



MicroDrill & Lateral Remover





► Intended use

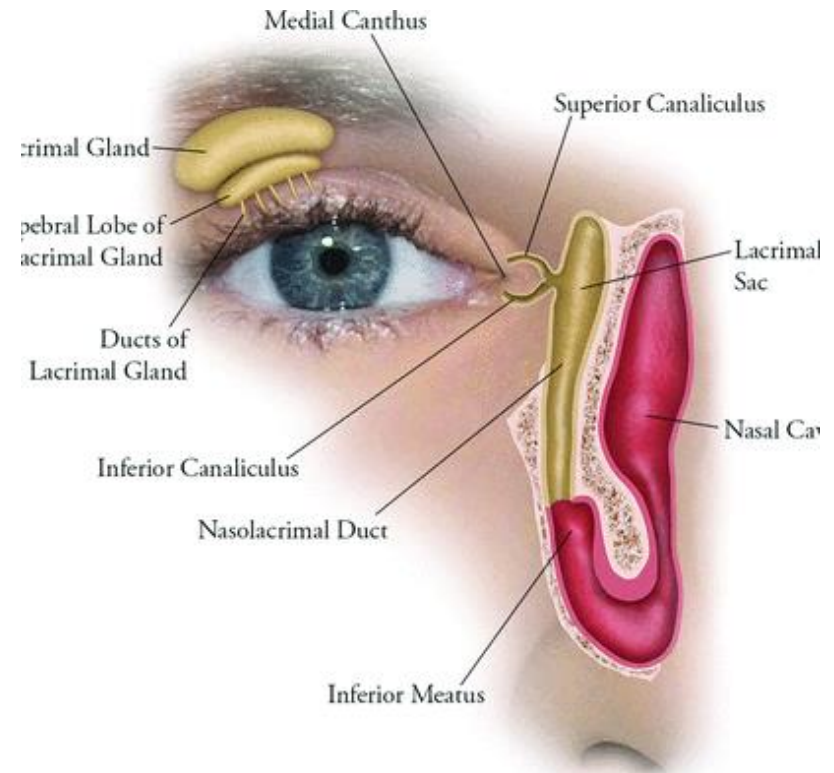
MicroDrill is provided for transient endoscopic surgeries of small body orifices or ducts like e.g. the tear ducts.

Under visual control a stenosis or congestion within the body duct notably the tear duct is removed by the drill bits of the MicroDrill during a minimally invasive procedure.

The MicroDrill is operating exclusively together with the semi-rigid micro-endoscopes of PolyDiagnost GmbH.

► Classification

The MircoDrill and its components are classified as Class I medical device according to rule 6 of Annex IX of the European Directive 93/42/EEC.



V.A. Kumar, "Imaging Features of Malignant Lacrimal Sac and Nasolacrimal Duct Tumors", American Journal of Neuroradiology November 2016, 37 (11) 2134-2137; DOI: <https://doi.org/10.3174/ajnr.A4882>



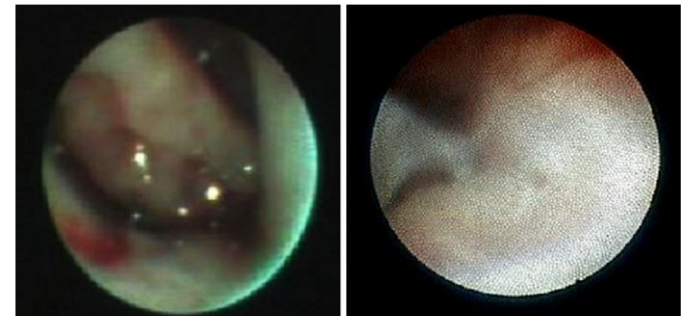
► Clinical applications

MicroDrill dacryoplasty (MDP) is suitable for the lancing of total as well as subtotal intra- and post saccale stenosis and also for the removal of membranes, rinkles and polypi. Additionally, it can be used for the fractioning of dacryolithes as well as in cases of recurrences after dacryocystorhinostomy (DCR)

At MDP a miniturized driller of 0.3 mm at 6000 rpm is used instead of a laser.



Entering with the endoscope for MDP



Dacryolith and MDP. Endoscopic image of a dacryolith (l), endoscopic image of the MDP (r).

