

COMPACT CABLE TRENCHING TRACTOR CABLE BURIAL TRACTOR BT500

The BT500 is SMD's newest addition to its cable trenching vehicle line. A compact design based on SMD's wealth of experience in track driven vehicles, the BT500 is capable of trenching and cable handling in hard ground from very stiff clay to rock in shallow water up to 1000m water depth. The BT500 can be supplied with a chain cutter, 1.25m wheel cutter or optional jetting system enabling it to be configured to many job requirements.

FEATURES

- 25te tractor weight
- 400kW of installed power
- Simultaneous & post lay cable burial
- 2m chain cutter with 600kPa option
- 1.25m wheel cutter trench system for ground strength up to 35MPa
- 2m variable jetting capability option
- Crane manipulator – 2te SWL
- Diverless cable loading and unloading
- DVECS robust distributed control platform provides reliable, ergonomic operations and good diagnostics
- Proven Curvetech™ components throughout
- Range of SMD designed A-frame based LARS for standard and high sea states



SMD CUSTOMISATION SERVICE

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SYSTEM SPECIFICATIONS

GENERAL

Depth rating.....	1000msw
Length (excluding tools)	9.5m
Width	6.3m
Height	5.8m
Weight in air (excluding crane)	23te
Submerged weight	20te

PERFORMANCE

Speed range (no burial)	0-1000m/hr
Speed range (trenching)	10-500m/hr
Ground Pressure.....	18kPa
Installed Power	400kW total:
.....	1 x 400kW, 4-pole HPU

MECHANICAL

Construction	High strength steel chassis
Tracks.....	1000mm plastic tracks on steel chain

WHEEL CUTTER TRENCH SYSTEM

Configuration	Wheel cutter mounted
.....	under centre of vehicle
Wheel type	suitable for cutting heavy duty rock
Power.....	up to 300kW
Trench depth	1.25m
Trench width.....	300mm
Minimum bend radius	3m
Turning circle	25m

DREDGE SYSTEM

Configuration	Centrifugal dredge pump
Power.....	40kW
Water flow	1250m ³ /hr

CHAIN CUTTER TRENCH SYSTEM

Configuration.....	twin strand cutting chain with clay picks
Chain width.....	400mm
Power.....	up to 300kW
Chain speed	1.0 – 2.5 m/s
Trench depth	2m
Cable path.....	250mm x 250mm
Trenching speed	50 – 700m/hr
.....	Dependent on soil conditions

CRANE MANIPULATOR

Configuration.....	Cylinder actuated slew mechanism
.....	Boom, two stage jib and grab
Maximum load.....	2000kg
Maximum reach.....	7.0m

JETTING TOOL (OPTIONAL)

Configuration	Twin leg device that straddles product
.....	Single or multi-pass operation
Trench depth	up to 2m
Product size	up to 500mm diameter

HYDRAULIC SYSTEM

Cylinders	Smart heavy duty marine type
Valves.....	Directional and Counterbalance
Valve packs	Stainless Steel, Oil Compensated
Manifolds, pipes and fittings	Stainless Steel
Hoses	Multi-spiral flexible hoses

SUBSEA ELECTRONICS

Electronics Pod	One atmosphere pressure vessel
Depth	1000m
Communication	Fibre Optic MUX

SUBSEA SURVEILLANCE

Cameras	up to 8 cameras
.....	(HDTV optional)
Lamps	up to 12 x 250W, (2 x 400W HMI optional)
Pan and Tilt	up to 6 x robust 24V P&T units
Sonar	Tritech/ Kongsberg
Gyro	Fibre Optic
Profilers	Tritech/ Kongsberg/ Multibeam
Acoustic Positioning (Optional)	to suit vessel

OTHER EQUIPMENT

Control System	20ft ISO container or vessel control room
.....	Active chair or console layouts
.....	SMD DVECS™ system
Power System	housed in 10ft ISO container
LARS	Sea State 5 or 6 A-frame with umbilical lift
Umbilical Winch	Sea state 5 or 6 umbilical lift
Deck HPU	2 x 150kW

