



Logistics 20 ltr. KeyKegs, container transport

Keg data:

Diameter: 355 mm, height: 373 mm, height including intermediate sheet: 380 mm

Empty weight: 1.0 kg

Filled weight by hand loading: 21.2 kg

Filled weight on pallet (incl. plastic wrapping, intermediate sheets, security straps): 21.4 kg

Pallet data:

CP5 pallet: 1140x760x140, weight disposable quality: 18 kg (recommended)

Euro pallet: 1200x800x140, weight disposable quality: 20 kg (not recommended)

Block pallet (or American pallet 48"x40"): 1200x1000x140 (1219x1016x140), 25 kg.

American ISO pallet, 44.5"x44.5": 1140x1140x140, 25 kg

Container data:

20' sea container

Inner dimensions: (lxbxh): 5910x2330x2390 mm

Max. weight limit (rating): 24.000 kg

Average tare weight: 2.400 kg

Upper Payload Limit (UPL): 21.600 kg

Lower Payload Limit (LPL): 17.500 kg (common export load)

40' sea container

Inner dimensions: (lxbxh): 12030x2330x2390 mm

Max. weight limit (rating): 30.480 kg

Average tare weight: 3.900 kg

Upper Payload Limit (UPL): 26.580 kg

Intermediate Payload Limit (IPL): 24.000 kg (common export load)

Lower Payload Limit (LPL): 20.500 kg (subsequent road transport, US road restrictions)

40' high cube sea container

Inner dimensions: (lxbxh): 12030x2330x2680 mm

Max. weight limit (rating): 30.480 kg

Average tare weight: 3.900 kg

Upper Payload Limit (UPL): 26.580 kg

Intermediate Payload Limit (IPL): 24.000 kg (common export load)

Lower Payload Limit (LPL): 20.500 kg (subsequent road transport, US road restrictions)

Beside the above mentioned standard dry cargo containers so called pallet wide containers (width=2,4m) exist. However this type is not commonly used and therefore not considered in this overview.



KeyKegs without pallets (hand stacking):

-Amount of KeyKegs per 20' container: 612
6 per row, 17 rows, 6 layers, weight: 12.974 kg (limited by volume)

-Amount of KeyKegs per 20' high cube container: 714
6 per row, 17 rows, 7 layers, weight: 15.137 kg (limited by volume)

-Amount of empty KeyKegs per 20' high cube container: 686
6 per row, 17 rows, 7 layers, -28 KeyKegs for shipment of 143 intermediate layers, limited by volume

-UPL 26.580 kg: amount of KeyKegs per 40' container: 1253
6 per row, 36 rows, 5-6 layers, weight: 26.564 kg (limited by weight)

-IPL 24.000 kg: amount of KeyKegs per 40' container: 1132
6 per row, 36 rows, 5-6 layers, weight: 23.998 kg (limited by weight)

-LPL 20.500 kg: amount of KeyKegs per 40' container: 966
6 per row, 36 rows, 4-5 layers, weight: 20.479 kg (limited by weight)

-Amount of empty KeyKegs per 40' container: 1311
6 per row, 38 rows, 6 layers (-56 KeyKegs for shipment of 273 intermediate layers), (limited by volume, not recommended)

-UPL 26.580 kg: amount of KK per 40' high cube container: 1253
6 per row, 36 rows, 5-6 layers, weight: 26.564 kg (limited by weight)

-IPL 24.000 kg: amount of KK per 40' high cube container: 1132
6 per row, 36 rows, 5-6 layers, weight: 23.998 kg (limited by weight)

-LPL 20.500 kg: amount of KK per 40' high cube container: 966
6 per row, 36 rows, 4-5 layers, 20.479 kg (limited by weight)

-Amount of empty KK per 40' high cube container: 1539
6 per row, 38 rows, 7 layers (-56 KeyKegs for shipment of 321 intermediate layers), (limited by volume)

KeyKegs on pallets (CP5):

