

REA JET

CODING AND MARKING SOLUTIONS
FOR INDUSTRY –
MADE IN GERMANY

REA JET DOD 2.0 Print Head Quick Guide

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Legal information

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Translation of Original QuickGuide

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1. About these operating instructions

1.1 Symbols used in these instructions

This manual contains safety instructions and general information. Safety and information texts are highlighted by symbols in front of them. The meaning of each symbol is described below.

1.2 Safety

1.2.1 Safety instructions in these instructions

In particular, the warnings and precautionary measures marked as follows in these instructions must be observed.

The symbols have the following meaning:

DANGER	Hazard type and hazard source
	This symbol indicates an imminent hazardous situation which, if not avoided, will result in death, serious injury or property damage.

WARNING	HAZARD TYPE AND HAZARD SOURCE!
	This symbol indicates a situation which, if not avoided, could result in death, serious injury or property damage.

CAUTION	HAZARD TYPE AND HAZARD SOURCE!
	This symbol indicates a potentially hazardous situation which, if not avoided, may result in injury or property damage.

ATTENTION Indicates dangers which, if not avoided, may result in material damage.

1.2.2 Personal protective equipment

Personal protective equipment must be worn during assembly to minimize health hazards.

CAUTION	WEAR SAFETY GLOVES!
	Wear gloves to protect your hands.

CAUTION	WEAR SAFETY GOGGLES!
	Wear protective goggles to protect your eyes from pressurized fluids, as these could cause injuries.
WARNING	Pressurized liquids!
	Pressurized liquids can cause hazardous situations and injuries. ▪ Completely release the pressure from pressurized containers / liquids before doing assembly work! ▪ Before starting work, check that the pressure has been completely dissipated!

1.3 General safety instructions

Observe the following points:

- Read these instructions carefully.
- Observe all warnings.
- Follow all instructions.
- These DOD print head components are not intended to be used by persons (including children) with limited physical, sensory or mental capabilities, or lack of experience and / or knowledge.

1.3.1 Safety symbols used

Symbol	Description
	Disposal of operating materials This symbol indicates that special care must be taken when disposing of operating materials. Please observe the relevant safety data sheets, laws, standards and local regulations.
	Fire hazard - open fire and heat prohibited! This symbol indicates a risk of fire.
	Danger of harmful vapors This symbol indicates potential health hazards caused by solvents.
	Read these operating instructions carefully before commissioning, even if you already have experience with coding and marking systems. The corresponding safety data sheets for the paints / inks used can be requested from REA Elektronik GmbH.

Symbol	Description
	Wear safety goggles This symbol indicates that suitable safety glasses must be worn.
	Wear safety gloves This symbol indicates that suitable safety gloves must be worn.
	Wear hearing protection This symbol indicates that suitable hearing protection must be worn.
	Wear respiratory protection This symbol indicates that suitable respiratory protection must be worn.
	Ex area / Ex zone Warning of areas where explosive atmospheres may occur.
	Explosion protection symbol Explosion protection symbol for equipment and protective systems for use in potentially explosive atmospheres.
	Care instructions This symbol provides information on proper care.
	Information This symbol points to useful additional information that can facilitate operation and improve production processes.

1.4 Hazards when working on electrical equipment

- All work on the electrical equipment of the system may only be performed by trained electricians.
- Inspect electrical equipment on a regular basis.
- Re-tighten loose connections.
- Immediately replace damaged lines or cables.
- Always disconnect the power plug before performing work on live parts of the system.

DANGER	HIGH VOLTAGE!
	When working on the system there is an electrical hazard due to direct contact with live parts. • The system should only be connected up by qualified specialist personnel. • Electrical current can result in injuries and even death • Before beginning the installation work, switch off the power supply to the device • Completely disconnect the device from the power supply and secure it to prevent restart • Never clean electrical devices with water or other fluids • Use a suitable measuring device to check that the risk of external voltage being connected has been eliminated.

