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High Performance Leak Detectors ASM 182 series / ASM 192 series



HELIUM LEAK DETECTORS

ALCATEL

High Performance Leak Detectors

ASM 182 series - ASM 192 series

The most powerful leak detectors on the market to meet demanding applications needs

The ASM 182 series and ASM 192 series: a unique helium leak detection concept delivering high performance, offered in a compact or console version.



PERFORMANCE

- High helium leak detection sensitivity: $5 \cdot 10^{-12}$ atm.cc/s
- Fast response time thanks to the very large helium pumping speed (up to 20 l/s)
- High roughing capacity up to 50 m³/h (30 cfm)
- Fast recovery time.

RUGGED DESIGN

- Alcatel modular design, using robust components, provides exceptional reliability in the most severe industrial applications or environments.
- Automatic protection integrates all safety controls to enable the instrument to withstand accidental air-inrushes and severe shocks due to the transportation or power failures or incorrect operations.
- Modular design provides easy access to internal components.

**THE ASM 182/192 SERIES :
THE SOLUTIONS FOR ALL YOUR NEEDS**

RELIABILITY

- Repeatability of the test
- Ease of maintenance

FLEXIBILITY

- Customized solutions:
 - Dry or conventional versions
 - Compact model: ASM 182 series for limited footprint requirements
 - Console model: ASM 192 series for large chamber leak test requirements.

An innovative concept offering the best solution to a wide range of applications

Always ahead of the competition in term of innovation, Alcatel strategy has always been to offer our customers the widest range of leak detectors equipped with the latest technology.

The new ASM 182/192 series deliver a perfect combination of performance with unique features and user-friendliness, thanks to:

- high sensitivity cell with dual filaments
- latest electronic generation
- new operator interface.

The Alcatel ASM 182/192 series provide flexible solutions to meet all your leak detection needs.

- Easily integration in a production line to leak test parts 24 hours a day.



- Detecting leaks as small as the 10^{-11} atm.cc/s range.
- Leak testing of volumes over 1,000 liters without any auxiliary pumping system.
- Leak testing parts of various volumes with a stand alone leak detector.
- Pinpointing very small leaks in large installations.
- Having the convenience of a work surface (ASM 192 series).
- Having access to a powerful pumping package to pump down large chambers (ASM 192 series).



Applications

Semiconductor

Process chambers, load locks, vacuum system maintenance, gas panel and lines, mass flow controllers...

Automotive Industry

Air conditioning compressors, evaporators and lines, ABS valves and lines, air bags inflators and ignitors, fuel injectors, heat exchangers.

Medical and Pharmaceutical

Catheters, blood filters, pacemakers, hermetically sealed packaging, blister packs...

Aeronautics/Aerospace

Test of satellites, fuel tanks, window seal systems, engine injection valves, pumps, hydraulic components, oxygen lines...

Nuclear Physics/ Research & Development

Particle accelerator vacuum and beam lines, cryogenic lines vessels, vacuum valves and components, vacuum systems and instruments, accelerators and containers...

Refrigeration/Air conditioning

Compressors, evaporators, heat exchangers, lines, dryers, complete systems...

Instrumentation

RGA, gas analyzers, lasers, instrumentation analyzers, electronic microscopes...

Chemical and Mechanical

Reservoirs and storage vessels, distillation columns, filters, vapor generators, transfer lines, ovens, controlled environments, vacuum systems, storage tanks, heat exchangers, freeze dryers fire extinguishers...

Electrical

Lightbulb and tube manufacturing, photo-multiplier tubes, high voltage relays, circuit breakers and transformers, underground cables and distribution systems, maintenance of power plants...

