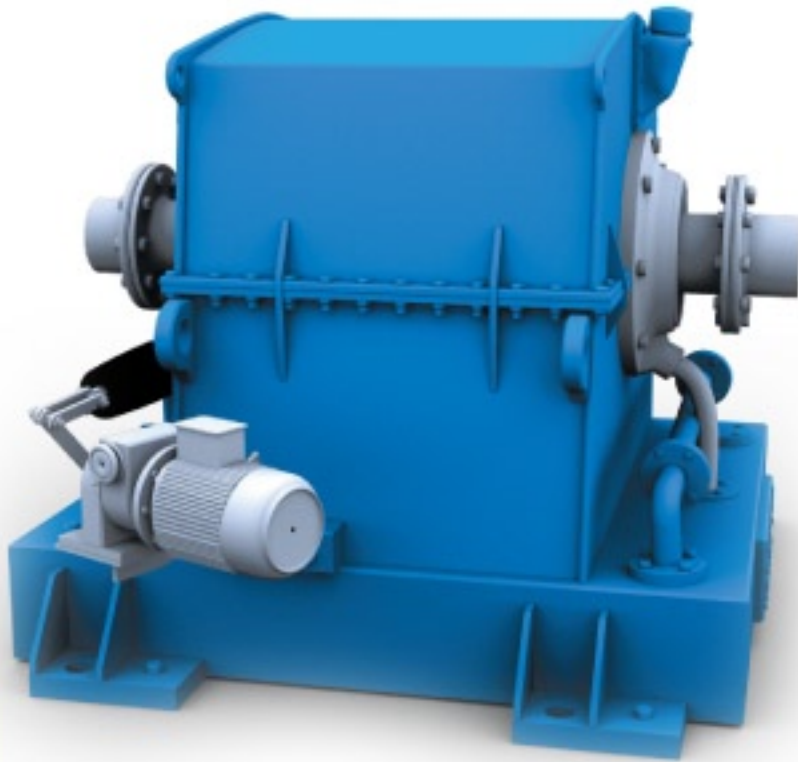


SC

Scoop Controlled - Variable Speed Fluid Couplings

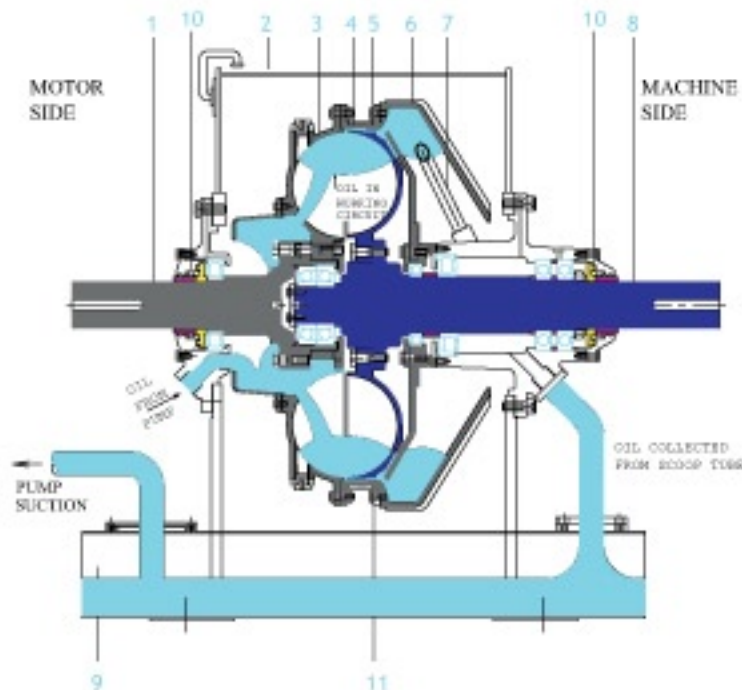
<http://www.fluidomat.com>



FLUIDOMAT -SC is a variable speed fluid coupling providing stepless speed variation in a wide range when connected to fixed speed electric motor. The speed variation is obtained by varying the oil filling in coupling through a sliding scoop tube when in operation.

Fluidomat SC offers advantages like no load starting of motor, controlled starting torque for machine acceleration, continuous declutching, stepless speed variation and synchronizing of motors in multidrive units, load limiting in a very wide range for safety of motors and machine.

It offers flexibility in controls as it can respond to various electric, pneumatic or hydraulic signals and it is compatible with all types of controllers like pneumatic, hydraulic, electronic, electrical or manual. Beside it offers all the advantages of constant speed fluid coupling like load limiting, absorption of shock loads, torsional loads and vibrations, smooth acceleration etc. Its built-in safety arrangements make it fool-proof during operation.

