



VEYRUM ROBOTICS STANDARD



VRS-IND-501

Industrial — AR Rubric Data Twin

Machine-readable criteria, tier ceilings, contributors and bands of VRS-IND-201 (VRS 2026 (draft)); generated, never hand-edited.

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DOCUMENT

VRS-IND-501

VERSION

1.0.0

STATUS

Draft

DATE

16 September 2026

Foreword. Data Artifact: the machine-readable twin of **VRS-IND-201** (VRS 2026 (draft)) — the sector criteria with their point ranges, rungs and tier ceilings, the contributing intrinsic criteria, the letter bands and the application classes — generated FROM the protocol's Clause 5–7 by `tools/vrs-twin-generate.py`. Consistency is by construction and re-verified on every build (conformance check 15). The JSON in Clause 4 is the normative payload; scorer tooling consumes it directly. A change to VRS-IND-201 and to this twin is one change instrument.

1 Scope

This Data Artifact carries the rubric data of the Industrial (IND) sector in machine-readable form: the 10 sector criteria of VRS-IND-201 Clause 6 with points, rungs and Unverified / Verified / Certified ceilings; the contributing intrinsic criteria of Clause 5; the letter bands and application classes of Clause 7. It states no independent requirements. Where this artifact and VRS-IND-201 could be read to differ, VRS-IND-201 governs and this twin is regenerated to match.

2 Normative references

- **VRS-IND-201**, *Industrial — AR Assessment Protocol* — source protocol twinned (Clauses 5–7).
- **VRS-IND-001**, *Industrial — Sector Standard* — application classes and hazard groups.
- **VRS-GEN-005**, *IR Methodology* — point sum, tier ceilings, no-evidence rule.
- **VRS-GEN-006**, *AR Scheme* — pool mechanics, letter bands, tier caps by construction.
- **VRS-GEN-002**, *Designation and Drafting Rules* — criterion layout (§6.5) and versioning.

3 Terms and definitions

The terms of VRS-GEN-001 and VRS-IND-201 apply. **data twin** — a machine-readable artifact regenerated one-to-one from a source protocol's normative clauses. **rung** — a named state of a criterion awarding a stated integer number of points (VRS-GEN-002 §3.9). **ceiling** — the maximum points a criterion awards at a stated tier (VRS-GEN-002 §3.10).

4 Payload

Sector criteria total **100** points; ceilings Unverified **70**, Verified **85**, Certified **100**.

```
{
  "_meta": {
    "description": "IND sector AR rubric data twin — machine-readable form of VRS-IND-201 Clause 5/6/7 (VRS 2026 (draft)). Generated by tools",
    "edition": "VRS 2026 (draft)",
    "source_protocol": "VRS-IND-201 v1.0.0",
    "generated": "2026-09-16",
    "conforms_to": "VRS-GEN-005 §6 (point sum, tier ceilings); VRS-GEN-006 §6-§8 (pool, bands, tier caps by construction)"
  },
  "sector_code": "ind",
  "bands_percent": {
    "AAA": 90,
    "AA": 75,
    "A": 60,
    "B": 45,
    "C": 0
  },
  "application_classes": [
    "mobile",
    "manipulator",
    "legged-other (VRS-IND-201 §7 class table)"
  ],
  "contributing_ir_criteria": [
    {
      "id": "SF-1",
      "document": "VRS-GEN-101",
      "clause": "6.1"
    },
    {
      "id": "SF-2",
      "document": "VRS-GEN-101",
      "clause": "6.2"
    },
    {
      "id": "SF-4",
      "document": "VRS-GEN-101",

```

```

    "clause": "6.4"
  },
  {
    "id": "SF-7",
    "document": "VRS-GEN-101",
    "clause": "6.7"
  },
  {
    "id": "SF-8",
    "document": "VRS-GEN-101",
    "clause": "6.8"
  },
  {
    "id": "RL-3",
    "document": "VRS-GEN-102",
    "clause": "6.3"
  },
  {
    "id": "RL-4",
    "document": "VRS-GEN-102",
    "clause": "6.4"
  },
  {
    "id": "SV-1",
    "document": "VRS-GEN-103",
    "clause": "6.1"
  },
  {
    "id": "SV-4",
    "document": "VRS-GEN-103",
    "clause": "6.4"
  },
  {
    "id": "SV-5",
    "document": "VRS-GEN-103",
    "clause": "6.5"
  },
  {
    "id": "SV-6",
    "document": "VRS-GEN-103",
    "clause": "6.6"
  },
  {
    "id": "CY-3",
    "document": "VRS-GEN-105",
    "clause": "6.3"
  },
  {
    "id": "CY-4",
    "document": "VRS-GEN-105",
    "clause": "6.4"
  },
  {
    "id": "MS-1",
    "document": "VRS-GEN-106",
    "clause": "6.1"
  },
  {
    "id": "SI-2",
    "document": "VRS-GEN-104",
    "clause": "6.2"
  },
  {
    "id": "SI-6",
    "document": "VRS-GEN-104",
    "clause": "6.5"
  }
],

