

The Connection: The 7th Concern for innovation - Case study on Serial Innovation in Petrol Pumps (Part 2)

DE 402 “Introduction to Design – Case Studies”



Chakku's 7Cs: The Seven Concerns for Innovation by Design

1. The Cause – The concern to solve a problem.
2. The Context – Understanding the problem space and the environment.
3. The Comprehension – Arriving at design insights.
4. The Check – Creating a list of key requirements as a check-list/product brief.
5. The Conception – Generating multiple ideas and combining them into concepts.
6. The Crafting – Converting the selected concept into mock-ups, functional prototypes and mass production.
- 7. The Connection – Connecting with the user Creating user satisfaction and delight**

1988-2006 – Time Line

- Z-line petrol pump for L&T
1988
- Bullet pumps for MIDCO
1999
- Oval Pumps for ONGC 2004



Serial innovation in Petrol pumps

same product across time line and
same process of innovation

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DESIGN OF MIDCO MULTI PRODUCT DISPENSERS- MPD



MIDCO Limited

MIDCO PETROL PUMPS

- 1998

- Very difficult to compete with Z-line

- Approached for consultancy

- Took it up as a student project



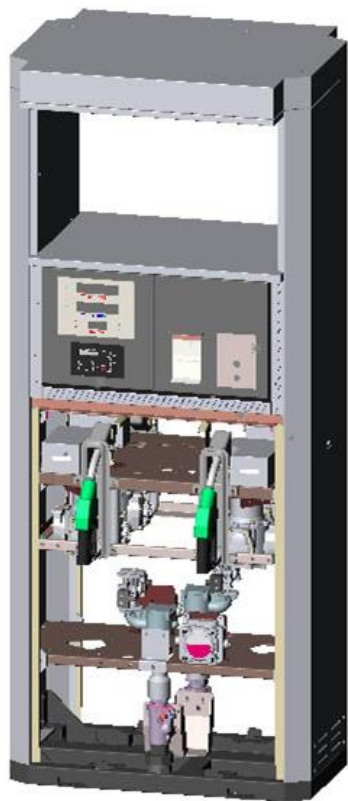
MPD

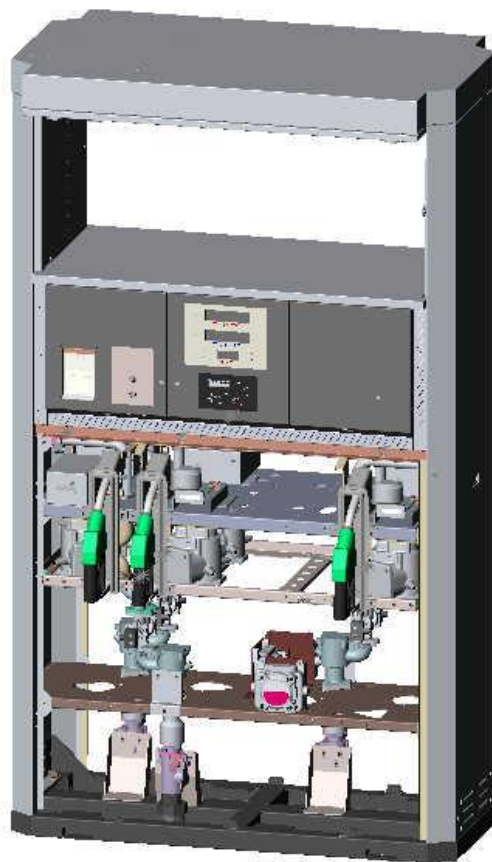
- Multi product from same pump
- Saves space
- Convenient to user
- Uses single display
- Both sides dispensing
- Can be used by submersible pumps



