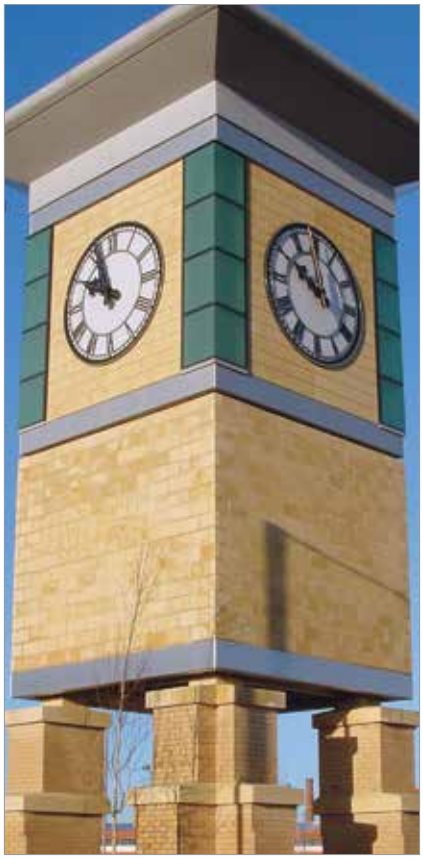
SMITH OF DERBY
CLOCKMAKERS • EST. 1856

Product Information

Standard Clock Dials
with case and backlighting options

Document ref: Std Dials Issue date: 02 March 2018

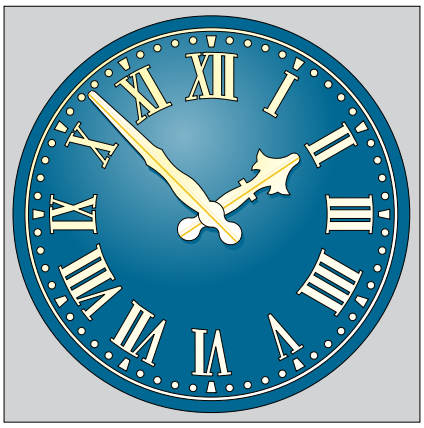




The addition of a clock to any building will enhance its appearance and raise its profile as a landmark.

SMITH OF DERBY GROUP

JOHN SMITH & SONS, DERBY • WM POTTS & SONS, LEEDS
J B JOYCE & CO, WHITCHURCH • JAMES RITCHIE & SON, EDINBURGH
112 Alfreton Road, Derby DE21 4AU United Kingdom
+44 (0)1332 345569 | www.smithofderby.com | enquiries@smithofderby.com

Roman Convex dial, BS 20D45 blue & gold leaf.



BS 20D45/RAL 5019 blue, gold leaf finish numerals and H101 hands.

BS 14C39/RAL 6002 green, gold leaf finish numerals and H107 hands.

Roman Convex Dials

Traditional style clock dial with integral raised numerals, minute marks and outer ring. Interchangable hand designs.

INSTALLATION
Surface fixed to wall. May be incorporated in clock case or surround (see page 6).

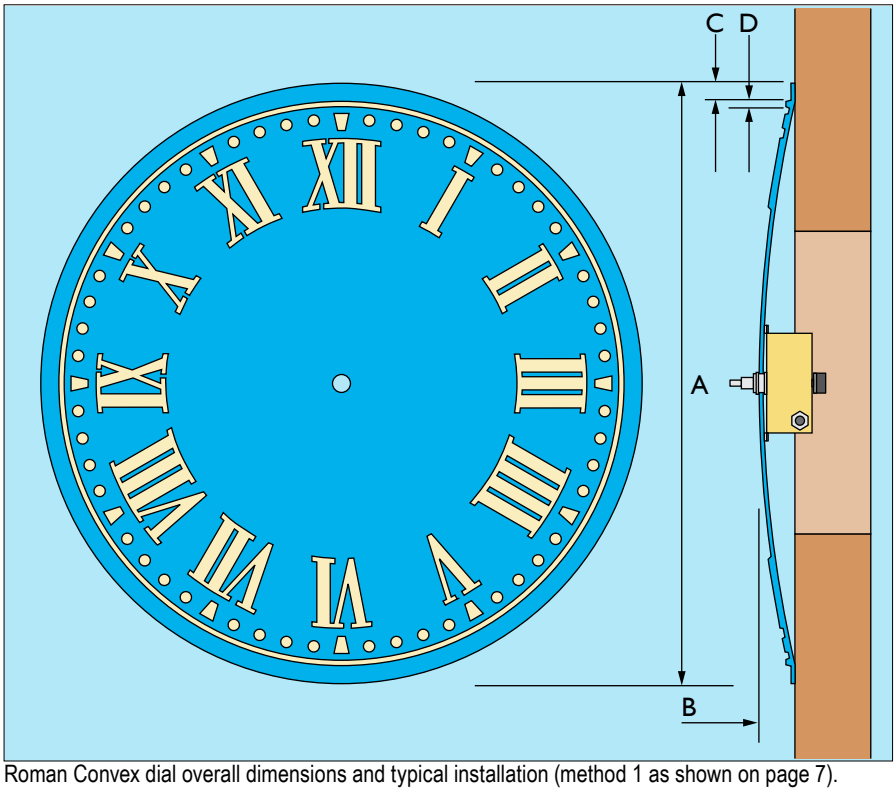
MATERIALS AND FINISHES
Colour impregnated GRP, UV light resistant resin gel coat.

