Lifting Shackles — Dee vs Bow, Pin Types and Reading the WLL Stamp

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Why the shackle's working load limit is stamped on the bow and what the design factor behind it means, dee versus bow geometry and when side-loading forbids the dee, screw pins against safety-bolt pins, the G-numbering shorthand (G-209, G-2130), and the inspection points that condemn a shackle.

The stamp is the contract

Every rated shackle carries its WLL (working load limit), size and maker's mark forged into the bow — the stocked 3/4 3 dee at 4.75 t WLL and G2130 bow at 1 t read exactly so. Behind the stamp sits a design factor (typically 6:1 against minimum breaking load for lifting shackles): the WLL is the working number, and no circumstance — not a short lift, not a light shock — licenses exceeding it. Unmarked hardware-store shackles have no place in a lift at all.

Dee or bow, screw or safety pin

Choice | Take it when | Avoid when |

Dee (chain) shackle | Single-leg, straight in-line pulls — compact and marginally stronger for its size | Any side load or multi-leg gathering: the narrow body bends under off-axis pull |

Bow (anchor) shackle | Multi-leg slings, angled loads — the round bow tolerates side loading at reduced rating (typically to half WLL at 90°) | Rarely wrong; costs a little capacity in-line |

Screw pin | Temporary rigging, made and broken daily — fast, but the pin can unscrew under vibration; mousing wire is the old guard's insurance | Permanent or vibrating installations |

Safety pin (bolt + nut + split pin) | Anything left rigged — vibration-proof; the stocked 1.5 t bow with eye bolt and Crosby G-2130 13 mm show the pattern | Only where assembly speed rules |

The G-numbers (Crosby's catalogue shorthand the industry adopted: G-209 screw-pin bow, G-210 screw-pin dee, G-2130 bolt-type bow…) identify pattern and pin type at a glance — worth learning because enquiries written in G-numbers cross brands cleanly.

Use and inspection discipline

Load the pin, not the bow legs: slings bear on the pin or the bow crown; never let two legs pry the bow apart from inside, and centralise the load — point-loading a bow's shoulder is a hidden side load.

Angles derate: in-line = 100 % WLL; makers publish the reduction table (commonly 70 % at 45°, 50 % at 90° side load on bows).

Condemn on sight: pin that will not seat flush, body stretch (compare throat opening to the catalogue figure), nicks or gouges beyond ~10 % of diameter, heat discoloration, illegible stamp — any one retires the shackle; they are not repairable items.

Companion hardware lives in the wire-rope guide and clip chart.

Around 250 shackle line items are stocked — galvanised and stainless, screw and safety pin, fractional-inch and metric. Enquiries by WLL, pattern (or G-number) and pin type quote within 24 hours; certificates (EN 13889 / type approval) are stated per item where carried.

Frequently asked questions
What does WLL 4.75 t on a shackle mean?The maximum working load in straight, in-line pull — already including the design factor against breaking (typically 6:1 for lifting shackles). It is never a number to approach 'briefly'; angled loading reduces it further per the maker's table.When must I use a bow shackle instead of a dee?Whenever more than one sling leg gathers in the shackle or the pull leaves the pin's axis plane — the bow's geometry accepts side load at reduced rating; a dee bends. Single-leg straight pulls are the dee's only home.Are screw-pin shackles allowed for permanent rigging?Poor practice — vibration backs screw pins out. Permanent and long-term rigging takes bolt-type (safety) pins with nut and split pin; where a screw pin must stay, mouse it with wire as interim insurance.What is a G2130 shackle?The industry shorthand (from Crosby's catalogue) for a bolt-type anchor/bow shackle with safety pin — as stamped on the stocked 1 t galvanised bow. G-209 is its screw-pin sibling, G-210 the screw-pin dee.How do I inspect a shackle before use?Stamp legible, pin original and seating flush with full thread engagement, throat opening not stretched beyond catalogue dimension, no gouges past ten percent of diameter, no heat tint or welding. Fail any point: destroy it, don't downgrade it.

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