How to reach us

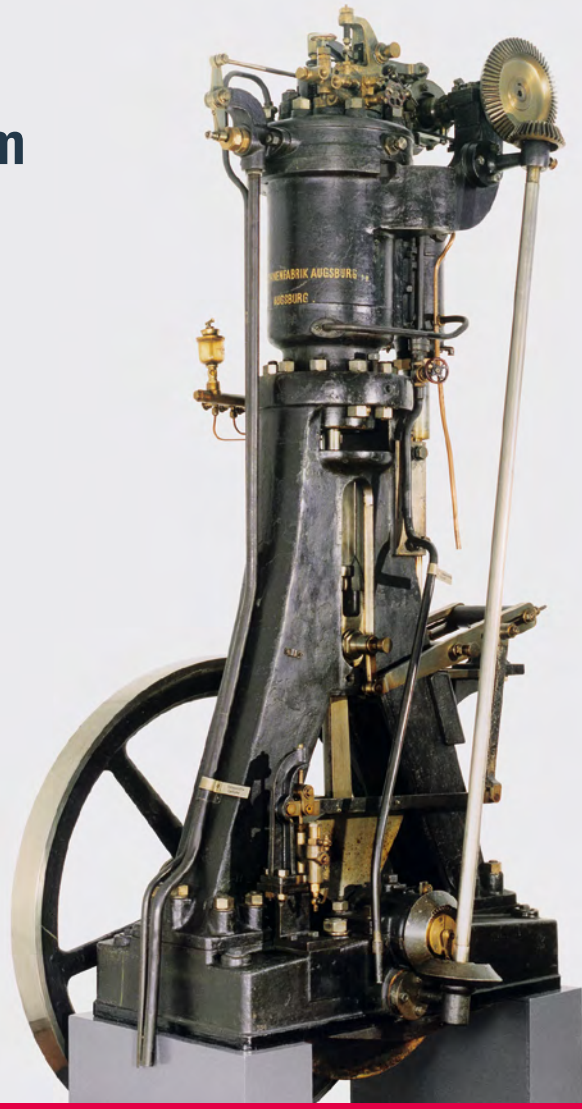
By car: From the direction of Munich/ Stuttgart Autobahn A8 up to exit Augsburg Ost. Via Mühlhauser Str./ Hans-Böckler-Str. to MAN bridge. After the bridge, right at first crossroads (MAN Diesel Tower), further over on Sebastian Str. to Heinrich-von-Buz-Str. 28

By train: From Augsburg main station by taxi or with the streetcar route 3 (direction Inninger Str.) resp. route. 4 (direction Augsburg Nord), at Königsplatz change to route 2 (direction Park & Ride Augsburg West, stop Senkelbach).

The MAN Museum is a joint venture of MAN Diesel & Turbo SE und MAN SE.

MAN Diesel & Turbo SE
MAN-Museum
Heinrich-von-Buz-Straße 28
86153 Augsburg
www.mandieselturbo.com

MAN Museum



MAN Diesel & Turbo

Welcome

Opening hours:
By telephone appointment,
Monday till Friday from 9 a.m. to 4 p.m.
Phone: +49 (0)821 322-33 66

Since the 19th century MAN and manroland web systems produce Diesel engines and printing presses in Augsburg. The MAN Museum is dedicated to these two products among other works of MAN engineering in the premises of the former Research Institute for Mechanics and Design since 1953. The development of the Diesel engine by Rudolf Diesel beginning in 1893 and the production of flatbed presses starting in 1845 where milestones of the common history of both companies.
This tradition of innovations is the basis for the success to create the future with reliable and innovating products and a dynamic and open corporate culture.
We are looking forward to your visit at the MAN Museum – a joint venture of MAN Diesel & Turbo SE and MAN SE. This brochure will accompany you on your tour, providing information on the company's history and more than two centuries of engineering highlights.

Dr. Jan Dietrich Müller
Vice President
Head of Group Communications & Marketing

Orientation

The M.A.N. Works Museum was opened in Augsburg on 23rd April 1953 in the premises of the former M.A.N. Research Institute for Mechanics and Design.
Today the MAN Museum presents original exhibits and models reflecting the engineering history of the MAN Group and manroland web systems GmbH.

On the ground floor you will find

- **MAN Diesel & Turbo** with the first experimental Diesel engine built between 1893 and 1895, marking the successful realization of the Diesel principle and initial proof of its effective performance. Many other exhibits illustrate the history of Diesel technology, including the second Diesel engine sold (1898), a submarine Diesel engine (1943) and a turbo charger.
- **MAN Truck & Bus** with modern and historic commercial vehicles and engines.
- **RENK** with gear units, a coupling as well as a gear wheel for a frigate gear unit.
- **manroland web systems** with the museum's oldest exhibit – a manually-operated flatbed press built in 1846, a rotary press for newspaper printing from 1877 and further veterans of printing press construction.

