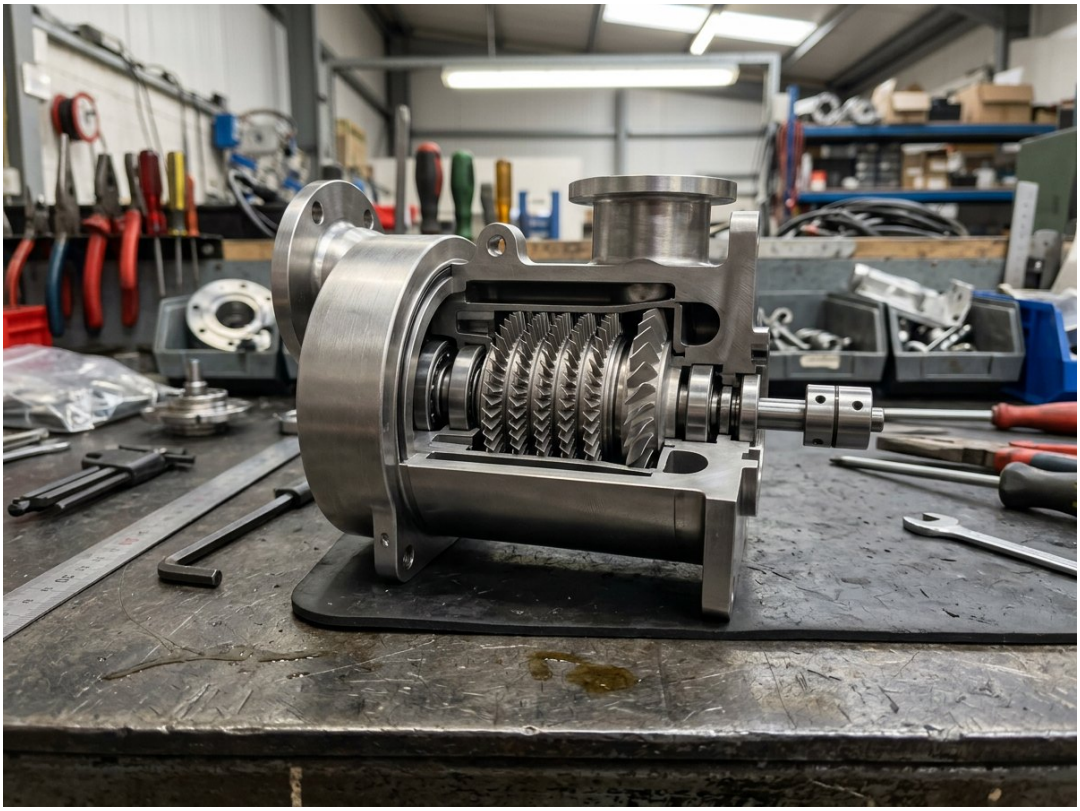
AXOVENTRA MOTION SYSTEMS

ATX-160 technical specification

Small-footprint axial expander reference for pilot, modular, and distributed systems.



Illustrative engineering visualization. Final production geometry may differ.

DOCUMENT CODE	AXO-ATX-160-TDS-R02
REVISION / DATE	R02 / 23 OCTOBER 2026
STATUS	ENGINEERING REVIEW
PUBLICATION CLASS	Uncontrolled public review copy
INTENDED USE	Preliminary technical orientation and enquiry preparation only

PRE-RELEASE TECHNICAL INFORMATION

Do not use this document for procurement, fabrication, installation, operation, maintenance, or safety decisions. Final values require approved project data and controlled engineering release.

01 / DOCUMENT CONTROL

Purpose, authority, and limits

This issue improves technical clarity and document control while preserving a strict boundary between a draft reference platform and released equipment.

Document purpose

ATX-160 is presented as a reference configuration for preliminary duty review. It does not establish guaranteed performance, approved dimensions, pressure-temperature rating, material grade, certification, code compliance, manufacturing completion, or fitness for a particular service.

Authority hierarchy

Priority	Authority
1	Client-controlled product master, approved drawings, certificates, and test records
2	Project requisition, approved datasheet, specifications, and purchase order
3	Released calculations, drawings, inspection/test records, and manuals
4	This public engineering-review document

Visual and content status

Item	R02 status
Product identity	Client draft; approval pending
Numeric ranges	Reference only; conditions and evidence pending
Image	Illustrative; provenance and public-use approval pending
Standards	Applicability pathway only; no conformance claim
Contact/facility claims	Not published until client-confirmed

02 / REFERENCE CONFIGURATION

What the model currently means

Small-footprint axial expander reference for pilot, modular, and distributed systems.

