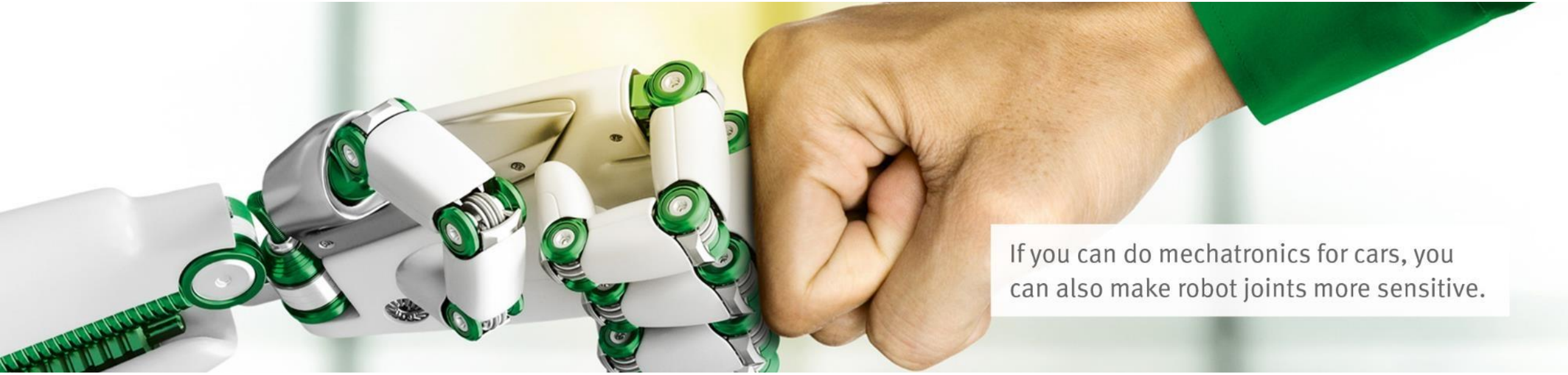
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From Components to Coworkers – How Schaeffler is Driving the Future of Humanoid Robotics

Humanoid Tour

Erlangen, September 2026

We pioneer motion

SCHAEFFLER

The Motion Technology Company – All divisions at a glance

E-Mobility



Modular and scalable solutions for all types of electric drives.

Powertrain & Chassis



Innovative solutions for powertrain and chassis systems.

Vehicle Lifetime Solutions



Tailored solutions for vehicle maintenance and repair.

Bearings & Industrial Solutions



Leading manufacturer of rotary and linear solutions, serving a broad customer base.

+

Fifth Division



Products and technologies beyond core divisions, including new growth fields.

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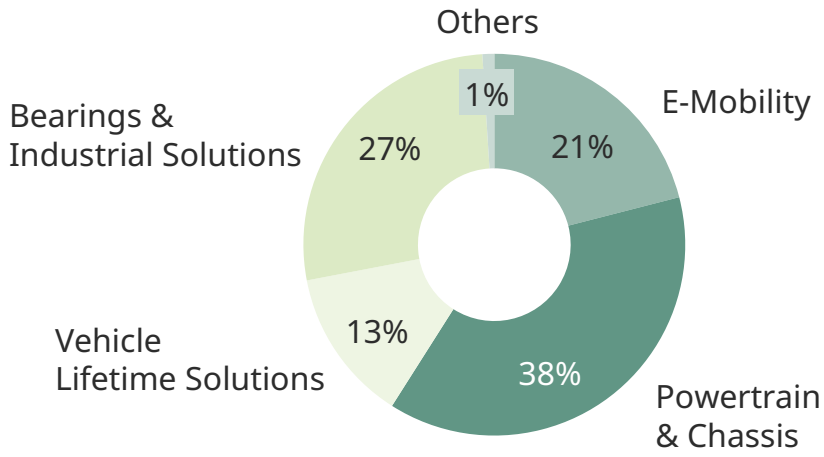
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Schaeffler Group company profile – Driving innovation and global excellence

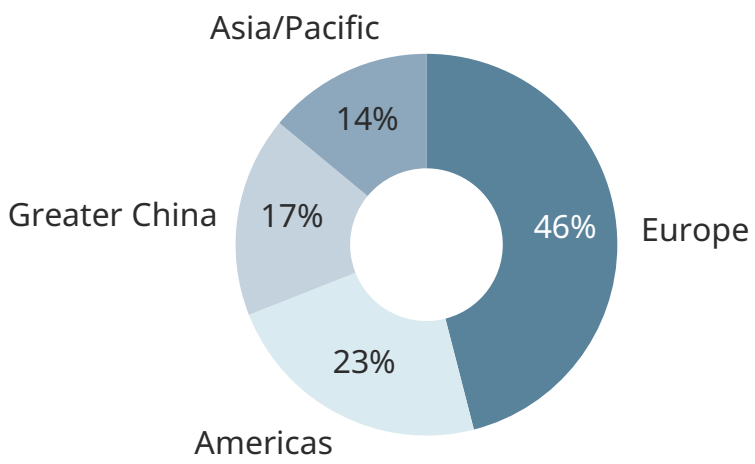
€23.5
billion of sales in 2025

4.0%
EBIT margin in 2025[1]

