

BS 594:2003 – Hot rolled asphalt for roads and other paved areas Part 1 : Specification for constituent materials and asphalt mixtures

Presented below is list of the most commonly used "hot rolled asphalts" in local authority type work with the new size descriptions.

Suggested binder grades, maximum temperatures and rates of spread for most common machine and hand-lay uses are included as a **guide**, consult the specification if you need something more easy to work, as the binder generally used in any HRA mixture is a 50pen..

Material Description (New size description with "old " size in brackets)	BS Clause	Tables / Column	Bitumen (Pen.)	Description of Use	Thickness	Temp.		Rate of Spread, in sq. metres
						Max.	Min. Roll	
60% 0/32 (60/28.) size HRA base	5.2.5	2/5	50	Type 1,2,3&4 roads	80/150	170	85	100mm. = 4.4
60% 0/20 (60/20) size HRA base & binder course	5.2.5	2/4	50	Type 1,2,3&4 roads	50/80	170	85	60mm. = 7.3
50% 0/20 (50/20) size HRA binder course	5.2.5	2/3	50	Type 1,2,3&4 roads	50/80	170	85	60mm. = 7.3
50% 0/14 (50/14) size HRA binder course / regulating	5.2.5	2/2	50	Type 1,2,3&4 roads	35/65	170	85	50mm. = 8.7
50% 0/10 (50/10) size HRA regulating course	5.2.5	2/1	50	Type 1,2,3&4 roads	20/50	170	85	30mm. = 14.5
35% 0/14 (35/14) surface course RECIPE	5.2.5	6/5	50	Type 1,2,3&4 roads	40/50	190	85	45mm.=9.7
30% 0/14 (30/14) surface course RECIPE	5.2.5	6/4	50	Type 1,2,3&4 roads	40	190	85	40mm.=.10.9
30% 0/10 (30/10) surface course RECIPE	5.2.5	6/3	50	Type 1,2,3&4 roads	25/40	190	85	30mm. = 14.5
0% 0/2 (0/3 - "Sand Carpet") surface course RECIPE	5.2.5	6/1	50	Type 1,2,3&4 roads	0/25	190	85	15mm. = 30
35% 0/14 (35/14) surface course DESIGN	5.2.5	3/3	50	Type 1,2,3&4 roads	20/30	190	85	45mm.=.9.7
30% 0/14 (30/14) surface course DESIGN	5.2.5	3/2	50	Type 1,2,3&4 roads	20/30	190	85	40mm.=.10.9
55% 0/14 (55/14) surface course /.High Stone Content Asphalt DESIGN	5.2.5	3/5	50 / 125	Type 1,2,3&4 roads	45/50	190/165	85/75	45mm.=.9.7
55% 0/10 (55/10) surface course /.High Stone Content Asphalt DESIGN	5.2.5	3/4	50 / 125	Type 1,2,3&4 roads	40	190/165	85/75	40mm.=.10.9

Note - In this list it is only the current 60/28. and the 0/3. size descriptions that have had there material descriptions changed (by the introduction of the new aggregate sizes) to a degree that may cause confusion in the future.

The British Standard clause and table numbers for the mixtures have stayed the same, as has the basic properties and characteristics of the asphalt mixtures.

What may change, and we will only be able to judge this with time, is binder and filler adjustment but that will be an area where I expect our testing laboratory to have an input.

This is because adjustment will take place in relation to aggregate retained on a 2.0mm. sieve rather than the current 2.36mm. sieve, i.e. the nominal cut off point between coarse and fine aggregate.

Also filler will be material passing the .063mm. sieve rather than the current .075mm. sieve.

If you are interested and compare 2002 and 2003 editions of the specification you will note the slight variations in grading requirements, but overall binder requirements have remained the same.

THE NOTES BELOW ARE FOR GENERAL GUIDANCE AND NOT NECESSARILY EXACTLY TO BS 594, BUT ARE FOUNDED ON THAT STANDARD.

<ul style="list-style-type: none"> ◆ Most HRA surface courses incorporate a surface applied pre-coated chipping, this is usually a 20mm. size, but can be 14mm. size which will generate less road noise. ◆ HRA is usually machine laid but can be hand laid successfully if worked when hot. A lower binder viscosity of 125 can be used for hand lay work in less stressed areas. ◆ RECOMMENDED delivery temperatures are 140°C for surface course, and 120°C for other mixtures, the temperature being taken within 30 minutes of delivery. ◆ Always lay pre-coats immediately on to the laid surface course so that there is the maximum amount of heat available to melt the binder coating of the pre-coat and ensure a positive bond between chipping and surface course. Delaying can allow the surface of the surface course to chill to the point when the binder coating of the pre-coat will not be caused to melt. Chippings may be pressed in to the surface on rolling but they will not be bonded to it and will be lost when exposed to traffic. ◆ Always compact bituminous materials as soon as they are laid, above min. rolling temperature, ensure correct working practice to allow this to happen. ◆ Be aware of the wind chill factor influencing heat loss, resulting in poor chipping attachment and poor compaction. 	<ul style="list-style-type: none"> ◆ Take material temperatures when material is delivered to site, sample all bituminous materials appropriate to quantity that is laid. ◆ One sample per week of each type of material, or one sample per 100 tonnes for larger quantities, or as material dictates if there are problems. ◆ Tack coat existing road surfaces at 0.35/0.55 litres per sq. metre, (not a blackwiggly line). ◆ When working practice is such that a new material mat is not able to be laid against existing hot material joints shall be cut back to a sound vertical edge to remove all loose uncompacted material ◆ The cut joint shall be completely painted with a 50pen or 85pen grade bitumen, but do not over-band joints, because of possible skidding problems. ◆ With hand-laying store bituminous materials in a manner to prevent heat loss, insulated lorry body, thermal quilts, hot-boxes, etc. ◆ Do not lay in standing water ◆ Do not lay on frozen ground. ◆ Exercise care if/when "feathering out" material that has larger nominal size aggregate, i.e. above 10mm. aggregate size, usually when regulating.
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