HAVELOCK METAL CO.
ROOFING & SIDING
SINCE 1993

# PRODUCT SPECIFICATIONS
# Diamond Plus

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**Overview:** The refined design of the Diamond rib provides a clean, fresh look. This profile is ideal for interior and exterior siding as well is an excellent choice for ceilings, especially the underside of decks to create additional protected space. This profile can be used in a variety of applications - residential, commercial, agricultural and cottage.

Associated flashings and trims are available in the same finish.

**Fastening System:** Exposed fastener

**Applications:** Exterior roofing and siding, interior ceiling and cladding

**Minimum Slope:** Roof minimum is 3/12 (contact our office for lower slope guidance), Siding n/a

**Available Gauges:** 24ga, 26ga, 29ga

**Panel Length:** 36" minimum / 37.5' maximum if delivered. Contact our office for longer sheet requirements.

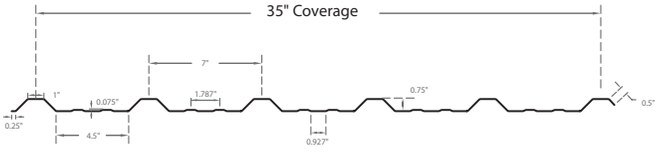
**Panel Coverage:** 35"

**Lbs/Covered Sq Ft:**
24ga ≈ 1.23 lbs/covered sq ft
26ga ≈ 0.92 lbs/covered sq ft
29ga ≈ 0.66 lbs/covered sq ft

**Panel Depth:** 7/8"

**Rib Height:** 3/4" trapezoid ribs on 7" centers with shallow ancillary ribs for maximum strength

**Panel Diagram:**




**Overlap Detail:**



**Roofing Trims to Consider:**

- Cap Flashing 3/4" (CAP 0.75)
- Cap Flashing 3/4" (CAPH 0.75)
- Chimney Back Panel (CBP)
- Chimney Flashing (CF)
- Chimney Kit (CKIT)
- Corner Cap (CC)
- Downspout 2-piece (DS)
- Eave Soffit/Fascia Non-Vented 1-Piece (ESFNV 0.75)
- Eave Soffit/Fascia Vented 1-Piece (ESFV 0.75)
- Eave Starter (ES)
- Eave Starter w. Hem (ESH)
- Eavestrough 5" (ET 5)
- Eavestrough 6" (ET 6)
- Eavestrough Outlet 5" and 6" (ETO)
- End Cap (EC)
- End Cap for 5" Eavestrough (ECET 5)
- End Cap for 6" Eavestrough (ECET 6)
- End Cap R6 (ECR6)
- End Cap R8 (ECR8)
- End Wall Flashing (EWF)
- End Wall Flashing w. Hem (EWFH)
- Fascia 12" (FAS 12)
- Fascia 6" (FAS 6)
- Fascia 8" (FAS 8)
- Flying Gable 3/4" (FG 0.75)
- Flying Gable 3/4" w. Hem (FGH 0.75)
- Gable Soffit/Fascia Non-Vented 1-Piece (GSFNV 0.75)
- Gable Soffit/Fascia Vented 1-Piece (GSFV 0.75)
- Gable Starter (GS)
- Gable Starter w. Hem (GSH)
- Gambrel Hip Cap (GHC)
- Gambrel Hip Cap with Hem (GHCH)
- Hemmed Ridge/Hip Cap (HR/HC)
- Hemmed Ridge/Hip Cap with Kick (HR/HCK)
- Ridge Box (RB)
- Ridge Cap (RC)
- Ridge Cap R6 (RCR6)
- Ridge Cap R8 (RCR8)
- Ridge Cap with Hem (RCH)
- Side Wall Flashing (SWF)
- Side Wall Flashing w. Hem (SWFH)
- Snow Stop (SNO)
- Snow Stop Subtrim Galvanized 22ga (SNOSUB 22)
- Soffit Non-Vented 12" (SNV 12)

