



ENGINEERED TO LAST

General catalogue.

Structural steel and rolled sections, C+ and Z purlins, building envelope, plasterboard framing, solar mounting systems and pallet racking.

CONTENTS

Six families, one single logic.

The catalogue follows the actual order of the building: main structure, secondary framing, envelope, interior fit-out, solar, then racking. Each family goes from product selection to its specification and ordering data. Standards references are grouped in the annex.

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This document contains no prices: rates are given in separate price lists kept up to date by the sales department.

FAMILIES 6	TRACEABILITY 3.1 · EN 10204	PRS 15 m	EXECUTION EN 1090
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A WORD FROM THE MANAGEMENT

Six ranges, one discipline.

Atlas Steel produces six families of steel for buildings: structural steel and rolled sections, C+ and Z purlins, building envelope, plasterboard framing, solar mounting systems and pallet racking. Steel fabricators, installers, engineering offices and project owners all find the same thing: engineered components, cut to length and delivered ready to install.

We are a member of Groupe Sekkat, alongside Maghreb Steel, Ingelec, Imacab and Plastima. We control the whole chain, from coil to finished part, and we answer for the product as we do for the material.

Three commitments govern how we work.

Proof. Every product is tied to a standard, every published value traces back to the mill certificate, and every project can leave with a calculation note from our engineering office.

Control. Roll-forming, shot-blasting, painting, cutting and punching are linked on a single site, with no subcontracting: consistent quality from one order to the next, and lead times we keep because they depend on no one else.

Durability. A structure is judged after ten years, not on delivery. That is the meaning of our signature: **Engineered to last.**

Our ambition is simple: that Morocco's buildings and major structures are built with steel processed in Morocco, to the best European standards. And to take this know-how beyond our borders.

Fayçal Sekkat

MANAGING DIRECTOR · ATLAS STEEL

01

STRUCTURAL STEEL AND ROLLED SECTIONS

Structural steel and rolled sections.

Rolled beams, custom welded beams (WB), merchant bars and heavy plates. Supplied mill finish, or shot-blasted Sa 2½ and pre-primed.

IPE to HEB

IPE, IPN, UPN, HEA and HEB beams from 80 to 600 mm.

WB

Custom sections, up to 15 m in a single piece.

Merchant bars

Flat, square and round bars and angles.

3 to 50 mm

Hot-rolled, tear and chequer plates.

IN THIS SECTION

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FINISHES

All families in this section are supplied mill finish, or shot-blasted Sa 2½ and pre-primed with a 20 µm weldable primer.
Below 3 mm thickness: mill finish only.

THE WORKSHOP CRITERION

Mill finish or pre-primed?

Surface preparation determines the quality of the final paint system. All families in this section, from plates to welded beams, can be supplied in either condition.

Mill finish

EN 10025 · as-rolled condition

CRITERION	CONDITION
Surface condition	mill scale
Before painting	pickling required
Storage protection	limited
Workshop load	preparation at your premises
Use	embedded, concealed parts

Shot-blasted and pre-primed

Sa 2½ + weldable primer · ready to paint

CRITERION	CONDITION
Descaling	Sa 2½ · ISO 8501-1
Primer	SigmaWeld PPG · 20 µm
Weldability	weldable primer
Paint substrate	prepared Sa 2½
Storage protection	temporary, up to one year

WHICH SURFACE CONDITION FOR WHICH NEED

PROJECT REQUIREMENT	RECOMMENDED CONDITION	WHY
Embedded or concealed parts	Mill finish	no finishing requirement
Shop-painted steelwork	Shot-blasted + pre-primed	uniform substrate, ready for the paint system
Fast erection, tight deadlines	Shot-blasted + pre-primed	no pickling required at the fabricator
Extended storage before installation	Shot-blasted + pre-primed	immediate 20 µm protection

The 20 µm weldable primer is temporary protection for transport and storage. The final paint system must still be applied according to the site environment, in line with ISO 12944. Compatibility of the primer with the final paint system must be checked against the manufacturer's data sheet.

Sa 2½ shot blasting and weldable primer apply only from 3 mm thickness. Below 3 mm (thin tubes, angles, plates and sections), supplied in mill finish only.

THE LINE, IN FOUR LINKED OPERATIONS

01

Receipt and inspection

Steels certified to EN 10025, inspected batch by batch. EN 10204 type 3.1 mill certificate available as required by the order.

02

Shot blasting Sa 2½

Mill scale and oxides removed over the whole surface, controlled roughness for primer adhesion.

03

Weldable primer 20 µm

Applied in-line: weldability is retained, and protection starts as soon as the material leaves the line.

04

Inspection and shipping

Film thickness and adhesion checked, packages identified, material certificate supplied with delivery.

ISO 8501-1 DESCALING
Sa 2½

WELDABLE PRIMER
20 µm

SHOT BLASTING
from 3 mm

STORAGE PROTECTION
up to one year

PARALLEL-FLANGE I BEAMS

IPE

I sections with parallel flanges, the reference for building structures: high strength, optimised weight and high geometric accuracy, from 80 to 600 mm.

Light section, excellent weight / strength ratio · weldable, durable S275JR steel.


SECTION PROPERTIES EN 10365 · dimensions in mm · kg/m · A in cm² · I in cm⁴ · W in cm³

RÉF.	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
IPE 80	6.0	80	46	3.8	5.2	7.6	80	8	20	4
IPE 100	8.1	100	55	4.1	5.7	10.3	171	16	34	6
IPE 120	10.4	120	64	4.4	6.3	13.2	318	28	53	9
IPE 140	12.9	140	73	4.7	6.9	16.4	541	45	77	12
IPE 160	15.8	160	82	5.0	7.4	20.1	869	68	109	17
IPE 180	18.8	180	91	5.3	8.0	23.9	1320	101	146	22
IPE 200	22.4	200	100	5.6	8.5	28.5	1940	142	194	29
IPE 220	26.2	220	110	5.9	9.2	33.4	2770	205	252	37
IPE 240	30.7	240	120	6.2	9.8	39.1	3890	284	324	47
IPE 270	36.1	270	135	6.6	10.2	45.9	5790	420	429	62
IPE 300	42.2	300	150	7.1	10.7	53.8	8360	604	557	81
IPE 330	49.1	330	160	7.5	11.5	62.6	11770	788	713	99
IPE 360	57.1	360	170	8.0	12.7	72.7	16270	1040	904	123
IPE 400	66.3	400	180	8.6	13.5	84.5	23130	1320	1160	146
IPE 450	77.6	450	190	9.4	14.6	98.8	33740	1680	1500	176
IPE 500	90.7	500	200	10.2	16.0	116.0	48200	2140	1930	214
IPE 550	106.0	550	210	11.1	17.2	134.0	67120	2670	2440	254
IPE 600	122.0	600	220	12.0	19.0	156.0	92080	3390	3070	308

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

12 100 mm

FINISHES

Mill finish or pre-primed

SECTION STANDARD

EN 10365

TAPER-FLANGE I BEAMS

IPN

I sections with taper flanges for load-bearing structures, steelwork, beams and steel floors. High mechanical strength and dimensional stability, from 80 to 400 mm.

High strength and geometric accuracy.


SECTION PROPERTIES EN 10365 · dimensions in mm · kg/m · A in cm² · I in cm⁴ · W in cm³

RÉF.	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
IPN 80	5.9	80	42	3.9	5.9	7.6	78	6	19	3
IPN 100	8.3	100	50	4.5	6.8	10.6	171	12	34	5
IPN 120	11.1	120	58	5.1	7.7	14.2	328	22	55	7
IPN 140	14.3	140	66	5.7	8.6	18.3	573	35	82	11
IPN 160	17.9	160	74	6.3	9.5	22.8	935	55	117	15
IPN 180	21.9	180	82	6.9	10.4	27.9	1450	81	161	20
IPN 200	26.2	200	90	7.5	11.3	33.4	2140	117	214	26
IPN 220	31.1	220	98	8.1	12.2	39.5	3060	162	278	33
IPN 240	36.2	240	106	8.7	13.1	46.1	4250	221	354	42
IPN 260	41.9	260	113	9.4	14.1	53.3	5740	288	442	51
IPN 280	47.9	280	119	10.1	15.2	61.0	7590	364	542	61
IPN 300	54.2	300	125	10.8	16.2	69.0	9800	451	653	72
IPN 320	61.0	320	131	11.5	17.3	77.7	12510	555	782	85
IPN 340	68.0	340	137	12.2	18.3	86.7	15700	674	923	98
IPN 360	76.1	360	143	13.0	19.5	97.0	19610	818	1090	114
IPN 380	84.0	380	149	13.7	20.5	107.0	24010	975	1260	131
IPN 400	92.4	400	155	14.4	21.6	118.0	29210	1160	1460	149

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

12 000 mm

FINISHES

Mill finish or pre-primed

SECTION STANDARD

EN 10365

TAPER-FLANGE U SECTIONS

UPN

Hot-rolled U sections with taper flanges, used in load-bearing structures, steelwork and welded fabrications. Heights from 80 to 400 mm.

High strength and dimensional accuracy · weldable, durable S275JR steel.


SECTION PROPERTIES EN 10365 · dimensions in mm · kg/m · A in cm² · I in cm⁴ · W in cm³

RÉF.	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
UPN 80	8.6	80	45	6.0	8.0	11.0	106	19	27	6
UPN 100	10.6	100	50	6.0	8.5	13.5	206	29	41	8
UPN 120	13.4	120	55	7.0	9.0	17.0	364	43	61	11
UPN 140	16.0	140	60	7.0	10.0	20.4	605	63	86	15
UPN 160	18.8	160	65	7.5	10.5	24.0	925	85	116	18
UPN 180	22.0	180	70	8.0	11.0	28.0	1 350	114	150	22
UPN 200	25.3	200	75	8.5	11.5	32.2	1 910	148	191	27
UPN 220	29.4	220	80	9.0	12.5	37.4	2 690	197	245	34
UPN 240	33.2	240	85	9.5	13.0	42.3	3 600	248	300	40
UPN 260	37.9	260	90	10.0	14.0	48.3	4 820	317	371	48
UPN 280	41.8	280	95	10.0	15.0	53.3	6 280	399	448	57
UPN 300	46.2	300	100	10.0	16.0	58.8	8 030	495	535	68
UPN 320	59.5	320	100	14.0	17.5	75.8	10 870	597	679	81
UPN 350	60.6	350	100	14.0	16.0	77.3	12 840	570	734	75
UPN 380	63.1	380	102	13.5	16.0	80.4	15 760	615	829	79
UPN 400	71.8	400	110	14.0	18.0	91.5	20 350	846	1 020	102

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

12 000 mm

FINISHES

Mill finish or pre-primed

SECTION STANDARD

EN 10365

WIDE-FLANGE H BEAMS

HEA

H sections with wide parallel flanges: the best compromise between low weight and high strength, widely used in modern steel structures.

Optimised section: strength and lightness · easily weldable S275JR steel.


SECTION PROPERTIES EN 10365 · dimensions in mm · kg/m · A in cm² · I in cm⁴ · W in cm³

RÉF.	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
HEA 100	16.7	96	100	5.0	8.0	21.2	349	134	73	27
HEA 120	19.9	114	120	5.0	8.0	25.3	606	231	106	38
HEA 140	24.7	133	140	5.5	8.5	31.4	1 030	389	155	56
HEA 160	30.4	152	160	6.0	9.0	38.8	1 670	616	220	77
HEA 180	35.5	171	180	6.0	9.5	45.3	2 510	925	294	103
HEA 200	42.3	190	200	6.5	10.0	53.8	3 690	1 340	389	134
HEA 220	50.5	210	220	7.0	11.0	64.3	5 410	1 950	515	178
HEA 240	60.3	230	240	7.5	12.0	76.8	7 760	2 770	675	231
HEA 260	68.2	250	260	7.5	12.5	86.8	10 450	3 670	836	282
HEA 280	76.4	270	280	8.0	13.0	97.3	13 670	4 760	1 010	340
HEA 300	88.3	290	300	8.5	14.0	112.5	18 260	6 310	1 260	421
HEA 320	97.6	310	300	9.0	15.5	124.4	22 930	6 990	1 480	466
HEA 340	105.0	330	300	9.5	16.5	133.5	27 690	7 440	1 680	496
HEA 360	112.0	350	300	10.0	17.5	142.8	33 090	7 890	1 890	526
HEA 400	125.0	390	300	11.0	19.0	159.0	45 070	8 560	2 310	571
HEA 450	140.0	440	300	11.5	21.0	178.0	63 720	9 470	2 900	631
HEA 500	155.0	490	300	12.0	23.0	197.5	86 970	10 370	3 550	691
HEA 550	166.0	540	300	12.5	24.0	211.8	111 900	10 820	4 150	721
HEA 600	178.0	590	300	13.0	25.0	226.5	141 200	11 270	4 790	751

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

12 100 mm

FINISHES

Mill finish or pre-primed

SECTION STANDARD

EN 10365

H BEAMS, HEAVY SERIES

HEB

H sections with reinforced wide flanges, designed for structures requiring high bending and compression resistance: balanced geometry, maximum stiffness.

High load-bearing capacity and increased stiffness · weldable, durable S275JR steel.


SECTION PROPERTIES EN 10365 · dimensions in mm · kg/m · A in cm² · I in cm⁴ · W in cm³

RÉF.	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
HEB 100	20.4	100	100	6.0	10.0	26.0	450	167	90	34
HEB 120	26.7	120	120	6.5	11.0	34.0	864	318	144	53
HEB 140	33.7	140	140	7.0	12.0	43.0	1510	550	216	79
HEB 160	42.6	160	160	8.0	13.0	54.3	2490	889	311	111
HEB 180	51.2	180	180	8.5	14.0	65.3	3830	1360	426	151
HEB 200	61.3	200	200	9.0	15.0	78.1	5700	2000	570	200
HEB 220	71.5	220	220	9.5	16.0	91.0	8090	2840	736	258
HEB 240	83.2	240	240	10.0	17.0	106.0	11260	3920	938	327
HEB 260	93.0	260	260	10.0	17.5	118.4	14920	5130	1150	395
HEB 280	103.0	280	280	10.5	18.0	131.4	19270	6590	1380	471
HEB 300	117.0	300	300	11.0	19.0	149.1	25170	8560	1680	571
HEB 320	127.0	320	300	11.5	20.5	161.3	30820	9240	1930	616
HEB 340	134.0	340	300	12.0	21.5	170.9	36660	9690	2160	646
HEB 360	142.0	360	300	12.5	22.5	180.6	43190	10140	2400	676
HEB 400	155.0	400	300	13.5	24.0	197.8	57680	10820	2880	721
HEB 450	171.0	450	300	14.0	26.0	218.0	79890	11720	3550	781
HEB 500	187.0	500	300	14.5	28.0	238.6	107200	12620	4290	842
HEB 550	199.0	550	300	15.0	29.0	254.1	136700	13080	4970	872
HEB 600	212.0	600	300	15.5	30.0	270.0	171000	13530	5700	902

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

12 100 mm

FINISHES

Mill finish or pre-primed

SECTION STANDARD

EN 10365

CUSTOM SECTION

Welded beams (WB)

Web and flanges cut to exact dimensions then submerged-arc welded: the section is designed for the actual forces of the project. Long spans beyond 30 m, heavy loads, crane runway beams: where rolled sections reach their limit.


STANDARD SECTIONS · COLUMNS AND TRUSSES mm · kg/m · A in cm² · I in cm · W in cm³

DESIGNATION	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
WB 333×6 - 8×180	38.3	349	180	6	8	48.8	10220	778	586	86
WB 333×6 - 10×200	47.1	353	200	6	10	60.0	13615	1334	771	133
WB 400×6 - 10×200	50.2	420	200	6	10	64.0	20013	1334	953	133
WB 500×6 - 10×200	55.0	520	200	6	10	70.0	32263	1334	1241	133
WB 500×6 - 12×220	65.0	524	220	6	12	82.8	40859	2130	1560	194
WB 500×6 - 12×300	80.1	524	300	6	12	102.0	53445	5401	2040	360
WB 500×8 - 15×300	102.0	530	300	8	15	130.0	68026	6752	2567	450
WB 600×8 - 12×220	79.1	624	220	8	12	100.8	63846	2132	2046	194
WB 600×8 - 15×250	96.6	630	250	8	15	123.0	85331	3909	2709	313
WB 600×8 - 15×300	108.3	630	300	8	15	138.0	99518	6753	3159	450
WB 750×8 - 15×300	117.8	780	300	8	15	150.0	159818	6753	4098	450
WB 750×8 - 20×300	141.3	790	300	8	20	180.0	206035	9003	5216	600

Designation WB $h_{web} \times t_w - t_f \times b_f$: the number after WB is the web depth; h is the overall depth, $s = t_w$ the web thickness, $t = t_f$ and $b = b_f$ the flange thickness and width. Section class to be checked, EN 1993-1-1 table 5.2.

CRANE RUNWAYS · PORTAL FRAME SPACING UP TO 8 M crane capacity shown after the designation

DESIGNATION	KG/ML	H	B	S	T	A	IY	IZ	WY	WZ
WB 600×8 - 12×250/10×200 5 t	76.9	622	250/200	8	12/10	98.0	60133	2232	1761	179
WB 750×8 - 15×300/12×200 10 t	101.3	777	300/200	8	15/12	129.0	123766	4178	2753	279
WB 750×8 - 20×300/20×220 15 t	128.7	790	300/220	8	20/20	164.0	180000	6278	4161	419
WB 1000×10 - 15×350/12×250 20 t	143.3	1027	350/250	10	15/12	182.5	288174	6930	5013	396

Asymmetric sections: top flange / bottom flange. Bending, deflection $e/750$ and fatigue EN 1993-6.

Line capacities: web depth from 200 to 2 500 mm; flange width up to 1 250 mm; thicknesses up to 50 mm; length up to 15 m in a single piece, beyond that a bolted splice plate; camber 100 mm maximum. S355JR steel as standard, S275JR as an option. Tapered beams and box girders to drawing. Order by number of pieces and length. Indicative values, to be confirmed by the design office.

STEEL GRADE

S355JR · S275JR

MAXIMUM LENGTH

15 000 mm

FINISHES

Mill finish or pre-primed

DESIGN

EN 1993-1-1



MERCHANT

BARS

SUBSECTION · 01 STRUCTURAL STEEL AND ROLLED SECTIONS

Merchant bars.

Hot-rolled flat, square and round bars and equal-leg angles: the simple sections used in metalwork, frames and welded fabrications. Steel grade by product and section: S235JR or S275JR (angles S235JR below L 50 × 50 × 5, S275JR from L 50 × 50 × 5). Flat bars in 6 000 mm, square and round bars in 12 000 mm, angles in 6 000 or 12 000 mm depending on section.

FLAT BARS

128 sections

From 10 × 3 to 200 × 40 mm.

SQUARE AND ROUND BARS

17 sizes · 31 Ø

Square bars from 8 to 80 mm, round bars from Ø 6 to Ø 60.

ANGLES

25 items

Equal legs from 20 to 150 mm.

IN THIS SUB-SECTION

Flat bars	14
Square and round bars	15
Equal-leg angles	16

FINISHES

Mill finish, or shot-blasted Sa 2½ and pre-primed with 20 µm weldable primer from 3 mm thickness.
Other sections on request.

MERCHANT BARS

Flat bars

The versatile solution for steel construction, metalwork and industrial fabrication:
128 sections from 10 × 3 to 200 × 40 mm.

Hot-rolled flat bars, sharp edges, tolerances EN 10058.



MASS IN KG/M width in rows, thickness in columns, in mm

WIDTH	3	4	5	6	8	10	12	15	20	25	30	40
10	0.24	0.31	0.39	0.47	-	-	-	-	-	-	-	-
12	0.28	0.38	0.47	0.57	-	-	-	-	-	-	-	-
15	0.35	0.47	0.59	0.71	-	-	-	-	-	-	-	-
16	0.38	0.50	0.63	0.75	-	-	-	-	-	-	-	-
20	0.47	0.63	0.78	0.94	1.26	-	-	-	-	-	-	-
25	0.59	0.78	0.98	1.18	1.57	-	-	-	-	-	-	-
30	0.71	0.94	1.18	1.41	1.88	2.35	-	-	-	-	-	-
35	0.82	1.10	1.37	1.65	2.20	2.75	-	-	-	-	-	-
40	0.94	1.26	1.57	1.88	2.51	3.14	-	-	-	-	-	-
45	-	1.41	1.77	2.12	2.83	3.53	4.24	5.30	-	-	-	-
50	-	1.57	1.96	2.35	3.14	3.92	4.71	5.89	-	-	-	-
55	-	1.73	2.16	2.59	3.45	4.32	5.18	6.48	-	-	-	-
60	-	1.88	2.35	2.83	3.77	4.71	5.65	7.06	-	-	-	-
65	-	-	2.55	3.06	4.08	5.10	6.12	7.65	10.20	-	-	-
70	-	-	2.75	3.30	4.40	5.49	6.59	8.24	10.99	-	-	-
80	-	-	3.14	3.77	5.02	6.28	7.54	9.42	12.56	-	-	-
90	-	-	-	4.24	5.65	7.06	8.48	10.60	14.13	17.66	-	-
100	-	-	-	4.71	6.28	7.85	9.42	11.77	15.70	19.62	-	-
120	-	-	-	-	7.54	9.42	11.30	14.13	18.84	23.55	28.26	-
150	-	-	-	-	9.42	11.77	14.13	17.66	23.55	29.44	35.32	-
200	-	-	-	-	-	15.70	18.84	23.55	31.40	39.25	47.10	62.80

128 sections from 10 × 3 to 200 × 40 mm. Section A (cm²) = mass (kg/ml) / 0.785. Developed surface (m²/ml) = 2 × (width + thickness) / 1 000, dimensions in mm. Other sections on request.

