



DURAGAL[®] PROFILES

PROVEN. PREPARED. PERFORMS

DuraGal® Profiles.

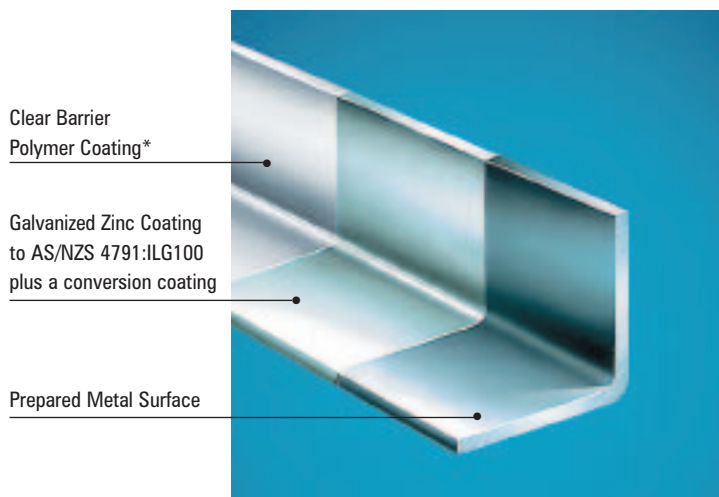
DuraGal® Profiles are a member of the DuraGal Family of Products® that include DuraGal rectangular, square and circular tubing.

With their prepared surface finish, DuraGal® Profiles are supplied ready to use - so now there's no longer any need to spend time and money on shot blasting, wire brush cleaning or priming after fabrication.

Available in Angles, Channels and Flats, DuraGal® Profiles feature the DuraGal® In-line, Hot-dip Galvanized surface protection coating.

DuraGal® Profiles are a convenient, time saving way to work with steel, and where equivalent strength and corrosion protection is required, the total cost of using DuraGal® Profiles may be less than using a traditional hot rolled black product. When you add the convenience of a prepared surface to the list of built-in features, it's easy to see why the market is demanding DuraGal® Profiles.

DuraGal® Profiles Surface Protection

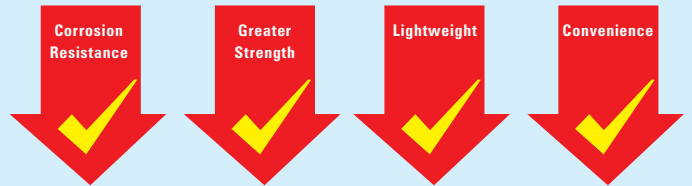


* NOTE: The polymer coating is not applied to DuraGal® Angles less than or equal to 50mm, or DuraGal® Flats

Eight Benefits of Using DuraGal® Profiles

BRINGING NEW STANDARDS IN
• Design • Quality • Cost • Convenience

Fabricate with DuraGal® Products - Greater Cost Efficiency



1. Quality improvement - prepared surface and corrosion resistance can alleviate the need for blasting and priming
2. Lighter - average 15% savings in weight - less freight costs
3. Improved business management - no outsourcing for coating preparation means less material management
4. Reduced inventory - no outsourcing means less stock in the system = space and cost savings
5. Kinder to the environment - no wire brushing or priming pollutants
6. Reduced process time - clean and better to handle
7. Availability - stocked through the extensive OneSteel Market Mills distribution network
8. Lower total cost potential

How DuraGal® Profiles Put You in Control of the Manufacturing Process



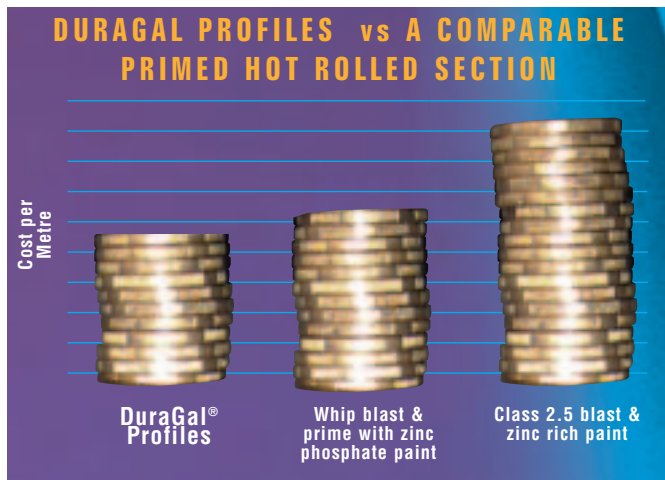
When you use DuraGal® Profiles, this will not only save you time, but it will help you to improve your bottom line as well.

