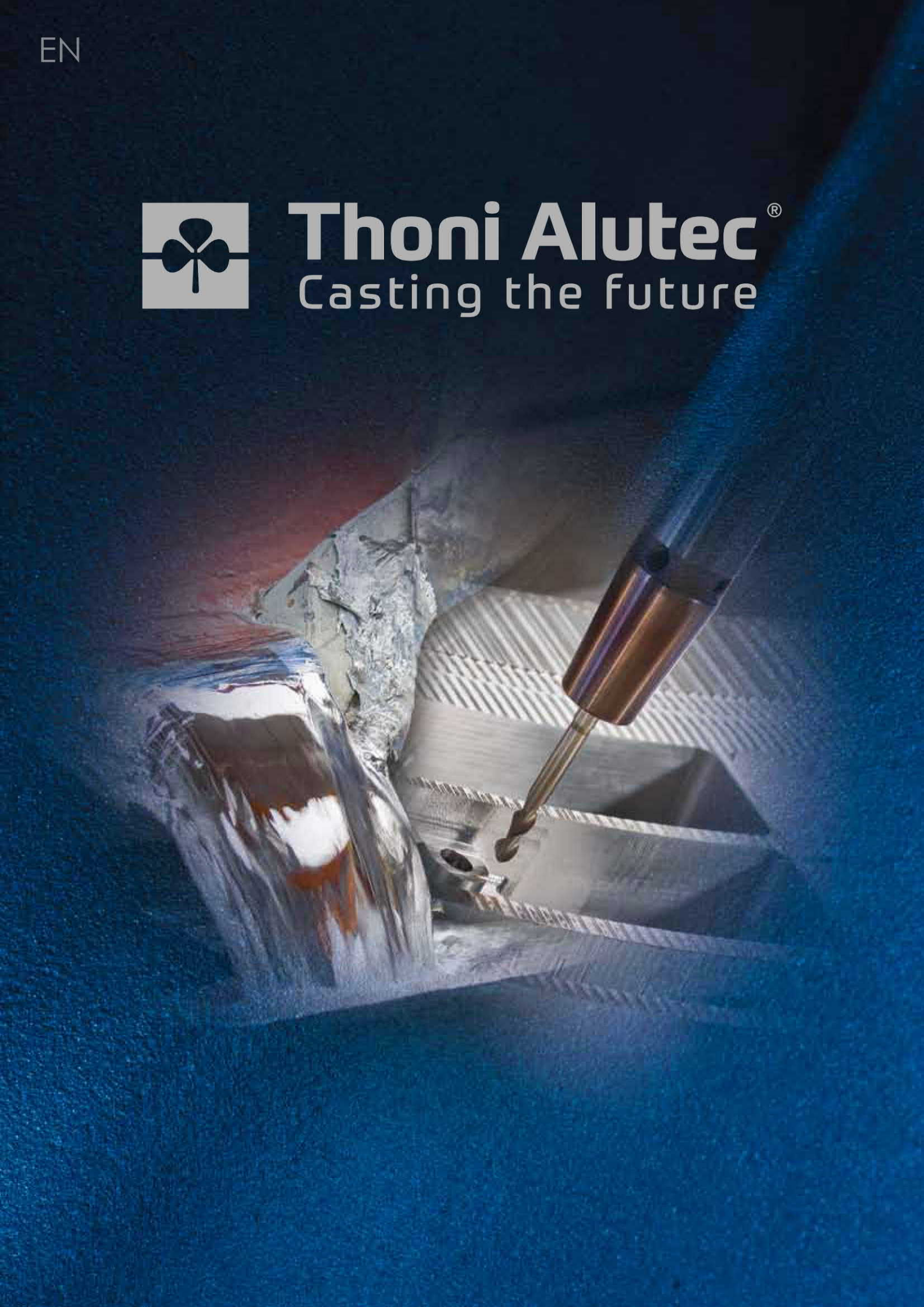
EN

Thoni Alutec®

Casting the future



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About us

With approximately 2000 employees, THONI-ALUTEC has become the technological and market leader for Aluminium castings.

THONI-ALUTEC offers a full supplier service, from casting development to complete assemblies.

On our 420,000 sqm site with 72,500 sqm of indoor production facilities, we produce sand and die castings using gravity and low pressure processes.

In our modern CNC machine shop, we machine our raw castings to high precision. Assembly and surface treatment can also be performed onsite.

We offer you the complete solution.

From casting design, tool making, casting, machining and surface treatment to assembly, we supply light alloy castings weighing from 0.2 kg up to 10,000 kg and measuring more than 10 metre's in length.

Our goal is to provide technical high-integrity Aluminium castings to international industries. Through innovative product and process development, we make full use of the material's mechanical properties, ensuring that we continue to extend our market reach.



