

PRACTICAL BUYER TOOL

Industrial Valve Selection Checklist

A disciplined pre-RFQ review for engineers, EPC contractors and procurement teams.

Use this checklist before requesting a quotation

Complete the process and piping data first. A valve type or material should not be selected from pressure class alone. Record unknowns instead of allowing them to become supplier assumptions.

1. Service definition

	CHECK	DECISION / EVIDENCE
01	Process medium and composition	Record concentration, water content, chlorides, solids, H2S, oxygen and other contaminants where relevant.
02	Design pressure and temperature limits	State minimum and maximum design values with units; include vacuum or upset conditions.
03	Normal operating conditions	Record normal pressure, temperature, flow rate and differential pressure.
04	Duty and cycling	Isolation, throttling, non-return, emergency shutdown, blowdown, drain or frequent operation.
05	Hazards and degradation mechanisms	Corrosion, erosion, cavitation, flashing, thermal cycling, vibration, sour service, cryogenic or fire exposure.

2. Functional selection

	CHECK	DECISION / EVIDENCE
01	Valve function matches valve type	Gate for isolation; globe for throttling; check for reverse-flow prevention; ball for quarter-turn isolation. Confirm exceptions by application review.
02	Flow direction and installation orientation	Confirm directional arrows, stem orientation, check-valve installation and maintenance access.
03	Required shutoff / leakage	State the contractual seat leakage requirement and whether a soft or metal seat is acceptable.
04	Bore and pressure drop	Specify full or reduced bore and any pigging, drainability or cavity-relief requirement.
05	Operation and actuation	Manual, gear, pneumatic, electric or hydraulic; include fail action, power supply, closing time and accessories.

3. Construction and materials

	CHECK	DECISION / EVIDENCE
01	Body and bonnet material	Verify compatibility with medium, pressure-temperature rating and project material specification.
02	Trim and closure material	Specify seat, stem, ball/disc/wedge and hardfacing requirements; check galling, erosion and corrosion.
03	Seat, packing and gasket	Confirm temperature, chemical compatibility, fire-safe or fugitive-emission requirements where applicable.
04	End connection and dimensions	RF, RTJ, BW, SW, threaded, wafer or lug; verify facing, schedule/bore and face-to-face requirements.
05	Special material controls	Define PMI, hardness, impact, corrosion or heat-treatment records only when required by the project.

4. Standards, inspection and documents

	CHECK	DECISION / EVIDENCE
01	Applicable standards and editions	Separate design, pressure-temperature rating, end connection, dimensions, testing and fire-safe requirements.
02	Pressure and leakage testing	Specify test standard, medium, duration, acceptance criteria and witness/hold points.
03	NDE and inspection scope	Define RT, UT, MT, PT, dimensional, visual, coating and functional inspection requirements.
04	Third-party inspection	Name the agency or approval route, notification period and required release documentation.
05	Document register	List approval drawings, datasheets, ITP/QAP, certificates, reports, manuals and final dossier requirements at RFQ stage.

Selection decision gate	Do not release the valve for manufacture until the datasheet, materials, pressure-temperature rating, test requirements and required document register are agreed.
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Reference sources

<https://www.vornetvalve.com/>

<https://www.vornetvalve.com/selection-guide/>

<https://www.vornetvalve.com/industrial-valve-materials-trim-equivalents-selection-guide/>

<https://www.vornetvalve.com/valve-trim-materials-guide/>

<https://www.vornetvalve.com/why-vornet/#documentation>