



# VALVECENTER

**HIGH PRODUCTIVITY CNC CENTER FOR THE FULL  
MANUFACTURE OF VALVES**





Founded in 1974, LEALDE S. Coop. was the first Spanish manufacturer of C.N.C controlled Lathes .

Our wide experience, specialisation in manufacture of lathes with constant collaboration with our R + D centre IDEKO, using the latest technology, committed to total quality and implication of its staff, make it possible for LEALDE to comply with the competitive quality required by our clients.



# The complete solution for v



DANOBAT Group is the main Spanish manufacturer of Machine Tools and Production Systems and one of the most outstanding in Europe.

The production of the Group accounts for 25% of the total metal cutting market within the Spanish Machine Tool Sector.

The DANOBAT Group consists of 6 companies: DANOBAT, D + S Sistemas, ESTARTA, GOITI, SORALUCE and LEALDE, and is a major shareholder of the Technological Research Centre IDEKO.





The VALVECENTRE machine range implements a new flexible and economical concept of manufacturing complete valves and pump bodies. It provides a solution, with a high reliability and productivity, in the turning, milling and drilling processes.

The VALVECENTER is an autonomous flexible CNC machine that consists of:

- A turning unit for the turning, facing and boring operations.
- A drilling unit of 2 horizontal CNC heads, for drilling, milling, thread cutting and slotting operations.

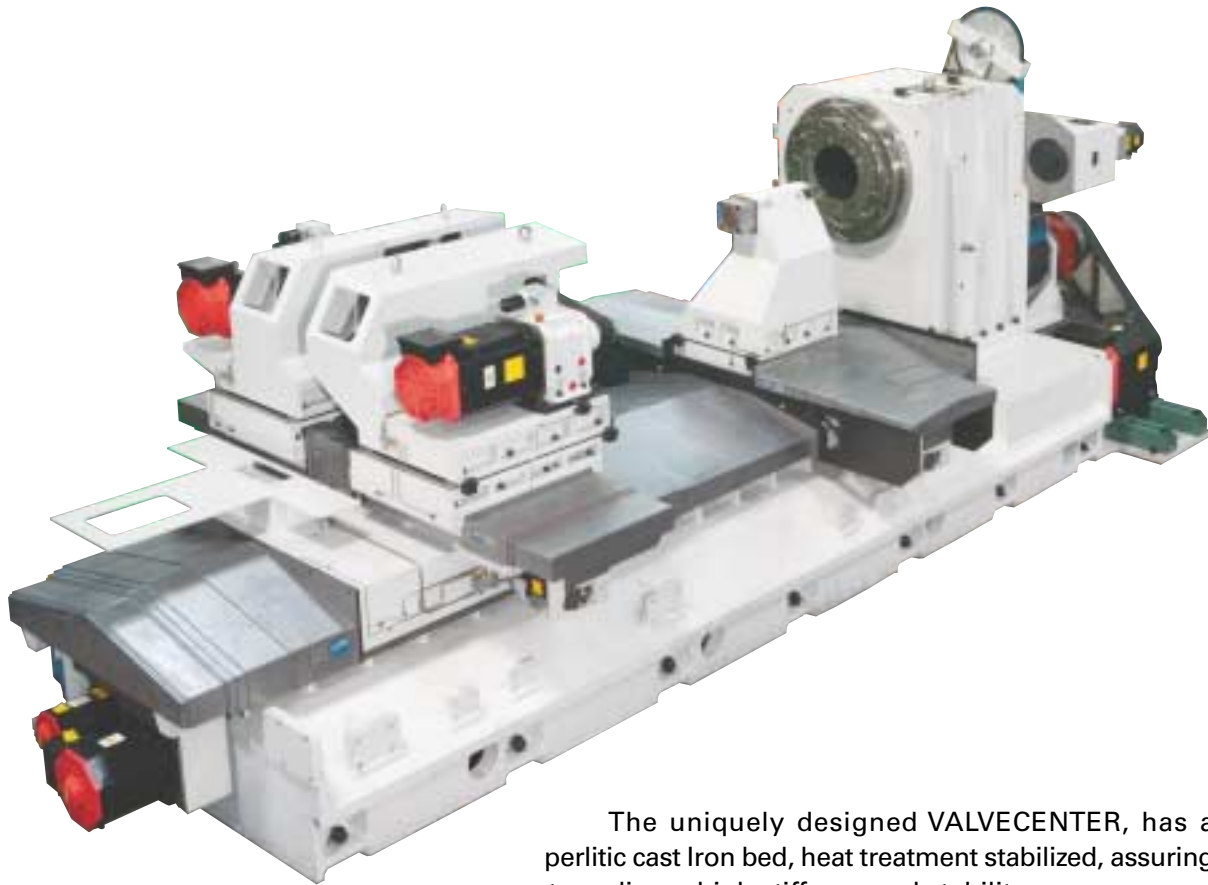
These machining units, and the single clamping set up, using an automatic indexing chuck, result in high performance levels.

