



New GU sheet piles 2009

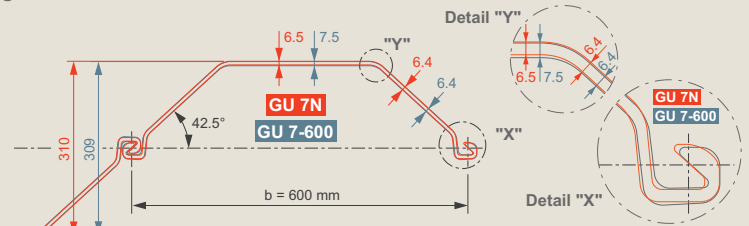
ArcelorMittal

The development of an improved GU hot rolled sheet pile produced in Dabrowa, Poland, was triggered by the amazing success of the existing GU 600 range in new markets.

Major development was to modify the interlock shape such to become fully compliant with the ArcelorMittal LARSEN interlock already produced in the sheet pile rolling mills in Belval and Rodange, Luxembourg.

A second improvement was to optimize the steel thicknesses of the new sections for higher efficiency in the section modulus range of 600 - 800 cm³/m.

The new GU N and GU S sections have already been rolled, and replace the existing GU 600 range from beginning of June 2009 on.



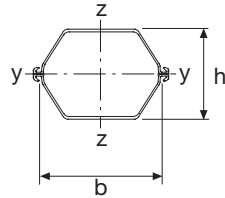
| Section | Width b | Height h | Thickness | | Sectional area | Mass | | Moment of inertia | Elastic section modulus | Static moment | Plastic section modulus | Class * | | | | | |
|---------|------------|-------------|-----------|-----|--------------------|---------------------|---------------------------|--------------------|-------------------------|--------------------|-------------------------|----------|----------|----------|----------|----------|----------|
| | | | t | s | | kg/m of single pile | kg/m ² of wall | | | | | S 240 GP | S 270 GP | S 320 GP | S 355 GP | S 390 GP | S 430 GP |
| | mm | mm | mm | mm | cm ² /m | kg/m | kg/m ² | cm ⁴ /m | cm ³ /m | cm ³ /m | cm ³ /m | | | | | | |
| GU 6N | 600 | 309 | 6.0 | 6.0 | 89 | 41.9 | 70 | 9 670 | 625 | 375 | 765 | 3 | 3 | 3 | 4 | - | - |
| GU 7N | 600 | 310 | 6.5 | 6.4 | 94 | 44.1 | 74 | 10 450 | 675 | 400 | 825 | 3 | 3 | 3 | 3 | - | - |
| GU 7S | 600 | 311 | 7.2 | 6.9 | 100 | 46.3 | 77 | 11 540 | 740 | 440 | 900 | 2 | 2 | 3 | 3 | - | - |
| GU 8N | 600 | 312 | 7.5 | 7.1 | 103 | 48.5 | 81 | 12 010 | 770 | 460 | 935 | 2 | 2 | 3 | 3 | - | - |

* Classification according to EN 1993-5. Please contact us for S 390 GP et S 430 GP steel grades.

Section properties

| Section | S = Single pile D = Double pile T = Triple pile | Sectional area | Mass | Moment of inertia | Elastic section modulus | Radius of gyration | Coating area * |
|-----------|---|----------------|-------|-------------------|-------------------------|--------------------|----------------|
| | | | | | | | |
| GU 6N | Per S | 53.4 | 41.9 | 2 160 | 215 | 6.36 | 0.76 |
| | Per D | 106.8 | 83.8 | 11 610 | 750 | 10.43 | 1.51 |
| | Per T | 160.2 | 125.7 | 16 200 | 890 | 10.06 | 2.26 |
| | Per m of wall | | 89.0 | 69.9 | 9 670 | 625 | 10.43 |
| GU 7N | Per S | 56.2 | 44.1 | 2 250 | 220 | 6.33 | 0.76 |
| | Per D | 112.4 | 88.2 | 12 540 | 810 | 10.56 | 1.51 |
| | Per T | 168.6 | 132.4 | 17 470 | 955 | 10.18 | 2.26 |
| | Per m of wall | | 93.7 | 73.5 | 10 450 | 675 | 10.56 |
| GU 7S | Per S | 60.2 | 46.3 | 2 370 | 225 | 6.28 | 0.76 |
| | Per D | 120.3 | 92.5 | 13 850 | 890 | 10.73 | 1.51 |
| | Per T | 180.5 | 138.8 | 19 260 | 1 045 | 10.33 | 2.26 |
| | Per m of wall | | 100.3 | 77.1 | 11 540 | 740 | 10.73 |
| GU 8N | Per S | 61.8 | 48.5 | 2 420 | 225 | 6.26 | 0.76 |
| | Per D | 123.7 | 97.1 | 14 420 | 925 | 10.80 | 1.51 |
| | Per T | 185.5 | 145.6 | 20 030 | 1 080 | 10.39 | 2.26 |
| | Per m of wall | | 103.1 | 80.9 | 12 010 | 770 | 10.80 |

