Moria

The right instruments whatever your DMEK preferred technique

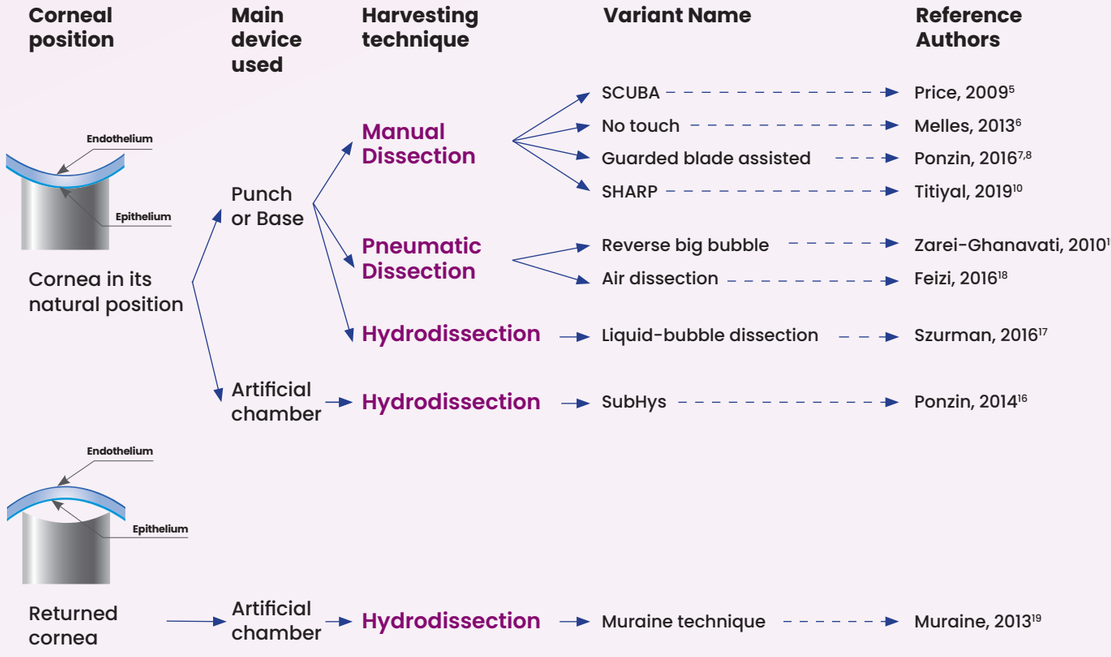
Preparing the donor graft
Preparing the recipient eye

DMEK with Moria

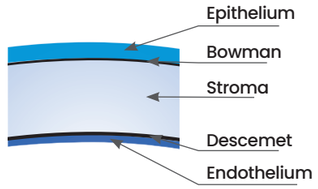
Made in France

PREPARATION: A MYRIAD OF TECHNIQUES

- **DMEK** (Descemet Membrane Endothelial Keratoplasty) is a posterior lamellar keratoplasty technique that involves replacing the patient's damaged endothelium. As a minimally invasive technique, DMEK offers clinical benefits including rapid visual recovery[1-3] and low occurrence of rejection[4]. It has **therefore become a reference technique in endothelial keratoplasty**.
- However, success relies on very delicate handling of the graft **to preserve as much as possible the endothelium and guarantee its viability**. Objective is to isolate the Descemet membrane with the endothelium to obtain a (purely) endothelial graft (without any posterior stroma). The difficulty of this technique led operators, eye banks and surgeons to innovate and standardize this procedure. That's why DMEK graft preparation technique has undergone **several evolutions**.
- Reproducible DMEK grafts can now be obtained by choosing the most suitable harvesting technique for each specific user and setting among these 3:
  - **manual dissection technique**
  - **pneumatic dissection technique**
  - **hydrodissection technique**



- At Moria, we understand that every user has his preferred technique, so **we have developed a wide range of reusable and single-use instruments and devices to enable DMEK grafts to be performed using any technique** or, indeed, variation of a technique. In addition to being comprehensive, Moria range is also notable for its extremely high quality. Our reusable instruments in particular are **renowned worldwide for their durability and resistance.**



PREPARING THE DONOR GRAFT

Common instruments whatever the harvesting technique

- Holding forceps are used to handle a DMEK graft. Moria developed a range of fine toothed forceps dedicated to such a delicate step.

