

Technical Data

1. Tunneling Machine AVN1600AB

1.1. General Data

Diameter Tunneling Machine	1980	mm
Number of Drive Motors	1	Stuck
Torque continuos	260	kNm
Torque max.	320	kNm
Speed of the head	0-7.5	RPM
Number of Steering Cylinders	3	Stuck
Diameter Steering Cylinders Piston/Rod	160/100	mm
Steering Strike	60	mm
Steering Power per Cylinder at 500 bar	1000 / 612	kN
Maximum Pressure Steering Cylinders	500	bar
Cutter head displacement system	50	mm

1.1.1 Slurry Circuit Machine

Diameter Slurry Line	150	mm
Diameter Feed Line	150	mm
Diameter Bypass	150	mm
Number of Gate- and Ball Valve Cylinders	5	Stuck
Maximum Pressure Ball Valve Cylinders	150	bar

1.1.2 Laser Target (VMT)

Dimensions active surface of laser target	146 x 88	mm
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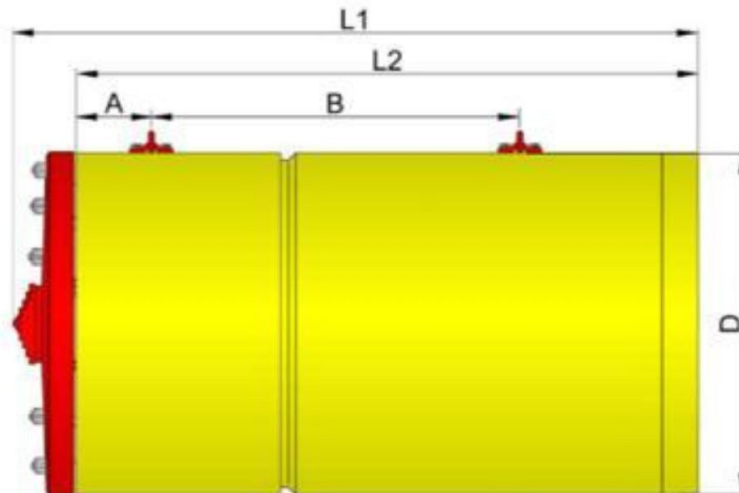
1.1.3 Grease Pump P215

Drive power	0.18	kW
Voltage	380	V
Rate of delivery	188	cm ³ /h
Justification	0.9	cm ³ /h
Capacity	10	Liter
Transport Dimension LxBxH	468x384x 760	mm
Weight without grease charge	25	kg

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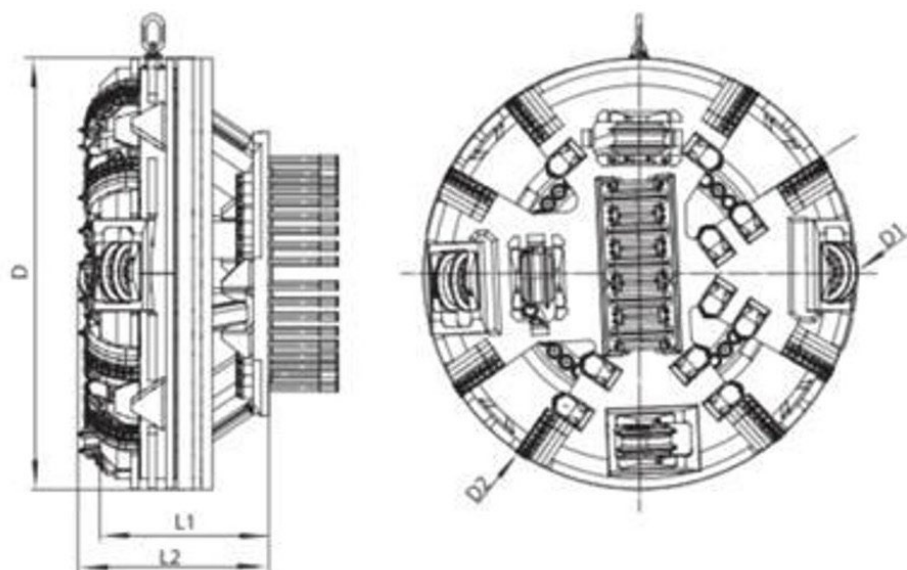
1.2. Transport dimensions and Weights

