# 海航技术国外采购机组氧气面罩全自动综合测试台项目技术要求

**HNA Technic Procurement Crew Oxygen Mask Automatic Integrated Test Bench Project and Technical Requirement**

1、投标方提供的设备需满足MC、MF系列机组氧气面罩、氧气调节器、机组氧气面罩储存盒相关CMM手册提及的所有测试要求，相关CMM手册见下表。

The equipment provided by the bidder shall meet all test requirements mentioned in the CMM manuals related to MC and MF series crew oxygen masks, oxygen regulators and mask Stowage. The relevant CMM manuals are shown in the table below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **项次****Item** | **CMM手册号****CMM number** | **部件名称****Component Name** | **OEM** | **备注****Note** |
| 1 | 35-13-63 | 可调节式机组氧气面罩Crew Oxygen Mask-Regulator | Safran | MC10系列 |
| 2 | 35-13-61 | 可调节全脸快戴式面罩Full Face Quick Donning Mask Regulator | Safran | MF10系列 |
| 3 | 35-13-60 | 可调节全脸快戴式面罩Full Face Quick Donning Mask Regulator | Safran | MF20系列 |
| 4 | 35-13-77 | 可调节全脸快戴式面罩Full Face Quick Donning Mask Regulator | Safran | MF40系列 |
| 5 | 35-13-80 | 调节器组件Regulator Assembly | Safran | RMC3000及RMC3100系列 |
| 6 | 35-13-74 | 调节器组件Regulator Assembly | Zodiac | RMC2000及RMC2100系列 |
| 7 | 35-13-70 | 调节器组件Regulator Assembly | Zodiac | RMC1000及RMC1100系列 |
| 8 | 35-13-69 | 调节器组件Regulator Assembly | Zodiac | RMGX-XXX系列 |
| 9 | 35-11-79 | 飞行机组面罩储存盒Flight Crew Mask Stowage | Safran | MXP1XX 系列 |
| 10 | 35-13-42 | 飞行机组面罩储存盒Flight Crew Mask Stowage | Zodiac | MXP400 系列 |
| 11 | 35-13-44 | 飞行机组面罩储存盒Flight Crew Mask Stowage | Safran | MXP800及MXP600系列 |
| 12 | 35-18-06 | 飞行机组面罩储存盒Flight Crew Mask Stowage | Zodiac | MXP806-6；MXP806-7 |
| 13 | 35-10-85 | 飞行机组面罩储存盒Flight Crew Mask Stowage | B/E | 118736-XX |

2、测试台的可控制的测试变量及范围、测试台的传感器种类及传感器测量范围需满足手册要求或高于手册要求。参考如下：

The controllable test variables and range of the test bench, the type of sensor on the test bench and the measurement range of the sensor must meet or exceed the requirements of the manual. For reference:

2.1测试台可控制变量可参考下表要求：

Test bench controllable variables can refer to the following table requirements

|  |  |
| --- | --- |
| **变量名称****Control** | **控制范围****Range** |
| 进气压力Inlet Pressure | 0-250 psig（磅力每平方英寸） |
| 吸入流量（高级别）Inhalation Flow (High) | 0-150 lpm（升每分钟） |
| 吸入流量（低级别）Inhalation Flow (Low) | 0-25 lpm（升每分钟） |
| 呼出流量（高级别）Exhalation Flow (High) | 0-120 lpm（升每分钟） |
| 呼出流量（低级别）Exhalation Flow (Low) | 0-25 lpm（升每分钟） |
| 高度（模拟压强特性）Altitude (Simulated altitude pressure characteristic) | 海平面GL-50000 feet（英尺） |
| 内部泄漏Inward Leak | 0-250 sccm(毫升每分钟) |
| 外部泄漏Outward Leak | 0-25 sccm（毫升每分钟） |
| 储存盒高级别流量Stowage Box High Level Flow  | 0-200 slpm（标准升每分钟） |
| 储存盒低级别流量Stowage Box Low Level Flow | 0-10 slpm（标准升每分钟） |
| 备注 NOTE：1. 以上测试变量可直接通过软件进行操控，达到测试要求。

