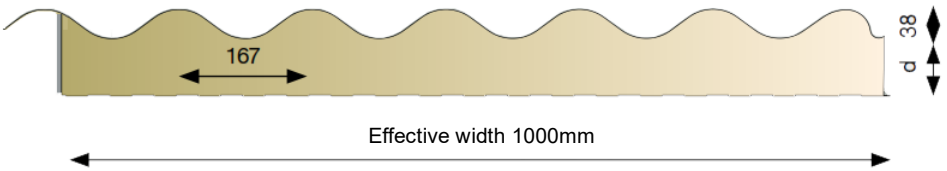
HARDEMAN VEENENDAAL

# PRODUCT CERTIFICATE

CE

Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 38/1000G – Corrugated panel




| Panel (d / d+38) | Weight (kg/m²) | Insulation Value U-value (W/m²K) | Thermal resistance Rc-value (m²K/W) |
|---|---|---|---|
| **40/78** | 11,40 | 0,44 | 2,39 |
| **60/98** | 12,20 | 0,31 | 3,36 |
| **80/118** | 13,00 | 0,24 | 4,28 |
| **100/138** | 13,80 | 0,20 | 5,17 |

**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Insulation**
PIR-plus insulation +/- 38 kg/m³ acc. to EN 14509, penthane blown and fully (H)CFK-free production. Lambda value according to NEN-EN 12667 and NEN-EN 13165; Rc-values according to NTA 8800

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Safe load spans**
Loads calculated according to eurocode NEN-EN-1991-1; calculation methods according to EN 14509; job-related calculation can be provided given local snow– and windloads

**Sound insulation**
For all PIR panels a weigthed average value of +/- 25 dB(A) can be used to calculate sound resistance.
Sound resistance of the 60/92 panel according to ISO 10140-2: Rw= 25dB

**Product tolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



Certificate issue date: January 5, 2021
Valid until: Next release

HARDEMAN VEENENDAAL

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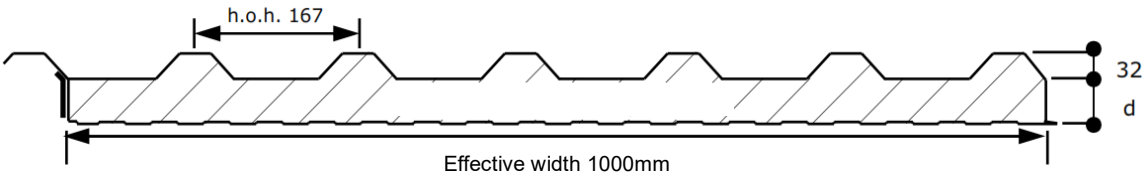
CE

Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 32/1000D – Pitched roof panel / Wall panel




| Panel (d / d+32) | Weight (kg/m²) | Insulation Value U-value (W/m²K) | Thermal resistance Rc-value (m²K/W) |
|---|---|---|---|
| **40/72** | 11,00 | 0,47 | 2,12 |
| **60/92** | 11,80 | 0,32 | 3,10 |
| **80/112** | 12,60 | 0,25 | 4,06 |
| **100/132** | 13,40 | 0,20 | 5,00 |
| **132/164** | 14,26 | 0,15 | 6,55 |

**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Insulation**
PIR-plus insulation +/- 38 kg/m³ acc. to EN 14509, penthane blown and fully (H)CFK-free production. Lambda value according to NEN-EN 12667 and NEN-EN 13165; Rc-values according to NTA 8800

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Safe load spans**
Loads calculated according to eurocode NEN-EN-1991-1; calculation methods according to EN 14509; job-related calculation can be provided given local snow– and windloads

**Fire behaviour and fire resistance**
Fire classification: B,s2-d0 according to EN13501-1 (certified)

**Sound insulation**
For all PIR panels a weigthed average value of +/- 25 dB(A) can be used to calculate sound resistance.
Sound resistance of the 60/92 panel according to ISO 10140-2: Rw= 25dB

**Producttolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



Certificate issue date: January 5, 2021
Valid until: Next release

HARDEMAN VEENENDAAL

# PRODUCT CERTIFICATE

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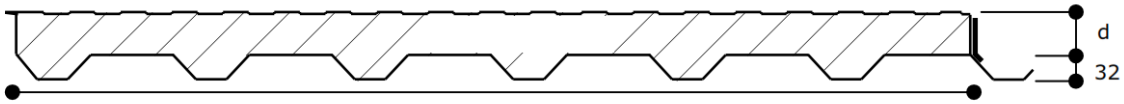
Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 32/1000D – Flat roof panel




Effective width 1000mm

| Panel (d / d+32) | Weight (kg/m²) | Insulation Value U-value (W/m²K) | Thermal resistance Rc-value (m²K/W) |
|---|---|---|---|
| **40/72** | 11,00 | 0,47 | 2,12 |
| **60/92** | 11,80 | 0,32 | 3,10 |
| **80/112** | 12,60 | 0,25 | 4,06 |
| **100/132** | 13,40 | 0,20 | 5,00 |
| **132/164** | 14,26 | 0,15 | 6,55 |

**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Insulation**
PIR-plus insulation +/- 38 kg/m³ acc. to EN 14509, penthane blown and fully (H)CFK-free production. Lambda value according to NEN-EN 12667 and NEN-EN 13165; Rc-values according to NTA 8800

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Safe load spans**
Loads calculated according to eurocode NEN-EN-1991-1; calculation methods according to EN 14509; job-related calculation can be provided given local snow– and windloads

**Fire behaviour and fire resistance**
Fire classification: B,s2-d0 according to EN13501-1 (certified)

**Sound insulation**
For all PIR panels a weigthed average value of +/- 25 dB(A) can be used to calculate sound resistance.
Sound resistance of the 60/92 panel according to ISO 10140-2: Rw= 25dB

**Producttolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



Certificate issue date: January 5, 2021
Valid until: Next release

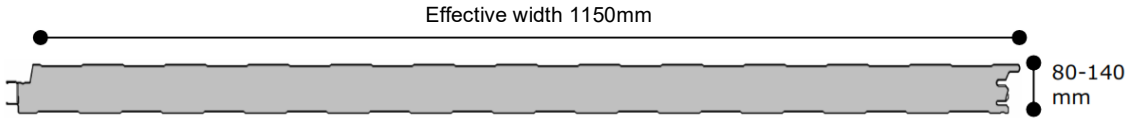
HARDEMAN VEENENDAAL

# PRODUCT CERTIFICATE

CE

Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 1150-WV-LL – Flat roof panel




| Paneel | Weight (kg/m²) | Insulation Value U-value (W/m²K) | Thermal resistance Rc-waarde (m²K/W) |
|---|---|---|---|
| **1150-WV-80** | 11,78 | 0,27 | 3,73 |
| **1150-WV-100** | 12,62 | 0,22 | 4,70 |
| **1150-WV-140** | 14,26 | 0,15 | 6,58 |

**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Insulation**
PIR-plus insulation +/- 38 kg/m³ acc. to EN 14509, penthane blown and fully (H)CFK-free production. Lambda value according to NEN-EN 12667 and NEN-EN 13165; Rc-values according to NTA 8800

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Safe load spans**
Loads calculated according to eurocode NEN-EN-1991-1; calculation methods according to EN 14509; job-related calculation can be provided given local snow– and windloads

**Fire behaviour and fire resistance**
Fire classification: B,s2-d0 according to EN13501-1 (certified)

**Sound insulation**
For all PIR panels a weigthed average value of +/- 25 dB(A) can be used to calculate sound resistance.
Sound resistance of the 60/92 panel according to ISO 10140-2: Rw= 25dB

**Producttolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



Certificate issue date: January 5, 2021
Valid until: Next release

HARDEMAN VEENENDAAL

# PRODUCT CERTIFICATE

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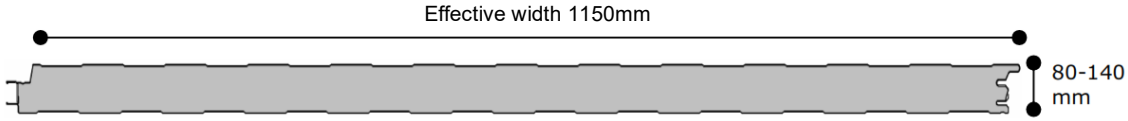
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 1150-WV-LL/M16L – Wall panel




| Panel | Weight (kg/m²) | Insulation Value U-value (W/m²K) | Thermal resistance Rc-waarde (m²K/W) | Fire resistance EN 1364 |
|---|---|---|---|---|
| **1150-WV-40** | 10,10 | 0,70 | 1,36 | - |
| **1150-WV-60** | 10,94 | 0,37 | 2,70 | EW60 |
| **1150-WV-80** | 11,78 | 0,27 | 3,73 | EW60 |
| **1150-WV-100** | 12,62 | 0,22 | 4,70 | EW120 |
| **1150-WV-140** | 14,26 | 0,15 | 6,58 | EW120 |

**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Insulation**
PIR-plus insulation +/- 38 kg/m³ acc. to EN 14509, penthane blown and fully (H)CFK-free production. Lambda value according to NEN-EN 12667 and NEN-EN 13165; Rc-values according to NTA 8800

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Safe load spans**
Loads calculated according to eurocode NEN-EN-1991-1; calculation methods according to EN 14509; job-related calculation can be provided given local snow– and windloads

**Fire behaviour and fire resistance (Wall panel)**
Fire classification: B,s2-d0 according to EN13501-1 (certified)
Fire resistance (see table above) according to EN1364 (certified), for use as outside wall

**Sound insulation**
For all PIR panels a weigthed average value of +/- 25 dB(A) can be used to calculate sound resistance.
Sound resistance of the 60/92 panel according to ISO 10140-2: Rw= 25dB

**Producttolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



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PRODUCT CERTIFICATE

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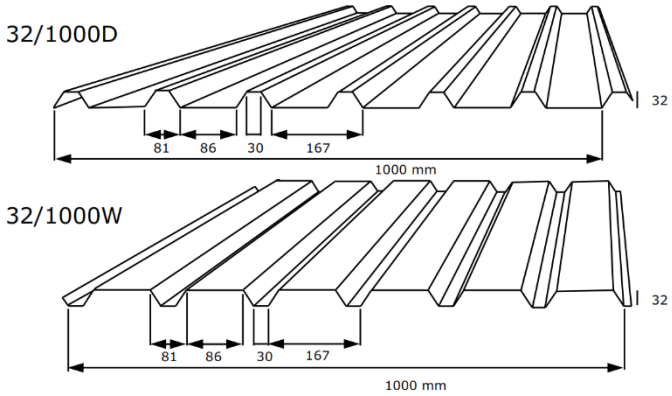
# Hardeman 32/1000D – 32/1000W Profiled sheets




| Steel thickness | Weight (kg/m²) | Weight (kg/m²) |
|---|---|---|
| | **32/1000D** | **32/1000W** |
| **0.55 mm** | 5,58 | 5,42 |
| **0.75 mm** | 7,61 | 7,36 |

**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Anti condense fleece and acoustic fleece**
Fire behaviour B,s1,d0 according to EN 13501-1, quality demands according to ISO 9073-3

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Product tolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards

HARDEMAN VEENENDAAL

# PRODUCT CERTIFICATE

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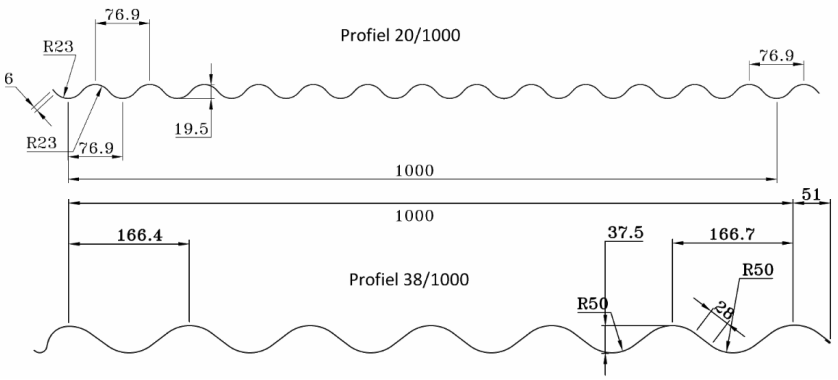
Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 20/1000 and 38/1000 Corrugated sheets