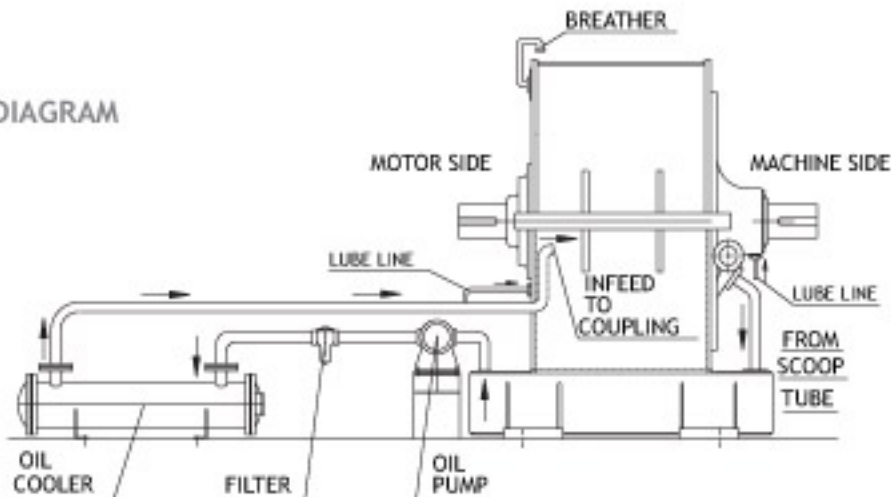


- DESCRIPTION
- 1 INPUT SHAFT
  - 2 UPPER HOUSING
  - 3 IMPELLER
  - 4 ROTOR
  - 5 PRIMARY CASING
  - 6 SECONDARY CASING
  - 7 SCOOP TUBE
  - 8 OUTPUT SHAFT
  - 9 BOTTOM HOUSING
  - 10 LABYRINTH SEAL WITH OIL SEAL
  - 11 WORKING CIRCUIT

FLUIDOMAT - SC consists of a fluid coupling housed in a self-supported stationary housing having a built-in oil Sump. Oil is continuously introduced in the working circuit (11) of fluid coupling through an oil pump.

The oil circulates through the working circuit and finally passes to the secondary casing (6) and is collected by a sliding scoop tube (7). The position of scoop tube governs the oil level in the working circuit, thus controlling the speed. The position of sliding scoop tube can be governed through suitable actuator and can also be operated manually. On the input and output ends, suitable flexible couplings are provided for the shafts connections. Labyrinth Seals (10) provided on input and output shaft is an effective barrier and ensures no leakage from shaft ends.

### OIL FLOW CIRCUIT DIAGRAM



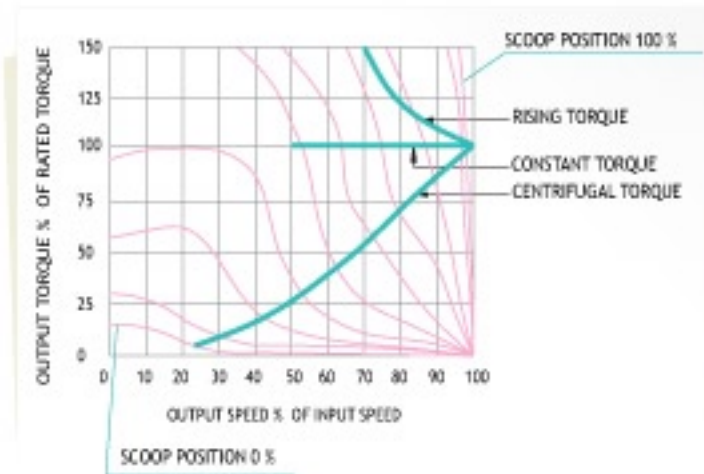
### OPERATION:

The sliding scoop tube governs the oil level in the working circuits depending on its (scoop tube) position between 0% to 100%. By varying the oil level in the working circuit the torque transmission capacity of the coupling varies, thus changing the slip of the coupling and provides stepless speed variation in a wide range. The heat generated in the coupling is picked up by the circulating oil which is cooled by oil cooler provided in the oil circuit.

Fluidomat SC provides very useful stepless speed regulation in the range of 5:1 for centrifugal loads like fans and pumps, 2:1 for constant torque loads like conveyors and 1.4:1 for rising torque loads. It is also very useful for continuous declutching of machine with motor running.

