MOVACOLOR

COLORING THE WORLD

Mixer Manual

MIX50, MIX100, MIX PHA, MIX BHA, MIX BH

MANUAL

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1 Introduction

Thank you for purchasing a Movacolor mixer. This manual is addressed to operators and qualified technicians taking care of the Movacolor mixer.
ⓘ IMPORTANT NOTE: THIS MANUAL MUST BE READ BEFORE INSTALLING THE MIXER. KEEP THIS MANUAL IN A PLACE ACCESSIBLE TO ALL OPERATORS.

1.1 **Symbols**

ⓘ Important note.

 Attention; safety regulations for the operator.

1.2 **Terms**

Operator:	A person charged to operate, adjust, maintain and clean the machine.
Qualified Technician:	A specialized, suitable trained person authorized to execute the installation, non-routine maintenance, or repairs requiring special knowledge of the machine and how it operates.

1.3 **Transport**

To protect the Movacolor unit against damage during transport, the unit is packed in a cardboard box filled with polyurethane foam. Delivery terms are Ex-Works Sneek, The Netherlands. Buyer is responsible for the transport. Movacolor cannot be held liable for any damage during transport.

1.4 **Receipt**

Check the unit thoroughly upon receipt for damages or missing parts. Pass any remarks to the local agent or Movacolor within 8 days upon receipt of goods.

1.5 **Disclaimer**

Movacolor does not warrant that the hardware or software will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability or fitness for a particular purpose.

Movacolor has made every effort to ensure that this user's manual is accurate; Movacolor disclaims liability for any inaccuracies or omissions that may have occurred.

Information in this user's manual is subject to change without notice and does not represent a commitment on the part of Movacolor. Movacolor assumes no responsibility for any inaccuracies that may be contained in this user's manual. Movacolor makes no commitment to update or keep the current information in this user's manual, and reserves the right to make improvements to this user's manual and/or to the products described in this user's manual, at any time without notice.

If you find information in this manual that is incorrect, misleading or incomplete, we would appreciate your comments and suggestions.

1.6 **Manual description**

This manual describes the installation and configuration of the Movacolor mixers. Only the configuration and operation of the mixer specific system is covered by this manual. For further information about the used dosing system refer to the Movacolor website to find the corresponding manual.

2 General information

2.1 **Safety**

The equipment is only designed and may only be used for the dosing of dry additives.
Any use that is not in conformity with the instructions is considered improper and as such frees the manufacturer from any liability regarding damage to things and/or persons.

Before switching on the unit for the first time, ensure that the mains power voltage applied is between 95 and 250VAC.

Ensure that all parts are securely fixed to the extruder, injection molding machine or machine support.

Always switch off the Movacolor control cabinet and disconnect the mains power plug from electrical power before performing maintenance.

Dangerous voltages are present inside the control cabinet for up to 2 minutes after it has been switched off.

Always disconnect the main compressed air connection before performing maintenance.

2.2 **Certification**

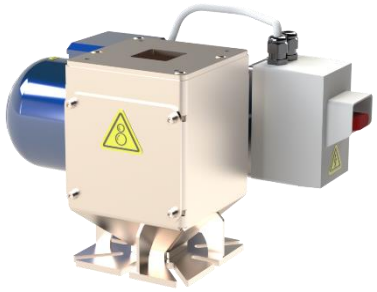
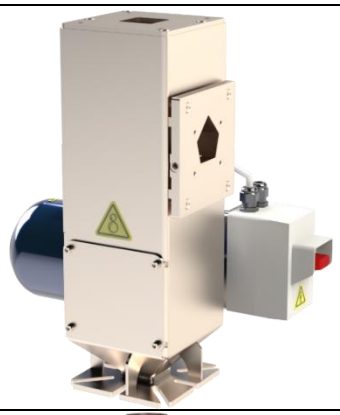
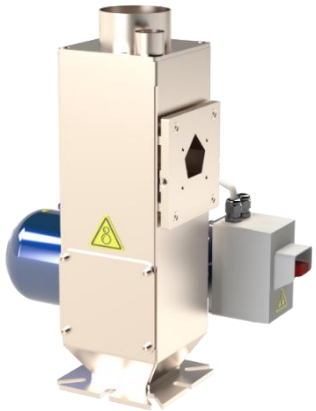
The Movacolor dosing unit is designed and produced in conformity with the following European regulations:

1. CE standards for machinery (health, safety, environment).
2. EMC (electromagnetic compatibility).
3. 2006/42/EG.

2.3 **Operating environmental conditions**

1. The unit must be protected against weather conditions.

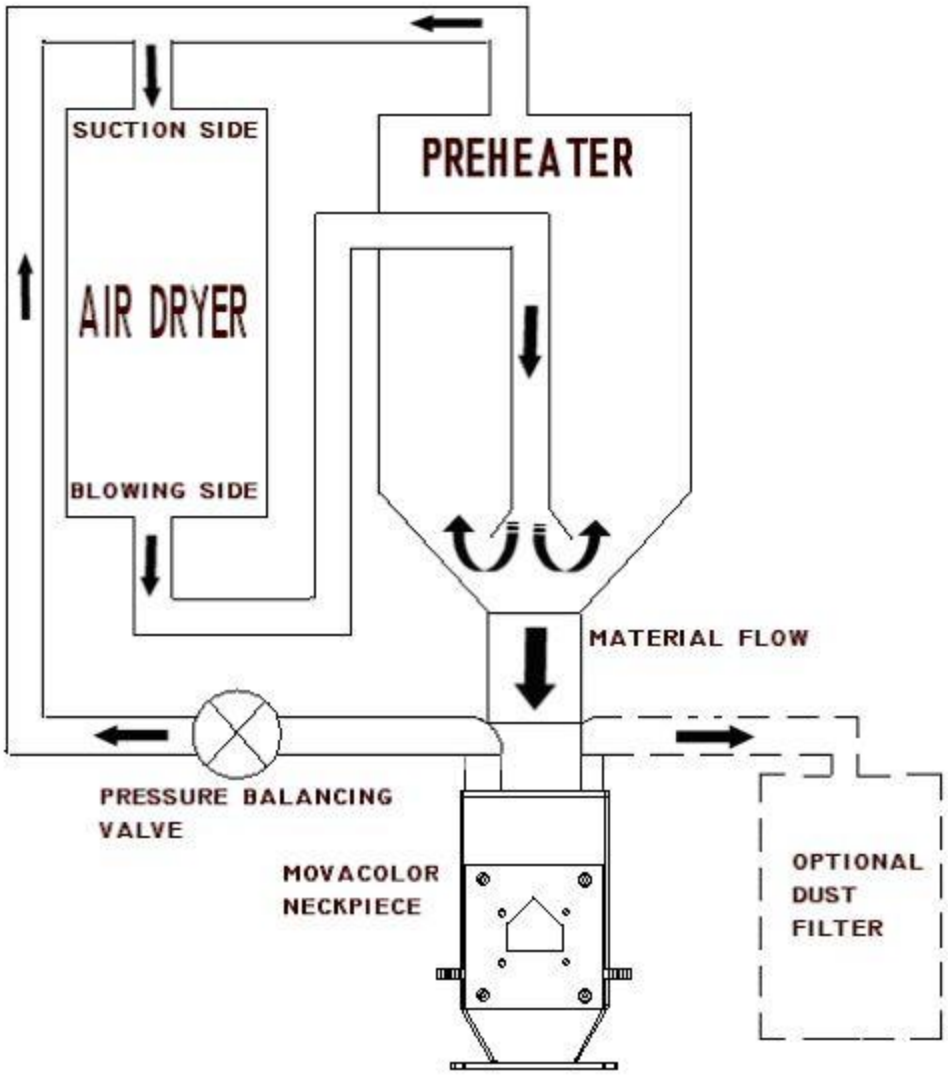
3 Overview Mixers

Name	Specifications	Image
MIX50	• Mixer only • Flange hole: square45mm	
MIX100	• Mixer only • Flange hole: square 90mm	
MIX BH	• Mixer neckpiece • Water cooled insert • Flange hole: square 45mm • 1 or 2 dosing devices • Optional Highoutput insert • No de-airing	
MIX BHA	• Mixer neckpiece • Water cooled insert • Flange hole: square 45mm • 1 or 2 dosing devices • Optional Highoutput insert • With de-airing	
MIX PHA	• Mixer neckpiece • Water cooled insert • Flange hole: square 90mm • 1 or 2 dosing devices • Optional Highoutput insert • With de-airing	

