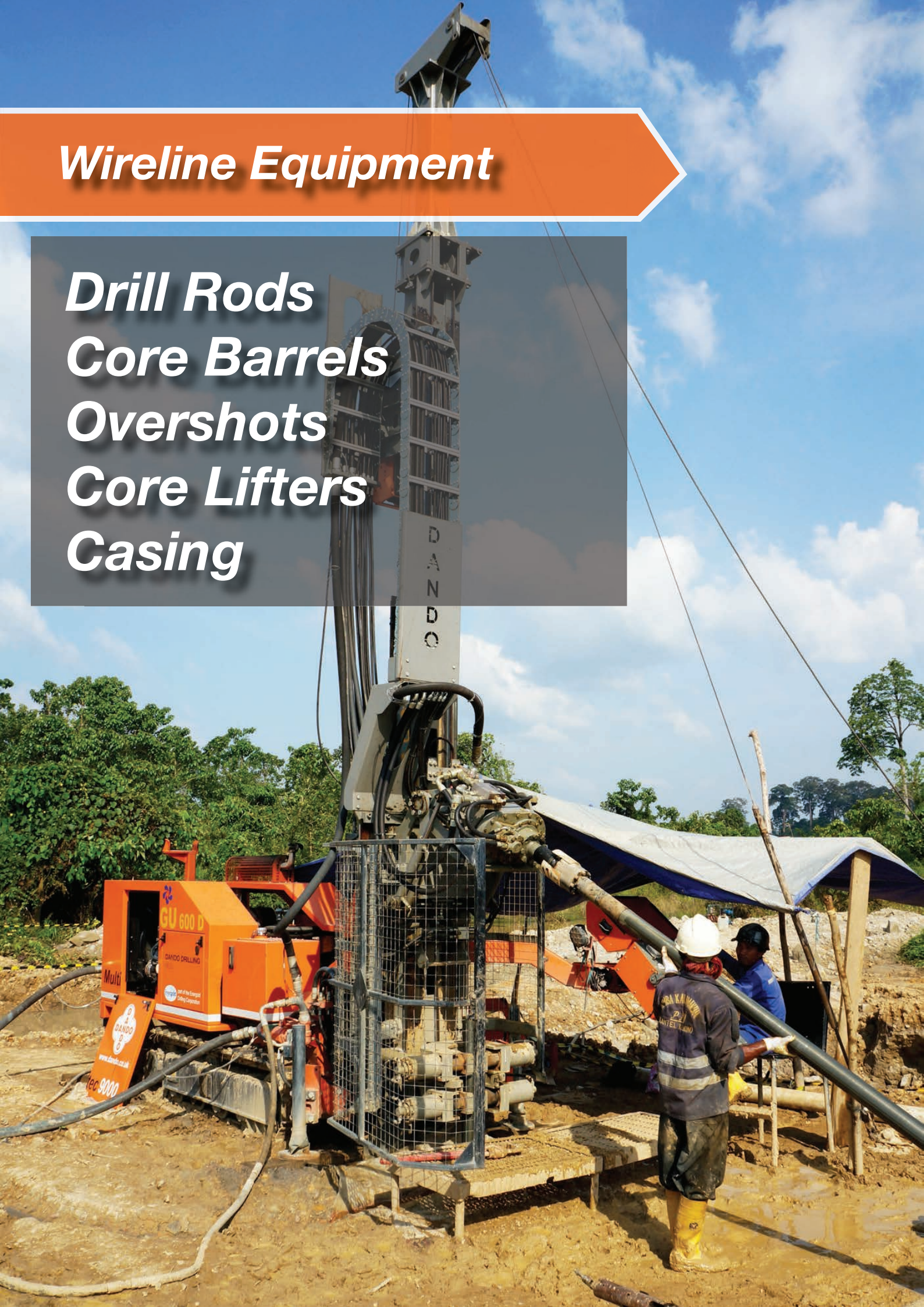
Wireline Equipment

Drill Rods
Core Barrels
Overshots
Core Lifters
Casing



Wireline Coring Equipment

NWL, HWL, PWL

The wireline coring system has been developed to increase core drilling production. This is achieved by utilising a core barrel with a horizontal locking groove in the neck and an inner tube for core recovery which has a back head with spring toggles which locate in the neck of the core barrel. The inner tube is lowered into the barrel through constant internal bore drill tubes. It then locks in position in the vertical plane (although it can rotate within a barrel.) At the end of the core run a recovery tool, known as an overshot, is lowered through the drill string on a wireline. This locates on the top of the inner tubes and retracts the spring toggles. The inner tube and core can then be lifted to the surface.

This technique obviously has tremendous advantages over conventional coring due to the fact that the drill string does not have to be run in and out of the hole at the end of each core run. The wireline coring system is now becoming the usual method of coring; although there is still a great deal of conventional coring still carried out.

