



SPECIALISED TOOLS
AND EQUIPMENT

HIRE BOOK

MAKIN' THE HARD JOBS *EASY*

SUPERCHARGING INDUSTRY & ESSENTIAL INFRASTRUCTURE



HTC has been creating specialised tooling solutions for New Zealand industry for over 40 years.

Specialists in 700 bar hydraulics, HTC offers more than 35 years of experience in the supply and application of high pressure hydraulic equipment.

HTC sources and supplies solution-based tools and equipment for electrical contracting, railway, construction, engineering and drainage industries.

With branches in Auckland and Christchurch, HTC offers equipment sales, service, repair, calibration and tool hire.

“We are passionate about making the hard jobs easier for our customers. Call us today to see how we can help with your next project.”

Robb Huskinson
Owner/Director

HTC'S PROMISE TO YOU



We do not charge for days in transit



Rent it to try for a day, if you decide to buy then the days hire is free



Contract rates, talk to us for the right tooling for your project



24 Hour call out service



Technical Solutions to keep your job running

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AIR LIFTING BAGS

Description

Air lifting bags, low insertion height however capable of high capacity lifts



ANCHOR BOLT TESTING

Description

Hydrajaw M2000 Anchor Bolt Tester Upto 25Kn With Analogue Gauge

Hydrajaw M35+ Anchor Bolt Tester Upto 65kN With Digital Gauge

Hydrajaw M2008 Anchor Bolt Tester Upto 145kN With Digital Gauge



Hydrajaw
M2000



Hydrajaw
M35+



Hydrajaw
M2008

BEVELLING

Description

Portable Chamfering Machine - used for thin plate and pipe weld prep

Portable Plate Beveling Machine - can produce weld prep on plate steel



Portable
Chamfering Machine



Portable Plate
Beveling Machine

BREAKERS & TAMPERS

Description

Petrol Tamper

Hydraulic Breaker

Electric Breaker

Hydraulic pole tamper

Gas ballast tamper



Petrol Tamper



Hydraulic Breaker



Electric Breaker



Hydraulic pole tamper



Gas ballast tamper

ALSO
available for
PURCHASE



CABLE CUTTERS

Description

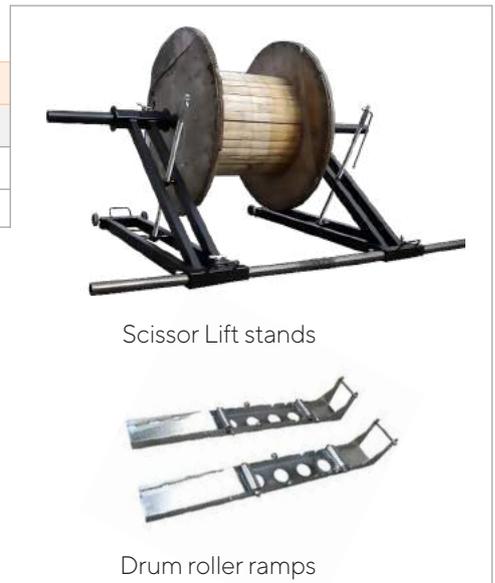
- CC75 75mm Hydraulic Cable Cutter Head
- P100A 100mm Hydraulic Cable Cutter Head
- S550 ACSR 54mm Hand Cable Cutter
- SPA55 ACSR 50mm Hydraulic Cable Cutter Head
- REC S540 Battery Operated Cable Cutter



CABLE PULLING

Description

- Wide range of Cable socks, grips & swivels available
- Range of reel stands available



CRIMPING

REMOTE HEAD CRIMPING

Description

- 12 Tonne Compression Tool 700 Bar Single Acting
- 22 Tonne Compression Tool 700 Bar Single Acting
- 25 Tonne Compression Tool 700 Bar Single Acting
- 60 Tonne Compression Tool 700 Bar Single Acting
- 100 Tonne Compression Tool 700 Bar Single Acting



HAND CRIMPING

Description

- 12 Tonne Hand Compression Tool



BATTERY POWERED CRIMPING

Description

12 Tonne Battery Crimp Tool (includes Battery & Charger)



12 Tonne Battery Crimp Tool

CRIMPING DIE SETS

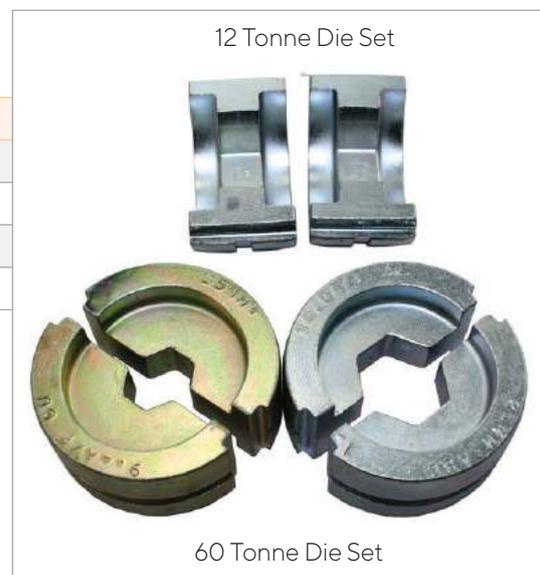
Description

12 Tonne Die Set

25 Tonne Die Set

60 Tonne Die Set

100T Die Set (see Die selection chart on next page)



