

# ***Information***

**New Methods for Trench and Joint Cutting**



 **Wirtgen**

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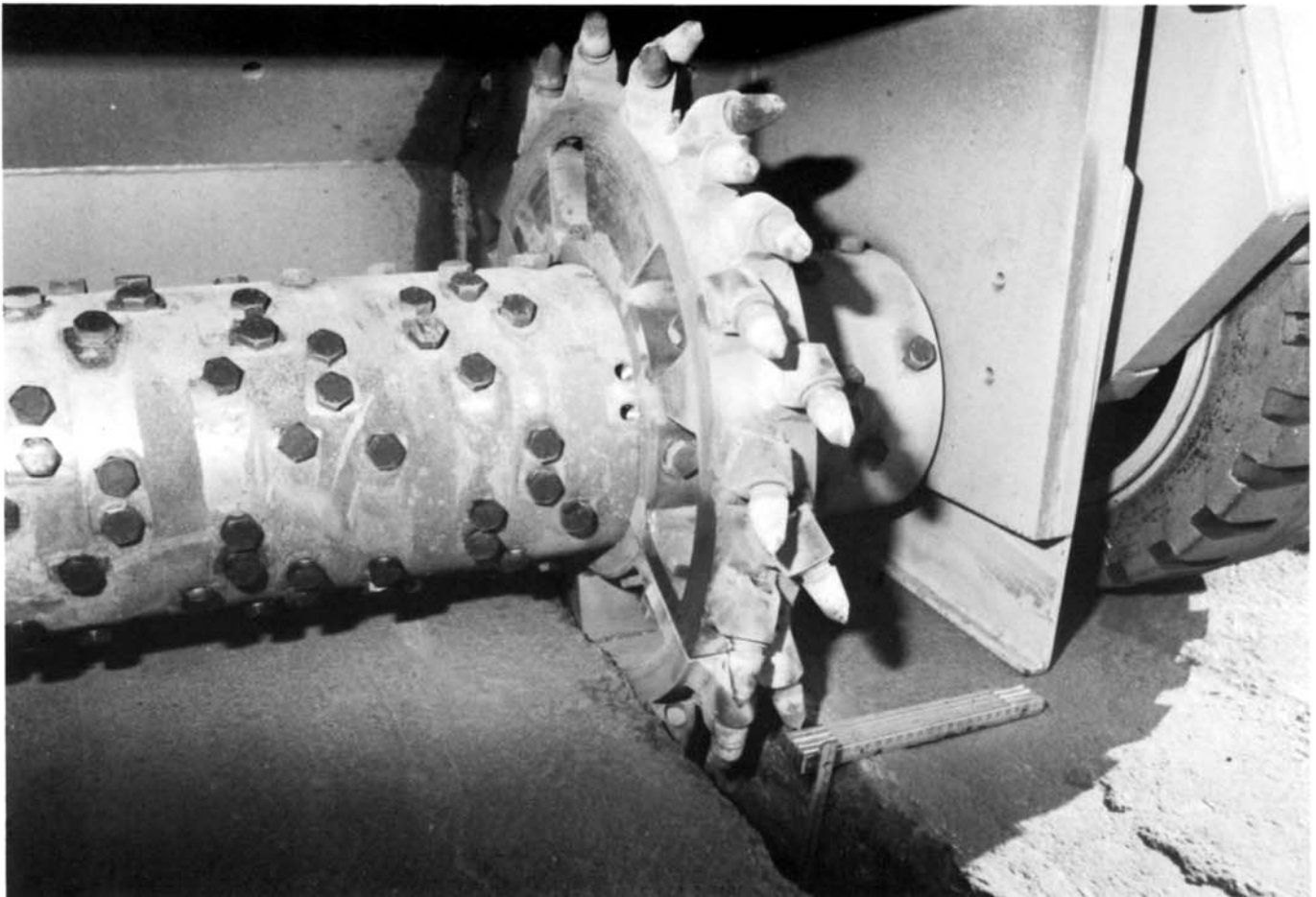
## WIRTGEN ASPHALT TRENCH CUTTING RINGS