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

6 000 mm

FINISHES

Mill finish or pre-primed

SECTION STANDARD

EN 10058

MERCHANT BARS

Square and round bars

Hot-rolled solid bars of square or round section: pins, rods, ironwork and welded fabrications. Steel grade S275JR, standard length 12 000 mm.



SQUARE BARS



ROUND BARS

SQUARE BARS · EN 10059 kg/m · A in cm²

A × A	KG/ML	A
8 × 8	0.50	0.64
10 × 10	0.78	1.00
12 × 12	1.13	1.44
14 × 14	1.54	1.96
15 × 15	1.77	2.25
16 × 16	2.01	2.56
18 × 18	2.54	3.24
20 × 20	3.14	4.00
22 × 22	3.80	4.84
25 × 25	4.91	6.25
30 × 30	7.06	9.00
35 × 35	9.62	12.25
40 × 40	12.56	16.00
45 × 45	15.90	20.25
50 × 50	19.62	25.00
60 × 60	28.26	36.00
80 × 80	50.24	64.00

ROUND BARS · EN 10060 kg/m · A in cm²

Ø	KG/ML	A	Ø	KG/ML	A
Ø 6	0.22	0.28	Ø 26	4.17	5.31
Ø 7	0.30	0.38	Ø 28	4.83	6.16
Ø 8	0.39	0.50	Ø 30	5.55	7.07
Ø 9	0.50	0.64	Ø 32	6.31	8.04
Ø 10	0.62	0.79	Ø 34	7.13	9.08
Ø 11	0.75	0.95	Ø 35	7.55	9.62
Ø 12	0.89	1.13	Ø 36	7.99	10.18
Ø 13	1.04	1.33	Ø 38	8.90	11.34
Ø 14	1.21	1.54	Ø 40	9.86	12.57
Ø 15	1.39	1.77	Ø 42	10.88	13.85
Ø 16	1.58	2.01	Ø 45	12.48	15.90
Ø 18	2.00	2.54	Ø 50	15.41	19.63
Ø 20	2.47	3.14	Ø 55	18.65	23.76
Ø 22	2.98	3.80	Ø 58	20.74	26.42
Ø 24	3.55	4.52	Ø 60	22.20	28.27
Ø 25	3.85	4.91			

STANDARD STEEL GRADE

S275JR

STANDARD LENGTH

12 000 mm

FINISHES

Mill finish or pre-primed

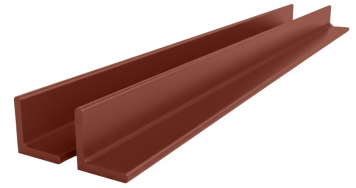
SECTION STANDARD

EN 10059 · EN 10060

EQUAL-LEG ANGLES

Equal-leg angles

Light structures, frames, bracing and welded fabrications: the angle offers excellent mechanical strength for minimal footprint, from 20 to 150 mm leg. Twenty-five stock references, several thicknesses per section.



SECTION PROPERTIES EN 10056-1 · mm · kg/m · A in cm² · e in cm · I in cm⁴ · i in cm

DESIGNATION L a × a × t	KG/ML	A	E	IY = IZ	IV	IV	STEEL GRADE · LENGTH
L 20 × 20 × 2	0.61	0.77	0.56	0.28	0.12	0.39	S235JR · 6 m
L 20 × 20 × 3	0.88	1.12	0.60	0.39	0.17	0.38	S235JR · 6 m
L 25 × 25 × 2	0.76	0.97	0.68	0.56	0.23	0.49	S235JR · 6 m
L 25 × 25 × 3	1.12	1.43	0.72	0.80	0.33	0.48	S235JR · 6 m
L 30 × 30 × 2	0.93	1.19	0.78	0.97	0.41	0.59	S235JR · 6 m
L 30 × 30 × 3	1.36	1.73	0.84	1.40	0.59	0.58	S235JR · 6 m
L 35 × 35 × 3	1.60	2.04	0.96	2.29	0.95	0.68	S235JR · 6 m
L 40 × 40 × 3	1.84	2.35	1.07	3.45	1.44	0.78	S235JR · 6 m
L 40 × 40 × 4	2.42	3.08	1.12	4.47	1.86	0.78	S235JR · 6 m
L 45 × 45 × 3	2.09	2.66	1.18	4.93	2.07	0.88	S235JR · 6 m
L 45 × 45 × 4	2.74	3.49	1.23	6.43	2.68	0.88	S235JR · 6 m
L 50 × 50 × 3	2.33	2.96	1.31	6.86	2.88	0.99	S235JR · 6 m
L 50 × 50 × 4	3.06	3.89	1.36	8.97	3.73	0.98	S235JR · 6 m
L 50 × 50 × 5	3.77	4.80	1.40	11.0	4.55	0.97	S275JR · 6 or 12 m
L 60 × 60 × 4	3.70	4.71	1.60	15.8	6.58	1.18	S275JR · 12 m
L 60 × 60 × 5	4.57	5.82	1.64	19.4	8.03	1.17	S275JR · 12 m
L 60 × 60 × 6	5.42	6.90	1.69	22.8	9.44	1.17	S275JR · 12 m
L 70 × 70 × 5	5.37	6.84	1.88	31.2	13.0	1.38	S275JR · 12 m
L 70 × 70 × 6	6.38	8.13	1.93	36.9	15.3	1.37	S275JR · 12 m
L 70 × 70 × 7	7.38	9.40	1.97	42.3	17.5	1.36	S275JR · 12 m
L 80 × 80 × 8	9.63	12.27	2.26	72.2	29.8	1.56	S275JR · 12 m
L 90 × 90 × 9	12.20	15.54	2.54	116	47.9	1.76	S275JR · 12 m
L 100 × 100 × 10	15.00	19.11	2.82	177	72.9	1.95	S275JR · 12 m
L 120 × 120 × 12	21.60	27.52	3.40	368	152	2.35	S275JR · 12 m
L 150 × 150 × 15	33.80	43.06	4.25	898	370	2.93	S275JR · 12 m

S235JR in 6 m below L 50 × 50 × 5, S275JR from L 50 × 50 × 5 (in 6 or 12 m), then in 12 m. e: centre of gravity to back of leg; Iv, iv: weak axis at 45°. outside EN 10056-1. Thickness 2 mm: mill finish only (shot blasting and primer from 3 mm).

STEEL GRADES

S235JR · S275JR

LENGTHS

6 m · 12 m

FINISHES

Mill finish or pre-primed

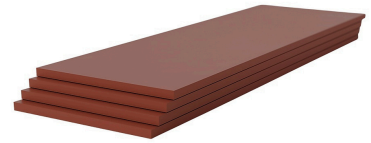
STANDARD

EN 10056-1

HEAVY PLATES · 3 TO 50 MM

Hot-rolled plates

An essential element of any steel structure, hot-rolled plate combines mechanical strength, dimensional stability and durability. Thicknesses from 3 to 50 mm, in seven stock formats.



Shot-blasted Sa 2½ finish: better coating adhesion · 20 µm weldable primer: immediate protection · steel grades certified EN 10025 and EN 10028.

STOCK SIZES · AVAILABILITY BY THICKNESS sizes in mm

THICKNESS	1 000 × 2 000	1 250 × 2 500	1 500 × 3 000	1 500 × 6 000	2 000 × 6 000	2 000 × 12 000	2 500 × 6 000
3 mm	●	●	●	●	–	–	–
4 mm	●	●	●	●	–	–	–
5 mm	●	●	●	●	–	–	–
6 mm	●	●	●	●	●	●	●
8 mm	●	●	●	●	●	●	●
10 mm	●	●	●	●	●	●	●
12 mm	●	●	●	●	●	●	●
15 mm	–	–	●	●	●	●	●
20 mm	–	–	●	●	●	●	●
25 mm	–	–	●	●	●	●	●
30 mm	–	–	●	●	●	●	●
40 mm	–	–	●	●	●	●	●
50 mm	–	–	●	●	●	–	–

1 000 × 2 000 and 1 250 × 2 500 from 3 to 12 mm; 1 500 × 3 000 and 1 500 × 6 000 from 3 to 50 mm; 2 000 × 6 000 from 6 to 50 mm; 2 000 × 12 000 and 2 500 × 6 000 from 6 to 40 mm. Any other size cut to order.

Available mill finish, or shot-blasted and pre-primed according to site requirements. Availability confirmed in the quotation.

CONSTRUCTION

S235JR · S275JR ·
S355JR

PRESSURE EQUIPMENT

P265GH · P275GH
· P355GH

FINISHES

Mill finish or pre-
primed

DENSITY

7.85 kg/dm³

PATTERNED PLATES · 3/5 TO 6/8

Tear plates

Pattern rolled into the body of the plate, not applied or bonded: it does not wear or peel off. Teardrop pattern, four designations available in the four stock formats, in S235JR.



Slip resistance provided by the pattern itself, with no added treatment · steel grade certified to EN 10025 · dimensional and shape tolerances to EN 10363 for continuously rolled patterned plates (cut from wide strip).

STOCK SIZES · AVAILABILITY BY DESIGNATION sizes in mm

DESIGNATION	KG/M ²	1 000 × 2 000	1 250 × 2 500	1 500 × 3 000	1 500 × 6 000
3/5	26	●	●	●	●
4/6	34	●	●	●	●
5/7	42	●	●	●	●
6/8	49	●	●	●	●

The designation gives the web thickness then the height including the raised pattern: 5/7 means a 5 mm web for 7 mm overall.

STEEL GRADE

S235JR

STANDARDS

EN 10025 · EN 10363

FINISHES

Mill finish or pre-primed

DENSITY

7.85 kg/dm³

PATTERNED PLATES · 3/5 TO 6/8

Chequer plates

Pattern rolled into the body of the plate, not applied or bonded: it does not wear or peel off. Chequer pattern, four designations available in the four stock formats, in S235JR.



Slip resistance provided by the pattern itself, with no added treatment · steel grade certified to EN 10025 · dimensional and shape tolerances to EN 10363 for continuously rolled patterned plates (cut from wide strip).

STOCK SIZES · AVAILABILITY BY DESIGNATION sizes in mm

DESIGNATION	KG/M ²	1 000 × 2 000	1 250 × 2 500	1 500 × 3 000	1 500 × 6 000
3/5	28	●	●	●	●
4/6	36	●	●	●	●
5/7	44	●	●	●	●
6/8	51	●	●	●	●

The designation gives the web thickness then the height including the raised pattern: 5/7 means a 5 mm web for 7 mm overall.

STEEL GRADE

S235JR

STANDARDS

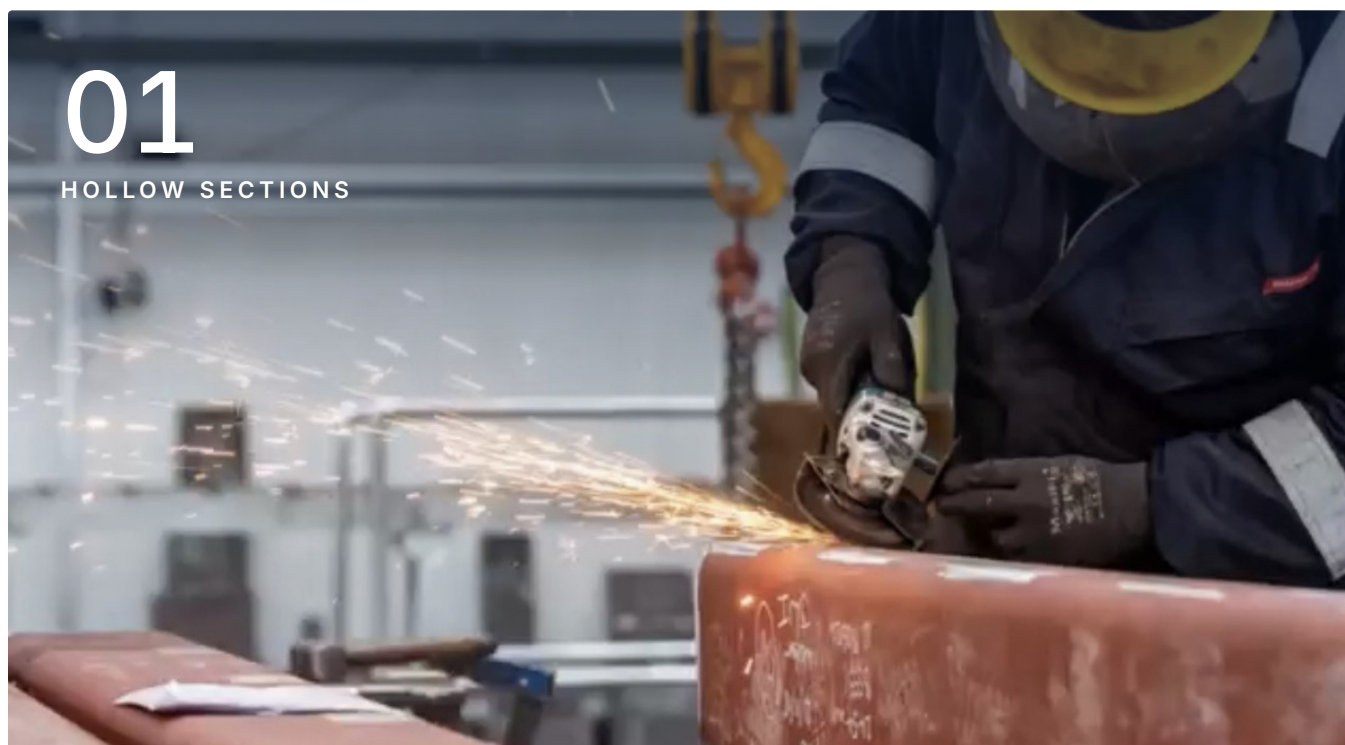
EN 10025 · EN 10363

FINISHES

Mill finish or pre-primed

DENSITY

7.85 kg/dm³



01

HOLLOW SECTIONS

STRUCTURAL HOLLOW SECTIONS

Round, square and rectangular tubes.

Structural hollow sections in S235JRH or S275J0H. The choice depends on how the load is applied: centred, along one axis, or distributed. Standard length 6 000 mm, or cut to length; thickness from 1.5 to 12 mm depending on the section.

ROUND TUBES

36 diameters

From Ø 16 to Ø 219, thickness from 1.5 to 6 mm.

SQUARE TUBES

23 sizes

From 16 × 16 to 250 × 250, thickness from 1.5 to 12 mm.

RECTANGULAR TUBES

19 sections

From 30 × 20 to 150 × 100, thickness from 1.5 to 6 mm.

IN THIS PART

Round tubes	21
Round tubes (cont.)	22
Square tubes	23
Rectangular tubes	24
Tube selection guide	25
Guide & ordering	26

SPECIFICATIONS

Cold-formed welded hollow sections to EN 10219; steel grade S235JRH as standard, S275J0H on request.

Mill finish, or shot-blasted Sa 2½ and pre-primed with a 20 µm weldable primer from 3 mm thickness.

CIRCULAR HOLLOW SECTIONS

Round tubes

The circular hollow section, used for greenhouses, guardrails and tubular structures. Thirty-six diameters from Ø 16 to Ø 219, in standard 6 000 mm lengths or cut to length, with thickness from 1.5 to 6 mm depending on the section.



Cold-formed and longitudinally welded by high-frequency induction · external weld bead trimmed · steel grade certified EN 10219-1.

MASS PER METRE IN KG/M wall thickness t in mm · EN 10219

SECTION Ø	1.5	2	2.5	3	3.5	4	5	6
Ø 16	0.54	0.69	-	-	-	-	-	-
Ø 20	0.68	0.89	1.08	-	-	-	-	-
Ø 21.3	0.73	0.95	1.16	-	-	-	-	-
Ø 22	0.76	0.99	-	-	-	-	-	-
Ø 25	0.87	1.13	1.39	1.63	-	-	-	-
Ø 26.9	0.94	1.23	1.50	1.77	-	-	-	-
Ø 28	0.98	1.28	-	-	-	-	-	-
Ø 30	1.05	1.38	1.70	2.00	2.29	2.56	-	-
Ø 32	1.13	1.48	1.82	2.15	2.46	2.76	-	-
Ø 33	1.17	1.53	1.88	2.22	-	-	-	-
Ø 33.7	1.19	1.56	1.92	2.27	2.61	2.93	-	-
Ø 35	1.24	1.63	2.00	2.37	2.72	3.06	-	-
Ø 38	1.35	1.78	2.19	2.59	2.98	3.35	-	-
Ø 40	1.42	1.87	2.31	2.74	-	-	-	-
Ø 42	1.50	1.97	2.44	2.89	-	-	-	-
Ø 42.4	1.51	1.99	2.46	2.91	3.36	3.79	-	-
Ø 45	1.61	2.12	2.62	3.11	-	-	-	-
Ø 48	1.72	2.27	2.81	3.33	-	-	-	-

Empty combinations are not manufactured. Further diameters on page 22.

Finishes. Mill finish in all thicknesses; shot-blasted Sa 2½ and pre-primed (20 µm weldable primer) from 3 mm.

STANDARD STEEL GRADE
S235JRH

STANDARD
EN 10219

STANDARD LENGTH
6 000 mm
or any required length

FINISHES
Mill finish or pre-primed
pre-primed from 3 mm

CIRCULAR HOLLOW SECTIONS

Round tubes (continued)

Large diameters, from Ø 48.3 to Ø 219, for the longest spans and heaviest loads.

Cold-formed and longitudinally welded by high-frequency induction · external weld bead trimmed · steel grade certified EN 10219-1.



MASS PER METRE IN KG/M wall thickness t in mm · EN 10219

SECTION Ø	1.5	2	2.5	3	3.5	4	5	6
Ø 48.3	1.73	2.28	2.82	3.35	3.87	4.37	-	-
Ø 50	1.79	2.37	2.93	3.48	-	-	-	-
Ø 50.3	1.81	2.38	2.95	3.50	4.04	4.57	-	-
Ø 60	2.16	2.86	3.55	4.22	-	-	-	-
Ø 60.3	2.18	2.88	3.56	4.24	4.90	5.55	6.82	8.03
Ø 63.5	2.29	3.03	3.76	4.48	5.18	5.87	7.21	8.51
Ø 70	2.53	3.35	4.16	4.96	5.74	6.51	8.01	9.47
Ø 76	2.76	3.65	4.53	5.40	-	-	-	-
Ø 76.1	2.76	3.65	4.54	5.41	6.27	7.11	8.77	10.37
Ø 88.9	3.23	4.29	5.33	6.36	7.37	8.38	10.35	12.27
Ø 101.6	3.70	4.91	6.11	7.29	8.47	9.63	11.91	14.15
Ø 114.3	-	5.54	6.89	8.23	9.56	10.88	13.48	16.03
Ø 127	-	6.17	7.68	9.17	10.66	12.13	15.04	17.90
Ø 133	-	6.46	8.05	9.62	11.18	12.73	15.78	18.79
Ø 139.7	-	6.79	8.46	10.11	11.76	13.39	16.61	19.78
Ø 159	-	7.74	9.65	11.54	13.42	15.29	18.99	22.64
Ø 168.3	-	-	10.22	12.23	14.22	16.21	20.14	24.02
Ø 219	-	-	13.35	15.98	18.60	21.21	26.39	31.52

Empty combinations are not manufactured. Other diameter or thickness: on request.

Finishes. Mill finish in all thicknesses; shot-blasted Sa 2½ and pre-primed (20 µm weldable primer) from 3 mm.

STANDARD STEEL GRADE
S235JRH

STANDARD
EN 10219

STANDARD LENGTH
6 000 mm
or any required length

FINISHES
Mill finish or pre-primed
pre-primed from 3 mm

SQUARE HOLLOW SECTIONS

Square tubes

Twenty-three sizes, from 16 × 16 to 250 × 250. The square section resists bending about both axes, making it the profile for columns and secondary framing. Heavy thicknesses, up to 12 mm, start at 150 × 150.



