

CS140

Two sweeping machines in one.

Combined vacuum and mechanical action
to revolutionize urban and industrial hygiene



CS140 Twin Action, the 2m³ sweeping machine developed to clean urban and industrial areas



CS140 TwinAction, 2m³, combines the performance of two machines in one single particularly compact machine, thus providing two actions in one solution and ensuring maximum quality results.

CS140 Twin Action, designed to respect the environment



**ATTENTION TO ENVIRONMENT AND SAFETY
ARE THE MAIN CHARACTERISTICS OF CS140 TWIN ACTION**

- REDUCTION OF WATER CONSUMPTION

side brushes have an auxiliary function consequently reducing the use of water

-ELIMINATION OF DUST FROM THE AIR RETURNED TO THE ENVIRONMENT

thanks to the use of a large size filter

- REDUCTION OF FUEL CONSUMPTION AND ATMOSPHERIC EMISSIONS

thanks to the high performance hydraulic system and the Perkins engine

**-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.

Innovation



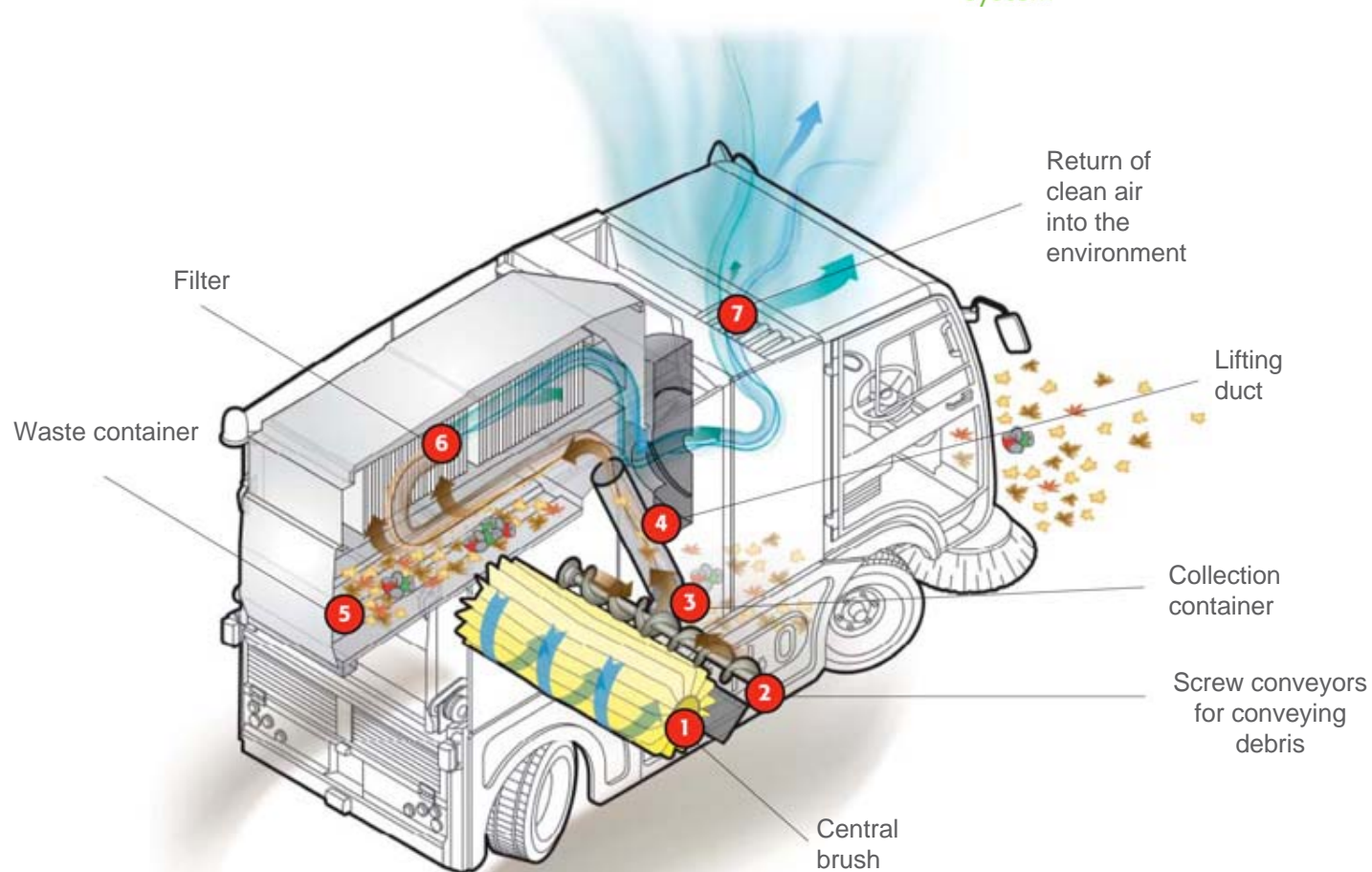


THE INNOVATIVE TECHNOLOGY DEVELOPED AND PATENTED BY COMAC

The innovative combined “Twin Action” system developed by Comac includes the central brush and two screw conveyors which operate simultaneously with suction operation to guarantee maximum efficiency in dirt collection.



guarantees amazing cleaning results



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 the two screw conveyors (2) bring it into the central area of the container (3). At this point, by means of the suction action (4), the material is raised to the collection hopper (5), While the sucked air is filtered (6) and returned to the environment perfectly clean (7).



With the new collection system, wear on the mechanical parts and maintenance are drastically reduced

The screw conveyors consist of two steel shafts, both equipped with a spiral which, hydraulically moved, rotates on the same axis, conveying dirt and debris of different dimensions close to the suction outlet

Productivity





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

CS140 Twin Action 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 sweeping machine which has to use the two side brushes.

