



ESC-CRU SERIES

U PROFILE SHEET PILES

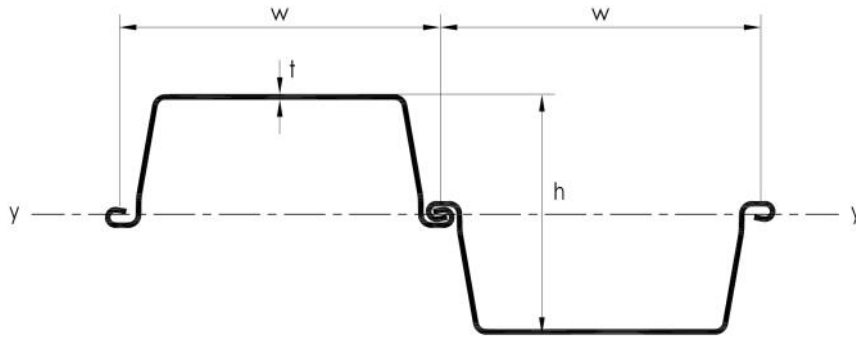
A REUSABLE AND ECONOMIC ALTERNATIVE TO HOT ROLLED U SHEET PILES

The ESC-CRU series is a cold rolled sheet pile profile. U-shaped steel sheet piles have long been familiar to designers and constructors because of the long-standing traditions and technologies, and are widely used for permanent structures, temporarily installed soil-retaining construction and temporary cofferdams. ESC-CRU profiles provide an economic alternative to Hot Rolled U Sheet Piles as they are of similar size and possess similar structural properties, with a section modulus ranging from 500cm³/m all the way up to 4,650cm³/m. With over 50 choices in profile, the CRU series sheet piles allow greater fine tuning in the design for the most economical solution.

ORDER OPTIONS

- | | |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Steel Grades | <ul style="list-style-type: none"> ✓ Q235B, Q345B, Q345C, Q390B, Q420B ✓ S235JR, S275JR, S355JR, S355JO ✓ ASTM A572 Gr42, Gr50, Gr60 ✓ Others available on request |
| Length | <ul style="list-style-type: none"> 35.0m maximum Any project specific length can be produced |
| Delivery Options | <ul style="list-style-type: none"> ✓ Single or Pairs ✓ Pairs either loose, welded or crimped ✓ Lifting Hole ✓ Grip Plate ✓ By container (11.8m or less) or Break Bulk ✓ Corrosion Protection Coatings |