External corner radius to EN 10219-2: 1.6 to 2.4 t up to 6 mm, 2.0 to 3.0 t from 6 to 10 mm, 2.4 to 3.6 t above · squareness 90° ± 1° · steel grade certified EN 10219-1.

MASS PER METRE IN KG/M wall thickness t in mm · EN 10219

SECTION b × b	1.5	2	2.5	3	3.5	4	5	6	8	10	12
16 × 16	0.64	0.80	-	-	-	-	-	-	-	-	-
20 × 20	0.83	1.05	-	-	-	-	-	-	-	-	-
25 × 25	1.06	1.36	1.64	1.89	-	-	-	-	-	-	-
30 × 30	1.30	1.68	2.03	2.36	2.66	2.94	-	-	-	-	-
35 × 35	1.53	1.99	2.42	2.83	3.21	3.57	-	-	-	-	-
40 × 40	1.77	2.31	2.82	3.30	3.76	4.20	-	-	-	-	-
45 × 45	2.00	2.62	3.21	3.77	4.31	4.83	-	-	-	-	-
50 × 50	2.24	2.93	3.60	4.25	4.86	5.45	-	-	-	-	-
60 × 60	2.71	3.56	4.39	5.19	5.96	6.71	8.13	9.45	-	-	-
70 × 70	3.18	4.19	5.17	6.13	7.06	7.97	9.70	11.33	-	-	-
80 × 80	3.65	4.82	5.96	7.07	8.16	9.22	11.27	13.21	16.36	-	-
90 × 90	4.12	5.45	6.74	8.01	9.26	10.48	12.84	15.10	-	-	-
100 × 100	-	6.07	7.53	8.96	10.36	11.73	14.41	16.98	21.39	25.56	-
120 × 120	-	-	9.10	10.84	12.56	14.25	17.55	20.75	26.41	31.84	-
130 × 130	-	-	9.88	11.78	13.65	15.50	19.12	22.63	-	-	-
140 × 140	-	-	-	-	-	16.76	20.69	24.52	31.43	38.12	-
150 × 150	-	-	-	13.67	15.85	18.01	22.26	26.40	33.95	41.26	47.15
160 × 160	-	-	-	-	-	-	23.83	28.29	36.46	44.40	-
180 × 180	-	-	-	-	-	-	26.97	32.05	41.48	50.68	-
200 × 200	-	-	-	-	-	-	30.11	35.82	46.51	56.96	65.99
220 × 220	-	-	-	-	-	-	33.25	39.59	51.53	-	-
230 × 230	-	-	-	-	-	-	-	-	54.04	-	-
250 × 250	-	-	-	-	-	-	-	45.24	59.07	72.66	-

Empty combinations are not manufactured. Other size or thickness: on request.

Finishes. Mill finish in all thicknesses; shot-blasted Sa 2½ and pre-primed (20 µm weldable primer) from 3 mm.

STANDARD STEEL GRADE

S235JRH

STANDARD

EN 10219

STANDARD LENGTH

6 000 mm

or any required length

FINISHES

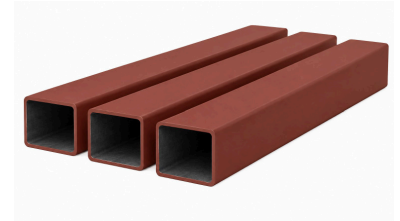
Mill finish or pre-primed

pre-primed from 3 mm

RECTANGULAR HOLLOW SECTIONS

Rectangular tubes

Nineteen sections, from 30 × 20 to 150 × 100. The rectangle carries in the direction of its larger dimension: it is the profile for light purlins, trimmers and cladding frames.



Cold-formed from hot-rolled strip · shape and dimensional tolerances EN 10219-2 · steel grade certified EN 10219-1.

MASS PER METRE IN KG/M wall thickness t in mm · EN 10219

SECTION h × b	1.5	2	2.5	3	3.5	4	5	6
30 × 20	1.06	1.36	1.64	1.89	-	-	-	-
35 × 20	1.18	1.52	1.84	-	-	-	-	-
40 × 20	1.30	1.68	2.03	2.36	-	-	-	-
40 × 27	1.46	1.90	2.31	2.69	-	-	-	-
40 × 30	1.53	1.99	-	-	-	-	-	-
50 × 30	1.77	2.31	2.82	3.30	-	-	-	-
60 × 30	2.00	2.62	3.21	3.77	-	-	-	-
60 × 40	2.24	2.93	3.60	4.25	4.86	5.45	-	-
70 × 40	2.47	3.25	3.99	4.72	5.41	6.08	-	-
80 × 40	2.71	3.56	4.39	5.19	5.96	6.71	8.13	-
80 × 60	-	4.19	5.17	6.13	-	-	-	-
100 × 40	-	-	5.17	6.13	7.06	7.97	9.70	11.33
100 × 50	-	-	5.56	6.60	7.61	8.59	10.48	12.27
100 × 60	-	-	5.96	7.07	8.16	9.22	11.27	13.21
100 × 80	-	-	6.74	8.01	9.26	10.48	12.84	15.10
120 × 50	-	-	-	7.54	8.71	9.85	12.05	14.16
120 × 80	-	-	7.53	8.96	10.36	11.73	14.41	16.98
120 × 100	-	-	8.31	9.90	11.46	12.99	15.98	18.87
150 × 100	-	-	9.49	11.31	13.11	14.87	18.33	21.69

Empty combinations are not manufactured. Other section or thickness: on request.

Finishes. Mill finish in all thicknesses; shot-blasted Sa 2½ and pre-primed (20 µm weldable primer) from 3 mm.

STANDARD STEEL GRADE
S235JRH

STANDARD
EN 10219

STANDARD LENGTH
6 000 mm
or any required length

FINISHES
Mill finish or pre-primed
pre-primed from 3 mm

TUBES · SELECTION GUIDE

Which hollow section?

Three families, one steel, one standard. The choice depends on how the load is applied and what the section has to resist: centred compression, bending about one axis, or bending about both.

CHOOSING BETWEEN ROUND, SQUARE AND RECTANGULAR

FAMILY	WHAT IT HANDLES BEST	TYPICAL USES	RANGE	PAGES
Round tube	Axial compression and torsion	Greenhouses, guardrails, tubular structures	36 diameters	21 · 22
Square tube	Biaxial bending	Columns, secondary framing	23 sizes	23
Rectangular tube	Major-axis bending	Light purlins, trimmers, cladding	19 sections	24

INSTALLATION GUIDELINES

POINT	WHAT YOU NEED TO KNOW
Steel grade	S235JRH as standard; S275J0H on request when the structure requires it
Length	6 000 mm as standard; tubes available in any required length
Thicknesses	From 1.5 to 6 mm in round and rectangular, from 1.5 to 12 mm in square
Angles	External radius to EN 10219-2: 1.6 to 2.4 times the thickness t up to 6 mm, 2.0 to 3.0 t from 6 to 10 mm, 2.4 to 3.6 t above
Assembly	The closed hollow section is welded at the end or onto a plate; allow for access
Finishes	Mill finish, or shot-blasted Sa 2½ and pre-primed with 20 µm weldable primer from 3 mm; below that, mill finish only
Outside range	Other section or thickness: on request

The masses in the tables on pages 21 to 24 are calculated on the mean wall perimeter, for a density of 7.85 kg/dm³. For square and rectangular tubes, they allow for rounded corners according to EN 10219-2 (external radius 2 t up to 6 mm, 2.5 t up to 10 mm, 3 t above). They are used for the project steel take-off.

Ordering a tube

State family, section, thickness, length, finish and quantity. Example: square tube 100 × 100 × 4 × 6 000 · shot-blasted pre-primed · 30 pcs.

STANDARD STEEL GRADE
S235JRH

STANDARD
EN 10219

STANDARD LENGTH
6 000 mm
or any required length

FINISHES
Mill finish or pre-primed
pre-primed from 3 mm

DECISION AID

Guide & ordering

The right profile for each structural function, welded beam (WB) capacities and how to write an order.

CHOOSING THE FAMILY

PROJECT REQUIREMENT	SOLUTION	REFERENCE	STANDARD LENGTH
Main structure, portal frames	IPE · HEA · HEB	S275JR · EN 10365	12 100 mm
Beams, lintels, cross members	UPN · IPN	S275JR · 80 to 400	12 000 mm
Long spans and crane runways	Custom welded beams (WB)	S355JR · web 2 500	up to 15 m in one piece
Plates, flanges, gussets	Flat bars · plates	EN 10058 / EN 10025	6 000 mm · plate sizes
Bracing, frames	Angles	EN 10056-1	6 m < L 50 × 50 × 5 · 6 or 12 m from L 50 × 50 × 5
Pins, rods, ironwork	Round bars · square bars	EN 10059 / EN 10060	12 000 mm
Light columns, framing, guardrails	Round · square · rectangular tubes	S235JRH · EN 10219	6 000 mm or cut to length

All families can be supplied mill finish, or shot-blasted Sa 2½ and pre-primed with a 20 µm weldable primer from 3 mm thickness. Angles: S235JR below L 50 × 50 × 5, S275JR from L 50 × 50 × 5.

WB · FABRICATION CAPABILITIES

PROPERTY	CAPACITY
Steel grade	S355JR standard, S275JR optional
Web depth	up to 2 500 mm
Flange width	up to 1 250 mm
Thickness	up to 50 mm
Length	up to 15 m in a single piece
Camber	100 mm maximum
Designation	WB $h_{web} \times t_w - t_f \times b_f$

Example: WB 500×6 - 10×200 = web 500 × 6 mm, flanges 10 × 200 mm. "WB" designates the family.

SERVICES AND DOCUMENTS

SERVICE OR DOCUMENT	AVAILABILITY
Standard stock · rolled sections, tubes and plates	confirmed in the offer
Rolled sections in standard-length bars	supplied uncut
Shot blasting Sa 2½ + 20 µm primer, from 3 mm	depending on finish and workshop load
Custom welded beams · fabrication, drilling, plates	on request
EN 10204 type 3.1 material certificate	according to order requirements
Eurocode 3 calculation note · steelwork and WB	on request

Order format

[Section] × [Length mm] · [Finish] · [Quantity]. Welded beams are ordered by number of pieces and length.

Examples: IPE 300 × 12 100 · shot-blasted pre-primed · 46 pcs · UPN 200 × 12 000 · mill finish · 20 pcs · plate 10 × 2 000 × 6 000 · shot-blasted pre-primed · 12 pcs · WB 500×6 - 10×200 × 12 000 · shot-blasted pre-primed · 8 pcs.



Purlins

C+ and Z.

Cold-formed galvanised S350GD+Z200 sections, heights from 140 to 300 mm, spans up to 12 m. Matching cleats and sag rods.

Z 140 to 300

90° lips, unequal flanges, continuity by overlap.

C+ 150 to 300

45° stiffening lips, single-span installation.

2.00 · 2.50 · 3.00

Thicknesses in mm, any cut length.

Z200

Galvanised S350GD+Z200 steel, EN 10346.

IN THIS SECTION

Two geometries, C+ and Z	28
Z purlins	29
C+ purlins	30
Z load table, single span	31
Z load table, continuous spans	32

C+ load table	33
Cleats	34
Sag rods	35
Installation guide	36

THE RANGE

Z purlins - roofs, continuous spans with overlap at supports.

C+ purlins - girts, cladding, secondary framing, single span.

Omega purlins and 300, on request.

Accessories - cleats and sag rods, supplied with the purlins.

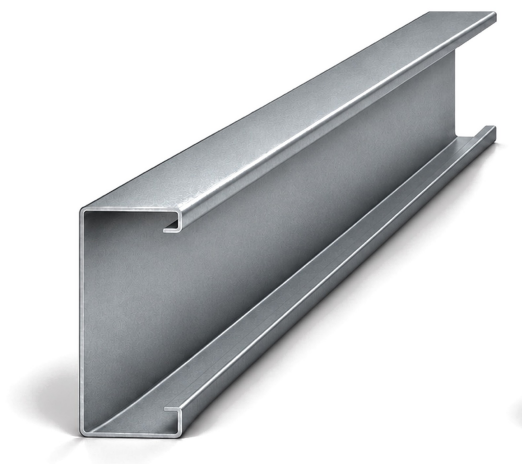
COLD ROLL FORMING · EN 10346

What separates C+ from Z

Same steel, same galvanising, same production line: what separates the two profiles is the section geometry and the span it allows.

C+ purlins

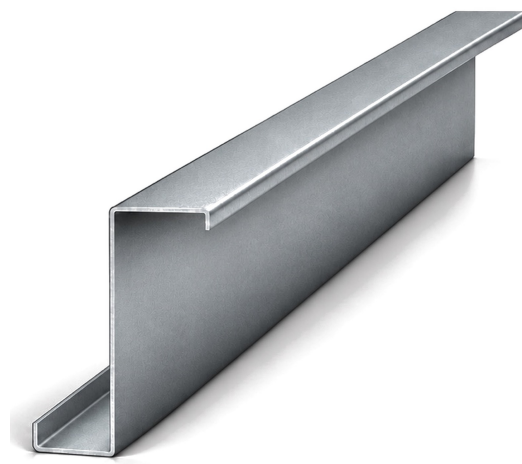
Purlins · girts · cladding supports · secondary framing



Heights	150 to 300 mm
Thicknesses	2.00 · 2.50 · 3.00 mm
Façade span	5 to 12 m
Geometry	45° stiffening lips
Installation	single span (isostatic)

Z purlins

Roofs · continuous spans by overlap



Heights	140 to 300 mm
Thicknesses	2.00 · 2.50 · 3.00 mm
Roof span	up to 12 m
Geometry	90° lips, unequal flanges
Continuity	overlap at supports

Z overlap at supports: 10 % of the span up to 9 m, 15 % above. The C+ is not installed in continuity. **Omega purlin**, completing the range: in 1.50 and 2.00 mm, in 2.00 and 2.50 mm, in 2.50 and 3.00 mm; properties on request.

FLEXIBILITY

Column spacing freely adjustable:
6 · 7.5 · 9 · 12 m.

ECONOMY

Lower overall weight and cost of
the structure.

QUICK INSTALLATION

Workshop pre-drilling to your
drawings, regular geometry.

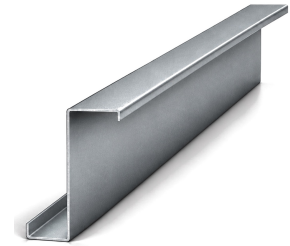
DURABILITY

Z200 galvanising, no welding on
coating. Protection life depends
on the environment, the
corrosivity category (ISO 9223 /
ISO 12944) and the intended
service life.

Z RANGE · OPTIMISED SPANS

Z purlins

Thanks to their Z shape, with unequal flanges and 90° lips, the profiles overlap at supports to create continuous spans: optimised overall stiffness, reduced structural weight. Depths from 140 to 300 mm, spans up to 12 m. Holes punched in the workshop to your drawings.



Overlap at supports: 10 % of the span up to 9 m, 15 % above.

SECTION PROPERTIES S350GD+Z200 · dimensions in mm · kg/m · A in cm² · Iy in cm⁴ · Wy and Weff in cm³ · developed width in mm

SECTION	KG/ML	H	B1	B2	C	T	A	IY	WY	WEFF	DÉV.
Z140 × 2.00	4.39	140	62	56	20	2.00	5.59	198	23	24.4	280
Z140 × 2.50	5.48	140	62	56	21	2.50	6.98	245	29	31.0	280
Z180 × 2.00	5.18	180	68	60	20	2.00	6.59	355	34	35.0	330
Z180 × 2.50	6.47	180	68	60	22	2.50	8.24	440	42	45.1	330
Z200 × 2.00	5.65	200	73	65	20	2.00	7.19	472	41	40.5	360
Z200 × 2.50	7.06	200	73	65	22	2.50	8.99	586	51	53.6	360
Z200 × 3.00	8.47	200	73	65	22	3.00	10.79	701	61	64.7	360
Z230 × 2.00	6.43	230	80	72	23	2.00	8.19	703	53	48.0	410
Z230 × 2.50	8.04	230	80	72	25	2.50	10.24	873	67	69.0	410
Z230 × 3.00	9.65	230	80	72	25	3.00	12.29	1044	80	83.6	410
Z250 × 2.00	6.75	250	80	72	23	2.00	8.59	873	60	52.0	430
Z250 × 2.50	8.43	250	80	72	25	2.50	10.74	1046	75	76.1	430
Z250 × 3.00	10.12	250	80	72	25	3.00	12.89	1252	89	93.5	430
Z300 × 2.00	7.53	300	80	72	23	2.00	9.59	1268	78	62.0	480
Z300 × 2.50	9.42	300	80	72	25	2.50	11.99	1577	97	90.8	480
Z300 × 3.00	11.30	300	80	72	25	3.00	14.39	1889	116	118.4	480

Weff: effective section modulus to EN 1993-1-3 (local buckling of the walls and distortional buckling of the stiffened compression flange), $f_y = 350$ MPa, smaller value of the two bending directions, Atlas Steel calculation on the sharp-cornered centreline. Socotec SOMAC approval 26/031/ME, ref. 260317. Galvanised steel EN 10346 grade S350GD+Z200, free cut length. Applications: industrial and logistics roofs, cladding, long-span buildings.

STEEL GRADE
S350GD+Z200

FINISH
Z200 galvanised

LENGTH
Free cut

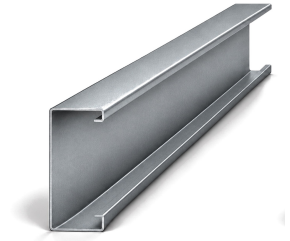
STANDARD
EN 10346

C+ RANGE · VERSATILITY

C+ purlins

Purlins, girts, cladding supports or secondary framing members: the C+ section, with 45° stiffening lips, combines rigidity, lightness and ease of assembly. Its open geometry simplifies on-site erection.

The C+ is installed on single span (statically determinate) only.



SECTION PROPERTIES S350GD+Z200 · dimensions in mm · kg/m · A in cm² · I_y in cm⁴ · W_y and W_{eff} in cm³ · developed width in mm

SECTION	KG/ML	H	B	C	T	A	I _Y	W _Y	W _{EFF}	DÉV.
C+150 × 2.00	5.65	150	80	25	2.00	7.19	260	35	29.4	360
C+150 × 2.50	7.06	150	80	25	2.50	8.99	322	43	40.0	360
C+150 × 3.00	8.47	150	80	25	3.00	10.79	383	51	48.7	360
C+200 × 2.00	6.43	200	80	25	2.00	8.19	509	51	41.4	410
C+200 × 2.50	8.04	200	80	25	2.50	10.24	632	63	57.6	410
C+200 × 3.00	9.65	200	80	25	3.00	12.29	753	75	70.2	410
C+220 × 2.00	6.75	220	80	25	2.00	8.59	636	58	45.3	430
C+220 × 2.50	8.44	220	80	25	2.50	10.74	790	72	65.1	430
C+220 × 3.00	10.12	220	80	25	3.00	12.89	943	86	79.4	430
C+250 × 2.00	7.22	250	80	25	2.00	9.20	860	69	51.1	460
C+250 × 2.50	9.02	250	80	25	2.50	11.49	1069	86	75.7	460
C+250 × 3.00	10.83	250	80	25	3.00	13.79	1277	102	93.9	460
C+300 × 2.00	7.69	300	80	25	2.00	9.79	1237	82	60.6	490
C+300 × 2.50	9.61	300	80	25	2.50	12.24	1540	103	89.9	490
C+300 × 3.00	11.54	300	80	25	3.00	14.69	1841	123	118.3	490

W_{eff}: effective section modulus to EN 1993-1-3 (local buckling of the walls and distortional buckling of the stiffened compression flange), f_y = 350 MPa, smaller value of the two bending directions, Atlas Steel calculation on the sharp-cornered centreline. Socotec SOMAC approval 26/031/ME, ref. 260317. Galvanised steel EN 10346 grade S350GD+Z200, heights 150 to 300 mm, free cut length. Applications: façades and cladding, secondary framing of industrial buildings, infill supports and girts.

STEEL GRADE
S350GD+Z200

FINISH
Z200 galvanised

INSTALLATION
Single span

STANDARD
EN 10346

PRESELECTION · SPACING 1.50 M

Z purlin load table single span

Cross-reference span and section: the cell gives the allowable uniformly distributed load, purlin spacing 1.50 m, purlin on single span (statically determinate). At short spans resistance may govern; as the span increases, deflection usually governs.