Presented on the first floor is

- **MAN Diesel & Turbo** with various compressor impellers and a model of the luxury river-cruiser Mozart.

The former MAN-company MAN Technologie (today MT Aerospace) is represented with exhibits of the aerospace industry.
The gallery takes you on a photographic journey along through the history of the MAN Group and manroland web systems. It is divided into three sections and delivers insights into the past and present product range as well as into the companies' social commitment. In the showcases you can see models of Diesel engines and printing presses.

MAN History

St. Antony ironworks in 1834. First iron and steel works in Germany's Ruhr region, started running in 1758.

Maschinenfabrik Augsburg in 1882.

The origins of MAN Group date back to the foundation of two separate companies.

1758 Foundation of St. Antony ironworks in Oberhausen

1840 Foundation of Sander'sche Maschinen-Fabrik in Augsburg

Following several mergers with other steel and engineering companies, St. Antony developed to become GHH Gutehoffnungshütte, Oberhausen, in 1873. Meanwhile in the south of Germany, Sander'sche Maschinen-Fabrik merged several times, giving rise to M.A.N. Maschinenfabrik Augsburg-Nürnberg.

GHH predecessor companies:

1758 St. Antony ironworks near Osterfeld
1782 Gute Hoffnung ironworks, Sterkrade
1791 Neu Essen ironworks in the Essen Abbey
1808 Hüttengewerkschaft und Handlung Jacobi, Haniel & Huyssen, Sterkrade
1873 Gutehoffnungshütte, Actienverein für Bergbau und Hüttenbetrieb, Sterkrade
1953 Gutehoffnungshütte Aktienverein, Oberhausen

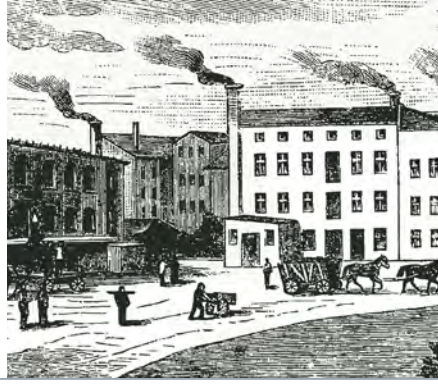
MAN predecessor companies:

1840 Sander'sche Maschinen-Fabrik, Augsburg
1841 Klett & Comp., Nuremberg
1844 C. Reichenbach'sche Maschinenfabrik, Augsburg
1857 Maschinenfabrik Augsburg
1873 Maschinenbau-Actien-Gesellschaft, Nuremberg
1898 Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg, Augsburg
1908 Maschinenfabrik Augsburg-Nürnberg, Augsburg

The paths of the two enterprises crossed in **1920** when GHH acquired a majority holding in M.A.N., giving rise to a group with extensive activities in the steel industry as well as in mechanical and plant engineering.
Having refocused its operations after the Second World War to concentrate on mechanical engineering and commercial vehicle construction, the GHH Group was completely reorganized in **1986** and renamed in MAN Aktiengesellschaft. The operating units were restructured to become independent subsidiaries of MAN SE. Today they represent the divisions of Commercial Vehicles and Power Engineering.

manroland web systems History

View of C. Reichenbach'sche Maschinenfabrik, Augsburg in 1846.



The old factory in Plauen in 1902.

The first flatbed press was built in Augsburg in **1845** at the C. Reichenbach'sche Maschinenfabrik managed by Carl August Reichenbach and Carl Buz.

In **1873** the first German rotary press for newspaper printing was developed – after the company had changed its name to Maschinenfabrik Augsburg Aktiengesellschaft in 1857 and renamed yet again to Maschinenfabrik Augsburg-Nürnberg – M.A.N. for short in 1908.

In **1871** Louis Faber and Adolf Schleicher founded an Association for the Production of Automatic Lithographic Presses and they built their first press in the same year: the Albatros. In 1900 the company in Offenbach was renamed Faber & Schleicher AG, and in 1911 it produced the first sheetfed offset press that bore the name Roland.

Faber & Schleicher AG, Offenbach.

In **1979** the printing press division of M.A.N. and the then Roland Offsetmaschinenfabrik Faber & Schleicher merged to form MAN Roland Druckmaschinen AG.

At the third location – Plauen – printing presses have been built since **1896** after the predecessor company became the Vogtländische Maschinenfabrik (vorm. J. C. & H. Dietrich) A.-G. in **1895**. The name was changed later to Plauener Maschinenbau-Gesellschaft and this company has been trading as MAN Plamag Druckmaschinen AG since **1991**.

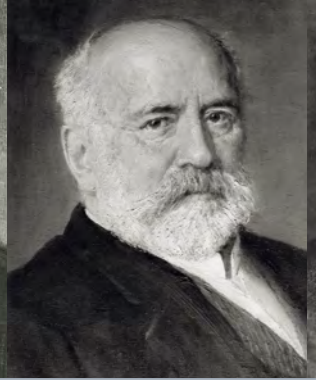
MAN Roland Druckmaschinen AG was renamed manroland AG in **2008**.

