

Bollard:

**Ductile Iron Casting**

<sup>1</sup>Quality:  
ASTM A-536. 80-55-06

Properties:  
Yield Strength : > 379 MPa  
Tensile Strength: > 552 MPa  
Elongation: > 6 %

Standars Equivalentents  
600-3. (ISO 1083)  
EN-GJS-600-3. (EN 1563)  
600/7. (BS 2789)  
GGG60. (DIN 1693)  
QT 600-3. (GB T 1348)

**Cast Steel**

<sup>1</sup>Quality:  
GS 52 (DIN 1681) Gr 10552

Properties:  
Yield Strength :  $\geq$  260 MPa  
Tensile Strength:  $\geq$  520 MPa  
Elongation:  $\geq$  18 %

Standars Equivalentents  
70-40 (ASTM A27)  
G28Mn6 +N (EN 10293)  
Gr A2 (BS 3100)

<sup>1</sup>Quality:  
Gr A5 (BS 3100)

Properties:  
Yield Strength :  $\geq$  370 MPa  
Tensile Strength:  $\geq$  620 MPa  
Elongation:  $\geq$  13 %

Standars Equivalentents  
90-60(ASTM A148)  
GS28Mn6+QT(EN 10293)

**Grey Cast Iron**

<sup>1</sup>Quality:  
BS DIN EN 1561. Gr EN-GJL- 300

Properties:  
Yield Strength :  $\geq$  195-260 MPa  
Tensile Strength:  $\geq$  300-400 MPa  
Elongation:  $\geq$  0.8-0.3 %

Standars Equivalentents  
300 (ISO 185)  
300 (BS 1452)  
Nº40A (ASTM A48)  
GG30 (DIN 1691)  
HT 300 (GB 9439)

Anchorage:	Rod:	Hot Rolled Steel	
		<sup>1</sup> Quality: C45E (EN 10083-2) , Gr 1.1191	Standards Equivalents  F1140 (UNE) Gr2 (ASTM 194) 080M46 (BS) CK45 (DIN 17200)
		Properties: Yield Strength : $\geq 305$ MPa Tensile Strength: 580 MPa Elongation: $\geq 16$ %	
Anchorage:	Nuts:	Carbon Steel	
		<sup>1</sup> Quality: Gr 8, ISO 898 DIN934	Standards Equivalents  ASTM A563 Gr. DH
		Properties: Yield Strength : $\geq 275$ MPa Tensile Strength: 410-560 MPa Elongation: $\geq 18$ %	
Anchorage:	Washers:	Carbon Steel	
		<sup>1</sup> Quality: S275-JR. EN 10025 DIN 125	Standards Equivalents  43B ( BS4360) A36 (ASTM A36)
		Properties: Yield Strength : $\geq 275$ MPa Tensile Strength: 410-560 MPa Elongation: $\geq 18$ %	

<sup>2</sup> Resin:	Epoxy Resin	
	Properties: Density: 1.50 g/cm <sup>3</sup> Adherence Traction: 15.4 N/mm <sup>2</sup> Flexion Resistance: 90 N/mm <sup>2</sup> Modulus of Elasticity: 5700 N/mm <sup>2</sup>	