



Dry Compressing Vacuum Pumps

Dry Com

SCROLLVAC

Scroll Vacuum Pumps

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Dry Compressing Vacuum Pumps

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Products

Oil-free Scroll Vacuum Pumps SCROLLVAC 7 plus to 18 plus



Scroll vacuum pump SCROLLVAC 15 plus

Advantage for the User

- Flexibility for customer requirements
- Four different pumping speeds available as required for the application
- Single- and Three-phase configurations available
- High robustness for each application
- ATEX certification (**Ex II 3 G c IIB T4**)
- Variants for aggressive applications available (SCROLLVAC C plus)
- High water vapour capacity
- Electronic-free three-phase variant for reduced radiation sensitivity
- Better work environment and low environmental impact
- quiet operation
- Simple operation
- intelligent and easy to use controls
- No contamination and no oil to dispose of
- hermetically sealed for a lubricant-free vacuum environment
- Low cost of ownership
- long service interval and low power consumption from a single sided scroll arrangement
- Maximised up-time
- long service intervals

Typical Applications

- General clean pumping applications
- Scanning Electron Microscopes - SEM
- Beam lines and high energy physics
- Research and development
- Backing turbomolecular pumps
- Centrifuges, ultra-high speed
- Chamber evacuation
- Chemical applications including gel dryers and solvent recovery

In 1905 the principle of the scroll compressor was developed by the Frenchman Leon Creux.

SCROLLVAC plus is the next generation in completely oil free, dry scroll pumps by offering increased pumping speeds, combined with lower ultimate pressures, lower power consumption and lower noise. Gas ballast allows for pumping of condensable vapours including, water, solvents, dilute acids and bases. SCROLLVAC plus pumps also feature the latest in tip seal technology giving significantly longer life between tip seal changes. Integrated inverter drive with auto sensing voltage input delivers optimised pumping performance globally.