7835 — **Bonn forceps**
0.1-mm Micro-teeth
4-mm Platforms
Reusable

7850A — **Bonn-Moria forceps**
0.1-mm Micro-teeth
5-mm Platforms
Reusable

13161 — **Bonn-Moria forceps**
0.1-mm Micro-teeth
3-mm Platforms
Reusable

13160 — **Bonn forceps**
0.1-mm Micro-teeth
4-mm Platforms
Reusable

17504X10 — **Bonn forceps**
0.12-mm Micro-teeth
5-mm Platforms
Single-use

17221X10 — **Bonn forceps**
0.12-mm Micro-teeth
5-mm Platforms
Single-use

M1809 — **Bonn forceps**
0.12-mm Micro-teeth
Reusable

PREPARING THE DONOR GRAFT

1 ▸ Manual dissection

- The manual dissection technique for preparing DMEK grafts was introduced by Dr. Melles and his team in 2006[1] and has since evolved considerably. This technique consists in making a peripheral dissection at the trabecular meshwork, separating the Descemet membrane from the stroma, then peeling the membrane in balanced saline solution. Developments include the "Submerged Cornea Using Backgrounds Away" (**SCUBA**) technique[5], the "**no-touch**" technique[6], with use of a **guarded punch**[7,8], and the **SHARP** technique.[9,10]
- Moria offers a range of instruments and devices that will enable you to perform these various manual dissection techniques.

1	**Placing the graft**	**Suction base (punch)** **Silicone Base**
2	**Peripheral dissection and cleavage plane identification**	**Sinskey hook ("SHARP")** **Y hook** **Dissector** **Guarded Punch**
3	**Endothelial peeling**	**Forceps** **Two forceps**
4	**Graft sizing**	**Full-thickness** **Guarded Punch**
5	**Tri-Scroll conformation**	**Tri-Fold Cover[20]**

Instruments for peripheral dissection and cleavage plane identification

- Peripheral dissection can be carried out using an angled hook, as is the case with the SHARP technique[9,10], with a Y hook and micro-dissector as Dr. Price does[11], or using other types of dissectors.

20022 — **Micro-dissector**
3-mm active part
Reusable

20021 — **Hook**
Descemetic stroma hook
Reusable

6062A — **Strampelli knife**
3-mm active part
Reusable

PREPARING THE DONOR GRAFT

Endothelial peeling forceps

- Peeling the endothelium requires one or two forceps[2] with flat, non-serrated jaws[12].

20038 — **Curved DMEK forceps**
7° curvature, 10-mm platforms,
12-cm long
Reusable

20039 — **Straight DMEK forceps**
10-mm platforms,
12-cm long
Reusable

17521X10 — **Graft preparation forceps**
1.2-mm oval-shaped tip
Curved, 15-mm long
Sold in box of 5 or 10 units
Single-use

Endothelial marker

- Dr. Terry and his team have developed a technique in which a "S" is stamped on the stromal side of the Descemet membrane[13,14]. This establishes a reference point to ensure the graft is correctly oriented when it is inserted into the patient's eye.

20034 — **Angled "S" marker**
Reusable

PREPARING THE DONOR GRAFT

Punches and trephines

Punch-assisted peripheral dissection for a clear-cut cleavage plan

- As Dr. Ponzin and his team have described[7,8], guarded blade technology can be used to facilitate peripheral dissection and identification of the cleavage plane. Moria has developed two types of punches with a guarded blade to simplify this step: the guarded punch and the Deep Well guarded punch.

Punch-assisted final trephination for diameter

- The final trephination may or may not be penetrating. In the "no-touch" technique described by Dr. Melles and his team[6], the endothelium is drawn onto a support and then undergoes penetrating trephination. The Busin Punch, trephine blade or Hanna trephine by Moria can all be used under those conditions. Other authors have shown interest in using a guarded punch to facilitate the final peeling of the graft[12]. Two guarded punches by Moria can be used for these purposes.