High Performance Leak Detectors

ASM 182 series - ASM 192 series

All the Alcatel's detectors share the same advantages

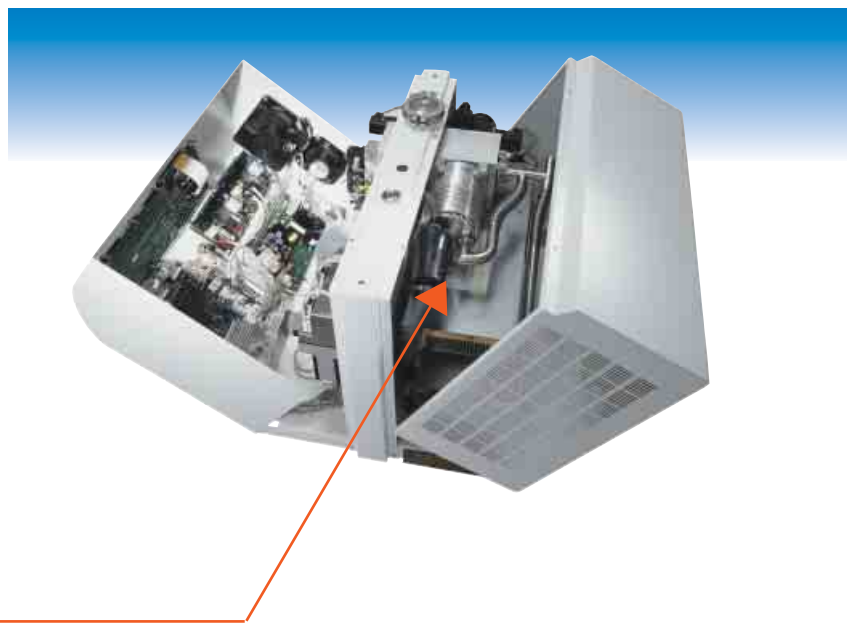
Unmatched performance

High sensitivity

- The integration of Alcatel's innovative magnetic deflection 180 degrees analyzer and unparalleled amplification system with a direct flow test mode delivers the highest sensitivity ($5 \cdot 10^{-12}$ atm.cc/s helium minimum detectable leak).
- The Alcatel design analyzer cell offers excellent mass separation and unmatched stability and sensitivity.
- The analyzer cell smart design allows easy, fast and accurate automatic calibration.
- The unique Alcatel concept dual filaments (single replacement) enhances the up-time of the analyzer cell.

Response time

Fast response time means high helium pumping speed at the inlet of the unit. The ASM 182/192 series deliver a helium pumping speed from 4 l/s to 20 l/s, making easier and faster to locate leaks on systems.



Fast roughing capacity

Up to 50 m³/h (30 cfm) roughing capacity:

- 2 well proven technologies:
 - for most of the industrial leak detection applications, the 2 stages helium stable rotary vane pump.
 - for clean environments, a unique and extremely effective concept including a frictionless roots pump technology with a M.D.P. (molecular drag pump).
- The low rotational speed of the M.D.P. and the Turbo pumps (27000 rpm) yield at least 3 years of operation free (8 hours shift).

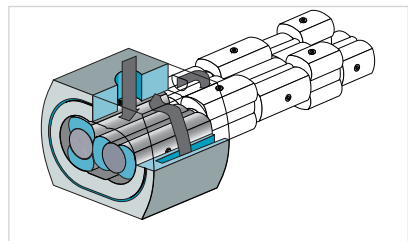
• Rotary vane pump

Efficient and low ultimate pressure, ensure by forced lubrication from oil pump.



• Compact dry pump

The ACP 28 multistage roots frictionless pump technology guarantees a high level of cleanliness, reliability and longevity.



ACP Dry Root Pump cutaway: the Alcatel multistage frictionless pump Roots technology.

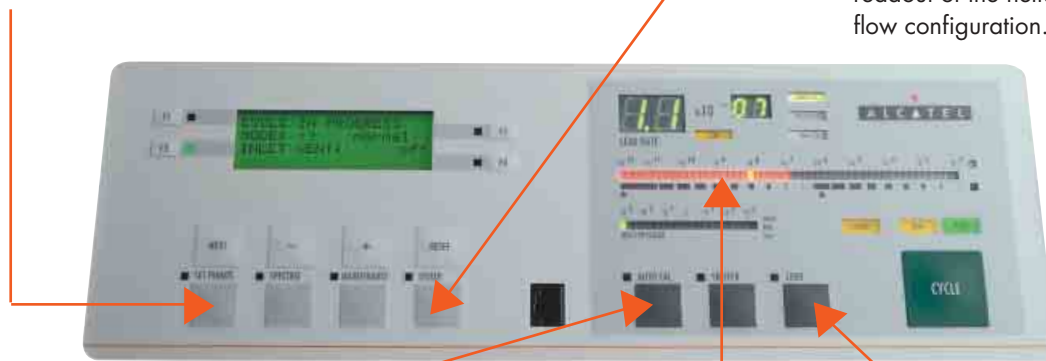
Control panel and remote control incorporating state of the art electronics

Settings and maintenance

- Comprehensive display panel includes: operator interface level, settings, maintenance information (preventive and corrective maintenance). All of which is password-protected.
- Parameters can be quickly and easily modified via a simple menu.
- The control panel can be customized to provide 4 levels of operator interface to respond to any needs.

