

Dry Screw Vacuum Pump

EVSW-Series

Vactechnico
30 Jahre Vakuumtechnik.

- **Portfolio**
- **Industry applications**
- **Technical details**
- **Service ability**
- **Production**

Portfolio

EVSW-Series

1. Dry Screw Vacuum Pump

■ EVSW-Series (4 model)

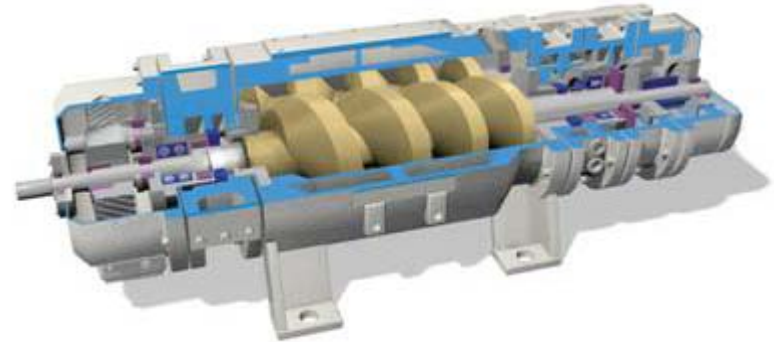
EVSW 150, 350, 450 & 800



ATEX Zone 1(Ex II 2G c T3)

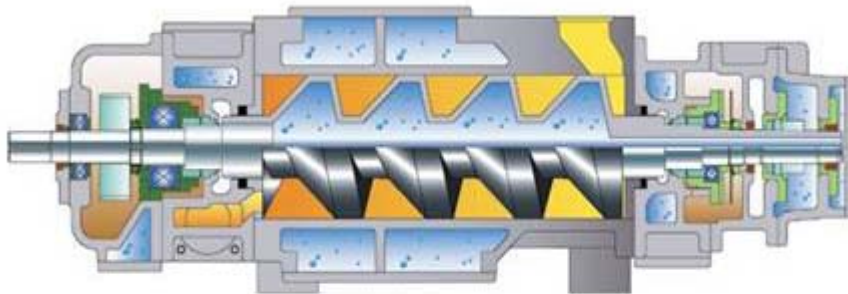
Specification \ Model		EVSW-150	EVSW-350	EVSW-450	EVSW-800
FreeAir Displacement(m³/hr) @50Hz/60Hz		135/165	280/345	390/480	700/840
NominalCapital(m³/hr) @50Hz/60Hz		120/140	250/290	340/410	560/720
Ultimate Pressure(torr.abs) @50Hz/60Hz		0.2/0.1	0.2/0.05	0.03/0.02	0.03/0.01
Motor Size(Kw)		5.5/7.5	11/15	11/15	22/30
Motor Speed(rpm) @50Hz/60Hz		2,900/3,550	2,900/3,550	2,900/3,550	2,900/3,550
Port Size	Suction	40A	50A	65A	100A
	Discharge	40A	40A	50A	65A
Cooling water(ℓ/min)@20℃		12	14	16	20
GEAR OIL(ℓ)	Front	1.1	1.3	1.4	2.8
	Rear	0.6	0.6	0.8	1.4
Pump Weight(kg)		245	315	380	600

Description












In short, EVSW-Series dry screw vacuum pump offer a unique, internally cooled screw design, which reduces the screw surface temperature and thermal expansion of the screws significantly.

