

Technical Introduction

S45 loss-in-weight feeder is suitable for metered feeding of Granule or Powder or Premixture material of Granule and powder.

S45 systems is suitable for continuous production processes. Such as mixing granulation, food and chemical production processes.

The optimized modular design can be fed both as a volumetric feed and as a Metered Loss-in-Weight feed material, so that the whole system can better adapt as per customer's processing process formula changes. Based on the Loss-in-Weight principle, the S45 continuously monitors the flow rate and motor speed of the raw material and double closed-loop control, ensuring that the typical accuracy value is better than $\pm 0.25\%$.

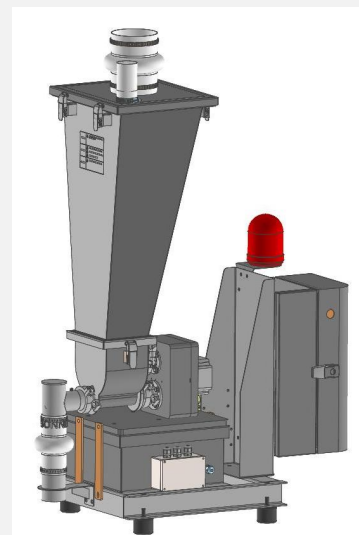
The S45 silo is made of stainless steel and the part in contact with the raw material is mirror polished. It's simple, quick disassembly and easy removal feature takes a very few minutes to clean material in the equipment, which reduces the cleaning time to minimum.

S45 comes with optimize design that provide different types of Single screws to push various sizes and characteristics of Granule. The horizontal mechanical stirring module of the feeder can solve the problem of raw materials with high viscosity and difficult flow

S45 has the single and double screw interchange function, providing a wider range of material feeding, both for Granule or particles and Powder in same feeder.

S45 reducer adopts the latest optimized design of high-precision gear transmission, which is suitable for screw and horizontal agitator. The link provides integrated power to both mechanisms.

S45 has obtained the European CE safety design standard certification, electronic controller has undergone strict EMC Standard test.



Screw and Feeding range

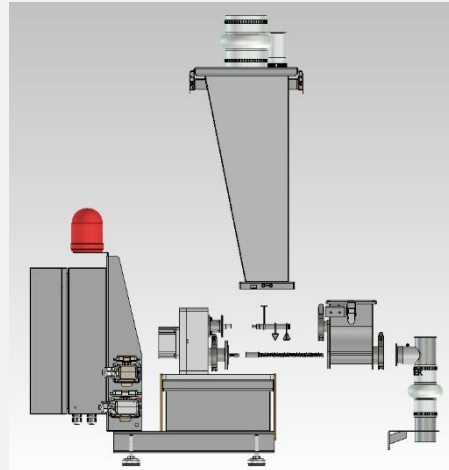
Note: The correct selection of screw is based on specific raw materials and has been fully tested to confirm. Different raw material characteristics determine the actual feeding range. If you need a specific and accurate feeding range, please provide us with raw materials, we can test and conform in our laboratory. The feeding data in the following table is a theoretical reference value and can only be used as a reference for selection.

	Single concave Screw 	Single concave screw 	Single Arger Screw 	Single Auger Screw 	Screw Speed Range
Diameter×Pitch	18*05mm	20*16mm	24*35mm	32*35mm	
	1.7 – 17 dm ³ /h	5 - 50 dm ³ /h	15 - 150 dm ³ /h	34 - 340 dm ³ /h	25 – 250Rev/min

Material	Screw	1	3	5	10	20	30	40	60	100	150	200	250	300	kg/h
PE, PP	1805B														
PE, PP	2016B														
PE, PP	2435A														
PE, PP	3235A														
ABS, AS, PA	1805B														
ABS, AS, PA	2016B														
ABS, AS, PA	2435A														
ABS, AS, PA	3235A														
PC, PET	1805B														
PC, PET	2016B														
PC, PET	2435A														
PC, PET	3235A														

