INSTALLATION

All SELTER chucks leave the factory with the base and the top plate ground to a perfectly smooth finish, ready for use. The chuck is fitted to the machine with a chuck backplate, in the same way as normal chucks with jaws. To fit the chuck into the machine follow these instructions:

1. Mount the chuck onto the chuck backplate and fix in place with screws. Ensure that the chuck is properly seated and that contact surface is clean and free from nicks and burrs caused by knocks.

Ø CHUCK	100	130	160	200	250
FITTING	ø70x2.5	ø90x2.5	ø125x3	ø150x4.5	ø200x4.5
OPENINGS	3xM-5 to ø91	4xM-6 to ø120	4xM-8 to ø142	4xM-8 to ø182	4xM-8 to ø232

Ø CHUCK	300	350	400	450	500
FITTING	ø250x4.5	ø300x4.5	ø300x5	ø350x5	ø400x5
OPENINGS	4xM-8 to ø285	4xM-8 to ø334	6xM-10 to ø350	6xM-10 to ø400	6xM-10 to ø450

2. When not using the chuck, apply a thin coat of grease or oil to its surface to prevent oxidation.

3. Due to the welding process used in the construction of the top plate of the chuck, it is possible that small amounts of the chemical substance used will be present, producing small marks on the surface of the chuck. These marks do not affect in any way either the quality or the performance of the chuck.

OPERATING INSTRUCTIONS

Before using the chuck read the section: Factors affecting the magnetic holding force.

1. The contact surfaces of the chuck and the pieces must be perfectly flat and clean.

2. Place the pieces in the central part of the chuck, avoiding the edge, especially where the shaft passes; this part of the chuck has less magnetism due to the space occupied by the magnetising mechanism.

3. The chuck magnetisation is progressive, which makes centring the pieces easier. It can be magnetised so that the piece is only just held on, then centring the piece and finally totally magnetising the chuck. The magnetic face of the chuck has concentric rings marked to help with centring the piece.

4. Chucks of ø250 or more are prepared for making a hole in the centre of the top plate, to fit a stop or centring device. This hole must not be larger than ø20 x 15 mm. It is recommended that these devices be of a non-magnetic material (bronze, brass, stainless steel,...).

5. The chuck is magnetised turning the shaft (the ø450 and ø500 chucks have 2 shafts) with the lever supplied with the chuck and which should be used to turn it. To achieve 100% magnetisation the shaft should be given 1¼ turn in a clockwise direction. Demagnetising is carried out by turning anti-clockwise.

6. Check by hand that the pieces are firmly held in position before starting work.

7. Do not exceed the revolution speed limit shown as follows:

CHUCK Ø	100	130	160	200	250	300	350	400	450	500
R.P.M.	1500	1200	1000	800	700	700	600	500	450	400

MAINTENANCE

This chuck hardly needs maintenance. It is only necessary to grind the surface of the chuck periodically to avoid loss of holding force. The maximum thickness of material that can be removed from the surface of the chuck, which is 8 mm, should be taken into account. It is recommended that the surface of the chuck not be ground more than necessary so as to prolong its working life.

This chuck does not need oil in its interior for lubrication. If the chuck size is over ø250 or more, there are some openings in the side with the word "OIL" through which grease can be applied if it is necessary. The grease should be general or solid.

FACTORS AFFECTING THE MAGNETIC HOLDING FORCE

The holding force depends on the magnetic flux generated by the chuck, but certain factors which limit or impede the flow of the magnetic flux to the piece and reduce the holding capacity should be taken into account: 1. The contact area. 2. The thickness of the piece. 3. The contact surface conditions. 4. The material of the piece.

1. The contact area

The holding force is directly proportional to the contact area of the piece with the chuck. Large pieces with large contact surfaces offer sufficient resistance to the machining forces, however small pieces with small contact surfaces will not withstand certain types of machining. The piece should be placed on the chuck in such a way that it covers the largest possible number of poles (each steel strip is a pole).

2. The thickness of the piece

The magnetic flux needs a certain minimum thickness of material (iron) to be able to work. If the pieces are really thin and do not reach this minimum thickness, then they will not be able to absorb the magnetic flux generated by the chuck and the holding force will be lessened.

3. Contact surface conditions

To achieve good magnetic holding, the contact surfaces, both of the chuck as well as the piece, must be in optimum condition. Pieces that are not completely flat or with a rough finish have a worse holding capacity than those with a ground surface. It is important to maintain the surface of the chuck in good condition, grinding it when necessary.

Level of surface finish	*Holding force*
Ground	90-100 %
Fine milled	60-80 %
Rough milled	40-50 %
Cast finish	20-30 %

Material	*Holding force*
Non-alloy steel 0.1-0.3 % C	100 %
Non-alloy steel 0.4-0.5 % C	90 %
Nondistorting alloy-steel	80-90 %
Grey casting	40-60 %
Nondistorting alloy-steel hardened to 55-60 HRc	30-50 %
Austenitic stainless steel, brass, aluminium, copper	0 %

4. Material

The material of the piece is very important for good magnetic holding. Soft steels (low carbon content) present the best holding (100%). However, there are others with high percentages of carbon alloys of other materials, which lose their holding capacity. Also some heat treatments reduce the capacity of steels to be held by magnetic chucks. In general, the harder the steel, the worse they behave, and have a tendency to retain magnetism once they have been removed from the chuck. Sometimes it can even be difficult to remove the piece from the chuck.