A better way of working with steel.

A Steel That's Finished Before You Start

When you take delivery of DuraGal® Profiles, they are *ready to use*. That means there's no need for shot blasting, (DuraGal® Products are already blasted and cleaned), wire brushing or priming - common extra costs and inconveniences when using traditional hot-formed products.

Also, the pre-prepared surface finish provides an additional barrier against corrosion that can occur from damage during temporary storage, assembly and transport.



DuraGal® Profiles are a cost-effective way to work with steel. As shown in the graph above, when it comes to achieving comparable levels of strength and surface protection, experience has shown that it can be *more economical to use DuraGal® Profiles*. This is just another way in which DuraGal® Profiles deliver great value for money and help your business to grow.



Part of the Proven Family of DuraGal Products®

DuraGal® Profiles have the same in-line galvanized coating as the revolutionary DuraGal® RHS range, so they are the *perfect complement to the other popular DuraGal® products*. The growing DuraGal Family of Products®, enables more of your structures to be built from DuraGal®. Structures can now be manufactured using sections - with the unique DuraGal® qualities of excellent weldability, high strength, lightweight and surface protection.

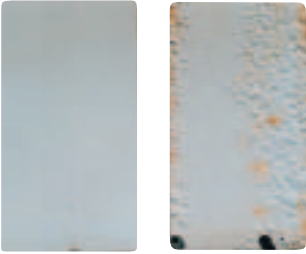


DuraGal® Profiles – With the DuraGal® M

COMPARISON RESULTS IN CORROSION TESTING

Source: SSL Report XD 974/R2

Test #1
1000 Hr to ASTM G53-84



DuraGal® coated with Zinc Phosphate water-based paint.

Wire-brushed steel painted with Zinc Phosphate water-based paint.

Test #2
32 days SSL G6 Moist Sulphur Dioxide Test

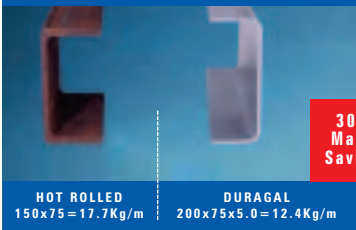


Polyester/epoxy powder coated DuraGal®

Powder-coated shot-blasted (class 2.5) steel.

CHANNELS-Weight Saving

For a given stiffness requirement



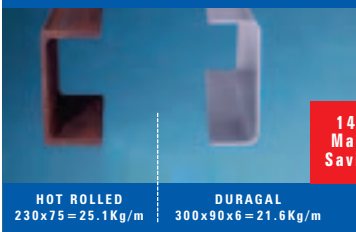
30%
Mass
Saving

HOT ROLLED
150x75 = 17.7Kg/m

DURAGAL
200x75x5.0 = 12.4Kg/m

CHANNELS-Weight Saving

For a loading of 75KNm



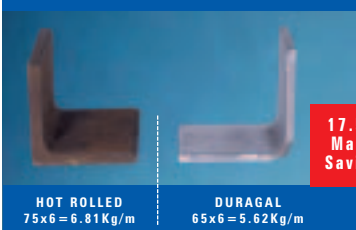
14%
Mass
Saving

HOT ROLLED
230x75 = 25.1Kg/m

DURAGAL
300x90x6 = 21.6Kg/m

ANGLES-Weight Saving

In tension-welded connection



17.5%
Mass
Saving

HOT ROLLED
75x6 = 6.81Kg/m

DURAGAL
65x6 = 5.62Kg/m

Surface Protection

The sacrificial protection properties of zinc, combined with the shorter term benefits of a conversion coating (to defend against white rust), and where applicable, a final barrier polymer coating, work together in synergy to provide the unique DuraGal® Profiles coating system.

A coating mass of a minimum average of 100g/m² of zinc is applied to both sides of the product in accordance with Coating Class ILG100 of AS/NZS 4791:Hot-dip galvanized (zinc) coatings on ferrous open sections, applied by an in-line process.

Where applied, the polymer coat provides a good adhesion base for applying top coats, and requires little preparation prior to doing so. (Refer to the “DuraGal® Easy Painting and Corrosion Protection Guide”.)