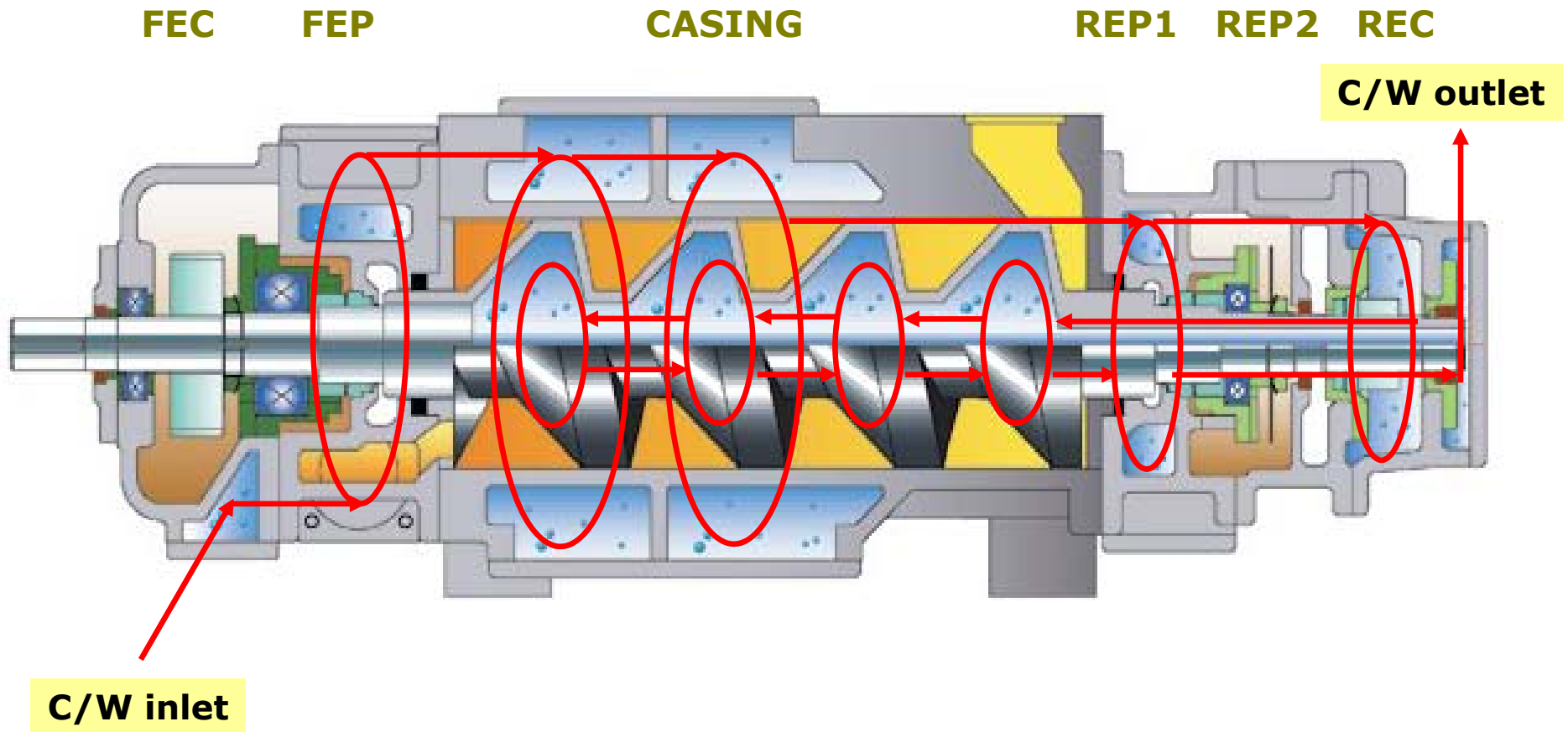
The screw rotors design is patented.
That is the cooling water flow directly inside of the screw.
By this feature, our pump is very suitable for chemical, pharmaceutical, plastic application well.



■ **Technical details**

-  **Cooling water flow chart**
-  **Features of EVSW-Series**
-  **Screw Pocket Balance**
-  **Material**
-  **Seal**
-  **Discharge Temperature**
-  **Coating (PFA.PTFE)**
-  **Condition of Cooling Water**
-  **Lubricant**

Cooling water flow chart



- Patented Screw rotors design
- Cooling water flows inside of screw

Features of EVSW-Series

Because the screw surface temperature is being kept below 120°C there are the following advantages:

- No burning of particles coming from the process onto the screws.**
- No seizure of the pump as there is not thermal expansion of the screws.**
- No burning or peeling off from the coating as the temperature is lower.**
- No special extra hard coatings needed as the coating will not loose its strength by high temperature.**
- No unbalance during normal operation since there is no balance pocket.**
- Required time to reach end-vacuum is very short as there's no thermal expansion of the screws.**
- The lifetime of the screws is semi-permanent.**

Screw Pocket Balance



VACTECNICO -VAKUUM.

- No unbalance during normal operation of vacuum pump since there is no balance in screw.