# Diamond Plus

**Roofing Trims to Consider Continued::**

- Soffit Non-Vented 8" (SNV 8)
- Soffit Vented 12" (SV 12)
- Soffit Vented 8" (SV 8)
- Under/Over Flashing w. Hem (UOFH)
- Under/Over Flashing (UOF)
- V-Valley 18"x10' (VV 18)
- V-Valley 24"x10' (VV 24)
- V-Valley 36"x10' (VV 36)
- W-Valley 18"x10' (WV 18)
- W-Valley 24"x10'(WV 24)
- W-Valley 36"x10' (WV 36)

**Siding Trims to Consider:**

- Corner Cap (CC)
- Drip Cap 3/4" (DC 0.75)
- Drip Cap Commercial 3/4" (DCC 0.75)
- Eave Soffit/Fascia Non-Vented 1-Piece (ESFNV 0.75)
- Eave Soffit/Fascia Vented 1-Piece (ESFV 0.75)
- Fascia 12" (FAS 12)
- Fascia 6" (FAS 6)
- Fascia 8" (FAS 8)
- Gable or Base Trim 3/4" (GBT 0.75)
- Gable or Base Trim Commercial 3/4" (GBTC 0.75)
- Gable Soffit/Fascia Non-Vented 1-Piece (GSFNV 0.75)
- Gable Soffit/Fascia Vented 1-Piece (GSFV 0.75)
- Inside Corner 3/4" (IC 0.75)
- Inside Corner with 'J' 3/4" (ICJ 0.75)
- Jamb Flashing 3/4" (JF 0.75)
- Jamb Flashing with 'J' 3/4" (JFJ 0.75)
- J-Trim 3/4" (JT 0.75)
- J-Trim Commercial 3/4" (JTC 0.75)
- Outside Corner 3/4" (OC 0.75)
- Outside Corner with 'J' 3/4" (OCJ 0.75)
- Round Track Cover (RTC)
- Sliding Door Trim 'A' 3/4" (SDA 0.75)
- Sliding Door Trim 'B' 3/4" (SDB 0.75)
- Soffit Non-Vented 12" (SNV 12)
- Soffit Non-Vented 8" (SNV 8)
- Soffit Vented 12" (SV 12)
- Soffit Vented 8" (SV 8)
- Square Track Cover (STC)
- T-Trim 3/4" (TT 0.75)
- Wall Ceiling Trim 3/4" (WCT 0.75)
- Wall Soffit Trim 3/4" (WST 0.75)
- Z-Girt (ZGIRT)

**Accessories Recommended:**

• Roofing Application: #10 x 2" Woodgrip Fasteners in the same colour as the steel panel
• Wall Application: #10 x 1" Woodgrip Fasteners in the same colour as the steel panel
• Butyl tape

**Sustainability:** The demand for environmentally friendly, or green product groups within the construction industry has allowed steel products to become part of the renewable or reusable requirements for programs such as LEED. The raw material steel in our panels and trims contains a minimum of 30% recycled content, comprised of 24% post-consumer and 6.8% post-industrial and is 100% recyclable.

**Warranty:** 40-year is most common but varies depending on the paint finish. Consult with a Havelock Metal Co. Product Specialist for further information.

**Packaging:** Orders are bundled and wrapped.

**Installation:** Can be installed on strapping or direct to substrate or in many cases over existing shingles for roofs and siding. See manufacturer for specifics.

**Colours:** Please contact a Havelock Metal Co. Product Specialist for available colours and gauges. We stock a wide range of material, however additional colours, textures, prints, woodgrains, metallics and gauges may be available with a minimum order quantity.

*Please be advised Textures, Woodgrains and Metallic Colours are batch-sensitive. We strongly advise against mixing batches on any project.*

# Diamond Plus

## Material Specifications:

**SMP Pre-Painted Steel**
SMP (Silicone Modified Polyester) coating is made of polyester and silicone intermediates. Silicone acts to improve the gloss retention and weather resistance of the coatings. The biggest advantage of SMP paint systems over PVDF (Kynar®) is the price.