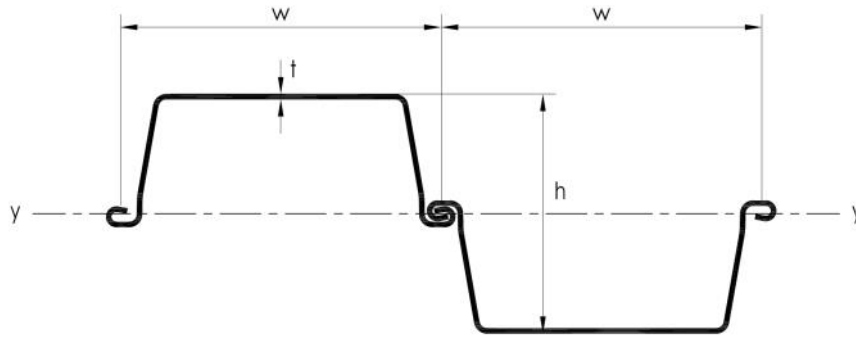


INTERLOCKING CLUTCH



| Section | Width (w) | Height (h) | Thickness (t) | Cross Sectional Area | Weight | | Elastic Section Modulus | Moment of Inertia | Coating Area (both sides per pile) |
|---------------|-----------|------------|---------------|----------------------|--------------------|-----------------|-------------------------|-------------------|------------------------------------|
| | mm | mm | mm | | cm ² /m | Per Pile (kg/m) | | | |
| ESC-CRU5-600 | 600 | 150 | 9.5 | 119.0 | 56.40 | 94.0 | 510 | 3,825 | 1.52 |
| ESC-CRU7-600 | 600 | 340 | 6.0 | 98.1 | 46.20 | 77.0 | 745 | 12,665 | 1.96 |
| ESC-CRU8-600 | 600 | 325 | 7.0 | 110.0 | 51.80 | 86.3 | 825 | 13,406 | 1.89 |
| ESC-CRU11-600 | 600 | 360 | 8.0 | 131.6 | 62.00 | 103.3 | 1,110 | 19,980 | 1.98 |
| ESC-CRU12-600 | 600 | 310 | 9.0 | 137.6 | 64.80 | 108.0 | 1,200 | 18,600 | 1.84 |
| ESC-CRU12-700 | 700 | 440 | 7.5 | 123.0 | 67.60 | 96.6 | 1,210 | 26,620 | 2.30 |
| ESC-CRU12-450 | 450 | 360 | 10.0 | 184.0 | 65.00 | 144.4 | 1,250 | 22,482 | 1.66 |
| ESC-CRU12-600 | 600 | 400 | 7.5 | 77.8 | 61.07 | 101.8 | 1,257 | 25,143 | 2.08 |
| ESC-CRU13-600 | 600 | 400 | 8.0 | 83.0 | 65.14 | 108.6 | 1,337 | 26,745 | 2.08 |
| ESC-CRU15-600 | 600 | 400 | 9.0 | 93.4 | 73.28 | 122.1 | 1,496 | 29,921 | 2.08 |
| ESC-CRU15-675 | 675 | 420 | 8.5 | 142.0 | 75.90 | 112.0 | 1,520 | 31,920 | 2.26 |
| ESC-CRU16-400 | 400 | 290 | 11.5 | 203.8 | 64.00 | 160.0 | 1,565 | 22,693 | 1.42 |
| ESC-CRU16-600 | 600 | 400 | 10.0 | 103.7 | 81.42 | 135.7 | 1,653 | 33,061 | 2.08 |
| ESC-CRU17-500 | 500 | 420 | 12.0 | 224.0 | 88.00 | 176.0 | 1,660 | 34,860 | 1.87 |
| ESC-CRU17-750 | 750 | 430 | 9.5 | 151.0 | 89.10 | 119.0 | 1,670 | 35,905 | 2.39 |
| ESC-CRU18-750 | 750 | 460 | 9.0 | 150.3 | 88.50 | 118.0 | 1,780 | 40,940 | 2.51 |
| ESC-CRU18-600 | 600 | 430 | 9.5 | 165.4 | 77.90 | 129.8 | 1,800 | 38,700 | 2.09 |
| ESC-CRU20-750 | 750 | 460 | 10.0 | 164.4 | 96.80 | 129.0 | 2,005 | 46,115 | 2.47 |
| ESC-CRU20-650 | 650 | 500 | 10.0 | 121.0 | 94.99 | 146.1 | 2,029 | 50,732 | 2.43 |
| ESC-CRU20-650 | 650 | 540 | 8.0 | 150.1 | 76.60 | 117.8 | 2,075 | 56,025 | 2.44 |
| ESC-CRU21-750 | 750 | 500 | 10.0 | 169.3 | 99.70 | 133.0 | 2,080 | 49,920 | 2.47 |
| ESC-CRU22-600 | 600 | 500 | 10.0 | 186.6 | 87.90 | 146.5 | 2,200 | 55,000 | 2.24 |
| ESC-CRU22-650 | 650 | 500 | 11.0 | 133.1 | 104.50 | 160.8 | 2,222 | 55,553 | 2.43 |
| ESC-CRU23-750 | 750 | 480 | 10.5 | 173.4 | 102.10 | 136.1 | 2,275 | 54,600 | 2.48 |
| ESC-CRU23-650 | 650 | 540 | 9.0 | 109.5 | 86.00 | 132.3 | 2,295 | 61,954 | 2.44 |
| ESC-CRU23-700 | 700 | 540 | 9.0 | 114.0 | 89.52 | 127.9 | 2,299 | 62,060 | 2.54 |
| ESC-CRU23-750 | 750 | 540 | 9.0 | 118.5 | 93.05 | 124.1 | 2,302 | 62,153 | 2.64 |
| ESC-CRU24-650 | 650 | 500 | 12.0 | 145.2 | 114.00 | 175.4 | 2,413 | 60,331 | 2.43 |
| ESC-CRU25-750 | 750 | 470 | 11.5 | 188.2 | 110.80 | 147.7 | 2,500 | 58,750 | 2.46 |

