

Manufacturing Success

SpecsSys helps Client's SCOM product compete and grow.



www.specsys.org
www.specsys6.com
02.01.2022

SCOM CP34/CS34

Upgrade project from prototype to production

- Three prototypes shipped fall, 2014
- First production unit in Q1, 2015
- 450+ units delivered

7-week throughout, volume adjusted based on S&OP

Precise builds with minimum defects

“Once we place on our client’s decal, we now take on their Brand Image, the customer expects more.”



Parts/Material Purchase

640 parts (CP34)

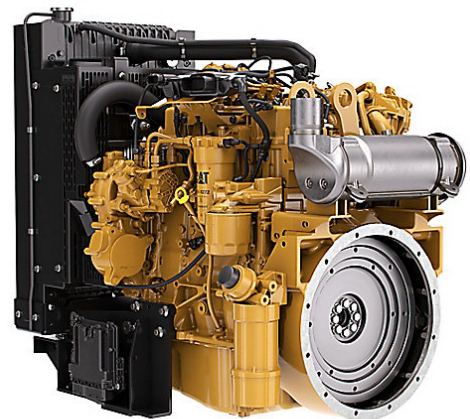
80 Vendors: six overseas, two local

6 months is longest lead time (engines and axles)

Independent: Moved from Client confirmation of purchases to open-buy agreement based on S&OP

- Three months firm forecast
- Long-lead-time items in extended forecast

All make-buy decisions managed by SpecSys



Machining/Fabrication

Milling, drilling/tapping, boring, turning

CNC programs developed in house

Parts-specific fixtures

Go/no-go gauges

Plasma, torch cutter

- Nesting (scrap & drop) analysis: based on S&OP

Press brake

- Setup books
- Fixtures

Must be precise; grinding at weld is not allowed



Welding

Aws-D1.1 certified welders are a SpecSys requirement

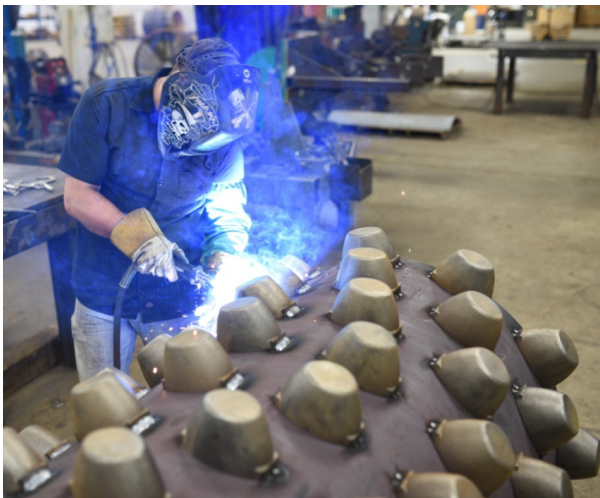
Buggo system for drums

Weld positioners when possible

A fixture for every part

- 7 engineering designed, remainder shop designed
- Goal is never to use a tape measure

Parts that require grinding return upstream



Painting

Phosphate pre-treatment (Sand/Shot Blast available)

Primer, top coat

- Adhesion, dry film thickness, gloss: measured with each booth load and logged
- MIL Std & Salt Spray Test available

Purpose built carts, part-specific paint racks, trinket racks

Operators completed Client training

“SpecSys was well-suited to meet Client’s paint requirements. Quality has been a non-issue.”



Assembly

Every fastener and fitting torqued

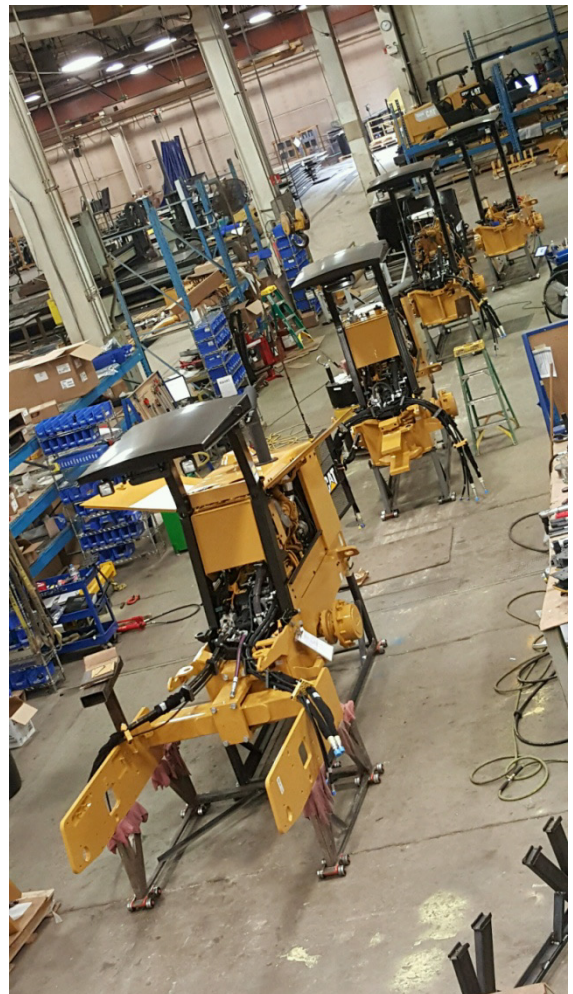
- Broken-line torque method
- Digital torque of engine emissions component