Product Number	Product Description
502-1070	HWL (2./3'4") Drill Rods 3m Long Heat Treated Ends
502-1001	HWL Core Barrel 3m Complete
502-1012	HWL Core Barrel Spares
502-1050	HWL Overshot
502-1022	HWL Core Lifter
502-1023	HWL Core Lifter Case
502-1041	HWL Stop Ring
502-1044	HWL Locking Coupling
502-1045	HWL Adaptor Coupling
502-1046	HWL Landing Ring
502-1092	HW Inner Tube Stabilizer
200-1401	HW (4.1/2") Size Casing 3m
200-1402	HW (4.1/2") Size Casing 1.5m
200-1406	HW (4.1/2") Size Casing 1m
1100-1403	HW Diamond Casing Shoe
203-1402	HW Casing Adaptor

Product Number	Product Description
501-1070	PWL (4.1/2") Drill Rods 3m Long Heat Treated Ends
501-1001	PWL Core Barrel 3m Complete
501-1090	PWL Core Barrel Spares
501-1050	PWL Overshot
501-1022	PWL Core Lifter
501-1023	PWL Core Lifter Case
501-1041	PWL Stop Ring
501-1044	PWL Locking Coupling
501-1045	PWL Adaptor Coupling
501-1046	PWL Landing Ring
501-1028	PW Inner Tube Stabilizer
200-1320	PW (5.1/2") Size Casing 3m
200-1321	PW (5.1/2") Size Casing 1.5m
200-1406	PW (5.1/2") Size Casing 1m
1100-1330	PW Diamond Casing Shoe
203-1302	PW Casing Adaptor