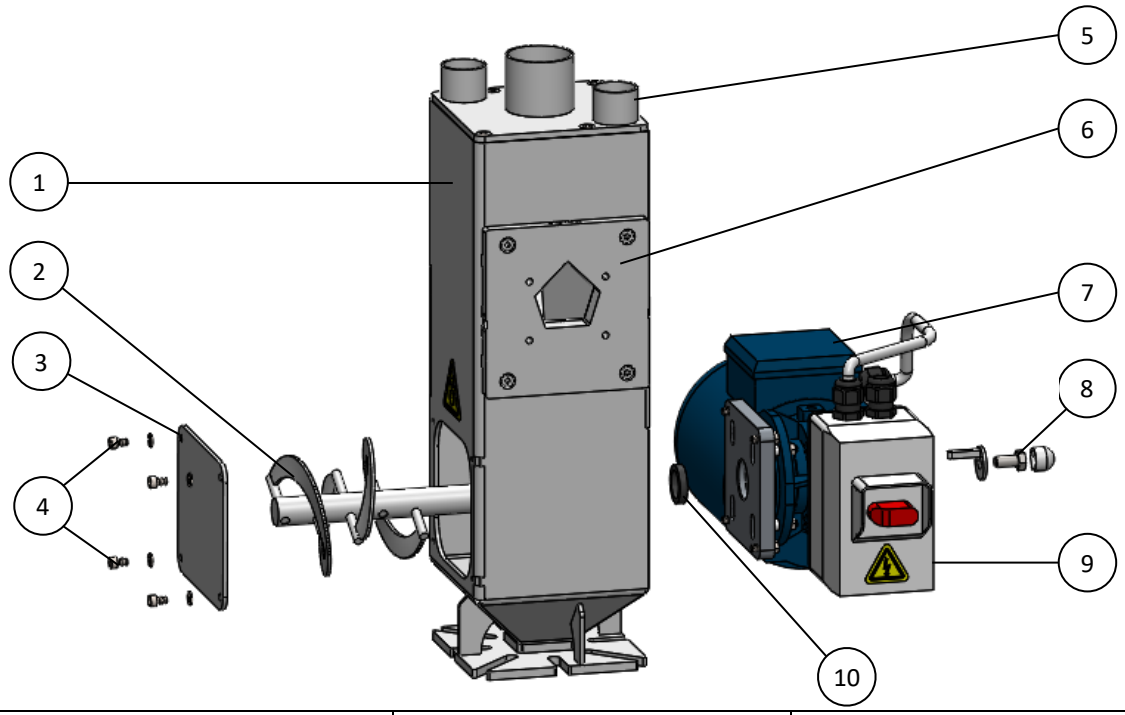
4 Water-cooled setup

ⓘ Only applicable for MIX PHA, MIX BH and MIX BHA

The two air vents of the neckpiece can be left open but the preferred configuration is to connect one of the vents to the suction side of the drying system (see diagram). In that case it is advised to use a valve to minimize airflow either in or out the left open vent. If dust is blown out of vents that are left open to the atmosphere, these vents can be fitted with a dust filter. The water cooled pipe has a water inlet and outlet with a diameter of 10mm. Connect the cooling water tubing to the inlet and outlet and run water of 5 to 25° C through the system. Temperature inside the pipe should not exceed 40° C.
Neckpieces should be installed securely and water leveled on the machine feed throat. Connect main material flow, air tubing, dust filters and cooling water tubing if applicable. The dosing unit slides into the flange on the side of the neckpiece and is secured in position by a knurled knob.



5 Mixer component overview

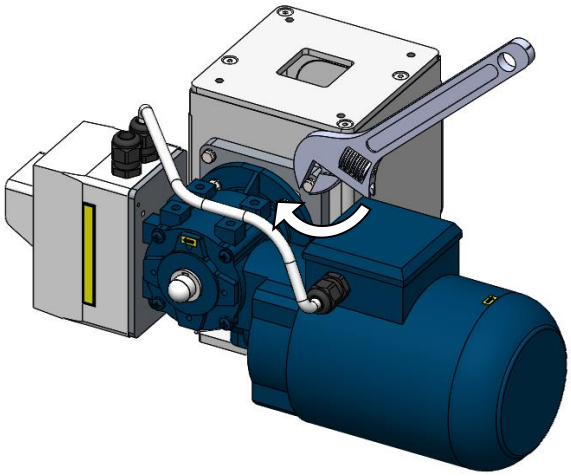


	MIX50 / MIX100	MIX BH	MIXBHA / MIXPHA
1	Mixer housing	Mixer neckpiece	
2	Mixing blades		
3	Cover plate		
4	Bolts and washers to secure cover plate		
5	Normal top plate		De-airing top plate
6	Not available	Water cooled insert	
7	Motor / reducer		
8	Bolt for removing mixing blades		
9	Switch cabinet with overload protection		
10	Seal between mixing blade axle and housing		

6 Mechanical installation

ⓘIn case of a PHA or BHA mixer the neckpiece and motor reducer with blades are separately packed because of the weight.