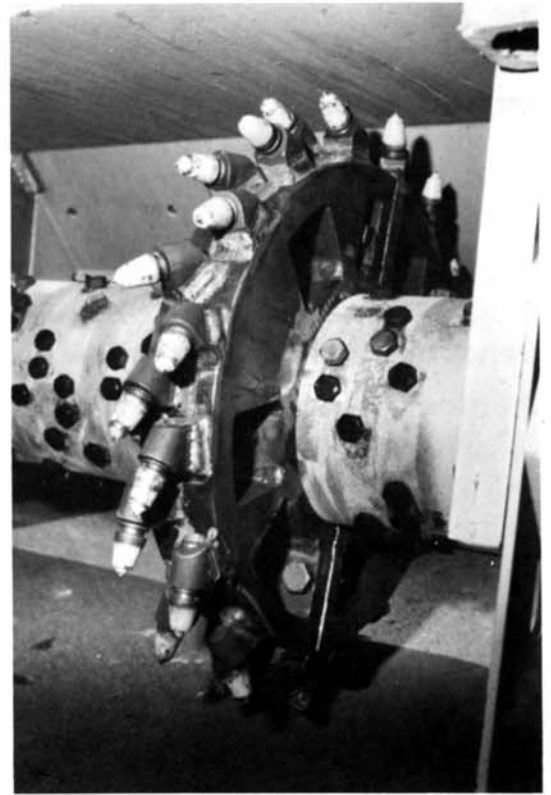
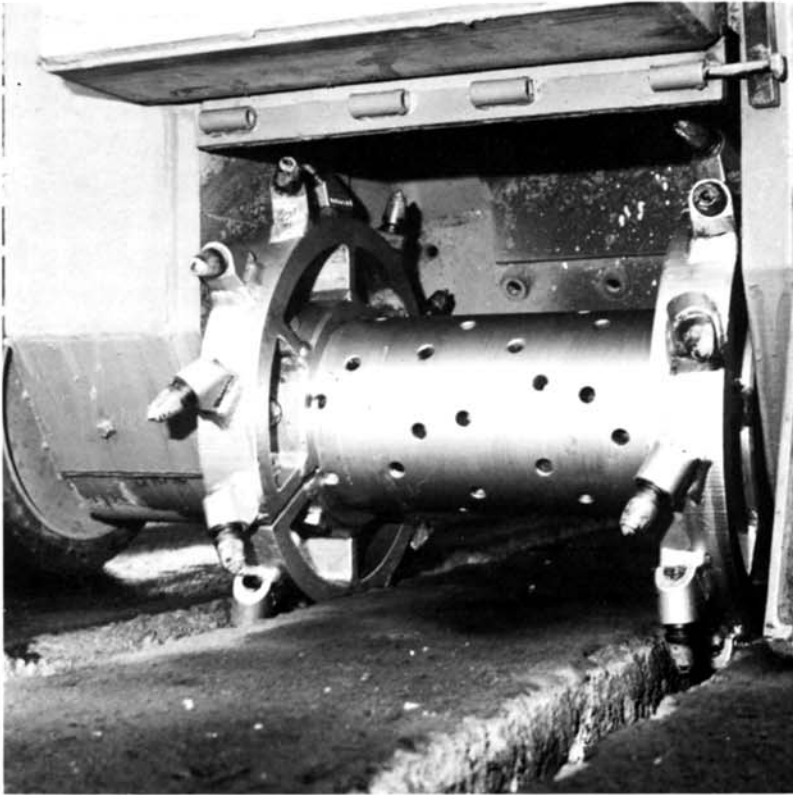
The trench cutting rings developed by WIRTGEN represent a new development in this area. It is highly cost effective and versatile. Compared to conventional trench cutting tools, a higher production with lower tool replacement cost is achieved. The cutting speed ranges, depending on the asphalt and the depth of cut, from 3 to 15 ft/min.

The tool cost comparison shows an even bigger advantage. The diamond-blade for a conventional diamond-saw runs between \$375-465. The cost for a whole new set of cutting teeth runs from \$75-105.00. Additionally the trench cutting ring can be used in pairs, doubling the efficiency and production. The trench cutting rings can be installed on the 500VC as well as the 1000VC and broaden the application spectrum for these machines immensely.

### Description

The trench-cutting rings consist of two half-ring segments equipped with standard-type cutting teeth. These ring-segments are bolted onto the drum and can be moved laterally in 1 1/8 inch increments. These can be mounted singly or in pairs.





**Technical Data**

	500VC	1000VC
Slot Width	3 1/8"	3 1/8"
Max Slot Depth	6 1/4"	7 1/8"
Trench Ring Diameter	22"	26"
Number of Teeth	19	28
Type of Teeth	Standard-Type Teeth	Standard-Type Teeth