**Available in 24ga-29ga**
**Gr33/Gr50/Gr80, G90 & AZ50**

| PROPERTY | SMP COATING TEST METHOD | SMP COATING SPECIFICATION |
|---|---|---|
| Dry Film Thickness | ASTM D 1400-94<br>ASTM D 1005-95 | 0.75-1.85 Mil<br>0.90-1.15 Mil |
| Specular Gloss | ASTM D 523-89 @ 60° | 20-35 |
| Humidity Resistance | ASTM D 2247 (100% relative humidity @ 95°) | Passes 1,000 hrs. |
| Salt Spray | ASTM B 117 (5% salt spray @ 95°) | Passes 1,000 hrs. |
| Acid Pollutant Resistance | ASTM D 1308-87 (20% sulfuric acid 18 hrs., 10% muriatic acid 15 min.) | No effect |
| Graffiti Resistance | Cleanability of Defaced Panels (spray paint, pens, etc.) | No effect |
| Abrasion Resistance | ASTM D 968-93 (to expose 5/32" of substrate) | 25-40 Litres |
| Chalk Resistance | ASTM D 4214 (Florida Exposure @ 45° S) | Vertical: Rating not < 8 @ 10 yrs.<br>Non-Vertical: Rating not < 7 @ 10 yrs. |
| Colour Retention | ASTM 2244 – Hunter Units (Florida Exposure @ 45° S) | Vertical: Not > 5Δ Hunter Units @ 10 yrs.<br>Non-Vertical: Not > 6 Δ Hunter Units @ 10 yrs. |
| Adhesion | ASTM D 3359-95a (Reverse Impacted 1/16" crosshatched) | No adhesion loss |
| Pencil Hardness | ASTM 3363 | H-2H (NCCA II-12) |
| Reverse Impact | ASTM D 2794-93 (3,000 x inches of metal thickness) | Passes – No pick off with Scotch #610 tape |
| Flexibility T-Bend | ASTM D 4145-83 (No crack, no pick-off) | 2T-4T bends, no loss of adhesion |
| Film Cure | ASTM D 5402 (› 100 double MEK rubs) | Passes |
| Fire Rating | E 84 | Fuel contributed zero, Passes |
| Weatherometer | D 6695 | Passes 3,000 hrs. |
| UV Exposure | D 4587 | Passes 1,000 hrs. |
| Film Integrity | | 40 years – limited warranty |

# Diamond Plus

**Hunter Units:** a standard of key colour scales and colour values that are used by industry for colour control. Oil Canning is a characteristic of metal roofing and not a cause for material rejection. Removable protective film is available upon request on all SMP sheet products. This protective film MUST be removed immediately after installation. Due to high mechanical properties, Grade 80 material is not suitable for Trims, Architectural Panels, Board and Batten or Legacy Standing Seam Panels.

**SMP Pre-Painted TEXTURED Steel**

SMP (Silicone Modified Polyester) TEXTURED coating is a low gloss finish made of polyester and silicone intermediates. Silicone acts to improve the gloss retention and weather resistance of the coatings. The biggest advantage of SMP paint systems over PVDF (Kynar®) is the price.
The TEXTURED finish not only delivers an eye-catching, 3D visual effect to the product, but also provides a surface that is more durable and scratch-resistant than standard pre-painted product. This texturized finish also offers stronger colour retention and the best resistance yet to chalking and fading.
A perfect product for both residential and commercial projects, SMP Pre-Painted TEXTURED Steel is ideal for roofing, wall panel and architectural applications where enhanced visual depth and proven performance are desired.

**Available in 24ga-29ga**
**Gr33/Gr50/Gr80, G90 & AZ50**

| PROPERTY | SMP COATING TEST METHOD | SMP COATING SPECIFICATION |
|---|---|---|
| Dry Film Thickness | ASTM D 4138 | Top Coat: 0.7-0.8 Mil / Primer: 0.2-0.3 Mil |
| Specular Gloss | ASTM D 523 @ 60° | 20-80 |
| Humidity Resistance | ASTM D 2247 (100% relative humidity @ 95°) | Passes 1,000 hrs. with no field blisters |
| Salt Spray | ASTM B 117 (5% salt spray @ 95°) | Passes 1,000 hrs. with creep from scribe ≤ 1/8", none or few #8 blisters |
| Water Immersion | ASTM D 870 (100°F 168 hrs.) | No field blisters with min. colour change |
| Viscosity | ASTM D 4212 (No. 4 Zahn cup) | 25 to 45 seconds |
| Abrasion Resistance | ASTM D 968-93 (to expose 5/32" of substrate) | 35 ± 5 Litres |
| Chalk Resistance (Southern Florida Exposure) | ASTM D 659 | Chalk: Rating not < 8 @ 90° angle and 6 @ non-vertical angle @ 30 yrs. |
| Colour Retention (Southern Florida Exposure) | ASTM 2244 | Colour: Rating not > 5ΔE Hunter Units @ 90° vertical angle and 7ΔE non-vertical @ 30 yrs. |
| Adhesion | ASTM D 3359 | No adhesion loss |
| Pencil Hardness | ASTM D 3363 | F to 2H |
| Reverse Impact | ASTM D 2794 (3x metal thickness inch-lbs.) | No adhesion loss |