DIVISIONS



REGIONS



~110,000
employees worldwide

>250 locations in
~55 countries

~100 plants and
41 R&D centers

[1] Before special items

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AGENDA

1. Why we engage in Physical AI
2. Early Adaption - Learning by Doing
3. System Understanding - Designing the Right Solutions
4. Motion Technology - Products
5. Collaboration - Scaling through Partnerships



Physical AI has arrived – every industrial company will become a robotics company.

Jensen Huang – CEO Nvidia

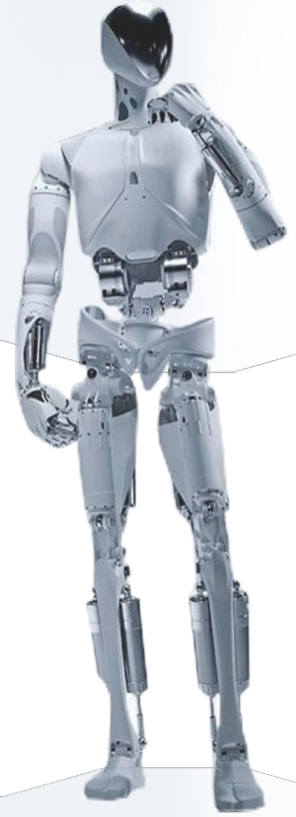
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Demand-driven Transformation – Physical AI is the Future of Manufacturing

Breakthroughs in AI and technology

Disruption in AI from machine learning to physical AI

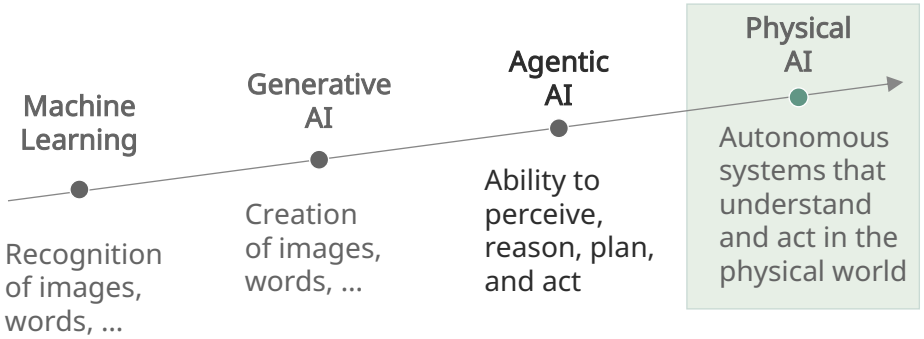
AI advances enable perception, reasoning, and action



Economic need

Labor shortages and rising costs accelerate adoption

Advances in AI enable adaptive decision-making



Impact on industries

TODAY		BY 2030
~ 800 mn. industrial workers worldwide[1]	**~ 60%** of tasks are automatable[3]	**~ 85 mn.** unfilled positions globally[2]

Humanoid robots will fundamentally transform traditional work models, with the potential to increase industrial productivity by up to 10×