COLOURS
In addition to the four standard colours, any other BS and RAL colour, or metallic effects such as bronze are available to order. Gold is 23½ carat gold leaf.

DIMENSIONS
Standard sizes are shown in the table below. Larger sizes can be made to order, but tooling may be required.

BS 00E53/RAL 9005 black, gold leaf finish numerals and H104 hands.

BS 00E55/RAL 9010 white, black finish numerals and H102 hands.

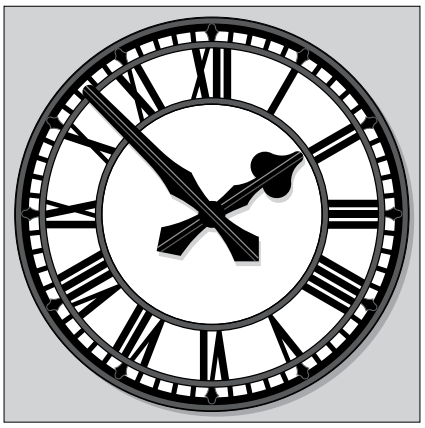


Roman Convex dial overall dimensions and typical installation (method 1 as shown on page 7).

size	A	B	C	D	weight (kg)
1'6"	458	35	19	4	0.9
2'0"	615	40	25	10	1.7
2'6"	765	41	25	13	2.6
3'0"	923	38	25	16	3.6
3'6"	1,080	51	25	19	7.5
4'0"	1,218	65	25	22	9.5
4'6"	1,375	60	29	25	12.2
5'0"	1,525	67	38	29	25.5
5'6"	1,660	80	38	32	33.0
6'0"	1,830	89	38	35	36.0
6'6"	1,965	89	45	35	42.0

SMITH OF DERBY
CLOCKMAKERS • EST. 1856

Backlit skeleton dial with gold leaf.



Black Roman Skeleton dial with translucent opal or white backing.

Black Roman Skeleton dial with gold leaf, translucent opal or white backing.

Roman Skeleton Dials

Traditional design backed with translucent opal acrylic. Optional opaque white GRP backing, or no backing to reveal wall finish. Centre star option on dials 1,072mm dia. and above. Interchangable hand designs.

INSTALLATION

Surface fixed to wall or panel. May be incorporated in clock case or surround (see page 6). For rear illumination an aperture (diameter W) is required behind the dial. For even light coverage we recommend a minimum of 230mm from the rear of the dial to the lamps.

MATERIALS AND FINISH

Colour impregnated GRP, UV light resistant resin gel coat. Translucent backing in grade 050 opal acrylic for backlighting.

