

DesAlign By Kaplan

Digitalizing The Future Of Engineering

Standardizing Engineering Excellence

Transforming local expertise into digital assets.

SOLVING DESIGN INEFFICIENCIES



Fragmented Know-How

Valuable engineering "know-how" is often trapped in individual minds or siloed spreadsheets, leading to inconsistent designs and loss of intellectual property when experts leave



Manual Design Loops

Repetitive calculations and manual validation cycles create massive bottlenecks, slowing down time-to-market for industrial components.

THE MECHANICAL DESIGN ASSISTANT

Spring Calculator COMPRESSION SPRING CALCULATION – BS EN 13906-1:2013

KAPLAN

1. Definition
2. Operation
3. Resistance
4. Assembly
5. Tests
6. Report & PDF

1. Wire Material

Material: SH per EN 10270-1:2001 Cold-drawn unalloyed wire for springs

Wire Diameter (d): 0.48 ± 0.008 mm

Rm min: 2490 MPa Rm max: 2760 MPa

E: 206000 MPa G: 81500 MPa

p: 7.85 kg/m³

2. Spring Geometry

Define dimension: D. Mean (D) D. External (De) D. Internal (Di)

D: 40.00 mm De: 40.48 mm Di: 39.52 mm

Total Active Coils (Nt): 8.00

Free Length (L0): 100.00 mm

3. Manufacturing Process


Cold-wound (Cold Coiled)
 Hot-wound (Hot Coiled)

4. Spring Ends

Type: Closed Finish: Ground

5. Calculation Results

Active coils (n):	6.00	Solid length (Lc):	3.90 mm
Spring index (w):	83.33	Min. allowable length (Ln):	34.19 mm
Internal diameter (Di):	39.52 mm	Deflection at Lc (Sc):	96.10 mm
Spring rate (R):	0.09 N/mm	Deflection at Ln (Sn):	65.81 mm
Natural frequency (fe):	18.14 Hz	Min. coil gap (Sa):	30.29 mm



Design Suggestion
Adjust the D/d ratio. If 'w' is less than 4, increase D or decrease d. If 'w' is greater than 20, decrease D or increase d.

`{"message": "In cold state, the index (w) must be between 4 and 20.", "level": "CRITICAL", "variable": "Spring index (w)=83.33"}`

v1.0.0 · Rev.lag

AI-Augmented Logic

DesAlgn isn't just a tool; it's a **Mechanical Co-Pilot**. By integrating AI layers with physics-based fundamentals, the software suggests optimal geometries, material choices, and stress tolerances in real-time.

Module of
Example



Spring

MODULAR CONNECTIVITY ECOSYSTEM



Design Fundamentals

Modules built on core mechanical laws and standards (ISO, EN, DIN). Each module is a self-contained expert for a specific element.



Module-Use Logic

Connect multiple modules to design complex assemblies. Changes in one module automatically update dependent systems.



Optimization Layer

AI scans connected modules to find the global optimum for weight, cost, and structural integrity across the entire machine.

