UNIVERSAL STEEL SMELTING CO., INC.

INTRODUCTION

Reinforcing steel bar (commonly referred to as rebar) is a staple material used widely in the construction industry. As the name suggest, it is primarily used for reinforcement of concrete, able to function as a tension device to handle the low tensile strength of concrete and give structural integrity to the infrastructure as prescribed in the prevailing standards and building codes.

TECHNICAL SPECIFICATIONS

As governed by the Philippine National Standards (PNS 49:2020) under the Bureau of Philippine Standards of the Department of Trade and Industry, our reinforcing steel bars are produced and controlled by the requirements set forth by the aforementioned standards.

The grades are identified relative to the minimum set yield strength as detailed by the standards.

Class	Grade	Yield Strength (MPa), min	Yield Strength (MPa), max	Tensile Strength (MPa), min	Ts/Ys Ratio min	Color Marking
Class 1 Regular bar	230R	230	-	390		
	280R	280	-	420		
	420R	420	-	620		
	520R	520	-	690		
	550R	550	-	725		
Class 2 Weldable bar	280W	280	-	420	1.25	
	420W	420	540	550	1.25	
	550W	550	675	690	1.25	

- *Weldable bars are set with a minimum Ts/Ys ratio of 1.25*
- *Color markings are set on ends of the commercial rebars. One color designation will be painted on both sides.*

Class	Grade	Elongation in 200mm, %min					Diameter of pin (d=nominal diameter of specimen,mm				
		10-16	20	25	28-36	40-50	10-16 mm	20-25 mm	28-36 mm	40-50 mm	Bending angle
Class 1 Regular bar	230R	18	18	18	16	16	3d	3d	4d	4d	180
	280R	12	12	12	8	8	4d	5d	5d	5d	180
	420R	9	9	9	7	7	5d	5d	7d	9d	180
	520R	7	7	7	6	6	5d	5d	7d	9d	180
	550R	7	7	7	6	6	5d	5d	7d	9d	180
Class 2 Weldable bar	280W	16	16	14	14	12	4d	4d	5d	5d	180
	420W	14	14	12	12	10	4d	4d	6d	8d	180
	550W	12	12	12	12	10	4d	5d	7d	9d	180

Markings

In line with the mandate of DTI-BPS as stated in the PNS 49:2020, our reinforcing steel bars are hot-rolled and embossed with the markings relative to the product. The approved Company logo for Universal Steel Smelting Co., Inc (" *US* ") is embossed along with the bar size, Rebar grade code, Ductility class and manufacturing process code in specified intervals within the commercial length of the rebars.

Grade	Grade code	Ductility Class *	Manufacturing Process code**
230	2	R	
280	3	R / W	
420	4	R / W	QT / T / MA
520	5	R	QT / T / MA
550	6	R / W	QT / T / MA

- ** Regular class have no "W" marking on the rebar. Weldable class will bear "W" marking.*
- *** additional markings to distinguish rebars produced from Quenching and Tempering or Micro Alloy. Applicable only on Grade 420, 520 and 550. "T" will be marked on rebars produced with Quenching and Tempering. "MA" will be marked with rebars produced with micro alloys.*
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Commercial Size, Lengths and Mass Tolerance

Universal Steel Smelting Co., Inc, manufactures standard sizes of 10mm, 12mm, 16mm, 20mm, 25mm, 28mm, 32mm and 36mm. Sizes 40mm and 50mm may be produced on special order and agreement. The sizes can also be referred as nominal diameter.

Universal Steel Smelting Co., Inc. are offered in standard lengths specified in the PNS 49:2020 (6.0m, 7.5m, 9.0m, 10.5m and 12.0m) Additionally, special lengths of 13.5m and 15.0 may be produced as agreed upon order.

The tolerance for the length of the reinforcing bars is set at 0 to + 60mm.

Variation in mass is to be expected for hot rolled rebars. The PNS 49:2020 allows tolerance in variations in mass to be ±6%.