## CHARACTERISTIC CURVE

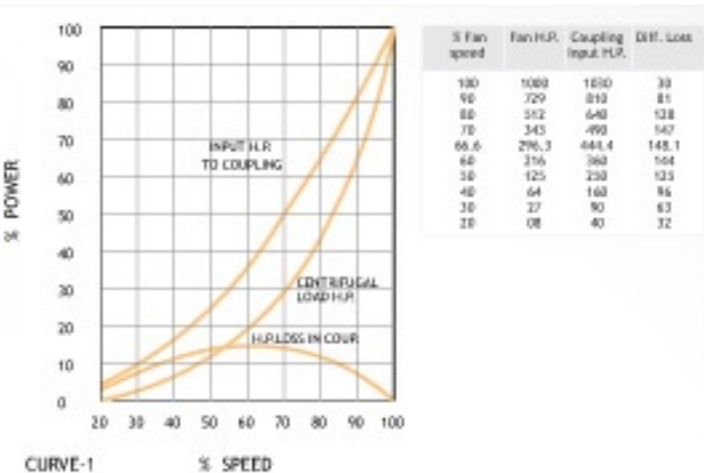
(AT VARIOUS SCOOP TUBE POSITIONS BETWEEN 100 % & 0 %)



## ENERGY SAVING THROUGH FLUIDOMAT SC COUPLINGS :

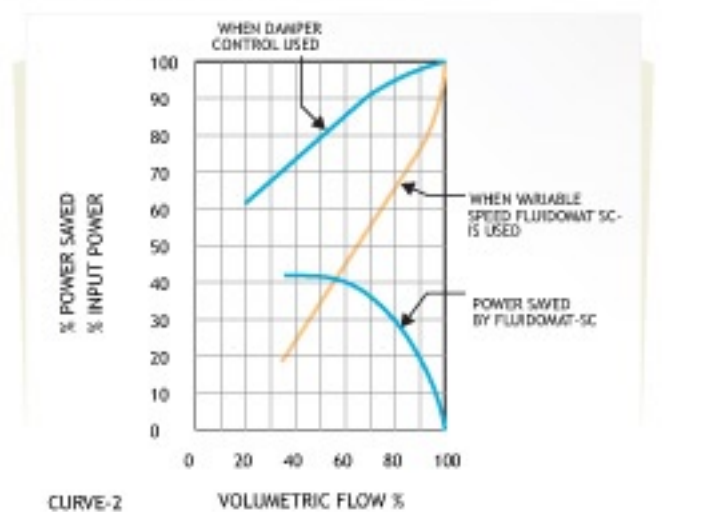
Fluidomat SC provides large energy saving in various drives. In centrifugal machines the discharge of fluid is proportional to the machine speed. The discharge can be varied either by throttle control or by speed control. In throttle control, because additional pressure is exerted therefore the machine requires high energy consumption and also causes high rate wear of pump/fan. On the other hand, if speed of pump/fan is reduced to control the discharge then power demand reduces by cube of speed and therefore large amount of energy is saved. Fluidomat SC offers stepless speed variation in range of 5:1 for centrifugal loads and saves high amount of energy. It thus earns money through energy savings.

## FAN AND FLUIDOMAT-SC TYPICAL POWER SPEED CHARACTERISTICS

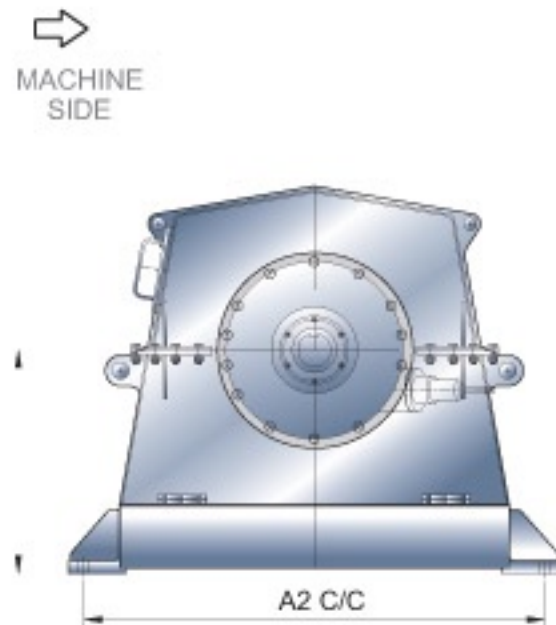
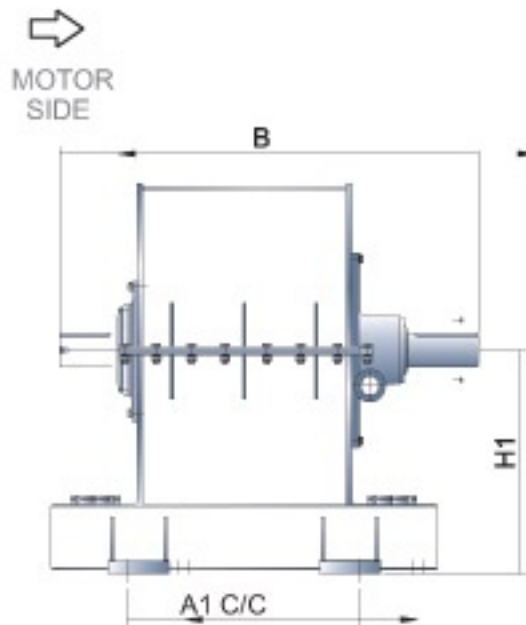