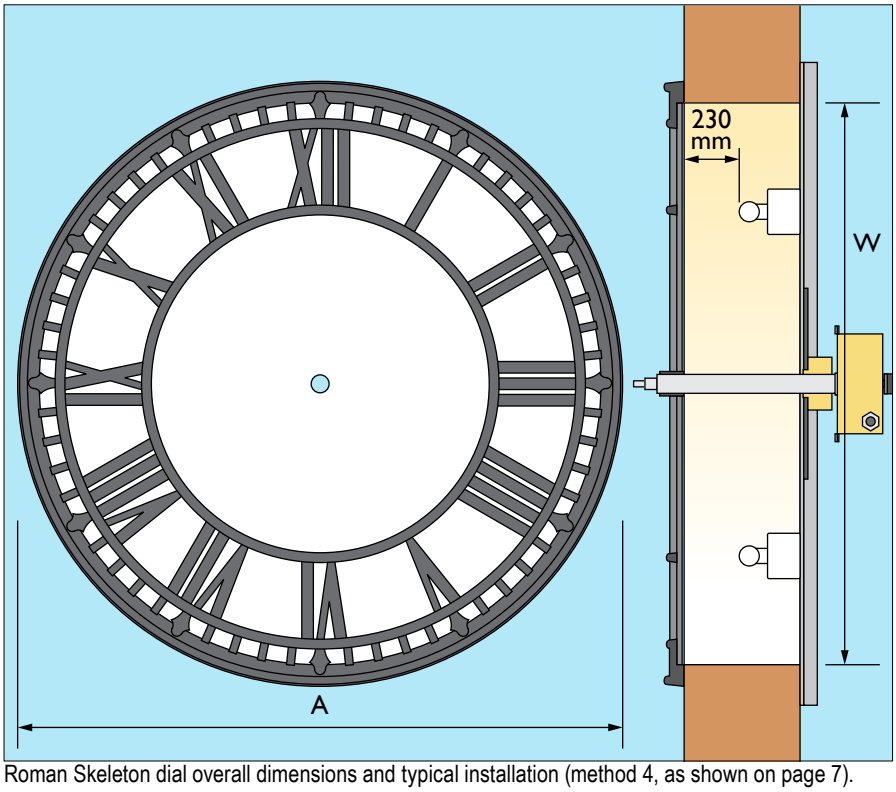
DIMENSIONS

Standard sizes are shown in the table below. Larger sizes can be made to order, but tooling may be required.

size	A	W	weight (kg)
1'6"	458	420	1.0
2'0"	615	555	1.4
2'6"	765	720	1.9
3'0"	923	865	2.7
3'6"	1,072	1,012	4.5
4'0"	1,218	1,160	8.2
4'6"	1,378	1,300	11.7
5'0"	1,530	1,445	15.8
5'6"	1,678	1,600	20.3
6'0"	1,850	1,740	25.0
6'6"	2,018	1,905	29.2

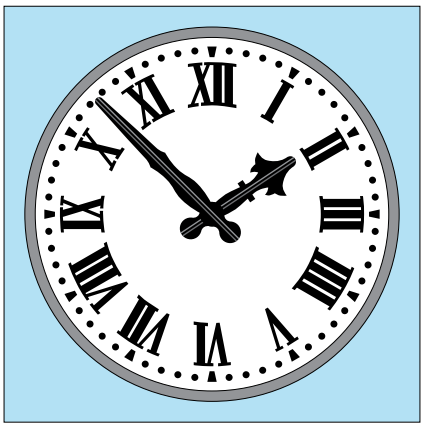
Black Roman Skeleton dial with gold leaf and no backing, to reveal wall finish.

Roman Skeleton dial with the centre star option available on dials 1,072mm and above.

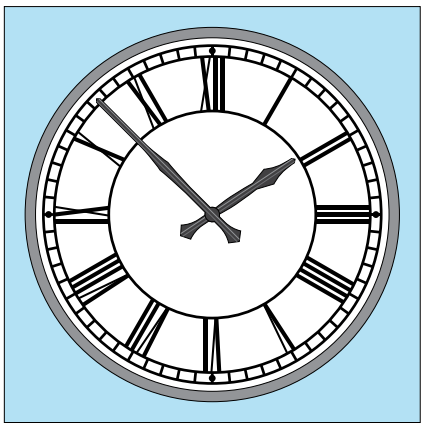


Roman Skeleton dial overall dimensions and typical installation (method 4, as shown on page 7).

MIDDLETON dial with H106 hands in slim GRP case with clear protective cover option.



STIRLING dial design with H101 hands.



ROCHESTER dial design with H110 hands.

Inscribed Dials

A range of designs in opal acrylic for backlighting.

Variations include non-backlit version using opaque white or coloured GRP with contrasting or gilded numerals and hands. Optional clear acrylic covers. Interchangable hand designs.

INSTALLATION
Surface fixed to wall or panel. May be incorporated in clock case or surround (see page 6). If wall mounted, an aperture (diameter W) is required behind dial for rear illumination. For even light coverage we recommend a minimum of 230mm from the rear of the dial to the lamps.

