The 5 MN machine operates in conjunction with a 22 kN deadweight machine. As shown in the schematic arrangement the deadweight machine applies forces to a small piston-cylinder connected hydraulically to a larger piston-cylinder within the frame of the 5 MN machine. The piston-cylinders have no mechanical seal, allowing a constant leak of oil between piston and cylinder. The smaller cylinder is rotated about the piston to reduce friction. A servo valve controls the pressure to keep the scalepan and weights at a datum position.

**5 MN Hydraulic Force Standard Machine**

- **APPLIED FORCES**
  100 kN to 5 MN in steps of 1 kN
- **UNCERTAINTY OF APPLIED FORCE**
  ± 0.05% over full working range
- **MODE OF OPERATION**
  Compression and tension
  Incremental and decremental loading
- **TYPES OF CALIBRATION**
  BS EN ISO 376
  ASTM E 74
  BS 8422
  Other relevant procedures
- **MACHINE HIRE WITH EXPERIENCED OPERATOR**
  Testing to customers own procedures
  Compound testing