INTRODUCTION

Please find enclosed the technical-economic offer for the supply of a Techno Drill TD 25 TC+ piling rig. The drill comes complete with a standard Kelly bar capable of drilling at depths of 42 ft. An optional longer Kelly bar is also available expanding the drill depth to 59 ft. The maximum auger diameter for both Kelly bars is 31-35". A 35" auger diameter can be achieved when drilling below the mast.

TECHNICAL DETAILS

The TD25 TC+ is designed to drill large diameter piles and is equipped with a high performance rotary head capable of 33,190 ft. lbs. of real torque and drilling speeds of 40-60 rpm.

This piling machine was designed to be used for various applications such as foundations piles, water-well, limited access, etc. The standard inner shaft of the head permits the use of a telescopic Kelly bar to reach 42 ft. of depth at a minimum diameter of 14" and a maximum diameter of 35" (59 ft. Kelly bar depth also an option).

The TD 25 TC+ is mounted on a Techno Drill TDBM25 base machine with expandable 15" wide x 110 inch long rubber tracks that can expand between 53 and 73 inches. Designed for minimum site impact, the ground pressure of the machine is 0.55 kg/cm^2 and has a variable travel speed of 0 to 2.9 rpm. The tracks, rollers, chains and wheels are made from high strength steel and equipped with hydraulic track tensioners. The upper structure can rotate 360° with speed of 9 r.p.m. The tracks are driven by two axial piston hydraulic motors with reduction gears and are equipped with a hydraulic braking system. Maximum climbing capacity is the 35°.

Base Machine	TDBM25
Engine:	Deutz
Power:	74 h.p. @ 2200r.p.m.
Hydraulic System:	2 Axial piston pumps 36 cm^3 @ 4,000 psi 1 Gear pump 25 cm^3 @ 4,000 psi 1 Gear pump 12 cm^3 @ 580 psi
Hydraulic oil tank capacity	79 gal
Diesel tank capacity	17 gal
Noise Level	LpA 70 dB LwA 100 dB
Engine	Tier 4 Final

The wireless control allows the operator to easily control the machine with little to no effort. Instrumentation for the control of all rig parameters (pressure, depth, tilting, etc.) are mounted on the base machine and in the radio remote control.

In case of emergency; safety stops, for turning off the power of the drill are positioned in the rear of the machine and on the radio remote control.

The rotary head carriage is guided by neoprene wear pads on the mast and can be actuated by a hydraulic piston with 31 inches of stroke. The piston allows the carriage to move the rotary head with a push of 36,165 ft. lbs. and a pull of 18,082 ft. lbs.

The components of the rotary head are made from high performance, high grade steel. The slewing ring and pinions of the rotary are incased in a grease bath. The rotary hydraulic motors are axial piston, hydraulically variable displacement controlled and are manufactured by Sauer Danfoss. From the radio remote control you can adjust the torque (from 0 to 33,190 ft. lbs.) the drilling speed (from 0 to 40 r.p.m.) and activate the discharge of the material (60 r.p.m.).

The main winch for lifting and lowering the telescopic Kelly is manufactured by Dinamicoil. The winch has power down control and is operated by a fixed displacement axial piston hydraulic motor. The winch is equipped with a top limit safety sensor. The winch drum is grooved for better winding of the rope in the recovery phase of the kelly bar. The winch is provided with 15mm anti-spin steel rope with capacities 5 times greater than the maximum pulling capacity of the winch. The auxiliary winch, for the lifting and lowering of pile cages, is manufactured by Dinamicoil. It is driven by a hydraulic orbital fixed displacement motor and provided with a negative lamellar brake. The winch is complete with an upper sensor and provided with 8mm anti-spin rope with capacities 5 times greater than the maximum pulling capacity of the winch.

The three-step telescopic mast is made of St52 steel and is connected to the machine base with a joint that allows the adjustment of the inclination of ± 3° laterally and ± 5° forward and aft. This is accomplished through two independent hydraulic cylinders and operated by an electric over hydraulic control system. The machine is equipped with a three-stage telescopic mast allowing the use of various kelly bars to reach different excavation depths.

