

VANTEC

TECHNICAL REFERENCE

Materials & International Standards Cross-Reference

Catalogue Technical Section

British / BS EN - European EN - ASTM / ASME / AISI / UNS Comparable References

Technical Note: Cross-references shown in this document are for technical guidance. Grades from different standards may differ in chemistry, mechanical properties, manufacturing route, heat treatment and acceptance criteria. Where a direct equivalent is not established, the listed grade shall be treated as a comparable grade only.

1. DUCTILE IRON - BS EN 1563

BS / EN Grade	Material No.	Comparable ASTM A536 Grade
EN-GJS-350-22	5.3102	No direct equivalent
EN-GJS-400-18	5.3105	60-40-18 - Comparable
EN-GJS-400-15	5.3106	60-40-18 - Comparable
EN-GJS-450-10	5.3107	Select by mechanical requirements
EN-GJS-500-7	5.3200	80-55-06 - Comparable
EN-GJS-600-3	5.3201	100-70-03 - Comparable
EN-GJS-700-2	5.3300	Comparable grade subject to requirements
EN-GJS-800-2	5.3301	120-90-02 - Comparable
EN-GJS-900-2	5.3302	No direct equivalent

Primary VANTEC grade: EN-GJS-450-10.

2. GREY CAST IRON - BS EN 1561

BS / EN Grade	Common ASTM Reference
EN-GJL-150	ASTM A48 comparable grade
EN-GJL-200	ASTM A48 comparable grade
EN-GJL-250	ASTM A48 Class 35/40 - Comparable
EN-GJL-300	ASTM A48 comparable grade
EN-GJL-350	ASTM A48 comparable grade

ASTM A126 Class B may also be specified for cast-iron pressure-containing valve components where applicable.

3. STAINLESS STEEL - WROUGHT, BS EN 10088

Common Grade	BS / EN Designation	Material No.	AISI Reference
304	X5CrNi18-10	1.4301	AISI 304
304L	X2CrNi18-9	1.4307	AISI 304L
316	X5CrNiMo17-12-2	1.4401	AISI 316
316L	X2CrNiMo17-12-2	1.4404	AISI 316L
410	X12Cr13	1.4006	AISI 410
420	X20Cr13	1.4021	AISI 420
431	X17CrNi16-2	1.4057	AISI 431

4. CAST STAINLESS STEEL

Material	ASTM Casting Grade	General Wrought Reference
Cast SS 304	ASTM A351 CF8	304 family
Cast SS 304L	ASTM A351 CF3	304L family
Cast SS 316	ASTM A351 CF8M	316 family
Cast SS 316L	ASTM A351 CF3M	316L family

5. STAINLESS STEEL FASTENERS

Standard	Grade	Typical Material Family
BS EN ISO 3506	A2-70	304 family
BS EN ISO 3506	A4-70	316 family

6. CARBON & CAST STEEL

Material	BS / EN	EN Grade	ASTM / ASME Comparable
Cast Carbon Steel	BS EN 10213	GP240GH / 1.0619	ASTM A216 WCB
Low-Temperature Cast Steel	BS EN 10213	Applicable low-temperature grade	ASTM A352 LCB - Comparable
Low-Temperature Cast Steel	BS EN 10213	Applicable low-temperature grade	ASTM A352 LCC - Comparable
Forged Carbon Steel	Applicable EN forging specification	Applicable grade	ASTM A105
Carbon Steel Bolting	BS EN ISO 898-1	Class 8.8	ASTM grade depends on application
Pressure Bolting	Applicable EN standard	High-strength alloy steel	ASTM A193 B7
Pressure Nuts	Applicable EN standard	-	ASTM A194 2H
Structural Carbon Steel	Applicable EN structural steel standard	S235 family	Q235A / comparable grade

7. BRONZE / GUNMETAL - BS EN 1982

Material	BS / EN Grade	UNS / ASTM Comparable
Bronze / Gunmetal	CC491K / CuSn5Zn5Pb5	UNS C83600 / ASTM B62 - Comparable
Tin Bronze	Applicable CuSn grade	ASTM B62 family depending on composition
Leaded Tin Bronze	Applicable EN grade	Applicable UNS bronze
Aluminium Bronze	Applicable BS EN 1982 grade	ASTM B148 / applicable UNS grade

Primary VANTEC bronze: CC491K / CuSn5Zn5Pb5; common reference C83600 / CC491K.

8. BRASS

Material	BS / EN Standard	EN Grade	UNS / ASTM Comparable
Forging Brass	BS EN 12165	CW617N	UNS C37700 - Comparable
Machining Brass	BS EN 12164	CW614N	Applicable UNS free-machining brass
Machining Brass	BS EN 12164	CW611N / CuZn39Pb1	Comparable UNS grade by composition
Free-Cutting Brass	Applicable BS EN standard	CW603N	UNS C36000 - Comparable
Brass	Applicable product standard	C38000 designation	UNS C38000 where specified

Primary VANTEC brass grade: CW617N.

9. DZR BRASS - DEZINCIFICATION RESISTANT BRASS

Reference System	Grade / Reference
British legacy designation	CZ132 / CZ132A
Current BS / EN reference	CW602N
Applicable standard	BS EN 12164 / BS EN 12165 depending on material form
ASTM / UNS	No universal direct equivalent

Primary VANTEC DZR material: DZR Brass CZ132A. CZ132A and CW602N should not automatically be declared identical without certified composition confirmation.