*excludes internal section of interlock



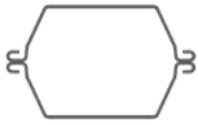
INTERLOCKING CLUTCH



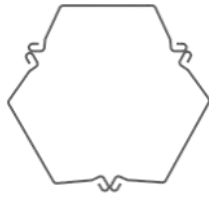
| Section | Width (w) | Height (h) | Thickness (t) | Cross Sectional Area | Weight | | Elastic Section Modulus | Moment of Inertia | Coating Area (both sides per pile) |
|----------------|-----------|------------|---------------|----------------------|--------------------|-----------------|-------------------------|-------------------|------------------------------------|
| | mm | mm | mm | | cm ² /m | Per Pile (kg/m) | | | |
| ESC-CRU25-650 | 650 | 540 | 10.0 | 121.7 | 95.54 | 147.0 | 2,539 | 68,549 | 2.44 |
| ESC-CRU25-700 | 700 | 540 | 10.0 | 126.7 | 99.47 | 142.1 | 2,543 | 68,669 | 2.54 |
| ESC-CRU25-750 | 750 | 540 | 10.0 | 131.7 | 103.39 | 137.9 | 2,547 | 68,773 | 2.64 |
| ESC-CRU26-650 | 650 | 540 | 10.0 | 186.2 | 95.00 | 146.1 | 2,560 | 69,120 | 2.42 |
| ESC-CRU26-750 | 750 | 451 | 12.0 | 192.0 | 113.20 | 151.0 | 2,580 | 58,179 | 2.41 |
| ESC-CRU26-650 | 650 | 540 | 10.5 | 127.8 | 100.32 | 154.3 | 2,667 | 72,017 | 2.44 |
| ESC-CRU27-750 | 750 | 560 | 10.0 | 141.8 | 111.34 | 148.5 | 2,699 | 75,567 | 2.84 |
| ESC-CRU26-700 | 700 | 560 | 10.0 | 136.8 | 107.42 | 153.5 | 2,699 | 75,562 | 2.74 |
| ESC-CRU26-650A | 650 | 560 | 10.0 | 131.8 | 103.49 | 159.2 | 2,699 | 75,557 | 2.64 |
| ESC-CRU27-650 | 650 | 540 | 11.0 | 133.9 | 105.10 | 161.6 | 2,760 | 74,767 | 2.11 |
| ESC-CRU27-700 | 700 | 540 | 11.0 | 139.4 | 109.41 | 156.3 | 2,774 | 74,903 | 2.54 |
| ESC-CRU28-750 | 750 | 540 | 11.0 | 144.9 | 113.73 | 151.6 | 2,790 | 75,338 | 2.64 |
| ESC-CRU28-600 | 600 | 480 | 12.0 | 216.0 | 101.90 | 169.8 | 2,840 | 68,160 | 2.17 |
| ESC-CRU29-650 | 650 | 560 | 11.0 | 145.0 | 113.85 | 175.2 | 2,956 | 82,778 | 2.64 |
| ESC-CRU29-750 | 750 | 560 | 11.0 | 156.0 | 122.48 | 163.3 | 2,957 | 82,794 | 2.84 |
| ESC-CRU29-700 | 700 | 560 | 11.0 | 150.5 | 118.17 | 168.8 | 2,957 | 82,787 | 2.74 |
| ESC-CRU30-650 | 650 | 540 | 12.0 | 146.1 | 114.65 | 176.4 | 3,021 | 81,570 | 2.44 |
| ESC-CRU30-700 | 700 | 540 | 12.0 | 152.1 | 119.36 | 170.5 | 3,027 | 81,718 | 2.54 |
| ESC-CRU30-750 | 750 | 540 | 12.0 | 158.1 | 124.07 | 165.4 | 3,031 | 81,847 | 2.64 |
| ESC-CRU32-750 | 750 | 605 | 11.0 | 204.0 | 120.00 | 160.0 | 3,170 | 95,893 | 2.78 |
| ESC-CRU32-600 | 600 | 520 | 13.0 | 242.0 | 114.00 | 190.0 | 3,200 | 83,200 | 2.24 |
| ESC-CRU32-650 | 650 | 560 | 12.0 | 158.2 | 124.20 | 191.1 | 3,212 | 89,941 | 2.64 |
| ESC-CRU32-750 | 750 | 560 | 12.0 | 170.2 | 133.62 | 178.2 | 3,213 | 89,963 | 2.84 |
| ESC-CRU32-700 | 700 | 560 | 12.0 | 164.2 | 128.91 | 184.2 | 3,213 | 89,953 | 2.74 |
| ESC-CRU35-750 | 750 | 608 | 12.0 | 226.0 | 133.00 | 177.0 | 3,465 | 105,336 | 2.83 |
| ESC-CRU37-750 | 750 | 610 | 13.0 | 243.0 | 143.00 | 191.0 | 3,750 | 114,344 | 2.81 |
| ESC-CRU40-750 | 750 | 610 | 14.0 | 263.0 | 155.00 | 207.0 | 4,045 | 123,373 | 2.83 |
| ESC-CRU43-750 | 750 | 610 | 15.0 | 283.0 | 167.00 | 223.0 | 4,340 | 132,309 | 2.84 |
| ESC-CRU46-750 | 750 | 615 | 16.0 | 302.0 | 178.00 | 237.0 | 4,645 | 142,834 | 2.84 |