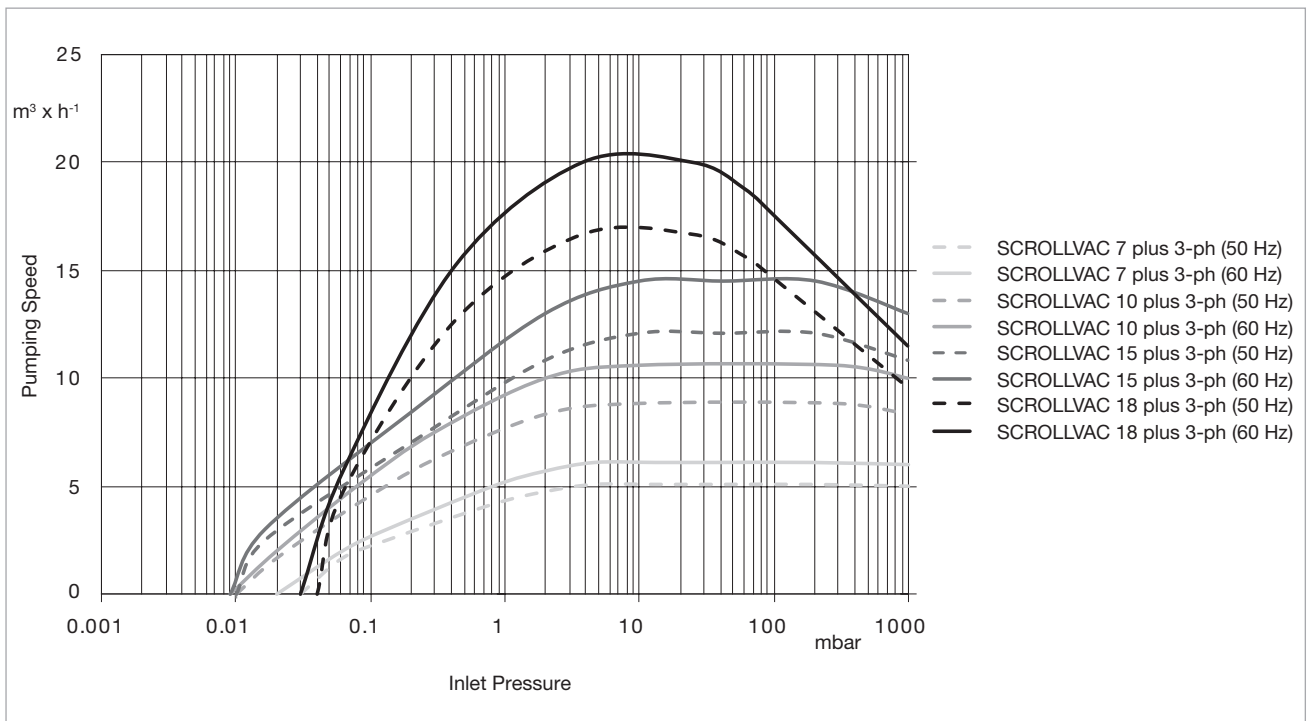
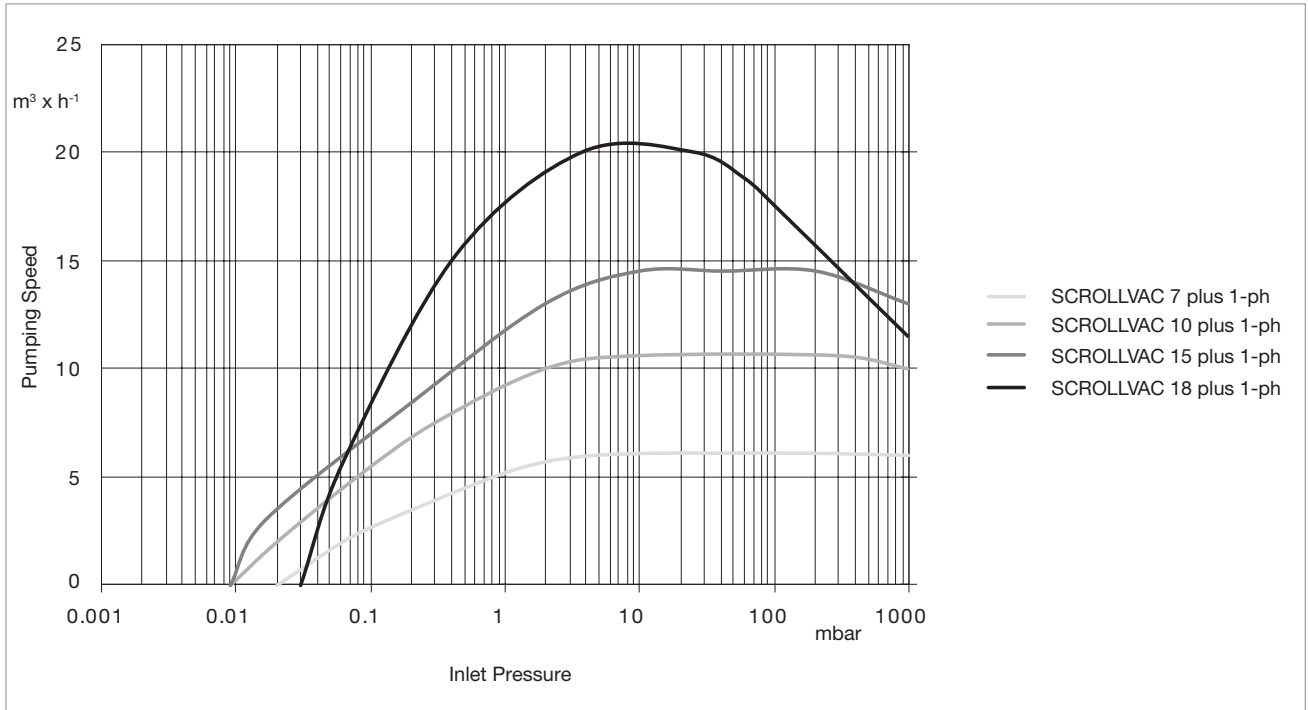
SCROLLVAC plus pumps are designed to be completely field serviceable.

