

# PRAGATI DEFENCE SYSTEMS PRIVATE LIMITED

## DETAILED PROJECT REPORT

### Term Loan of ₹20 Crore — SIDBI

Ceramic Armour Manufacturing Line — Pressureless Sintered B<sub>4</sub>C-SiC Technology

**EXCLUSIVELY CAPEX — Equipment, Installation & Commissioning**

Parameter	Detail	Source/Note
CIN	U29270CT2021PTC011232	MCA
Borrowing entity	Pragati Defence Systems Pvt. Ltd.	Parent + consolidating entity
Loan purpose	Ceramic manufacturing line CAPEX	Exclusively capex — no WC, no OFS
Loan amount	₹20 Crore	100% of ceramic project balance
Rate (placeholder)	~9% p.a.	Subject to SIDBI term sheet
Moratorium	12 months (FY27)	Commissioning period
Repayment tenor	5 years (FY28–FY32)	₹4 Cr/year principal
<b>DSCR FY28 (first repayment year)</b>	<b>14.6×</b>	<b>EBITDA ₹82.2 Cr vs debt service ₹5.62 Cr</b>
Prepared	May 2026	CONFIDENTIAL — For Lender Use Only

*DRAFT — FY26 provisional balance sheet and final term-sheet terms pending. Core financials from audited reports (FY24/FY25) and management actual (FY26 PBT ₹27 Cr).*

## 1. Executive Summary

Pragati Defence Systems Private Limited (“PDS” or “the Company”) is India’s leading indigenous ballistic armour manufacturer, headquartered in Bilaspur, Chhattisgarh. Building since 2020, incorporated August 2021, first order end of 2022 — the Company is the holder of India’s only DRDO Level 6 ceramic armour Technology Transfer (ToT) licence and one of two BIS Level 6 certifications for bullet-resistant jackets. Every major armour tender in India has exactly two eligible bidders. Pragati is always one of them.

This DPR seeks a ₹20 Crore term loan from SIDBI for one specific purpose: commissioning the ceramic armour manufacturing line at the Company’s subsidiary Pragati Deftech Private Limited. This loan is exclusively capex — equipment procurement, installation, civil works, and commissioning. It does not fund working capital, promoter liquidity, or any other purpose.

The ceramic line converts the DRDO L6 monopoly licence into revenue-generating in-house production capacity. Currently, the Company purchases ceramic plates externally at 3–4× the in-house cost. The

ceramic line eliminates the highest-cost variable in armour manufacturing and unlocks a standalone ceramics revenue stream.

### Key financials (₹ Crore) — Pragati Defence Systems (standalone)

Particulars	FY24A	FY25A	FY26P	FY27 (base)	FY28	FY29	FY30
<b>Revenue</b>	<b>11.7</b>	<b>17.3</b>	<b>51.0</b>	<b>103.0</b>	<b>198.0</b>	<b>335.0</b>	<b>500.0</b>
<b>EBITDA</b>	<b>3.9</b>	<b>7.0</b>	<b>27.7</b>	<b>42.1</b>	<b>82.2</b>	<b>143.8</b>	<b>217.8</b>
EBITDA margin	33.4%	40.3%	54.3%	40.9%	41.5%	42.9%	43.6%
PBT	3.14	6.62	27.00	38.46	77.36	138.77	212.38
<b>PAT</b>	<b>2.61</b>	<b>5.07</b>	<b>22.37</b>	<b>31.86</b>	<b>64.08</b>	<b>114.96</b>	<b>175.94</b>
PAT margin	22.4%	29.2%	43.8%	30.9%	32.4%	34.3%	35.2%

A = audited (Rajat Agrawal & Co.). FY26P = management-provisional (PBT ₹27 Cr). FY27 base excludes IAF order (₹48 Cr probable, PO awaited). Tax at 17.16% (Sec 115BAB). FY27+ formula-derived from revenue model.

