

Metering Technology



**DOPAG Metering and Mixing Systems
for processing Liquid Silicone Rubber
SILCO-MIX**



Hilger u. Kern / Dopag Group

SILCO-MIX Metering and Mixing Systems

Products made of liquid silicone rubber (LSR) are versatile in use due to their specific material properties. They are naturally translucent and pigment can easily be added as required.

These products can be used in many different application areas and industries, such as

- Automotive and automotive suppliers
- Electrical and electronic
- White goods
- Aerospace
- Medical
- Sanitary engineering
- and many more

Two different types of SILCO-MIX Metering and Mixing systems are available:

Piston pump metering and mixing systems

- SILCO-MIX P20
- SILCO-MIX L200
- SILCO-MIX H200

This type of system is used to process all common liquid silicone rubbers with a fixed mixing ratio of 100:100.

Piston pumps are used to accurately meter and supply the material directly from their original containers. The components are kept separate until they enter the mixing block; which is where an optional pigment injection metering process would take place, if required. The proximity of the static steel mixer to the injection moulding machine ensures homogeneous mixing of the components.

The metering and mixing system is operated and controlled by means of a PLC in combination with a touch screen. The control unit is fitted with an interface to the injection moulding system.

Electronic metering and mixing systems

- SILCO-MIX V200

This type of system is used to process all common liquid silicone rubbers with a mixing ratio of 100:100 to 100:10. The mixing ratio is permanently monitored and controlled by use of volume counters.

Piston pumps are used to supply the two components directly from their original containers. The components are kept separate until they enter the mixing block; which is where an optional pigment injection metering process would take place, if required.

Electronic volume counters, located before the mixing block, accurately meter the two components at the selected mixing ratio into a pre-mixing chamber.

Firstly, the two components are coarsely mixed in this pre-mixing chamber along with any pigments, if required.

The proximity of the static steel mixer to the injection moulding machine subsequently ensures homogeneous mixing of the components.

The metering and mixing system is operated and controlled by means of a metering computer with an interface to the injection moulding machine.

Material balancing system to empty the drums simultaneously

With every change of a 200 litre drum approximately 4% of the material will remain in the drum.

With the newly developed balancing system from DOPAG it is now possible to reduce this quantity to just around 1%.

This can lead to potentially significant savings.

Exact, simple, economical.

Sample calculations of possible savings per year

Note: These economy calculation examples are based on 3 shift / 365 days working

Part shot weight approx. 0.06 gram

- Per mould 128 parts / shot
- Drum change approx. every 14 days
- Possible cost savings approx. € 3,350 / year

Part shot weight approx. 4.5 gram

- Per mould 8 parts / shot
- Drum change approx. every 4 days
- Possible cost savings approx. € 11,650 / year

Part shot weight approx. 190 gram

- Per mould 1 parts / shot
- Drum change approx. every 1,5 days
- Possible cost savings approx. € 31,150 / year

The material balancing system to empty the drums simultaneously is optionally available for the SILCO-MIX ranges L200 and H200.

Metering and Mixing System SILCO-MIX P20

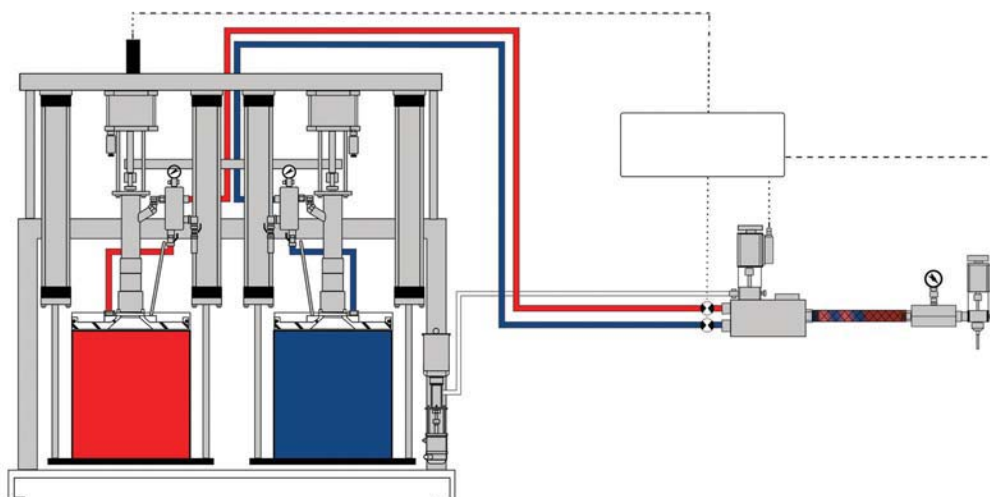


Equipment

- Compact chassis, transportable by fork lift
- Pneumatic container elevator rams
- Pneumatically driven piston pumps
- Control unit PLC
- Touch screen terminal
- Level control
- Mixing block, static steel mixer, material pressure regulator, dispensing valve
- Material pressure control through sensors