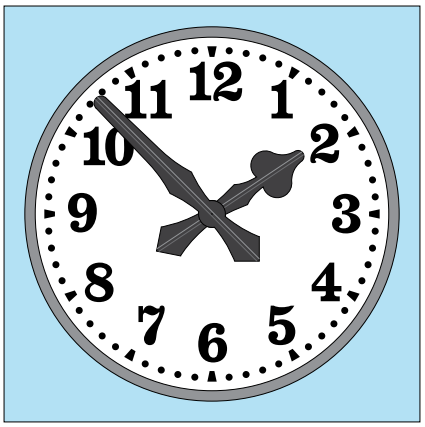
BACKLIT DIAL MATERIAL
Grade 050 opal acrylic for backlighting. Applied design: 10 year cast vinyl, colour finish black.

SOLID DIAL MATERIAL
GRP, UV light resistant crystic resin gel coat. Any BS and RAL colour or metallic effects such as bronze or silver are available to order. 10 year cast vinyl, standard finish black on white.

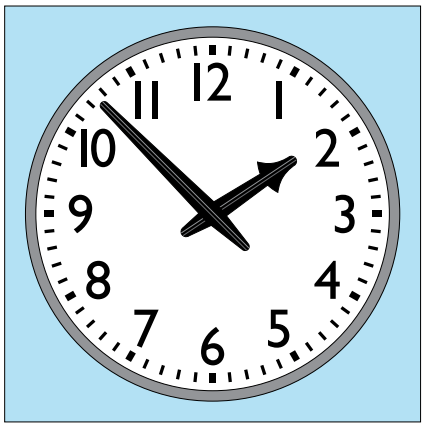
BEZEL AND ACRYLIC COVERS
Bezel ring in aluminium, width and thickness in proportion with dial diameter.

Convex clear acrylic covers are available in a range of sizes from 294mm to 1,892mm diameter.

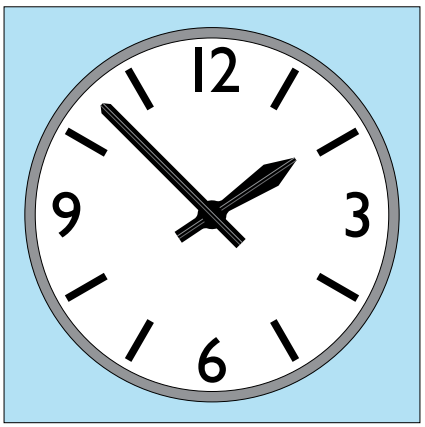
DIMENSIONS
Standard sizes are compatible with the clock cases described on page 6. Other sizes are individually manufactured to order up to 2,400mm diameter.



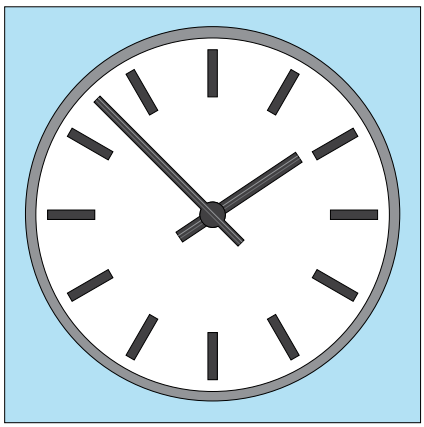
CLARENDON dial design with H109 hands.



HIGHBURY dial design with H102 hands.

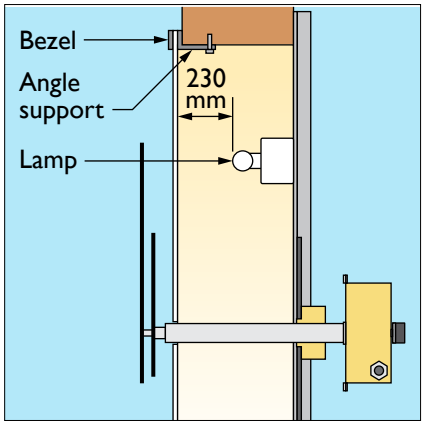


HOLYHEAD dial design with H104 hands.



MIDDLETON dial design with H106 hands.

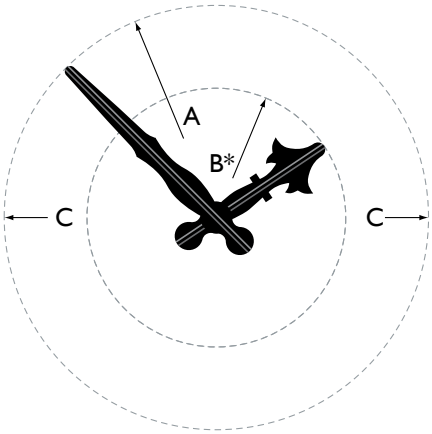
STIRLING dial in GRP with numerals and hands finished in 23½ carat gold leaf.



