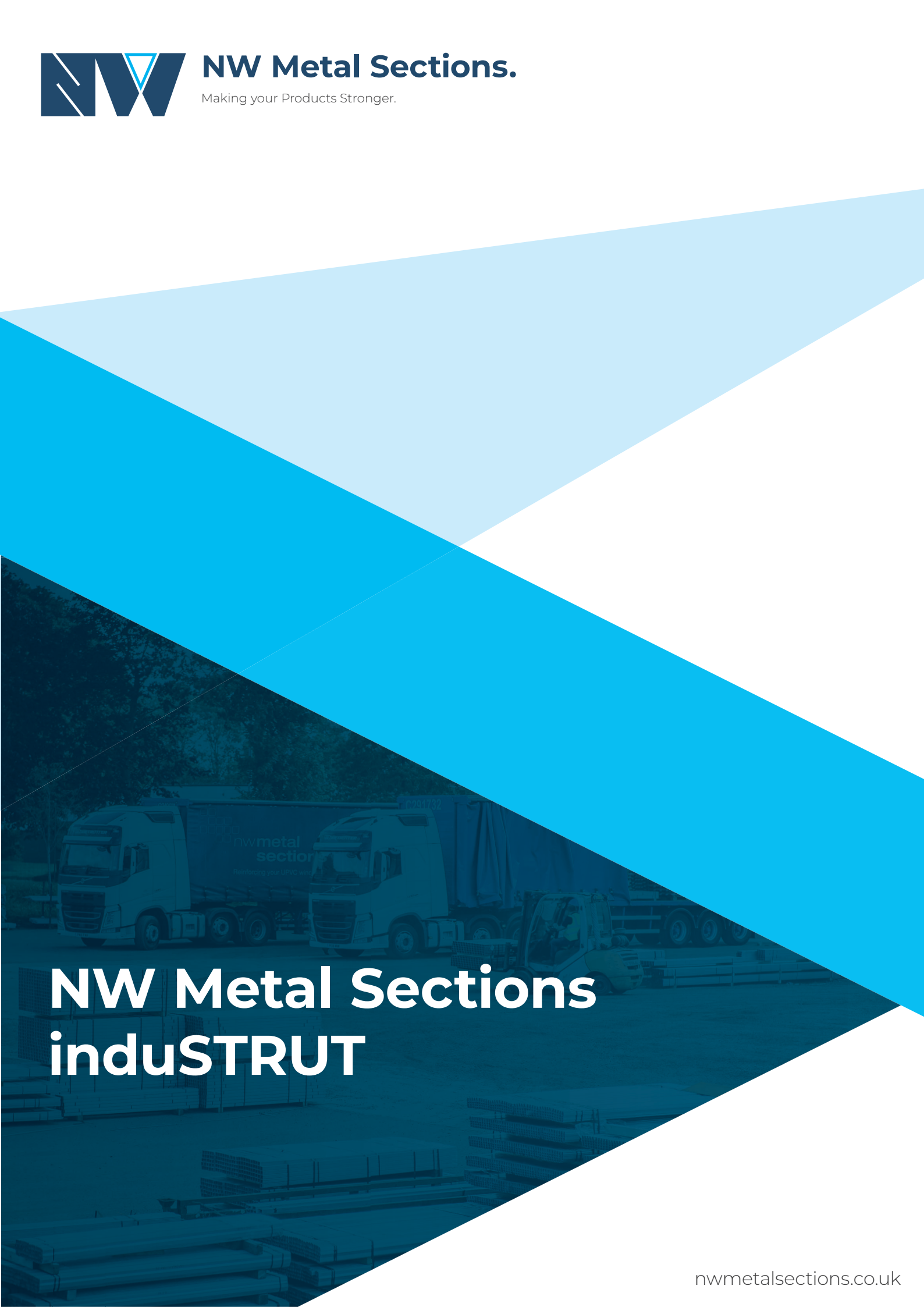




NW Metal Sections.

Making your Products Stronger.



NW Metal Sections induSTRUT



NW Metal Sections

Making your products stronger

World Headquarters

CONTENT.

MAKING YOUR PRODUCTS STRONGER

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Welcome



NW Metal Sections are one of the UK's premier companies, who have been supplying quality cold-rolled steel sections to both local and national businesses for over 15 years.

Customer service and speed of delivery is at the very heart of our business, but our agility extends through to the way we collaborate with you to ensure we design the right profile solution for your product

The success of our business has been built on continuous improvement to ensure we always supply quality products, at competitive prices, backed up with a fast and efficient response to the needs of all our customers.

With our innovative culture we are constantly increasing our product range and coupled with our engineering know how, leading quality standards and modern production facilities we are the perfect partner for your business.

A handwritten signature in black ink that reads 'John'.

John Kilgannon, **Managing Director.**



induSTRUT Stock

We stock a large range of finished sections which are ready and waiting for dispatch in our spacious 30,000 square foot warehouse. We hold over a 1000 tonnes of finished profiles at any one time. At any given minute, we are able to provide a fast and reliable delivery service on a multitude of products.

On-line Ordering

Place stock orders **on-line**



AS EASY AS AN AMAZON PURCHASE

Ordering on-line is now for many the chosen method of purchasing just about anything. NWMS offer the same service with your negotiated prices, either use our website or talk to us about integration with your procurement software.



AUTOMATIC ALLOCATION AND PLANNING

Once an order is verified by our sales team it is automatically planned, allocated and passed electronically to our production machinery reducing input effort, errors and monitoring efficiency and quality.



100% "ON TIME IN FULL" ORDER FULFILLMENT

We know that "on-time" isn't just convenient for our customers - its critical, often late can be as damaging to a business as "never". Our fleet of GPS tracked vehicles and traffic management system ensure we deliver when we promise.

Customer Testimonials



“Having a business that totally gets what we are about and is able to work so closely with us to find the right solutions is a lifesaver for me. Time and time again they deliver when time is against us.”

- GEMINI WINDOWS



“NW Metal Sections have supplied us for over 10 years and always offered a reliable, competitive service backed up with excellent customer support.”

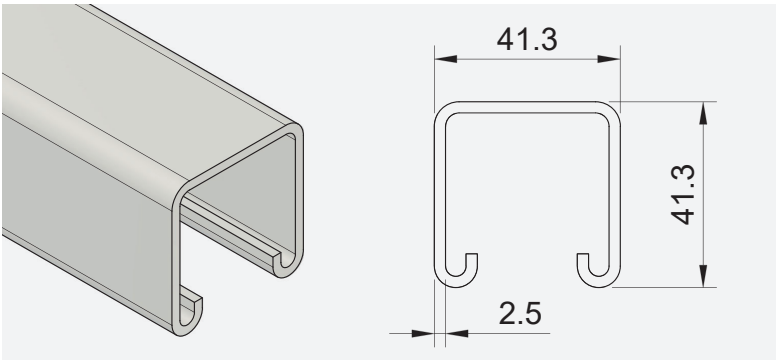
- AFFORDABLE WINDOW SYSTEMS

Quick Reference

6901

41mm x 41mm x 2.5mm Gauge
Plain Channel

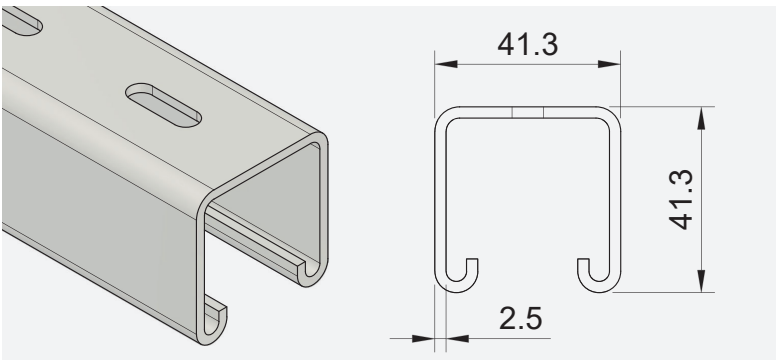
p12



6901P

41mm x 41mm x 2.5mm Gauge
Pierced Channel.
2 Versions Available.

p14

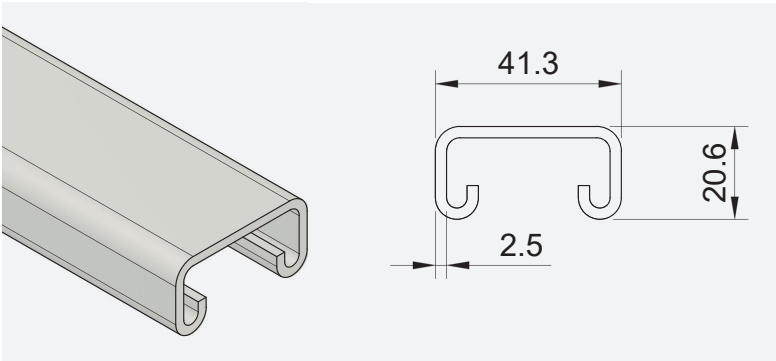


Section Properties	Area(cm²)	Weight (kg/m)	I _y (cm⁴)	Z _y (cm³)	r _y (cm)	I _z (cm⁴)	Z _y (cm³)	r _y (cm)
	3.31	2.60	8.16	3.62	1.50	9.91	4.80	1.70

6902

41mm x 21mm x 2.5mm Gauge
Plain Channel

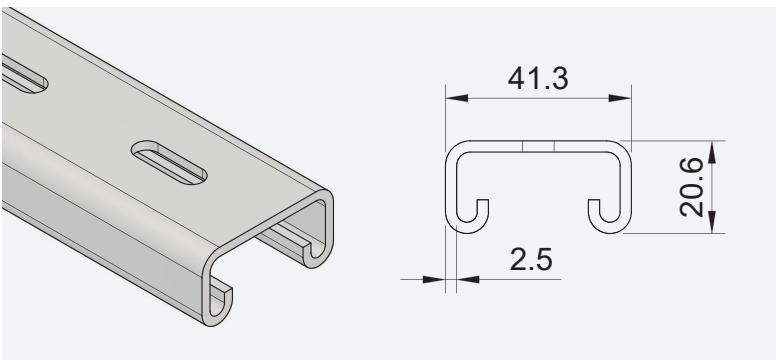
p16



6902P

41mm x 21mm x 2.5mm Gauge
Pierced Channel.
2 Versions Available.

p18



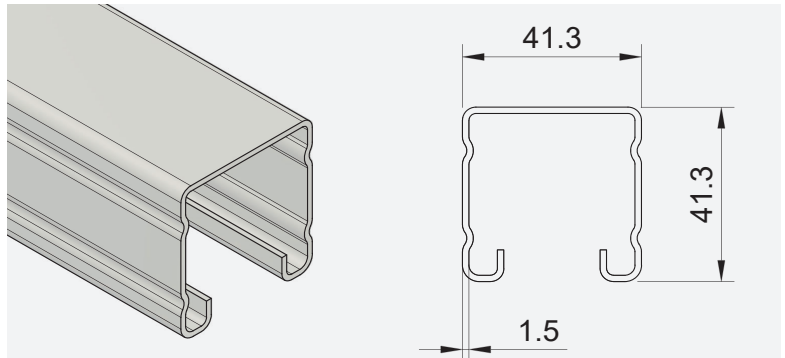
Section Properties	Area(cm²)	Weight (kg/m)	I _y (cm⁴)	Z _y (cm³)	r _y (cm)	I _z (cm⁴)	Z _y (cm³)	r _y (cm)
	2.29	1.80	1.40	1.19	0.70	6.03	2.92	1.50

Quick Reference

6903

41mm x 41mm x 1.5mm Gauge
Plain Channel

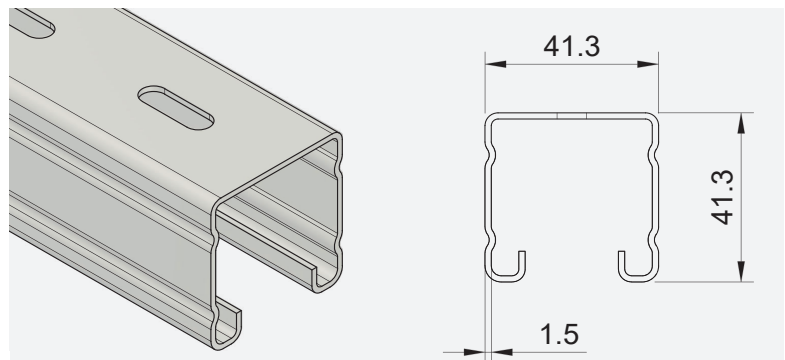
p20



6903P

41mm x 41mm x 1.5mm Gauge
Pierced Channel.
2 Versions Available.