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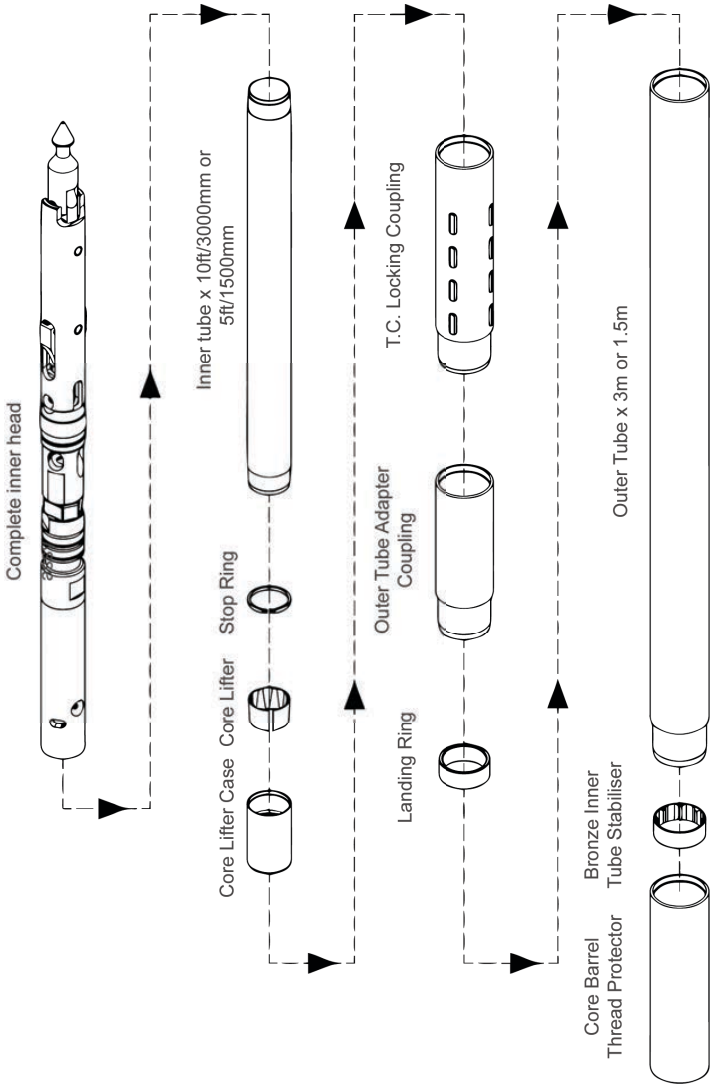
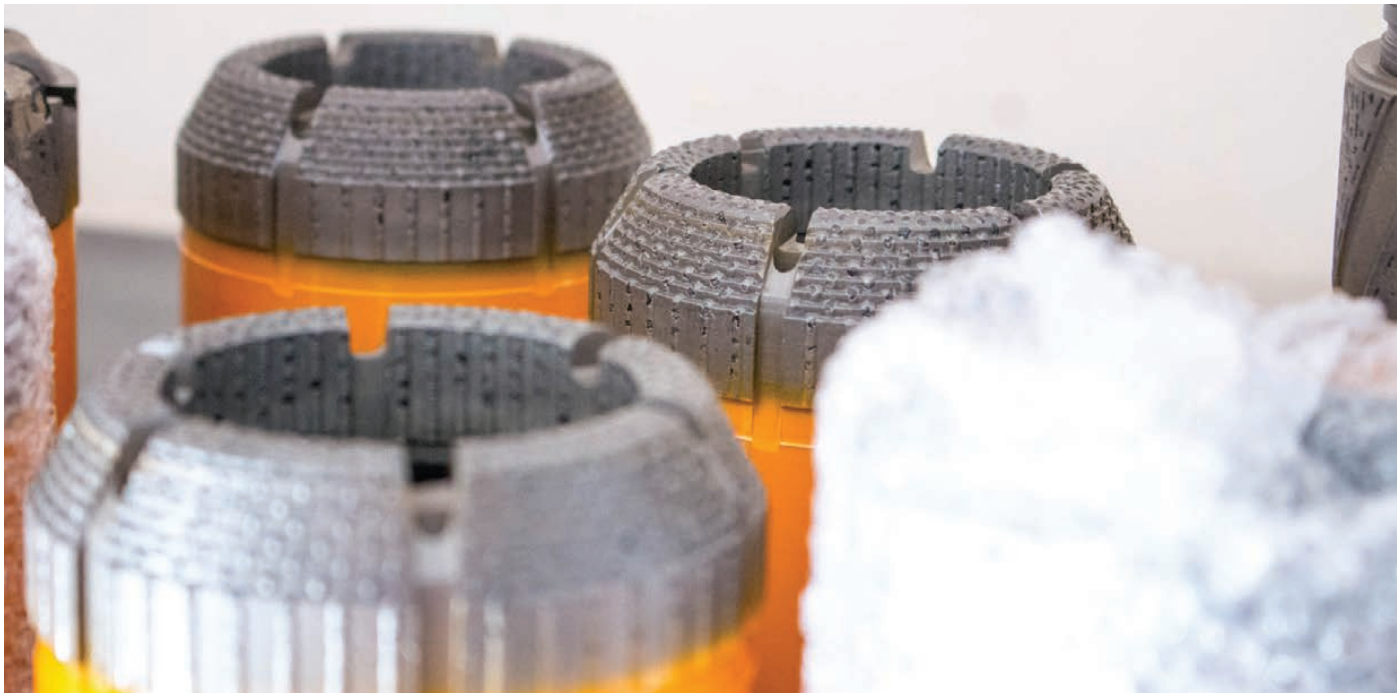