SINGLE SPAN · ALLOWABLE LOAD IN DAN/M² bay span in m

SECTION	5 M	6 M	7 M	8 M	9 M	10 M	11 M	12 M
Z140 × 2.00	80	-	-	-	-	-	-	-
Z140 × 2.50	100	60	-	-	-	-	-	-
Z180 × 2.00	150	80	50	-	-	-	-	-
Z180 × 2.50	180	100	60	-	-	-	-	-
Z200 × 2.00	200	110	70	-	-	-	-	-
Z200 × 2.50	250	140	90	60	-	-	-	-
Z200 × 3.00	300	170	100	70	50	-	-	-
Z230 × 2.00	250	170	110	70	50	-	-	-
Z230 × 2.50	350	210	130	90	60	-	-	-
Z230 × 3.00	420	250	160	100	70	-	-	-
Z250 × 2.00	270	190	130	90	60	-	-	-
Z250 × 2.50	400	260	160	100	70	50	-	-
Z250 × 3.00	470	310	190	130	90	60	50	-
Z300 × 2.00	330	220	160	120	90	60	50	-
Z300 × 2.50	480	330	240	160	110	80	60	-
Z300 × 3.00	610	420	290	190	130	100	70	50

Preselection under uniformly distributed load, to be confirmed by the EN 1993-1-3 calculation note. Resistance calculated with the effective modulus W_{eff} (EN 1993-1-3) and $f_y = 350$ MPa, loads factored by an overall coefficient of 1.4; deflection calculated with I_y under service load, limit $L/200$. Values rounded down to the nearest ten. Cells (-): less than 50 daN/m², outside the usual range of use - a dry roof already weighs 15 to 20 daN/m² before climatic load. Please contact us.

CRITERION USED

The lower of the two values: bending resistance and deflection limited to $L/200$.

OTHER SPACING

The allowable load varies inversely with spacing: multiply the value read by $1.50 / e$, e being the actual spacing in metres. At 2.00 m, 75 % of the table value remains; at 1.20 m, it rises by 25 %.

CONTINUOUS SPANS

Load table for continuous Z: page 32. The capacity gain varies with span, section, continuity conditions and the governing design criterion.

PRESELECTION · SPACING 1.50 M

Z purlin load table continuous spans

Sections made continuous by overlapping at supports (hyperstatic), at least three equal spans. Design moment $qL^2/10$ and deflection $qL/145 EI$. The capacity gain varies with span, section, continuity conditions and governing criterion: compare cell by cell with the single-span load table, page 31.

CONTINUOUS SPANS · ALLOWABLE LOAD IN DAN/M² bay span in m

SECTION	5 M	6 M	7 M	8 M	9 M	10 M	11 M	12 M
Z140 × 2.00	150	90	50	-	-	-	-	-
Z140 × 2.50	190	110	70	-	-	-	-	-
Z180 × 2.00	220	150	100	70	-	-	-	-
Z180 × 2.50	280	190	130	80	60	-	-	-
Z200 × 2.00	270	180	130	90	60	-	-	-
Z200 × 2.50	340	230	170	110	80	50	-	-
Z200 × 3.00	400	280	200	130	90	70	50	-
Z230 × 2.00	320	220	160	120	90	70	50	-
Z230 × 2.50	440	310	220	170	120	80	60	50
Z230 × 3.00	530	370	270	200	140	100	70	60
Z250 × 2.00	340	240	170	130	100	80	60	50
Z250 × 2.50	500	340	250	190	140	100	70	60
Z250 × 3.00	590	410	300	230	170	120	90	70
Z300 × 2.00	410	280	210	160	120	100	80	70
Z300 × 2.50	600	420	300	230	180	150	120	90
Z300 × 3.00	770	530	390	300	230	190	140	110

Preselection under uniformly distributed load, to be confirmed by the EN 1993-1-3 calculation note. Resistance calculated with the effective modulus W_{eff} (EN 1993-1-3) and $f_y = 350$ MPa, loads factored by an overall coefficient of 1.4; deflection calculated with I_y under service load, limit $L/200$. Values rounded down to the nearest ten. Cells (-): less than 50 daN/m², outside the usual range of use - a dry roof already weighs 15 to 20 daN/m² before climatic load. Please contact us.

CRITERION USED

The lower of the two values: bending resistance and deflection limited to $L/200$.

OTHER SPACING

The allowable load varies inversely with spacing: multiply the value read by $1.50 / e$, e being the actual spacing in metres. At 2.00 m, 75 % of the table value remains; at 1.20 m, it rises by 25 %.

OVERLAP

10 % of the span over the support up to 9 m span, 15 % beyond. Value confirmed by the calculation note.

PRESELECTION · SINGLE SPAN · SPACING 1.50 M

C+ purlin load table

Same reading for the C+ profile, on common façade and secondary framing spans. The C+ profile is not installed in continuity: it works on single span (statically determinate).

SINGLE SPAN · ALLOWABLE LOAD IN DAN/M² bay span in m

SECTION	5 M	6 M	7 M	8 M	9 M	10 M	11 M	12 M
C+150 × 2.00	110	60	-	-	-	-	-	-
C+150 × 2.50	130	80	50	-	-	-	-	-
C+150 × 3.00	160	90	60	-	-	-	-	-
C+200 × 2.00	210	120	70	50	-	-	-	-
C+200 × 2.50	270	150	90	60	-	-	-	-
C+200 × 3.00	320	180	110	70	-	-	-	-
C+220 × 2.00	240	150	90	60	-	-	-	-
C+220 × 2.50	330	190	120	80	50	-	-	-
C+220 × 3.00	400	230	140	90	60	-	-	-
C+250 × 2.00	270	180	130	90	60	-	-	-
C+250 × 2.50	400	260	160	110	70	50	-	-
C+250 × 3.00	500	310	200	130	90	60	-	-
C+300 × 2.00	320	220	160	120	90	60	-	-
C+300 × 2.50	470	330	240	160	110	80	60	-
C+300 × 3.00	630	430	280	190	130	90	70	50

Preselection under uniformly distributed load, to be confirmed by the EN 1993-1-3 calculation note. Resistance calculated with the effective modulus W_{eff} (EN 1993-1-3) and $f_y = 350$ MPa, loads factored by an overall coefficient of 1.4; deflection calculated with I_y under service load, limit $L/200$. Values rounded down to the nearest ten. Cells (-): less than 50 daN/m², outside the usual range of use - a dry roof already weighs 15 to 20 daN/m² before climatic load. Please contact us.

CRITERION USED

The lower of the two values: bending resistance and deflection limited to $L/200$.

OTHER SPACING

The allowable load varies inversely with spacing: multiply the value read by $1.50 / e$, e being the actual spacing in metres. At 2.00 m, 75 % of the table value remains; at 1.20 m, it rises by 25 %.

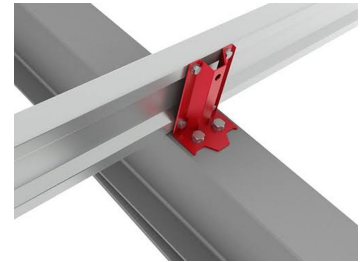
WIND

On façades the dominant load is wind: pressure and suction must be checked separately.

PURLIN / FRAME CONNECTION

Cleats

Connecting part between the purlin and the main frame, the cleat transfers loads to the structure and ensures the mechanical continuity of the framing. Its design preserves the integrity of the section: everything is bolted.


TRANSMISSION

Controlled loads on the structure.

INTEGRITY

No welding on galvanised coating.

BOLTED

Quick to install and demountable.

RANGE · SIX BOLTED TYPES

TYPE	SECTIONS	HEIGHT	THICKNESS	DRILLING	SPACING
Cleat A	C+150 · Z140	140 mm	8 mm	2 × Ø 14	80 mm
Cleat B	Z180	170 mm	8 mm	2 × Ø 14	80 mm
Cleat C	C+200 · Z200	190 mm	8 mm	2 × Ø 14	80 mm
Cleat D	C+220 · Z230	220 mm	10 mm	4 × Ø 18	70 mm
Cleat E	C+250 · Z250	240 mm	10 mm	4 × Ø 18	70 mm
Cleat F	C+300 · Z300	290 mm	10 mm	4 × Ø 18	70 mm

S275JR steel as standard, S355JR on request. **Hot-dip galvanising** by batch dipping, EN ISO 1461: the part is cut from plate and then galvanised, unlike the purlin, which is cold-formed from pre-galvanised strip. Holes coordinated with the project shop drawings.

OPERATING CLEARANCE

±10 mm between Z section and framing.

PURLIN INSTALLATION

On the roof slope, between gutter and ridge.

GIRT INSTALLATION

On façades, set back 10 mm from the column face.

Matched supply

Cleats are designed and supplied with the purlins, with holes coordinated with the project shop drawings.

STEEL GRADE

S275JR

OPTION

S355JR

FINISH

Hot-dip galvanised

STANDARD

EN ISO 1461

ANTI-TIPPING

Sag rods

The sag rod restrains the purlin laterally and limits its lateral-torsional buckling. It distributes loads between adjacent purlins and increases overall stiffness: in the main run or at the ridge, it is essential for long-span structures.


LATERAL STABILITY

During erection as in service.

LIMITED LATERAL-TORSIONAL BUCKLING

Restraint of the compression flange.

DISTRIBUTION

Loads between adjacent purlins.

SPECIFICATIONS · SAG ROD C+ AND Z 140 TO 300

ELEMENT	SPECIFICATION
Tube	Ø 33.7 × 2.00 mm, galvanised S350GD+Z200 steel · EN 10346
Fixing	M12 bolts with washers
Length	1 000 to 2 500 mm, depending on purlin spacing
Supply	Two brackets factory-fitted, one at each end
Assembly	Main run or ridge
Compatibility	C+ and Z purlins · h 140 to 300 mm

NUMBER OF ROWS PER SPAN length between sag rods 3 m

BAY SPAN	ROWS OF SAG RODS	SEGMENT	LAYOUT
up to 3 m	0	3.0 m	sag rods not required
3 to 6 m	1	3.0 m	at mid-span
6 to 9 m	2	3.0 m	at third points of the span
9 to 12 m	3	3.0 m	at quarter points of the span

Layout rule: the sag rod reduces the transverse span of the purlin, the one governing weak-axis bending and lateral-torsional buckling. A free length of no more than 3 m between two lines is used. The lines are tied together and anchored at the ridge, where they take the combined force from both roof slopes. Final number and section set by the EN 1993-1-3 calculation note according to slope, wind zone and snow load.

TUBE

Ø 33.7 × 2.00

STEEL GRADE

S350GD+Z200

LENGTH

1 to 2.5 m

BRACKETS

2 factory-fitted

DECISION AID

Installation guide

Three families of structures cover most projects. The Eurocode 3 design is then carried out by the technical department according to wind and snow zones.

PROFILE SELECTION direct reading of the load tables, purlin spacing 1.50 m

STRUCTURE TYPE	RECOMMENDED SECTIONS	SPAN	ALLOWABLE LOAD daN/m ²	READING THE LOAD TABLES
Industrial roofing	Z140 to Z250	6 to 9 m	147 to 177	Z250 × 3.00 continuous: 230 at 8 m, 170 at 9 m, 120 at 10 m (p. 32). Single span: 190 at 7 m, 130 at 8 m (p. 31).
Façade / cladding	C+150 to C+300	5 to 9 m	118 to 157	C+300 × 3.00 on single span: 190 at 8 m, 130 at 9 m, 90 at 10 m (p. 33).
Long spans	Z250 to Z300	10 to 12 m	50 to 190	Continuous: Z300 × 3.00 190 at 10 m, 140 at 11 m, 110 at 12 m; Z250 × 2.00 80, 60 and 50 (p. 32). Single span: 100 at most (p. 31).

Indicative allowable loads, read from the load tables on pages 31 to 33 for a spacing of 1.50 m (other spacing e: multiply by 1.50 / e). EN 1993-1-3 design is provided by the technical department according to wind and snow zones, EN 1991.

INSTALLATION METHOD

PROFILE	INSTALLATION	CONTINUITY OVER SUPPORT
Z purlins	Single span (isostatic) or continuous spans (hyperstatic)	Overlap 10 % of the span up to 9 m, 15 % above
C+ purlins	Single span (isostatic) only	-

FINISH AND DURABILITY

FINISH	TREATMENT	DURABILITY
Z200 galvanised	Pre-galvanised S350GD+Z200 steel, EN 10346 · single finish	According to the environment, the corrosivity category (ISO 9223 / ISO 12944) and the target service life

INDUSTRY

Workshops, factories, hangars, logistics platforms.

AGRICULTURAL

Livestock buildings, silos, greenhouses.

COMMERCIAL

Warehouses, showrooms, distribution.

LOGISTICS

Terminals, port warehouses.

Indicative values

Indicative values, to be confirmed by the design office.

03

BUILDING ENVELOPE



Building envelope.

Profiled sheets, sandwich panels and composite floor deck: the complete building skin, roof, façade and floor.

1 000 mm

Cover width of the 3.333.45 and 4.250.40 sheets.

8 RAL colours

Polyester coating 25/7 µm, reverse side 0742.

30 to 60 mm

Isotoit and Isomur panels, PUR core, PIR optional.

800 mm

Cover width of the S320GD+Z200 composite floor deck.

IN THIS SECTION

Nervesco 3.333.45	38
Toitesco 4.250.40	39
Isotoit sandwich panel	40
Single-skin cladding 3.333.45	41
Liner tray 400/70	42

Isomur sandwich panel	43
Composite floor deck	44
Formwork spans	45
Installation	46

THREE USES

Roofing: dry roofing deck, waterproofing support deck, Isotoit sandwich panel.

Façade: single-skin cladding, liner tray, Isomur sandwich panel.

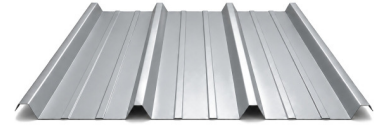
Floors: composite floor deck for steel-concrete composite slabs.

DRY ROOFING · SLOPE 7 %

Nervesco 3.333.45

Dry roofing

3-rib profiled sheet for dry roofing: high load capacity for lightweight roofs, fast and economical installation on C+ and Z purlins, 25/7 µm polyester coating.



Data sheet AS-FT-NER-004, edition 08/2026 · spans between support centrelines, unfactored loads, self-weight included, deflection L/200.

DOWNWARD LOADS AND SUCTION working spans in m · deflection L/200 · thicknesses in mm

LOAD daN/m ²	SINGLE SPAN		TWO SPANS		THREE SPANS		SUCTION, PROFILE ONLY	
	0.63	0.75	0.63	0.75	0.63	0.75	0.63	0.75
50	3.00	3.15	3.35	3.55	3.25	3.45	2.95	3.20
100	2.40	2.55	2.55	2.85	2.65	2.80	2.35	2.50
150	2.10	2.25	2.00	2.30	2.10	2.40	2.05	2.20
200	1.90	2.05	1.70	1.95	1.75	2.00	1.85	2.00
250	1.70	1.85	1.45	1.70	1.50	1.75	1.75	1.85

Above 150 daN/m², continuity is governed by the support moment and the span over continuous spans is no longer greater than the single-span value. **Supports:** spans assume an end support of at least 40 mm and an internal support of at least 60 mm; the support reaction (local web crippling) must still be checked for the actual bearing width. Under suction, the system span is the minimum of the profile-only span, fastener pull-through in the sheet, pull-out from the substructure, side-lap stitching and edge connections. Intermediate loads: linear interpolation.

THICKNESSES AND WEIGHTS

THICKNESS	WEIGHT kg/m ²
0.63 mm	6.03
0.75 mm	7.18

INSTALLATION

PROPERTY	VALUE
Minimum slope	7 % single span, 5 % continuous spans with bonded overlap
Overlap	One corrugation at side laps, 150 mm at end laps, foam fillers at the ridge
Fixing	Self-drilling screws at corrugation crests, every other corrugation in the field, every corrugation at edges

STANDARD COLOURS polyester coating 25/7 µm · EN 10169

 RAL 1015 light ivory	 RAL 5012 light blue	 RAL 5019 capri blue	 RAL 6011 reseda green	 RAL 9002 grey white	 RAL 9006 white alu.	 RAL 9007 grey alu.	 RAL 9010 pure white
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Reverse side 0742. Other RAL on request.

EFFECTIVE WIDTH
1 000 mm

THICKNESSES MM
0.63 · 0.75

RIB · PITCH MM
45 · 333

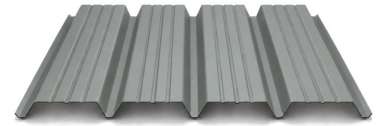
STEEL · EN 10346
S320GD+Z200

FLAT ROOFS · MEMBRANE SUPPORT

Toitesco 4.250.40

Waterproofing support deck

Waterproofing support deck for flat roofs: flat and stable surface, reliable base for PVC, TPO or bituminous membranes, excellent bending resistance.



Data sheet AS-FT-TOI-006, edition 08/2026 · sk variable action, pk permanent load excluding self-weight · combination 1.50 s + 1.35 (p + g), deflection L/200.

DOWNWARD LOADS spans in m · loads in daN/m² · thicknesses in mm

LOADS DAN/M ²			SINGLE SPAN			TWO EQUAL SPANS			THREE EQUAL SPANS		
SK	PK	TOTAL	0.75	0.88	1.00	0.75	0.88	1.00	0.75	0.88	1.00
100	15	115	2.00	2.10	2.25	2.35	2.50	2.65	2.25	2.40	2.55
125	25	150	1.80	1.95	2.05	2.15	2.30	2.45	2.10	2.25	2.35
150	25	175	1.75	1.85	1.95	2.05	2.20	2.30	2.00	2.10	2.20
175	25	200	1.65	1.75	1.85	1.95	2.10	2.20	1.90	2.00	2.10
150	120	270	1.50	1.60	1.70	1.70	1.90	2.05	1.75	1.90	2.00

Most common combinations; the full table is in the data sheet. Standard coating Z200 galvanised + polyester coating 25/7 µm; polyester, PVDF, Beckrydure or Plastisol finishes.

SUCTION · PROFILE ONLY spans in m

LOAD daN/m ²	0.75	0.88	1.00
50	3.00	3.15	3.30
100	2.35	2.50	2.60
150	2.05	2.20	2.30
200	1.90	2.00	2.05

Under suction, the system span is the minimum of this profile span, the fixing in the sheet, the pull-out from the support, the stitching and the edge connections.

THICKNESSES AND WEIGHTS

THICKNESS	WEIGHT kg/m ²
0.75 mm	7.18
0.88 mm	8.43
1.00 mm	9.58

APPLICATIONS

- Flat or low-pitch roofs
- Industrial and logistics buildings
- PVC, TPO or bituminous waterproofing

Span validity range · supports

The spans in both tables apply to an end bearing of at least 40 mm and an internal bearing of at least 60 mm. For a narrower bearing, they do not apply without verification.

Local resistance at supports (web crippling under the support reaction) is not included in the table. It must be checked by the design office for the actual bearing width, especially at the intermediate support of continuous spans, where the reaction is highest.

STANDARD COLOURS polyester coating 25/7 µm · EN 10169

 RAL 1015 light ivory	 RAL 5012 light blue	 RAL 5019 capri blue	 RAL 6011 reseda green	 RAL 9002 grey white	 RAL 9006 white alu.	 RAL 9007 grey alu.	 RAL 9010 pure white
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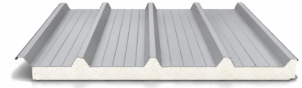
Reverse side 0742. Other RAL on request.

EFFECTIVE WIDTH 1 000 mm	THICKNESSES MM 0.75 · 0.88 · 1.00	RIB · PITCH MM 40 · 250	STEEL · EN 10346 S320GD+Z200
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INSULATED ROOFING · PUR CORE, PIR OPTIONAL

Sandwich panel Isotoit

The Isotoit panel combines thermal insulation, stiffness and fast installation: roofing and insulation are installed in a single lifting operation, for durable weathertightness and a uniform finish.



Integrated thermal insulation, PUR core (PIR optional) W/m·K · durable
weathertightness and fast single-operation installation · facings 0.40/0.40 or 0.50/0.50
mm, polyester coating 25/7 µm, RAL 9002.

MASSES AND THERMAL PERFORMANCE masses in kg/m² by facing · Rth in m²·K/W · U in W/m²·K

FOAM	0.40/0.40	0.50/0.50	RTH	U
30 mm	8.5	10.4	1.36	0.66
40 mm	8.9	10.8	1.82	0.51
50 mm	9.3	11.2	2.24	0.41
60 mm	9.7	11.6	2.73	0.35

ALLOWABLE LOADS IN DAN/M² test report 5644T22 · foam thickness in mm

SPAN m	PRESSURE · SINGLE SPAN				PRESSURE · MULTIPLE SPANS				SUCTION			
	30	40	50	60	30	40	50	60	30	40	50	60
1.40	285	315	360	425	310	340	390	460	285	315	440	528
1.60	250	280	320	380	275	310	350	420	255	285	390	468
1.80	210	235	270	320	255	285	330	390	220	245	340	408
2.00	170	190	220	260	200	225	260	305	180	200	275	330
2.20	140	155	180	210	170	190	220	255	150	165	230	276
2.40	115	130	150	175	140	160	185	215	125	140	195	234
2.60	95	105	120	140	120	130	150	175	100	110	155	186
2.80	80	90	105	125	100	110	130	155	90	100	140	168
3.00	60	65	75	90	80	85	100	120	65	70	100	120
3.40	35	40	45	55	45	50	60	70	45	50	70	84

Unfactored loads, foam thickness in mm, values from test report 5644T22. Facings 0.40 or 0.50 mm in S220GD or S250GD. Sealed through-fixing on Z purlins.