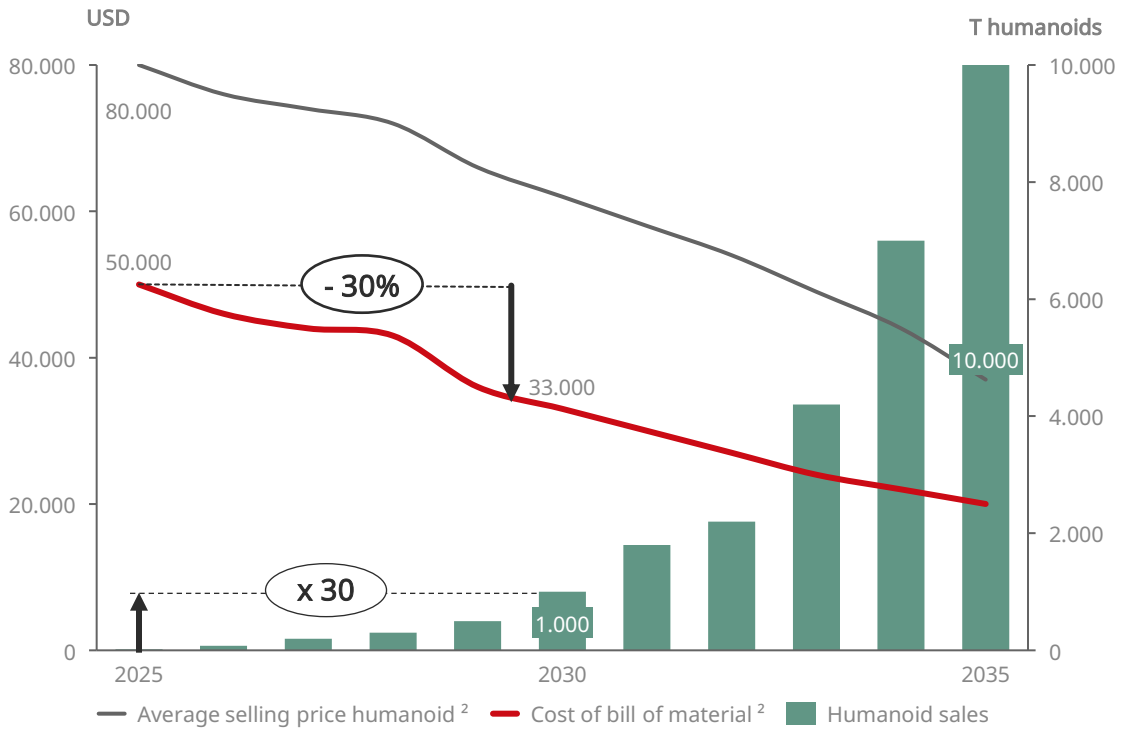
[1] Statistica (2023) | [2] Forbes (2023) | [3] Neura (2025)

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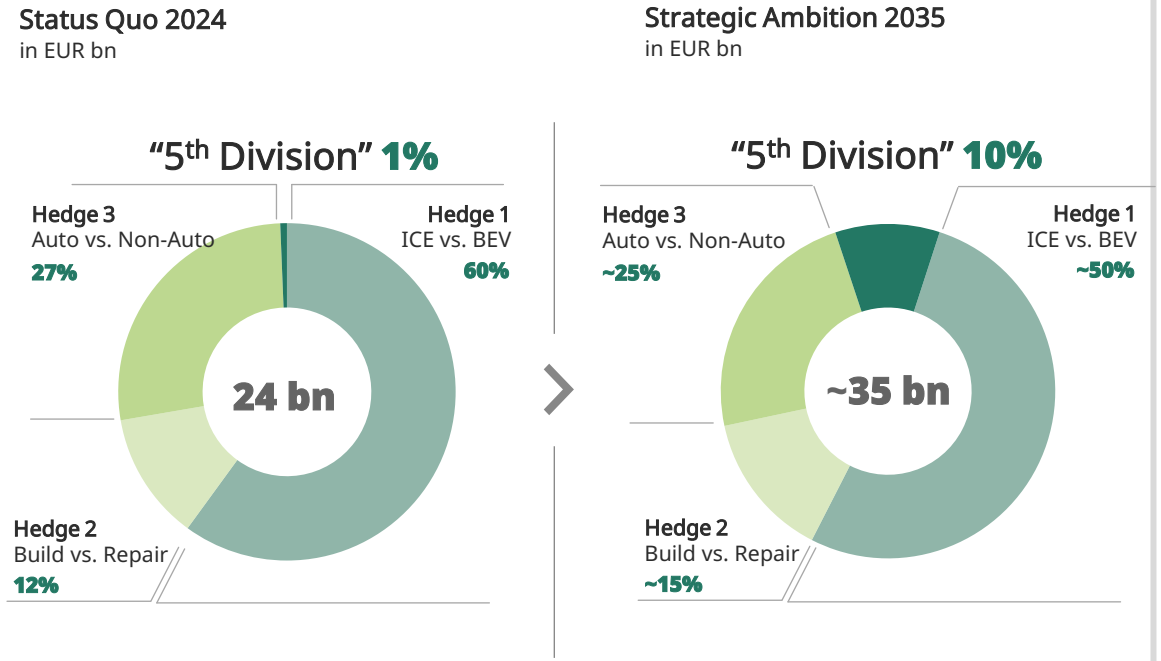
Outlook – Diversifying Schaeffler's business portfolio

Development of annual humanoid sales until 2035 [1]



The number of humanoid sales will multiply by 30 until 2030 and material costs are expected to decline by 30%

Exploiting according new growth opportunities at Schaeffler



Schaeffler aims to achieve a market share of >10 % by 2030 in the rapidly growing humanoid market