p22

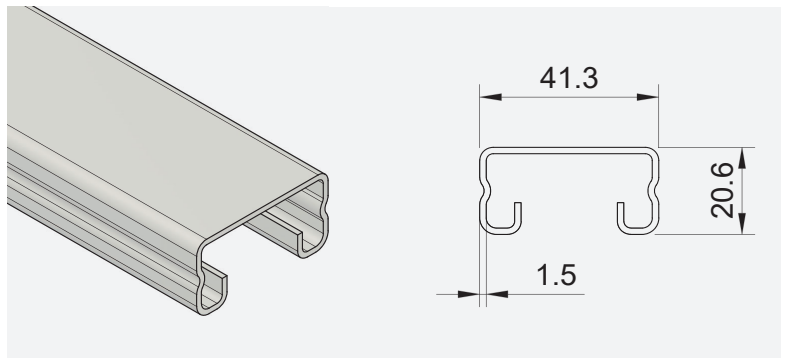


Section Properties	Area(cm ²)	Weight (kg/m)	I _y (cm ⁴)	Z _y (cm ³)	r _y (cm)	I _z (cm ⁴)	Z _z (cm ³)	r _z (cm)
	2.12	1.66	5.49	2.47	1.5	6.68	3.22	1.70

6904

41mm x 21mm x 1.5mm Gauge
Plain Channel

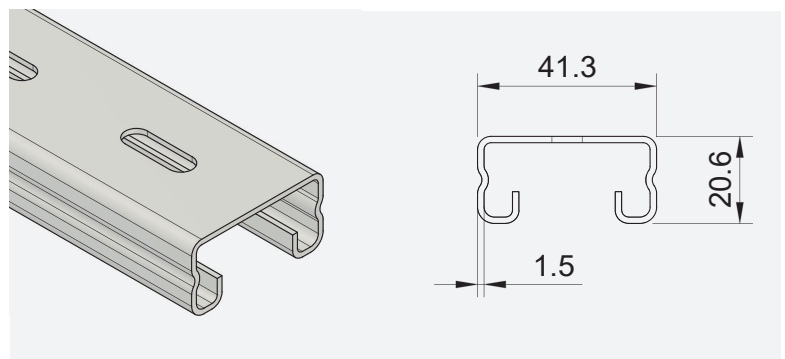
p24



6904P

41mm x 21mm x 1.5mm Gauge
Pierced Channel.
2 Versions Available.

p26



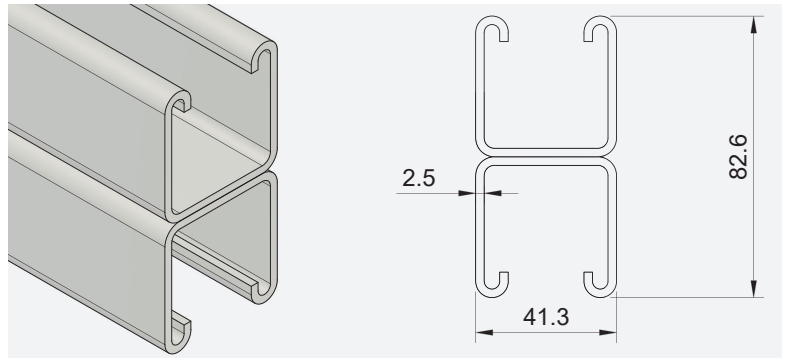
Section Properties	Area(cm ²)	Weight (kg/m)	I _y (cm ⁴)	Z _y (cm ³)	r _y (cm)	I _z (cm ⁴)	Z _z (cm ³)	r _z (cm)
	1.50	1.18	0.99	0.85	0.80	4.06	1.96	1.6

Quick Reference

6905

82mm x 41mm x 2.5mm Gauge
Welded Back-to-Back
Plain Channel

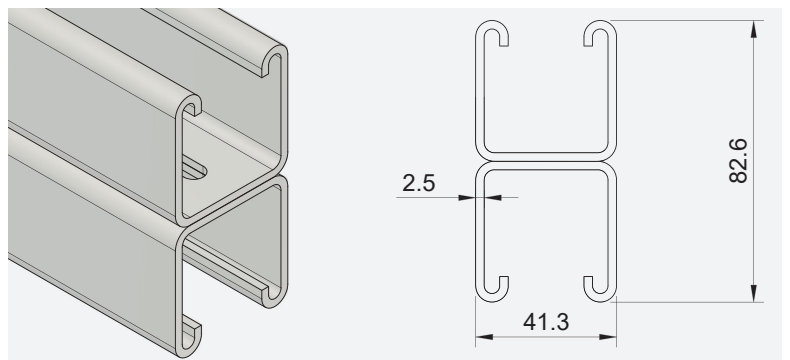
P28



6905P

82mm x 41mm x 2.5mm Gauge
Welded Back-to-Back
Pierced Channel

P30

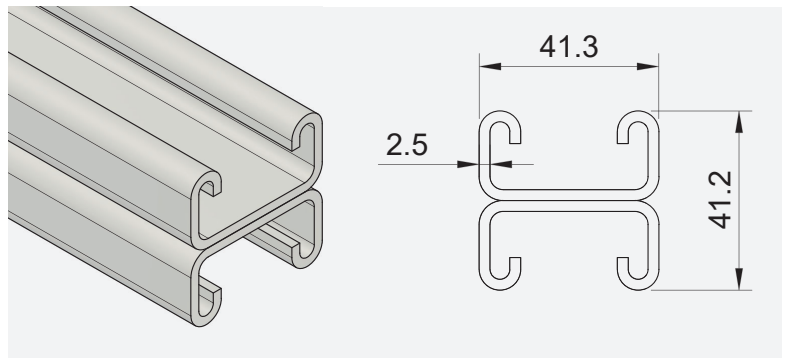


Section Properties	Area(cm ²)	Weight (kg/m)	I _y (cm ⁴)	Z _y (cm ³)	r _y (cm)	I _z (cm ⁴)	Z _y (cm ³)	r _y (cm)
	6.63	5.20	41.60	10.10	2.40	19.80	9.60	1.70

6906

41 x 41mm x 2.5mm Gauge
Welded Back-to-Back
Plain Channel

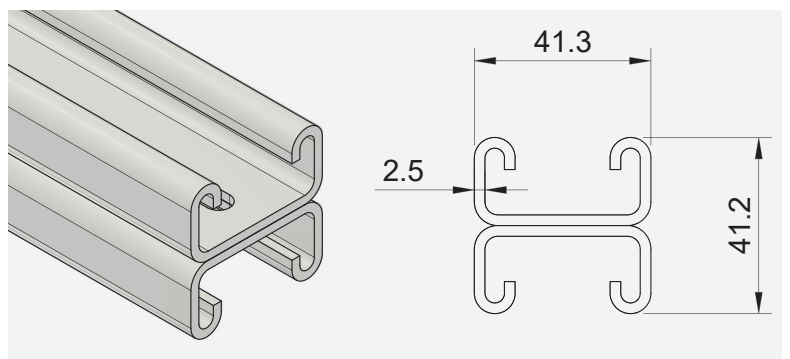
P32



6906P

41mm x 41mm x 2.5mm Gauge
Welded Back-to-Back
Pierced Channel

P34



Section Properties	Area(cm ²)	Weight (kg/m)	I _y (cm ⁴)	Z _y (cm ³)	r _y (cm)	I _z (cm ⁴)	Z _y (cm ³)	r _y (cm)
	4.58	3.59	6.79	3.29	1.20	12.10	5.84	1.5

induSTRUT - General Engineering Data

1. BEAM LOAD CALCULATION NOTES

Loads are governed by shear or web crippling.

For uniform beam working loads asymmetric sections are required to be adequately braced to prevent rotation and twist.

Beam loads and deflections shown assume simply supported beams uniformly loaded.

2. DERIVED STRUCTURAL DATA

Section properties are derived from the 'as-formed' shapes, based on nominal dimensions and nominal base steel thickness. Nominal masses are calculated using the tabulated areas, assuming a steel density of 7850 kg/m³. For dead load calculations, the tabulated masses should be increased by 10% to account for rolling tolerances, then multiplied by 0.0098 to obtain the corresponding dead load (self-weight) in kN per meter of section.

Additionally, beam loads do not include the self-weight of the section. When designing a structure where the section is an integral component, the self-weight should be calculated using this method and deducted from the tabulated load.

3. BEAM SPAN TABLES

Ultimate load values have been calculated based on section properties in accordance with **BS EN 1993-1-3** (*Eurocode 3: Design of Steel Structures – Cold-Formed Members and Sheeting*). The guaranteed minimum yield strength, F_y , has been assumed as 264 MPa for plain struts, with the increase due to cold forming determined in line with Eurocode provisions.

The listed working loads have been derived by applying a partial safety factor of 1.5 to the ultimate load, as required by UK design standards.

Listed values are to be taken as the distance between support centres.

4. BEAM LOAD at MAXIMUM STRESS PERMITTED

To establish the table of working loads for each section, the ultimate limit state loads permitted by BS EN 1993-1-3 were first determined.

These were then divided by 1.5 to derive conservative working loads. The load is assumed to be uniformly distributed along the span and oriented with respect to the section, as illustrated in the diagrams, to induce bending about the X-X axis only.

The beam webs are considered unstiffened and have been checked for end bearing in accordance with **BS EN 1993-1-3**. Where end bearing governs, the working loads have been appropriately reduced. This assessment assumes rigid supports, with the beam bearing on each support for a length at least equal to the clear web depth of the basic section.

6901

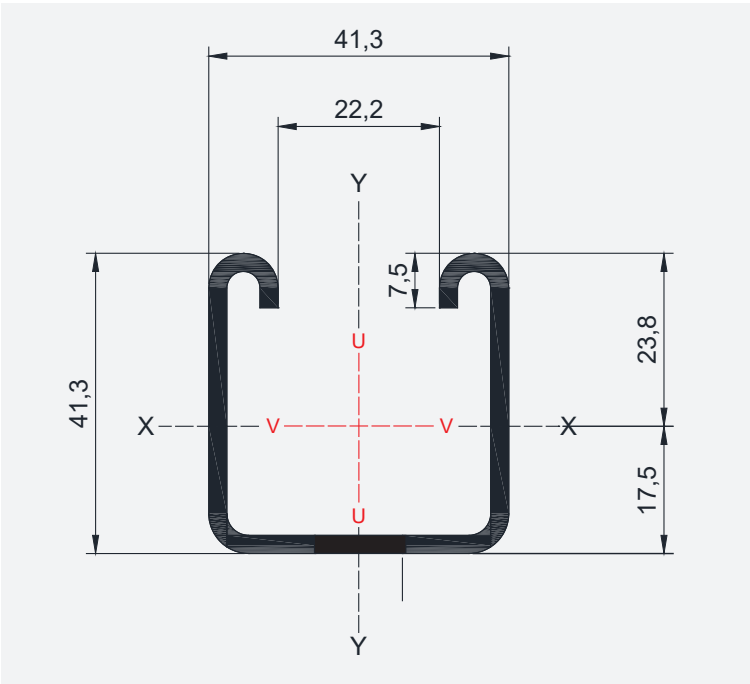
41mm x 41mm Plain Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : none