Configuration covered by the table, assumption to be confirmed. The table does not distinguish between build-ups: the source specifies neither the facing thickness of the test specimens (0.40/0.40 or 0.50/0.50 mm) nor the number of fasteners per purlin. Before applying it to a given facing or fastener density, have the test configuration confirmed against report 5644T22. Under suction, the system load remains limited by fastener resistance.

COLOURS polyester coating 25/7 µm


Standard colour RAL 9002 on both faces. Colour of choice from 5 000 m². Facing profile micro-ribbed (standard), micro-corrugated or flat.

EFFECTIVE WIDTH
1 000 mm

FOAM MM
30 · 40 · 50 · 60

FACINGS MM
**0.40/0.40 ·
0.50/0.50**

ÂME · M W/M·K
PUR · 0.0223

SINGLE-SKIN FAÇADE

Single-skin cladding 3.333.45

Profiled sheet for single-skin cladding: a light and rigid solution suited to all building types, fast and economical installation, wide range of colours.



Same profile as for roofing: the cladding uses the geometry and masses of the 3.333.45 · downward loads and local resistances page 38.

ALLOWABLE SPANS IN M wind pressure or suction · profile only

THICKNESS	50 DAN/M ²	100 DAN/M ²	150 DAN/M ²	200 DAN/M ²	250 DAN/M ²
0.63 mm	2.95	2.35	2.05	1.85	1.75
0.75 mm	3.20	2.50	2.20	2.00	1.85

Values for the profile only, applicable to both wind pressure and suction: fastener resistance and density must be checked separately according to the pull-out test report of the chosen system. Continuous spans and other configurations: please contact us.

THICKNESSES AND WEIGHTS

THICKNESS	WEIGHT kg/m ²
0.63 mm	6.03
0.75 mm	7.18

APPLICATIONS

- Industrial or agricultural façades
- Interior steel partitions
- Cladding and ventilated façades

STANDARD COLOURS polyester coating 25/7 µm · EN 10169

 RAL 1015 light ivory	 RAL 5012 light blue	 RAL 5019 capri blue	 RAL 6011 reseda green	 RAL 9002 grey white	 RAL 9006 white alu.	 RAL 9007 grey alu.	 RAL 9010 pure white
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Reverse side 0742. Other RAL on request.

EFFECTIVE WIDTH
1 000 mm

THICKNESSES MM
0.63 · 0.75

RIB · PITCH MM
45 · 333

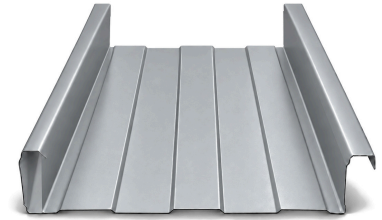
STEEL · EN 10346
S320GD+Z200

DOUBLE-SKIN CLADDING

Liner tray 400/70

Double-skin liner tray fitted horizontally between columns: it replaces the cladding girt, receives the rock wool and carries the outer skin.

Data sheet AS-FT-PLA-010, edition 08/2026 · design developed width 610 mm, straight envelope dimension 596 mm, returns 23 and 33 mm · single span, unfactored uniform load q normal to the cladding, in pressure as in suction, combination 1.50 q .



PRESSURE OR SUCTION NORMAL TO CLADDING single span · spans in m · thicknesses in mm

LOAD daN/m ²	DEFLECTION L/150			DEFLECTION L/200			DEFLECTION L/250			DEFLECTION L/300		
	0.75	0.88	1.00	0.75	0.88	1.00	0.75	0.88	1.00	0.75	0.88	1.00
60	3.80	4.10	4.30	3.45	3.70	3.95	3.20	3.45	3.65	3.00	3.25	3.45
70	3.60	3.90	4.10	3.30	3.50	3.75	3.05	3.25	3.45	2.85	3.05	3.25
80	3.45	3.70	3.95	3.15	3.35	3.55	2.90	3.10	3.30	2.75	2.95	3.10
100	3.20	3.45	3.65	2.90	3.10	3.30	2.70	2.90	3.05	2.55	2.75	2.90
120	3.00	3.25	3.45	2.75	2.95	3.10	2.55	2.75	2.90	2.40	2.55	2.70
150	2.75	3.00	3.20	2.55	2.75	2.90	2.35	2.55	2.70	2.20	2.40	2.50

The values use the governing inertia and resisting moment of both bending directions. The deflection criterion is chosen according to the outer facing selected: L/200 is the usual value for industrial cladding. Thickness 0.70 mm available: spans on request. Outer skin fixings and local support reaction remain to be checked at system level.

THICKNESSES AND WEIGHTS

THICKNESS	WEIGHT kg/m ²
0.70 mm	8.38
0.75 mm	8.98
0.88 mm	10.53
1.00 mm	11.97

DOUBLE-SKIN CLADDING BUILD-UP

PROPERTY	VALUE
Load-bearing tray	Fitted horizontally between columns, it resists wind and receives the insulation at the back of the tray
Insulation	Mineral wool rolled out in the liner tray, thickness as required for the target performance
Outer skin	Vertical profiled cladding fixed to the tray flanges, with thermal break if required

EFFECTIVE WIDTH
400 mm

THICKNESSES MM
0.70 to 1.00

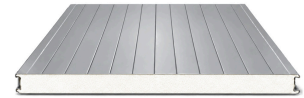
OVERALL HEIGHT
70 mm

STEEL · EN 10346
S320GD+Z200

INSULATED FAÇADE · EXPOSED OR CONCEALED FIXING

Sandwich panel Isomur

Double-skin sandwich panel for industrial, office and retail façades: high thermal insulation performance, complete weathertightness and two fixing methods, exposed or concealed.



Optimal thermal insulation, PUR core (PIR optional) W/m·K · fast installation and perfect sealing between panels · polyester coating 25/7 µm, 0.60/0.50 mm facing reserved for the concealed-screw version.

MASSES IN KG/M² by facing in mm

FOAM	0.40/0.40	0.50/0.50	0.60/0.50 concealed screws
30 mm	7.9	9.5	10.4
40 mm	8.3	9.9	10.8
50 mm	8.7	10.3	11.2
60 mm	9.1	10.7	11.6

THERMAL PERFORMANCE · SYSTEM

THICKNESS	RTH m ² ·K/W	U W/m ² ·K
30 mm	1.36	0.66
40 mm	1.82	0.51
50 mm	2.24	0.41
60 mm	2.73	0.35

ALLOWABLE LOADS IN DAN/M² · PRESSURE foam thickness in mm

SPAN m	30	40	50	60
1.40	210	240	285	355
1.50	165	195	230	280
1.60	140	160	190	235
1.80	100	110	135	170
2.00	75	80	95	125
2.20	55	60	75	95
2.40	35	45	50	60

Facings and fixing

Facings 0.40/0.40 and 0.50/0.50 mm available for all foam thicknesses.

The 0.60/0.50 mm facing is reserved for the concealed-screw version: the outer face carries the fixing.

APPLICATIONS

- Industrial and logistics façades
- Cold storage and commercial buildings
- Contemporary architectural cladding

Unfactored loads according to EN 1991-1-4, test report 5644T22. The 50 mm, not in the report, is interpolated between 40 and 60 and rounded down. **Assumption to be confirmed:** the source specifies neither the facings (0.40/0.40, 0.50/0.50 or 0.60/0.50 mm), nor the fixing method (exposed or concealed), nor the number of supports in the tests; to be confirmed by the test report before applying to a given configuration.

COLOURS polyester coating 25/7 µm

RAL 9002
grey white

Standard colour RAL 9002 on both faces. Colour of choice from 3 000 m². Facing profile micro-ribbed (standard), micro-corrugated or flat.

EFFECTIVE WIDTH
1 000 mm

FOAM MM
30 · 40 · 50 · 60

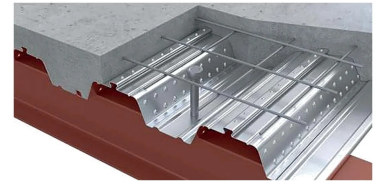
FACINGS MM
**0.40/0.40 ·
0.50/0.50 ·
0.60/0.50**

ÂME · M W/M·K
PUR · 0.0223

COMPOSITE STEEL-CONCRETE FLOOR

Composite floor deck

Ribbed profile with lateral embossments for composite slabs: it acts as self-supporting formwork during pouring, then as tensile reinforcement once the concrete has hardened. The void between ribs lightens the slab and saves the bottom reinforcement layer.



S320GD+Z200 steel to EN 10346, design yield strength $f_{y,p,k} = 290$ MPa · cold roll formed to NF EN 1993-1-3 and NF EN 1993-1-5 · formed from a 1 250 mm wide strip for 800 mm cover width · embossments on the inclined webs · pre-punched version on request, 60 × 40 mm slotted holes.

EFFECTIVE PROFILE PROPERTIES section in cm^2/m · I in cm^4/m · moduli in cm^3/m

THICKNESS mm	POSITIVE MOMENT				NEGATIVE MOMENT				RESISTANCES		
	A	I	I/VI	I/VS	A EFF	I	I/VI	I/VS	M+RK	M-RK	RW,K
0.80	9.55	53.86	18.32	17.66	8.46	43.96	13.26	16.40	2.22	1.67	33.40
1.00	12.06	68.04	23.14	22.30	10.69	55.53	16.75	20.71	2.81	2.11	42.20
1.20	14.58	82.22	27.96	26.95	13.36	69.42	20.94	25.89	3.40	2.64	51.00

A gross section, A eff effective section. Neutral axis: v_i 2.94 and v_s 3.05 cm under positive moment, v_i 3.315 and v_s 2.681 cm under negative moment. Nominal galvanised thicknesses; properties based on bare steel thickness 0.76 · 0.96 · 1.16 mm. Characteristic moments in $\text{kN}\cdot\text{m}/\text{m}$, based on the effective section (local buckling of thin walls, EN 1993-1-3), hence an $M/(I/v)$ ratio below $f_{y,p,k}$; characteristic support reaction $R_{w,k}$ in kN. Formwork spans page 45, installation page 46.

NOMINAL CONCRETE CONSUMPTION

SLAB cm	VOLUME l/m^2	CONCRETE daN/m^2
10	70	168
12	90	216
14	110	264
16	130	312
18	150	360
20	170	408

Concrete unit weight taken as $2\,400 \text{ daN}/\text{m}^3$. Add the sheet weight to obtain the floor self-weight.

THICKNESSES AND WEIGHTS

THICKNESS	WEIGHT kg/m^2
0.80 mm	9.81
1.00 mm	12.27
1.20 mm	14.72

MATERIAL AND PACKAGING

PROPERTY	VALUE
Steel grade	S320GD+Z200, EN 10346
Design	NF EN 1993-1-3 and 1-5
Yield strength $f_{y,p,k}$	290 MPa
Lengths	Based on layout plan, from 1.50 m
Pre-drilling	Slotted holes 60 × 40 mm
Feu	Fire performance depending on slab configuration and specific justification.

EFFECTIVE WIDTH
800 mm

THICKNESSES MM
0.80 · 1.00 · 1.20

RIB · SPACING
60 · 160 mm

STEEL · EN 10346
S320GD+Z200

COMPOSITE FLOOR DECK · DESIGN

Formwork spans

Spans of the sheet alone during pouring, in metres between supports. In the final stage, the span is set by the EN 1994-1-1 calculation note. Profile properties page 44, supports and installation page 46.

UNPROPPED FORMWORK STAGE construction load 100 daN/m² · spans in m

SLAB cm	SHEET 0.80 MM			SHEET 1.00 MM			SHEET 1.20 MM		
	2 SUPPORTS	3 SUPPORTS	4 AND +	2 SUPPORTS	3 SUPPORTS	4 AND +	2 SUPPORTS	3 SUPPORTS	4 AND +
10	3.10	2.70	2.90	3.50	3.00	3.30	3.80	3.35	3.65
12	2.85	2.50	2.70	3.20	2.80	3.05	3.55	3.10	3.40
14	2.65	2.30	2.55	3.00	2.60	2.85	3.30	2.90	3.20
16	2.50	2.20	2.40	2.85	2.45	2.70	3.10	2.75	3.00
18	2.40	2.05	2.25	2.70	2.30	2.55	2.95	2.60	2.85
20	2.25	1.95	2.15	2.55	2.20	2.45	2.80	2.45	2.70

UNPROPPED FORMWORK STAGE construction load 50 daN/m² · spans in m

SLAB cm	SHEET 0.80 MM			SHEET 1.00 MM			SHEET 1.20 MM		
	2 SUPPORTS	3 SUPPORTS	4 AND +	2 SUPPORTS	3 SUPPORTS	4 AND +	2 SUPPORTS	3 SUPPORTS	4 AND +
10	3.45	3.00	3.30	3.85	3.35	3.70	4.25	3.75	4.10
12	3.15	2.70	3.00	3.50	3.05	3.35	3.85	3.40	3.75
14	2.90	2.50	2.75	3.25	2.80	3.10	3.55	3.15	3.45
16	2.70	2.35	2.55	3.00	2.60	2.90	3.35	2.90	3.25
18	2.55	2.20	2.45	2.85	2.45	2.75	3.15	2.85	3.05
20	2.40	2.10	2.30	2.70	2.35	2.60	2.95	2.60	2.90

Design assumptions

Concrete B25 · ULS 1.35 P + 1.50 Q · SLS 1 P + 1 Q · reinforcing steel 500 MPa · deflection at pouring L/240 · active deflection in service L/350 · slenderness L/d 33 on two supports and 36 on three or four supports · spans rounded down in steps of 0.05 m. Beyond these spans, provide rows of props at least 80 mm wide to prevent punching of the sheet.

Indicative values, to be confirmed by the design office.

CONCRETE
B25

DEFLECTION AT POURING
L/240

DEFLECTION IN SERVICE
L/350

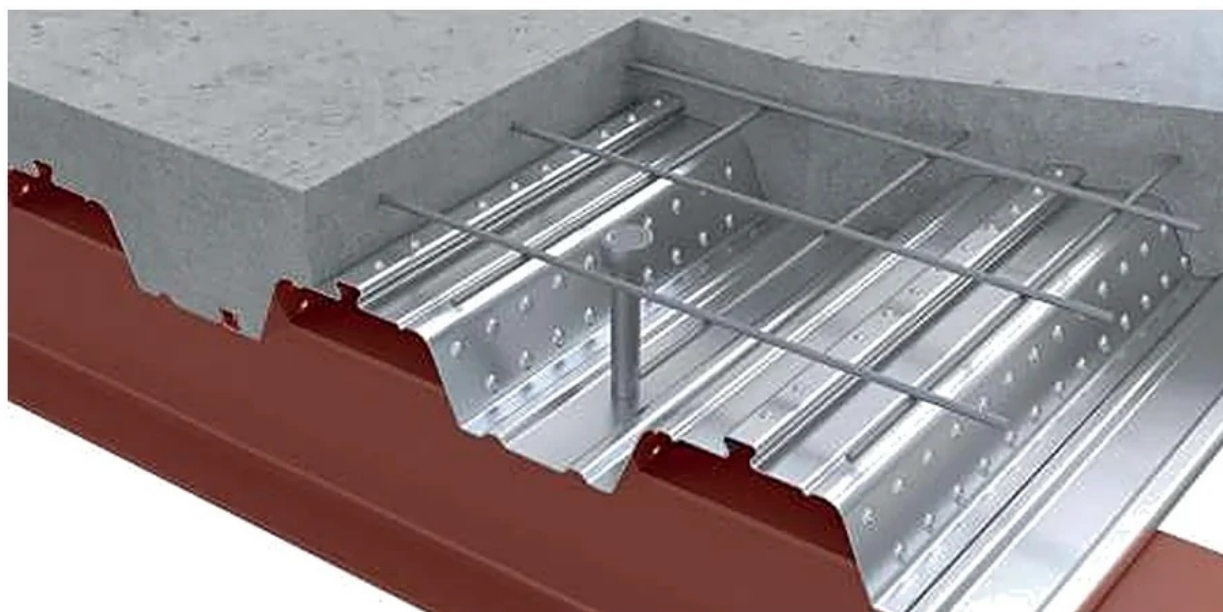
ROWS OF PROPS
80 mm

COMPOSITE FLOOR DECK · INSTALLATION

Installation guide

Supports, laps, reinforcement and openings: the six points that determine the performance of the formwork and the finished slab.

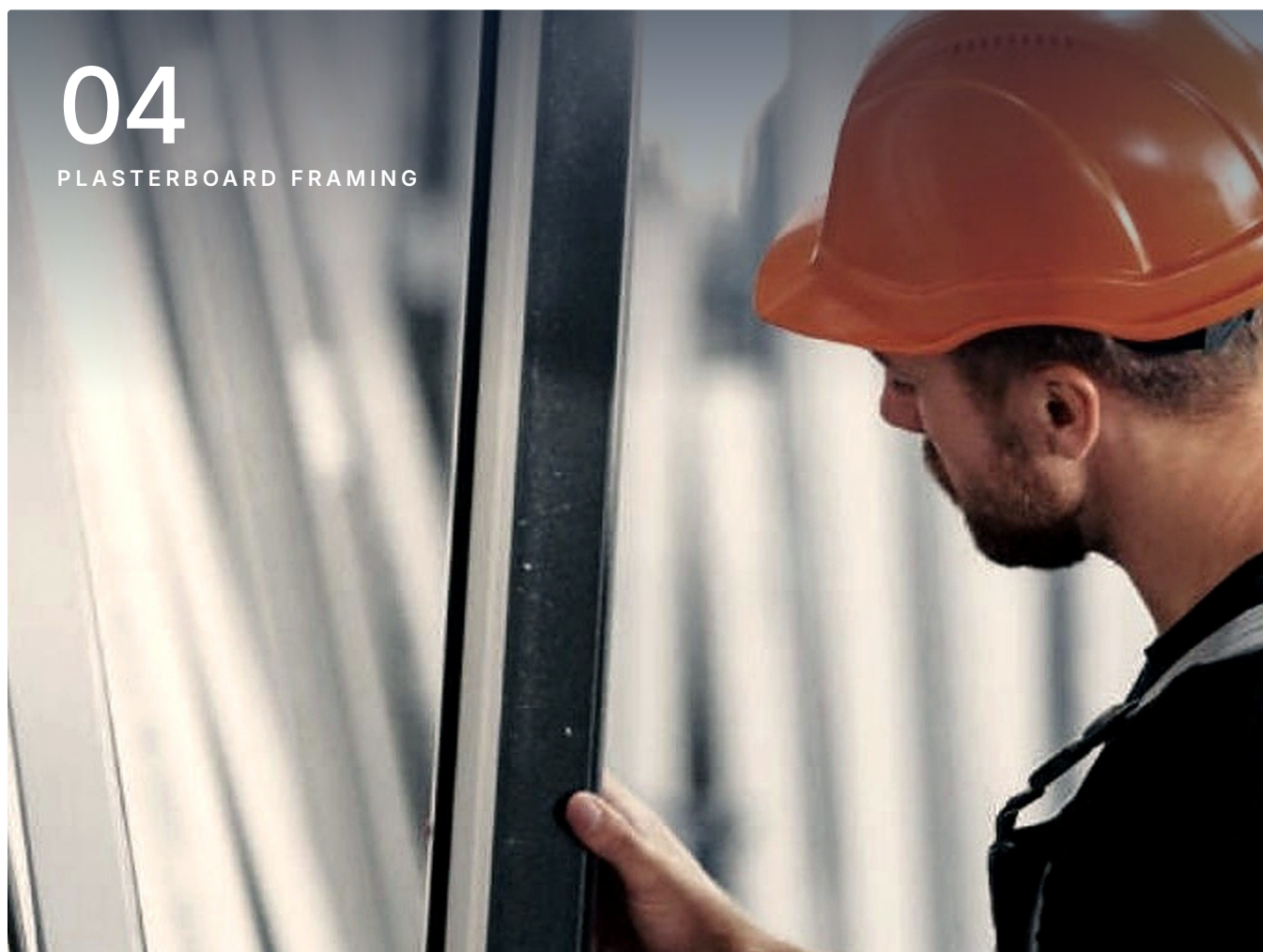
01 Supports and fixing 50 mm at end supports and 60 mm at intermediate supports, 70 mm on timber and masonry. Steel nails or self-tapping screws Ø 5.5 or 6.3 mm.	02 Overlap and stitching 40 mm minimum between sheets. Side laps stitched with 4.8 × 12 rivets or reduced-point self-drilling screws.	03 Reinforcement Welded mesh of 0.8 cm ² /m minimum in both directions. Top reinforcement over intermediate supports over 0.3 L on each side.
04 Openings Up to 500 × 500 mm, boxed out before pouring; the sheet is cut only after the concrete has set.	05 Mixed framing Bond through the embossments on the webs. If the slab acts compositely, weldable studs or nailed connectors.	06 Edges and fillers Upstands in folded galvanised sheet on steel framing, angles or timber formwork on concrete.