The above test variables can be directly controlled through the software to meet the test requirements.1. 吸入流量高级别模式和低级别模式的气压需求可人为手动切换或自动切换。呼出流量要求与之相同。

The pressure requirements of the high level mode and low level mode of inhalation flow can be manually switched or automatically switched. The requirements for exhalation flow are the same. |

2.2测试台传感器种类，测量范围，测量精度需参考下表要求：

Test bench sensor type, measurement range, measurement accuracy can refer to the following table requirements:

|  |  |  |
| --- | --- | --- |
| **传感器名称****SENSOR** | **范围****RANGE** | **精度****ACCURACY** |
| 进口压力Inlet Pressure | 0-250 psig（磅每平方英寸） | ±0.11％全量程full scale |
| 出口压力Outlet | ±15 inWc（英寸水柱） | ±0.14％全量程full scale |
| 大气压力Barometric Pressure | 800-1100 mBar（毫巴） | ±0.05％全量程full scale |
| 高度Altitude | 1000 mmHg（毫米汞柱） | ±0.75mmHg（毫米汞柱） |
| 吸入/呼出高流量流量计Inhale/Exhale Flow (High Flow) | -150lpm to 120lpm(升每分钟) | ±1.00％读数of reading |
| 吸入/呼出低流量流量计Inhale/Exhale Flow (Low Flow) | -20lpm to 20lpm(升每分钟) | ±1.00％读数of reading |
| 内部泄漏流量计Inward leak | 0-250 sccm（毫升每分钟） | ±0.75％全量程full scale |
| 外部泄漏流量计Outward leak | 0-25 sccm（毫升每分钟） | ±0.75％全量程full scale |
| 温度Temperature | 50-90°F（华氏度） | ±0.2％全量程full scale |
| 氧气稀释度Oxygen Dilution | 0-100％ | ±0.1％全量程full scale |
| 氧气分压Oxygen Partial Pressure | 0-500mmHg（毫米汞柱） | ±1.00％全量程full scale |
| 储存盒高流量流量计Stowage Box High Flow | 0-200 slpm（标准升每分钟） | ±1.00％全量程full scale |
| 储存盒低流量流量计Stowage Box Low Flow | 0-10 slpm（标准升每分钟） | ±0.75％全量程full scale |
| 储存盒进口压力Stowage Box Inlet Pressure | 0-250 psig（磅每平方英寸） | ±0.11％全量程full scale |
| 储存盒出口压力Stowage Box Outlet Pressure | 0-250 psig（磅每平方英寸） | ±0.11％全量程full scale |

3、卖方提供测试设备时需同时提供与被测件的连接工装及调节装置，通过测试设备及连接工装、调节装置可完成手册要求的相关测试，不需额外购买其他设备或工具。

3. When providing the test equipment, the seller shall provide the connecting tooling and adjusting device with the tested unit at the same time. Through the testing equipment and connecting tooling 、adjusting device，the relevant tests required by the manual can be completed without the need to purchase other equipment or tool.

4、卖方提供测试设备时，需同时提供用于分解与组装MC、MF系列机组氧气面罩及氧气调节器的特殊维修工装，或相关维修工具已被测试台内部设置等效，满足维修要求。主要维修工具参考如下：

4. When providing test equipment, the seller shall also provide special maintenance tools for disassembly and assembly crew masks and oxygen regulators of MC and MF series units, or the relevant maintenance tools have been installed in the test bench equivalent to meet the maintenance requirements. The main maintenance tools refer to the table below:

|  |  |  |
| --- | --- | --- |
| **件号****Part Number** | **名称****Describe** | **手册号****Manual Number** |
| 098722 | 特殊螺丝刀Specific screwdriver | 35-13-63；35-13-61；35-13-60；35-13-77 |
| 410-131KX2 | 三口套筒扩张器Three-pronged sleeve expander | 35-13-63；35-13-61；35-13-60；35-13-77 |
| 485528 | 特殊扳手Wrench | 35-13-77 |
| 422697 | 活门调节盖板Valve Setting Cover | 35-13-70 |
| 486457 | 活门调节盖版Valve Setting Cover | 35-13-74；35-13-80 |
| 01448 | 封圈工装Performed Packing Cone | 35-13-70；35-13-74；35-13-80 |
| 423439 | 充气束带分解工具Harness Inflation Control Disassembly Tool | 35-13-70；35-13-74；35-13-80 |
| 422695 | 特殊扳手Allen Wrench | 35-13-70；35-13-74；35-13-80 |
| 485528 | 调节扳手Wrench | 35-13-70；35-13-74；35-13-80 |
| 480827 | 稀释调节装置Dilution Adjustment Device | 35-13-70 |
| 486460 | 稀释调节装置Dilution Adjustment Device | 35-13-74；35-13-80 |
| 423438 | 隔板Dummy Plate | 35-13-70；35-13-74；35-13-80 |
| 484814 | 扭矩螺刀Torque Screwdriver | 35-13-70；35-13-74；35-13-80 |
| 098450 | 稀释器扭矩工装Dilution Capsule Torque Kit | 35-13-70；35-13-74；35-13-80 |
| 422745 | 超压调节扳手Overpressure Adjustment Wrench | 35-13-70；35-13-74；35-13-80 |
| 422698 | 特殊扳手Wrench | 35-13-70；35-13-74；35-13-80 |

5、若测试台在组装或分解过程中也需特殊维修工具，须向我方交付测试台时同时交付。

If special maintenance tools are also required during the assembly or disassembly process of the test bench, they must be delivered to us at the same time.

6、卖方提供的测试设备须为全自动化设备，具体体现在将测试部件放置于测试台上，通过在测试软件上输入测试件的件号等其他信息，测试台自动进行相关测试，并记录测试数据，该数据可储存打印。

The test bench provided by the seller must be fully automated equipment, which is embodied in placing the test parts on the test bench, entering the test part number and other information on the test software, the test bench will automatically carry out relevant tests, and record the test data, which can be stored and printed.

7、操作演示人员测试氧气面罩及调节器总测试时间不超过1小时。

The total testing time for the oxygen mask and regulator by the operation demonstration personnel shall not exceed 1 hour.

8、测试设备硬件要求

Hardware Requirements:

8.1电源连接要求：测试台电源系统需配备标准IEC插头，用电需求控制在220V，50HZ内。此标准同时适用于真空泵用电需求。

Electrical Connection: Test bench should equipped with a standard IEC receptacle, Power demand is controlled within 220V, 50HZ. This standard also applies to the vacuum pump electricity demand.

8.2气动系统要求：①气动系统需满足自动控制压力，真空压力以及流量控制，可调节进口压力，高度模拟，吸入和呼出流量至所需级别。以上调节，系统可通过识别测试件号自动进行调节到测试所需要求。②气动系统需配备接头连接车间压缩空气、测试气体（氧气）、真空气源。可监测氧气稀释度。同时须配备真空泵。

Pneumatic system requirements: ①The pneumatic system needs to automatic control pressure, vacuum pressure and flow control, adjustable inlet pressure, altitiude, inhalation and exhalation flow to the required level. The system can automatically adjust the above adjustment to the test requirements by recognizing the test unit part number. ② The pneumatic system should be equipped with joints to connect the compressed air, test gas (oxygen) and vacuum gas source in the workshop. Oxygen dilution can be monitored. At the same time must be equipped with vacuum pump.

8.3调节器、面罩连接：①在测试台中需配置与调节器连接的接头，连接测试气体及测试系统，以满足调节器的测试要求。其接头应与RMC系列及RMG系列调节器适配。②测试台需配备工装与氧气面罩的面罩部分紧密相连，面罩型号为CMM35-13-71手册中提到的所有MXM系列面罩。

Regulator and Mask Connector: ① The test bench should be configured joint connected with the regulator for connect the test gas and test system to meet the test requirements of the regulator. The connectors shall be adapted to RMC series and RMG series regulators. ② The test bench shall be equipped with tooling closely connected to the mask assembly of Crew Mask.The mask assembly model being all MXM series masks mentioned in the CMM35-13-71.

9、测试设备软件要求：

Software Requirements:

9.1主控制系统由计算机组成，测试设备或计算机需配备Windows 10系统，测试软件需在Windows 10系统基础上运行，同时可连接打印机打印测试结果，测试结果也可储存至系统内部。

The main control system is composed of computers, and the test equipment or computer should be equipped with Windows 10 system, and the test software should run on the basis of Windows 10 system. At the same time, the printer can be connected to print the test results, and the test results can also be stored in the system.

