

a vault of solutions

**Head Office**

Fluidomat Limited : 7C-8J, I. S. Gajra
Industrial Area - 1, A.B. Road, Dewas -
455001 M.P. INDIA

Email: info@fluidomat.com

Phone: 7272 - 268100

Fax: 7272 258581

Web : www.fluidomat.com

**Registered Office**

117, 1st Floor, Navneet
Darshan. 16/2 Old Palasia,
Indore - 452001 INDIA

Email: info@fluidomat.com

**Sales Offices**

- Kolkata
- Chennai
- Mumbai
- Delhi

Product Dossier :
Scoop control variable
speed fluid coupling

**FLUIDOMAT**
Engineering The World Differently.

About us



ABOUT US

Fluidomat Limited an ISO accredited Company for ISO:9001:2015, ISO 14001:2015 and ISO:45001:2018 is manufacturing fluid coupling since 1971 in various types and executions. Various types include:

- Constant Fill fluid couplings in Aluminium & Steel body Oil filled & Water filled.
- Scoop Control Variable Speed fluid couplings type SC.
- Leak Off Nozzle type fluid couplings
 1. Type FNCT for Industrial & Mining drives.
 2. Type FNIC for IC Engine drives.

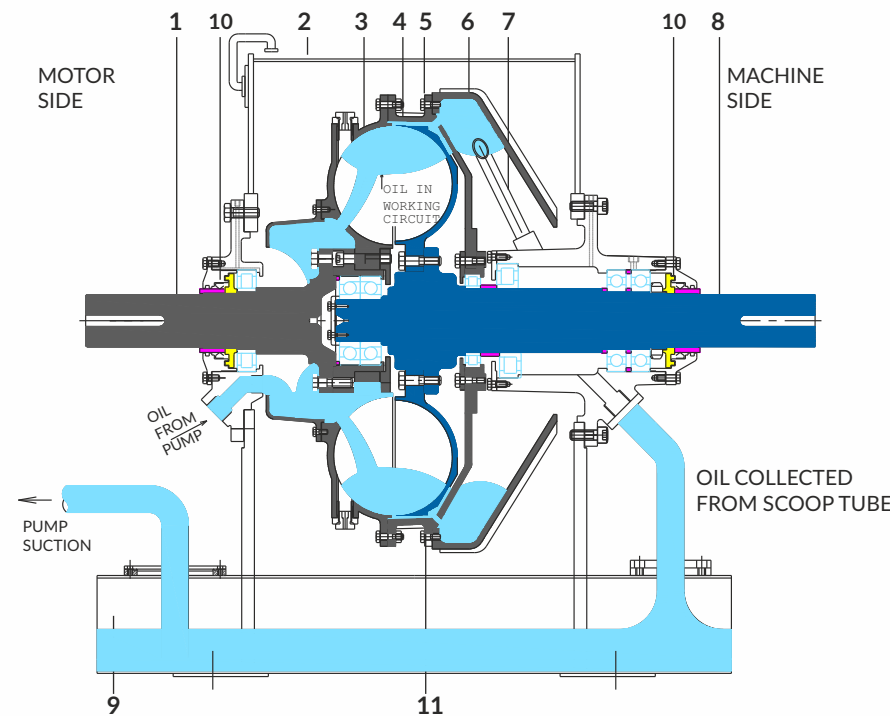
Fluidomat fluid couplings are used on more than 150 application in Industrial, mining & automotive application.

Approved by all consultants, EPC companies & OEM internationally. More than 600 clients all over the world.