**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Anti condense fleece and acoustic fleece**
Fire behaviour B,s1,d0 according to EN 13501-1, quality demands according to ISO 9073-3

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Product tolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



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Valid until: Next release

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# PRODUCT CERTIFICATE

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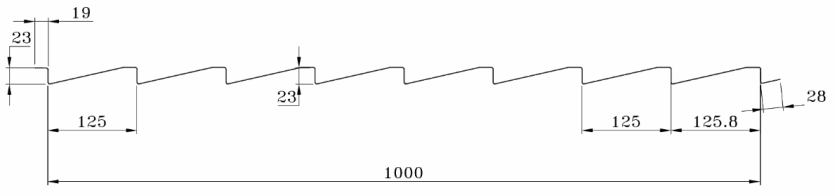
Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman 23/1000R Plank profile sheets




**Steel grade**
S280GD according to EN 10147

**Corrosion protection**
Z275 or AZ150 according to EN 10326

**Coatings**
Plastisol P200, Nova 50 and/or Polyester 25 according to EN 10169

**Quality mark**
Panels are extensively tested and checked by FPC (factory production control) system according to EN 14509. The panels are supplied under the CE mark

**Product tolerances**
Tolerances, sizes and production according to EN 14509 and EN 508-1 standards



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Valid until: Next release

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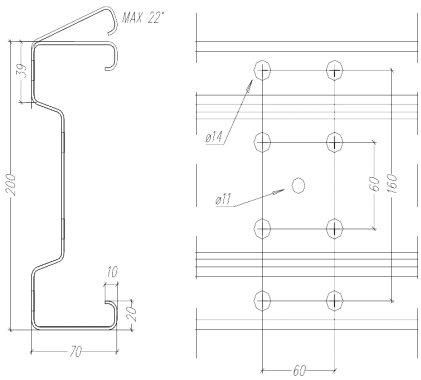
Manufacturer: C300 dak– en wandsystemen BV — Postbus 376 — 3900AJ Veenendaal — the Netherlands
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman Sigma 200+

Cold formed galvanized profiles




**Steel grade**
S390GD-S420GD according to EN 10147

**Corrosion protection**
Z275, ZMA140 or Z800 according to EN 10326

**Quality insurance**
These sigma profiles are produced according to the norms and guidelines that are applicable.

**Span tables**
Safe load spans according to our span tables with loads according to eurocode NEN-EN 1991; for export orders, a stress calculation will be made for each specific job, according to the local loads and safety factors as provided to us by customer and/or authorities.

**Technical data:**

| Sigma 200+ | Galvanized: 275 gr. | | | | | 800 gr. | | |
|---|---|---|---|---|---|---|---|---|
| **Thickness (mm)** | **1.25** | **1.50** | **2.00** | **2.50** | **3.00** | **1.50** | **2.50** | **3.00** |
| Weight (kg/m¹) | 4.02 | 4.80 | 6.37 | 7.94 | 9.35 | 4.80 | 7.96 | 9.55 |
| Iy (cm⁴) | 308.6 | 344.1 | 483.4 | 595.8 | 705.5 | 368.1 | 595.8 | 705.5 |
| Wy (cm³) | 30.7 | 34.1 | 47.9 | 59.0 | 69.8 | 36.5 | 59.0 | 69.8 |
| Iz (cm⁴) | 26.3 | 29.3 | 40.3 | 48.9 | 57.6 | 31.4 | 48.9 | 57.6 |
| Wz (cm³) | 9.3 | 10.4 | 14.3 | 17.4 | 20.5 | 11.3 | 17.4 | 20.5 |
| Area (m²/m¹) | 0.83 | 0.83 | 0.84 | 0.85 | 0.85 | 0.83 | 0.85 | 0.85 |
| Section(cm²) | 5.16 | 5.77 | 8.16 | 10.12 | 12.01 | 6.19 | 10.12 | 12.01 |
| Steel grade | S420G | S420G | S420G | S420G | S390G | S420G | S420G | S390G |



