

SECTION - C

TECHNICAL SPECIFICATIONS OF STORES AND DRAWINGS.

Technical Specifications for Supply, Factory Acceptance Tests of Complete Turbo-Molecular Pump System with Compatible Scroll Pump

1. Technical specification for TMP

- (1) Pumping Speed : ≈ 2000 liter/sec
- (2) Ultimate vacuum with baking : $\leq 1.0 \times 10^{-8}$ mbar
- (3) Compression ratio : $> 1 \times 10^8$ (for N₂)
- (4) Inlet Flange : DN 250 CF
- (5) Outlet Flange : DN 40 ISO KF
- (6) Power Supply : 220 \pm 5% Volt, 50 Hz, 1-Ph
- (7) Cooling System : Water Cooling
- (8) Leak rate : $< 1 \times 10^{-9}$ mbar l/s
- (9) Installation orientation: Vertical
- (10) Following Accessories along with the detailed specifications of each should be provided:
 1. Splinter shield -1 set.
 2. Venting Valves-1 set
 3. Water Cooling Kit-1 set
 4. All connectors and cables
 5. Display Control unit with all interconnecting cable and connector.
 6. Heating jacket.

2. Technical Specifications for compatible Scroll pump

- (1) Pumping Speed: ~ 20 m³/h

- (2) Frequency: 50 Hz
- (3) Attainable Ultimate pressure : $\leq 1.0 \times 10^{-2}$ mbar
- (4) Leak Rate : 1×10^{-5} mbar l/sec
- (5) Inlet Pressure : Atmospheric
- (6) Ambient Temperature: Less than 40 °C
- (7) Inlet flange :40 ISO KF
- (8) Outlet flange: 40 KF
- (9) Cooling : Air
- (10) Voltage : $220 \pm 5\%$ VAC
- (11) All cable and connector should be provided

Accessories

All Required connectors, cables, bellows, pipes for the backing pump as well as required between backing pump and Turbo pump should be provided.

Factory Acceptance Test for TMP:

1. Leak rate should be $< 1 \times 10^{-9}$ mbar l/s with blanked pumping port from all joints.
2. Ultimate pressure should be $< 1 \times 10^{-8}$ mbar with baking.
3. Noise level should be < 50 dB.at a distance of 1 m.
4. All inter-locks testing e.g.; pressure interlock, gate valve inter lock etc should be done in active stage i.e. when the pump is running.
5. Venting unit functioning should be checked with and without delay time.

Note: Test certificates for all tests should be send before the shipment of the pumps. Pumps should be shipped after the approval of the test certificates by indenter.

Acceptance Criteria for TMP:

1. Leak rate should be $< 1 \times 10^{-9}$ mbar l/s with blanked pumping port from all joints.
2. Pumping port should be as per our specified value of DN 250 CF.

3. Ultimate pressure should be $< 1 \times 10^{-8}$ mbar with baking.
4. Noise level should be < 50 dB at a distance of 1 m.
5. All inter-locks testing e.g.; pressure interlock, gate valve inter lock etc should be done in active stage i.e. when the pump is running.
6. Venting unit functioning should be checked with and without delay time.
7. Backing pump should be compatible with TMP or it should match our specifications.

Note:

- 1. Two blank flanges of DN 250 CF should be provided along with the system in order to check the function and testing of Pump. Pump must have appropriate port 35 CF/250 CF to mount the gauge on the port.**
- 2. Quote all the accessories and spares separately.**
- 3. Accessories should be as per our order and the shelf life should be good e.g. for spare oil**

Compliance Sheet

IPR Specifications	Requirements	Vender Specifications
FOR TURBO PUMP		
Required pumping Speed	≈ 2000 liter/sec	
Ultimate vacuum with baking	$\leq 1.0 \times 10^{-8}$ mbar	
Compression ratio	$> 1 \times 10^8$ (for N ₂)	
Inlet flange	DN 250 CF	
Outlet flange	DN 40 ISO KF	
Power supply	220 \pm 5% V 50 Hz – 3 phase	
Cooling System	Water Cooling	
Leak rate	$< 1 \times 10^{-9}$ mbar l/s	
Installation Orientation	vertical	
Accessories for Turbo Pump:		
Splinter shield	1 set	
Venting Valves	1 set	
Water Cooling Kit	1 set	
All connectors and cables		
Display Control unit with all interconnecting cable and connector.		
Heating Jacket		
FOR COMPATIBLE SCROLL PUMP		
Pumping Speed	~ 20 m ³ /h	
Frequency	50 Hz	
Attainable Ultimate pressure	$\leq 1.0 \times 10^{-2}$ mbar	
Leak Rate	1×10^{-5} mbar l/sec	
Inlet Pressure	Atmospheric	
Ambient Temperature	Less than 40 °C	
Inlet flange	40 ISO KF	
Outlet flange	40 KF	
Cooling	Air	
Voltage	220 \pm 5% VAC	
All cable and connector should be provided		

Accessories :-

All Required connectors, cables, bellows, pipes for the backing pump as well as required between backing pump and Turbo pump should be provided.

Note:

- 1. Two blank flanges of DN 250 CF should be provided along with the system in order to check the function and testing of Pump. Pump must have appropriate port 35 CF/250 CF to mount the gauge on the port.**
- 2. Quote all the accessories and spares separately.**
- 3. Accessories should be as per our order and the shelf life should be good e.g. for spare oil**

Authorised Signatory

Official Seal

Date :-