OTHTERS

- Probability of seizure of screw is very high, since there is high possibility of sticking of process liquid by balance pockets formed in both sides of screw.

Material

	Germany	Korea	Japan	USA
	DIN	KS	JIS	AISI
CASING	GG40	GCD400	FCD400	60-40-18
SCREW	GGG50	GCD500	FCD500	80-55-06
SHAFT	42CrMo4	SCM440	SCM440	4140
TIMING GEAR	21NiCrMo22	SNCM220	SNCM22	8620
Seal	X5CrNi189	STS304	SUS304	304
	X5CrNiMo1810	STS316	SUS316	316

Seal

■ Leak test : gas leakage test helium ($2 * 10^{-5}$ mbar·l/sec He)

■ Pressure condition : 5 kg/cm²

■ Temperature condition : 250 °C

■ Face pressure when stopped: 1.74 ~ 1.95 Kg/cm²

(In general, Face pressure standard :1.7 ~ 2.2Kg/cm²)

■ ROTARY PART

— .Carbon

Temperature : 360°C

Material : ANTIMONY M444

MAKER : METCAR U.S.A.

— .HASTELLOY C-276

Temperature : :-250°C~980°C

High corrosion resistance

The application of high temp.

Diamagnetic

0.1T welding bellows

■ STATIONARY PART

— .STANDARD

TC coating

STS 316

VITON O-RING

— .OPTION

SIC

(high heat-chemical,abrasion resistance)

VITON O-RING

KALREZ O-RING

Coating

■ Option : PTFE , Not Coating

- **PFA :**
(standard)
 - Powder coating
 - Thickness : $80 \pm 20 \mu\text{m}$
 - Good temperature resistance
 - High toughness
 - Good chemical resistance
 - Temperature : 260°C (Max 290°C)
 - Little possibility of percolation of foreign material by thickness

- **PTFE :**
 - Spray coating
 - Thickness : $30 \pm 10 \mu\text{m}$
 - Pin hole problem
 - Temperature : 260°C (Max 290°C)
 - Lowest coefficient of friction
 - Highest temperature resistance
 - Hardest

Condition of cooling water

- Industrial water
- +/-20% of quantity in the below table
- underground water including limestone is no good for cooling water

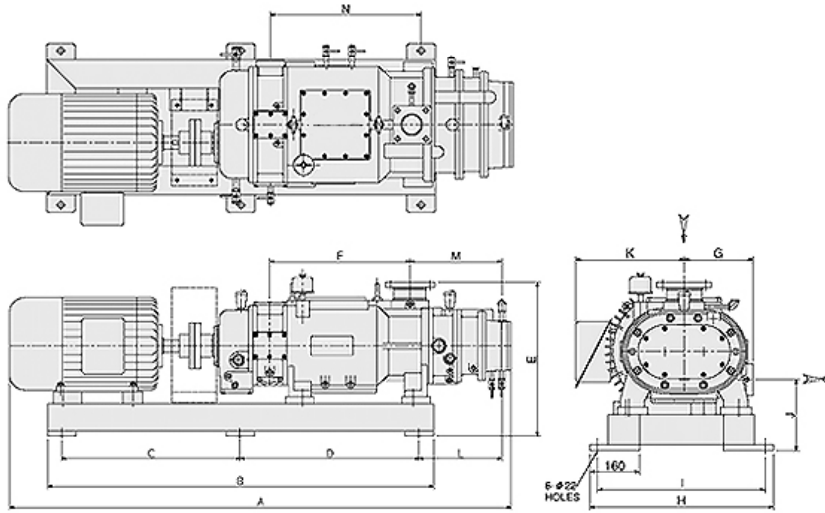
	EVSW-150	EVSW-350	EVSW-450	EVSW-800
Cooling water(l/min)	12	14	16	20

Lubricant

- ISO VG 68
- proper oil amount
- inspection every month
- Standard of inspection may be changeable according to processing