Signal correction

- Automatic correction processed by the detector through an external calibration to compensate for split flow test configuration.
- Ability to manually adjust the correction factor to display direct readout of the helium signal for split flow configuration.



Control panel of the ASM 182 series

Auto-calibration

- Auto-calibration with built-in temperature compensated calibrated leak and age compensation.
- Auto-calibration during the start-up sequence and the ability to activate it periodically.
- All pertinent information related to the auto-calibration process and its settings.

Display

- The helium signal is displayed in two different ways: bargraph display to highlight the fast evolution of the signal and digital display to get high resolution and a direct readout.
- Variable pitch audio alarm proportional to the Helium signal amplitude for easy location of leaks, available in any test mode.

Auto-zero function

- The advanced floating auto-zero function allows the operator to conveniently improve the sensitivity of the detector when the helium signal measurement becomes more difficult due to a high background level.
- The advanced floating auto-zero is based on a specific algorithm which eliminates the display of erroneous results and guarantees the detection of any size leak.
- All these functions are directly accessible by depressing one single switch.
- A very helpful function to increase the sensitivity of the test in inboard as well as outboard leak test modes.



A very comprehensive remote control is offered as an accessory for the ASM 182 series and available as standard for the ASM 192 series.

Conventional versions



The Alcatel ASM 182 T/192 T/192 T2 leak detectors are based on the same design with identical vacuum modules and electronics. They both deliver high performance in terms of roughing capacity, helium pumping speed and high sensitivity resulting in short cycle times. The state of the art electronics offers 4 levels of operator interface and a unique voice synthesizer to meet any operator's needs.

These leak detectors are extremely flexible and easy to operate. They can be used to leak test components, systems as well as complete installations.

ASM 182 T

The most powerful compact leak detector on the market and most popular in the industry for mass production of small parts. Ideally designed for easy integration in production lines, this unit can also be used for small production of parts as well as the leak test of large volumes.

Equipped with a 20 m³/h (15 cfm) roughing/backing pump, a 130 l/s hybrid turbo pump and the Alcatel 180 degrees magnetic deflection mass spectrometer, the ASM 182 T delivers unmatched performance, repeatability and reliability where and when you need it most.

ASM 192 T / ASM 192 T2

The console series come in different versions.

- With a single turbo pump, single roughing/backing pump for the leak test of different size parts in a production environment.
- With two rotary vane pumps doubling its roughing capacity (40 m³/h - 30 cfm)
- With two rotary vane pumps doubling its roughing capacity (40 m³/h - 30 cfm) and with a turbo booster pump. This version is ideally designed to leak test large volume chamber, over 1,000 liters, without the need for an auxiliary pumping package.

Dry versions

ASM 182 TD+

Compactness has always been synonymous with limited performance and poor lay out of components. Alcatel has challenged this belief.

Using its unique frictionless multistage dry pump model ACP 28, Alcatel designed an unmatched concept delivering high performance in a well layout system.

The ASM 182 TD+ is a self-contained unit which can be installed on a cart for easy manoeuvrability.



ASM 192 TD+ / ASM 192 T2D+

Console versions with extended pumping capability.

- Up to 50 m³/h (30 cfm) roughing capacity.
Unmatched oil free dual roughing pumps operating in parallel at high pressure for contamination free leak detection of volume up to 1,000 liters without auxiliary pump required.
- Fast response time : 4,4 l/s or 20 l/s thanks to the booster turbo molecular pump of 100 l/s.
- Qualitative high pressure leak test (ASM 192 T2D+).
Alcatel specifically designed a new internal vacuum layout allowing qualitative leak test pressure of 200 mbar (150 Torr).
- Quantitative high pressure leak test (ASM 192 T2D+).
The new high cross over test pressure of 30 mbar (22,5 Torr) speeds up the large leak test measurement process.

Options

3 masses

In addition to the Helium (H4), Helium (H3) and Hydrogen can also be detected.

The 180 degrees magnetic deflection analyzer cell delivers an exceptional selectivity between masses.

Metal seals

The leak detector comes with elastomer seals. For specific requirements, such as high sensitivity or when using the leak detector in a high helium environment, the unit can be equipped with metal seals to prevent helium background due to permeation through the elastomer seals.