NWMS Part Code

Length

6901-414125-3000	3000mm
6901-414125-6000	6000mm



Area	3.58 cm²			
2 nd moment of area	$I_{uu} = \mathbf{9.91 \text{ cm}^4}$	$I_{vv} = \mathbf{8.16 \text{ cm}^4}$	$I_{xx} = \mathbf{8.16 \text{ cm}^4}$	$I_{yy} = \mathbf{9.91 \text{ cm}^4}$
Radius of gyration	$r_{uu} = \mathbf{16.6 \text{ mm}}$	$r_{vv} = \mathbf{15.1 \text{ mm}}$	$r_{xx} = \mathbf{1.5 \text{ cm}}$	$r_{yy} = \mathbf{1.7 \text{ cm}}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = \mathbf{4.93 \text{ cm}^3}$	$S_{xx} = \mathbf{5.66 \text{ cm}^3}$
Distance to combined centroid			$X_e = \mathbf{0.0 \text{ cm}}$	$Y_e = \mathbf{17.5 \text{ cm}}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = \mathbf{0.0 \text{ cm}}$	$Y_p = \mathbf{-16.5 \text{ cm}}$
Elastic section modulus			$Z_{xx} = \mathbf{3.62 \text{ cm}^3}$	$Z_{xx} = \mathbf{3.62 \text{ cm}^3}$

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	24.03	0.22	N/A	N/A
500	12.01	0.87	N/A	N/A
750	8.01	1.95	N/A	6.34
1000	6.01	3.46	N/A	3.57
1250	4.81	5.41	4.11	2.28
1500	4.00	7.79	2.85	1.59
1750	3.43	10.61	2.10	1.17
2000	3.00	13.85	1.61	0.89
2250	2.67	17.53	1.27	0.70
2500	2.40	21.65	1.03	0.57
2750	2.18	26.19	0.85	0.47
3000	2.00	31.17	0.71	0.40

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	12.01	0.17	N/A	N/A
500	6.01	0.69	N/A	N/A
750	4.00	1.56	N/A	3.97
1000	3.00	2.77	N/A	2.23
1250	2.40	4.33	N/A	1.43
1500	2.00	6.23	1.78	0.99
1750	1.72	8.48	1.31	0.73
2000	1.50	11.08	1.00	0.56
2250	1.33	14.03	0.79	0.44
2500	1.20	17.32	0.64	0.36
2750	1.09	20.95	0.53	0.29
3000	1.00	24.94	0.45	0.25

6901P

41mm x 41mm Pierced Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : 28mm x 14mm Option P
28mm x 12mm Option P1

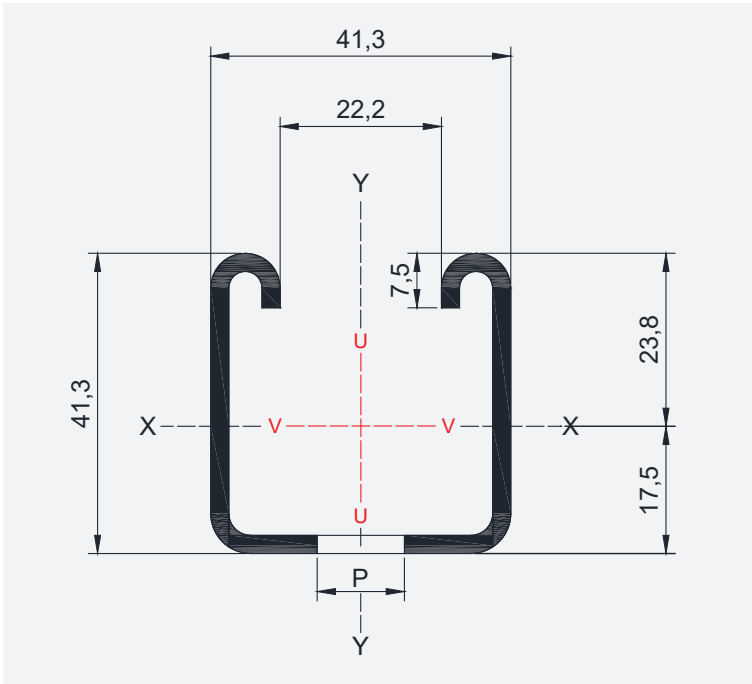
NWMS Part Code

Length

6901P-414125-3000	3000mm
6901P-414125-6000	6000mm
6901P1-414125-3000	3000mm
6901P1-414125-6000	6000mm

Slots pierced @ 50mm centres

Area	3.26 cm ²			
2 nd moment of area	$I_{uu} = 9.87 \text{ cm}^4$	$I_{vv} = 7.06 \text{ cm}^4$	$I_{xx} = 7.06 \text{ cm}^4$	$I_{yy} = 9.87 \text{ cm}^4$
Radius of gyration	$r_{uu} = 17.4 \text{ mm}$	$r_{vv} = 14.7 \text{ mm}$	$r_{xx} = 1.5 \text{ cm}$	$r_{yy} = 1.7 \text{ cm}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = 4.34 \text{ cm}^3$	$S_{yy} = 5.55 \text{ cm}^3$
Distance to combined centroid			$X_e = 0.0 \text{ cm}$	$Y_e = 19.3 \text{ cm}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = 0.0 \text{ cm}$	$Y_p = 19.7 \text{ cm}$
Elastic section modulus			$Z_{xx} = 3.40 \text{ cm}^3$	$Z_{yy} = 4.78 \text{ cm}^3$



Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	24.03	0.22	N/A	N/A
500	12.01	0.87	N/A	N/A
750	8.01	1.95	N/A	6.34
1000	6.01	3.46	N/A	3.57
1250	4.81	5.41	4.11	2.28
1500	4.00	7.79	2.85	1.59
1750	3.43	10.61	2.10	1.17
2000	3.00	13.85	1.61	0.89
2250	2.67	17.53	1.27	0.70
2500	2.40	21.65	1.03	0.57
2750	2.18	26.19	0.85	0.47
3000	2.00	31.17	0.71	0.40

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	11.28	0.19	N/A	N/A
500	5.64	0.75	N/A	N/A
750	3.76	1.69	N/A	3.43
1000	2.82	3.01	N/A	1.93
1250	2.26	4.70	2.22	1.24
1500	1.88	6.77	1.54	0.86
1750	1.61	9.21	1.13	0.63
2000	1.41	12.03	0.97	0.48
2250	1.25	15.23	0.69	0.38
2500	1.13	18.80	0.56	0.31
2750	1.03	22.75	0.46	0.26
3000	0.94	27.07	0.39	0.21

6902

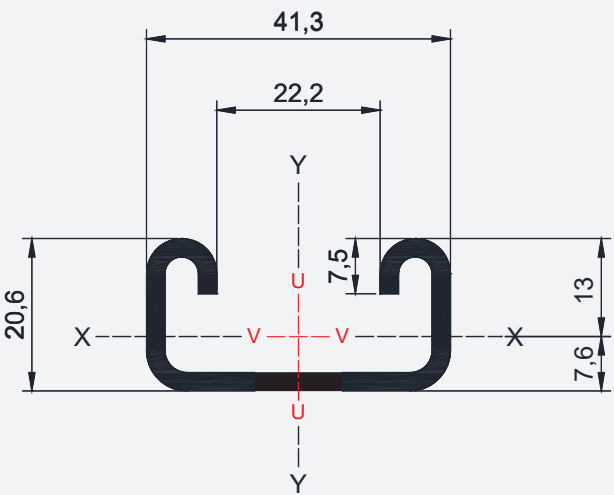
41mm x 21mm Plain Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : none

NWMS Part Code

Length

6902-412125-3000	3000mm
6902-412125-6000	6000mm



Area	2.65 cm ²			
2 nd moment of area	I _{uu} = 6.03 cm ⁴	I _{vv} = 1.40 cm ⁴	I _{xx} = 1.40 cm ⁴	I _{yy} = 6.03 cm ⁴
Radius of gyration	r _{uu} = 15.4 mm	r _{vv} = 7.4 mm	r _{xx} = 0.7 cm	r _{yy} = 1.5 cm
Plastic section modulus (only shapes with rectangles at 90°)			S _{xx} = 1.75 cm ³	S _{yy} = 3.66 cm ³
Distance to combined centroid			X _e = 0.0 cm	Y _e = 7.6 cm
Distance to equal axis area (only shapes with rectangles at 90°)			X _p = 0.0 cm	Y _p = -6.0 cm
Elastic section modulus			Z _{xx} = 1.19 cm ³	Z _{yy} = 2.92 cm ³

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	7.90	0.41	N/A	N/A
500	3.95	1.66	N/A	2.45
750	2.63	3.73	1.96	1.09
1000	1.97	6.64	1.10	0.61
1250	1.58	10.37	0.71	0.39
1500	1.32	14.93	0.49	0.27
1750	1.13	20.32	0.36	0.20
2000	0.99	26.54	0.28	0.15
2250	0.88	33.59	0.22	0.12
2500	0.79	41.47	0.18	0.10
2750	0.72	50.18	0.15	0.08
3000	0.66	59.72	0.12	0.07

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	3.95	0.33	N/A	N/A
500	1.97	1.33	N/A	1.53
750	1.32	2.99	1.22	0.68
1000	0.99	5.31	0.69	0.38
1250	0.79	8.29	0.44	0.24
1500	0.66	11.94	0.31	0.17
1750	0.56	16.26	0.22	0.12
2000	0.49	21.23	0.17	0.10
2250	0.44	26.87	0.14	0.08
2500	0.39	33.18	0.11	0.06
2750	0.36	40.15	0.09	0.05
3000	0.33	47.78	0.08	0.04

6902P

41mm x 21mm Pierced Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : 28mm x 14mm Option P
28mm x 12mm Option P1

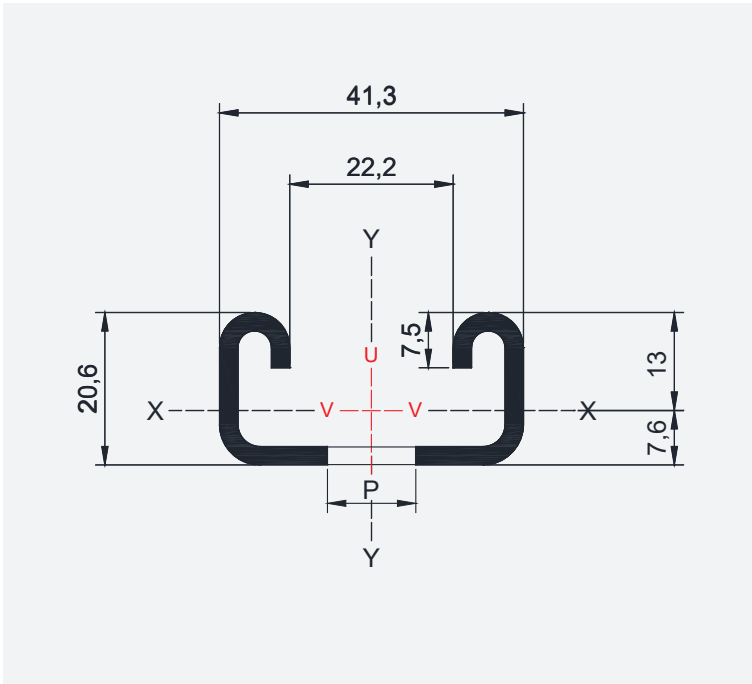
NWMS Part Code

Length

6902P-412125-3000	3000mm
6902P-412125-6000	6000mm
6902P1-412125-3000	3000mm
6902P1-412125-6000	6000mm

Slots pierced @ 50mm centres

Area	2.22 cm ²			
2 nd moment of area	$I_{uu} = 5.98 \text{ cm}^4$	$I_{vv} = 1.18 \text{ cm}^4$	$I_{xx} = 1.18 \text{ cm}^4$	$I_{yy} = 5.98 \text{ cm}^4$
Radius of gyration	$r_{uu} = 16.4 \text{ mm}$	$r_{vv} = 7.3 \text{ mm}$	$r_{xx} = 0.7 \text{ cm}$	$r_{yy} = 1.6 \text{ cm}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = 1.50 \text{ cm}^3$	$S_{yy} = 3.55 \text{ cm}^3$
Distance to combined centroid			$X_e = 0.0 \text{ cm}$	$Y_e = 8.7 \text{ cm}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = 0.0 \text{ cm}$	$Y_p = 9.3 \text{ cm}$
Elastic section modulus			$Z_{xx} = 1.11 \text{ cm}^3$	$Z_{yy} = 2.90 \text{ cm}^3$