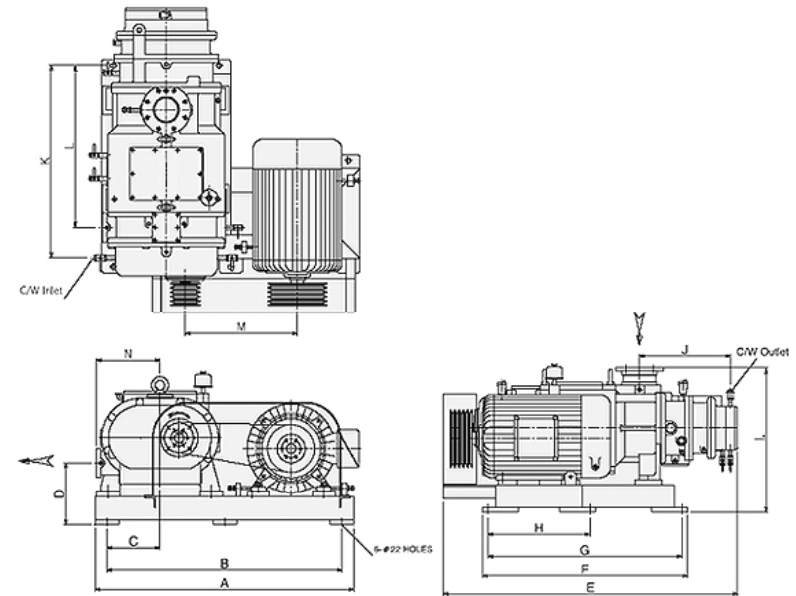
	Kinematic Viscosity 40°C	Kinematic Viscosity 100°C	Flash Point	Pour Point
ISO VG 46	46	6.96	226	-12.5
ISO VG 68	68	8.83	220	-15
ISO VG 100	100	9.55	224	-15

Possible set-ups



Direct Drive

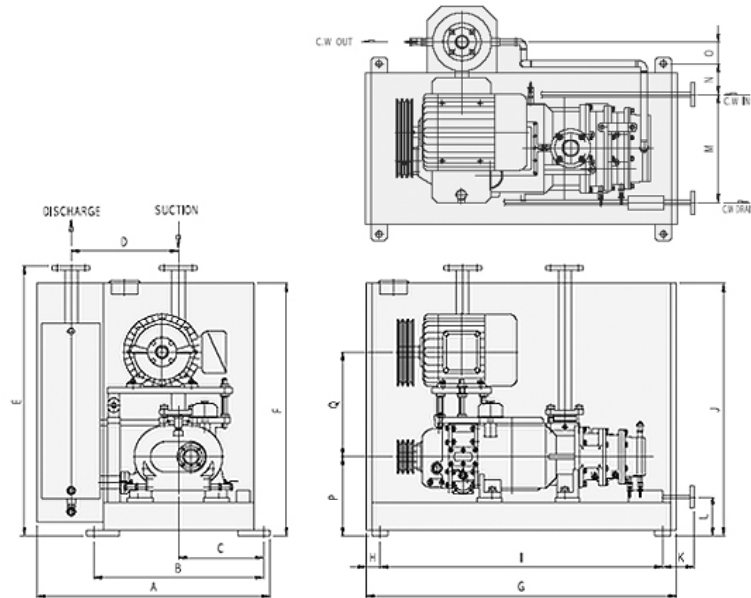
Pump model	A	B	C	D	E	F	G	H
EVSW-150-D	1385	1030	485	485	476	378	197	495
EVSW-350-D	1653	1320	630	630	512	449	220	570
EVSW-450-D	1749	1360	650	650	535	496	253	586
EVSW-800-D	1982	1500	700	700	635	500	301	760
Pump model	I	J	K	L	M	N	Inlet	Exh.
EVSW-150-D	435	200	261	261	295	495	40	40
EVSW-350-D	510	200	318	290	335	591	50	40
EVSW-450-D	536	200	324	283	335	663	65	50
EVSW-800-D	680	230	369	365	428	677	100	65



Belt Drive

Pump model	A	B	C	D	E	F	G	H
EVSW-150-B	915	865	229	200	987	570	520	210
EVSW-350-B	1020	970	248	200	1140	625	575	290
EVSW-450-B	1060	1010	248	200	1174	740	690	290
EVSW-800-B	1240	1180	315	230	1322	785	725	320
Pump model	I	J	K	L	M	N	Inlet	Exh.
EVSW-150-B	476	295	516	418	360	198	40	40
EVSW-350-B	512	335	591	496	410	220	50	40
EVSW-450-B	535	335	713	613	430	253	65	50
EVSW-800-B	635	428	738	623	485	301	100	65