Documentation

- Traveler: Documents all findings/shortages
- Serial number traveler: Captures all part serial numbers and setting ~20 items

Training: Torque, O-ring and lip seals, hydraulics, tubing

Client responded to feedback for design for manufacturability



Assembly

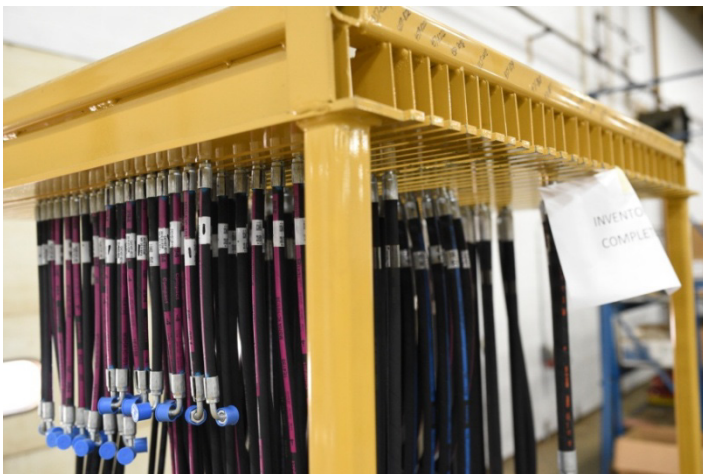
Material handling: Leverages point-of-use inventory system

- Parts based on work instruction requirements
- 2 days of inventory; 2-bin in/out
- Time process studies pinpoint wastes

Flex facility: Support from SpecSys facilities (Granite Falls MN, New Ulm MN, Watertown SD, Prentice WI)

Assembly stands and tool shadow boards at each station

Part-specific rigging: no forklifts allowed



Final Inspection/Test

Run test:

Initially 20 hours, later reduced to 1 hour

Client “RTD” software

- Guides through final tests and sends results to its database
- Electronics, hydraulic pressure, vibration, tire synchronization, drive speed, relief settings
- Takes human element out; process will stop if a test fails

Pre-delivery inspection – SpecSys

- Components/areas specific
- Torques
- General operation
- Fit & finish
- Past offenders
- Gear lube and hydraulic fluid cleanliness

Pre-delivery audit (PDA)

(100% first run and later reduced to 25%)

- Complete documents
- Fluid levels
- Hoses
- Torques
- General operation
- Fit & finish



Quality Systems

100% part verification on prototypes:

Mechanical & Laser Faro arm for large parts

Quality checks before going to the next station: done by someone other than the operator

Advise of ship notice in client system

ISO 9001-2015 Independent Audited & Certified



Summary Program Numbers

Shipped first unit Q2 2015
Shipped last unit Q1 2018
Shipped a total of 433 units

Managed \$15,652,950 in total supply chain through program

98.4% on time unit shipment to SpecSys client

- 1.6% comes from 6 units tied to engineering issues (love joy and CVG)
- Excludes initial months understanding rules of engagement

Warranty reports covering 10/1/2015 – 9/30/2017

- SpecSys Paid \$14,533 TOTAL Warranty
- 291 Units shipped 10/1/2015 – 9/30/2017
- SpecSys paid warranty \$\$/Unit: \$49.94/Unit over a three year period

Summary Quality Numbers

Client provided data:

CP34 (Pad Foot Compactor Model)

- 2 Months in Service
 - Client's Target: 0.65 DPU
 - Actual: 0.16 DPU
- **12 Months in Service**
 - Client's Target 1.71 DPU
 - Actual 0.69 DPU

CS34 (Smooth Drum Compactor Model)

- 2 Months in Service
 - Client's Target: 0.65 DPU
 - Actual: 0.10 DPU
- **12 Months in Service**
 - Client's Target: 1.71 DPU
 - Actual: 0.20 DPU



MANAGEMENT SYSTEM CERTIFICATE

Certificate No:
CERT-07148-2006-AQ-HOU-ANAB

Initial certification date:
15 January, 1993

Valid:
04 February, 2020 - 10 September, 2022

This is to certify that the management system of

RVI, Inc. / SpecSys, Inc. (HQ)

121 North First Street, Montevideo, MN, 56265, USA

and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:

Provide Services to Clients that include: Contract Manufacturing, Design Engineering, Fabrication, Machining, Welding, Assembly, Painting, Repair & Renewal of Electronic Products, Test development & testing of Electronic Products, Battery Management, Wire Harness & Control Box manufacturing & Assembly as well as Intelligent Inventory Management

Place and date:
Katy, TX, 04 February, 2020

For the issuing office:
DNV GL - Business Assurance
1400 Ravello Drive, Katy, TX, 77449-5164, USA



Sherif Mekkawy
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV GL Business Assurance USA, Inc., 1400 Ravello Drive, Katy, TX, 77449, USA. TEL:+1 281-396-1000. www.dnvgcert.com

Final Thought

“There are many suppliers that will tell you that they COULD do a successful project of this complexity for you.”



“The difference is that SpecSys IS DOING successful projects of this magnitude each and every day, carrying a 21 year track record of proven success.

SpecSys is a Partner, whom values the relationship, not just a supplier.”

CEO, Kevin R. Wald



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