Power requirements:

30 A / 115 V

(only ASM 192 series -

Single phase power supply)

For large roughing capacity and for low voltage power supply, a 30 A / 115 V (or lower) option is offered.

This option allows the leak detector to operate properly in extremely low voltage conditions.

Test chambers

High production leak testing of various sealed parts items can be speeded up by optimizing dead volumes.

To meet this requirement, three test chambers are available:

- Hemispherical test chamber \varnothing 72 mm (2.3/4"), Depth 31 mm (1.1/4").
- Cylindrical test chamber \varnothing 85 mm (3.11/32"), Depth 68 mm (2.3/4").
- Cylindrical test chamber \varnothing 160 mm (6.1/4"), Depth 100 mm (4").

These chambers are provided with automatic cycle start.



Measurement units

The multi-color remote control offers the choice from 3 different measurement units :

- mbar.l/s and mbar.
- Pa.m³/s and hPa.
- Torr.l/s and Torr.

Language

4 different languages are available for the operator convenience (L.C.D. display and voice synthesizer messages):

English - French - German - Japanese.

High Performance Detectors

ASM 182 series - ASM 192 series

Accessories

| Description | PART NUMBER |
|--|-------------|
| Long distance sniffer probe with a 5 meters tube (16 ft) | SNC1E1T1 |
| Dedicated sniffer probes | * |
| 10 m/30 ft Long distance sniffer extension | 090216 |
| Helium spray probe | 109951 |
| Foot pedal for cycle command 1,5 m/5 feet | 100913 |



Long distance sniffer probe



Helium spray probe

*For accessories, see "Accessories for helium leak detectors".

High Performance Leak Detectors

ASM 182 series - ASM 192 series

Technical specifications

| Models | ASM 182 T | ASM 192 T | ASM 192 T2 |
|---|--|---|--|
| Versions | Compact | Console | Console |
| (*) Measurement range | 5.10 ⁻¹² to 10 ⁻¹ mbar.l/s | | |
| Standard Roughing System | 20 m ³ /h (15 cfm) oil sealed pump | 1 or 2 x 20 m ³ /h (1 or 2 x 15 cfm) oil sealed pump | 1 or 2 x 20 m ³ /h (1 or 2 x 15 cfm) oil sealed pump + 100 l/s TMP |
| High vacuum pump | 130 l/s Hybrid pump | 130 l/s Hybrid pump | 130 l/s Hybrid pump |
| Helium pumping speed at inlet port (l/s) | 4.4 | 4.4 | 20 |
| Cross-over pressure at inlet (mbar) (for large leak test mode) | 6 | 6 | 6 |
| Response time on calibrated leak at inlet port | < 0.5 s | | |
| Discrete I/O and full blown RS 232 | Included in standard version | | |
| Sniffing mode | | | |
| Measurement range in sniffing mode | 1.10 ⁻⁷ to 1 mbar.l/s | | |
| Helium signal response time with 5 m / 16 ft long probe | < 0.3 s | | |
| Surrounding features | | | |
| Power consumption (kVA) - Single phase | 1.2 | 1.2 or 1.8 | 2.0 |
| Width (mm / inch) | 594 / 23.4 | 594 / 23.4 | 594 / 23.4 |
| Depth (mm / inch) | 461 / 18.1 | 692 / 27.8 | 692 / 27.8 |
| Height (mm / inch) | 456 / 18 | 869 / 34.2 | 869 / 34.2 |
| Weight (kg / lbs) | 80 / 176 | 125 / 175 or 155 / 341 | 155 / 341 |
| Inlet port size (DN) | 40 | 40 | 50 |
| Integrated functions | | | |
| Auto-calibration (with built-in temperature compensated calibrated leak) | | | |
| Auto-zero (with floating zero method to ensure that the signal never goes negative) | | | |
| Automatic signal correction (external calibration or manually adjustable correction factor) | | | |
| Full automation of test cycle including: | | | |
| - cycle sequence | | | |
| - memorization of the last test | | | |
| - test result display | | | |
| Audio management | | | |
| Audio alarm with variable pitch (up to 90 dBA) / Vocal synthesizer | | | |

(*): according to AVS 2.1 and ISO 3530 standards.