Polyurethane painting with rustproof spray. The color of the machine will be:

Base Machine:	RAL 2758 and Light Grey
Mast	Light Grey
Rotary, rotary support and cathead:	RAL 2758
Tracks and Kelly bar	Dark Grey

The electrical system is 12 volt. The machine is equipped with various safety devices, a fuse box and an emergency shutdown circuit. The electronic control unit for the machine is made by IFM with transmission in Can Bus.

The TD 25 TC+ is a machine that complies with the new Machinery Directive and CE certified.

TRANSPORT

The machine can be transported fully assembled with a maximum height of 8' 7" by simply closing the telescopic mast and lowering the counter-mast.

The total weight for transportation is 20,000 lbs. including kelly (tool excluded).

COMPLETE DATA SHEETS

Base Machine			
Manufacturer and Model		*Techno Drill*	*TDBM25*
Diesel Engine		*Manufacturer* *Model* *Cooling System*	*Deutz* *TCD 2.9* *Water*
Power @ 2200 r.p.m.		*hp*	*74*
Diesel Tank		*Gal*	*17*
Hydraulic Oil Tank		*Gal*	*79*
Hydraulic System		*type*	*Axial Pistons*
Undercarriage	*Material* *Length* *Width* *Shoes* *Height* *Speed*	 *inch* *inch* *inch* *inch* *mph*	*Rubber* *110* *53 – 73* *15* *25.5* *0 – 2.9*

Winches			
Main	Line Pull 1st L	Lbs.	9920
	Ø rope	mm	15
	Speed 4th L	ft/min	198
	Drum	type	Grooved
Auxiliary	Line Pull 1st L	Lbs.	2205
	Ø rope	mm	8
	Speed 4th L	ft/min	146
	Drum	type	Flat

Rotary Head		
Max Torque (intermittent)	Ft. Lbs.	33,190
Rated Torque	Ft. Lbs.	25,815
Drilling Speed	r.p.m.	0 – 40
Discharge Speed	r.p.m.	60
Stroke	inch	31
Extraction Force	Lbs.	16,535
Feed Force	Lbs.	22,047

Drilling Performance		
Maximum Diameter	inch	39.4
Minimum Diameter	inch	15.7
Maximum Depth	Ft.	68.9

Mast		
Maximum Height	inch	287.2
Mast Length	inch	253
Lateral Inclination	°	3
Frontal Inclination	°	5
Back Inclination	°	5

Standard Interlocking Kelly Bar		
External Tube	inch	15.5
Elements	n	7
Length each element	inch	78.8
Maximum Depth	Ft.	42.8
Kelly Box	inch X inch	5.1 x 5.1

Hydraulic System		
Pump 1	gpm	22.8
Pump 2	gpm	22.8
Pump 3	gpm	15.5
Pump 4	gpm	7.9
Working Pressure	psi	3625 – 2900 - 580