Casting traditions from early 40's.
Family own business since 1967.


thoni




thoni



Markets

Our portfolio shows our achievements in the light alloy castings arena. International customers in various industries regard THONI-ALUTEC as a high-performance and reliable partner. Our distant clients in the USA, China and India are testimony of the high level of service we provide and the trust we receive. Besides other markets, we also supply to the following:

- Medical
- Robotics
- Energy
- Railway
- Mechanical Engineering
- Engine technology
- Aerospace
- Defense
- Marine

With decades of experience and our continual expansion in the range of services we provide, we see the competence of our employees as central to our activities. Through continually improving and building on the skills of our staff, THONI-ALUTEC is now one of the most modern and productive foundries in its market segment. We regard customers as our partners whose innovative ideas we aim to support and realize.



Certificates

Our employees and processes are certified according to the following standards:

- EN ISO 9001:2015
- AS / EN 9100
- ASME Certiticate U-Stamp
- ISO/TS 22163 (IRIS)
- SVTI
- Deutsche Bahn
- EN 473
- EN 4179
- EN 15085-2
- EN ISO 3834
- ICS EU Dual-Use-Regulation No. 428/2009
- NADCAP
- ABS Marine & Offshore Approval
- BV Marine & Offshore Approval- Recognition II

Design and Development

We invite you to make use of our technical advice. Engineers experienced in successfully converting manufacturing processes and/or material substitutions, can support you from an initial idea to serial production.

Our design office will convert any new development into a lean and production-friendly design taking into account our complete process chain. Replacing welded construction or cast-iron castings with aluminium castings provides many technical and economical advantages.

Benefits from light alloy castings compared to welded construction and cast-iron castings include:

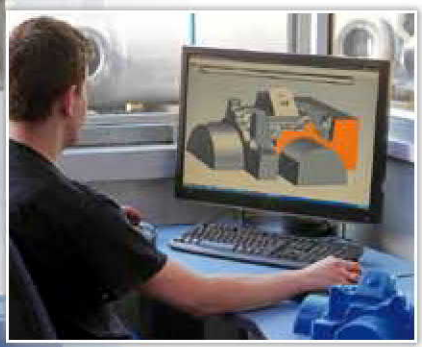
- High electrical conductivity
- Corrosion resistance
- Low weight
- High thermal conductivity
- Easy to machine
- Low stress
- Nearly unlimited freedom of design
- Fully recyclable





Pattern and tools shop

In our pattern shop, experienced senior pattern makers and young technicians form an excellent team, combining traditional pattern making and the latest CNC technology. 2D drawings or 3D models are used to manufacture new tooling. Our pattern makers can produce patterns the traditional way by drawing a mock-up or by 5-axis milling from 3D models. Our design department can support you in creating 3D models if you need it.





Sand casting of Aluminum alloys

The sand casting process offers the greatest flexibility and the most cost-effective tooling. Combined with the latest equipment in foundry technology and a dedicated workforce, we are able to tackle any requirements needed. Our sand castings, produced according to high classification standards, are even used in demanding industries such as defense and aerospace.









Gravity-die casting

Gravity die casting is suitable for castings with medium to high volume, the process gives increased strength and superior surface finish above that of sand castings. The maximum casting weight depends on the shape of the part, but it is usually limited to 150 kg because of the technical constraints of gravity die castings.





Low pressure-die and Sand casting

All the advantages of gravity die casting also apply to low-pressure die casting, but digital control automatically keeps the casting process to very tight tolerances. By filling the mould with virtually no turbulence, and combined with directed cooling and ideal feeding, we can achieve exceptional mechanical properties. This technique guarantees a high level process stability and control.

Low pressure sand casting has all the advantages of LP die casting in relation to high levels of process control. The process is suitable to cast precision castings for example to the aerospace industry.







Fettling shop

The most individual work within the process chain takes place in the fettling shop and is 100% manual. This also makes it the most demanding job. Because of this, we put a lot of effort into optimizing the workplace environment for those involved in this procedure. In the fettling shop the castings attain their required appearance, surface finish and dimensions.







Welding and copper plating

The unique combination of light weight and relatively high strength makes aluminum a most popular material for engineering constructions. Rolled, extruded material can be joined to castings by welding to give a final structure which will meet the high demands required by today's customers.

We also offer Copper plating by the thermal spraying process to increase conductivity of the aluminium surface.





Heat treatment

The heat treatment of light alloy castings has taken great leaps forward in recent years and can increase mechanical properties by up to 200%. To define suitable parameters for this treatment, we examine the castings specification according to customer requirements. Each sequence during the complete cycle is carried out automatically, to ensure process stability.

Constant monitoring of the digital recordings and process data enables us to document fully the treatment results.







CNC machining

Our CNC machine shop takes care of probably the most important step in the supply chain after the foundry. State-of-the-art CNC machining centres and CNC lathes machine our castings precisely and guarantee that parts are finished on time.

All machines are designed for machining light alloys and are in production around the clock to ensure maximum cost efficiency.

The regular internal and external training of our employees ensures that machines are used to the highest level possible. Fixtures and jigs are individually designed by our CAD engineers and then manufactured in our tool shop.

Our in-house machining gives our customers the following advantages:

- Short delivery times for machined castings
- Only one contact for casting and machining
- Improvement of cash flow (no pre-financing or storing of raw castings)
- Fast communication on quality issues between foundry and machine shop
- Efficient logistics.