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 only on the right side of the machine in order to avoid damage due to poor visibility of the operator, who will also find manoeuvring simplified: the brush needs only to be moved to collect waste far from the sweeping machine, while lifting, lowering and rotation are automatic.



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

Excellent manoeuvrability thanks to the 4 turning wheels



CS140 Twin Action, 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 optimization of the different working conditions



A device to maintain the height of the vehicle unchanged

1. Working position

2. Moving position

3. Maintenance position

Comac has produced a special device to control the vehicle height from the ground which, acting separately on the four wheels, maintains constant the height from the ground, optimizing work and stability.

This device can also maintain the height of the vehicle unchanged even when the load varies.

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

Environment



Constant and adjustable suction, which adapts to any type of dirt

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

THE SUCTION SYSTEM



Switch to adjust the three suction levels

Operated by a hydraulic motor which can reach up to 14,000 m³/h, it can be adjusted to three suction levels according to the performance required. In this way consumption and sound emissions are reduced, adjusting the operating parameters to the different conditions of dirt which the machine can face.

THE FILTER



Button for activation of the filter shaking

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 cotton) 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.

Performance



**With CS140 Twin Action suction is even possible
in wet road conditions
thanks to the filter “By Pass” system**



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 Twin Action has a high capacity collection hopper which guarantees many hours of continuous non-stop operation

Ultra-reliable
top emptying
system at heights



Hopper emptying
buttons



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

THE HOPPER

The total volume is approximately 3.5 m³, a capacity which reduces the down time required for emptying, and therefore also the total cleaning time.