Published draft facts

Attribute	R02 reference basis
Configuration	Packaged axial expander module
Primary objective	Stable operation across the approved operating map
Controls	Overspeed and process protection by project design
Maintenance	Removal and access concept by final configuration

Intended study contexts

Application	Qualification boundary
Pilot plants	Suitability depends on approved fluid, operating cases, interfaces, hazards, and project requirements.
Modular LNG studies	Suitability depends on approved fluid, operating cases, interfaces, hazards, and project requirements.
Hydrogen test systems	Suitability depends on approved fluid, operating cases, interfaces, hazards, and project requirements.
Gas conditioning	Suitability depends on approved fluid, operating cases, interfaces, hazards, and project requirements.

Configuration boundary

Axial-flow expansion platform for preliminary refrigeration and energy-recovery studies. Equipment scope, geometry, materials, auxiliaries, controls, dimensions, ratings, and tests remain project-specific.

03 / SELECTION INPUTS

Data required before selection

Selection must use the complete operating envelope. A nominal model, flow, size, or pressure class cannot replace the approved project basis.

01 Gas composition, molecular weight, phase condition, and contaminants

02 Normal, minimum, maximum, start-up, shutdown, trip, and upset cases

03 Inlet and outlet pressure and temperature; flow range and turndown

04 Control philosophy, load or compressor arrangement, utilities, and hazardous-area basis

05 Piping loads, supports, lifting, access, maintenance, inspection, test, and documents

Operating-case matrix

Case	Minimum data to record
Normal / rated	Composition, phase, flow, pressure, temperature, utilities, control state
Minimum / turndown	Stable operating requirement, recycle/bypass, control margin
Maximum	Maximum continuous conditions and duration
Start-up / shutdown	Sequence, ramp rates, thermal state, utilities, permissives
Trip / upset	Initiating event, transient conditions, safe state, relief interfaces

Enquiry output

Engineering should return a data-gap register, preliminary selection basis, responsibility boundary, standards list, proposed verification plan, and controlled document schedule.

04 / ENGINEERING VERIFICATION

Work required to close the release gate

The following checks are not optional marketing detail. They are the evidence required to convert a reference platform into a project configuration.

01 Thermodynamic calculation and off-design operating map

02 Aerodynamic selection and operating-region review

03 Rotor-dynamic, balance, critical-speed, and overspeed review

04 Bearings, seals, auxiliaries, controls, vibration, and trip philosophy

05 Mechanical-run and performance-test scope where contracted

Open model checks

01 Confirm model code and aerodynamic frame relationship.

02 Release operating map, speed limits, and verified package interfaces.

Release evidence

Discipline	Expected controlled output
Process / application	Approved duty cases, calculations, operating envelope, assumptions
Mechanical / materials	Configuration, ratings, materials, interfaces, drawings, design reviews
Controls / instrumentation	Narrative, cause-and-effect, alarms, trips, set points, interfaces
Quality / testing	ITP, procedures, results, deviations, traceability, release status
Lifecycle	Installation, commissioning, operation, maintenance, spares, preservation

05 / STANDARDS PATHWAY

Applicability, edition, and evidence

A standards reference identifies a review path. It is not a statement that this model is certified, stamped, licensed, monogrammed, or compliant.

Reference	R02 use
API 617	Potential machinery scope pathway; applicability, edition, purchaser supplements, and exceptions must be agreed.
ISO 20816 series	Potential vibration measurement/evaluation pathway; select the applicable part and criteria for the actual machine.

Standards review questions

01 Does the selected equipment type fall inside the standard scope?

02 Which edition, addenda, errata, purchaser supplements, and jurisdiction apply?

03 Which optional or supplemental requirements are invoked by the project?

04 What design, manufacturing, examination, testing, marking, and documentation evidence is required?

05 Who has authority to approve exceptions and issue the conformance statement?

Source identifiers

CLIENT-DRAFT-001; API-617-SCOPE; ISO-20816-STATUS

06 / RELEASE CHECKLIST & SOURCES

Before this document can become approved product data

Release item	Required evidence
Identity	Approved product master and variant/model mapping
Performance / rating	Calculations, curves/tables, conditions, tolerances, and test basis
Materials / dimensions	Controlled material schedule and approved drawings
Quality / certification	Applicable ITP, reports, certificates, approvals, and release authority
Media / rights	Confirmed ownership, licence, or approved illustrative-use basis
Approval	Named engineering, quality, legal, and document-control sign-off

Sources used for R02

Source ID	Publisher / location	Use
CLIENT-DRAFT-001	Existing Axoventra workspace product and document draft	Client-controlled draft; engineering approval not provided
API-617-SCOPE	American Petroleum Institute - API Standard 617 scope	https://www.api.org/~/media/%20files/publications/whats%20new/617_e8%20pa.pdf
ISO-20816-STATUS	ISO/TC 108/SC 2 catalogue	https://www.iso.org/committee/51472/x/catalogue/

END OF DOCUMENT

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