# Diamond Plus

| PROPERTY | SMP COATING TEST METHOD | SMP COATING SPECIFICATION |
|---|---|---|
| Flexibility T-Bend | ASTM D 4145 (No crack, no pick-off) | 2T-4T bends, no loss of adhesion |
| VOC (theoretical) | ASTM D 3960 | 3.0 to 4.0 lbs. per gallon |
| Film Integrity | | 40 years – limited warranty |

**Hunter Units:** a standard of key colour scales and colour values that are used by industry for colour control. Oil Canning is a characteristic of metal roofing and not a cause for material rejection.

**PVDF (Kynar®) Pre-Painted Steel**

PVDF (polyvinylidene fluoride) paints, also known as Kynar 500®, are know throughout the steel industry for their exceptional gloss, colour retention, and overall performance. Used by some of the most prominent architects throughout the world, PVDF pre-painted steel is utilized in a wide variety of residential, commercial, institutional, and industrial applications.
PVDF pre-painted steel products provide architects, designers, and building owners with a building product solution that is not only sustainable but satisfies both the aesthetics and performance expectations of even the most rigorous projects. Complete with a warranty, these products offer environmental benefits such as recyclability, durability, low maintenance, and potential energy savings when used in a roof application. From roofing to wall panels to soffits and beyond, PVDF steel products are the right fit for your high-end architectural projects. The biggest advantage of Kynar® paint systems over SMP is the exceptional long-term performance.

**Available in 24ga**
**Gr50, G90 & AZ50**

| PROPERTY | PVDF COATING TEST METHOD | PVDF COATING SPECIFICATION |
|---|---|---|
| Dry Film Thickness | ASTM D 1400-94<br>ASTM D 1005-95 | 0.75-1.85 Mil<br>0.90-1.15 Mil |
| Specular Gloss | ASTM D 523-89 @ 60° | 20-35 |
| Humidity Resistance | ASTM D 2247 (100% relative humidity @ 95°) | Passes 2,000 hrs. |
| Salt Spray | ASTM B 117 (5% salt spray @ 95°) | Passes 1,000 hrs. with < 5% #6 blisters |
| Acid Pollutant Resistance | ASTM D 1308-87 (20% sulfuric acid 18 hrs., 10% muriatic acid 15 min.) | No effect |
| Graffiti Resistance | Cleanability of Defaced Panels (spray paint, pens, etc.) | No effect |
| Abrasion Resistance | ASTM D 968-93 (to expose 5/32" of substrate) | 100 Litres |
| Chalk Resistance | ASTM D 4214 (Florida Exposure @ 45° S) | Rating not < 8 @ 20 yrs. |
| Colour Retention | ASTM 2244 – Hunter Units (Florida Exposure @ 45° S) | Rating not > 5Δ Hunter Units @ 20 yrs. |
| Adhesion | ASTM D 3359-95a (Reverse Impacted 1/16" crosshatched) | No adhesion loss |

# Diamond Plus

| PROPERTY | SMP COATING TEST METHOD | SMP COATING SPECIFICATION |
|---|---|---|
| Pencil Hardness | ASTM D 3363 | HB-2H |
| Reverse Impact | ASTM D 2794-93 (3,000 x inches of metal thickness) | No cracking or loss of adhesion |
| Flexibility T-Bend | ASTM D 4145-83 (No crack, no pick-off) | 0T-3T bends, no loss of adhesion |
| Mandrel | ASTM D 522-93A (180 bend around 1/8" mandrel) | No cracking |

**Hunter Units:** a standard of key colour scales and colour values that are used by industry for colour control. Oil Canning is a characteristic of metal roofing and not a cause for material rejection. Removable protective film is available upon request. This protective film MUST be removed immediately after installation.