High Performance Detectors

ASM 182 series - ASM 192 series

Technical specifications

| Models | ASM 182 TD+ | ASM 192 TD+ | ASM 192 T2 D+ |
|--|--|--|---|
| Versions | Compact | Console | Console |
| (*) Measurement range | 5.10 ⁻¹² to 10 ⁻¹ mbar.l/s | | |
| Standard Roughing System | 25 m ³ /h (15 cfm) dry pump | 1 or 2 x 25 m ³ /h (1 or 2 x 15 cfm) dry pump | 1 or 2 x 25 m ³ /h (1 or 2 x 15 cfm) dry pump + 100 l/s TMP |
| High vacuum pump | 130 l/s Hybrid pump | 130 l/s Hybrid pump | 130 l/s Hybrid pump |
| Helium pumping speed at inlet port (l/s) | 4.4 | 4.4 | 20 |
| Cross-over pressure at inlet (mbar) (for large leak test mode) | 6 | 6 | 30 |
| Response time on calibrated leak at inlet port | < 0.5 s | | |
| Discrete I/O and full blown RS 232 | Included in standard version | | |

Sniffing mode

| | |
|---|----------------------------------|
| Measurement range in sniffing mode | 1.10 ⁻⁷ to 1 mbar.l/s |
| Helium signal response time with 5 m / 16 ft long probe | < 0.3 s |

Surrounding features

| | | | |
|--|------------|---------------------------|---------------------------|
| Power consumption (kVA) - Single phase | 1.2 | 1.2 or 1.8 | 2.0 |
| Width (mm / inch) | 594 / 23.4 | 594 / 23.4 | 594 / 23.4 |
| Depth (mm / inch) | 461 / 18.1 | 692 / 27.2 | 692 / 27.2 |
| Height (mm / inch) | 456 / 18 | 869 / 34.2 | 869 / 34.2 |
| Weight (kg / lbs) | 88 / 193 | 157 / 345 or 190 / 418 | 157 / 345 or 190 / 418 |
| Inlet port size (DN) | 40 | 40 | 50 |

Integrated functions

| |
|---|
| Auto-calibration (with built-in temperature compensated calibrated leak) |
| Auto-zero (with floating zero method to ensure that the signal never goes negative) |
| Automatic signal correction (external calibration or manually adjustable correction factor) |
| Full automation of test cycle including: |
| - cycle sequence |
| - memorization of the last test |
| - test result display |
| Audio management |
| Audio alarm with variable pitch (up to 90 dBA) / Vocal synthesizer |

(*): according to AVS 2.1 and ISO 3530 standards.

High Performance Leak Detectors

ASM 182 series - ASM 192 series

Ordering information ASM 182 T

D2 0 0 P 0

| | |
|------|----------------------|
| | Leak Detector |
| | ASM 182 T |
| Code | D2 |

| | | |
|------|---------------|----------|
| | Masses | |
| | Helium | 3 masses |
| Code | 0 | 3 |

| | | | |
|------|--|-------------|---|
| | Seals for the vacuum module and analyzer cell | | The leak detector can be provided with : Elastomer seals (for the high vacuum as well as the inlet bloc) as standard (R) or with metal seals for specific applications (M). The elastomer seal is the standard configuration. |
| | Elastomer seals | Metal seals | |
| Code | R | M | |

| | | | | |
|------|---------------------|---------------------|----------------------|---------------------|
| | Test chamber | | | |
| | None | Small Model chamber | Medium Model chamber | Large Model chamber |
| Code | 0 | 1 | 2 | 3 |

| | | | | |
|------|-----------------|---------|--------|-------|
| | Language | | | |
| | French | English | German | Japan |
| Code | A | B | C | E |

| | | |
|------|-----------------------|-----------------------|
| | Voltage | |
| | 110/130 V 50/60 Hz | 200/240 V 50/60 Hz |
| Code | 7 | 8 |

| | | | | | | |
|------|-------------------|------------------|----|-------|-------------|--------------------|
| | Cable Type | | | | | |
| | USA | France / Germany | UK | Italy | Switzerland | Without cable type |
| Code | 1 | 2 | 3 | 4 | 5 | 7 |

For example
You need ...

| | |
|-----------------|----|
| ASM 182 T | D2 |
| Helium | 0 |
| Elastomer seals | R |
| LM chamber | 3 |
| English | B |
| 110/130 V | 7 |
| USA | 1 |

