

Sandwiched between a road and a railway on a steep slope, using a Menzi Muck for maintenance is better than closing a lane or line.

Below Right: This A91 demonstrates the extreme gradients that it is possible to work with a Menzi Muck, this one being secured by its own winch.



What do you do when you have to dig a trench on a steep hill or across a challenging slope? You can dig by hand, but that takes forever, or you could use a Menzi Muck. As Urs Peyer reports, this multi-purpose, all-terrain, mountain-climbing, river-wading excavator is designed to work on the most extreme job sites.

The success story of Menzi Muck began in 1966 when Ernst E. Menzi – a true genius and inventor – built his first walking excavator. Until then, no traditional machine was able to work on steep slopes. Forty years later, Menzi Muck is still a success story and the last company to fabricate excavators in Switzerland. So far, 5000 machines have been built in the village of Widnau in the north-eastern part of country and sold to customers all over the world.

This kind of excavator is characterised by four hydraulically activated arms, one on each corner of the chassis. Each arm can be hydraulically adjusted up and down and side to side to provide a solid work base, no matter what the gradient or cross-slope, and to offer a narrow transport width at the same time.

In the machine's most basic form, two of these

arms are fitted with wheels and the other two are stabilisers, on to which small wheels may be fitted for steering. To move the machine on-site, the bucket stays on the ground and the two stabiliser arms are raised. When the telescopic dipper is operated, the Menzi Muck excavator can be moved forwards or backwards. The excavator walks along step by step.

Today there are three undercarriage configurations. With the standard two-wheel drive system the excavator moves with the two large wheels. The hydrostatic wheel-hub motors are equipped with a hydraulic differential lock and an automatic parking brake.

The smaller steering wheels on the front stabilisers can be easily removed. The operator steers by a joystick in the cab, which doubles up as the main boom control. A rocker switch on the



joystick controls functions between steering and boom control.

In the 4x4 version, the steering wheels are also driven by hydrostatic wheel motors and the gauge of the front wheels can be adjusted from very narrow to very wide. This version boasts a travel speed of 10kph, but a 15kph box is also available as an option. On the 4x4-Plus version, the steering wheels are the same diameter as the main drive wheels and benefit from a different steering geometry to provide a very compact turning radius.



Top: Equipped with a brush cutter, this A81 makes short work of countryside management where tractors wouldn't reach.

Above and Above Right: Its 1.5m wading depth and ability to straddle streams and irrigation channels, takes Menzi Muck machines where others fear to tread.

dig depth of 5.14m and a reach at ground level of 8.27m.

In addition to these three excavators, there is a special variant for forestry work. The A91 Harvester features four individually-driven 600/55-26.5 wheels. These can be adjusted separately in both the vertical and the horizontal direction to adapt to any ground contours. Subframe adjustment ranges

from 6.45m at the front to 4.60m at the rear, and ground clearance extends up to 1.50m. The boom has an outreach of 8.50m with its 2m telescopic dipper.

With the extended bucket cylinder, the operator can swing the Harvester head into position, grab a tree, cut it, delimit it and process it into the desired lengths. The Harvester head on the A91 is a Woody 50, manufactured in Austria. It has a delimiting diameter of up to 500mm and weighs 1100kg. The Woody 50 has special movable feed wheels, which can be repositioned to enable the Harvester head to be used as a true forestry grapple with an opening of 950mm.

The Menzi Muck logging winch is designed for winching and pulling felled trees. It is a hydrostatic-driven, single-drum cable winch with an integrated

planetary gear transmission. Controlled by the joystick or the foot pedal (or even by remote control), the winch can be attached to the chassis or the boom.

Positioning a Menzi Muck above a trench is simplicity itself and lifting pipes or the like up to a maximum weight of six tonnes is no problem. The A91's tailswing measures only 1.56m and its total clearance circle is 2.86m. That makes this compact excavator useful on inner-city construction sites, where manoeuvrability is limited. Maintenance of small water courses is no problem for the A91 which, in standard form, can cope with water depths of up to 1.5m. The excavator can also overcome a variety of obstacles while working - there's even talk of a courageous operator who managed to surmount a 3m-high weir in a river.



Above and Above Right: Either on a ski slope or difficult excavation site, these unusual machines are often used in blast-hole drilling applications.

Main Picture: Climbing over obstacles, as opposed to excavating a ramp, preserves sensitive working environments.

