

# MY ERASMUS PLACEMENT IN BELGIUM



Introduction of  
Cecilia Brenna



The training program:

- was held at Atlas Copco Airpower, Antwerp, Belgium
- lasted 3 months
- dealt with different issues about compressed air systems

*Atlas Copco*



Antwerp is the most important city of Flanders and it is known as a notable touristic and trade pole in Europe...



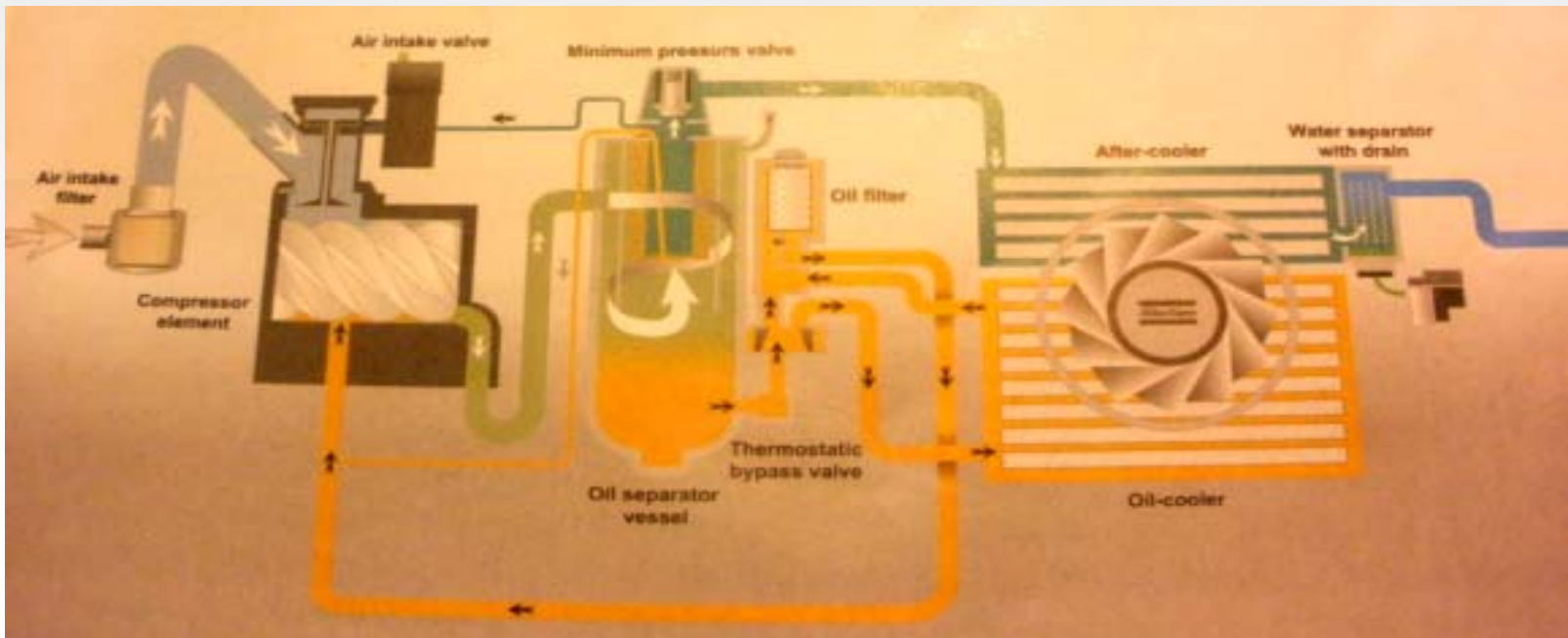


- As my first working experience, the internship has been characterized by an initial adaptation phase and later by a more extensive and practical study of the knowledge to be acquired.
  - The working environment was marked by a division into business units operating on small system portions, but however always interacting with each other to make efficient the overall coordination.
  
- I have been inserted in the so-called GA-TEAM, a business unit specialized in the design and management of oil-injected screw compressor systems 90 kW upward and I cooperated with them on different issues...



