

## 7. THE CLASSIFICATION OF THE CONDITION OF SOILS

### Granular soils

The density of granular soils is a very important property, thus this must be determined. The new Hungarian Standard defines the **density index** with this correlation:

$I_D = \frac{e_{\max} - e}{e_{\max} - e_{\min}}$ , namely the actual void ratio  $e$  must be compared to the  $e_{\max}$  void ratio (typical of the loosest condition of the examined soil) and the  $e_{\min}$  void ratio (typical of the most dense condition of the examined soil). The soil condition can be classified based on this value according to the [Table 1.2](#).

The previous Hungarian Standard contained this term, but it was named relative compactness, denoted by  $I_{\gamma_r}$ , and three different categories were given named (loose–medium compact–compact).

The classification of the compactness of granular soils	
Name	Compactness index $I_D$ [%]
Very loose	0–15
Loose	15–35
Moderately dense	35–65
Dense	65–85
Very dense	85–100

*Table 1.2: The classification of the compactness of granular soils*

### Cohesive soils

The condition of cohesive soils depends on their water content, thus consistency must be classified. This is (was) based on the following formula of **relative consistency index** in both the previous and the new European and Hungarian Standards:

$$I_C = \frac{W_L - W}{\underbrace{W_L - W_P}_{I_p}}$$

The new standard gives the attributives as seen in [Figure 1.27](#).

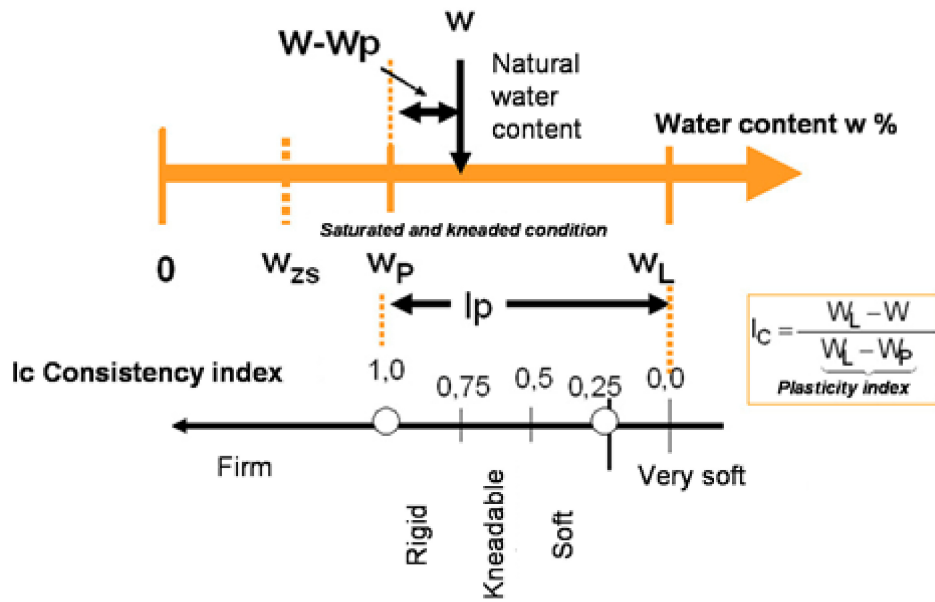


Figure 1.27: The interpretation of the consistency index and the names of the conditions of cohesive soils