

## Visually-striking and highly durable large surfaces

# 视觉震撼且经久耐用的大规格瓷砖

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The continued development of large-size ceramic tiles inevitably centres on digital decoration, which now uses specially-designed cutting-edge technologies and materials to attain the highest levels of performance. Metco's Sinkmet SSI range of solvent-based soluble inks and Sinkmet EE-BS-DG colourless sink-ing inks are good examples.

### » Sinkmet (SSI) solvent-based soluble inks

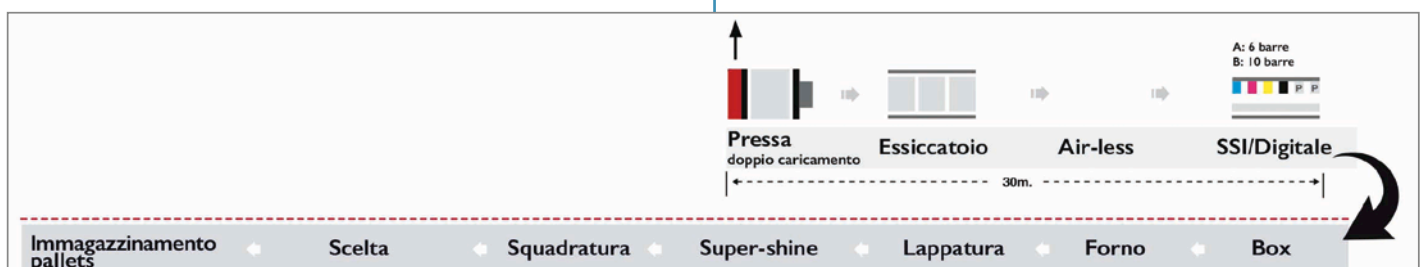
The Sinkmet SSI range consists of 6 colours, including the 4 in the base series, namely L109CB1 (Cyan), L251MB1 (Magenta), L329YB1 (Yellow), L198KB1 (Black), and the two inks from the "Preziosi" Series, L064MB5 (Magenta Gold) and L181KB3 (Black Ruthenium). The codes vary according to the printheads the inks are used with. The Sinkmet SSI inks produced in the Metco factory in Monteveglia (Bologna) are certified and residue free. Given their aliphatic, naphtha-like nature, the solvent-based colours are insensitive to water. They have a boiling point higher than 250°C and their completely soluble chromophoric portion prevents the risk of drying even if the printhead is not used for many months. Added to this, they display unlimited stability, very low electrical conductivity and absence of clogging. These inks do not require glazes or protective sandwich layers as they penetrate inside the surface. They enhance the natural look of the product due to integration of the colour with the body and can be mixed together to produce specific tones. A digital printer loaded with Sinkmet SSI does not need to be cleaned during production and does not require any special maintenance when left unused. The colour change operation is extremely rapid, taking between 60 and 90 minutes. The use of Sinkmet SSI inks reduces problems of dotting and banding as the colour that has diffused into the ceramic layer creates a kind of mask that hides the absence of printing on the part of one or more nozzles. Sinkmet SSI inks are currently certified for use on printers from Efi, Intesa, Kerajet, Projecta, System, Tecnoferrari, Hope, Meijia and Teckwin, while certification from Durst is pending. They are configured for use with Dymatix SG1024M/SG1024L, Xaar GS12/GS40, Toshiba CFIXL, Seyko GS and Kyocera printheads.

大规格瓷砖的后续发展必然以数码装饰为方向，数码装饰现在是以通过使用特制的高端技术和材料来展现其最高性能效果。美高公司 (Metco) 印袂®Sinkmet®SSI系列溶剂型渗透墨水和印袂Sinkmet®EE-BS-DG无色助渗剂就是这些高端技术和材料中的佼佼者。

### » 印袂®Sinkmet®SSI溶剂型渗透墨水

印袂®Sinkmet®SSI系列有6种颜色，包括4种基础系列墨水--L109CB1 (青色)、L251MB1 (棕色)、L329YB1 (黄色)、L198KB1 (黑色)，2种 "Precious" 系列墨水---L064MB5 (黄金红) 和L181KB3 (钉黑)。代码根据墨水所用的喷头而异。印袂®Sinkmet®SSI墨水由美高公司生产，该公司的工厂位于蒙特韦廖 (博洛尼亚)，该公司生产的墨水都是经过认证且零残留的。鉴于该系列墨水具有脂肪质、石脑油状的自然性质，所以溶剂型墨水具有天然的排水性。它们的沸点高于250°C，即使喷头数月未用，完全溶解的发色离子也能防止干燥的风险。