Notably the DuraGal Profiles surface is smooth, clean, free from oil, mill scale, rust and dirt, hence is user friendly in handling and application.

High Strength, Lightweight Performance

As with all DuraGal® products, DuraGal® Profiles feature high tensile strength properties. Both Angles and Channels achieve up to 450 MPa, and Flats have a minimum yield strength rating of up to 400 MPa. So, in many applications, a lighter profile may be substituted for Grade 250/300 hot rolled steel, without making any compromises in compression, tension or bending performance. Providing opportunities for significant reductions in material and fabrication costs.

Manufactured to the Highest of Standards

Gone are the days of working with products that don't quite measure up. DuraGal® Profiles are manufactured to the exacting standards and tolerances of TS100. This means products can be straighter, have less twist, greater thickness control and be more consistent... so you can depend on the product.

DuraGal® Name Comes Proven Performance.

Welding Performance

DuraGal® Profiles are made from low carbon structural steel, so they are readily weldable. The zinc coating thickness is carefully controlled to ensure that structurally sound welds can be fabricated using standard welding practices.

The “DuraGal® Easy Welding Guide” provides basic guidelines for welding DuraGal® products. We recommend:

- **Don't increase the heat**
- **Use the correct wire or rod**
- **Use a gas high in CO₂ content**