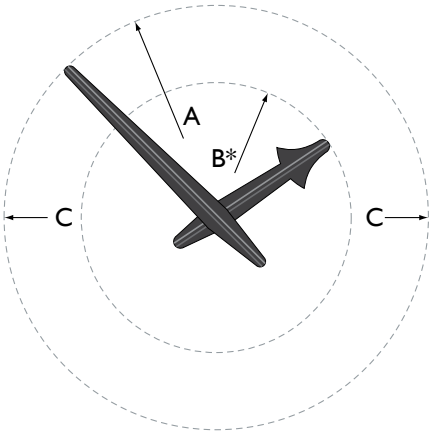
Typical installation (method 4 as shown on page 7).

SMITH OF DERBY
CLOCKMAKERS • EST. 1856

H101 hands on a backlit Roman Skeleton dial.



H101



H102

Hands

All designs of hand are externally balanced with a weight concealed behind the short extension beyond the centre. This ensures reliable operation of the clock movement.

Hands are strengthened with a centre rib and have a boss with two screws for securing to the drive shaft.

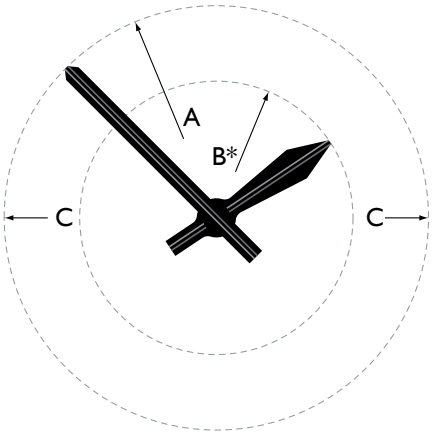
MATERIALS AND FINISH
Manufactured from aluminium, anodised for maximum corrosion resistance. Nickel plated brass boss.

Paint finish: etch primer followed by 2-pack low-bake acrylic enamel.

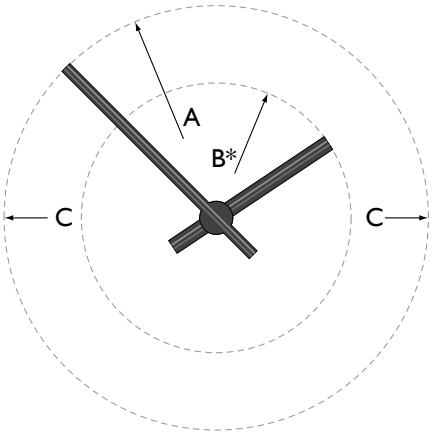
Gilding where applicable is in 23 1/2 carat double thickness gold leaf.

DIMENSIONS
A Minute hand centre to tip
B Hour hand centre to tip (may vary slightly according to actual hand style)
C Minute hand tip sweep diameter

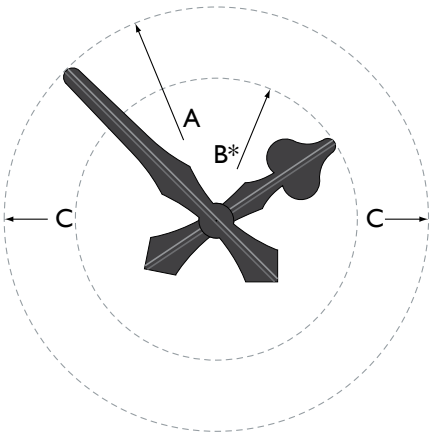
dial	A	B	C	weight(kg)
1'6"	195	130	390	0.1
2'0"	274	168	548	0.2
2'6"	346	220	692	0.3
3'0"	415	254	830	0.4
3'6"	490	315	980	0.5
4'0"	552	355	1,105	0.7
4'6"	629	405	1,258	0.9
5'0"	692	452	1,385	2.7
5'6"	765	500	1,530	3.0
6'0"	842	547	1,685	3.6
6'6"	908	570	1,816	4.6



