Dimond Structural™

DHS PURLINS
PRODUCT TECHNICAL STATEMENT

SUPPLIER

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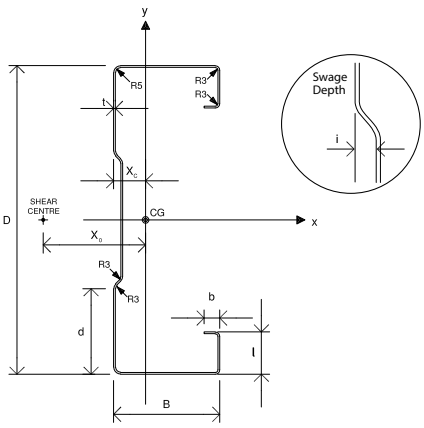
DHS Section	Depth D (mm)	Depth B (mm)	Thickness t (mm)	Mass (kg/m)	Weight (kN/m)	d (mm)	Swage Depth i (mm)	b (mm)	l (mm)	X_c (mm)	X_o (mm)
DHS 150/12	150	65	1.15	2.99	0.030	54	4	10	23	24.0	56.6
DHS 150/15	150	65	1.45	3.74	0.037	54	4	10	23	23.9	56.1
DHS 200/12	200	75	1.15	3.71	0.037	62	4	10	28	26.3	62.0
DHS 200/15	200	75	1.45	4.65	0.046	62	4	10	28	26.2	61.4
DHS 200/18	200	75	1.75	5.59	0.055	62	4	10	28	26.1	60.8
DHS 250/13	250	85	1.25	4.87	0.048	67	6	12	33	29.4	67.1
DHS 250/15	250	85	1.45	5.63	0.056	67	6	12	33	29.3	66.7
DHS 250/18	250	85	1.75	6.76	0.067	67	6	12	33	29.3	66.2
DHS 300/15	300	100	1.45	6.66	0.066	67	7	12	38	34.0	76.1
DHS 300/18	300	100	1.75	8.01	0.079	67	7	12	38	33.9	75.6
DHS 350/18	350	100	1.75	8.83	0.087	77	7	12	43	32.7	73.4
DHS 400/20	400	100	1.95	10.74	0.106	79	7	12	48	31.8	70.9

Note: Mass assumes a total coated weight for the standard zinc coating of 275g/m^2.



1. PRODUCT DESCRIPTION

1.1 Dimond Hi-Span (DHS) Purlins are a galvanised steel sheet that is roll-formed into a modified Cee shape profile with formed swages, used in conjunction with Fastbrace and/or Bolted Brace Channel purlin bracing, to provide superior strength to weight for use as structural support to roofing and wall cladding.

1.2 DHS Purlins are available in 1.15mm, 1.25mm, 1.45mm, 1.75mm and 1.95mm base metal thickness (BMT).

2. SCOPE OF USE

2.1 DHS Purlin Systems are intended to be designed by suitably qualified structural engineers experienced in the design of structural building systems, to provide PS1 certification.

2.2 DHS Purlin Systems used as structural supports to profile metal roofing and wall cladding, suitable for use on spans and spacings within the limitations of the Structural Systems Manual, ideal for warehouse type buildings where large spans are required.

2.3 Use of DHS Purlins must be within the limitations on environment given in the Structural Systems Manual (Section 2.1).

3. COMPLIANCE WITH THE NEW ZEALAND BUILDING CODE

3.1 Past history of use of DHS Purlin Systems, physical testing and structural analysis by the University of Sydney indicate that provided the system design, use and maintenance is in line with the guidelines of the Structural Systems Manual and the standards referenced therein, DHS Purlins can reasonably be expected to meet the performance criteria in Clauses B1 Structure and B2 Durability of the New Zealand Building Code for a period of not less than 50 years, provided the steel components remain dry and free from contamination.

3.2 Where products used with DHS Purlins are manufactured by other suppliers, compliance to the New Zealand Building Code is required to be sought from that product's manufacturer.

4. DURABILITY AND MAINTENANCE REQUIREMENTS

4.1 The use of DHS Purlins is limited to dry and non-corrosive environments unless further suitable protection of the surfaces is provided. It is the responsibility of the design engineer to assess the durability requirements and specify accordingly.

4.2 DHS Purlins may require additional protection from suitable protective coatings applied in-situ if exposure to moisture, marine deposits, or chemicals is expected.

4.3 DHS Purlins require maintenance to ensure the surfaces remain in sound condition and moisture contamination is prevented. This requires surfaces to be kept clean and free from defects that could give rise to material degradation over time.