Additional Modules

Tailor-made



Shaft



Spring



Beam



Gear



Bolt



Welding

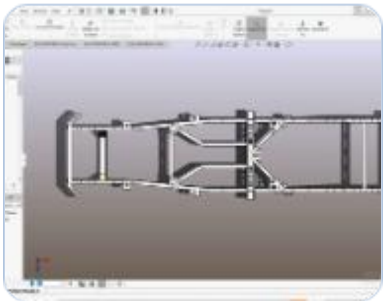


Rolling



Casting

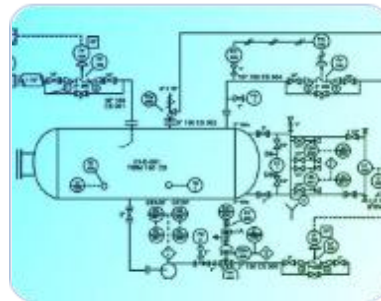
MULTI-SECTOR VERSATILITY



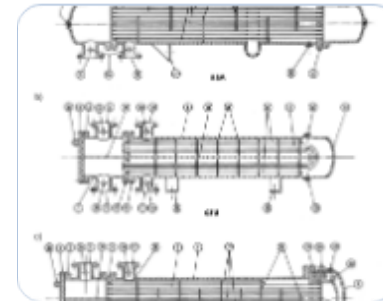
Automotive



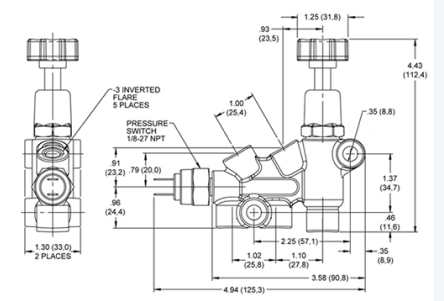
Food Industry



Chemical Processes



Thermal Equipment



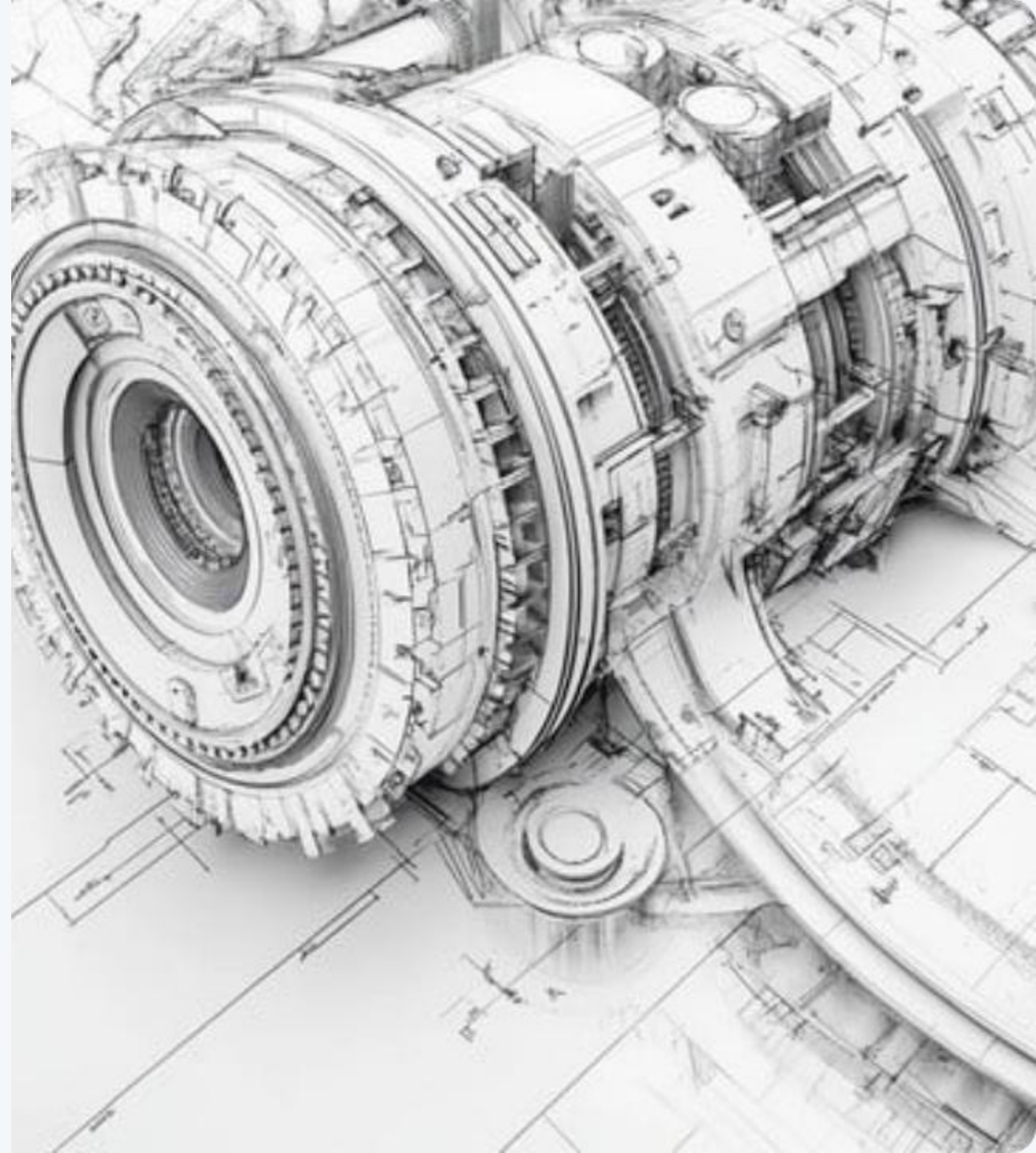
Product Design

One core logic, infinite industrial applications.