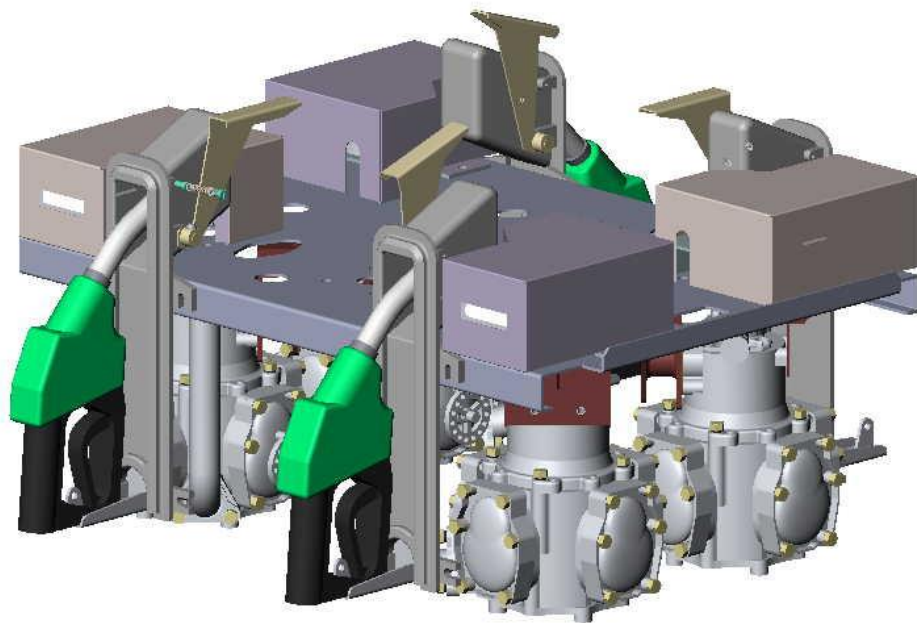
Customer Requirement



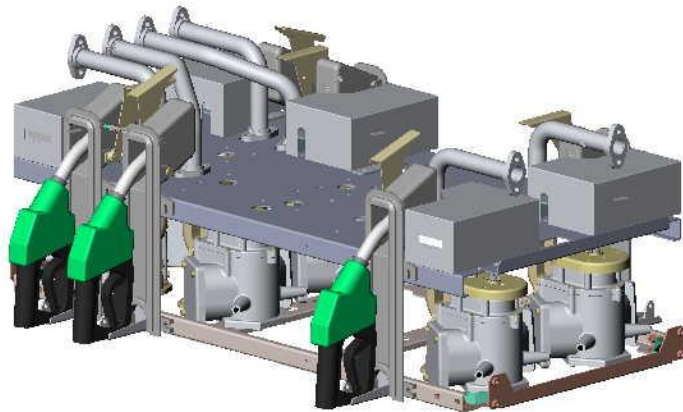




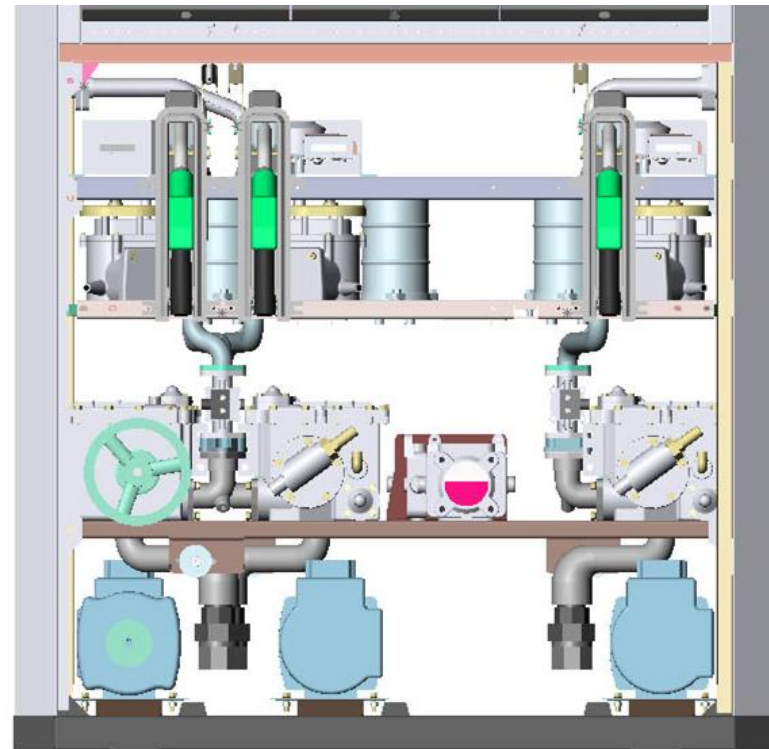
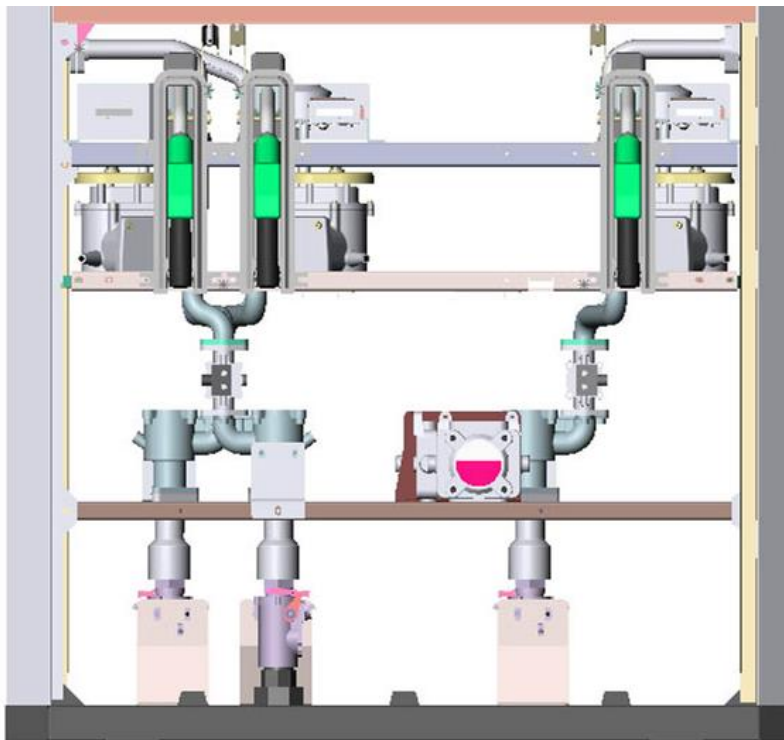
CAD Assembly