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

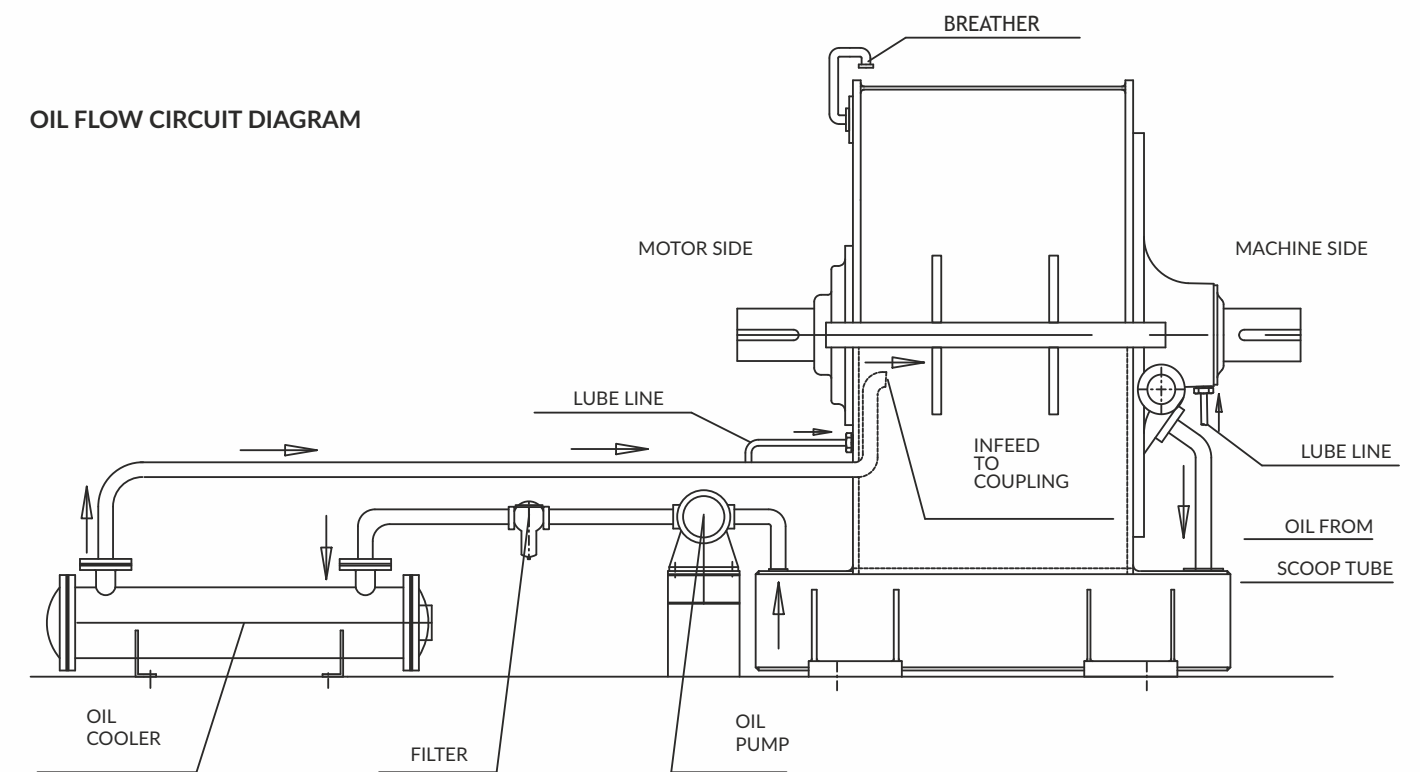
Fluidomat - SC offers advantages like no load starting of motor, controlled starting torque for machine acceleration, continuous declutching in select applications, stepless speed variation, synchronizing of motors in multi drive units, load limiting in a very wide range for safety of motor and machine.

It offers flexibility in controls as it can respond to various electric or pneumatic signals and is compatible with all types of controllers like pneumatic, electronic, electrical or manual. Besides, it offers all the advantages like load limiting, absorption of shock loads, torsional oscillations and vibrations, smooth acceleration etc. Its built-in safety arrangements make it foolproof during operation. They are also suitable for hazardous environment.



DESCRIPTION	
01	INPUT SHAFT
02	UPPER HOUSING
03	IMPELLER
04	ROTOR
05	PRIMARY CASING
06	SECONDARY CASING
07	SCOOP TUBE
08	OUTPUT SHAFT
09	BOTTOM HOUSING
10	LABYRINTH SEAL WITH OIL SEAL
11	WORKING CIRCUIT

OIL FLOW CIRCUIT DIAGRAM



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.

