BUSS Kneader technology for powder coatings

POWDER COATINGS

BUSS
excellence in compounding

High-performance systems for powder coating compounding

In answer to the increased requirements on processing powder coatings, BUSS has succeeded in significantly improving performance aspects of previous BUSS Kneader models. Especially in the areas of high-gloss, clear coatings and thin-film applications, the advantages of the extended PCS Kneader series fully come into their own.

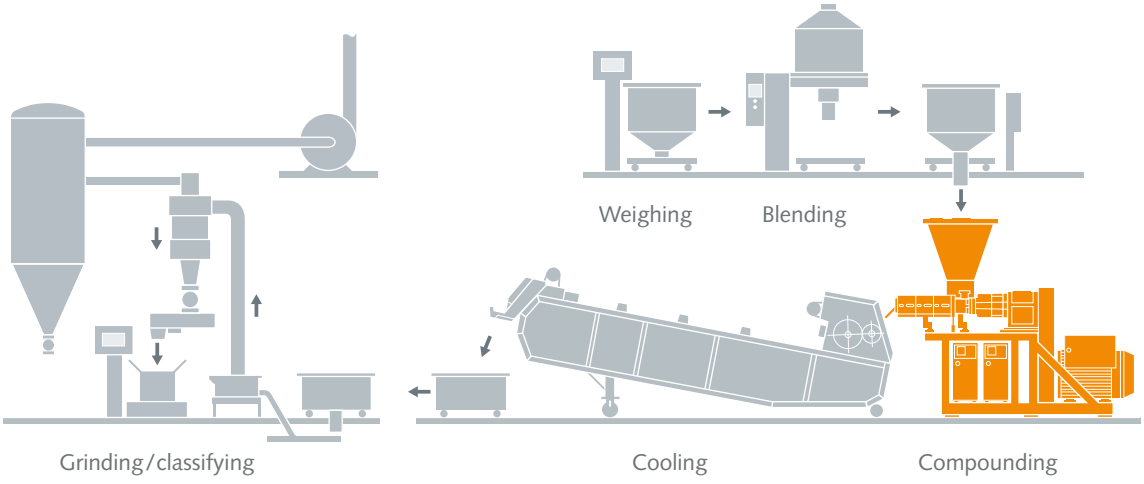
The latest development from BUSS places customer benefits at the heart of things

The extended BUSS Kneader series PCS sets benchmarks for profitability, availability and user-friendly handling. Whilst it retains the proven operating principle of the BUSS Kneader, the process section in particular has undergone distinct modification.

As a result of extended processing length and higher screw speed, output and product quality have been considerably increased, with more favourable specific costs of investment.

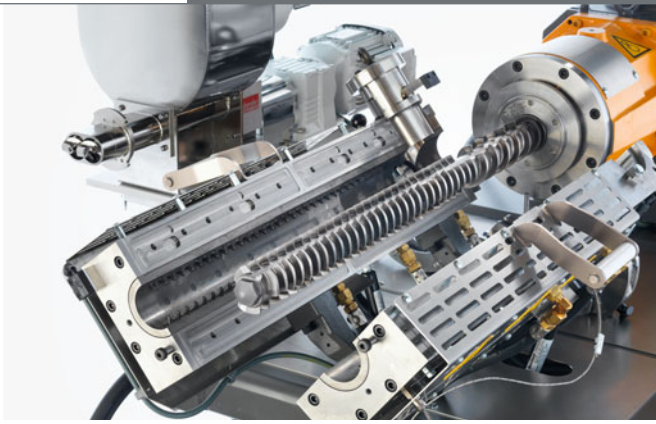
BUSS customers benefit in several respects from the new PCS generation

The combination of increased output, higher process stability, optimized use and simple installation results in an excellent cost/performance ratio. In addition, the robust design and continuous improvement in construction materials ensure that the equipment retains its longevity.



Typical powder coating production line

Pilot plant PCS 46-15R



PCS 70-11R Process section

Process section

The process section is available in 11 or 15 L/D. The extended process length increases residence time by another 35% resulting in optimized product qualities, especially for high-gloss, clear coatings and TGIC-free formulations.