EFFECTIVE WIDTH
800 mm

THICKNESSES MM
0.80 · 1.00 · 1.20

END SUPPORT
50 mm

INTERMEDIATE SUPPORT
60 mm



Plasterboard framing.

Studs, tracks, furring channels and accessories in DX51D+Z140: the complete steel framing for partitions, linings and ceilings.

48 · 70 · 90

Web widths of studs and tracks, in mm.

DX51D+Z140

Galvanised steel to EN 10346.

3.00 m

Profile lengths compliant with EN 14195.

0.50 · 0.60

Thicknesses in mm; 90 series in 0.60 mm.

IN THIS SECTION

Atlas studs	48
Choosing a stud	49
Atlas tracks	50
Ceiling systems	51

Installation accessories	52
F47 accessories	53
Anchors and sundries	54

THE RANGE

Partitions: studs and tracks 48 to 90 mm.

Ceilings: F47 furring channels, OM67 omega, CR25 perimeter angle, hangers.

Accessories: screws, anchors, resilient tape, corner angles.

VERTICAL PARTITION FRAMING

Atlas studs

Three web widths, one logic: the right stiffness in the right place, up to 4.80 m with no added reinforcement (M90, according to the configuration detailed on page 49). C profile in DX51D+Z140 galvanised steel, conduit openings integrated in the web.



M48



M70



M90

TECHNICAL DATA mass in kg/m · inertia in cm⁴ · 3.00 m lengths

RÉF.	DESIGNATION	WEB mm	FLANGES mm	ÉP. mm	MASS kg/m	IY cm ⁴	PCS / PAL.
M48	Atlas 48 stud	48	34 / 36	0.50	0.48	2.40	480
M70	Atlas 70 stud	70	34 / 36	0.50	0.57	5.70	240
M90	Atlas 90 stud	90	39 / 41	0.60	0.78	13.2	240

STANDARD RANGE · 0.50 MM

M48, M70 · R48, R70 · F47, OM67, CR25. Residential, offices and standard commercial: 85 % of projects. Heights up to 3.60 m; profiles compliant with EN 14195.

REINFORCED RANGE · 0.60 MM

M90 · R90. Public buildings, high-rise, hospitals and tall walls. Heights up to 4.80 m. Avis Technique or design office calculation above 3.50 m.

Compatibility. M48 R48 · M70 R70 · M90 R90 in 0.60 mm (tracks on page 50). Never mix series or thicknesses. Leave a 10 to 20 mm clearance at the head: do not fix the stud to the ceiling track.

Stud selection according to height, spacing and board: see page 49. **Indicative values, to be confirmed by the design office.**

WEB WIDTHS

48 · 70 · 90 mm

FLANGES

34/36 · 39/41 mm

THICKNESSES

0.50 · 0.60 mm

STEEL · EN 10346

DX51D+Z140

THE RIGHT STUD IN 30 SECONDS

Choosing the stud

Three configurations cover almost all projects. The allowable height and field of use determine the stud, the track follows automatically.

TYPICAL CONFIGURATIONS

	M48	M70	M90
Field of application	residential, offices	housing, hotels, public buildings	Public bldgs, hospitals, high-rise
Thickness	0.50 mm	0.50 mm	0.60 mm
Reference facing	1 × BA13 per face	2 × BA13 per face	2 × BA13 per face
Insulation	40 to 45 mm	60 to 70 mm	80 to 90 mm
Associated track	R48	R70	R90 en 0.60 mm
Spacing	400 / 600 mm	400 / 600 mm	400 / 600 mm (400 above 4.20 m)
Bar length	3 000 mm	3 000 mm	3 000 mm

INDICATIVE PRE-DESIGN HEIGHTS 0.20 kN/m² · deflection L/240 · single stud, inertia of steel alone · EA = spacing in mm

RÉF.	ÉP. mm	STUD	FACING	EA 400	EA 600	ACOUSTICS indicative Rw	FIELD
M48	0.50	single	1 × BA13 per face	2.70 m	2.35 m	38 to 42 dB	Residential, offices
M70	0.50	single	2 × BA13 per face	3.60 m	3.15 m	50 to 55 dB	Housing, hotels
M90	0.60	single	2 × BA13 per face	4.80 m	4.20 m	58 to 65 dB ³	Public bldgs, hospitals, high-rise

Indicative pre-design values for a pressure of 0.20 kN/m², DX51D+Z140 steel and deflection limit L/240, single stud with the indicated board on each face. To be confirmed according to boards, insulation, spacing, fixings and system rules; large heights require a project-specific check.

Heights calculated for a single-span stud between tracks, pressure 0.20 kN/m² and deflection L/240 using the inertia I_y of the steel alone (page 48), without contribution from the boards: $H = (384 E I_y / (5 q 240))^{1/3}$, $q = 0.20 \text{ kN/m}^2 \times \text{spacing}$, rounded down to 0.05 m.

³ Rw: order of magnitude for a system to be specified (type and number of boards, type and thickness of insulation, stud, spacing, edge treatment); only the test report or the acoustic study of the complete system is authoritative.

Indicative values, to be confirmed by the design office.

01

Field of application

Residential and offices: M48.
Apartment buildings, hotels: M70.
Public buildings, hospitals, high-rise: M90.

02

Height

Read the allowable height according to spacing, 400 or 600 mm, and the board, in the table above. M90 above 4.20 m: spacing 400 mm.

03

Associated track

The track follows the stud: R48, R70 or R90 in 0.60 mm, without mixing series (page 50).

04

Check

Beyond the heights in the table: Avis Technique or design office calculation.

STUDS

M48 · M70 · M90

SPACINGS

400 · 600 mm

DEFLECTION LIMIT

L/240

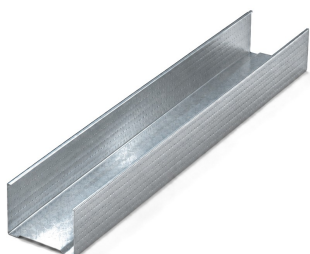
STEEL

DX51D+Z140

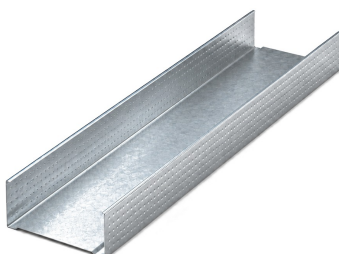
FLOOR AND CEILING TRACKS

Atlas tracks

The anchorage contributes to acoustic performance: the B-RES resilient strip, placed between the track and the substrate, limits structure-borne transmission. U-profile in DX51D+Z140 galvanized steel.



R48



R70



R90

PROFILE PROPERTIES mass in kg/m · 3.00 m lengths

RÉF.	DESIGNATION	WIDTH mm	WEBS mm	ÉP. mm	MASS kg/m	STUD	PCS / PAL.
R48	Standard track 48	48	28	0.50	0.40	M48	540
R70	Standard track 70	70	30	0.50	0.48	M70	300
R90	Standard track 90	90	30	0.60	0.68	M90	300

INSTALLATION CONDITIONS anchors and B-RES strip: page 54

RÉF.	FIXING TO SUBSTRATE	SPACING	B-RES STRIP
R48	CH-F anchor Ø 6 × 40 mm · concrete, aerated concrete, masonry	60 cm	Recommended · housing and public buildings
R70	CH-F anchor Ø 6 × 40 mm · adapt to substrate	60 cm	Recommended
R90	Heavy-duty anchoring Ø 8 × 60 mm · check the allowable load	60 cm	Systematic · heavy wall

WITHOUT RESILIENT STRIP

Direct fixing to the slab: vibrations are transmitted through the structure and may reduce the wall insulation by around 4 to 8 dB depending on system and substrate (indicative value, not guaranteed).

WITH B-RES STRIP

The PE foam interlayer decouples the track from the substrate and limits structure-borne transmission. Installation according to the system rules and DTU 25.41 (French reference).

The resilient strip alone does not guarantee compliance with a regulatory acoustic requirement: compliance is assessed on the complete construction (wall, junctions, floors) and demonstrated by study or test. **Indicative values, to be confirmed by the design office.**

WIDTHS

48 · 70 · 90 mm

WEBS

28 · 30 mm

THICKNESSES

0.50 · 0.60 mm

LENGTH

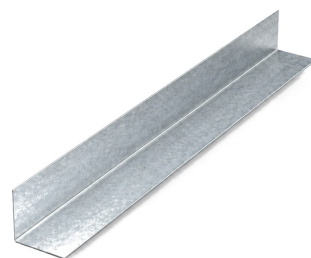
3000 mm

CEILINGS AND LININGS

Ceiling systems

From standard ceilings to long spans: three profiles covering the usual configurations, all in DX51D+Z140 galvanized steel and in 3 000 mm lengths.


F47

OM67

CR25
PROFILE PROPERTIES mass in kg/m

RÉF.	DESIGNATION	SECTION	ÉP. mm	MASS kg/m	SPACING	PCS / PAL.
F47	Ceiling furring channel	hat 47 · 17 mm return	0.50	0.37	600 · 500 loaded	360
OM67	Omega section	wide omega · 67 mm web	0.50	0.42	500 or 600	240
CR25	Edge angle	Symmetrical L · actual size 28 × 28 mm	0.50	0.22	40 to 60 cm	600

On atlassteel.ma, orders are placed by full pallet or multiples of a pallet.

F47 · FURRING CHANNEL

Standard suspended ceiling, drop of 120 mm or less. Joints with ECL splice and an overlap of at least 200 mm, fixed with CAV clip at each crossing.

CR25 · EDGE ANGLE

Level reference, edge stop for the framing and board edge support. Finishing profile with no structural function, fixed first on all four walls.

OM67 · OMEGA

Long spans, facade lining and heavy finishes: spans of 1.20 m or more, where the furring channel requires an intermediate support.

WHAT IS NOT SHARED

F47 and OM67 do not share the same accessories: the CAV clip and the ECL splice are specific to F47 (page 53). The omega is fixed on dedicated hangers (page 52).

Checking. Always fit the CR25 angle first, it serves as the level reference. Check flatness with a laser before screwing any board: ± 3 mm under a 2 m straightedge.

THICKNESS
0.50mm

LENGTH
3000mm

SECTIONS
EN 14195

STEEL · EN 10346
DX51D+Z140

HARDWARE AND FASTENERS

Installation accessories

Screws and hangers determine installation speed as much as final performance. All the references below are coordinated with the profiles in the range.

SCREWS

	RÉF.	DESIGNATION	DESCRIPTION AND USE	APPLICATION
	V25	Vis TTPC	Self-drilling bugle head phosphated · Ø 3.5 × 25 mm	Board on profile · 150 mm at edges, 200 mm in field
	V13	Vis TRPF	Self-drilling pan head pozidrive · Ø 3.5 × 13 mm	Metal-to-metal connection · joints, splice plates

HANGERS AND CEILING SUPPORTS

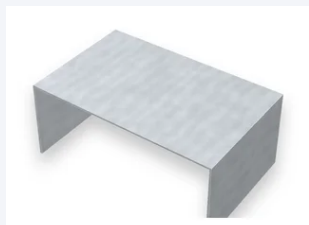
	RÉF.	DESIGNATION	DESCRIPTION AND USE	APPLICATION
	S-STD	Standard hanger	Zinc-plated hanger for F47 · fixed height · the most common	Drop 120 mm · M6 rod · max. spacing 1 200 mm
	S-U	U hanger	Height adjustment by sliding and locking	Variable drop · irregular slabs
	A-3D1	3D hinged t.1	Three-way XYZ adjustment · M6	Structural offset · plumb correction
	A-3D2	3D hinged t.2	Wide adjustment range · M6	High stress · complex structures
	S-PIV	Pivot hanger	Anti-rotation swivel · horizontal axis	Torsional stress · ventilated facades
	A-BAS	Tilting hinge	Corner or offset connection	L-shaped ceilings · ceiling steps
	CLIP-S	Hanger clip	Quick F47 fixing on threaded rod	Compatible with S-STD and S-U
	P-CLIP	Clip holder	Support for M6 threaded rod	Rod / clip interface
	COUL	Slider	Continuous drop height adjustment	All M6 hangers

Installation note. The CAV clip is mandatory at every furring channel / hanger crossing (page 53). Maximum hanger spacing is 1 200 mm on F47 furring channel.

CEILING FURRING CHANNEL · HARDWARE

F47 accessories

The CAV clip and the ECL splice are specific to the F47 furring channel: they are not shared with the OM67 omega.



CAV
F47 clip



ECL
F47 splice



ROS-38
Rosette Ø38

F47 ACCESSORIES

RÉF.	DESIGNATION	DESCRIPTION AND USE	APPLICATION
 CAV	F47 clip	F47 furring channel fixing on hanger · mandatory	1 per furring channel / hanger crossing
 ECL	F47 splice	F47 longitudinal connector · length 400 mm	Overlap 200 mm · 2 × V13
 ROS-38	Rosette Ø38	Ceiling penetration trim	Finishing around hanger rods

F47 CEILING INSTALLATION GUIDELINES summary of the rules on pages 51 and 52

01 CR25 angle Fit the edge angle first on all four walls: it serves as the level reference.	02 Hangers Maximum spacing 1 200 mm on F47 furring channel; drop 120 mm with standard S-STD hanger.	03 Clips and splices One CAV clip at each furring channel / hanger crossing; joints with ECL splice, overlap 200 mm, 2 × V13.	04 Inspection Laser flatness check before any board screwing: ± 3 mm under a 2 m straightedge.
---	---	---	--

CLIP
CAV

SPLICE
ECL · 400mm

ROSETTE
ROS-38 · Ø 38

ASSOCIATED SECTION
F47 · 0.50mm

FIXING TO SUBSTRATE · CONTINUED

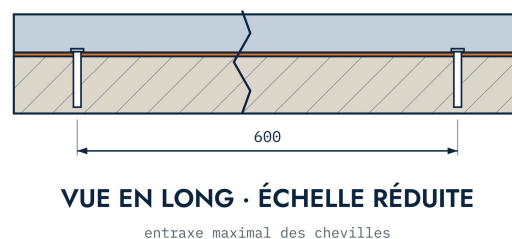
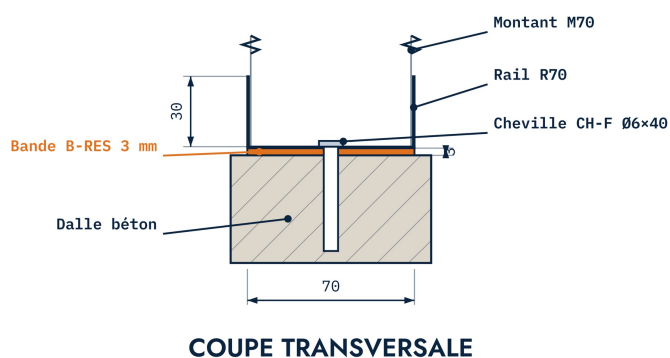
Anchors and sundries

The substrate governs the anchor: solid, hollow or thin-walled. Resilient strips (tracks, page 50) and corner angles complete the installation.

ANCHORS AND SUNDRIES

RÉF.	DESIGNATION	DESCRIPTION AND USE	APPLICATION
 C-B80	Toggle anchor	Toggle L80 mm · M6 · automatic deployment	Double boards and partitions · light loads
 C-RE	EXT spring anchor	External spring · thin walls	Hollow blocks, perforated bricks
 C-RI	INT spring anchor	Internal spring · thick walls	Bricks 50 mm
 CH-F	Hammer-in anchor	Polyamide Ø 6 × 40 mm + screw 4 × 40 · universal	Track fixing · concrete, aerated concrete, brick
 B-RES	Resilient strip	Self-adhesive PE foam · th. 3 mm · widths 48/70/90	Acoustic decoupling · recommended in housing
 C-ANG	Perforated corner angle	Galvanized steel 30 × 30 mm · length 2.5 m	External corner reinforcement · crack prevention

DETAIL · TRACK FIXING ON RESILIENT STRIP



Cross-section and longitudinal view · anchor spacing 60 cm.



05

SOLAR MOUNTING SYSTEMS

Solar mounting systems.

Three omega rails with a common width of 41.3 mm, two coatings and a single accessory system, from steel deck roofs to shade structures.

3 rails

PS-21×41 · PS-41×41 ·
PS-61×41, common width
41.3 mm.

S350GD

Steel to EN 10346, cold-
formed.

Z200 · ZM250

Galvanized G range or
Magnelis® M range.

≤ 6 m

Length to order,
up to 6 m.

IN THIS SECTION

The profile range	56
G and M coatings	57
Which coating for which site	58
Roofs	59
Carports and shade structures	60

Ground-mounted systems	61
Module fixing	62
Fixing and joints	63
Accessory range	64

SYSTEMS

Roofs, carports and shade structures,
ground-mounted installations.

A single accessory system for the whole
range: same module clamps, same bolts.

OMEGA SECTIONS FOR SOLAR STRUCTURES

The profile range

Cold-formed omega sections, common width 41.3 mm, in S350GD steel. Three heights to cover steel deck roofing, universal installation and the long spans of carports and shade structures.



PS-21x41



PS-41x41



PS-61x41

PROPERTIES S350GD steel · EN 10346 · thickness t in mm · weight in kg/m · indicative rail span between two supports in m

REFERENCE	THICKNESS t	WEIGHT	MAX. SPAN rail between supports	PERFORATION	LENGTH
PS-21x41 · LIGHT RAIL, STEEL DECK ROOFS					
PS-21x41-15	1.50	1.08	2.00	1 face · 60 mm pitch	≤ 6 m
PS-21x41-20	2.00	1.44	2.50	1 face · 60 mm pitch	≤ 6 m
PS-41x41 · UNIVERSAL PROFILE, EQUAL STRENGTH IN BOTH DIRECTIONS					
PS-41x41-15	1.50	1.62	2.50	1 face · 60 mm pitch	≤ 6 m
PS-41x41-20	2.00	2.16	3.00	1 or 3 faces	≤ 6 m
PS-41x41-25	2.50	2.70	3.50	1 or 3 faces	≤ 6 m
PS-61x41 · LONG SPAN, CARPORTS AND SHADE STRUCTURES					
PS-61x41-20	2.00	2.81	4.50	3 faces · 60 mm pitch	≤ 6 m
PS-61x41-25	2.50	3.52	5.50	3 faces · 60 mm pitch	≤ 6 m

Maximum span: distance between two supports of the module mounting rail (purlins, cross members, hooks or pile heads). Known assumptions: 72-cell modules in portrait orientation, wind zone 2 to EN 1991-1-4. Static system (single or continuous span), rail spacing, loads carried (snow, local wind, module weight) and allowable deflection not specified: indicative values, **to be confirmed by a project-specific calculation note**. These values do not apply to the main structure (columns, beams) of carports: see page 60.

S350GD steel to EN 10346, tolerances EN 10143. Length to order, up to 6 m.

STEEL GRADE
S350GD

COMMON WIDTH
41.3 mm

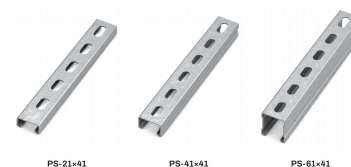
LENGTH
Up to 6 m

COATINGS
Z200 or ZM250

CORROSION PROTECTION · THE KEY CRITERION

G and M coatings

Same profile, same S350GD steel: two coatings depending on site aggressiveness. This choice determines the service life of the whole installation.



G RANGE

Z200 galvanized

Zinc 200 g/m² both sides, for low to moderate exposure.

M RANGE

Magnelis® ZM250

Zinc-aluminium-magnesium 250 g/m², for moderate to high exposure.

G RANGE · Z200 GALVANIZED

PROPERTY	VALUE
Coating	zinc 200 g/m ² both sides
Zinc thickness	14 µm per face
Indicative exposure	low to moderate
Specification	to be confirmed according to the site and target life
Use	roof and ground · dry environment

M RANGE · MAGNELIS® ZM250

PROPERTY	VALUE
Composition	Zn 93.5 · Al 3.5 · Mg 3 %
Mass and thickness	250 g/m ² both sides · 20 µm per face
Indicative exposure	moderate to high
Specification	to be confirmed according to the site and target life
Cut edges	behaviour to be checked against manufacturer data

Same profile, same steel

The PS-21×41, PS-41×41 and PS-61×41 rails exist in both ranges, with the same dimensions, the same S350GD steel and the same accessories. Only the coating changes.