Service

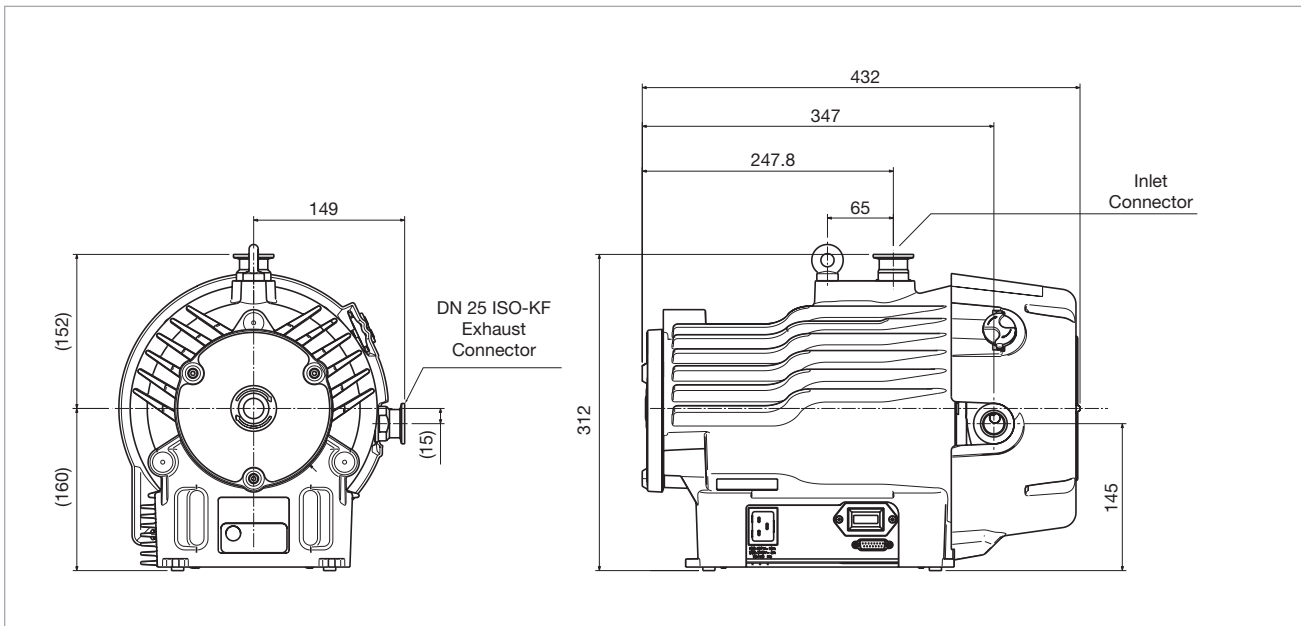
Our wide portfolio of services is designed with you in mind: to help keep your process and equipment running in the most economical and environmentally efficient manner.

Service include:

- Overhaul and repair using genuine Leybold OEM parts
- OEM spares and kits available for cost-effective expansion and backups
- Remanufactured products available for cost-effective expansions and backups
- Global network of expert field service engineers available to respond quickly to unexpected equipment failures



Pumping speed curves for the SCROLLVAC plus – pumps



Dimensional drawing for the scroll vacuum pumps SCROLLVAC 7 plus to SCROLLVAC 18 plus (dimensions in mm)

Technical Data

SCROLLVAC plus

		7	10	15	18
Rotation speed	rpm	1740			
Max. pumping speed	m ³ /h	6.1	10.6	14.5	20.0
Ultimate vacuum (total pressure)	mbar (Torr)	2×10^{-2} (1.5×10^{-2})	9×10^{-3} (6.5×10^{-3})	9×10^{-3} (6.5×10^{-3})	3×10^{-2} (2.25×10^{-2})
Maximum water vapour pumping rate (with gas ballast)	g/h	100	140	280	220
Maximum continuous inlet pressure	mbar	200			
Mains voltage 1-ph	V	100 – 127, 200 – 240 ($\pm 10\%$)			
Mains voltage 3-ph	V	200 / 380 – 415, 200 – 230 / 460			
Frequency	Hz	50/60			
Motor power (at ultimate pressure)	W	260	280	300	260
Power connector 1-ph		IEC EN60320 C19			
Weight	kg (lb)	26 (58)	25 (56)	26 (58)	25 (56)
Inlet flange		DN 25 ISO-KF			
Exhaust flange		DN 25 ISO-KF			
Noise level	dB(A)	55			
Leak tightness (Static)	mbar x l/s	1×10^{-6}			
Operating temperature range	°C (°F)	10 to 40 / 41 to 104			

