SERVICE INFORMATION

Oversize cylinder liners

In certain cases of reconditioning, engines require wet and dry cylinder liners with oversize dimensions. For this reason, Motor Service have had oversized cylinder liners in their KS product range for a long time now. The significance of such oversized cylinder liners and the reason they are needed is explained in the following.

Situation:
In the course of an engine's service life, problems are caused on the engine blocks as a result of wear and corrosion that cannot be remedied by fitting new cylinder liners. Sealing surfaces may for instance have been corroded or liner flange seating surfaces (Fig. 1 and 2) affected by wear. If these deficiencies are not cleared, problems, or even damage, can be expected only shortly after new parts have been fitted. For the repair shop, and for the engine reconditioner as well, this means that they must remedy the damage to the sealing and functional surfaces to achieve clean, faultless surfaces again.

Generally, this is done by remachining the damaged surfaces. However, the removal of material as a result of grinding, turning or milling leads to dimensional changes that no longer permit the installation of components with standard sizes. If, for instance, the location hole of a cylinder liner is remachined in an engine block, i.e. the diameter of the bore in the engine block is enlarged, then the outside diameter of the cylinder liner must increase as well.

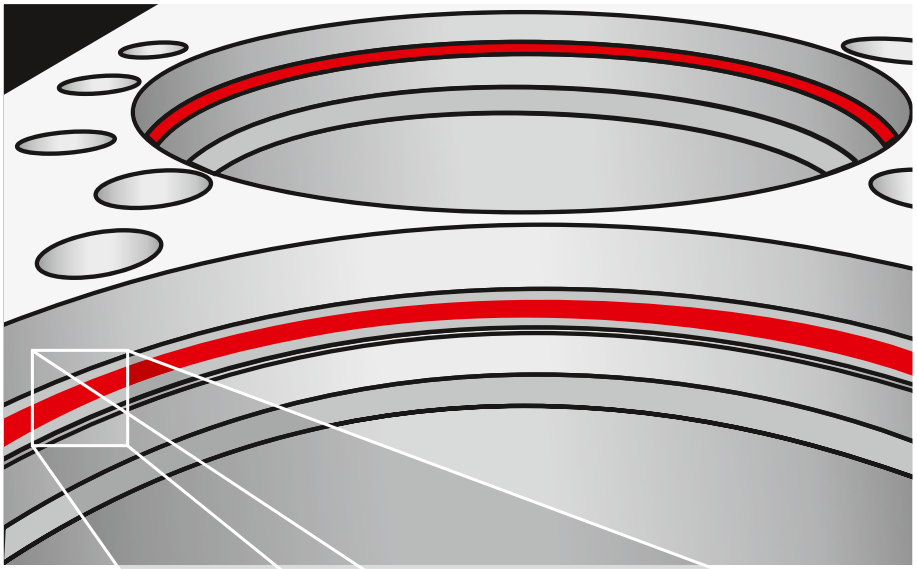

Fig. 1

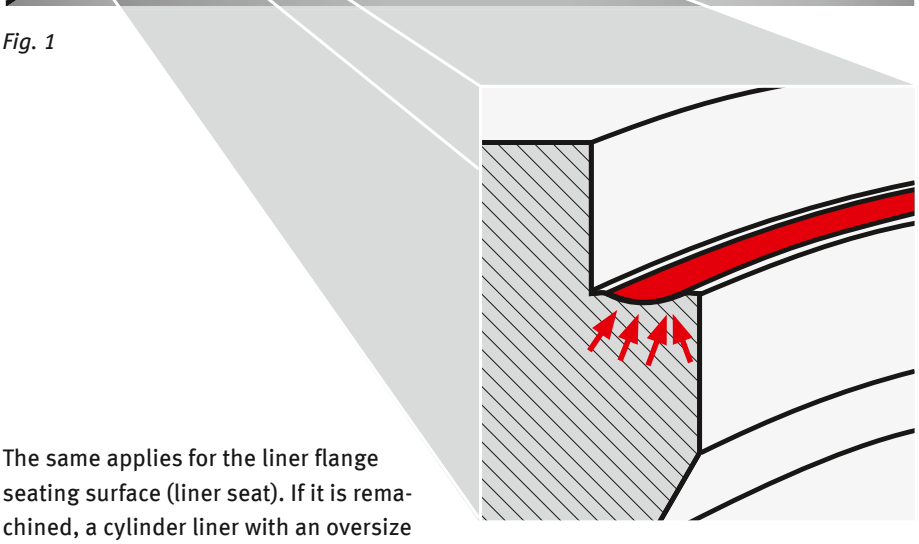

Fig. 2

The same applies for the liner flange seating surface (liner seat). If it is remachined, a cylinder liner with an oversize flange height is required.
The following oversize cylinder liners are available to suit the specific application:

- Liners with extra outside dimension (liner flange and cylinder body)
- Liners with oversized flange height