Source: Emmerich KH, et al., „Microendoscopic minimally invasive techniques in lacrimal surgery“, Ophthalmologe. 2017 May;114(5):409-415. doi: 10.1007/s00347-017-0481-3



▶ **Contra indications**

In the actual clinical evaluation the same contra-indications, complications and risks are mentioned.

The following contraindications are determined:

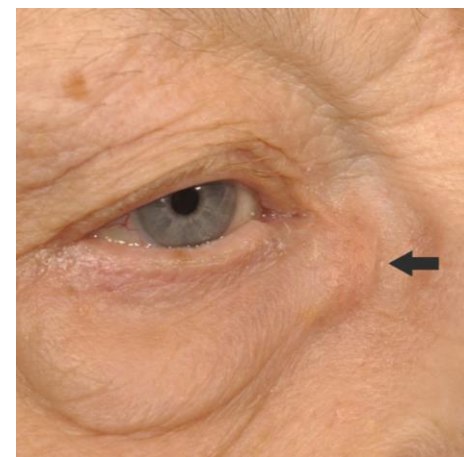
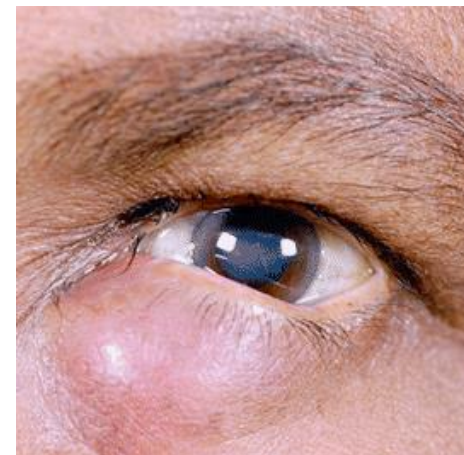
- Acute dacryocystitis (upper image) ⁽¹⁾
- Adhesions and/or scarring of tear ducts
- Face skull fracture (displaces anatomy)
- Mucocele of the lacrimal sac (lower image) ⁽²⁾
- Complete obstruction in irrigation
- Young patients equal/below age 2

▶ **Risks**

In the literature, the following complications and risks are determined:

- Bleeding and swelling
- Hematomas
- Injury of surrounding areas (eyelid, cornea)
- Insufficient result

The actual literature does not mention any further complications.



(1) Ali M.J. (2018) Acute Dacryocystitis. In: Atlas of Lacrimal Drainage Disorders. Springer, Singapore, 30 December 2017, DOI:https://doi.org/10.1007/978-981-10-5616-1_37

(2) Sagili S. et al., Lacrimal sac mucocele, British Journal of Ophthalmology, vol. 97, issue 1, (2012)



Conclusion for practical use

- Minimal invasive lacrimal duct surgery is well suited as a first operation procedure, as long as the aforementioned contra indications are thoroughly excluded.
- Allowing for visualization of the anatomy and pathology of the lacrimal ducts
- Enabling the removal of pathological alterations
- Preservation of the lacrimal unit
- In case of a therapy failure, option of conventional surgical approaches remain

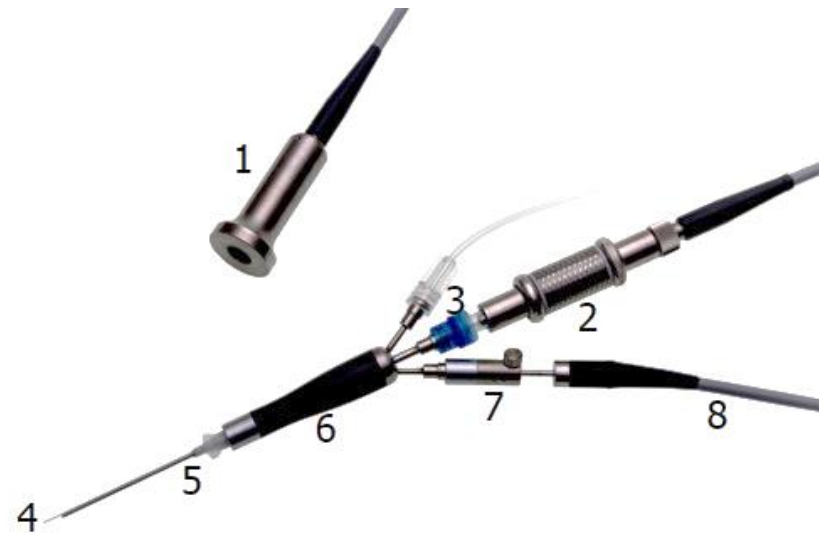
Source: Emmerich KH, et al., „Microendoscopic minimally invasive techniques in lacrimal surgery“, Ophthalmologe. 2017 May;114(5):409-415. doi: 10.1007/s00347-017-0481-3