1) Bank of Americas (2025) | 2) Goldman Sachs (2025)

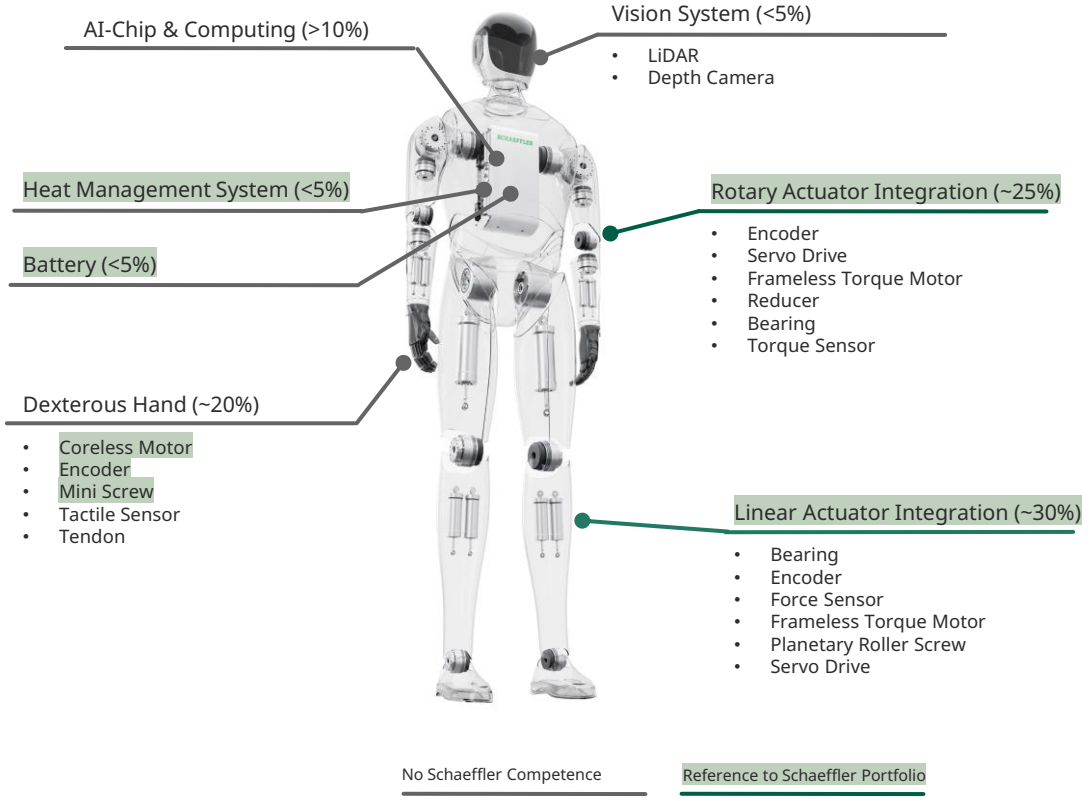
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Schaeffler's core competence with integrated linear and rotary actuators account for ~ 50 % of the bill of material costs for humanoids

Sustain motion	Repair & Monitoring Services	
Energize motion	Battery & Hydrogen Solutions	
Drive motion	E-Motors & E-Drives	
Power motion	Power Electronic Units	
Generate motion	Actuators	
Control motion	Electric Control Units & Sensors	
Transmit motion	Transmission & Engine Components	
Guide motion	Bearings & Linear Guides	

Schaeffler's Holistic System Understanding as foundation to establish a strong position in the humanoid market



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SCHAEFFLER

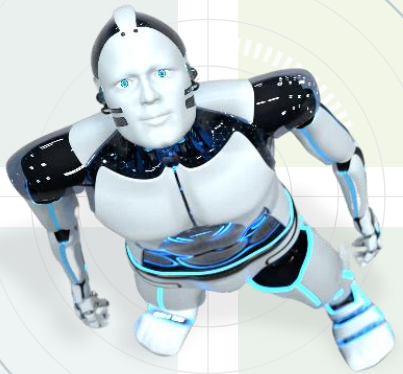
Schaeffler Fully Committed – Supporting the Entire Humanoid Lifecycle

HUMANOID USER

Deploying humanoids across our **100 global manufacturing plants**

SYSTEM & COMPONENT SUPPLIER

Providing the broadest **integrated motion portfolio** for humanoids from bearings to smart actuators



INTEGRATOR & INDUSTRIALIZATION PARTNER

Turning **pilots into production** with proven playbooks and line ready processes

LIFETIME SOLUTION PROVIDER

Cradle-to-grave support from parts training to predictive maintenance

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The First Step:

Early Adoption

Tackling Operational Challenges – Through Advanced Automation & Humanoids

Challenges



Efficiency



Flexibility



Performance

Strategic approaches

- Digitalization and AI
- Sustainability
- **Automation**
- Touchless Material Flow
- New Manufacturing & Material Solutions

Physical AI application in Schaeffler factories

Factory

Industrial Metaverse



Robotics AI & Humanoid Gyms



Humanoid Applications

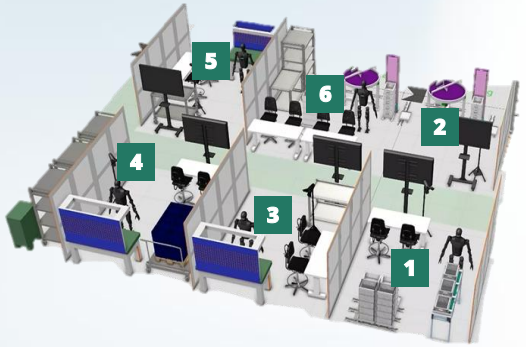




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Schaeffler Humanoid Gyms – Collecting Manufacturing Data to Ensure Readiness



Humanoid gyms across our regions enable:

- Data Collection for Manufacturing
- Humanoid Actuator Production
- Robot Skill Training
- Deployment preparation

Lighthouse Factory – Shanghai

- **World's first** combined Humanoid Gym & Humanoid actuator production facility
- Includes advanced data collection
- Local OEM's bots already onsite
- Grand Opening planned for Q4 2026







Actuator Production Line

Regional Humanoid Gyms enable efficient manufacturing skill development and seamless robot adaptation

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Use Case Data is the New Currency – For Fast Deployment & Efficient AI

SCHAEFFLER USE CASES

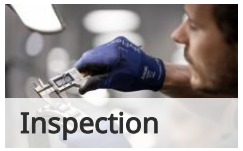
Robot skills


Logistics


Feeding


Tending


Assembly


Inspection


Packaging

DATA COLLECTION & PIPELINE

Robot data collection

- Robot / teleoperation data
- Synthetic data
- Peripheral data

Schaeffler Humanoid Gyms

AI ROBOT MODELS & SKILLS

Physics based simulation and training

e.g Nvidia

Robot foundation models

e.g Gr00t

HUMANOID DEPLOYMENT

Across 100 factories



Including Early Pilot Deployments

We leverage global production data to train shopfloor humanoid robots, which drives our product development

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The Big Picture:
System Understanding

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Necessary to Understand the Complete System & Requirements – Drives Product Design

OEM Customer Needs

Humanoids with...

- Human-like dimensioning
- Human-like performance
- Cost-efficient

Schaeffler Use Case & Simulation Experience



Actuator KPIs

Actuators with...

- Small Package
- Low Weight
- High Efficiency
- Affordable & Scalable

Component Architecture

Components with...

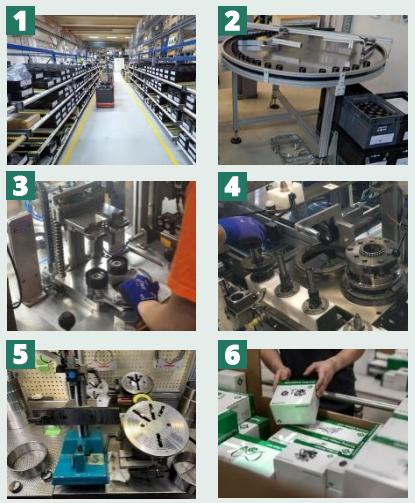
- Axial short package
- High number of pole pairs
- Low loss stator winding
- Efficient sensors / switches
- Low-torque back drive ability
- Mass production technology

Integrating customer requirements and Schaeffler expertise to develop optimized humanoid systems

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How to define the right product? Usecase-drive development method