12 Tonne Die Set

60 Tonne Die Set

CIVIL TOOLS

MANHOLE COVER LIFTERS

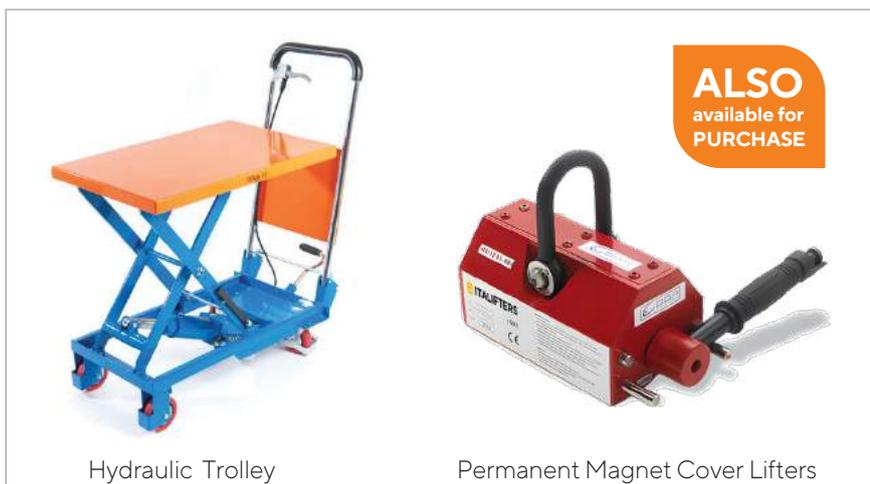
Description

Wheeled Folding Lever

Permanent Magnet Cover Lifters

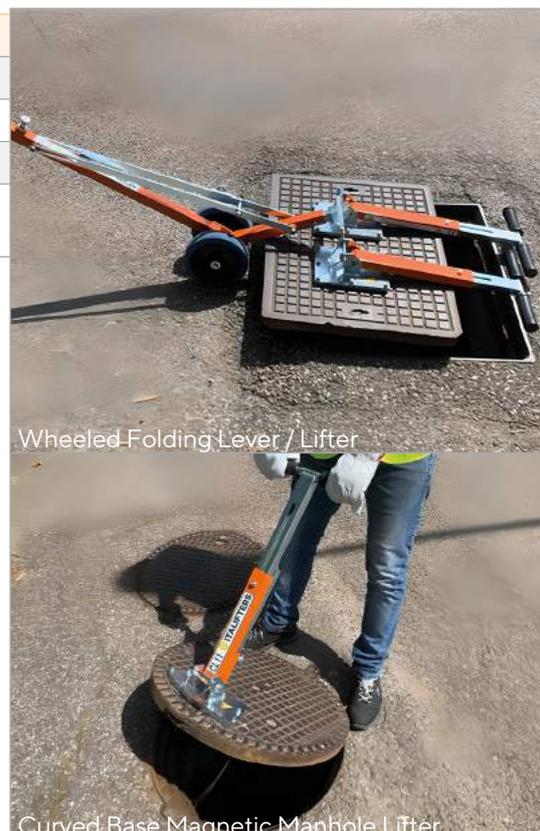
Curved Base Magnetic Manhole Lifter

Hydraulic Trolley 850 x 500mm, 300kg Capacity
Lift Height: 300 - 900mm



Hydraulic Trolley

Permanent Magnet Cover Lifters



Wheeled Folding Lever / Lifter

Curved Base Magnetic Manhole Lifter

DIE SELECTION CHART

CRIMPING DIES

Code	Tonnes	Common Size (mm ²)	Type	A/F Size (mm)
38-XXX-CU Flat	12/22	16/220	Flexible	14/17
38-63-CU	12/22	16	Copper	6.3
38-77-CU	12/22	16/25	Copper	7.7
38-92-CU	12/22	35	Copper	9.2
38-104-CU	12/22	50	Copper	10.4
38-115-CU	12/22	70	Copper	11.5
38-142-CU	12/22	95	Copper	14.2
38-165-CU	12/22	120	Copper	16.5
38-183-CU	12/22	150	Copper	18.3
38-200-CU	12/22	185	Copper	20.0
38-231-CU	12/22	240	Copper	23.1
38-260-CU	12/22	300	Copper	26.0
38-132-AL	12/22	50/70	Aluminium	13.2
38-173-AL	12/22	95/120	Aluminium	17.3
38-220-AL	12/22	150/185	Aluminium	22.0
38-284-AL	12/22	240/300	Aluminium	28.4
CDA-3	12/22	25/35	Aluminium	12.4
CDA-4	12/22	35/50	Aluminium	13.75
CDA-5	12/22	70/120	Aluminium	17.9
CDA-6	12/22	95/150	Aluminium	22.0
CDA-7	12/22	150/185	Aluminium	25.4
CDA-8	12/22	240	Aluminium	28.2
CDA-9	12/22	300/400	Aluminium	32.3
CDS-8	12/22	150	Steel	12.7
22T/400	22	400	Copper	28.1
22T/500	22	500	Copper	31.0
40-25 Flat	60	N/A	Flexible	N/A
40-185-CU	60	150	Copper	18.5
40-231-CU	60	240	Copper	23.1
40-260-CU	60	150/300	Copper	26.0
40-281-CU	60	400	Copper	28.1
40-310-CU	60	500	Copper	31.0
40-340-CU	60	1/2 Hex/240	Flexible	34.0
40-370-CU	60	630	Copper	37.0
40-410-CU	60	1/2 Hex/400	Flexible	41.0
40-220-AL	60	185	Aluminium	22.0
40-283-AL	60	300	Aluminium	28.3
40-390-AL	60	400/500	Aluminium	39.0
40-432-AL	60	630	Aluminium	43.2
DS7	60	150	Steel	10.11
DS8	60	240	Steel	12.70
DS9	60	300	Steel	15.11
DS10	60	400	Steel	16.05
DA7	60	150/185	Aluminium	25.43
DA8	60	240	Aluminium	28.19
DA9	60	300/400	Aluminium	32.33
DA10	60	400	Aluminium	36.22
DA11	60	500	Aluminium	40.21
DA12	60	630	Aluminium	45.72
DA7-100	100	150/185	Aluminium	25.43
DA8-100	100	240	Aluminium	28.19
DA10-100	100	400	Aluminium	36.22
DA11-100	100	500	Aluminium	40.21

Code	Tonnes	Common Size (mm ²)	Type	A/F Size (mm)
DS7-100	100	150	Steel	10.11
DS8-100	100	240	Steel	12.70
DS9-100	100	300	Steel	15.11
DS10-100	100	400	Steel	16.05
DA10/10W	100	400	Aluminium	36.22
DA/100W	100	630	Aluminium	45.72
DA11/100W	100	500	Aluminium	40.21
DS10/100W	100	400	Steel	16.05
DA14/100W	100	ACSR/CHUKAR	Aluminium	53.87
40-400 AL	60	Oxygen	Aluminium	40.0
40-345 AL	60	Nitrogen	Aluminium	34.5
40-445 AL	60	Selenium	Aluminium	44.5
40-475 AL	60	Sulphur	Aluminium	47.5
40-285 AL	60	Neon	Aluminium	28.5
475AL/100W	100	Sulphur	Aluminium	47.5
445AL/100W	100	Selenium	Aluminium	44.5
345AL/100W	100	Nitrogen	Aluminium	34.5

AAAC CRIMPING DIES

Code	Description	Type	A/F Size (mm)
40-400 AL	60 Oxygen	Aluminium	40.0
40-345 AL	60 Nitrogen	Aluminium	34.5
40-445 AL	60 Selenium	Aluminium	44.5
40-475 AL	60 Sulphur	Aluminium	47.5
40-285 AL	60 Neon	Aluminium	28.5
100-475 AL	100 Sulphur	Aluminium	47.5
100-445 AL	100 Selenium	Aluminium	44.5
100-345 AL	100 Nitrogen	Aluminium	34.5

DIE ADAPTORS

Code	Description	Shape
25T-12T	25 - 12 Tonne Die Adaptor	Round
EP60S-12	60 - 12 Tonne Die adaptor	Round
EP100W-60	100 - 60 Tonne Die adaptor	Round
HZ100-60	100 - 60 Tonne Die adaptor	Square

WIRE ROPE DIES

Code	Description	Common Size
R-12A	Huskie Wire Rope Die	1/2" A
R-14AC	Huskie Wire Rope Die	1/4" AC
R-18AC	Huskie Wire Rope Die	1/8" AC
R-316AC	Huskie Wire Rope Die	3/16" AC
R-38-CUT	12 Tonne Cutting Die	-
R-38AC	Huskie Wire Rope Die	3/8" AC
R-51058	2 Tonne Grip 5-16mm Wire Rope	-
R-516AC	Huskie Wire Rope Die	5/16" AC
R-716A12C	Huskie Wire Rope Die	7/16" AC
R-716C	Huskie Wire Rope Die	7/16" C

SAFETY NOTES: To ensure correct operation and to maintain safety standards, customers must specify dies. If unsure, please contact connector manufacturer. HTC does not accept liability for joint failures due to incorrect die sizes.

ALSO
available for
PURCHASE

DRILLS / ROTABROACHES

Description

Small Mag Base Drill

Medium Mag Base Drill

Large Mag Base Drill

Extra Large Mag Base drills up to 100mm

Small Lightweight/Low Height Mag Drill

Medium Lightweight/Low Height Mag Drill

Annular Cutters from 12mm - 65mm

Battery Mag based Drill

Pipe mag based drill

Automatic Feed Drill



Battery



Lightweight/Low Height



Medium Mag Base Drill



Large Mag Base Drill

DYNAMOMETERS/SCALES/ TENSION METERS/LOAD CELLS

Description

Tension meters 1-10 ton lifting or pulling capacity available.
Compression scales also available for weighing objects.



Compression Load Cell



Digital/Load
Tension Meter



Analogue

ALSO
available for
PURCHASE

EXTENSION LEADS

Description

Range of power leads both single and three phase.



FLANGE SPREADING EQUIPMENT

Description

Hydraulic Flange Spreader Kit: includes 2 x Hydraulic Spreaders,
2 x Hoses, Hydraulic Pump, 2 x 1000 Bar Gauges, 2 x Step Wedges,
2 x Step Chocks

Hydraulic Fixed Flange Alignment & Rotational Tool: includes 2 x Hydraulic
Alignment Tools, Hydraulic Pump, Hose, 1000 Bar Gauge & Ratchet Stop

Hydraulic Flange
Spreader Kit



Hydraulic Fixed
Flange Alignment
& Rotational Tool



GAS DETECTOR

Description

MGT-P Four Gas Monitor (Portable Gas Detector)



GAUGES

Description

100mm Hydraulic Gauge

63mm Hydraulic gauge

Digital High Accuracy Gauge



100mm

Digital

HOISTS ELECTRIC HOISTS

Description

500Kg Electric Chain Hoist 6m Drop 230V

1000kg Electric Chain Hoist 6m lift, 230v

2000kg Electric Chain Hoist 6m lift, 230v

3000kg Electric Chain Hoist 6m lift, 230v

G-smartrac endless rope winch, 300kg or 600kg



Electric Chain Hoist

ALSO
available for
PURCHASE



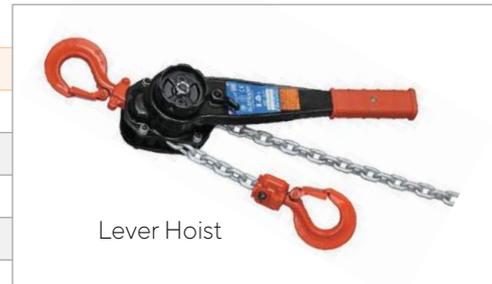
Endless Rope Winch



LEVER HOISTS

Description

- 0.8 Tonne Lever Hoist
- 1.6 Tonne Lever Hoist
- 3 Tonne Lever Hoist
- 6.3 Tonne Lever Hoist