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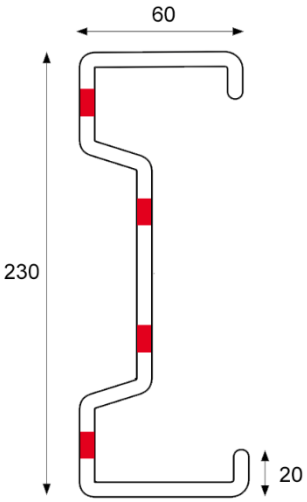
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman Sigma 230

Cold formed galvanized profiles




**Steel grade**
S390GD-S420GD according to EN 10147

**Corrosion protection**
Z275, ZMA140 or Z800 according to EN 10326

**Quality insurance**
These sigma profiles are produced according to the norms and guidelines that are applicable.

**Span tables**
Safe load spans according to our span tables with loads according to eurocode NEN-EN 1991; for export orders, made for each specific job, according to the local loads and safety factors as provided to us by customer and/or

**Technical data:**

| **Thickness(mm)** | **1.50** | **2.00** | **2.50** | **3.00** |
|---|---|---|---|---|
| Weight (kg/m¹) | 4.80 | 6.40 | 8.00 | 9.60 |
| Iy (kmm⁴) | 4735 | 6255 | 7745 | 9206 |
| Wy (kmm³) | 41.4 | 54.7 | 67.7 | 80.5 |
| Iz (kmm⁴) | 257 | 336 | 412 | 485 |
| Wz (kmm³) | 10.5 | 13.6 | 16.6 | 19.4 |
| Area (m²/m¹) | 0.60 | 0.80 | 1.00 | 1.20 |
| Steel grade | S420G | S420G | S420G | S390G |



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HARDEMAN VEENENDAAL

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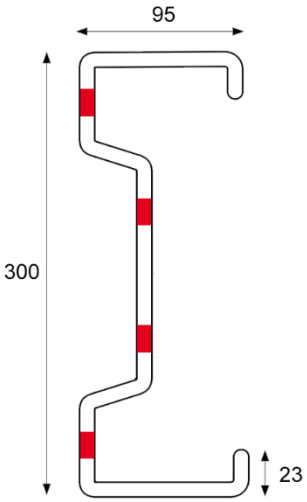
Production site: Moleculenstraat 5 — 3903LH Veenendaal — the Netherlands

## Hardeman Sigma 300

Cold formed galvanized profiles




**Steel grade**
S390GD-S420GD according to EN 10147

**Corrosion protection**
Z275, ZMA140 or Z800 according to EN 10326

**Quality insurance**
These sigma profiles are produced according to the norms and guidelines that are applicable.

**Span tables**
Safe load spans according to our span tables with loads according to eurocode NEN-EN 1991; for export orders, made for each specific job, according to the local loads and safety factors as provided to us by customer and/or

**Technical data:**

| **Thickness (mm)** | **2.00** | **2.50** | **3.00** |
|---|---|---|---|
| Weight (kg/m¹) | 8.64 | 10.80 | 12.96 |
| Iy (kmm⁴) | 14594 | 18113 | 21582 |
| Wy (kmm³) | 97.7 | 121.3 | 144.5 |
| Iz (kmm⁴) | 936 | 1154 | 1366 |
| Wz (kmm³) | 28.6 | 35.0 | 41.3 |
| Area(m²/m¹) | 1.08 | 1.35 | 1.62 |
| Steel grade | S420G | S420G | S390G |



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