*excludes internal section of interlock

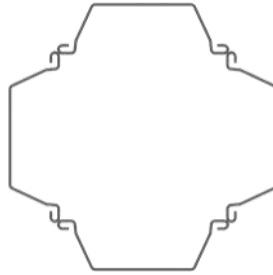
BOX PILES



Double CRU Box Pile



Triple CRU Box Pile

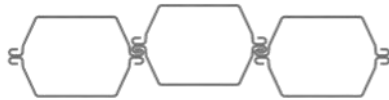


Quadruple CRU Box Pile

ESC-CRU Series Sheet Piles can be combined to create special arrangements. These combined sections presented can greatly amplify the bending strength of a single section by over 5 times. Box Piles with intermediate standard U Piles can be designed. The welded box section can also be incorporated along a certain section of the length where the bending moments are the highest. Please contact our engineering department at engineering@escpile.com if you would like to receive more information about the presented combined pile systems.

COMBINED WALL CONFIGURATIONS

1/1



1/3



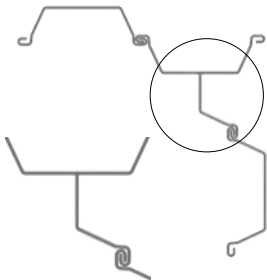
1/2



1/4

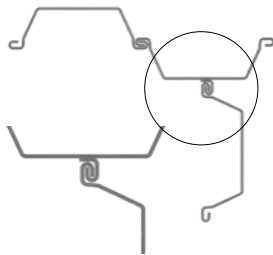


CORNER PILES



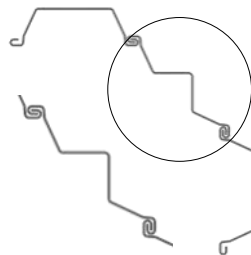
OPTION 1

Cut & weld on section from CRU Sheet Pile



OPTION 2

ESC Welded Interlocks



OPTION 3

Cold Form bending of CRU flange at any angle between 20°

ESC is able to offer 3 options for Corner Pile configurations in the ESC-CRU Series. Option 1 is frequently used when the installation contractor prefers to create their own corner piles on site depending on the as-driven layout. However this produces wastage on the offcut pile. Option 2 allows welding at the mill or on site and provides the installation contractor with more flexibility on corner pile location. Option 3 provides an option with no welding required and provides increased accuracy at corners that are deviated from the typical 90° corner.