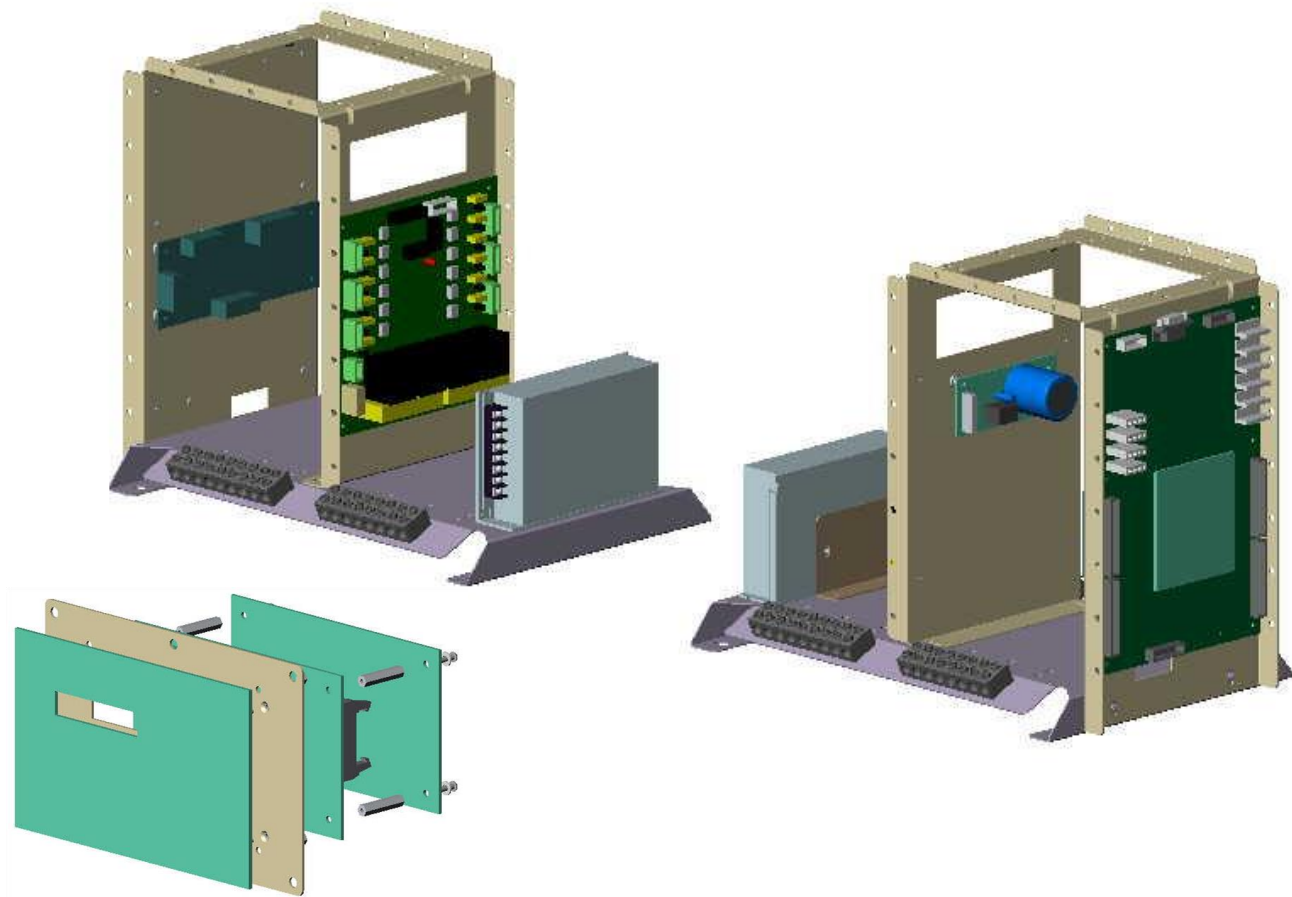
CAD Assembly

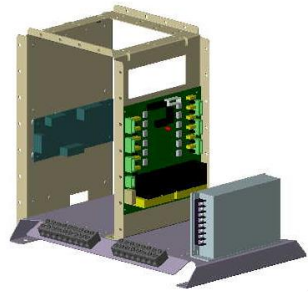
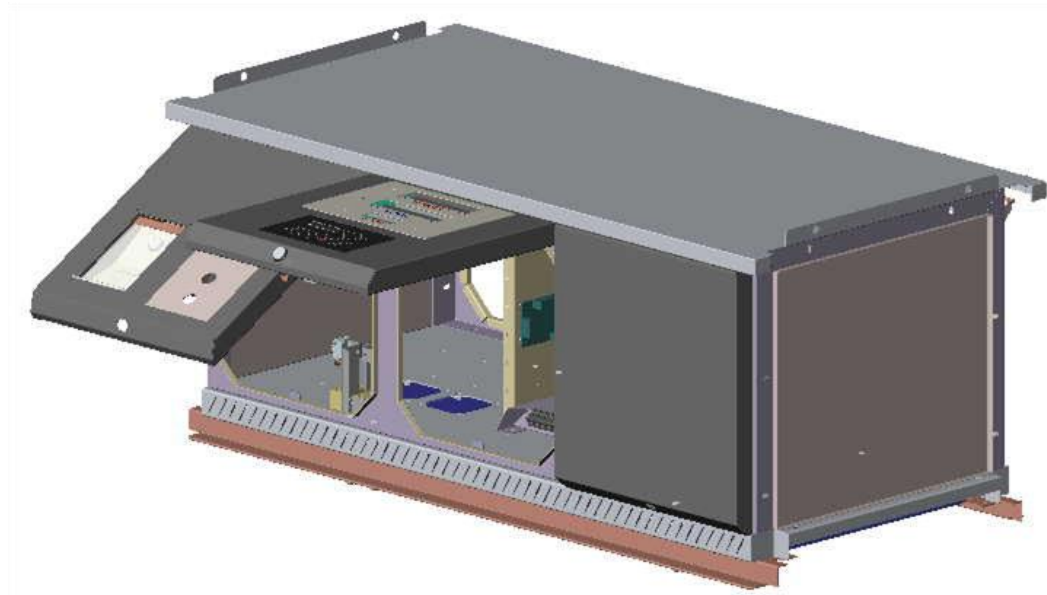