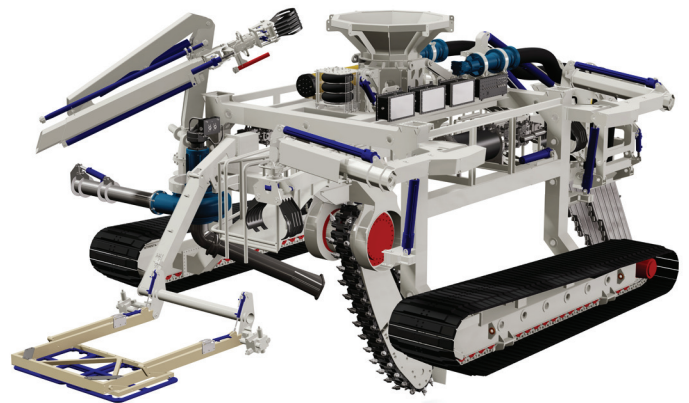
COMPACT 2.0M HARD GROUND TRENCHER

The CBT800 draws on SMD's experience of track driven vehicles, trenching and cable handling subsea to provide a soft to hard ground burial solution in one neat package. CBT800 is a fully amphibious vehicle and comes equipped with a powerful chain cutter, dredge pump and jet legs. A well proven chain cutter deployment system allows post lay burial of cable up to 300mm and 3.0m MBR.

FEATURES

- 300mm cable burial tractor weighing 30-35 Te
- 2.0m rock chain cutter to 20MPa or 40MPa
- Full power sharing between tools to suit ground conditions
- Simultaneous & post lay burial with cable handling & surveillance
- Fore dredge pump transporting 600m³/hr solids for trench clearing & backfill

CBT 800



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CBT / 800

GENERAL	
Depth rating	1000msw
Dimensions	
Length	12.5m
Width	6.5m
Height	5.5m
Weight in air	30-35Te
PERFORMANCE	
Trench Depth	2.0m max
Max Cable Diameter	300mm
Speed	0-250m/hr
Soil Types	All sands Clays from 10-400kPa Rock from 10-400kPa
Soft ground capability (w/buoyancy)	12-20kPa
Installed power	600kW (total)
MECHANICAL	
Construction	High strength steel chassis
Wear parts	Replaceable wear-resistant steel
Other	Stainless steel fittings and housings
TRENCHING SYSTEM	
Configuration	Single vertical hyd. drive chain cutter with separate rear jet tool
Trench profile	2.0m vertical
Chain power	300kW
Chain width	600mm
Chain depth	2.0m
Chain speed	0 to 4.0m/s
Chain type	Heavy duty chain with point attack picks
Forward dredge pump	75kW/hr 600m ³ solids
Dredge spoil backfill	spoil fed to cover cable
JETTING SYSTEM	
Configuration	Independent twin-legged device either side of cable/product
Jetting Pressure	Water pumps with hydraulically variable supply/ 10-15bar
Flow	Up to 600m ³ /hr per sword @ 10bar
Sword isolation	Upper 1.0m for hard ground
Power	2x200kW direct drive
Jet leg depth	2.5m
Depressor	2.5m

CRANE MANIPULATOR & TOOLS

Configuration	Four function crane fitted with three function grab, single water jet and dredge system
Crane lift capacity	3Te/m
Grab max lift capacity	4.0Te
Crane max reach	7.0m
Crane jet power	1500lpm @ 4 bar

HYDRAULIC SYSTEM

Cylinders	Smart heavy duty marine
Valves	Directional & counterbalance
Valve packs	Stainless steel, oil compensated
Manifolds, pipes & fittings	Stainless steel
Hoses	Multi-spiral flexible hoses

SUBSEA SURVEILLANCE

Cameras	Up to 8 (HDTV optional)
Lamps	Up to 12 x 250V Dimmable LED subsea lamps (Dimmed in groups)
Pan and tilt	Up to 6 24V P&T units
Sonar	Kongsberg/Tritech
Gyro	Fibre optic
Acoustic Positioning	To suit vessel
HID lamps (optional)	Up to 2 x 400W
Profilers (optional)	Kongsberg/Tritech/Multibeam
Echosounder (optional)	Kongsberg
High definition multibeam sonar	Blueview

OTHER EQUIPMENT

Control & power system	2 x 20ft ISO container SMD DVECS II or DVECS S system
LARS	45Te SWL sea state 5 A frame with shallow water rapid recovery option
Umbilical system	1500m & 3.0Te winch
Winch HPU	22kW or 330kW deck mounted
A-frame 45Te	SS5 with rotator docking frame
Lift winch	1000m lift wire with bullet

