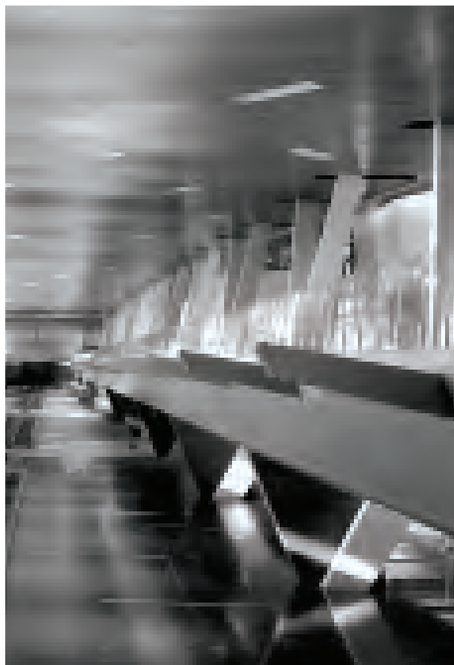
SLOTTED C-CHANNEL

CATALOGUE

COASTAL STEEL &
GALVANIZING WLL

INDEX
C-Channel Catalogue



QATAR GREEN BUILDING COUNCIL

USGBC MEMBER

ISO 14001

ISO 18001

About

Coastal Group is a reputed Qatar based Company established in 1979, with major operating divisions in Construction, Trading, Steel Fabrication, Project Support & Logistics.

Coastal Trading & Engineering Co. is an ISO 9001 and 14001, OHSAS 18001 Certified Company and member of the US Green Building Council & Qatar Green Building Council.
COASTAL operates with a clear vision and corporate responsibility by prioritizing customer service, customer satisfaction and safety as our core values.

COASTAL has a team of competent professionals and specialists, supported by an experienced workforce in Construction, Fabrication, Erection and Logistics.

Our facilities include a modern and well equipped fabrication workshop, blasting and painting unit, carpentry workshop and a fleet of transportation vehicles and project support equipment.

Coastal Qatar has implemented STRUMIS Steel Fabrication Software Solution in order to optimize the production process and provide more value to our respected clients.

Environmental

COASTAL recognizes that it has a responsibility to the environment beyond legal and regulatory requirements. We are committed to reducing the environmental impact and continually improving the environmental performance as an integral part of our business strategy and operating methods with regular review points. We always encourage customers, suppliers and other stakeholders on continuous improvements. COASTAL has been a member of the US Green Building Council since 2009 and is an active member of the Qatar Green Building Council and regularly participates in various initiatives to promote sustainable building practices.

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TECHNICAL INFORMATION

Channel

Coastal Steel's metal framing channel is cold formed on modern rolling machines from low carbon steel manufactured according to BS 6946:1988. A continuous slot provides the ability to make attachments at any point.

Finishes

Standard Finishes: Pre-Galvanized finish (ASTM A653M coating G90 and G60). Hot Dip Galvanized after fabrication (ASTM A123 or BS EN ISO1461:2009). Other custom coatings are available upon request.

Lengths

Standard length: 3000mm and 6000mm with ± 3.2mm length tolerance. Custom lengths will be available upon request.

METAL FRAMING CHANNELS

Selection Chart

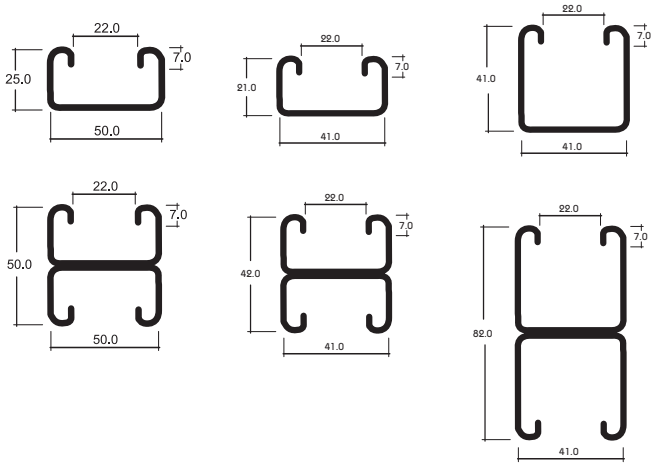
Part No	Channel Dimensions		Thickness
	Height "H"	Width "W"	
CS - 21 2.0 S/P	21.0 mm	41.0 mm	2.0 mm
CS - 41 2.0 S/P	41.0 mm	41.0 mm	2.0 mm
CS - 21 2.5 S/P	21.0 mm	41.0 mm	2.5 mm
CS - 41 2.5 S/P	41.0 mm	41.0 mm	2.5 mm

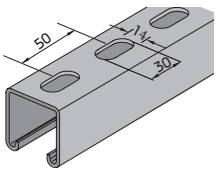
CS 21 2.0 S

21 — Size
21 - 21 mm
41 - 41 mm

2.0 — Material Thickness
2.0 for 2.0 mm
2.5 for 2.5 mm

S — Channel Patterns
P - PLAIN
S - SLOTTED
D - B2B





CHANNEL HOLE PATTERNS

P - Type Channel

Part No	Thick. mm.	Height "H"
CS - 21 2.0 P	2.0	21.0
CS - 41 2.0 P	2.0	41.0
CS - 21 2.5 P	2.5	21.0
CS - 41 2.5 P	2.5	41.0

P - Plain Type

S - Type Channel

Part No	Thick. mm.	Height "H"
CS - 21 2.0 S	2.0	21.0
CS - 41 2.0 S	2.0	41.0
CS - 21 2.5 S	2.5	21.0
CS - 41 2.5 S	2.5	41.0

S - Slotted Type

D - B2B Type Channel

Part No	Thick. mm.	Height "H"
CS - 21 2.0 D	2.0	42.0
CS - 41 2.0 D	2.0	82.0
CS - 21 2.5 D	2.5	42.0
CS - 41 2.5 D	2.5	82.0

D - B2B Type

MATERIALS

Mild Steel - Plain

A. Hot Rolled Steel Plates, Sheets and Coils S235 JR, S355 JR,

As per:
EN 10025 -2 / DIN 17100 / BS 4360 / ASTM A 1011/ ASTM A 1011-01a
JIS 3101 / JIS 3106 / GB 700 / GB / T1591.
ASTM A 907 / ASTM A 1018M.
ASTM A 570M / ASTM A 572M.

B. Cold Rolled Steel DC 01,

As per:
EN 10130 / DIN 1623, Part 2 / BS 1449:1 / ASTM A366 / ASTM A 1008 / JIS G 3141 / GB 699.
EN 10131 / ASTM A 568M

Mild Steel - Galvanized

C. Continuously Pre- Galvanized Hot–Dip Zinc Coated Steel DX 51D + Z,

As per:
EN 10327 / DIN 17162 / BS 2989/ ASTM A 527M / ASTM A 653M / JIS G 3302.
EN 10346 / EN 10326 / EN 10142 / ASTM A 526, 527, 528

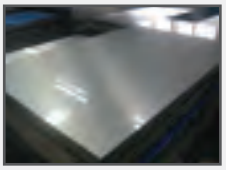
FINISHES

1- Hot–DIP Galvanization After Fabrication,

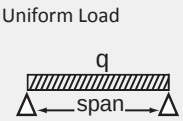
As per:
ASTM A 123 / ASTM A 153 / ISO 1461.
BS 729 / DIN 50976

2- Powder Coating

Epoxy / Polyester / Epoxy & Polyester
BS 3900 / ISO 2409 / ISO 1519 / ISO 1520



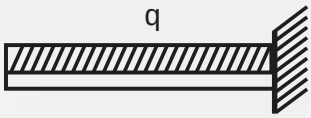
TECHNICAL DATA

Load and Support Condition	Load Factor	Deflection Factor
Simple Beam - Uniform Load 	1.00	1.00
Beam Fixed at Both Ends - Uniform Load 	1.50	0.30
Cantilever Beam - Uniform Load 	0.25	2.40
Continuous Beam - Two Equal Spans - Uniform Load on One Span 	1.30	0.92
Continuous Beam - Two Equal Spans Concentrated Load on Both Spans - 	1.00	0.42

EXAMPLE

Problem

Calculate the maximum allowable load and corresponding deflection of a cantilever CS beam with a uniformly distributed load

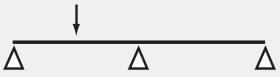
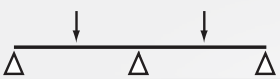


Solution

From beam load chart for CS , maximum allowable load is q and the corresponding deflection is u. Multiplying by the appropriate factors shown in the chart .above

LOAD = **q** x load factor

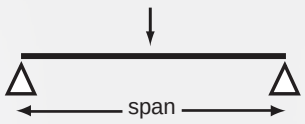
DEFLECTION = **u** x deflection factor

Load and Support Condition	Load Factor	Deflection Factor
Simple Beam - Concentrated Load at Center 	1.00	0.80
Simple Beam -Two Equal Concentrated Loads at 1/4 Points 	x 1.00 2	1.10
Beam Fixed at Both Ends - Concentrated Load at Center 	2.00	0.40
Cantilever Beam - Uniform Load 	0.24	3.20
Continuous Beam - Two Equal Spans Concentrated Load at Center of One Span- 	1.42	0.80
Continuous Beam - Two Equal Spans Concentrated Load at Center of Both Spans- 	x 1.34 2	0.50

EXAMPLE

Problem

Calculate the maximum allowable load and corresponding deflection of a simply supported CS beam with a concentrated load at midspan as shown



Solution

From beam load chart for CS , maximum allowable load is **F** and the corresponding deflection is **u**. Multiplying by the appropriate factors shown in the chart .above

LOAD = **F** x load factor

DEFLECTION = **u** x deflection factor

APPLICATIONS

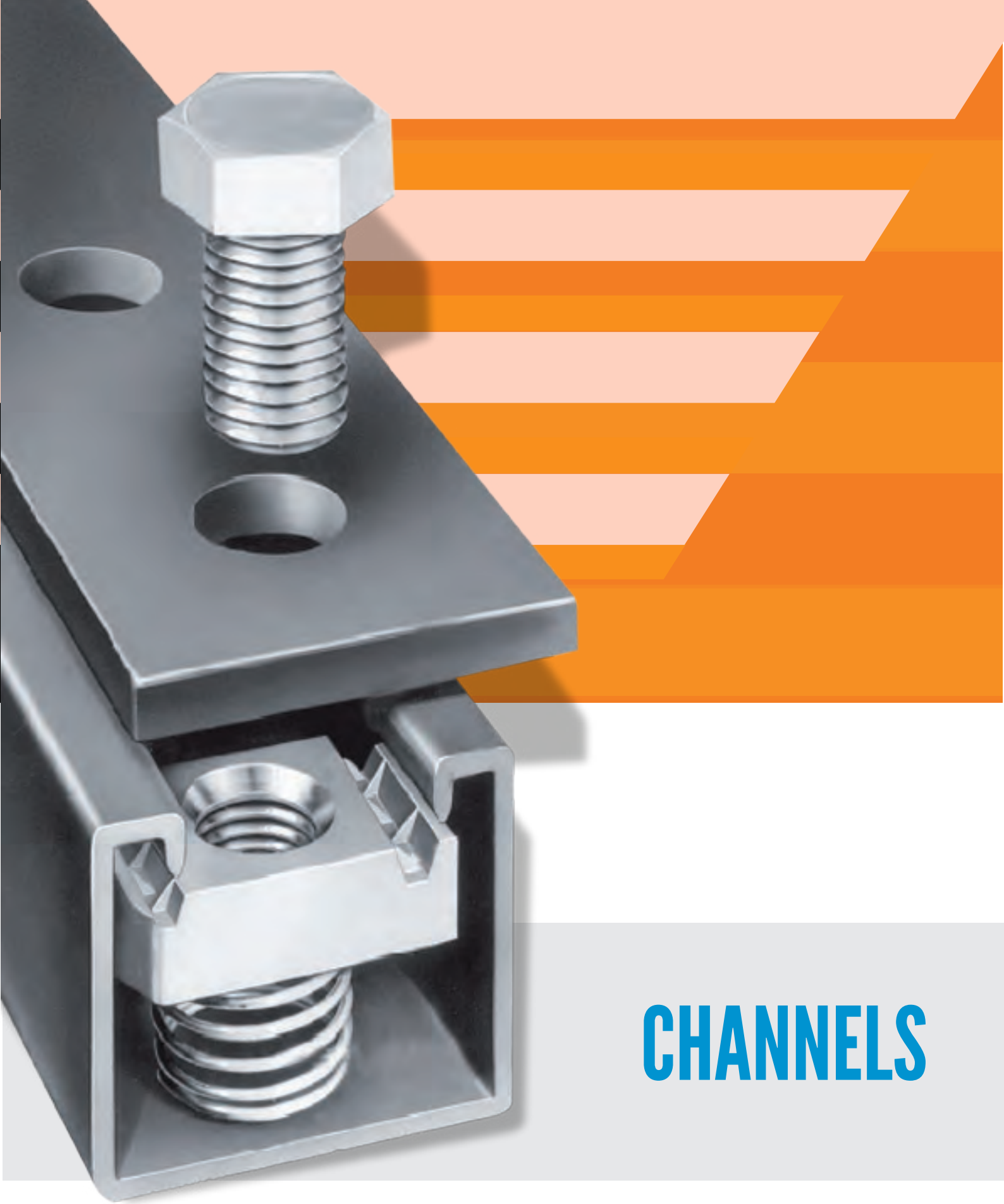
HVAC Duct Support

Pipe Support

Solar Panel Support

Cable Management System Support

Catwalk



CHANNELS

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CS-21 2.0 S/P

Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

Thickness : 2.0 mm
Standard Length : 3.00 m , 6.00 m
Finishes : Pre-Galvanized, Hot-Dip Galvanized.

