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**2** Pellet **mill**



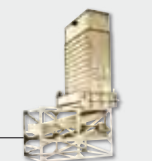
**4** Counterflow **cooler**



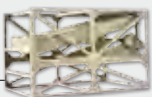
**5** Horizontal **cooler**



**6** Vertical **cooling group**



**7** Oscillating **sifter**



**8** Vibrating **sifter**



**9** **Crumbler**



**10** Ribbon **mixer**



**11** Paddles **Mixer**



**12** Hammer **mill**



**13** Hammer **mill**



**14** SHTT **Processor**





Technical features

Animal feed industry	Main Motor power	Capacity	
		Cattle feed	Poultry feed
CLM 200 20 hp	7.7 - 11.0 - 15.0 kW	150 kg/h	300 kg/h
CLM 304 60 hp	30 - 37 - 45 kW	1.5 Ton/h	2.5 Ton/h
CLM 420 75hp	37 - 55 kW	2.5 Ton/h	5.0 Ton/h
CLM 420 100hp	75 - 90 kW	4.0 Ton/h	6.0 Ton/h
CLM 420 150hp	110 kW	6.0 Ton/h	8.0 Ton/h
CLM 520 180hp	110 - 132 kW	8.0 Ton/h	10.0 Ton/h
CLM 520 220hp	160 kW	9.0 Ton/h	12.0 Ton/h
CLM 630 220hp	160 kW	10.0 Ton/h	15.0 Ton/h
CLM 630 300hp	200 - 220 kW	12.0 Ton/h	18.0 Ton/h
CLM 800 380hp	250 - 280 kW	18.0 Ton/h	22.0 Ton/h
CLM 935 500hp	315 - 355 kW	Up to 22.00 Ton/h	Up to 35.00 Ton/h
CLM 1000 500hp	370 kw	up to 25 Ton/h	up to 45 Ton/h

Technical features

Saw dust	Main motor power	Capacity based on wood pellets Ø mm 6.0
CLM 304 LG	45 kW	300 - 500 kg/h
CLM 420 HD LG	110 - 132 kW	600 - 900 kg/h
CLM 520 HD LG	160 - 200 kW	1200 - 1800 kg/h
CLM 630 G LG	200 - 220 kW	1.800 - 2.500 kg/h
CLM 800 P LG	250 - 280 kW	3.000 - 4.500 kg/h
CLM 935 LG	300 - 355 kW	4500 - 6000 kg/h

Technical features

Plastic waste	Main motor power	Capacity based on plastic pellets Ø mm 6.0
CLM 420.150 PLST	110 kW	200 - 300 kg/h
CLM 520 HD PLST	132 - 160 kW	300 - 500 kg/h
CLM 630 N PLST	160 - 200 kW	500 - 1000 kg/h
CLM 800 P PLST	220 - 250 kW	800 - 1200 kg/h
CLM 935 PLST	300 - 350 kW	950 - 1500 kg/h

General description:

Screw feeder:

- The variable-pitch feeder is driven by a continuous variable speed hydraulic gear motor
- The whole body of the screw feeder in contact with the feed and the screw feeder shaft are made in stainless steel.

Conditioner:

- The conditioner is driven by its own motor
- The conditioner is entirely stainless steel made included shafts and paddles. To obtain the best results from the addition of steam, the paddles of the conditioner shaft are easily adjustable.

Pellet mill Bloc:

- Door: the machine door is entirely stainless steel-made with two knife assemblies
- Magnet: a permanent magnet is fitted in the chute to

- avoid ferrous metal entering the die
- Overload flap: on the feed conveyor there is a overload flap
- Die holder: die holder is made in forging steel and it has a wear ring. Die holder front base is stainless steel lined to guarantee longer life
- Basament: the pellet mill is built up on an heavy cast iron base that guarantee the absence from vibration
- Main shaft: the front of the shaft is chromed plate for prevent against corrosion
- Drive: the pellet mill is driven by an electric motor via a V-belt transmission. Belts type 5V guarantee the transmission of the motor power with a security factor equal than 1.7
- Shear pin: to protect the pelleting chamber, a shear pin is installed on the rear of the machine
- Lubrication: greazing can be made by the rear of the pellet mill, through the main shaft. In this way the machine can be lubricated without stop the motor.