MODULAR LAYOUT

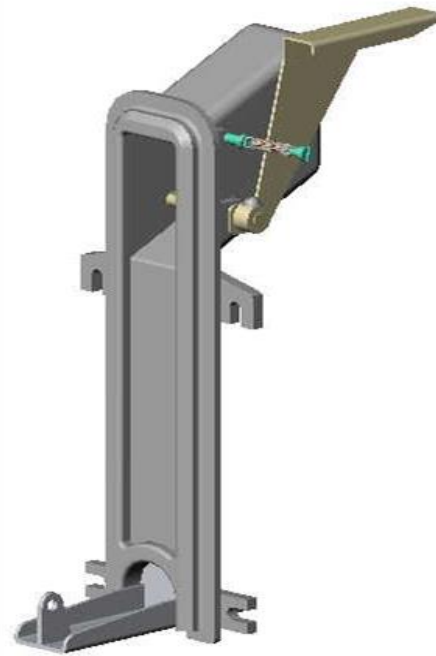
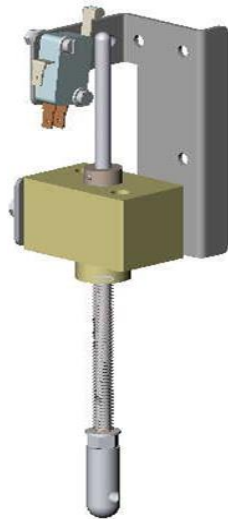








