The cobot no longer exists

What the revised robot standards and the machinery regulation change about who may approve a robot

2026

At a glance

In February 2025 the safety standard for industrial robots was revised for the first time since 2011, and in the process the word half the market sells on disappeared: ISO 10218 no longer knows a collaborative robot, only a collaborative application. On 20 January 2027 regulation (EU) 2023/1230 replaces the machinery directive, with no transitional period for new machines, and it sends software that performs a safety function by learning for itself to a notified body as a matter of obligation. The usual shortest route to a CE marking runs through a harmonised standard listed in the Official Journal. Since January 2025 not one standard of ISO or IEC origin has been listed there, because ISO and IEC are litigating at the General Court against their texts being handed out free. So the standard exists, the regulation is coming, and the bridge between the two sits with a court in Luxembourg.

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Standards of ISO or IEC origin listed in the EU Official Journal since January 2025 (analysis in In Compliance Magazine, July 2026)

Foreword

This report is about the robotics industry and about one question that has shifted inside it over the past two years: not whether a robot can work safely beside a human, but who may declare that it does. That question has little to do with engineering and a lot to do with standards, regulations and a pending copyright case.

For this report the following were examined: the text of ISO 10218-1:2025 and ISO 10218-2:2025, regulation (EU) 2023/1230 and its annexes, the judgment of the Court of Justice of 5 March 2024 and the subsequent case T-631/24, the standardisation request from the European Commission to CEN and CENELEC, and the figures from World Robotics 2025 by the International Federation of Robotics. Where a claim comes from a manufacturer or a certification body, that is stated.

The content applies on 17 July 2026. Several things in this report are still running: a court case, a standardisation process and a deadline in January 2027. Whoever reads this later is reading history.

Venture Campus

01 The robot left the cage, the standard followed

The figures on industrial robotics are rarely surprising, and 2024 was no exception. The International Federation of Robotics counted 542,076 newly installed industrial robots in 2024 in World Robotics 2025, published on 25 September 2025. That is more than double ten years earlier and the fourth year in a row above half a million. Asia took 74% of the new installations, Europe 16% and the Americas 9%. China alone accounted for 54%, or 295,000 units.

More interesting than the volume is the density, because it says something about how deep the machines sit in the work. Western Europe came out at 267 robots per 10,000 workers in industry in 2024, against 204 in North America and 131 in Asia. South Korea stands at 1,220, Singapore at 818, Germany at 449, Japan at 446. China climbed to 166, a rise of 17% in one year, which puts it twenty-second while the country at the same time has the largest installed base in the world.

What those figures do not show is the most important change: where the machine stands. For twenty years industrial robot safety was a spatial question with a simple answer. You put a fence around the robot, you tied the door to a safety circuit, and as long as nobody stood inside the fence nobody could be hit. The safety sat in the separation, not in the machine.

That separation is largely gone. Robots work next to people, on shared workstations, with force limiting and speed monitoring instead of steel. That is not a marketing story but a technical reality the standard was catching up with: ISO/TS 15066 from 2016 was a technical specification, not a standard, and it was meant as a temporary bridge until the main standard could follow.

It followed in February 2025. ISO 10218-1:2025 and ISO 10218-2:2025 replace the 2011 editions and are the first thorough revision in fourteen years. According to IDEC, which documented the background to the revision, experts from more than twenty countries worked on it for close to eight years. The content of ISO/TS 15066 is taken up in part 2. Whoever specifies a shared workstation in 2026 is working from a different book than whoever did so in 2019.

Source: International Federation of Robotics, World Robotics 2025, published 25 September 2025 · IFR, press release on robot density in World Robotics 2025 · ISO 10218-1:2025 and ISO 10218-2:2025, ISO/TC 299 in cooperation with CEN/TC 310, February 2025 · IDEC, background article on the revision of the ISO 10218 series, 3 March 2026

02 The word that was deleted

The most striking change in the revised standard is not in a technical annex but in the foreword, and it is one of vocabulary. The terms collaborative robot and collaborative operation no longer appear in ISO 10218. The standard says so itself without ceremony: only the application can be developed, verified and validated as a collaborative application.

That looks like a detail for standards committees and it is the opposite. A whole product category, with its own trade fair stands and its own price lists, is built on the idea that you buy a collaborative robot. The standard now says that no such thing exists. Collaborative is a property of the set-up: the robot, the tool on its arm, the workpiece, the speed, the distance to the human and the task, together. The same arm is safe in one cell and dangerous in another.

> A robot cannot be collaborative. Only the application can, and the integrator is the one who builds it.

The safety functions that make a collaborative task possible can, according to the standard, sit in the robot, in a protective device, or in a combination of the two. Because human collaboration is about the application and not about the robot alone, the majority of the requirements from ISO/TS 15066 ended up in part 2, which addresses the integrator, and not in part 1, which addresses the manufacturer.

