



**Integrated Bedding,
Padding and Backfilling**

The KNI dynapad technology



The KNI dynapad technology for bedding, padding and backfilling gives premium advantages to reduce costs and enhance the quality and safety of pipeline construction and operation with its layered filling principle. The modular construction allows the usage of KNI dynapad's unique collapsible pipe supports and the integration of geotextile fabric and cable laying.

The KNI dynapad machine is carried by a pipe-layer tractor and loaded with an excavator. This allows dynapad to work much more efficiently in high rock content and wet conditions. The utilization of standard pipeline construction equipment reduces equipment costs compared to standing-alone padding machines. Also, standard equipment reduces maintenance cost and downtime. Standard pipeline construction equipment is easier to maintain and to swap-out than padding equipment. Four different sized material layers are produced by a double deck screener at the front end of the machine and a grizzly bar separator at the rear end of the machine. The machine receives spoil at the grizzly separator.

Benefits at a glance

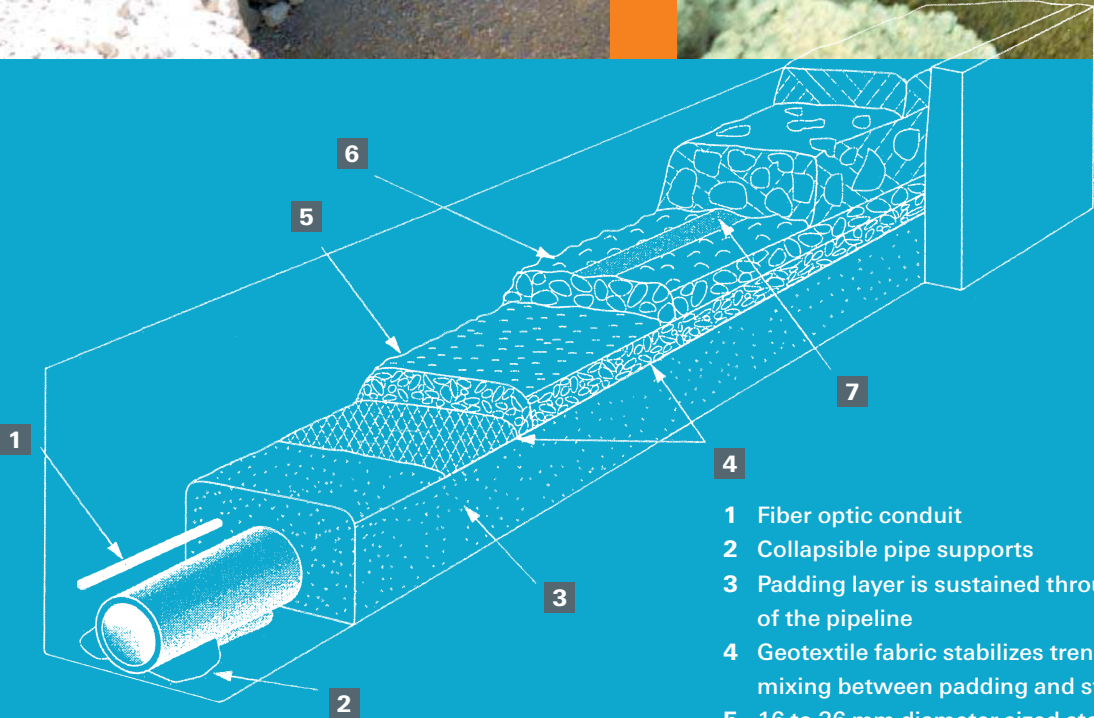
- accelerates the bedding, padding and backfilling process
- gives natural compaction without additional measures
- secures the pipe due to its sealing by the resulting multi-layer composition
- eliminates risk of rock-to-pipe contact
- prevents padding wash-out
- provides underground drainage and water distribution to increase crop yields on farmland
- prevents after construction rock or pipe movement in the trench
- distributes point loads on the padding
- prevents air pockets under and around the pipe
- reduces the usage of erosion control trench breakers
- works longer under severe and wet conditions
- eliminates costly installation of bedding material
- integrates secure cable laying
- assures environmental safety as an effective quality measure



Layered composition

The KNI dynapad technology provides a layered composition over the pipe with up to 16 mm diameter (standard size) padding material, a sheet-layer of geotextile fabric, and then two layers of sized stone – all in a continuous one-pass operation. It can also simultaneously install warning tape and fiber optic conduit inside the padding layer.

The use of collapsible pipe supports on the trench floor reduces conventional costs related to providing a bottom layer of rock-free bedding material and provides better compaction.



- 1 Fiber optic conduit
- 2 Collapsible pipe supports
- 3 Padding layer is sustained throughout the life of the pipeline
- 4 Geotextile fabric stabilizes trench by preventing mixing between padding and stones.
- 5 16 to 36 mm diameter sized stone distribute point loads
- 6 36 to 120 mm diameter sized stone distribute point loads
- 7 Warning tape helps prevent third party damage

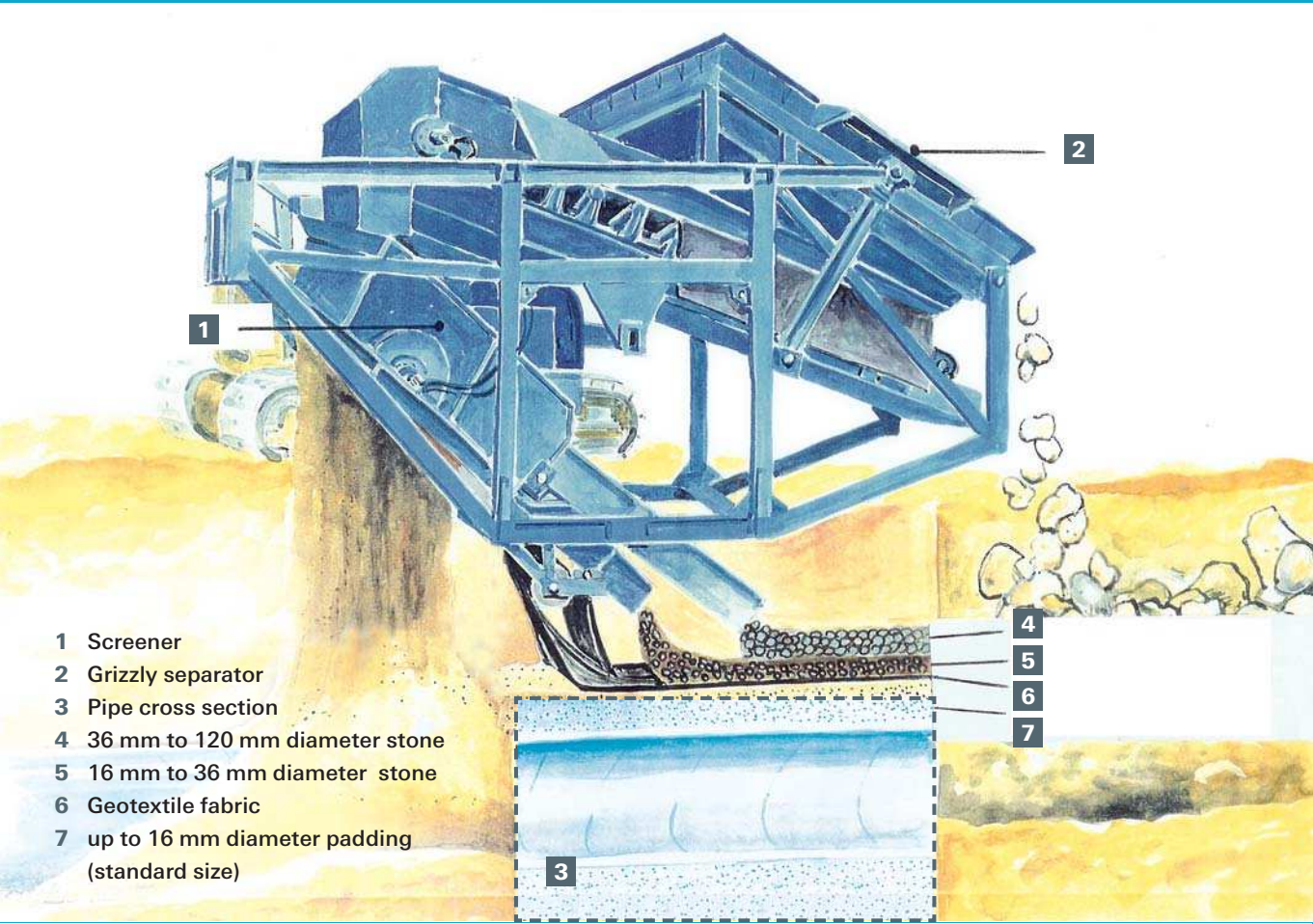
Integration



KNI dynapad integrates the laying of geotextile fabric, of glass fiber conduit and of warning tapes. KNI dynapad's patented collapsible pipe supports give additional advantages for bedding and natural compaction.

- 1 Glass fiber conduit applicator
- 2 Glass fiber conduit

How dynapad works



KNI dynapad machine data for use

DIMENSIONS		US
Weight	7.711 kg	17,000 lbs.
Transport Height Main Frame	2,705 m	106 1/2"
Transport Length Main Frame	4,636 m	182 1/2"
Transport Width Main Frame	2,032 m	80"
Transport Height Mast Assembly	2,600 m	102 3/8"
Transport Length Mast Assembly	4,293 m	169"
Transport Width Mast Assembly	2,299 m	90 1/2"
ENGINE		
Model	Deutz F3L 912	
No. of Cylinders	3	
Power	36 KW	48.3 HP
Rated Speed	2250 rpm	
Displacement	3,064 liter	187 cub. inch
Cooling medium	Air	
Fuel Type	Diesel	
Voltage	12 V	
SCREEN		
Angle of Screen	45 degrees	
Screen life	up to 3 months	

DIMENSIONS		US
CONVEYOR		
Belt Width	1,067 m	42"
Conveyor Length	4,267 m	14'
Belt Speed	0 - 76,2 m/min	0 - 250 fpm
FLUID CAPACITIES		
Fuel Tank	106 liter	28 gal
Hydraulic System	341 liter	93 gal
Hydraulic Tank	319 liter	84 gal
CONVEYOR HYDRAULICS		