General description:

- Grid discharger, driven by 1.1 kW-21 rpm gear motor with brake and limit switch. Discharging speed adjustable through hand wheel. Standard grid: 3-10 mm pellets, maximum length 30 mm.
- Incl. pneumatic clean out
- Rotary valve 350, stainless steel, 0.75 kW-28 rpm gear motor
- Hood and bin walls: stainless steel with mild steel reinforcements, hard glass inspection door with door switch
- Product distributor: stationary and adjustable
- Two product sensors: rotating, with holder for adjustment
- Hopper: with central outlet, 250x250 mm
- Surface treatment: spray-coated with one layer of coating high build cream RAL 1015
- Pneumatic discharger closes when power fails.

Technical features

Model	Capacity pellets T/h		Cooling surface m <sup>3</sup>	Extractor motor drive (kW)
	Ø 5	Ø 3		
RCC 14	3	5	1,96	1,1 kW - 21 rpm
RCC 19	7	9	3,61	1,1 kW - 21 rpm
RCC 19-24	11	15	4,56	1,1 kW - 21 rpm
RCC 24	15	20	5,76	1,1 kW - 21 rpm
RCC 24-28	19	25	6,72	1,1 kW - 21 rpm
RCC 28-28	20	30	7,84	1,1 kW - 21 rpm



General description:

- Cooling deck composed of trays made in stainless steel AISI 430 fixed on both side to high specification chains
- Oscillating pellet distributor at the inlet made in stainless steel
- Air aspiration hood made in stainless steel type 304
- Bin walls made of mild steel with mild steel reinforcements
- Special scraper on the lower deck to collect the dust from the bottom to one side of the cooler.

Technical features

Model	Capacity pellets T/h	Number of desks	Total length m	Cooling surface m <sup>2</sup>
RO 1,5-2-7,0	15	2	13,00	21
RO 2,0-2-5,0	15	2	9,0	20
RO 2,0-3-4,0	18	3	12,00	22
RO 2,0-2-7,0	20	2	13,00	24
RO 2,0-4-4,0	21	4	14,00	32
RO 2,0-4-6,0	26	5	18,00	48

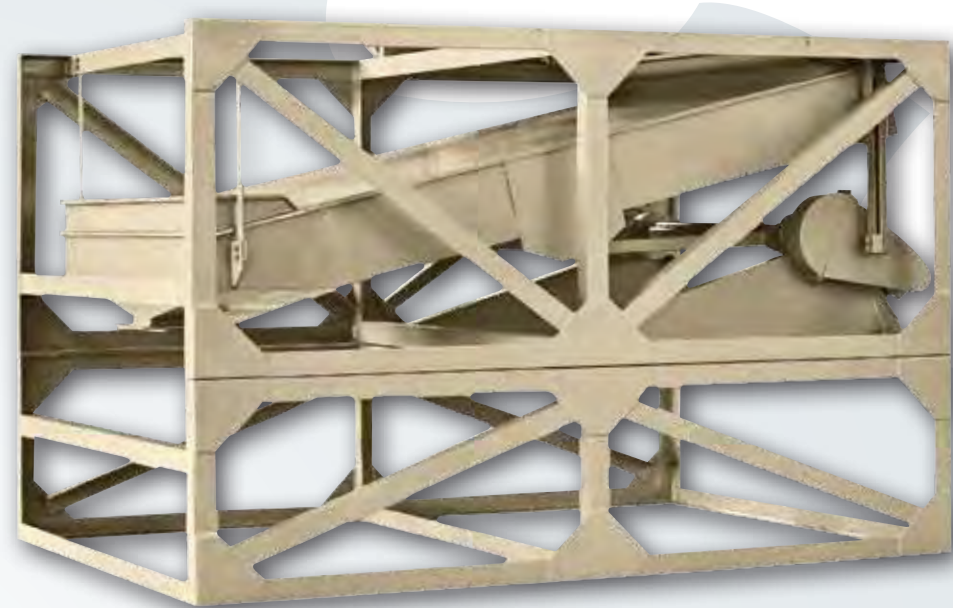


General description of the vertical cooler:

- Inlet hopper made in stainless steel, complete with two product sensors: rotating lateral inspection door and with mild steel reinforcements
- Cooling module with lateral valves made in stainless steel, - Oscillating unloader.