1.5 Danger due to ink or cleaning agents!

ATTENTION When working with ink and cleaning agents, the following safety instructions must be observed:

Information about the product class: Example: Ink / Cleaning agents

See safety data sheet or

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Poison information, Mainz Clinical Toxicology of the II. Medical Clinic of the Johannes Gutenberg University Mainz - Langenbeckstrasse 1 D - 55131 Mainz, Germany

1.5.1 Measures in the event of hazards caused by ink and cleaning agents

Depending on the type of medium used, this may cause irritation of the skin, eyes and mucous membranes.

The safety instructions listed in the safety data sheet must be observed.

CAUTION	WHEN HANDLING INK:
 	Avoid contact of the medium with eyes and skin. • Wash affected skin areas with soap and water. Special cleaning pastes are available for skin cleansing. • Consult a doctor if skin irritation occurs. • Avoid swallowing the media used.

1.6 First aid measures

Seek medical advice if symptoms occur or in case of doubt.

CAUTION	First aid measures
	Do not administer orally if the patient is unconscious! IF BREATHED IN: Fresh air supply, bring affected person into resting position and keep warm. Start artificial respiration in case of irregular breathing or respiratory arrest. If unconscious, use stable lateral position and seek medical advice. AFTER SKIN CONTACT: Remove soiled and soaked clothing immediately. Clean wetted skin thoroughly with soap and water. Do not use solvents or thinners for cleaning. AFTER EYE CONTACT: Keep eyelids wide open and rinse thoroughly with clean, running water for at least 10 minutes, seek medical advice. IF SWALLOWED: Contact a doctor. Keep affected persons calm. Do not induce vomiting.

1.7 Safety data sheets

When working with ink and cleaning agents, the respective safety data sheets must always be observed.

The use of ink and cleaning agents without a safety data sheet is not permitted.

DANGER	Harmful vapors!
	This symbol indicates potential health hazards caused by solvents. - Do not breathe in any vapors! - Consider wearing respiratory protection!

1.7.1 Using exhaust systems

Use the installed exhaust systems and ensure sufficient ventilation of the workstation.

1.8 Disposal of operating materials

When disposing of operating materials:

- Observe the corresponding safety data sheet
- Comply with the applicable laws and regulations

1.9 Handling

Warranty and liability claims for personal injury and material damage are excluded if they are due to one or both of the following causes:

- Failure to observe existing, special or other known precautionary measures.
- Non-observance of the care required for operation and handling.

WARNING	Qualifications of the personnel
	The operating company is to ensure that personnel have the necessary qualifications to perform work on the system. ▪ All relevant standards and regulations are complied with. ▪ All rules and regulations for accident prevention applicable to the place of use must be observed.

2. Scope of delivery, transport and handling

2.1 Scope of supply

The detailed scope of supply can be found on the delivery note.

2.2 Transport

Equipment manufactured by REA Elektronik is delivered in specially adapted transport packaging.

This packaging ensures that the high-quality REA components arrive at your site undamaged.

To prevent damaging the package contents, avoid physical mechanical effects caused by strong shocks, vibrations, etc. Protect the packaging from moisture.

The following ambient conditions must be maintained during transport if the equipment is transported again at a later time:

Parameter	Value
Temperature range of hardware components	- 25 °C ... + 55 °C
Moisture	< 95 % (non-condensing)
Vibration	Acceleration resistant up to 0.7 g 10 Hz ... 150 Hz
Temperature range of ink	+5 ... +55 °C

2.2.1 Intermediate storage

During intermediate storage, store the devices in their original packaging. Protect the transport packaging from moisture.

2.3 Handling

2.3.1 Delivery inspection

Thoroughly inspect the delivery to ensure it is intact and that the contents match the delivery invoice!

2.3.2 In case of damage

Devices from REA Elektronik GmbH are carefully checked and packed before dispatch, but damage during transport cannot be ruled out.