The choice between G range and M range depends on the site corrosivity category: see page 58.

Indicative values, to be confirmed by the design office. Thickness per face = mass per face ÷ coating density: Z200, 100 g/m² ÷ 7.14 g/cm³ 14 µm; ZM250, 125 g/m² ÷ 6.2 g/cm³ 20 µm, value given by ArcelorMittal data sheet E35 (Magnelis®). Magnelis® is a registered trademark of ArcelorMittal.

STEEL

S350GD

G RANGE

Z200

M RANGE

Magnelis® ZM250

STANDARD

EN 10346

CORROSION PROTECTION · SELECTION AID

Which coating for which site

The site corrosivity category governs the profile coating and the fixing material. The two go together: a Magnelis® profile held by galvanized screws deteriorates through its fasteners.

WHICH COATING FOR WHICH ENVIRONMENT ISO 9223 categories

SITE ENVIRONMENT	CLASS	SECTIONS	FIXINGS
Dry interior, rural area	C1 - C2	G range · Z200	compatible corrosion-resistant fixing
Standard urban or industrial	C3	G or M range	to be confirmed according to the system
Heavy industrial / marine atmosphere	C4	M range · ZM250	stainless to be studied depending on exposure
Very high corrosivity	C5 / CX	coating on request	A4 / 316L stainless on request

Preselection guide only: the corrosivity category describes the atmosphere but does not by itself set the service life of the coating. Confirm the choice according to actual exposure, intended life, fixings and manufacturer data. Magnelis® is a registered trademark of ArcelorMittal.

SENSITIVE SITES

01

Seaside

Chlorides and the actual distance from the coast require a site assessment; coating and fixings are validated together.

02

Livestock and greenhouses

Humidity, ammonia and cleaning products may accelerate corrosion; an enhanced selection should be studied.

03

Saline desert

Surface salts, abrasion and condensation can increase aggressiveness; the final choice depends on actual exposure.

Corrosion protection specification

For aggressive environments, validate the solution based on the corrosivity category, the target service life, fastener compatibility and the performance data of the chosen coating.

CLASS C1 - C2

G range

CLASS C3

G or M range

CLASS C4

M range

CLASS C5 / CX

On request

SYSTEMS BY APPLICATION

Roofs

The PV rail is fixed to the roof structure with the FIX-EQ-150 bracket or the FIX-SUP support. It then takes the same module clamps and the same bolts, whatever the roof type.

PITCHED STEEL DECK

Bracket on purlin

Rail fixed to the purlins with the FIX-EQ-150 bracket and the M8 × 60 bolt.

FLAT ROOF

Mounting support

Rail fitted on the FIX-SUP support, connection to the flat substrate to be validated for each roof.

ALL ROOFS

Same clamps

PC-INT-60 and PC-EXT-60 clamps tightened on the rail with an M10 spring nut.

PITCHED STEEL DECK ROOF bracket on purlin

PROPERTY	VALUE
Rail span between purlins	1.25 m → PS-41×41-20 · 1.50 to 2.00 m → PS-41×41-25
Recommended inclination	15° to 20° depending on latitude
Rail fixing	FIX-EQ-150 bracket and BLT-M8-60 bolt
Module fixing	PC-INT-60 and PC-EXT-60 clamps, ECR-M10-RES spring nut

Uplift resistance of the deck and its fixings to the purlins must be checked for each project. Rail spans: static system, module configuration and loads not specified, **to be confirmed by a project-specific calculation note**.

Flat roof

Rail fitted on the FIX-SUP mounting support. Its compatibility with the roof build-up, the method of connection to the substrate and any ballast are validated with the specifier and the applicable warranty conditions. The calculation note is prepared according to the project scope.

ADVISED INCLINATION

15° to 20°

STEEL DECK

FIX-EQ-150 bracket

FLAT ROOF

FIX-SUP support

CLAMPS

Common

SYSTEMS BY APPLICATION

Carports and shade structures

Main structure in rolled sections, designed on request; PS-61×41 rails carrying the modules between beams, up to 5.50 m. Fully functional car park, charging point cabling housed in the rail perforations.



01

Rail PS-61×41-20 · 4.50 m

maximum span of the module fixing rail between two beams of the main structure.

02

Clear height 2.10 m

to be defined according to vehicles, site use and applicable regulations.

03

Rail PS-61×41-25 · 5.50 m

maximum rail span between beams, for the widest frame spacings.

04

EV cable passage Ø 20 to 32 mm

in the rail's 3-face perforations: no additional rail drilling for charging point cabling.

TYPICAL CONFIGURATION

PROPERTY	VALUE
Main structure	columns and beams in rolled sections · designed on request
Module fixing rail	PS-61×41 (2.00 or 2.50 mm) · perforated on 3 faces · fitted between beams
Rail span between beams	4.00 to 4.50 m in PS-61×41-20 · up to 5.50 m in PS-61×41-25
Allowable load	150 kg/m ² · tilt 15° to 25° · assumptions to be specified
Column base	on request

Spans: module fixing rail between two beams (page 56), not columns or beams of the main structure. Load taken (snow, wind, module weight), static scheme and module configuration not specified: indicative values, **to be confirmed by a project-specific calculation note.**

Foundations and calculation note

Foundations, piles or concrete blocks, are not part of the supply. However, each carport quotation comes with the characteristic forces at column base, directly usable by the design office to size the foundations.

SECTION

PS-61×41

RAIL SPAN

Up to 5.50 m

CLEAR HEIGHT

2.10 m

ALLOWABLE LOAD

150 kg/m²

SYSTEMS BY APPLICATION

Ground-mounted installations

Fixed structures, tilt 0° to 45°: two variants depending on pile spacing and site constraints.

VARIANT A · DIRECT STRUCTURE

PROPERTY	VALUE
Sequence	pile → FIX-SUP support → rail
Rail span between piles	up to 3.50 m · PS-41×41-25
Ground required	uniform bearing capacity
Levels	3 (pile, support, rail)

VARIANT B · C+ / Z RAIL BEAMS

PROPERTY	VALUE
Sequence	pile → C+ / Z → FIX-EQ-150 bracket → rail
Rail beam span	3 to 5 m between piles · C+ / Z 200 or 250
Advantage	up to -40 % piles
Levels	4 (+ C+ / Z rail beam)

Ground difficult to drill or aim to reduce the number of foundations: the horizontal C+ or Z rail beam spans between two piles up to 5 m apart, and the rail is fixed to it with the FIX-EQ-150 bracket. The increased spacing directly reduces earthworks cost. Variant B uses the C+ and Z purlins of section 02 (page 28): same sections, same traceability, same contact as for the building roof.

Spans between piles: indicative values (rail in variant A, rail beam in variant B); static system and loads (wind, snow, module weight) not specified, **to be confirmed by a project-specific calculation note**. C+ rail beams in single span only.

Design point, variant B

The rail fixed on the flange of the C+ or Z creates an eccentric load on the rail beam, i.e. partial torsion. This is taken into account in the design provided by the technical department: do not build this variant without a project-specific calculation note.



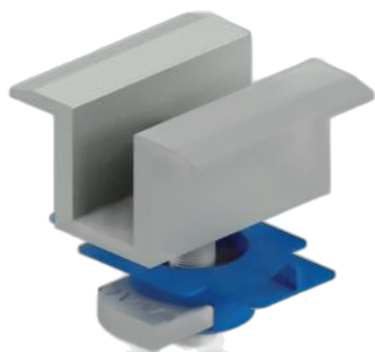
PV rails on C+ / Z rail beams · variant B

SYSTEM ACCESSORIES

Module fixing

Module clamps and clamping parts on the rail: the clamp is fixed by a spring nut or a hammer-head bolt engaged in the rail. The same accessories for all three rail sections and both coatings.

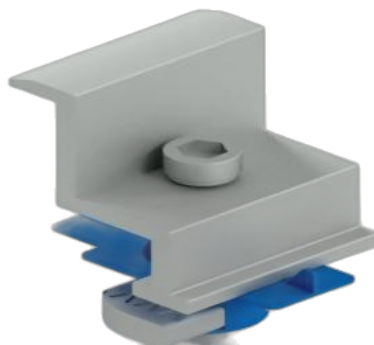
CLAMPS AND RAIL FASTENING



PC-INT-60
Mid clamp

DIMENSIONS
60 × 4.0 mm

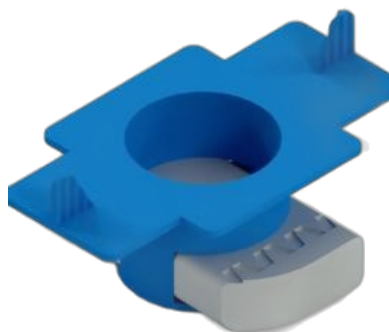
USE
fixing between two
modules, on rail



PC-EXT-60
End clamp

DIMENSIONS
60 × 35 × 4.0 mm

USE
module fixing at the edge,
on rail



ECR-M10-RES
M10 spring nut

DIMENSIONS
M10 × 6 mm

USE
rail channel nut,
positionable



BLT-M8-30-A2
M8 × 30 hammer-head bolt and nut

DIMENSIONS
stainless A2

USE
fixing accessories to the rail

MID CLAMP

60 × 4.0 mm

END CLAMP

60 × 35 × 4.0 mm

SPRING NUT

M10

HAMMER-HEAD BOLT

M8 · stainless A2

SYSTEM ACCESSORIES

Fixing and joints

Connection of the rail to the supporting structure by bracket or mounting support, end-to-end joining of two rails by joint support, assembly with M8 bolt.

FIXING TO THE STRUCTURE AND JOINTS



FIX-EQ-150
Fixing bracket

DIMENSIONS
150 × 65 × 2.5 mm

USE
connects the rail to the supporting structure



FIX-SUP
Mounting support

DIMENSIONS
base plate and U upright

USE
rail foot on a flat support



ACC-JUM
Joint support

DIMENSIONS
perforated plate

USE
joins two rails end to end



BLT-M8-60
M8 × 60 bolt and nut

DIMENSIONS
M8 × 60 mm

USE
fixing the rail to bracket or support

BRACKET

150 × 65 × 2.5 mm

MOUNTING SUPPORT

Plate and U

JOINT SUPPORT

Rails end to end

BOLT

M8 × 60 mm

SYSTEM ACCESSORIES

Accessory range

Eight references to mount the modules on PS-21×41, PS-41×41 and PS-61×41 rails, in the G range as in the M range.

SUMMARY

	REFERENCE	DESCRIPTION	DIMENSIONS	USE
	PC-INT-60	Mid clamp	60 × 4.0 mm	fixing between two modules, on rail
	PC-EXT-60	End clamp	60 × 35 × 4.0 mm	module fixing at the edge, on rail
	ECR-M10-RES	M10 spring nut	M10 × 6 mm	rail channel nut, positionable
	BLT-M8-30-A2	M8 × 30 hammer-head bolt and nut	stainless A2	fixing accessories to the rail
	FIX-EQ-150	Fixing bracket	150 × 65 × 2.5 mm	connects the rail to the supporting structure
	FIX-SUP	Mounting support	base plate and U upright	rail foot on a flat support
	ACC-JUM	Joint support	perforated plate	joins two rails end to end
	BLT-M8-60	M8 × 60 bolt and nut	M8 × 60 mm	fixing the rail to bracket or support

Bolted assembly on the rail

No on-site drilling of the rail for rail-accessory connections: the spring nut or hammer-head bolt fits in the rail and in its perforations at 60 mm pitch.

Joint support at each connection between two rails.

REFERENCES

8 accessories

RAILS

PS-21 · 41 · 61

COATINGS

G and M ranges

PERFORATION

60 mm pitch



Pallet racking.

Pallet racking from single bay to very narrow aisle (VNA) up to 12 m high: frames, beams and system accessories, EN 15512 design, dimensioned layout drawings and load plate. Materials: galvanized S350GD+Z200 frames bolted in jigs (uprights 2.0 and 2.50 mm, diagonals 1.5 mm, optional coating), coated S355JR beams 1.5 and 1.80 mm with welded hooks, accessories in 3 mm S275JR plate.

FRAMES

**RAY-3T to
RAY-18T**

RM uprights, horizontal braces
and diagonals.

BEAMS

**LIS-950 to
LIS-4250**

Classes by span and load.

HEIGHT

12 000 mm

Frames from 3 400 to 12 000
mm.

SAFETY

EN 15635

Protections, decking, load
plate.

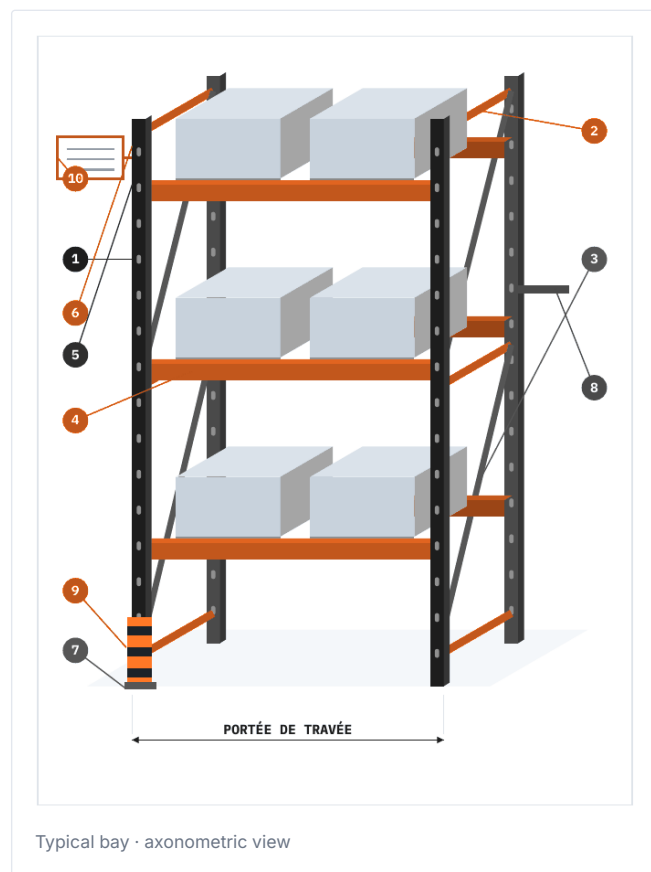
IN THIS SECTION

Ten components are enough	66	Assembled frames	70	Decks, equipment	74
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TYPICAL BAY

Ten components are enough

From single runs to very narrow aisle (VNA) at 12 m height, the installation is built with ten mutually compatible references, whatever the configuration chosen.



THE TEN COMPONENTS

N°	COMPONENT	FUNCTION
1	RM upright	carries vertical loads
2	RH horizontal brace	upright spacing
3	RD diagonal	braces the frame
4	LG beam	carries the pallets
5	Toothed connector	beam-to-upright connection
6	Safety pin	anti-dislodgement
7	BASE plate + shim	anchoring and levelling
8	RE spacer	row connection
9	RS protection	absorbs forklift impacts
10	Load plate	EN 15635 signage

Assembly

100 % bolted

No welding on site. Levels adjustable in 50 mm steps, only after full unloading and approval of the new configuration.

Scalability

Height extension and additional bays

Counterbalance, reach or turret truck.

Documents

EN 15512 calculation note

Dimensioned layout drawings and load plate according to the scope of the offer.

RANGE 2A · COMPONENT OF THE ASSEMBLED FRAME

RM uprights

Open C section with web perforated at 50 mm pitch, S350GD+Z200 steel. Supplied galvanized, or optionally epoxy-coated in the RAL colour of your corporate identity. Two web widths, 70 and 80 mm, adjust the load class without changing the fixing system.



Vertical framing of selective racking, braced frames for high-bay, very narrow aisle installations up to 12 000 mm.

The upright is not sold separately: it is bolted in a jig at the factory and delivered within the assembled frame. The properties below justify the load classes; they are not an order reference. Frame class selection: page 77.

CROSS-SECTIONS actual geometry



SIZE RANGE S350GD+Z200 · section and thickness in mm · cumulative load in kg

REFERENCE	SECTION H × B	THICKNESS	FRAME CLASS	CUMULATIVE LOAD
RM 70/80	80 × 70	2.00	RAY-3T	3 000
RM 70/100	100 × 70	2.00	RAY-6T	6 000
RM 80/100	100 × 80	2.00	RAY-9T	9 000
RM 80/100	100 × 80	2.50	RAY-12T	12 000
RM 80/120	120 × 80	2.50	RAY-18T	18 000
RM 70/90	90 × 70	2.00	RAY-3T	3 000
RM 70/120	120 × 70	2.00	RAY-9T	9 000

Lengths from 3 400 to 12 000 mm in steps of 50 mm. Z200 galvanized as standard, RAL epoxy coating as an option.

STEEL
S350GD+Z200

THICKNESSES
2.00 · 2.50 mm

LENGTHS (MM)
3400 to 12000

FINISH
Z200 galvanised

RANGE 2B

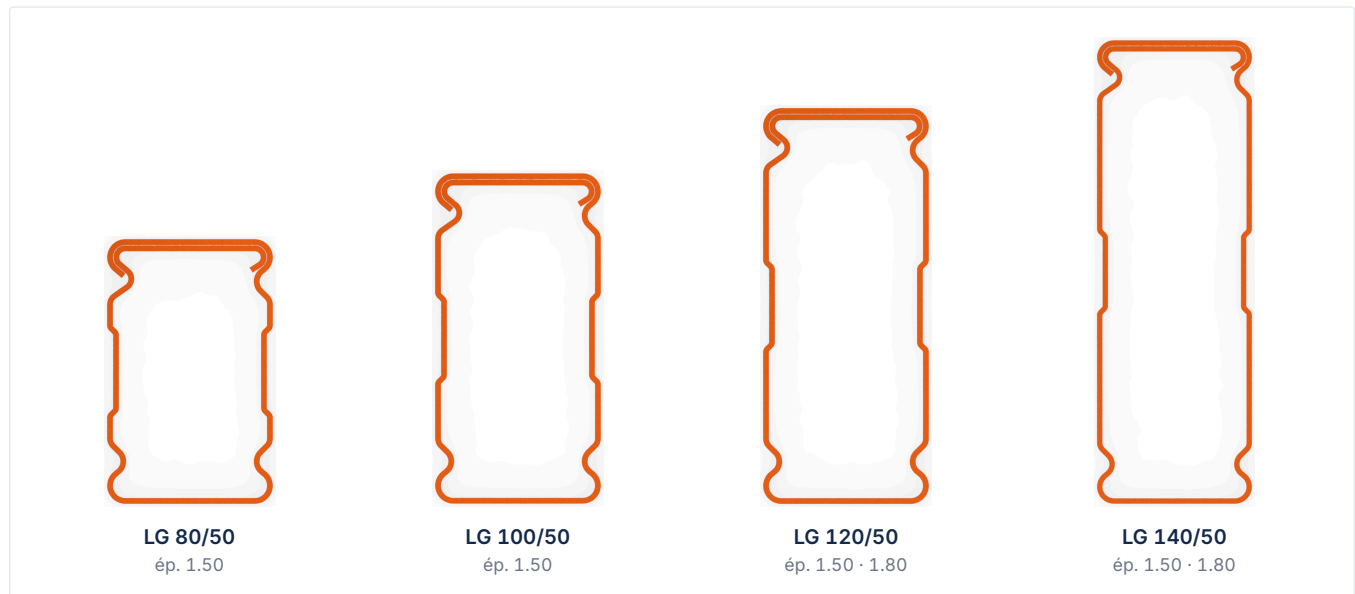
LG beams

S355JR box section with double lip return on each flange, supplied pre-painted. This stiffener multiplies the effective inertia by 2.4 to 3 compared with a plain C of the same dimensions: an LG 120 carries more than twice an LG 80 for the same span.



Connector cut from 3 mm S275JR strip, welded to the beam end: three teeth on light classes, four on heavy classes. Safety locking pin, two per beam.

CROSS-SECTIONS closed box



LOADS PER BEAM PAIR L = beam length · deflection L/200 and resistance · S355JR · loads in kg

SECTION	ÉP. mm	CLASS	L 1 850 mm	L 2 700 mm	L 3 600 mm
LG 80/50	1.50	LIS-950	2 050	950	500
LG 100/50	1.50	LIS-1650	3 300	1 650	900
LG 120/50	1.50	LIS-2600	4 300	2 600	1 450
LG 120/50	1.80	LIS-3100	5 150	3 100	1 750
LG 140/50	1.50	LIS-3550	5 200	3 550	2 050
LG 140/50	1.80	LIS-4250	6 250	4 250	2 450

Values in kg per pair of beams, beam lengths (bay spans) 1 850 · 2 700 · 3 600 mm, defined on page 72: minimum of deflection L/200 and resistance under factored load $F = 1.4$. Choice of beam class: page 76.

