

**ASTRAPRINT, Materials for Printing Blocks\*, 1969**

**Dynamit Nobel**

**Astraprint<sup>®</sup>**

**Materials  
for Printing Blocks**

**Dynamit Nobel Aktiengesellschaft  
Plastics Division  
521 Troisdorf Bez. Köln**

\*Entspricht ASTRAPRINT Klischeematerial,  
hie vorher ASTRALON Klischeematerial

### **Introduction**

A range of thermoplastic materials for the production of duplicate blocks, tint plates and galvano matrices is supplied by Dynamit Nobel under the generic term "ASTRAPRINT". They are fully synthetic plastics based on Polyvinyl chloride and Vinyl copolymers.

### **ASTRAPRINT TK**

is a rigid material which is primarily used for high-speed letterpress printing. It is, however, also suitable for use in rotary printing if the finished block is heated to approx. 65 . . 70° C, for example in a water bath, and bent around a suitable cylinder.

Forms supplied:

Colour:	brown 508
Sizes:	approx. 80 x 160 cm and 80 x 80 cm (31.4" x 63" and 31.4" x 31.4")
Thicknesses:	approx. 0.5 mm; 1.0 mm; 2.1 mm; 3.3 mm; and 4.3 mm (.020"; .040"; .080"; .132"; and .172")
Thickness tolerance:	(0.5—0.58) (1.0—1.2) (2.1—2.5) (3.3—3.8) (4.3—5.0)
Surface finish:	matt
Specific gravity:	approx. 1.4 g/cm <sup>3</sup>

### **Grit for Printing Blocks**

is a powder of fine grain size. It is primarily used with smooth-surface matrices together with ASTRAPRINT TK.

Packing:

5; 10 and 20 kg.

### **ASTRAPRINT HW**

is a flexible material consisting of a soft base with a rigid facing. It is suitable for use in both rotary and high speed presses.

Forms supplied:

Colour:	brown 501
Sizes:	approx. 60 x 140 cm (23.6" x 55.1")
Thicknesses:	approx. 1.5 mm; 2.0 mm; 3.0 mm (.060"; .080"; .120")
Thickness tolerance:	(1.5—1.8 mm) (1.8—2.2 mm) (2.7—3.3 mm)
Surface finish:	matt
Specific gravity:	approx. 1.4 g/cm <sup>3</sup>

### **ASTRAPRINT 6900**

is a flexible material made from plasticised P.V.C. It is mainly used in rotary printing. It can be supplied in 2 grades of hardness whereby the harder grade permits the reproduction of screens.

#### Forms supplied:

Colour:	blue 75 (the harder grade) brown 5507 (the softer grade)
Sizes:	approx. 60 x 140 cm (23.6" x 55.1")
Thickness:	approx. 2.0 mm (.080")
Thickness tolerance:	± 10 %
Surface finish:	matt
Specific gravity:	approx. 1.4 g/cm <sup>3</sup>

### **ASTRAPRINT U**

is a rigid material which is used in the reproduction of half tones up to a 60 screen for press illustrations.

#### Forms supplied:

Colour:	brown 501
Sizes:	approx. 60 x 140 cm (23.6" x 55.1")
Thickness:	approx. 0.5 mm
Thickness tolerance:	0.5–0.58 mm
Surface finish:	matt
Specific gravity:	approx. 1.4 g/cm <sup>3</sup>

### **ASTRAPRINT GT**

is also a rigid material and is exclusively recommended for galvano matrices.

#### Forms supplied:

Colour:	green 357
Sizes:	approx. 60 x 140 cm and 80 x 160 cm (23.6" x 55.1" and 31.4" x 63")
Thickness:	approx. 0.5 mm and 0.8 mm (.020" and .032")
Thickness tolerance:	(0.5–0.58 mm) (0.75–0.85 mm)
Surface finish:	matt
Specific gravity:	approx. 1.4 g/cm <sup>3</sup>

### **ASTRAPRINT 1100, 1200 and 1300**

are flexible tint plates which allow cutting and which give even, opaque surfaces with little colour; they are also suitable for printing with carbon blacks and finishing lacquers.