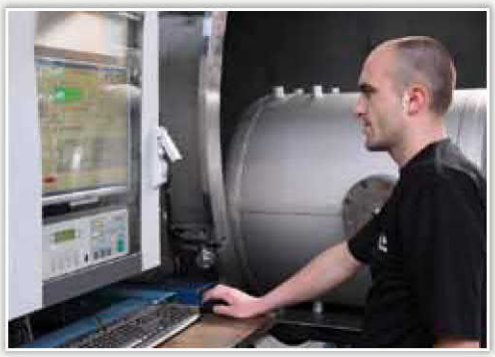
Non-destructive tests

Utilising our modern well equipped test facilities light alloy castings can be X-rayed in our three CNC chambers using real time or film if required.

Our other NDT processes include ultrasonic testing, dye-penetrant and FPI all performed in accordance to international standards and/or customer specifications.





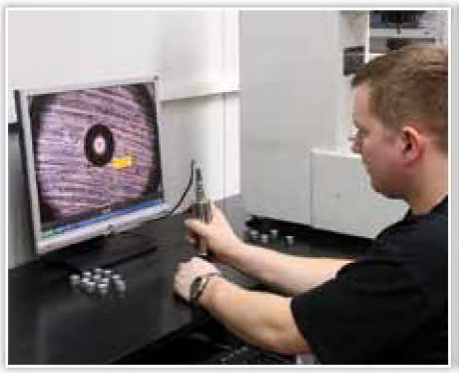
Pressure and tightness test

To define whether a casting is sound and leak tight we can perform a pressure and tightness test in our vacuum test chambers. These indicate the leakage rate of each individual casting. Operators of this equipment are authorized by international certification bodies.



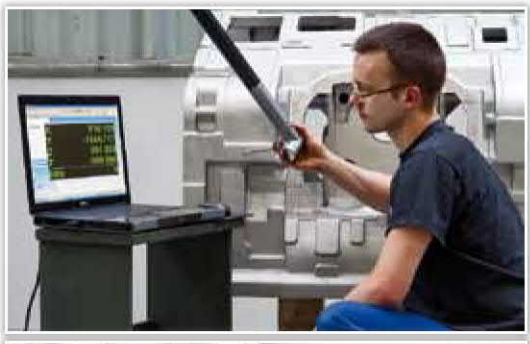
Metallurgy

The foundry is equipped with a complete metallurgical laboratory to determine the chemical and mechanical characteristics of each melt and to analyse the metallurgic condition of the molten metal before pouring. Microsections are examined under the microscope to obtain final information on the solidified aluminium. We issue 3.1 certificates for each delivered part on customer request.




Measuring equipment

To ensure machined castings precision, our measuring equipment is required to guarantee dimensional accuracy. Besides a large number of handheld measuring tools, we have installed five coordinate measuring machines, two of which are CNC controlled and operate in a fully air-conditioned environment. Combined with other high-tech tools, we can measure and analyse tooling and castings very quickly.







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Painting

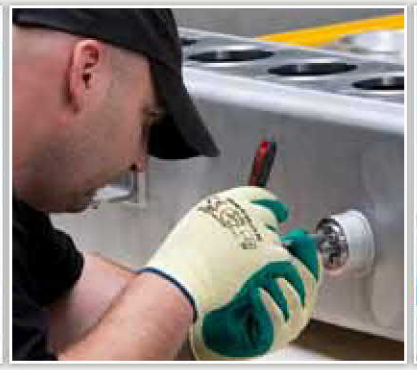
We offer a wide range of wet and powder paintings with different types of gloss levels. The environmentally friendly semi-automatic process is all in house (including surface preparation). Different casting sizes and variable batch sizes from single unit to high volume can be processed in this plant.