Standard Structure

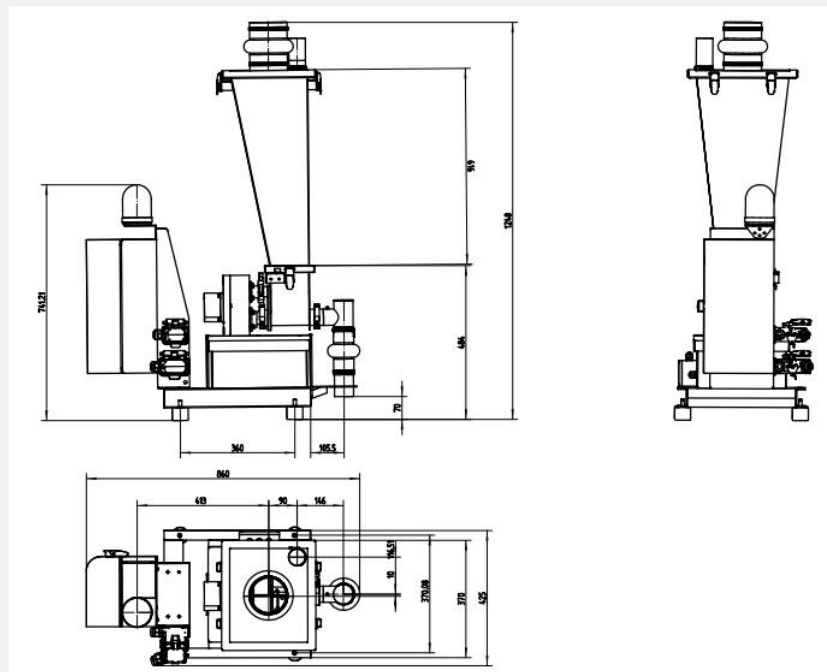
Inlet Soft Connector:	D114mm Silicone Material
Dosing Hopper:	25L SUS304 (Standard) 8L 45L SUS304 (Selectable)
Feeding Chamber:	2.5L
Horizontal Agitator:	Detachable
Single Screw:	D18/32mm SUS316 Stainless steel
Motor:	0.12kw, BLDC
Weighing Unit:	75Kg FTD Digital transmitter
Feed Tube:	D60mm
Outlet Soft Connector:	D60mm Silicone Material



Design parameters

Material :	4K Stainless Steel Mirror
Sealing Parts:	Silicone or PTFE
Material Temperature :	$\leq 160^{\circ}\text{C}$ (Standard)
Ambient Temperature :	$0^{\circ}\text{C}-45^{\circ}\text{C}$
Ambient Humidity :	$\leq 80\%$
Protection Class :	IP54
Power Supply :	$220\text{V} \pm 10\%$, AC, 1P, 50Hz
Loading Power :	0.15kw (Max.)
Weight :	60kg
Exterior Color :	RAL7035

Mechanical Drawing



Non-Standard Design

Extended screw	Standard Extended 100mm, L320mm
Silo Material	Available in stainless steel 316 with mirror polished interior
Explosion-Proof Design	Zone 21, Dust Explosion Proof, EXIIBT4 (Explosion Motor, Explosion load cell)
Manual Feeding	HR Manual Refilling Cover

Paid Spare Parts List

Material Name	Model Specifications	Part code
Inlet Soft Connector	D114mm/ Silicone	413ISC00114S001I02
Outlet Soft Connector	D60mm/ Silicone	413ISC00060S001I01
Exhaust Bag – 8L	HP32E-120-1PP	4110HP00032E1201PP
Exhaust Bag – 25L	HP51E-120-1PP	4110HP00051E1201PP
Silo Gaskets (Upside) – 25L	L330mm*W280mm	414TVH000025005I01
Silo Gaskets (Upside)– 45L	L360mm*W300mm	414TVH000050005I01
Silo Gaskets (Downside)	L150mm*W180mm	414TVH000025003I01
Horizontal Agitator	SMHIV45-002-00-I02	414SMH00004500200I02
DC Motor	S90B120220A	430MDC120090220
DC Driver	FLDBLS-07	440DCD000750001
LIW Control Panel	EC-LW	4110ECLW0STM32000I05

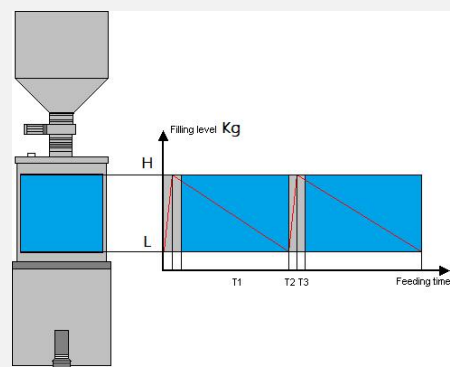
Associated Configuration

7" HMI Operation Controller	M240 HMI Operation Controller
12" HMI Operation Controller	M280 HMI Operation Controller
Communication Module	TS180 Modbus RTU ->Profinet
100L Refill Hopper	ICH5100- 100L SUS304
100L Refill Hopper (25Kg Bag Feeding)	IBU25-100 - 100L SUS304
Refill Valve	ISVD100 - 100mm Slide Valve
Refill Valve	IBV100 - 100mm Butterfly Valve
Refill Pipe	IDO114-100 – 114mm/L1M
Collection Hopper	BMI50
Connection Pipe	TCO114-100 – 114mm/L1M Between Collection Hopper and Extruder

Loss-In-Weight-Refill Control Time

Typical Refill Number as below form:

Typical Maximum Capacity	250Kg/hr
Diameter of Refill valve	100mm Slide Valve
Volume of Dosing Hopper	45L
Bulk Density	0.5 kg/l
Typical Refill Weight	17Kg
Refill Number	≤ 15times/h



Feeding Accuracy

Sampling Measurement	Usually take 15 samples and 60s for one sample (If need Special Requirement, please reference below accuracy data form for 5s/10s/15s/30s)
Feeding Range	15: 1 times screw
Linear Accuracy	$\pm 0.25\%$ - 0.5% at 60sec
Repeatability Accuracy	$\leq 0.5\%$ at 2 sigma, flow characteristics of material determine repeatability Accuracy