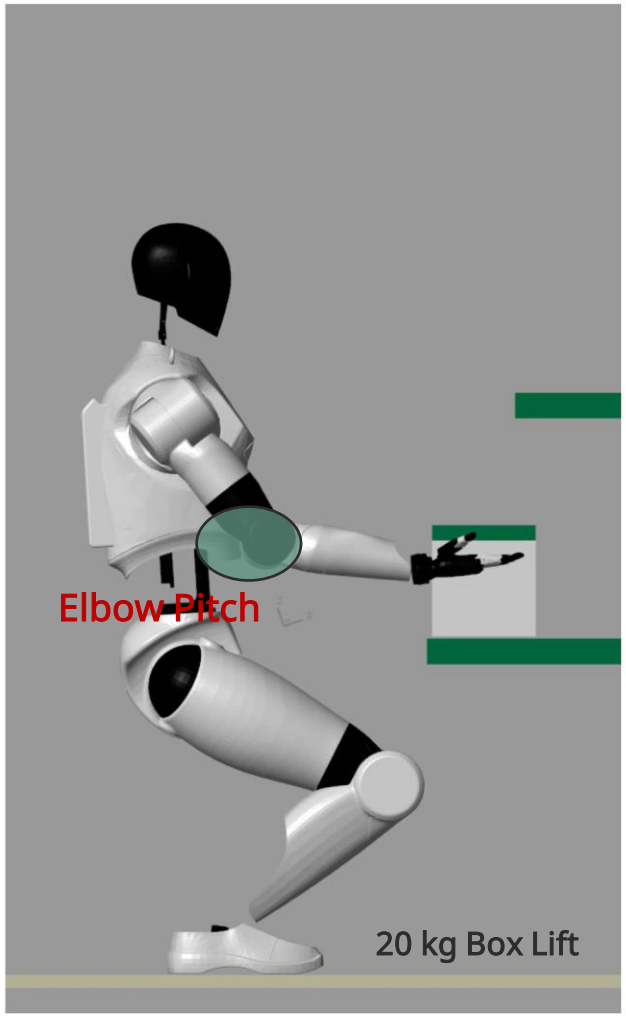
USECASE ANALYSIS



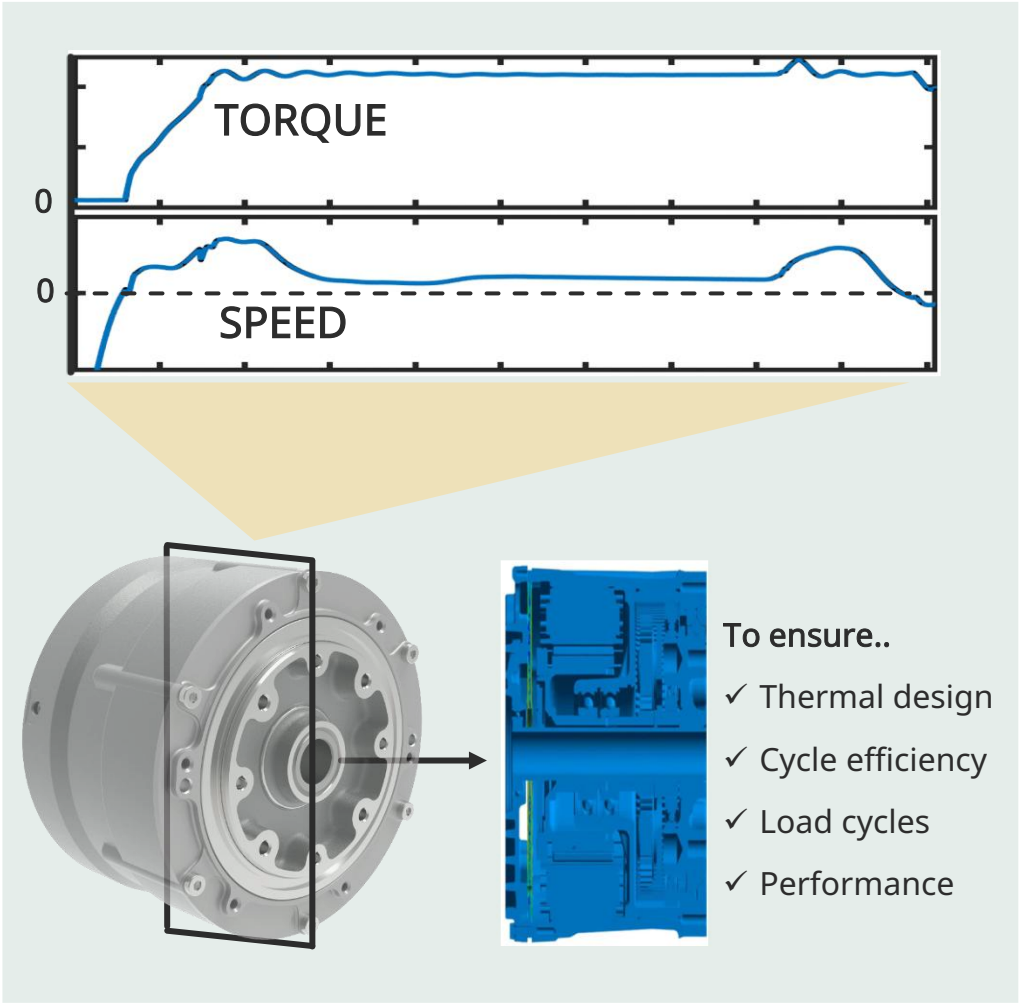
Humanoid Test Cycle

- Box handling
- Walking with payload
- Pick and Place
- Special gripper manipulation

DIGITALIZATION & TRAINING



REQUIREMENTS & ACTUATOR DESIGN



To ensure..