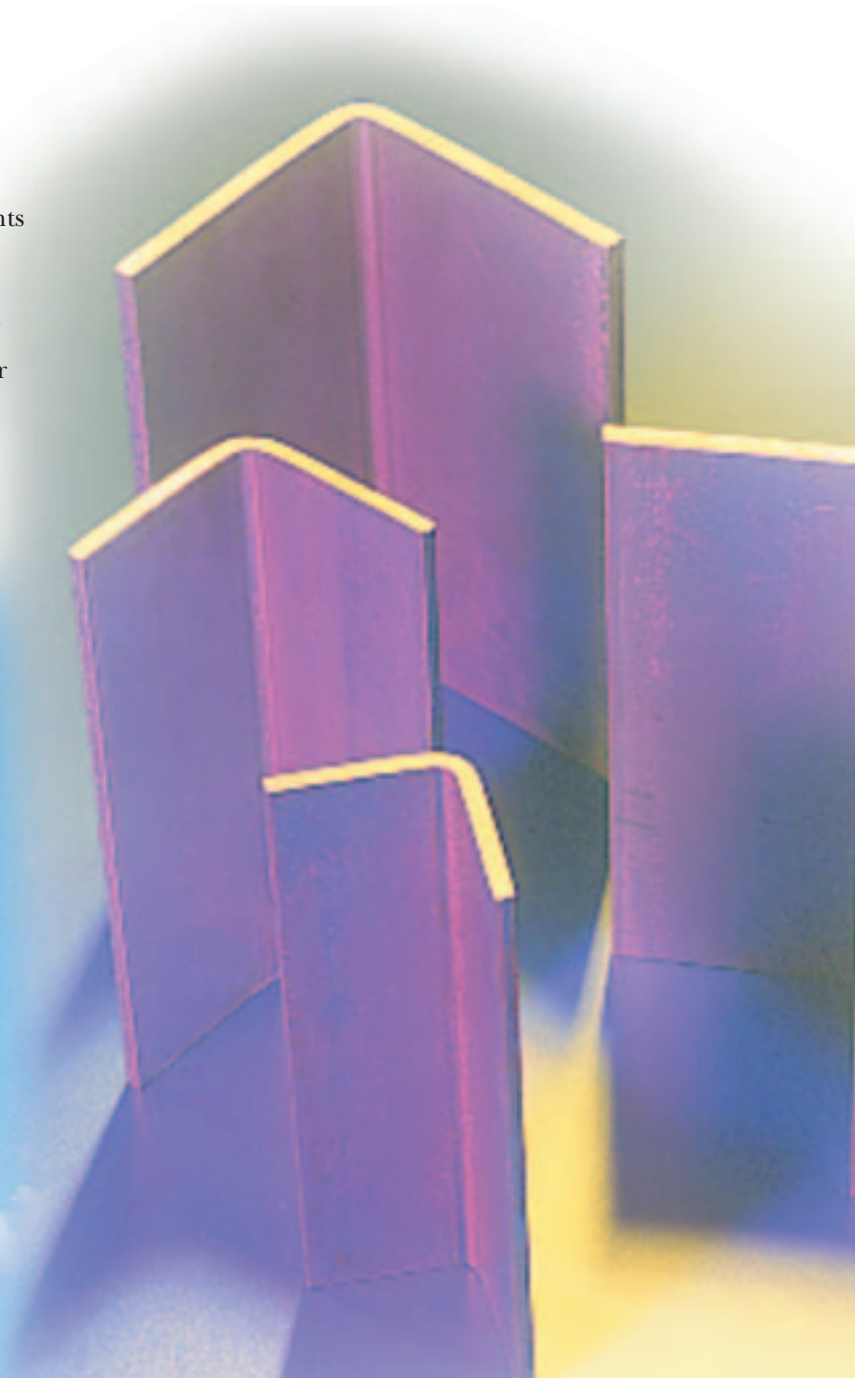
Kinder To The Environment

Because DuraGal® Profiles don't need to be blasted, wire brushed or primed, the pollutants normally associated with these processes are a thing of the past. This is not only good news for you and your workforce, it's good news for the world as well.

Safe Handling Guide

- DuraGal Channels are prone to tipping
 - do not stand on their short side
- Galvanized finishes are slippery, especially when wet
 - do not walk on product
 - stack carefully

More information on the optimum handling of DuraGal® Profiles available from your OneSteel Market Mills Sales Office.



WEIGHT SAVINGS COMPARISON GUIDE

EQUAL ANGLE - AXIAL COMPRESSION DURAGAL vs HOT ROLLED

Hot Rolled	DuraGal Substitute	Mass Saving %
100 x 8	90 x 8	11.0
75 x 6	65 x 6	17.5
65 x 6	65 x 6	4.2
65 x 5	50 x 5	25.0
50 x 5	50 x 5	1.7
50 x 3	40 x 4	4.8

$l/r_y = 90$



EQUAL ANGLE - TENSION CAPACITY DURAGAL vs HOT ROLLED BOLTED CONNECTIONS

Hot Rolled	DuraGal Substitute	Mass Saving %
50 x 5	50 x 5	1.7
50 x 6	75 x 4	3.8
65 x 5	75 x 4	5.9
65 x 6	65 x 6	4.3
75 x 6	90 x 5	6.5
75 x 8	75 x 8	1.6
100 x 6	125 x 5	2.3
100 x 8	150 x 5	8.5

1-18 mm Hole in One Leg



EQUAL ANGLE - TENSION CAPACITY DURAGAL vs HOT ROLLED WELDED CONNECTION

Hot Rolled	DuraGal Substitute	Mass Saving %
100 x 10	150 x 5	23.9
100 x 8	125 x 5	24.2
100 x 6	75 x 8	6.2
75 x 8	90 x 5	27.0
75 x 6	65 x 6	17.5
65 x 6	75 x 4	26.9
65 x 5	50 x 5	25.0
50 x 6	50 x 5	23.3
50 x 5	50 x 5	1.7

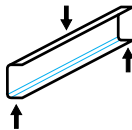
Both Legs Welded



CHANNELS - STRENGTH DURAGAL vs HOT ROLLED

Hot Rolled	DuraGal Substitute	Mass Saving %
75 TFC	100 x 50 x 4	15.9
100 TFC	125 x 65 x 4	22.6
125 TFC	150 x 75 x 5	21.6
150 PFC	200 x 75 x 6	12.4
180 PFC	230 x 75 x 6	19.1
200 PFC	250 x 90 x 6	16.2
230 PFC	300 x 90 x 6	13.9

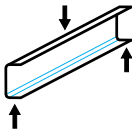
Section Capacity (ϕM_{sx})



CHANNELS - DEFLECTION DURAGAL vs HOT ROLLED

Hot Rolled	DuraGal Substitute	Mass Saving %
75 TFC	100 x 50 x 4	15.9
100 TFC	125 x 65 x 4	22.6
125 TFC	150 x 75 x 5	21.6
150 PFC	200 x 75 x 5	29.9
180 PFC	230 x 75 x 6	19.1
200 PFC	250 x 90 x 6	16.2
230 PFC	300 x 90 x 6	13.9
250 PFC	300 x 90 x 8	19.7

$I = (I_x + I_{ex} \text{ at } f_y) / 2$ for DuraGal®
and $I = I_x$ for Hot Rolled Sections