6902P

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	7.37	0.46	N/A	N/A
500	3.68	1.84	N/A	2.06
750	2.46	4.13	1.65	0.92
1000	1.84	7.34	.093	0.52
1250	1.47	11.47	0.59	0.33
1500	1.23	16.52	0.41	0.23
1750	1.05	22.49	0.30	0.17
2000	0.92	29.37	-.23	0.13
2250	0.82	37.18	0.18	0.10
2500	0.74	45.90	0.15	0.08
2750	0.67	55.54	0.12	0.07
3000	0.61	66.09	0.10	0.06

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	3.68	0.37	N/A	N/A
500	1.84	1.47	N/A	1.29
750	1.23	3.30	1.03	0.57
1000	0.92	5.87	0.58	0.32
1250	0.74	9.18	0.37	0.21
1500	0.61	13.22	0.26	0.14
1750	0.53	17.99	0.19	0.11
2000	0.46	23.50	0.15	0.08
2250	0.41	29.74	0.11	0.06
2500	0.37	36.72	0.09	0.05
2750	0.33	44.43	0.08	0.04
3000	0.31	52.87	0.06	0.04

6903

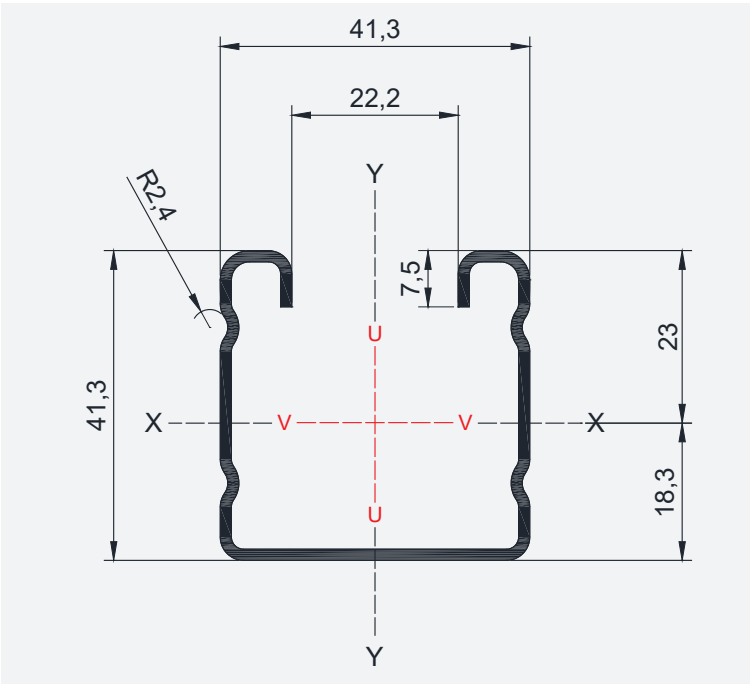
41mm x 41mm Plain Channel

Material : 1.5mm S280
Finish : Z275 MAC
Slots : none

NWMS Part Code

Length

6903-414115-3000	3000mm
6903-414115-6000	6000mm



Area	2.31 cm ²			
2 nd moment of area	$I_{uu} = \mathbf{6.68}$ cm ⁴	$I_{vv} = \mathbf{5.49}$ cm ⁴	$I_{xx} = \mathbf{5.49}$ cm ⁴	$I_{yy} = \mathbf{6.68}$ cm ⁴
Radius of gyration	$r_{uu} = \mathbf{17.0}$ mm	$r_{vv} = \mathbf{15.4}$ mm	$r_{xx} = \mathbf{1.5}$ cm	$r_{yy} = \mathbf{1.7}$ cm
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = \mathbf{0.00}$ cm ³	$S_{yy} = \mathbf{0.00}$ cm ³
Distance to combined centroid			$X_e = \mathbf{0.0}$ cm	$Y_e = \mathbf{18.3}$ cm
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = \mathbf{0.0}$ cm	$Y_p = \mathbf{-6.0}$ cm
Elastic section modulus			$Z_{xx} = \mathbf{2.47}$ cm ³	$Z_{yy} = \mathbf{3.22}$ cm ³

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	16.39	0.22	N/A	N/A
500	8.2	0.88	N/A	N/A
750	5.46	1.98	N/A	4.27
1000	4.10	3.51	N/A	2.40
1250	3.28	5.49	2.77	1.54
1500	2.73	7.90	1.92	1.07
1750	2.34	10.76	1.41	0.78
2000	2.05	14.05	1.08	0.60
2250	1.82	17.78	0.85	0.47
2500	1.64	21.95	0.69	0.38
2750	1.49	26.56	0.57	0.32
3000	1.37	31.61	0.48	-0.27

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	8.20	0.18	N/A	N/A
500	4.10	0.70	N/A	N/A
750	2.73	1.58	N/A	N/A
1000	2.05	2.81	N/A	1.50
1250	1.64	4.39	N/A	0.96
1500	1.37	6.32	1.20	0.67
1750	1.17	8.61	0.88	0.49
2000	1.02	11.24	0.68	0.38
2250	0.91	14.22	0.53	0.30
2500	0.82	17.56	0.43	0.24
2750	0.75	21.25	0.36	0.20
3000	0.68	25.29	0.30	0.17

6903P

41mm x 41mm Pierced Channel

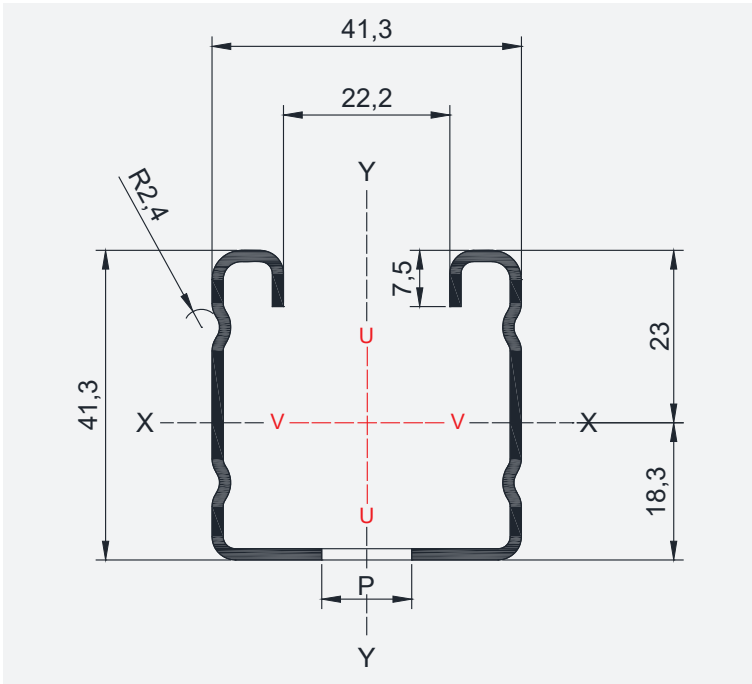
Material : 1.5mm S280
Finish : Z275 MAC
Slots : 28mm x 14mm Option P
 28mm x 12mm Option P1

NWMS Part Code

Length

6903P-414115-3000	3000mm
6903P-414115-6000	6000mm
6903P1-414115-3000	3000mm
6903P1-414115-6000	6000mm

Slots pierced @ 50mm centres



Area	2.10 cm ²			
2 nd moment of area	$I_{uu} = 6.65 \text{ cm}^4$	$I_{vv} = 4.71 \text{ cm}^4$	$I_{xx} = 4.72 \text{ cm}^4$	$I_{yy} = 6.65 \text{ cm}^4$
Radius of gyration	$r_{uu} = 17.8 \text{ mm}$	$r_{vv} = 15.0 \text{ mm}$	$r_{xx} = 1.5 \text{ cm}$	$r_{yy} = 1.8 \text{ cm}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = 0.00 \text{ cm}^3$	$S_{yy} = 0.00 \text{ cm}^3$
Distance to combined centroid			$X_e = 0.0 \text{ cm}$	$Y_e = 20.2 \text{ cm}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = 0.0 \text{ cm}$	$Y_p = 0.0 \text{ cm}$
Elastic section modulus			$Z_{xx} = 2.26 \text{ cm}^3$	$Z_{yy} = 3.20 \text{ cm}^3$

6903P

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	15.00	0.23	N/A	N/A
500	7.50	0.93	N/A	N/A
750	5.00	2.10	N/A	3.67
1000	3.75	3.74	3.72	2.06
1250	3.00	5.84	2.38	1.32
1500	2.50	8.41	1.65	0.92
1750	2.14	11.45	1.21	0.67
2000	1.87	14.95	0.93	0.52
2250	1.67	18.92	0.73	0.41
2500	1.50	23.36	0.59	0.33
2750	1.36	28.27	0.49	0.27
3000	1.25	33.64	0.41	0.23

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	7.50	0.19	N/A	N/A
500	3.75	0.75	N/A	N/A
750	2.50	1.68	N/A	2.29
1000	1.87	2.99	N/A	1.29
1250	1.50	4.67	1.49	0.83
1500	1.25	6.73	1.03	0.57
1750	1.07	9.16	0.76	0.42
2000	0.94	11.96	0.58	0.32
2250	0.83	15.14	0.46	0.25
2500	0.75	18.69	0.37	0.21
2750	0.68	22.61	0.31	0.17
3000	0.62	26.91	0.26	0.14

6904

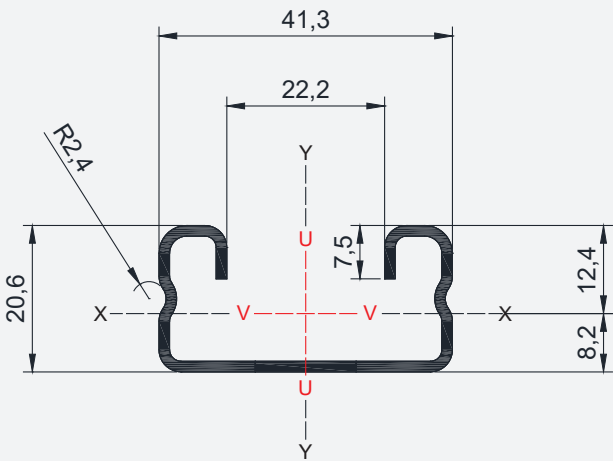
41mm x 21mm Plain Channel

Material : 1.5mm S280
Finish : Z275 MAC
Slots : none

NWMS Part Code

Length

6904-412115-3000	3000mm
6904-412115-6000	6000mm



Area	1.64 cm ²			
2 nd moment of area	$I_{uu} = \mathbf{4.06}$ cm ⁴	$I_{vv} = \mathbf{990 \times 10^{-3}}$ cm ⁴	$I_{xx} = \mathbf{990 \times 10^{-3}}$ cm ⁴	$I_{yy} = \mathbf{4.06}$ cm ⁴
Radius of gyration	$r_{uu} = \mathbf{15.7}$ mm	$r_{vv} = \mathbf{7.8}$ mm	$r_{xx} = \mathbf{0.8}$ cm	$r_{yy} = \mathbf{1.6}$ cm
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = \mathbf{0.00}$ cm ³	$S_{xx} = \mathbf{0.00}$ cm ³
Distance to combined centroid			$X_e = \mathbf{0.0}$ cm	$Y_e = \mathbf{8.2}$ cm
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = \mathbf{0.0}$ cm	$Y_p = \mathbf{-6.0}$ cm
Elastic section modulus			$Z_{xx} = \mathbf{850 \times 10^{-3}}$ cm ³	$Z_{xx} = \mathbf{1.96}$ cm ³

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	5.64	0.42	N/A	N/A
500	2.82	1.68	N/A	1.73
750	1.88	3.77	1.39	0.77
1000	1.41	6.70	0.78	0.43
1250	1.13	10.47	0.50	0.28
1500	0.94	15.08	0.35	0.19
1750	0.81	20.53	0.25	0.14
2000	0.71	26.81	0.19	0.11
2250	0.63	33.93	0.15	0.09
2500	0.56	41.89	0.12	0.07
2750	0.51	50.69	0.10	0.06
3000	0.47	60.32	0.09	0.05

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	2.82	0.34	N/A	N/A
500	1.41	1.34	N/A	N/A
750	0.94	3.02	0.87	0.48
1000	0.71	5.36	0.49	0.27
1250	0.56	8.38	0.31	0.17
1500	0.47	12.06	0.22	0.12
1750	0.40	16.42	0.16	0.09
2000	0.35	21.45	0.12	0.07
2250	0.31	27.15	0.10	0.05
2500	0.28	27.15	0.08	0.04
2750	0.26	40.55	0.06	0.04
3000	0.24	48.26	0.05	0.03