For extreme duty, the excavator can be equipped with a safety winch. But, for those real adventurers out there, Menzi Muck offers an optional hydraulic mountain support package. This is used when working on cross-slopes above 60% and basically consists of hydraulic claws that are lowered on the downhill side of the excavator at the touch of a button.

Coupled to the innovative four-legged undercarriage, this provides excellent stability and safety, even in extreme positions. With its unusual design, the Menzi Muck can walk down slopes with a gradient of 100% (1:1 in old money) and can work at right angles to the slope with a gradient of up to 70%. On very steep gradients where crawler excavators can no longer be used, the walking excavator moves easily.

Like a normal excavator, the upper-structure contains the engine, radiator, hydraulic pumps, valve-blocks etc. Everything is very compact

and the cab sits on the very top. Older Menzi Mucks had cabs that looked like a telephone-box, with the boom fixed to one side. But time moves on and, like on all other construction machinery, the sharp edges have disappeared over the years.

The new A-series excavators feature a spacious ROPS & FOPS safety-cab that is suspended on rubber dampers to make it almost vibration- and noise-free. Plenty of glass provides an excellent view of the worksite and automatic climate control is standard.

For maintenance work, the whole cab can be hydraulically tilted. Large rear and side covers provide excellent access for routine servicing work and the daily engine-check. The luxury seat features air suspension and can be adjusted in all directions. A clear and well-designed instrument panel and a

large and easy-to-read LCD display monitor operating conditions, such as engine-speed or hydraulic fluid temperature, and warn the operator in case of a machine malfunction.

Before the joystick was invented, Menzi Muck excavators had a whole line of levers to cope with all the functions for the boom and the four hydraulic legs. Today the same job is done by ergonomic joysticks, which are integrated into the adjustable seat consoles. Developed exclusively for Menzi Muck, the custom-designed Multi-Joysticks can be equipped with up to 19 functions. The joysticks operate the boom, the chassis, the steering (equipped with four wheels) and hydraulic tools such as hammers, crushers, drills or logging heads.

All chassis movements are controlled via



Top and Above: Good lifting characteristics, coupled with the ability to straddle the trench, make simple work of installing services in difficult terrain.

Above Right: Comfortably and safely at home: a Menzi Muck excavating for drainage, water and other services over sloping terrain.

Bottom of Page: The A91 Harvester's go-anywhere capability and mounted tree processor make it well suited to forestry applications.



joystick-mounted micro-switches. Four individually adjustable foot pedals control the telescopic dipper, the safety or logging winch and the hydrostatic wheel motors. Additional hydraulic tool functions can also be controlled via the pedals. The torque-controlled slewing assembly features an axial piston motor coupled to a planetary gearbox and is equipped with an automatic multi-disc brake running on the inner teeth of the swing gear.

Telescopic dipper

The present Menzi Muck product line consists of three models between seven and ten tonnes. The Menzi Muck A61 is the seven-tonne machine, powered by a four-cylinder, 3.8 litre Kubota engine with an output of 57kW (77hp) at 2200rpm.

Its Rexroth hydraulic system works at a pressure of 280bar and has a total capacity of 190 l/min. The telescopic dipper can be extended by 1.5m. Dig depth is 4.15m and the latest A61 has a maximum reach at ground level of 6.97m. Depending on the application, the excavator can be equipped with several different buckets ranging in capacity from 0.12cu.m to 0.38cu.m.

The new A81 weighs in at 8.3 tonnes and is powered by a four-cylinder John Deere engine. Managed by a John Deere control unit, the turbo-charged, direct injection engine has a displacement of 4.5 litres and delivers 74kW (100hp) at 1900rpm. The excavator's Linde hydraulic system also works at a pressure of 280bar and has a total capacity of 300 l/min. With the dipper extended the A81 reaches a maximum dig depth of 4.61m and a reach of 7.58m. At maximum reach, the four stabilisers cover an area of 5.52m by 4.04m, providing unmatched stability for this size of excavator. For transportation, the four arms can be retracted to a width of just 1.95m. The biggest bucket for the A81 is a hydraulic swivel-grading bucket with a capacity of 0.5cu.m.

The Menzi Muck A91 features an 'active chassis' which ensures that all four wheels have uniform contact with the ground, even on the most impassable terrain. This results in a considerable improvement in traction. The power source is the same John Deere engine as on the A81, but with an output of 93kW (125hp) at 1900rpm. For working on 100% gradients the powerful slew drive develops 46kNm of swing torque. The Menzi Muck A91 4x4-Plus has an operating weight of 10.5t, a maximum

