

Designed for  
great businesses



A machine created to meet the needs of a manufacturer of large and medium-sized gears

## Ceba Ingranaggi S.r.l.

Gear manufacturing company.  
Produce parts from uncut material to finished pieces.

26 employees



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## Requirement profile

- Lathe with high stability and maximum flexibility to process quite large pieces
- Batch sizes up to 10 pieces
- Turning on two axes as well as boring, tapping and milling on the C axis
- Focus on quality not quantity
- Perfect service support



## High quality gears

Ceba Ingranaggi S.r.l. produces gear transmission components for use in the most varied fields, according to the sizes and specifications requested by the client.

In general terms, Ceba produces a large variety of pieces, from the simple to the more complex, with diameters ranging from 50 to 3,000 mm.

Fabrizio Cesana adds: "The most complicated components we produce are some Klingelnberg spiral conical gears, made using special Klingelnberg CNC gear-cutters; this is an extremely challenging task, which took us a long time and several trials to perfect, and which, in Italy, very few companies are able to perform". Grinding of the internal toothing also requires a lot of effort, and Ceba has specialised in this type of machining by investing heavily in specially designed equipment.

"We are contractors," continues Loretta, "and we produce the component requested by the client, as well as offering, as appropriate, a technical consultancy service and advice on calculating the gearing required. Our strength does not lie in quantity, but in the quality of the product, which can be of any type. As a rule, our batch sizes do not exceed 10 units, so we are not particularly competitive".

## A top quality partner

Whatever the type of gear, Ceba's policy is to complete the entire "mechanical" production cycle within the factory in Carate Brianza. This cycle begins with turning of the raw material, which is purchased in uncut cylinders, and ends with the final grinding of the toothed wheels.

Fabrizio Cesana explains why Ceba has decided to focus on the production of large and medium-sized gears: "The production of small gears was centred on other industrial areas, such as the Emilia region, where there is perhaps a greater tradition in terms

of automation and mass production. We have therefore decided to invest more in large wheels, in order to remain competitive from a geographical point of view.

The choice fell on an Emcoturn 900 CNC lathe produced by the Italian firm Emco Italia S.r.l., a subsidiary of the Austrian EMCO Group, one of Europe's leading manufacturers of machine tools. Fabrizio Cesana illustrates the reasons that led to the purchase of the new machine: "First and foremost the Emco brand is synonymous with reliability and quality; added to that, some mechanical companies that we know had spoken very highly not only of their machines, but also of their customer service. That is why we decided to contact EMCO".

## A compact and targeted machine

The Emcoturn 900 CNC lathe can handle machine diameters of up to 1,050 mm and lengths of up to 5,000 mm; it is a model that is based on the equation "big parts need big machines"; machines that are able to work quickly, economically and with extreme precision.

Marco Ruggeri of Emco Italia explains: "Its high performance is compatible with its size due to a very strong structure that gives the machine great stability". The wide range of accessories allows this lathe to be adapted to any type of machining with the maximum flexibility.

In addition to its rigidity and stability, the strengths of the Emcoturn 900 are its high processing precision, high operating speed, the ease with which pieces are loaded onto it, and the use of motorised tools. "I think it is important to point out," continues Ruggeri, "that this is a machine "Made in the Heart of Europe"". The main features of the machine include the extremely rigid tailstock with a quill that is hydraulically clamped to the bed; positioning is performed via carriage train; the diameter of the quill is 150 mm and the CM 5 attachment has an integrated rotating unit. The 12 position tool turret has a VDI60 quick change system. It



Cesana family

» The Cesana family. From the left: Loretta Cesana, administrative and financial manager; Giovanni Cesana, founder and Chairman; Fabrizio Cesana, technical and sales manager.



EMCOTURN 900 machine installed at Ceba company.

also features three positions for special tool holders which facilitate the use of longer length tool-heads with larger diameters. Six of the nine VDI60 positions can be used for milling operations. The powerful main spindle rotates on conical roller bearings and performs the most challenging tasks with ease. Maximum precision is guaranteed by the orientable C axis. Lastly, the hydraulic unit is powerful and simple to use and can be supplied with proportional valves upon request.

Marco Ruggeri expands on the importance of the numerous options for customised solutions: "Different sized rests are also available for the efficient and precise production of parts of considerable length. Their positioning using special slides is achieved by means of an automatic drag system".

### Very valuable results

Ceba's Fabrizio Cesana is highly satisfied with the performance of this lathe: "The main characteristic of the machine is that its dimensions are in direct proportion to its real working capacity. There are no structural shortcuts or weak points. We run to a certain regime for chip removal and we are fully satisfied with the daily results that we obtain".