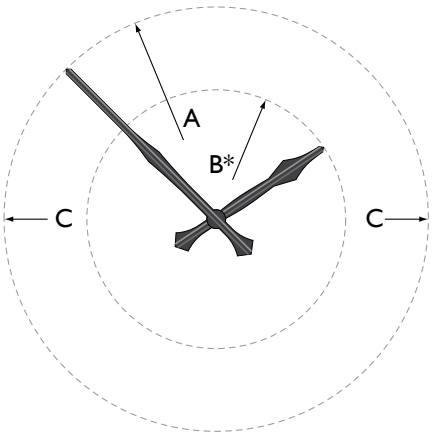
H104



H106

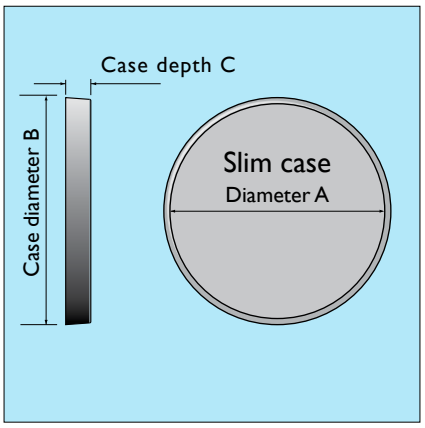


H109



H110

Deep case with backlit Roman Skeleton dial.



Slim case dimensions.

Slim case with non-backlit MIDDLETON dial incorporating client's logo and lettering.

Clock cases

Housings for wall mounting or a 2-dial back-to-back configuration for installation on a column or projecting wall bracket. Suitable for interior and exterior locations.

INSTALLATION
Surface fixed to wall. Power supply to clock movement and separate power supply to lamps through rear panel. Dials are removable: rear access for servicing and maintenance optional.

GRP CASE MATERIAL
Colour impregnated GRP, UV light resistant crystic resin gel coat. Standard colour: black.Any other BS and RAL colour or metallic effects such as bronze or silver are available to order.

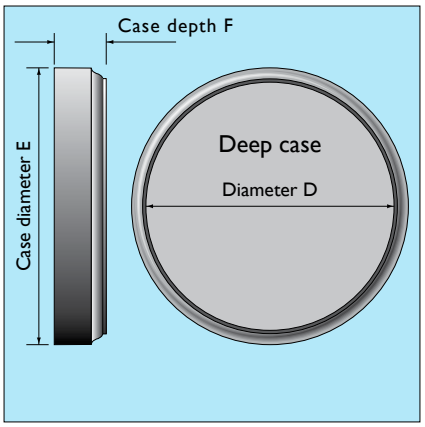
ALUMINIUM CASE MATERIAL
Aluminium specification: 6082 T6 to BS1471. Paint finish: etch primer followed by 2-pack low-bake acrylic enamel.

ACRYLIC COVERS
Convex clear acrylic covers are available as an option, and are best suited for use with our range of Inscribed dials shown on page 4.

DIMENSIONS AND WEIGHTS
Overall dimensions are given in millimetres,

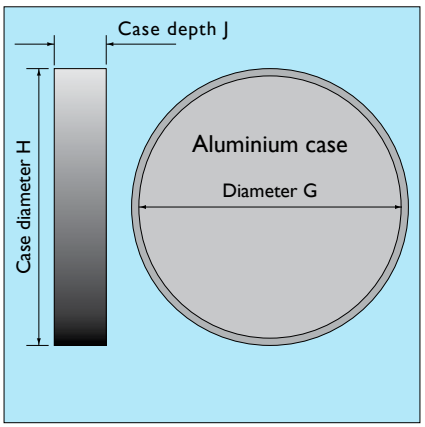
* Weights are for a complete clock unit including dial, movement, hands and lighting.

†Custom aluminium cases can be manufactured, up to 2,400mm diameter.



Deep case dimensions.

Deep case with Roman Convex dial.



Aluminium case dimensions.

Aluminium case with backlit STERLING Inscribed dial and clear acrylic cover.

	Slim GRP case				Deep GRP case				† Aluminium case			
Dial size	A	B	C	*Kg	D	E	F	*Kg	G	H	J min/std	*Kg
1'6"	463	498	72.5	10.5	463	578	166	13.0	515	519	150/300	15.5
2'0"	620	655	72.5	12.5	620	741	166	14.5	681	685	150/300	18.0
2'6"	770	805	72.5	16.5	770	890	192	17.0	837	841	150/300	23.0
3'0"	930	965	72.5	22.5	930	1,090	220	23.5	1,006	1,010	150/300	30.0
3'6"	1,075	1,110	72.5	28.5	1,075	1,198	225	30.0	1.171	1,175	150/300	37.0
4'0"	1,321	1,356	72.5	35.5	1,321	1,465	273	37.5	1,321	1,325	150/300	42.0

SMITH OF DERBY
CLOCKMAKERS • EST. 1856

"Open" Roman Skeleton showing wall surface: installation method 2.