# valve machining

## MAIN REFERENCES



# Main VALVECENTER characteristics



The uniquely designed VALVECENTER, has a perlitic cast Iron bed, heat treatment stabilized, assuring an extraordinary high stiffness and stability.

Hardened and ground prismatic slides are fitted in the bed and they ensure the accurate movement of the drilling and turning units and allow high stock removal capacity during roughing and finishing.

All the slides are protected by telescopic slides, in order to facilitate chip and coolant removal from the working area.

The workhead is also manufactured from a perlitic casting and fitted directly onto the bed. The main characteristic of the workhead is its high stiffness.

The workhead incorporates very high quality bearings, giving a capacity to machine valve bodies up to 800 Kg. The bearings are lubricated and cooled with an oil circulating system and ensures full power utilization in the all speed ranges from 115-160 rpm.

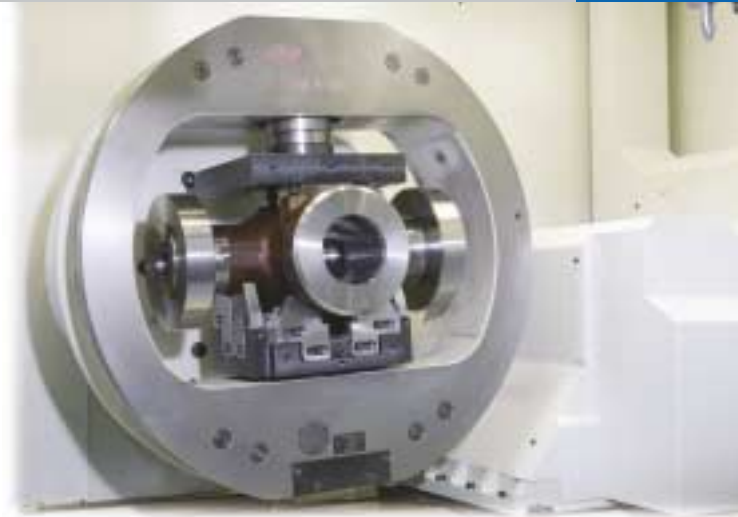
Supplied as standard, the workhead includes a C axis, driven with an independent motor, as well as a hydraulic brake in order to position the part in an exact angular position.



## Indexing chuck

Due to its design, the indexing chuck has a very high stiffness, it indexes automatically in the 4 position at 90° and this allows machining the 4 faces of the valve with only one clamping operation.

The reduction of clamping operations to just one single operation, eliminate inaccuracy sources, such as chuck change and result in better performance and a higher quality machined valve.



## Turning Unit

Located on very high stiffness casting slides with X and Z controlled movements.

Designed with a clamping system HSK-B (mechanic clamp-hydraulic unclamp) and incorporates a tool clamping safety system.

The high pressure (18 bar), through tool coolant.

## Drilling Unit

The machine is designed with two drilling heads located on one slide. This slide has a movement in the Z axis. However each drilling head has each own independent movement in the X-axis, and its own motor for the tooling rotation.

This configuration allows a 50% of time reduction as two holes can be drilled simultaneously.

Both drilling heads are provided with the HSK-A clamping system. Through tool coolant at high pressure (18 bar).

The tools are sourced from an automatic tool changer and there is an optional of angular position of the drilling tool.



## Tool magazine

The chain type tool magazine is situated in the rear of the machine, the safest area to avoid any coolant or chip contamination. The machine user can load and unload the tools via a service door, without interrupting the machining process.

Designed with 2 arms and 6 tool fingers (4 for drilling tools and 2 for turning tools) which permit simultaneous tool change and clamping operations.

The next required tool magazine search is completed before the tool is required for machining. This greatly improves the performance and tool management.



# VALVECENTER machine range advantages

## Example of the Machining cycle

The machining of the valve body can be reduced to the following main operations:

- Roughing and finishing of the flange.
- Roughing and finishing of the body seat ring.
- Drilling and thread cutting of the flange holes.
- Drilling and boring of the liquid flow holes (for forged valves).

For a cast steel valve body of 6 inches and 150 psi made by ASTM A216 steel the machine achieves the machining within 22 minutes.

For a cast steel valve body of 2" 1/16 and 5000 psi made by ASTM A216 steel the machine achieves the machining within 70 minutes.

For a cast steel valve body of 6" 1/16 y 5000 psi made by ASTM A216 steel the machine achieves the machining within 3 hours and 30 minutes.