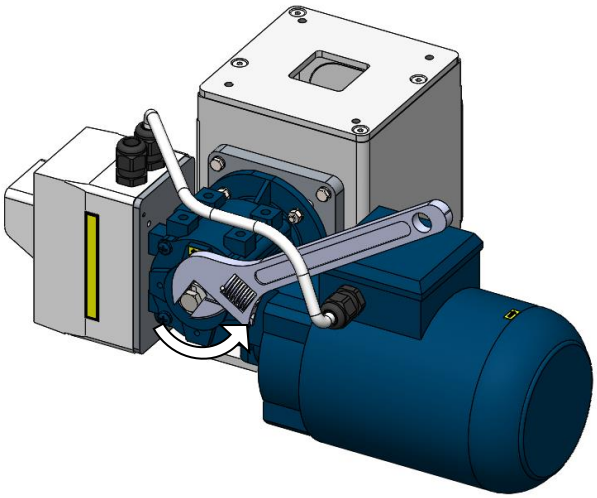
- Mount the neckpiece to the injection molding machine or extruder
- Place the motor reducer with mixing blades in the neckpiece of the mixer and tighten the 4 hexagonal bolts and washers with a wrench as shown in the picture.



6.1 **Remove mixing blades**

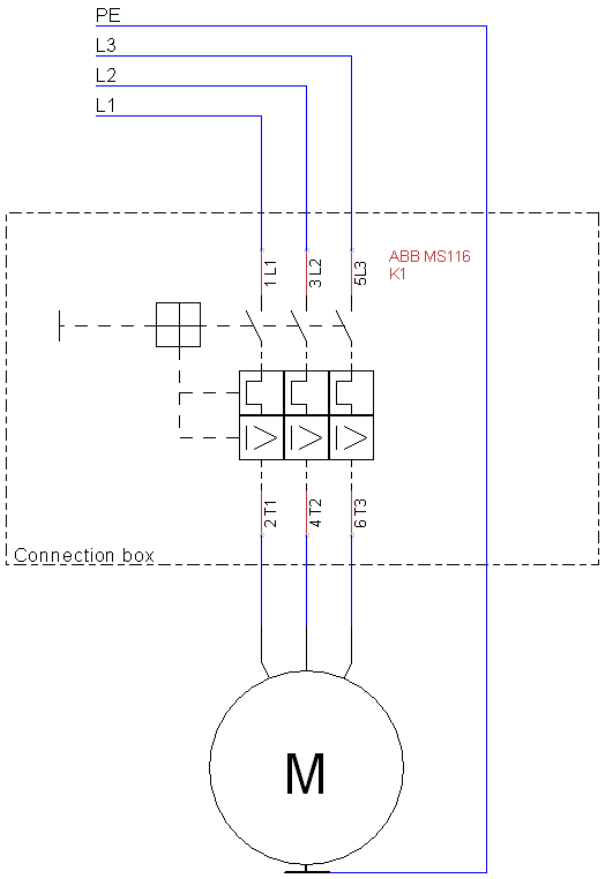
For cleaning, the mixer blades can be removed from the mixer housing. To do this, follow the steps below:

- ⚠ Be sure that the Main Power is disconnected!
- ⚠ The mixer can be hot!
- Remove Bolt (8) (it can be necessary to use a powerful tap to loosen it)
- Remove the plate (3) by loosen the bolts (4)
- Pull out the mixing blades
- To assemble it again do it in reverse order.



7 Electrical installation

- The mixer needs a 3 phase power connection with a voltage of 400 Vac
  (other voltages on special request)
- The mixer will be delivered with a combined Main switch / thermal motor safety switch and cable between the motor reducer and main switch.
- The mains power connection has to be made by the customer.
- Connect the earth wire to point where the green/yellow (earth) wire is connected.
- The 3 phases must be connected to the connections 1L1, 3L2 and 5L3.
- The motor rotation direction must be anti-clockwise.
  This can be seen at the hexagonal bolt on the end of the mixer axis.
- If the axis is turning clockwise after switch ON the mixer, 2 phases must be exchanged.