COMPACT 2.3/3.0M HARD GROUND CABLE TRENCHER

The CBT 1100 draws on SMD's experience of track driven vehicles, trenching and cable handling subsea to provide a soft to hard ground burial solution in one neat package. CBT1100 is a fully amphibious 800kW vehicle and comes equipped with a powerful chain cutter, dredge pump and jet legs. A well proven chain cutter deployment system allows post lay burial of cable up to 300mm and 4.0m MBR. The Tractor is supplied with a range of optional features including an intervention manipulator with jetting, two grab functions, semi automatic or work class ROV emergency cable cable eject systems, spoil backfill system and rapid recovery, shallow water umbilical guided lift bullet system.

FEATURES

- 300mm cable burial tractor weighing 45-55Te
- 2.3m 40MPa rock chain cutter
- Full power sharing between tools to suit ground conditions
- Simultaneous & post lay burial with cable handling & surveillance
- Fore dredge pump transporting 600m³/hr solids for trench clearing & backfill



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CBT / 1100

GENERAL	
Depth rating	1000msw
Dimensions	
Length	14.5m
Width	7.5m
Height	5.5m
Weight in air	45-55Te
PERFORMANCE	
Trench Depth (jetting)	3.0m max
Max Cable Diameter	300mm
Speed	0-250m/hr
Soil Types	All sands Clays from 10-4000KPa Rock from 1-40MPa
Soft ground capability (with buoyancy)	12-20kPa
Installed power	800kW (total)
MECHANICAL	
Construction	High strength steel chassis
Wear parts	replaceable wear-resistant steel
Other	Stainless steel fitting and housings
TRENCHING SYSTEM	
Configuration	Single vertical hyd. drive chain cutter with separate rear jet tool
Trench profile	2.3 & 3.0m vertical
Chain power	400kW
Chain width	600mm
Chain depth	2.3m
Chain speed	0 to 4.0m/s
Chain type	heavy duty chain with point attack picks
Forward dredge pump	75kW/hr 600m ³ solids
Dredge spoil backfill	spoil fed to cover cable
JETTING SYSTEM	
Configuration	Independent twin-legged device either side of cable/product
Jetting Pressure	Water pumps with hydraulically variable supply/ 10-15bar
Flow	Up to 800m ³ /hr per sword @10bar
Sword isolation	Upper 1.0m for hard ground
Power	2x300kW direct drive
Jet leg depth	3.0m
Depressor	3.0m

CRANE MANIPULATOR & TOOLS	
Configuration	Four function crane fitted with three function grab, single water jet and dredge system
Crane lift capacity	3Te/m
Grab max lift capacity	4.0Te
Crane max reach	7.0m
Crane jet power	1500lpm @ 4 bar
HYDRAULIC SYSTEM	
Cylinders	Smart heavy duty marine
Valves	Directional & counterbalance
Valve packs	Stainless steel, oil compensated
Manifolds, pipes & fittings	stainless steel
Hoses	Multi-spiral flexible hoses
SUBSEA SURVEILLANCE	
Cameras	Up to 8 (HDTV optional)
Lamps	Up to 12 x 250V Dimmable LED subsea lamps (Dimmed in groups)
Pan and tilt	Up to 6 24V P&T units
Sonar	Kongsberg/Tritech
Gyro	Fibre optic
Acoustic Positioning	To suit vessel
HID lamps (optional)	Up to 2 x 400W
Profilers (optional)	Kongsberg/Tritech/Multibeam
Echosounder (optional)	Kongsberg
High definition multibeam sonar	Blueview
OTHER EQUIPMENT	
Control & power system	2 x 20ft ISO container SMD DVECS II or DVECS S system
LARS	65Te SWL sea state 5 A frame with shallow water rapid recovery option
Umbilical system	1500m & 3.0Te winch
Winch HPU	22kW or 330kW deck mounted
A-frame 65Te	SS5 with rotator docking frame
Lift winch	1000m lift wire with bullet

COMPACT 3.0 TO 3.5 HARD GROUND TRENCHER

The CBT 2100 draws on SMD’s experience of track driven vehicles, trenching and cable handling subsea to provide a soft to hard ground burial solution in one neat package. CBT2100 is a fully amphibious vehicle and comes equipped with interchangeable tooling cassettes including a powerful chain cutter, dredge pump and jet legs. This well proven chain cutter deployment system allows post lay burial of cable up to 300mm and 5.0m MBR.

