



MEDICAL CONTRACT MANUFACTURING

Clean Room Injection Molding,
Assembly & Injection Tool Shop



Page

1 – 3	VEM group introduction
4	ISO Certificates
5 – 7	Engineering & Prototyping
8 – 11	Mold manufacturing
12	Injection Molding
13 – 16	Clean room & Assembly
17	PCBA Services
18 -19	Process validation and control
20	Logistics support
21	Customers
22 – 23	Product examples



Global presence in 5 countries and 3 continents
Strong customer base in Medical Industries

Trusted partner in the journey from conceptualizing product, mold making and injection molding to assembly



20+ Years of experience

Team of highly experienced Managers and Experts in the field

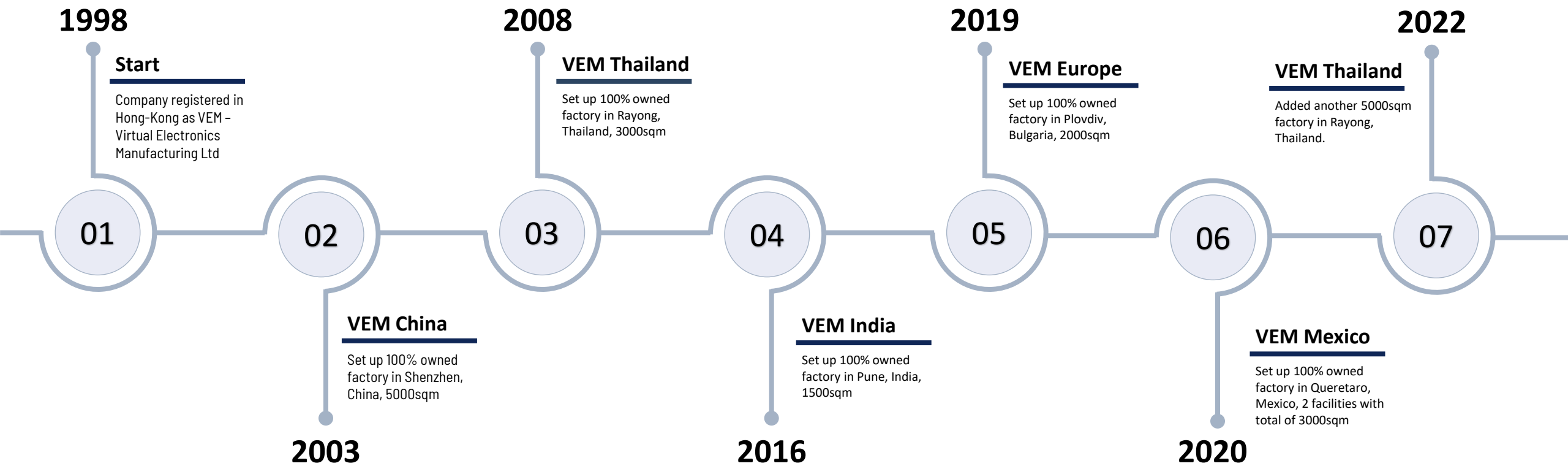
Manufactured over 8000 molds

High tech tool shops

Contract tool-shops for warranty and modifications



HISTORY - VEM GROUP



Environmental Sustainability

- VEM Thailand factory 1 is fully equipped with Solar panels.
- VEM Thailand factory 2 is in the process. Full functionality expected in January 2024.





CERTIFICATES

ISO 13485



Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 13485:2016 & EN ISO 13485:2016

This is to certify that:

VEM (THAILAND) CO., LTD
427 Moo. 2 Mapyangporm,
Pluakdaeng,
Rayong
21140
Thailand

Holds Certificate Number:

MD 683191

and operates a Quality Management System which complies with the requirements of ISO 13485:2016 & EN ISO 13485:2016 for the following scope:

The manufacture of plastic injection parts and assembly for medical ventilator system.

Gary E Slack

For and on behalf of BSI:

Gary E Slack, Senior Vice President - Medical Devices

Original Registration Date: 2019-01-09

Latest Revision Date: 2021-12-15

Effective Date: 2022-01-09

Expiry Date: 2025-01-08

Page: 1 of 1



...making excellence a habit™



By Royal Charter

ISO 7 / Class 10,000



Certification Number: CR3647
Expiration date: March 31, 2024

CERTIFICATE OF COMPLIANCE

VEM (Thailand) Co., Ltd.