Assembling

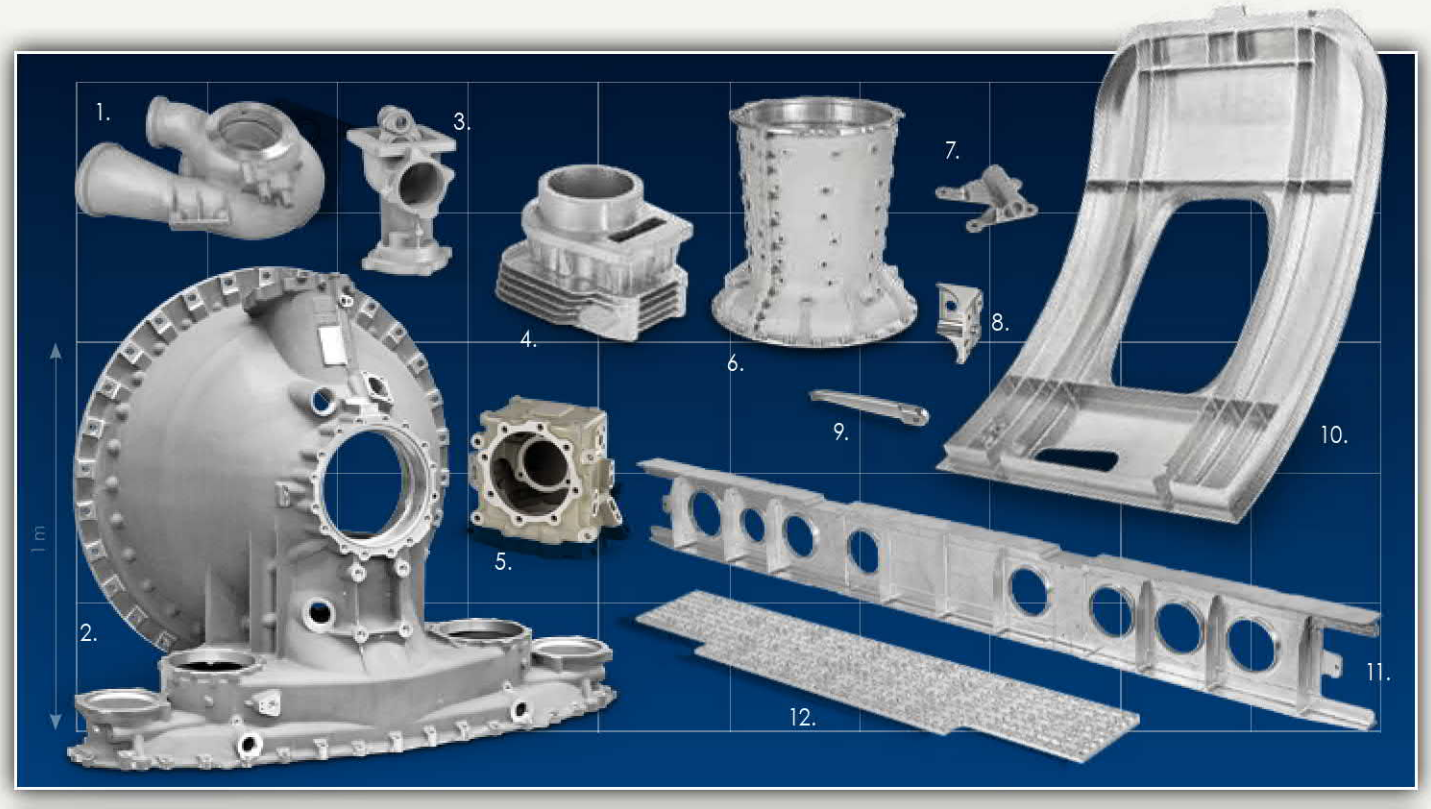
To meet customer expectations we can offer an assembly facility where castings are processed into finished components. This is another example of our flexible approach and ability to focus on our Customer demands.