8 Maintenance

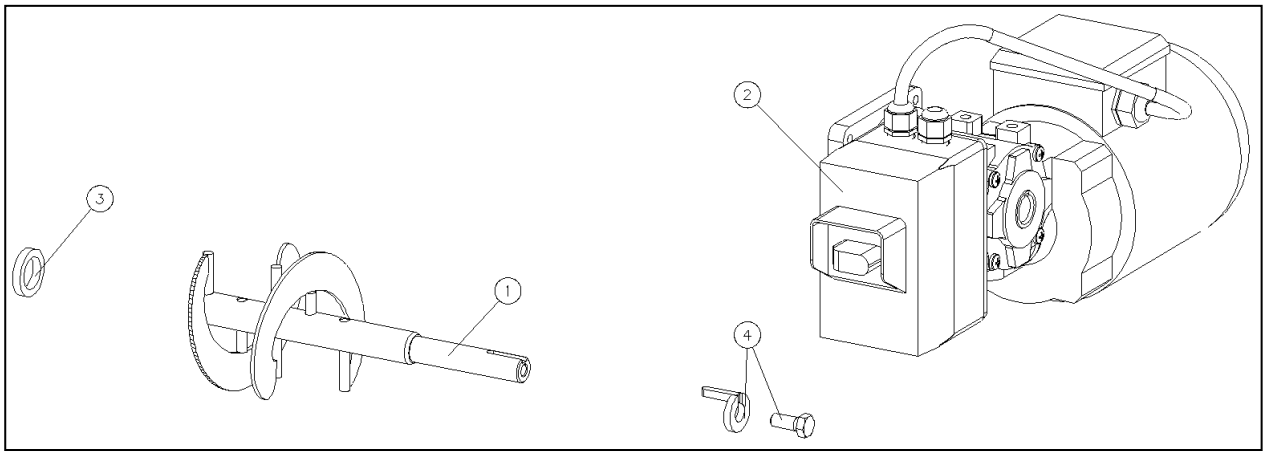
8.1 **Periodically check**

Before performing any maintenance, be sure the device is disconnected from mains power

The mixer is equipped with moving parts which can show wear. It is advised to check the following points each 6 months:

- Check the mixer blades for wear.
- Check the mixer axle gasket for leakage
- Check mixer axle for clearance

8.2 **Spare parts**



Item	Description	Order code
1	Mixer blade, welded assembly.	MIXERAX
2	Mixer motor with de-airing and viton seal. Suitable for 400V/50Hz.	MIX0HEAT
	Mixer motor with de-airing and viton seal. Suitable for 440V/60Hz.	MIX0HEAT/440
	Mixer motor with de-airing and viton seal. Suitable for 480V/60Hz.	MIX0HEAT/480
3	Oliekeerring 25x35x7 Viton	MIX/SEAL
4	Bolt to fasten mixer blade + locking ring	MIXSPIERING

8.3 **Options**

Optional a motor start stop system can be connected to the MIX50 or MIX100
With this start/stop system the mixer motor can be activated during material dosing only.

Item	Description	Order code
1	Start/stop mechanism for mixer, when applied mixer is synchronized to the dosing unit and only runs when material is dosed.	MIX-STST

APPENDIX A: Technical specifications

MIX0HEAT400

Motor reducer

Type:	BS03-34V/D08MA4/SP	H1 IV/C
Motor power:	0,55 kW	
Rotation speed sec. axes:	74 RPM	
Moment:	53 Nm	
fB:	1,05	
Color:	RAL 7031	
Weight:	6,9 kg	

Motor

Voltage:	400V **Y**
Frequency:	50 Hz
Nom. current at 400 V Y:	1,6 A
Cos ϕ:	0,75
Isolation class:	B
Function	S1
Rotation speed:	1400 RPM
Protection class:	IP65
IC-cooling EN 60034-6:	IC 411
DIN VDE 0530-1/EN 60034-1	
Terminal box:	KAG2

Options: Thermistors (160 Degr.)

MIX0HEAT440

Motor reducer

Type:	BS03-34V/D08MA4/SP	H1 IV/C
Motor power:	0,55 kW	
Rotation speed sec. axes:	68 RPM	
Moment:	53 Nm	
fB:	1,05	
Color:	RAL 7031	
Weight:	6,9 kg	

Motor

Voltage:	460V **Y**
Frequency:	60 Hz
Nom. current at 460 V Y:	1,4 A
Cos ϕ:	0,75
Isolation class:	F
Function	S1
Rotation speed:	1680 RPM
Protection class:	IP65
IC-cooling EN 60034-6:	IC 411
DIN VDE 0530-1/EN 60034-1	
Terminal box:	TB112AS

Options: Thermistors (160 Degr.)