Possible set-ups



Housing version

Pump model	A	B	C	D	E	F	G	H	I
EVSW-150-H	868	630	330	380	910	1010	1020	80	860
EVSW-350-H	968	720	390	420	910	1020	1120	80	960
EVSW-450-H	983	720	390	435	1010	1150	1150	80	990
EVSW-800-H	1184	880	480	520	1100	1290	1328	80	1168
Pump model	J	K	L	M	N	O	Inlet	Exh.	
EVSW-150-H	1060	142	170	285	365	165	40	40	
EVSW-350-H	1070	142	170	325	455	165	50	40	
EVSW-450-H	1200	142	170	344	455	165	65	50	
EVSW-800-H	1340	142	170	414	615	165	100	65	

■ **Industry application**

By Processing

 Distillation

 Extruder

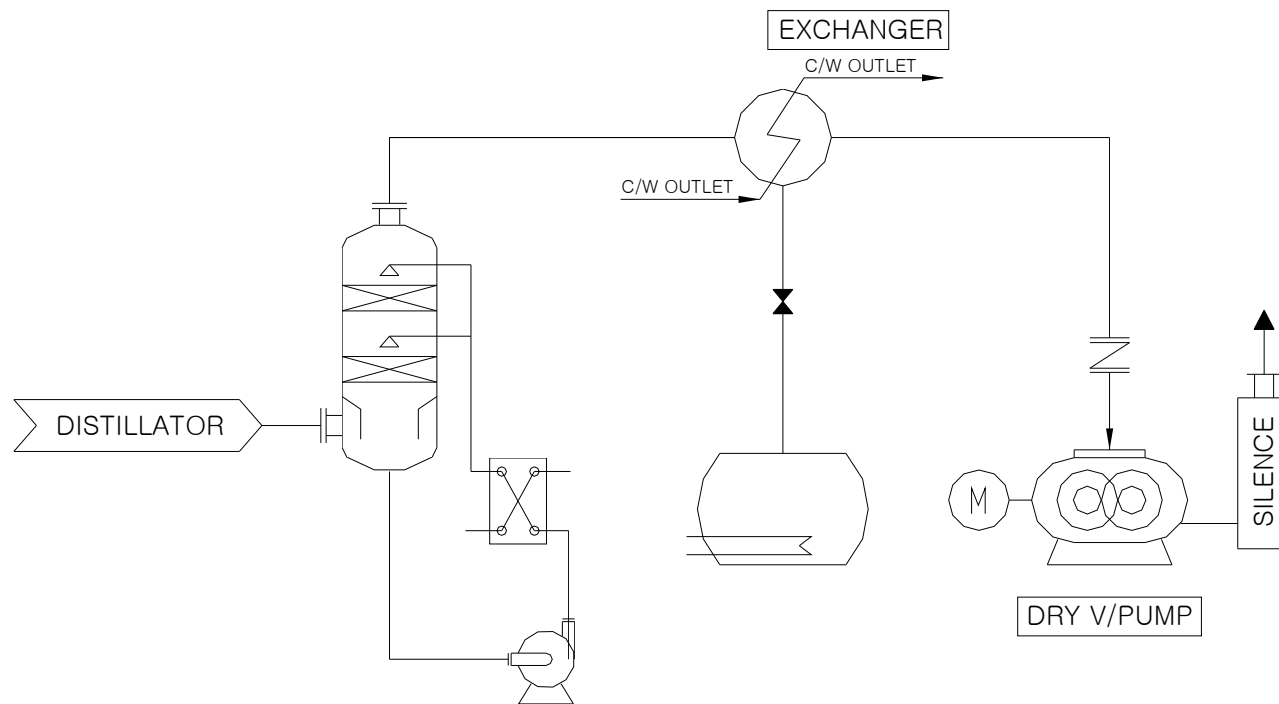
 Dehydration

 Recovery

 Dryer

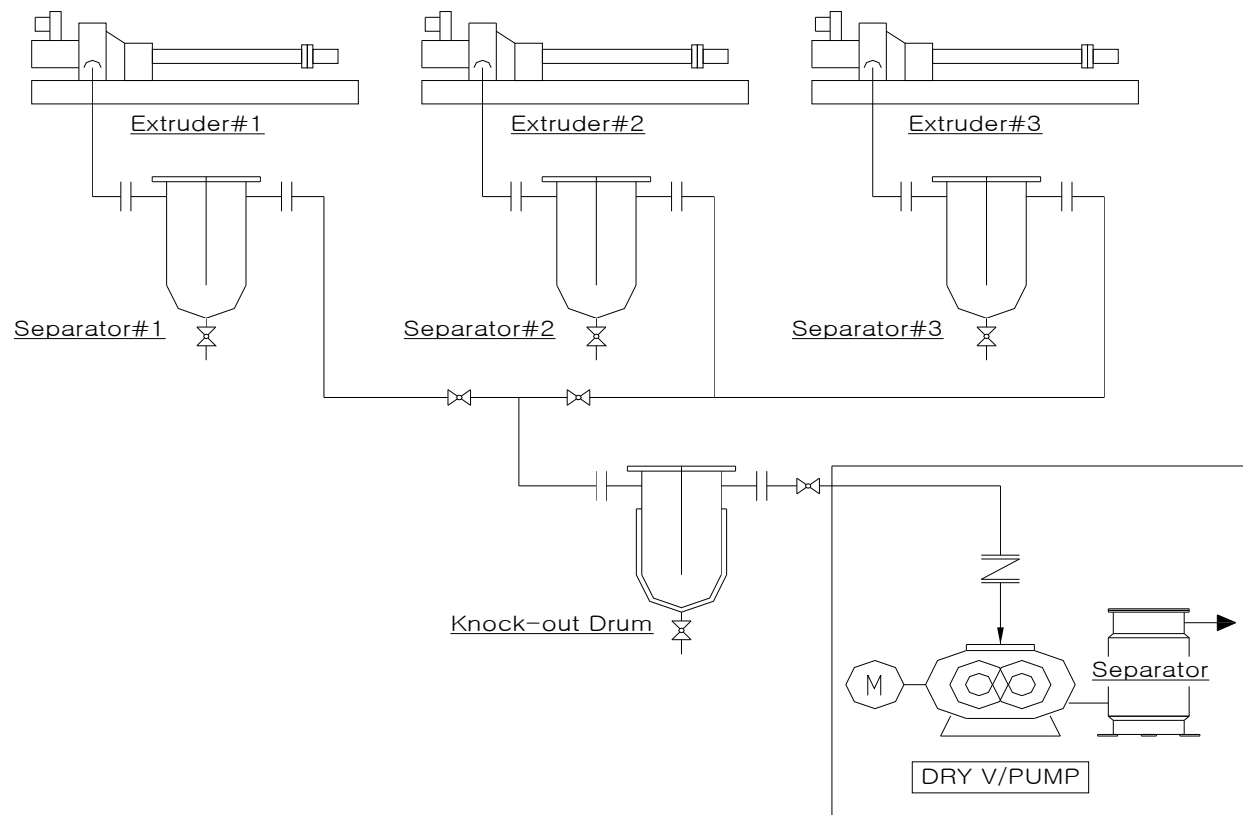
Distillation

- **company** : Petrochemical Industry
- **Required pressure** : 10~100 mbar
- **Features** : A lot of advantages in the high corrosive process