除此之外，它们具有超强的稳定性和超低的导电性，而且不会堵塞喷头。由于这种墨水是渗入到瓷砖表面下的，所以不需要在表面添加釉料或保护层。而且墨水的颜色能够与坯体融合，这不仅增强了产品外观的自然特性，而且也可因混合而产生特定的个性化色调。使用印袂®Sinkmet®SSI墨水的数码喷墨打印机在生产过程中不需要进行清洁，在闲置时也不需要任何特殊维护。更换各色墨水的操作非常方便快捷，只需60到90分钟。使用印袂®Sinkmet®SSI墨水，可以减少色点和拉线问题。因为墨水的颜色已经渗入到瓷砖坯体中，由点细微扩散成一个面，这个面能够覆盖一个或多个喷孔未打印到的空白地方。Sinkmet SSI墨水目前已通过了Efi、Intesa、凯拉捷特 (Kerajet)、Projecta、西斯特姆 (System)、天工法拉利 (Tecnoferrari)、希望 (Hope)、美嘉 (Meijia) 和泰威 (Teckwin) 喷墨机的认证，而Durst的认证正在进行中。





】 Sinkmet EE-BS-DG colourless sinking inks

This series of sinking inks promotes penetration of the SSI colour inside the ceramic body, whether double loaded or applied with a pressurised waterfall. Application with a normal digital bar reduces the quantity that needs to be used as the sinking inks work selectively where needed for the design. Between 10 and 50 g/m<sup>2</sup> is required for honed finishes, whereas the application of sinking ink may need to be as high as 300 g/m<sup>2</sup> for polished finishes (where the penetration depth must be greater than 1 mm). In addition to the Sinkmet EE-BS-DG types, Metco can also design and develop other sinking inks for specific body compositions.

】 C.A.B.P. (Customer Additivated Body Powder)

“Customer Additivated Body Powder” refers to double loading application of spray-dried powders with added chromophoric promoters called Metox (dispersible powders). The addition of chromophoric promoters to the body allows for outstanding levels of performance in terms of colour development as well as a significantly extended colour gamut. This option involves adding chromophoric additives to the slip, adjusting the rheology and finally spray drying the slip to produce a powder for double loading application either in or before the press. In the case of double loading application of Sinkmet SSI inks, the operation can be performed within a very short line length (as short as just 30 metres). The powder is applied in the quantity required to produce a 1-1.5 mm layer after firing.

The two-layer body leaves the dryer, then once the surface temperature has dropped to 40-50°C it undergoes decoration by means of a dedicated digital printer for SSI inks, normally equipped with 6 bars (4 for colour and 2 for the sinking inks), or in the most sophisticated installations with 8 or even 12 bars depending on the complexity of the desired design. Unlike with conventional pigments, no further materials need to be applied to protect the decoration because the SSI inks penetrate into the layer that will subsequently become porcelain stoneware, a material well known for its surface strength and resistance characteristics. X



这些墨水可与星光 (Dymatix) SG1024M/SG1024L、赛尔 (Xaar) GS12/GS40、东芝 (Toshiba) CFIXL、精工 (Seyko) GS和京瓷 (Kyocera) 的喷头进行配对使用。

】 印袂®Sinkmet®EE-BS-DG无色助渗剂

不管是应用于二次布料还是淋浆工艺中，这一系列助渗剂能够促进印袂®Sinkmet®SSI渗透到陶瓷坯体中。

该产品应用到标准的数码打印设备通道中可以减少墨水的需用量，因为助渗剂会根据设计需求有选择性地发挥作用。哑光产品所需的助渗剂量为10-50克/平方米，而抛光产品（其中渗透深度必须大于1毫米）所需的助渗剂量可达300克/平方米。

除了现有的印袂®Sinkmet®EE-BS-DG外，美高公司还为特定的坯体成分设计和开发其他助渗剂。

】 C.A.B.P. (定制的坯体添加粉料)

“Metox”就是“定制的坯体助色粉料”，它是指添加在应用于二次布料的喷干粉料中的发色助剂（分散性粉料）。将助色剂添加到坯体中，可以在颜色发色的方面展示出其出色的发色效果，同时也能显著地拓宽色域。这种方法包括向面浆中添加助色剂，调整流速，最后将面浆雾化喷干成粉料，在压制前或压制期间添加于二次布料的粉料中。在二次布料时使用印袂®Sinkmet®SSI墨水，该操作可以在非常短的生产线上进行（短至30米）。

该粉料是用于在瓷砖烧成后形成的1-1.5mm表层中。二次布料瓷砖坯体经过干燥后，待其表面温度下降至40-50°C，随后在经专用数码喷墨机用印袂®Sinkmet®SSI墨水进行打印装饰，该喷墨机通常配备6条打印通道（4条用于着色，2条用于助渗剂），或者根据设计的复杂程度，以安装具有8条乃至12条通道的更高端设备。不同于传统色料墨水，使用印袂®Sinkmet®SSI渗透墨水装饰的瓷砖无需再其他材料来保护装饰表面，因为印袂®Sinkmet®SSI墨水会渗透到瓷砖表面下，并最终将形成完全玻化的瓷砖表层，这是一种以其高表面强度和高耐磨特性而闻名的材料。 X