

# Upper limits of soils that can be tested by DMT

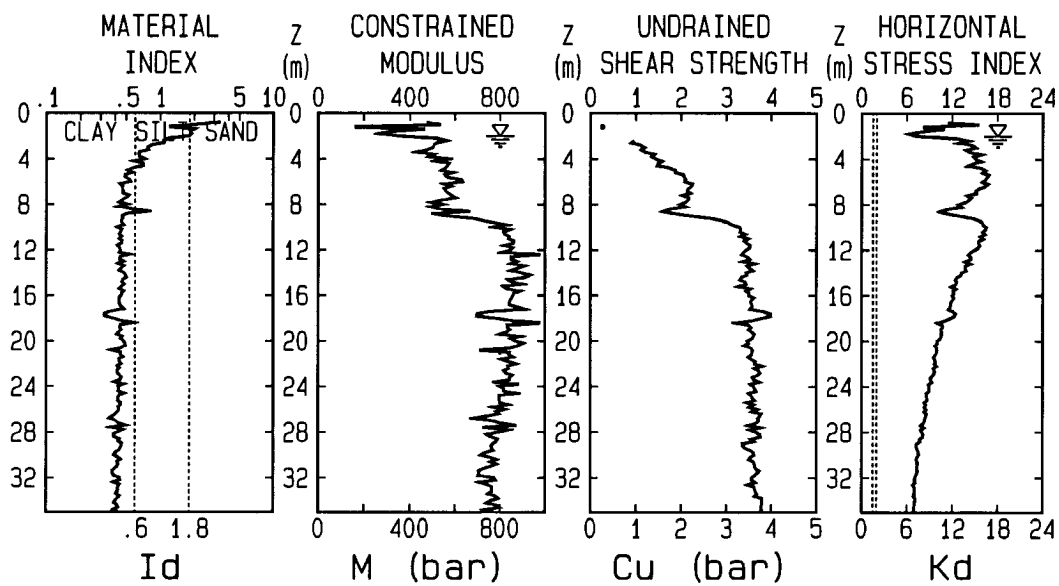
Modulus M	M <sub>max</sub> 4000 bar (400 Mpa)
Undrained shear strength C <sub>u</sub>	C <sub>u,max</sub> 12 bar (1200 Kpa)

The above values of M and C<sub>u</sub> are typical of a *soft marl* or a *soft rock*.

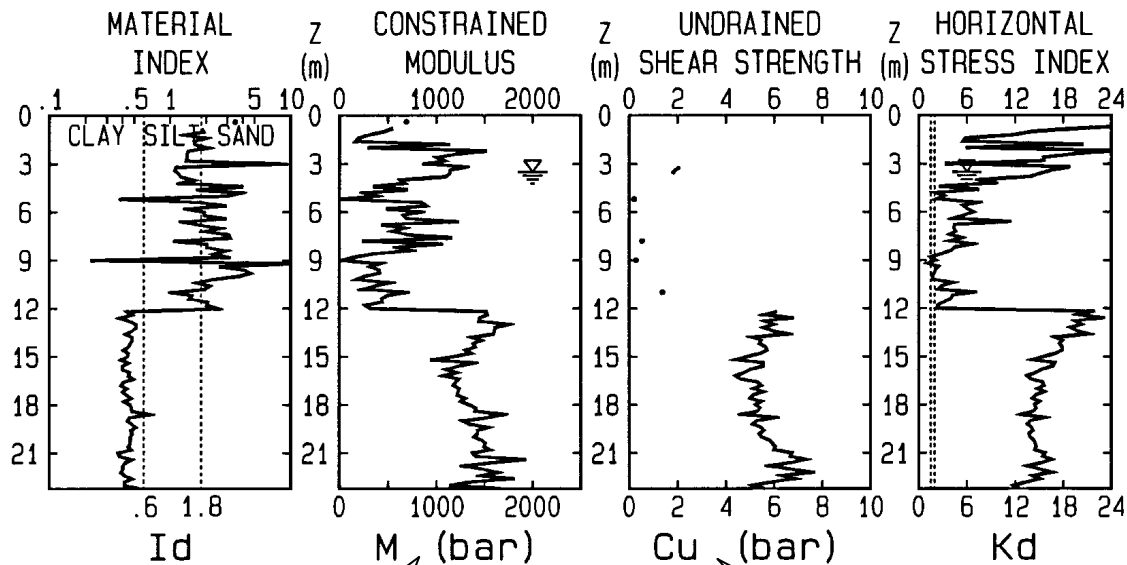
In reality the **limit is not the Dilatometer blade**, that can safely withstand 30 tons. The **limit is the capacity of the pushing machine**. Thus even very hard soils can be tested, at a fraction of cost and time of boring + lab, provided a 20 ton penetrometer truck is available.

The example DMT results reported below exemplify relatively hard (but not limit) soils routinely tested by DMT using a **20 ton truck**. A 20 ton truck permits to investigate fast and easily clays with C<sub>u</sub> = 4 to 8 bar to depths of 25-40 m.

## CHIETI - D5 (#8995)



## S. BARBARA (AR) - D6 (#8843)



up to  
4000

up to  
10

## **SOILS that CAN BE TESTED by DMT**

- Suitable for SANDS, SILTS, CLAY (grains small vs membrane  $D=60$  mm). But can cross GRAVEL layers » 0.5 m
- Due to the *balance of zero* (null method) : high resolution even in nearly liquid soils
- Very robust, can penetrate soft rocks (blade safely withstands 25 ton push)
- Clays :  $C_u = 2-4$  KPa to  $C_u = 10$  bar (marls)
- Moduli : 5 to 4000 bar (0.5 to 400 Mpa)
- Firms with insufficient pushing, perform DMT in soft soils. Then LIMIT is available push capacity.  
20 ton trucks do DMT fast and easily in hard soils.