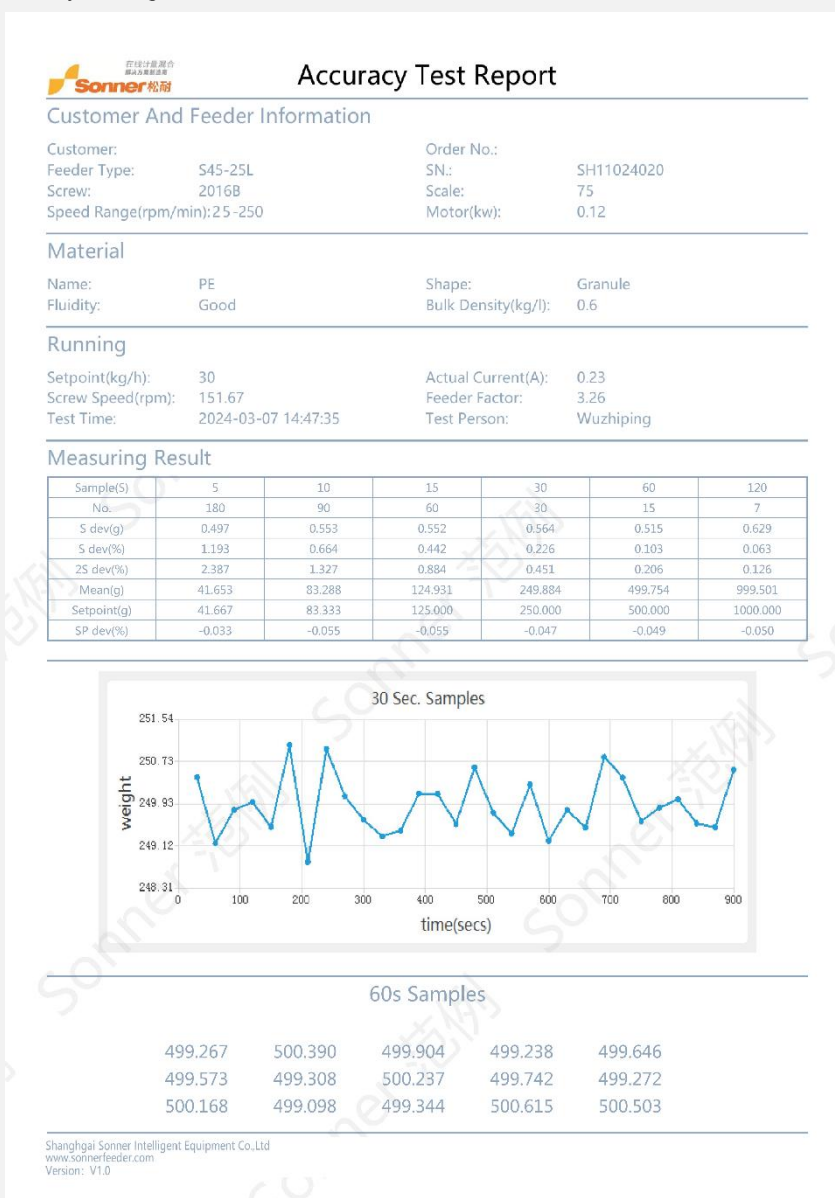
Repeatability Accuracy:

It is based on the standard sample variance, which describes the flowrate of the screw feeder in a period of time and the discrete situation of several flow samples in each sampling period. It is one of the important indicators to describe the repeatability error of the screw feeder. The repetition error can be quantified based on the standard deviation.

Linear Accuracy:

It describes the accuracy of each operating point with in the operating range of the feeder from the minimum federate to the maximum feed rate. That is the error between the actual feeding amount and the set amount in the whole range. Smaller the error higher is the linear accuracy of the feeder.

SFE45-2016B Typical Accuracy Testing Table



Weighing Accuracy

Weigh Module	SP4-75
Load cell Range	75Kg
Protection Class	IP65
Comprehensive Error	< $\pm 0.03\%$
Weighing Resolution	1: 4'000'000
Operating Temperature	-10 to +60 °C
Weight Signal Output	Digital Output Signal Via RS485
Baud Rate Range	9600 – 38400 baud
Sampling time	6ms – 4500ms programmable
Voltage	24VDC
Communication distance	< 500m
Operational characteristics	10ms dynamic weighing scanning cycle; 32-bit DSP high-precision weight calculation
Interference characteristics	Intelligent assessment of impact disturbance, the impact of continuous vibration disturbance on feeding operation
Suspension characteristics	Double shock absorber anti-mechanical interference design

The second generation of Sonner has completely independent intellectual property rights of weighing technology, based on 32-bit. DSP arithmetic function chip circuit design and perfect dynamic scale. Weighing software provides customers with highly dynamic weighing technology.