1.2.1. Tunneling Machine



Diameter	D	1980	mm
Length	L	3499	mm
Distance	A	297	mm
Distance	B	2917	mm
Thread		8x M36	
Weight total		13540	kg

1.2.2. Cutting wheel



Diameter cutting wheel	D	1980	mm
Diameter disk	D1	2015	mm

Diameter bucket	D2	2005	mm
Length without tools	L1	806	mm
Length inclusive tools	L2	886	mm
Weight total		5700	kg

2. Machine Can 2

2.1. Hydraulic Power Pack Cutting Head Drive, Shield Steering, Hydraulic Valves, Auxiliary Plants

2.1.1. Electric Motor

Drive power		132	kW
Revolution		1500	rpm
Voltage		950	V
Frequency		50	Hz
Weight approx.		260	Kg

2.1.2. Hydraulic Pump cutting head Drive

Maximum pressure		280	bar
Nominal pressure		240	bar
Flow range		250	cm ³ /U
Flow range at 1450 rpm		360	l/min
Weight approx.		165	Kg

2.1.3. Hydraulic Pump Shield Steering, Hydraulic Valves

Maximum pressure		500	bar
Nominal pressure		420	bar
Flow range at 1450 rpm		2.6	l/min
Weight approx.		8	Kg

2.1.4. Hydraulic Pump Auxiliary Plants (Filter Circuit, Cooling Circuit)

Maximum pressure pump		200	bar
Nominal pressure pump		150	bar
Flow range pump1		56	cm ³ /U
Flow range at 1450 rpm pump 1		85	l/min
Weight approx.		20	Kg

2.1.5. Hydraulic Tank

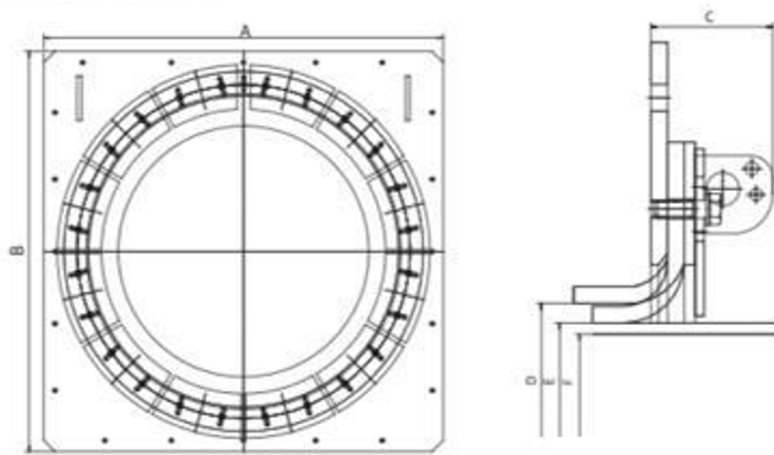
Tank capacity power pack cutting wheel		500	Litre
Pressurization		0.3	bar

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2.2. Transport dimensions and Weights

Diameter	D	1960	mm
Length	L	2927	mm
Distance	A	640	mm
Distance	B	1930	mm
Thread		8x M27	
Weight total		6250	kg

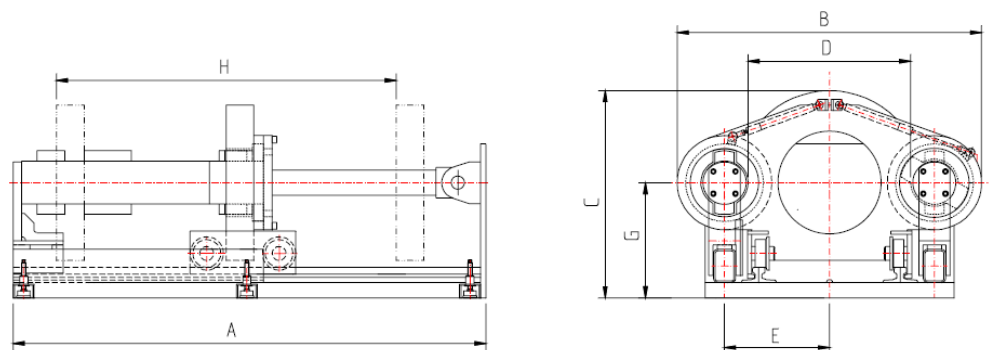
3. Launch seal



Width	A	2935	mm
Height	B	2935	mm
Length	C	470	mm
Max. pipe diameter	D	2120	mm
weight		1890	kg

