Klingersil Gasket Sheet Grades — Cross-Reference Chart

cBallast Technical Sourcing · Compressed fibre gasket sheet · issued 2026-11-09 · cballast.com/documents/klingersil-gasket-sheet-grades-cross-reference

The Klingersil compressed-fibre gasket sheet grades decoded — C-4400, C-4430, C-4500, C-4509, C-4324 and the specialty grades — with fibre and binder chemistry, media suitability, the pT-diagram logic that actually governs temperature and pressure limits, sheet thickness selection, equivalents thinking across Garlock, Donit and Temacs class materials, PTFE (Gylon class) and graphite alternatives, and cut-gasket against sheet buying.

The short version

Klingersil is Klinger's compressed-fibre sheet family: synthetic fibres (aramid, glass, carbon by grade) in an NBR binder, the successor chemistry to asbestos sheet. The grade number encodes the recipe: C-4400 (aramid/NBR, the universal industrial grade), C-4430 (aramid+glass/NBR, the step up for steam and higher loads), C-4500 (carbon fibre/NBR for higher temperatures), C-4509 (carbon/NBR oil-and-heat variant), C-4324 (the economy aramid grade for water, oils and general service).
Datasheet maximum temperatures are not operating ratings. Every Klinger datasheet carries a pT diagram with three zones: freely usable, usable with technical evaluation, and not permitted. A grade "rated 400 °C" is only serviceable there at low pressure; at full flange pressure its real ceiling is far lower. Selection happens on the pT diagram, never on the headline number.
Thinner seals better. The working rule across fibre sheet: use the thinnest sheet the flange condition allows (1.5 mm as the default, 2 mm for rough or warped faces, 3 mm as the exception) — thinner sheet creeps less, blows out less, and handles higher surface pressure. Thickness compensates bad flanges, nothing else.
Cross-brand equivalence is by recipe class, not by colour. Aramid/NBR sheets from the major makers (Klinger, Garlock Blue-Gard class, Donit, Temac and peers) interchange by property table — fibre type, binder, pT behaviour, approvals (drinking water, gas DVGW, BAM oxygen, fire-test) — and the approvals are the part that does not transfer by assumption.
Beyond fibre sheet: restructured PTFE (Garlock Gylon 3510 class, Klinger top-chem family) for aggressive chemistry and cleanliness; graphite laminate for steam at temperature; and the gasket material selection guide maps the whole landscape including spiral-wound and ring-joint territory.

1. The grade table

Grade | Fibre / binder | Character | Typical media | Catalogue anchors |

C-4400 | Aramid / NBR | The universal grade; broad chemical window, good mechanical strength | Water, seawater, oils, fuels, gases, moderate steam duty per pT | C-4400 sheet 1/16" x 59" x 59"; cut gaskets e.g. DN15 PN16, DN20 PN16 |

C-4430 | Aramid + glass / NBR | Higher load-bearing and steam capability than C-4400 | Steam per pT, hot water, oils, gases — the plant upgrade grade | C-4430 sheet 1/16" x 59" x 59" |

C-4500 | Carbon / NBR | Temperature capability above the aramid grades | Hot oils, heat-transfer duties, steam per pT | Quoted by sheet or cut gasket |

C-4509 | Carbon / NBR (oil-service recipe) | Heat plus hydrocarbon resistance | Thermal oil, hot hydrocarbon lines | Quoted by sheet or cut gasket |

C-4324 | Aramid / NBR (economy) | General service where duty is mild and price matters | Water, air, oils at modest pT | C-4324 sheet 1500 x 1000 x 2.0 mm |

Adjacent Klinger families complete the picture: Klinger ML1 universal sheet for undemanding service (ML1 1500 x 1000 x 2 mm), top-sil and top-chem engineered sheets — the top-chem 2000 cut gasket DN32 PN16 is the PTFE-class answer for aggressive media — and expanded-PTFE tape (Sealex 14 x 5 mm) for field-formed sealing on damaged faces.

2. Reading a pT diagram like the datasheet means it

The axes are internal pressure and temperature; the curve divides three regions. Region one (low p, low T): the sheet serves with ordinary assembly practice. Region two: serviceable only with engineering review — controlled bolt load (torque charts), flange condition verified, thinner sheet, sometimes inner eyelets. Region three: choose another material. Two consequences professionals act on: first, steam moves every fibre sheet deep into region two long before the headline temperature — which is why steam mains migrate to graphite or spiral-wound even at modest pressures; second, the diagram assumes correct surface pressure, so an under-torqued joint fails in region one too. For critical joints Klinger's published gasket factors (and EN 13555 data where the design method is EN 1591) complete the calculation; for routine flange work the pT check plus the standard torque table is the working method.

3. Thickness, surface condition and assembly

Flange condition | Sheet thickness | Note |

Good machined faces, standard raised face | 1.5 mm | Default — best blowout and creep behaviour |

Minor scoring, light corrosion, large diameters | 2.0 mm | The practical plant standard for DN>300 and older flanges |

Warped or heavily worn faces | 3.0 mm | A repair measure; plan to machine the face instead |

Assembly is half the gasket's performance: faces cleaned to bare metal, gasket dry (no grease on fibre sheet — it destroys the friction the seal depends on), bolts lubricated and pulled in a star pattern to the torque table in stages, and a retorque where the procedure calls for it. Dimensions for cut gaskets follow the flange standard — EN 1092-1 ring dimensions in our

PN16 chart and siblings, full-face for flat-face flanges — and the flange finder resolves the pattern when the drawing is missing.