### Scenario summary

Scenario	FY27 Rev	FY31 PAT	Drivers
Downside (ceramics delayed, IAF slips)	₹97 Cr	₹126 Cr	Committed orders + clauses only
<b>Base (used for debt serviceability)</b>	<b>₹103 Cr</b>	<b>₹230 Cr</b>	<b>Order book delivers; ceramic line FY28</b>
Upside (IAF + campus operational)	₹120 Cr	₹294 Cr	Full identified book; campus gates ₹800 Cr FY31

## 2. Company Background & Promoters

Pragati Defence Systems Private Limited was incorporated in August 2021 under the Companies Act 2013. The Company is promoter-held (Agrawal family, close-knit baniya family, no external governance complications). Naman Agrawal (CEO & Founder, 29) has been building Pragati since 2020 — a year before incorporation. He runs all operations. Arun Kumar Agrawal (Group Chairman, 40 years manufacturing experience) holds title as family patriarch and provides government liaison and manufacturing expertise.

The Company has been profitable since its first full year of operations (FY23) and carries negligible bank debt (approximately ₹0.27 Crore at FY25 close). FY26 PBT ₹27 Crore on ₹51 Crore revenue represents a 53% PBT margin — driven by structural duopoly pricing, strong product mix (high-value ceramic plates and shields), and a lean fixed-cost base. EBITDA margin 54.3% confirms the operational efficiency.

### Group structure

Entity	Role	Status
Pragati Defence Systems Pvt Ltd	Parent — finished armour (jackets, helmets, shields, plates)	Operating; FY24/FY25 audited
Pragati Deftech Pvt Ltd	Ceramic manufacturing entity;	Subsidiary; \$200K machinery

Entity	Role	Status
	imported raw material routing	advance paid; plant setup in progress
Pragati Defence Solutions Pvt Ltd	UHMWPE ballistic fabric manufacturing	Becoming 100% subsidiary; plant commissioned; SEB connection pending

Both subsidiaries are being converted to 100% wholly-owned subsidiaries of PDS (MCA process in progress, completion expected Q2 FY27). The ceramic SIDBI loan is borrowed by PDS (parent) and on-lent / directly used for Deftech's ceramic line, secured against the machinery.

### 3. The Project — Ceramic Armour Manufacturing Line

This loan funds ONE specific project: commissioning the ceramic armour manufacturing line at Pragati Deftech. This is a pure capex term loan. Working capital, OFS, and other company needs are funded separately from primary equity.

#### What is being built

A dedicated manufacturing line for Pressureless Sintered Hybrid B4C-SiC (Boron Carbide – Silicon Carbide) ballistic ceramic plates. This technology was jointly developed with DRDO and transferred to the Company under an exclusive Technology Transfer Licence in 2021 — the only such licence in India.

Ceramic armour plates are the highest-protection, highest-value component in personal armour systems. DRDO Level 6 plates (capable of defeating 7.62×54mm armour-piercing rounds) require this specific ceramic technology — no other process qualifies. The Company currently outsources ceramic plate manufacturing at 3–4× the in-house cost of production.

#### Why now

- The DRDO L6 ToT licence is held. The technology is validated. The machinery advance (\$200K) is paid. This loan removes the only remaining barrier: the balance capital for equipment and commissioning.
- Ceramic plates command gross margins of approximately 50% at current external sourcing prices. In-house production will take that to 65–70%+ once fully operational.
- Every armour tender at DRDO Level 6 requires ceramic plates. The confirmed order book already includes ceramic plate requirements currently being outsourced. In-house production directly converts external cost into internal margin.
- No other company in India has the DRDO L6 ToT. This is not replicable. The ceramic line makes Pragati the world's only fully vertically integrated personal protection manufacturer with this certification.

#### Project components — ₹20 Crore CAPEX breakdown

Component	Amount	Details
Ceramic manufacturing equipment (balance)	₹16.08 Cr	₹18 Cr total less ₹1.92 Cr advance already paid to international supplier
Civil works & plant modification	₹1.50 Cr	Facility preparation at Pragati Deftech for ceramic line installation
Installation & commissioning	₹1.00 Cr	Supervision, alignment, trial runs, first batch qualification
Contingency & miscellaneous	₹1.42 Cr	5% contingency on equipment + initial consumables for commissioning

Component	Amount	Details
<b>TOTAL CAPEX</b>	<b>₹20.00 Cr</b>	<b>100% funded by SIDBI term loan</b>

Note: The ₹1.92 Crore advance already paid is a sunk cost and is NOT part of this loan. It demonstrates promoter commitment to the project prior to SIDBI sanction.

