

ISEKI

UNCLEMOLE SUPER

up to 1350 i.d.

Having established the Unclemole TCC machine as the most versatile single cutter head machine for mixed soft-ground tunnelling, Iseki Poly-Tech, Inc. developed and established the Unclemole Super range of machines.

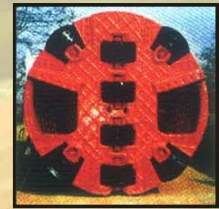
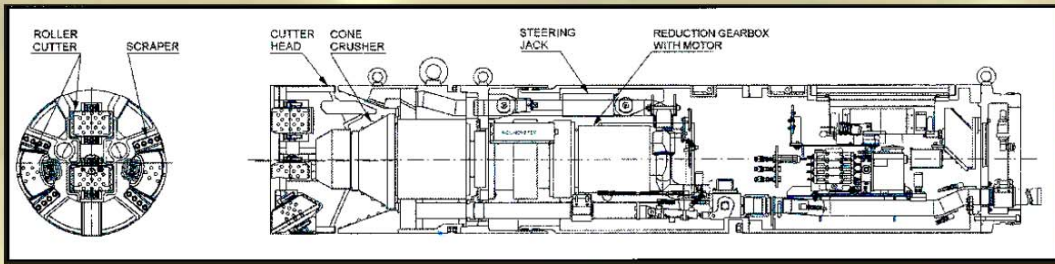
This widens operational ground condition capabilities, to include rock tunnelling, thus maintaining Iseki's position at the forefront of tunnelling technology.

Distributor for Iseki Poly-Tech, Inc.
Sales: Europe, Middle-East, Africa,
Indian sub-continent
Hire: Worldwide



ISEKI
MICROTUNNELLING





Ground Conditions: Hard rock, cobbles and boulders, sands and gravels, clays and silts.

Cutter Head: The standard cutter head, equipped with a combination of cutter/button discs and scraper bits, is designed for excavating through hard rock and breaking down large boulders in front of the machine. The openings in the cutter head allow cobbles up to 100 mm in size to pass into the machine's cone crusher situated behind the cutter head.

Cone Crusher: Behind the cutter head, the Unclemole Super has a cone crusher which uses the patented epicyclic motion found in normal Unclemole machines. This efficiently breaks down gravels, cobbles and boulders for removal in the slurry system.

Ground Water: Hydrostatic ground water pressure is measured behind the cutter head of the machine and is counter balanced with the slurry charge pressure through the machine. The machine is designed for operating under hydrostatic pressures of up to 3 bar.

Face Stability: Earth pressures are measured on the cutter head of the machine and "Earth Pressure Balance" (EPB) control is achieved through mechanical support from the cutter head processing material through the cone-shaped crusher, and hydrostatic support from the slurry system.

Specification for Iseki Unclemole-Super TCS microtunnelling machines

Note: may be subject to change without notice.

Model	TCS 300	TCS 350	TCS 400	TCS 450	TCS 500	TCS 600	TCS 700	TCS 800	TCS 900	TCS 1000	TCS 1100	TCS 1200	TCS 1350
Nominal diameter (I.D.) (mm)	300	350	400	450	500	600	700	800	900	1000	1100	1200	1350
Outside diameter (mm)	432	490	576	604	660	790	900	980	1100	1220	1350	1470	1620
Length (mm)	2474	2910	2960	2937	300	2990	3050	3000	3280	3535	4000	4390	4200
Maximum module length (mm)	1250	1150	1110	1050	1050	1045	1100	1255	1425	2150	1970	3190	3000
Standard recovery shaft ø (mm)	2700	3250	3250	3250	3250	3500	3500	3500	3750	4000	4500	4750	4750
Minimum recovery shaft ø (mm)	1750	2250	2250	2500	1750	2000	2000	2000	2500	3000	2750	3750	3750
Total Weight (tonne)	1180	1500	1750	2060	2500	3900	5000	6100	7900	9800	13200	15100	17200
Revolution speed (rpm) (50Hz) (**inverter controlled) (60Hz)	11.3 13.6	11.0 13.2	5.8 4.8	6.9 5.9	8.3 7.0	13.7 11.6	16.6 13.7	16.6 13.7	32.4 26.8	39.9 27.5	63.9 33.3	80.2 53.2	6.94- 10.4**
Torque (kN-m) (50Hz) (**inverter controlled) (60Hz)	3.0 2.5	4.6 3.8	11.8 14.1	14.1 16.9	11.8 14.1	11.9 14.2	11.9 14.2	11.9 14.2	10.2 12.2	10.2 12.2	8.2 9.8	6.0 7.3	68.6- 103**
Drive motor (kW x No.)	3.7	5.5	7.5	11	11	18.5	22	30	37	45	55	30x2	30x2
Max. cobble/boulder size (mm)	70	80	90	135	150	180	210	240	270	300	250	250	250
Max. UCS of cobble/boulder (MPa)	200	200	200	200	200	200	200	200	200	200	200	200	200
Max. UCS of rock (MPa)	100	100	100	100	100	150	150	150	150	150	200	200	200
Slurry transportation line (mm/inch)	50/2"	50/2"	50/2"	50/2"	50/2"	80/3"	80/3"	80/3"	80/3"	100/4"	100/4"	100/4"	100/4"