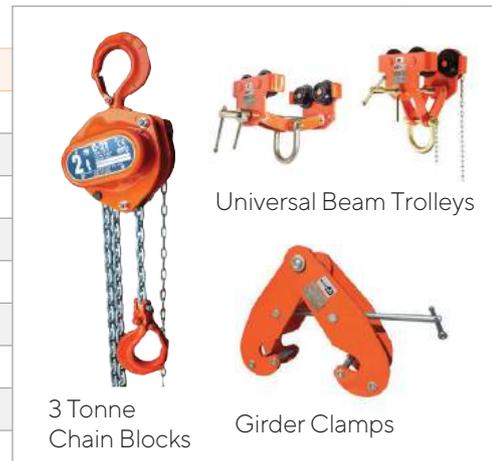


Lever Hoist

MANUAL HOISTS - CHAIN BLOCKS

Description

- 1 Tonne Chain Block 6m Lift
- 2 Tonne Chain Block 6m Lift
- 3 Tonne Chain Block 6m Lift
- 5 Tonne Chain Block 6m Lift
- 10 Tonne Chain Block 6M Lift
- Universal Beam Trolley 1.5 Tonne 74-192mm
- Universal Beam Trolley 3 Tonne 100-205mm
- Girder Clamps



3 Tonne Chain Blocks

Universal Beam Trolleys

Girder Clamps

GANTRY HOISTS

Description

Gantry - Portable Aluminium - 500kg, 2000kg, 3000kg and 5000kg capacities available.

ALSO
available for
PURCHASE



Gantry - Portable Aluminium

HOSES

HYDRAULIC 700 BAR HOSES

Description

Wide range of hoses available

ALSO
available for
PURCHASE



HYDRAULIC HOSES - ADAPTORS

Description

Hi Flo Adaptor - allows for different couple brands with the same capacities to be inter connected.



LOW PRESSURE HYDRAULIC HOSES

Description

5m Low Pressure Return

15m Twin Hose & Brunning Couplers

30m Twin Hose & Brunning Couplers



AIR HOSES

Description

Various flow capacities and lengths available



HYDRAULIC MANIFOLDS AND VALVING

Description

Check Valves with Bypass

Needle Valves

Valved Manifolds 2 Port

Valved Manifolds 4 Port

Valved Manifolds 6 Port

Y-Branch With ROC-13 Couplers



NV-13
Needle
Valve

BV-43 Valved Manifold 4 Port

JACKS BOTTLE

ALSO
available for
PURCHASE

Description

- 5 Tonne Ratchet Jack 254mm Stroke 432mm Closed Height
- 5 Tonne Ratchet Jack 330mm Stroke 508mm Closed Height
- 10 Tonne Bottle Jack
- 15 Tonne Bottle Jack



LIFTING SLINGS/ROPES/ SHACKLES

Description

- Strop 2 Tonne Flat Web 1.5m
- Strop 3 Tonne Swl Roundsling 4m
- Strop 10 Tonne Flat Web 3m
- Bow Shackle 6 Tonne
- Bow Shackle 9.5 Tonne



LOADSKATES

Description

- 5 Tonne Loadskate
- 12.5 Tonne Loadskate
- 40 Tonne Loadskate Set (4 x 10 Tonne)
- 5 Tonne Handle
- 5 Tonne Turntable
- 12.5 Tonne Handle
- 12.5 Tonne Turntable



40 Tonne Loadskate Set



5 Tonne Handle



5 Tonne Loadskate



12.5 Tonne Loadskate

LOW PRESSURE EQUIPMENT

Description

- Underwater Chainsaw
- Concrete Saw
- Petrol Powered LP Power Unit
- Low pressure hydraulic pumps - various capacities and flow rates available.
- Underwater Grinder
- Pole Tamper
- Hydraulic Breaker



Petrol Powered LP Power Unit



Pole Tamper



Hydraulic Breaker



Underwater Chainsaw

ALSO
available for
PURCHASE



Underwater Grinder

SUBMERSIBLE/TRASH PUMPS

Description

Various models available



NUT CUTTERS/SPLITTERS

Description

Hydraulic Nut Splitter - Capacities of 13mm to 57mm+ Nut sizes

ALSO
available for
PURCHASE



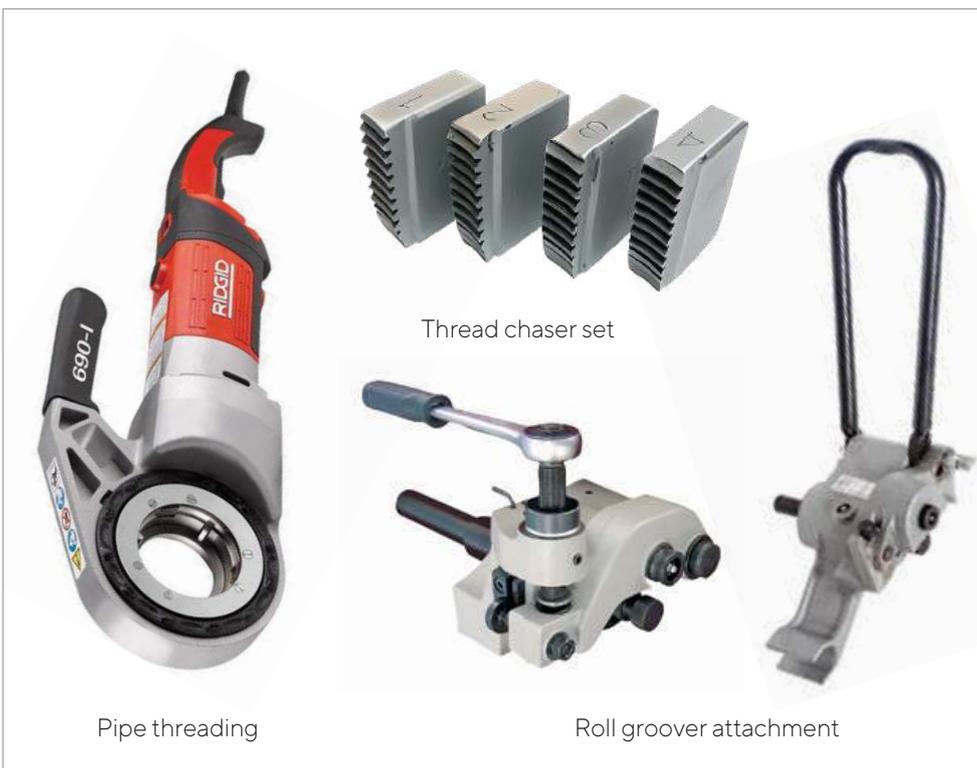
PIPE THREADING

Description

Wide range of threading machines, table top and hand held.
Capacities up to 4" available.