MIX0HEAT480

Motor reducer

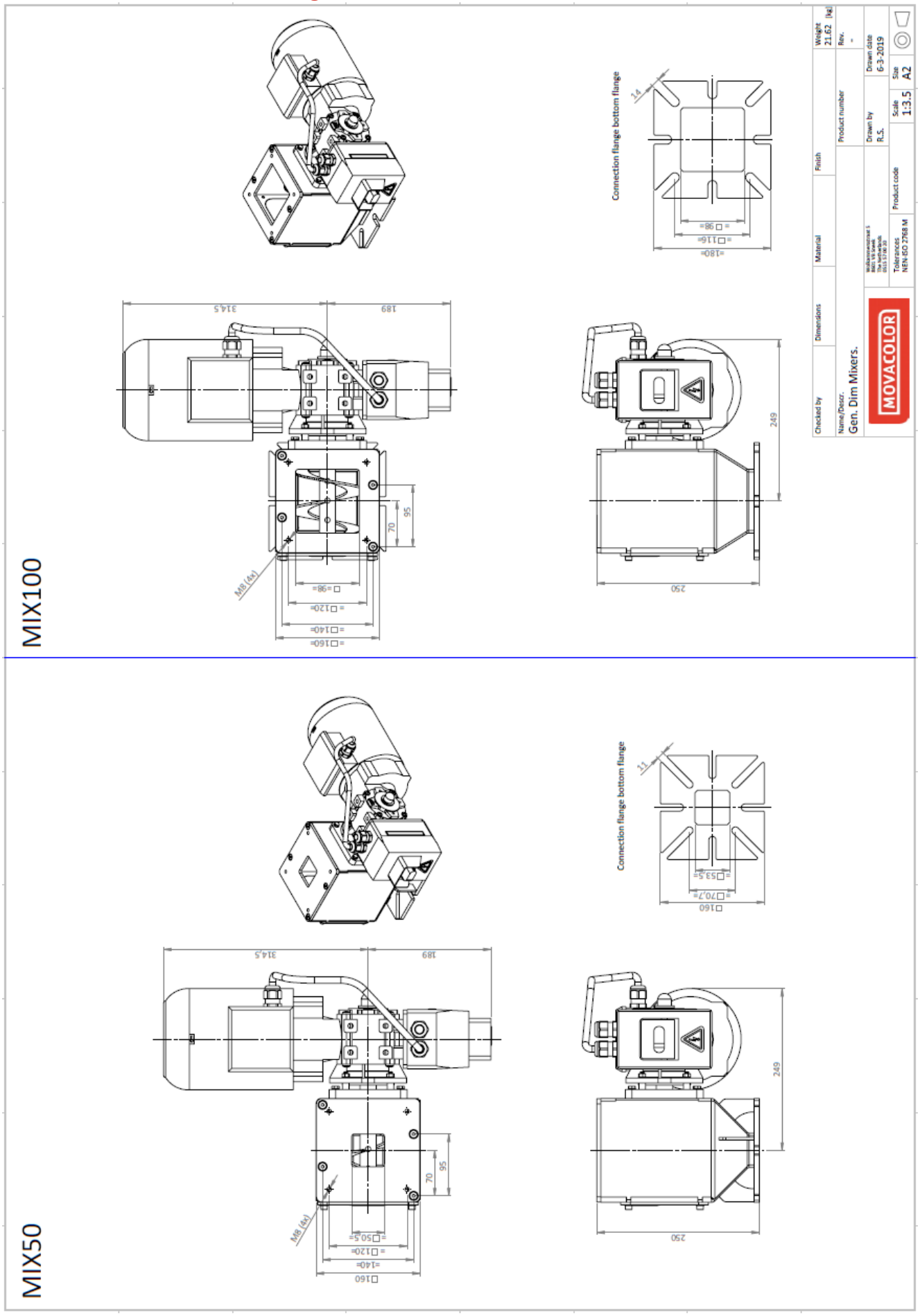
Type:	BS03-34V/D08MA4/SP H2 IV/C
Motor power:	0,55 kW
Rotation speed sec. axes:	68 RPM
Moment:	53 Nm
fB:	1,05
Color:	RAL 7031
Weight:	6,9 kg