- ✓ Thermal design
- ✓ Cycle efficiency
- ✓ Load cycles
- ✓ Performance

Leveraging our Schaeffler use cases to feed simulation allowing component design to be tailored to specific requirements.

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INTERNAL



What Moves Humanoids:

Motion Technology

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From Today's Industrial & Automotive – To Tomorrow's Physical AI

Core Manufacturing Technology & Vertical Integration

HOT FORMING



COLD FORMING



MACHINING



HEAT TREATMENT



INJECTION MOLDING



COATING



WINDING TECHNOLOGIES



ASSEMBLY & TESTING TECHNOLOGIES



SURFACE MOUNTING TECHNOLOGIES (SMT)



ELECTRONICS PROTECTION TECHNOLOGIES



INTERCONNECTION TECHNOLOGIES



ADDITIVE MANUFACTURING



Leading Global Automotive & Industrial Supplier





Our Product Families



Sustain Motion



Energize Motion



Drive Motion



Power Motion



Generate Motion



Control Motion

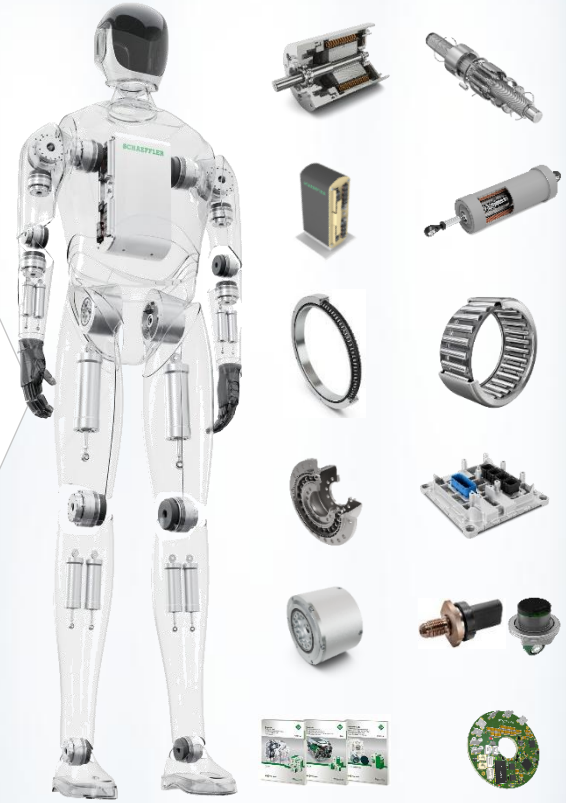


Transmit Motion



Guide Motion

Schaeffler's Humanoid Portfolio



Humanoids are about motion – Schaeffler's motion technology portfolio is a natural fit

Motion Technology – For Award-winning Humanoid Actuator Platforms

SCHAEFFLER

2026 HERMES AWARD WINNER

Sustain Motion

Energize Motion

Drive Motion

Power Motion

Generate Motion

Control Motion

Transmit Motion

Guide Motion

All new Humanoid rotary actuator platform

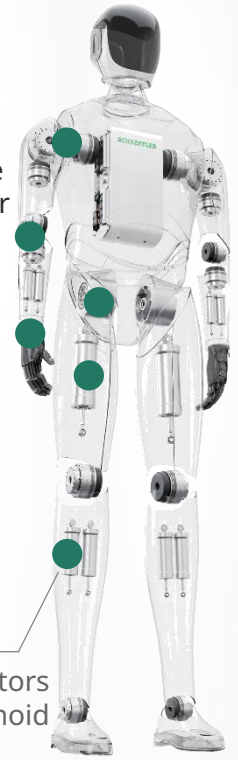
Deep vertical integration drives compact packaging space

20% less axial space and up to 500 g weight reduction

Controllers & eMotors shared across multiple sizes

Integrated torque sensor planned for Q4 2026





30+ Actuators per Humanoid

Actuators are the muscle behind humanoid motion – Schaeffler's torque-dense, efficient actuator platforms support scalability



Bringing It All Together:

Collaboration

SCHAEFFLER

Building Strong OEM Strategic Partnerships – Win-Win

SCHAEFFLER



Humanoid User
- Preferred customer for automation
- Data collection and skill development

System & Component Supplier
- Preferred actuator & component supplier
- Joint development
- Broad product portfolio