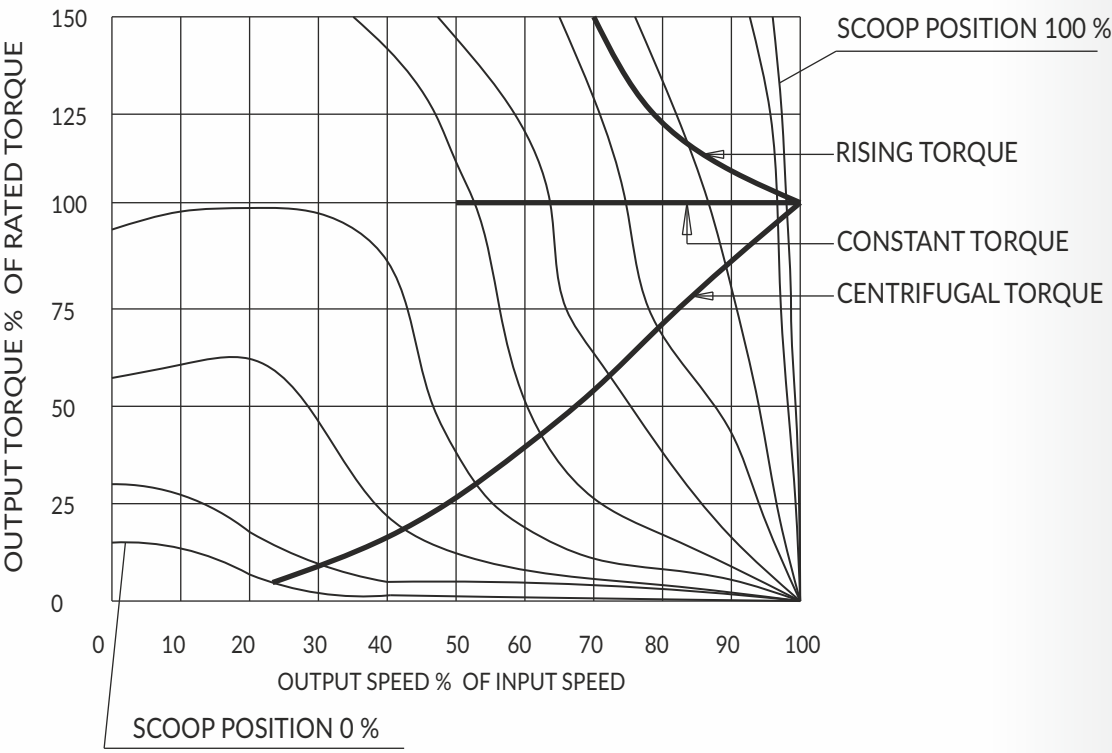
Operation

The sliding scoop tube governs the oil level in the working circuits depending on it's (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 in select applications with motor running.

CHARACTERISTIC CURVE

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



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 variation. Fluidomat SC is ideal equipment for speed variation of centrifugal machines and thus the discharge control. Slip power losses in the coupling are also shown in the characteristic curve.

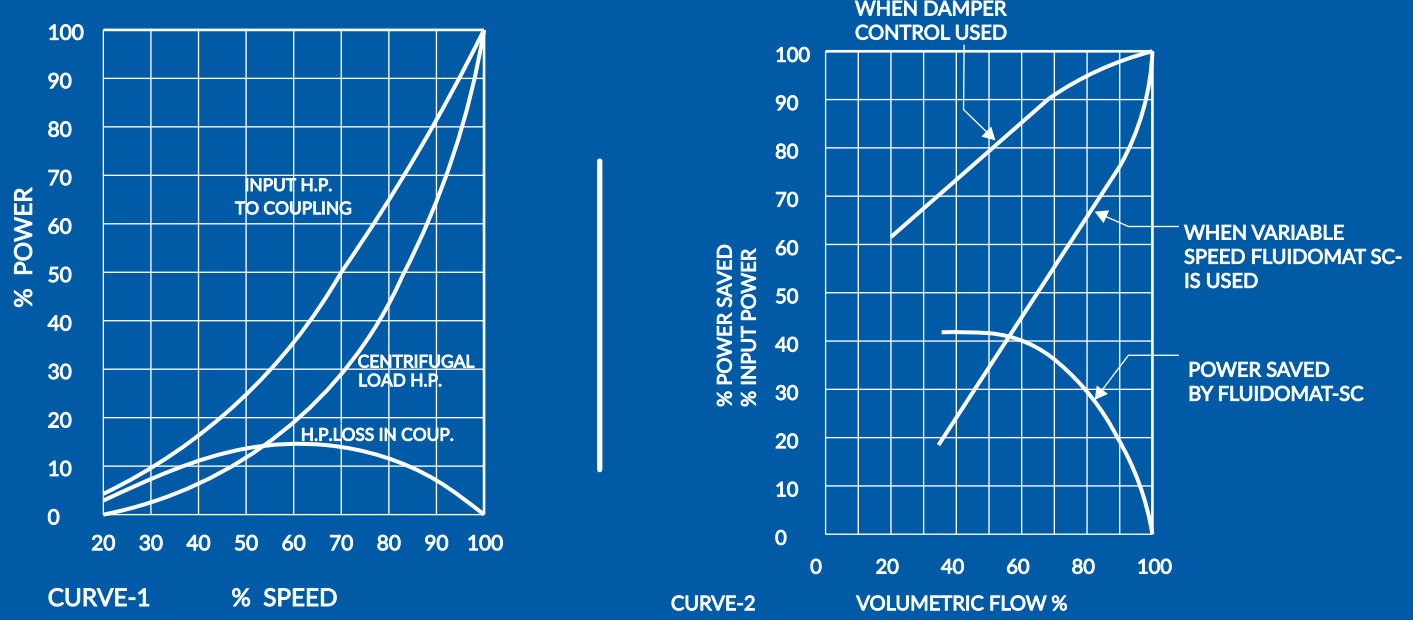
% Fan speed	Fan H.P.	Coupling Input H.P.	Diff. Loss
100	1000	1030	30
90	729	810	81
80	512	640	128
70	343	490	147
66.6	296.3	444.4	148.1
60	216	360	144
50	125	250	125
40	64	160	96
30	27	90	63
20	08	40	32

