

Documentation

The following information sheets illustrate the description below:

40-T201-4G-E	Sectional view of the regulator 40-VK1 with main dimensions
40-T201-D0-E	Graph of relative output at constant pressure drop
40-T201-DB-E	Graph of output at 90° opened
40-T301-4G-E	Sectional view of the regulator 40-VK2 with main dimensions

General

The regulator 40-VK is designed for use in or on oil burners equipped either with return flow atomisers or with compressed air atomisers or steam atomisers.

Turning the regulator shaft changes the aperture inside the regulator, consequently changing the fuel flow rate. Both flanges at the regulator shaft are marked with a "+", a scale in 15° steps and a "-". The pointer mounted on one side of the regulator shaft shows the actual position of this shaft.

The regulator is suitable for pressures up to 40 bar and fuel temperatures up to 140°C.

Mounting

The connection block has two 8,5 mm holes and six threaded M5 bores for mounting purposes. These provisions also allow mounting a control motor or an optional heating plate.

To prevent malfunction, be careful when removing the plastic plugs from the connection ports and make sure no material stays behind.

In case of air atomisation or steam atomisation, the regulator is to be connected in the supply line between the pump and the atomiser. With a return flow atomiser, the regulator is to be connected in the return line from the atomiser.

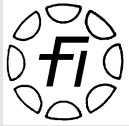
Connections

The connections on the block of the regulator are marked as follows:

- I** Fuel inlet to the regulator.
- O** Fuel outlet from the regulator.

When choosing fittings, make sure that the channels inside the connection block remain fully open. Even a partial blockage at one of the channels inside will inevitably lead to malfunctioning of the regulator.

Never use any additional sealant on the thread. The remains getting inside the regulator could lead to failures. There are no objections against the use of flat gasket rings to seal the fittings.



Function

Turning the regulator shaft changes the flow through the regulator. The marking of "+" and "-" always refers to the throughput of the regulator and not to the output of the actual atomiser. The throughput of the regulator is at minimum with the pointer at "-". Turning the regulator shaft towards "+" increases the throughput of the regulator. Therefore, in case of air or steam atomisation, the output of an atomiser is at maximum if the pointer is at "+". On the other hand, for a return flow atomiser, the output of the atomiser will be at minimum if the pointer is at "+".

The flanges have a scale with 15° division. This scale allows reproducible adjustment of the regulator during operation.

The throughput of the regulator always is related to a certain pressure difference between the inlet and the outlet of the regulator. The pressure drop across the regulator and the maximum throughput depend on the actual atomiser and system particulars. In order to benefit from the maximum angle of travel, the choice of the size for the regulator should be made in such a way that its maximum throughput fits the actual atomiser and method of atomisation. Here also system particulars should be taken into account.

If firing heavy fuel, we advise mounting a heating device to preheat the regulator for those applications where the fuel flow often stops during longer intervals. It is sufficient to apply an electrical heating plate to preheat the regulator connection block. The four M5 bores on one side of the connection block allow mounting such a heating plate. This heater could work permanently, but it should at least be switched on in time before fuel is supposed to start flowing to achieve correct operation.

Maintenance

The regulator normally does not require any maintenance. Wear or damage highly depends on fuel quality. The only moving part is the regulator shaft. After a long period of operation, wear on the sleeve or on the regulator shaft can occur, resulting in an increase of leak flow at minimum throughput. After a while some wear may occur on the o-rings. Complete seal sets are available for replacement.

In case of wear of the sleeve or of the regulator shaft, it is advised to return the regulator to the factory for repair. It is not recommended to perform this kind of repairs without proper tools and test equipment. The regulator shaft and the sleeve are being manufactured within close tolerances to avoid operation difficulties after such repairs.

To exchange the o-rings in the flange, remove the pointer, held by 1 screw. Remove any damages and polish any sharp edges at both ends of the regulating shaft. Remove both flanges, each held by 2 screws, but leave the regulating shaft in its place. Carefully remove both o-rings from their grooves using a sharp needle without damaging the flanges in any way. Before re-assembly, make sure all parts involved are undamaged and perfectly clean. In case the regulator shaft has come out by accident, put it back in the correct position. Otherwise, the regulator will not function at all afterwards. Put the new o-rings in place. Near the o-rings, the regulator shaft should be absolutely free of damages. Re-assemble the regulator in reverse order.

The position of the pointer on the regulator shaft has been pre-set at the factory. Both ends of the regulator shaft have a pit for fixing the pointer in the correct position. If the regulator shaft is mounted properly and the pointer is fixed again using this pit, the characteristic of the regulator will not change after replacement of o-rings.