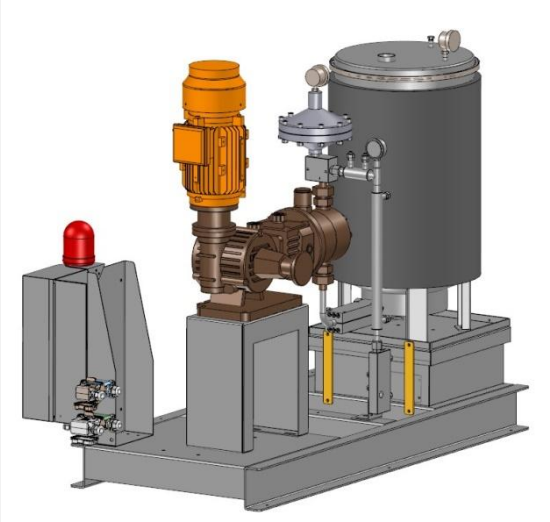
Technical introduction



LWM80 loss-in-weight feeder is suitable for feeding and metering of low and high viscosity liquid raw materials.

LWM80 can be combined with other Sonner metering systems, suitable for continuous metering production Process, such as compounding granulation, food and chemical production process.

Optimized modular design for both volumetric feeding and loss-in-weight metering feeding makes the whole system more adaptable to the change of customer's processing formula.

Based on the loss-in-weight principle, LWM80 continuously monitors and closes the flow of raw materials to ensure the typical accuracy value is better than ±0.5%.

LWM80 silo is made of stainless steel, and the part in contact with the raw material is mirror polished;

LWM80 pipes and components are made of stainless steel

LWM80 can provide different types of metering pumps to adapt to feed various liquids;

LWM80 can provide thermal insulation design according to liquid feeding requirements.

LWM80 has obtained the European CE safety design standard certification.

The electronic controller has undergone strict EMC standard test

Metering pump and feeding range

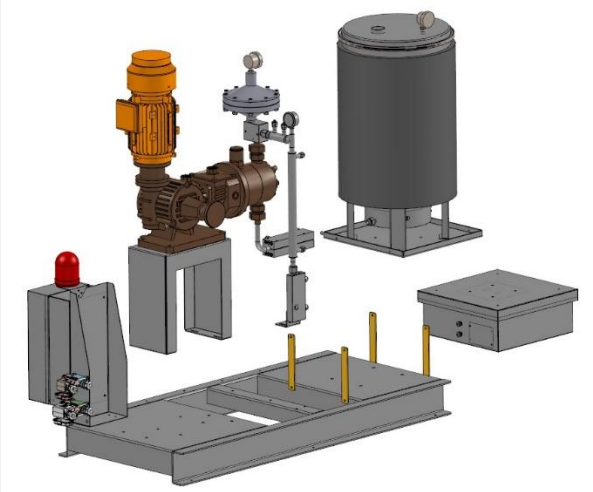
Note: The correct selection of metering pumps is based on specific raw materials which is fully tested to confirm. The feeding data in the following table is a theoretical reference value and can only be used as a reference for selection. Different raw material characteristics determine the actual feeding range, if you need a specific and accurate feeding range, please provide us with raw material details, we can find and confirm them in our Laboratory test

	125 Metering Pump	220 Metering Pump	285 Metering Pump	--
Flow Range	12.5 – 125L/hr	22 – 220L/hr	28.5 – 285L/hr	--
Pressure Range	3Mpa	3Mpa	3Mpa	--
Plunger Diameter	40mm	40mm	50mm	--
Stroke Range	15.5 -155 P/min	15.5 -155 P/min	15.5 -155 P/min	--
Motor Power	0.75kw	1.5kw	1.5kw	--

Material	Pump Type	10	20	30	50	70	100	120	180	200	250	280	300	Kg/h
BDP	D125													
BDP	D220													
BDP	D285													
White Oil	D125													
White Oil	D220													
White Oil	D285													

Standard structure

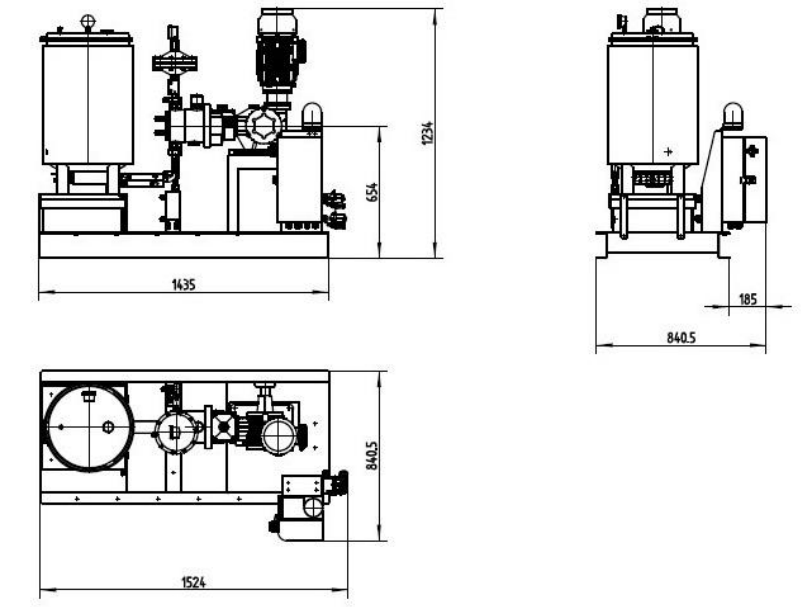
Dosing Hopper	80L SUS304
	Warm Hopper Selection
Feeding Unit	Hydraulic Diaphragm Metering Pump
	Diaphragm material PTFE
	Pump body material 304 standard
	Pump body material 316 optional
	Pump head warm optional
	Pulsation damper
	Safety valve
	Pressure meter
Weighing unit	300kg Range
Rack Unit	Stainless Steel SUS304