Description

► The MicroDrill consists of the following components:

1. Drive shaft
2. Drill shifter
3. Check valve
4. Lateral Remover
5. PolyShaft (4 options)
6. Handle short
7. Ophthalmology Shifter
8. Semi-rigid optic (2 options)



Schematic representation of the MicroDrill system



Lateral Remover

Details:

- LATERAL REMOVER with rounded tip
- for 50 mm POLYSHAFT®,
- PD-DS-1740, single-use (sterile)

Accessories



Drive shaft (PD-DS-5142)
reprocessable



Check valve (PD-CA-0606)
sterile, single-use



Drill shifter (PD-DS-5141)
reprocessable



Motor mount
reprocessable



► Recommended accessories



Handle short (PD-DS-1320)
autoclavable



Optic shifter ophthalmology
(PD-DS-1220) autoclavable



POLYSHAFT® 50 mm
sterile, single-use



Semi-rigid optic 6,000 pixel
(PD-DS-1084) reprocessable



Semi-rigid optic 3,000 Pixel
(PD-DS-1086) reprocessable

Ocular Fix-Focus blue

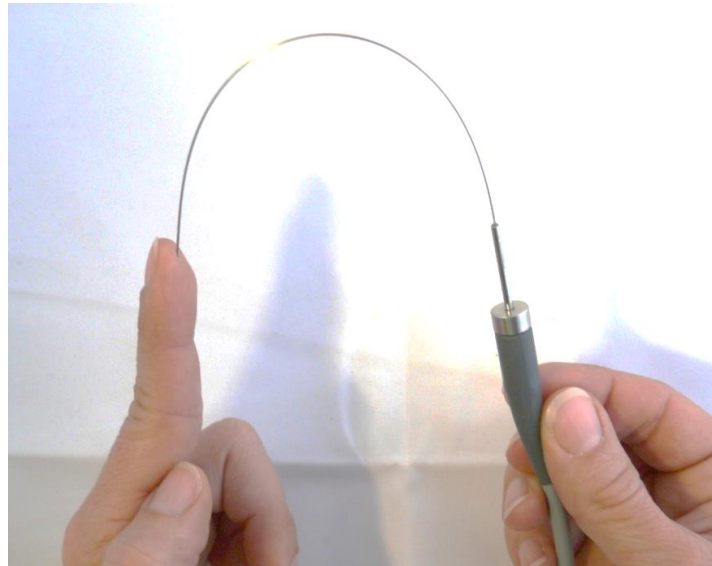


Important note:
Only one ocular is necessary to cover all optical systems
which results in a low cost option.



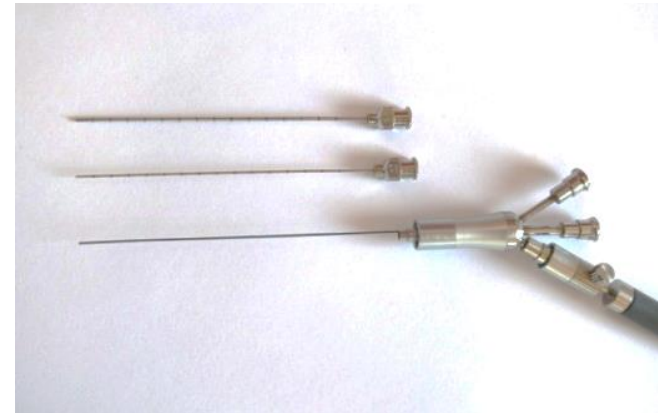
► Reliability and modularity

These optics are protected by a NiTiInol protection cover.



3.000 pixel, outer diameter: 0,45 mm

6.000 pixel, outer diameter: 0,59 mm



The single-use POLYSHAFTS® are available in:

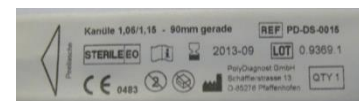
Ø 0,75 mm

Ø 0,90 mm

Ø 1,00 mm

Ø 1,10 mm

or on request.



Sterile packaging



Dispenser box



▶ Exemplary surgery





Thank you for your attention



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