

5.2.16 *wafer seating plane* — the bottom surface of an ideally rigid flat disk that meets the diameter specification for 450 mm wafers, with negligible droop due to gravity, as it rests on the wafer supports.

5.2.17 *wafer set-down volume* — the open space for inserting and setting down a wafer in the cassette.

6 Reference Planes (HP, FP, BP) Specification

6.1 The HP, FP, and BP as described in the definition section are ideal planes, which are intended to be used to depict the position of certain features relatively to these planes. These planes are at position zero (x, y, z) with no tolerance associated, since these ideal planes do not represent a physical feature.

NOTE 3: The top surfaces of the kinematic coupling pins are not the surfaces on which the carrier rests. Appendix 1 shows how test fixtures can be made to rest on the KCPs to duplicate the position of a carrier.

6.2 FP and BP are defined as vertical planes and ideally are parallel to the gradient of the gravity field. All three planes are mutually perpendicular. Only positive numbers are used to define coordinates within this system of three planes. No negative numbers are used in order to be as close as possible to standard mechanical drawing practices. Necessary clarification on the position of a feature usually will be achieved via figures.

NOTE 4: For best understanding, the definitions of the reference planes should be read in the order HP, BP, FP.

6.3 *Reference Baselines* — One center line is defined:

- *CL* — Center line for the carrier door. It passes through the centers of the openings for the door pins. All the z -dimensions of door features are symmetric to the CL.

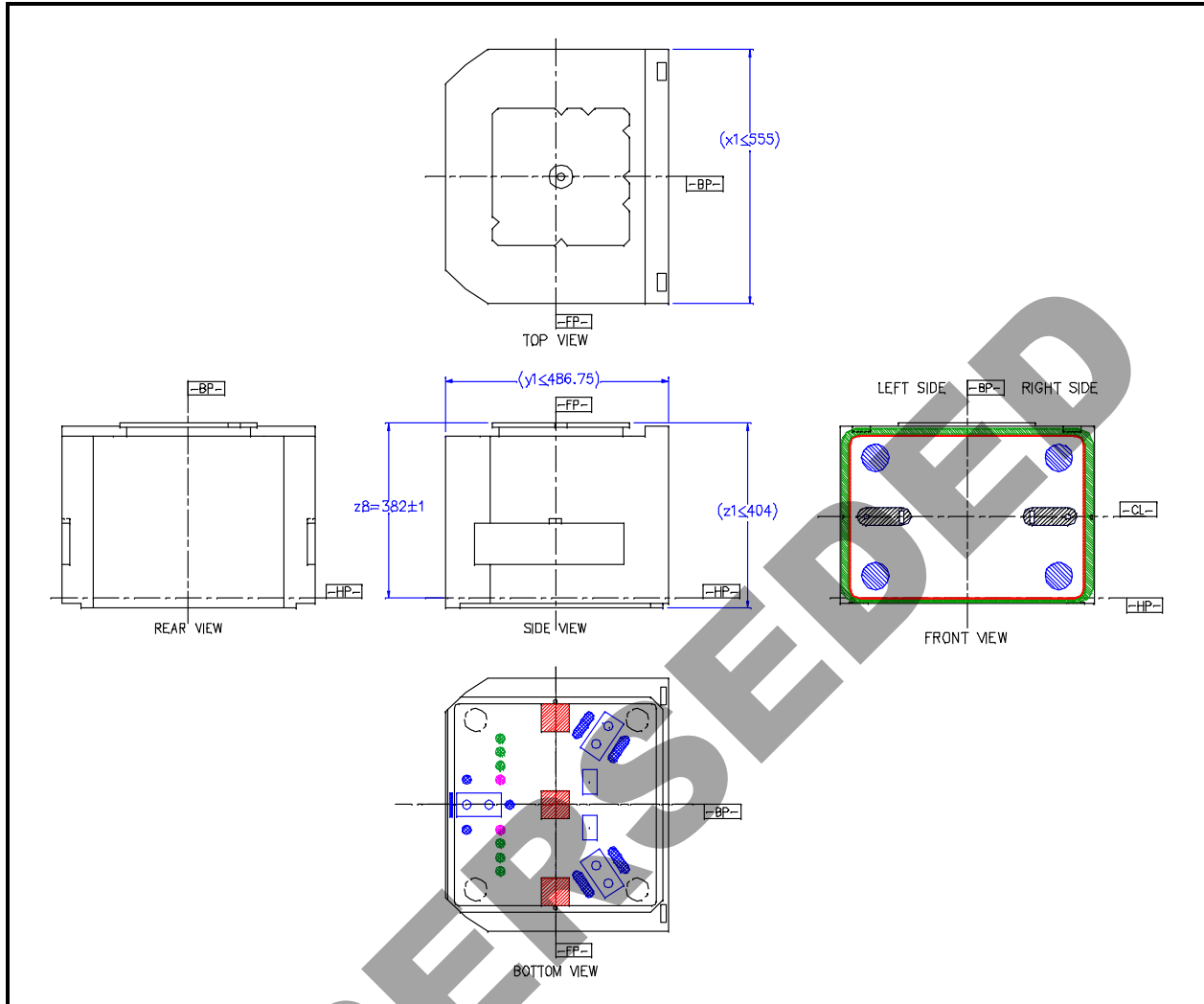


Figure 1
Overall Views of 450 FOUN

7 Requirements for Carrier Envelope

7.1 The overall dimensions of the 450 FOUN, $(x1)$, $(y1)$, and $(z1)$, are given as reference dimensions because they are derived from other dimensions. See Table 2.

- $(x1) \leq x2 + x3$
- $(y1) \leq y2 + y4_{\max}$
- $(z1) \leq z8_{\max} + z11$

8 Requirements for Features for Automated Handling

8.1 *Automation Flange* — On top of the 450 FOUN is an automation flange for manipulating the carrier. See Figure 2 (top view) and Figures 3, 4 and 5 (sections).

8.1.1 The automation flange shall be centered in front of the FP. Its orientation and location are constrained by $x4$ and $y12$. See Figure 6.