SUMMARY

In accordance with a first aspect of the present invention there is provided a valve plate for a compressor, the valve plate having a thermally insulating capability for thermally insulating a suction muffler of the compressor from a discharge plenum in a cylinder head of the compressor~~.~~, wherein the valve plate comprises a first plate element and a second plate element, the first plate element and the second plate element assembled to be joined together, and the

~~The valve plate may comprise a~~ first plate element is made from a thermally insulating material ~~and a~~.

The second plate element may be made from metal.

The first and second plate elements may be joint by one or more of a group consisting of press-fitting, injection molding, induction heating, bonding adhesive, and ultrasonic welding.

The first plate element may be disposed to face the discharge plenum.

The valve plate may further comprise a third plate element made from metal, and the first plate element is sandwiched between the first and second plate elements.

The first, second and third plate elements may be joint by one or more of a group consisting of press-fitting, injection molding, induction heating, bonding adhesive, and ultrasonic welding.

The first plate element may be configured to be received in a recess formed in the second plate element.

The recess may be formed around a suction orifice in the second plate element.

The second plate element may comprise a raised portion around a discharge orifice in the second plate element, and the first plate element comprises an opening for receiving the raised portion.

The valve plate may comprise ~~a first plate element made from thermally insulating material and~~ a metal coating on one or both sides of the first plate.

In accordance with a second aspect of the present invention there is provided a compressor comprising a valve plate as defined in the first aspect.

In accordance with a third aspect of the present invention there is provided a method of thermal insulation applied in a compressor, comprising using a valve plate having a thermally insulating capability for thermally insulating a suction muffler of the compressor from a discharge plenum in a cylinder head of the compressor~~.~~, wherein the valve plate comprises a first plate element and a second plate element, the first plate element and the second plate element assembled to be joined together, and the first plate element is made from a thermally insulating material.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

Figure 1 shows a schematic diagram illustrating a temperature profile of a refrigerant gas path inside a reciprocating compressor;

Figure 2 shows schematic drawings illustrating heat flow from high temperature discharge gas to the suction path at the suction and discharge interface, using (a) a conventional valve plate and (b) an valve plate structure according to an example embodiment.

Figure 3 shows a schematic drawing of a compressor according to an example embodiment.

Figure 4 shows a schematic drawing illustrating a valve plate structure according to an example embodiment.

Figure 5 shows a schematic drawing illustrating a valve plate structure according to an example embodiment.

Figure 6 shows a schematic drawing illustrating a valve plate structure according to an example embodiment.