



CS140T

**A revolution in urban and industrial hygiene:
only one sweeper to collect dirt,
shred waste and vacuum dust**



HIGH PERFORMANCE MACHINES



Street sweeping machines

CS140 T, the 3,5 cu.m sweeping machine developed to clean urban and industrial areas



CS140 T 3,5 cu.m, combines the performance of two machines in one single particularly compact machine, thus providing two actions in one solution and ensuring maximum quality results.

Roads, parking lots and large squares are currently cleaned using mechanical or suction collection machines. These two systems are suitable for different types of cleaning: mechanical machines are more suitable for heavier waste and suction machines are more suitable for lighter waste, therefore selection of one or the other inevitably entails a compromise in terms of the resulting quality.

Therefore, Comac has designed a unique system which combines the strength of mechanical action to collect larger waste and the efficiency of the suction action for dust to provide excellent results, with one machine, in a single pass. The powerful Twin Action System vacuums also the fine dust PM10 and reduces water consumption, facilitating use even in the most difficult conditions.

A sweeping machine designed to respect the environment



ATTENTION TO ENVIRONMENT AND SAFETY ARE THE MAIN CHARACTERISTICS OF CS140 T

CS140 T ensures:

- **TO SAVE UP TO 150.000 LITERS OF WATER PER YEAR**
unlike traditional sweeping machines, with CS140 T the side brushes have an auxiliary function (only used along edges and pavements) consequently reducing the use of water which is employed only in a nebulized state and only to control dust, without wetting the ground.
- **ELIMINATION OF FINE DUST PM10 FROM THE AIR RETURNED TO THE ENVIRONMENT**
thanks to the use of a large size filter, which is less susceptible to clogging, and with a highly efficient cleaning system which practically eliminates the need for maintenance.
- **REDUCTION OF FUEL CONSUMPTION AND ATMOSPHERIC EMISSIONS**
thanks to the high performance hydraulic system and the EURO VI, specific for industrial applications, certified in accordance with the strictest atmospheric emissions standards in its category.
- **GREATER OPERATOR COMFORT AND REDUCTION OF STRESS EVEN DURING THE LONGEST WORK SHIFTS**
thanks to the position of the engine, located at the rear of the vehicle, the sound proof cab and the use of hydraulic suspensions.



TWO COMBINED ACTIONS TO ACHIEVE 100% PRODUCTIVITY AND MAXIMUM QUALITY

The **mechanical action** consists in the movement of the **central brush (1)** which collects the material from the ground and conveys it to a hopper where is shredded by **the hammers of a rotating shaft (2)**. At this point, by means of **the suction action (3)**, the material is raised to **the collection hopper (4)**, while **the sucked air is filtered (5)** and returned to the environment perfectly clean (6).

FLEXIBILITY OF USE

The Twin Action system allows operation even on bumpy road surfaces: tree roots or protruding manholes are not a problem. No rigid element (suction outlet support wheel or metallic holding plates) is in contact with the ground, therefore no breakage or excessive wear can occur during work; only the central brush touches the ground and thanks to its characteristics it follows the profile of the ground smoothly.

CS140 T ensures excellent results both on streets and in industrial environments



INNOVATION



Besides operating in the urban environment CS140 T can also be successfully used in cleaning phases before asphaltting, on road work sites, and in industrial