FEATURES

- Pre and post lay cable burial cassettes
- Fore dredge pump transporting 600m³/hr solids
- 300mm max cable/umbilical diameter with read swords
- Comprehensive instrumentation and surveillance



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CBT/2100

GENERAL	
Depth rating	1000msw
Dimensions	
Length	14.5m
Width	7.5m
Height	5.5m
Weight in air	70Te
PERFORMANCE	
Trench Depth (jetting)	3.0m max
Max Cable Diameter	300mm
Speed	0-250m/hr
Soil Types	All sands Clays from 10-1000MPa Rock from 1-40MPa
Soft ground capability (with buoyancy)	12-20kPa
Installed power	1600kW (total)
MECHANICAL	
Construction	High strength steel chassis
Wear parts	replaceable wear-resistant steel
Other	Stainless steel fitting and housings
TRENCHING SYSTEM	
Configuration	Single vertical hyd. drive chain cutter with separate rear jet tool
Trench profile	2.0 & 3.0m vertical
Chain power	400 & 800kW
Chain width	600mm
Chain depth	2.0 & 3.0m
Chain speed	0 to 4.0m/s
Chain type	heavy duty chain with point attack picks
Forward dredge pump	75kW/hr 600m ³ solids
Dredge spoil backfill	spoil fed to cover cable
JETTING SYSTEM	
Configuration	Independent twin-legged device either side of cable/product
Jetting Pressure	Water pumps with hydraulically variable supply/ 10-15bar
Flow	Up to 800m ³ /hr per sword @10bar
Sword isolation	Upper 1.0m for hard ground
Power	2x300kW direct drive
Jet leg depth	3.0m
Depressor	3.0m

CRANE MANIPULATOR & TOOLS

Configuration	Four function crane fitted with three function grab, single water jet and dredge system
Crane lift capacity	3Te/m
Grab max lift capacity	4.0Te
Crane max reach	7.0m
Crane jet power	1500lpm @ 4 bar

HYDRAULIC SYSTEM

Cylinders	Smart heavy duty marine
Valves	Directional & counterbalance
Valve packs	Stainless steel, oil compensated
Manifolds, pipes & fittings	stainless steel
Hoses	Muti-spiral flexible hoses

SUBSEA SURVEILLANCE

Cameras	Up to 8 (HDTV optional)
Lamps	Up to 12 x 250V Dimmable LED subsea lamps (Dimmed in groups)
Pan and tilt	Up to 6 24V P&T units
Sonar	Kongsberg/Tritech
Gyro	Fibre optic
Acoustic Positioning	To suit vessel
HID lamps (optional)	Up to 2 x 400W
Profilers (optional)	Kongsberg/Tritech/Multibeam
Echosounder (optional)	Kongsberg
High definition multibeam sonar	Blueview

OTHER EQUIPMENT

Control & power system	2 x 20ft ISO container SMD DVECS II or DVECS S system
LARS	80Te SWL sea state 5 A frame with shallow water rapid recovery option
Umbilical system	1500m & 3.0Te winch
Winch HPU	22kW or 330kW deck mounted
A-frame 80Te	SS5 with rotator docking frame
Lift winch	1000m lift wire with bullet