Plenty of accessories can also be provided, including pipe stand

Roll Groover attachments



Pipe threading

Thread chaser set

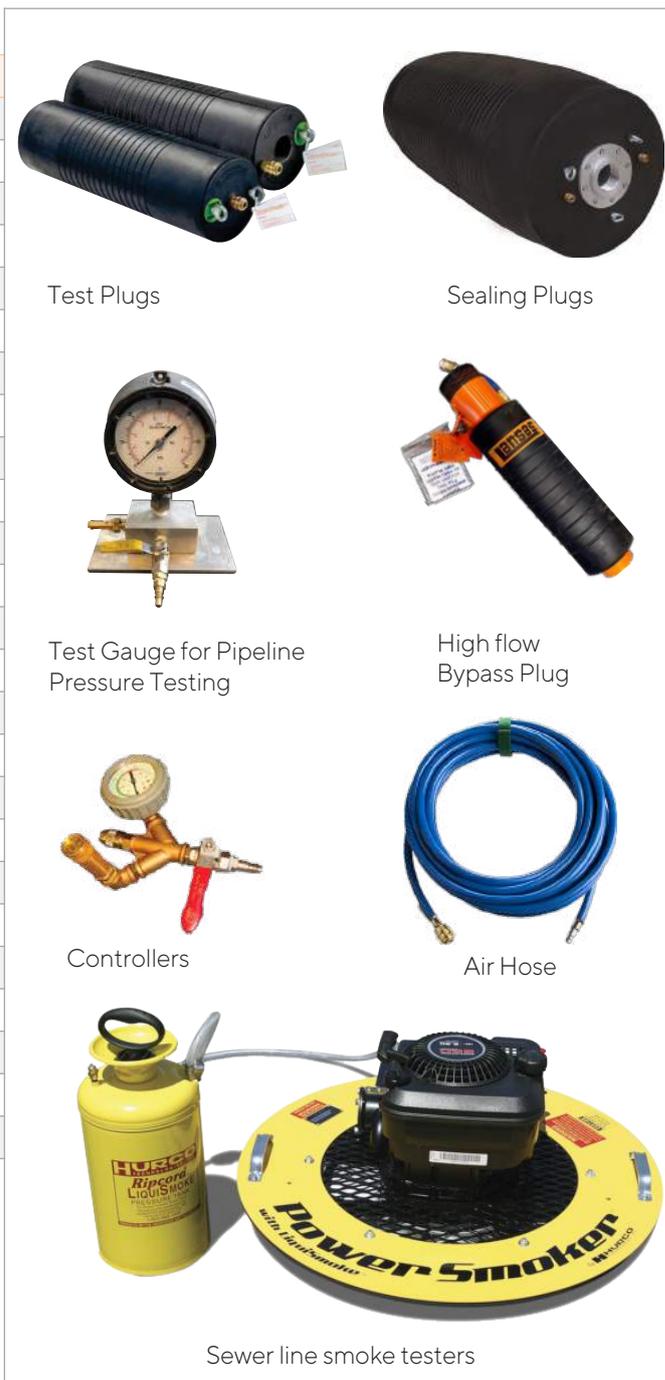
Roll groover attachment

PIPE SEALING & TESTING

Description

Sava Sealing Plug 70-150mm 2.5 Bar
Sava Sealing Plug 100-200mm 2.5 Bar
Sava Sealing Plug 150-300mm 2.5 Bar
Sava Sealing Plug 300-525mm 2.5 Bar
Sava Sealing Plug 350-600mm 2.5 Bar
Sava Sealing Plug 375- 750mm 2.5 Bar
Sava Sealing Plug 500-800mm 2.5 Bar
Sava Sealing Plug 500-1000mm 1.5 Bar
Sava Sealing Plug 600-1200mm 1.5 Bar
Sava Sealing Plug 750-1500mm (1.0 bar)
Sava Test Plug 70-150mm with ½" port
Sava Test Plug 150-300mm with 1" port
Sava Test Plug 300-525mm with 1" port
Sava Test Plug 500-800mm with 2" port
Sava Test Plug 500-1000mm with 2" port
Sava Test Plug 600-1200mm with 4" port
Sava Test Plug 750 - 1500mm 4" Duct
Sava 1.5 Bar Controller
Sava 2.5 Bar Controller
Sava 10m Air Hose
Sava Testing bag 350-600mm Vp 6" bypass
Test Gauge for Pipeline Pressure Testing (0-60kpa)
Sewer line smoke tester
3" Bypass Plug 150mm - 250mm

* Pipe sealing gear incurs a sanitising charge



Test Plugs

Sealing Plugs

Test Gauge for Pipeline Pressure Testing

High flow Bypass Plug

Controllers

Air Hose

Sewer line smoke testers

ALSO
available for
PURCHASE

PIPE JOINT TESTER

Description

Pipe joint tester - ready to test with water or air. Capable of testing to 15 psi air or 50 psi water. For testing pipe between 54cm and 299cm



PIPE BENDING

Description

UNI-42 Manual Tube Bender Complete with Stand

Uni-60 Electric Benders

Pipe bender + shoes up to 50mm nominal pipe



Electric Tube Bender



Pipe bender

Manual Tube Bender

PIPE WORK ACCESSORIES

Description

Confined space exhaust fan 300mm



POLE JACKING

Description

Pole Jacking System for Mono Poles



Pole Jacking System
60 Tonne

ALSO
available for
PURCHASE

POWER TOOLS

Description

Steel Cutting Drop Saw

70Lb Electric Breaker

Reciprocating Saw

ALSO
available for
PURCHASE



Reciprocating Saw

PULLERS

Description

10 Tonne F210I 2 Jaw Long Puller

10 Tonne F210 2 Jaw Puller

10 Tonne CH10 Cross Head

10 Tonne F310 3 Jaw Puller

20 Tonne F220 2 Jaw Puller

20 Tonne F320 3 Jaw Puller

25 Tonne PHP113 Posi Lock Puller

30 Tonne HP351 2 Leg Puller Set (includes Ram)

30 Tonne HP351 3 Leg Puller Set (includes Ram)

5 Tonne F351 3 Leg Long Puller

5 Tonne F35 3 Leg Puller

5 Tonne A132 Chain Cross Head Pull Plate

Bearing Puller, Tri Sectional Durapac ET3-495



20 Tonne 2 Jaw Puller



25 Tonne Posi Lock Puller



30 Tonne 3 Leg Puller Set



10 Tonne 2 Jaw Long Puller



10 Tonne Cross Head

HTC SHUT KIT

Here at HTC, we not only offer day to day problem solving for any of the daily challenges that may occur on the job, but we have also expanded our range to cover the regular planned maintenance programs that your company may have.

We provide you with an extensive product wish list, which in turn you tick what items you want and how many. Once this list has been compiled we price it on a day, week, month or even the duration of the shut.

NO HIDDEN COSTS. NO UNWANTED TOOLS.

We then put it all in our shut box with a checklist, padlock it shut and send it out to the supervisor in charge.

You can trust HTC to guarantee that all our equipment is serviced, certified and site safe. It's all about **'Making The Hard Jobs Easy'** so you can do your job faster and easier.



CUSTOMISE YOUR TOOL BOX

- Pumps - Hand, Electric & Hydraulic
- Torque Equipment - Wrenches & Cassettes
- Rams & Jacks
- Chain Blocks & Pull Lifts
- Mag Drills
- Spanners, Sockets & Floggers
- Strops & Slings
- Shackles

Plus many other tools or equipment for your planned maintenance



Hydraulic Torque Wrenches



Mag Drill



Gantry



Flange Spreader



Hoist Chain Block



Flat Cylinders

ALSO
available for
PURCHASE

Contact the HTC Team to discuss your Shut Kit today

PUMPS

ELECTRIC PUMPS

Description

1800cc Pump Single Acting 230v

6000cc Pump Single Acting 230v

1800cc Pump Double Acting 230v

6000cc Pump Double Acting 230v

9000cc Pump Double Acting 230v

Riken Pump Single Acting 230v

20L Pump Double Acting 230v

30L Pump Double Acting 3 Phase

8000cc tank, Double acting, 230v



SMP4AR Pump
Single Acting



PEM-8424
Pump Double
Acting



MP15 Pump
Double Acting

HAND PUMPS

Description

600cc 2 Speed Hand Pump

1800cc 2 Speed Hand Pump

Single Acting 2 Speed Hand Pump 2000cc

5000cc Double Acting 2 Speed Hand Pump

8000cc Double Acting 2 Speed Hand Pump

2000cc Double Acting 2 Speed Hand Pump

High Capacity Hand
Pump



Two Speed
Hand Pump

Double Acting
Hand Pump



PETROL HYDRAULIC PUMPS

Description

Petrol Hydraulic Pump 700bar

Petrol Hydraulic
Pump 700bar



ALSO
available for
PURCHASE

HYDROSTATIC TEST PUMPS

Description

Hydrostatic 40 Bar Max Water Test Pump

Hydrostatic 100 Bar Max Water Test Pump

Hydrostatic 700 Bar Max Water Test Pump

Hydrostatic Water Test Pump



PNEUMATIC 6-7 BAR INPUT 700 OUTPUT PUMPS

Description

1475cc Air Foot Pump

1500cc Air Foot Pump

3769cc Air Foot Pump

9100cc Air Foot Pump

Air Foot Pump



ULTRA HIGH PRESSURE PUMPS

Description

600cc 29,000 psi High Pressure Hand Pump
Comes with gauge, hose and coupler



HTC SYNCMASTER

NEW ZEALAND'S LARGEST SYNCHRONOUS LIFTING SYSTEM

HTC SyncMaster is a synchronised, computer controlled, hydraulic lifting system for lifting bridges, buildings and large machinery.

HTC SyncMaster provides precision control and monitoring of complex lifting applications. Up to 5 power packs can be controlled by one master unit, giving 40 individually controlled cylinder points. Accuracies of $\pm 0.5\text{mm}$ allow the user to set parameters, limits and alarms to comply with engineer's methodology and safety margins.

HTC SyncMaster can in real time monitor and calculate cylinder loads, stroke lengths, total loads and the centre of gravity on large scale engineering and maintenance lifts. It provides a high degree of safety for personnel and property by automatically stopping the lift if set parameters are attempted to be exceeded.

Every configuration, process, alert and operator function is displayed and recorded in real time. This reduces costs by minimising manual control, measurements and comparisons to lift plans. No longer is it necessary to station workers at each lift point to synchronise activity via walkie talkie.