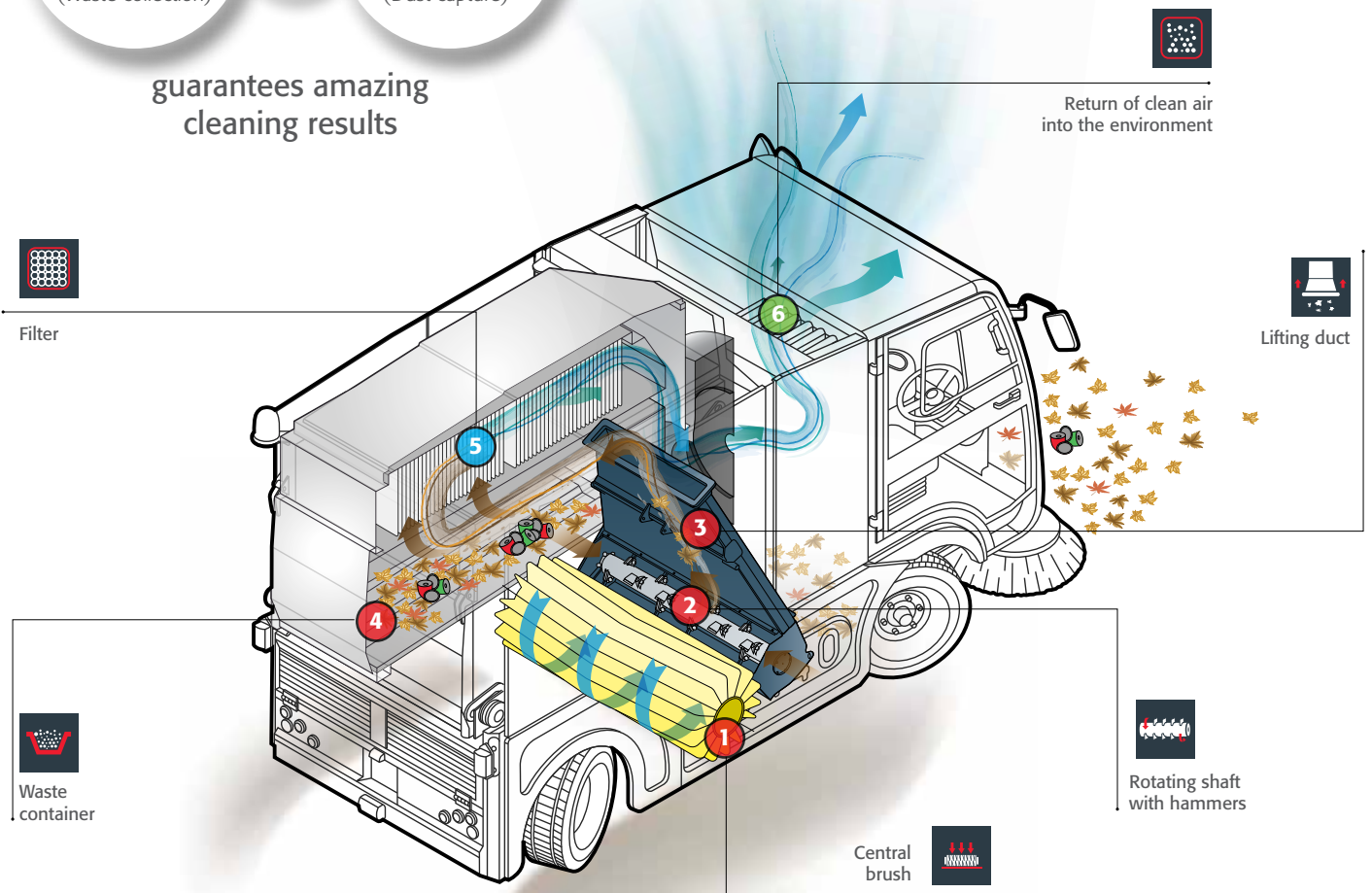
environments, including metallurgy plants and cement factories.

The perfect combination of:



guarantees amazing cleaning results

Large items such as bottles, cans and branches are crushed and shredded



The side brushes are used only to convey the dirt from the edges (pavements or walls) to the operating area of the central brush, which collects both debris and dust thanks to the highly efficient suction action



UNIFORM CLEANING AND COLLECTION OF SMALL AND LARGE WASTE WITH THE INNOVATIVE CENTRAL BRUSH SYSTEM

CS140 T uses the central brush continuously, thereby ensuring higher quality cleaning because it is uniform for the entire width of the brush and higher productivity because it can clean more quickly than a conventional vacuum sweeper which has to use the two side brushes. It is available in various combinations of synthetic fibres or steel and has a diameter of 600 mm with a width of 1400 mm.

The technical solutions adopted, such as the hydraulic support and the presence of the flaps, ensure a constant pressure on the ground for the brush independently of wear or the terrain; the machine can also be positioned at 3 height levels allowing removal of different types of waste: leaves, pine needles, bottles, etc.