Design Parameters

Material : Raw material Contact part: Stainless steel
Sealing parts : Silicone or PTFE
Material temp : ≤80℃
: High Temperature Optional 150℃
Ambient temp : 0℃-50℃
Ambient humidity: ≤80%
Protection class : IP54
Power Supply : 380V±10%, AC, 3P, 50Hz
Loading power : 1.6KW (Max.)
Weight : 130kg
Appearance color: RAL7035

Mechanical dimension drawing



Mechanical dimension drawing

Silo material	Optional stainless steel 316 material, mirror polished inner surface
Explosion-Proof design	Zone 21, Dust Explosion Proof, EXⅡDBT4 (Nanyang Explosion Motor, Explosion load cell)

Paid Spare Parts List

Material Name	Model specifications	Part code
Diaphragm	D225/D360-PTFE	4400DP000000002
One-way valve	Inlet/Outlet one-way valve	4300HW000000152
Pulsation damper	HLMZ-MS1.0-5.0	4300V1000010025
Safety valve	R3/8"PT-DN10-SUS304-PN6MPa	4300V1000010001
Counter balance valve	Rc(i)/R(o)3/8"PT-DN10-SUS316-PN6MPa	4300V1000010009
Pressure Meter	YN60BF-10MPa-R1/4"-SUS304	4300V1000010003
Thermometer	WSS311W-L500-R1/4"-150℃-SUS304	4300V1000010007
AC inverter	DV1-343D0NB-C20CX1	4400ID000750001
AC inverter	DV1-344D0NB-C20CX1	4400ID001500001
LIW control panel	EC-LW	4110ECLW0STM32000I02

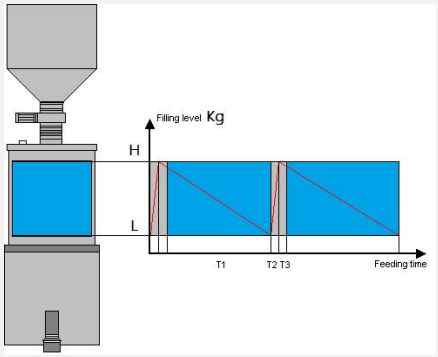
Associated Configuration

7" HMI Operation Controller	M240 HMI Operation Controller
12" HMI Operation Controller	M280 HMI Operation Controller
Communication Module	TS180 Modbus RTU ->Profinet
160L Refill Hopper	ICHL160
160L Refill Hopper	ICHL160-HP
Refill Valve	IEV20 20mm Ball Valve
Refill Pipe	IDO20
Injection Nozzle	PQ075-X-00
Connection Pipe	LCO15-1/2" – L2.5M Quick Connect Tube between Feeder and Injection Nozzle

Loss-In-Weight-Refill Control Time

Typical Refill Number as below form:

Typical Maximum Capacity	280Kg/hr
Diameter of Refill valve	20mm
Volume of Dosing Hopper	80L
Bulk Density	0.9kg/l
Typical Refill Weight	57Kg
Refill Number	≤15 times/hr



Feeding Accuracy

Sampling Measurement	Usually take 15 samples and 60s for one sample （If need Special Requirement, please reference below accuracy form for 5s/10s/15s/30s）
Feeding Range	15：1 Times Screw
Linear Accuracy	±0.25%-0.5% at 60sec
Repeatability Accuracy	≤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.

D225 Typical Accuracy Testing Table

Sonner

Accuracy Test Report

Customer And Feeder Information

Customer:		Order No.:	
Feeder Type:	LWM80-80L	SN.:	SH31024001
Screw:	225L/H	Scale:	300
Speed Range(rpm/min):	14-140	Motor(kw):	1.5

Material

Name:	WATER	Shape:	Liquid
Fluidity:	Good	Bulk Density(kg/l):	1

Running

Setpoint(kg/h):	20	Actual Current(A):	2.8
Screw Speed(rpm):	11.58	Feeder Factor:	28.6
Test Time:	2024-01-23 10:54:32	Test Person:	Wuzhiping

Measuring Result

Sample(S)	5	10	15	30	60	120
No.	180	90	60	30	15	7
S dev(g)	0.265	0.305	0.340	0.295	0.275	0.385
S dev(%)	0.957	0.549	0.407	0.177	0.082	0.058
2S dev(%)	1.913	1.098	0.815	0.354	0.164	0.115
Mean(g)	27.736	55.590	83.458	167.082	334.098	668.246
Setpoint(g)	27.778	55.556	83.333	166.667	333.333	666.667
SP dev(%)	-0.151	0.062	0.149	0.249	0.229	0.237

60s Samples

334.371	334.402	333.896	334.008	333.676
334.369	333.923	334.276	334.175	333.938
334.401	334.327	334.006	334.183	333.520

Shanghai Sonner Intelligent Equipment Co.,Ltd
www.sonnerfeeder.com
Version：V1.0

Weighing Accuracy

Weigh Module	SP6-300
Load cell Range	300Kg
Protection Class	IP65
Comprehensive Error	< ±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.