Comfort



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



Useful colour camera which covers the rear of the machine

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

Maintenance

Maximum accessibility for simple and quick maintenance operations



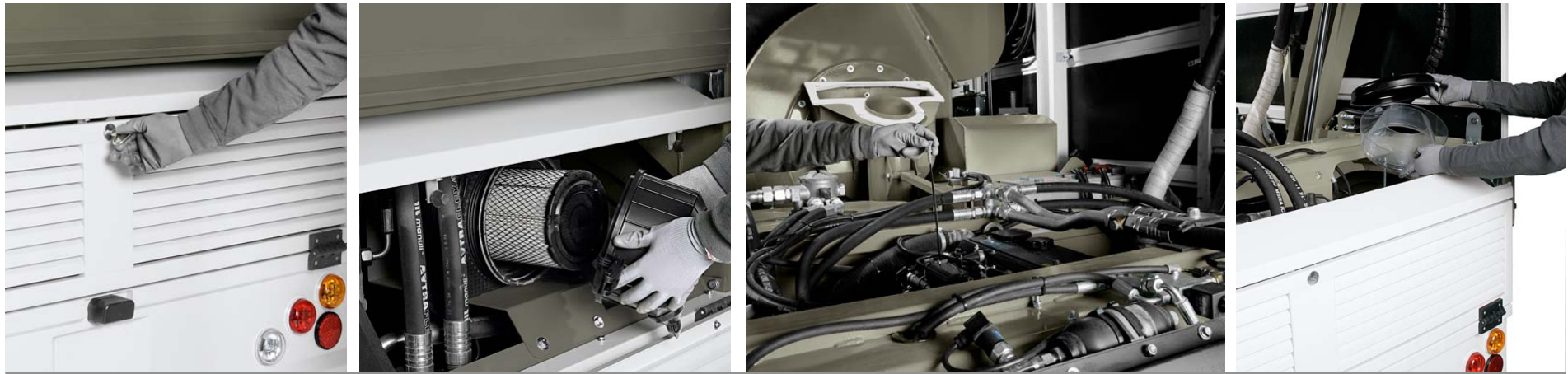
Filtering surface
50 m²

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

Maintenance

Maximum accessibility for simple and quick maintenance operations

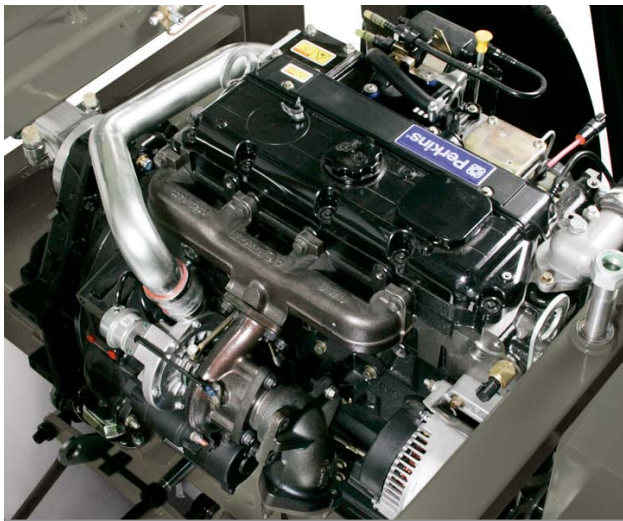


THE RADIATOR

The radiator is positioned in the front part of the machine in an area protected from the presence of dust and easily accessible by tipping the cab.

Mechanics

CS140 Twin Action is not afraid of continuous heavy-duty jobs, even for 8 hours non-stop



The engine, manufactured by PERKINS, delivers 100HP (75 KW) at only 2200 g/min With maximum torque of 1400, and 4400 cc. displacement



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.



All the numbers of **CS140**

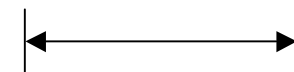
All the numbers of CS140

With 1 RH side brush
(standard)

With 2 side brushes
(LH brush optional)

With third brush
(optional)

2500 mm
Height



Working width:
Central brush 1400 mm
With 1810 mm RH side brush
With two 2220 mm side brushes
With 2620 mm third brush