Options

- Alternative follower plate sizes
- Pigment injection metering - up to 4 colours possible
- Material pressure control for pigment injection metering
- Volume counters
- Additional dispensing units
- Alternative power supplies
- Further options on request



Metering and Mixing Systems SILCO-MIX L200 / H200

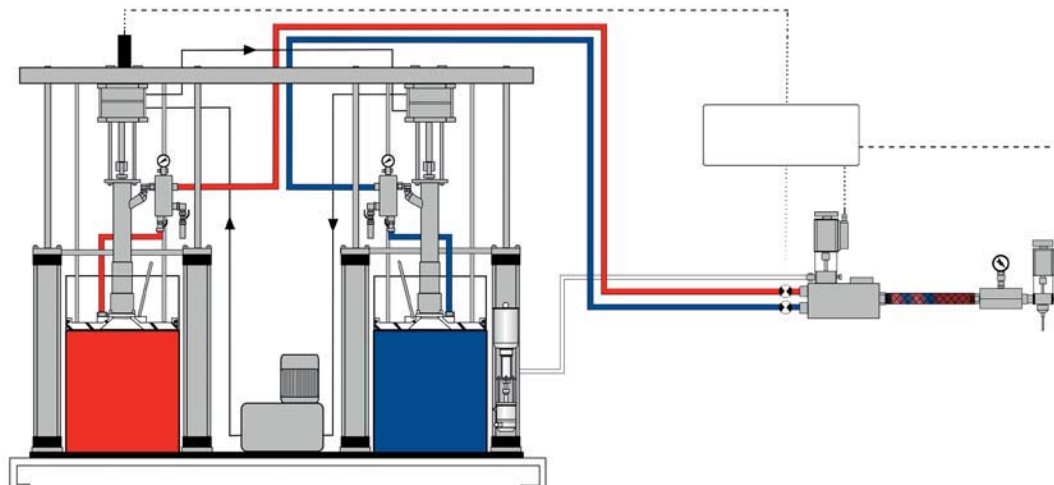


Equipment

- Compact chassis, transportable by fork lift
- Pneumatically driven rams with L200
- Hydraulically driven rams with H200
- Hydraulically driven piston pumps
- Hydraulic power pack
- Control unit PLC
- Touch screen terminal
- Level control
- Mixing block, static steel mixer, material pressure regulator, dispensing valve
- Material pressure control through sensors

Options

- Drum roll-in mechanism
- Alternative follower plate sizes
- Pigment injection metering - up to 4 colours possible
- Material pressure control for pigment injection metering
- Volume counters
- Additional dispensing units
- Alternative power supplies
- Material balancing system
- Further options on request



Metering and Mixing System SILCO-MIX V200



Equipment

- Pneumatically driven rams
- Pneumatically driven piston pumps
- Metering computer
- Level control
- Electronic volume counters, mixing block with VOLU-MIX principle, static steel mixer, material pressure regulator, dispensing valve

Options

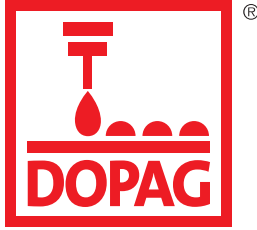
- Drum roll-in mechanism
- Alternative follower plate sizes
- Pigment injection metering - up to 2 colours possible
- Material pressure control for pigment injection metering
- Additional dispensing units with metering computer
- Larger mixing chamber
- Alternative power supplies
- Further options on request