2012 manroland was splitted to manroland web systems GmbH, in Augsburg and Plauen as well as manroland sheetfed GmbH in Offenbach.

Characters

Carl August Reichenbach.

Carl Buz.



Heinrich von Buz.

Rudolf Diesel.

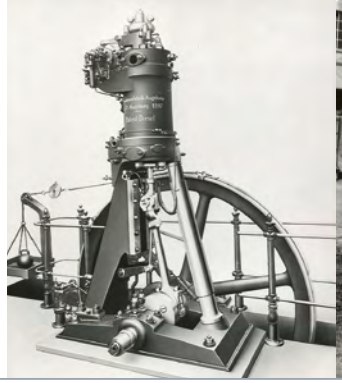
Carl August Reichenbach
Reichenbach (1801 – 1883) together with his brother-in-law, Carl Buz, takes over Sander'sche Maschinen-Fabrik in Augsburg in 1844 after being skilled for all categories of producing flatbed presses in the company of his uncle, Friedrich Gottlob Koenig (inventor of the flatbed press).
Reichenbach manufactures a printing press of the latest design in Augsburg: the flatbed press with railway movement, delivered in 1845. This was the signal for the printing press construction of manroland AG.

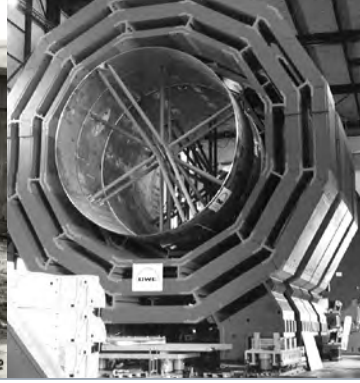
Carl Buz
Buz (1803 – 1870), since 1838 involved in the construction of the railway Munich-Augsburg as officer, together with Reichenbach established the basics for the later MAN in 1844. Under his guidance steam boilers, steam engines, water turbines and pumps are manufactured among other things in Augsburg. 1864 he assigns the company to his son Heinrich.

Heinrich von Buz
Buz (1833 – 1918) joins Maschinenfabrik Augsburg in 1857, which was co-founded by his father Carl as Reichenbach'sche Maschinenfabrik in 1844. From 1864 to 1913 he leads the company as solely responsible managing director and unites it with Maschinenbau-Actien-Gesellschaft Nürnberg in 1898. Being called the "Bismarck of the German engineering industry" he supports the development of the Diesel engine at MAN in decisive dimensions, besides constructing the first German rotary press and the first refrigerating machine of Linde in 1873 under his aegis. 1907 he achieves the Knight's cross of the Royal order of Merit of the Bavarian Crown being combined with life peerage.

Rudolf Diesel
Diesel, born in Paris in 1858 as son of German parents, learned about the poor efficiency of the steam engine during his studies at TU Munich. In 1880, Diesel becomes head of the French branch of Professor Carl von Linde's refrigerating machine company and, on his own initiative, build an ammonia engine. From 1890 onwards, he manages Linde's engineering department in Berlin. Further thought resulted in an idea for an efficient heat engine. In 1893, he grants the German patent no. 67 207 for "Working method and design of internal combustion engines", and concludes a contract with Maschinenfabrik Augsburg for the construction of an experimental engine. Working now entirely on a freelance basis, Diesel is able to spend all his time on the development and construction of his engine. Based on the test engine (figure page 17), the effective output is successfully verified for the first time in 1895, efficiency being registered at 16.6 percent. Thanks to the support of Heinrich von Buz, the world's first operational Diesel engine (on display at the German Museum in Munich) is built at Maschinenfabrik Augsburg between 1896 and 1897: efficiency 26.2%, 18 hp, engine speed 154 rpm, fuel consumption 238 g/hph. Following its commercial launch in 1898, the novel "Diesel patent heat engine" still has to clear several hurdles before it fully met the expectations of its operators. As from the turn of the century, the Diesel engine conquers the entire world. It is used in stationary plants, from 1903 also for marine propulsion and even today, is still the most economic of all heat engines. Rudolf Diesel lives to see only the first signs of the major impact his pioneering achievement was going to make. He is missing during a sea passage from Belgium to Great Britain in fall of 1913 and has since been presumed to be dead.