Tutti i Numeri CS140

CS140 sweeping machine

TECHNICAL DESCRIPTION	CS140
CLEANING TRACK	
Central brush working width mm	1400
Working width with 2 side brushes mm	2200
Working width with side brushes + third brush mm	2620
Cylindrical central brush diameter mm	600
Side disc brushes diameter mm	700
WASTE CONTAINER	
Volume (total) l	3500
Volume (usable) l	2000
Container lifting maximum height mm	1800
VACUUM	
Air flow m ³ /h	14000
Filtering surface m ²	50
Suction motor rated power KW	45
PERFORMANCE	
Maximum speed Km/h	40
Maximum gradient when empty %	20
Working speed Km/h	12
MOTORIZATION	
Engine	PERKINS
Fuel	DIESEL
Engine power HP/KW	100/75
Engine rpm	2000
DIMENSIONS AND WEIGHTS	
Machine length with RH side brush mm	4480
Machine width mm	1755
Machine height when in operation mm	2500
Machine height in transfer mm	2550
Machine weight in running order Kg	4500
Maximum weight in running order Kg	5800
GENERAL SPECIFICATIONS OF THE VEHICLE	
Turning circle mm	4250
Service brake	HYDRAULIC
Parking and emergency brake	HYDRAULIC
Rear and 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	200

TECHNICAL DESCRIPTION	CS140
OPTIONAL ACCESSORIES	
Air conditioning	-
Radio with CD player	-
Rear colour camera	-
LH side brush Ø mm	700
Third side brush Ø mm	700
Nebulizer system on the brushes complete with tank l.	200
Suction hose Ø and length mm	100X4500

Control over Information and/or Documents:

Any information (i.e. any data, news, except exclusively for those of public knowledge or those that have been disclosed by COMAC themselves without reserve) and any document (drawings, pictures etc.) are exclusive property of COMAC and any use thereof does in no way involve any acquisition of any title to, property of, exploitation right or licence on them, except for the limited use permission that is granted under this document.

By way of example but not by way of limitation, it is herewith acknowledged that said information and/or documents shall include the following:

Marketing Section:

High-definition digital images for printed trade catalogues or internet sites, brand names, original graphic documents for text extraction (i.e. product descriptions), PDF documents and original documents in PPT format.

Professional Use of Data:

It is acknowledged that the information and/or documents referred to in this document are and shall be used by the recipient exclusively for the purpose of his/her professional activity and so no regulation on consumer protection shall apply.

Confidentiality:

The party who is the recipient of any information or makes use of the documents taken from or available with the trade documentation shall treat said information and/or documents with utmost diligence, exclusively for the purpose of the performance of the contract with COMAC and shall:

keep any and every information and/or documents confidential except for those intended for disclosure by their nature (promotional and advertising material etc.);

refrain from disclosing any information and/or document to one's suppliers, co-operators

or employees except to the extent strictly necessary for the performance of one's duties in connection

with the COMAC business relationship and make sure that all suppliers, co-operators and employees who have access to the information and/or documents are themselves subject to confidentiality obligations in favour of COMAC;

refrain from disclosing any information to third parties without the prior written consent of COMAC

or from copying and/or otherwise reproducing any information or documents without the prior written consent of COMAC

and implement any necessary action to protect confidentiality.

Return of Information and/or Documents:

Still holding exclusive title to them, COMAC shall be entitled, at any time, to request in writing or through electronic mail,

that any and every information and/or document that has been received is returned or no longer used

and every information and/or document, including any copy thereof, must be returned or destroyed not later than 30 days

of the receipt of the above mentioned request and prevent any possible retrieval.

Furthermore, COMAC shall be provided with a written declaration that all information and/or documents have been returned or destroyed.

However, the obligation to return, destroy or avoid the use of said information and/or documents shall automatically

apply upon the termination, for whatever reason, of the cooperation with COMAC.

Governing Law, Severability and Jurisdiction:

The construction, integration, performance and the effects of this covenant shall be governed by Italian Law.

Unenforceability of any provision of this covenant shall not affect the validity of the remaining provisions.

Any disputes shall be subject to the exclusive jurisdiction of the Court of Verona.