Technical features

Model	Capacity pellets T/h	Net volume m³	Dimensions of module (mm)	Extractor motor (kW)
RV A 0,5	2-3	0,52	1000 x 1300 x 440	1,50
RV A 1.0	3-4	0,52	1000 x 1300 x 860	1,50
RV A 1,5	3-4,5	0,78	1000 x 1850 x 860	1,50
RV A 2.0	4-6	1,04	1000 x 2600 x 860	1,50
RV B 1.5	3,5-5	0,95	1200 x 1850 x 860	1,50
RV B 2.0	5-7	1,25	1200 x 2600 x 860	1,50
RV C 1.5	5-7	1,15	1500 x 1850 x 860	1,50
RV C 2.0	6-10	1,55	1500 x 2600 x 860	1,50



General description of the sifter:

- Oscillating sifter is a pellet cleaning device
- Due to swinging motion the efficiency of dust removing is very high. Housing is made of sheet and provided with big door for making maintenance easier
- The frame of the net is made of wood
- The sieving net can have different sizes depending on customer's needs
- The net can be easily removed at the back of sifter
- Swinging motion is transmitted to the sifter through eccentric shaft.

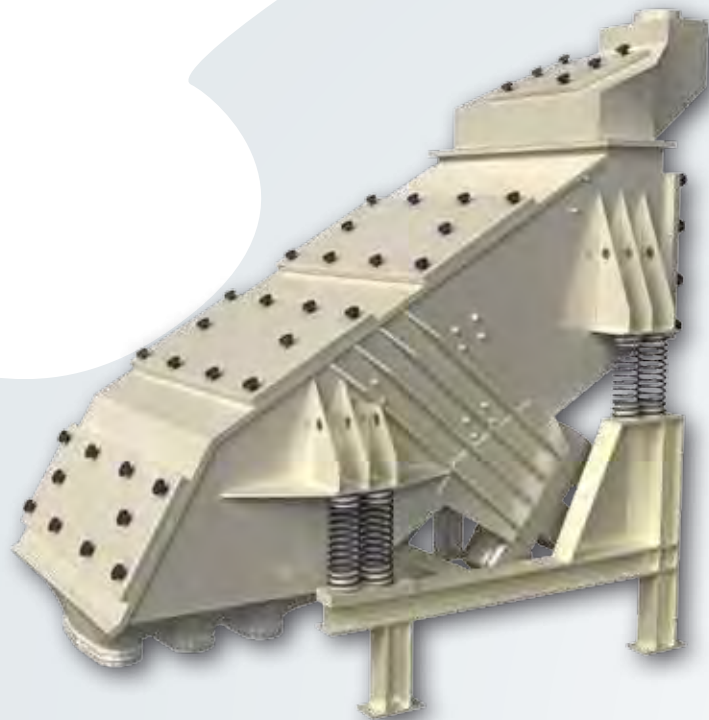
Technical features

Model	Capacity pellets T/h	Capacity crumbled T/h	Number of desks	Surface m²
TB 10	2,00	1,80	1	1,00
TB 15	3,50	3,00	1	1,50
TB 20	5,00	4,00	1	2,00
TB 25	6,50	5,00	1	2,50
TB 30	8,50	7,00	1	3,00
TB 35	10,00	8,00	1	3,50

VERTICAL COOLER

OSCILLATING SIFTER





General description:

- The product in the inlet of the sieve comes leveled on all the width material is evenly distributed across the screens by means of a static distributor adjustable from the exterior
- The robust casing is constructed in 3 mm mild steel with lateral reinforcement
- It is mounted on 8 "soft" springs ensuring all dynamic vibration is transferred to the sieving action
- The screens, constructed in stainless steel, are tensionate by means of indipendent and adjustable springs and attached to two intermediate supports optimizing screen tension
- The screens are easy to change from the back of the machine
- The mechanical action of the sifter is made by two vibrating motors, positioned below the body of the sieve giving easy access to the counterbalances.

