



VEYRUM ROBOTICS STANDARD



VRS-GEN-007

Application Sector Classification

The twelve locked application sectors — definitions, codes, capability gates, the per-sector application-class enumeration, and the regulatory-regime evidence-reuse map.

VEYRUM RESEARCH INSTITUTE

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Foreword. This Classification defines the twelve application sectors in which an Application Rating (AR) may be issued, their family codes, and each sector’s applicability gate. The sector set and codes are **locked** (canonical definition 2026-08-26; codes per CEO D3, 2026-09-02) and are immutable under the stability contract (VRS-GEN-004 §8.1). The applicability *state machine* is defined in VRS-GEN-006 Clause 5; this document defines the sectors it operates over. Requirements use “shall”.

1 1 Scope

This Classification defines: the twelve sectors and their per-sector application classes (Clause 4), sector types and capability prerequisites (Clause 5), the rules for sector-set change (Clause 6), the sector → regulatory-regime evidence-reuse map (Clause 7), classification recording and computability (Clause 8), and multi-sector handling (Clause 9). It excludes sector-specific requirements (each sector’s **VRS-`<CODE>-001`** standard), rating mechanics and the applicability *state machine* (VRS-GEN-006), and the passport schema itself (VRS-GEN-009).

2 2 Normative references

- **VRS-GEN-006**, Application Rating — Scheme (undated).
- **VRS-GEN-002**, Designation, Drafting and Style Rules (undated) — family codes.

3 3 Terms and definitions

Per VRS-GEN-001, notably 3.2.4 (capability-gated vs intended-use sectors).

3.1 application class. A named subdivision of a sector (Clause 4.4) that shares an operating mode, form factor, or anchor within that sector. An application class is an applicability field of the sector’s protocols (4.2), never a sector or an edition scope.

4 The twelve sectors

CODE	SECTOR	TYPE	SUMMARY DEFINITION
IND	Industrial	intended-use	Manufacturing, warehouse/logistics, cobots — structured sites, trained operators. v1 beachhead.
SVC	Service & Public	intended-use	Retail, hospitality, public-facing operation among untrained bystanders and crowds.
DOM	Domestic & Consumer	intended-use	Home service robots — untrained users, consumer-product-safety regime. Kept separate from SVC.
MED	Medical & Healthcare	intended-use	Surgical, clinical, and care robots — human-contact clinical context, medical-device regulation.
FLD	Field & Outdoor	intended-use	Agriculture, construction, mining, inspection — outdoor, unstructured terrain, weather.
HAZ	Hazardous & Emergency Response	intended-use	Nuclear/radiation, EOD, firefighting, search-and-rescue — extreme-hazard, specialised.
AER	Aerial / UAS	capability-gated	Drones and flying platforms — airspace regulation, fall-from-sky third-party hazard.
MAR	Marine & Subsea	capability-gated	AUV/ROV, offshore and hull inspection — water, pressure, corrosion; classification regime.
TRN	Transportation / On-road Autonomous	intended-use	Robotaxis, autonomous trucks — road-safety regime. Full launch sector (CEO D8, 2026-09-02).
SPC	Space	capability-gated	Orbital/extraterrestrial/launch-support — vacuum, radiation, no-repair.
DEF	Defence & Security	intended-use	Defence/security support roles — ACTIVATED 2026-09-05 (CEO direction, per §6.2) ; weapons functions categorically excluded (VRS-DEF-001 Clause 1).
ASW	Assistive & Wearable / Exoskeleton	intended-use	Human-attached devices — biomechanical-injury profile, medical-adjacent.

4.1 A robot **form** (humanoid, quadruped, arm, cobot) is not a sector. A form receives one IR and AR letters across the sectors that apply to it.

4.2 Robot classes within a sector (e.g., AGV vs humanoid within IND) shall be handled as applicability fields of that sector's protocols, never as new sectors or edition scopes.

4.3 Precedent (informative). The design — a small, code-based taxonomy, locked and revised only by a governing body — follows the pattern of established activity classifications (ISIC Rev.5, endorsed by the UN Statistical Commission in 2023; NACE Rev. 2.1, 2025 edition). Those classify a party’s *economic activity*; VRS sectors classify a robot’s *application context and capability*, so they are cited as a governance precedent, not as a source of sector definitions.

4.4 Application classes (normative enumeration). Each sector is subdivided into the **application classes** of Table 1. This enumeration is the authoritative class list for the class-applicability rule of each sector’s **VRS-<CODE>-201** protocol and for the passport class field (8.1); it is not a scoring input. A class introduced by a sector protocol shall be one of these, and a sector protocol shall not create a class outside its row without a sector-set change (Clause 6.1). Where a sector anchor differs by class, the difference is stated in that sector’s **VRS-<CODE>-001 / -201** , not here (single source of truth, VRS-GEN-002).