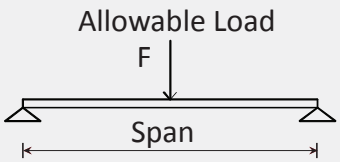
C-Channel:	41 x 21 x 2.0 S/P	
Area of Shear (A_z)	0.55	cm^2
Moment of Inertia (I_y)	0.88	cm^4
Moment of Inertia (I_z)	4.25	cm^4
min. Section Modulus (S_y)	0.75	cm^3
Warping Constant (I_w)	21.34	cm^6
Torsional Constant (I_T)	0.02	cm^4
Plastic Moment cap. ($M_{pl,y}$)	0.24	kNm
Self weight (G)	1.27	kg/m

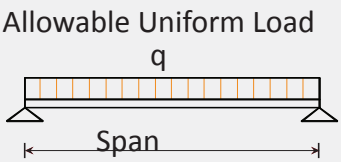
CS-21 2.0 S/P

Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	2.80	0.70	1.54	320	2.50	2.80
60	1.90	0.60	2.17	280	1.50	1.90
70	1.40	0.50	2.96	240	0.90	1.40
80	1.10	0.40	3.97	200	0.60	1.10
90	0.90	0.41	5.20	170	0.43	0.86
100	0.70	0.35	6.17	160	0.32	0.63
125	0.45	0.28	9.68	130	0.16	0.32
150	0.31	0.23	13.82	110	x	0.19
175	0.23	0.20	19.00	90	x	x
200	0.17	0.17	23.96	80	x	x
225	x	x	x	x	x	x
250	x	x	x	x	x	x
275	x	x	x	x	x	x
300	x	x	x	x	x	x

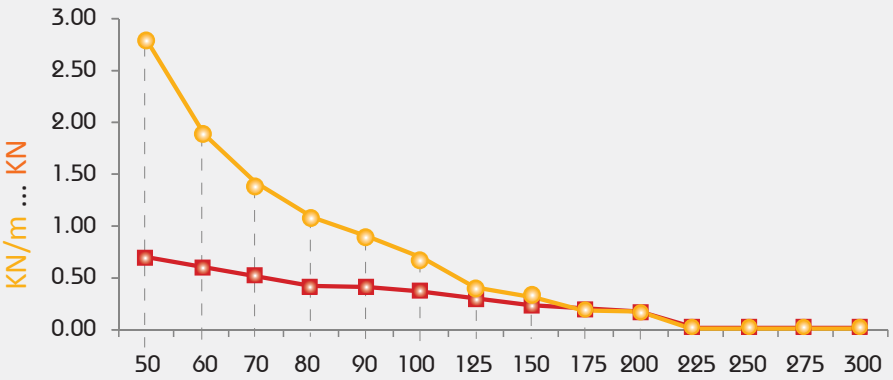


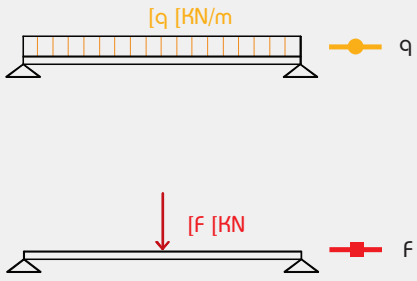


* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-21 2.0 S/P

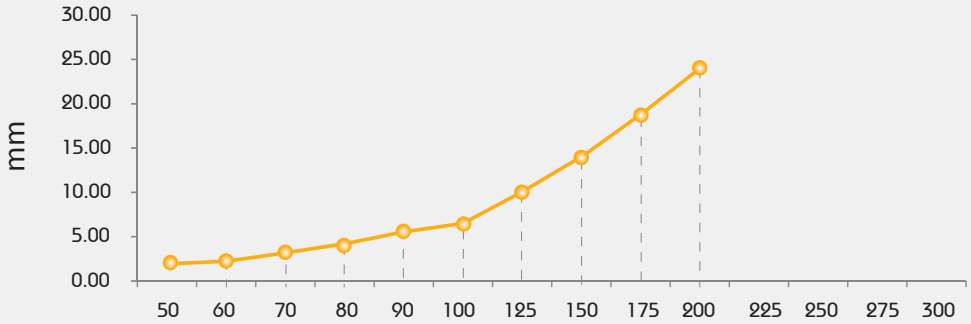
Allowable Loads

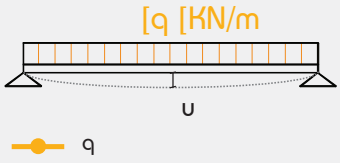




[Span] cm

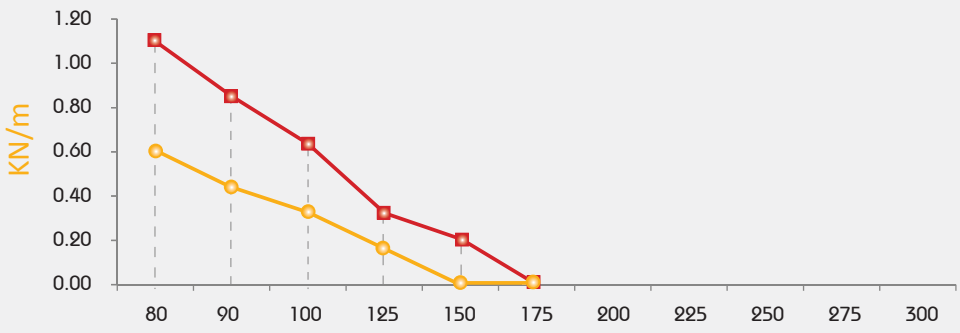
Deflection @ Allowable Uniform Load

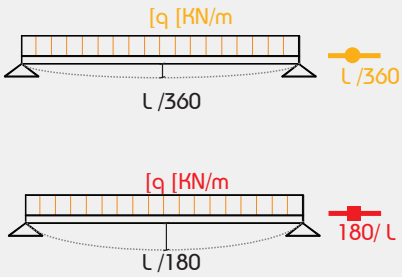




[Span] cm

Uniform Load @ Allowable Deflection





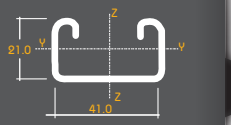
[Span] cm

CS-21 2.0 S/P

Load Table for Single Beam with Uniform (Characteristic) Live-Load

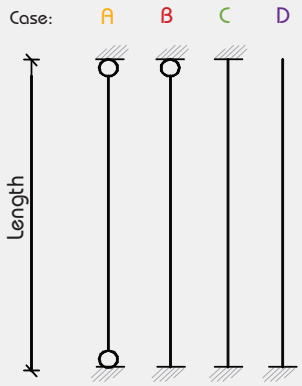
This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

CS-21 2.0 S/P



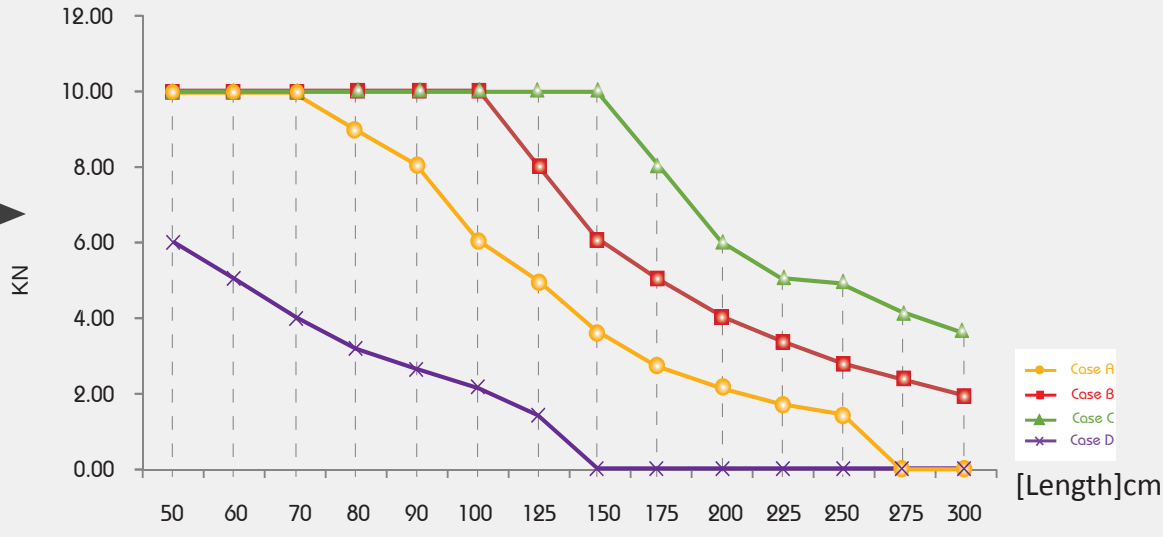
C-Channel:	41 x 21 x 2.0	
Cross Section Area (A)	1.62	cm^2
Moment of Inertia (I_y)	0.88	cm^4
Moment of Inertia (I_z)	4.25	cm^4
Self weight (G)	1.27	kg/m

Column Load Data



Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	10.00	10.00	10.00	6.00
60	10.00	10.00	10.00	5.00
70	10.00	10.00	10.00	4.00
80	9.00	10.00	10.00	3.20
90	8.00	10.00	10.00	2.60
100	6.00	10.00	10.00	2.10
125	4.90	8.00	10.00	1.40
150	3.60	6.00	10.00	x
175	2.70	5.00	8.00	x
200	2.10	4.00	6.00	x
225	1.70	3.30	5.00	x
250	1.40	2.70	4.90	x
275	x	2.30	4.10	x
300	x	1.90	3.60	x

Allowable Central Load**



** Given loads are always “allowable characteristic live load”

CS-21 2.5 S/P

Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

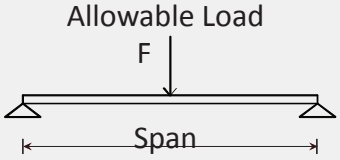
C-Channel:	41x21x2.5 S/P	
Area of Shear (A_z)	0.67	cm^2
Moment of Inertia (I_y)	1.03	cm^4
Moment of Inertia (I_z)	5.07	cm^4
min. Section Modulus (S_y)	0.89	cm^3
Warping Constant (I_w)	24.34	cm^6
Torsional Constant (I_T)	0.06	cm^4
Plastic Moment cap. ($M_{pl,y}$)	0.29	kNm
Self weight (G)	1.56	kg/m

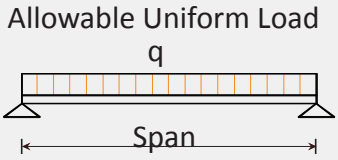
CS-21 2.5

Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	3.30	0.80	1.55	320	3.00	3.30
60	2.30	0.70	2.24	270	1.70	2.30
70	1.70	0.60	3.07	230	1.10	1.70
80	1.30	0.50	4.01	200	0.70	1.30
90	1.00	0.50	4.94	180	0.50	1.00
100	0.80	0.40	6.02	170	0.40	0.70
125	0.53	0.33	9.74	130	0.19	0.38
150	0.37	0.28	14.09	110	x	0.22
175	0.27	0.24	19.05	90	x	x
200	0.21	0.21	25.28	80	x	x
225	0.16	0.28	30.86	70	x	x
250	x	x	x	x	x	x
275	x	x	x	x	x	x
300	x	x	x	x	x	x

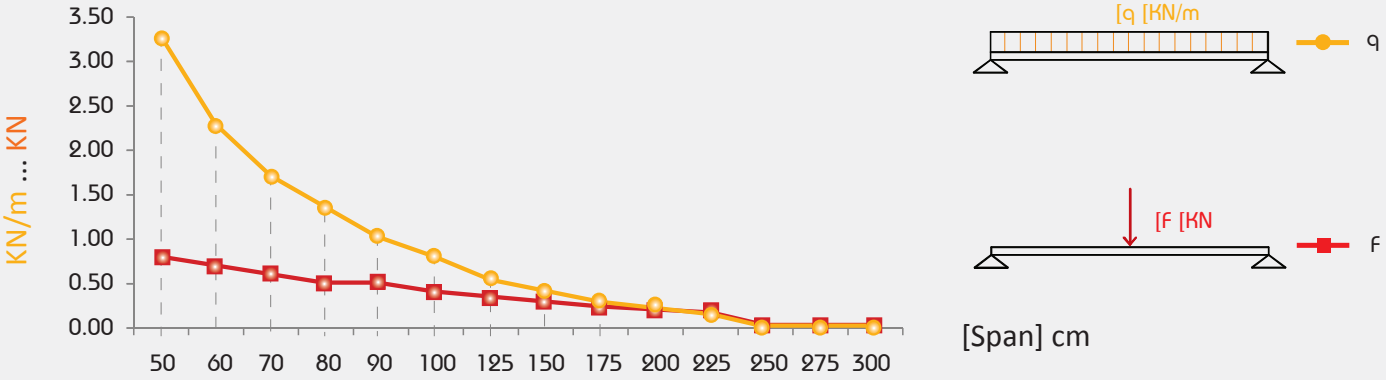




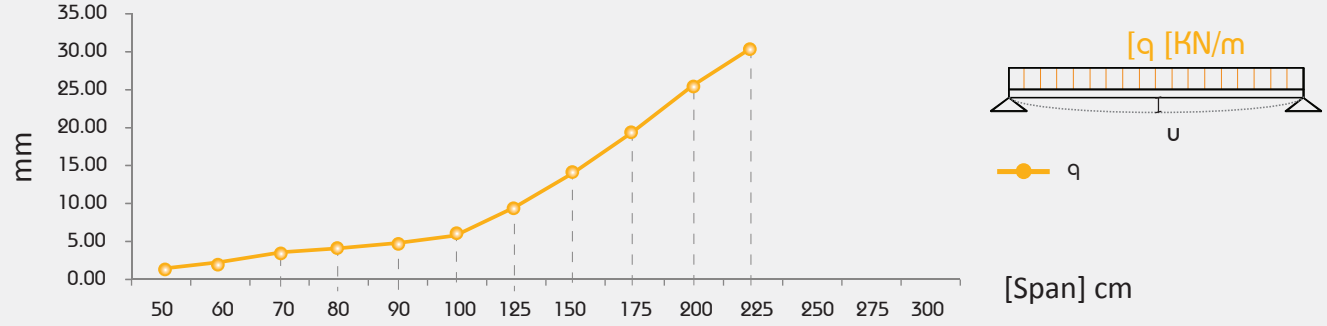
* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-21 2.5 S/P