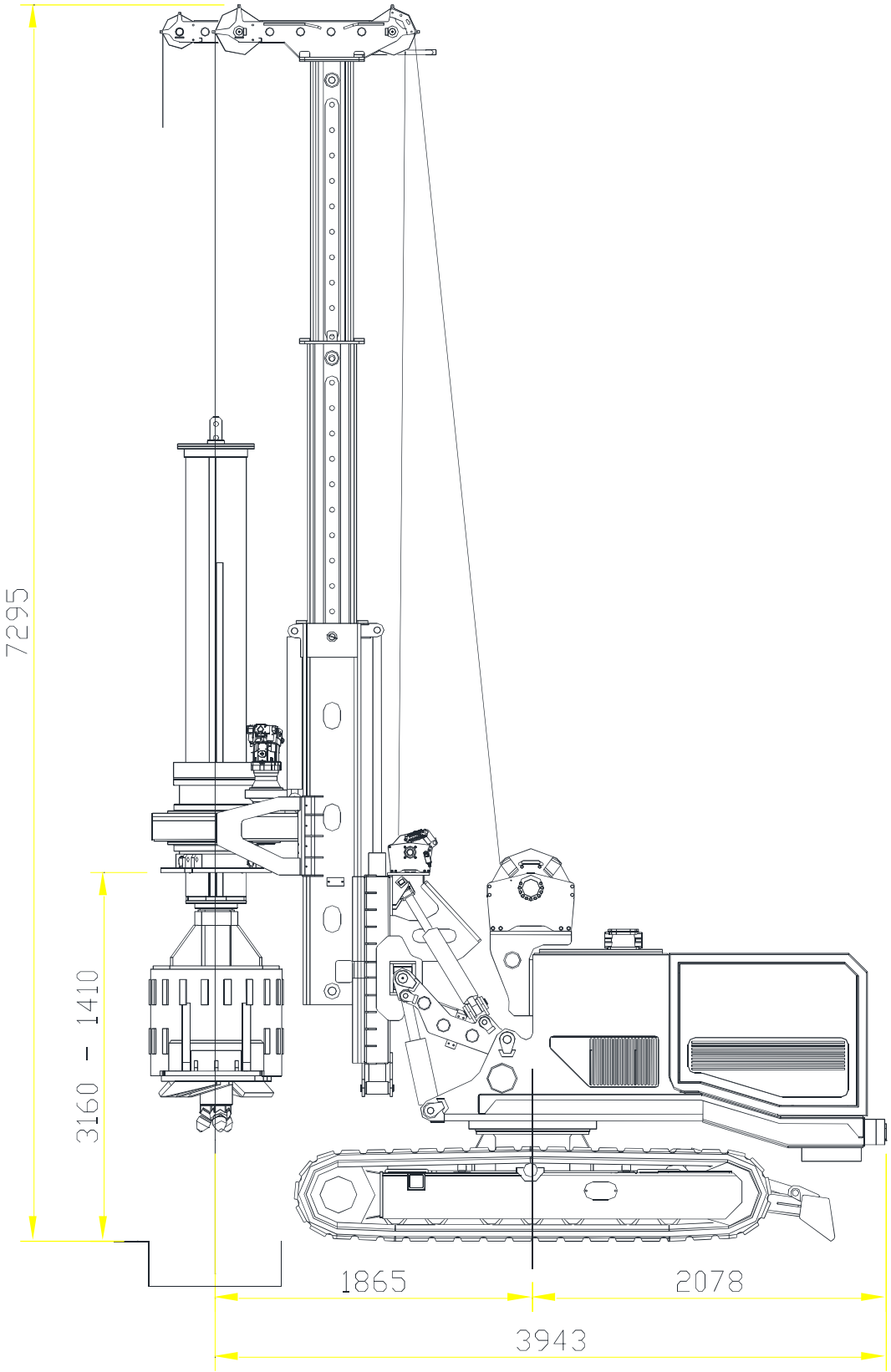
Transport Dimensions (with kelly bar 10 m installed)		
Height	inch	8' 6"
Length	inch	14' 3"
Width	inch	53"
Weight (approx.)	Lbs.	20,943

Controls	
Rotary Head	Electric wireless Switch
Winches	Electric wireless Switch
Pull-Down	Electric wireless Switch
Verticality Cylinders	Electric wireless Switch
Turret Rotation	Electric wireless Switch
Undercarriage	Electric wireless Switch
Telescopic Mast	Electric wireless Switch
Counter slide	Electric wireless Switch
Gears	Electric wireless Button
Free fall	Electric wireless Button
Spin-Off	Electric wireless Button
Auto verticality	Electric wireless Button
Boom	Electric wireless Switch

Safety and Controls	
Pressures	Digital Display
Depth	Digital Display
Main Winch	Top Limit Sensor
Auxiliary Winch	Top Limit Sensor
Emergency	Emergency Buttons

Standard Equipment
Main winch with grooved drums
Top limit sensors for main auxiliary winch
Main winch swivel
Controlled and adjustable main winch free-fall
Mast inclination display
Depth measuring device with reset
Variable gauge undercarriage
Flange for casing driver
Bucket Flange
Working lamps
Electric refueling pump
Diesel Engine Display
Telescopic Mast
Tier 4F Engine
Hydraulic System for use without radio control