-Amount of KeyKegs per 20' container: 450
3 pallets side by side, 5 pallets lengthwise, 5 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$
weight: $450 \times 21.4\text{kg} + 15 \times 18\text{kg} = 9.900\text{kg}$ (limited by volume)

-Amount of KeyKegs per 20' container: 450
3 pallets side by side, 5 pallets lengthwise, 2 pallets stacked, lower pallets: 3 layers, upper pallets: 2 layers
height: $5 \times 38\text{cm} + 2 \times 14\text{cm} = 218\text{cm}$
weight: $450 \times 21.4\text{kg} + 30 \times 18\text{kg} = 10.170\text{kg}$ (limited by volume)

-Amount of KeyKegs per 20' high cube container: 540
3 pallets side by side, 5 pallets lengthwise, 6 layers per pallet
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $540 \times 21.4\text{kg} + 15 \times 18\text{kg} = 11.826\text{kg}$ (limited by volume)



-Amount of KeyKegs per 20' high cube container: 540
3 pallets side by side, 5 pallets lengthwise, 2 pallets stacked, 3 layers per pallet
height: $6 \times 38\text{cm} + 2 \times 14\text{cm} = 256\text{cm}$
weight: $540 \times 21.4\text{kg} + 30 \times 18\text{kg} = 12.096\text{kg}$ (limited by volume)

-UPL 26.580 kg: amount of KeyKegs per 40' container: 900
3 pallets side by side, 10 pallets lengthwise, 5 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$
weight: $900 \times 21.4\text{kg} + 30 \times 18\text{kg} = 19.800\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' container: 900 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' container: 900 (same as above)

-UPL 26.580 kg: amount of KeyKegs per 40' container: 900
3 pallets side by side, 10 pallets lengthwise, 2 pallets stacked, lower pallets: 3 layers, upper pallets: 2 layers
height: $5 \times 38\text{cm} + 2 \times 14\text{cm} = 218\text{cm}$
weight: $900 \times 21.4\text{kg} + 60 \times 18\text{kg} = 20.340\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' container: 900 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' container: 900 (same as above)

-UPL 26.580 kg: amount of KeyKegs per 40' high cube container: 1080
3 pallets side by side, 10 pallets lengthwise, 6 layers per pallet
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $1080 \times 21.4\text{kg} + 30 \times 18\text{kg} = 23.652\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' high cube container: 1080 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' high cube container: 930
3 pallets side by side, 10 pallets lengthwise, 5 layers per pallet. 5 pallets with 6 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$ and $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $930 \times 21.4\text{kg} + 30 \times 18\text{kg} = 20.442\text{kg}$ (limited by weight)
-Amount of empty KeyKegs on pallets per 40' high cube container: 1080
3 pallets side by side, 10 pallets lengthwise, 2 pallets stacked, 3 layers per pallet
height: $6 \times 38\text{cm} + 2 \times 14\text{cm} = 256\text{cm}$

-UPL 26.580 kg: amount of KeyKegs per 40' high cube container: 1080
3 pallets side by side, 10 pallets lengthwise, 2 pallets stacked, 3 layers per pallet
height: $6 \times 38\text{cm} + 2 \times 14\text{cm} = 256\text{cm}$
weight: $1080 \times 21.4\text{kg} + 60 \times 18\text{kg} = 24.192\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' high cube container: 1062
3 pallets side by side, 10 pallets lengthwise, 2 pallets stacked, 3 layers per pallet, upper layer one pallet less.
height: $6 \times 38\text{cm} + 2 \times 14\text{cm} = 256\text{cm}$
weight: $1062 \times 21.4\text{kg} + 59 \times 18\text{kg} = 23.789\text{kg}$ (limited by weight)
-LPL 20.500 kg: amount of KeyKegs per 40' high cube container: 900
3 pallets side by side, 10 pallets lengthwise, 2 pallets stacked, 3 layers per pallet, upper layer 10 pallets less.
height: $6 \times 38\text{cm} + 2 \times 14\text{cm} = 256\text{cm}$
weight: $900 \times 21.4\text{kg} + 50 \times 18\text{kg} = 20.160\text{kg}$ (limited by weight)
-Amount of empty KeyKegs on pallets per 40' high cube container: 1080