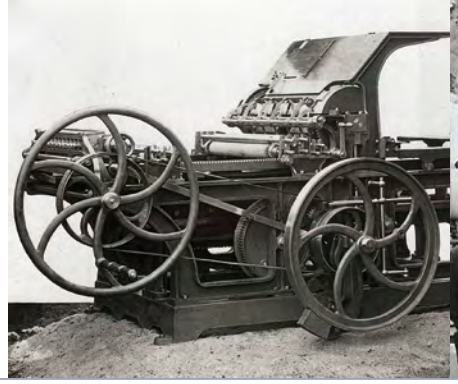
Milestones
MAN

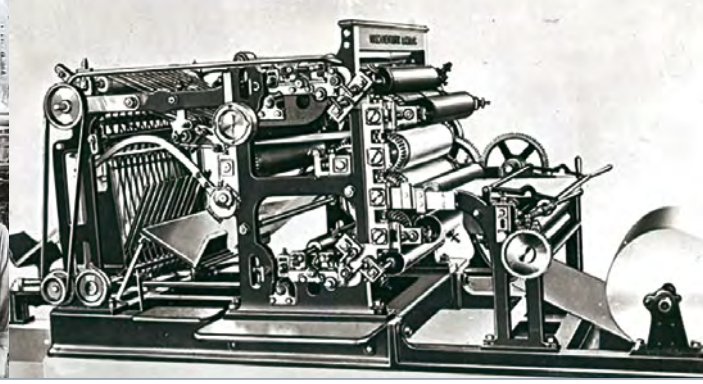




1787	Construction of the first German (horse-drawn) railway Rauendahl Coal Route (GHH)
1814	First steam engine (GHH)
1857	First compressor (GHH)
1893 – 97	Development and construction of the world's first Diesel engine together with Rudolf Diesel (M.A.N.)
1903/04	First turbo-compressor and steam turbine (GHH)
1904	The world's first Diesel engine power station in Kiev, together with Rudolf Diesel, 1 600 hp/1177 kW (M.A.N.)
1912	First seagoing ship "Selandia" with Diesel propulsion engines
1915	Beginning of truck-building activities (M.A.N.)
1923	The world's first Diesel engine for vehicles with direct fuel injection (M.A.N.)
1932	The world's strongest Diesel truck with 160 hp/118 kW (M.A.N.)
1938	Start of Diesel-tractor production (M.A.N.)
1951	First German exhaust-gas turbocharger for trucks with an increase of output of 35 % (M.A.N.)
1965	Invention of hydrostatic-hydromechanical power steering for tracked vehicles (RENK)
1970	World's largest marine planetary gear, 18 000 hp/1 3250 kW (RENK)
1982	First large-scale two-stroke Diesel engine with an efficiency of over 50 percent (M.A.N.)
1984	Construction of the world's first high-temperature, salt-bath-cooled tubular reactor (DWE)
1986	New F90 truck generation (MAN Nutzfahrzeuge)
1987	Strongest long-distance semitrailer truck tractor with V-10-cylinder Diesel engine, 460 hp/338 kW (MAN Nutzfahrzeuge)
1998	Construction of magnetic rings for the world's largest electric magnet built by the European Organization for Nuclear Research CERN (DWE)
2000	New TGA Trucknology generation of heavy trucks (MAN Nutzfahrzeuge)
2001	New Lion's Star coach generation (MAN Nutzfahrzeuge)
2003	Compressor train for the world's largest GTL plant (gas to liquids) (MAN TURBO)
2004	New generation of D20 common rail engines for commercial vehicles (MAN Nutzfahrzeuge). World's most powerful gear unit for a wind-energy plant (RENK)
2005	New light and medium Trucknology truck series TGL and TGM (MAN Nutzfahrzeuge). Common rail technology for large-scale four-stroke Diesel engines (MAN B&W Diesel)
2006	New gas engine 32/40PGI without spark plugs; low-emission dual-fuel-engine 51/60DF (MAN Diesel)
2007	World's most powerful Diesel engine 14K98ME: 115,000 hp/84,3 MW (MAN Diesel)
2010	Start of mass production for hybrid city bus (MAN Truck & Bus) First hybrid axial compressor (MAN Diesel & Turbo)
2011	Commercial launch of new high efficiency 6 MW gas turbine New low-emission high efficiency gas engine 35/44G (MAN Diesel & Turbo)

Milestones manroland web systems





1845 First flatbed press (Reichenbach'sche Maschinenfabrik)

1871 Lithographic flatbed press Albatros (Association for Production of Automatic Lithographic Presses)

1873 First rotary printing press for newspaper printing (Maschinenfabrik Augsburg)

1911 First sheetfed offset rotary press Roland (Faber & Schleicher)

1912 The world's first German web offset press (Vogtländische Maschinenfabrik)

1920 Web offset press Neue Miniatur (Vogtländische Maschinenfabrik)

1921 First web offset printing press (M.A.N.)

1925 Germany's largest rotary printing press with 15 printing units (M.A.N.). First rotogravure press (M.A.N.)

1928 Two-color printing press ROLAND RZS with five-cylinder principle (Faber & Schleicher)

1947 Calendar-block rotary press – the first press to be built after the war (Plauener Maschinenbau-Gesellschaft)

1951 First sheetfed offset press ULTRA-M.A.N. (M.A.N.). First four-color printing press Roland (Faber & Schleicher)

1967 Introduction of Hyperset offset printing press (Plauener Maschinenbau-Gesellschaft)

1972 Presentation of ROLAND 800 four-color printing press for large format (Faber & Schleicher). Launch of Rondoset web press (Plauener Maschinenbau-Gesellschaft)

