used conventional supporting in the past have already become scarce causing a great concern among mine safety officials who used wooden props earlier. Further wooden supports do not have the provision for presenting loads while installation. The Hydro Mechanical Steel Cogs which are available in two models .Viz; 20T & 40T capacity obviate such short comings and are designed to provide. Goaf edge supports in depillaring areas in underground mines and for supporting of development areas particularly in junctions, slices.

The Hydro Mechanical Steel Cogs are so fabricated as to facilitate easy assembly and are therefore constructed in three parts viz; the base frame, the central cylindrical portion for height adjustment and the top supporting canopy frame.

Purpose

For underground mine roof support at Goafedges, Junction, slices, and de-pillering area

Equipment

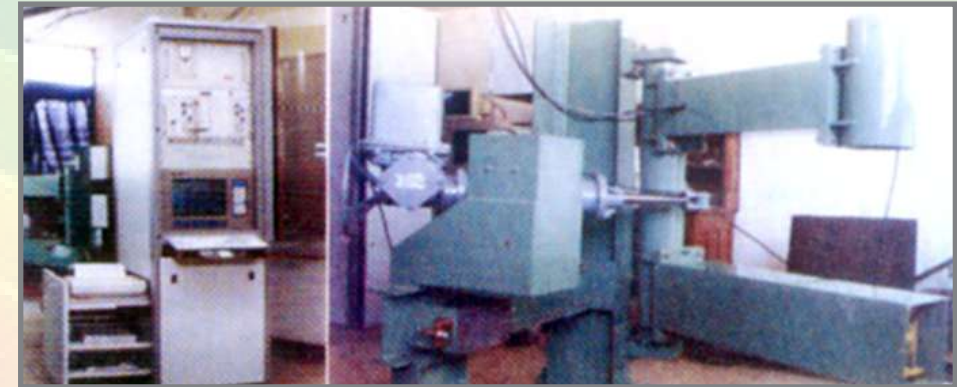
- ◆ Steel structure designed for light weight, dismantable into three parts, transportable in under ground mines
- ◆ Quick assembly and erection and safe removal. Occupies minimal space.
- ◆ Provision for remote withdrawal of support from a safe distance, enhancing safety.



On-line Coal Ash Monitor

Ash is one of the significant parameter in coal that greatly affects its calorific value, transportation cost, beneficiation and final thermal efficiency in Power Plants. Measurement of % ash in coal is a time taking process in the laboratory and proves to be of little value in real time industrial conditions.

The instantaneous measurement of ash is now made possible by the non contact, Nucleonic Technology. The on-line Coal Ash Monitor is designed for mounting the front end measuring C –Frame across the conveyor carrying coal. The PC based system electronics is placed in a Control Room .The user friendly software displays ASH % and other relevant parameters and desired Report Printout can be obtained.



Purpose : For on-line, non-contact, instantaneous measurement and display of % ash in coal flowing on conveyor of coal handling plants

Equipment

- ◆ Front end C-C frame for mounting across conveyor belt with provision for rotating off-line.
- ◆ C-Frame with radio-isotope, detector and pre-amplifier.
- ◆ PC based electronics with UPS and modular electronics housed in Industrial cabinet. To be installed within 100 mtrs of conveyor in an A.C. Room
- ◆ Monitor display of % ash value over hour, shift, etc with reports and print out on printer.

Specifications

- ◆ Radio-isotopes : Am-241 & Cs-137
- ◆ Scintillation detector with pre-amplifier
- ◆ Accuracy: +/-0.5% absolute value for coal size 100mm, +/-1-5% for coal size upto 200mm
- ◆ Power Requirement : 230+/- 10%, 50Hz.

Advantage:

- ◆ Instant gradation of coal for sorting and blending
- ◆ Saving on time over lab methods
- ◆ Preparation for plant and consignment monitoring
- ◆ Calculation of UHV.

Microprocessor Based Solidstate Controller

MBSC System (NRDC Licenced)

Purpose

- ◆ To improve hauler motor efficiency, power saving and reduces maintenance of hauler system in underground mines.
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Equipment

- ◆ Processor based, embedded with IGBTs, drive system with application software.
- ◆ Resistors for regeneration heat dissipation & Dynamic breaking
- ◆ Housed in industrial environ compatible cabinet.
- ◆ Digital display of parameters with Ammeter & KWH meter.



Specifications

- ◆ Drives for 40 HP, 75 HP, 100 HP & 150 HP
- ◆ Power savings form 20% to 40%
- ◆ Smooth start with motor protection features
- ◆ Overload current 150% of output rating for 60 secs, 180% for 30 Secs.