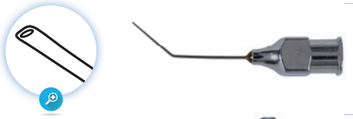
	Reference	17212DXXX	17213DXXX	17215RXXX	17207DXXX	17200DXXX	17150DXXX	17169
	Name	Deep Well Punch	Deep Well blade-holder	Deep Well Tri-Fold Cover	Guarded Punch	Busin Punch	Trephine Blade	Hanna Punch & Blade
Blade design	Double-bevel blade for a clean cut	✓	✓		✓	✓		✓
	360° Blade for uniform cutting	✓	✓		✓	✓	✓	✓
	Guarded blade with length adapted to the depth of the well allowing cutting under the Descemet to be performed	✓	✓	✓	✓			
	Penetrating blade					✓	✓	✓
	Blade / Blade-holder sold separately		✓	✓				✓
	Available sizes (mm)	7.5, 7.75, 8, 8.25, 8.5, 9.5, 10	7.5, 7.75, 8, 9.5, 10	7.5, 7.75, 8	7.5, 7.75, 8, 8.5, 9.5, 10	6, 6.5, 6.75, 7, 7.25, 7.5, 7.75, 8, 8.25, 8.5, 8.75, 9, 9.5, 10	6.5, 7, 7.25, 7.5, 7.75, 8, 8.25, 8.5, 8.75, 9	7, 7.25, 7.50, 7.75, 8, 8.25, 8.50, 8.75, 9, 9.5, 10, 10.5
Well design	Deep and enveloping well, covering cornea	✓						
	Lowered base for optimized working comfort	✓						
	Wide and stable base with imprint	✓						
	Suction system	Double suction			21 suction holes	21 suction holes		✓
	4 non-aspirating holes to facilitate the « S » marking	✓			✓	✓		
	Graft centering system	8.5mm centering groove			4 cardinal holes	4 cardinal holes		

PREPARING THE DONOR GRAFT

2 Hydrodissection and pneumatic dissection

- Pneumatic dissection, also called "reverse big bubble technique" by Dr. Zarei Ghanavati et al.[15], and hydrodissection are among the core techniques developed to prepare DMEK grafts. Principle of these techniques involves using a cannula to lift off the Descemet membrane by air (pneumatic dissection) or liquid (hydrodissection). The cannula can be inserted at different locations depending on whether the operator is performing hydrodissection[16, 17] or pneumatic dissection[15, 18].
- As with manual dissection, there are variations on those two techniques. For example, Dr. Ponzin et al.[16] has developed a hydrodissection technique called "SubHys", which requires use of an artificial chamber and a trephine.

7504
Rycroft cannula
35G orifice, external diameter of 30G
For injection of air or liquid
Reusable



18153
Hydrodissection cannula
31G orifice, external diameter of 25G, Flat, blunt tip
Reusable

19161
Artificial chamber - Base
To maintain the donor's cornea
Reusable

19162
Artificial chamber - Cover
Compatible with base of articifial chamber (19161)
Reusable

19182
Artificial chamber
To maintain the donor's cornea
Single-use

17204
Artificial chamber for single-use trephines
To maintain the donor's cornea
Compatible with 17201DXX and 17202DXX trephines
Single-use

17201DXXX
Simple trephine
Available from 7mm to 9mm (0.25-mm increments) and 9.5mm
Compatible with artificial chamber (17204)
Single-use

17202DXXX
Adjustable trephine
Pre-setting of the desired depth
Available in 6mm, 6.5mm to 9mm (0.25-mm increments), 9.5mm, 10mm
Compatible with artificial chamber (17204)
Single-use

17150DXXX
Trephine blade
For penetrating trepanation
Available in 6.5mm, 7mm - 9mm (0.25-mm increments)
Reusable

PREPARING THE DONOR GRAFT

3 ▸ Muraine technique

- Prof. Muraine's technique consists in trephining the endothelium incompletely with two opposite hinges using a dedicated device: the Muraine punch by Moria. Donor tissue is then mounted on an artificial chamber, the endothelium upward. A Rycroft cannula is then used to hydrodissect the Descemet membrane[18]. This technique is described step by step in our brochure #65057 available on our website (www.moria-surgical.com).

17209D800 — **Muraine Punch**
Allows a partial trephination with two opposite hinges
Single-use

19161 — **Artificial chamber - Base**
To maintain the donor's cornea
Reusable

19162 — **Artificial chamber - Cover**
Compatible with base of artificial chamber (19161)
Reusable

19182 — **Artificial chamber**
To maintain the donor's cornea
Single-use

7835 — **Bonn forceps**
0.1-mm Micro-teeth
4-mm Platforms
Reusable

9605 — **Troutman curved forceps**
Active part with 7.5-mm platform
Reusable

17225X10 — **Troutman forceps**
Curved, 3.5-mm platforms
Single-use

7504 — **Rycroft cannula**
35G orifice, external diameter of 30G
For injection of air or liquid
Reusable