```

```

"sector_criteria": [
  {
    "clause": "6.1",
    "id": "IND-1",
    "name": "Anchor-regime conformity",
    "points_max": 15,
    "what_is_measured": "Conformity of the declared application class with its anchor regime. **Anchors per class (F22):** mobile – ISO 369",
    "rungs": [
      {
        "points": 15,
        "state": "third-party-assessed conformity and functions validated at envelope limits"
      },
      {
        "points": 13,
        "state": "pack-evidenced (documents), not demonstrated"
      },
      {
        "points": 12,
        "state": "third-party-assessed conformity (publicly verifiable certificate) (F1/F17)"
      },
      {
        "points": 11,
        "state": "publicly evidenced only (no pack, no demonstration)"
      },
      {
        "points": 10,
        "state": "self-declared conformity with internal validation evidence"
      },
      {
        "points": 5,
        "state": "self-declaration only"
      },
      {
        "points": 0,
        "state": "none"
      }
    ],
    "ceiling": {
      "unverified": 11,
      "verified": 13,
      "certified": 15
    },
    "company_wide": null,
    "evidence_bar": "A declaration of conformity or equivalent exists for the rated version. Applies to all classes.",
    "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
    "not_applicable_by_class": false
  },
  {
    "clause": "6.2",
    "id": "IND-2",
    "name": "Protective stop at envelope limits",
    "points_max": 15,
    "what_is_measured": "Protective/safeguard stop performance at declared max speed **and** max payload **and** max slope **and** worst de",
    "rungs": [
      {
        "points": 15,
        "state": "stops within declared distance in all four witnessed"
      },
      {
        "points": 12,
        "state": "pack-evidenced (documents), not demonstrated"
      },
      {
        "points": 10,
        "state": "three"
      },
      {
        "points": 8,

```

```

    "state": "stop functions certified by an accredited third party with published stopping time/distance data at scenario limits (F17)",
  },
  {
    "points": 5,
    "state": "two, or nominal only"
  },
  {
    "points": 0,
    "state": "fewer or not established"
  }
],
"ceiling": {
  "unverified": 8,
  "verified": 12,
  "certified": 15
},
"company_wide": null,
"evidence_bar": "Envelope declared with numeric limits. Applies to all classes (for manipulators: stop at max speed/payload/reach).",
"applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
"not_applicable_by_class": false
},
{
  "clause": "6.3",
  "id": "IND-3",
  "name": "Human/obstacle detection at declared conditions",
  "points_max": 12,
  "what_is_measured": "Detection of a test obstacle of the declared minimum detectable size at declared max speed, including switching-fi",
  "rungs": [
    {
      "points": 12,
      "state": "detected and stopped in all declared conditions"
    },
    {
      "points": 10,
      "state": "pack-evidenced (documents), not demonstrated"
    },
    {
      "points": 8,
      "state": "nominal + one boundary"
    },
    {
      "points": 4,
      "state": "nominal only"
    },
    {
      "points": 0,
      "state": "not established. Applies to: mobile class only. Not applicable to manipulators (protection is PFL/SSM under IND-4) or to"
    }
  ],
  "ceiling": {
    "unverified": 8,
    "verified": 10,
    "certified": 12
  },
  "company_wide": null,
  "evidence_bar": "Minimum detectable object size and ambient-light envelope declared.",
  "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
  "not_applicable_by_class": false
},
{
  "clause": "6.4",
  "id": "IND-4",
  "name": "Collaborative operation controls",
  "points_max": 10,
  "what_is_measured": "For declared collaborative modes: speed-and-separation zone behaviour and/or power-and-force limiting at declared",
  "rungs": [
    {
      "points": 10,

