AUTO BRUTER

Module-1: Dop the diamond for bruting

Scope

- Collect the rough diamond packet from the supervisor
- match the specifications of the roughs such as shape, size and quantity, as per those mentioned on the packet issued
- Fix the rough diamond on the dop
- read the markings (if any) in terms of the diameter size, shape
- select the dop type for the size of the rough to be bruted
- identify the type of mode of operation such as bruting only, bruting and coning pavilion, coning the crown
- identify the type of machine to use such as semi-automatic, fully automatic, twin-set, three-in-one set
- fix the rough on the dop using adhesives as prescribed by the company such as white cement, glue, or as recommended by the machine manufacturer
- place the dop in the oven for the adhesive to dry up and the rough to be securely fixed
- check the levelling and alignment of the rough using the alignment screen or by an eye glass
- Report problems about:
- mismatch in rough issued and received
- unclear marking
- defective or inadequate number of dops/ pots
- inadequate quantity of consumable such as adhesives
- Machine break down or wear and tear of tools, etc.

Performance Criteria

- accurately and securely fix rough as per the bruting required
- accurately align and level the rough on the dop
- achieve the productivity in terms of carats or number of pieces as set by the company
- timely delivery for further processing
- ensure no damage to the rough during fixing process

Knowledge

- company's policies on: acceptable limits of weight loss; incentives; delivery standards; safety practices and hazards; security and performance measurement
- work flow involved in company's diamond processing process
- importance of the individual's role in the workflow
- reporting structure
- issue return procedures followed by the company
- shape, cut, clarity, carat, and physical characteristics of the diamond to be fixed
- accurate fixing of roughs on dop or holder as per planned brut
- heat sensitivity of different types of adhesives such as temperature, duration
- potential work hazards

- use of magnifying camera with screen or an eye glass in order to check alignment

Technical Skill

- to read descriptions on the diamond packets/ bags
- to document work done for status and performance appraisal
- to discuss task, schedules, and work-loads with co-workers and supervisors
- to understand instructions and report problems
- to share work load as required
- to assist others who require help
- the rough needs to be fixed for a particular bruting and coning requirement
- to use different types of adhesives in different cases
- to use a heating oven, magnifying camera and an eye glass
- to maintain tools and machines used
- to work in a safe environment, i.e., without injuries
- to handle diamonds with care
- to minimize damage or loss of any diamond during the doping process
- to suggest improvements in order to reduce loss
- to identify the factors such as quality of the glue/white cement, tools and machines used, that contribute to the fixing of roughs
- to identify immediate or temporary solutions to avoid delays
- to plan the work to improve productivity and quality of setting the rough
- to spot process disruptions and delays

Module-2: Brut and cone the diamond

Scope

- Collect the rough diamond dops from the supervisor
- match specifications such as shape, size, dimensions, etc., and marking of the fixed rough received with those mentioned on the packet
- Mark the girdle on the rough diamond
- mark the girdle to be bruted using the marker machine (e.g., Magnus marker)
- apply whitener and observe other precautions while marking the girdle as instructed
- Set the doped rough diamond in the bruting machine
- Follow the marking and design specifications in terms of the size of the girdle, angle of pavillion, etc.
- check alignment of the dopped rough with marking of the planned cut
- place the dopped rough on the holder of the bruting machine and tighten it with the help of a spanner
- enter the required dimensions of the rough in the computer program
- align the girdle marking on the diamond with the bruting diameter with the help of computer screen
- start the spinning, once the dimensions have been entered and the alignment accurate
- bring the spinning wheel or second diamond close to the surface of the diamond to be bruted, using the lever provided in the machine.
- continuously monitor the bruting process on the screen and adjust the stone position as required
- use water jet on the wheel or the diamond to avoid heating
- stop the bruting machine immediately in case any problem such as faulty cut or damage to the stone is observed
- stop the bruting machine once the rough has been girdled as per the marked line
- change the alignment of the diamond and the wheel as per the coning requirement repeat the process for coning
- maintain the required dimensions set by the company such as +20 points from the diameter given in case of rough bruting or +5 points from the diameter given in case of final bruting
- remove the bruted diamond from the dop and clean the platform
- bag the bruted pieces and label as per the company's procedure
- return to the supervisor for further processing
- Return the uncut roughs if:
- the alignment on the holder is not proper
- there is anticipated problem with the planned brut such that bruting can lead to breakage
- Follow safety procedures at work
- to ensure that the door of the bruting machine is closed after placing the fixed rough and before starting the machine
- not to operate the machine while touching rough
- to wear proper safety equipment such as gloves and eye glasses while working
- Report problems to Supervisor/reporting authority about
- impractical markings

- machine failures
- reasons for anticipated delays that may adversely affect delivery

Performance Criteria

- create a perfectly round girdle
- accurately bruting and coning of the roughs as per requirement
- accurately bag and label the bruted diamonds before returning
- accurately and securely place the dop in the machine's holder
- accurately align the bruting line with the marking for proper cut
- accurately enter the parameters such as dimensions in the computer
- accurately set the angle of the diamond or the wheel for coning process
- steady control of the lever for the to- and-fro bruiting and coning process
- achieve the productivity in terms of carats or number of pieces as set by the company
- achieve timely delivery for further processing
- maintain cycle time
- accurately assess that marking for the girdle wont damage the diamond
- minimize damage, weight loss and breakage
- repair a damaged stone
- work on variety of bruting and coning machines using a different technology