Installation

Dials may be installed on virtually any structure, wall or frame. Typical installation types are shown in the diagrams.

Access to the rear of a clock dial is highly desirable for maintenance and relamping and our clock cases can be built with a rear access door. Access can also be gained by removing the dial from the outside.

Long-life low power consumption LED lighting is normally used for backlighting.

MOVEMENTS

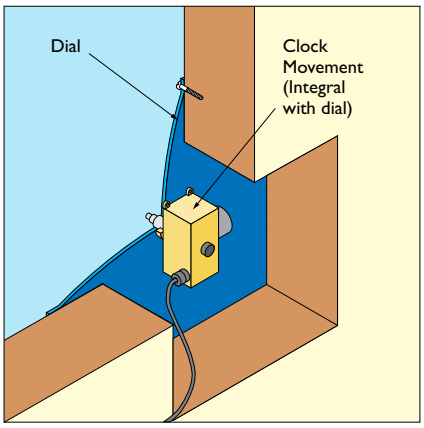
One movement per clock dial is our normal method of driving the hands. Our movements come in a range of sizes, with all but the smallest models being adaptable to drive through a wall or to be set back to aviod a shadow on a backlit dial.

CONTROL AND BACKUP

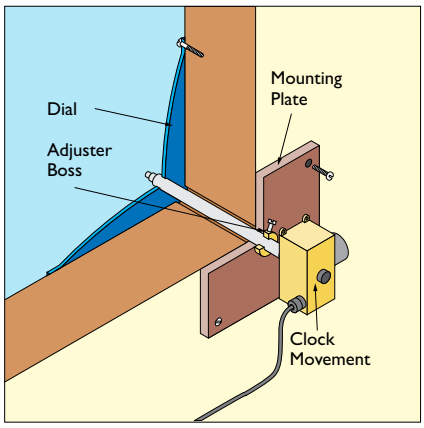
Timekeeping and summer/winter time change is hanndled automatically on all our systems, with options for GPS time synchronisation and battery backup to keep the clock operating during a power failure.

FURTHER INFORMATION

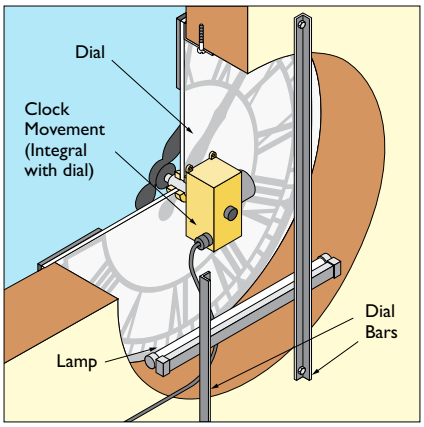
Full details of Smith of Derby movements and control systems are available.



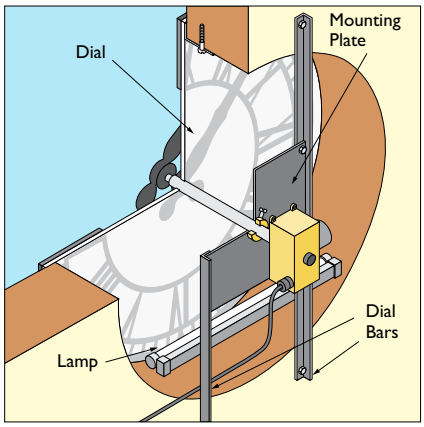
Installation method 1: non-backlit dial with integral movement.



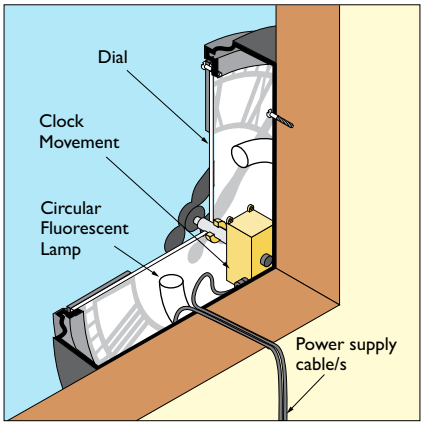
Installation method 2: non-backlit dial with movement driving through wall.



Installation method 3: backlit dial with integral movement.



Installation method 4: backlit dial with movement driving through wall.



Installation method 5: clock case complete with internal illumination.

Synchronous clock movement integral with dial (installation methods 1 and 3).

Auto-Restart back-up option for synchronous clock movements.