```

```

    "state": "all declared modes established at limits"
  },
  {
    "points": 9,
    "state": "pack-evidenced (documents), not demonstrated"
  },
  {
    "points": 6,
    "state": "established nominal"
  },
  {
    "points": 3,
    "state": "design evidence only"
  },
  {
    "points": 0,
    "state": "not established. Models declaring no collaborative mode: fixed 6 (non-collaborative by design, guarded per IND-1) – recor
  }
],
"ceiling": {
  "unverified": 6,
  "verified": 9,
  "certified": 10
},
"company_wide": null,
"evidence_bar": "Collaborative modes declared (or explicitly declared absent).",
"applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
"not_applicable_by_class": false
},
{
  "clause": "6.5",
  "id": "IND-5",
  "name": "Degraded-sensing behaviour",
  "points_max": 8,
  "what_is_measured": "With a declared sensor partially obscured / at worst declared lighting, the robot enters its declared safe state."
  "rungs": [
    {
      "points": 8,
      "state": "safe state in all declared degraded conditions"
    },
    {
      "points": 6,
      "state": "pack-evidenced (documents), not demonstrated"
    },
    {
      "points": 4,
      "state": "in some"
    },
    {
      "points": 0,
      "state": "not established or unsafe"
    }
  ]
},
"ceiling": {
  "unverified": 4,
  "verified": 6,
  "certified": 8
},
"company_wide": null,
"evidence_bar": "Degraded conditions declared in the envelope.",
"applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
"not_applicable_by_class": false
},
{
  "clause": "6.6",
  "id": "IND-6",
  "name": "Restart and interlock discipline",
  "points_max": 6,

```

```

    "what_is_measured": "No resumption after protective/e-stop without the declared deliberate reset; no start with a zone/guard violated;
  "rungs": [
    {
      "points": 6,
      "state": "all three witnessed, or all three documented in the public/pack safety documentation (F3)"
    },
    {
      "points": 3,
      "state": "partial"
    },
    {
      "points": 0,
      "state": "resumes automatically. Applies to all classes"
    }
  ],
  "ceiling": {
    "unverified": 6,
    "verified": 6,
    "certified": 6
  },
  "company_wide": null,
  "evidence_bar": "Reset behaviour documented.",
  "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
  "not_applicable_by_class": false
},
{
  "clause": "6.7",
  "id": "IND-7",
  "name": "Industrial duty-cycle throughput",
  "points_max": 10,
  "what_is_measured": "Declared cycle time / throughput honoured under representative multi-cycle work.",
  "rungs": [
    {
      "points": 10,
      "state": "witnessed at declared throughput (`r` = 1.0)"
    },
    {
      "points": 8,
      "state": "throughput measured by a third party or by the manufacturer's test evidence within tolerance, not witnessed"
    },
    {
      "points": 6,
      "state": "`r` = 0.6"
    },
    {
      "points": 3,
      "state": "`r` = 0.3"
    },
    {
      "points": 0,
      "state": "`r` = 0 or no measurement"
    }
  ],
  "ceiling": {
    "unverified": 8,
    "verified": 8,
    "certified": 10
  },
  "company_wide": null,
  "evidence_bar": "A throughput or cycle-time claim exists.",
  "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
  "not_applicable_by_class": false
},
{
  "clause": "6.8",
  "id": "IND-8",
  "name": "Fault recovery and repair in industrial duty",
  "points_max": 8,

```

```

    "what_is_measured": "Operator-level fault recovery and field-replaceable repairs achievable within declared times using the manual.",
    "rungs": [
      {
        "points": 8,
        "state": "recovery + a module swap within declared times"
      },
      {
        "points": 6,
        "state": "evidenced by documents alone (public or pack), not demonstrated"
      },
      {
        "points": 5,
        "state": "recovery only"
      },
      {
        "points": 2,
        "state": "documented only"
      },
      {
        "points": 0,
        "state": "not documented"
      }
    ],
    "ceiling": {
      "unverified": 6,
      "verified": 6,
      "certified": 8
    },
    "company_wide": {
      "text": "Repair record: model-specific 5 / company-wide 4 (Verified)",
      "ceiling": null
    },
    "evidence_bar": "Service manual exists.",
    "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
    "not_applicable_by_class": false
  },
  {
    "clause": "6.9",
    "id": "IND-9",
    "name": "Fleet network exposure controls",
    "points_max": 8,
    "what_is_measured": "Robot operates in a segmented/offline industrial network; updates are signed and operator-controlled; remote acces
    "rungs": [
      {
        "points": 8,
        "state": "all established live"
      },
      {
        "points": 7,
        "state": "documented in detail and covered by a public third-party security certificate/audit"
      },
      {
        "points": 5,
        "state": "two established"
      },
      {
        "points": 4,
        "state": "documented in detail (offline mode, signing, access model, ports) (F3)"
      },
      {
        "points": 2,
        "state": "documented only"
      },
      {
        "points": 0,
        "state": "none"
      }
    ]
  }
]