### Project timeline

Milestone	Target	Status
Machinery advance paid	Completed	₹1.92 Cr paid to international supplier \u2014 confirmed
Equipment delivery	Q2 FY27 (Jul–Sep 2026)	Subject to supplier schedule; advance already cleared
Civil & installation	Q3 FY27 (Oct–Dec 2026)	Concurrent with delivery and alignment
Commissioning & trial runs	Q4 FY27 (Jan–Mar 2027)	First plate production runs; DRDO QC validation
First revenue from ceramic line	Q1 FY28	Intercompany supply to PDS + open market
Full capacity	Q2–Q3 FY28	Ramp-up to rated production capacity

## 4. Project Cost & Means of Finance

### Ceramic project — means of finance

Component	Amount	Source	Notes
Ceramic equipment (balance)	₹16.08 Cr	SIDBI term loan	International supplier
Civil works	₹1.50 Cr	SIDBI term loan	At Deftech premises
Installation & commissioning	₹1.00 Cr	SIDBI term loan	Supervised installation
Contingency	₹1.42 Cr	SIDBI term loan	5% buffer
<b>TOTAL</b>	<b>₹20.00 Cr</b>	<b>SIDBI ₹20 Cr</b>	<b>100% debt-funded</b>

### Full group raise — how each rupee flows

Use of funds	Amount	Source & rationale
Ceramic manufacturing line (this DPR)	₹20 Cr	SIDBI term loan — asset-backed, equipment financing
UHMWPE plant completion	₹2 Cr	Primary equity
Ballistic production scale-up	₹2.5 Cr	Primary equity
Working capital (FY27 at ₹103 Cr base revenue)	₹26 Cr	Primary equity

Use of funds	Amount	Source & rationale
R&D (AI Helmet · Platform armour · NIJ USA cert)	₹4.86 Cr	Primary equity
Key hires + strategic buffer	₹5.64 Cr	Primary equity
<b>Subtotal into Company</b>	<b>₹61 Cr</b>	<b>₹20 SIDBI + ₹41 equity (incl. internal accruals)</b>
Promoter OFS (does NOT enter Company)	₹11 Cr	Excluded from project — promoter liquidity
<b>Total equity round</b>	<b>₹50 Cr</b>	<b>₹39 primary + ₹11 OFS</b>

The SIDBI facility funds the ceramic line exclusively. The ₹11 Cr OFS goes to promoters and is completely separate. It does not enter the Company's accounts and is not part of project cost or means of finance.

## 5. Technical Feasibility

### Technology

Pressureless Sintered Hybrid B<sub>4</sub>C-SiC is the most advanced commercial ballistic ceramic technology. Unlike conventional high-pressure casted slurry ceramics (used by most competitors), pressureless sintering produces a denser, more uniform grain structure with superior multi-hit crack arrest performance. Key advantages:

- Higher density-to-weight ratio: equal protection at lower plate weight, improving soldier mobility
- Multi-hit performance: crack propagation arrested at grain boundaries; conventional ceramics shatter after first impact
- Scalable large-format manufacturing: plates up to 300×400mm producible in a single press cycle
- Process validation: jointly developed with DRDO, validated at DRDO ballistic ranges, certified under DRDO Level 6 ToT

### Raw materials

Primary inputs: Boron Carbide (B<sub>4</sub>C) powder and Silicon Carbide (SiC) powder. Both are commercially available from international suppliers. Pragati Deftech's structure as an importer-of-record (for RM routing to maintain competitive secrecy) ensures supply chain continuity. The ceramic plate production does not depend on any single supplier.

### Regulatory position

The DRDO Level 6 Technology Transfer Licence is the only certification of its kind in India. It was obtained through a multi-year joint development programme with DRDO and cannot be acquired by new entrants — DRDO grants ToT only to companies that have co-developed the underlying technology. BIS Level 6 certification (mandatory for all tenders) is held by only two companies. Pragati holds both.

## 5A. Cost-Margin Analysis (CMA) — Ceramic Products

Source: Quotation from Zhejiang Lingqi Technology Co. Ltd., China (September 2024) for press-grade ceramic powders. Naman Agrawal direct negotiation. Four product grades evaluated. CMA validated by SIDBI-grade formula: Powder cost + 15% process wastage + 10% other manufacturing costs (energy, labour, consumables, overheads) = Total COGS per kg.

This CMA confirms the 50%+ gross margin stated in Sections 6 and 7. The 2.9 B<sub>4</sub>C hybrid — Pragati's primary product — achieves 58.3% gross margin at confirmed market pricing, significantly exceeding the 50% floor used in conservative projections.

## Four ceramic grades — CMA per kg (FOB China pricing, ₹84/USD)

Product	Powder cost	Wastage (15%)	Mfg costs (10%)	Total COGS	Sell price	Gross margin
SiC press ceramic	\$10.15 (₹852)	\$1.52	\$1.17	\$12.84 (₹1,079)	\$25.68 (₹2,157)	50.0%
2.5 B <sub>4</sub> C press ceramic	\$50.73 (₹4,261)	\$7.61	\$5.83	\$64.17 (₹5,390)	\$128.35 (₹10,781)	50.0%
2.7 B <sub>4</sub> C press ceramic	\$28.98 (₹2,434)	\$4.35	\$3.33	\$36.66 (₹3,079)	\$73.32 (₹6,159)	50.0%
<b>2.9 B<sub>4</sub>C hybrid B<sub>4</sub>C-SiC ★</b>	<b>\$19.78</b> <b>(₹1,662)</b>	<b>\$2.97</b>	<b>\$2.27</b>	<b>\$25.02</b> <b>(₹2,102)</b>	<b>\$60.00</b> <b>(₹5,040)</b>	<b>58.3% ↑</b>

★ = Primary product. Confirmed market selling price \$60/kg. Source: Naman Agrawal, market intelligence. Note: wastage = powder consumed in sintering scrap; mfg costs = energy (furnace), labour, consumables. Sell prices for SiC/2.5/2.7 B<sub>4</sub>C are illustrative at 2× cost; actual pricing to be confirmed at commercial launch.

## 2.9 B<sub>4</sub>C hybrid — primary product deep-dive

Cost element	Per kg	Per standard plate (1.75 kg)
Ceramic powder (2.9 B <sub>4</sub> C, Lingqi Tech China)	\$19.78 = ₹1,662	\$34.62 = ₹2,908
Process wastage (15% sintering loss)	\$2.97 = ₹249	\$5.19 = ₹437
Manufacturing costs (10%: energy, labour, consumables)	\$2.27 = ₹191	\$3.97 = ₹333
<b>TOTAL COGS</b>	<b>\$25.02 = ₹2,102</b>	<b>\$43.78 = ₹3,678</b>
<b>Selling price (confirmed market rate)</b>	<b>\$60.00 = ₹5,040</b>	<b>\$105.00 = ₹8,820</b>
Gross profit	\$34.98 = ₹2,938	\$61.22 = ₹5,142
<b>Gross margin</b>	<b>58.3%</b>	<b>58.3%</b>

## Revenue potential — 2.9 B<sub>4</sub>C at scale

Production ramp: commissioning Q1 FY28, scale-up Q2-Q3 FY28. Capacity governed by press equipment (4 units, 315T–415T). Volume estimates are conservative and do not include supply to open market — initial years focused on captive (intercompany PDS) supply.

Annual production	Revenue (₹ Cr)	COGS (₹ Cr)	Gross profit	GM%	Notes
1,000 plates/yr	0.88	0.37	0.51 Cr	58%	FY28 ramp (Q3-Q4 only)
2,500 plates/yr	2.21	0.92	1.29 Cr	58%	FY28 full-year
5,000 plates/yr	4.41	1.84	2.57 Cr	58%	FY29 base

Annual production	Revenue (₹ Cr)	COGS (₹ Cr)	Gross profit	GM%	Notes
10,000 plates/yr	8.82	3.68	5.14 Cr	58%	FY30 scale

Exchange rate ₹84/USD. Plate weight 1.75 kg assumed (250×300mm DRDO L6 front plate). Revenue above is Deftech entity revenue — at group consolidation level, ceramic costs replace external purchases (currently outsourced at 3-4× in-house cost), with additional open-market revenue layered from FY29.

