CLAIMS

1. A robotic container handling system comprising a container load handling device (100, 110) and a storage and sortation structure, the structure comprising two substantially perpendicular sets of rails (300a, 300b) forming a grid (300), and a workspace beneath said grid, the workspace comprising a plurality of stacked containers (40), the handling system further comprising a plurality of robotic load handling devices (310) operative on and above the rails (300a, 300b) comprising the grid (300) above the workspace, the robotic load handling devices (310) comprising a body mounted on wheels, a first set of wheels (314) being arranged to engage with at least two rails of the first set of rails (300a) , the second set of wheels (316) being arranged to engage with at least two rails of the second set of rails (300b), the first set of wheels (314) being independently moveable and driveable with respect to the second set of wheels (316) such that when in motion only one set of wheels is engaged with the grid (300) at any one time, thereby enabling movement of the load handling device (310) along the rails (300a, 300b) to any point on the grid (300) by driving only the set of wheels engaged with the rails, characterised in that the system further comprises transfer means for transferring the containers (40) in to and out of the storage and sortation structure, the transfer means comprising, conveyance means (130) operable between the container load handling device (100, 110) and a transfer point (140), the conveyance means (130) comprising a number of transversal load handling devices (120), adapted so as to receive containers (40) delivered by the container handling device (100, 110), the transversal load handling devices (120) adapted to transport containers to and or from the transfer point (140) on the conveyance means (130) at which point the containers (40) are collected or delivered by robotic load handling devices (310).

2. A container handling system according to claim 1, in which the system further comprises a plurality of transfer means for a given storage and sortation structure, thereby enabling the robotic load handling devices (310) to move multiple containers (40) to and from a plurality of transfer points (140) at the same time.

3. A container handling system according to any preceding claim, in which the system further comprises control means, the control means comprising a utility for monitoring and tracking the location of the or each container (40) in the system.

4. A container handling system according to any preceding claim in which the or each container(40) comprises identity means, the identity means enabling location of the or each container (40) in the system.

5. A container handling system according to any preceding claim in which the or each container (40) comprises service means for controlling and/or monitoring the physical properties of the or each container (40).

6. A container handling system according to any preceding claim in which the workspace comprises a framework (280) supporting the grid (300) above the stacks (400) of containers (40).

7. A container handling system according to any preceding claim in which the framework (280) and grid (300) are provided with service means for controlling and/or monitoring the physical properties of the grid (300), framework (280) or containers (40).

8. A container handling system according to any preceding claim in which the container load handling device (100, 110) comprises a crane (100), carrying crane load handling devices (110) thereon, the crane load handling devices (110)adapted to connect with a container (40) and transport said container (40) to a crane transfer point (105) and transfer the container (40) toa transversal load handling device (120) operative on the conveyance means (130).

9. A container handling system according to any preceding claim in which the conveyance means (130) comprises a conveyor system adapted to transfer containers (40) thereon.

10. A container handling system according to any preceding claim in which the conveyance means (130) comprises alignment means, said alignment means enabling the or each container (40) to be moved in to position for collection by a load handling device (310).

11. A container handling system according to any preceding claim in which the conveyance means (130) comprises container accumulation means (210) thereby enabling accumulation of containers (40) on the conveyance means (130).

12. A container handling system according to claim 11 in which the container accumulation means compises interface plates (210) and or interface blocks (210) mounted on the conveyance means (130)

13. A container handling system according to any preceding claim in which the or each container (40) comprise shipping containers.

14. A container handling system according to any preceding claim in which the workspace comprises a storage and sortation area for a shipping container port.

15. A container handling system according to claim 14 in which a portion of the grid (300) extends above a vehicle transfer area, the robotic load handling devices (310) being adapted so as to move containers (40) from the workspace to vehicles (410) located in the vehicle transfer area.

16. A container handling system according to any preceding claim in which the containers (40) are being transferred to or from vessels such as container ships (10).

17. A method of transferring containers (40) utilising the container handling system according to any preceding claim.