## Some other advantages of the VALVECENTER:

- **Quality improvement:** Due to the single clamping machining process, expensive setting operations (such as the centring of the valve) are avoided and the quality of the part is improved. The HSK clamping system, with a double contact design and high repeatability, results in a very reliable clamping operation within a very high range of tolerances.
- **Total flexibility:** Minimum adjustments are required within a wide range of valves. In addition to the indexing capacity of the chuck, the machine has another 6 axis controlled by the CNC.
- **Maximum production:** The turning head provide the machine with a high capacity for machining. The two drilling heads can half drilling operation times.
- **Stock reduction:** The valve is machined in a single set up. As consequence, multiple set ups between operations are no longer needed.
- **Lead time reduction:** The high productivity and flexibility permits working with customer who have short delivery times.
- **Shop floor reduction:** The VALVECENTRE requires less floor area than other traditional alternatives such as lathe, machining centre or a transfer line solution.
- **Profitability:** The VALVECENTRE guarantees a reduction in the cycle time, both in stock removal and in intermediate operations. The number of required machine operators is reduced. The result is a higher quality final product, and a better service to the customer.



STORE	5VT	6VT
TURNING TOOLS	HSK-100 B	HSK-125 B
N° Tools	16	16
Maximum length	530 mm	650 mm
max. adjacent full	155 mm	155 mm
max. adjacent empty	225 mm	225 mm
Maximum weight of tool	20 kg	40 kg
DRILLING TOOLS	HSK-63 A	HSK-63 A
N° Tools	32	32
Maximum length	200 mm	200 mm
max. adjacent full	78 mm	78 mm
max. adjacent empty	155 mm	155 mm
Maximum weight of tool	8 kg	8 kg

## TECHNICAL CHARACTERISTICS

### ESPECIFICATIONS

5VT

6VT

#### Generals

Swing over bed .....	1.100 mm .....	1.300 mm
Maximum size for the chuck .....	1.000 mm .....	1.200 mm
Height from floor to spindle centerline .....	1.550 mm .....	1.650 mm
Maximum distance between drill nose and spindle nose .....	2.230 mm .....	2.530 mm
Maximum distance between turning nose and spindle nose .....	1.300 mm .....	1.790 mm

#### Main Spindle

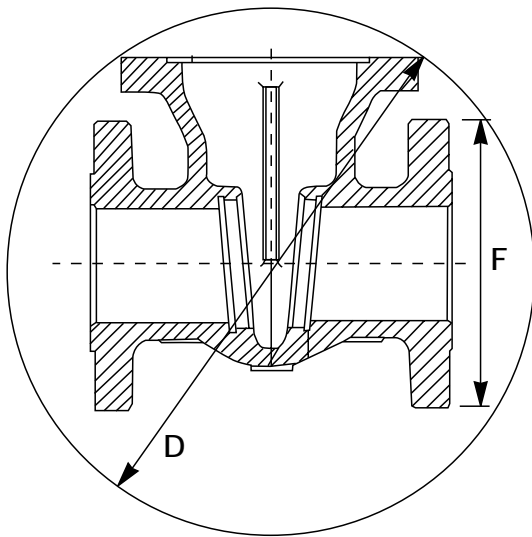
Main spindle nose .....	A1-20" .....	A1-28"
Main Motor power (Cont/30 min) .....	40/56 Kw .....	60/75 Kw
Main motor speed rpm .....	10-850 rpm .....	10-400 rpm
Min.index angle of C axis .....	0.001° .....	0.001°

#### Turning Unit

Stations .....	1 .....	1
Type of shank .....	HSK-100B .....	HSK-125B
Z traverse .....	1.220 mm .....	1.420 mm
X traverse .....	870 mm .....	960 mm
Max. distance between turning centerline and spindle nose .....	675 mm .....	755 mm
Rapid positioning Z/X .....	15.000 mm/min .....	15.000 mm/min
Z thrust force .....	50.240 Nm .....	66.987 Nm

#### Drilling Unit

Number of spindles .....	2 .....	2
Maximum spindle speed .....	3.000 rpm .....	3.000 rpm
Maximum power .....	22/26 Kw .....	22/26 Kw
Type of shank .....	HSK-63A .....	HSK-63A
Front bearing .....	55 mm .....	65 mm
Minimum distance between both headstocks .....	115 mm .....	130 mm
Maximum distance between both headstocks .....	320 mm .....	420 mm
Z traverse .....	1.500 mm .....	1.710 mm
X traverse .....	160+160 mm .....	250+250 mm
Rapid positioning Z/X .....	15.000 mm/min .....	15.000 mm/min
Z thrust force .....	28.260 Nm .....	37.680 Nm



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<b>5VT</b>	710 mm	480 mm
<b>6VT</b>	840 mm	620 mm



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