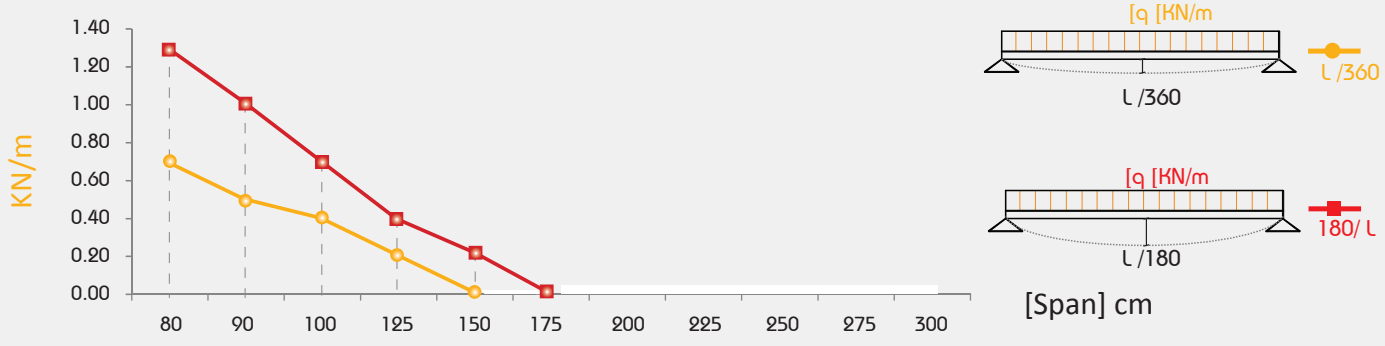
Allowable Loads



Deflection @ Allowable Uniform Load



Uniform Load @ Allowable Deflection

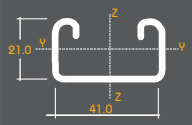


CS-21 2.5 S/P

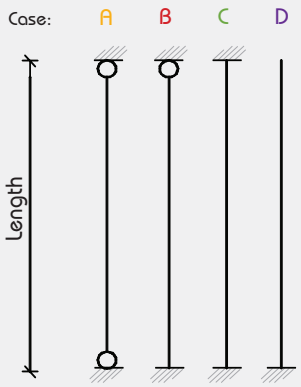
Load Table for Single Beam with Uniform (Characteristic) Live-Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

CS-21 2.5 S/P



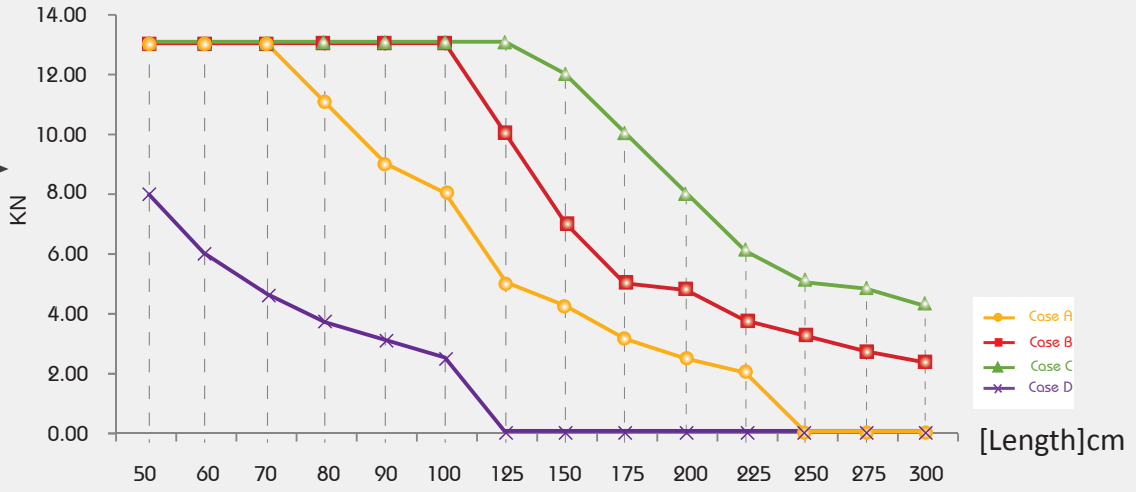
C-Channel:	41 x 21 x 2.5	
Cross Section Area (A)	1.99	cm^2
Moment of Inertia (I_y)	1.03	cm^4
Moment of Inertia (I_z)	5.07	cm^4
Self weight (G)	1.56	kg/m



Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	13.00	13.00	13.00	8.00
60	13.00	13.00	13.00	6.00
70	13.00	13.00	13.00	4.70
80	11.00	13.00	13.00	3.70
90	9.00	13.00	13.00	3.00
100	8.00	13.00	13.00	2.50
125	5.00	10.00	13.00	x
150	4.20	7.00	12.00	x
175	3.20	5.00	10.00	x
200	2.50	4.70	8.00	x
225	2.00	3.80	6.00	x
250	x	3.20	5.00	x
275	x	2.70	4.90	x
300	x	2.30	4.20	x

Column Load Data

Allowable Central Load**



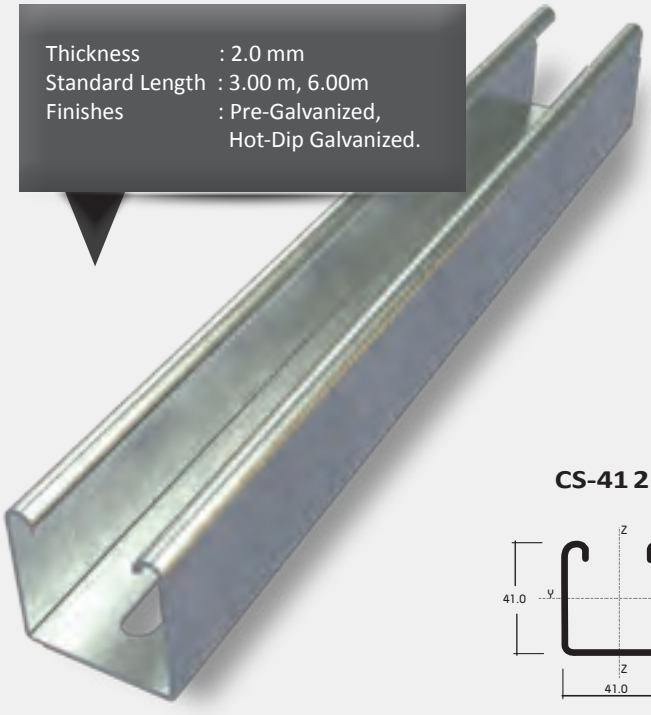
** Given loads are always “allowable characteristic live load”

CS-41 2.0 S/P

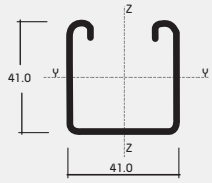
Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

Thickness : 2.0 mm
Standard Length : 3.00 m, 6.00m
Finishes : Pre-Galvanized, Hot-Dip Galvanized.



CS-41 2.0

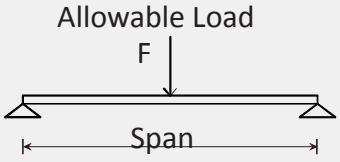


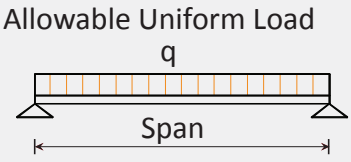
C-Channel:	41x41x2.0 S/P	
Area of Shear (A_z)	1.34	cm^2
Moment of Inertia (I_y)	4.59	cm^4
Moment of Inertia (I_z)	6.99	cm^4
min. Section Modulus (S_y)	2.18	cm^3
Warping Constant (I_w)	138.49	cm^6
Torsional Constant (I_T)	0.03	cm^4
Plastic Moment cap. ($M_{pl,y}$)	0.64	kNm
Self weight (G)	1.83	kg/m

Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	8.10	2.00	0.85	580	8.10	8.10
60	5.60	1.70	1.23	490	5.60	5.60
70	4.10	1.40	1.66	420	4.10	4.10
80	3.20	1.30	2.21	360	3.20	3.20
90	2.50	1.10	2.77	320	2.30	2.50
100	2.00	1.00	3.38	300	1.60	2.00
125	1.30	0.80	5.36	230	0.80	1.30
150	0.90	0.70	7.69	190	0.50	0.90
175	0.66	0.60	10.45	170	0.30	0.60
200	0.51	0.50	13.78	150	0.20	0.40
225	0.40	0.50	17.31	130	x	0.30
250	0.32	0.40	21.11	120	x	0.20
275	0.27	0.37	26.07	110	x	x
300	0.23	0.35	31.46	100	x	x

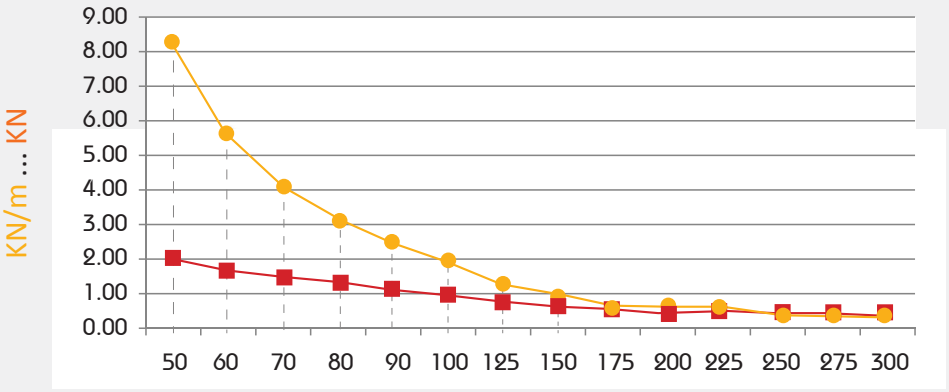


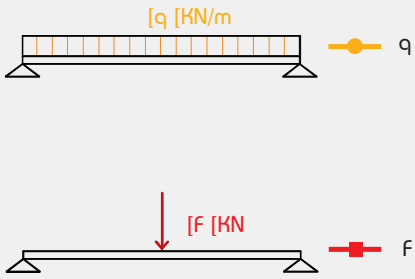


* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-41 2.0 S/P

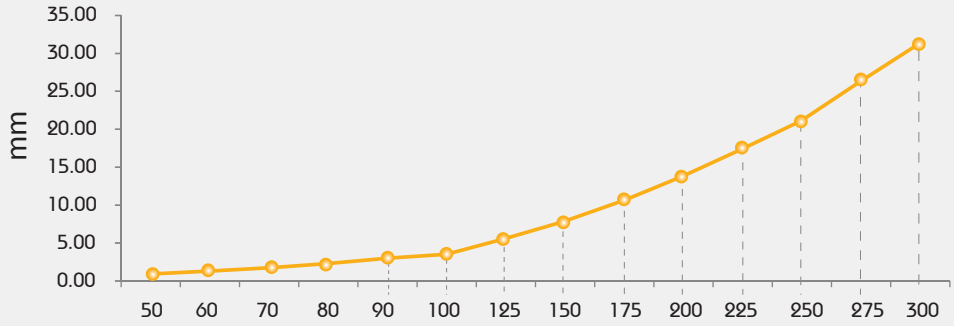
Allowable Loads

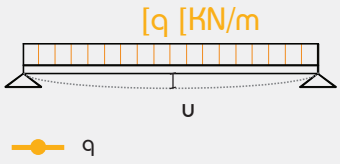




[Span] cm

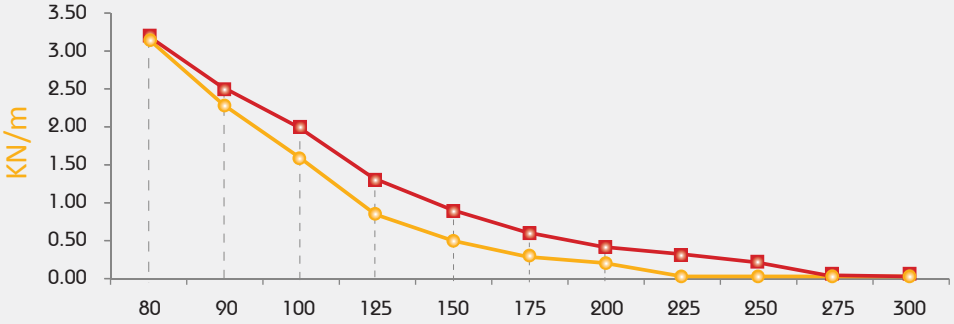
Deflection @ Allowable Uniform Load

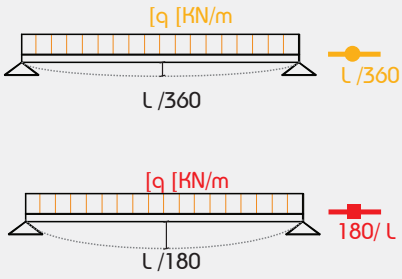




[Span] cm

Uniform Load @ Allowable Deflection



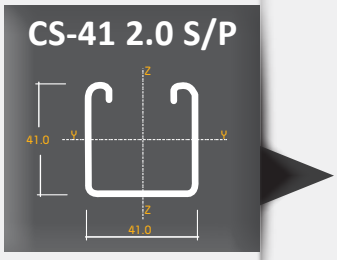


[Span] cm

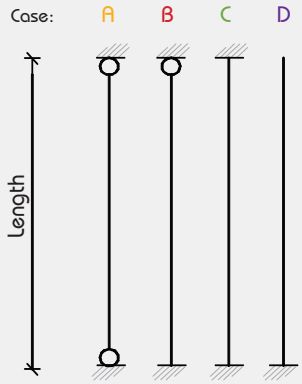
CS-41 2.0 S/P

Load Table for Single Beam with Uniform (Characteristic) Live-Load

This associated data are considered for perforated and non-perforated c-channel types according to DIN 18.800