Table 1 — Application classes by sector. The Notes column records only class-specific applicability caveats that a sector protocol carries; the authoritative statement lives in that protocol.

CODE	APPLICATION CLASSES	NOTES (CLASS-SPECIFIC APPLICABILITY)
IND	mobile · manipulator · legged-other	class table in VRS-IND-201 §7
SVC	mobile service (delivery, cleaning, guidance, retail) · stationary interactive (kiosk / reception) · telepresence	all criteria apply to all classes unless a criterion states otherwise
DOM	floor robot (vacuum / mop) · lawn / outdoor consumer · companion / toy · kitchen / assistive appliance	cliff / stairs criterion applies to mobile classes only
MED	surgical · rehabilitation / therapy · hospital logistics / service · care / assistive (clinical)	patient-contact criterion applies to contact classes (surgical, rehabilitation, care)
FLD	agricultural · construction / earthmoving · mining · inspection / survey (legged, wheeled, tracked)	implement / hydraulic criterion applies where an implement or hydraulic system exists
HAZ	explosive-atmosphere · nuclear / radiological · firefighting · EOD · search-and-rescue	primary-hazard anchor differs by class (stated in the sector protocol)
AER	small UAS (< 25 kg) · heavy-lift / delivery · dock-based autonomous · VTOL fixed-wing	all criteria apply to all classes
MAR	ROV (tethered) · AUV (untethered) · USV (surface) · hull-crawler	tether criteria apply to tethered classes only
TRN	robotaxi · autonomous truck · low-speed shuttle · sidewalk delivery	all criteria apply to all classes
SPC	orbital servicing / inspection · lunar / planetary surface · ISS / crewed-platform internal · launch-support ground robotics	crewed-adjacency criterion applies to crewed-adjacent classes
DEF	ground UGV (logistics / ISR) · EOD / CBRN (overlaps HAZ) · base / perimeter security · maritime security USV	all criteria apply to all classes; weapons functions excluded (VRS-DEF-001 Clause 1)
ASW	medical exoskeleton (regulated) · industrial exoskeleton · consumer / wellness wearable robot · prosthetic / orthotic powered device	primary anchor differs by class (stated in the sector protocol)

4.5 Class-applicability rule. Within an applicable sector, a criterion whose applicability excludes the assessed class is removed from both the numerator and the denominator of that sector's Application Rating; the letter is issued per applicable class and, where a model spans several classes, the displayed letter is the lowest across its applicable classes. The rule is executed by the sector's **VRS-<CODE>-201** protocol under VRS-GEN-006; this Classification supplies only the class list it operates over.

5 Sector types and capability prerequisites

5.1 The **capability-gated** sectors and their objective prerequisites are:

- **AER** — flight capability;
- **MAR** — water operation / submersion rating;
- **SPC** — space qualification (vacuum/radiation/launch survivability). A model lacking the prerequisite is **not-applicable** to that sector, with no further determination steps.

5.2 For **intended-use** sectors, applicability derives from manufacturer declaration plus minimum capability, subject to assessor override with recorded rationale (VRS-GEN-006 §5.2). Default: not-applicable.

5.3 Each sector standard (`VRS-<CODE>-001`) shall state its sector's minimum-capability description and may refine (but not contradict) the prerequisites of 5.1.

6 Changing the sector set

6.1 The sector set and codes are immutable under VRS-GEN-004 §8.1. Adding, removing, merging, or renaming a sector is a rescale-tier act (VRS-GEN-004 §4.5) requiring explicit CEO authority.

6.2 A reserved sector (DEF) is activated — not added — by publishing its `VRS-DEF-001` standard; activation is a normal publication act, not a taxonomy change.

6.3 Emerging domains that do not fit an existing sector shall first be handled as classes or annex modules within the nearest sector; only sustained misfit justifies invoking 6.1.

7 Sector → regulatory-regime and evidence-reuse map

7.1 At classification time an assessor shall identify, for each applicable sector, the existing conformity regime a manufacturer already produces evidence under, so that adoption costs a mapping rather than new testing (adoptability, VRS-GEN-012). Table 2 gives the representative cross-sector expectation for the beachhead and launch sectors verified this edition; the assessor shall record the actual artefact relied on and any deviation with a rationale.

Table 2 — Representative regime anchors and reusable conformity artefacts (illustrative).