4. Equivalents thinking across makers

Recipe class | Klinger grade | Peer-class examples | Equivalence caveat |

Aramid/NBR universal | C-4400 | Garlock Blue-Gard 3000 class, Donit and Temac aramid/NBR sheets | Match pT behaviour and approvals line by line |

Aramid+glass/NBR, steam-capable | C-4430 | Peer high-load aramid grades | Steam capability differs by maker — pT diagrams decide |

Carbon/NBR high temperature | C-4500 / C-4509 | Peer carbon/NBR grades | Thermal-oil approvals vary |

Restructured PTFE | top-chem family | Garlock Gylon 3510 class | Filler chemistry (silica, barium sulphate, glass) sets media fit |

Graphite laminate | Klinger graphite programme | Peer graphite sheets, tanged or foil-reinforced | Oxidation limit in air; reinforcement type matters for handling |

"Equivalent" on a requisition means: same recipe class, pT envelope covering the duty, and the named approvals present (WRAS/KTW drinking water, DVGW gas, BAM oxygen, API/fire test where piping class demands). A cheaper sheet missing the approval is not an equivalent, it is a different product — the same honesty rule as everywhere in our gasket material guide.

5. Buying: sheet, cut gaskets, or kits

Sheet (standard formats 1000 x 1500 and 1500 x 2000 mm, thicknesses 0.5–3 mm) suits workshops that cut their own; cut gaskets to EN 1092-1 or ASME patterns suit everyone else — dimensional consistency, no nesting waste, and traceability printed per gasket. Flange isolation sets (isolation kit guide) and ring-joint or spiral-wound positions ride the same requisition. A quotable line: grade (or recipe class plus approvals if open), dimension (DN/PN or ASME NPS/class, or sheet format), thickness, quantity, and the medium/temperature/pressure so the pT check can be confirmed on our side — we flag lines where the requested grade sits in region two of its diagram rather than quoting blind.

How buying works at cballast. We quote Klinger, Garlock and peer sheet and cut gaskets with the pT sanity check included, approvals stated per line, and standing lists for plants that order by the drawing. Accounts are vetted at onboarding; first order prepaid; established accounts on credit terms with repeat discounts; public bodies and utilities invoiced against purchase order from the first order. RFQs to sales@cballast.com.

Frequently asked questions

What is the difference between Klingersil C-4400 and C-4430?Both are NBR-bound fibre sheets: C-4400 uses aramid fibre and is the universal industrial grade; C-4430 adds glass fibre for higher load-bearing and better steam capability. On water, oils and gases they overlap; where steam or higher surface pressure appears, C-4430 is the step up — confirmed on its pT diagram, not the headline temperature.
What temperature can Klingersil C-4400 handle?Its pT diagram is the answer: the headline maximum (400 °C class, short-term) applies only near zero pressure. At realistic flange pressures the freely usable region ends far lower — think in terms of the 150–250 °C band for continuous duty depending on pressure, and route anything hotter or steam-heavy through the diagram or to graphite/spiral-wound territory.
Is there a Klingersil C-4400 equivalent?By recipe class, yes: aramid/NBR compressed fibre sheets from Garlock (Blue-Gard class), Donit, Temac and peers. A true equivalent matches the pT envelope and carries the same approvals the duty needs (drinking water, gas, oxygen). We cross grades with the approvals checked line by line — send the duty, not just the grade name.
Which gasket sheet thickness should I use?The thinnest the flanges allow: 1.5 mm default on good faces, 2 mm for rough or large flanges, 3 mm only as a stopgap for faces that really need machining. Thinner sheet creeps less, resists blowout better and needs less bolt load to reach sealing stress.
Can I grease a fibre gasket to help it seal?No — grease on compressed-fibre sheet destroys the surface friction the joint depends on and promotes extrusion. Fit dry on clean faces; lubricate the bolts, not the gasket, and pull to the torque table in stages.
Who supplies Klingersil sheets and cut gaskets?cballast.com quotes Klinger sheet formats and cut gaskets to EN 1092-1 and ASME patterns, Garlock and PTFE alternatives beside them, with the pT check and approvals stated per line. Send grades, dimensions and duties to sales@cballast.com.

References and related guides

Standards and sources referenced: Klinger pT diagrams and grade datasheets (C-4400, C-4430, C-4500, C-4509, C-4324, top-chem); EN 1514-1 (flange gasket dimensions); EN 13555 / EN 1591 (gasket factors and flange calculation); ASME B16.21 (non-metallic flat gaskets); approval schemes WRAS, KTW, DVGW, BAM.

Gasket material selection guide

Spiral-wound gasket dimensions — ASME B16.20

Ring-joint gasket dimensions — ASME B16.20

PN16 flange dimensions — EN 1092-1

Flange bolt torque chart — ASME B16.5

Flange isolation kits and cathodic protection

Questions on a grade, a pT check or a cut pattern: write to sales@cballast.com. We answer whether or not you buy from us.

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