## OIL-INJECTED SCREW COMPRESSOR SYSTEMS

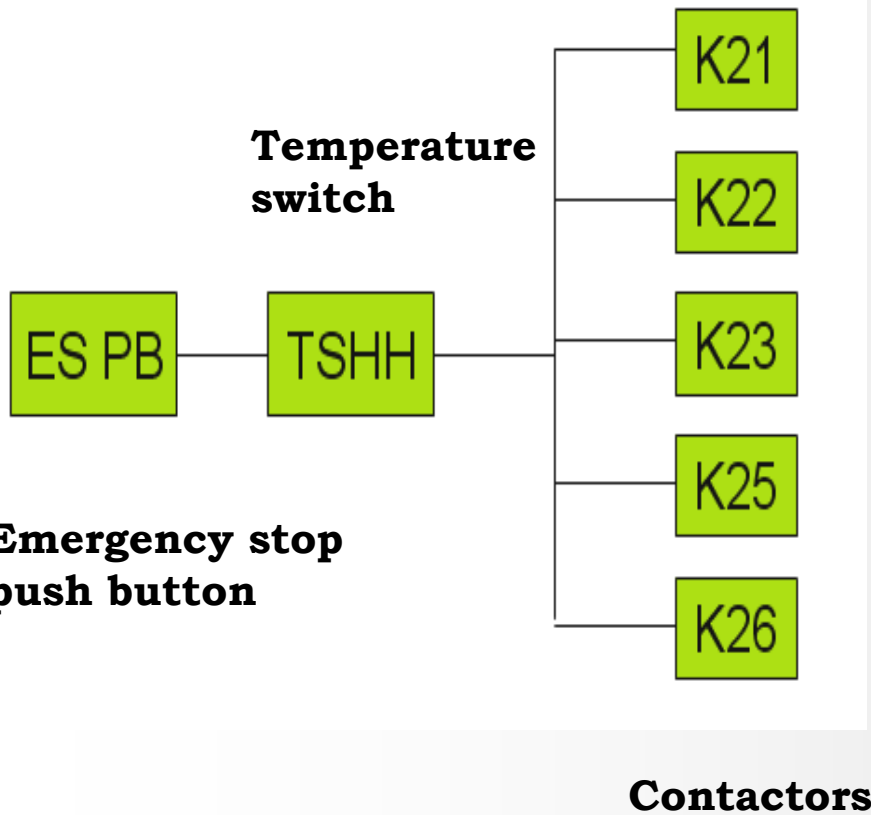
- Oil injection directly in the compression chamber
  - Problems linked with air quality
- Components design in order to guarantee energy efficiency and pressure drop as small as possible





## SAFETY OF MACHINERY

According to BS EN ISO 13849-1:2008



➤ analysis of machinery control system

➤ study of safety functions

➤ application of risk evaluation method

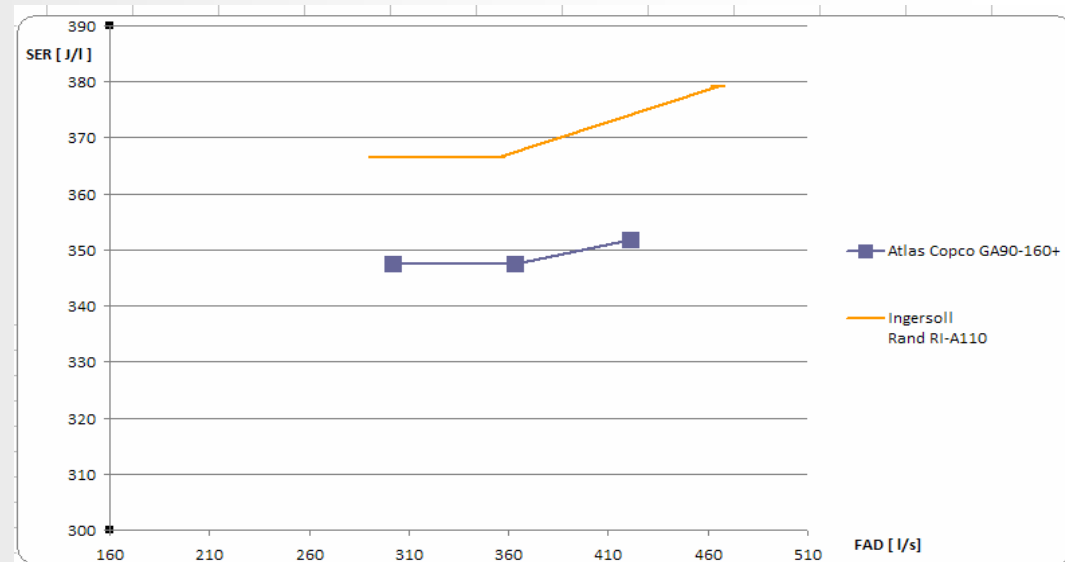
➤ eventual action of control system improvement