Technical Data

	SILCO-MIX P20	SILCO-MIX L200-30	SILCO-MIX L200-150	SILCO-MIX H200-150	SILCO-MIX H200-300	SILCO-MIX V200-150
Flow rate l/min / double strokes*	up to 1.2 / 20	up to 0.7 / 12	up to 3.6 / 12	up to 6 / 20	up to 12 / 20	up to 3 / 20
Mixing ratio	100:100	100:100	100:100	100:100	100:100	100:100–100:10
Pigment injection metering	0.2–5 %	0.2–5 %	0.2–5 %	0.2–5 %	0.2–5 %	0.2–5 %
Maximum working pressure	355 bar	355 bar	355 bar	355 bar	355 bar	355 bar
Material supply	20 l	20–80 / 200 l	20–80 / 200 l	20–80 / 200 l	200 l	20–80 / 200 l
Viscosity range	up to 2,500,000 mPa s	up to 2,500,000 mPa s	up to 2,500,000 mPa s	up to 5,000,000 mPa s	up to 5,000,000 mPa s	up to 2,500,000 mPa s
Power supply	110–480 V, 1 Ph, 50/60 Hz, 230 W	110–480 V, 3 Ph, 50/60 Hz, 230 W	110–480 V, 3 Ph, 50/60 Hz, 230 W	110–480 V, 3 Ph, 50/60 Hz, 230 W	110–480 V, 3 Ph, 50/60 Hz, 230 W	110–480 V, 1 Ph, 50/60 Hz, 230 W
Maximum air inlet pressure	6 bar	6 bar	6 bar	6 bar	6 bar	6 bar
Dimensions, L x W x H (mm)	680 x 1100 x 1800	1600 x 1200 x 2500	1600 x 1200 x 2500	1600 x 1200 x 2500	1600 x 1200 x 2500	1800 x 600 x 2500
Weight	approx. 300 kg	approx. 680 kg	approx. 700 kg	approx. 780 kg	approx. 800 kg	approx. 650 kg
Material balancing system	No	Yes	Yes	Yes	Yes	No

* The number of double strokes depends on the viscosity

Hilger u. Kern / Dopag Gruppe



Germany

Hilger u. Kern GmbH
Industrietechnik
Käfertaler Straße 253
68167 Mannheim

☎ +49 621 3705-0
☎ +49 621 3705-200
info@hilger-kern.de
www.hilger-kern.com

Vertriebsbüro Mitte 1
68167 Mannheim
☎ +49 171 8087282
VBMitte@hilger-kern.de

Vertriebsbüro Mitte 2
68167 Mannheim
☎ +49 171 8087299
VBMitte@hilger-kern.de

Vertriebsbüro Nord
30880 Laatzen
☎ +49 171 8087290
VBNord@hilger-kern.de

Vertriebsbüro Ost
99831 Creuzburg
☎ +49 171 8087303
VBOst@hilger-kern.de

Vertriebsbüro Süd
86391 Stadtbergen
☎ +49 171 8087285
VBSued@hilger-kern.de

Vertriebsbüro West
46238 Bottrop
☎ +49 171 8241397
VBWest@hilger-kern.de

China

Hilger u. Kern
Rep. Office Shanghai
☎ +86 21 3368 7775
office@hilger-u-kern.cn

Switzerland

DOPAG Dosiertechnik
und Pneumatik AG
Langackerstrasse 25
6330 Cham

☎ +41 41 7855-757
☎ +41 41 7855-700
info@dopag.ch
www.dopag.com

Denmark

DOPAG SCAN ApS
Roskilde
☎ +45 45 828090
info@dopag.dk

United Kingdom

DOPAG (UK) Ltd.
Hartlebury
☎ +44 1299 250740
uksales@dopag.com

France

DOPAG Sarl
Valence
☎ +33 4 75419060
contact@dopag.fr

Italy

DOPAG ITALIA S.r.l.
Turin
☎ +39 011 9348888
info.it@dopag.com

Malaysia

DOPAG FAR EAST
SDN BHD
Selangor
☎ +60 3 78064564
info@dopag.com.my

Sweden

DOPAG Sverige
Malmö
☎ +46 40 108595
info@dopag.dk

USA

DOPAG (US) Ltd.
Cincinnati
☎ +1 513 682 7865
ussales@dopag.com

The Hilger u. Kern / Dopag Group, with more than 300 employees, 8 subsidiaries and 24 distributors, is one of the leading manufacturers of metering and mixing systems in the world for plural component polymers and single component media such as greases, oils and pastes. For more than 30 years the group has developed systems and components to suit your individual needs.