The extended PCS geometry allows to process an extremely broad range of formulations, from high gloss to textured coatings, without changing the screw configuration (see table).

The proven BUSS Kneader working principle ensures excellent self-cleaning to allow for quick colour and formulation changes.

Temperature control

Thermocouples can be mounted in drilled kneading pins at various different points along the process section. Precise feedback on the melt temperature is ensured since the thermal sensor pins are in direct contact with the product melt.

The combination of a liquid heating and cooling system and an extremely precise monitoring of the melt temperature are the key criteria for successful compounding of thermo-sensitive materials – especially for highly reactive formulations.

Service-friendly

Ease of handling and the fast adjustment times when changing products further increase the high availability of the PCS Kneader series. For cleaning and inspection, the Kneader barrel can be opened completely in just a few minutes.

Features and advantages at a glance

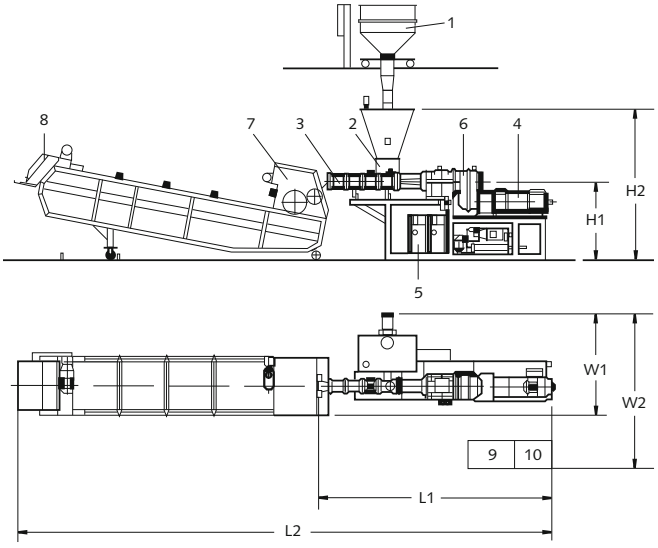
- Extended processing length
- Increased residence time
- Optimized product quality
- Low specific energy input
- Improved wear-resistant materials
- Easy inspection and cleaning
- Short changeover times
- Maximum plant availability
- State-of-the-art user interface
- Rapid installation and start-up
- Wide range of formulations processed with one machine set-up