AUTO OPERATION



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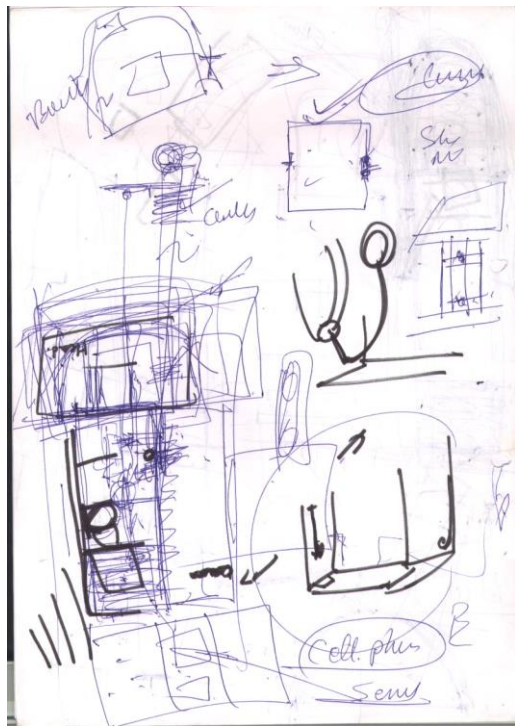
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MECHANICAL PUMPS



ELECTRONIC PUMPS





STUDENT PROJECT PROTOTYPE

- High Hose Design
- Faster Fuel Dispensing
- Unique and elegant form
- High quality electronics and software
- Modular design

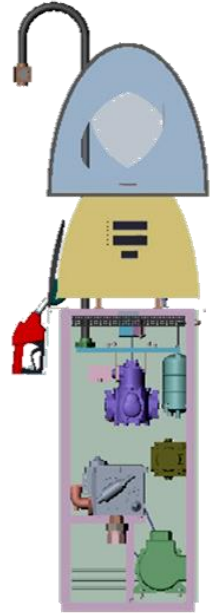


PILOT PRODUCTION



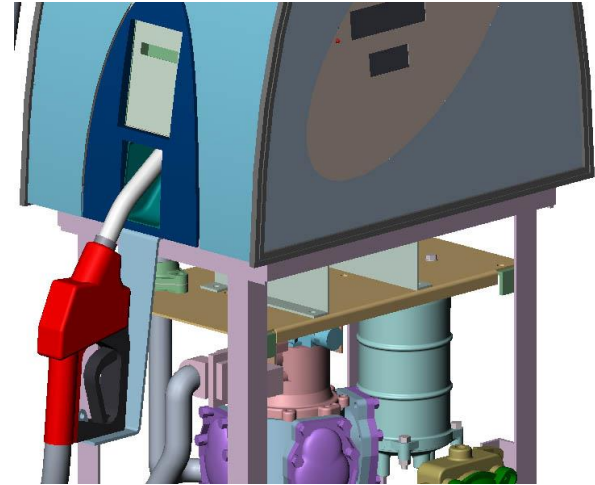
CHAMPION THE CAUSE

- Manoj Dubey Joins MIDCO
- Starts a new design department in MIDCO
- Management keeps it isolated from the existing department