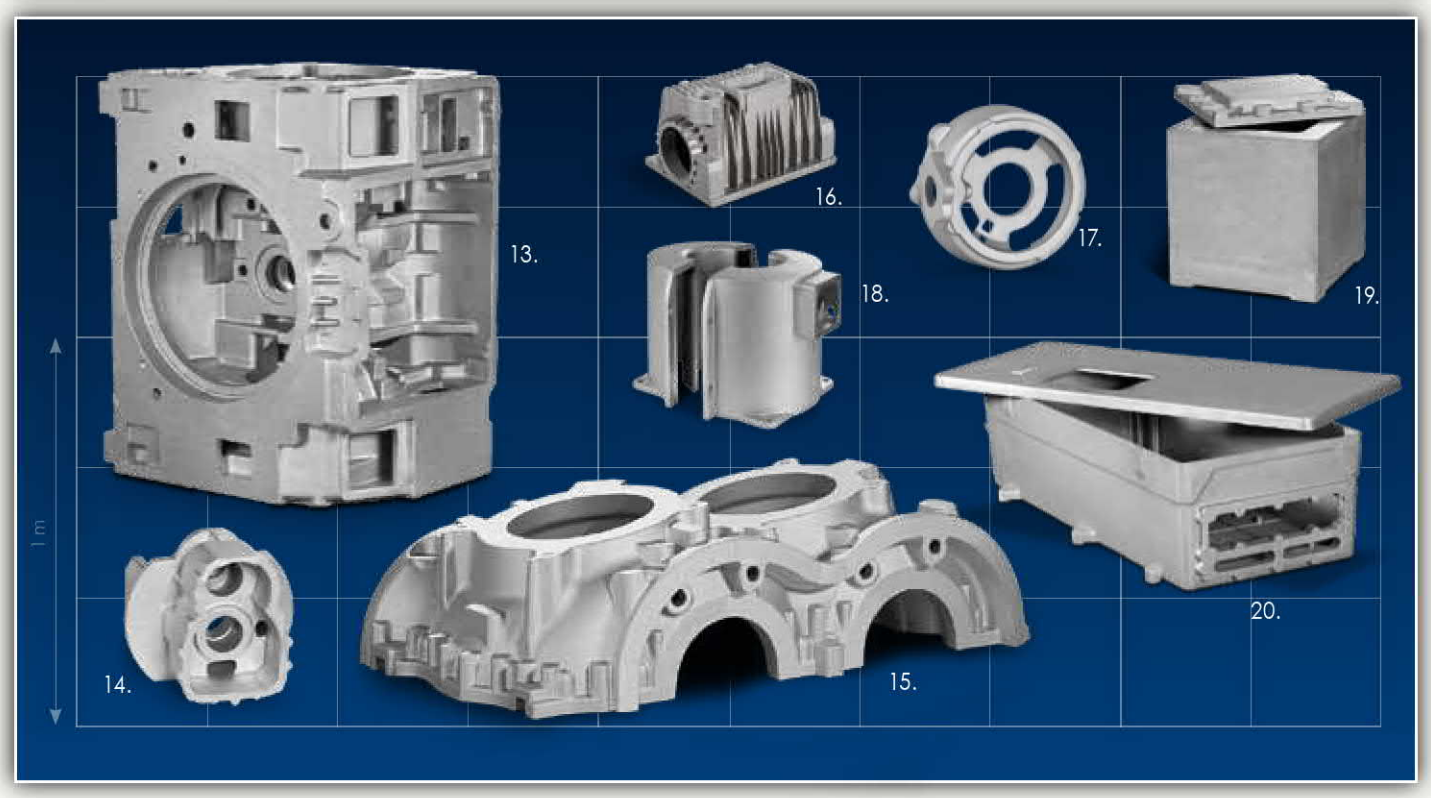












Aerospace

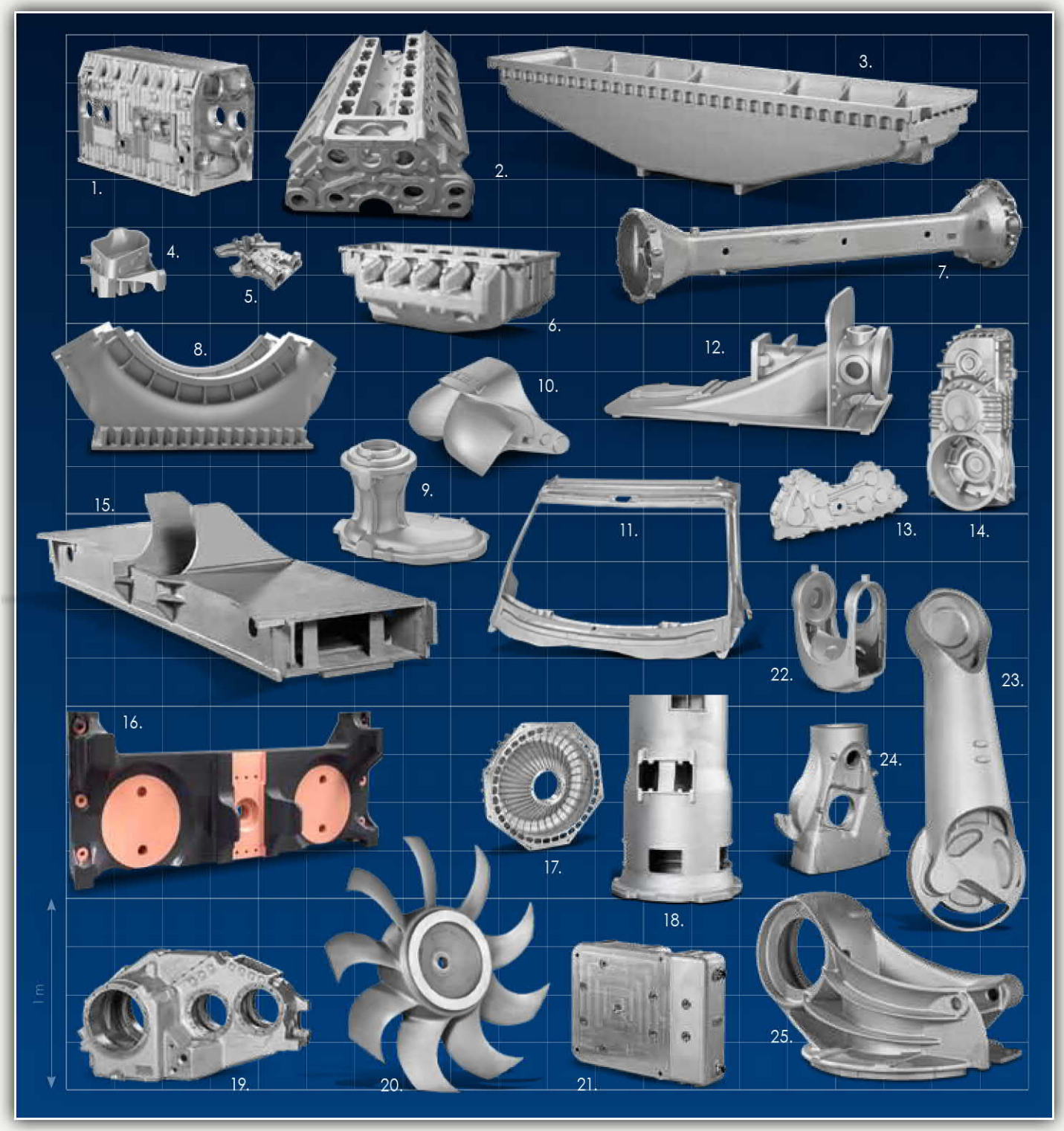
1. Air cycle machine housing 370 x 260 x 140, 3,8 kg, AlSi7Mg0,6
2. Housing 785 x 450 x 1084, 57 kg, A8 TB
3. Gearbox 200 x 100 x 100, 2 kg, AlSi7Mg0,6ST6
4. Radial engine cylinder 250 x 250 x 250, 4kg, AlSi17Cu4MgZ
5. TGB gear box 200 x 200 x 200, 4,2 kg, AlSi7Mg0,6 T6
6. Compressor body 319 x ø339, 4,75 kg, AlCu4Ti T5
7. Helicopter frame support 90 x 100 x 20, 0,4 kg, AMS-6348
8. Helicopter frame support 80 x 80 x 80, 0,3 kg, AMS-6348
9. Helicopter handle 200 x 20 x 30, 0,4 kg, 6061 T6
10. Bussines jet door 930 x 150 x 630, 8 kg, 5083H111
11. Frame 50 x 180 x 1500, 3 kg, 6061 T6
12. Housing 8 x 180 x 1000, 1,5 kg, 6061 T6

