





HÜBNER offers a large number of combinations of devices to permit optimum solutions to many different drive tasks (➔ page 42–44). The combinations are characterized by a common housing (logo  $1 + 1 = 1^{\text{®}}$ ) and commonly feature a **common shaft** to avoid a spring-mass system with a low resonant frequency.

Integrated into a combination are:

- **Digital-Tacho + Digital-Tacho (Twin encoder):**  
Two systems isolated from each other with different numbers of slots if necessary (➔ page 9).
- **Digital-Tacho + LongLife<sup>®</sup> dc tachogenerator:**  
Combines the advantages of analogue technology (signal acquisition in **real-time**) and digital technology (position signals with **long-time stability**) (➔ *Symbiosis*, page 27).
- **Digital-Tacho + overspeed switch:**  
*Mechanical* overspeed switches monitor **one** speed (➔ *Wind power under control*, page 27), *electronic* overspeed switches monitor **one** or **three** speeds (➔ *No load swinging*, page 28).
- **Sinus-Tacho + angular acceleration sensor:**  
High precision servo drives also include **angular acceleration** in the control loop (➔ *Speed regulation in top form*, page 29).



Beyond the standard solution:  
The wide range of combinations made up from encoders with different principles of operation is a HÜBNER speciality. The robust HOG 22 + HTA 11 + ES 100 triple combination of Digital-Tacho, Analog-Tacho, and electronic rotational speed switch is optimally matched to the requirements of this hot rolling plant.