```

```

    "ceiling": {
      "unverified": 7,
      "verified": 7,
      "certified": 8
    },
    "company_wide": null,
    "evidence_bar": "Update and access model documented. Applies to all classes.",
    "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
    "not_applicable_by_class": false
  },
  {
    "clause": "6.10",
    "id": "IND-10",
    "name": "Industrial-context field record",
    "points_max": 8,
    "what_is_measured": "Incident and availability record in industrial deployments over the manufacturer's declared window.",
    "rungs": [
      {
        "points": 8,
        "state": "no unremediated major incident and availability ≥ declared"
      },
      {
        "points": 6,
        "state": "publicly evidenced only (no pack, no demonstration)"
      },
      {
        "points": 5,
        "state": "incidents all remediated, availability near declared"
      },
      {
        "points": 3,
        "state": "public regulator/recall databases searched with recorded coverage, none found (null-result rung, F2)"
      },
      {
        "points": 2,
        "state": "unremediated minor incidents or availability materially below"
      },
      {
        "points": 0,
        "state": "unremediated major incident. Regime rule (F19): full Unverified ceiling where a public reporting regime covers the class"
      }
    ],
    "ceiling": {
      "unverified": 6,
      "verified": 8,
      "certified": 8
    },
    "company_wide": {
      "text": "Company-wide register + availability: **ceiling 6**",
      "ceiling": null
    },
    "evidence_bar": "Fleet exposure figures declared (model or company), or a null-result search recorded. Applies to all classes.",
    "applicability": "mobile · manipulator · legged-other (VRS-IND-201 §7 class table)",
    "not_applicable_by_class": false
  }
],
"pool": {
  "sector_only": {
    "points": 100,
    "ceiling_unverified": 70,
    "ceiling_verified": 85,
    "ceiling_certified": 100,
    "best_letter": {
      "unverified": "A",
      "verified": "AA",
      "certified": "AAA"
    }
  }
},

```

```
    "with_contributors": "contributor ceilings are those of the cited IR standards; the combined pool sums are verified by the conformance ga
  },
  "rules": {
    "no_evidence": "0 points (VRS-GEN-005 §6, R3.3); the criterion stays in the pool at full range",
    "not_applicable": "criterion removed from numerator and denominator for that class (VRS-GEN-006 §6)",
    "tier_rule": "AR tier ≤ IR tier (VRS-GEN-006 §7)"
  }
}
```

5 5 Field dictionary

FIELD	MEANING
sector_criteria[].clause	VRS-IND-201 subclause (6.k) — the “Required by” reference used in derived packs and protocols
sector_criteria[].points_max	Upper end of the criterion's integer range
sector_criteria[].rungs[]	Every verifiable state and its points, highest first; the 0 state is implicit where not listed
sector_criteria[].ceiling	Maximum points at each tier; always equal to a rung value (VRS-GEN-002 §7.5.1)
sector_criteria[].company_wide	Field-record criteria only: the reduced ceiling when company-wide data substitutes for model data
sector_criteria[].applicability / not_applicable_by_class	Application classes the criterion applies to; excluded criteria leave the pool for that class
contributing_ir_criteria[]	Intrinsic criteria counted in the sector pool, with the standard and clause that score them
pool.sector_only	Sums over the sector criteria and the best attainable letter at each tier (A / AA / AAA by construction)
bands_percent	Letter thresholds as a percentage of the applicable pool (VRS-GEN-006 §4)

6 6 Verification

Regenerate with `python3 tools/vrs-twin-generate.py --sector ind --check` ; a non-zero exit means the committed twin no longer matches VRS-IND-201 and shall be regenerated before publication.

7 Bibliography

- VRS-IND-201, *Industrial — AR Assessment Protocol*, v1.0.0, 2026 — the source of every number in Clause 4.
- VRS-IND-001, *IND Sector Standard*, 2026 — sector scope, hazard taxonomy and application classes.
- VRS-GEN-005, *Intrinsic Rating — Methodology*, 2026 — point aggregation and tier ceilings for the contributing IR criteria.
- VRS-GEN-006, *Application Rating Scheme*, 2026 — letter bands and pool mechanics reproduced in `bands_percent` and `pool`.
- VRS-GEN-002, *Designation and Drafting Rules*, 2026 — §6.5 criterion layout and §7.5.1 (ceilings equal rungs) that this twin verifies.
- VRS-GEN-004, *Change, Edition and Review Policy*, 2026 — how a twin regeneration is designated.
- VRS-GEN-009, *Robot Risk Passport and Registry — Data Schema*, 2026 — consumer of the payload.
- ISO/IEC 21778:2017, *Information technology — The JSON data interchange syntax*.

8 Change history

VERSION	DATE	CHANGE
1.0.0 (draft)	2026-09-16	VRS 2026 (draft) rewrite: regenerated from VRS-IND-201 Clause 5–7 (criteria, rungs, tier ceilings, contributors, bands, classes). Weights, modifiers, confidence and stage- <code>prior</code> fields removed.

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