Technical features

Model	Capacity pellets T/h	Capacity crumbled T/h	Motors W/h	Surface m²
VBR 1/6/13	5	4	2 x 550	1 x 0,82
VB 2/6/13	16	12	2 x 800	2 x 0,82
VB 2/10/13	30	20	2 x 825	1 x 1,35
VB 3/10/13	30	20	2 x 1200	3 x 1,35



General description:

- Heavy duty constructions
- The cutting rollers are adjustable and spring-mounted to protect against damage which could be caused by foreign objects
- Rolls: rolls diameter 220 mm
- Rolls length: 1200 - 1800 mm
- Motor drive: motors from 7.5 to 15 kW, 1450 rpm, IP 54, insulation class F
- Roller gaps can vary from mm 0 to mm 3
- The transmission between the motor and the fixed rolls is belt driven
- 20 mm is the max size of stone or foreign object passing through the crumbler
- The crumbler has a by-pass operated by pneumatic piston.

Technical features

Model	Capacity T/h	Roller gap ajustement	Version	Roller dimension mm	Motor (kW)
SBR A I	8-10	manual	Single type 2 - rolls	Ø 220x1200	7,5
SBR B I	10-12		Single type 2 - rolls	Ø 220x1500	11
SBR C I	12-14		Single type 2 - rolls	Ø 220x1800	11-15
SBR A II	16-20		Double type 4 - rolls	Ø 220x1200	2 x 7,5
SBR B II	20-24		Double type 4 - rolls	Ø 220x1500	2 x 11
SBR C II	24-28		Double type 4 - rolls	Ø 220x1800	2 x 11-15

Crumbler with remote control of roller gap:

- The roller gap can be adjusted by means of a servomotor coming from a potentiometer connected to the adjusting screw of the rolls.
- The roller gap can be monitored using a 0-10 Volts signal

Technical features

Model	Capacity T/h	Roller gap ajustement	Version	Roller dimension mm	Motor (kW)
SBR A I CE	8-10	by mean of electrical drives	Single type 2 - rolls	Ø 220x1200	7,5
SBR B I CE	10-12		Single type 2 - rolls	Ø 220x1500	11
SBR C I CE	12-14		Single type 2 - rolls	Ø 220x1800	11-15
SBR C I 350 CE	23-25		Single type 2 - rolls	Ø 350x1800	35-45
SBR A II CE	16-20		Double type 4 - rolls	Ø 220x1200	2 x 7,5
SBR B II CE	20-24		Double type 4 - rolls	Ø 220x1500	2 x 11
SBR C II CE	24-28		Double type 4 - rolls	Ø 220x1800	2 x 11-15



Mixing performed via two mixing ribbons mounted on a common shaft working in apposing directions.

General description:

- Horizontal, single shaft, twin ribbon mixer
- Shaft: on heavy duty self aligning roller bearings
- Double ribbon type: on central axe with counterflow mixing action
- Construction steel: mild steel (frame thickness 4 mm, front flanges thickness 6 mm)
- Discharge system: full width operated by pneumatic piston (large trough shaped discharge slide valve electro-pneumatically operated)
- Three cover plates for access and for the addition of additives
- Collection hopper
- Screw conveyor below collection hopper
- Pipe for air recycling
- Residue left in mixer after discharge less than 0.1%
- Mixing time 3-4 minutes
- Painted with epoxidic colour
- Driven by geared motor.

Technical features

Model	Capacity m³	Motor power kW	Weight Kg
MI-120	1.20	7.5	1000
MI-240	2.40	15	2100
MI-300	3.00	18.5	2400
MI-400	4.00	22	3100
MI-600	6.00	37	5100



General description:

- Accuracy is guaranteed mixtures homogeneous with a variation coefficient of <5%
- The homogeneity is achieved after a short a time (2-3 min)
- The mixed material is carefully treated.
- During discharge no residues remain in the mixer (hatching accuracy, risk of cross-contamination).
- It is possible to add liquids.
- Filling and discharge times is very short.
- The rate of admission is variable.