Reference outputs for a PCS 70 line

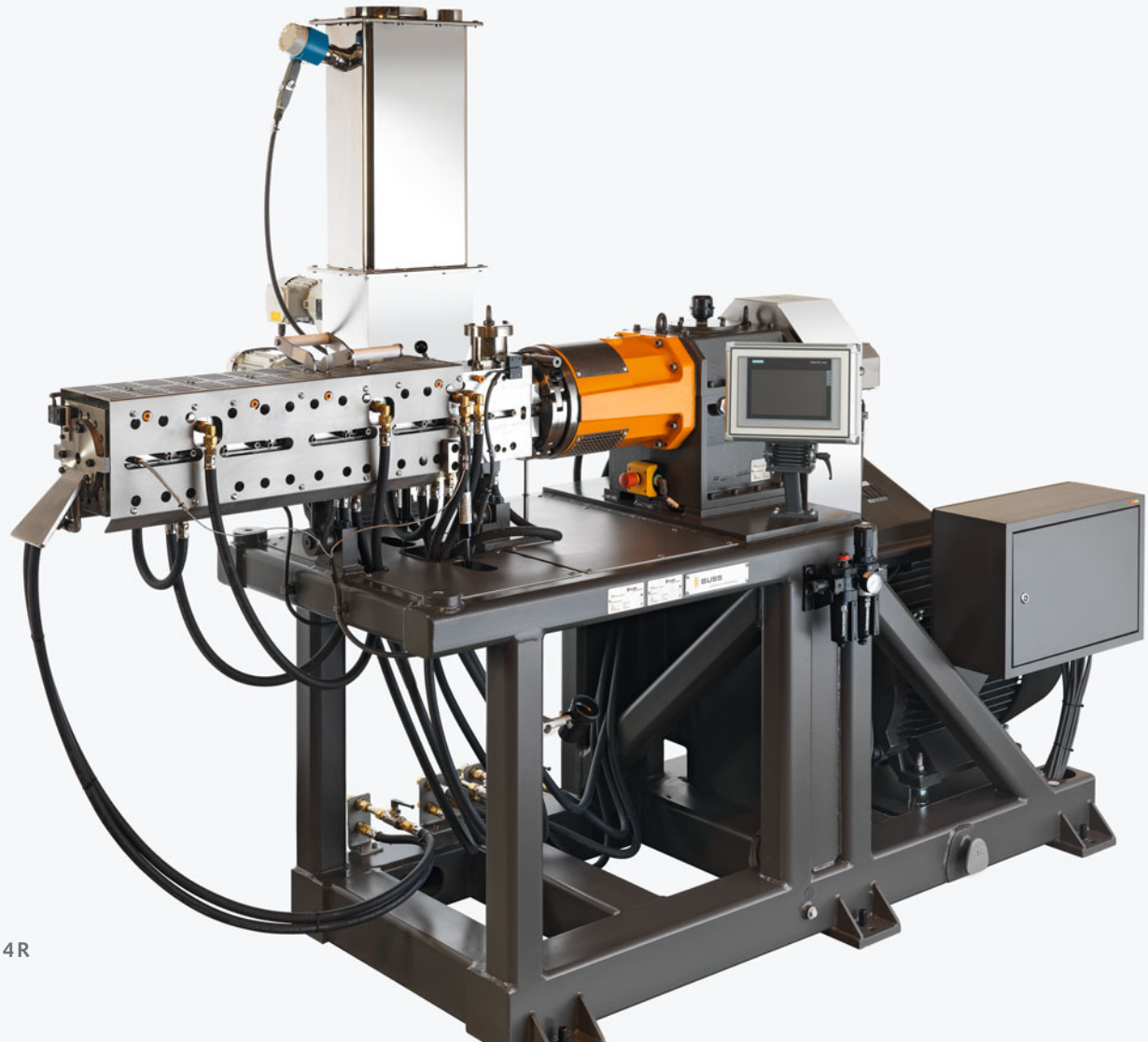
Formulation	Output up to
Hybrid	700 kg/h
TGIC-free polyester	700 kg/h
High gloss, EP/SP, SP	700 kg/h
Polyurethane	700 kg/h
PT910 polyester, clear coating	500 kg/h
Textures	500 kg/h
Epoxy	500 kg/h

Technical data

	PCS 30	PCS 46	PCS 70	PCS 100
Throughput rates up to	300 g to 40 kg/h	250 kg/h	700 kg/h	1500 kg/h
Feeding device				
Type	Inlet hopper	Inlet hopper	Side feeder	Side feeder
Hopper volume	1 litre	3 litres	50 litres	130 litres
Side feeder screw diameters	–	–	40 mm	60 mm
Drive rating	–	–	1.1 kW	2.2 kW
BUSS Kneader				
Process length	11 or 17 L/D	11 or 15 L/D	11 or 14 L/D	11 or 14 L/D
Screw diameter	30 mm	46 mm	70 mm	100 mm
Screw speed max.	500 rpm	650 rpm	650 rpm	650 rpm
Heating capacity	6 kW	2x9 kW	2x12 kW	2x12 kW
Drive rating max.	5.5 kW	30 kW	65 kW	110 kW
Cooling belt	CCCL 16/25	CCC 40/60	CC 80/60	CC 120/70
Cooling length	–	–	6000 mm	7000 mm
Belt width	–	600 mm	800 mm	1200 mm
Dimensions				
Length L1	–	2200 mm	2800 mm	4500 mm
L2	–	3500 mm	11000 mm	13500 mm
Width W1	–	600 mm	2100 mm	2700 mm
W2	–	2200 mm	3500 mm	3600 mm
Height H1	–	1200 mm	1300 mm	1500 mm
H2	–	1500 mm	2400 mm	2900 mm



1 Premix discharge station
2 Side feeder
3 Process section
4 Main drive
5 Heating/cooling units
6 Gear box
7 Cooling rolls
8 Crusher
9 Control cabinet
10 Drive cabinet



PCS 70-14R

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