Lift data is collected during the lift process and this data can be downloaded for analysis and planning of future lifts.



FOR LARGE SCALE LIFTS,
INCLUDING BRIDGES,
BUILDINGS AND MACHINERY,
SYNCMASTER IS THE SAFEST,
MOST EFFICIENT SOLUTION.



THE SYNCMASTER MULTIPLE POINTS SYNCHRONOUS LIFT SYSTEM ALLOWS FOR UP TO 5 POWER PACKS TO BE CONTROLLED BY ONE MASTER UNIT, GIVING A MAXIMUM OF 40 INDIVIDUALLY CONTROLLED CYLINDER POINTS.

The system constantly monitors cylinder positional and pressure data to safely and effortlessly achieve very accurate and repeatable load movements, regardless of weight distribution or size. One power pack controls up to eight single or double acting cylinders, or groups of cylinders. The 'X', 'Y' and 'Z' coordinates can be recorded for each cylinder, as required by the lift type. DURAPAC cylinder data may be selected from a drop down menu or manually entered for other cylinders. Pressure transducers allow pressure or load limits to be set for an individual cylinder or for all cylinders. Two linear transducers are available per lifting point to monitor cylinder and load displacement. Full data logging and real time graphical display is available for all lift variables.



NUMBER OF LIFTING POINTS

1 - 40

ACCURACY

0.5 mm

MAXIMUM OPERATING PRESSURE

700 bar



TOUCH SCREEN

15 inch full colour touch screen withstands harsh environments. The glass is toughened making it both scratch and cut resistant.



VARIABLE FLOW CONTROL

Variable frequency drive motor gives a wider pump flow range. This is controlled by a joy stick controller that governs flow and directional control of the hydraulic cylinders.



CONTROL VALVES

High cycle, high speed solenoid valves allow precise flow control. All valves are leak free and have a 100% duty cycle.



PRESSURE TRANSDUCERS

Monitor load conditions at each lift point for maximum safety. Optional load cells are available for high precision weighing operations.



STROKE TRANSDUCERS

High precision 40 pulse per mm linear transducers combined with high speed counter cards achieve precise positional control. Various stroke transducers are available including internal cylinder design. Optional tilt meters are also available.



ADJUSTABLE FLOW CONTROL VALVES

Controls the flow during decent and can be preset and locked.



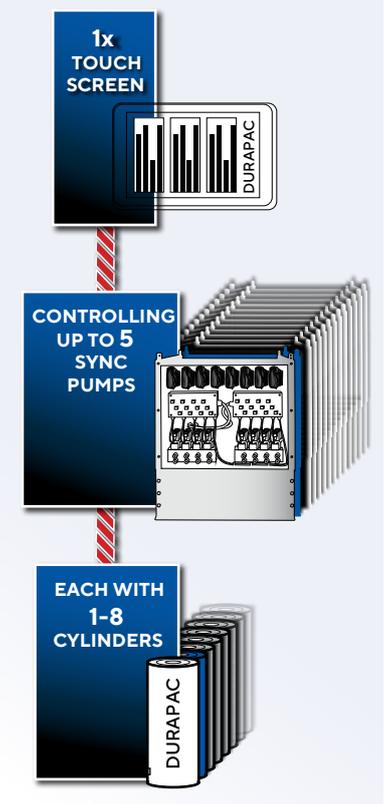
LIFT MONITORING AND DATA STORAGE

Full pressure and displacement data presentation are available on screen to monitor the lift in real time. Lift data are stored and able to be downloaded in a format suitable for importing into Excel for further analysis and record keeping. This gives a permanent record of the displacement and load on every cylinder at defined time intervals.



Did you know...

One touch screen can control 1-5 sync pumps which can each power 1-8 cylinders. Creating a total potential of 40 lift points



SYNCHRONISED JACKING SYSTEM

Description

Synchronised Lifting System with up to 40 Points of Lift
Onboard computer monitors stroke, load and centre of gravity



See the previous page for further info



PUNCHES PLATE STEEL PUNCHES

Description

Diamond Long Reach Punch Unit 220V

Punch & Die Set - Elliptical (Horizontal)

Punch & Die Set - Elliptical (Vertical)

Punch & Die Set

Hydraulic Punches

Punch & Dies Set Steel

Punch & Die Sets Copper

Royal Master Punch and 3 Phase Pump with 110mm reach
Max 24mm Dia x 16mm Steel. Max 28mm Dia x 17mm SS400

Royal Master Punch & Die Set

Riken 50 Tonne Punch

ALSO
available for
PURCHASE

Hydraulic Punch



Electric Punch



Heavy duty Punch



Battery punch

SWITCHBOARD/CHASSIS PUNCHES

Description

Switch Board Punch Kit - Includes Pump, Hose & Ram

Wastemaster 87mm Sink Punch (90mm Trim)

Switch Board Punch & Die up to 70mm

Switch Board Punch & Die over 70mm

Rivnut Nutsert Insert Tool M6-M10 600rpm

Switch Board Punch Kit



Rivnut Nutsert
Insert Tool



RAIL GEAR

Description

Rail Drill Petrol Powered Includes Templates & Shoes

Airtec Petrol Powered Impact Wrench

Diesel Grinder

Weld Shears

Rail Tensor

Portable Vertical Ballast Tamper with Honda GX35 Engine

ALSO
available for
PURCHASE



Petrol Powered Impact Wrench



Weld Shears



Diesel Grinder



Ballast Tamper



Rail Web Drill



TH70 Rail Tensor



RAIL GEAR

Description

Rail Saw

Track Jacks

Petrol Tamper

Track Gauge & Level

Portable sleepers drilling machine

Hydraulic Impact Wrench Modified for rail

Petrol Powered LP Power Unit

Low pressure hydraulic pumps



Portable sleeper drill



Petrol Powered LP Power Unit



Petrol Tamper



Hydraulic Rail Saw



Low pressure hydraulic pumps



Track Jacks



Track Gauge & Level



Petrol Rail Saw



Hydraulic Impact Wrench Modified for rail

ALSO
available for
PURCHASE

RAMS HOLLOW CENTRE RAMS

Tonnes	Stroke (mm)	Closed Height (mm)	Centre Hole Ø (mm)	Effective Area (cm ²)	Weight (kg)	Model Number
12	40	127	19.5	17.86	3	SC1240
12	76	184	19.5	17.9	4.4	RHS123
20	40	165	27.5	28.86	7.8	SC240
20	49	162	26.9	30.7	7.7	RHS202
30	64	178	33.3	46.6	10.9	RHS302
30	155	330	33.3	46.6	21.8	RHS306
60	76	247	53.8	82.3	28.1	RHS603
60	153	323	53.8	82.3	35.4	RHS606
100	76	254	79.0	133	63	RHS1003
150	203	349	79.5	204.1 push/ 102.6 pull		RHD1508

4-10 TONNE RAMS

4	15	44	41	6.42	0.6	RO415
4	30	60	41	6.42	0.8	RO430
4	127	252	39	6.42	1.9	SO4127
5	25	110	38.1	6.5	1.0	RC51
5	76	165	38.1	6.5	1.5	RC53
10	105	172	57	14.4	3.0	C104C
10	15	44	70	14.52	1.1	LJ115
10	11	44.5	14.4	14.4	1.1	RLS503
10	150	300	57	14.52	4.7	S1150
10	300	471	57	14.52	7.4	S1300
10	55	130	57	14.52	2.1	S155
10	26	89	57	14.5	1.8	RG101
10	38	88	69	14.5	4.1	RLP101

20-30 TONNE RAMS

20	15	52	88	30.19	2.1	LJ215
20	50	160	86	33.18	5.8	S250
20	126	271	86	33.18	10.2	SJ2126
20	45	96	92	28.6	5	SCS201
25	102	216	86	33.2	8	C254C
25	210	324	86	33.2	12.2	RC258
30	62	117	101	42.1	6.8	RLP302
30	8	34	112	46.56	2.6	LF310
30	13	58.7	95.3x114.3	41.9	3.9	RLS300
30	15	58	105	46.56	3.5	LJ315

ALSO
available for
PURCHASE



Hollow Rams



Pancake Jack



Flat Jack Rams



Locking Collar With Swivel Cap

Can also be used for anchor testing. Please confirm the specifications needed with Staff at time of Hire.

Please visit www.htc.co.nz for current hire rates

RAMS 50-500 TONNE RAMS

Tonnes	Stroke (mm)	Closed Height (mm)	Outside Ø (mm)	Effective Area (cm	Weight (kg) ²	Model Number
50	150	387	128	71.63	31.5	D5150
50	15	65	132	72.38	6.4	LJ515
50	60	127	128	62.0	10.5	RSS502
50	25	100	128	71.63	9.4	S525
50	50	206	128	71.63	13.8	S550
50	154	300	128	71.63	26.5	SJ5154
50	150	264	125	70.9	25	RSLC-506
50	60	122	124	62.1	10.9	RLP502
50	50	164	125	70.9	15	RSLC502
70	25	130	150	102.69	16.5	S725
90	15	85	178x153	126.7	14.5	RM1000
100	25	100	175	133.3	16.9	RJ1001
100	260	428	158	133	51.2	C10010
100	150	286	175	132.7	45	CGG10P150
100	150	287	165	132.7	48	CLL1006
100	57	140	169	126.6	21.4	RA1002
100	152	270	203	133	23	AR1006
100	159	298.5	187.3	133	22.6	RA1006
100	57	141	165	126.7	22.7	RLP1002
100	10	30	145	69.4	4.5	SV11Y100
200	150	473	241	285.3 push/ 139. pull	130	D20150
200	50	302	350		127	SPE2002
250	150	335	275	366.2	136	RDHG-250
500	100	444	395	730	390	SPE5006

PULL RAMS

150mm Stroke Pull Ram – RAP206

LOCKING COLLAR RAMS

Tonnes	Stroke (mm)	Closed Height (mm)	Outside Ø (mm)	Effective Area (cm ²)	Weight (kg)	Model Number
100	50	137	175	146.8	26	RPLC-1002
50	50	164	125	70.9	15	RSLC-502
100	150	287	165	133	48	CLL-1006



Lightweight Aluminium



Low profile



Double acting Rams

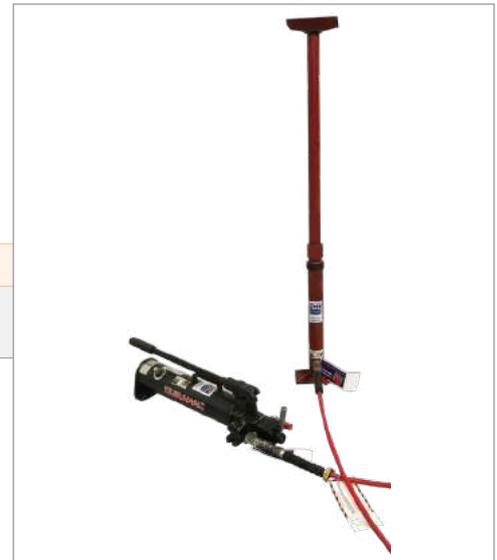


ALSO
available for
PURCHASE

RAM ATTACHMENTS

Description

Wide range of attachments available, contact your HTC representative for more information



RAM WEDGE

Description

1 Tonne Wedge Ram

2 Tonne Wedge Ram

DHS-15 Wedge Ram



1 Tonne
Wedge Ram

Wedge Ram

ALSO
available for
PURCHASE

REBAR BENDERS

Description

*Large range of heavy duty table rebar benders

*Rebar bender/straighteners

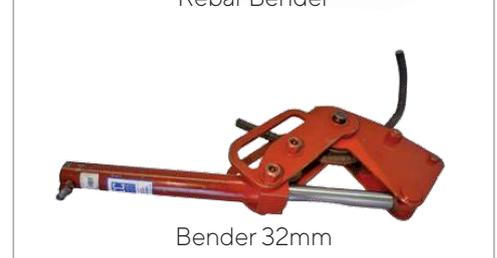
*Jimmy benders- used for bending bars and starters in situ.



Table Bender



Rebar Bender



Bender 32mm

REBAR BENDER/CUTTERS

ALSO
available for
PURCHASE

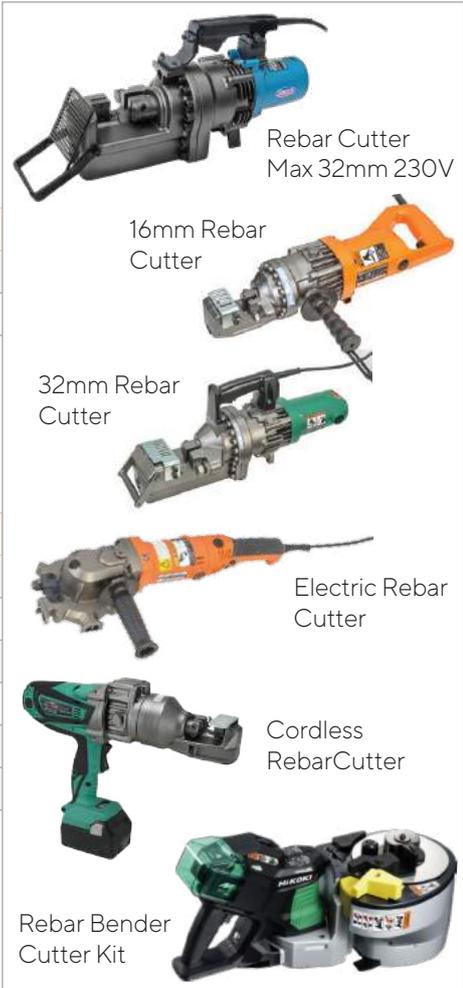
Description

Rebar Bender/Straightener For 620N/mm² 32mm
Battery Rebar Bender Cutter Kit

REBAR CUTTER

Description

DC16W 16mm Rebar Cutter Diamond
DC20HI/W 20mm Rebar Cutter Diamond
DC32W 32mm Rebar Cutter Diamond
RBC16 Rebar Cutter 16mm - Hydraulic Remote Head (no pump/hose)
DFC20 Electric Rebar Cutting Flush Saw 50W 19mm max
16mm Diamond Cordless Rebar Cutter



RECYCLING GEAR

Description

Recycling Cutters



SHIMS

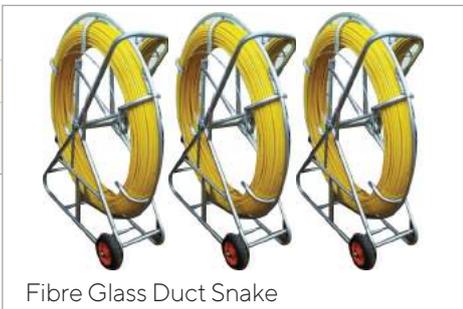
Shim Plates 200 x 200 x 20mm thick



SNAKES

Description

Wide range of attachments available, contact your HTC representative for more information



SITE SUPPORT GENERATORS

Description

Generator 2.2 KVA

Generator 5.5 KVA

ALSO
available for
PURCHASE



Generator 2.2 KVA



Generator 5.5 KVA

MOBILE LIGHTING

Description

TL-500 – Portable Rechargeable Light Tower 5.3m Tall

PT-200 – Portable Pan-tilt Light with Remote Control & Magnetic Base

TL-400 – Portable Rechargeable Light Tower 2.2m Tall

PL-300 – Portable Rechargeable Light Tower 3.4m Tall

TL-200 – Portable Rechargeable Light Tower 2.3m Tall

TL-100 – Portable Rechargeable Light Tower 1.4m Tall



TL-100



TL-200



PT-200



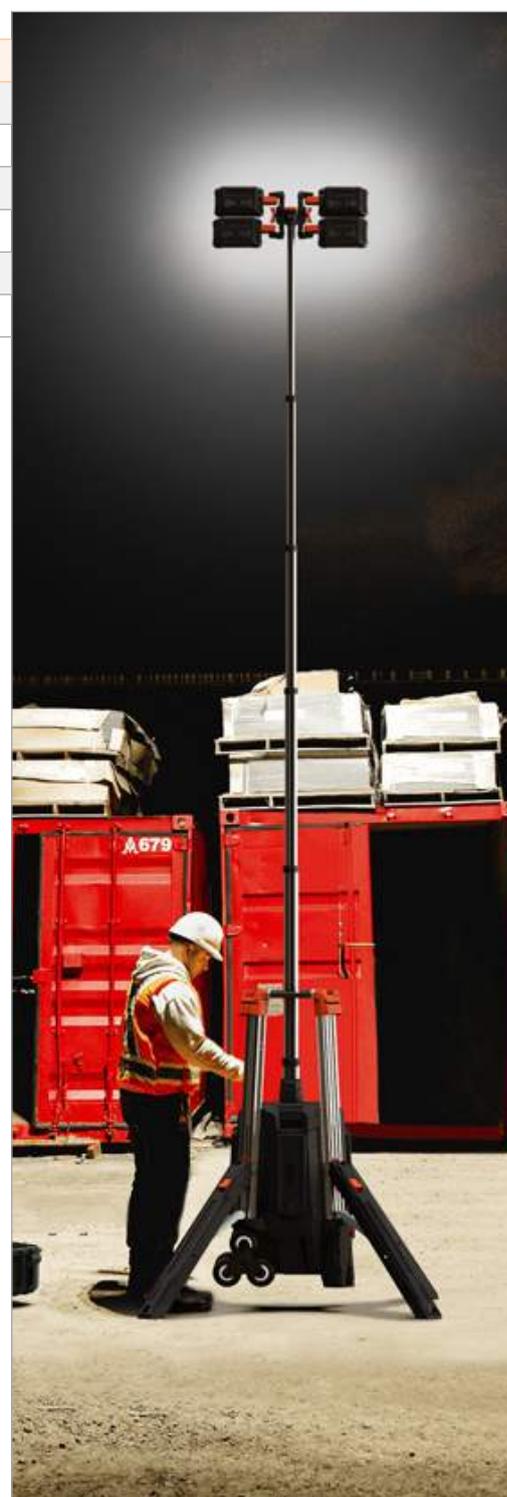
PL-300



TL-400



TL-500



STRESSING JACK MONO

Description

Mono Strand Stressing Jack 25 Tonne
Includes Tooling for 0.5" Or 0.6" Strand not including Pump or Hose



BOLTING FLOGGING SPANNERS/SLUGGING WRENCHES

Description

Sizes Ranging From 30-65mm

ALSO
available for
PURCHASE



SOCKETS

Description

Socket ¾" Drive Full Range

Socket 1" Drive Full Range

Socket 1½" Drive Full Range

Socket Set 1" Drive 15 PC 32-80mm



Socket Set 1" Drive 15 PC 32-80mm

HYDRAULIC CASSETTE HEAD

Description

POWERHEAD DRIVE RSL2 (166-1,937Nm)

RSL2 41mm Cassette

POWERHEAD DRIVE RSL4 SWEENEY (363-4,237Nm)

RSL4 111/16" Cassette

RSL4 17/8" Cassette

RSL4 46mm Cassette

RSL4 50mm Cassette

RSL4 55mm Cassette

RSL4 60mm Cassette

RSL4 65mm Cassette

RSL4 70mm Cassette

POWERHEAD DURAPAC LPC2 232-2328Nm

LPC2 30mm Cassette

LPC2 36mm Cassette

LPC2 41mm Cassette

LPC2 46mm Cassette



Powerhead Durapac LPC2



LPC2 41mm Cassette



HYDRAULIC CASSETTE HEAD

POWERHEAD LPC4 585-5858Nm

LPC4 36mm Cassette

LPC4 41mm Cassette

LPC4 46mm Cassette

LPC4 55mm Cassette

LPC4 34mm Cassette

LPC4 50mm Cassette

LPC4 60mm Cassette

LPC4 65mm Cassette

LPC4 1 5/8" Cassette

LPC4 1 7/16" Cassette

LPC4 2" Cassette

LPC4 2 3/16" Cassette

LPC4 2 3/8" Cassette

LPC4 2 9/16" Cassette

POWERHEAD LPC8 1,094-10,941Nm LPC8

LPC8 - 2 1/4" Cassette

LPC8 - 3 1/2" Cassette

RIGHT ANGLE SQUARE DRIVE

3/4" Drive Hydraulic Wrench (166-1937Nm)

1" Drive Hydraulic Wrench (363-4237Nm)

1 1/2" Drive Hydraulic Wrench (708-10,813Nm)

1 1/2" Hydraulic Wrench (1,315-15,516Nm)



PowerHead LPC4



Hydraulic Wrench

INDUCTION HEATER

Description

Induction Heater - Used to super heat Ferrous objects, like a Gas plant but without the flames! Most often used for seized bolts and for brazing applications.



TORQUE WRENCH

HYDRAULIC PUMPS

Description

Torque Wrench Pump - Pneumatic

Torque Wrench Pump - Electric

Torque Wrench Pump - Battery



Torque Wrench Pump - Electric



Torque Wrench Pump - Pneumatic



Torque Wrench Pump - Battery

ALSO
available for
PURCHASE

CALIBRATION, TESTING AND INSPECTION SERVICES

Now, more than ever, keeping your people safe means keeping your equipment in working order and compliant with the current standards.

The experienced team at HTC is here to help.

- Tests performed to comply with all relevant standards by experienced staff
- Presale and cyclic testing available
- All tests are traceable with secure certificate storage



Torque Testing

- Latest generation testing equipment, compliant with the ISO standard
- Manual wrenches and screw drivers
- Hydraulic Wrenches
- Powered torque multipliers



Load Cells



Tension Meters



Dielectric Testing ⚡

- Hi Voltage Insulation Testing
- PPE and Tools



Work Boots



Gloves



Sleeves



Mats



Live Line and Utility Sticks



Hydraulic Saws and Pruners



Arborist Tools and Equipment

Height Safety Inspection



Lifting Slings Inspection



KEEP YOUR PEOPLE SAFE

PNEUMATIC TORQUE MULTIPLIERS

Description

RAD 10GX-NX ¾" DR 272-1360Nm

CLD 155 1" DR 1730Nm

CLD2/80 1" DR 800-2800Nm

RAD 25GX-NX 1" DR 680-3400Nm

CLD2/300 1" DR 385-3595Nm

RAD 34GX 1" DR 1355-4600Nm

RAD 50 1½" DR 2033-6770Nm

Jgun A1 Pneumatic Torque Multiplier 1513Nm

Jgun A3 Pneumatic Torque Multiplier 4174Nm

Jgun A5 Pneumatic Torque Multiplier 6998 Nm



RAD 10GX-NX

CLD 155



Pneumatic Torque Multiplier - Digital

ALSO
available for
PURCHASE



Pneumatic Torque Multipliers

ELECTRIC TORQUE MULTIPLIERS - TONE

Description

Electronic torque multiplier 1" drive 1600-4000Nm

Electronic torque multiplier 1-1/2" drive 2400-6000Nm

230V Electric Torque Multiplier 2,000-5,500Nm 1-1/2" Drive



Battery nut runner type ADS

GNRS402E-CE

GST602QE

BATTERY TORQUE MULTIPLIERS

Description

Battery nut runner type ADS

MANUAL TORQUE MULTIPLIERS

Description

Torque Multiplier 1300Nm 5:1

Torque Multiplier 1627Nm 6:1

Torque Multiplier 2700Nm 5:1

Torque Multiplier 4339Nm 18.5:1

1 inch drive 3500Nm

Stand Alone Torque Wrench with Multiplier

Wheel Nut Tool



Wheel Nut Tool



Torque Multiplier 1300Nm



HG20 max torque 3500Nm

MANUAL TORQUE WRENCHES

Description

3/8" Drive 5-25Nm - QL25n

1/2" Drive 20-100Nm - 100

1/2" Drive 40-200Nm - QL200mh

1/2" Drive 60-300Nm - 300

1/2" Drive 60-330Nm - 330

3/4" Drive 60-420Nm - QL420n

3/4" Drive 150-700Nm - 4R

3/4" Drive 200-800Nm - 4AR

3/4" Drive 300-1000Nm - 5R

3/4" Drive 700-1500Nm - 5AR

1" Drive 300-1400Nm - QLE1400n

ALSO
available for
PURCHASE

1/2" Drive 40-200Nm



3/8" Drive 5-25Nm



3/4" Drive 60-420Nm



1" Drive 300-1400Nm



BATTERY IMPACT WRENCHES

Description

Battery Impact Wrench 3/4" Drive 1250Nm

ELECTRIC IMPACT WRENCHES

Description

1/2" Impact Wrench 350Nm

3/4" Impact Wrench 588Nm

1" Impact Wrench 1000Nm

PNEUMATIC IMPACT WRENCHES

Description

Air powered impact wrench 1/2" Drive

Air powered impact wrench 3/4" Drive

Air powered impact wrench 1" Drive

1" Impact
Wrench
1000Nm



Battery powered
impact wrench

TRANSMISSION JACKS

Description

Transmission Jack



WINCHES

Description

- 1.6 Tonne Tirfor - Wire Rope Puller (20m Rope)
- 3.2 Tonne Lift Tirfor, 5 Tonne Pull (20m Rope)
- PCW5000 Petrol Powered Winch (1000kg) - 12m/min
- Electric Super Tugger (3000kg) - 8m/min
- Petrol Twin Capstan (1000kg) - 25m/min
- PCW-3000Li Battery Winch
- PCW-4000 Petrol Hauling Winch
- Ikura CW-2500LD Electric Cable Puller



Electric Super Tugger



Petrol Powered Winch



Electric Cable Puller



Battery Winch



PCH2000 Petrol-Powered Pulling & Lifting Winch



Petrol Hauling Winch

ABOUT HTC HIRE

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HTC HIRE RATES

You can find 4 hour and 24 hour hire rates for all our tools listed on our website.

When you hire a tool for over 7 days our team will calculate a discounted rate based on the length of the hire. HTC hire rates usually reduce as the term of the hire increases. Once the hire period rolls into a second month, the deal can get even better.

We understand that you don't always know how long a job is going to take. Talk to our team about projected project times and actual day's usage of equipment. At HTC we aim to accommodate days when tools are not used by offering stand by rates

and contract rates for long term hire.

We don't usually charge for transit time for out of town customers.*

WWW.HTC.CO.NZ

HTC DAMAGE WAIVER

HTC Damage Waiver aims to reduce a client's financial liability during the hire of HTC's equipment. Which means it can help you avoid meeting the cost of unexpected damage of hire equipment.

HTC Damage Waiver is an agreement to cover 'loss of use'. It covers you against the cost of repair for accidental damage to equipment, replacement value, salvage costs & hire charges incurred during repair/replacement if the equipment is damaged.

It's important to know Damage Waiver does not cover against loss, theft or malicious or negligent damage. The client is responsible for the correct use, maintenance and safekeeping of HTC's equipment during the hire period.

Damage Waiver is a non-refundable fee of 10% of the hire charges for the equipment and billed on the hire invoice in addition to your hire charges. The Damage Waiver Excess is limited to no more than \$1000 for accidental loss or damage.

HTC PARTS AND SERVICE

HTC's in-house specialist fitters are trained to provide fast, reliable and economic repairs and scheduled maintenance for your hydraulic tools and equipment.

Common parts are stocked for most products we hire and sell, which means you get your gear back quicker. Worried about keeping your current projects progressing while your gear is being serviced?

HTC offers discount hire rates when your own tools and equipment are being serviced by our specialist fitters.

HTC also supply seal kits, hoses, couplers, gauges, hydraulic fluids, coolants, cutters, punches, compression dies and a large range of other spares and accessories.

The skillsets of HTC's Specialist Fitters go beyond repairs and scheduled maintenance. Our team can also create bespoke engineering solutions for your projects.

PRESSURE AND FORCE CALCULATIONS

CALCULATING FORCE FROM PRESSURE

The following calculates the amount of force being applied to a load. In order to complete the equation, the Effective Area (CEA) of the cylinder being used must be known. Each cylinder has its own specific CEA.

TO CALCULATE KILO NEWTONS USING A GAUGE READING (kgf/cm²)

Applied Pressure (kgf/cm²) x Cylinder Effective Area x 9.81

1000

= kilo newtons

TO CALCULATE KILO NEWTONS USING A GAUGE READING (psi)

Applied Pressure (psi) divided by 14.233 x Cylinder Effective Area x 9.81

1000

= kilo newtons

TO CONVERT KILO NEWTONS TO TONNES, DIVIDE BY 9.81

Effective Area for Cylinder Used: _____ cm²

CONVERSION FORMULAS

COMMON CONVERSION FORMULAS			SI* CONVERSION FORMULAS		APPROXIMATE CONVERSION	
Multiply SI* Unit	By Conversion Factor	To get or Multiply Non-SI Unit	By Conversion Factor	To get SI* Unit		
LENGTH						
millimetre (mm)	x 0.03937	= inch	x 25.4	= mm		
(1 inch = 25.4mm exactly)						
centimetre (cm) 10mm	x 0.3937	= inch	x 2.54	= cm		
metre (m) 1000mm	x 3.28	= foot	x 0.305	= m		
metre (m)	x 1.09	= yard	x 0.914	= m		
kilometre (km) 1000m	x 0.62	= mile	x 1.61	= km		
AREA						
millimetre ² (mm ²)	x 0.00155	= inch ²	x 6.45	= mm ²		
centimetre ² (cm ²)	x 0.155	= inch ²	x 6.45	= cm ²		
metre ² (m ²)	x 10.8	= foot ²	x 0.0929	= m ²		
metre ² (m ²)	x 1.2	= yard ²	x 0.836	= m ²		
hectare (ha) 10,000m ²	x 2.47	= acre ²	x 0.405	= ha ²		
kilometre ² (km ²)	x 0.39	= mile ²	x 2.59	= km ²		
VOLUME						
centimetre ³ (cm ³)	x 0.061	= inch ³	x 16.4	= cm ³		
litre (l)	x 61	= inch ³	x 0.016	= l		
millimetre (ml)	x 0.034	= oz-liqu	x 29.6	= ml (1ml = 1cm ³)		
litre (l) 1000ml	x 1.06	= quart	x 0.946	= l		
litre (l)	x 0.26	= gallon	x 3.79	= l		
metre ³ (m ³) 1000l	x 1.3	= yard	x 0.76	= m ³		
MASS						
gram (g)	x 0.035	= ounce	x 28.3	= g		
kilogram (kg) 1000g	x 2.2	= pound	x 0.454	= kg		
metric Tonne (t) 1000kg	x 1.1	= Tonne (short)	x 0.907	= t		
FORCE (N = kg • ms/²)						
newTonne (N)	x 0.225	= pound	x 4.45	= N		
kilonewTonne (kN)	x 225	= pound	x 0.00445	= kN		
TORQUE						
newTonne metre (Nm)	x 8.9	= lb. in.	x 0.113	= Nm		
newTonne metre (Nm)	x 0.74	= lb. ft.	x 1.36	= Nm		
PRESSURE						
kilopascal (kPa)	x 4.0	= in. H ₂ O	x 0.249	= kPa		
kilopascal (kPa)	x 0.30	= in. Hg	x 3.38	= kPa		
kilopascal (kPa)	x 0.145	= p.s.i.	x 6.89	= kPa		
megapascal (MPa)	x 145	= p.s.i.	x 0.00689	= MPa		
Bar	x 14.5	= p.s.i.	x .0689	= Bar		
POWER						
kilowatt (kw)	x 1.34	= hp	x 0.746	= kw		
kilowatt (kw)	x 0.948	= Btu/s	x 1.055	= kw		
watt (w)	x 0.74	= ft. lb/s	x 1.36	= w		
TEMPERATURE						
°C = (°F - 32) ÷ 1.8						
°F = (°C x 1.8) + 32						
FLOW						
cu. cm./min.	x 0.61	= cu. in./min. x 16.4 = cu. cm./min.				
litres/min.	x .2642	= GPM x 3.785 = litres/min.				

*System International (Modern Metric System)

Fractions	Decimals	Millimetres	Fractions	Decimals	Millimetres	Fractions	Decimals	Millimetres
1/64	0.016	0.397	23/64	0.359	9.128	45/64	0.703	17.859
1/32	0.031	0.794	3/8	0.375	9.525	23/32	0.719	18.256
3/64	0.047	1.191	25/64	0.391	9.922	47/64	0.734	18.653
1/16	0.063	1.588	13/32	0.406	10.319	3/4	0.750	19.050
5/64	0.078	1.984	27/64	0.422	10.716	49/64	0.766	19.447
3/32	0.094	2.381	7/16	0.438	11.113	25/32	0.781	19.844
7/64	0.109	2.778	29/64	0.453	11.509	51/64	0.797	20.241
1/8	0.125	3.175	15/32	0.469	11.906	13/16	0.813	20.638
9/64	0.141	3.572	31/64	0.484	12.303	53/64	0.828	21.034
5/32	0.156	3.969	2/2	0.500	12.700	27/32	0.844	21.431
11/64	0.172	4.366	33/64	0.516	13.097	55/64	0.859	21.828
3/16	0.188	4.763	17/32	0.531	13.494	7/8	0.875	22.225
13/64	0.203	5.159	35/64	0.547	13.891	57/64	0.891	22.622
7/32	0.219	5.556	9/16	0.563	14.288	29/32	0.906	23.019
15/64	0.234	5.953	37/64	0.578	14.684	59/64	0.922	23.416
1/4	0.250	6.350	19/32	0.594	15.081	15/16	0.938	23.813
17/64	0.266	6.747	39/64	0.609	15.478	61/64	0.953	24.209
9/32	0.281	7.144	5/8	0.625	15.875	31/32	0.969	24.606
19/64	0.297	7.541	41/64	0.641	16.272	63/64	0.984	25.003
5/16	0.313	7.938	21/32	0.656	16.669	1	1.000	25.400
21/64	0.328	8.334	43/64	0.672	17.006	1mm = 0.3937 and .001 = 0.254mm		
11/32	0.344	8.731	11/16	0.688	17.463			

NOTES



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