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.

Fluidomat SC starts drive motor on No Load and meets all the requirements of start up duty besides Speed control.

ENERGY SAVING THROUGH - SC FLUIDOMAT COUPLINGS

Fluidomat - SC provides large energy saving in various drives. In centrifugal machines the discharge of fluid can be varied either by throttle control or by speed control. In throttle control there is pressure loss across the throttle therefore the drive has to provide higher power to provide for loss across throttle and system requires high energy consumption and also causes high rate of wear 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.



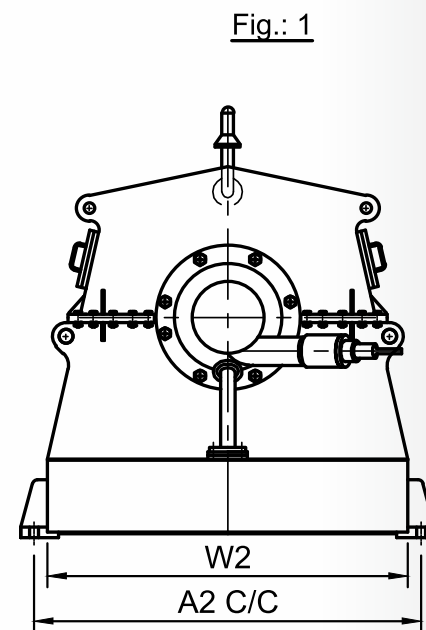
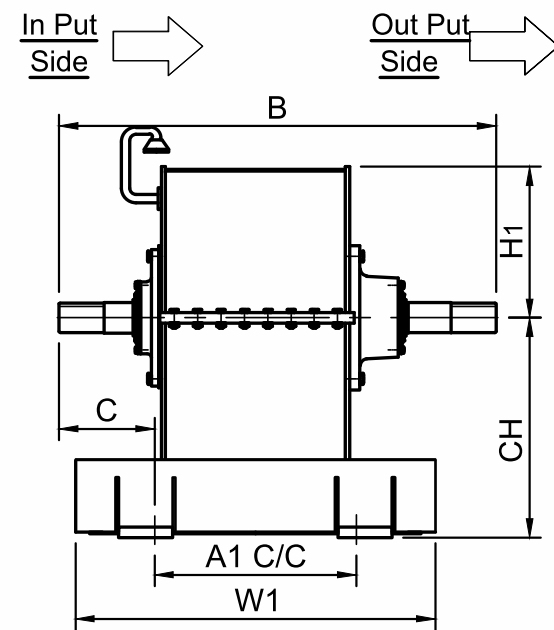


Fig.: 1

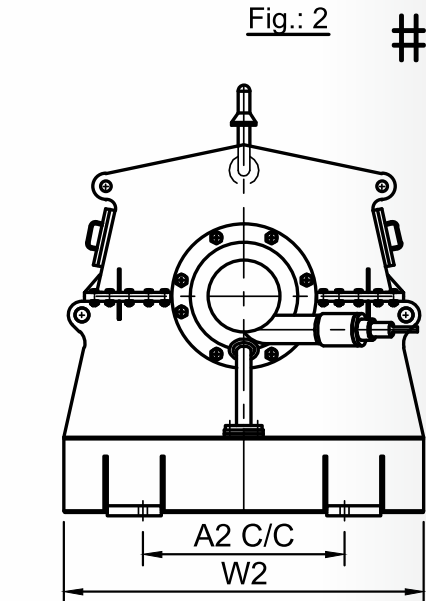
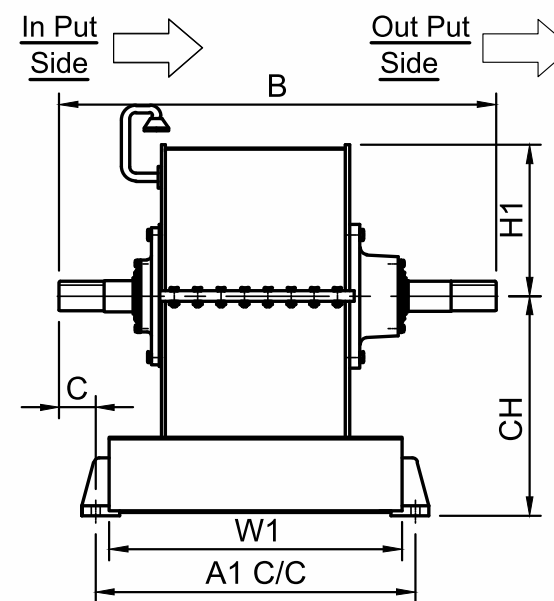