6904P

41mm x 21mm Pierced Channel

Material : 1.5mm S280
Finish : Z275 MAC
Slots : 28mm x 14mm Option P
28mm x 12mm Option P1

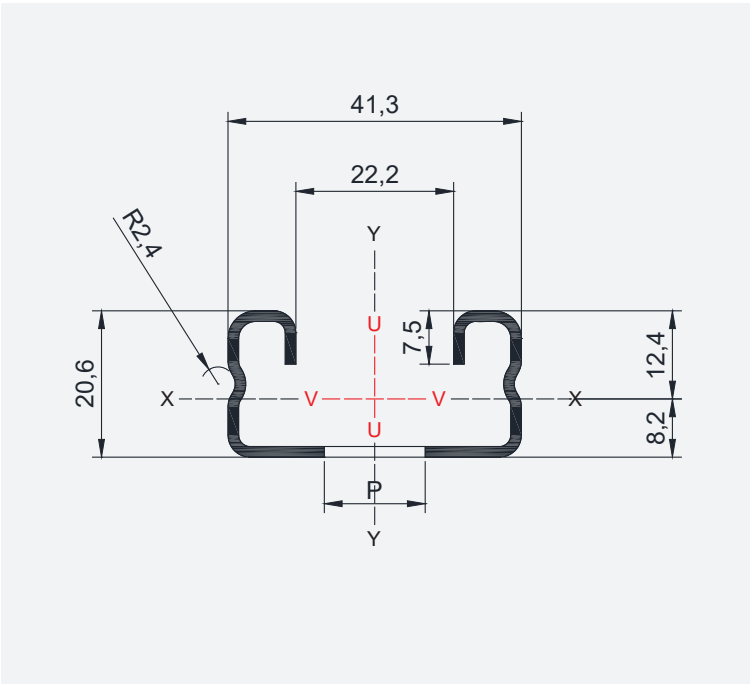
NWMS Part Code

Length

6904P-412115-3000	3000mm
6904P-412115-6000	6000mm
6904P1-412115-3000	3000mm
6904P1-412115-6000	6000mm

Slots pierced @ 50mm centres

Area	1.43 cm ²			
2 nd moment of area	$I_{uu} = 4.03 \text{ cm}^4$	$I_{vv} = 820 \times 10^{-3} \text{ cm}^4$	$I_{xx} = 820 \times 10^{-3} \text{ cm}^4$	$I_{yy} = 4.03 \text{ cm}^4$
Radius of gyration	$r_{uu} = 16.8 \text{ mm}$	$r_{vv} = 7.6 \text{ mm}$	$r_{xx} = 0.8 \text{ cm}$	$r_{yy} = 1.7 \text{ cm}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = 0.00 \text{ cm}^3$	$S_{yy} = 0.00 \text{ cm}^3$
Distance to combined centroid			$X_e = 0.0 \text{ cm}$	$Y_e = 9.5 \text{ cm}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = 0.0 \text{ cm}$	$Y_p = 0.0 \text{ cm}$
Elastic section modulus			$Z_{xx} = 790 \times 10^{-3} \text{ cm}^3$	$Z_{yy} = 1.94 \text{ cm}^3$



6904P

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	5.24	0.47	N/A	N/A
500	2.62	1.88	2.58	1.43
750	1.75	4.23	1.15	0.64
1000	1.31	7.52	0.65	0.36
1250	1.05	11.75	0.41	0.23
1500	0.87	16.92	0.29	0.16
1750	0.75	23.03	0.21	0.12
2000	0.66	30.08	0.16	0.09
2250	0.58	38.08	0.13	0.07
2500	0.52	47.01	0.10	0.06
2750	0.48	56.88	0.09	0.05
3000	0.44	67.69	0.07	0.04

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	2.62	0.38	N/A	N/A
500	1.31	1.5	N/A	0.90
750	0.87	3.38	0.72	0.40
1000	0.66	6.02	0.40	0.22
1250	0.52	9.40	0.26	0.14
1500	0.44	13.54	0.18	0.10
1750	0.37	18.43	0.13	0.07
2000	0.33	24.07	0.10	0.06
2250	0.29	30.46	0.08	0.04
2500	0.26	37.61	0.06	0.04
2750	0.24	45.50	0.05	0.03
3000	0.22	54.15	0.04	0.02

6905

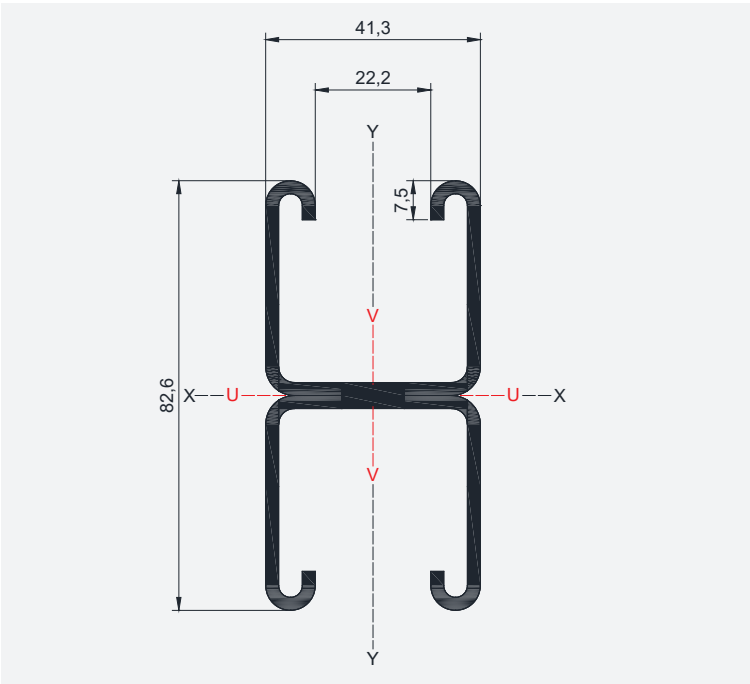
82mm x 41mm Welded Plain Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : none

NWMS Part Code

Length

6905-824125-3000	3000mm
6905-824125-6000	6000mm



Area	7.17 cm ²			
2 nd moment of area	$I_{uu} = \mathbf{41.6}$ cm ⁴	$I_{vv} = \mathbf{19.8}$ cm ⁴	$I_{xx} = \mathbf{41.6}$ cm ⁴	$I_{yy} = \mathbf{19.8}$ cm ⁴
Radius of gyration	$r_{uu} = \mathbf{24.1}$ mm	$r_{vv} = \mathbf{16.6}$ mm	$r_{xx} = \mathbf{2.4}$ cm	$r_{yy} = \mathbf{1.7}$ cm
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = \mathbf{13.5}$ cm ³	$S_{xx} = \mathbf{11.3}$ cm ³
Distance to combined centroid			$X_e = \mathbf{0.0}$ cm	$Y_e = \mathbf{1.2}$ cm
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = \mathbf{0.0}$ cm	$Y_p = \mathbf{-1.2}$ cm
Elastic section modulus			$Z_{xx} = \mathbf{10.1}$ cm ³	$Z_{xx} = \mathbf{9.60}$ cm ³

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	67.03	0.12	N/A	N/A
500	33.52	0.47	N/A	N/A
750	22.34	1.07	N/A	N/A
1000	16.76	1.90	N/A	N/A
1250	13.41	2.96	N/A	11.64
1500	11.17	4.26	N/A	8.09
1750	9.58	5.80	N/A	5.94
2000	8.38	7.58	8.19	4.55
2250	7.45	9.60	6.47	3.59
2500	6.70	11.85	5.24	2.91
2750	6.09	14.33	4.33	2.41
3000	5.59	17.06	3.64	2.02

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	33.52	0.09	N/A	N/A
500	16.76	0.38	N/A	N/A
750	11.17	0.85	N/A	N/A
1000	8.38	1.52	N/A	N/A
1250	6.70	2.37	N/A	N/A
1500	5.59	3.41	N/A	5.05
1750	4.79	4.64	N/A	3.71
2000	4.19	6.07	N/A	2.84
2250	3.72	7.68	N/A	2.25
2500	3.35	9.48	3.27	1.82
2750	3.05	11.47	2.71	1.50
3000	2.79	13.65	2.27	1.26

6905P

82mm x 41mm Welded Pierced Channel

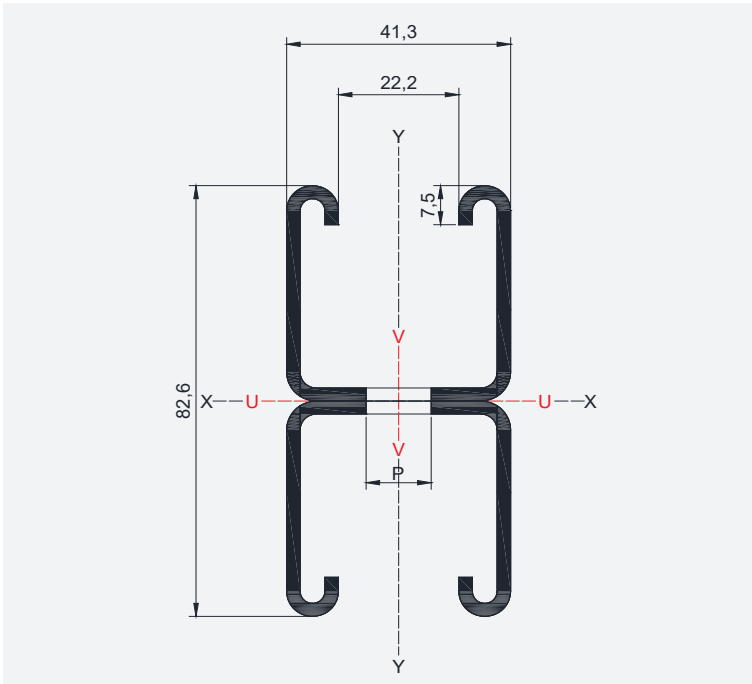
Material : 2.5mm S280
Finish : Z275 MAC
Slots : 28mm x 14mm Option P
28mm x 12mm Option P1

NWMS Part Code

Length

6905P-824125-3000	3000mm
6905P-824125-6000	6000mm
6905P1-824125-3000	3000mm
6905P1-824125-6000	6000mm

Slots pierced @ 50mm centres



Area	7.17 cm ²			
2 nd moment of area	$I_{uu} = \mathbf{41.6}$ cm ⁴	$I_{vv} = \mathbf{19.8}$ cm ⁴	$I_{xx} = \mathbf{41.6}$ cm ⁴	$I_{yy} = \mathbf{19.8}$ cm ⁴
Radius of gyration	$r_{uu} = \mathbf{24.1}$ mm	$r_{vv} = \mathbf{16.6}$ mm	$r_{xx} = \mathbf{2.4}$ cm	$r_{yy} = \mathbf{1.7}$ cm
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = \mathbf{13.5}$ cm ³	$S_{xx} = \mathbf{11.3}$ cm ³
Distance to combined centroid			$X_e = \mathbf{0.0}$ cm	$Y_e = \mathbf{1.2}$ cm
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = \mathbf{0.0}$ cm	$Y_p = \mathbf{-1.2}$ cm
Elastic section modulus			$Z_{xx} = \mathbf{10.1}$ cm ³	$Z_{xx} = \mathbf{9.60}$ cm ³

6905P

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	67.03	0.12	N/A	N/A
500	33.52	0.47	N/A	N/A
750	22.34	1.07	N/A	N/A
1000	16.76	1.90	N/A	N/A
1250	13.41	2.96	N/A	11.64
1500	11.17	4.26	N/A	8.09
1750	9.58	5.80	N/A	5.94
2000	8.38	7.58	8.19	4.55
2250	7.45	9.60	6.47	3.59
2500	6.70	11.85	5.24	2.91
2750	6.09	14.33	4.33	2.41
3000	5.59	17.06	3.64	2.02