**Applications for trench-cutting rings**

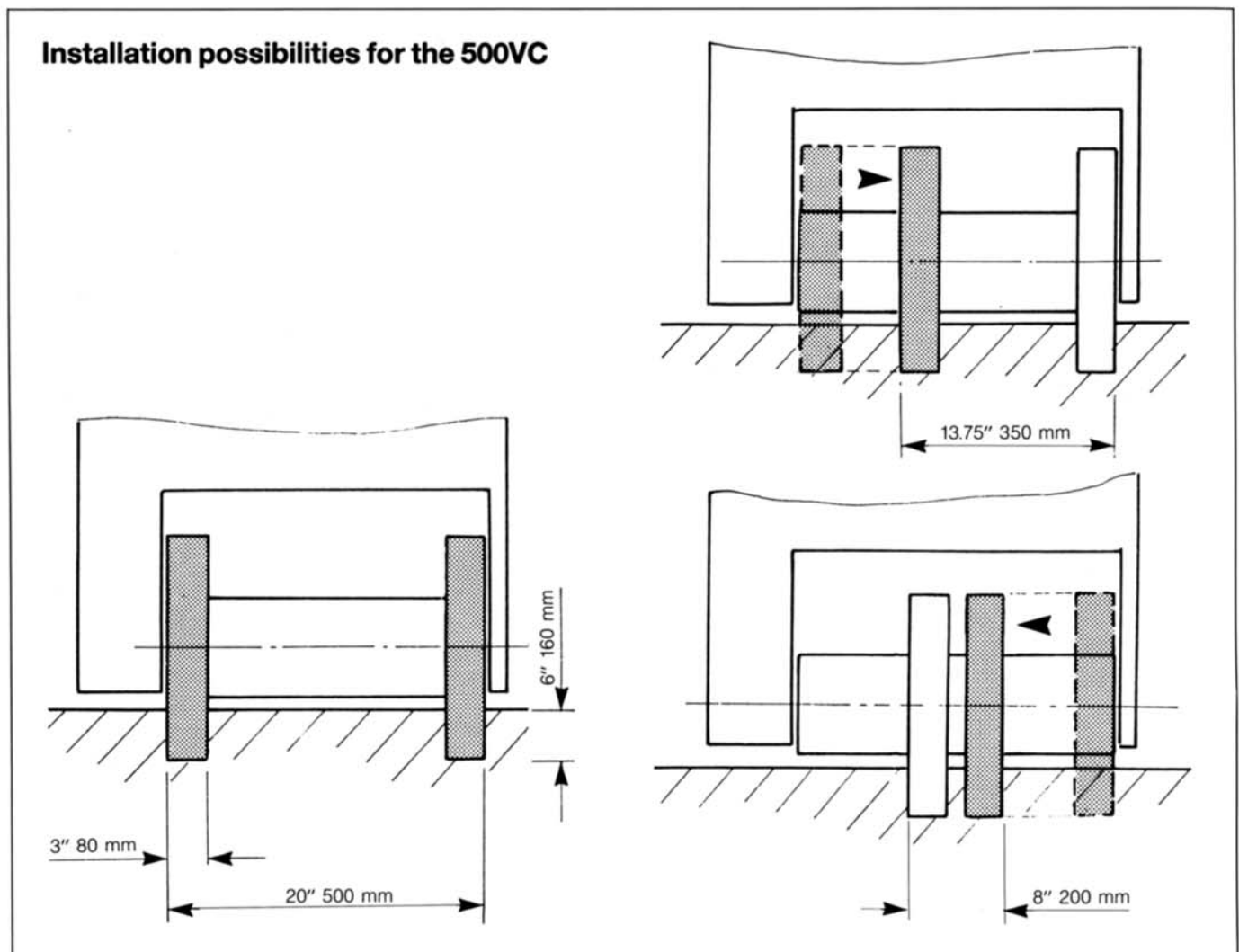
The rings can be used for cutting all asphalt and concrete surfaces. They can be used singly or in pairs and can cut depths up to 6 1/4" (500VC) or 7 1/8" (1000VC) in one pass. Their use is highly recommended when digging trenches for utilities such as water, gas, sewers, power lines, cable etc.

## Using a pair of trench rings

This is new to the trench-cutting business. While with a conventional diamond saw one trench was cut at a time, using a pair of trench rings gives you two absolutely parallel trenches in one pass. This means the already high efficiency is doubled. As only one joint has to be marked.