DURAGAL TO HOT ROLLED CHANNEL SIZE COMPARISON

Hot Rolled	DuraGal Substitute	Mass Saving %
75TFC	75 x 40 x 4	31.6
100TFC	100 x 50 x 4	40.1
125TFC	125 x 65 x 4	46.0
150PFC	150 x 75 x 5	40.7
180PFC	180 x 75 x 5	44.5
200PFC	200 x 75 x 5	45.9
200PFC	200 x 75 x 6	32.3
230PFC	230 x 75 x 6	32.7
250PFC	250 x 90 x 6	45.9
300PFC	300 x 90 x 6	46.1
300PFC	300 x 90 x 8	28.9

NB: These comparisons are indications only of the weight savings DuraGal® Profiles offer for a variety of loading and size substitutions. For particular cases, advice should be sought from a structural engineer or contact the Regional Sales Office in your state.

SIZE RANGE - STEEL GRADES - MASS PER METRE - AVAILABILITY

DURAGAL® ANGLES

Size		Standard Length m	Nominal Thickness - mm				
			2.5 Grade C350LO	4.0 Grade C450LO	5.0 Grade C450LO	6.0 Grade C450LO	8.0 Grade C400LO
30 x 30	CA	6.0	1.06	-	-	-	-
40 x 40	CA	6.0	1.43	2.20	-	-	-
45 x 45	CA	6.0	1.62	2.50	-	-	-
50 x 50	CA	6.0	1.81	-	-	-	-
50 x 50	CA	9.0	-	2.79	3.42	4.21	-
65 x 65	CA	9.0	-	3.69	4.52	5.62	-
75 x 75	CA	9.0	-	4.29	5.26	6.56	8.59
90 x 90	CA	9.0	-	-	6.37	-	10.5
100 x 100	CA	12.0	-	-	-	8.92	11.7
125 x 125	CA	12.0	-	7.27	8.95	-	14.9
150 x 150	CA	12.0	-	-	10.8	-	18.0
75 x 50	CA	9.0	-	3.54	4.34	5.38	-
100 x 75	CA	12.0	-	-	-	7.74	10.2
125 x 75	CA	12.0	-	-	-	8.92	11.7
150 x 100	CA	12.0	-	-	-	11.3	14.9

NOTE: 100x100x6 and 8mm and 150x100x6 and 8mm are also available in DuraGal® Plus (AS/NZS 4791:ILG300)

For details on DuraGal® Plus for Masonry Lintels contact OneSteel Direct or visit our website www.onesteel.com

DuraGal® Plus for Masonry Lintels are not supplied with a polymer coating.

DURAGAL® CHANNELS

Size		Standard Length m	Nominal Thickness - mm			
			4.0 Grade C450LO	5.0 Grade C450LO	6.0 Grade C450LO	8.0 Grade C400LO
75 x 40	CC	9.0	4.25	-	-	-
100 x 50	CC	9.0	5.59	-	-	-
125 x 65	CC	9.0	7.23	-	-	-
150 x 75	CC	12.0	-	10.5	-	-
180 x 75	CC	12.0	-	11.6	-	-
200 x 75	CC	12.0	-	12.4	15.5	-
230 x 75	CC	12.0	-	-	16.9	-
250 x 90	CC	12.0	-	-	19.2	-
300 x 90	CC	12.0	-	-	21.6	28.5

DURAGAL® FLATS

Size		Standard Length m	Nominal Thickness - mm			
			4.0 Grade C400LO	5.0 Grade C400LO	6.0 Grade C400LO	8.0 Grade C350LO
50	CF	6.0	1.49	1.84	-	-
65	CF	6.0	1.94	2.40	-	-
75	CF	6.0	2.24	2.77	-	-
90	CF	6.0	4.24	-	-	-
100	CF	6.0	2.98	3.69	4.71	6.28
130	CF	6.0	-	4.80	-	-
150	CF	6.0	-	5.53	7.07	9.42
200	CF	6.0	-	7.38	9.42	12.6
250	CF	6.0	-	9.22	-	15.7
300	CF	6.0	-	11.1	-	18.8

Sizes Stocked	Sizes Subject to Enquiry	kg/m	Other thicknesses & lengths subject to enquiry
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GRADE TABLE

Grade (TS100)	Minimum Yield Stress Mpa	Minimum Tensile Strength MPa	Minimum Elongation as a proportion of Gauge Length of 5.65 √S ₀ %
C350LO	350	400	20
C400LO	400	450	16
C450LO	450	500	16



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