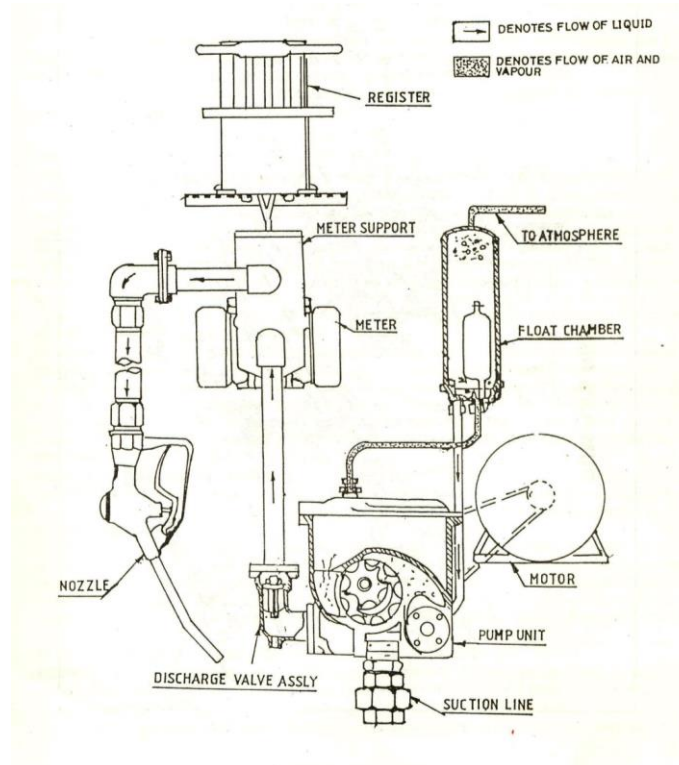


DIGITAL DESIGN

- Chassis based design
- Innovative shape
- Convenient for Mass production
- Large display fascia
- Satisfies international norms for safety



PUMP SCHEMATIC

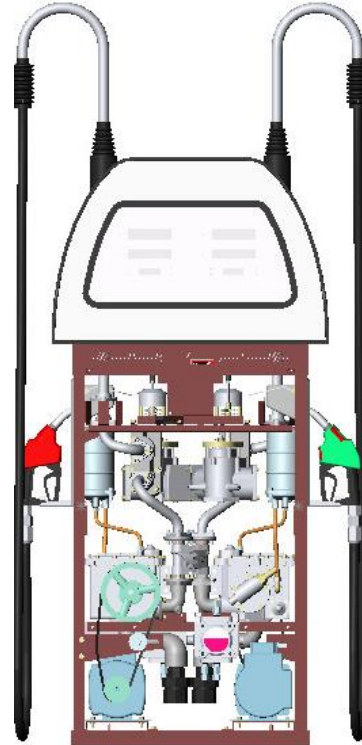
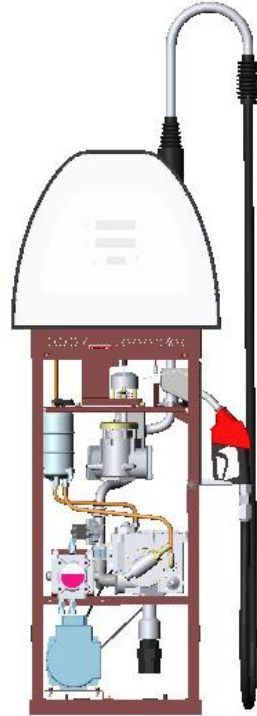


COMPUTER AIDED DESIGN





MODULAR DESIGN





PROTOTYPE



MEB PREMIX



LARGE MARKET PENETRATION



FIELD TRIALS



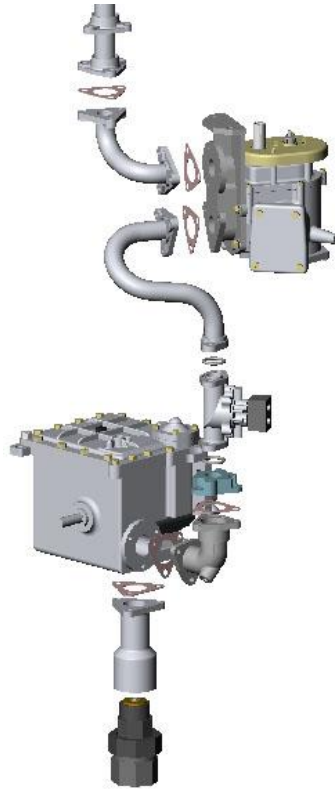
PROTOTYPE INSTALLATION



INNOVATIVE DETAILS



INNOVATIVE DETAILS



PRODUCTION TEST RIG





SUCCESS STORY

- Large Market Penetration
- Gave tough competition to L&T
- Started Exports
- 10 time increase in turnover of the company
- Reached Rs 200 crores with 6 crores profit in 2007