Ordering Information

SCROLLVAC plus

	7	10	15	18
	Part No.	Part No.	Part No.	Part No.
Oil-free scroll vacuum pump, Single-phase motor *				
Standard (with manual gas ballast)	141007V10	141010V10	141015V10	141018V10
C-Version (for aggressive applications)	-	-	141015V12	141018V12
Oil-free scroll vacuum pump, Three-phase motor *				
Standard (with manual gas ballast)	-	141010V30	141015V30	141018V30
C-Version (for aggressive applications)	-	141010V32	141015V32	141018V32
Accessories Mains cable (required for pump operation)				
Mains cable Europe				
CEE 7/7 (Schuko) – IEC-60320 C19				
Length 2.0 m	161810EU			
Mains cable Great Britain				
BS 1363 – IEC-60320 C19				
Length 2.0 m	161810UK			
Mains cable US				
115 V: NEMA 5-15P – IEC-60320 C19				
Length 3.0 m	141103US			
208/230 V: NEMA 6-15P – IEC-60320 C19				
Length 2.5 m	161810US			
Optional accessories				
Gas ballast adaptor blank (H-conversion KIT)	141100A01			
Gas ballast adaptor for external gas line – no restriction (Quick connect 1/4 inch)	141100A02			
Gas ballast adaptor for external gas line – with fine restriction (Quick connect 1/4 inch)	141100A03			
Chemical resistance conversion kit (C-conversion KIT)	141101A01	141101A01	141101A01	141101A02
Vibration isolators	141102A01			
Silencer	141102A02			
Minor Service Kit				
Standard (with manual gas ballast)	EK117141000	EK117141000	EK117141000	EK117141001
C-Version (for aggressive applications)	EK117141002	EK117141002	EK117141002	EK117141003

* Other pump variants on request

Oil-free Scroll Vacuum Pumps SCROLLVAC SC 30 D to SC 60 D



Scroll vacuum pump SCROLLVAC: SC 60 D (left), SC 30 D (right)

The pumps of the SCROLLVAC series expand the SCROLLVAC plus series to provide a higher suction capacity of 30 m³/h and 60 m³/h. Both versions are available with a three-phase motor, the 30 m³/h version also with AC motors for 115 V and 230 V mains voltage.

On the basis of the scroll principle, the pump chamber of the pumps is oil-free, so the risk of contamination of the vacuum chamber with hydrocarbons can be ruled out.

The pumps of the SCROLLVAC series reach their maximum suction capacity of atmospheric pressure up to 1 mbar and reach final pressures of $< 1 \times 10^{-2}$ mbar, so that the pumps are ideally suited as backing pumps for turbomolecular vacuum pumps.

Advantage for the User

- Absolutely oil-free
- High effective pumping speed
- Low ultimate pressure
- Low noise level
- Low vibration operation
- Atmospheric inlet pressure allowable
- Low weight
- Air cooling
- Low power consumption
- Integrated operating hours counter

Typical Applications

- Electron beam welding
- Lasers
- Leak detection systems
- Accelerators / synchrotrons
- Surface analysis instruments
- Scanning electron microscopes
- Load lock
- Spectroscopy
- Lamp manufacturing
- As a backing pump for turbomolecular pump systems

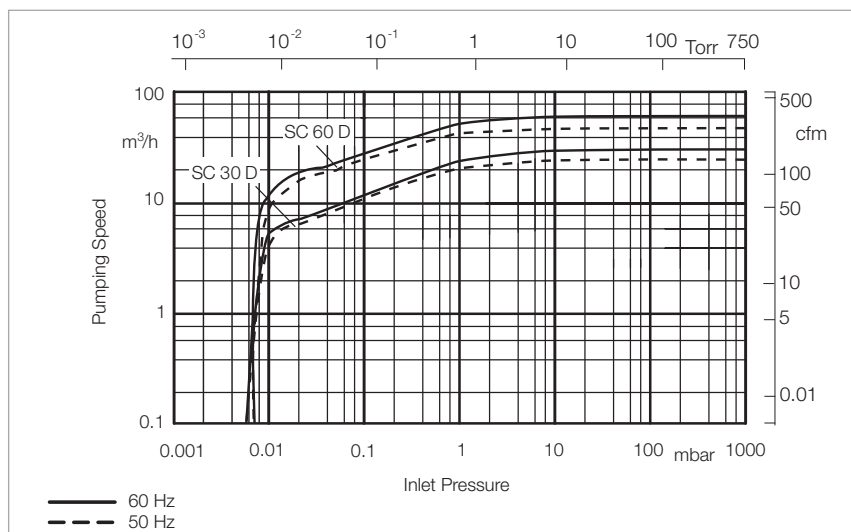
Maintenance Intervals

In order to maintain the performance of the pump, a standard maintenance is required after a certain number of operating hours.