ISO Class 7 Cleanroom, In Operation

As per requirements of ISO 14644-1: 2015 (E), the designated area listed above has met the acceptance criteria for Class 7 at $\geq 0.5\mu\text{m}$, $\geq 1.0\mu\text{m}$ and $\geq 5.0\mu\text{m}$, under In Operation condition. Testing was performed and was obtained in accordance with the current edition of the NEBB procedural standards for certified testing of cleanrooms, and as outlined in the above standard and the results are attested to in the Report No: C220041.



Date of Certification:

13 Mar 2022

Mukdavan Prakobvattayakit

NEBB Certified CPT Professional

QV TEST CO., LTD.

1814 SOI NAWAMIN 111 YAK 4, NAWAMIN, HUNG KUI, BANGKOK, THAILAND 10230
Tel: +66 2 609 3552, FAX: +66 (0)2 609 3281

ISO 8 / Class 100,000



Certification Number: CR3647

CERTIFICATE OF COMPLIANCE

VEM (Thailand) Co., Ltd.

Cleanroom#2

ISO Class 8 Cleanroom, In Operation

As per requirements of ISO 14644-1: 2015 (E), the designated area listed above has met the acceptance criteria for Class 8 at $\geq 0.5\mu\text{m}$, $\geq 1.0\mu\text{m}$ and $\geq 5.0\mu\text{m}$, under in operation condition. Testing was performed and was obtained in accordance with the current edition of the NEBB procedural standards for certified testing of cleanroom, and as outlined in the above standard and the results are attested to in the Report No: C220135.



Date of Certification:

28 August 2022

Mukdavan Prakobvattayakit

NEBB Certified CPT Professional

QV TEST CO., LTD.

1814 SOI NAWAMIN 111 YAK 4, NAWAMIN, HUNG KUI, BANGKOK, THAILAND 10230
Tel: +66 2 609 3552, FAX: +66 (0)2 609 3281



- Help sourcing ROHS/ REACH/ USP class VI compliant materials
- Biocompatibility and Cytotoxicity testing certificate of raw materials is ensured wherever required
- FMEA and FDM to identify and eliminate potential problems in manufacturing
- Support 3D printed prototypes



Validate the product and manufacturing capabilities
Quick and efficient prototyping technologies:

- Soft steel prototype molds
- Aluminum prototype molds
- 3D printed prototypes (Steel and Plastic)

Printing plastic prototypes for validation & functional testing.

- PLA
- ABS
- PETG
- Nylon
- TPU and TPE

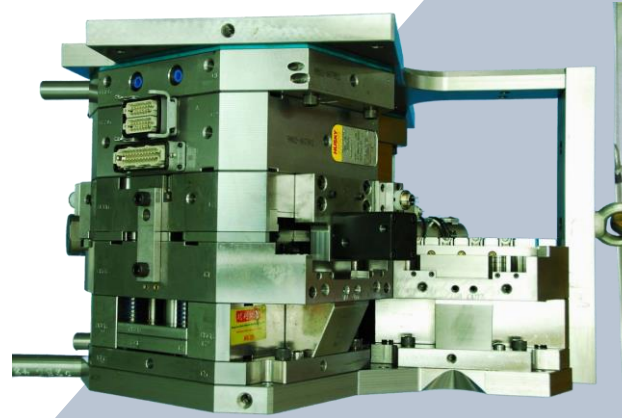
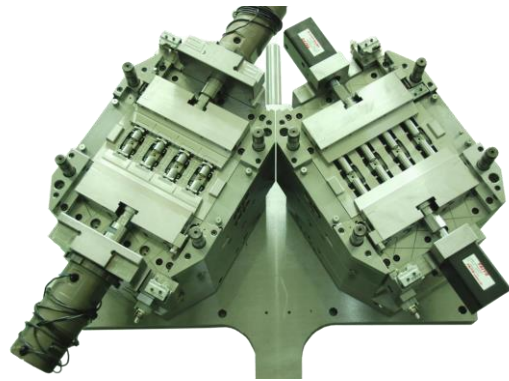
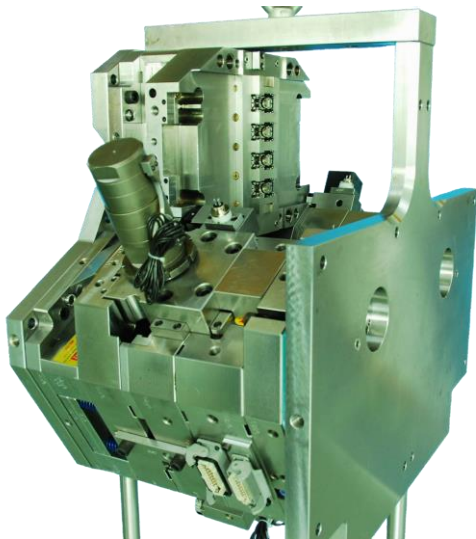