Defense

13. Housing 1109 x 860 x 620, 250kg, AlSi10Mg T6
14. Housing 310 x 374 x 855, 25 kg, AlSi10Mg T6
15. Gear box 1600 x 800 x 450, 200kg, AlSi7Mg0,3 T6

Gravity die casting

16. Flood light 310 x 420 x 230, 14 kg, AlSi12
17. Adapter flange 94 x Ø270, 2,6 kg, AlSi9Cu3
18. Housing 310 x 374 x 162, 5,5kg, AlSi10Mg
19. Ex-proof control panel 480 x 360 x 310, 50 kg, AlSi7Mg0,3 T6
20. Control panel with cover 1100 x 600 x 350, 45 kg, AlSi12



Engine and car technology

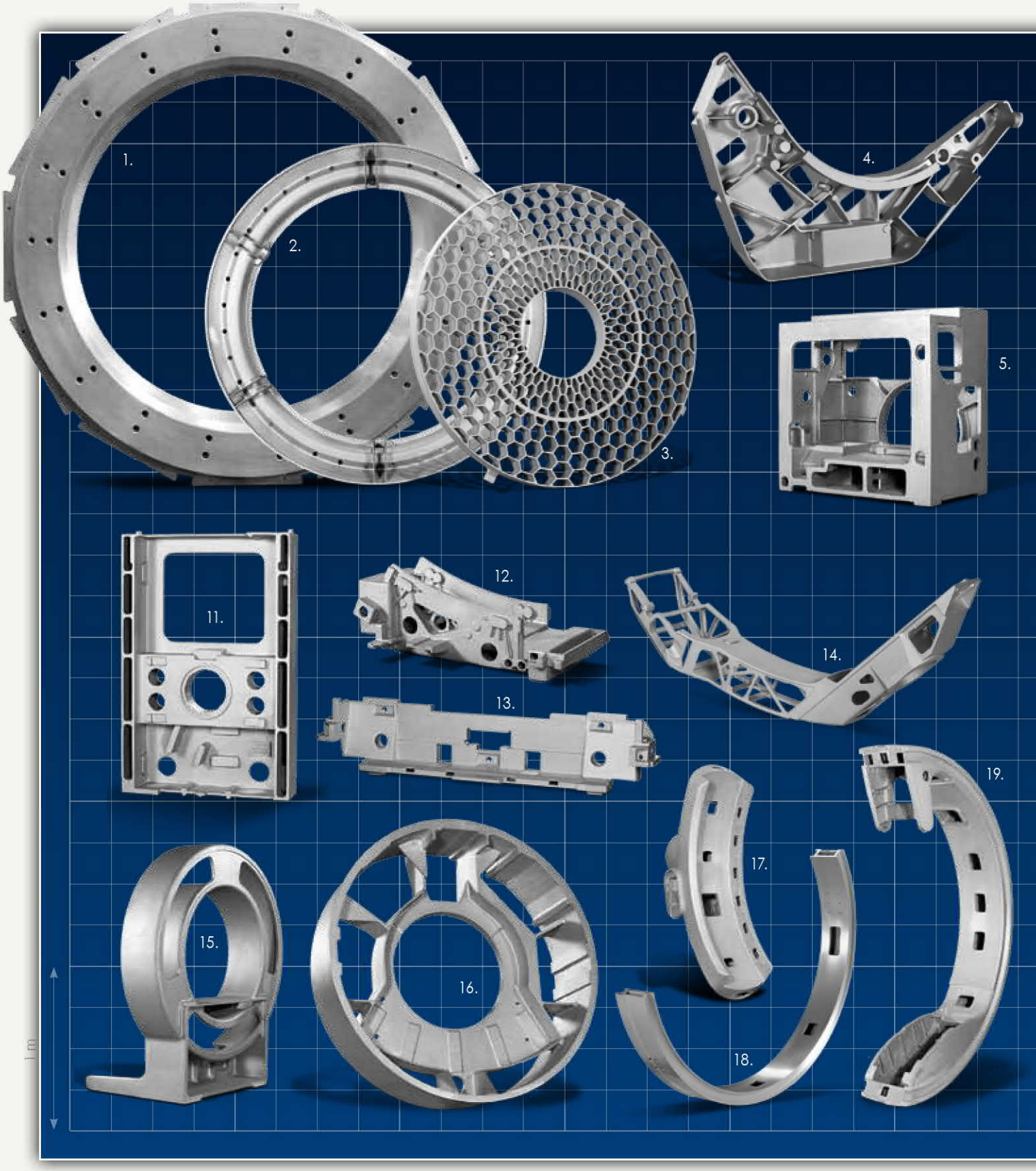
1. Manifold 930 x 630 x 460, 150 kg, AlSi7Mg0,3 T6
2. Engine block 1230 x 560 x 950, 411 kg, ALSi7Mg
3. Oil sump 600 x 600 x 3000, 253 kg, AlSi10Mg T6
4. Car connector 235 x 194 x 176, 3,24 kg, AlSi7Mg0,3
5. Hydraulic housing 370 x 200 x 35, 3,5 kg, AlSi10Mg
6. Oil sump 1100 x 500 x 400, 29 kg, AlSi10MgCu
7. Torque tube 1700 x 300 x 300, 25 kg, AlSi7Mg0,6 ST6
8. Manifold 1310 x 700 x 410, 56 kg, AlSi7Mg
9. Gearbox 600 x 500x 150, AlSi7Mg0,3
10. Middle Housing 600 x 480 x 450, 28 kg, AlSi7Mg0,3
11. Car body part 1200 x 800 x 170, 28 kg, AlSi10Mg0,3
12. Waterjet Inlet 1330 x 600 x 420, 66 kg, AlSi7Mg0,3
13. Gearbox Cover 750 x 410 x 100, 26,4 kg, AlSi7Mg0,3
14. Transfer Gear Case 900 x 400 x 250, 80 kg AlSi10Mg