SECTOR	REPRESENTATIVE REGIME ANCHOR (DATED)	REUSABLE CONFORMITY ARTEFACT
IND	Machinery Regulation (EU) 2023/1230 (applies 2027-01-20); ISO 10218-1:2025 / ISO 10218-2:2025; ISO 3691-4:2023 (AGV/AMR class)	CE technical file; ISO 10218 risk assessment; ISO 3691-4 verification record
SVC	ISO 13482:2014 (under revision, DIS retitled service-robot safety)	risk assessment; CE technical file
DOM	ISO 13482:2014 (under revision); regional consumer-product-safety regime (anchor per DOM VRS-DOM-001)	consumer-product safety file
AER	Regulation (EU) 2019/945 (product) and (EU) 2019/947 (operation), open/specific/certified categories	UAS product declaration; operational authorisation

7.2 The regimes in Table 2 are anchors, not applicability conditions. A model shall not be excluded from a sector solely because it lacks a named regional regime's conformity; jurisdiction-neutrality means a manufacturer's equivalent domestic conformity satisfies the same evidence lane (VRS-GEN-012).

7.3 The authoritative and complete regime set for a sector lives only in that sector's **VRS-<CODE>-001** standard (single source of truth, VRS-GEN-002); where it names a more specific regime, that standard governs and Table 2 shall be read as the minimum cross-sector expectation.

8 Recording a classification and computability

8.1 The applicability determination for every model×sector pair shall be recorded in the Robot Risk Passport (VRS-GEN-009) with: the sector code (Clause 4), the state (VRS-GEN-006 §5.1), the basis (capability gate / manufacturer declaration / assessor override, per Clause 5), and the evidence artefact relied on (Clause 7). The record shall be sufficient for a third party to reproduce the determination without contacting the assessor (determinism).

8.2 A not-applicable determination shall record the failed prerequisite (Clause 5) so the result is reproducible, and shall not be recorded or displayed as, or in a manner implying, a poor grade (VRS-GEN-006 §5.1).

8.3 A classification shall be re-evaluated when a declared capability, configuration, or intended-use scope changes materially (VRS-GEN-008 §4.3), or when a capability gate is gained or lost (Clause 5.1); the revised determination shall be recorded in the passport and the prior determination retained in history (VRS-GEN-008 §9.2).

9 Multi-sector models and exposure separation

9.1 A model shall receive an independent applicability determination for each of the twelve sectors; applicability to one sector neither implies nor precludes applicability to another, and a model form is not itself a sector (4.1).

9.2 Each applicable model×sector pair accrues its own sector-context exposure denominator (sector op-hours; VRS-GEN-101 §7, VRS-GEN-102 §7). A model shall carry a separate exposure record for each applicable sector, and evidence accrued in one sector shall not be pooled into another sector's exposure without a recorded analogue justification — so that a strong IND record cannot silently stand in for, e.g., SVC evidence.

9.3 Where a form is marketed for several sectors, the manufacturer declaration shall enumerate the intended sectors; a sector neither declared nor asserted by assessor override (Clause 5.2) defaults to not-applicable.

10 10 Worked example (informative) — classification walkthrough

The following illustrates how an assessor applies Clauses 4–9 to a **hypothetical** model. It is not a real assessment and does not imply that any robot holds a Veyrum rating.

Input. A manufacturer declares a general-purpose humanoid, model code **GEN-EX-07**, for two sectors: **IND** (warehouse material handling) and **SVC** (retail floor assistance). It holds a CE technical file compiled against Machinery Regulation (EU) 2023/1230, an ISO 10218-2:2025 robot-cell risk assessment, and an ISO 3691-4:2023 verification record for its AGV mobility base. It has no flight capability, no submersion rating, and no space qualification, and is not declared for any other sector.

Step 1 — capability gates (Cl. 5.1). AER, MAR, SPC each require an objective physical prerequisite (flight / water operation / space qualification). **GEN-EX-07** has none, so all three are **not-applicable** with no further steps; each record names the failed prerequisite (8.2).

Step 2 — intended-use sectors (Cl. 5.2, 9.3). IND and SVC are declared. Minimum capability is met (mobility, manipulation), so both move from the default not-applicable to **applicable, with the evidence bar not yet met** (VRS-GEN-006 §5), pending evidence. MED, DOM, FLD, HAZ, TRN, DEF, ASW are neither declared nor asserted by override, so they default to **not-applicable** (9.3).

Step 3 — application class (Cl. 4.4–4.5). Within IND the model is classed **mobile** (its AGV base) and **manipulator** (its arms), both drawn from the IND row of Table 1; within SVC it is classed **mobile service**. The AR letter will be issued per applicable class and, where it spans classes, the displayed IND letter is the lowest across mobile and manipulator (4.5).

Step 4 — evidence lane (Cl. 7). For IND, Table 2 directs the assessor to the CE technical file and the ISO 10218 risk assessment already held; the ISO 3691-4:2023 record covers the mobile class (a class within IND, 4.2/4.4), not a separate sector. For SVC, the ISO 13482 risk-assessment lane applies; the assessor records that a bystander-interaction assessment is still outstanding.

Step 5 — exposure separation (Cl. 9.2). IND and SVC will each accrue their own sector op-hours; the manufacturer's 40,000 IND op-hours of pilot telemetry shall not be pooled into SVC exposure without a recorded analogue justification, so SVC begins with no accrued sector exposure.

Output — the applicability set. { **IND: applicable (evidence bar not yet met)**, **SVC: applicable (evidence bar not yet met)**; **AER, MAR, SPC: not-applicable (no capability)**; **MED, DOM, FLD, HAZ, TRN, DEF, ASW: not-applicable (not declared)** }. Each pair is written to the passport (Cl. 8.1) with its

basis, application class (Cl. 4.4) and artefact. **No AR letter is asserted here** — letters are computed only by each sector's **VRS-<CODE>-201** protocol under VRS-GEN-006, once the evidence bar is met.

11 Bibliography

- ISO 8373:2021, *Robotics — Vocabulary* (3rd ed.; [iso.org/standard/75539.html](https://www.iso.org/standard/75539.html)) — robot-term and “form ≠sector” basis (4.1).
- ISO 10218-1:2025 and ISO 10218-2:2025, *Robotics — Safety requirements — Part 1: Industrial robots; Part 2: Industrial robot applications and robot cells* (3rd / 2nd ed., 2025-02) — IND regime anchor (Table 2).
- ISO 3691-4:2023, *Industrial trucks — Safety requirements and verification — Part 4: Driverless industrial trucks and their systems* — IND AGV/AMR class anchor (Table 2).
- ISO 13482:2014, *Robots and robotic devices — Safety requirements for personal care robots* (under revision; DIS retitled *Robotics — Safety requirements for service robots*) — SVC/DOM anchor (Table 2).
- Regulation (EU) 2023/1230, *Machinery Regulation* (adopted 14 June 2023; applies from 20 January 2027, repealing Directive 2006/42/EC) — cross-sector CE conformity floor (Table 2).
- Regulation (EU) 2019/945 (product) and Implementing Regulation (EU) 2019/947 (operation), *civil unmanned aircraft systems* (open/specific/certified categories) — AER anchor (Table 2).
- ISIC Rev.5 (International Standard Industrial Classification of All Economic Activities; endorsed by the UN Statistical Commission, 54th session, 2023) — locked code-based-taxonomy governance precedent (4.3).
- NACE Rev. 2.1 (Statistical classification of economic activities in the European Union, 2025 edition; Eurostat KS-GQ-24-007) — regional-classification precedent (4.3).

12 Change history

DATE	VERSION	STATUS	CHANGE	AUTHORITY
2026-09-16	1.0	Draft	REWRITE (VRS 2026): added the normative per-sector application-class enumeration (Cl. 4.4, Table 1) and the class-applicability rule (Cl. 4.5) as the class list the sector -201 protocols operate over; recast the worked example to identify application classes (new Step 3) with no letter asserted; removed the retired “assessed-unrated” wording (Cl. 10) and the per-sector “confidence” scoring language (Cl. 9.2) per GEN-005 §6; Scope updated; no scoring content, no constant, no letter asserted. Clauses 1–3, 5–9 numbering unchanged. Net +~430 words.	Curator; charter REWRITE
2026-09-11	0.3	Draft	DEEPEN: brought below-gate document (37/100) to publishable depth. Added sector→regulatory-regime evidence-reuse map (Cl. 7, Table 2), classification recording + computability into the passport (Cl. 8, VRS-GEN-009), multi-sector handling + per-sector exposure separation (Cl. 9), a worked classification walkthrough (Cl. 10, fictional-labelled), an ISIC Rev.5 / NACE Rev. 2.1 governance-precedent note (4.3), and a dated Bibliography (ISO 8373:2021, ISO 10218-1/-2:2025, ISO 3691-4:2023, ISO 13482:2014, Reg. (EU) 2023/1230, Reg. (EU) 2019/945 & 2019/947). Clauses 4–6 and their numbering unchanged (preserves external cross-refs). No constant introduced; no letter asserted. Net +~1,300 words.	Curator Run #35; charter DEEPEN
2026-09-11	0.2ε1	Draft	COHERENCE: front-matter date was 2026-09-03, stale against the current-version (0.2) revision of 2026-09-05 and the library invariant (date = newest change-history row); refreshed. Editorial only — no technical change.	Curator Run #23; charter COHERENCE
2026-09-05	0.2	Draft	DEF activated per §6.2 on CEO direction (a publication act — sector set unchanged); table note updated	CEO 2026-09-05
2026-09-03	0.1	Draft	Initial draft — 12 locked sectors + codes (D3), TRN full sector (D8), capability gates from the applicability framework v0	Framework Design Brief v1.1

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