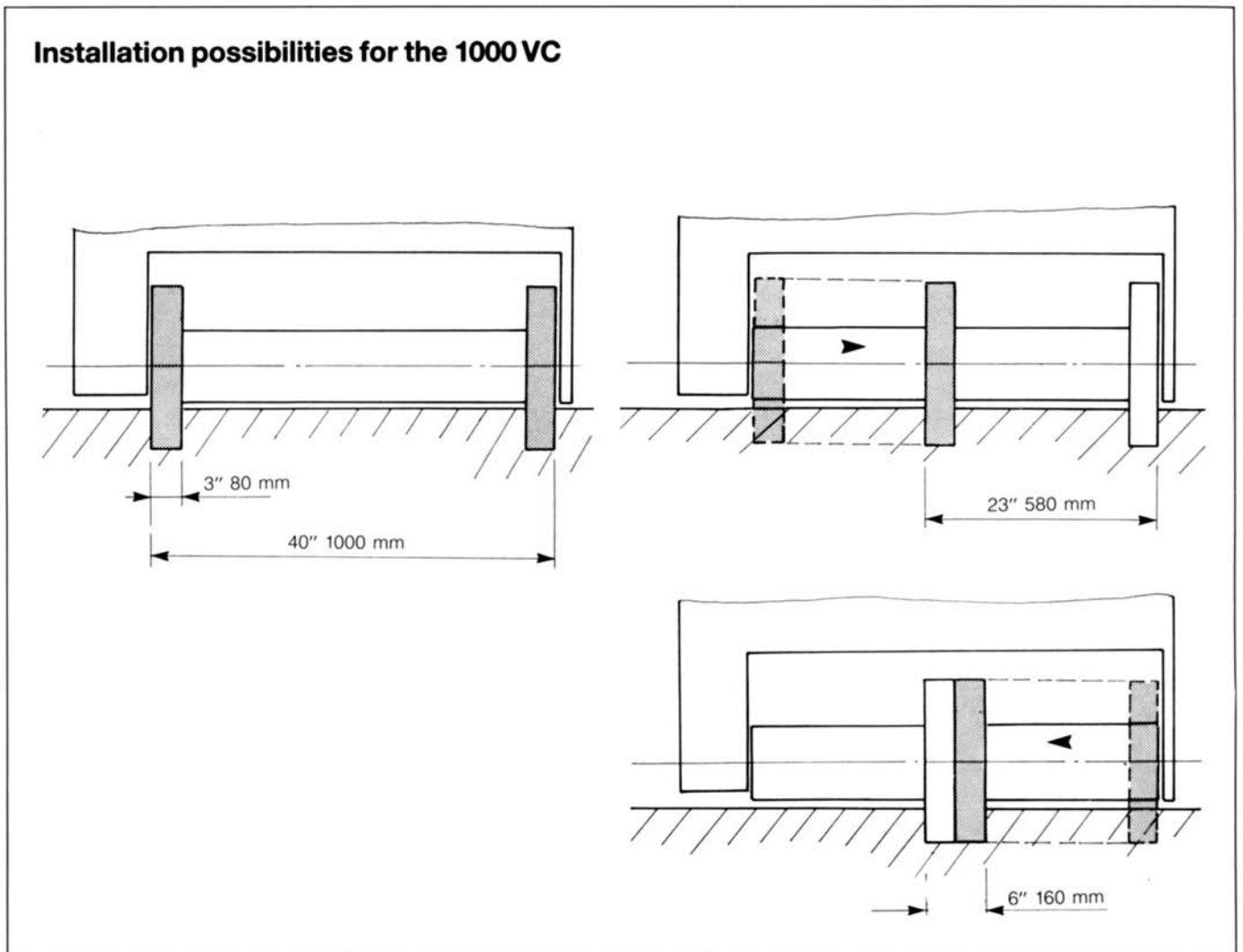
## Trench cutting with the 500VC

The maximum distance between outside edges is 20". Depending on the needed trench width the rings can be laterally moved in 1 1/8" increments from 20" to a minimum of 7 7/8". For widths of 20" to 13 3/4" it is most advantageous to move the left trench ring (preserving the flush-cutting capability). For widths less than 13 3/4" the right ring is moved towards the center of the drum as well.



## Trench cutting with the 1000VC

The maximum distance between outside edges is 40". Depending on the needed trench width the rings can be laterally moved in 1 1/8" increments from 40" down to 6 1/4". For widths from 40" to 23" it is most advantageous to move the left trench ring (preserving the flush-cutting capability). For widths less than 23" the right ring is moved towards the center of the drum as well.

