

## Ground-Mole - The Ultimate Underground Boring Machine

### Operation Areas

-The GROUND MOLE provides accurate horizontal bores beneath roads, railways without trenching the ground. By boring with Ground Mole, underground supply lines such as pipelines for gas, water, communication and energy cables can easily be furnished underground without any damage to the structures on the ground. Furthermore, daily life is not disturbed while operating.

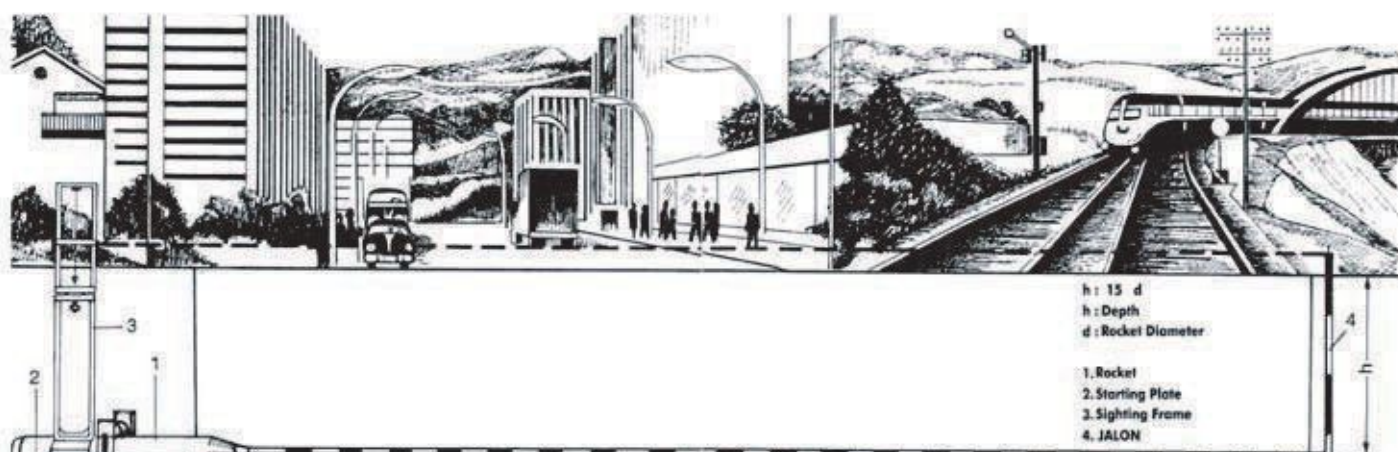
- Our GROUND MOLE rockets are manufactured in diameters of 232 mm, 160 mm, 132 mm, 97 mm, 75 mm and 50 mm. The diameter of the hole to be bored determines the diameter of the rocket to be purchased.

- The Ground Mole operates underground, moves in horizontal direction with forward and backward motion.



## Technical Specifications

MODEL	Diameter		Length		Weight		Air Consumption			
	INCH	MM	INCH	MM	LBS	KG	PSI	BAR	CFM	M <sup>3</sup> /MIN
232	9.45	232	73.7	1873	935	425	87	6	262	7.5
160	6.30	160	73.1	1857	411	187	87	6	140	4.0
132	5.20	132	63.6	1615	231	105	87	6	105	3.0
97	3.82	97	60.1	1528	143	65	87	6	52	1.5
75	2.95	75	41.5	1055	53	24	100	7	35	1.0
50	1.97	50	41.0	1040	26	12	100	7	21	0.6



### Start-Up, Depth And Target Determination

1. Minimum manpower is used in target determination and start up.
2. Depth Determination: The movement axis of the rocket should be in the depth (h) of 12-15 times of the diameter of the rocket.
3. The longer the distance to be bored, more sensitive the target determination is, therefore good observation and precise alignment is essential.
4. Distance to be bored : Distance to be bored depends on the appropriacy of the ground formation, the air temperature and the air pressure applied. In general use, a distance of 100 meters can be performed.
5. Starting plate is placed approximately 40 cm. away from the surface to be bored and is fixed on the ground in the direction of the arrow by means of four ground spikes.
6. Rocket is placed on the starting plate and tightened by means of roller bolt.
7. Target is determined.
8. For forward motion of the rocket the air hose is turned to the right, for backward motion of the rocket the air hose is turned to the left till the end.
9. It must be checked that the air hose is turned to the right while the rocket is on the starting plate. Otherwise, the gear part and the other moving parts of the roller can be damaged.
10. Air feeding valve is opened half until the rocket leaves the plate completely and then the valve is fully opened.
11. Boring speed is 5-10 meters/hour in average in a soil or clay formation when the air pressure is 87 PSI - 6 Bars .
12. To remove the rocket from the bore: The plate is removed, the air feeding valve is closed and the air hose is turned to the left till end. Then, the air feeding valve is opened and the rocket starts moving back.

### Attention

1. Air pressure must not be over PSI - 6 Bars. Otherwise the equipment will be damaged.
2. For lubrication, use;
  - i) Grondoil or equivalent if the temprature is 0° or above
  - ii) Grandostar or equivalent if the temprature is below 0
 Keep the lubricant reservoir full at all times.

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