1974 Europe's largest rotary press – a COLORMAN with 62 printing units (M.A.N.)

1980 Largest web offset press in Eastern Europe (Plauener Maschinenbau-Gesellschaft)

1992 Introduction of 8-page UNISET series (MAN Plamag Druckmaschinen)

1994 New dimension of performance: LITHOMAN with a web speed of 15 m/s (MAN Roland Druckmaschinen, Augsburg)

1995 Presentation of the large-format sheetfed press ROLAND 900 (MAN Roland Druckmaschinen, Offenbach)
Introduction of digital offset printing press DICOweb (MAN Roland Druckmaschinen, Augsburg)

1996 The world's longest newspaper printing press – a GEOMAN – for O Globo, Rio de Janeiro (MAN Roland Druckmaschinen, Augsburg)

1998 Introduction of the four-plate-wide newspaper printing press REGIOMAN 4/1 (MAN Roland Druckmaschinen, Augsburg)

2001 Presentation newspaper printing press COLORMAN, XXL (MAN Roland Druckmaschinen, Augsburg)

2004 Presentation of ROTOMAN with automatic plate loading APL (MAN Roland Druckmaschinen, Augsburg)

2007 Presentation of ROLAND 700 with DirectDrive (MAN Roland Druckmaschinen, Offenbach)

2008 Introduction of the One Touch concept with COLORMAN autoprint (manroland, Augsburg)

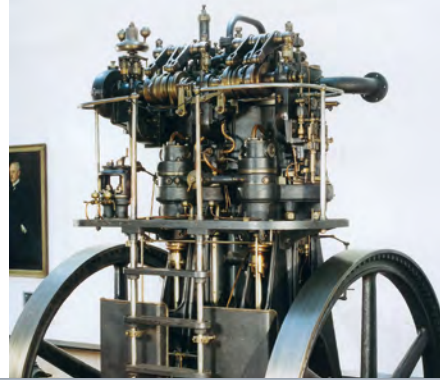
Tour

We recommend to start the tour in the big hall with the first Diesel engine of the world. This original exhibition part was built 1893-95. On the left side of the Augsburg hall you will find further developments of engines as well as propulsion technology, on the right hand side you will find historical printing presses.

Experimental Diesel engine

Built in 1893 – 95

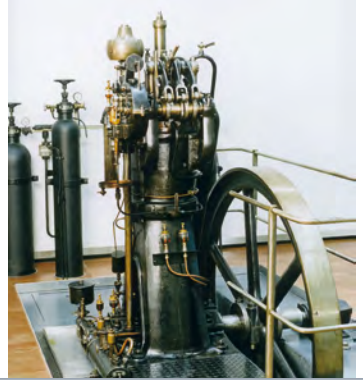
10 hp (7 kW)
Engine speed 88 rpm
Fuel consumption
382 g/hph (520 g/kWh)
This experimental Diesel engine was built by Maschinenfabrik Augsburg in cooperation with Rudolf Diesel. It operated on the basis of a four-stroke cycle using fuel air-blast injection. Its effective output was first verified on 26th June 1895, the recorded data showing 16.6 percent efficiency.

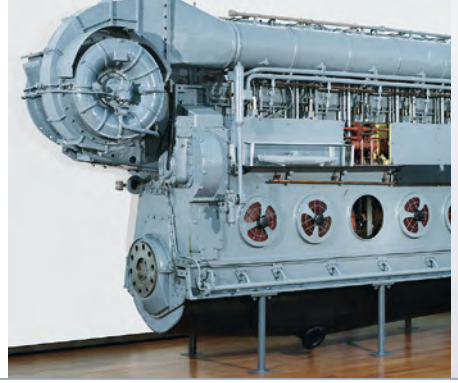


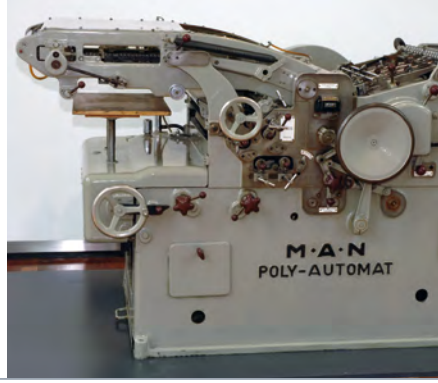
Two-cylinder crosshead Diesel engine

Built in 1898

50 hp (37 kW)
Engine speed 190 rpm
This was the second engine to be sold by Maschinenfabrik Augsburg. Weighing almost 13 tonnes, it performed at the Rugendas cigarette paper factory in Augsburg until 1930. The first Diesel engine sold by Maschinenfabrik Augsburg went into operation at the Actiengesellschaft Union, United Match and Wax Factory in Kempten on 5th March 1898.