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	33.52	0.09	N/A	N/A
500	16.76	0.38	N/A	N/A
750	11.17	0.85	N/A	N/A
1000	8.38	1.52	N/A	N/A
1250	6.70	2.37	N/A	N/A
1500	5.59	3.41	N/A	5.05
1750	4.79	4.64	N/A	3.71
2000	4.19	6.07	N/A	2.84
2250	3.72	7.68	N/A	2.25
2500	3.35	9.48	3.27	1.82
2750	3.05	11.47	2.71	1.50
3000	2.79	13.65	2.27	1.26

6906

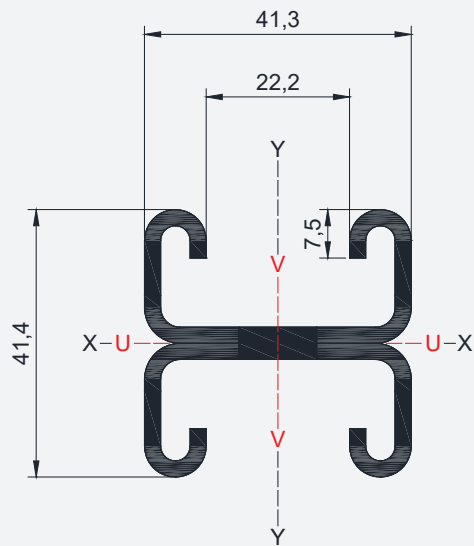
41mm x 41mm Welded Plain Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : none

NWMS Part Code

Length

6906-412115-3000	3000mm
6906-412115-6000	6000mm



Area	5.10 cm ²			
2 nd moment of area	$I_{uu} = 12.1 \text{ cm}^4$	$I_{vv} = 6.79 \text{ cm}^4$	$I_{xx} = 6.79 \text{ cm}^4$	$I_{yy} = 12.1 \text{ cm}^4$
Radius of gyration	$r_{uu} = 15.4 \text{ mm}$	$r_{vv} = 11.5 \text{ mm}$	$r_{xx} = 1.2 \text{ cm}$	$r_{yy} = 1.5 \text{ cm}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = 4.51 \text{ cm}^3$	$S_{yy} = 7.31 \text{ cm}^3$
Distance to combined centroid			$X_e = 10.05 \text{ mm}$	$Y_e = 0.1 \text{ mm}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = 10.5 \text{ mm}$	$Y_p = 0.0 \text{ mm}$
Elastic section modulus			$Z_{xx} = 3.29 \text{ cm}^3$	$Z_{yy} = 5.84 \text{ cm}^3$

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	21.84	0.24	N/A	N/A
500	10.92	0.95	N/A	N/A
750	7.28	2.13	N/A	5.28
1000	5.46	3.78	5.35	2.97
1250	4.37	5.91	3.42	1.90
1500	3.64	8.51	2.38	1.32
1750	3.12	11.58	1.75	0.97
2000	2.73	15.15	1.43	0.74
2250	2.43	19.15	1.06	0.59
2500	2.18	23.64	0.86	0.48
2750	1.99	28.61	0.71	0.39
3000	1.82	34.04	0.59	0.33

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	10.92	0.19	N/A	N/A
500	5.46	0.76	N/A	N/A
750	3.64	1.70	N/A	3.30
1000	2.73	3.03	N/A	1.86
1250	2.18	4.73	2.14	1.19
1500	1.82	6.81	1.48	0.82
1750	1.56	9.27	1.09	0.61
2000	1.36	12.10	0.84	0.46
2250	1.21	13.32	0.66	0.37
2500	1.09	18.91	0.53	0.30
2750	0.99	22.88	0.44	0.25
3000	0.91	27.23	0.37	0.21

6906P

41mm x 41mm Welded Pierced Channel

Material : 2.5mm S280
Finish : Z275 MAC
Slots : 28mm x 14mm Option P
28mm x 12mm Option P1

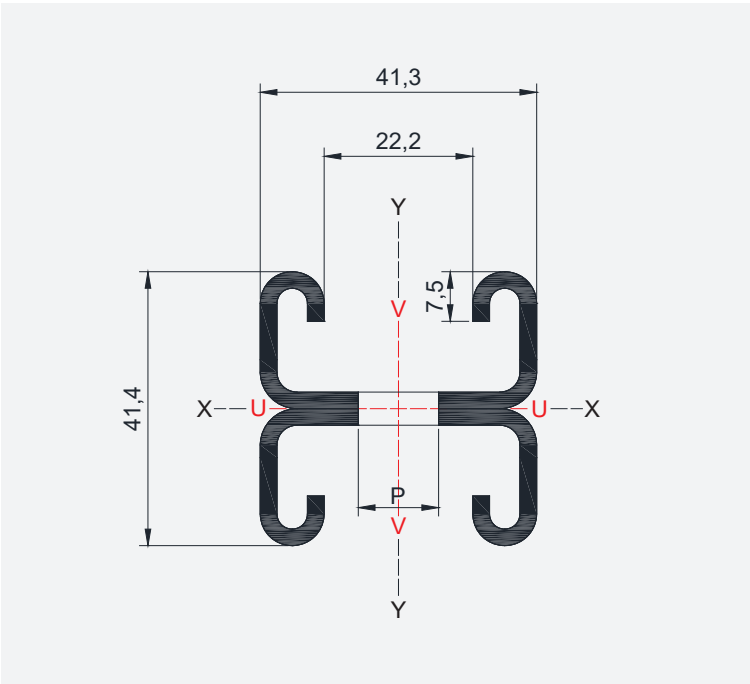
NWMS Part Code

Length

6906P-412115-3000	3000mm
6906P-412115-6000	6000mm
6906P1-412115-3000	3000mm
6906P1-412115-6000	6000mm

Slots pierced @ 50mm centres

Area	5.10 cm ²			
2 nd moment of area	$I_{uu} = 12.1 \text{ cm}^4$	$I_{vv} = 6.79 \text{ cm}^4$	$I_{xx} = 6.79 \text{ cm}^4$	$I_{yy} = 12.1 \text{ cm}^4$
Radius of gyration	$r_{uu} = 15.4 \text{ mm}$	$r_{vv} = 11.5 \text{ mm}$	$r_{xx} = 1.2 \text{ cm}$	$r_{yy} = 1.5 \text{ cm}$
Plastic section modulus (only shapes with rectangles at 90°)			$S_{xx} = 4.51 \text{ cm}^3$	$S_{yy} = 7.31 \text{ cm}^3$
Distance to combined centroid			$X_e = 10.05 \text{ mm}$	$Y_e = 0.1 \text{ mm}$
Distance to equal axis area (only shapes with rectangles at 90°)			$X_p = 10.5 \text{ mm}$	$Y_p = 0.0 \text{ mm}$
Elastic section modulus			$Z_{xx} = 3.29 \text{ cm}^3$	$Z_{yy} = 5.84 \text{ cm}^3$



6906P

Uniformly Distributed Load (UDL) Tables

Span(mm)	Max UDL (kN)	Deflection @ Max UDL (mm)	Max UDL (kN) (Deflection Limited to L/200)	Max UDL (kN) (Deflection Limited to L/360)
250	21.84	0.24	N/A	N/A
500	10.92	0.95	N/A	N/A
750	7.28	2.13	N/A	5.28
1000	5.46	3.78	5.35	2.97
1250	4.37	5.91	3.42	1.90
1500	3.64	8.51	2.38	1.32
1750	3.12	11.58	1.75	0.97
2000	2.73	15.15	1.43	0.74
2250	2.43	19.15	1.06	0.59
2500	2.18	23.64	0.86	0.48
2750	1.99	28.61	0.71	0.39
3000	1.82	34.04	0.59	0.33

Maximum Point Load (PL) Tables

Span(mm)	Max Point Load (kN)	Deflection @ Max PL (mm)	Max PL (kN) (Deflection Limited to L/200)	Max PL (kN) (Deflection Limited to L/360)
250	10.92	0.19	N/A	N/A
500	5.46	0.76	N/A	N/A
750	3.64	1.70	N/A	3.30
1000	2.73	3.03	N/A	1.86
1250	2.18	4.73	2.14	1.19
1500	1.82	6.81	1.48	0.82
1750	1.56	9.27	1.09	0.61
2000	1.36	12.10	0.84	0.46
2250	1.21	13.32	0.66	0.37
2500	1.09	18.91	0.53	0.30
2750	0.99	22.88	0.44	0.25
3000	0.91	27.23	0.37	0.21

Manufacturing and Testing Policy

In Compliance with BS 6946:1988 – Specification for Metal Channel Cable Support Systems for Electrical Installations.

1. SCOPE

This policy outlines the manufacturing and testing procedures for induSTRUT to ensure compliance with **BS 6946:1988**. It covers material selection, fabrication, dimensional accuracy, mechanical performance, corrosion resistance, and quality assurance.

2. MATERIAL SPECIFICATION

NMWS induSTRUT shall be manufactured from cold-formed steel that meets the minimum requirements of **BS 6946:1988**. The steel shall have a minimum yield strength and thickness as specified in the standard to ensure structural integrity. 3.1 Material Certificates shall be obtained for traceability and conformance verification.

3. MANUFACTURING PROCESS

NWMS induSTRUT shall be precision-pierced and formed to the required shape using controlled roll-forming or pressing techniques.

Welded “back-to-back” induSTRUT manufacture where applicable shall comply with **BS EN ISO 15614** to ensure structural performance.

Galvanized induSTRUT shall be galvanized in accordance with **BS EN ISO 1461** (Hot Dip Galvanizing) to meet corrosion protection requirements.

Each NWMS induSTRUT shall conform to the dimensional tolerances set out in **BS 6946:1988**.

4. TESTING & QUALITY CONTROL

All struts shall undergo rigorous testing, including:

Dimensional Accuracy, verified using calibrated measuring instruments to ensure compliance with standard tolerances.

Load Testing capacity tests shall be conducted as per **BS 6946:1988**, with results recorded and compared against permissible values.

Mechanical Testing induSTRUT shall be subjected to impact and bending tests to confirm structural integrity under load conditions.

5. COMPLIANCE & CERTIFICATION

All induSTRUT shall be marked with batch identification for traceability.

Quality assurance records, including test results and material certificates, shall be maintained.

Products shall carry relevant UKCA/CE marking to confirm compliance with regulatory requirements.

Quality Assurance

Quality assurance in structural steel fabrication is critical to ensuring safety, performance, and compliance with industry standards. **BS EN 1090** sets the UK requirements for the execution of steel and aluminum structures, covering, design, manufacturing, and conformity assessment.

Compliance with **BS EN 1090-1** is mandatory for manufacturers placing structural steel or aluminum components on the market, requiring **UKCA** marking (or CE for Europe) and adherence to a certified **Factory Production Control (FPC) system**. NWMS conformance ensures that steel sections meet the rigorous quality control measures, including material traceability, welding procedures, and inspection protocols.

By aligning with BS EN 1090, NWMS compliance guarantees that rolled steel components meet the necessary structural integrity, durability, and safety requirements for use in construction projects across the UK.

UK Certificate of Conformity of the Factory Production Control

UK 0836-CPR-24/F7200

In compliance with The Construction Products (Amendment etc.) (EU Exit) Regulations 2020 (as amended 2022), this Certificate applies to the construction product:

Execution of steel structures and aluminium structures — Part 1: Requirements for conformity assessment of structural components

Applicable Standard	Type / model class of the construction product	Declaration method
EN 1090-1 : 2009 + A1 : 2011	Structural Steel Systems, kits, and components: Up to and including Execution Level 4 according to EN 1090-4 : 2018	1 & 3a according to table A.1 : EN 1090-1 : 2009 + A1 : 2011

Produced by:

NW Metal Sections Ltd
1-3 Glebe Road,
Gillibrands,
Skelmersdale,
WN8 9JP

and produced in the manufacturing plant:

NW Metal Sections Ltd
1-3 Glebe Road,
Gillibrands,
Skelmersdale,
WN8 9JP

This Certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the Standard:

EN 1090-1 : 2009 + A1 : 2011

under system 2+ for the performances set out in this certificate are applied and that the factory production control fulfils all the prescribed requirements for these performances.

This Certificate was first issued on 18 September 2024 and remains valid for as long as the test methods and/or factory production control requirements included in the applicable standard, used to assess the performance of the declared characteristics, do not change, and the construction product, and the manufacturing conditions in the plant are not modified significantly, unless suspended or withdrawn by the factory production certification body.

