GITA MARKETING CO.

TECHNICAL DATA SHEET

PVC BALL VALVE EXTENSION

True Union · RPVC Body · PTFE Seat · EPDM Seals

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1. Product Overview

The GMC PVC Ball Valve Extension is a full-bore, quarter-turn true union ball valve manufactured from Rigid PVC (RPVC) for use in water treatment, chemical process, irrigation, pool & spa, and general industrial piping systems. The true union design allows the valve body to be removed from the pipeline without disturbing the pipe connections, making it ideal for maintenance-critical installations.

The combination of an RPVC body, PTFE ball seat, and EPDM O-ring seals provides broad chemical resistance, low operating torque, and reliable bubble-tight shut-off across the full rated pressure and temperature range. The valve is vacuum rated and conforms to ASTM F1970 for socket-end true union ball valves.

2. Technical Specifications

Product Name	PVC Ball Valve Extension
Type	Full-bore, quarter-turn true union ball valve
Sizes Available	20 mm · 25 mm · 32 mm · 40 mm · 50 mm
Body Material	RPVC (Rigid PVC) — corrosion-free, lightweight, dimensionally stable
Ball & Stem	RPVC — chemically matched to body for uniform expansion
Seat	PTFE (Polytetrafluoroethylene) — low friction, chemical resistant, bubble-tight seal
Seals / O-rings	EPDM (Ethylene Propylene Diene Monomer) — hot water and mild chemical service
Max Working Pressure	16 bar (232 psi) at 23°C
Pressure Rating Note	Derate for elevated temperature — see pressure/temperature table
Max Temperature	60°C continuous service
Min Temperature	0°C (standard) · –10°C (water service with frost precautions)
Vacuum Rating	Full vacuum — suitable for suction and vacuum service
End Connections	True union socket (solvent cement) · BSP threaded union (on request)
Standard	ASTM F1970 — Socket-Type Plastic Fittings and Valves
Operation	Quarter-turn (90°) manual lever — open/close clearly indicated on handle
Handle	PP (polypropylene) lever handle — colour-coded (blue = water / grey = chemical)
Flow Pattern	Full bore — minimal pressure drop, equivalent to straight pipe section
Colour	Light grey body with blue/grey handle
Locking	Optional lockable handle available — padlockable in open or closed position

3. Pressure / Temperature Derating

RPVC exhibits a reduction in mechanical strength at elevated temperatures. The maximum permissible working pressure must be derated according to operating temperature. The table below gives the derating factor and resulting maximum WP for each temperature band:

Temperature (°C)	Derating Factor	Max WP (bar)	Notes
Up to 20°C	1.00	16 bar	Nominal rating
25°C	0.90	14.4 bar	—
30°C	0.75	12.0 bar	—
35°C	0.62	9.9 bar	—
40°C	0.50	8.0 bar	Typical process limit
45°C	0.40	6.4 bar	—
50°C	0.32	5.1 bar	—
55°C	0.25	4.0 bar	—
60°C	0.20	3.2 bar	Maximum rated temperature

PRESSURE DERATING
Always select valve size and pressure rating based on the maximum operating temperature in the system, not ambient conditions. Do not use at temperatures above 60°C.

4. Chemical Resistance

The chemical resistance of the valve is governed primarily by the RPVC body and PTFE seat. RPVC offers excellent resistance to a wide range of aqueous solutions, acids, alkalis, and salts. PTFE provides near-universal chemical resistance for the seat. EPDM seals are suitable for hot water, steam (low pressure), and most dilute chemical services but are not recommended for petroleum-based fluids.

Medium	RPVC Body	PTFE Seat	EPDM Seals	Overall
Potable water	Excellent	Excellent	Excellent	Excellent
Seawater / brine	Excellent	Excellent	Excellent	Excellent
Dilute acids (HCl, H2SO4 <30%)	Excellent	Excellent	Good	Good
Concentrated acids (>30%)	Good	Excellent	Consult	Consult
Dilute alkalis (NaOH <30%)	Excellent	Excellent	Excellent	Excellent
Chlorinated water (pool/spa)	Excellent	Excellent	Excellent	Excellent
Irrigation water / fertiliser	Excellent	Excellent	Good	Good
Alcohols (ethanol, methanol)	Good	Excellent	Good	Good
Petroleum oils / fuels	Not rated	Excellent	Poor	Not suitable
Solvents (acetone, MEK, THF)	Poor	Excellent	Consult	Not suitable
Compressed air (dry)	Excellent	Excellent	Excellent	Excellent
Deionised / demineralised water	Excellent	Excellent	Excellent	Excellent

For service conditions not listed above, consult GMC's technical team. A full chemical resistance chart covering 200+ media is available on request. When in doubt, test a sample valve in the target medium before committing to

full installation.

5. Dimensions & Flow Data

Size (mm)	Pipe OD (mm)	Face-Face (mm)	End-End (mm)	Cv (flow coeff.)	Weight (kg)
20	26.9	85	120	12	0.18
25	33.7	95	135	18	0.26
32	42.4	110	155	32	0.38
40	48.3	120	170	52	0.52
50	60.3	140	195	85	0.74

Face-to-face dimensions are measured between the valve body union seats (not including union nuts). End-to-end dimensions include union nuts in the assembled position. Cv values are for fully open valve at 20°C water — use for pressure drop calculation: ΔP (bar) = (Q in $m^3/h)^2$ / Cv^2.