## COMPRESSORS SELECTION CRITERIA

- Design and analysis of the installation
- Selection of working pressure
- Calculation or assessment of the air requirement (FAD)
- Evaluation of the specific energy required (SER)
- Consultation of FAD/SER graphs
- Comparison of different compressors energetic performances

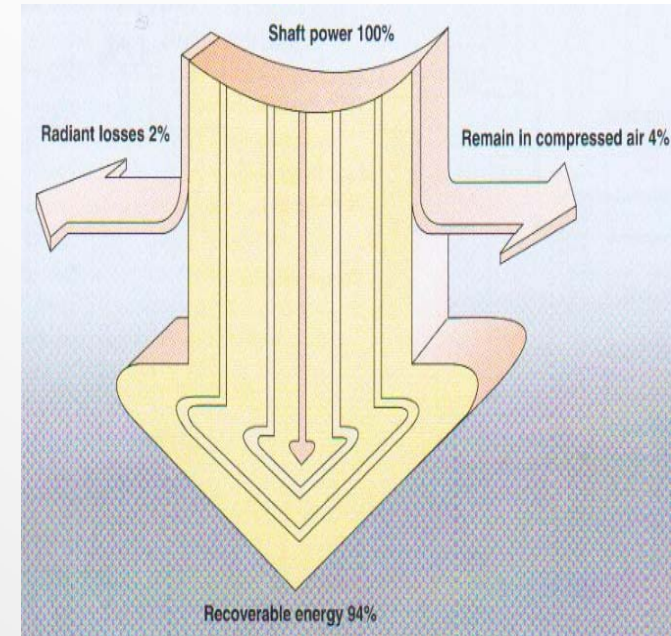
Manufacturer	Series	Model	Horsepower	Rated capacity at full load operating pressure (l/s)	Reference pressure corrected	Corrected Rated Capacity at Full Load Operating Pressure (l/s)	Corrected Specific Package Input Power at rated capacity and full load operating pressure (J/l)
Atlas Copco	GA90-160+	GA90+	125	302,08	6,9	302,08	347,4576
Atlas Copco	GA90-160+	GA110+	150	362,968	6,9	362,968	347,4576
Atlas Copco	GA90-160+	GA132+	175	421,024	6,9	421,024	351,6949
IngersollRand	RI-A110	R90I-A110	125	293,112	6,9	293,112	366,5254
IngersollRand	RI-A110	R110I-A110	150	354,472	6,9	354,472	366,5254
IngersollRand	RI-A110	R160I-A110	200	464,92	6,9	464,92	379,2373





## ENERGY EFFICIENCY OPPORTUNITIES

- Energy consumption represents 80% of the system overall cost
- Energy-saving possibilities are among others:
  - energy recovery
  - pressure reduction
  - leakage reduction
  - correct choice of control and regulation system
- Over 90 % of the power supplied to the compressor can be recovered in the form of highly valuable heat
- The highest degree of efficiency is generally obtained from water-cooled installations







## **KNOWLEDGE ACQUIRED**

- Focus on component design and consumers needs
- Involvement in the production line and control tests
- Employ of design and system control softwares
- Identification of new technologies for energy saving
- Learning of technical vocabulary



## Some further considerations...

- Very interesting and important experience from a formative and personal point of view
- Opportunity to face up with a working environment, new kind of relationships and compare others realities with the Italian one
- It's important trying to find a balance between work and study activities
- Try to be assertive and ready to learn quickly and continuously

Thank you for  
your kind attention