Technical features

Type	Volume (l)	Max loading (kg)	Weight (kg)	Overall dimensions		
L	B	H	300	1300	5-12	110-132
SP-100	100	60	230	1324	605	930
SP-200	200	125	300	1570	730	950
SP-500	500	310	870	2120	910	1210
SP-1000	1000	600	1450	2165	1230	1530
SP-2000	2000	1250	2200	3335	1490	1855
SP-4000	4000	2500	3800	3450	1890	2340
SP-6000	6000	3750	7200	4344	2172	2680
SP-10000	10000	6250	8500	5362	2172	2743

ribbOn mixer

PaDdles mixer





General description:

Description of the hammer mill:

- Heavy duty construction
- Direct coupling of rotor through an elastic coupling
- Bidirectional rotation
- Rotor with dynamic balance
- Screen that can be manually withdrawn from the side of the mill
- Temperature sensor PT 100 monitors bearing temperature

- Access door to the grinding chamber is equipped with a safety block system.

Each hammer mill is supplied with:

- Screen
- A set of hammers
- Elastic coupling
- Vibration absorbers.

Hammer mills for cereals and animal feeds: technical features

Motor Speed		3000 RPM						
Hammer Speed		96 m/sec						
Rotor Diameter		484 mm						
Model	Main motor kW	Screen surface dm²	Screen length mm	Filter surface mm²	Air mc/min	Hammers	Capacity mais Sieve Ø 4 mth	Capacity barley Sieve Ø 4 mth
MM100/2P	75	60	473	26	52	24/48	16,5	4,0
MM150/2P	110	105	785	35	75	40/80	24,0	6,0
MM180/2P	132	128	941	42	90	48/96	29,0	7,5
MM220/2P	160	151	1097	50	105	56/112	35,0	9,0

Hammer mills for biomass: technical features

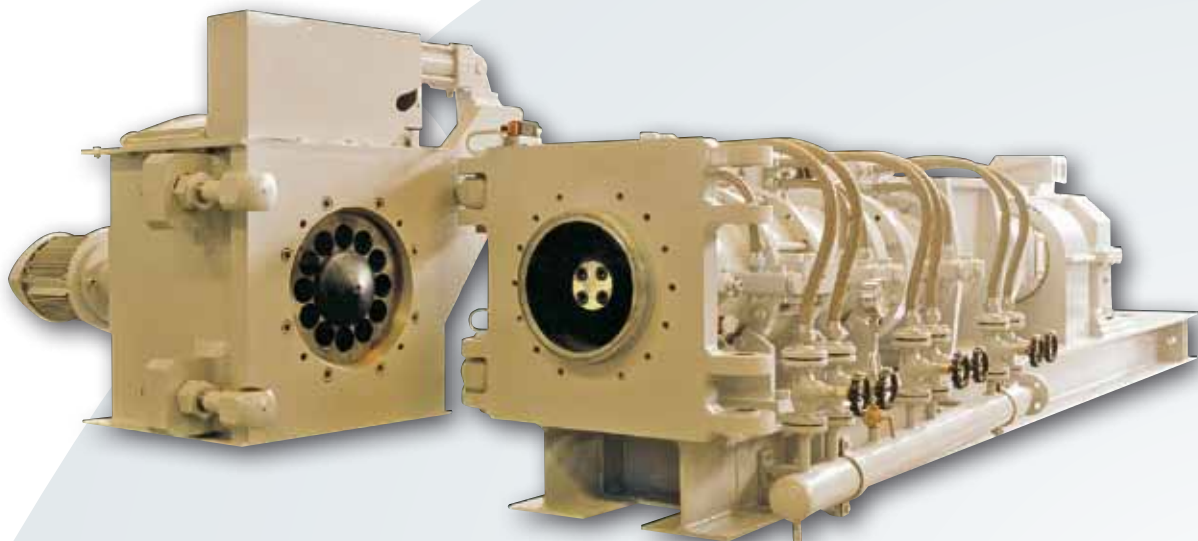
Motor speed		3000 rpm								
Hammer speed		105 m/sec								
Rotor diameter		484 mm								
Model	Main motor kW	Screen surface dm²	Screen length mm	Cyclone diameter mm	Air mc/min	Hammers	Capacity mth straw (sieve Ø 8mm) humidity= 10-12 %	Capacity mth straw (sieve Ø 8mm) humidity= 16-18 %	Capacity mth saw dust (sieve Ø 8mm) max humidity= 12 %	Capacity mth wood chips (sieve Ø 8mm) max humidity= 12 %
MM100/2P-LG	110	0,7	475	680	65	48	-	-	2,5-3,0	1,5-1,8
MM180/2P-LG	132	1,29	870	850	95	88	-	-	5,0-5,5	2,6-3,5