If the delivery shows transport damage:

- Contact the last carrier immediately!
- Keep the packaging in a safe place for possible inspection by the carrier or to return the shipment.

2.3.3 Packaging for return shipment

For return shipping, always use the original packaging and the original packaging material in which you received the device.

If both are no longer available, please request the correct packaging set from REA Elektronik or your REA representative.

Please contact REA Elektronik GmbH if you have any questions about packaging and transport safety.

2.3.4 Unpacking

ATTENTION Open the transport packaging system carefully. Do NOT use sharp objects to open the packaging or accidental damage to the components may occur.

Remove the components from the packaging and place them on a stable surface.



Information

Due to the limited weight of the individual components, no special or technical equipment is required for unpacking and handling these items under normal circumstances.

For further information, please contact your occupational health physician or safety engineer.

After extended storage or transport in a cold environment, leave the device and accessories unpacked for some time without switching on.

This prevents damage to from internal condensation.



Read these operating instructions carefully before commissioning, even if you already have experience with coding and marking systems.

2.3.5 Disposal of packaging

Surplus packaging can be returned to the manufacturer or may be recycled.

Saving at least the packaging set is recommended for storage and transport purposes.

3. Description of print heads (SK)



Figure 1: Print heads with 7, 16, or 32 nozzles

The present REA-JET print head represents the DOD (**Drop-On-Demand**) technology.

The print head is composed of a print head housing tube, which, in combination with the housing rear panel and the housing front, forms the outer enclosure. The print head mechanics are located in this enclosure.

The following components are located on the rear panel:

- Male connector for print head cable
- Purge button
- Ink connector (a single one for a standard print head, two for a pigmented print head)
- Grounding hardware or ventilation fittings depending on print head type

The nozzle plate is integrated in the housing front.

When pigmented inks are used which are mixed with solid particles, it is necessary to evenly dispense these particles at all times. This is why pigmented inks are processed using the respective pigmented ink supply units.

A pump makes sure that the pigmented ink is constantly circulating between the print head and the ink supply unit. That is why there are two ink connectors in the pigmented print head. One serves as the supply line (flow) from the pump to the print head. The other as a return line (return flow) from the print head to the pump.

3.1 Type code

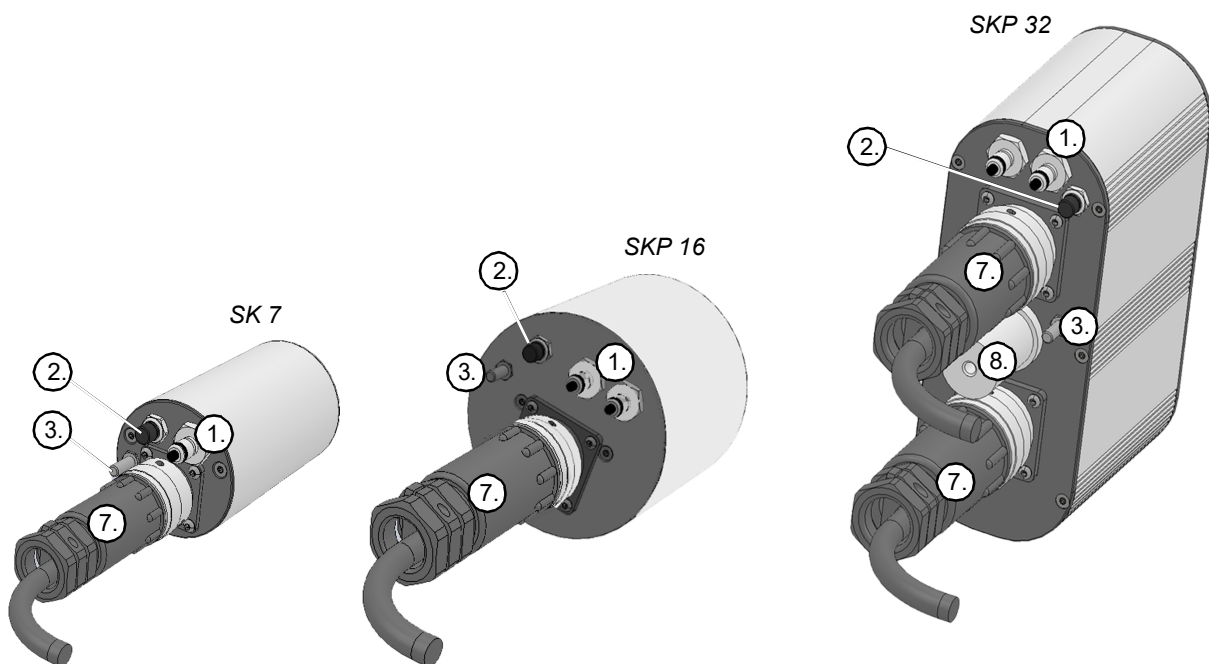
Breakdown using the example of a print head for non-pigmented inks with seven nozzles, series 2.0 (latest generation), for use in the rubber and plastics industrial sectors.