Rectangular tint plates are cut by machine to the desired size. For making cuts, the contours are marked out with a pencil or by transfer. With a strippable type 1300 plate the contours are cut by knife into the white top film. The nonprinting areas are then easily lifted off.

Type 1100	Laminated plate which is flexible throughout. black/white
Type 1200	Laminated plate similar to 1100 but with a rigid film in its centre. black/red/white
Type 1300	Strippable laminated plate interfaced with fabric ply. Flexible interfaced top film, rigid base. red/white
Forms supplied	
Colour:	Type 1100 black/white Type 1200 black/red/white Type 1300 red/white
Size:	1400 x 600 mm
Thickness:	1.8 mm
Thickness tolerance:	under $\pm 10\%$
Surfaces:	mat
Specific gravity:	approx. 1.4 g/cm <sup>3</sup>

An advantage of printing blocks made from ASTRAPRINT is their lower weight which is a plus during both printing and shipment. Besides the very high resistance to impact and shock, the great wear resistance should be mentioned. This becomes particularly apparent when considering the number of prints obtainable, which is more than ten times higher than that of stereos. ASTRAPRINT printing blocks give the greatest accuracy of reproduction which can be expected from duplicate blocks.

### **Processing:**

For the manufacture of the ASTRAPRINT duplicate block a matrix is first made from the original (type set, halftone or line block). Resin impregnated cardboard with resin coated surface is primarily used as a material for matrices. Such cardboard is available from stockists.

### **Moulding the matrix**

The plate is cleaned and surrounded by a frame, the height of the type and placed in a chase. Halftones should stand approximately 0.1 mm (.004") higher than the surrounding composition. They should be fastened to metal spacers by means of heat resistant cements. Wood blocks should be avoided. The plate is preheated, depending on size, in a press at a temperature of approx. 120 to 125° C for about 1–4 minutes. The matrix cardboard, which is then applied, should be cut so as to line up with the outer edge of the frame. To control the depth of penetration, height limiting spacers are provided right and left. During the ensuing pressing operation contact pressure is applied for about 1 minute and the pressure is then increased slowly, but in steps, so that the full depth of moulding is reached within approximately 1½ to 2 minutes. If proper moulding methods are used, pressures from 3–12 kg/sq. cm are sufficient for solid matter. Complete hardening is obtained by heating for 25–30 minutes. Moulded depths of 0.9–1.0 mm (.035"–.039") are recommended. Larger blank spaces in the block can be recessed by router.

A frequently employed practice to prevent pieces of the matrix from breaking off in the subsequent moulding process of plastic plates is to smooth the blank spaces with a sandpaper of fine grit. The matrix is then treated with a release agent. Common release agents include oily liquids, some of them with addition of graphite, and in many cases also silicone oil emulsion.

### **Produktion of duplicate blocks with ASTRAPRINT TK**

The matrix made in accordance with the foregoing description is covered with an ASTRAPRINT panel of approximately the same size, slipped between two plates and heated to a temperature of 125 to 130° C. For maximum uniformity of heat transfer, a TROLITAX® panel of about 3 mm thickness or a so-called blind matrix made from matrix material is often placed under the top moulding plate. Preheating can be done either in a hot press or in a heating oven. Contact pressure is sufficient and results in the thermoplastic material becoming soft and mouldable. The preheating time is approx. 5 to 6 minutes for ASTRAPRINT plates of 2 mm (.080") thickness and 8 to 10 minutes for those of 4 to 4.5 mm (.15" to .17") thickness. It can be shortened by raising the oven temperature to about 150° C. The "parcel" is then transferred into a cold press where the hardening is quickly completed under increased pressure (abt. 10 to 20kg/sq. cm) until the limiting strips are held firmly in place.

To ensure dimensional stability of the block it is important that the parcel remains under load in the press until the ASTRAPRINT has cooled to a temperature below 40° C. This takes approx. 3 to 5 minutes.

After cooling the ASTRAPRINT block, which has been released from the press, is carefully loosened from the edges of the matrix and lifted off using a plate lifting tool for these manipulations.