Hammer mills for cereals and animal feeds: technical features

Motor Speed		1500 RPM						
Hammer Speed		96 m/sec						
Rotor Diameter		484 mm						
Model	Main motor kW	Screen surface dm²	Screen length mm	Filter surface mm²	Air mc/min	Hammers	Capacity mais Sieve Ø 4 mth	Capacity barley Sieve Ø 4 mth
MM180/4P	132	184	595	42	80	120	29,0	7,5
MM220/4P	160	208	673	42	90	136	35,0	9,0
MM270/4P	200	256	829	60	110	168	44,0	11,0
MM340/4P	250	304	985	60	120	200	55,0	14,0

Hammer mills for biomass: technical features

Motor speed		1500 rpm								
Hammer speed		105 m/sec								
Rotor diameter		1085 mm								
Model	Main motor kW	Screen surface dm²	Screen length mm	Cyclone diameter mm	Air mc/min	Hammers	Capacity mth straw (sieve Ø 8mm) humidity= 10-12 %	Capacity mth straw (sieve Ø 8mm) humidity= 16-18 %	Capacity mth saw dust (sieve Ø 8mm) max humidity= 12 %	Capacity mth wood chips (sieve Ø 8mm) max humidity= 12 %
MM180/4P-LG	132-160	1,49	474	1000	170	100	4,0-5,0	2,0-2,2	6,0-5,5	3,0-3,8
MM270/4P-LG	200	1,78	566	1200	200	120	5,0-6,0	2,2-2,5	7,5-8,0	3,2-4,8
MM340/4P-LG	250	2,36	750	1370	260	160	7,5-8,0	3,0-3,5	9,5-10,0	4,0-6,0
MM540/4P-LG	400	2,93	934	1370	325	200	9,5-11,0	4,0-5,0	12,0-13,0	5,0-7,0
MM760/4P-LG	560	4,66	1486	1370	517	320	15,0-16,0	6,0-7,0	19,0-20,0	10,0-12,0



General description:

- Expander is a machine similar to an extruder, combining temperature and pressure to treat and condition raw materials to provide a crumb with improved nutritional value to that of conventional feeds.
  - Expander is supplied with:
    - drive/power transmission
    - charging hopper
    - screw for compression and homogenizing
    - independent head section with fully adjustable flat die arrangement
    - multiblade, variable speed knife arrangement cuts the material into uniform crumb
  - Main drive has a hydraulic coupling, with built in torque overload and v-belt drive transfer
  - The heavy duty compression screw is constructed out of several sections on a single shaft, increasing shear action
  - The die assembly can be hydraulically turned/
- disconnected from the machine for easy access
  - The die aperture is hydraulically controlled allowing operator to increase/reduce compression/shear action and the extrusion/molding of final product remotely
  - Variable speed knife arrangement, with independent drive, to determine crumb size and ensures uniform product size
  - Through the length of the expander we can add steam under high pressure. It's possible due to many special injectors
  - Numerous injection points allow high-pressure steam, and additional liquids, to be added along the length of the expander
  - Automatic control - allows operator to preset parameters and system can fine tune accordingly
  - Flexibility due to the number of inlet points and short build up time allows system to stop/start without problems.