	SK	7	130	2.0	RPS
Type code					
SK Print head for non-pigmented ink					
SKP Print head for pigmented ink with two ink connectors					
Number of nozzles					
1					
7					
16					
32					
Nozzle size in µm					
80					
130					
180					
270					
350					
Generation					
Without description – first generation					
2.0 – second generation					
Area of use					
Without description - standard					
RPS – Rubber Printing System					

3.2 Classification of print heads

Type	Description
SK 7	Standard print head, 7 nozzles
SKP 7	Pigmented print head, 7 nozzles
SK 16	Standard print head, 16 nozzles
SKP 16	Pigmented print head, 16 nozzles
SK 32	Standard print head, 32 nozzles
SKP 32	Pigmented print head, 32 nozzles

Figure 2: Assignment of individual components SK 7, SKP 16, SKP 32



No.	Description	No.	Description
1.	Ink connector	5.	Nozzle plate screw
2.	Purge button	6.	Nozzle jewel
3.	Grounding bolt	7.	Print head cable
4.	Nozzle plate	8.	Assembly pin (SKP 32)

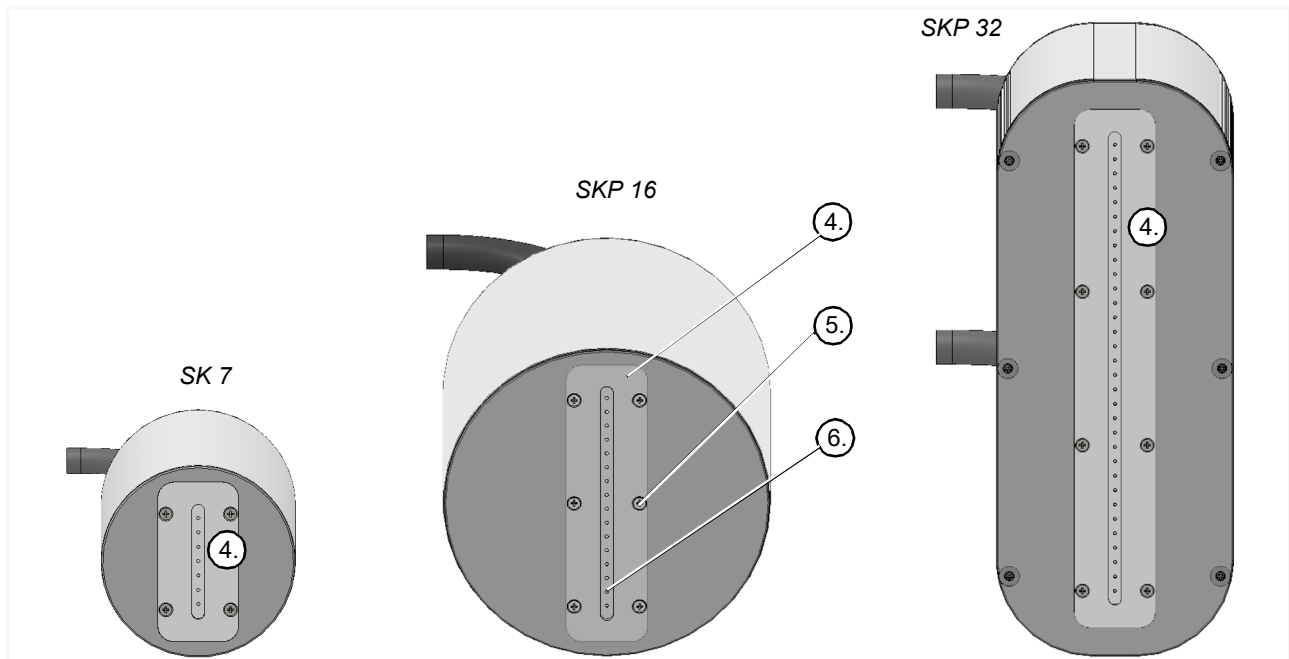


Figure 3: Nozzle plate

The nozzle plates (4) are available with different nozzle bore holes. In order to be able to apply the optimum amount of ink for each application, the following nozzle diameters are available as standard:

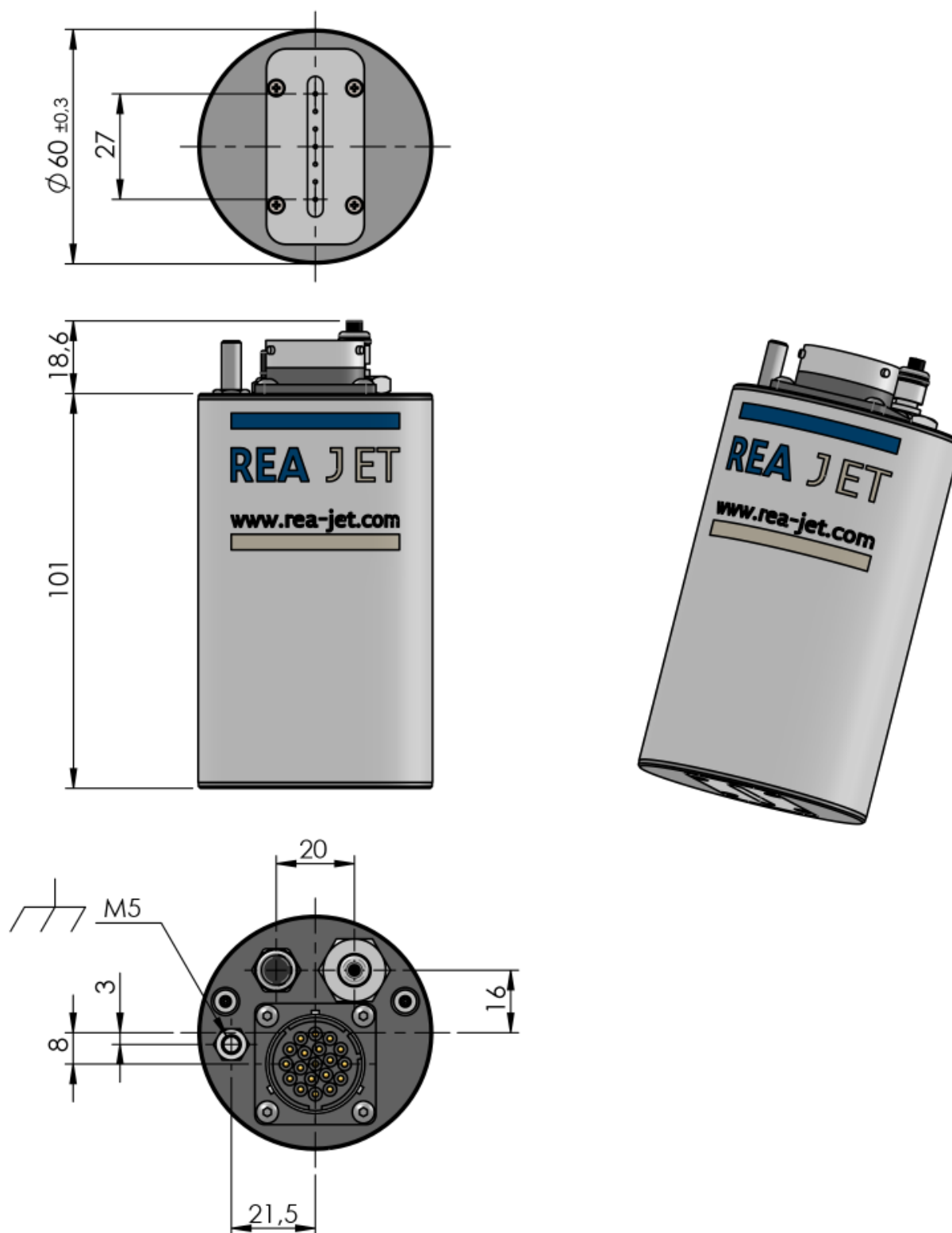
- 80 µm
- 130 µm
- 180 µm
- 270 µm
- 350 µm