STEEL GRADES & MANUFACTURING TOLERANCES

COLD ROLLED & COLD FORMED SHEET PILES

STEEL GRADES

| Classification | | Mechanical Properties | | | | Chemical Composition % (max) | | | | | |
|---------------------|------------|----------------------------|---------|----------------------------------|-------------------------------|------------------------------|------|------|-----------|-----------|-------|
| | | Minimum Yield Point MPa | | Ultimate Tensile Strength MPa | Elongation % (min) 3≤t≤40 | Impact Strength (Charpy) | C | Si | Mn | P | S |
| | | t≤16 | 16<t≤40 | | | | | | | | |
| BS EN 10025-2: 2004 | S275JR | 275 | 265 | 410-560 | 23 | 27J at 20°C | 0.21 | - | 1.50 | 0.035 | 0.035 |
| | S275J2 | 275 | 265 | 410-560 | 21 | 27J at -20°C | 0.18 | - | 1.50 | 0.025 | 0.025 |
| | S355JR | 355 | 345 | 470-630 | 22 | 27J at 20°C | 0.24 | 0.55 | 1.60 | 0.035 | 0.035 |
| BS EN 102481: 1998 | S390GP | 390 | 390 | ≥ 490 | 20 | - | 0.24 | 0.55 | 1.60 | 0.04 | 0.040 |
| | S430GP | 430 | 430 | ≥510 | 19 | - | 0.24 | 0.55 | 1.60 | 0.04 | 0.040 |
| GB/T 700:2006 | Q235B | 235 | 225 | 375-500 | 26 | 27J at 20°C | 0.20 | 0.35 | 1.40 | 0.045 | 0.045 |
| | Q275B | 275 | 265 | 410-540 | 22 | 27J at 20°C | 0.21 | 0.35 | 1.50 | 0.045 | 0.045 |
| GB/T1591:2008 | Q345B | 345 | 335 | 470-630 | 20 | 34J at 20°C | 0.20 | 0.50 | 1.70 | 0.035 | 0.035 |
| | Q390B | 390 | 370 | 490-650 | 20 | 34J at 20°C | 0.20 | 0.50 | 1.70 | 0.030 | 0.030 |
| | Q420B | 420 | 400 | 540-680 | 19 | 34J at 20°C | 0.20 | 0.50 | 1.70 | 0.030 | 0.030 |
| | MDB350 | 350 | 350 | 470-630 | 21 | 40J at 20°C | 0.20 | 0.50 | 1.50 | 0.025 | 0.020 |
| ASTMA36-14 | A36 | 250 | 250 | 400-550 | 23 | - | 0.26 | 0.40 | - | 0.040 | 0.050 |
| ASTM A572-2013a | A572 Gr.42 | 290 | 290 | ≥415 | 20 | - | 0.21 | 0.40 | 1.35 | 0.040 | 0.050 |
| | A572 Gr.50 | 345 | 345 | ≥450 | 18 | - | 0.23 | 0.40 | 1.30 | 0.040 | 0.050 |
| | A572 Gr.60 | 413 | 413 | ≥517 | 16 | - | 0.26 | 0.40 | 1.35 | 0.040 | 0.050 |
| ASTM A690-2013a | A690 | 345 | 345 | >485 | 21 | - | 0.22 | 0.40 | 0.60-0.90 | 0.08-.015 | 0.040 |
| JIS G3101-2010 | SS400 | 245 | 235 | 400-510 | 17 (5<t<16), 21 (t<5 or t>16) | - | - | - | - | 0.050 | 0.050 |
| | SS490 | 285 | 275 | 490-610 | 15 (5<t<16), 19 (t<5 or t>16) | - | - | - | - | 0.050 | 0.050 |
| | SS540 | 400 | 330 | ≥540 | 13 (5<t<16), 16 (t<5 or t>16) | - | 0.30 | - | 1.60 | 0.040 | 0.040 |
| JIS A5523-2012 | SYW295 | 295 | 295 | ≥490 | 17 | 43J at 0°C | 0.18 | 0.55 | 1.50 | 0.040 | 0.040 |
| | SYW390 | 390 | 390 | ≥ 540 | 15 | 43J at 0°C | 0.18 | 0.55 | 1.50 | 0.040 | 0.040 |
| MS 2025-1:2006 | S235JR | 235 | 225 | 360-510 | 26 | - | 0.17 | - | 1.40 | 0.035 | 0.035 |
| | S275JR | 275 | 265 | 410-560 | 23 | - | 0.21 | - | 1.50 | 0.035 | 0.035 |
| | S355JO | 355 | 345 | 470-630 | 22 | - | 0.20 | 0.55 | 1.60 | 0.030 | 0.030 |

MANUFACTURING TOLERANCES TO BS EN 10249

| Component | Tolerance | Nominal Thickness | Tolerance |
|-----------------------------|---------------|-------------------|-----------|
| Mass | ± 5% | | |
| Length | ± 50mm | | |
| Height (≤ 200mm) | ± 4.0mm | 5mm | ± 0.29mm |
| Height (> 200mm & ≤ 300mm) | ± 6.0mm | 6mm | ± 0.31mm |
| Height (> 300mm & ≤ 400mm) | ± 8.0mm | 8mm | ± 0.35mm |
| Height (> 400mm) | ± 10.0mm | 9mm | ± 0.40mm |
| Width of Single Pile | ± 2% of width | 10mm | ± 0.40mm |
| Width of Double Z or Wide U | ± 3% of width | 12mm | ± 0.43mm |
| Squareness of Ends | 2% of width | 13mm | ± 0.46mm |
| | | 15mm | ± 0.46mm |

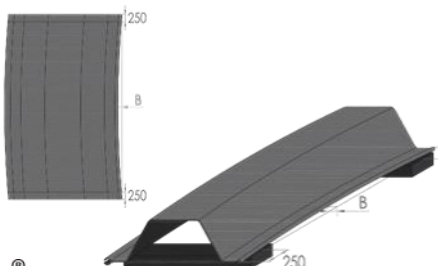
SHEET PILE MARKING

ESC is able to apply adhesive stickers to its products to provide useful information such as destination, order number, project identifier, client name and others. To enable good traceability, material heat number & pile specification is included as standard.

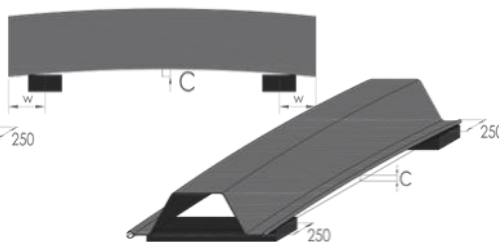


Bending B

±0.2% of the length



Curving C



Twisting T

±0.2% of the length but no more than 100mm