For this we are offering complete maintenance kits

- Small maintenance kit (Minor Kit) after 8,000 h or at latest after an operating time of 12 months
- Large maintenance kit (Major Kit) after 16,000 hours or at latest after an operating time of 24 months

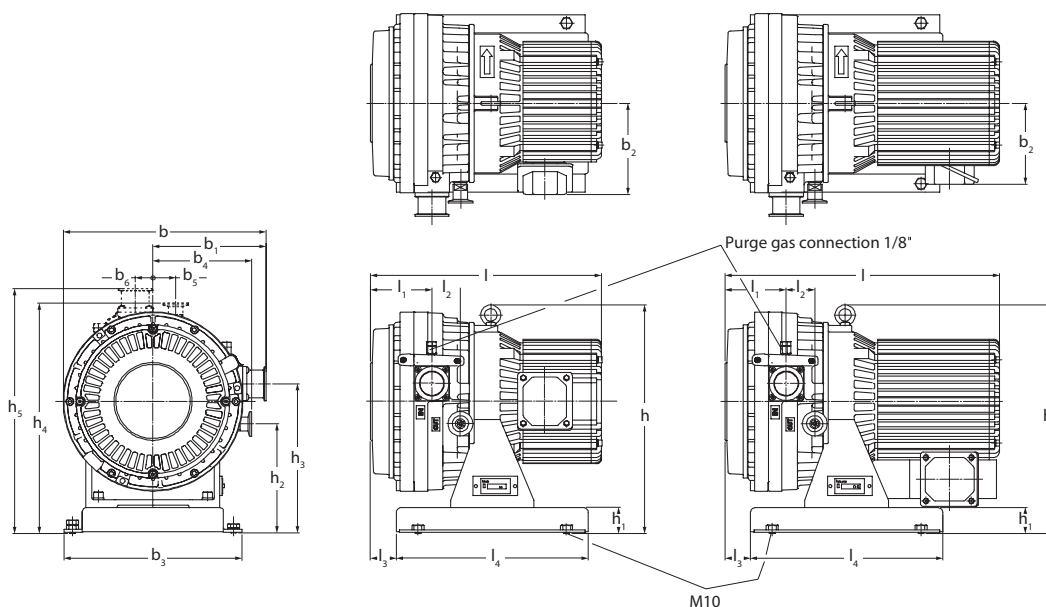
With the help of the integrated operating hours counter, the customer is always informed about the current runtime. Maintenance can be performed on-site by the customer with the maintenance packages available at Leybold.