3.3 Technical data

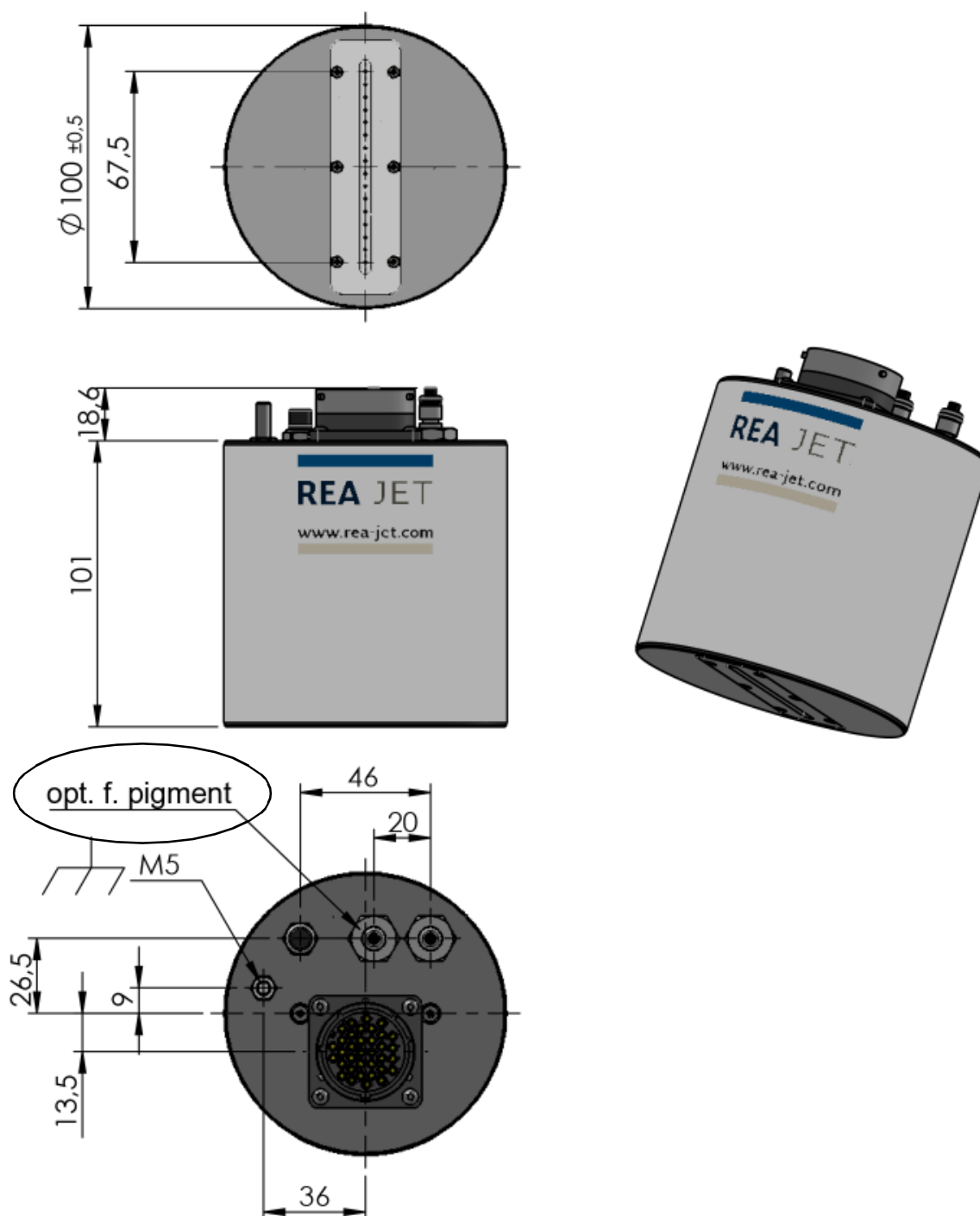
Element	Type	
Connector for print head cable	SK 7 / SKP 7	Connection for 1x print head 7
	SK 16 / SKP 16	Connection for 1x print head 16
	SK 32 / SKP 32	Connection for 2x print head 16
Number of ink connectors	SK	1
	SKP	2
Weight	SK / SKP 7	650g ±100g
	SK / SKP 16	1250g ±100g
	SK / SKP 32	2350g ±100g
Distance between nozzles on the nozzle plate	4.5 mm	