### Validation of 50% COGS assumption in financial model

The financial model uses 50% blended COGS across all products, including ceramics. This CMA confirms:

- SiC, 2.5 B<sub>4</sub>C, 2.7 B<sub>4</sub>C: sell at 2× total cost = exactly 50.0% gross margin ✓
- 2.9 B<sub>4</sub>C (primary): sells at \$60/kg = 58.3% gross margin ✓ (exceeds 50% floor used in model)
- Blended COGS assumption of 50% is therefore conservative: actual ceramic margins will be 50–58%, with the primary product (2.9 B<sub>4</sub>C) at the higher end
- SIDBI model DSCR is based on 50% COGS — any improvement in ceramic margin directly improves DSCR with zero change to revenue

The powder quotation from Zhejiang Lingqi Technology Co. Ltd. is in the Data Room. Naman Agrawal has personally negotiated this pricing. The supplier is an established Chinese ceramics powder manufacturer with FOB delivery terms. Alternative sources are available (domestic and multiple international) reducing single-supplier risk.

## 6. Commercial Viability

### Current cost vs in-house cost

Item	Current (outsourced)	Post ceramic line (in-house)
Cost of ceramic plate (per unit)	3–4× in-house cost	Baseline — DRDO-validated process cost
Gross margin on ceramic plate	~30–35% (outsourced)	~65–70% (in-house, Q2 FY28 onwards)
Supply dependency	External manufacturer (constrained)	Fully in-house; no supply risk
Capacity ceiling	Yes — limits order execution	No — rated capacity exceeds current order book

### Revenue from ceramic line

Ceramic plates are embedded in every body armour order. The confirmed order book (₹52.39 Cr) and L1 wins (₹20.63 Cr) both include ceramic plate requirements currently outsourced. Post commissioning:

- FY28: Ceramic line fully operational. Intercompany supply to PDS replaces external purchases. Margin improvement flows through consolidated P&L.
- FY29+: Open market ceramic plate sales to other armour manufacturers and DRDO. Separate revenue stream from Deftech.
- Long term: Deftech becomes a standalone ₹100–150 Crore revenue entity by FY31 (base case).

## FY27 revenue basis (for DSCR)

DSCR during the moratorium year (FY27) is based entirely on PDS (parent) cash flows — the ceramic line is still commissioning. FY27 base revenue: ₹103 Crore (confirmed orders + contractual clauses + L1 wins + pipeline, excluding IAF ₹48 Cr which is probable but not yet a PO).

FY27 Revenue Component	Amount	Margin	Status
Confirmed POs + executing	₹24.0 Cr	~60%	Committed, Army and DRDO clients
Clause / option upside	₹12.47 Cr	~66%	Buyer-exercisable, no re-tender needed
J&K Police BRJ L6 (L1 won)	₹10.39 Cr	~75%	GEM L1; MII preference; PO pending
Pipeline + UHMWPE + ceramics	₹56.14 Cr	~50%	Pipeline conversion and new streams
<b>FY27 Base Total</b>	<b>₹103 Cr</b>	<b>~58%</b>	<b>Base case — excludes IAF ₹48 Cr</b>
<b>FY27 Upside (incl. IAF)</b>	<b>₹120 Cr</b>	<b>~56%</b>	<b>IAF tech-eval complete, PO awaited</b>

## 7. Debt Serviceability & Repayment

Repayment is from PDS consolidated operating cash flows. The ceramic line itself enters production Q1 FY28 and contributes to EBITDA from FY28 onwards. The moratorium year (FY27) is comfortably serviced from the parent's existing EBITDA of ₹42.1 Crore on ₹103 Crore revenue.

### Repayment schedule (₹ Crore)

	FY26	FY27	FY28	FY29	FY30	FY31	FY32
<b>EBITDA</b>	<b>27.7</b>	<b>42.1</b>	<b>82.2</b>	<b>143.8</b>	<b>217.8</b>	<b>284.3</b>	—
Interest (@9%)	—	1.80	1.62	1.26	0.90	0.54	0.18
Principal	—	—	4.0	4.0	4.0	4.0	4.0
Total debt service	—	1.80	5.62	5.26	4.90	4.54	4.18
<b>DSCR (EBITDA/Debt Svc)</b>	—	<b>23.4×</b>	<b>14.6×</b>	<b>27.3×</b>	<b>44.4×</b>	<b>62.6×</b>	—
Closing loan balance	—	20.0	16.0	12.0	8.0	4.0	0.0

Interest calculation: moratorium year (FY27) at full ₹20 Cr. FY28-31: declining balance average 9%. Principal: ₹4 Cr per year FY28–FY32. Loan fully retired FY32. 9% rate is placeholder — subject to SIDBI term sheet.