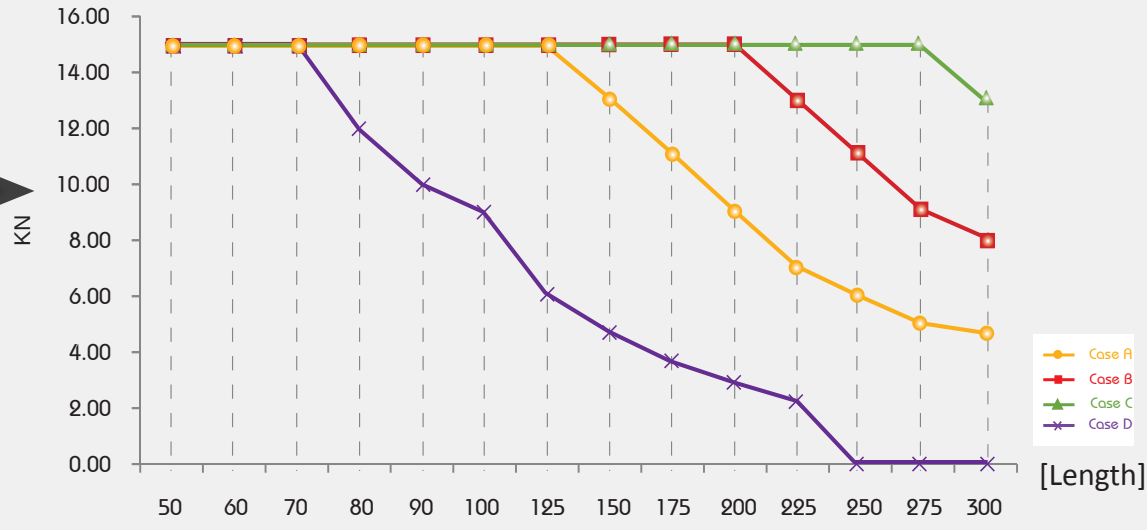
C-Channel:	41 x 41 x 2.0	
Cross Section Area (A)	2.33	cm^2
Moment of Inertia (I_y)	4.59	cm^4
Moment of Inertia (I_z)	6.99	cm^4
Self weight (G)	1.83	kg/m



Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	15.00	15.00	15.00	15.00
60	15.00	15.00	15.00	15.00
70	15.00	15.00	15.00	15.00
80	15.00	15.00	15.00	12.00
90	15.00	15.00	15.00	10.00
100	15.00	15.00	15.00	9.00
125	15.00	15.00	15.00	6.00
150	13.00	15.00	15.00	4.70
175	11.00	15.00	15.00	3.60
200	9.00	15.00	15.00	2.80
225	7.00	13.00	15.00	2.20
250	6.00	11.00	15.00	x
275	5.00	9.00	15.00	x
300	4.70	8.00	13.00	x

Column Load Data

Allowable Central Load**

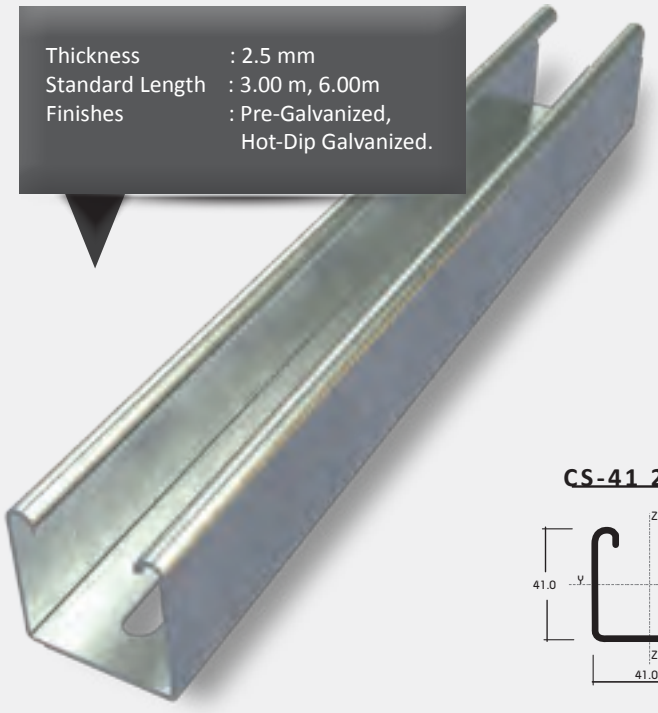


** Given loads are always “allowable characteristic live load”

CS-41 2.5 S/P

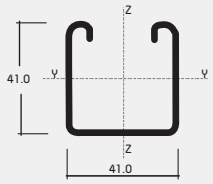
Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800



C-Channel:	41x41x2.5 S/P	
Area of Shear (A_z)	1.67	cm^2
Moment of Inertia (I_y)	5.87	cm^4
Moment of Inertia (I_z)	8.76	cm^4
min. Section Modulus (S_y)	2.72	cm^3
Warping Constant (I_w)	171.52	cm^6
Torsional Constant (I_T)	0.07	cm^4
Plastic Moment cap. ($M_{pl,y}$)	0.82	kNm
Self weight (G)	2.32	kg/m

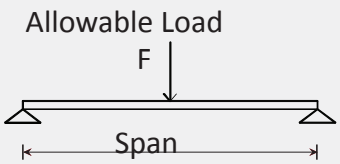
CS-41 2.5 S/P

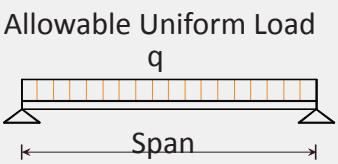


Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					@ *Uniform Load	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	[q [kN/m	[F [kN	[U [mm	[L /X]	[q [kN/m	[q [kN/m
50	10.10	2.50	0.83	600	10.10	10.10
60	7.00	2.10	1.20	500	7.00	7.00
70	5.20	1.80	1.65	420	5.20	5.20
80	4.00	1.60	2.16	370	4.00	4.00
90	3.10	1.40	2.69	340	2.90	3.10
100	2.50	1.30	3.30	300	2.10	2.50
125	1.60	1.00	5.16	240	1.10	1.60
150	1.10	0.80	7.35	200	0.60	1.10
175	0.80	0.70	9.91	180	0.40	0.80
200	0.63	0.60	13.31	150	0.30	0.50
225	0.50	0.60	16.92	130	0.20	0.40
250	0.41	0.50	21.15	120	x	0.30
275	0.33	0.50	24.92	110	x	0.20
300	0.28	0.40	29.95	100	x	x

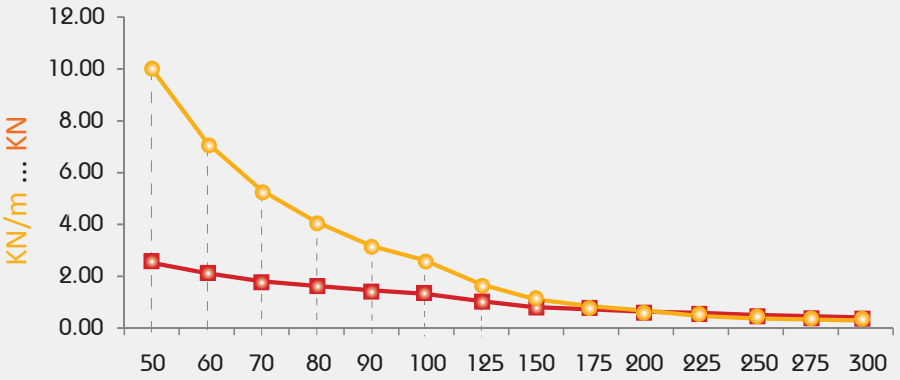


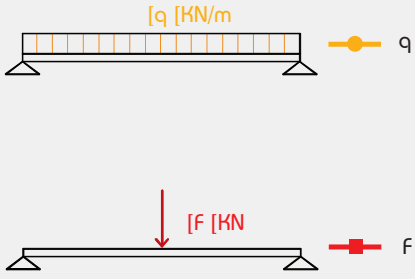


* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-41 2.5 S/P

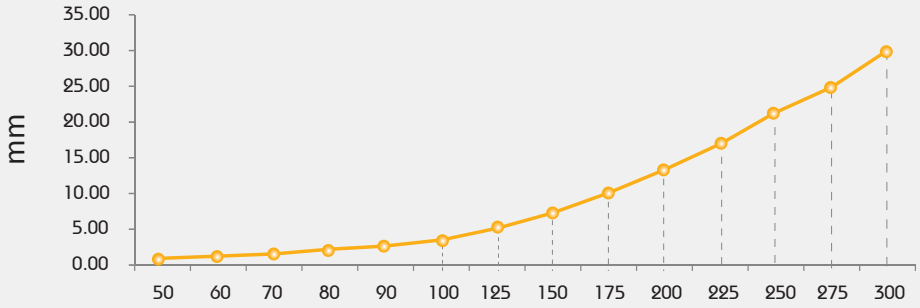
Allowable Loads

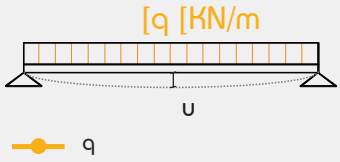




[Span] cm

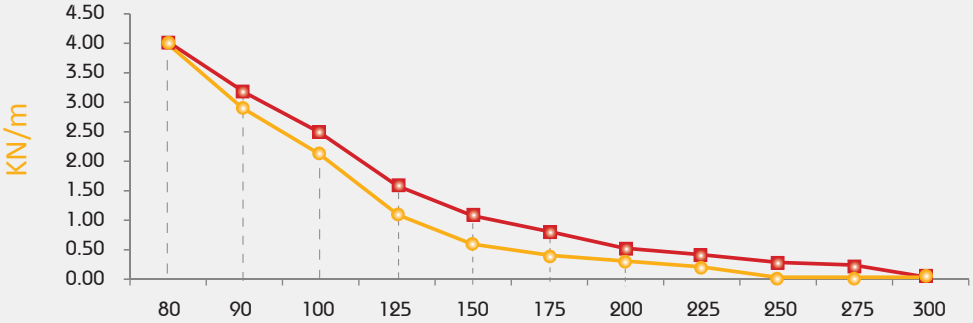
Deflection @ Allowable Uniform Load

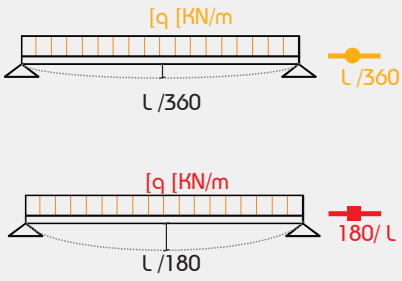




[Span] cm

Uniform Load @ Allowable Deflection



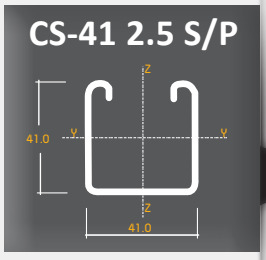


[Span] cm

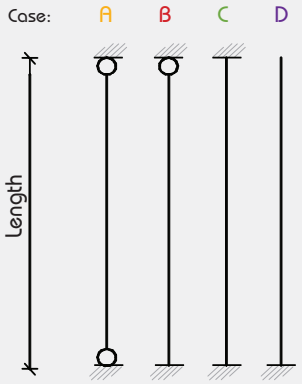
CS-41 2.5 S/P

Load Table for Single Beam with Uniform (Characteristic) Live-Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800



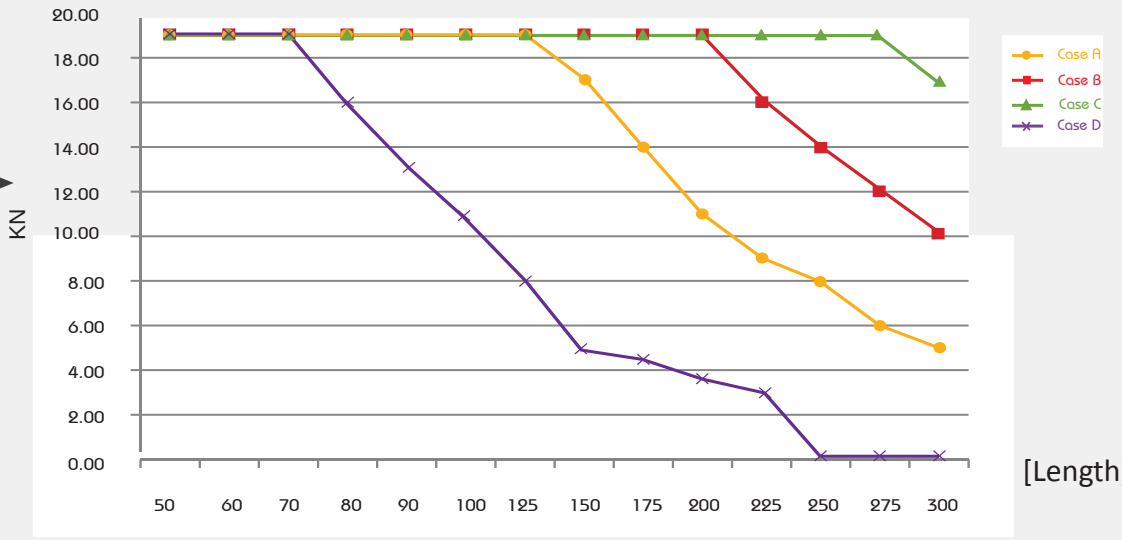
C-Channel:	41 x 41 x 2.5	
Cross Section Area (A)	2.95	cm^2
Moment of Inertia (I_y)	5.87	cm^4
Moment of Inertia (I_z)	8.76	cm^4
Self weight (G)	2.32	kg/m



Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	19.00	19.00	19.00	19.00
60	19.00	19.00	19.00	19.00
70	19.00	19.00	19.00	19.00
80	19.00	19.00	19.00	16.00
90	19.00	19.00	19.00	13.00
100	19.00	19.00	19.00	11.00
125	19.00	19.00	19.00	8.00
150	17.00	19.00	19.00	5.00
175	14.00	19.00	19.00	4.50
200	11.00	19.00	19.00	3.60
225	9.00	16.00	19.00	2.90
250	8.00	14.00	19.00	x
275	6.00	12.00	19.00	x
300	5.00	10.00	17.00	x

Column Load Data

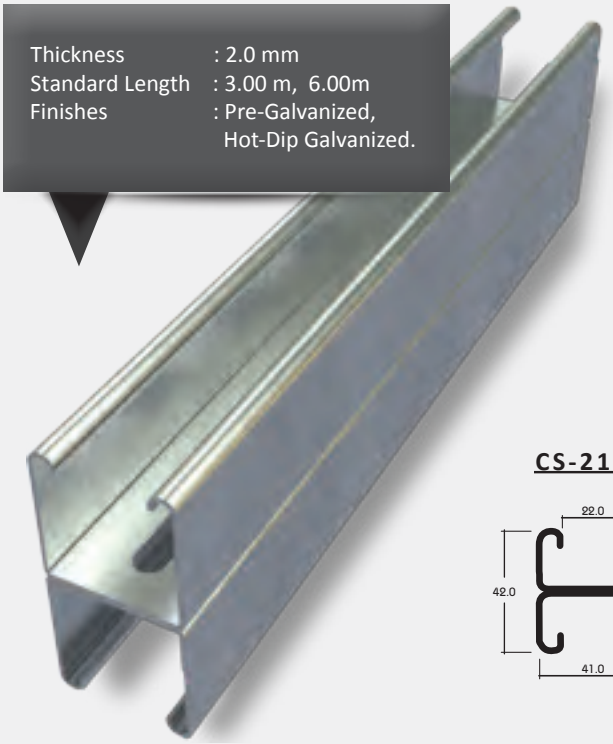
Allowable Central Load**



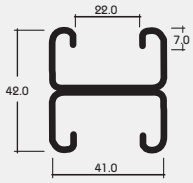
** Given loads are always “allowable characteristic live load”

Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800



CS-21 2.0D

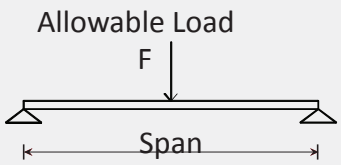


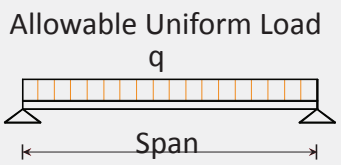
C-Channel:	41x21x2.0 B2B	
Area of Shear (A_z)	0.71	cm^2
Moment of Inertia (I_y)	4.60	cm^4
Moment of Inertia (I_z)	8.51	cm^4
min. Section Modulus (S_y)	2.19	cm^3
Warping Constant (I_w)	19.76	cm^6
Torsional Constant (I_T)	0.06	cm^4
Plastic Moment cap. ($M_{pl,y}$)	0.66	kNm
Self weight (G)	2.54	kg/m

Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	8.20	2.10	0.86	580	8.20	8.20
60	5.70	1.70	1.24	480	5.70	5.70
70	4.20	1.50	1.70	410	4.20	4.20
80	3.20	1.30	2.21	360	3.20	3.20
90	2.50	1.10	2.76	330	2.30	2.50
100	2.00	1.00	3.37	300	1.60	2.00
125	1.30	0.80	5.35	230	0.80	1.30
150	0.90	0.70	7.68	200	0.50	0.90
175	0.67	0.60	10.59	170	0.30	0.60
200	0.51	0.50	13.75	150	0.20	0.40
225	0.40	0.50	17.27	130	x	0.30
250	0.33	0.40	21.72	120	x	0.20
275	0.27	0.37	26.02	110	x	x
300	0.23	0.35	31.39	100	x	x

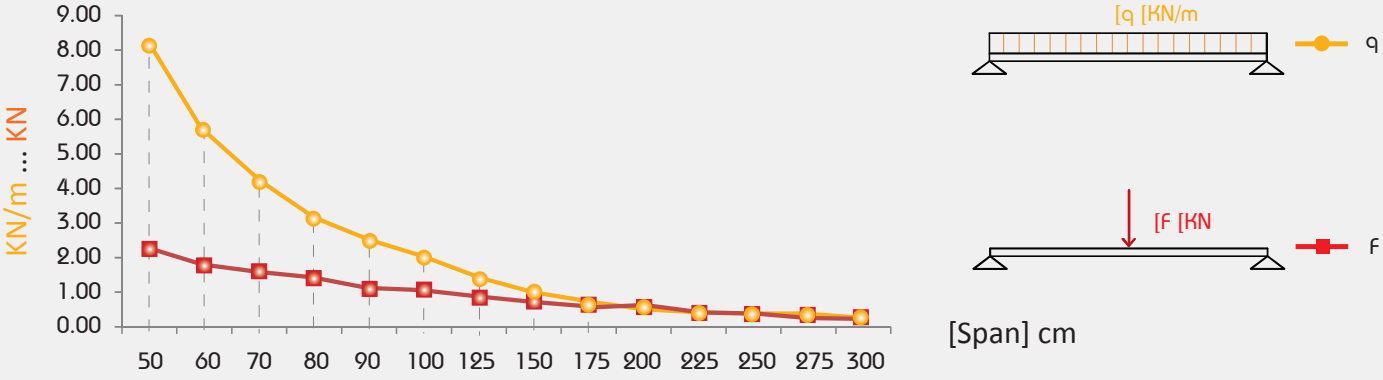




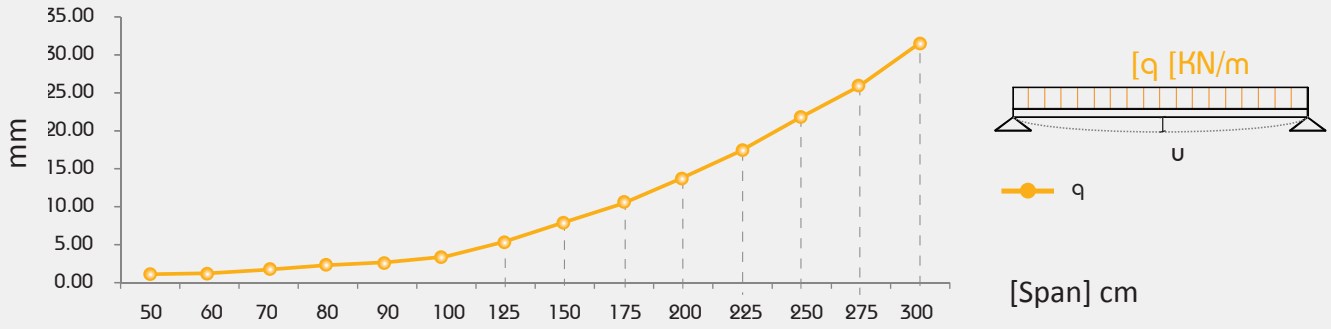
* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-21 2.0 D

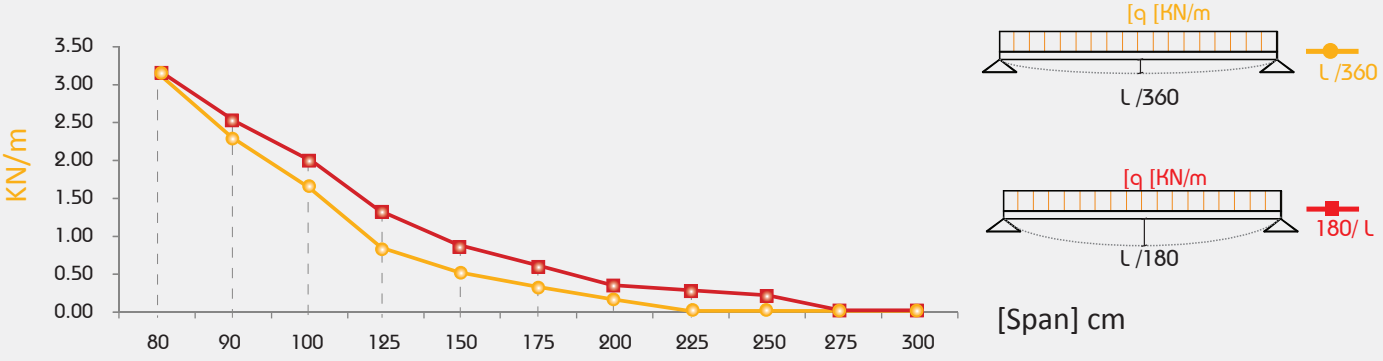
Allowable Loads



Deflection @ Allowable Uniform Load



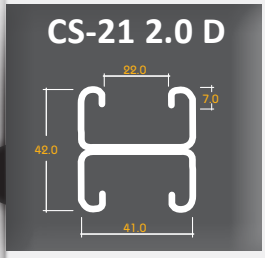
Uniform Load @ Allowable Deflection



Load Table for Single Beam with Uniform (Characteristic) Live-Load

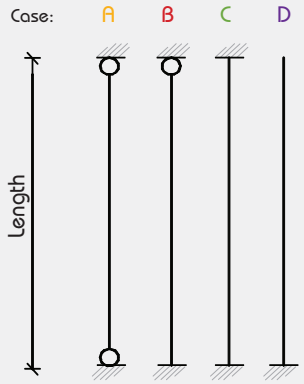
This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

C-Channel:	41 x 21 x 2.0 b2b	
Cross Section Area (A)	3.67	cm^2
Moment of Inertia (I_y)	21.11	cm^4
Moment of Inertia (I_z)	11.37	cm^4
Self weight (G)	2.88	kg/m

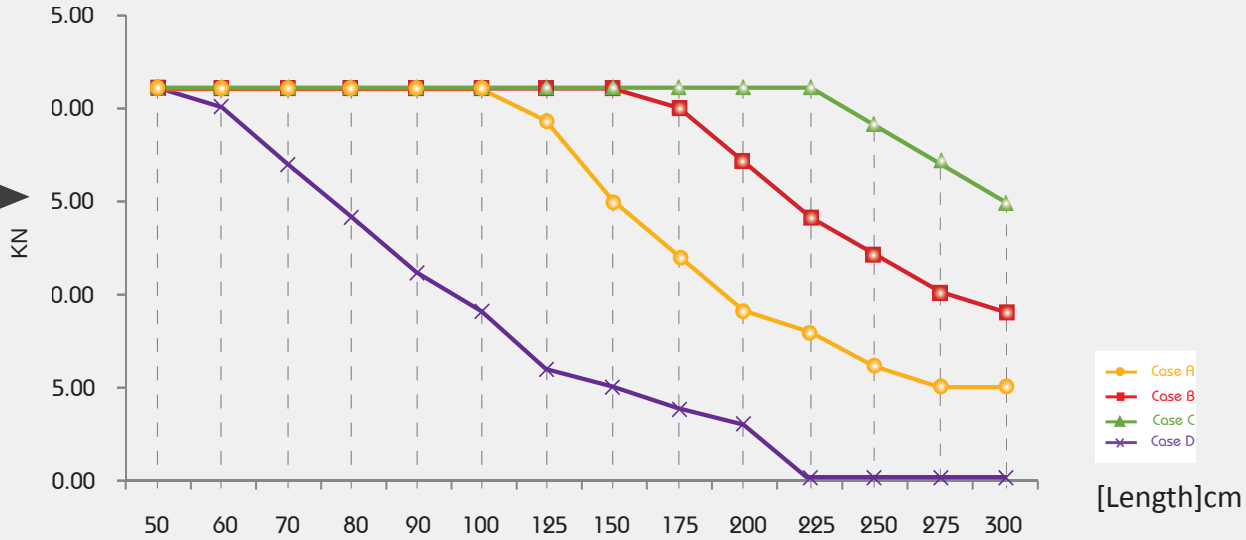


Column Load Data

Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	24.00	24.00	24.00	24.00
60	24.00	24.00	24.00	24.00
70	24.00	24.00	24.00	24.00
80	24.00	24.00	24.00	24.00
90	24.00	24.00	24.00	23.00
100	24.00	24.00	24.00	20.00
125	24.00	24.00	24.00	14.00
150	24.00	24.00	24.00	10.00
175	24.00	24.00	24.00	8.00
200	20.00	24.00	24.00	6.00
225	17.00	24.00	24.00	5.00
250	14.00	24.00	24.00	4.40
275	12.00	21.00	24.00	3.70
300	10.00	19.00	24.00	x