6. Installation Guidelines

6.1 Pipe Preparation

- Cut pipe square using a pipe cutter or fine-tooth saw — deburr and chamfer the pipe end
- Clean pipe end and valve socket with PVC cleaner/primer (ASTM F656 compliant)
- Apply solvent cement (ASTM D2564) to both pipe end and valve socket evenly
- Insert pipe into socket with a quarter-turn and hold for 30 seconds
- Allow full cure time before pressurising: 30 min at >20°C, 2 hours at <10°C

6.2 Valve Orientation

- Valve may be installed in any orientation — horizontal, vertical, or inclined
- For vertical installations with downward flow, confirm handle accessibility for operation
- Leave minimum 1× pipe diameter clearance around handle for full quarter-turn operation

6.3 True Union Feature

- To remove valve body for maintenance: close valve, depressurise line, unscrew both union nuts
- The valve body lifts clear of the pipeline without disturbing solvent-welded end stubs
- Inspect O-rings and PTFE seat on removal — replace if deformed or damaged
- Reassemble with union nuts hand-tight plus quarter-turn — do not over-tighten

6.4 Commissioning

- After installation, hydrostatically test the system at 1.5× working pressure for 30 minutes
- Verify zero leakage at valve body joints and union connections
- Cycle valve fully open and closed 3 times to bed in PTFE seat

7. Operation & Maintenance

7.1 Operation

The valve operates with a 90° quarter-turn of the lever handle. Handle parallel to the pipe axis = OPEN. Handle perpendicular to the pipe axis = CLOSED. The RPVC ball provides bubble-tight shut-off with low operating torque — the valve should never require tools to operate under normal service conditions.

7.2 Throttling

The PVC Ball Valve Extension is designed primarily as an on/off isolation valve. Continuous throttling service (partial-open positions) is not recommended as it causes uneven wear of the PTFE seat, increasing leak risk over time. For flow control applications, use a dedicated RPVC needle or globe valve.

7.3 Routine Maintenance

- Inspect valve externally for cracks, discolouration (chemical attack), or deformation — quarterly minimum
- Cycle the valve fully open and closed at least monthly in infrequently operated systems to prevent seat sticking
- Check union nuts for tightness — RPVC creeps slightly under sustained load; re-tighten if dripping occurs
- Replace EPDM O-rings if weeping is observed at union joints — O-ring service kits available from GMC

7.4 Spare Parts

Seat Kit	PTFE ball seat (pair) + EPDM O-ring set — size-specific
O-ring Kit	Full EPDM O-ring set for body and union nuts — size-specific
Lever Handle	Replacement PP lever handle with position indicator
Union Nut Set	Pair of RPVC union nuts — size-specific
Body Assembly	Complete valve body (without union tails) — for field replacement

8. Standards & Compliance

Primary Standard	ASTM F1970 — Socket-Type Thermoplastic Fittings and Valves (True Union)
Material Standard	ASTM D1784 — Rigid PVC Compound, Cell Classification 12454
Solvent Cement	ASTM D2564 — Specification for Solvent Cement for PVC Plastic Pipe
Primer	ASTM F656 — Primers for PVC Plastic Pipe and Fittings
Pressure Testing	Hydrostatic shell test: 1.5× rated WP · Seat leak test: 1.1× rated WP
ISO 9001:2015	Manufacturer operates under ISO 9001:2015 quality management system
RoHS / REACH	RPVC compound complies — no restricted substances above threshold limits
Potable Water Suitability	Consult manufacturer for specific drinking water approval by territory

9. Ordering Information

Size	Part Reference	End Connection	Seal Material	Max WP
20 mm	BV-RPVC-20-TU	True union socket	PTFE/EPDM	16 bar @ 23°C

Size	Part Reference	End Connection	Seal Material	Max WP
25 mm	BV-RPVC-25-TU	True union socket	PTFE/EPDM	16 bar @ 23°C
32 mm	BV-RPVC-32-TU	True union socket	PTFE/EPDM	16 bar @ 23°C
40 mm	BV-RPVC-40-TU	True union socket	PTFE/EPDM	16 bar @ 23°C
50 mm	BV-RPVC-50-TU	True union socket	PTFE/EPDM	16 bar @ 23°C

BSP threaded union ends available on request — specify BSP suffix when ordering. Lockable handle option available — specify LH suffix. Stainless steel fastener upgrade available for corrosive environments.

10. Contact & Technical Support

Supplier	Gita Marketing Co. (GMC)
Address	Spl Plot No-4, NGEF Industrial Estate, Off Whitefield Road, Mahadevapura, Bangalore - 560048
Phone	+91-89040-35515
Email	info@gitamarketing.com
Website	www.gitamarketing.com
ISO Certifications	ISO 9001:2015 · ISO 14001:2015 · ISO 45001:2018

For technical queries, chemical compatibility checks, custom configurations, or spare parts enquiries, contact GMC's technical sales team. Site surveys and application engineering support available on request.