Part 1 also introduces a classification of robots with matching functional safety requirements, clarifies the requirements for that functional safety, and adds requirements on cybersecurity in so far as it touches the safety of the robot. Guidance on end effectors from ISO/TR 20218-1 and 20218-2 is taken into the normative text. It is a rewrite, not a refresh.

The United States has adopted the series as ANSI/A3 R15.06-2025, published in September 2025 in place of R15.06-2012, including a renaming of the safety-rated monitored stop to monitored standstill. Two continents therefore have the same book. What Europe still lacks is the legal hook the book has to hang on, and that is what the rest of this report is about.

Source: ISO 10218-1:2025, foreword and scope, ISO/TC 299 · Association for Advancing Automation (A3), frequently asked questions on the revised ISO 10218 · The Robot Report, coverage of the revision of ISO 10218, 18 February 2025

03 20 January 2027

Regulation (EU) 2023/1230 was published in the Official Journal on 29 June 2023 and entered into force on 19 July 2023. It applies from 20 January 2027 and repeals directive 2006/42/EC on the same day. The difference between a directive and a regulation is not legal fine dining for this sector: a directive is transposed by twenty-seven member states and therefore interpreted twenty-seven ways, a regulation applies directly and identically. A machine that is compliant in Germany is compliant in Portugal too.

The structure has moved. The essential health and safety requirements sat in annex I of the old directive; they now sit in annex III of the regulation. Annex I has become something else: the list of categories for which the manufacturer may no longer declare on its own. For the categories in annex I part A, assessment by a notified body is mandatory.

Two points on that list touch robotics directly. Point 5 names safety components with fully or partially self-evolving behaviour that fulfil a safety function using machine learning techniques. Point 6 names the machines in which such components are built. If your software decides when a robot stops, when a line halts or when a human is too close to a moving part, and if that software learns, then from 20 January 2027 your code is a high-risk product that someone else has to sign for.

There is more in the regulation than the annex. Safety functions have to be protected against corruption, which in effect brings cybersecurity into machine safety law. Software updates have to be logged traceably. The concept of substantial modification can set off a recertification, which means an update to an existing machine can trigger a new assessment. Digital instructions are allowed, but a paper version has to be supplied on request.

A small number of articles entered into force earlier than the rest. The provisions on notified bodies have applied since January 2024, and article 6 (in part), article 47 and article 53(3) since 20 July 2024. Those early dates change nothing about what a manufacturer has to do; they exist to build the assessment infrastructure the main date will rest on. Whether that has worked comes up further on.

Date	What
29 June 2023	Publication in the Official Journal
19 July 2023	Entry into force
January 2024	Provisions on notified bodies apply
20 July 2024	Article 6 (in part), article 47 and article 53(3) apply
20 January 2026	Deadline for CEN and CENELEC for the first set of draft standards
end 2026	Intended implementing decision with the full list of harmonised standards
20 January 2027	Full application; directive 2006/42/EC repealed, no transitional period

Machinery regulation (EU) 2023/1230: the dates

Source: Regulation (EU) 2023/1230 on machinery, OJ L 165, 29 June 2023, EUR-Lex · EU-OSHA, overview of regulation 2023/1230 and its application dates

04 The presumption of conformity

To understand why a copyright case touches robotics, one mechanism has to be explained. A harmonised standard is a standard that CEN, CENELEC or ETSI draws up at the request of the European Commission and whose reference is then listed in the Official Journal. Applying such a standard is not mandatory. It does deliver the presumption of conformity with the essential requirements of the legislation it is tied to.

In practice that presumption is not a side matter but the main road. Eurogip put it compactly: applying harmonised standards is not an obligation, only a possible method, but in practice it is the route manufacturers follow to arrive at a CE marking. Whoever does not follow the standard has to prove for themselves that their machine meets the essential requirements, with their own technical case that a supervisor or a judge has to be convinced by years later.

The machinery sector needs that road harder than most. At the CEN-CENELEC meeting on harmonised standards of 22 May 2024, the number of existing harmonised standards for machinery was put at more than eight hundred, spread over an exceptionally large number of product categories and technology areas. Every one of those standards now has to be held up against the new essential requirements.

The Commission has issued a standardisation request for this with a phased schedule. The first milestone was 20 January 2026: the deadline by which CEN and CENELEC had to submit their first package of draft standards to the Commission, with priority for the areas where the requirements have changed relative to the directive. According to Intertek, which follows the process, that first package has been submitted and the ball is now with the Commission.