DSCR never falls below 14× in any year. Net debt/EBITDA peaks at 0.47× (FY27) and falls to zero. The Company generates more EBITDA in FY28 alone (₹82.2 Cr) than the total loan amount (₹20 Cr).

## Downside sensitivity

Even in the downside scenario (FY27 revenue ₹97 Cr, EBITDA ~₹39 Cr), DSCR FY27 = 21.7× (interest only). FY28 downside EBITDA ~₹60 Cr, DSCR = 10.7× — still far above typical covenant minimums of 1.5–2.0×. The loan is not at any material risk in any scenario.

## 8. Security & Collateral

Security item	Detail
Primary — hypothecation of financed assets	Ceramic manufacturing equipment (₹18 Cr total; delivered and installed over FY27). First charge. Standard equipment financing security.
Secondary — personal guarantees	Personal guarantees of Naman Agrawal (CEO) and Arun Kumar Agrawal (Chairman). Consistent with existing bank facility framework.
Existing bank relationship	Bank of Baroda term loan ~₹0.27 Cr at FY25 close; secured by P&M hypothecation + equitable mortgage of residential property. Existing relationship demonstrates repayment discipline.
Fixed deposit collateral	₹9.12 Crore in FDs across 35 deposits (₹8.41 Cr backing active bank guarantees for performance/EMD obligations). Demonstrates capital discipline and banking relationship.
Future collateral (additional)	Naya Raipur land acquisition (~₹4.5 Cr, 3–5 acres, FY27–FY28) will add a company-owned land asset. Available as additional security if required for facility expansion.

## 9. Risk Factors & Mitigation

Risk	Rating	Description	Mitigation
Technology / process risk	Low	DRDO ToT is validated. Joint development with DRDO labs confirmed process reliability.	Technology licensed and validated at DRDO range. Not an R&D project — scaling a proven process.
Equipment delivery	Medium	International supplier; delivery timeline subject to logistics.	\$200K advance already paid. Supplier contractually committed. 12-month moratorium provides buffer.
Market risk (ceramic plates)	Low	Structural duopoly; confirmed orders already include ceramic requirements.	Order book ₹52.39 Cr confirmed. Ceramic plates are embedded in every DRDO L6 armour order.
Commissioning / ramp-up	Medium	First in-house ceramic line; learning curve during Q4 FY27.	DRDO technical support. Experienced team. Conservative revenue recognition from Q1 FY28 only.
Revenue concentration	Medium	Parent (PDS) is primary revenue source for debt service in FY27.	PDS EBITDA ₹42.1 Cr FY27 = 23.4× interest. Diversified client base: Army, DRDO, IAF, State Police.

Risk	Rating	Description	Mitigation
Governance / DD	Low	Subsidiary conversion in process; Tier-2 audit pending; CFO joining.	Rajesh Sharma (CFO) joining full-time. Tier-2 auditor engagement in progress. ERP live and operational.

## 10. Items Pending Before Final Submission

- FY26 provisional balance sheet (Rajesh Sharma finalising) — confirms opening cash, receivables, and net worth as at 31 March 2026.
- Final SIDBI term-sheet terms (rate, exact moratorium period, MPBF computation, security perfection) — 9% / 12 months / 5 years used as placeholders.
- Restated FY24/FY25 and audited FY26 from incoming Tier-2 statutory auditor.
- MCA completion of Deftech subsidiary conversion — legal entity through which ceramic line operates.
- Supplier delivery schedule confirmation (ceramic equipment) — post advance payment, delivery timeline to be contracted.
- ERP COGS validation (Ayush, Operations) — confirms 65–70% ceramic gross margin estimate.

— End of Detailed Project Report (Version 5) —