MOLD MANUFACTURING CAPABILITIES

Expertise in:

2K Molds, Multi cavity molds, High precision molds





Mold Maintenance:

Internal maintenance & modification capabilities





3D Steel Printing

- Mold steel inserts
- Optimized conformal cooling channels
- Significant reduction in production cycle time





In house toolmaking facilities in China/India/Bulgaria

China: <https://youtu.be/57rX3deD1AQ>

India: <https://youtu.be/cHnLGGuvFls>

Bulgaria: <https://youtu.be/LnDZgdxzb-A>



INJECTION MOLDING

30+ Injection molding machines

Machine range 5 TON to 850 TON

Fully equipped with desiccant dryers, HR controllers, MTC,
Bimetallic barrel





CLEANROOM

Clean Room ISO 7 Molding





Clean Room ISO 8 Molding



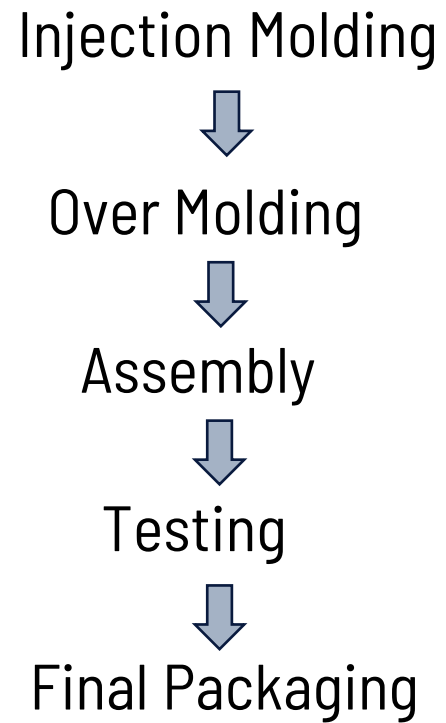


Clean Room ISO 7 & 8 Assembly



Assembly Example

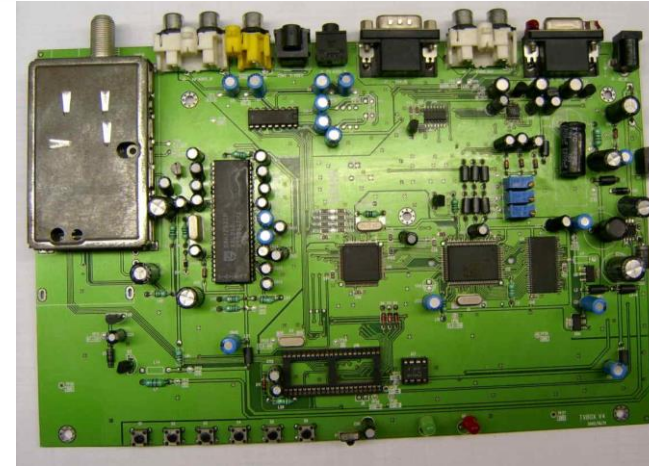
Ventilator Connector





We provide PCBA related services:

- PCBA production
- Box built products, manual assembly
- ICT/FCT testing and IC programming
- Tester building and maintenance