Knowledge

- company's policies on: acceptable limits of weight loss; incentives; delivery standards; safety practices and hazards; security and performance measurement
- work flow involved in company's diamond processing process
- importance of the individual's role in the workflow
- reporting structure
- issue return procedures followed by the company
- typical customer profile and market trends
- specialization area of the company (size, clarity, shape, quality, etc. of diamonds)
- diamond processing objective of the company, e.g. maximizing yield, maximizing clarity, etc.
- bruting and coning methods
- shape, cut, clarity, carat, and physical characteristics of the diamond
- alignments for different bruting and coning of a diamond
- potential steps which may cause damage to a diamond
- potential work hazards, particularly, when using bruting machine
- operating computer and bruting and coning machine
- using the marking machine
- polishing process
- use of various scopes in diamond processing
- geometry to understand the angles and symmetry
- repair work
- uses of different types of tools and materials for different purposes
- maintenance and preparation of tools as per job requirement

Technical Skill

- to read descriptions on the job packets/ bags
- to enter data on the computer
- to document work done for status and performance appraisal
- to judge the extent of rotation, zoom and angling required for perfect bruting
- to discuss task, schedules, and work-loads with co-workers and supervisors
- to understand instructions and report problems
- to share work load as required
- to assist others who require help
- to share knowledge with co-workers
- to work on dimensions mentioned on the job packet, in order to achieve perfect proportion and symmetry as required by design
- to work with computer, marking machine and the bruting and coning machine
- to maintain tools and machines used
- to work in a safe environment, i.e., without injuries
- to brut in order to yield maximum value for the finished diamond, where no design is provided
- to handle diamonds with care
- to minimize damage or loss of any diamond during the bruting process
- to report diamond losses via documentation as per company policy
- to suggest improvements in order to reduce loss
- to decide for a particular rough, if girdling is possible on the marking provided
- to determine from where to begin bruting in order to minimize weight loss
- to work for long hours in front of bruting machine and computer without health problems
- to minimise weight loss
- to rectify defects occurred
- to plan work for maximum productivity
- to spot process disruptions and delays

Module-3: Respect IPR of company

Scope

- Protect company's Intellectual Property Rights (IPR)
- prevent leak of new orders to competitors by reporting on time
- prevent leak of the manufacturing processes or the policies followed by the company
- be aware of any of company's product patents
- report IPR violations observed in the market, to supervisor or company heads

Performance Criteria

- spot plagiarism and report
- understand rationale of patents and IPR
- avoid being involved in IPR violations

Knowledge

- company's policies on IPR, plagiarism and order leaks
- company's patented products
- market trends and company's unique product range
- reporting structure
- basics of patents and IPR laws
- how IPR protection is important for competitiveness of a company

Technical Skill

- to effectively communicate any observed IPR violations or leaks
- to report sources of IPR violations
- to learn from past mistakes and report IPR violations on time
- to spot signs of violations and alert authorities in time

Module-4: Interact with colleagues and seniors

Scope

- Interact with supervisor to:
- receive work instructions and raw materials from reporting supervisor
- communicate to reporting supervisor about process flow improvements, product defects received from previous process, repairs and maintenance of tools and machinery as required
- communicate any potential hazards or expected process disruptions
- handover completed work to supervisor
- Interact with colleagues within and outside the department to:
- work as a team with colleagues and share work as per their or own work load and skills
- work with colleagues of other departments
- communicate an discuss work flow related difficulties in order to find solutions with mutual agreement
- receive feedback from QC and rework in order to complete work on time

Performance Criteria

- understand the work output requirements
- comply with company policy and rule
- deliver quality work on time as required by reporting any anticipated reasons for delays
- put team over individual goals
- conflicts resolution and multi-tasking

Knowledge

- company's policies on personnel management
- work flow involved in company's diamond processing
- importance of the individual's role in the workflow
- reporting structure
- how to communicate effectively
- how to build team coordination

Technical Skill

- to share work load as required
- to deliver product to next work process on time
- how to report potential areas of disruptions to work process
- when to report to supervisor and when to deal with a colleague depending on the type of concern
- how to improve work process
- how to spot process disruptions and delays

Module-5: Work towards having a safe work environment

Scope

- Understand potential sources of accidents
- to avoid accidents related to use of potentially dangerous chemicals, gases, sharp tools and hazards from machines like rotating scaife, lasers, heating ovens, etc.
- Use safety gear to avoid accidents
- wear safety gear such as goggles, mask, gloves , jacket , etc. as prescribed for the job
- Understand the safety procedures followed by the company
- such as fire drills, emergency/ evacuation procedures, first aid, etc., which will be helpful in case of an emergency
- Communicate to reporting supervisor about:
- process flow improvements to reduce anticipated or repetitive hazards
- mishandling of tools, machines or hazardous materials
- electrical problems that could result in accident

Performance Criteria

- spot and report potential hazards on time
- follow company policy and rules regarding hazardous materials
- deliver quality work on time as required by reporting any anticipated reasons for delays
- understand which safety gear must we used for a particular task
- understand and follow the evacuation procedure properly during a fire drill
- provide first aid to self or others in case of emergency

Knowledge

- company's policies on handling: harmful chemicals and sharp tools, safety and hazards of machines, fire safety/drill, first aid and, disposal of harmful chemicals and materials
- work flow involved in company's diamond processing process
- importance of the individual's role in the workflow
- reporting structure
- how different chemicals react and what could be the danger from them
- how to use machines and tools without causing bodily harm
- fire safety education
- first aid execution
- disposal of hazardous chemicals, tools and materials by following prescribed environmental norms or as per company policy

Technical Skill

- to effectively communicate the danger

- importance of reporting potential sources of danger
- appropriate actions to be taken in the event of an accident
- procedure for disposing of hazardous materials, safely and following environmental guidelines
- to learn from past mistakes regarding use of hazardous machines, tools or chemicals
- how to spot danger
- procedure to follow in the event of a fire or other hazard