* In order to achieve these dimensions the machine must be split into 2 sections during recovery.

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MICROTUNNELLING

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UNCLEMOLE SUPER 1500 i.d. and above

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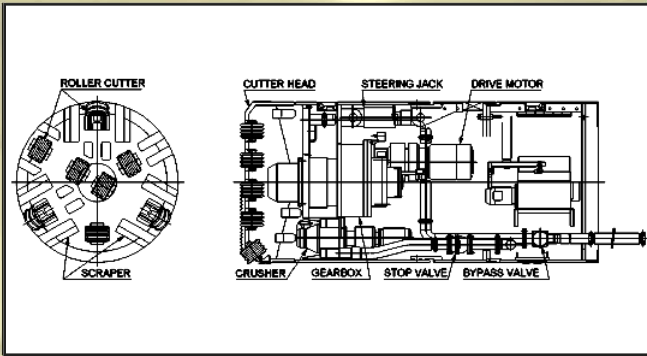
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Ground Conditions:

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Cutter Head:

The standard cutter head, equipped with a combination of cutter/button discs and scraper bits, is designed for excavating through hard rock and breaking down large boulders in front of the machine. The openings in the cutter head allow cobbles up to 100 mm in size to pass into the machine's cone crusher situated behind the cutter head.

Face Access:

The machine has a built in facility for man access to the cutter head through the machine, this allows cutting discs to be changed where long drives are undertaken.

Cone Crusher:

The Unclemole Super is the only machine in its class to have an independently driven cone crusher. The cone crusher maintains the patented epicyclic motion found in normal Unclemole machines which efficiently breaks down gravels and cobbles for removal in the slurry system.

Ground Water:

Hydrostatic ground water pressure is measured behind the cutter head of the machine and is counter balanced with the slurry charge pressure through the machine. The machine is designed for operating under hydrostatic pressures of up to 3 bar.

Face Stability:

Earth pressures are measured on the cutter head of the machine and "earth pressure balance" (EPB) control is achieved through mechanical support from the cutter head, stabilisation of hydrostatic pressures with the slurry system and processing material through the cone crusher assembly.

Specification for Iseki Unclemole - Super TCS Tunnelling Machines

Note: May be subject to change without notice.

Model	TCS1500	TCS1650	TCS1800	TCS2000	TCS2200	TCS2400
Nominal diameter (I.D.) (mm)	1500	1650	1800	2000	2200	2400
Outside diameter (mm)	1800	1970	2140	2370	2600	2830
Maximum module length (mm)	3000	3200	3200	4300	4300	4500
Standard recovery shaft diameter/length (mm)	5000	5000	6500	6750	7250	7500
Minimum recovery shaft diameter/length (mm)*	3750	4000	4250	5250	5250	5750
Total Weight (tonne)	20	28	32	40	46	60
Rev. speed (inverter controlled) (rpm)	6.94-10.4	5.64-8.46	5.64-8.46	3.88-5.82	3.88-5.82	3.56-5.34
Torque (inverter controlled) (rpm)	68.6-103	115-172	115-172	204-306	204-306	337-506
Drive motor (kW x no.)	22x4	30x4	30x4	37x4	37x4	37x6
Max. UCS of rock (MPa)	200	200	200	200	200	200
Slurry transportation line (mm/inch)	100/4"	100/4"	100/4"	150/6"	150/6"	150/6"

* In order to achieve these dimensions the machine must be split into 2 sections during recovery.

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