3 pallets side by side, 10 pallets lengthwise, 2 pallets stacked, 3 layers per pallet
height: $6 \times 38\text{cm} + 2 \times 14\text{cm} = 256\text{cm}$

KeyKegs on pallets (block pallets or 48"x40"):

-Amount of KeyKegs per 20' container: 405
9 pallets per container, 9 KeyKegs per layer, 5 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$
weight: $405 \times 21.4\text{kg} + 9 \times 25\text{kg} = 8892\text{kg}$ (limited by volume)

-Amount of KeyKegs per 20' high cube container: 486
9 pallets per container, 9 KeyKegs per layer, 6 layers
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $486 \times 21.4\text{kg} + 9 \times 25\text{kg} = 10.625\text{kg}$ (limited by volume)

-UPL 26.580 kg: amount of KeyKegs per 40' container: 900
20 pallets per container, 9 KeyKegs per layer, 5 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$
weight: $900 \times 21.4\text{kg} + 20 \times 25\text{kg} = 19.760\text{kg}$ (limited by volume)

-IPL 24.000 kg: amount of KeyKegs per 40' container: 900 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' container: 900 (same as above)

-UPL 26.580 kg: amount of KeyKegs per 40' high cube container: 1080
20 pallets per container, 9 KeyKegs per layer, 6 layers
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $1080 \times 21.4\text{kg} + 20 \times 25\text{kg} = 23.612\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' high cube container: 1080 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' high cube container: 927
3 pallets with 6 layers, rest 5 layers
height: 242cm and 204cm
weight: $927 \times 21.4\text{kg} + 20 \times 25\text{kg} = 20.338\text{kg}$ (limited by weight)
-Amount of empty KeyKegs on pallets per 40' high cube container: 1080
20 pallets, 54 per pallets: 1080
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$

KeyKegs on pallets (ISO pallet, 44.5"x44.5")

-Amount of KeyKegs per 20' container: 450
10 pallets per container, 9 KeyKegs per layer, 5 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$
weight: $450 \times 21.4\text{kg} + 10 \times 25\text{kg} = 9.880\text{kg}$ (limited by volume)

-Amount of KeyKegs per 20' high cube container: 540
10 pallets per container, 9 KeyKegs per layer, 6 layers
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $540 \times 21.4\text{kg} + 10 \times 25\text{kg} = 11.806\text{kg}$ (limited by volume)



-UPL 26.580 kg: amount of KeyKegs per 40' container: 900
20 pallets per container, 9 KeyKegs per layer, 5 layers
height: $5 \times 38\text{cm} + 14\text{cm} = 204\text{cm}$
weight: $900 \times 21.4\text{kg} + 20 \times 25\text{kg} = 19.760\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' container: 900 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' container: 900 (same as above)

-UPL 26.580 kg: amount of KeyKegs per 40' high cube container: 1080
20 pallets per container, 9 KeyKegs per layer, 6 layers
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$
weight: $1080 \times 21.4\text{kg} + 20 \times 25\text{kg} = 23.612\text{kg}$ (limited by volume)
-IPL 24.000 kg: amount of KeyKegs per 40' high cube container: 1080 (same as above)
-LPL 20.500 kg: amount of KeyKegs per 40' high cube container: 927
3 pallets with 6 layers, rest 5 layers
height: 242cm and 204cm
weight: $927 \times 21.4\text{kg} + 20 \times 25\text{kg} = 20.338\text{kg}$ (limited by weight)
-Amount of empty KeyKegs on pallets per 40' high cube container: 1080
20 pallets, 54 per pallets: 1080
height: $6 \times 38\text{cm} + 14\text{cm} = 242\text{cm}$