4.4 Refer to appropriate sections of the Structural Systems Manual:

Structural Systems Manual Durability and Maintenance Criteria	Section Number
Environments and Limitations on Use	2.1.3
Surface Treatment	2.1.5
Maintenance	2.1.6

5. DESIGN INSTRUCTIONS

5.1 It is critical to product performance that the materials selected, the loads applied, spans, spacings, purlin bracing type and layout are designed within the appropriate loads in AS/NZS 1170, load-span performance in AS/NZS 4600 and limitations published in the Structural Systems Manual and the following standards referenced therein.

5.2 The information within the Structural Systems Manual is based on comprehensive system performance testing and analysis carried out at the University of Sydney, Centre for Advanced Structural Engineering and is only applicable to DHS Purlins. It cannot be assumed to apply to similar products from other manufacturers.

5.3 Refer to appropriate sections of the Structural Systems Manual:

Structural Systems Manual Design Criteria	Section Number
Design Basis	2.3.1
Design Considerations	2.3.2
Section Properties	2.3.3
Load Span Tables Single Spans Continuous Spans (End and Internal) Lapped Spans (End and Internal)	2.3.4

6. INSTALLATION AND CONSTRUCTION INSTRUCTIONS

6.1 Supply and installation of DHS Purlins is generally carried out by experienced steel fabricators and riggers.

6.2 Before commencing a project using DHS Purlins, the installer and builder must refer to the appropriate sections of the Structural Systems Manual, ensuring relevant information (e.g. any limitations on use) is available to the end user. Failure to observe this information may result in a significant reduction in product performance. Dimond accepts no liability whatsoever for products that are used otherwise than in accordance with these recommendations.

6.3 Installation including safety considerations, handling and storage, general fixing and workmanship and bracing system installation is to be carried out in accordance with the Structural Systems Manual.

6.4 Consideration of the expected loads during construction that are relevant to the specific design project must be given at the design stage to ensure construction can proceed in a safe manner, and contractors are aware of any constraints.

6.5 Refer to the appropriate sections of the Structural Systems Manual:

Structural Systems Manual Installation and Construction Instructions	Section Number
Installation	2.5
Components	2.3.8
Construction Details	2.3.9

7. QUALITY ASSURANCE

7.1 DHS Purlins are manufactured to tolerances given in the Structural Systems Manual section 2.3.6.

7.2 DHS Purlins are manufactured from galvanised steel that complies with the tolerances in AS/NZS 1365.

7.3 Load-span performance has been established by the University of Sydney, Centre for Advanced Structural Engineering based on physical testing and analysis to AS/NZS 4600:1996.

8. PRODUCT SUPPORT

8.1 Support is available from Dimond for design considerations, construction details, installation requirements, and maintenance advice.

8.2 Dimond can provide reference to preferred installers of DHS Purlins who are familiar with installation methods and construction details required for the system.

9. MATERIALS SPECIFICATION

The use of DHS Purlin Systems are to comply with the following material specifications:

9.1 Galvanised Steel
To comply with AS/NZS 1365 and AS 1397
DHS Purlins
Zinc Weight, Z275 (275g/m^2 zinc coating weight)
Zinc Weight, Z450 (450g/m^2 zinc coating weight), subject to quantity and lead time
1.15mm, 1.25mm, 1.45mm, 1.75mm and 1.95mm BMT Design Yield Strength 500MPa.
Fastbrace and Bolted Brace Channel
Channel (1.15mm BMT) Grade G250, Z450
End Cleats (2.0mm BMT) Grade G250, Z450.

9.2 Bolts
Grade 4.6 to comply with AS 1111 or Grade 8.8 to comply with AS 1252
Design performance in accordance with AS/NZS 4600
12mm, 16mm or 20mm nominal diameter.

10. USE OUTSIDE THE STATED GUIDELINES

If the need arises to use DHS Purlins outside the limitations and procedures referred to in this statement, or if there exists any doubt on product handling or use, written approval must be obtained from Dimond for the specific project, before the project is commenced.

11. DISCLAIMER

As part of Dimond Structural's policy of continuing product and system development the company reserves the right at any time and without notice, to discontinue or change the products, materials, design advice, features or specifications represented in the Structural Systems Manual without incurring any liability. The information in the Structural Systems Manual is issued for general application in New Zealand, and should not be treated as a substitute for detailed technical advice in relation to requirements for individual projects in New Zealand or overseas. To the extent permitted by law, Dimond Structural disclaim any liability for loss or damage incurred by the use of the information in the Structural Systems Manual and this Product Technical Statement unless it is covered by a specific warranty agreement. Dimond, a division of Fletcher Steel Ltd. February 2022.