Advantages

- ◆ Easy installation with existing hauler system
- ◆ Improved hauler efficiency with minimum maintenane and spares consumption.
- ◆ Power saving upto 40%
- ◆ Software based system for ease of operation and adapatbility to existing parameters

Strata Movement Warning System (DGMS Approved)

(CMRI Developed)

Strata Movement Warning System is based on the measurement of low frequency micro-seismic waves generated due to strata movement. Installation of system in an underground mine would help in prediction of roof fall and provide audio visual alarm in case of impending roof fall. This would help in providing warning to the people working under the impending roof fall so that necessary precautions can be taken accordingly. This would also help in saving valuable Human lives as well as machines working under impending roof fall conditioning in underground mines.

Purpose

For roof fall prediction in underground mines

Equipment

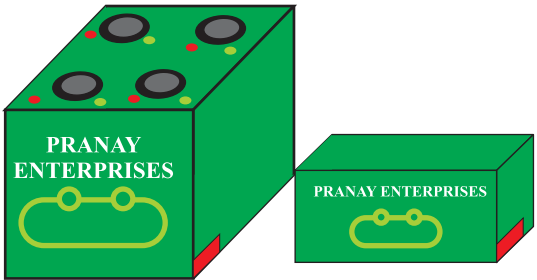
IC based electronics & power supply unit
Sensors tuned to desired frequency
Audio and Video alarm system

Specifications

Low frequency micro-seismic detector
Remote electronic unit capable of handling desired no.of sensors
System compitable to operation in U.G. mines

Advantages

Easy installation, sensors inserted 0.5 mtrs into the mine roof.
Audio-video alarm indicates area of roof strata shift to enable timely protective and preventive measures.
Can save property and lives.



Miner Detection System (DGMS Approved)

(CMRI Developed)

Pranay enterprises has manufactured and marketing a Miner Detection System based on the detection of underground mine workers who may get trapped under coal debris in case of roof collapse in an underground mine. The studies have been conducted to find out the best suitable low RF, which could transmit through rock/coal strata, mainly through coal debris due to roof fall or collapse of side gallery.

The system works on the principle of wireless transmission of RFID Technology. There are two main units,

1. Victim device

2. Searching device. There will be one central receiver and 16 transmitters.

Victim Device

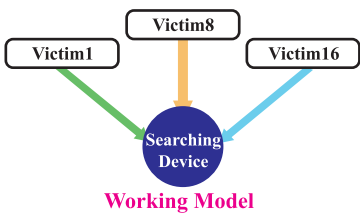
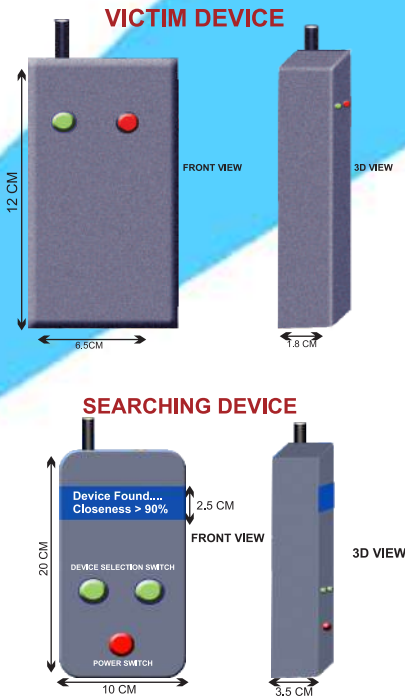
Searching device will be constructed in four main parts controller, address selector, display unit and receiver. Controller will be the main part of searching device. Controller will make link to the other three parts of searching device and it will take care of each receiving signal coming from victim device.

Searching Device

If the searching device gets signal from any victim device near by it, then it will display the victim number on the display.

Advantages

- ◆ The system detects the precise location of an underground mine worker trapped in case of roof fall / collapse of gallery side.
- ◆ The transmitter unit of the system is incorporated with the miner’s cap lamp and powered by the same battery.
- ◆ The transmitter unit is capable of working in case of the cap lamp automatically switched off due to the low battery, which enables the rescue team to detect the trapped miner for longer duration.
- ◆ The system is intrinsically safe and can be used in underground mines
- ◆ The system is very light weighted, low cost and can be provided to each underground mine worker.
- ◆ The system is capable in helping the rescue team or mine management to identify the coal chunk/coal debris to be displaced at right time to save the valuable human lives after knowing the precise location of the worker trapped underneath the coal chunk/ Coal debris.



Resin Capsule (DGMS Approved)

A resin capsule is a permeable container for resin beads designed for multiple/combinatorial solid-phase organic synthesis. Resin capsules consist of a high density polyethylene ring sealed with peek mesh on both sides. The cylindrical shape of resin capsules enabled space-saving packing into plastic column-like reaction vessels commonly used for solid-phase organic synthesis. Resin capsules have been evaluated for their use in combinatorial synthesis, and a set of model compounds with excellent purity was prepared.