Integrator & Industrialization Partner
- Preferred integration partner for humanoid deployment & production equipment

Lifetime Solution Provider
- Preferred Cradle-to-grave support via REPXPERT with local parts training diagnostics & predictive maintenance

Humanoid





Neura

Rokae





Agility

Hexagon



Leju



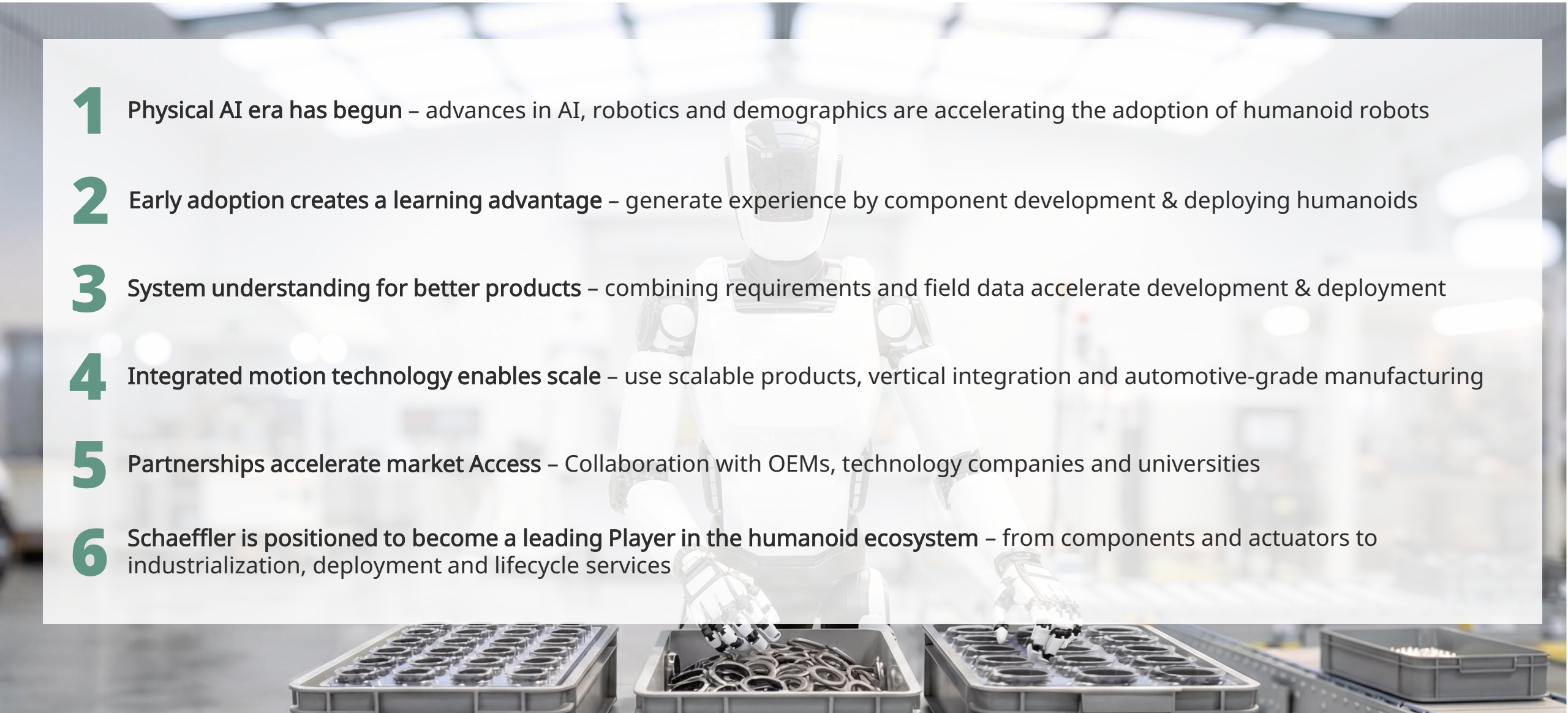
VinDynamics

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SUMMARY

Schaeffler's Path to Humanoid Leadership

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1. **Physical AI era has begun** – advances in AI, robotics and demographics are accelerating the adoption of humanoid robots
2. **Early adoption creates a learning advantage** – generate experience by component development & deploying humanoids
3. **System understanding for better products** – combining requirements and field data accelerate development & deployment
4. **Integrated motion technology enables scale** – use scalable products, vertical integration and automotive-grade manufacturing
5. **Partnerships accelerate market Access** – Collaboration with OEMs, technology companies and universities
6. **Schaeffler is positioned to become a leading Player in the humanoid ecosystem** – from components and actuators to industrialization, deployment and lifecycle services

SCHAEFFLER