New Generation Microtrenching Blades

New-Trenching-Method

About this DOC :

Proposal of ABADIS DYNAMIC TECHNOLOGY

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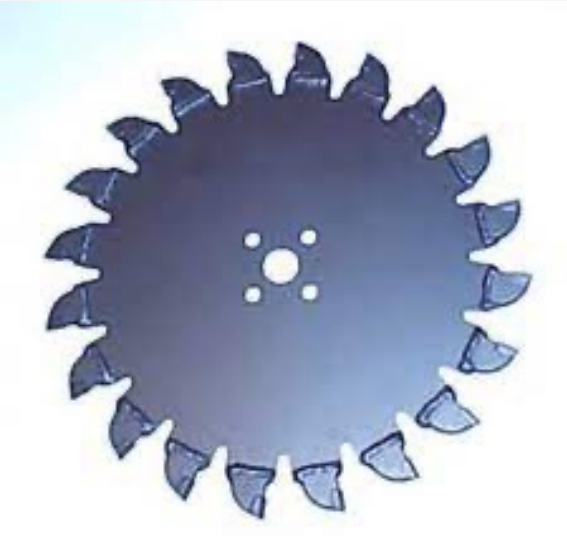
New Generation Microtrenching Blades

Types of Microtrenching:

- Microtrenching with a Milling Bits

- Microtrenching with Cutting Blades



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Principles of Microtrenching Using Milling Bits :

- Blades that use milling separate all asphalt and subgrade components and remove all components from the gap, and no abrasion occurs in the stones in the subgrade.
- The trench width ranges from 10 to 12 centimeters

Principles of Microtrenching Using Cutting Blades :

- The cutting blades grind all the materials in the asphalt and subgrade, turn them into powder, and remove them from the gap.
- The trench width ranges from 1.5 to 3.4 centimeters

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, the movement of the milling bits removes only half of the trench debris, while the remaining material stays inside the trench and must be manually extracted by workers
- Whereas in microtrenching with cutting blades, all excavation debris is fully removed from the trench.

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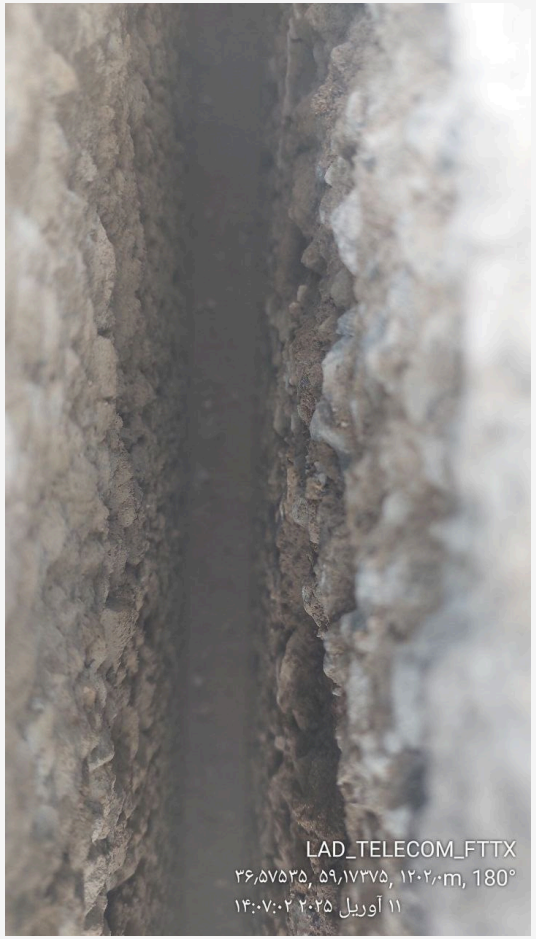
Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, due to rock detachment in the excavation bed, the trench bottom is uneven and must be backfilled with fine sand (soft soil) to level it.
- In microtrench excavation, the cutting blades operate with a shearing action, resulting in a smooth, clean trench bed with no sharp edges or brittle irregularities.



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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, the wide trench width results in a large volume of excavation waste after backfilling, which in turn increases the time and cost required for loading and transportation
- In the new method, the reduced drilling gap decreases debris volume to one-quarter. Since the blade breaks through all rocks and discharges them in fragmented form, and the machine automatically screens the excavated soil, both the screened soil and crushed rocks can be reused to fully refill the trench. As a result, total debris is reduced to one-eighth compared to the traditional method

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, the required volume of fine sand (soft soil) for backfilling the trench was also significantly high due to the wide trench width (10 to 12 centimeters)

- With the new trenching approach and narrower cut, the demand for soft soil for backfilling has dropped significantly. A major portion of the required material is now provided by the screened material from the excavation

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, in areas with loose or uncompacted substructure, wall collapses can increase the trench width by three to four times.