**PVDF (Kynar®) Pre-Painted WOODGRAIN Steel**

PVDF (polyvinylidene fluoride) paints, also known as Kynar 500®, are known throughout the steel industry for their exceptional gloss, colour retention, and overall performance.
The WOODGRAIN prints are available in a variety of natural colours and patterns offering an authentic woodgrain look providing the aesthetic you need for your project's interior or exterior applications.
These prints are manufactured using an offset gravure printing process. The offset gravure printing process utilizes cylinders that have digital patterns etched into the surface. The etched cylinder rotates in an ink bath and ink collects within the etched pattern, with the excess ink being scraped from the roll. From there the inked pattern transfers to the steel substrate b passing between the transfer roll and an impression roll.
The WOODGRAIN series has the aesthetics of wood with the benefits only steel can provide.

**Available in 24ga**
**Gr50, G90 & AZ50**

| PROPERTY | PVDF COATING TEST METHOD | PVDF COATING SPECIFICATION |
|---|---|---|
| Dry Film Thickness | ASTM D 1400-94<br>ASTM D 1005-95 | 0.75-1.85 Mil<br>0.90-1.15 Mil |
| Specular Gloss | ASTM D 523-89 @ 60° | 10-15 |
| Humidity Resistance | ASTM D 2247 (100% relative humidity @ 95°) | Passes 2,000 hrs. with no field blisters |
| Salt Spray | ASTM B 117 (5% salt spray @ 95°) | Passes 1,000 hrs. with < 5% #6 blisters |
| Acid Pollutant Resistance | ASTM D 1308-87 (20% sulfuric acid 18 hrs., 10% muriatic acid 15 min.) | No effect |
| Graffiti Resistance | ASTM D 6578 (Cleanability of Defaced Panels spray paint, pens, etc.) | No effect |
| Abrasion Resistance | ASTM D 968-93 (to expose 5/32" of substrate) | 100 Litres |

# Diamond Plus

| PROPERTY | SMP COATING TEST METHOD | SMP COATING SPECIFICATION |
|---|---|---|
| Chalk Resistance | ASTM D 4214 (Florida Exposure @ 45° S) | Rating not < 8 @ 20 yrs. |
| Colour Retention | ASTM 2244 – Hunter Units (Florida Exposure @ 45° S) | Rating not > 5Δ Hunter Units @ 20 yrs. |
| Adhesion | ASTM D 3359-95a (Reverse Impacted 1/16" crosshatched) | No adhesion loss |
| Pencil Hardness | ASTM D 3363 | HB-H |
| Reverse Impact | ASTM D 2794-93 (3,000 x inches of metal thickness) | No cracking or loss of adhesion |
| Flexibility T-Bend | ASTM D 4145-83 (No crack, no pick-off) | 2T bends, no loss of adhesion |
| Mandrel | ASTM D 522-93A (180 bend around 1/8" mandrel) | No cracking |
| Film Integrity | | 25 years – limited warranty |

**Hunter Units:** a standard of key colour scales and colour values that are used by industry for colour control. Oil Canning is a characteristic of metal roofing and not a cause for material rejection.

**Galvalume® Steel**

Galvalume® refers to 55% Aluminum-Zinc Alloy Coated Steel that is cold-rolled carbon steel with a metallic coating composed of Aluminum (55%), Zinc (43.4%) and Silicon (1.6%). The 55% Aluminum-Zinc Alloy Coated Steel is a favourite of architects due to its eye-catching aesthetics, long-lasting performance, design flexibility and the vast number of potential end-use applications. The aluminium-zinc metallic coating forms a permanently bonded, tough, sacrificial coating that protects the steel from corrosion in most end-use applications.
Galvalume substrate is not warranted to be used, in or around animal confinement or agriculture. Galvalume will very rapidly deteriorate when exposed to the corrosive agents of animal confinement.

**Available in 24ga-29ga**
**Gr33/Gr50/Gr80, G90 & AZ50**