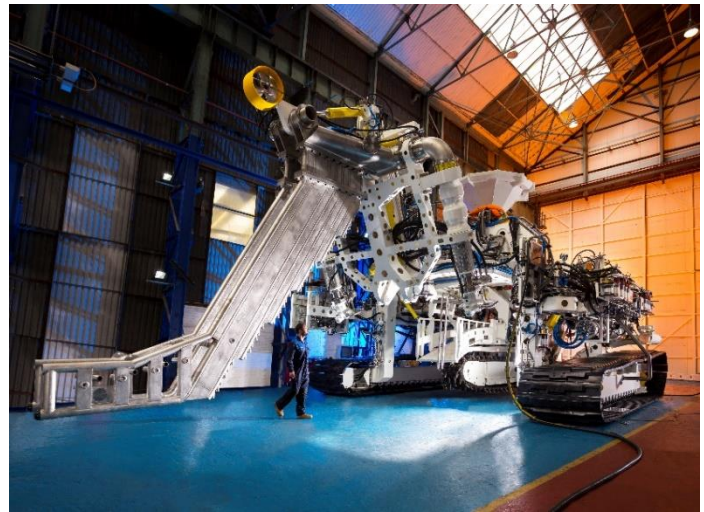
INNOVATIVE CABLE TRENCHING SOLUTION

CABLE BURIAL TRACTOR CBT2400

The CBT2400 draws on SMD experience of track driven vehicles, trenching and cable handling subsea to provide a soft to hard ground burial solution in one neat package. CBT2400 is a fully amphibious vehicle and comes equipped with two powerful chain cutters, two dredge pumps and jet legs. A well proven chain cutter deployment system allows post-lay burial of cable up to 500mm and 5.0 MBR.

FEATURES

- 85Te tractor (in heaviest configuration)
- 100Te SWL detachable lift point
- 1800kW of installed power
- Pre and post lay cable burial
- Fore dredge pumps transporting 2x 600m³/hr solids
- 500mm maximum cable / umbilical diameter with rear swords
- 3.0m-5.0m minimum bend radius dependent on burial depth
- 3te/m crane manipulator with jet/dredge tools
- 1000m maximum water depth
- Optional Tooling Cassettes:
 - 2.3m centrally mounted chain cutter with rear jetting depressor for hard ground conditions up to 80MPa
 - 3.3m centrally mounted chain cutter with rear jetting depressor for ground conditions up to 40MPa
 - 1.3m wheel cutter for ground conditions 50MPa



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SYSTEM SPECIFICATIONS

GENERAL

Depth rating:	up to 1000m
Approximate dimensions:	
Length (including tools)	21.7m
Width	9.4m
Height	7.1m
Maximum weight in air	85.0te
Submerged weight	73.0te

PERFORMANCE

Speed range (no burial)	20-1000m/hr
Avg. speed range (trenching)	50-500m/hr
Ground pressure	25kPa
Installed power	1800kW total

MECHANICAL

Construction	High strength steel chassis
Tracks	1750mm plastic tracks on steel chain

CHAIN CUTTER – CASSETTE ONE

Configuration	Chain cutter on swing frame
Chain width	720mm
Chain power	800kW
Chain speed	0 – 3m/s
Jetting	Rear mounted twin jet swords
Depressor	Integral to jet swords
Jetting power	1200kW
Trench depth	3.3m
MBR	5m
Forward jetter	150kW

CHAIN CUTTER – CASSETTE TWO

Configuration	Chain cutter on swing frame
Chain width	720mm
Chain power	800kW
Chain speed	0 – 3m/s
Jetting	Rear mounted twin jet swords
Depressor	Integral to jet swords
Jetting power	1200kW
Trench depth	2.3m
MBR	up to 5m
Forward jetter	150kW

WHEEL CUTTER – CASSETTE THREE

Configuration	Centrally mounted wheel cutter
Wheel width	500mm
Wheel power	400kW
Pick velocity	0 – 2.5m/s
Depressor	Rear mounted
Trench depth	1.2m
MBR	3m
Forward jetter	150kW

DREDGE SYSTEM

Configuration	Front mounted with backwash function
Power	2 x 75kW

SUBSEA ELECTRONICS

Electronics Pod	One atmosphere pressure vessel
Depth Rating	1500m
Communication	Fibre Optic MUX

SUBSEA SURVEILLANCE

Cameras	up to 8 cameras
Lamps	up to 12 LED
Pan and tilt	up to 6 P&T units
Sonar	Obstacle avoidance
Gyro	Fibre Optic
Profilers (Optional)	Multi-beam
Acoustic Positioning (Optional)	to suit vessel

OPTIONS

Crane manipulator	Cylinder actuated slew mechanism
	Boom, two stage jib and grab
Cable tracking package	TSS 350/440

POWER AND CONTROL

Control Cabin	Housed in 20ft ISO A60 container
Control System	SMD DVECS system
Power System	housed in 20ft ISO containers