THE THIRD BRUSH (optional)


Designed for operation on both the sides of the machine. The brush movement, rotation and tilt, are controlled by a convenient joystick



The side brushes can be equipped with special nozzles for spraying water (optional) which are effective for controlling dust during sweeping



Joystick to control the third brush

 WITH TWIN ACTION
THE USE OF WATER
IS SIGNIFICANTLY REDUCED

With the Twin Action system the use of water is limited only to the external part of the side brushes in a nebulized state in order to control flying dust. As a consequence CS140 T is equipped with a tank of only 220 litres.

Excellent manoeuvrability thanks to the 4 turning wheels

PRODUCTIVITY



CS140 T, has an **integral steering system on all 4 wheels** with symmetrical front and rear angles (the same centre of rotation for the two axles) and a turning circle of 4.25 m. Together with the reduced dimensions, these characteristics provide great manoeuvrability, even near walls or fences, and guarantee the necessary ease of handling to operate in places where space is limited such as historical town centers or cluttered areas, at the same time guaranteeing maximum vehicle stability during transfer even at the highest speed.

3 positions for maximum optimisation of the different working conditions

PRODUCTIVITY



Comac has produced a special device which, acting separately on the four wheels, maintains constant the height from the ground, even when the load varies, optimizing work and stability.

The operator can position the machine on three different pre-established levels in order to meet various needs.

1. WORKING POSITION

the machine is in the lowest position with the rubber flap close to the ground in order to avoid dust release.



2. MOVING POSITION

the machine is raised about 40 mm in order to avoid possible contact with the ground and therefore rubber flap wear.



3. MAINTENANCE POSITION

the machine is raised another 70 mm (beyond the moving position height) in order to facilitate replacement of the central brush.



SUCTION HOSE (optional)

CS140 T is equipped with a suction hose which allows specific operations as necessary. The operator can use the suction hose to collect material accumulated in areas difficult to be reached with the machine (benches, grassy areas, covered corners, etc.); also, thanks to the large diameter of the hose, it can suck up waste of various dimensions such as paper, leaves, bottles and cans.



**Large filtering surface
to guarantee a clean air return into the environment**



Button for activation of the filter shaking

THE SUCTION SYSTEM

Operated by a hydraulic motor which can reach up to 14,000 cu.m/h.

The air sucked up from the ground and the dirt shredded by the hammers of the rotating shaft are directed into a rectangular duct.

The air flow and the material collected follow a path which slows the speed down causing the fall of heavier dirt, reducing the quantity of particles which arrive at the filter.

THE FILTER

The filtering unit has a surface of 50 sq.m and is equipped with 2 filter shaking for cleaning. These characteristics, together with the choice of materials (polyester) and the fact that the filter operates dry, virtually eliminate the need for routine maintenance; **they also ensure the return of perfectly clean air into the environment.**

The large filtering surface and the efficiency of the dusty air intake distribution system over the entire surface ensure continuity of performance over time. For specific needs (dust with high temperature waste, fine dust) other materials are available.

**With CS140 T suction is even possible
in wet road conditions
thanks to the filter "By-pass" system**

PERFORMANCE



The "By-pass" system allows deviation of the air flow in order to bypass the filter when working in wet road conditions, for example in the event of rain. By selecting this mode, the flow of damp air, which is obviously dust-free, does not go through the filter, thus avoiding damage.

**CS140 T has a high capacity collection hopper
which guarantees many hours of continuous non-stop operation**

Ultra-reliable
top emptying system
at heights



h 180 cm



Hopper emptying buttons

The collection hopper is emptied by lifting it on vertical guides up to 180 cm.

The lifting system, similar to that of a forklift, allows significant reduction of stress on the frame and unloading at any intermediate height, according to the characteristics of the unloading area.

THE HOPPER

The total volume is approximately 3.5 cu.m, a capacity which reduces the down time required for emptying, and therefore also the total cleaning time.

It is horizontally divided into two parts: the lower part is designed for collection of material while the upper part houses the filter.

The central console is designed to ensure that all the commands are within easy reach

COMFORT



The cab is comfortable because it is spacious and insulated with anti-vibration supports. **It is comfortable to drive, and the large windscreen provides maximum external visibility for the operator, making manoeuvring and control over the collection area easier.**

The activation commands, simple and intuitive, are grouped on a central console. The others are on the front part of the roof, both easily accessible from the working position. On request the machine can be customized with a climate control system, radio and useful colour camera which covers the rear of the machine in order to aid reversing and emptying operations, also allowing constant monitoring of cleaning effectiveness.