Signed on behalf of the British Board of Agrément:



Date of issue: 18 September 2024

Hardy Giesler
Chief Executive Officer

Account Application

Please complete the following and email to **accounts@nwmetalsections.co.uk**

Company Name			
Registered Address			
Street 1			
Street 2			
Town			
County			
Country		Postcode	
Company Number		VAT Number	
EORI Number			
Main Contact			
Name			
Email			
Number (1)		Number (2)	
Website			
Invoice Email			
Order Email			
Delivery Email			
Email (other)			
Terms			
Credit Requested			
Terms Requested			

(standard 30 days EOM)

Terms of Business

Standard conditions of sale for deliveries worldwide effective on all orders accepted by North West Metal Sections (English Law) (the 'Conditions')

In these Conditions 'the Seller' means the company by which the goods are sold. Other terms used in these Conditions are defined in Condition 29.

Formation of Contract

1. All Contracts for sale of goods by the Seller, however formed, incorporate these Conditions. Any term or condition in the Buyer's order or other documentation which is inconsistent with these Conditions shall be of no effect.

Time of Delivery

2. Dates or periods for delivery are approximate and are given for information only and shall under no circumstances be essential terms.
3. A delay in delivery, including delivery later than the date or dates provided in the Contract Documents, shall not constitute a breach of contract and shall not entitle the Buyer to avoid the contract or to any other remedy, unless the Seller has guaranteed the date of delivery in a warranty set out in the Contract Documents that expressly modifies the provisions of Condition 2 and this Condition 3.
4. Should the manufacture or processing of any of the goods, or the delivery of any of the goods at any of the Sellers's sites or to the Buyer elsewhere, whether by the Seller, an associated company or an independent freight carrier, be prevented or hindered directly or indirectly by fire, the elements, war, civil commotion, strikes, lock-outs, industrial dispute shortage of raw materials or fuel (notwithstanding that the Seller has taken all reasonable steps to procure such raw materials or fuel), shortage of labour, breakdown or partial failure of plant or machinery, late receipt of the Buyer's specification or other necessary information, acts orders or regulations of Governments, decisions or directives of the Commission of the European Communities, delay on the part of any agent, sub-contractor or supplier, or any cause whatsoever beyond the reasonable control of the Seller or any of its associated companies concerned with the manufacture, processing or delivery of the goods then, notwithstanding any warranty set out in the Contract Documents expressly modifying Conditions 2 and 3, the time for delivery of the goods shall be extended for a reasonable period, and any such warranty shall be deemed to have been modified accordingly.

Cancellation of Delivery

5. If delivery of any goods is likely to be delayed by reason of any of the causes or events referred to in Condition 4 and:
 - (a) the Seller shall not have taken delivery, or shall not have completed the manufacture or processing, of the goods or the goods shall have been lost, destroyed or irreparably damaged after completion of manufacture or processing; and
 - (b) the delay is likely to continue for so long that the Buyer will need to acquire substitute goods from a source other than the Seller; and
 - (c) the Buyer shows to the reasonable satisfaction of the Seller that the conduct of the Buyer's operations is likely to be seriously affected by the likely delay in delivery of the goods or that the Buyer is in peril of being in breach of a contractual obligation to a third party as a result of such delay, then the Seller shall at the request of the Buyer agree to the cancellation of the delivery of those goods.

In any of the causes or events referred to in Condition 4 give rise to, or are likely to give rise to, a delay in delivery greater than 30 days, the Seller shall be entitled to cancel delivery of those goods and shall have no liability to the Buyer in relation to the sale of goods.

Means of Delivery

6.
 - (a) The Seller reserves the right to supply the goods from any of its sites or any of the sites of any of its associated companies. Unless the Contract Documents specify otherwise, the method of carriage shall be at the Seller's discretion and at the cost of the Buyer. If the Contract Documents provide that the Buyer shall collect the goods from the relevant Seller Site or if the Contract Documents make no provision about delivery and the Seller so elects, then the Buyer shall collect the goods without delay after being notified by the Seller that the goods are ready for collection. If the goods are not collected by the Buyer, within 3 days of being so notified,

the Seller may despatch the goods itself at the Buyer's expense and risk (if an address for delivery of the goods has not been specified by the Buyer, to such address of the Buyer as the Seller may in its discretion decide) or store them at the Buyer's expense and risk, in which case the goods shall be deemed to have been delivered. (b) The Seller reserves the right to charge to the Buyer any costs, charges or expenses incurred by the Seller, including, without limitation, any costs, charges or expenses incurred as a result of storage of the goods, vehicle or wagon detention or demurrage of ships, in each case, in consequence of any act or omission of the Buyer, or its servants or agents, including any failure of the Buyer to accept delivery of the goods, or as a result of any special requirement or stipulation not set out in the Contract Documents.

- (c) Where the Contract Documents provide for delivery of the goods elsewhere than at the Seller's site or the site of one of the Seller's associated companies, the Seller will consider a claim by the Buyer in respect of the loss or damage in transit only if the Buyer:
 - (i) Gives notice to the Seller within 21 days after receiving an advice note or other notification of the despatch of the goods from the Seller, in the case of loss, or within 7 days after delivery of the goods in the case of damage; and
 - (ii) Where the goods are transported by an independent freight carrier, complies in all respects with the freight carrier's conditions of carriage for notifying claims for loss or damage in transit.
- (d) Any marine insurance required to be effected by the Seller under the Contract Documents shall, unless otherwise agreed in the Contract Documents, be 10% over the invoice price and shall cover the goods from the time when transit of the goods to the destination named in the Contract Documents Commences, as provided and contained in the Institute of London Underwriters ('the Institute') Cargo Clauses, the Institute's War Clauses and the Institute's Strikes Clauses, current at the time of shipment.
- (e) Except as varied by these Conditions or otherwise agreed in the Contract Documents, any terms defined in the relevant edition of Incoterms at the date of the Seller's order acknowledgement, such as CIF and CFR, shall have the meaning assigned to them by such Incoterms when used in any of the contract Documents.

Delivery in Instalments

- 7. Each part delivery or instalment of the goods shall be deemed to be sold under a separate contract.

Specification and Standards

- 8. Subject to the provisions of these Conditions, goods supplied by the Seller will, at the date of delivery, comply with any specification and standard specified by the Seller in the contract Documents.

Warranties

- 9.
 - (a) Unless the parties have expressly agreed in the Contract Document to modify this Condition then, notwithstanding the provisions of Condition 8 above, any condition, warranty, statement or undertaking as to the quality of the goods or their fitness or suitability for any purpose however or whenever expressed or which may be implied by statute, custom of the trade or otherwise is hereby excluded, except to the extent such exclusion is prevented by law.
 - (b) Without prejudice to the foregoing, no statement or undertaking contained in any National Standard, National edition of a European Standard, ISO Standard, or other standard or technical specification as to the suitability of the goods for any purpose shall give rise to any legal liability of the Seller, except to the extent such exclusion is prevented by law. The Buyer shall satisfy itself that the goods are suitable for any product or application for which they are to be used before the goods are incorporated into such product or application.

Testing and Inspection

- 10. Where the contract Documents provide for testing or inspection of the goods by or on behalf of the Buyer before delivery (whether at the Seller's site or elsewhere), then the Buyer shall inspect and/or test the goods within 7 days of being notified by the Seller that the goods are available for inspection or testing. If the Buyer does not inspect or test the goods within the time specified by the Seller in that notice or if within 14 days of such testing or inspection the Buyer does not give notice to the Seller stating that, and specifying the reasons why, the goods do not comply with the Contract Documents, then the Buyer shall conclusively be deemed to have accepted that the goods comply with the Contract Documents and shall not be entitled to reject the goods on the grounds of anything which such inspection or testing has or would have revealed.

Acceptance of Goods

- 11. The Buyer shall be deemed to have accepted the goods and that the goods comply with the Contract Documents unless:
 - (a) the Buyer give notice in accordance with Condition 10; or

- (b) in the case of a defect in the quality or state of the goods or the goods otherwise not complying with the Contract Documents, which defect or non-compliance was apparent upon careful inspection or reasonable testing of the goods (or would have been had a careful inspection or reasonable test been carried out), the Buyer gives the Seller a notice specifying such defect or non-compliance within 21 days after receiving the goods and in any event prior to their use or re-sale and, after doing so, gives the Seller a reasonable opportunity to inspect or test the goods before they are used or resold; or
- (c) in the case of a defect in the quality or state of the goods or the goods otherwise not complying with the Contract Documents, which defect or non-compliance was not apparent upon careful inspection or reasonable testing of the goods (or would not have been had a careful inspection or reasonable test been carried out), the Buyer gives the Seller notice specifying such defect or non-compliance immediately upon discovering it any in any event not more than 12 months after receiving the goods and, after doing so, gives the Seller a reasonable opportunity to inspect the goods. The Buyer shall not be excused from providing such opportunity by reason only that the goods have been incorporated into the goods or property of a third party or that the goods are located in, upon or under the premises or land of a third party.

Any dispute between the parties as to whether any goods are defective in quality or state or otherwise not in compliance with the Contract Documents shall be referred, in accordance with the provisions of the Arbitration act 1996 or any statutory modification or re-enactment thereof for the time being in force, to a single arbitrator to be agreed between the Seller and the Buyer or in default of agreement to be nominated by the President for the time being of The Law Society of England and Wales.

Weight and Quantity

12.
 - (a) Unless the Contract Documents specify otherwise, the Seller shall be entitled to select the basis on which to charge the goods, and such basis may include charging the goods on a calculated basis taking into account any usual industry standard tolerances applicable to such goods, including the weight, length, thickness, scrap loss and /or packaging of goods.
 - (b) The weight or quantity of the goods printed upon the Seller's advice or despatch note shall be final unless the Buyer shall have given notice to the Seller of any discrepancy in weight or quantity within 14 days after receiving the goods and shall have given the Seller a reasonable opportunity to witness the weight and/or quantity of the goods being verified before they have been used, processed or sold.
 - (c) Unless the Contract Documents expressly specify otherwise, delivery to the Buyer of a weight or quantity of goods up to 10% less than or greater than that which the Seller has agreed to sell shall under no circumstances be a breach of contract by the Seller or entitle the Buyer to reject the goods delivered.

Remedies

13. Provided that the Buyer has complied with the requirements of Conditions 10 or 11 (as applicable), and subject to the provisions of Condition 16, if the goods (or any part of them) are, upon delivery, defective in quality or state or (save for discrepancy in weight or quantity) otherwise not in compliance with the Contract Documents, then, either:
 - (a) if the Seller and Buyer agree, the Buyer shall accept the goods at an agreed value; or
 - (b) if the Seller and the Buyer do not agree with 21 days after the Buyer gave notice to the Seller under Condition 10 or 11 (as applicable), the Buyer may return the relevant goods to the Seller upon which the Seller shall, at the Seller's option either:
 - (i) repair the goods at the Seller's expense;
 - (ii) repay the Buyer, or give the Buyer credit for, the invoice price of the goods (including freight) and any reasonable transport costs incurred by the Buyer in carrying the relevant goods from the place they were originally delivered to the Seller's site from which they were despatched or to such other place as the Seller may nominate; or
 - (iii) replace the goods by delivering replacement goods to the original place of delivery as soon as may be reasonably practicable.

Limitations on Liability

14.
 - (a) The undertakings in Condition 13 are given in lieu of any other legal remedy the Buyer may have (whether in contract, tort or otherwise) and shall be the Buyer's sole remedy in respect of the goods (or any part of them) being defective in quality or state or otherwise not in compliance with the Contract Documents.
 - (b) The liability of the Seller (and its associated companies) to the Buyer in respect of:
 - (i) Such defects or non-compliance; and
 - (ii) in the event that the Seller is not entitled to rely upon the provisions of Condition 14 (c) below, any loss, damage or expense

whatsoever incurred or suffered by the Buyer (including, but without limitation, loss of profit, revenue or goodwill) however such loss, damage, or expense may have been caused (including, but without limitation, any breach of contract, negligence or breach of any duty of the Seller whatsoever),

shall for all purposes (including, but without limitation, under the relevant contract and in negligence or any other tort) be limited to whichever is the lower of the cost of: (a) making good the goods; (b) the repayment or giving of credit for the invoice price of the goods; or (c) the replacement of the goods in accordance with Condition 13.