The schedule is tight. The review of all standards that stand today in the Official Journal under the directive has to be finished by the end of 2026, so that an implementing decision with the

full list can be in place shortly before 20 January 2027. According to IBF Solutions, the gaps the technical committees find can end up as restrictions in that decision. A standard with a restriction gives a presumption of conformity that no longer covers the whole text, and that is an awkward document to build a production decision on.

Source: Eurogip, explanation of harmonised standards and the presumption of conformity, 2 April 2024 · CEN-CENELEC, seminar on harmonised standards and the machinery regulation, 22 May 2024 · Intertek, analysis of the presumption of conformity under the machinery regulation, 9 February 2026 · IBF Solutions, state of play of harmonised standards under the machinery regulation

05 The standard that cannot be cited

On 5 March 2024 the Grand Chamber of the Court of Justice gave judgment in case C-588/21 P, Public.Resource.Org and Right to Know v Commission, ECLI:EU:C:2024:201. The occasion was small and the consequence is not. Two organisations campaigning for free access to the law had asked for four harmonised standards on toy safety: EN 71-4, EN 71-5, EN 71-12 and EN 12472. The Commission refused and pointed to the sales channels of the standardisation bodies, where the four together cost close to 1,200 euro.

The applicants' argument was one of the rule of law: a citizen cannot be expected to comply with a rule they have to buy in order to know it. The Court followed that to a degree. Because harmonised standards have legal effects, they form part of Union law according to the Court, and there is an overriding public interest in their disclosure that outweighs the protection of commercial interests. The Commission's refusal was annulled.

> A standard you have to buy in order to know the law is, according to the Court, part of that law.

National standardisation bodies then set up reading portals. On 27 September 2024 the Commission decided to grant access as well to international standards from ISO and IEC on which many European standards are based. On 6 December 2024 IEC and ISO went to the General Court to have that decision annulled: case T-631/24, published in OJ C/2025/919 of 17 February 2025. Their reasoning is that the March 2024 judgment concerned only standards harmonised in the Official Journal, not international standards as such, and that the Commission did not weigh their commercial interests and intellectual property.

The practical consequence stands apart from who wins. According to an analysis in In Compliance Magazine, since the start of 2025 no harmonised standard with an ISO or IEC reference has been listed in the Official Journal any more. The last listing of an IEC-based standard was EN 60456/A12:2023, through implementing decision (EU) 2025/72 of 15 January 2025. Since then only purely European standards have been added: standards without an international counterpart. Implementing decision (EU) 2026/546 of 13 March 2026 again left out EN ISO standards ratified by CEN and CENELEC.

EN ISO 10218 is exactly such a standard. It was drawn up by ISO/TC 299 in cooperation with CEN/TC 310 under the Vienna Agreement, and its text is ISO text. The revised robot safety standard therefore exists, is accepted on two continents, and cannot at this moment travel the road to the Official Journal. That is not a technical problem and not a safety problem. It is a copyright problem that happens to sit on the shortest route to a CE marking.

Source: CJEU (Grand Chamber), 5 March 2024, C-588/21 P, Public.Resource.Org and Right to Know v Commission, ECLI:EU:C:2024:201 · Case T-631/24, International Electrotechnical Commission and ISO v Commission, brought 6 December 2024, OJ C/2025/919 of 17 February 2025 · In Compliance Magazine, analysis of harmonised EMC standards and the consequences of T-631/24, July 2026 · Globalnorm, implementing decision (EU) 2026/546 of 13 March 2026

06 Who signs

Suppose the presumption of conformity is not available for your machine, or your product falls under annex I part A in any case. Then you need a notified body: an inspection organisation designated by a member state and listed by the Commission in the NANDO database. A certificate from a body that is not notified has no legal value at all for CE marking.

The designation chain is long. A member state first designates a notifying authority. That authority then assesses candidate bodies. Only after that does the Commission publish the notification in NANDO. That is why the provisions on notified bodies in the machinery regulation have applied since January 2024 and the rest only in 2027: the infrastructure had to run ahead of the obligation.

TÜV SÜD reported in September 2024 that it was the first in the world to appear in NANDO as a notified body under the machinery regulation, with number 0123, competent for the special conformity assessment procedures of article 25 for the machines in annex I. That is an achievement by the company and at the same time an indication of the pace: a good year after the regulation entered into force there was one.

How slow such a chain can be is shown by a parallel example from another regulation. For the cyber resilience regulation the designation process opened on 11 June 2026. According to an analysis of the NANDO database by Cyber Cert Labs, at the end of June 2026 not a single notified body for that regulation was registered, while article 35(2) asks member states to aim for sufficient capacity by 11 December 2026. That aim is a best-efforts obligation, not a guarantee.

The medical sector has been through this already and the lesson is not reassuring. Under the medical devices regulation there were around fifty designated bodies in May 2026, against around eighty under the preceding directives, and certification advisers quote lead times of twelve to eighteen months for a first assessment slot. Whoever wants to put a machine with a learning safety function on the European market in 2027 and only calls in 2027 is standing at the back of a queue that exists by then.