Another much appreciated feature of the Emcoturn 900 is the provision for adding functions that increase machining possibilities: "So we don't just use the machine for turning on two axes," says Cesana, "but can also engage the spindle and work at constant power to carry out boring, tapping and milling on the C axis". The fact that additional "finishing" operations can be performed essentially reduces the handling of parts, as they

can be machined in several ways on a single machine: "This is an enormous advantage: we save on space, time and costs. We are all too aware that handling large parts like the ones that we produce can entail great expense," concludes Fabrizio Cesana with satisfaction.

### Service, the true strength of any technological supply

In the application that we have just described, what stands out more than anything, in addition to the technological aspect, is the type of service that Emco has guaranteed for Ceba.

Marco Ruggeri of Emco Italia explains: "Our customer service operates not only during the pre-sales phase, but also during installation and testing of the machine on the client's premises, thus offering constant support until the client is fully operational and satisfied. That's when the "post-sales service" takes over to handle maintenance and assistance. If necessary, this can in fact be called on immediately, by telephone or, if the damage is more serious, with in situ engineers within 24/48 hours.

Fabrizio Cesana confirms this: "The lathe has always worked very well; but the very few times that we have had problems, the Emco engineers have come to our rescue very quickly and efficiently. We really appreciate this kind of approach.

Source: Vittorio Pesce, Macchine Utensili, user report

### The workpiece made in Ceba with the ET 900 machine



Turning of 18NiCrMo5 material cut from 540 mm diameter bars

Hole cut using a vertical gear-cutter

Drilling and M18 tapping performed using 17.5 kW power motorised tools, torque 130 Nm and separate C axis motor

Klingelnberg cyclo-paloid toothing performed using a C60U gear-cutter

Teeth ground using special Klingelnberg HPG-S tools

# [Technical data]

## EMCOTURN 900

| Working area                               |   |
|--|---|
| Maximum swing over bed                     | 1050 mm (41.3")   |
| Maximum swing over carriage                | 800 mm (31.5")  |
| Travel in X                                | 600 mm (23.6")  |
| Travel in Z                                | 2060/3060/4060/5060 mm<br>(81,10/120,47/159,84/199,21") |
| Maximum workpiece weight with tailstock    | 4500 kg (9920.8 lb)                                     |
| Headstock                                  |   |
| Spindle nose (DIN 55026)                   | A2-15   |
| External spindle diameter in front bearing | 285 mm (11.2")  |
| Chuck diameter up to                       | 630 mm (24.8")  |
| Spindle bore                               | 206 mm (8.1")   |
| Speed range at constant power output       | 97 – 800 rpm  |
| Maximum power                              | 80 kW (107.3 hp)  |
| Maximum torque                             | 7880 Nm (5812 lbs-ft)                                   |
| Feed drives                                |   |
| X/Z rapid traverse                         | 10 m/min  |
| X feed force                               | 2330 daN  |
| Z feed force                               | 4325 daN  |
| Tool turret                                |   |
| Number of holders                          | 9 VDI + 3 block tools                                   |
| VDI holder shaft                           | 60 (9 positions)  |
| Tool cross section                         | 32 x 32 mm (23.6 x 23.6")                               |
| Maximum boring bar diameter                | 60 (80) mm (2.4 (3.2)")                                 |
| Coolant pressure                           | 7 bar (101.5 PSI)                                       |
| Tank capacity                              | 400–760 l (88–167 gal)                                  |
| Tailstock                                  |   |
| Quill diameter                             | 150 mm (5.9")   |
| Quill stroke                               | 150 mm (5.9")   |
| Mounting (with integrated bearing)         | MT5   |
| Maximum quill force                        | 3510 daN  |

| Driven tools                         |  |
|--------------------------------------|--|
| Number of stations                   | 6                                      |
| Maximum power                        | 17,8 kW(23.9 hp)                       |
| Maximum torque                       | 130 Nm (95.9 ft/lbs)                   |
| Maximum speed                        | 2000 rpm                               |
| C axis                               |  |
| Maximum speed                        | 15 rpm                                 |
| Maximum torque                       | 3200 Nm (2360 ft/lbs)                  |
| Dimensions                           |  |
| Height of spindle centre above floor | 1250 mm (49.2")                        |
| Weight                               | 18500–28000 kg<br>(40785.5–61729.4 lb) |

### Production solutions [Made in the Heart of Europe]

The EMCO Group is an association of top suppliers from the machine tool industry. The companies associated work together in a network of European manufacturers to develop intelligent and innovative production solutions for the metal-cutting industry. There are always new possibilities for the whole group due to the various competences of the individual entrepreneurs, their resources, and the transfer of knowledge amongst the companies within the group.

The EMCO Group headquarters and central production facilities are located in Salzburg. There are also further production facilities in Germany and Italy, as well as corporate sales offices in Germany, Italy, France, Spain, the Czech Republic and the USA. EMCO is represented internationally in all major markets with over 160 sales and services offices. At the present time, the EMCO Group employs around 800 committed and highly-skilled employees.