Type	Open Loop Hydrostatic	
Pump Capacity	76 liter/min	20 gpm
Relief Pressure	172 bar	2500 psi
SHAKER HYDRAULICS		
Type	Open Loop Hydrostatic	
Pump Capacity	57 liter/min	15 gpm
Relief Pressure	172 bar	2500 psi
AUXILIARY HYDRAULICS		
Type	Open Loop Hydrostatic	
Pump Capacity	38 liter/min	10 gpm
Relief Pressure	172 bar	2500 psi

Comparison to conventional self-loading padding machines

KNI dynapad offers the following advantages in comparison to conventional self-loading padding machines:	KNI dynapad with pipelayer tractor	self-loading padding machine
Self-loading	no	yes
Modular process	yes	no
Number of screening stages	3	1
Continuous adjustable feed rate	yes	no
Levelling control	yes	no
Percent open area of screen	82%	48%
Angle of screen(s)	45 degrees	12 to 16 degrees
Screening efficiency	very high	poor
Screen life	up to 3 months	up to some days
Assistant machinery	excavator	excavator, dozer, crusher
Needed power	less than 30 HP	above 90 HP
Average processed distance (normal conditions)	more than 1 km per day	less than 700 m per day
Operation under severe or (wet conditions)	up to 700 m per day	not possible
Additional compaction required	no	yes
Excess water distribution on farmland	yes	no, inhibits water distribution
Padding wash out risk	no	yes
Erosion control trench breakers	reduced use	necessary
One pass padding operation	yes	no
Glass fibre cable laying	with attachment	no
Geotextile fabric integration	yes	no
Bedding support	collapsible pipe supports eliminates bedding material	additional bedding material
Rock-to-pipe contact protection	yes	no
Multi-layer padding	yes	no
Point load protection	very good	poor
Pipe movement avoidance	yes	no
Environment protection	very good	poor

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