10. LEAD-FREE BRASS

Material	Designation	Reference
Lead-Free Brass	C46500	UNS C46500
Other Lead-Free Brass	Manufacturer-specific approved alloy	Specify according to product

11. ELASTOMERS & SEALING MATERIALS

Material	Common Reference / Types	Typical VANTEC Applications
EPDM	BS EN 681-1; standard, potable-water, WRAS-approved, peroxide-cured, sulphur-cured, high-temperature	Valve liners, seats, O-rings, wedge encapsulation, expansion joints, gaskets

Material	Common Reference / Types	Typical VANTEC Applications
NBR	BS EN 681-1 where applicable; standard, oil-resistant, water-service, high-nitrile, low-temperature	O-rings, seats, stem seals, gaskets, expansion joints
Neoprene / CR	General-purpose, water-service, weather/ozone-resistant	Expansion joints, flexible connections, gaskets, seals
FKM / FPM	Fluoroelastomer / Viton-type	High-temperature and chemical-resistant seals, O-rings
PTFE	Virgin, filled, reinforced PTFE (RPTFE)	Ball-valve seats, stem packing, gaskets, sealing rings
Graphite	Flexible, expanded graphite, graphite packing	Stem packing, body/bonnet gaskets, high-temperature sealing

12. OTHER NON-METALLIC MATERIALS

Material	Typical Application
POM / Acetal	Pistons and internal components
Reinforced POM	Control-valve / actuator components
Polycarbonate (PC)	Actuator housings
Flame-Retardant Polycarbonate	Electrical actuator housings
Nylon Cord Fabric	Rubber expansion-joint reinforcement
Aramid Fibre	Gaskets / reinforcement where applicable

13. OTHER METALLIC MATERIALS

Material	Standard / Grade	Typical Application
Spring Steel Wire	BS EN 10270-1	Springs / expansion-joint reinforcement
Copper	Applicable copper standard / TP grade	Water hammer arrestor tube
Aluminium	Applicable alloy	Handwheels / components
Malleable Iron	Applicable BS EN grade	Threaded unions / fittings
Zinc-Plated Carbon Steel	Applicable grade	Handles / fasteners
Carbon Structural Steel	Grade 8.8 / Q235A where applicable	Bolts / handles / components

14. VALVE DESIGN STANDARDS

Application	BS / EN / ISO	Comparable American Standard
Gate Valves	BS EN 1171	API 600 / API 602 as applicable
Water Supply Valves - General	BS EN 1074-1	Applicable AWWA standard
Water Supply Gate Valves	BS EN 1074-2 / BS 5163	AWWA C509 / C515
Water Supply Check Valves	BS EN 1074-3	Applicable AWWA / API standard
Butterfly Valves	BS EN 593	API 609
Waterworks Butterfly Valves	BS EN 593 / BS EN 1074 as applicable	AWWA C504
Ball Valves	BS EN ISO 17292	API 608
Globe Valves	BS EN 13709	API 623 as applicable

15. DIMENSIONAL, CONNECTION & TESTING STANDARDS

Requirement	British / European	American / International
Face-to-Face	BS EN 558	ASME B16.10
Steel Flanges	BS EN 1092-1	ASME B16.5 / B16.47
Cast / Ductile Iron Flanges	BS EN 1092-2	ASME B16.1 / B16.42 as applicable
BSPP Parallel Threads	BS EN ISO 228-1	-
BSPT Taper Threads	BS EN 10226-1 / ISO 7-1	-
NPT Threads	-	ASME B1.20.1
Valve Testing	BS EN 12266-1	API 598
Actuator Interface	BS EN ISO 5211 / ISO 5211	ISO 5211
Grooved Connections	-	AWWA C606

BSPP, BSPT and NPT are different thread systems and shall not be considered interchangeable. PN and ASME Class are not direct numerical equivalents.

16. CORROSION PROTECTION

System	Typical VANTEC Reference
Fusion Bonded Epoxy (FBE)	BS EN 14901 where applicable
Standard coating thickness	Minimum 250 microns DFT
Severe / coastal environments	300 microns subject to project specification
Potable-water valves	WRAS-listed / approved coating system where specified

17. RUBBER / ELASTOMER QUICK SELECTION GUIDE

Material	Water / HVAC	Oils	Weather / Ozone	Higher Temp.	Typical Use
EPDM	Excellent	Poor	Excellent	Good	Water valves, liners, expansion joints
NBR	Good	Excellent	Moderate / Poor	Moderate	Seals, O-rings, oil service
Neoprene / CR	Good	Good	Excellent	Moderate	Expansion joints
FKM / FPM	Good	Excellent	Excellent	Excellent	Special seals
PTFE*	Excellent	Excellent	Excellent	Excellent	Seats, packing

*PTFE is a fluoropolymer, not an elastomer.

GENERAL TECHNICAL NOTE

Materials and international standards shown in this reference are provided for technical cross-reference purposes. Materials manufactured to different international standards may differ in chemical composition, mechanical properties, manufacturing method, heat treatment and acceptance criteria. Where a direct equivalent does not exist, the stated material shall be considered a **Comparable Grade** only. Final material selection shall be verified against the applicable product standard, project specification, service conditions and certified material documentation.