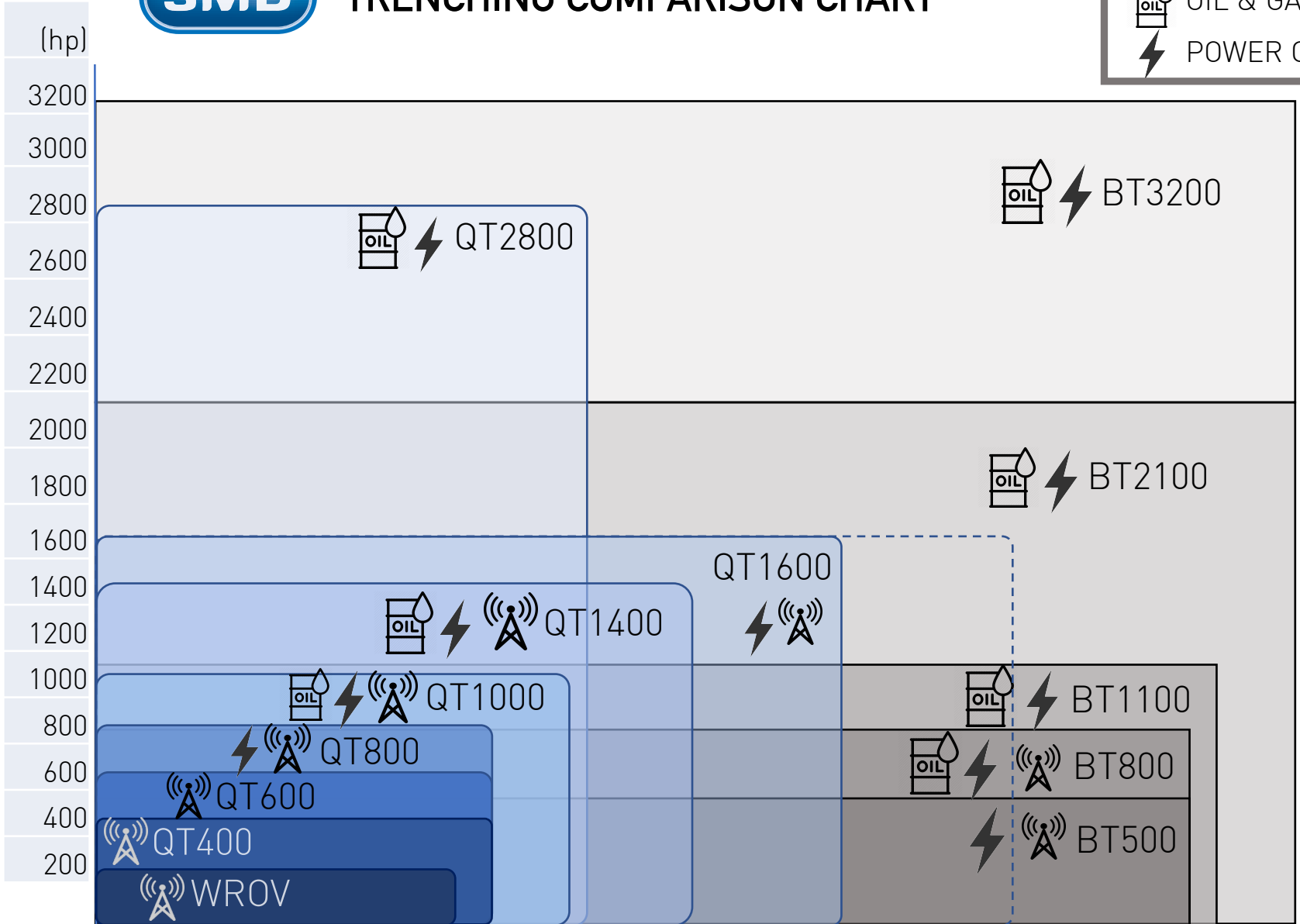
LARS

LARS	Sea State 5 or 6 A-frame
Umbilical Winch	Sea state 5 or 6
Deck HPU	



TRENCHING COMPARISON CHART

- TELECOMS
- OIL & GAS
- POWER CABLES



Coarse	Medium	Fine	Soft	Medium	Hard	Soft	Medium	Hard
Sands			Clays			Rock		