Product Number	Product Description
503-1070	NWL (2./3'4") Drill Rods 3m Long (500m) Heat Treated Ends
503-1001	NWL Core Barrel 3m Complete
503-1012	NWL Core Barrel Spares
503-1050	NWL Overshot
503-1022	NWL Core Lifter
503-1023	NWL Core Lifter Case
503-1041	NWL Stop Ring
503-1044	NWL Locking Coupling
503-1045	NWL Adaptor Coupling
503-1046	NWL Landing Ring
503-1028	NW Inner Tube Stabilizer
200-1501	NW (3.1/2") Size Casing 3m
200-1502	NW (3.1/2") Size Casing 1.5m
200-1504	NW (3.1/2") Size Casing 1m
1100-1512	NW Diamond Casing Shoe
203-1501	NW Casing Adaptor

Core Bits



Dando's 'Destroyer' range of core bits are used globally by clients in both the mineral and geotechnical sectors, receiving positive feedback for their high performance rates and longevity.

All bits are manufactured to conform to accepted drilling industry standards but can also be supplied in non-standard designs for clients with specific requirements.

There are four types of cutting media to accommodate the various types of geology:

Impregnated Diamond Type for Hard Rock Formations

Impregnated core bits are manufactured by bonding diamonds into a matrix which wears away during drilling to continually expose the diamonds for the cutting of rock. This process has distinct advantages over surface set bits, which can shed diamonds from the matrix leading to premature bit failure, due to the bit drilling out the diamonds.

The disadvantage of impregnated bits is that if the wrong matrix is selected or the bit is allowed to 'run on bottom' without penetrating the matrix can 'polish' preventing further diamonds from being exposed. The bit then has to be 'mechanically' stripped to expose further diamonds. Therefore matrix selection for impregnated bits is an important factor and often is a matter of initial trial and error.

Generally the harder the rock, the softer the matrix. Most manufacturers have adopted a numerical identification system for their bits:- I =The hardest matrix up to 15 = The softest matrix.

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Surface Set Diamond Type for Medium-Hard Conditions

Surface set bits are manufactured for high speed penetration, long service life and suitability for a variety of rock conditions. The range includes a variety of face profiles, diamond grades and stone sizes, enabling our customers to choose a bit that will provide optimum performance in any formation.

Polycrystalline Diamond Type for Soft-Medium Conditions (TSP & PCD)

The PCD bits have the same profile as sawtooth design bits, but the cutters are composed of Polycrystalline Diamond (PCD) which give a long working life, fast penetration and a high percentage core recovery in soft and hard formations, from clay to hard limestones. These bits are suitable for use with air, water, mud or foam flush. Several types of PCD cutters are available depending on the formation to be cored such as flat, clam or claw.

Tungsten carbide type for very soft conditions

Tungsten carbide core bits are available to suit most sizes of core barrel, and come in a variety of types to suit different drilling conditions. Sawtooth design of bits can have various types of inserts:

Rectangular

Most commonly used type in sawtooth crown bits. Available as face discharge or internal discharge depending on the application.

Taper

Where a larger surface area of cutting area is needed to achieve greater rates of penetration, taper insert core bits are used. This gives an efficient clearance of cuttings due to the profile of the bit. This type of bit is normally used in soft formations.

Octagonal

This is the type of insert associated with thin wall core barrels such as the T2 and T6 metric series. It has the advantage of a large number of cutting surfaces giving optimum penetration rates.

Fragmentary

Fragmentary inserts are useful in highly fractured formations or those containing loose pebbles. The cutting surface is over the whole of the bit and so the wear on the bit is evened out, and new tungsten carbide is exposed throughout the drilling process. This type of bit is less susceptible to chipping or impact damage.