STEEL
S355JR

THICKNESSES
1.50 · 1.80 mm

CONNECTORS
Welded hooks

FINISH
Pre-painted

RANGE 2C · COMPONENTS OF THE ASSEMBLED FRAME

RH horizontal braces, RD diagonals

The horizontal brace keeps the uprights apart and prevents their rotation at the top. The diagonal takes horizontal forces – pallet impact, wind, earthquake – and forms the vertical bracing of the frame.



Galvanized C 40 × 27 × 1.50 diagonal.

Horizontal and diagonal braces are not sold separately: they are fitted in jigs at the factory, in the assembled frame. **Their number, pitch and section are defined by the project's EN 15512 calculation note; none may be removed without this justification.** The thresholds below are minimum preselection requirements.

BRACING GUIDELINES minimum requirements · final arrangement according to the EN 15512 calculation note

01

RH horizontal brace required

Above 3 000 mm height. Number and pitch per the EN 15512 calculation note.

02

RD diagonal required

Above 5 000 mm height. Below that, arrangement set by the EN 15512 calculation note.

03

Diagonals over the full height

For high-bay and seismic zones.

RANGE S350GD+Z200 · bolted fixing M10 gr. 8.8 · dimensions in mm

REFERENCE	SECTION	LENGTHS	APPLICATION
		D 850 / 1 100 / 1 250	
RH 40×27	40 × 27 × 1.50	813 · 1 063 · 1 213	horizontal brace · H 3 000 to 12 000 mm
RD 40×27	40 × 27 × 1.50	1 000 · 1 205 · 1 340	diagonal · bracing
RD 40×37	40 × 37 × 1.50	1 000 · 1 205 · 1 340	reinforced · H > 9 000 mm or seismic



Beams on upright perforated at 50 mm pitch · levels adjusted only after full unloading and validation of the new configuration.

RANGE 2D

Assembled frames

The frame is the complete vertical unit: two uprights, their horizontal and diagonal braces bolted in a jig at the factory, drilled base plates. It is delivered cut to the building height, ready to anchor.

Bolting

Jig-assembled

Controlled flatness, coating intact.

Anchors

EN 1992-4

BASE plates, M12 anchors.

Levelling

6 mm

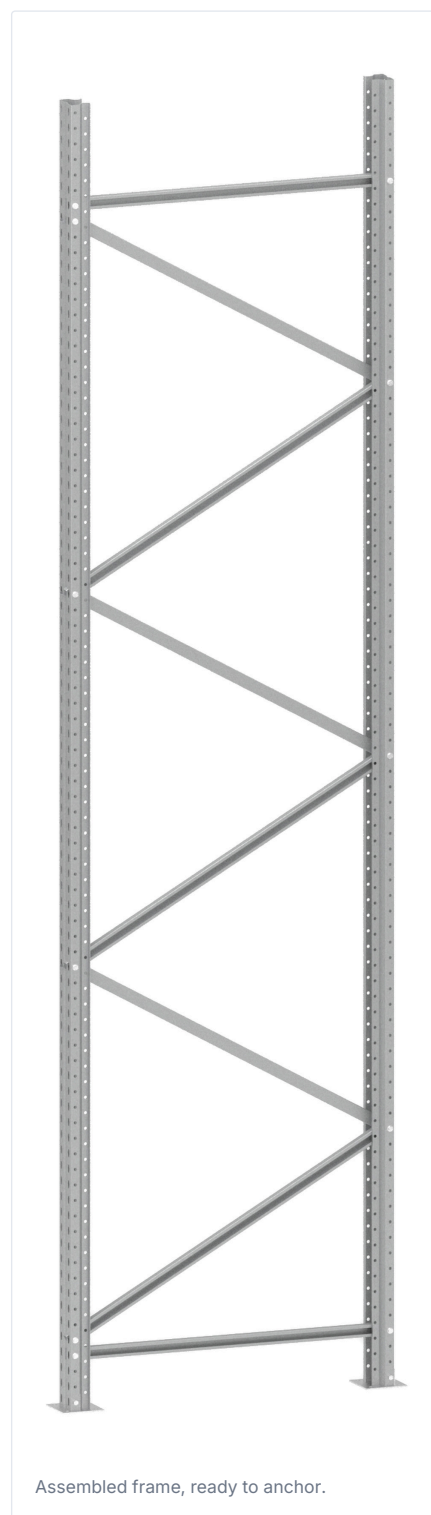
Stackable RN 71 / 72 shims.

Order code RAY [class] · H [height] · P [depth]. Example: RAY-12T · H 6 600 · P 1 100.

CLASSES, HEIGHTS AND DEPTHS cumulative load in kg

CLASS	STUD	CUMULATIVE LOAD
RAY-3T	RM 70/80 · 2.00	3 000
RAY-6T	RM 70/100 · 2.00	6 000
RAY-9T	RM 80/100 · 2.00	9 000
RAY-12T	RM 80/100 · 2.50	12 000
RAY-18T	RM 80/120 · 2.50	18 000

Heights from 3 400 to 12 000 mm in steps of 50 mm. Depths 850 · 1 100 · 1 250 mm, 1 100 recommended for a Euro pallet long side on. Cumulative load is the sum of the levels carried by the beams. Frame class selection: page 77.



Assembled frame, ready to anchor.

STEEL

S350GD+Z200

ASSEMBLY

Bolted

HEIGHTS (MM)

3400 to 12000

DEPTHS (MM)

850 to 1250

THREE BASIC SCHEMES

Typical configurations

All are built with the same range: switching from one to another changes neither the frames nor the beams, only the connection accessories.

A

Single-row rack

Single row along a wall or at the end of an aisle, accessible from one side only. Depth 850 mm for the Euro pallet short side, 1 100 mm long side. Wall fixing with RW 100 to 800 spacers.

SPAN

1850 to 3600 mm

HEIGHT

H 12000 mm

DEPTH

850 to 1250 mm

B

Double-row back-to-back rack

Two rows linked by RE row spacers from 50 to 500 mm, in steps of 50. Two circulation aisles, access from both sides. Total depth of about 2 400 mm with the 200 mm anti-fall clearance.

SPAN

2 700 mm typical

BACK-TO-BACK CLEARANCE

200 mm

SPRINKLER

Compatible

C

High-bay, very narrow aisle

Frames up to 12 000 mm, 1 600 mm aisle, turret truck. Diagonals over the full height required. Requires a slab flatness of F 3 mm / 2 m and a guide rail.

AISLE

1600 to 1900 mm

HEIGHT

H 12000 mm

CLASSES

RAY-12T and RAY-18T

REFERENCE CLEARANCES AND DIMENSIONS · EURO PALLETS

Layout templates

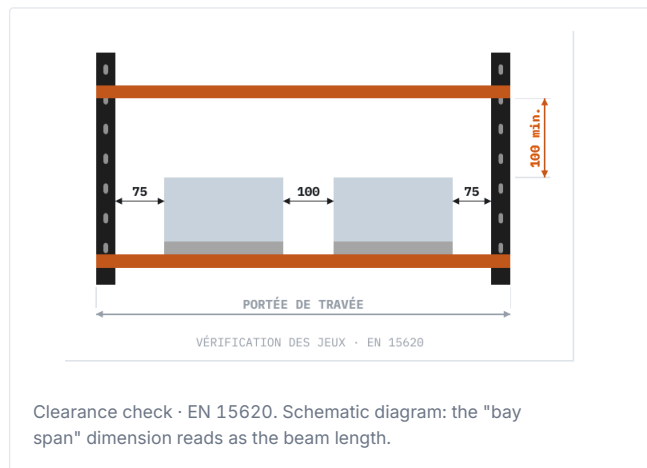
Minimum dimensions for an EN 15620 compliant installation. The pallet governs everything: frame depth, beam length and aisle width all follow from its format and orientation.

LAYOUT PARAMETERS EN 15620

PARAMETER	PALLET 800 × 1 200	PALLET 1 000 × 1 200	NOTE
Frame depth	850 mm	1 100 mm	long side: 1 100 / 1 250
Pallet upright clearance	75 mm	75 mm	EN 15620 §6.1
Clearance between pallets	100 mm	100 mm	on the same pair of beams
Clearance above pallet	100 mm	100 mm	150 mm for high-bay racking
Pallet overhang	50 mm	50 mm	beyond: check the aisle
Aisle · counterbalance truck	3 500 mm	3 600 mm	varies by manufacturer
Aisle · reach truck	2 700 mm	2 800 mm	steel-to-steel width
Aisle · turret truck	1 600 mm	1 700 mm	slab F 3 mm / 2 m
Clearance between row backs	200 mm	200 mm	fall prevention and sprinkler

Indicative aisle widths. The actual width depends on the truck: fork length, tiller, manufacturer dimensions. To be confirmed with the handling equipment supplier before finalising the drawings.

DEFINITIONS terms used identically throughout the section



TERM	DEFINITION
Beam length	Nominal beam length, including connectors: 1 850 · 2 700 · 3 600 mm. Order reference and basis of the load tables (page 68, page 76).
Bay span	In this catalogue, equal to the beam length.
Clear width	Clear opening between the inner faces of the two uprights of a bay, which houses the pallets and their clearances. Exact value according to the layout drawing.
Spacing between uprights	Centre-to-centre distance between the uprights of a bay: clear width + width of one upright.

LEVELLING · CONNECTION · PROTECTION

Accessories & protection

Levelling, row connection and impact protection: accessories compatible with RM 70 and RM 80 uprights.

STRUCTURAL ACCESSORIES compatible with RM 70 and RM 80

	FAMILY	REFERENCES	DIMENSIONS	APPLICATION
	Base plate	BASE 100 · 120	3 mm strip, drilled Ø12	M12 anchors
	Levelling shim	RN 71 · 72	thickness 1 and 2 mm	uneven slab
	Row spacer	RE 50 to 500	tube 40 × 40 × 1.50	back-to-back connection
	Wall spacer	RW 100 to 800	100 to 800 mm	against load-bearing wall
	Pallet support	RP 080 · 110 · 125	depth 800 / 1 100 / 1 250	non-standard pallet
	Mechanical anchor	RA M12 × 110	zinc-plated expansion	2 per frame · 4 per footplate

IMPACT PROTECTIONS RAL 1023 · 3 mm S275JR plate

	FAMILY	REFERENCES	DIMENSIONS	APPLICATION
	Upright protection	RS-U 400	ribbed sheet, h 400 mm	forklift aisle
	Corner protector	RS 400 A	folded sheet, h 400 mm	aisle corner
	Wall, single row	RS 800P · 110P · 125P	depth 800 / 1 100 / 1 250	anti-spill
	Wall, double row	RS 802P · 112P · 125P	integrated 200 mm spacer	bolted

A component deformed by an impact must be replaced, never reused. The cost of an upright protector bears no comparison with that of a bay to be unloaded and rebuilt.

MATERIAL
Plate 3 mm

STEEL GRADE
S275JR

PROTECTIONS
RAL 1023

COMPATIBILITY
RM 70 and RM 80

EQUIP EACH LEVEL ACCORDING TO THE LOAD

Decks & equipment

Non-standard pallets, manual picking, sprinkler requirements: each level receives the appropriate equipment, fitted on the existing pair of beams. No drilling, no modification of the frame.

FLOORS AND DECKING

TYPE	REFERENCE	PROPERTIES	APPLICATION
Tubular decking	RT 080 · 110 · 125	galvanized omega profiles	fragile pallets, distributed loads
Steel grating	RC 080 · 110 · 125	30 × 100 mesh, galvanized	sprinkler · picking · anti-dust
Chipboard panel	RA 22 · RA 38	thickness 22 or 38 mm, fitted on Z	manual picking, cartons
Timber decking	PB 27-11	tongued fir boards 2 700 × 1 100 × 24	picking, bulk
Pallet support	RP 080 · 110 · 125	2 per pallet position minimum	non-standard pallet

LOAD SECURING

TYPE	REFERENCE	PROPERTIES	APPLICATION
Back stop	RBP 080-125	steel tube fixed to uprights	pallet positioning · protects the back
Anti-collapse mesh	RG 2200 · 2700 · 3300	50 × 50 mesh, steel frame	rack back on pedestrian area
Bay divider	RSV 400 · 600	removable vertical	long overhanging loads

Selection rule

Uniformly distributed load on decking: use 80 % of the beam pair capacity (table page 76).
Point load: please consult us.

In-rack sprinkler

The RC grating lets water through in accordance with insurance requirements. The vertical clearance must be validated with the inspection body.

INSTALLATION

On pair of beams

DRILLING

None

DECKING

80 % used

SPRINKLER

RC grating

OPERATING IN COMPLIANCE

Safety & operation

A rack is monitored like lifting equipment. The EN 15635 standard governs inspection and damage management.

THE THREE INSPECTION LEVELS

FREQUENCY	BY WHOM	PURPOSE
Continuous	operators and forklift drivers	immediate reporting of any impact or visible anomaly
Weekly	person responsible for racking safety	documented visual inspection, lower levels first
Annual	competent person	expert inspection with written report

DAMAGE CLASSIFICATION

Green · monitor

Deformation within limits. Record, identify, re-examine at the next inspection.

Orange · risk

Limit exceeded up to twice. Unload immediately and replace before returning to service; reloading prohibited.

Red · danger

More than twice the limit. Unload immediately, isolate the bay, replace before reloading.

DEFORMATION LIMITS EN 15635 §9.4.4 · gauge over 1 m

ELEMENT	DIRECTION	GREEN LIMIT
RM upright	bending in the frame plane	5 mm / m
RM upright	out-of-plane bending, aisle direction	3 mm / m
Diagonal and horizontal brace	any direction	10 mm / m
LG beam	residual unloaded deflection after unloading	0 permitted

Cold forming rules out repair by straightening: work hardening has altered the steel. The component is replaced; availability and lead time are confirmed in the quotation.

STANDARDS REFERENCE

STANDARD	PURPOSE
EN 15512	design: frames, beams, connectors
EN 15620	tolerances, clearances, slab flatness
EN 15635	inspection, damage, load plate
EN 1993 · EN 1992-4	Eurocode 3 · anchorage in concrete
EN 10346 · EN 10025-2 · EN 10204	S350GD+Z200 and S355JR steels · 3.1 certificate

FIRST READING

Span × load beam class

Find the row for your bay span (beam length, see page 72) and the column for your load per pair of beams, including pallets and goods. The cell gives the minimum class to select.

WORKING LOAD PER BEAM PAIR kg

SPAN	1 000	1 000 to 1 500	1 500 to 2 000	2 000 to 2 500	2 500 to 3 500	3 500 to 5 000	5 000 to 7 000	7 000 to 10 000
1 850 mm	LIS-950	LIS-950	LIS-950	LIS-1650	LIS-2600	LIS-3100	-	-
2 700 mm	LIS-1650	LIS-1650	LIS-2600	LIS-2600	LIS-3550	-	-	-
3 600 mm	LIS-2600	LIS-3100	LIS-3550	-	-	-	-	-

Cells (-): load outside the standard range for this span, consult the design office. Allowable load: the lower of deflection L/200 and resistance under factored load, S355JR steel. With decking, use 80 % of the table capacity (page 74).

Reading example

Bay of 2 700 mm, two Euro pallets placed long side forward (1 200 mm at the front, frame depth 850 mm), 1 000 kg each.

Width required with the clearances on page 72: $2 \times 1\,200 + 2 \times 75 + 100 = 2\,650$ mm, less than 2 700 mm.

Load per beam pair: $2 \times 1\,000 = 2\,000$ kg. Row 2 700 mm, column 1 500 to 2 000 kg: the cell shows LIS-2600.

Result: LIS-2600, LG 120/50 · 1.50 in 2 700 mm length, 600 kg margin.



Bay span and load per pair of beams.

CLASSES

LIS-950 to
LIS-4250

SPANS (MM)

1 850 to 3 600

CRITERION

L/200 and $F = 1.4$

STEEL

S355JR

SECOND READING

Height × column load frame class

Column load is the sum of the loads of all levels carried by one frame, including rack self-weight, about 5 %, and horizontal forklift actions according to EN 15512 §6.3.2.3.

ALLOWABLE COLUMN LOAD kg

HEIGHT	< 2 000	2 000 to 4 000	4 000 to 6 000	6 000 to 8 000	8 000 to 12 000	12 000 to 18 000
3 000 mm	RAY-3T	RAY-6T	RAY-6T	RAY-9T	RAY-12T	RAY-18T
5 000 mm	RAY-3T	RAY-6T	RAY-6T	RAY-9T	RAY-12T	RAY-18T
7 000 mm	RAY-3T	RAY-6T	RAY-9T	RAY-12T	RAY-18T	-
9 000 mm	RAY-3T	RAY-6T	RAY-9T	RAY-12T	RAY-18T	-
12 000 mm	RAY-6T	RAY-9T	RAY-12T	RAY-18T	-	-

Preselection values derived from frame loads at 6 and 8 m. The project's EN 15512 calculation note validates the final choice when it is part of the design scope. Classes RAY-9T, 12T and 18T: availability to be confirmed in the offer.

PROJECT SHEET six data are enough

01 Bay span Beam length in mm: 1 850 · 2 700 · 3 600 (definitions page 72).	02 Load per location In kg, pallet and goods.	03 Clear height Under trusses or under sprinklers.
04 Number of levels Ground included.	05 Frame depth 850 · 1 100 · 1 250 mm.	06 Forklift type Counterbalance, reach or turret truck.

CLASSES RAY-3T to RAY-18T	HEIGHTS (MM) 3 000 to 12 000	DESIGN EN 15512	STEEL S350GD+Z200
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DECISION AID

Which family for which need

One entry per type of work rather than per product: each line refers to the catalogue section covering the subject.

WORK TO BE CARRIED OUT

WORK TO BE CARRIED OUT	ATLAS STEEL FAMILY	SECTION
Portal frames, columns, trusses	Rolled beams and welded beams (WB)	01
Plates, gussets, bracing	Flat bars, angles, round and square bars	01
Secondary roof framing	Z purlins in continuous spans	02
Cladding girts	C+ purlins	02
Dry roofing or waterproofing support deck	Nervesco 3.333.45 and Toitesco 4.250.40 profiled sheets	03
Insulated envelope	Isotoit and Isomur sandwich panels	03
Composite steel-concrete floor	Composite steel-concrete floor	03
Partitions, linings and ceilings	Studs, tracks and furring channels	04
Rooftop or ground-mounted photovoltaic plant	PS rails and system accessories	05
Pallet storage	Pallet racking	06

SERVICES AND DOCUMENTS

SERVICE	AVAILABILITY
Standard stock · common sections of the six families	availability confirmed in the offer
Shot blasting Sa 2½ and 20 µm primer, from 3 mm	integrated into order picking
Cut to length and perforations to drawings · cold-formed sections and tubes	according to approved drawings; rolled sections in standard lengths
Custom welded beams (WB) and racking · fabrication, drilling, plates	on request
EN 10204 type 3.1 material certificate	according to order requirements
Eurocode calculation notes and dimensioned installation drawings	according to the design scope

ANNEX

Standards reference

The texts below serve as specification and design references. Applicable requirements, assumptions and supporting documents must be confirmed according to the product, the configuration and the project scope.

TEXT	PURPOSE	SECTIONS CONCERNED
EN 10025	hot-rolled structural steels	01
EN 10365	beams and U sections	01
EN 10056-1 · 10058 · 10059 · 10060	merchant bars	01
EN 10219	structural hollow sections	01
EN 10346	continuously hot-dip coated flat products	02 · 03 · 04 · 05
EN 1993-1-1	Eurocode 3, general rules	01
EN 1993-1-3	Eurocode 3, cold-formed members	02 · 03 · 05
EN 1090	execution of steel structures	01 · 05
EN ISO 1461	hot-dip galvanizing of parts (cleats)	02
EN 14195 · EN 13964	profiles for plasterboard · suspended ceilings	04
EN 15512 · EN 15620	pallet racking, design and tolerances	06
EN 15635	racking, operation and maintenance	06
ISO 8501-1 · ISO 12944	surface preparation and corrosion protection	01 · 05
EN 10204	inspection documents, type 3.1 certificate	all

Reminder

The published span and load values apply to the assumptions stated at the foot of each table. Any configuration that departs from them requires a specific verification by the technical department.

Let's talk about your project.

01	Structural steel and rolled sections	page 05
02	C+ and Z purlins	page 27
03	Building envelope	page 37
04	Plasterboard framing	page 47
05	Solar mounting systems	page 55
06	Pallet racking	page 65

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