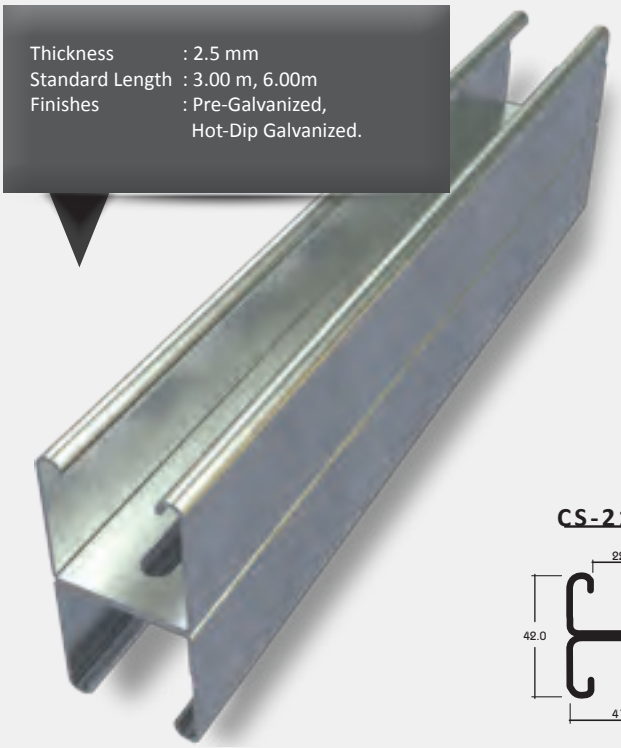
Allowable Central Load**



** Given loads are always "allowable characteristic live load"

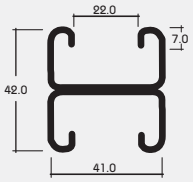
Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800



C-Channel:	41x21x2.5 B2B	
Area of Shear (A_z)	0.88	cm^2
Moment of Inertia (I_y)	5.55	cm^4
Moment of Inertia (I_z)	10.14	cm^4
min. Section Modulus (S_y)	2.65	cm^3
Warping Constant (I_w)	22.30	cm^6
Torsional Constant (I_T)	0.12	cm^4
Plastic Moment cap. ($M_{pl,y}$)	0.82	kNm
Self weight (G)	3.13	kg/m

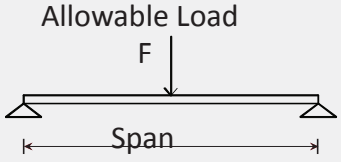
CS-21 2.5D

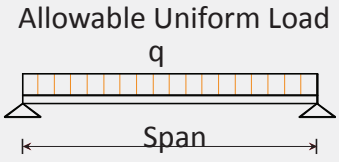


Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	9.90	2.50	0.86	580	9.90	9.90
60	6.90	2.10	1.25	480	6.90	6.90
70	5.00	1.80	1.68	420	5.00	5.00
80	3.90	1.60	2.23	360	3.90	3.90
90	3.00	1.40	2.75	330	2.70	3.00
100	2.50	1.30	3.49	290	2.00	2.50
125	1.60	1.00	5.46	230	1.00	1.60
150	1.10	0.80	7.78	190	0.60	1.10
175	0.80	0.70	10.48	170	0.40	0.70
200	0.62	0.60	13.85	140	0.20	0.50
225	0.49	0.60	17.54	130	0.20	0.30
250	0.39	0.50	21.27	120	x	0.30
275	0.33	0.50	26.36	100	x	0.20
300	0.27	0.40	30.54	100	x	x

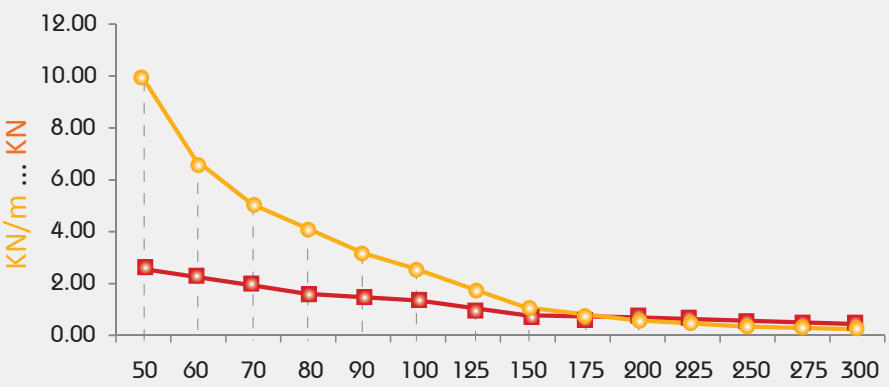


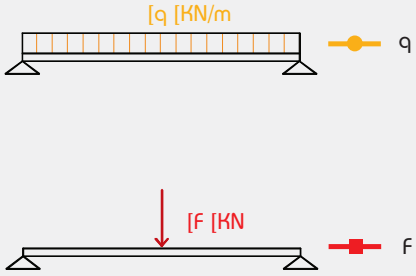


* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-21 2.5 D

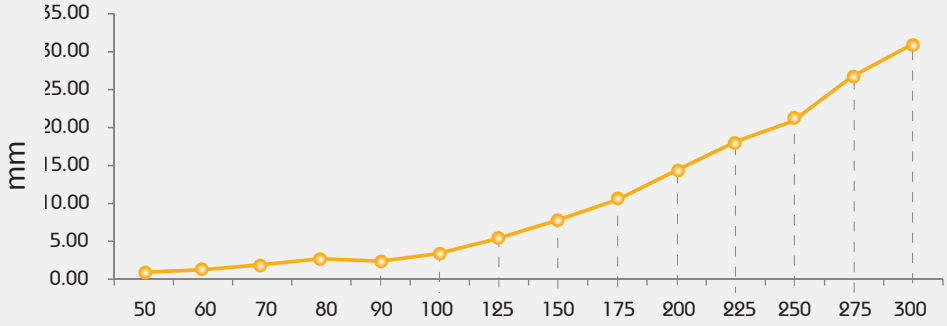
Allowable Loads

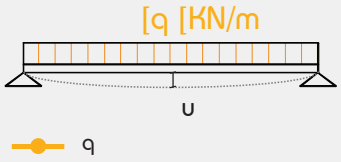




[Span] cm

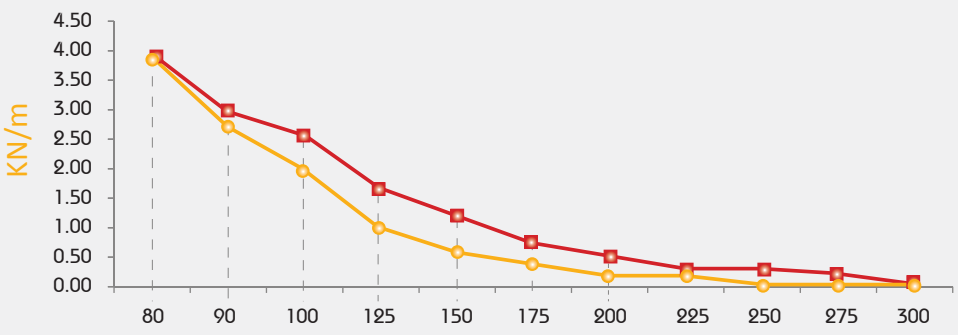
Deflection @ Allowable Uniform Load

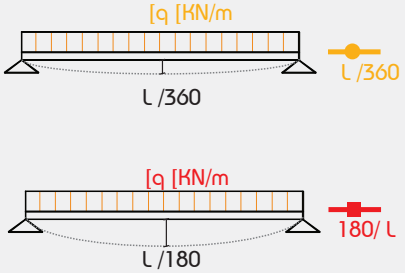




[Span] cm

Uniform Load @ Allowable Deflection



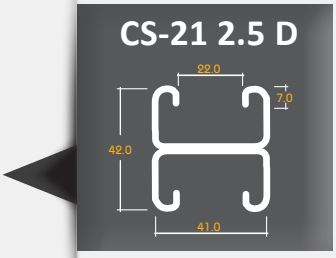


[Span] cm

Load Table for Single Beam with Uniform (Characteristic) Live-Load

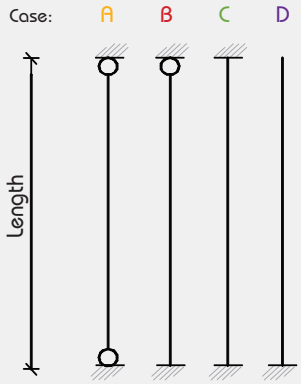
This associated data are considered for perforated and non-perforated c-channel types according to DIN 18.800

C-Channel:	41 x 21 x 2.5 b2b	
Cross Section Area (A)	3.99	cm^2
Moment of Inertia (I_y)	5.55	cm^4
Moment of Inertia (I_z)	10.14	cm^4
Self weight (G)	3.13	kg/m

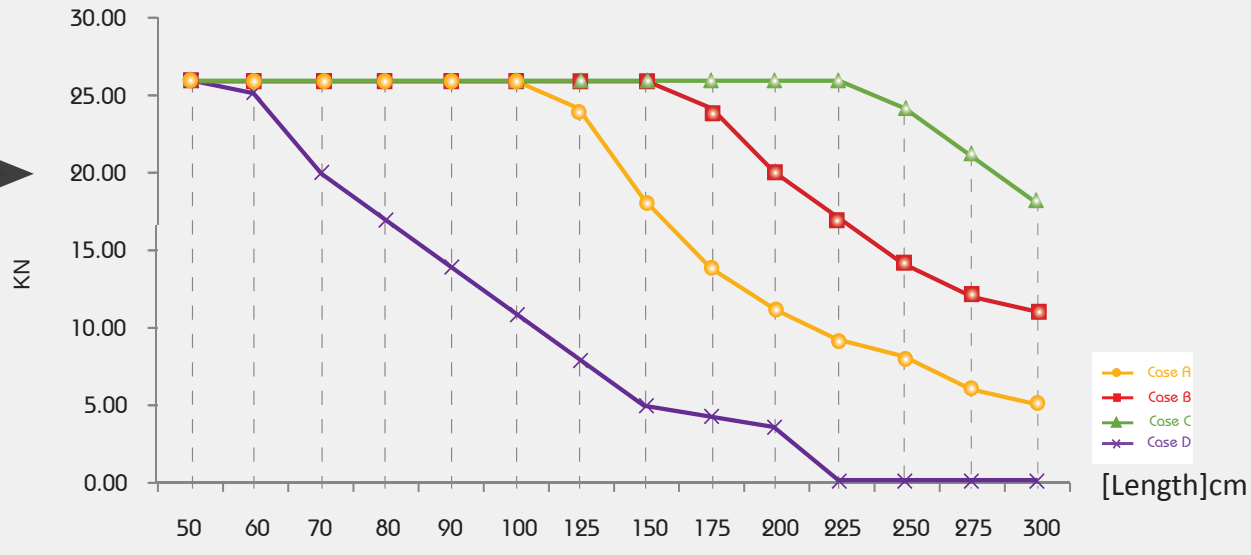


Column Load Data

Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	26.00	26.00	26.00	26.00
60	26.00	26.00	26.00	25.00
70	26.00	26.00	26.00	20.00
80	26.00	26.00	26.00	17.00
90	26.00	26.00	26.00	14.00
100	26.00	26.00	26.00	11.00
125	24.00	26.00	26.00	8.00
150	18.00	26.00	26.00	5.00
175	14.00	24.00	26.00	4.40
200	11.00	20.00	26.00	3.50
225	9.00	17.00	26.00	x
250	8.00	14.00	24.00	x
275	6.00	12.00	21.00	x
300	5.00	11.00	18.00	x



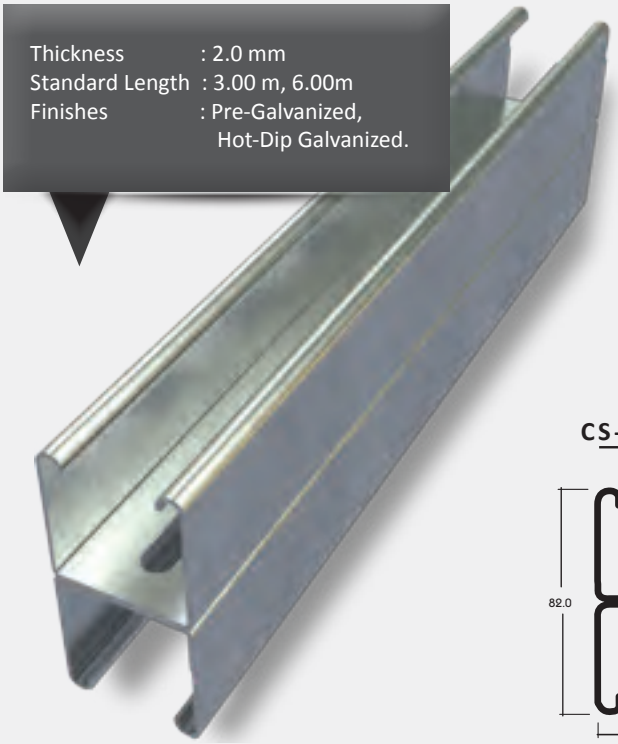
Allowable Central **Load



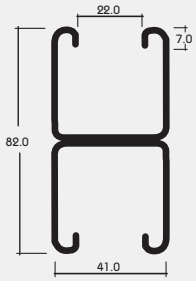
** Given loads are always “allowable characteristic live load”

Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800



CS-41 2.0 D

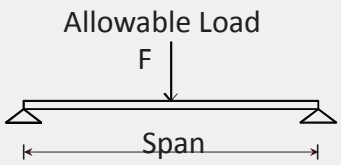


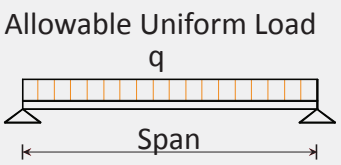
C-Channel:	41x41x2.0 B2B	
Area of Shear (A_z)	1.88	cm^2
Moment of Inertia (I_y)	26.81	cm^4
Moment of Inertia (I_z)	14.04	cm^4
min. Section Modulus (S_y)	6.62	cm^3
Warping Constant (I_w)	113.65	cm^6
Torsional Constant (I_T)	0.08	cm^4
Plastic Moment cap. ($M_{pl,y}$)	1.98	kNm
Self weight (G)	3.76	kg/m

Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	24.70	6.20	0.45	1.120	24.70	24.70
60	17.10	5.10	0.64	940	17.10	17.10
70	12.60	4.40	0.87	800	12.60	12.60
80	9.60	3.80	1.14	700	9.60	9.60
90	7.60	3.40	1.44	620	7.60	7.60
100	6.20	3.10	1.79	560	6.20	6.20
125	3.90	2.40	2.75	450	3.90	3.90
150	2.70	2.00	3.9	380	2.70	2.70
175	2.00	1.80	5.42	320	1.80	2.00
200	1.50	1.50	6.4	290	1.20	1.50
225	1.10	1.20	8.15	280	0.80	1.10
250	0.90	1.10	10.16	250	0.60	0.90
275	0.66	0.90	10.91	250	0.50	0.70
300	0.52	0.80	12.18	250	0.40	0.50

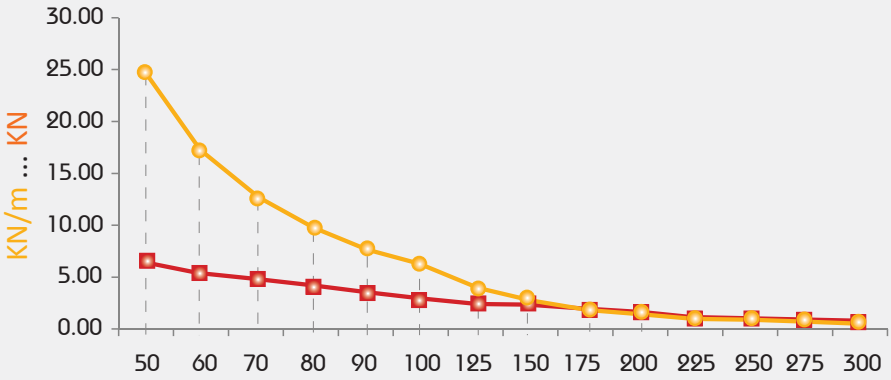


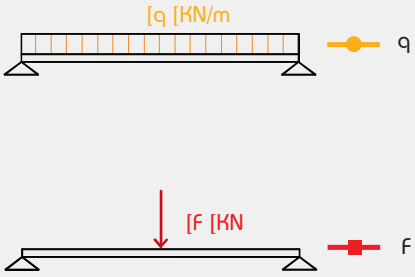


* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-41 2.0 D

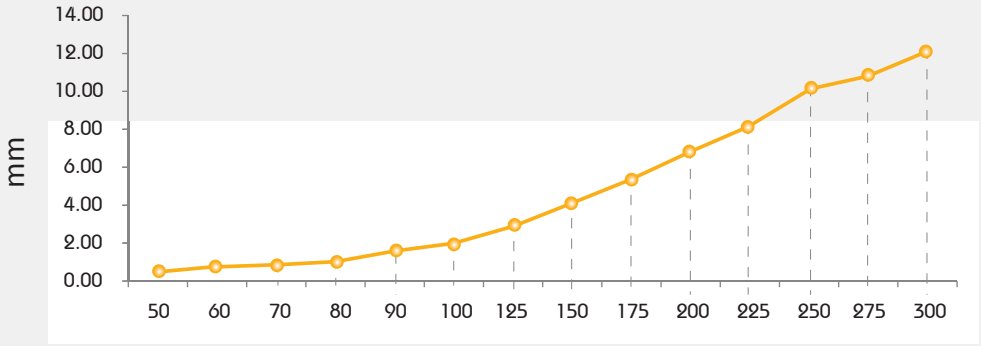
Allowable Loads

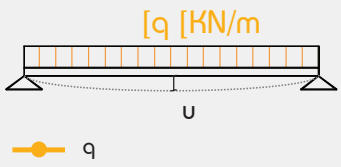




[Span] cm

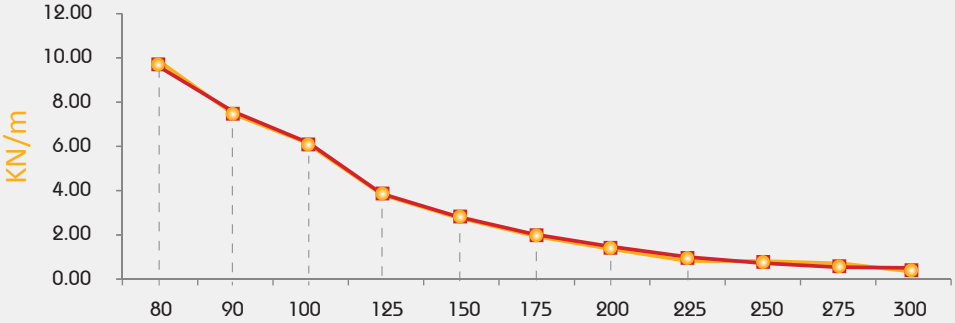
Deflection @ Allowable Uniform Load

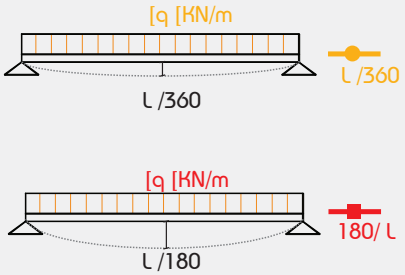




[Span] cm

Uniform Load @ Allowable Deflection



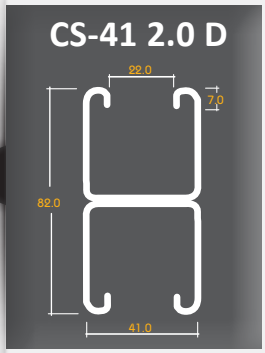


[Span] cm

Load Table for Single Beam with Uniform (Characteristic) Live-Load

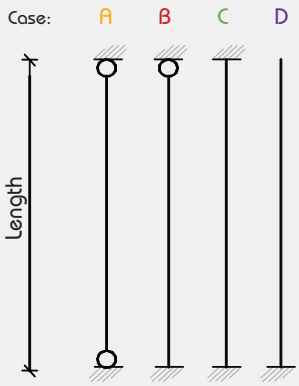
This associated data are considered for perforated and non-perforated C-Channel types according to DIN18.800

C-Channel:	41 x 41 x 2.0 b2b	
Cross Section Area (A)	4.79	cm^2
Moment of Inertia (I_y)	26.81	cm^4
Moment of Inertia (I_z)	14.04	cm^4
Self weight (G)	3.76	kg/m

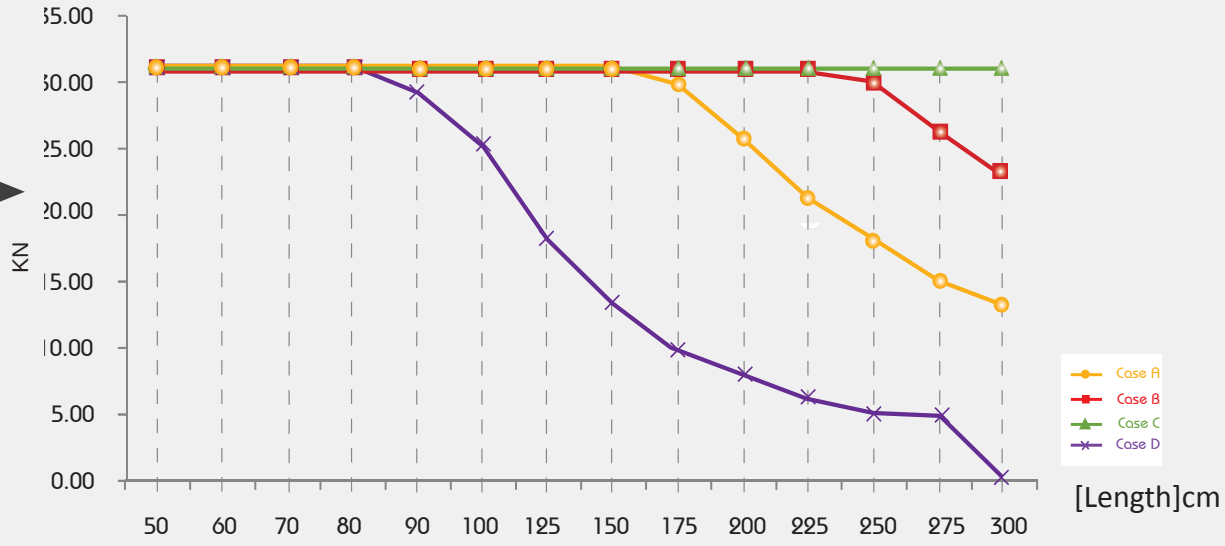


Column Load Data

Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	31.00	31.00	31.00	31.00
60	31.00	31.00	31.00	31.00
70	31.00	31.00	31.00	31.00
80	31.00	31.00	31.00	31.00
90	31.00	31.00	31.00	29.00
100	31.00	31.00	31.00	25.00
125	31.00	31.00	31.00	18.00
150	31.00	31.00	31.00	13.00
175	30.00	31.00	31.00	10.00
200	25.00	31.00	31.00	8.00
225	21.00	31.00	31.00	6.00
250	18.00	30.00	31.00	5.00
275	15.00	26.00	31.00	4.60
300	13.00	23.00	31.00	x



Allowable Central Load**



** Given loads are always “allowable characteristic live load”

CS-41 2.5 D

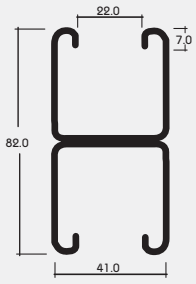
Load Table for Single Beam with Uniform (Characteristic) Live- Load

This associated data are considered for perforated and non-perforated c-channel types according to DIN 18.800

Thickness : 2.5 mm
Standard Length : 3.00 m, 6.00m
Finishes : Pre-Galvanized,
Hot-Dip Galvanized.

C-Channel:	41x41x2.5 B2B	
Area of Shear (A_z)	2.37	cm^2
Moment of Inertia (I_y)	34.08	cm^4
Moment of Inertia (I_z)	17.56	cm^4
min. Section Modulus (S_y)	8.31	cm^3
Warping Constant (I_w)	140.95	cm^6
Torsional Constant (I_T)	0.16	cm^4
Plastic Moment cap. ($M_{pl,y}$)	2.51	kNm
Self weight (G)	4.70	kg/m

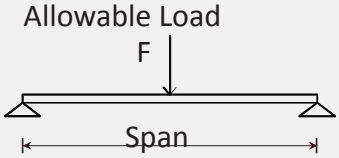
CS-41 2.5 D

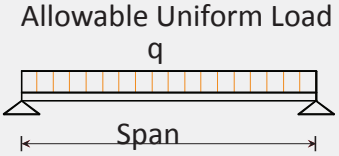


Chosen Material:	40 B = S 235 JRG2	
Allowable Bending Stress	21,82	kN/cm^2
Allowable Shear Stress	12,60	kN/cm^2
Modulus of Elasticity	21.000	kN/cm^2

Beam Load Data

					Uniform Load* @	
Span (L)	Allowable Load*		Deflection		L / 360	L / 180
[cm]	q [kN/m]	F [kN]	U [mm]	[L /X]	q [kN/m]	q [kN/m]
50	30.90	7.70	0.44	1.140	30.90	30.90
60	21.50	6.50	0.63	950	21.50	21.50
70	15.80	5.50	0.86	810	15.80	15.80
80	12.10	4.80	1.13	710	12.10	12.10
90	9.60	4.30	1.43	630	9.60	9.60
100	7.70	3.90	1.75	570	7.70	7.70
125	5.00	3.10	2.78	450	5.00	5.00
150	3.40	2.60	3.91	380	3.40	3.40
175	2.50	2.20	5.33	330	2.30	2.50
200	1.90	1.90	6.91	290	1.50	1.90
225	1.50	1.70	8.74	260	1.10	1.50
250	1.20	1.50	10.66	230	0.80	1.20
275	1.00	1.40	13.01	210	0.60	1.00
300	0.77	1.20	14.18	210	0.50	0.80

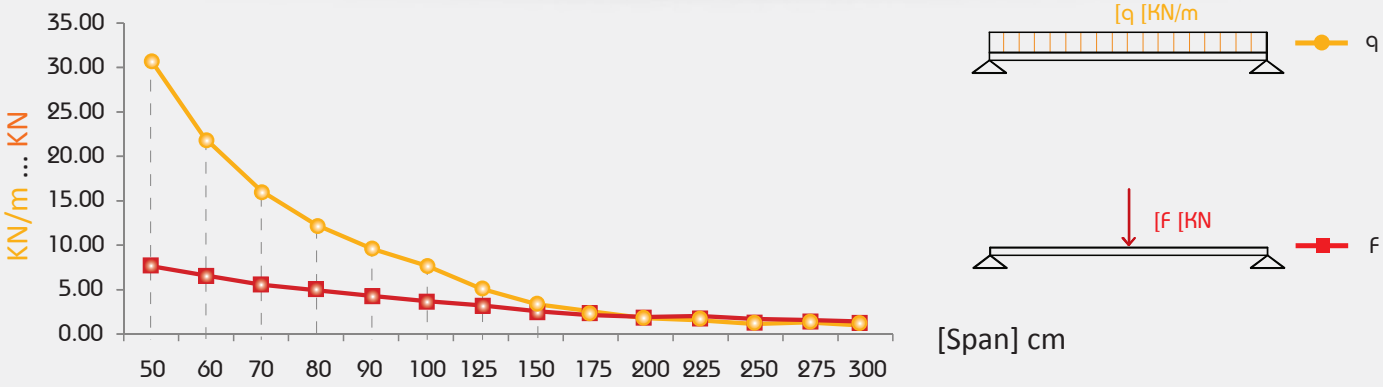




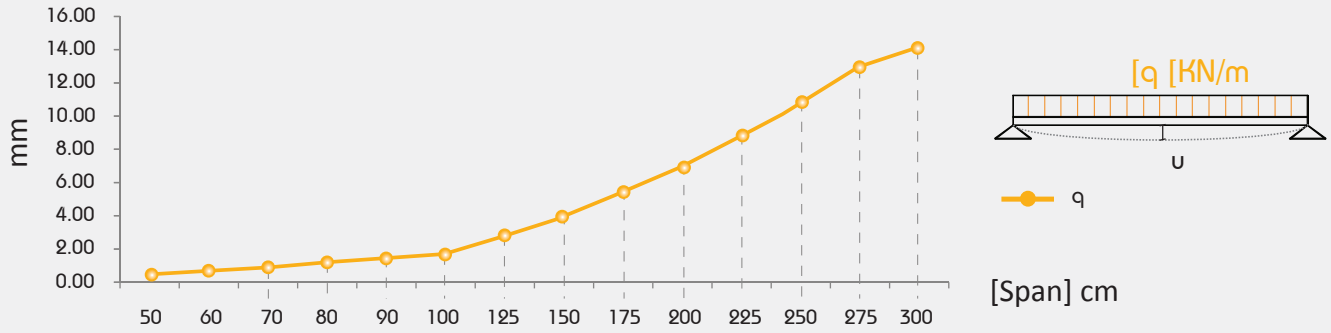
* Given loads are always “allowable characteristic live load”