- (c) Under no circumstances shall the Seller (or any of its associated companies) be liable for any loss, damage or expense whatsoever incurred or suffered by the Buyer (including, but without limitation, loss of profit, revenue or goodwill) howsoever such loss, damage, or expense may have been caused (including, but without limitation, any breach of contract, negligence or breach of any duty of the Seller whatsoever) other than as set out in Condition 14 (a).
 - (d) Nothing in these Conditions shall exclude or restrict the liability of the Seller for death or personal injury caused by the Seller's negligence or as otherwise prohibited by law.
 - (e) Conditions 14(a) to (d) (inclusive), Conditions 9 (a) and (b) and Conditions 24 (a) to (e) (inclusive) shall be construed severally and as separate contract terms. These Conditions shall survive the termination of the contract for whatever cause.
15. The Buyer agrees to indemnify and hold the Seller harmless from any and all claims, demands, proceedings and actions which may be made or brought against the Seller by any person, including (but not limited to) any purchaser of the goods or any product made there from, arising from the use of such goods or any products in which such goods are used or from any infringement of any patent, trade mark or trade name, copyright and the like, or from any latent or hidden defects in the quality of said goods or resulting products, or from the dangerous condition thereof, and the Buyer shall pay any and all costs, fees (including reasonable lawyers' fees) and expenses, judgements awards and fines for and on behalf of the Seller as incurred or as they become due.

Retention of Title

16.

- (a) Subject to any Incoterms expressly incorporated into the contract by any of the Contract Documents, risk in the goods shall pass to the Buyer when the goods are delivered to the Buyer.
- (b) The Seller and the Buyer expressly agree that:
 - (1) until the Seller has been paid in full (in cash or cleared funds) for the goods; and
 - (2) until all other monies due or which become due from the Buyer to the Seller on any account whatsoever have been paid in full (in cash or cleared funds),

the following provisions shall apply:

- (i) legal and beneficial ownership of such goods remain with the Seller;
- (ii) the Buyer shall have a right to possession (but not ownership) of such goods for the Seller and ensure that the goods shall be clearly marked and identifiable as being the Seller's property;
- (iii) the Seller may recover all or any part of such goods at any time from the Buyer if they are in the Buyer's possession and any of the events in Condition 18 has occurred and for that purpose the Seller, its servants and agents may enter upon any land or building upon or in which such goods are situated; and
- (iv) the Buyer has a right to dispose of such goods (as between it and its customers only) as principal in the ordinary course of its business with such right being terminable by the Seller giving to the Buyer notice at any time and being automatically terminated (without notice) upon the happening of any of the events referred to in Condition 18.

Each sub-Condition 17(b)(1) and (2) and sub-Condition 17(b)(ii) (iii) and (iv) shall be construed and have effect as a separate Condition and accordingly in the event of any of them being for any reason whatsoever unenforceable according to its terms, the others shall remain in full force and effect.

Termination and Suspension

17. The Seller shall be entitled without prejudice to its other rights and remedies either to terminate wholly or in part any or every contract between itself and the Buyer or to suspend any further deliveries under any or every contract in any of the following events:
- (a) if any debt is due and payable by the Buyer to the Seller but is unpaid;
 - (b) if the Buyer has failed to provide any letter of credit, bill of exchange or any other security required by the Contract Documents provided that in such event the Seller's rights of termination or suspension under the Condition shall apply only in regard to the particular contract in respect of which the Buyer shall have so failed:

- (c) if any guarantee or other security for trading in respect of the Buyer's obligations under the contract or under the Contract Documents is cancelled, suspended or amended in any respect;
- (d) if, in the reasonable opinion of the Seller, the delivery (or any steps required in connection with the delivery) would involve a level of risk to the health and safety of any person that would constitute a breach, or potential breach, of any legal obligation by the Buyer and/or Seller or would be excessive or unreasonable;
- (e) if the Buyer has failed to take delivery of the goods under any contract between it and the Seller otherwise than in accordance with the Buyer's contractual rights or the Buyer is otherwise in breach of any such contract;
- (f) if the Buyer becomes insolvent or enters into any composition or arrangement (including a voluntary arrangement) with its creditors or being a body corporate, has passed a resolution for voluntary winding up except where solely for the purpose of reconstruction or if a petition has been presented for an order for its winding up or for a receiver (including an administrative receiver) or administrator to be appointed or if any such order or appointment is made or if, being an individual or partnership, the Buyer suspends payment of his or their debts in whole or in part or if an application has been made for an interim order or a petition has been presented for a bankruptcy order or if any such order is made or if the Buyer, whether or not a body corporate, shall carry out or be subject to any analogous act or proceedings under any law;
- (g) the imposition of any new, additional or increased tax, public charge, freight, tariff or duty which may after the date of the quotation or contract be levied on or imposed on the goods to be sold, or upon any sale, delivery, or other action taken under or in connection with any contract to which these Conditions apply, or upon the export or import of such goods or materials required to produce the goods; or
- (h) if the Buyer fails to comply with any request by the Seller for advance payment or security pursuant to Condition 21 below.

The Seller shall be entitled to exercise its rights of termination or suspension under this Condition at any time during which the event giving rise to such rights is continuing and has not been remedied and, in the event of a suspension, the Seller shall be entitled, as a condition of resuming delivery under any contract between it and the Buyer, to require prepayment of, or such security as it may require for the payment of, the price of any further goods.

If the Seller is entitled to exercise its rights of termination or suspension under this Condition, the Seller shall further be entitled by notice to the Buyer to treat all sums which are due to the Seller under any contract between the Seller and the Buyer but which are not then payable, as being immediately due and payable.

Payment and Pricing

18. The Buyer shall not be entitled to withhold payment of any amount payable for the supply of goods or otherwise under the Contract Documents to the Seller because of any dispute claim of the Buyer in respect of defective goods or any other alleged breach of the Contract Documents, nor shall the Buyer be entitled to set off against any amount payable for the supply of goods or otherwise under the Contract Documents to the Seller any monies which are not then presently payable by the Seller or for which the Seller disputes liability.

19.

- (a) The price payable by the Buyer for each delivery shall be the price set out in the Contract Documents to which shall be added any Value Added Tax and any other tax or duty relating to the sale or delivery of goods chargeable to the Seller and the freight and other charges as specified in the Contract Documents. Unless otherwise expressly stated in the Contract Documents, the price of each delivery (including such Value Added Tax, other tax or duty, freight and other charges) shall be paid in full and received by the Seller by no later than 30 days from the date of invoice. The Seller shall be entitled to charge interest on any sums not so paid. Such interest shall be calculated on a day-to-day basis on the amount outstanding at the rate of 8% above the arithmetic average for each day of the published base rate of the Central Bank for the currency in which the goods are priced or at any higher rate as the Seller would (but for this Condition) have been entitled to charge interest under any applicable legislation.
- (b) The Seller shall further be entitled to recover from the Buyer all costs incurred by the Seller or on its behalf in recovering payment of any sum not paid in full when that sum is due and payable and the Buyer shall indemnify the Seller against all such costs.
- (c) Payment shall be made in pounds sterling or otherwise in the currency specified in the Contract Documents. Subject to Condition 19, that amount shall not be subject to any discount or deduction except as agreed by the Seller in the Contract Documents.

20. The Seller may at any time, whether before the beginning of the performance of the Contract or after partial performance thereof, require from the Buyer, partly or wholly, a payment in advance or require a guarantee acceptable to the Seller that the Buyer shall satisfactorily fulfil his obligations towards the Seller. The Seller shall be under no obligation to justify his requirement for such payment in advance or guarantee.

Notices

21.

- (a) Except where expressly stated otherwise in any of the Contract Documents, a notice in respect of the contract shall only be effective if it is in writing. Email and notices given via the Seller's electronic data interchange system are permitted.
- (b) Notices in respect of the contract or under any of the Contract Documents shall be sent to a party at its address or number and for the attention of the individual specified in the Contract Documents, provided that a party may change its notice details on giving notice to the other party of the change in accordance with this Condition.

Third Party Rights

22. The Seller and the Buyer agree that if any term of the contract or any term of the Contract Documents purports to confer a benefit on any person who is not a party to the contract (a 'third party'), that term shall not be enforceable by any such third party.

Entire Agreement

23.

- (a) The Contract Documents constitute the whole and only agreement between the parties relating to the subject matter of the contract.
- (b) The Buyer acknowledges that in entering into the contract it is not relying upon any pre-contractual statement which is not set out in the Contract Documents.
- (c) Except in the case of fraud, no party shall have any right of action against any other party to this agreement arising out of or in connection with any pre-contractual statement except to the extent that it is repeated in the Contract Documents.
- (d) For the purposes of this Condition, 'pre-contractual statement' means any draft, agreement, undertaking, representation, warranty, promise, assurance or arrangement of any nature whatsoever, whether or not in writing, relating to the subject matter of the contract made or given by any person at any time prior to the date of this agreement.
- (e) Where the Seller provides any information or advice to the Buyer in connection with the delivery of any goods other than as specifically required under the Contract Documents, the Buyer acknowledges that the Seller does not accept any responsibility for providing inaccurate, misleading or incomplete information or advice. The Buyer acknowledges that before relying on any information or advice which the Seller or any associated company may supply, the Buyer should satisfy itself of the accuracy and appropriateness of that information or advice.

No Waiver

24. The rights of the Seller or the Buyer shall not be prejudiced or restricted by any indulgence or forbearance extended by either party to the other and no waiver by either party in respect of any breach shall operate as a waiver in respect of any subsequent breach. Any variation in the terms of the contract must be agreed between the parties in a Contract Document.

Severability

25. In the event that, for any reason, any provision in the contract is held to be void, unenforceable or otherwise invalid, all the other provisions of the contract, and the remainder of any provision where the effect of some part of it is held to be void, unenforceable or otherwise invalid, shall remain fully effective.

Governing Law and Jurisdiction

26.

- (a) The contract and the Contract Documents shall be governed by and construed in accordance with the laws of England.
- (b) Subject to Condition
 - (i) the Courts of England are to have jurisdiction to settle any dispute arising out of or in connection with the contract and the Contract Documents; and
 - (ii) any proceedings, suit or action arising out of or in connection with the contract and the Contract Documents ('Proceedings') may be brought in the English courts.
- (c) This jurisdiction agreement is for the benefit of the Seller. The Seller is therefore, subject to Condition 11, to retain the right to bring Proceedings in any court which has jurisdiction other than by virtue of this jurisdiction agreement. The Buyer has, subject to Condition 11, the right to bring Proceedings only in the courts of England and not in any other courts.

- (d) The Buyer on entering into this contract irrevocably submits to the jurisdiction of the English courts and of any other court in which Proceedings may be brought in accordance with this Condition.

Data Protection

27. The Buyer hereby consents to the Seller using any information provided by the Buyer for any purposes connected with the supply of goods under the contract, including, without limitation, the carrying out of a credit check on the Buyer, arranging credit insurance, processing payment by the Buyer, enforcing the Buyer's obligations under the contract and carrying out its own obligations under the contract.

Definitions

28. In these Conditions, unless the context requires otherwise:

'associated company' means, in relation to the Seller, a company:

- (a) which holds or controls, directly or indirectly through another person, entity or otherwise, more than half of the shares in the Seller; or
- (b) in which any such company or the Seller holds or controls, directly or indirectly through another person, entity or otherwise, more than half of the shares, and 'associated companies' means all of them.

'Contract Documents' means, in relation to each contract for the sale of goods by the Seller to the Buyer:

- (a) the Conditions;
- (b) any order acknowledgement, advice, despatch note or other delivery documentation or invoice given by the Seller to the Buyer in respect of the contract; and
- (c) any other document expressly accepted by the Seller as forming part of the contract, and the 'Contract Document' shall mean any one of them.

'goods' means, in relation to each contract, the goods referred to in the Contract Documents as being sold by the Seller to the Buyer and all obligations of the Seller (and its associated companies) in connection with the sale of these goods, including but not limited to design, manufacture, insurance, delivery, testing and installation and all references to 'delivery of the goods' shall be construed where the context permits, to include a reference to performance of all such obligations.

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