

TARGET CLIENT

Apex Precision Castings Pvt Ltd (Rajkot / Ahmedabad)

EXECUTIVE SPONSOR

Rajesh Patel (Managing Director)

OPERATIONAL SCALE

₹120 Cr Export Foundry (210 Staff)

1. Executive Synthesis & Operational Bottleneck

Following our Discovery Review, Sellatica diagnosed the order-to-production dispatch friction at Apex Precision Castings. Apex manufactures precision investment castings and export-grade valve bodies, exporting ~65% of production to OEMs in Germany and the United States.

The primary friction lies in raw material chemical verification. For every raw heat batch, raw material suppliers deliver scanned Mill Test Certificates (MTCs) and Spectrometer inspection reports as scanned PDFs or paper printouts. Currently, **3 metallurgical quality engineers spend ~25 hours weekly** manually verifying chemical compositions (Carbon, Manganese, Silicon, Chromium, Nickel percentages) against strict DIN EN 10213 and ASTM A351 tolerances, followed by manually keying batch clearance numbers into **SAP Business One ERP**. This creates an average **4-day lag between raw material arrival and furnace melt authorization**, creating dispatch bottlenecks and warehouse congestion.

2. System Topology: Current State vs. Future State

CURRENT STATE (MANUAL VERIFICATION & SAP BOTTLENECK)

Suppliers / External Testing Labs | ▼ (Scanned PDFs, Physical MTC Printouts) [3 Quality Engineers] — (25 Hours/Wk Manual Check) —> [SAP Business One] | | ▼ (Latency: 4 Days) ▼ [Furnace Melt Delayed] — (₹38.4L/Yr Hidden Drag) —> Delayed German Export

FUTURE STATE (SELLATICA HERMES METALLURGY COMPLIANCE ENGINE)

Supplier Email Ingestion / Scanner Folder Webhook | ▼ (Sub-15s Extraction) [Sellatica Hermes Agent (Metallurgy Engine)] — OCR & Table Extraction: Heat #, Element percentages (C, Mn, Si, Cr, Ni, Mo) — Tolerance Logic: Mathematical check against ASTM/DIN tables in memory — Passed (100% In-Spec): Automatic PO Line Release & Goods Receipt in SAP B1 — Out-of-Tolerance: Immediate Quarantine Hold & WhatsApp/Email Alert to QA Head | ▼ (Average Release Time: 12 Minutes) Real-Time Furnace Melt Clearance & Zero Dispatch Latency

3. Quantified Financial Drag & ROI Projection

Operational Metric	Current Manual Baseline	With Sellatica Hermes OS	Projected Value Unlocked
Quality Engineer Time	25 hours/week across 3 engineers	2 hours/week (quarantine audits only)	~92 hours/mo saved (₹1,47,000/mo)
Batch Release Latency	4 Days average hold time	12 Minutes automated release	98% compression in dispatch lag
Wrong-Alloy Melt Risk	1-2 batch rejections/quarter	Zero (Automated gatekeeper)	₹18,00,000/yr saved in scrap recovery
Export Compliance Audits	Manual binder search for audits	Instant digital MTC trace by heat #	100% audit pass rate guaranteed
TOTAL ANNUAL OPERATING DRAG	₹38,40,000 / year	₹2,80,000 / year	NET ANNUAL GAIN: ₹35,60,000

4. System Scope & Technical Deliverables

Deliverable 1: MTC Vision & Document Extraction Pipeline

Hermes Core

- Multi-format ingestion pipeline processing scanned mill certs, spectrometer outputs, and test lab PDFs.
- Model-agnostic vision model extracting Grade, Heat Number, Ingot Batch, and all elemental chemical values.
- Automated normalization for varying supplier certificate layouts.

Deliverable 2: Tolerance Validation & SAP Business One Service Layer

Integration Layer

- Deterministic standards matrix containing ASTM A351 (CF8M, CF3M), DIN 1.4408, and custom client chemistry limits.
- Direct integration with SAP Business One Service Layer (OData/REST) to auto-update PO status and release batch.
- Quarantine flag automation preventing unapproved raw material movement in inventory.

Deliverable 3: Quality Dashboard & Command Center

Governance Layer

- Dedicated portal at portal.admin.sellatica.systems for batch audit logs and agent uptime tracking.
- Instant WhatsApp and Email alerts for out-of-spec chemical compositions.
- Operator runbook and training sessions for plant metallurgy staff.

5. Phased Implementation Roadmap

Phase	Timeline	Milestone & Deliverables
Phase 1: Architecture Validation & Pilot	Weeks 1–2	SAP B1 sandbox connection, 100 historical MTC parsing test achieving >98% tolerance validation accuracy.
Phase 2: Plant Integration & UAT	Weeks 3–4	Live supplier certificate ingestion, QA operator shadowing, quarantine alert testing.
Phase 3: Production Cutover & Training	Weeks 5–6	100% live furnace feed cutover, full staff training, delivery of technical runbook.

6. Commercial Investment & Payment Terms

Total Fixed Engineering Investment:

₹20,50,000 INR (+ GST)

Projected Payback Period: ~2.1 Months against ₹35,60,000 net annual savings.

Milestone Structure: 50% Engineering Deposit (₹10,25,000) upon SOW signing · 30% upon Sandbox pilot approval (₹6,15,000) · 20% upon final Go-Live (₹4,10,000).