#### **Production of duplicate blocks with ASTRAPRINT HW and ASTRAPRINT 6900**

Processing is the same as described above under ASTRAPRINT TK. The only exception to be noted is the higher temperature of about 165 to 175° C. The preheating time with this material is approx. 4 to 6 minutes for a thickness of about 2.5 mm (.098") and approx. 7 to 9 minutes for a thickness of about 3 mm (.118").

#### **Finishing of the blocks**

After separation from the matrix the blocks are planed or routed to the exact thickness. In the case of ASTRAPRINT TK it is possible to use the scrapers employed in leadworking for this operation. Better suited, however, are special machines with vacuum suction table and high-speed rollers or milling heads, the latter usually diamond-tipped. The ordinary stereotyping machines are suitable for drilling, routing, bevelling etc.

#### **Production of duplicate blocks with ASTRAPRINT U**

An ASTRAPRINT U panel with thickness of 0.5 mm (.020") is placed on a matrix moulded from a metal halftone, the size of the panel, being identical with that of the matrix. This is then covered with a flannel or nylon cloth. 20–30 sheets of newspaper are then placed on top of this to serve as a press cushion. The whole assembly is preheated in a heating oven under contact pressure, until it has reached a temperature of 130 to 140° C. The preheating time is about 3 to 5 minutes depending on the temperature adjustment. Next the "parcel" is slipped quickly into a cold press located behind the heater where it is immediately pressed under a load of approx. 15 kg/sq. cm.

After 3 to 5 minutes it will cool to below 40° C. Thin blocks do not require any working of their reverse sides and are generally cemented into prepared recesses in the stereos.

#### **Some hints for the printer**

Light benzine (gasoline), turpentine, methyl alcohol or paraffin (kerosene) are suitable for washing ASTRAPRINT blocks. Products containing chlorinated hydrocarbons, such as trichloroethylene, or benzene, xylene, toluene, and other aromatic hydrocarbons should be avoided.

#### Mounting

Best results are obtained with hard mounts; e.g. metal foil or thin laminated paper sheet, possibly covered with a sheet of hard letter paper.

#### Printing pressure and speed

The easy take-up of ink and its release to the paper make it possible to employ a lower printing pressure than with metal printing plates and to obtain a saving in ink of over 10%. Care should be taken to ensure a highly accurate adjustment of circumferential speed. This holds also true for the ink applicator rolls, which should not be adjusted too low.

#### Finishing

Finishing should only be given from above and as slightly as possible.

#### **Production of galvano matrices with ASTRAPRINT GT**

The first step in the production of galvano matrices is to clean the type matter and to heat it to 100 to 120° C. ASTRAPRINT GT is cut to a size that covers the surrounding type-high frame. This ASTRAPRINT panel is then placed in the preheating oven on the heated type matter. A cushion of 20–30 sheets of newspaper or a rubber moulding blanket is then put over the top. Preheating takes place under contact pressure and takes from about 3 to 5 minutes with the plates being adjusted to approximately 140° C. Next the whole assembly is slipped quickly into a cold press situated behind the heater, and the press must be closed immediately. Moulding takes place under a load of approximately 15 to 25 kg/sq. The "parcel" remains in this cold press until it has cooled to a temperature below 40° C, which takes about 3 to 5 minutes.

The resulting ASTRAPRINT matrices give a maximum precision of reproduction in conjunction with a minimum of stress on the type matter.

ASTRAPRINT matrices are then ordinarily sprayed with aqueous silver nitrate solution to which a reducing agent has been added. This results in the formation of a very thin silver deposit on the surface. After this the matrices are plated in a copper or nickelbath.

All the suggestions made in this leaflet are to be regarded as general guides without liability. We recommend you to confirm the suitability of our products by carrying out tests under your local conditions and using your own mechanical equipment.

The statements made in this brochure are based on our own knowledge and experience.  
The information is given without liability or commitment and without prejudice to any  
patent rights whatsoever.

14/320 GB 10. 1969

® = Registered Trademark

Printed in Western Germany