The curve 1 Shows the power required by a centrifugal machine at different speeds. In the same figure the power required by the system is shown if Fluidomat SC is used for speed variations. Fluidomat SC is an ideal equipment for speed variations of centrifugal machines & thus discharge control. Slip power losses in the coupling are also shown in the characteristic curve.

## POWER REQUIRED FOR CENTRIFUGAL FAN & POWER SAVING BY FLUIDOMAT-SC



Curve 2 shows the typical example of power saved at different discharge values when Fluidomat SC is used. The power saving can be in the range of 10-40% depending on operation and flow requirements. Since Fluidomat SC starts motor on NO LOAD therefore motor can be rated for consumed power and not for starting duty. By reducing the power rating of the motor, energy is further saved due to improved efficiency and power factor of the motor. At the same time, high cost slipping motors can be replaced by rugged squirrel cage motors which are low in cost and require very low maintenance.



Dimension Table:

MODEL	B	A1 C/C	A2 C/C	H1	DRY WT. (Kgs)	OIL QTY. (Lts)
SC-6	695	295	680	460	435	60
SC-7	855	370	680	460	570	60
SC-8	875	370	915	500	700	95
SC-9	1015	440	915	500	766	95
SC-9 HT*	1050	590	1340	630	900	245
SC-10	1135	560	1075	560	1000	135
SC-10 HT*	1270	750	1650	695	1250	530
SC-11A	1150	560	1075	585	1030	135
SC-11	1260	590	1340	630	1275	245
SC-12	1285	590	1340	695	1450	245
SC-13	1410	590	1340	695	1750	280
SC-13	1410	750	1650	765	1830	530
SC-880	1588	750	1650	765	2400	530
SC-880	1588	750	1650	1000	2530	700
SC-14	1640	850	1800	1000	3900	800
SC-14 HT*	1950	1065	1940	1000	4100	850
SC-16	2100	1140	2300	1100	5000	900
SC-1330	1950	1066	2100	1200	7500	1500

\* Heat Treated Castings

## RATING OF SC & SC-HT COUPLING IN KW

MODEL	Input Speeds in RPM								
	500	600	750	900	1000	1200	1500	1800	3000
SC-6	-	-	-	9	12	21	40	70	125
SC-7	-	5	10	17	23	39	75	130	300*
SC-8	-	7	14	24	32	56	100	173	500*
SC-9	-	13	25	44	60	104	205	300	-
SC-9 HT*	-	-	-	-	-	-	-	355*	1250*
SC-10	-	25	49	85	116	200	350	425*	-
SC-10 HT*	-	-	-	-	-	-	-	605*	2600*
SC-11A	-	35	68	118	162	280	500	680	-
SC-11	-	51	100	172	236	408	725	1100	-
SC-12	-	90	176	304	416	720	1250	2000*	-
SC-13	74	128	250	432	592	1024	1700	2300*	-
SC-880	111	192	375	648	890	1600	2300*	2600*	-
SC-14	252	435	850	1468	1850	2300	-	-	-
SC-14 HT*	370*	640*	1250*	1525*	2090*	3000*	-	-	-
SC-16	521	900	1758	2812	3000	-	-	-	-
SC-1330	1100	1900	3200	3840	-	-	-	-	-

\* Heat Treated Castings

### ADVANTAGES

- Due to its constructional features Fluidomat - SC design offers many distinct advantages like :
- Self - supported stationary housing, hence no weight experienced by driving or driven shafts and does not load motor and machine bearings.
- Rugged design for all site conditions.
- Rotating mass is not exposed, hence, no hazards of accidents.
- Easy mounting of various controls, oil connections, sensors etc.
- Higher misalignment capacity and choice of flexible couplings.
- Easy maintenance and accessibility by opening top cover.
- Continuous declutching possible.
- Very low vibration and noise level.
- Ease of adopting various type of control and compatible with them.
- Scoop tube position can be governed very easily for speed control.
- Easy operation of scoop tube in auto or manual mode.
- Labyrinth Seals on shaft ensures no leakage from shaft ends.





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