4. Jacking frame

4.1. General Data



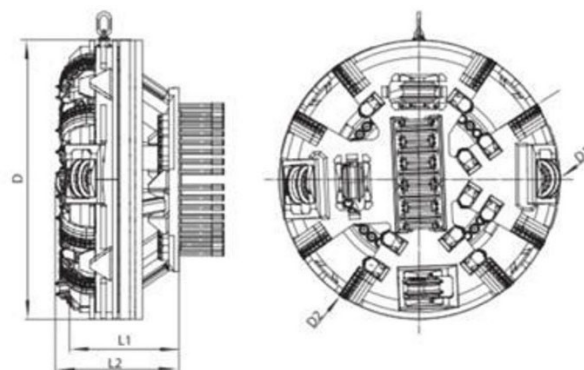
Minimum height shaft bottom / tunnel axis		1500	mm
Max. pipe length max.		3000	mm
Max. outside diameter		2450	mm
Caliber	D	2500	mm
Number of lifting points		4	numbers
Number of jacking cylinders		2	numbers
Thrust Cylinder Diameter Piston / Rod		330 / 260	mm
Thrust Cylinder Stroke		1960	mm
Total Stroke of Cylinders	H	3450	mm
Maximum pressure per jacking cylinder		500/400	bar
Maximum Force Per Cylinder		4274 / 1300	kN
Total Cylinder Force		8548 / 2600	kN
Distance	E	1450	mm
Distance	G	1500	mm

4.2. Dimensions and Weights Jacking Station

Length	L	5270	mm
Width	B	3780	mm
High	H	2685	mm
Weight approx...		25000	kg

5. Upsize Kit 1800

5.1. Cutting wheel



Diameter cutting wheel	D	2161	mm
Diameter disk	D1	2185	mm
Diameter bucket	D2	2171	mm
Length without tools	L1	980	mm

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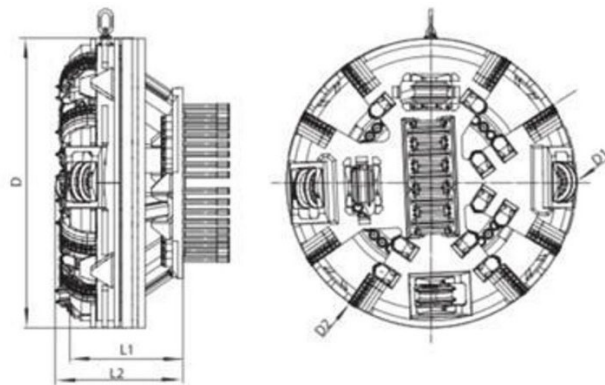
Length inclusive tools	L2	1090	mm
Weight total		6395	kg

5.2. Tunneling Machine

Diameter	D	2201	mm
Length	L	3641	mm
Distance	A	301	mm
Distance	B	2807	mm
Thread		8x M36	
Weight total		23000	kg

6. Upsize Kit 2000

6.1. Cutting wheel



Diameter cutting wheel	D	2460	mm
Diameter disk	D1	2485	mm
Diameter bucket	D2	2470	mm
Length without tools	L1	980	mm
Length inclusive tools	L2	1090	mm
Weight total		7495	kg

6.2. Tunneling Machine

Diameter	D	2425	mm
Length	L	3641	mm
Distance	A	301	mm
Distance	B	2807	mm
Thread		8x M36	
Weight total		30000	kg

7. Control Container

7.1. Hydraulic power pack for operating jacking cylinders, Interjack stations (optional), Pipe brake (optional), locking device jacking frame (optional) and Main pump for Small size of MTBMs 800-1200