Sr. No,	Properties	Slow Setting Capsules	Medium Setting Capsules	Fast Setting Capsules
1.	Diameter	24/32/40+5mm	24/32/40+5mm	24/32/40+5 mm
2.	Length	450/650/800mm	450/650/800mm	450/650/800 mm
3.	Get time	120 sec.	30 sec.	10 sec
4.	Setting Time	60 sec	45 sec	20 sec
5.	Colour Code	Green	Blue	Red
6.	Shelf Life (Dry & cold)	6 months	6 months	6 months
7.	Compressive Strength	* 60-80 Mpa (One hour) * 80-90 MPA	* 60-80 Mpa (One hour) * 80-90 MPA	* 60-80 MPa (One hour) * 80-90 MPA

Advantages

- ◆ Permanent anchorage, unaffected by vibration or corrosive environment
- ◆ Pre-packed resin capsule -no on-site mixing problem
- ◆ Controlled setting time
- ◆ Rapid high strength development

Truck Mounted Vibrating Screen

In the pursuit of Quality and Productivity of mined coal and use of coal,sieve analysis of run of mine coal and analysis of coal ash in the field will greatly enhance the quality of coal by the coal mines and its users.

Pranay Enterprises based on its Experience in the mining sector, with its own innovative design and Developed Truck Mounted Vibrating Screen Assembly. We have manufactured and supplied the First System to SINGERENE COLLIERIES COMPANY LTD.,Kothagudem, A.P.

Power Generating Companies and other users of coal can make use of the Vibrating Screen Assembly to greatly enhance the process of sieve analysis (Screen Analysis) of coal to assess the quality of coal being received. Sieve analysis will enable the Quality Management personnel to determine the preparation of different sizes of coal (size mix)for Optimum Use in their Plans for Optimum Output. The system will assist in drawing out analytical samples for determination of ash and moisture for Useful Heat Value (UHV) calculations and thereby their Grades.

Purpose

for on site study of size fractions of run of mine coal from coal dumps

Equipment

- ◆ Motorised vibrating screen assembly having desired number of Decks to sieve the coal.
- ◆ Monted on Truck for mobility.
- ◆ Separate bins for different size at respective collector chutes.
- ◆ Motorised bucket conveyour to carry coal from heaps to top of Sieve assembly.



Specifications

- ◆ Capacity : 2T.P.H.
- ◆ Screen Sizes: Available from 200mm to 10mm
- ◆ Mobility: mounted on truck for carrying the equipment to the required places. Skid free mountes for truck during sampling process.

Advantages

- ◆ On site sieve analysis
- ◆ Mobility of equipment

Specification

- ◆ cogs heights available from 2.7 mtrs to 4.5 mtrs. with load bearing capacity of 40 tons.
- ◆ Telescope extension upto 200mm.
- ◆ Facility for 10 Tons setting load.
- ◆ Load bearing surface area from 750 mm to 900mm (Square)
- ◆ Hydraulic jack and pump assembly for erection and load setting.

Advantages

- ◆ Technically superior and safer than present wooden cogs
- ◆ Quick assembly, erection and safe removal. Occupies minimal space.
- ◆ Economical and long lasting for multiple use.
- ◆ Replacing wood by steel Cogs saves on precious forest cover and environment.

Green Roof Strong Prop (DGMS Approved)

(Developed by CMRI) (NRDC Licenced)

Green Roof Strong Prop Developed by CMRI can be transported with easy and can be erected in front of a blasting face within a distance of 1.2 meters and would be able to bear a considerable load under the freshly exposed roof providing better safety to work-men in underground mines.



Purpose Paired vertical unit Props for Under ground mine roof support at freshly exposed roof, junctions, slices, and depillering areas

Equipment

- ◆ Steel structure, telescopic design, light, weight, dismantable into three parts, transportable in under ground mines
- ◆ Quick assembly, erection and safe remote removal occupies minimal space.

Specifications

- ◆ Prop heights available from 1.7 mtrs. to 2.3 mtrs (Closed height) and 2.4 mtrs to 3.0 mtrs (extended height) respectively. Axial load bearing capacity tons each.
- ◆ Telescopic extension upto 700 mm
- ◆ Facility of 10 Tons Setting load.
- ◆ Twin Hydraulic jack and pump assembly of 15 Tons capacity for erection and load setting.

Advantages

- ◆ Technically superior and safer than present wooden props. Saving on scarce wood.
- ◆ Can be mounted 1.2mtrs. across the gallery from the face. Can with stand blasing impact
- ◆ Quick assembly, erection and safe removal. Occupies minimal space.
- ◆ Economical and long lasting for repeated use.
- ◆ One prop occupies only. 0.25 sq.ft. leaving ample space for underground maneuverability unlike wooden props.