Process qualification as per medical standards

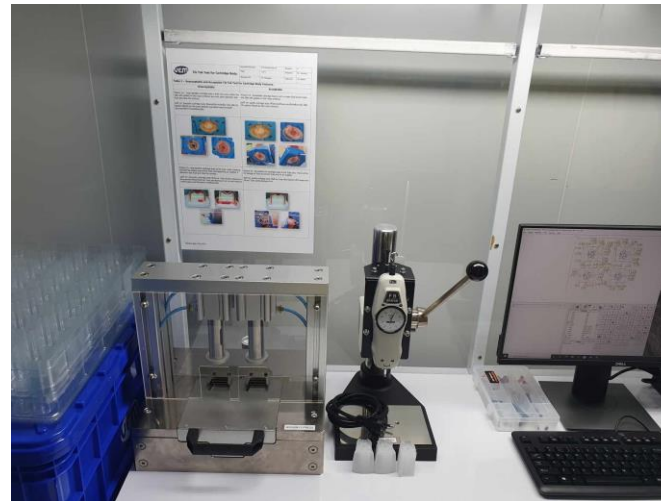
- **Installation Qualification**
- **Operation Qualification – using DOE**
- **Performance Qualification**



Fully equipped measurement laboratory

SPC online wherever needed

Inspections 24 hours





We ship all over the world
INCOE Terms as required by customers





CUSTOMER



Edwards



Medtronic
When Life Depends on Medical Technology



MASTERFLEX



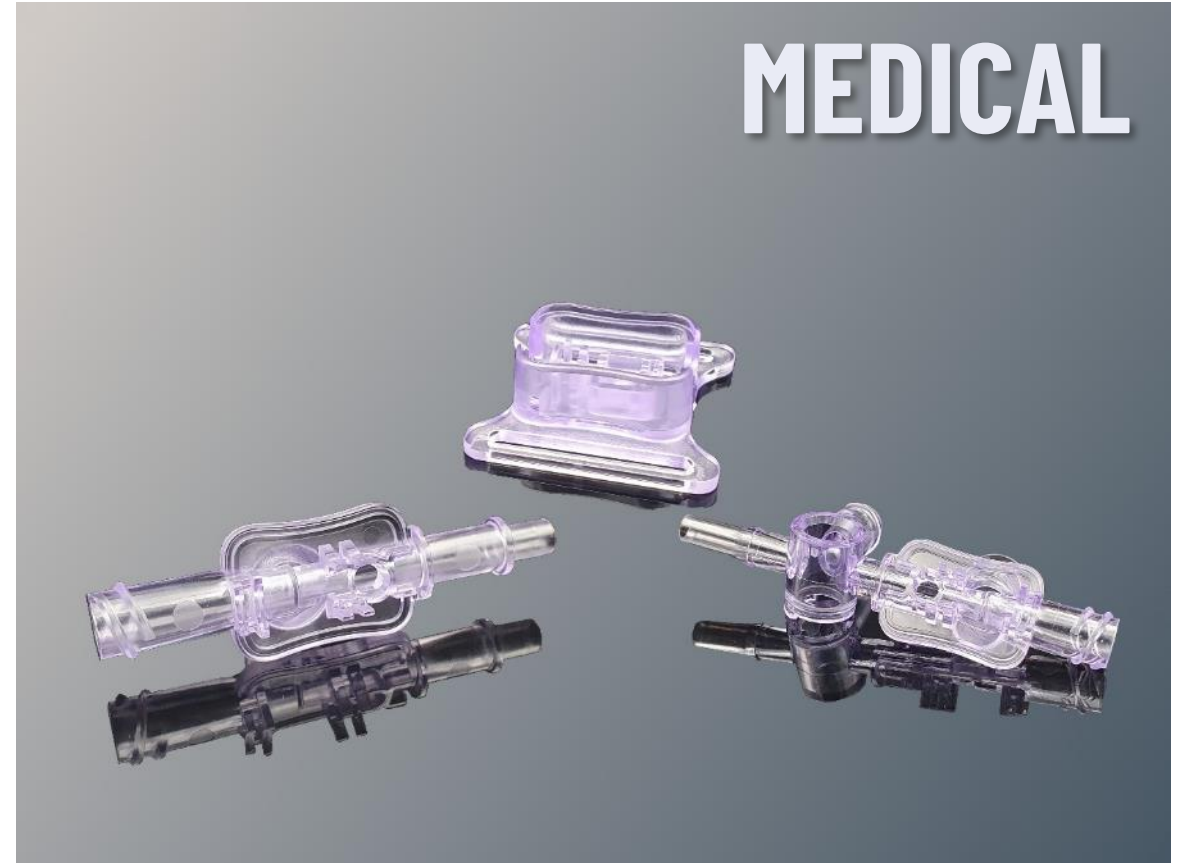
Baxter



Our Clients

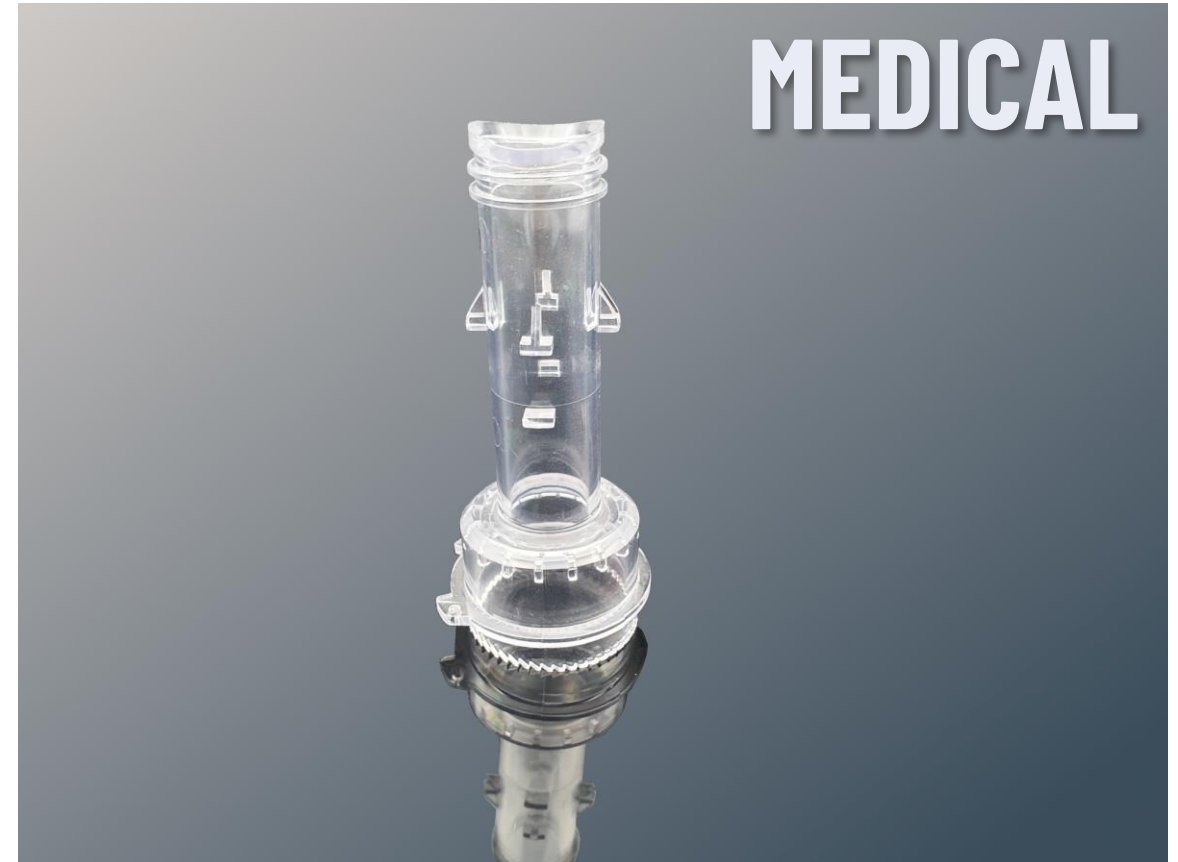


REFERENCE PARTS





REFERENCE PARTS





GET IN TOUCH