Elektric motors		
Drive power- Push pump	55	kW
Revolution	1500	min ⁻¹
Voltage	400	V
Drive power-Main pump	75	kW
Revolution	1500	min ⁻¹
Voltage	400	V

Hydraulic pumps		
Push pump ,Flow range at 1500 min ⁻¹	0 - 80	l/min
Nominal pressure	420	bar
Main pump ,Flow range at 1500 min ⁻¹	187	l/min
Nominal pressure	240	bar

Gear pump double		
Nominal pressure Pump 1	15	bar
Flow rate at 1500 min ⁻¹ Pump 1	100	l/min
Nominal pressure Pump 2	15	bar
Flow rate at 1500 min ⁻¹ Pump 2	100	l/min
Weight approx.	20	kg

7.1.1. Hydraulic tank

Tank capacity	1500	Liter
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7.1.2. Power cabinet

Main Pump transformer		
Capacity	165	KVA
Voltage	950	Volt
Feed pump inverter		
Inverter Power	90	kW
Inverter Voltage	400	Volt
Slurry pumps invertors		

Invertor Power	75	KW
Invertor Voltage	400	Volt

7.1.3. Compressor

Compressor block		
Inlet capacity	450	l/min
Delivery range at 6 bar operating pressure	300	l/min
Maximum operating pressure	10	bar
Oil top-up quantity	0,2	Liter
Drive motor		
Rated power	2,4	kW
Revolution	1500	rpm
Compressed-air reservoir		
Capacity	40	Liter
Maximum permissible operating pressure	11	bar

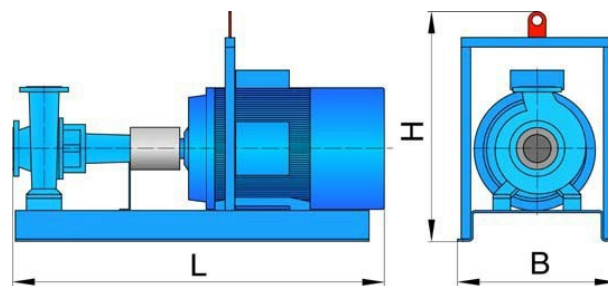
7.1.4. Container dimensions

Length	6000	mm
Width	2450	mm
High	2800	mm
Weight approx.	9000	kg

7.2. Slurry circuit

7.2.1. Feed pump

7.2.1.1. General Data



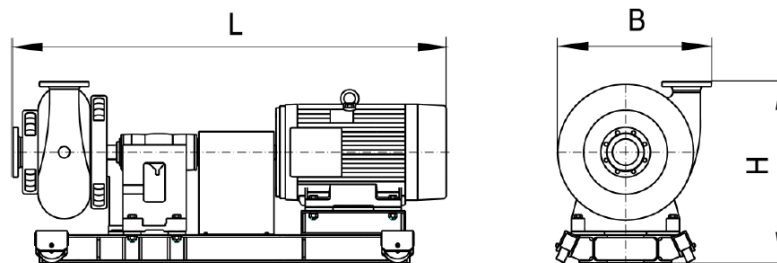
Revolution Infinitely variable	0 - 1500	rpm
Drive power	90kW / 400V / 50Hz	
Power frequency converter	90	kW
Nominal flow	0 - 250	m ³ /h
High of delivery	60	m

7.2.1.2. Transport dimensions

Length	L	1750	mm
Width	B	880	mm
High	H	700	mm
number of lifting points		2	numbers
Weight		844	KG

7.2.2. Slurry Pumps (Shaft pump & Tunnel Pumps)

7.2.2.1. General Data



Pump			
Material to be conveyed	Wasser-Sand-Gemisch		
Nominal flow	200 - 400	m ³ /h	
Hight of delivery	106	m	
Motor			
Drive power	75	kW	
Voltage	400	V	
Frequency	50	Hz	
Ininitely speed variable	0 - 1500	min ⁻¹	

7.2.2.2. Transport dimensions

Length	L	2430	mm
Width	B	836	mm
High	H	1201	mm
Weight approx.	G	1560	kg

Note: The AVN1600 machine included full package along 200-meter service guidance system is VMT
The slurry pips are 6"