* One side, excluding inside of interlocks

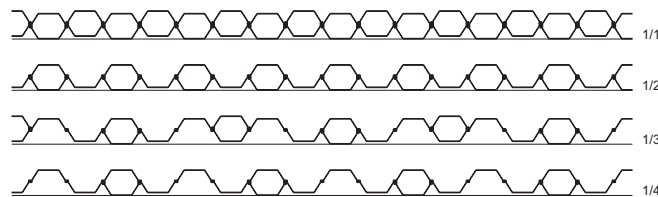


| Section | Width b | Height h | Perimeter | Sectional area | Total section | Mass * | Moment of inertia | | Elastic section modulus | | Min. radius of gyration | Coating area ** |
|-----------------|------------|-------------|-----------|-------------------|------------------|-------------|-------------------|-----------------|----------------------------|-----------------|-------------------------------|--------------------|
| | | | | | | | y - y | z - z | y - y | z - z | | |
| | mm | mm | cm | cm ² | cm ² | kg/m | cm ⁴ | cm ⁴ | cm ³ | cm ³ | cm | m ² /m |
| CGU 6N-2 | 600 | 347 | 187 | 107 | 1 590 | 83.8 | 15 310 | 47 040 | 885 | 1 490 | 12.0 | 1.62 |
| CGU 7N-2 | 600 | 348 | 187 | 112 | 1 596 | 88.2 | 16 510 | 48 530 | 950 | 1 535 | 12.1 | 1.62 |
| CGU 7S-2 | 600 | 349 | 188 | 120 | 1 604 | 92.5 | 18 210 | 50 630 | 1 045 | 1 605 | 12.3 | 1.62 |
| CGU 8N-2 | 600 | 350 | 188 | 124 | 1 607 | 97.1 | 18 940 | 51 520 | 1 085 | 1 630 | 12.4 | 1.62 |

* The mass of the welds is not taken into account

** Outside surface, excluding inside of interlocks

Combined wall: CGU box-pile – GU sheet piles



| Section | 1/1 | | | 1/2 | | | 1/3 | | | 1/4 | | |
|--------------|-------------------|----------------------|-------------------------------|-------------------|----------------------|-------------------------------|-------------------|----------------------|-------------------------------|-------------------|----------------------|-------------------------------|
| | Mass | Moment of inertia | Elastic section modulus | Mass | Moment of inertia | Elastic section modulus | Mass | Moment of inertia | Elastic section modulus | Mass | Moment of inertia | Elastic section modulus |
| | kg/m ² | cm ⁴ /m | cm ³ /m | kg/m ² | cm ⁴ /m | cm ³ /m | kg/m ² | cm ⁴ /m | cm ³ /m | kg/m ² | cm ⁴ /m | cm ³ /m |
| GU 6N | 140 | 25 510 | 1 470 | 105 | 14 550 | 840 | 93 | 14 950 | 865 | 87 | 13 130 | 720 |
| GU 7N | 147 | 27 520 | 1 585 | 110 | 15 630 | 900 | 98 | 16 140 | 930 | 92 | 14 160 | 775 |
| GU 7S | 154 | 30 350 | 1 740 | 116 | 17 150 | 985 | 103 | 17 810 | 1 020 | 96 | 15 610 | 845 |
| GU 8N | 162 | 31 570 | 1 805 | 121 | 17 810 | 1 020 | 108 | 18 530 | 1 060 | 101 | 16 240 | 875 |

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