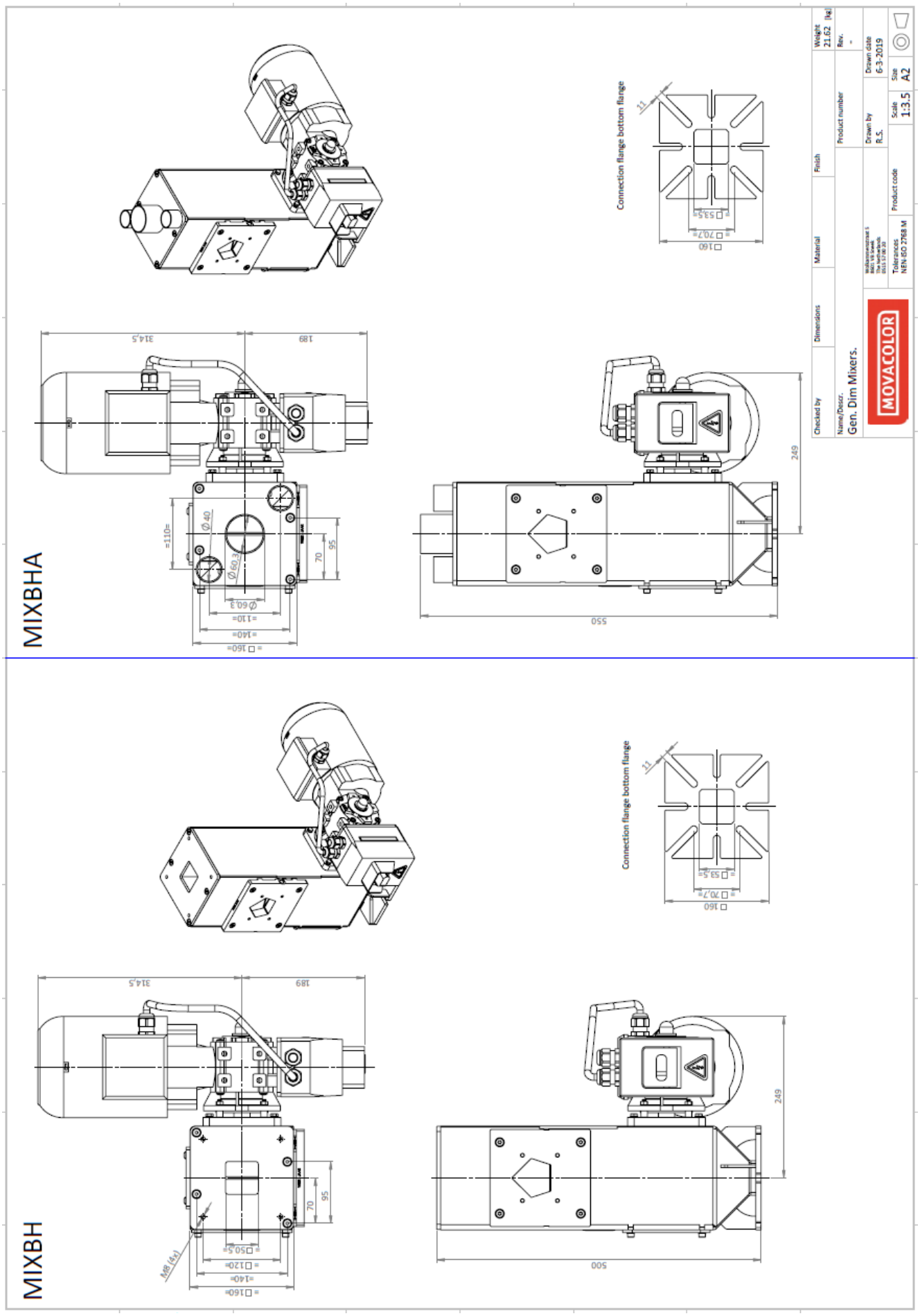
Motor

Voltage:	480V **Y**
Frequency:	60 Hz
Nom. current at 480 V Y:	1,54 A
Cos ϕ:	0,75
Isolation class:	F
Function	S1
Rotation speed:	1680 RPM
Protection class:	IP65
IC-cooling EN 60034-6:	IC 411
DIN VDE 0530-1/EN 60034-1	
Terminal box:	KAG2