Single-cylinder trunk piston Diesel engine

Built in 1905

10 hp (7 kW),
Engine speed 255 rpm
Fuel consumption
220 g/hph (299 g/kWh)
Displacement 7 791 ccm
Weighing 1.8 tonnes, this “Heat Engine No. 659 Diesel Patent“ (with fuel air-blast injection) was in use at Pöschl Snuff and Tobacco Factory in Landshut until 1935 and originally cost 6 500 gold marks. This type of engine was built with an output up to 12 hp (9 kW) and from 1900 onwards became extremely popular as a power engine for small factories.

M6V 40/46 six-cylinder Diesel engine for submarine propulsion

Built in 1943

2 000 hp (1 470 kW),
Engine speed 520 rpm
Until 1982, this exhibit worked at the Rusel power station in Deggendorf. The 40/46 model was first supplied in 1930, four of these engines subsequently being installed in U 25 and U 26 submarines in 1935. MAN sold a total of 800 pieces of the six-and nine-cylinder models. After 1945, 100 engines were still being used in cargo ships, as well as for stationary applications.

TPA 50p turbo-epicyclic gear unit with coaxial shafts

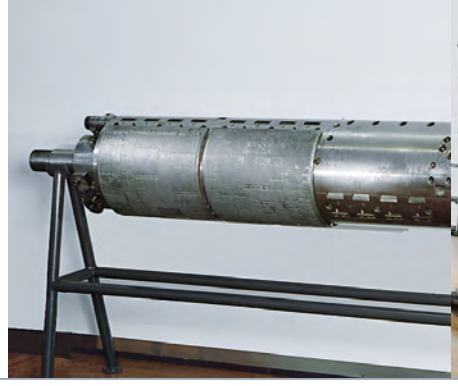
Built in 1966

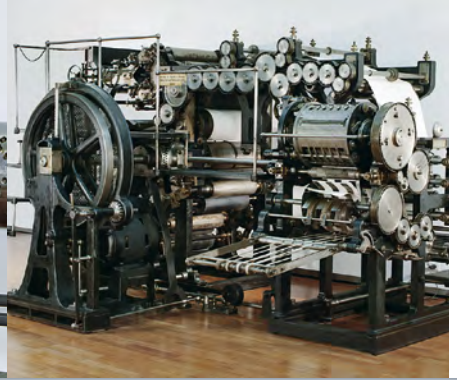
Input power 2 370 hp (2 007 kW)
Input speed 1 490 rpm
Output speed 8 359 rpm
Transmission ratio 5.61
This gear transmission (whereby the driven shaft runs faster than the driving shaft) was used between an electric motor and a compressor in a petrochemical plant. RENK has been producing planetary gears since 1936. These can be fitted with up to six planet wheels and reach a diameter of up to 3.5 meters.

Double-revolution automatic Poly 50 flatbed press

Built in 1962

5 000 sheets/hour
The Poly is a flatbed letterpress printer operating on the basis of a double-revolution principle (first revolution: sheet feeding and printing, second revolution: sheet delivery and carriage return). Some 3 800 of these presses were produced between 1931 and 1963. The automatic flatbed press exhibited here was in operation at the Augsburg company Stumböck between 1962 and 1979.





Cylinder for rotogravure printing (above)
Cylinder for offset printing (below)

Built in 1951/1984

In the case of rotogravure printing, text and pictures are etched or engraved on a copperplate steel cylinder, forming cells of varying depths. The cylinder rotates in the ink bath, superfluous ink being stripped from the surface using a doctor blade. The ink which remains in these areas is “extracted” by the paper during printing. During the offset printing process the printing form is exposed onto an aluminium plate. This plate is mounted on the cylinder and covered with a thin film of ink and water. After photographic development, only the non-printing areas take up the water, the printing areas only the fatty ink. The image to be printed is applied to the paper via a blanket cylinder.

Plate cylinder of a rotary letterpress for newspapers

Built in 1964

Letterpress is the term for printing with a raised form, i. e., the higher printing areas are coated by the inking roller, unlike the lower nonprinting spaces between. The semi-cylindrical plates for highspeed rotary letterpresses have grooves on the back facing the cylinder. These grooves are used to fix the plates to the inner clamps. The inner lock-up system prevents the plates from lifting off at high speed (ten meters per second). An additional device allows the individual adjustment of circumference and lateral direction of each of the eight plates.

