

Oversized piston with reduced compression height (HKÜ)

Situation

For professional petrol and diesel engine reconditioning, KS provides oversized pistons with reduced compression height. The reduction of the compression height primarily serves the purpose of adjusting the compression ratio. In our catalogue, these pistons are marked with the abbreviation "HKÜ".

Technical background

The boring and honing of the cylinder bores to oversize, and the fitting of oversize pistons expands the usable piston surface, and, therefore, the displacement. An unchanging compression height at the piston would thus lead to an unwanted increase of the compression ratio. In petrol engines, this could lead to knocking combustion and possibly to damage of the pistons. The reduced compression height counteracts this by expanding the compression space.

HKÜ in petrol engines

In petrol engines, the reduced compression height ensures compliance with the compression ratio determined by the manufacturer. In the case of cylinder block rework, it also ensures smooth running of piston crown and valves. In pistons for petrol engines, adaption is not always achieved by reducing of compression height. There are other pistons with differently designed combustion bowls, compared to the standard ones.

HKÜ in diesel engines

Diesel engines react less sensitively regarding enlarging of the diameter to the next oversize by boring. In diesel engines, a reduced compression height is mainly necessary to be able to obtain the correct piston protrusion after rework of engine block's or cylinder head's sealing area. If the sealing area for the cylinder head gasket on the engine block is not reworked, the reduced compression height in oversize pistons is used to adapt the compression ratio. This adaption only has a positive effect if the reduced compression height of the piston is not cancelled out by the fitting of a thinner cylinder head gasket.

		KH GL		VT MT BU		Type		
20		76,5						
BCA		10.2001 → 06.2006		B				
BKY		05.2004 → 05.2008		B				
4		KH 28,92					17	
		MT -2,28					46	
076 175		GL 47,92						
		KH 28,67		HKÜ				
		MT -2,44						
		GL 47,67						
21		76,5						
AZQ		11.2001 → 05.2004		B				
BME		11.2004 → 07.2007		B				
3		KH 29,27					17	
		MT -4					46	
076 168		GL 50,27						
		KH 29,02		HKÜ				
		MT -4						
		GL 50,02						

Fig. 1 Catalogue example



Note:

When oversize pistons are only available in the "HKÜ" design, it does not necessarily require the cylinder head sealing face to be reworked. All "HKÜ" oversize pistons are usable without rework.