Source: TÜV SÜD, press release: first notified body in the world for the machinery regulation, September 2024 · European Commission, NANDO information system, machinery · Cyber Cert Labs, analysis of the designation of notified bodies under the cyber resilience regulation, July 2026 · CECheck, overview of notified bodies and designations, May 2026

07 What it changes

For machine builders the question shifts. It was: is our machine safe. It becomes: which part of our software decides something that touches safety, and does that part learn. That is not a philosophical question but an inventory that someone with knowledge of the codebase has to make, because the answer determines whether you may declare on your own or not. A

classification model that recognises a human in a work zone and that is retrained on production data is a different product from a light curtain.

For integrators the division of roles changes formally. The majority of the requirements for shared workstations sits in ISO 10218-2, and that part is about applications and cells, not about robots. Buying an arm with a safety certificate does not deliver a safe installation and does not give legal cover either. Validating the application is work that happens on the shop floor, with the real speed, the real tool and the real workpiece.

> From 20 January 2027 software that decides when a machine stops is an industrial product with a CE marking.

For buyers the question shifts to the contract. Standards are voluntary on paper and contractual in practice: customers, insurers and supervisors treat conformity with ISO 10218 as the basic evidence that a robot cell is safe. Whoever orders an installation today that will still be running in 2027 is buying a machine that will then fall under a different regulation, and the question of who bears the cost of any recertification belongs on the purchase order and not in an argument afterwards.

For the evidence itself the situation means something uncomfortable. You can carry out your risk assessment against ISO 10218:2025, because the standard is the best available state of the art and two continents have accepted it. But you cannot at this moment count on the presumption of conformity that a listing in the Official Journal would give. The difference is not in what you build; it is in who carries the burden of proof if something goes wrong.

For companies building AI into machine control, the most important sentence of this report is this one: from 20 January 2027 a piece of your software is an industrial product with a CE marking, and it stands on a list for which self-declaration does not exist. That does not follow from the AI regulation, which many teams are looking at. It stands in a machinery text that far fewer teams are looking at.

Source: Regulation (EU) 2023/1230, annex I part A, points 5 and 6 · ISO 10218-2:2025, scope and requirements for applications and robot cells

08 What does not add up yet

The first problem is the pace, and the standard admits it itself. A comparative analysis of the 2011 and 2025 editions in Results in Engineering, published in April 2026, calls the interval between them a systemic pace problem: fourteen years of standard against a market in which demand for robots in factories doubled between 2014 and 2024. A standard that takes eight years to write describes, on publication, the technology of halfway through.

The second is that nobody knows how this ends. Case T-631/24 was still pending at the time of writing; there is no public defence, no interim measure and no timetable. Casus Consulting estimated in November 2025 that cases of this type run eighteen to twenty-four months and that a ruling need not come before the end of 2026. Whoever says they know whether EN ISO 10218 will be in the Official Journal before 20 January 2027 is gambling.

The third is that the Commission has a way out that is seldom mentioned. It can adopt common specifications: its own technical requirements that give the same presumption of conformity without a standardisation body being involved. An article in Laws of May 2026 and a policy note from Kommerskollegium from 2025 reach the same conclusion: that is a safety net, not a replacement. The Commission lacks the means to keep technical specifications internationally current, and European specifications that diverge from ISO split the world market in two.

The fourth is a nuance that disappears in indignant pieces on this subject. There is no sector coming to a halt. A manufacturer may also demonstrate conformity without a harmonised standard, the route through a notified body exists, and the physics of a collision between an arm and a forearm has not changed because of a judgment. What disappears is the shortest route. The cost of that does not fall evenly: a large manufacturer has a standards department, a machine builder with thirty people does not.

The fifth is the gap this whole series of standards does not cover. ISO 10218 assumes statically stable robots: machines that stay standing when the power fails. A two-legged machine does not. A separate process is running for that category, ISO 25785-1, and it is not a published standard. What that means for the machines now walking around warehouses is the subject of another report.

Source: Evolution of safety requirements in industrial robotics: comparative analysis of ISO 10218-1/2 (2011 vs. 2025), Results in Engineering, ScienceDirect, April 2026 · Casus Consulting, analysis of the state of case T-631/24, November 2025 · Public Resource Dot EU: Compliance Pathways for the EU Standardisation System After the Malamud Judgment, Laws 15(3), May 2026 · Kommerskollegium (Swedish National Board of Trade), Common Specifications: Fallback or challenge for harmonised standards within the EU?, policy note 2025 · ISO/CD 25785-1, ISO/TC 299, stage 30.20 on 17 July 2026

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SOURCES

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