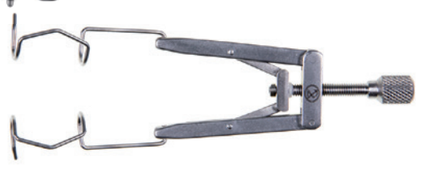
PREPARING THE RECIPIENT EYE

1 ▸ Keeping the patient's eye open

19078 — **Colibri Speculum**
Lid-blades, 16mm
Reusable

20035 — **Adjustable speculum**
Rounded lid-blades, 14mm
Reusable

18195 — **Schapira Speculum**
15-mm open lid blades
Reusable

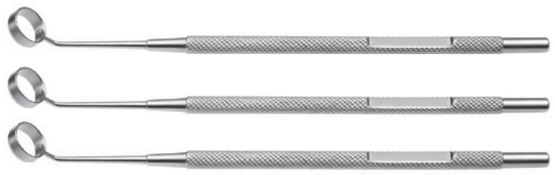


17508X10 — **Adjustable speculum**
15-mm lid blades
Sold in box of 10 units
Single-use

2 ▸ Measuring and marking diameter

12994 — **Sourdille caliper**
16-mm opening
Graduation every 1mm
Reusable

19095/800
19095/850
19095 — **Corneal markers**
Reusable
› Available in:
Diameter: 8 mm
Diameter: 8.5 mm
Diameter: 9 mm



Corneal markers
Available in boxes of 10 units
Single-use
› Available in:

17518X10 — Diameter: 8 mm

17519X10 — Diameter: 8.5 mm

17520X10 — Diameter: 9 mm

PREPARING THE RECIPIENT EYE

3 ▸ Maintaining the patient's anterior chamber

19092

Chamber Maintainer 20G
Length: 170 mm
External diameter: 1.65 mm
5-mm active part with 0.90-mm internal diameter
Reusable

4 ▸ Descemetorhexis and removal of endothelium

19097

Gorovoy forceps
Descemetorhexis forceps
Length: 11.7 cm
Blunt tip
Reusable

19091

20047

Descemetorhexis hooks
Inverted Sinskey shapes
Price hook
Hoffart hook: bi-angulation to avoid fluid leakage at corneal incision
Reusable

19077/A

19077/B

Spatulas
For peeling the Descemet membrane
A: 45° angled tip
B: 90° angled tip
Reusable

19083/A

19083/B

Irrigating spatulas
For peeling the Descemet membrane
A: 45° angled tip
B: 90° angled tip
Single-use

17302X5

Price hook
Descemetorhexis hook
Inverted Sinskey shape
Sold in box of 5 units
Single-use

17303X5
17303X10

90° Spatula
For peeling the Descemet membrane
90° angled tip
Sold in box of 5 or 10 units
Single-use

References	Manufacturer	Classes	Regulatory
6062A, 7504, 7835, 7850A, 9605, 13160, 13161, 17150DXXX, 17169, 18153, 18195, 19077/A, 19077/B, 19078, 19083/A, 19083/B, 19091, 19092, 19095, 19095/800, 19095/850, 19097, 19161, 19162, 20021, 20022, 20034, 20035, 20038, 20039, 20047, M1809	Moria S.A.	I	FDA: approved CE: self-declaration
17200DXXX, 17204, 17207DXXX, 17209D800, 17212DXXX, 17213DXXX, 17221, 17225x10, 17504x10, 17508x10, 17518x10, 17519x10, 17520x10, 17521x10, 19182	Moria S.A.	Is	FDA: approved CE marked: CE 0459
17215RXXX	Moria S.A.	Is	FDA: approved
17171DXXX, 17201DXXX, 17202DXXX, 17302x5, 17303x5, 17303x10	Moria S.A.	IIa	FDA: approved CE marked: CE 0459
12994	Moria S.A.	Im	FDA: approved CE marked: CE 0459

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MORIA #67082EN-C-04.2024

MORIA SA
27, rue du Pied de Fourche
03160 Bourbon L'Archambault
FRANCE
Phone: +33 (0)1 46 74 46 74
Fax: +33 (0)1 46 74 46 00
moria@moria-int.com
www.moria-surgical.com

MORIA Inc
1050 Cross Keys Drive
Doylestown, PA 18902
USA
Phone: (800) 441 1314
Fax: + 1 (215) 230 7670
orders@moriausa.com
www.moria-surgical.com

Moria Japan K.K.
Arcadia Building 6F
1-12-3 Kanda
SudachoChiyoda-Ku
Tokyo 101-0041
JAPAN
Phone: 81-3-6260-8309
Fax: 81-3-6260-8310
moria@moriajapan.com
www.moriajapan.com

Moria COMMERCIAL (CHINA) CO., LTD.
上海目利亚贸易有限公司
Room H 6F Kaili Building NO.432
West Huai Hai Road, Changning
district, Shanghai, 200052, P.R.C
中国上海市长宁区淮海西路432号
凯利大厦6楼08室
Phone/Fax : +86 021 52586095
moriachina@moria-int.com