Pumping speed curves for the scroll vacuum pumps SCROLLVAC SC - D

3 phase

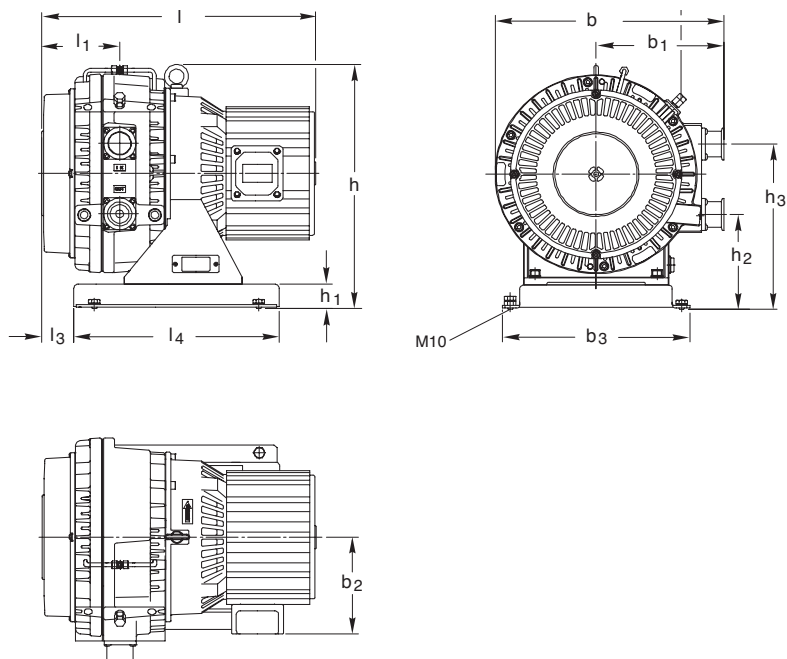
1 phase



Type		b	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	h	h ₁	h ₂	h ₃	h ₄	h ₅	l	l ₁	l ₂	l ₃	l ₄
SC 30 D	mm	328	183	131 ¹⁾	288	159	36	29	372	42	178	243	373	397	443 ²⁾	99	46	42	310
	in.	12.91	7.20	5.16 ¹⁾	11.34	6.26	1.42	1.14	4.65	1.65	7.01	9.57	14.69	15.63	17.44 ²⁾	3.90	1.81	1.65	12.20
SC 60 D	mm	390	218	168	320	-	-	-	421	42	163	285	-	-	467	133	-	55	350
	in.	13.35	8.58	6.61	12.60	-	-	-	16.58	1.65	6.42	11.22	-	-	18.39	5.24	-	2.17	13.78

¹⁾ 147 (5.79 in.) for 3~ version

²⁾ 372 (14.65 in.) for 3~ version



Dimensional drawing for the scroll vacuum pump SCROLLVAC SC 30 D (above) and SC 60 D (below)

Technical Data

SCROLLVAC

SC 30 D

SC 60 D

		SC 30 D	SC 60 D
Nominal pumping speed ¹⁾			
50 Hz	m ³ /h (cfm)	30 (17.7)	60 (35.4)
60 Hz	m ³ /h (cfm)	36 (21.2)	72 (42.4)
Pumping speed ¹⁾			
50 Hz	m ³ /h (cfm)	26 (13.3)	52 (30.6)
60 Hz	m ³ /h (cfm)	31 (18.3)	62 (36.5)
Attainable ultimate pressure	mbar (Torr)	≤ 0.01 (≤ 0.008)	
Leak rate	mbar l/s	1 x 10 ⁻⁶	1 x 10 ⁻⁴
Maximum inlet pressure		Atmosphere	
Permissible ambient temperature	°C (°F)	+5 to +40 (+41 to +104)	
Connections			
Inlet	DN	40	40
Exhaust	DN	25	40
Cooling		Air	
Water vapor capacity with purge, max.	g/h l/min	1.04 10	
Protection class	IP	20	
Motor power	W (hp)	600 (0.82)	1400 (1.90)
Motor speed			
50 Hz	rpm	1450	1460
60 Hz	rpm	1730	1760
Motor voltage	1-ph. ²⁾	100 V / 50 Hz 100 – 115 V / 60 Hz 200 – 230 V / 50/60 Hz	-
Motor voltage	3-ph.	200 V, 380 – 415 V / 50 Hz 200 – 380 V, 460 V / 60 Hz	200 V, 380 – 400 – 415 V / 50 Hz 200 – 220 – 230 V, 460 V / 60 Hz
Noise level at 1 m (3.5 ft), free field measurement	dB(A)	≤ 62	≤ 67
Dimensions (W x H x D)	mm (in.)	443 x 328 x 372 (17.44 x 12.91 x 14.65)	467 x 390 x 421 (18.39 x 15.35 x 16.57)
Weight			
Single-phase motor	kg (lbs)	44 (97.1)	-
Three-phase motor	kg (lbs)	38 (83.9)	60 (132.5)

¹⁾ In accordance with DIN 28 400

²⁾ The Part No. for single-phase pumps will determine the voltage range at delivery

Ordering Information

SCROLLVAC

SC 30 D

SC 60 D

	Part No.	Part No.
Oil-free scroll vacuum pump		
Single-phase motor, with cable and plug		
Europe (Schuko plug, 230 V)	133 002	-
US / Japan (NEMA plug, 115 V)	133 102	-
Three-phase motor, without cable	133 004	133 008
Maintenance kits		
Small maintenance kit		
(after 8,000 h) Minor Kit	EK 870000498	EK 870000519
Large maintenance kit		
(after 16,000 h) Major Kit	EK 870000501	EK 870000520
Tool kit SC 30/60 D	EK 870000503	EK 870000521
Scroll profile gasket (Tip Seal)	E 870000512	E 870000522
Shaft installation kit (Pin Crank Kit)	EK 870000509	EK 870000523
Eccentric shaft	EK 870000506	EK 870000534