01–1100 Measuring, drilling and honing cylinder bores

Operation no. of operation texts and work units or standard texts and flat rates

Matching pistons – cylinders

Standard size / Engine	Gr. no. [1]	1st version		Gr. code letter [2]	2nd version	
		Piston dia.	Cylinder dia.		Piston dia.	Cylinder dia.
103.94 Ø 82.90 mm	0	82.868 82.882	82.898 82.908	A	82.873 82.879	82.900 82.906
	1	82.878 82.892	82.908 82.918	X	82.878 82.886	82.906 82.912
	2	82.888 82.902	82.918 82.928	B	82.885 82.891	82.912 82.918
103.98 Ø 88.50 mm	0	88.469 88.481	88.498 88.508	A	88.473 88.479	88.500 88.506
	1	88.479 88.491	88.508 88.518	X	88.478 88.486	88.506 88.512
	2	88.489 88.501	88.518 88.528	B	88.485 88.491	88.512 88.518

[1]) 1st version in group numbers (1, 2, 3).
[2]) 2nd version in group code letters (A, X, B).
[3]) Engine 103.983 AMG 3.2 standard size cylinder Ø 89.88 – 89.99 mm. Piston Ø 89.95 mm
The group numbers or group code letters are located on the piston crown and stamped in the contact surface of the crankcase.

Repair size I / Engine	Gr. no.	1st version		Gr. code letter	2nd version	
		Piston dia.	Cylinder dia.		Piston dia.	Cylinder dia.
103.94 Ø 83.40 mm	0	83.368 83.382	83.398 83.408	A	83.373 83.379	83.400 83.406
	1	83.378 83.392	83.408 83.418	X	83.378 83.386	83.406 83.412
	2	83.388 83.402	83.418 83.428	B	83.385 83.391	83.412 83.418
103.98 Ø 89.00 mm	0	88.969 88.981	88.998 89.008	A	88.973 88.979	89.000 89.006
	1	88.979 88.991	89.008 89.018	X	88.978 88.986	89.006 89.012
	2	88.989 89.001	89.018 89.028	B	88.985 88.991	89.012 89.018

Repair size II / Engine	Gr. no.	1st version		Gr. code letter	2nd version	
		Piston dia.	Cylinder dia.		Piston dia.	Cylinder dia.
103.94 Ø 83.90 mm	0	83.868 83.882	83.898 83.908	A	83.873 83.879	83.900 83.906
	1	83.878 83.892	83.908 83.918	X	83.878 83.886	83.906 83.912
	2	83.888 83.902	83.918 83.928	B	83.885 83.891	83.912 83.918
103.98 Ø 89.50 mm	0	89.469 89.481	89.498 89.508	A	89.473 89.479	89.500 89.506
	1	89.479 89.491	89.508 89.518	X	89.478 89.486	89.506 89.512
	2	89.489 89.501	89.518 89.528	B	89.485 89.491	89.512 89.518

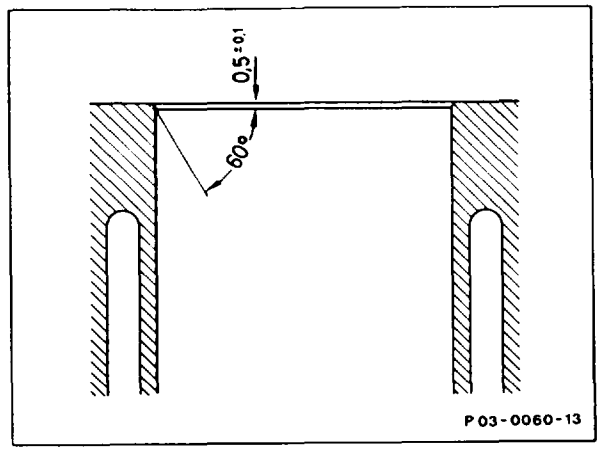
Wear limit in direction of travel and in transverse direction		0.10
Permissible deviation of cylinder shape	when new	0.007
	wear limit	0.05
Permissible deviation from rectangularity related to cylinder height		0.05
Averaged peak-to-valley height (Rz) after final honing		0.002 – 0.004
Permissible wavyness (Wt)		50 % of roughness
Chamfer of cylinder bores		see note
Honing angle		50° ± 10°

Commercially available tool

Quick calipers for internal measurements, Ø 80 – 100 mm

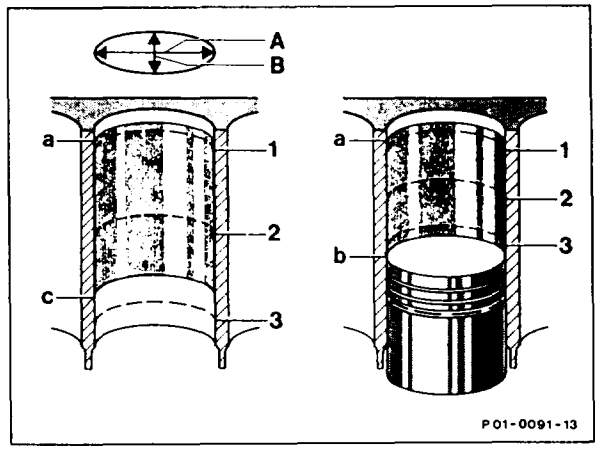
Note

When performing repairs the cylinder bores should be made in accordance with the dimensions of the existing cylinders as stated in the table for matching pistons and cylinders. After final-honing, chamfer the cylinder bore as shown in the sketch (01-1200).



Measuring

Measure the cleaned cylinder bores with an internal measuring instrument at the 3 measuring points (1, 2 and 3) in the longitudinal and transverse direction.



Measuring points 1 – 3
A Longitudinal direction
B Transverse direction
a Top reversal point of 1st piston ring
b Bottom dead center of piston
c Bottom reversal point of oil scraper ring