DIGITALIZING KNOW- HOW

Our platform enables companies to **Standardize and Optimize** their unique engineering methods into reusable digital assets.

"From tailor-made machinery to high-volume components design, DesAlign ensures every design is backed by verified engineering fundamentals."



WHERE NO TOOL HAS GONE BEFORE

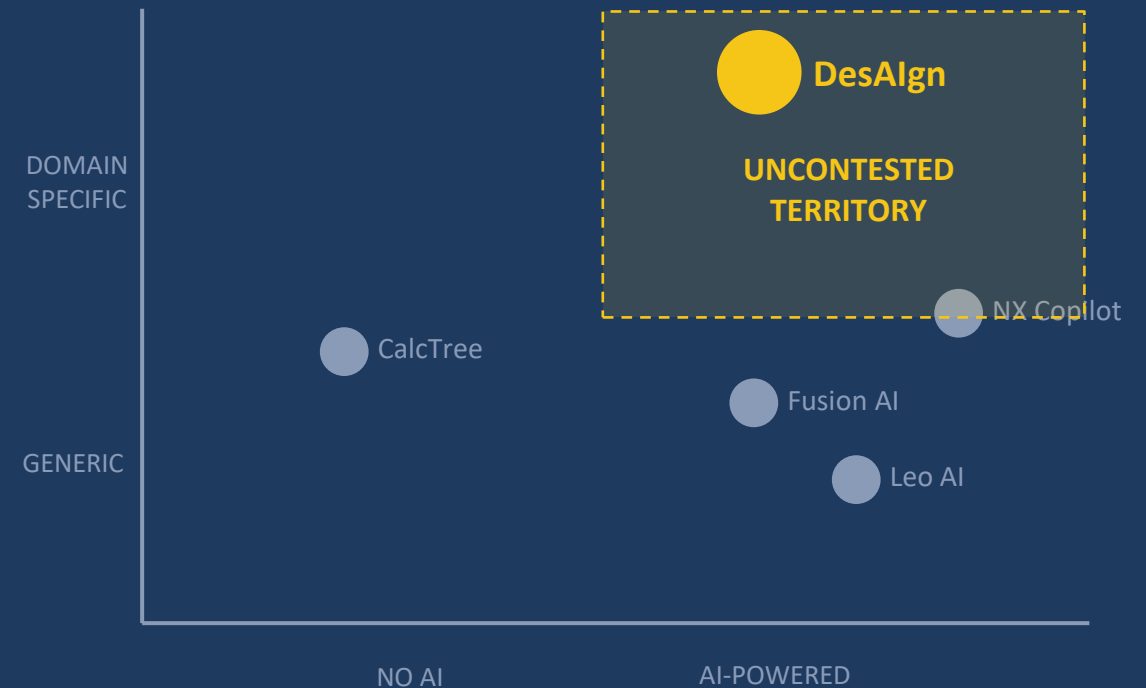
AI tools exist — but none encode physics-based mechanical standards

EXISTING AI TOOLS

- **Leo AI**
Knowledge base search & CAD part finding
- **Autodesk Fusion AI**
Generative geometry & topology optimization
- **Siemens NX Copilot**
PLM navigation & BOM analysis
- **Neural Concept**
AI simulation result prediction
- **CalcTree**
Generic structural calculations (civil/structural)

⚠ None encode domain-specific calculation standards (EN, ASME, ISO)

DESAIGN'S WHITE SPACE



EFFICIENCY GAIN: MANUAL vs. AI ASSISTANT

Spring design to EN 13906-1 — a task DesAlign already handles today

MANUAL PROCESS

- | | |
|---|-------|
| 1. Gather material data from standards | 1.0 h |
| 2. Calculate wire diameter & coil index | 1.0 h |
| 3. Check buckling & fatigue limits | 1.5 h |
| 4. Draft calculation report | 1.0 h |

TOTAL: ~4.5 hours per design

WITH DESAIGN

- | | |
|--|-------|
| 1. Select material from embedded library | 0.1 h |
| 2. AI suggests geometry within code limits | 0.2 h |
| 3. Real-time safety checks (auto) | 0.1 h |
| 4. Auto-generated report (PDF/DOCX) | 0.1 h |