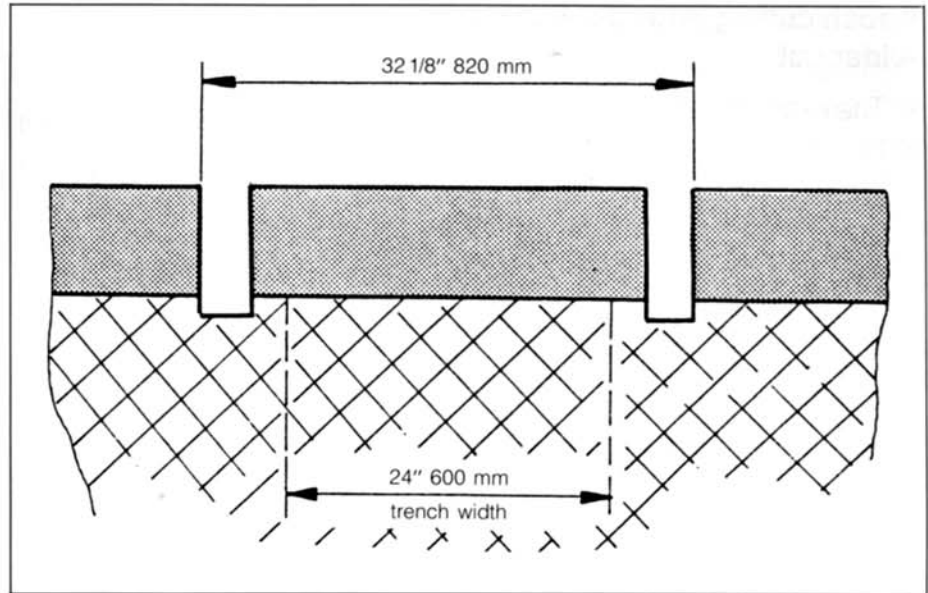


### Application example

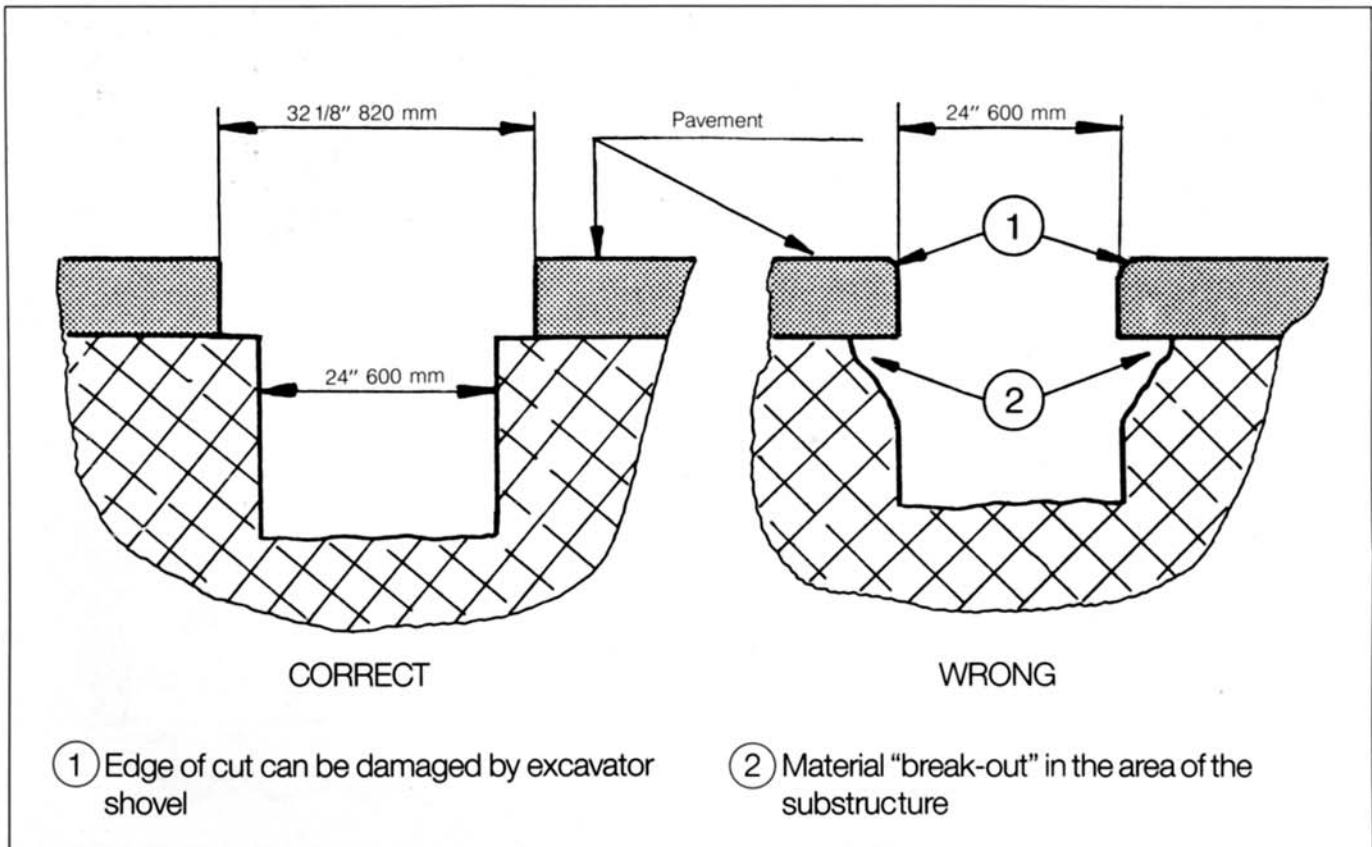
Task (conditions):  
A 24 inch trench is to be cut for  
a water main (20 inch).

### Proposal

Equipment:  
1000 VC equipped with trench  
rings. The trench rings are  
installed to cut 32 1/8" from  
outside edge to outside edge.



It is recommended to cut the asphalt wider than the trench to be dug.

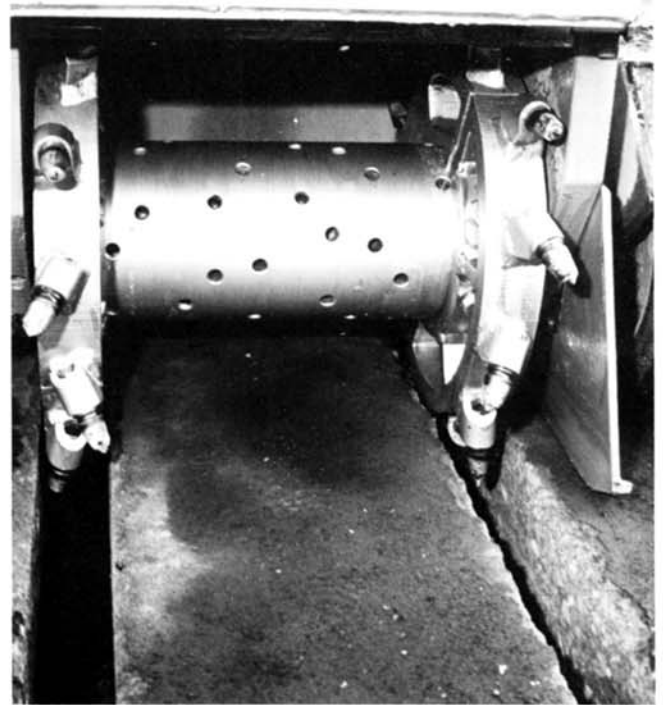


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**The following advantages result from a wider cut**

- The excavator-bucket has enough play so that the asphalt edges are not damaged
- The material in the base does not fall in when refilling and compacting. The undisturbed base edges provide support for the new surface and the trench itself can be completely filled and compacted.

If the asphalt were to be cut only as wide as the trench, cavities under the old surface could not be filled and compacted satisfactorily and would result in settling and cracking after a very short time.



**The 500VC with dual trench cutting rings**

In this case the rings are mounted on the outsides giving a width of 20" from outside edge to outside edge. Both cuts are done in one pass. If need be, the cuts could be filled with the milled material and re-opened to traffic immediately.



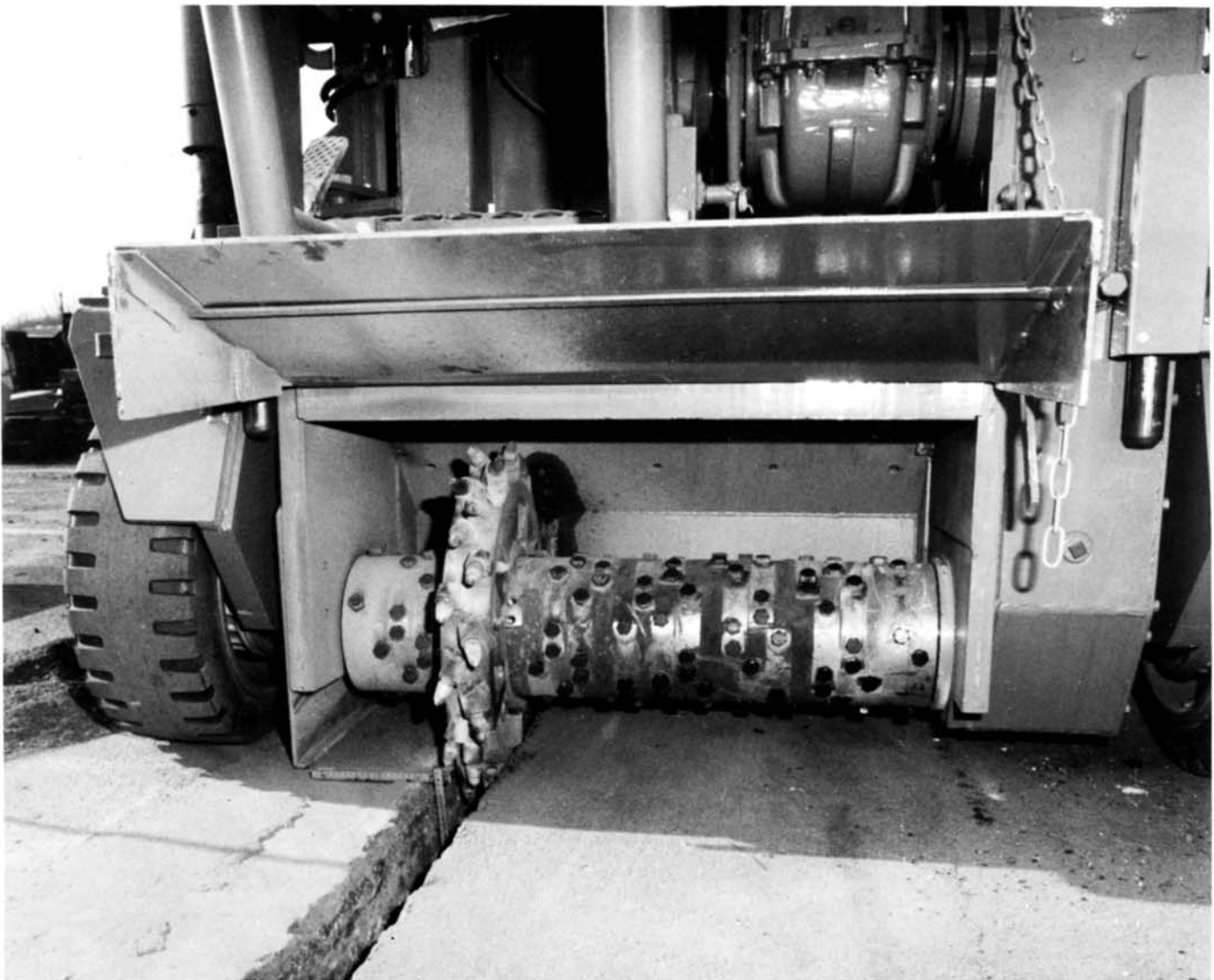
## Applications for single ring

A single ring is used if:

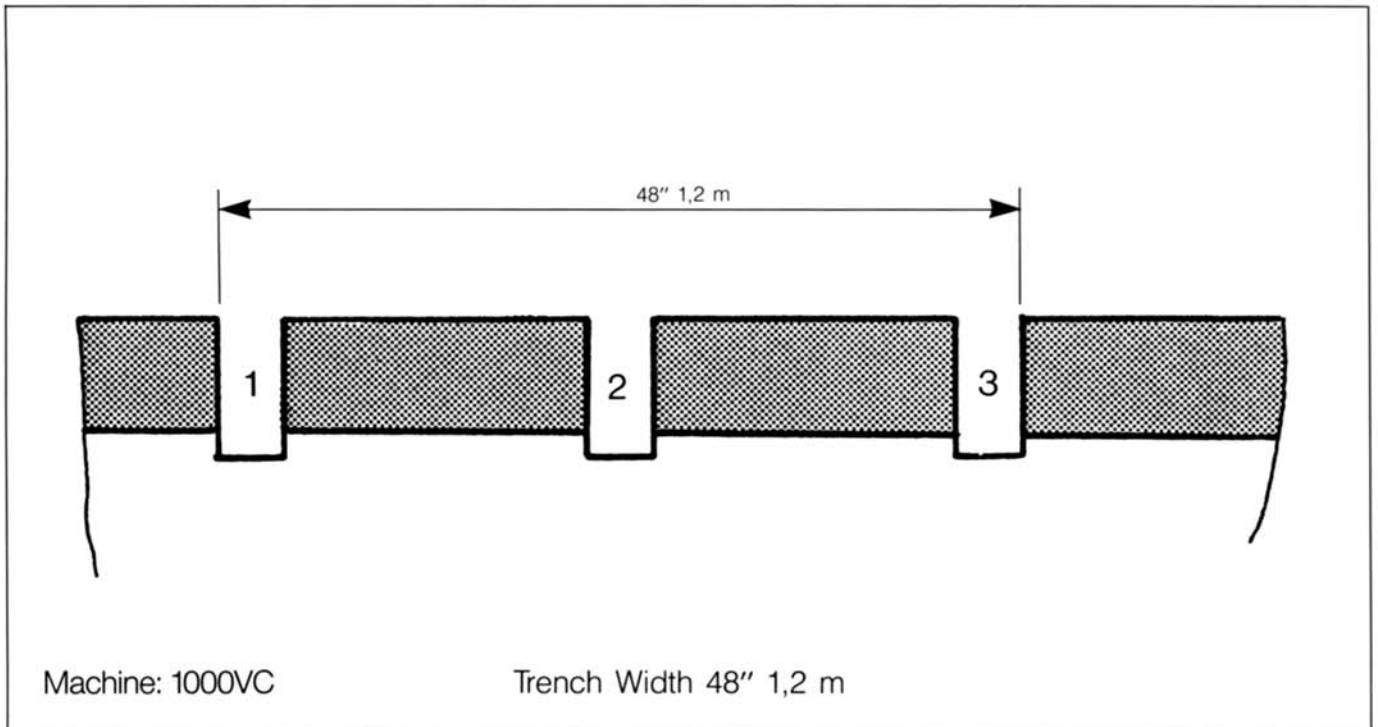
- only one cut is necessary
- the trench has to be cut wider than the working width of the machine

## The 1000VC with a single trench cutting ring

In this application the machine has only one ring mounted on the machine. The positioning is arbitrary: Should the cut be close to the edge of the curb the ring is left on the outside; for maximum forward speed the ring should be placed in the middle.



**Example:** Trench width 1.2m or 48"

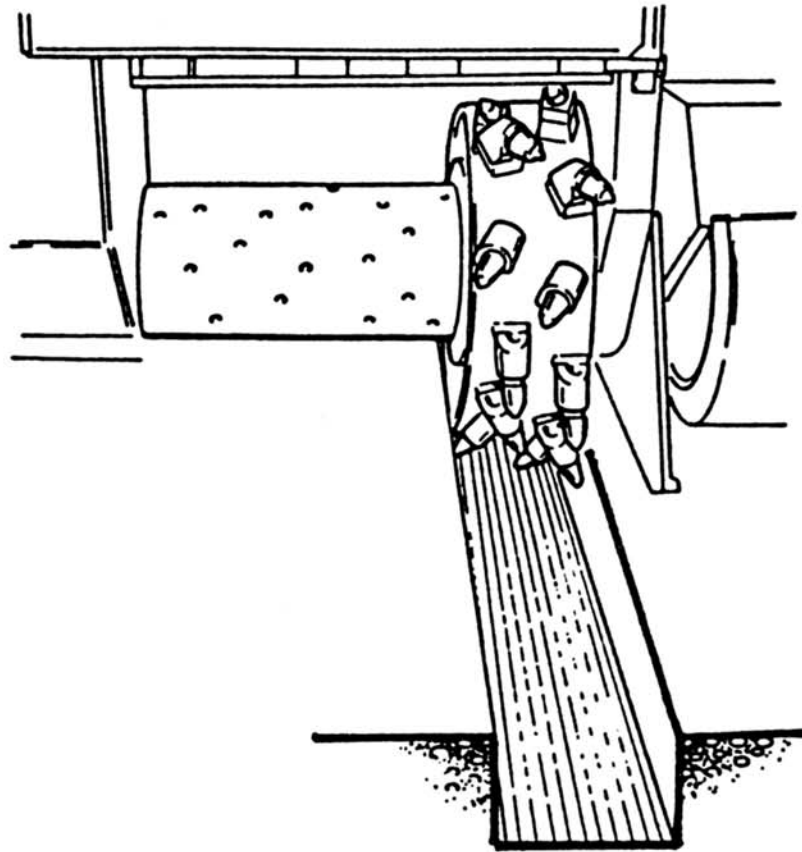


In this case an additional cut in the middle eliminates the need for a larger machine. Cut (1) and (2) are made with dual rings in one pass then cut (3) is made using cut (2) as a guide. The width of the asphalt to be removed is small enough so that a backhoe can do this job and the asphalt can still be recycled. The high tool replacement-cost of diamond saws would make this procedure impractical for conventional methods.

**Wirtgen trench milling segments for asphalt**

Wirtgen developed one other method for creating small (12 or 20") trenches. This method involves milling the complete width of the trench and has the advantage that the milled material is available for recycling purposes.

Trench milling segments are available for the 500VC and 1000VC in 12 and 20 inch widths and maximum milling depths of 6 1/4 inches (500VC) and 7 1/8 inch (1000VC).



## Summary

The new asphalt trench cutting method offers the contractor the following advantages:

- trench cutting possible without water in any season.
- Most efficient trench cutting method with lowest tool-replacement costs.
- Two cuts can be made at the same time.
- Increase of application possibilities for cold milling machine.
- Wide, highly visible cut with clean edges for easy guidance for the backhoe.
- No asphalt chunks getting stuck and wedging under the surface.
- Milling (cutting) into the base does not damage the tools as with a diamond-saw
- Damaged or worn teeth can be easily and individually replaced.
- Clean-cut edges.
- Easy operation, since the operator is sitting on the machine.
- Allow Wirtgen machine owner to work within a whole new contracting market.

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