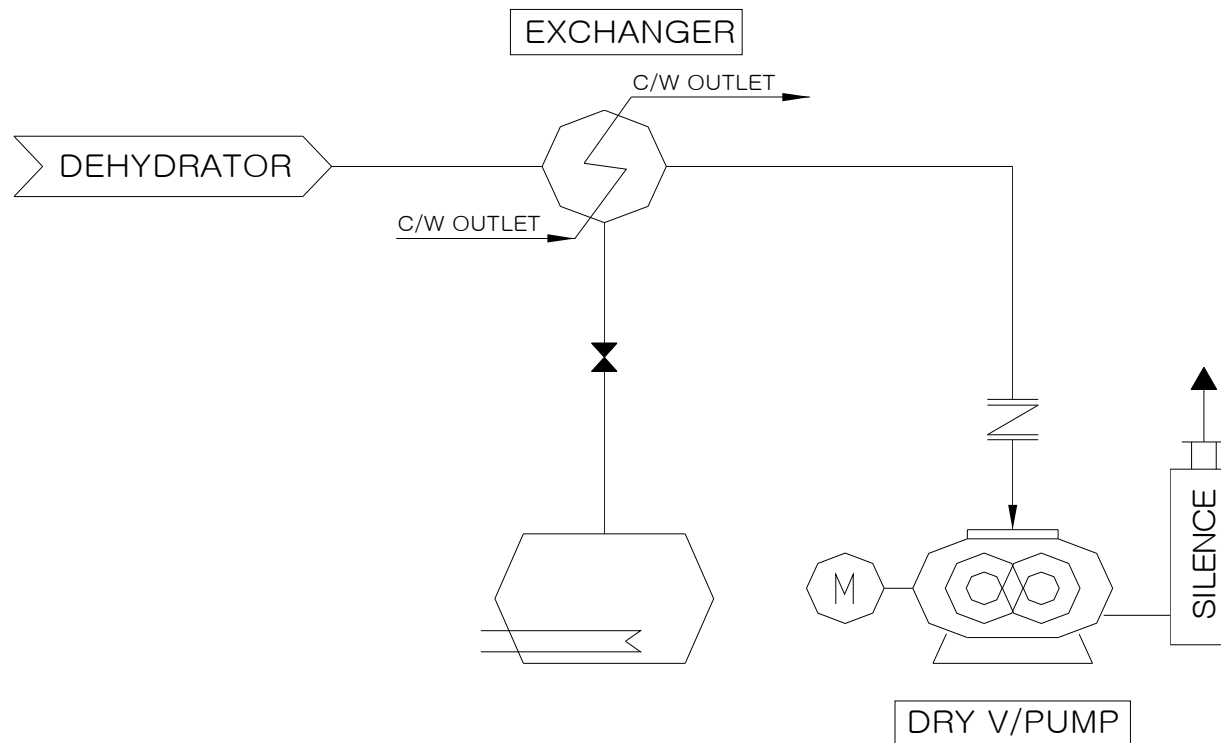
Extruder

- **company** : Chemical Industry
- **Required pressure** : 60~100 mbar
- **Features** : No seizing of carbide because cooling water flowing inside of screw



Dehydration

- **company** : Energy Industry
- **Required pressure** : 10 ~ 100 mbar
- **Features** : A lot of advantages in the high corrosive process