- In the new method, due to the cutting of bedrock along the trench path, even in rocky soil routes, the trench width increases only slightly—from 3.5 cm to a maximum of 5 cm

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, fully rocky terrains were practically non-drillable
- In the new method, concrete and rocky beds can be excavated, although at a slower rate and with increased equipment wear and tear

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, excavation speed was limited to an average of 2 meters per minute.
- The new technique allows for an average rate of up to 4 meters per minute

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, the restoration process is both time-consuming and expensive, mainly due to the excessive trench width
- In the new method, the restoration process is considerably accelerated, material consumption is minimized, and in many cases, the use of concrete can be entirely avoided

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, damage to vehicles passing over open trenches, along with accidents causing injury or financial loss to citizens during excavation operations, represents a major challenge and cost factor. These issues significantly increase both the time and expense of project implementation
- In the new method, the risks previously described are entirely eliminated as a result of the reduced trench width

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Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- Due to the high volume of excavation waste in the previous method, traffic and nearby businesses are heavily affected, leading to public dissatisfaction and a restriction on the number of excavation crews allowed to operate simultaneously across the city
- With the new method, public mobility continues without disruption during excavation. The number of labor teams is reduced by 75%, and debris transport vehicles are cut down to one-eighth, ensuring minimal to no impact on city traffic

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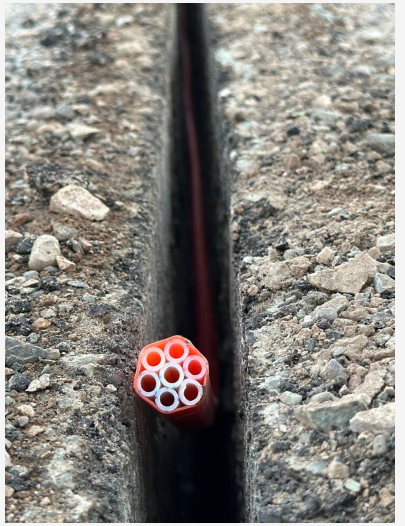
Difference Between Microtrenching Using Milling Bits and Cutting Blades:

- In the previous method, the 10 to 12 cm trench width causes the downward force from vehicle wheels to be fully transferred to the trench bed. As a result, long-term settlement of the trench path is commonly observed, and the pressure exerted on the buried microducts reaches its maximum
- In the new method, the reduction in trench width decreases the downward pressure on the subgrade by up to 90%, ensuring a more secure installation of the microducts. As a result, the satisfaction of municipalities with the restoration process significantly increases



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Visual examples of the new excavation technique

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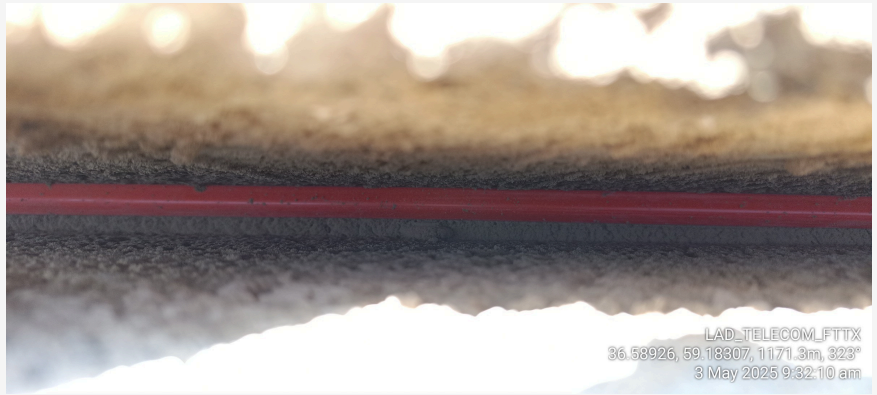

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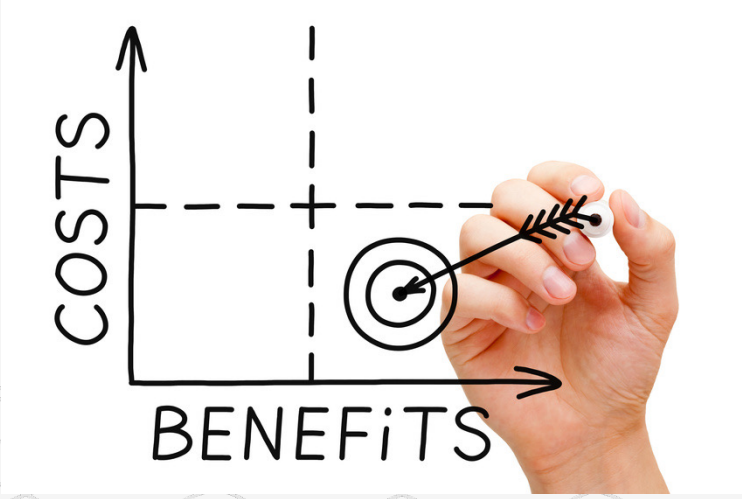
Based on the information presented, **ABADIS DYNAMIC TECHNOLOGY Co.** has established an R&D team which, after approximately a year and a half of research on the design and production of next-generation trenching blades, has successfully developed a new and optimized type of cutting blade. The company has now launched the mass production line for this product



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