Single-reel rotary letterpress for commercial printing

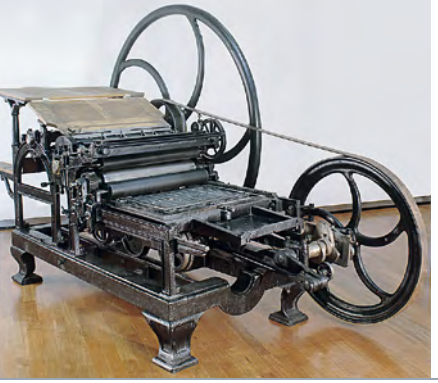
Built in 1906

6 000 sheets/hour
This press was in operation in Switzerland until 1965.
In 1879, Maschinenfabrik Augsburg built the first rotary press for “book and magazine printing”, giving rise to successful production of the first commercial material to be printed on a rotary press in Europe.

Single-reel rotary letterpress for newspaper printing

Built in 1877

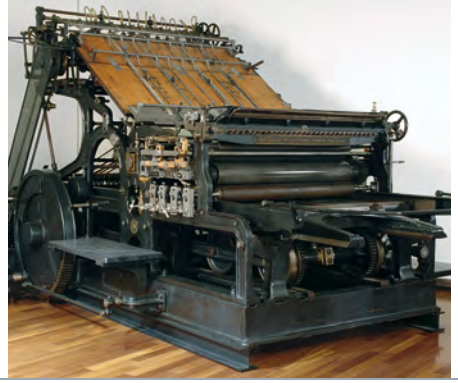
8 000 sheets/hour
This rotary press was the 14th printing press to be sold by Maschinenfabrik Augsburg and was used to print “Meyer’s Encyclopedia” at the Bibliographic Institute in Leipzig. In 1873, Germany’s first rotary newspaper press was built by Maschinenfabrik Augsburg and presented at the world exhibition in Vienna. The press operated on the basis of a new principle which used rotating printing cylinders for printing and perfecting on a paper web that was fed “endlessly” through the printing unit.



Manually-operated flatbed press (stop cylinder press) with “railway movement”

Built in 1846

1 000 sheets/hour
The flatbed press shown here was used until 1974 for printing various forms at Amberg prison. This type of press was first built in 1845 by C. Reichenbach’sche Maschinenfabrik & Eisengiesserei Augsburg. The wagon of this model bearing the printing form rolls like a railway truck along on two fixed rails which are anchored to the basic frame. This original design remained part of the production range until 1889.



J VI a illustration press

Built in 1912

1 300 sheets/h
Sheet size 745 x 1 130 mm
Power requirement 2 hp (1,5 kW)
Until 1980 this press was in production at the printing company Hochdorf in Switzerland – printing the local newspaper “Seetaler Bote”.
The ink unit has four form rollers.
The conventional manual feed was later replaced with an automatic sheet feeder with front edge suction.

Experimental single-cylinder 1K14/19 Diesel engine

Built in 1923

13 hp (10 kW)
Engine speed 625 rpm
Fuel consumption
192 g/hph (261 g/kWh)
First automotive Diesel engine with direct fuel-injection, offering an essential prerequisite for achieving a significant increase in engine speed. This engine was used to acquire vital information on direct injection. It marked the beginning of the age of highspeed Diesel engines for vehicles. Tests with direct fuel-injection started in 1919.

Piston and connecting rod from a VV 40/54 four-stroke Diesel engine

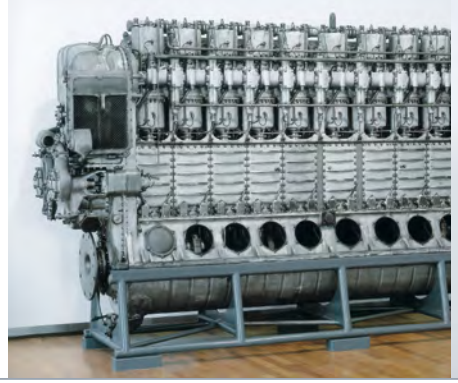
Built in 1965

So-called articulated connecting rods were used for the first time in V-type Diesel engines (cylinders arranged in a V shape), replacing the traditional parallel connecting-rod construction.

Output rim of a frigate gear unit

Built in 1995

Outer diameter 2 268 mm
Teeth 190
Tooth width 2 x 180 mm
This part of a gear unit – the rim – is screwed to the wheel and serves to transmit power. With its large number of teeth and wide helix angle, this component offers the advantage of low-noise radiation. Double helical gearing prevents the creation of axial forces.



Double-acting eleven-cylinder two-stroke L11Z 19/30 Diesel engine

Built in 1935

1 400 hp (1 030 kW)
Engine speed 900 rpm
With its extremely low powerweight ratio of 2 kg/hp (2.7 kg/kW) this engine was originally intended for use in airships, but was actually installed in fast patrol boats.