Design options

LOGOS AND LETTERING

Your logo, motif or name can be applied to the centre of the dial or on the surrounding area. Print industry standard artwork such as vector .eps files should be supplied.

Please note that a logo placed centrally in the dial will be partially obscured by the hands centres, and that filling the dial centre with logo and/or lettering may compromise readability of the dial.

COLOURS AND FINISH

In addition to the standard colours for Roman Convex dials (page 2), any BS or RAL colour and a selection of metallic finishes may be specified for GRP dials and aluminium cases. For applied vinyl graphics a full spectrum of solid and translucent colours is available.

OPEN DIALS

Dial numerals, hour markers or a complete dial skeleton can be mounted directly on another surface such as brick or stone, with the movement located on the rear of the wall utilising installation method 2, shown on page 7.

CUSTOM DESIGNS

The basic concept of a 12-hour analogue dial provides wide scope for an individually built clock. We specialise in the design and manufacture of custom clocks, either to clients specification or as commissioned from our design department.

INSTALLATION & AFTER SALES

Our engineers work throughout the UK on clock installation, annual maintenance visits and repair. Clocks can also be supplied for client installation.

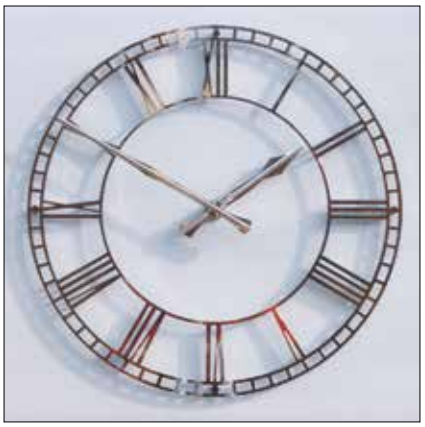
To ensure your clock is kept in working order, our annual maintenance service covers one site visit per year with additional call-outs as required. Full terms and conditions are available on request.

WARRANTY

12 months against failure through faulty workmanship or materials, subject to our conditions of contract.

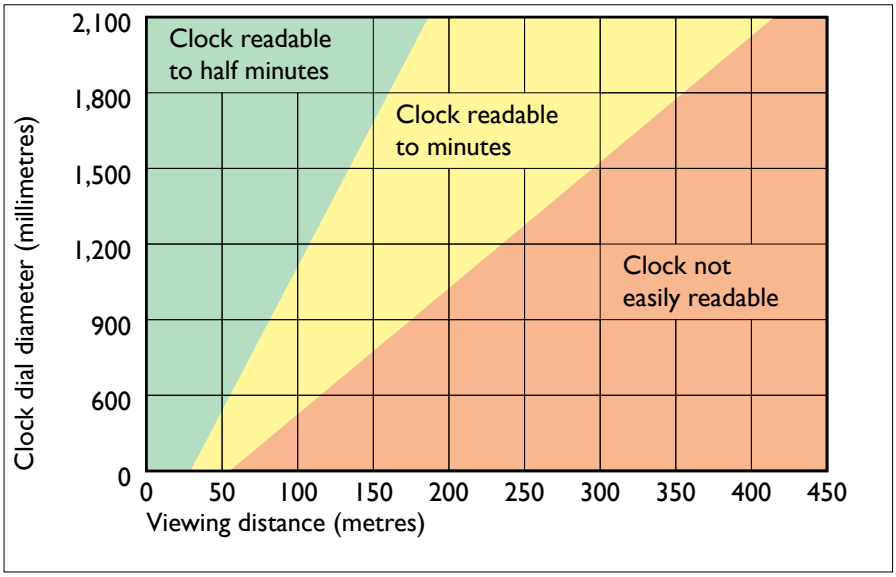
Roman Convex in special colour scheme with applied vinyl lettering.

Roman Convex with extended outer rim for gold leaf lettering and applied crest.



ROCHESTER dial in pierced and plated brass, spaced off wall to cast shadow on wall surface.

Custom dial in pierced aluminium with H104 hands, metallic finish, mounted on GRP panel.



CHOOSING THE OPTIMUM DIAL SIZE

Dial size, design, colour scheme, height above ground and viewing distance all affect dial readability. Our general rule is that dial diameter should be one tenth of the distance from ground to dial centre.

This is not a hard and fast rule. For very high dial locations this may not be practical or possible, and for lower locations a larger dial can have an effective presence.

The graph gives a guide on dial size and viewing distance. For example, a dial viewed from 150 metres should be a minimum of 750 mm diameter, or 1,700mm for easiest readability.