BEAM LOADING GRAPH
CS-41 2.5 D

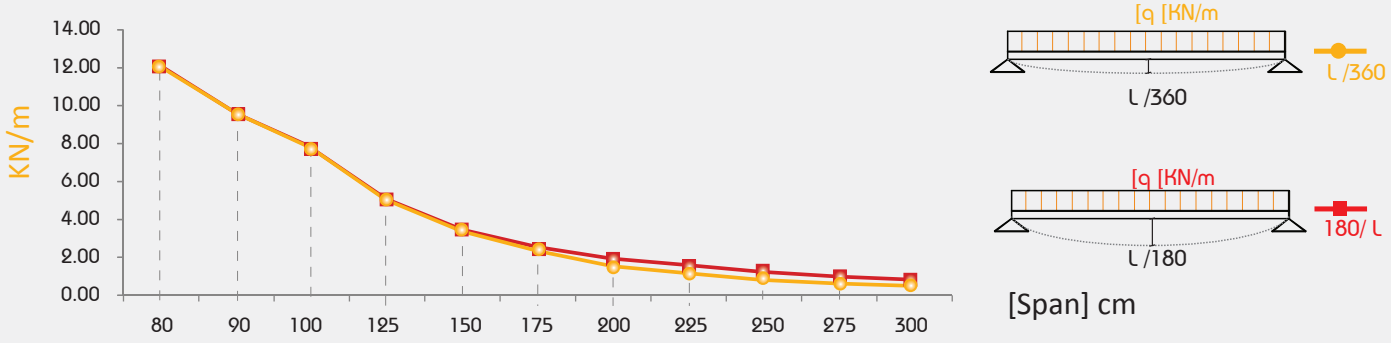
Allowable Loads



Deflection @ Allowable Uniform Load



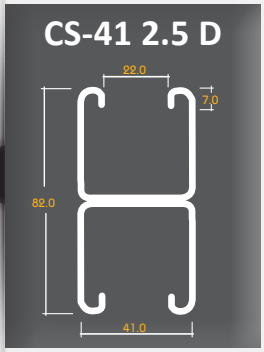
Uniform Load @ Allowable Deflection



Load Table for Single Beam with Uniform (Characteristic) Live-Load

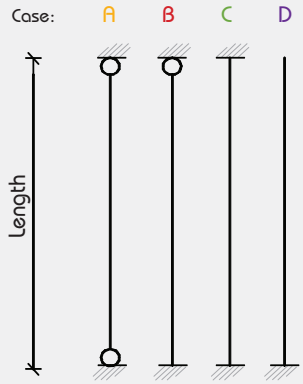
This associated data are considered for perforated and non-perforated C-Channel types according to DIN 18.800

C-Channel:	41 x 41 x 2.5 b2b	
Cross Section Area (A)	5.99	cm^2
Moment of Inertia (I_y)	34.08	cm^4
Moment of Inertia (I_z)	17.56	cm^4
Self weight (G)	4.70	kg/m

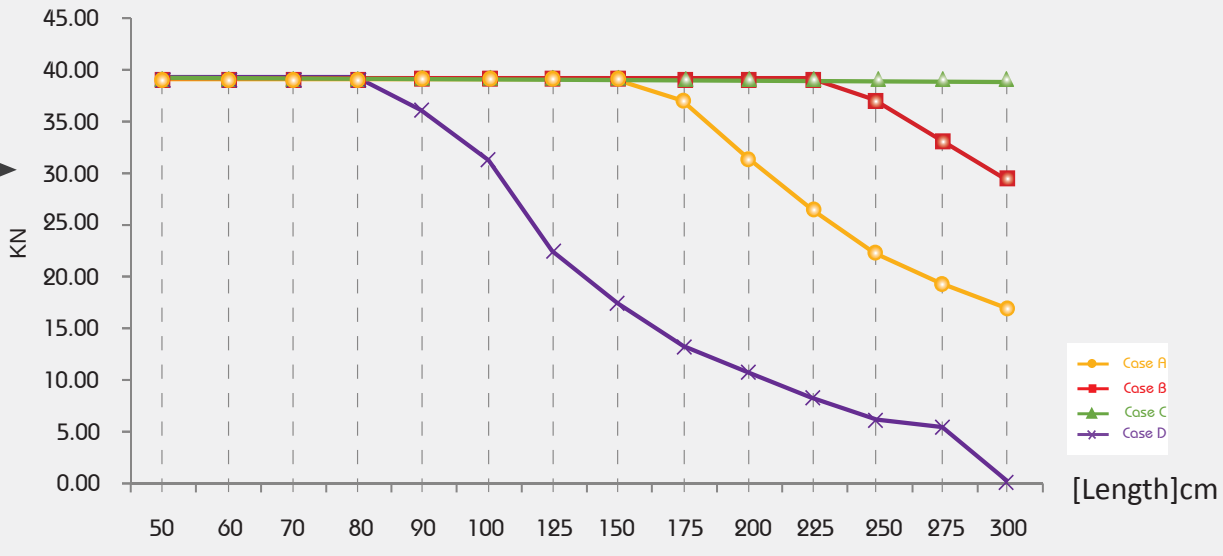


Column Load Data

Span (L)	Allowable Central Load** [KN]			
[cm]	Case A	Case B	Case C	Case D
50	39.00	39.00	39.00	39.00
60	39.00	39.00	39.00	39.00
70	39.00	39.00	39.00	39.00
80	39.00	39.00	39.00	39.00
90	39.00	39.00	39.00	36.00
100	39.00	39.00	39.00	31.00
125	39.00	39.00	39.00	22.00
150	39.00	39.00	39.00	17.00
175	37.00	39.00	39.00	13.00
200	31.00	39.00	39.00	10.00
225	26.00	39.00	39.00	8.00
250	22.00	37.00	39.00	6.00
275	19.00	33.00	39.00	5.00
300	17.00	29.00	39.00	x



Allowable Central **Load



** Given loads are always “allowable characteristic live load”

CERTIFICATES

Member™
American Galvanizers Association
Protecting Steel for Generations

Certificate of Membership

Coastal Steel & Galvanizing

Member 2017

Philip G. Rahrig

Philip G. Rahrig, Executive Director

ASTM INTERNATIONAL

ASTM International

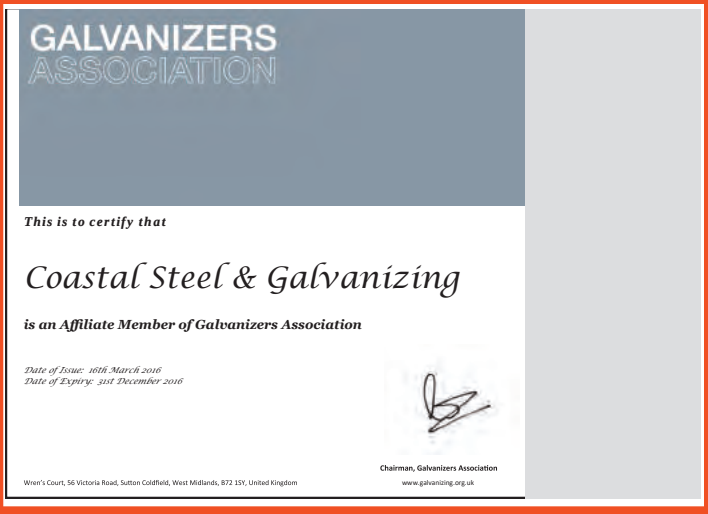
Certificate of Organizational Membership

Coastal Steel & Galvanizing W.L.L.

Membership Term: 2016

Ileane Smith,

Manager, Member Services



GALVANIZERS ASSOCIATION

This is to certify that

Coastal Steel & Galvanizing

is an Affiliate Member of Galvanizers Association

Date of Issue: 16th March 2016
Date of Expiry: 31st December 2016

Chairman, Galvanizers Association

Wren's Court, 56 Victoria Road, Sutton Coldfield, West Midlands, B72 1SY, United Kingdom

www.galvanizing.org.uk

BUREAU VERITAS Certification

COASTAL STEEL & GALVANIZING W.L.L
Building No. 281, Street No. 4,
Zone No. 81, New Industrial Area,
P. O. Box: 4097, Doha

STATE OF QATAR

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below

ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007
Scope of certification

HOT DIP GALVANIZING SERVICES.

Original cycle start date:	5th November 2016
Expiry date of previous cycle:	N/A
Certification audit date:	8th September 2016
Certification cycle start date:	5th November 2016

Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on: 4th November 2019

Certificate No. IND 16.6388/U/QHSE Version 2, Revision date: 6th December 2016

Signed on behalf of BVCH SAS UK Branch
VISHAL BHAT : Certification Manager

UKAS MANAGEMENT SYSTEMS 008

Certification body address: Bureau Veritas Certification Holding SAS – UK Branch, 5th Floor, 66 Prescot Street, London E1 8HG, United Kingdom
Local office: G1-G3, Ground Floor, KG Building (Bldg. No. 104, Street No. 230), C Ring Road, Opposite Gulf Times, P. O. Box: 22157 (Doha) Qatar

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.
To check this certificate validity please call: +974 40129729

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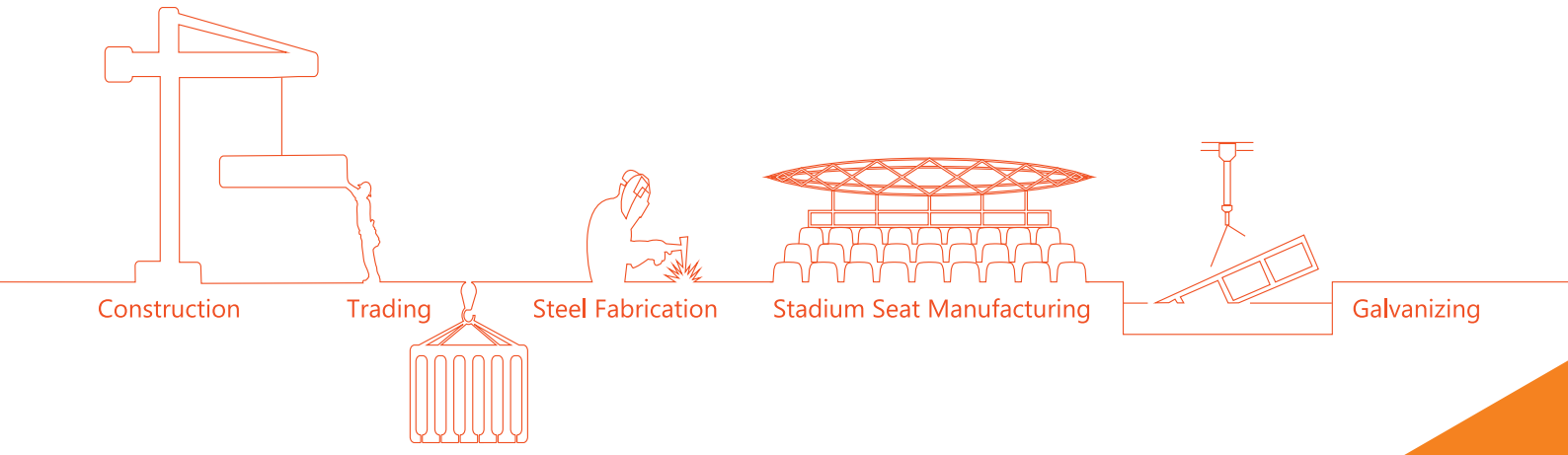
COASTAL
QATAR
THE CHALLENGINEERS

YOUR ENGINEERING NEEDS...
UNDER ONE ROOF.



We are Coastal Qatar and We are the Challengineers.

ENGINEERING
STEEL & GALVANIZING
MANUFACTURING
TRADING

COASTAL GROUP OF COMPANIES

- COASTAL TRADING & CONTRACTING CO.WLL.
- COASTAL STEEL & GALVANIZING. WLL.
- MERIDIAN PROJECT SERVICES WLL
- KIMS QATAR MEDICAL CENTRE
- COASTAL TRADING & ENGINEERING CO.WLL.
- AZIMUTH PROJECT SUPPORTS WLL
- COASTAL HEALTHCARE

CERTIFICATIONS

ISO 9001, 14001 &18001 Certified

QATAR GREEN BUILDING COUNCIL

USGBC MEMBER

AWARDS

INTERNATIONAL QUALITY AWARD

Qatar Today BUSINESS EXCELLENCE AWARDS

THE BIZZ WINNER 2015 BUSINESS EXCELLENCE CERTIFICATE

THE BIZZ WINNER 2017 BUSINESS EXCELLENCE CERTIFICATE

Building No,: 287, Zone.:81, street No.: 4, New Industrial Area, P.O Box.: 4097, Doha, Qatar
T: 974 446 67 158/ 446 57 804, F: +974 446 69 193, E: info@coastalgalvanizing.com, www.coastalgalvanizing.com