Railway

15. Train base 2800 x 1000 x 800, 248 kg, AlSi7Mg0,3 T6
16. Train base 2600 x 1200 x 180, 600 kg, AlSi7Mg0,3 T6
17. End shield 160 x 530 x 580, 32 kg, AlSi7Mg0,3 T6
18. Motor housing ø800 x 1200, 85 kg, AlSi9Cu3
19. Housing 504 x 480 x 356, 110kg, AlSi7Mg0,6 T6
20. Ventilator ø1400 x 400, 80 kg, AlSi10Mg
21. Body Adapter 230 x 740 x 970, 140kg, AlSi7Mg0,6 ST6

Robotics

22. Housing 441 x 253 x 350, 25 kg, AlSi9Mg T6
23. Arm housing 780 x 600 x 220, 57 kg, AlSi7Mg0,3 T6
24. Robot arm 1700 x 700 x 400, 92 kg, AlSi7Mg0,3 T6
25. Robot base 1400 x 1000 x 900, 249 kg, AlZn10Si8Mg

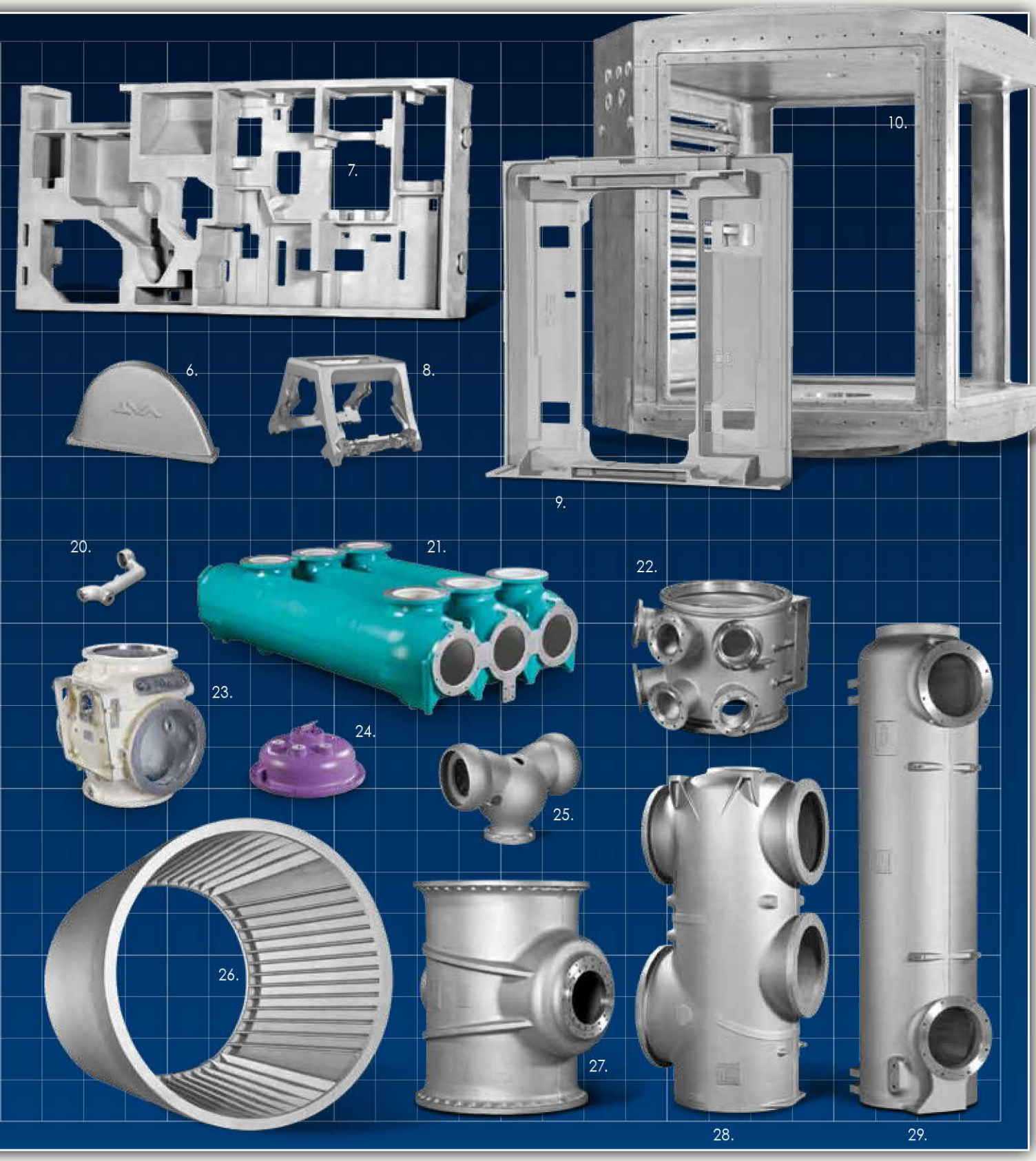


Mechanical engineering

1. Pressplate ø2900 x 220, 2050 kg, AlSi10Mg T6
2. Roof top ø2100 x 150, 45 kg, AlSi10Mg
3. Honeycomb structure ø1800 x 150, 174 kg, AlSi10Mg
4. Machine frame 1800 x 1300 x 300, 78 kg, AlSi9Cu3
5. Machine housing 1200 x 1100 x 800, 245 kg, AlSi10MgCu
6. Housing cover 808 x 110 x 521, 22,5 kg, AlSi7Mg0,3 T6
7. Machine frame 3500 x 1400 x 500, 870 kg, AlSi7Mg0,3 T6
8. Machine frame 700 x 600 x 600, 25 kg, AlZn10Si8Mg
9. Machine frame 1990 x 1720 x 360, 275 kg, AlZn10Si8Mg
10. Transfer chamber 2350 x 2300 x 2500, 3830 kg, AlSi7Mg0,3 T6

Medical

11. Trolley 1640 x 760 x 280, 98 kg, AlSi7Mg0,3 T6
12. Trolley 1100 x 500 x 500, 58 kg, AlSi10MgCu T6
13. Machine frame 1960 x 410 x 250, 99 kg, AlZn10Si8Mg
14. Beam giglix 225 x 1590 x 170, 23,5kg, AlSi7Mg0,3 T6
15. Gantry 1500 x 1200 x 1000, 225 kg, AlZn10Si8Mg
16. Gantry ø1700 x 800, 328 kg, AlSi7Mg0,3 T6
17. Sleeve 1350 x 600 x 450, 90 kg, AlZn10Si8Mg
18. C-Arc 1900 x 970 x 222, 106 kg, AlZn10Si8Mg
19. C-Arc 2100 x 1000 x 300, 107 kg, AlZn10Si8Mg



Energy

19. Electrical connector 500x100x200, 8kg, AlSi7Mg KT6
20. Switch gear housing 2170 x 1380 x 625, 492 kg, AlSi7Mg0,3 T6
21. Tank 725 x 885 x 602, 75kg, AlSi9Mg T6
22. Gear housing 742 x 878 x 705, 227kg, AlSi7Mg0,3 T6
23. Cover insulator ø 710 x 260, 42,5kg, AlSi7Mg0,3 T6
24. Carter 740 x 356 x 557, 43,9kg, AlSi9Mg T6
25. Inner core 2020 x 1740 x 1720, 900 kg, AlSi7Mg0,3 T6
26 Switch gear housing 1430 x 1390 x 1200, 515 kg, AlSi7Mg0,3 T6
27. Switch gear housing 2000 x 1100 x 800, 350 kg, AlSi7Mg0,3 T6
28. Switch gear housing 2820 x 852 x 710, 355 kg, AlSi7Mg0,3 T6

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