The operator can work in maximum safety thanks both to the complete visibility provided by the windows and the possibility of entering the machine from both sides.



Maximum accessibility for simple quick maintenance operations



MAINTENANCE

THE SUCTION FILTER

The filter component materials, the dimensions and the absence of water in the collection **eliminate ordinary maintenance operations.**

However, if the filter material has to be changed, since it is a completely pre-assembled unit, it can be removed by lifting it out of the upper part of the hopper; a position which significantly simplifies the operation.



FILTERING SURFACE
50 sq.m



The engine air filter and the hydraulic oil radiator are located in the rear of the machine and can be accessed by means of a door which can be opened even with the hopper lowered.

This position has been chosen to keep these parts exposed to a flow of clean air in order to avoid clogging and overheating and to reduce the possibility of damage.

For other routine and extraordinary maintenance operations, the hopper can be simply raised and locked in its highest position. In this way maintenance operations such as simple oil checks can be performed both on the hydraulic part and the mechanical part.

CS140 T can work even for more consecutive shifts

MECHANICS



THE ENGINE

The designers chose to install a VM R754 engine which is specifically sized for continuous applications at constant speed with reduced consumption.

The sweeping action concentrated on the central brush allows operation with minimum power and the lowest rpm, thus ensuring long engine life and low noise levels.

DRIVE

Traction is completely hydraulic, provided by two motors installed directly on the rear wheels and a variable capacity pump to adjust the speed from 0 to 40 km/h.

Speed control is driven simply by means of two pedals, one for forward movement and the other for reverse. The manual adjustment of the diesel engine accelerator allows selection of the optimum rpm in order to reduce consumption according to the required level of performance.

The suspensions and the braking system guarantee driving in complete safety with excellent road holding, even when fully loaded

THE SUSPENSIONS

The suspensions are hydraulic with MacPherson system on all four wheels.

Each wheel has a hydraulic cylinder and accumulator which ensure **optimal absorption of road surface irregularities without using springs.**

THE BRAKES

CS140 T has disc brakes on the front and drum brakes in the back. The negative type emergency and parking brakes also operate on the rear wheels: they cut in and block the machine in the event of a breakdown or in the event of lack of pressure to the hydraulic braking system.



CONFIGURATIONS

With 2 side brushes
(standard)



With third brush
(optional)



Working width:
Central brush 1400 mm
With two side brushes 2220 mm
With third brush 3150 mm

TECHNICAL DESCRIPTION

CLEANING TRACK

Central brush working width	mm	1400
Working width with 2 side brushes	mm	2220
Working width with side brushes + third brush	mm	3150
Cylindrical central brush diameter	mm	600
Side disc brushes diameter	mm	750

WASTE CONTAINER

Volume	l	3500
Container lifting maximum height	mm	1800

SUCTION

Air flow	cu.m/h	14000
Filtering surface	sq.m	50
Suction motor rated power	KW	45

PERFORMANCE

Maximum speed	Km/h	40
Maximum gradient when empty	%	20
Working speed	Km/h	0+40

MOTORIZATION

Engine	-	VM R754 EU VI/Stage 3A
Fuel	-	Diesel
Engine power	HP/KW	105/79
Engine	rpm	2300

DIMENSIONS AND WEIGHTS

Machine length with side brushes + third brush	mm	4910
Machine width	mm	1755
Machine height when in operation	mm	2500
Machine weight	Kg	5800

GENERAL SPECIFICATIONS OF THE VEHICLE

Turning circle	mm	4250
Service brake	-	Hydraulic
Parking and emergency brake	-	Hydraulic
Rear wheel traction	-	Hydraulic
Wheels	-	205/65 R17.5
Suspensions	-	Hydraulic and independent
Machine height control	-	on all 4 wheels
Diesel tank capacity	l	105
Water tank capacity	l	220

OPTIONAL ACCESSORIES

Air conditioning	
Radio with CD player	
Rear colour camera	
High pressure washer wand	
Third brush	
Spray system on the brushes complete with tank	
Suction hose	



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