9.2软件允许修改测试限制、测试顺序和依赖项，包含校准程序。以帮助校准和维护测试系统。测试系统软件按照维修手册（CMM）的描述，配置硬件并对控制设定值进行编程，以执行测试。

The software allows modification of test limits, test order, and dependencies calibration procedures are included. For help calibrate and maintain the test system. The test system software configures the hardware and programs the control setpoints to perform the tests as described in the Component Maintenance Manual (CMM).

9.3在测试能力范围内，允许新增测试件号，且可通过软件授权自主设置该件号测试种类，测试顺序，测试参数等测试条件，达到与老件号相同的测试效果。

Within the scope of testing capability, it is allowed to add new test part number, and it can set the test type, test sequence, test parameters and other test conditions of the test part number independently through software authorization, so as to achieve the same test effect as the old part number.

10、卖方在买方指定地点（海口）完成测试台安装及调试。

The seller shall complete the installation and commissioning of the test bench at the place designated by the buyer (Haikou).

11、卖方提供测试台使用、校验，以及组装，拆分、再组装现场培训。需给我方出具相关设备的培训记录及培训证明。

The seller provides on-site training on test bench use, calibration, and assembly, disassembly, and reassembly. Provide us with training records and training certificates of relevant equipment.

12、测试设备需包括其相关的所有技术文件，包括但不限于测试台校准程序、校准指南、操作指南、件号清单、测试台电路图、测试台气路图、CMM手册。

The test system shall include all relevant technical documents, including but not limited to test bench calibration procedures, calibration guidelines, operating guidelines, part number lists, test bench electrical schematic, test bench pneumatic schematic, and CMM manuals.

13、卖方提供的测试台及零部件需全部为新件且均提供原始厂家合格证或对等证明文件，不可接受二手件。

The test bench and parts provided by the seller must be all new parts and provide the original manufacturer's certificate or equivalent certification documents, and used parts are not acceptable.

14、卖方提供的计量类器具交付时必须带计量合格证书。

The measuring instruments provided by the seller must be delivered with the measurement certificate.

15、要求投标方在1个工作日内响应我方所需技术支援及服务需求。

The bidder is required to respond to our technical support and service needs within 1 working day

16、卖方需提供设备免费保修服务，服务期不得低于1年，软件保用期2年（如无法满足可视情调整）。

The seller shall provide the equipment free warranty service, the service period shall not be less than 1 year, and the software warranty period shall be 2 years (if it cannot be adjusted according to the condition).

17、卖方若为经销商，则需提供设备原始制造厂商的授权销售证明。

If the Seller is a distributor, the seller shall provide the authorized sales certificate from the OEM of the equipment.

18、卖方需提供设备出售至其他客户方的销售记录。

The Seller shall provide sales records of the equipment sold to other customers.

19、卖方需严格按照我方要求将测试台制作周期控制在10个月内，如无法满足，需提前与我方进行告知。

The seller shall strictly control the production cycle of the test bench within 10 months according to our requirements. If it cannot be met, the seller shall inform us in advance.

20、买方依据卖方提供的清单、打包前后的实物照片，进行物品验收，验收结果由买卖双方共同认可。

The buyer shall inspect the goods according to the list provided by the seller and the photos of the goods before and after packing. The inspection results shall be recognized by both parties.

21、卖方提供的设备需满足买方安装地当地政府强制要求政策、标准(若有)。

The equipment provided by the seller shall meet the mandatory policies and standards (if any) of the local government where the buyer installs the equipment.

22、设备运输至车间后，经卖方组装、调试、培训后，需对最少一部机组氧气面罩、氧气调节器及氧气面罩储存盒开展测试台验收测试，测试需满足手册的测试要求，测试结果内容作为测试台验收佐证。

After the equipment is transported to the destination workshop and assembled, adjusted and trained by the seller, the test bench acceptance test shall be carried out on at least one unit crew mask, oxygen regulator and stowage box. The test shall meet the test requirements of the manual, and the test results shall be used as proof of the test bench acceptance.