Expander type	Total length	Screw Ø	Screw speed	Barrel length	Output T/h	Drive kW
STHT 230	4120	230	300	1300	5-12	110-132
STHT 305	6700	305	230	1500	12-20	160-200
STHT 305 compact	3900	305	230	850	12-20	160-200

Unit of measure conversion

Length			
IS	Meter	m	1 m = 3.28 ft = 39.37 in
Eng.	Inch	1", in	1 in = 2.54 cm
Eng.	Foot	1', ft	1 ft = 12 in = 30.48 cm
Weight - Quantity			
IS	Kilogram	kg	1 kg = 2.204 lb
(1)	Ton	t	1 t = 1,000 kg = 1 Mg
Eng.	Pound	lb	1 lb = 0.454 kg
Force or Weight - mass in acceleration			
IS	Newton (kg·m/s²)	N	1 N = 0.102 kgf 1 kgf = 9.81 N
Tec.	Kilogram	kg	1 kg = 9.81 N 1 N = 0.102 kg
Pressure - Force/Surface area			
IS	Pascal	Pa	1 Pa = 1 N/m² 1 kPa = 0.01 bar = 1 N/cm²
(1)	-	bar	1 bar = 100,000 Pa = 1.019 kg/cm² = 14.48 psi = 10.19 mH <sub>2</sub> O
Eng.	Pounds su inch²	psi	1 psi = 6,906 kPa = 0.068 bar = 0.0703 kg/cm²
Tec.	Technical atmosphere	at	1 at = 1 kg/cm² = 736 mm di Hg = 10 mH <sub>2</sub> O = 98,066.50 Pa
Tec.	-	kg/cm²	1 kg/cm² = 98,067 kPa = 0.980 bar = 0.967 atm
Tec.	Metric atmosphere	atm	1 atm = 101,325 Pa = 760 mm di Hg = 1.033 at = 1 torr
Volume			
IS	Cubic meter	m³	1 m³ = 35.3146 ft³ = 61023.759 in³ = 264.20 galUS
Eng.	Cubic foot	ft³	1 ft³ = 0.02832 m³ = 1728.0006 in³
Eng.	Cubic inch	in³	1 in³ = 0.00001638 m³ = 0.0005787 ft³
U.S.	Gallon US	galUS	1 galUS = 0.003785 m³
U.K.	Gallon UK	galUK	1 galUK = 0.004546 m³
Specific weight			
IS	Newton per dm³	N/dm³	1 N/dm³ = 0.102 kg/dm³
Tec.	Kg per dm³	kg/dm³	1 kg/dm³ = 9.807 N/dm³
Temperature			
IS	Kelvin	K	1 K = °C + 273.15
IS	Centigrade degree	°C	1 °C = (°F-32) x 5/9 = K - 273.15
Eng.	Fahrenheit degree	°F	1 °F = 9/5 x °C + 32
Moment or Torque - Force x Distance			
IS	Newton per meter	N·m	1 N·m = 0.102 kg·m = 0.7376 ft·lb
Tec.	Kilogram per meter	kg·m	1 kg·m = 9.807 N·m = 7.233 ft·lb
Work and Energy			
IS	Joule	J	1 J = 1N·m 1 J = 0.102 kg·m 1 kg·m = 9.807 J
Tec.	Kilowatt per hour	kW·h	1 kW·h = 1.36 Hp·h = 860 kcal = 1.000 W x 1J = 3.6x10 <sup>6</sup> J
Tec.	Horsepower per hour	Hp·h	1 Hp·h = 270,000 kg·m = 0.736 kW·h
Power - Work/Time			
IS	Watt	W	1 kW = 1.36 Hp = 860 kcal/h
Tec.	Horsepower	Hp	1Hp = 0.736 kW = 75 kg·m/s
Angle			
IS	Radian	rad	1 rad = 57°.29578 = 57° 17' 44".81 = 63°.66198 1 round angle = 2 π rad
Tec.	Sixty system grad	1°	1° = 0.01745 rad = 1.11111°
Tec.	Grad	1°	1° = 0.01571 rad = 0.90°

IS - International System      Tec. - British Technical Unit - British Unit      (1) - Non IS unit, accepted





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