TOTAL: ~0.5 hours per design

VS

9x

Faster design cycles

Hours → minutes for standard calculations

GLOBAL MARKET OPPORTUNITY

Engineering software is one of the fastest-growing sectors in industrial tech

\$48.8B

Market size today

Engineering software, 2025

18.5%
CAGR

\$246B

Market by 2034

Projected at 18.5% CAGR

Uncontested niche

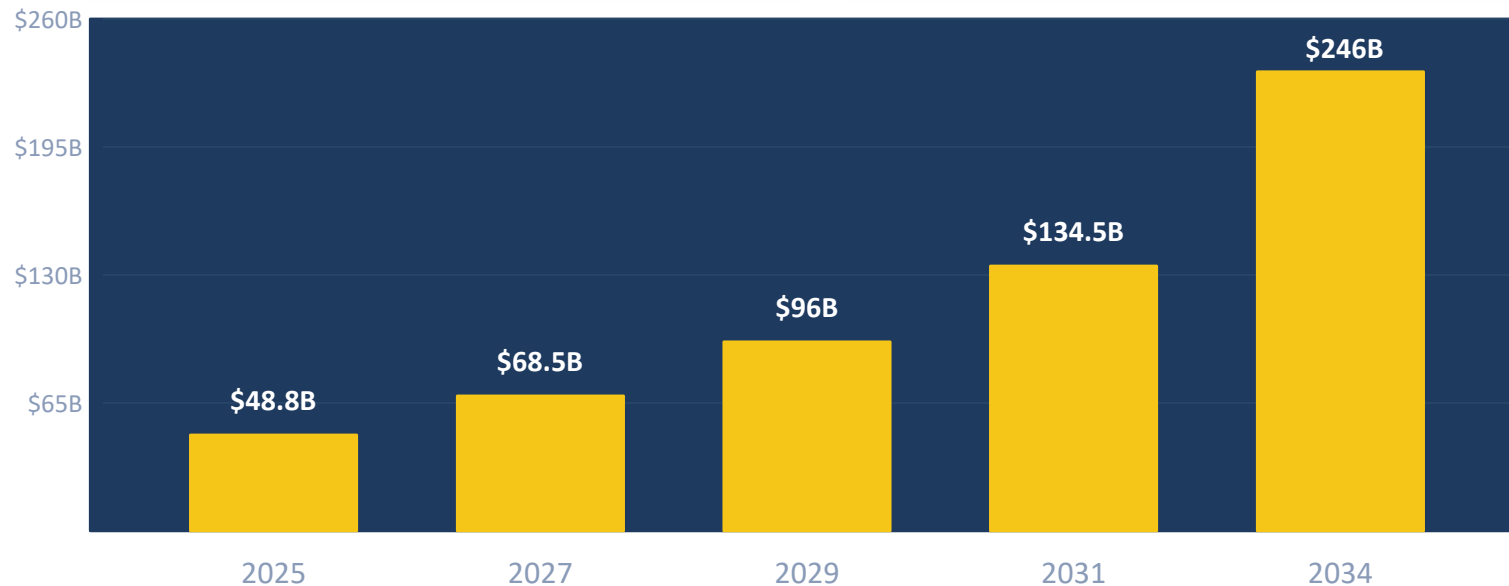
No AI tool today encodes physics-based mechanical calculation standards (EN, ASME, ISO). DesAlign is first.

Automation as major driver

More than 70% of global engineering projects integrated CAD automation tools (2024).
Mechanical design is 42% of total software usage.

Global reach by design

Modular SaaS architecture targets SMEs in LATAM, Europe & North America — where 70%+ of projects still use spreadsheets.



DesAlign is positioned at the intersection of a \$246B market and a zero-competitor niche

Sources: Precedence Research (2025) · Mordor Intelligence (2025) · IntelevoResearch (2025) · Leo AI (2025)

*Precision is the foundation of engineering;
speed is the driver of modern industry.
Delivers both, **DesAlign** both.*

Why spending time on standard calculations rather than high-value innovation?

THE STRATEGIC ROADMAP



Core Design

Establish fundamental mechanical modules & engineering standards.



AI Integration

Neural layer deployment for real-time design optimization.



Connectivity

Module interconnection logic (System-level assemblies).



SaaS & Custom

Cloud distribution with custom module creation on request.

Integral Client Support: We develop tailor-made modules on-demand to digitize your company's proprietary know-how.

DesAlign By Kaplan

Built by Engineers, for Engineers

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