Holder / Fastening point: Available in the REA product range on request.

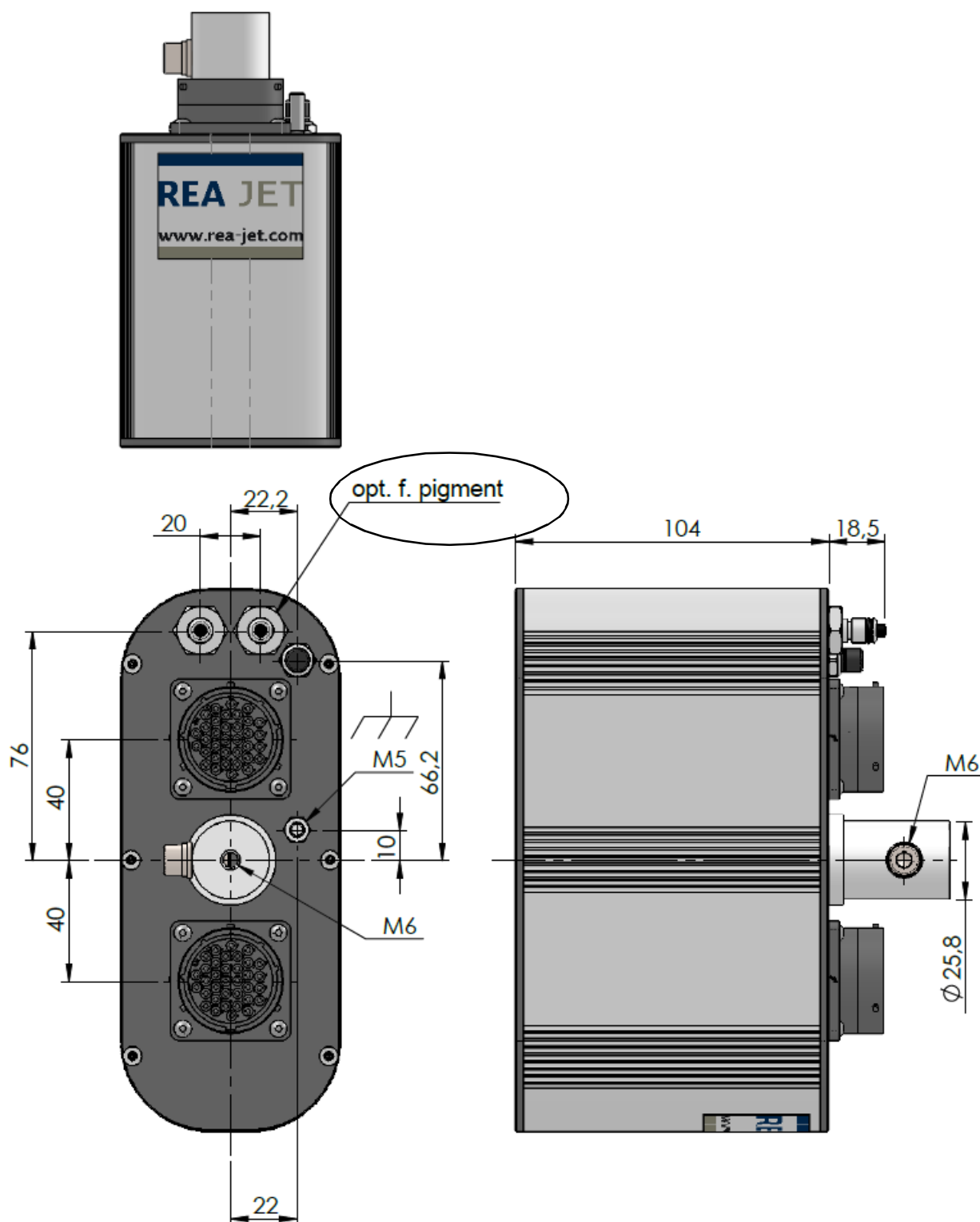
3.3.1 Main dimensions, SK / SKP 7

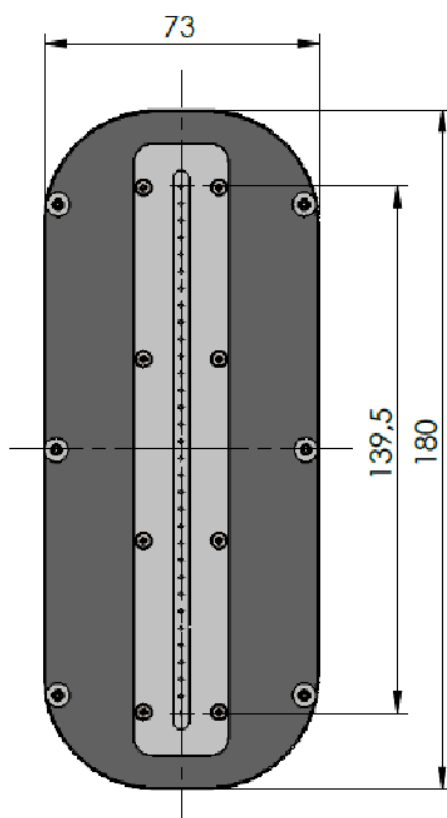


3.3.2 Main dimensions, SK / SKP 16



3.3.3 Main dimensions, SK / SKP 32





3.4 Operating conditions

Element	Type	
Ink pressure	(0.2 ... 0.5 bar) (overpressure) 0.4 bar recommended (overpressure)	
Operating temperature range	-5 °C to +40 °C	
Moisture	< 95 % (non-condensing)	
Optimal distance between product and nozzle plate	1 mm to 15 mm, as close as possible is recommended	

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REA JET



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