Fig.: 2

#

TECHNICAL SPECIFICATION AND DIMENSION TABLE FOR SC COUPLINGS

S. No.	Model	DIMENSION								Oil Qty. in Ltr. *
		B	C	A1 C/C	A2 C/C	W1	W2	CH	H1	
1	SC-7	855	185	370	680	630	630	475	276	60
2	SC-8	810	179	360	915	835	835	493	287	94
3	SC-9	1015	213	440	915	835	835	575	350	114
4	SC-10	1137	207	560	1075	1000	1000	610	409	160
5	SC-11A	1150	212	560	1075	1000	1000	610	409	160
6	SC-11	1261	257	590	1240	1100	1100	630	431	189
7	SC-12	1267	272	590	1240	1100	1100	745	500	270
8	SC-12	1310	289	590	1240	1100	1100	745	500	270
9	SC-13	1398	290	650	1390	1250	1250	815	505	339
10	SC-13	1429	305	650	1390	1250	1250	815	505	339
11	SC-880	1552	282	750	1650	1500	1500	1000	569	456
12	SC-14	1640	341	850	1800	1600	1600	1000	650	612
13	SC-16	1950	430	940	1800	1800	1600	1060	760	864
14	SC-1330	1950	328	1126	2020	1800	1800	1160	830	1296
15	SC-390-233-2-G	915	-	370	680	630	630	575	417	90
16	SC-422-233-2-G	1110	-	450	750	850	650	630	330	140
17	SC-500-233-2-G#	1145	126	760	1000	624	1780	630	350	235
18	SC-500-233-2-G	1200	126	600	1240	1000	1200	660	350	235
19	SC-580-233-2-G#	1255	131	860	1000	706	1780	800	430	400
20	SC-580-311-G#	1255	131	860	1000	706	1780	800	430	400
21	SC-580-233-2-G-FL	1358	215	744	1410	1260	1260	800	430	400
22	SC-580-311-G-FL	1358	215	744	1410	1260	1260	800	430	400
23	SC-630-311-G**	1485	322	640	1400	1250	1250	900	450	600

* Oil quantity required in pipe line, Cooler & Filter will be extra

** Dimensions are approximate & may change

As per Figure -2

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 & hazardous environment.
- ▶ 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 in select application
- ▶ 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.

RATING OF SC COUPLING IN KW										
MODEL	INPUT SPEED (R.P.M)									
	500	600	750	900	1000	1200	1500	1800	3000	3600
SC-7	--	5	10	17	23	39	75	100	-	-
SC-8	--	7	14	24	32	56	100	173	-	-
SC-9	--	13	25	44	60	104	205	300	-	-
SC-10	--	25	49	85	116	200	350	425	-	-
SC-11A	20	35	68	118	162	280	500	680	-	-
SC-11	29	51	100	172	236	408	725	1100	-	-
SC-12	52	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-14-233-2	326	563	1100	1525	2090	3000	--	-	-	-
SC-16	740	1280	2500	3300	3500	--	--	-	-	-
SC-1330	1250	1800	3000	3500	--	--	--	-	-	-
SC-390-233-2-G	--	--	--	--	--	--	--	70	300	400
SC-422-233-2-G	--	--	--	--	--	--	--	132	480	600
SC-500-233-2-G	--	--	--	--	--	--	--	275	1250	1500
SC-580-233-2-G	--	--	--	--	--	--	--	-	2400	2800
SC-580-311-2-G	--	--	--	--	--	--	--	511	3000	3300
SC-630-311-2-G	--	--	--	--	--	--	--	1012	4600	-