Rig Drawing
IN WORKING



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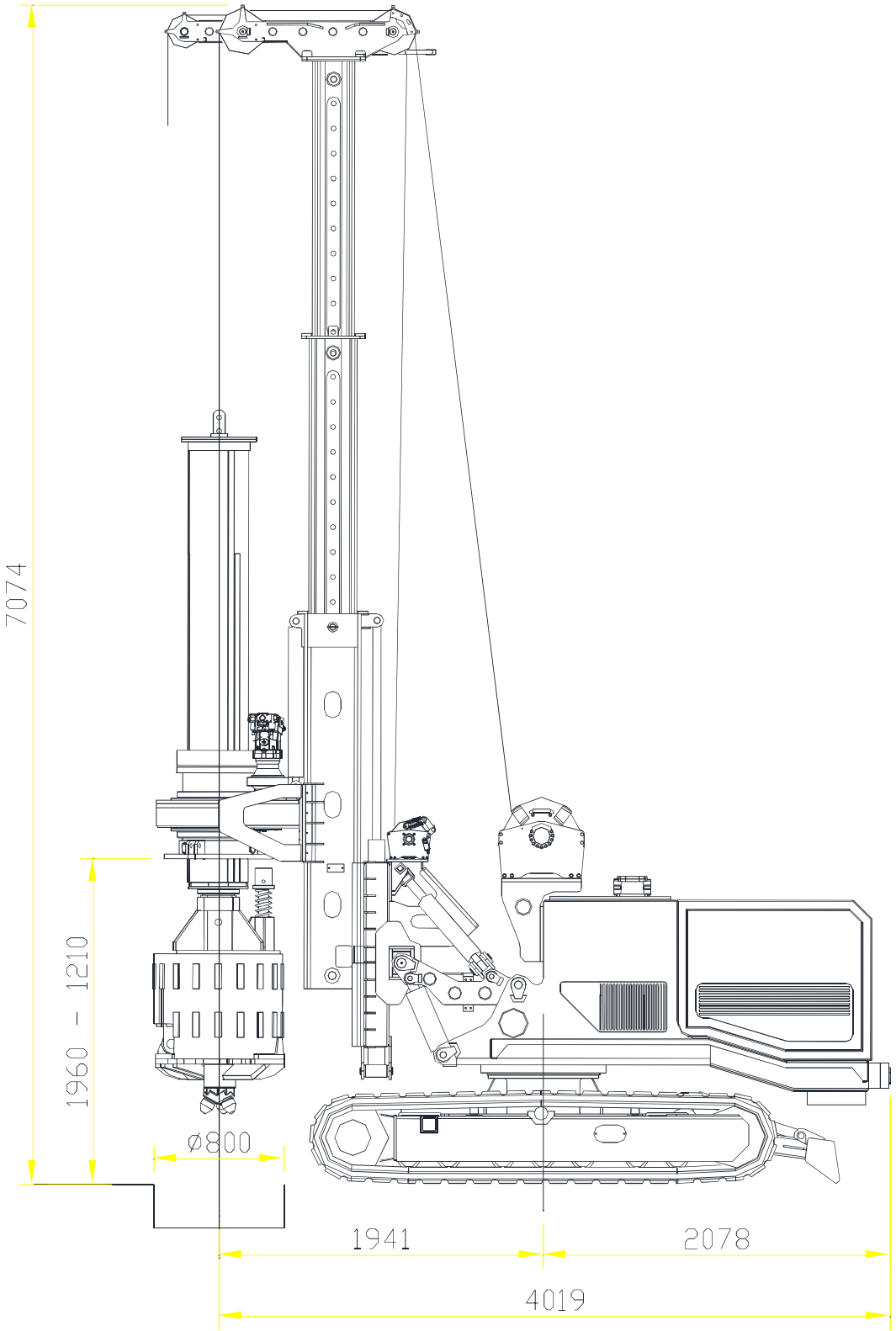

Rig Drawing
IN TRANSPORT