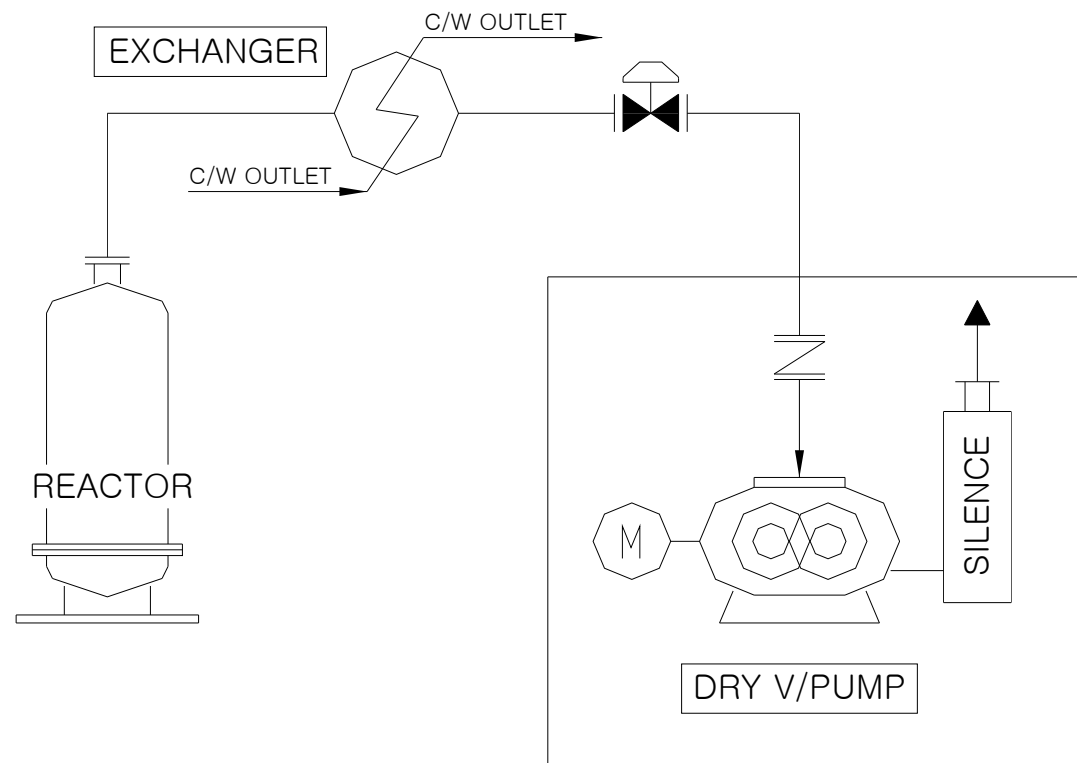
Recovery

■ **company** : Chemical Industry

■ **Required pressure** : 100 ~200 mbar

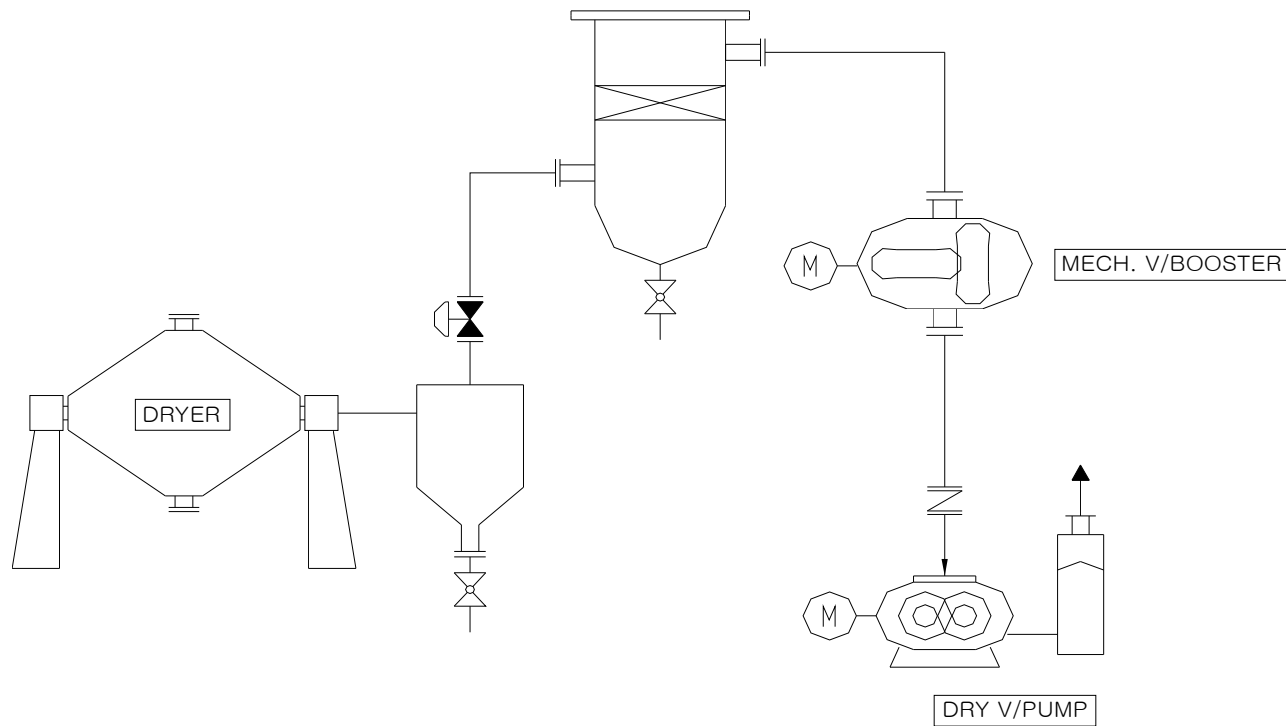
■ **Features** : In case of Solvent includes corrosiveness

A lot of advantages in the high corrosive process



Dryer

- **company** : Research
- **Required pressure** : 0.1 ~3 mbar
- **Features** : — A lot of advantages in the high corrosive process
— Demister is needed for drying of chip.



Thank you !



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