= D2 0 R 0 0 3 P B 7 1 0

High Performance Leak Detectors

ASM 182 series - ASM 192 series

Ordering information ASM 182 TD+

| | | |
|------|-----------------------------------|--------------------------------|
| | Leak Detector without cart | Leak Detector with cart |
| | ASM 182 TD+ | ASM 182 TD+ |
| Code | D1 | D7 |

| | | |
|------|---------------|----------|
| | Masses | |
| | Helium | 3 masses |
| Code | 0 | 3 |

| | | | |
|------|--|-------------|---|
| | Seals for the vacuum module and analyzer cell | | The leak detector can be provided with : Elastomer seals (for the high vacuum as well as the inlet bloc) as standard (R) or with metal seals for specific applications (M). The elastomer seal is the standard configuration. |
| | Elastomer seals | Metal seals | |
| Code | R | M | |

| | | | |
|------|-------------------------|---------------|--|
| | Detection option | | Gas line "bullet test" (R). This option allows to leak test long gas lines with very small diameter. Using a ultra clean purge gas such as nitrogen as a corriger gas, the line is maintained in a viscous regime to allow fast response time. |
| | Standard | With gas line | |
| Code | S | G | |

| | | | | |
|------|---------------------|---------------------|----------------------|---------------------|
| | Test chamber | | | |
| | None | Small Model chamber | Medium Model chamber | Large Model chamber |
| Code | 0 | 1 | 2 | 3 |

| | | | |
|------|--------------|-----|---|
| | Cover | | U.C.T. - Ultra Clean Technology (C). Front and rear covers and frame in stainless steel. |
| | Painted | UCT | |
| Code | P | C | |

| | | | | |
|------|-----------------|---------|--------|-------|
| | Language | | | |
| | French | English | German | Japan |
| Code | A | B | C | E |

| | | |
|------|-----------------------|-----------------------|
| | Voltage | |
| | 110/130 V 50/60 Hz | 200/240 V 50/60 Hz |
| Code | 7 | 8 |

| | | | | | | |
|------|-------------------|----------------|----|-------|-------------|--------------------|
| | Cable Type | | | | | |
| | USA | France/Germany | UK | Italy | Switzerland | Without cable type |
| Code | 1 | 2 | 3 | 4 | 5 | 7 |

0

For example
You need ...

ASM 182 TD+ **D1**
Helium **0**
Metal seals **M**
Standard **S**
SM chamber **1**
UCT **C**
English **B**
200/240 V **8**
UK **3**

= **D1 0 M 0 S 1 C B 8 3 0**

High Performance Detectors

ASM 182 series - ASM 192 series

Ordering information ASM 192 TD+ / ASM 192 T2D+

0

| Leak Detector | |
|---------------|-----------------------------|
| | ASM 192 TD+ ASM 192 T2D+ |
| Code | D6 D3 |

| Masses | |
|--------|----------------------------------|
| | Helium 3 masses |
| Code | 0 3 |

| Seals for the vacuum module and analyzer cell | |
|---|--------------------------------|
| | Elastomer seals Metal seals |
| Code | R M |

The leak detector can be provided with : Elastomer seals (for the high vacuum as well as the inlet bloc) as standard (R) or with metal seals for specific applications (M). The elastomer seal is the standard configuration.

| Roughing system | |
|-----------------|--|
| | 25 m ³ /h (15 cfm) 50 m ³ /h (30 cfm) |
| Code | S T |

| Test chamber | | | | |
|--------------|------|---------------------|----------------------|---------------------|
| | None | Small Model chamber | Medium Model chamber | Large Model chamber |
| Code | 0 | 1 | 2 | 3 |

| Measurement units | | | |
|-------------------|----------|----------|----------------------|
| | mbar.l/s | Torr.l/s | Pa.m ³ /s |
| Code | M | T | P |

| Language | | | | |
|----------|--------|---------|--------|-------|
| | French | English | German | Japan |
| Code | A | B | C | E |

| Voltage | |
|---------|--|
| | 110/130 V 200/240 V 50/60 Hz 50/60 Hz |
| Code | 7 8 |

| Cable Type | | | | | | | | |
|------------|-----------|--------|----|-------|-------------|---------|--------------------|------------|
| | USA 15 A* | France | UK | Italy | Switzerland | Germany | Without cable type | USA 30 A** |
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

*Power requirement for voltage within 10 % of nominal value
**The 30 A option is available for 110/130 V only

For example
You need ...

ASM 192 T2D+ **D3**
Helium **0**
Elastomer seals **R**
Roughing 50 m³/h **T**
LM chamber **3**
Torr.l/s **T**
English **B**
110/130 V **7**
USA 15 A **1**

= **D3 0 R 0 T 3 T B 7 1 0**

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