Six-cylinder D 2066 LF 01 Diesel engine

Built in 2004

430 hp (316 kW), engine speed 1 000 – 1 400 rpm
Displacement 10 518 ccm
Specific output 30.1 kW/dm3
The engine is driven by secondgeneration common rail technology (common fuel-feed to the cylinders). In this case, the injection pressure increases to 1 600 bar regardless of the engine speed, and the timing and quantity of fuel injected can be selected at will. Compared with the previous D 28 model, it is almost 100 kilograms lighter, consumes five percent less fuel and is two decibels quieter. Coupled with a particulate filter, the engine will meet the Euro 4 emission standards.

Fire-fighting vehicle with four-cylinder Otto engine

Built in 1928

65 hp (48 kW)
This fire-fighting vehicle with a 26 m high turntable fire-escape, automatic tilt safety device and cardanshaft drive was in service in Munich during the Second World War. Top speed was over 40 km/h. 1971 when taking over this truck it had a mileage of 8 000 km.

AMV truck with four-cylinder Otto engine

Built in 1923

50 hp (37 kW)
Engine speed 1 100 U/min
Displacement 8 138 ccm
This right-hand-drive dropsider with cardan drive was built by the former truck manufacturer M.A.N.-Saurer.

Commodore S16 210 truck with six-cylinder Diesel engine

Built in 1965

210 hp (154 kW)
Engine speed 2 100 U/min
Displacement 11 580 ccm
This semitrailer tractor with underfloor Diesel engine was built by BÜSSING Automobilwerke which were taken over by MAN in 1971. The first underfloor engine was built by BÜSSING in 1935.

780 HKA truck with six-cylinder Diesel engine

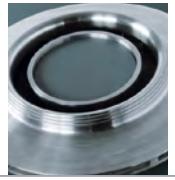
Built in 1967

186 hp (137 kW)
Engine speed 2 200 U/min
Displacement 9 592 ccm
The engine installed in this vehicle was based on a special low-noise, direct-injection combustion process using a spherical chamber (M combustion process). In this case, the fuel was no longer injected into the centre of the combustion chamber; but at a tangent onto the way of the spherical construction.

TGX XLX driver's cabin

Built in 2005

The basis of the TGX XLX cabin was a complete cabin that was partially dismantled in the interior and mounted on a rollable base frame. The long-distance cabin is designed for the fleet segment and offers the driver comfort by means of factors such as the large interior with full standing height, storage compartments and a low front windscreen for reduced solar irradiation with low interior heating.
The work to produce the TGX XLX cabin took approximately 260 hours. Since its completion in 2005, the cabin has been in use in various European countries.



AS 325 H tractor with four-cylinder Diesel engine

Built in 1951

25 hp (18 kW)
Engine speed 1 500 rpm
Displacement 2 676 ccm
1 450 tractors of this kind were produced between 1949 and 1952. The four-cylinder D 8814 GS engine used for this model worked on the basis of a combustion process newly developed by M.A.N. It consisted of a spherical combustion chamber and a flat-seat nozzle for direct injection.

Triple-Truck TGX with six-cylinder-Diesel engine

Built in 2013

400 hp (294 kW)
Engine speed 1 900 U/min
Displacement 10 500 ccm
Congratulating on the historic triple (Champion of the German Soccer League, DFB-Pokal winner, Champions-League winner) in the season 2012/2013, MAN provided this special vehicle for the celebrating ceremony. On June 2nd, after the victory in the German cup final, which was the last title completing the triple, the FCB stars were shuttled with this Triple Truck on a celebration tour through the city of Munich.

Luxury river-cruiser MS Mozart (Model 1:100)

Built in 1987

Input power:
2 x 1 612 hp (2 x 1 185 kW)
This first passenger cruiser built by Deggendorfer Werft und Eisenbau is designed for 239 passengers. DWE delivered the vessel to Donau-Dampfschifffahrts-Gesellschaft in Vienna after a construction period of only twelve months.

Impeller for a six-stage turbo-compressor used to compress air (above left)

Built in 1972

Speed 7 138 rpm

Impeller for a three-stage turbo-compressor used to produce compressed air (above right)

Built in 1985

Speed 18 938 rpm

Impeller for an eight-stage turbo-compressor used to compress propane (below left)

Built in 1983

Speed 9 180 rpm

Rotor from a research axial compressor with tandem cascades (below right)

Built in 1978

Speed 12 820 rpm

As further exhibits you will find

- Cylinder cover (1908)
- GV 30 Diesel engine (1925)
- NR 20 radial-flow exhaust-gas turbocharger (1968)
- W4V 17.5/22 Diesel engine (1938)
- SB 60 curved-tooth coupling (2002)
- Piston and connecting rod for the GV 58/84 Diesel engine (1929)
- Running gear for the M9Z 65/95 Diesel engine (1938)
- Manual stereocaster for stereotyping and matrix moulding-press (1900/1925)
- W4V 11/18 Diesel engine (1927)
- HSWL 354 gear transmission (1985)
- Turbopump for ARIANE European space launcher (1980)
- Models of Diesel engines and printing presses