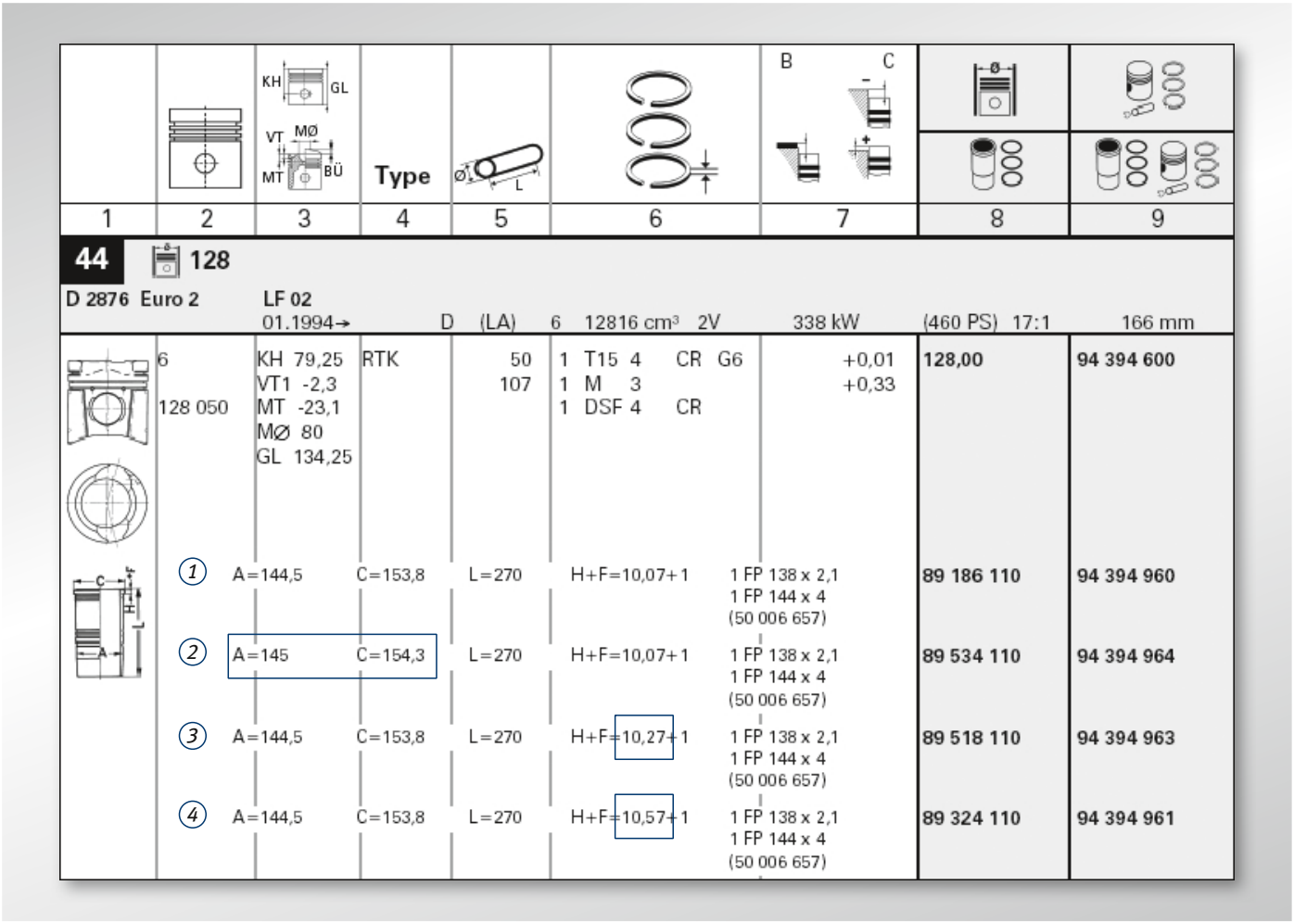

Fig. 3: Non-binding extract from the KS catalogue "Pistons/Cylinders/Kit sets"

Figure 3 shows a typical catalogue page which is used to explain the various oversize cylinder liners.

Liner No. 1 is a standard type. The standard type is always shown as the first entry in the list. All dimensions correspond to the serial liner of the engine manufacturer.

Liner No. 2 is a type with a greater outside diameter. When comparing the outside diameter of the liner flange (dimension C) and the cylinder body (dimension A) it is evident that each of the outside diameters is 0.5 mm larger than on the standard liner.

Liners No. 3 and No. 4 are, however, liners with an oversize flange height.
These liners are most frequently needed when the cylinder block has been remachined.
The liner seat is often worn out. That means that the cylinder liner has worn itself into the liner seat during engine operation. A worn-out liner seat results in inaccuracies between engine block and cylinder liner when new liners are fitted. The consequences are that the liner does not fit properly, so leaks and damage (liner cracks) are caused by material distortion.

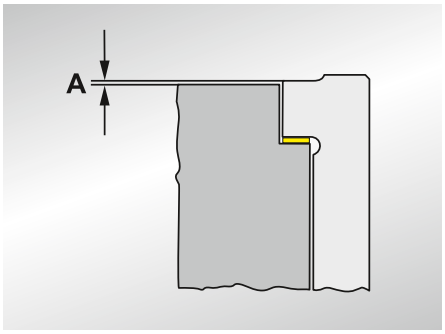

Fig. 4

Remachining the liner flange seat and fitting a cylinder liner with an oversize flange height that the liner is correctly positioned in the engine block again, and guarantees the necessary ensures protrusion of the cylinder liner, dimension "A" (Fig. 4).