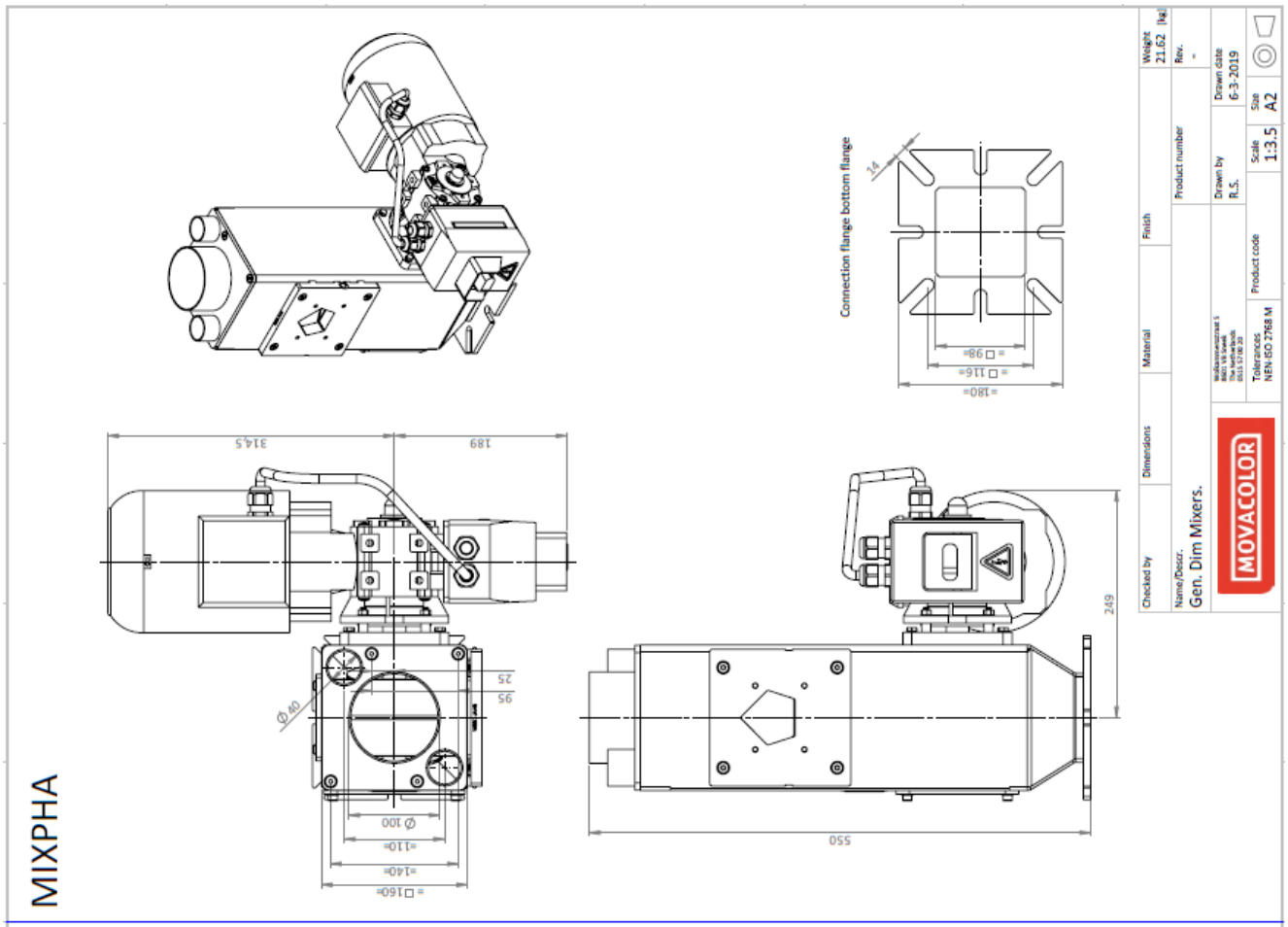
Options: Thermistors (160 Degr.)

APPENDIX B: Dimensional drawings




MIXBHA
MIXBH
Connection flange bottom flange
Gen. Dim Mixers.
MOVACOLOR
Weight 21.62 (kg)
Rev. -
Drawn date 6-3-2019
Size A2
Scale 1:3.5
Drawn by R.S.
Product number
Product code
Tolerances NEN ISO 2768 M
Finish
Material
Dimensions
Checked by
Name/Descr.
550
500
249
189
314.5
M8 (4x)

MIXPHA


Connection flange bottom flange
14
□98
□116
180
314,5
189
95
25
Ø40
Ø100
110
140
□160
249
550
Weight 21.62 [kg]
Rev. -
Drawn date 6-3-2019
Size A2
Finish
Product number
Drawn by R.S.
Scale 1:3.5
Material
Product code
Tolerances NEN-ISO 2768 M
Dimensions
Checked by
Name/Descr. Gen. Dim Mixers.
MOVACOLOR

APPENDIX C: Declaration of Incorporation

DECLARATION OF INCORPORATION FOR PARTLY COMPLETED MACHINERY

(According to 2006/42/EC)

Manufacturer's name : MOVACOLOR BV
Address : P.O. Box 3016
8600 DA Sneek
The Netherlands
www.movacolor.com

We (manufacturer) hereby declare that the following described partly completed machine in its conception, construction and form put by us on the market, is in conformity with all the relevant essential health and safety requirements of the EC machinery directive 2006/42/EC appendix VII part B as amended and the national laws and regulations adopting this directive. In case of alteration of the Partly Completed machine, not agreed upon by us, this declaration will lose its validity.

Partly completed machine : Mixers with the following designation:
MIX50, MIX100, MIXBH, MIXBHA, MIXPHA

And any accessories to the respective designation covered by these directives

Year: : 2019

- **Complies with the relevant parts of the Machine Directive (2006/42/EC), and complies with the national legislation to enforcement of this directive;**

- **complies with the requirements of:**
  Low Voltage Directive (2006/95/EC)
  EMC Directive (2004/108/EC)

- **complies with the following standards or other normative documents:**
  NEN-EN 12100:2010 Safety of machinery, general principles for design, risk assessment and risk reduction.

And also announce that:
The machine may not be taken into operation before the complete system into which it has be built has been declared to conform to the provisions of Directive 2006/42/EC.

Name: Gerhard Dersjant **Place:** Sneek the Netherlands

Position: Managing Director **Date:** September 2019

Signature: