



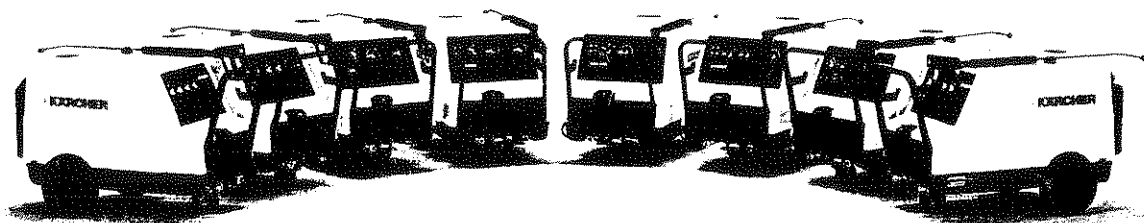
Ersatzteilliste

Spare Parts List

Liste des pièces de rechange

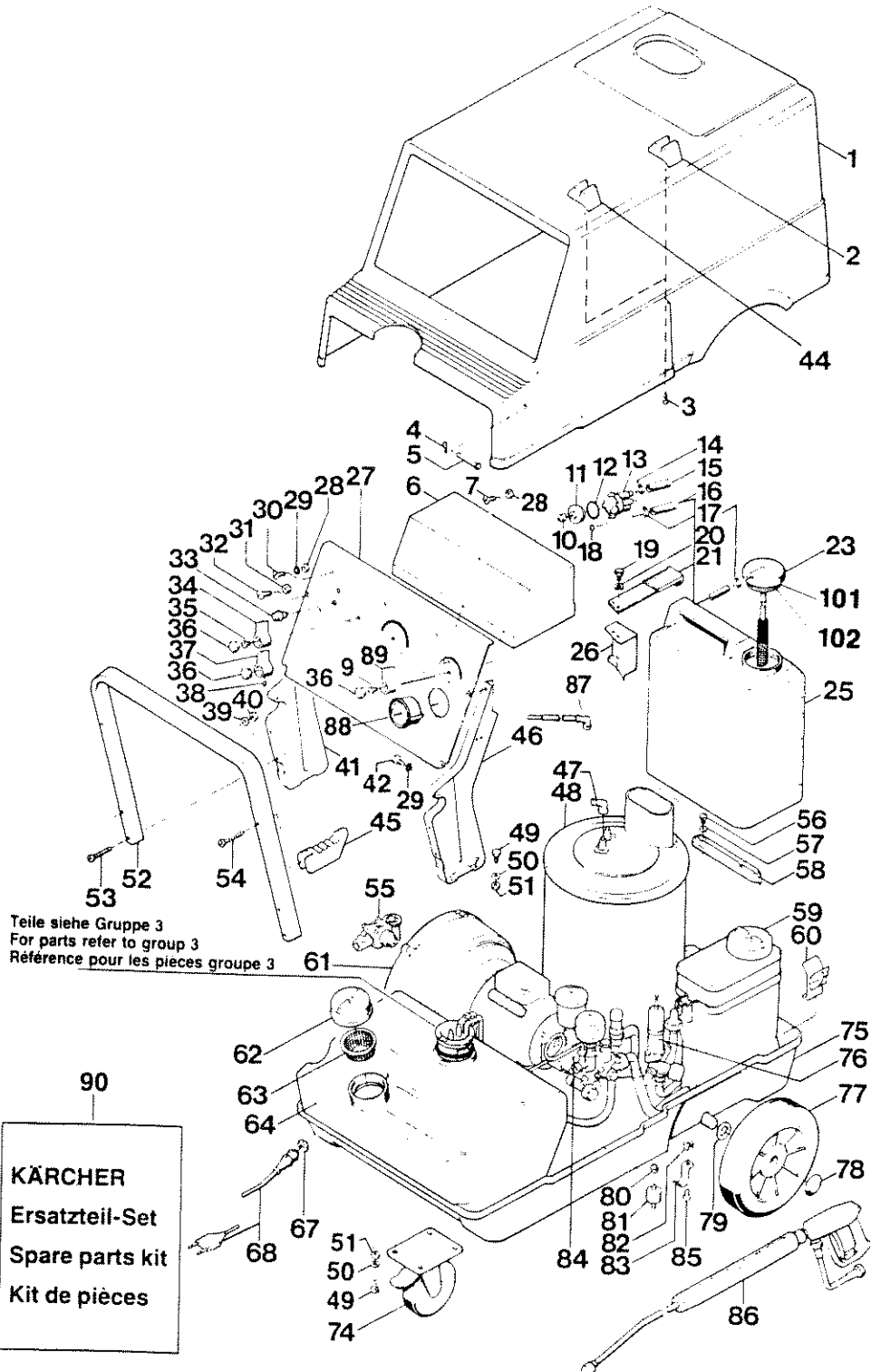
HDS 650

1.608-908 USA 120 V 1~60 Hz



Gruppe 1: Einzelteile
Group 1: Component Parts
Groupe 1: Pièces détachées

HDS 650



Gruppe 1: Einzelteile
 Group 1: Component Parts
 Groupe 1: Pièces détachées

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
1	Haube / Cover / Couvercle	5.066-233	1
2	Halter / Bracket / Fixation	5.042-406	1
3	Schraube 4,2×13 / Screw 4.2×13 / Vis 4,2×13	6.303-047	3
4	Sicherung / Spring clip / Clavette	6.343-006	2
5	Boizen / Pin / Axe	6.373-322	2
6	E-Schrank / Electrical Cabinet / Coffret électrique	s. Gruppe 5	
7	Senkschraube M 4×12 / Countersunk screw M 4×12 / Vis à tête fraisée M 4×12	7.305-255	2
9	Senkschraube M 4×16 / Countersunk screw M 4×16 / Vis à tête fraisée M 4×16	7.305-023	1
10	Schraubenfeder / Coil spring / Ressort hélicoïdal	5.332-028	1
11	Ventilsitz / Valve seat / Siège de soupape	5.581-039	1
12	O-Ring 26-2,5 / O-ring 26-2,5 / Joint torque 26-2,5	6.362-385	1
13	Ventilgehäuse / Valve housing / Boîtier de soupape	5.587-054	1
14	Schlauchschelle 13/9 / Hose clamp 13/9 / Collier 13/9	6.388-550	1
15	Schlauchstück / Hose / Flexible	6.388-194	1 m
16	Schlauchstück 2 m z. Bestellen / Hose 2 m to order / Flexible 2 m a commander ensemble	6.388-225	2 m
17	Schlauchschelle / Hose clamp / Collier	6.388-559	2
18	O-Ring 5-1,5 / O-ring 5-1,5 / Joint torique 5-1,5	6.362-386	1
19	6-Kant-Schraube M 5×12 / Hex. hd. screw M 5×12 / Vis à 6 pans M 5×12	7.304-371	1
20	Federring B 5 / Spring washer B 5 / Rondelle Grower B 5	7.313-002	1
21	Halter / Bracket / Fixation	5.042-257	1
23	Formteil / Moulding / Pièce profilée	5.030-355	1
25	Tank / Tank / Réservoir	5.071-025	1
26	Halter / Bracket / Fixation	5.042-252	1
27	Instrumententafel / Control panel / Tableau de commandes	5.841-190	1
28	6-Kant-Mutter M 4 / Hex. nut M 4 / Ecrou à 6 pans M 4	7.311-424	5
29	Zahnscheibe A 6,4 / Shakeproof washer A 6,4 / Rondelle éventail A 6,4	7.312-167	12
30	Senkschraube M 4×10 / Countersunk screw M 4×10 / Vis à tête fraisée M 4×10	6.305-001	5
31	6-Kant-Mutter M 5 / Hex. nut M 5 / Ecrou à 6 pans M 5	7.311-421	4
32	Senkschraube M 5×10 / Countersunk screw M 5×10 / Vis à tête fraisée M 5×10	7.305-599	2
33	Anzeigenleuchte / Warning light / Lampe témoin	6.651-058	3
34	Griff / Handle / Poignée	5.321-021	1
35	Zylinderschraube M 3,5×12 / Cheese head screw M 3,5×12 / Vis à tête cylindrique M 3,5×12	7.306-415	1
36	Stopfen / Plug / Obturateur	5.132-010	3
37	Griff / Handle / Poignée	5.321-026	1
38	Gewindestift M 5×10 / Grub screw M 5×10 / Goujon fileté M 5×10	7.307-181	1
39	Scheibe A 6,4 / Washer A 6,4 / Rondelle A 6,4	7.312-276	4
40	6-Kant-Mutter M 6 / Hex. nut M 6 / Ecrou à 6 pans M 6	7.311-425	4
41	Ständer links / Frame, l/h / Montant gauche	5.052-012	1
42	6-Kant-Schraube M 5×12 / Hex. hd. screw M 5×12 / Vis à 6 pans M 5×12	6.303-012	2
44	Halter / Bracket / Fixation	5.042-402	1
45	Halter / Bracket / Fixation	5.042-253	2
46	Ständer rechts / Frame, r/h / Montant droit	5.052-013	1
47	Kerzenstecker / Terminal / Anti-parasite	6.618-057	2
48	Durchlauferhitzer / Continuous Flow Boiler / Chaudière à circulation forcée	s. Gruppe 6	
49	6-Kant-Schraube M 8×16 / Hex. hd. screw M 8×16 / Vis à 6 pans M 8×16	7.304-395	8
50	Scheibe B 8,4 / Washer B 8,4 / Rondelle B 8,4	7.312-004	8
51	6-Kant-Mutter M 8 / Hex. nut M 8 / Ecrou à 6 pans M 8	7.311-004	8

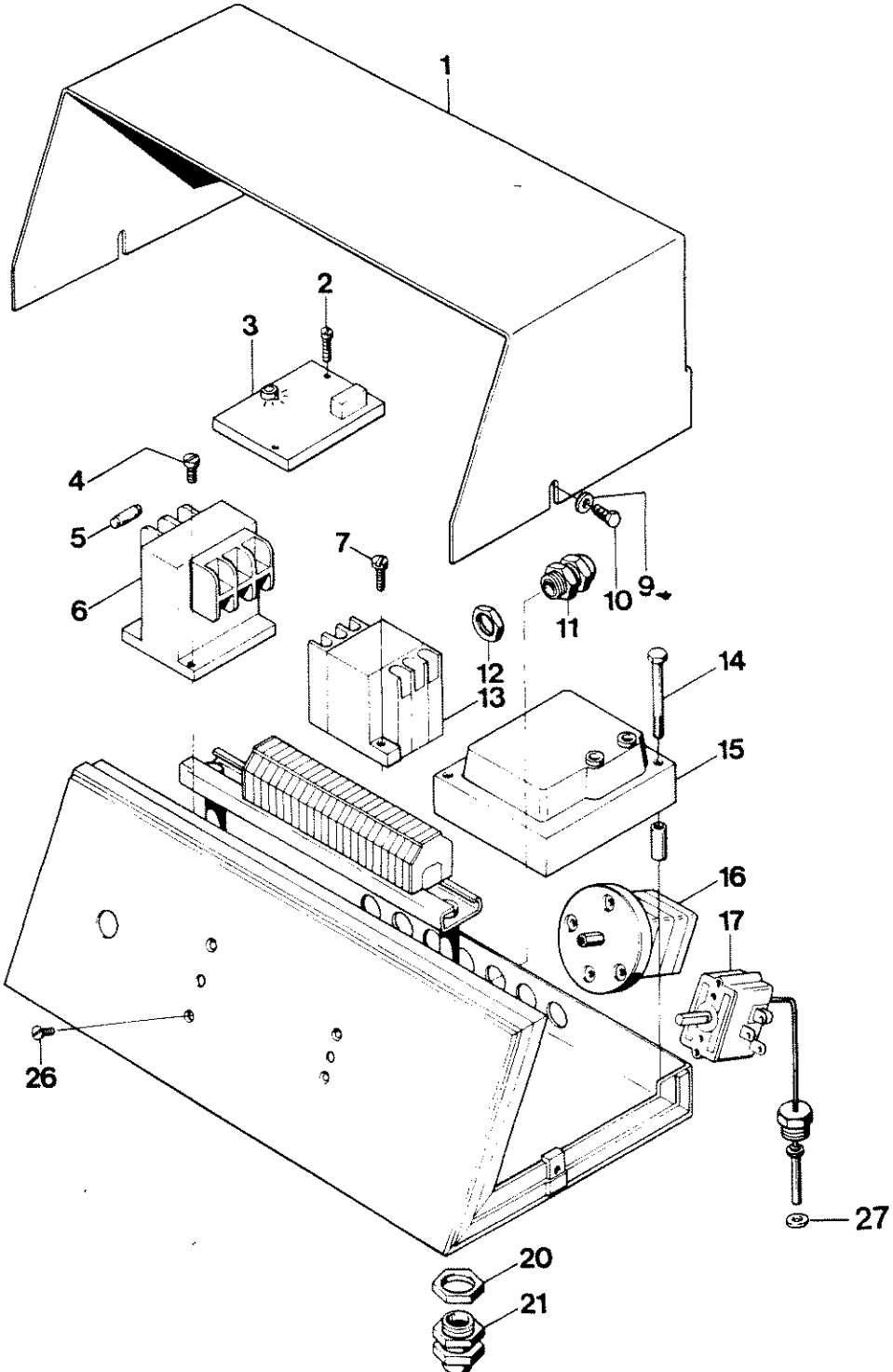
Gruppe 1: Einzelteile
 Group 1: Component Parts
 Groupe 1: Pièces détachées

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
52	Griff / Handle / Poignée	5.321-121	1
53	Zylinderschraube IS M 6×55 / Socket head screw M 6×55 / vis à tête cylindrique IS M 6×55	7.306-511	4
54	LSK-Blechschaube 5,5×55 / Self-tapping screw 5.5×55 / Vis à tôle à tête bombée fraisée 5,5×55	6.305-005	3
55	Brennstoffpumpe / Fuel Pump / Pompe à combustible	s. Gruppe 4	
56	Linsenschraube M 5×16 / Oval hd. screw M 5×16 / Vis à tête bombée M 5×16	7.306-308	2
57	Scheibe A 5.3 / Washer A 5.3 / Rondelle A 5.3	7.312-278	2
58	Auflager / Support / Appui	5.057-024	1
59	Schwimmerventil / Float Valve / Bac à flotteur	s. Gruppe 7	
60	Halter / Bracket / Fixation	5.042-256	2
61	Gebälse / Blower / Ensemble mécanique	s. Gruppe 3	
62	Deckel / Cover / Couverture	5.063-217	1
63	Sieb / Strainer / Crépine	6.414-275	1
64	Tank mit Deckel / Tank with cap / Réservoir avec bouchon	5.071-024	1
67	Gegenmutter Pg 13.5 / Locknut Pg 13.5 / Contre-écrou Pg 13.5	6.641-480	1
68	Anschlußkabel / Power cable / Cordon d'alimentation	6.641-139	1
74	Lenkrolle 125 / Castor 125 / Roue pivotante 125	6.435-073	1
75	Rahmen / Frame / Cadre	5.050-005	1
76	Sicherheitsblock / Safety system / Bloc de sécurité	s. Gruppe 8	
77	Scheibenrad 250 / Disc wheel 250 / Roue à double disque 250	6.435-072	2
78	Schnellbefestiger / Quick-action-fastener / Attache rapide	6.343-137	2
79	Scheibe 26 / Washer 26 / Rondelle 26	7.312-060	1
80	Selbstsicherungsmutter M 8 / Self-locking nut M 8 / Ecrou auto-freiné M 8	7.311-510	8
81	Gummipuffer M 8 / Rubber buffer M 8 / Butée en caoutchouc M 8	6.339-060	4
82	Käfigmutter M 6 / Cage nut M 6 / Ecrou en cage M 6	6.310-029	2
83	Scheile / Clamp / Collier	5.041-055	2
84	Pumpensatz / Pump Unit / Moto-pompe	s. Gruppe 2	
85	Zylinderschraube IS M 6×16 / Socket head screw M 6×16 / Vis à tête cylindrique IS M 6×16	7.306-020	2
86	Zubehör / Accessories / Accessoires	s. Gruppe 9	
87	Zündkabel komplett / Ignition cable, complete / Câble d'allumage complet	6.641-180	2
88	Manometer 0-250 / Pressure gauge 0-250 / Manometre 0-250	6.421-075	1
89	Griff / Handle / Poignée	5.321-023	1
101	O-Ring 45×4,5 / O-ring 45×4.5 / Joint torique 45×4.5	6.362-490	1
102	O-Ring 80×4,5 / O-ring 80×4.5 / Joint torique 80×4.5	6.362-491	1

Gruppe 5: Elektrogeräteschrank
Group 5: Electrical Cabinet
Groupe 5: Coffret électrique

HDS 650



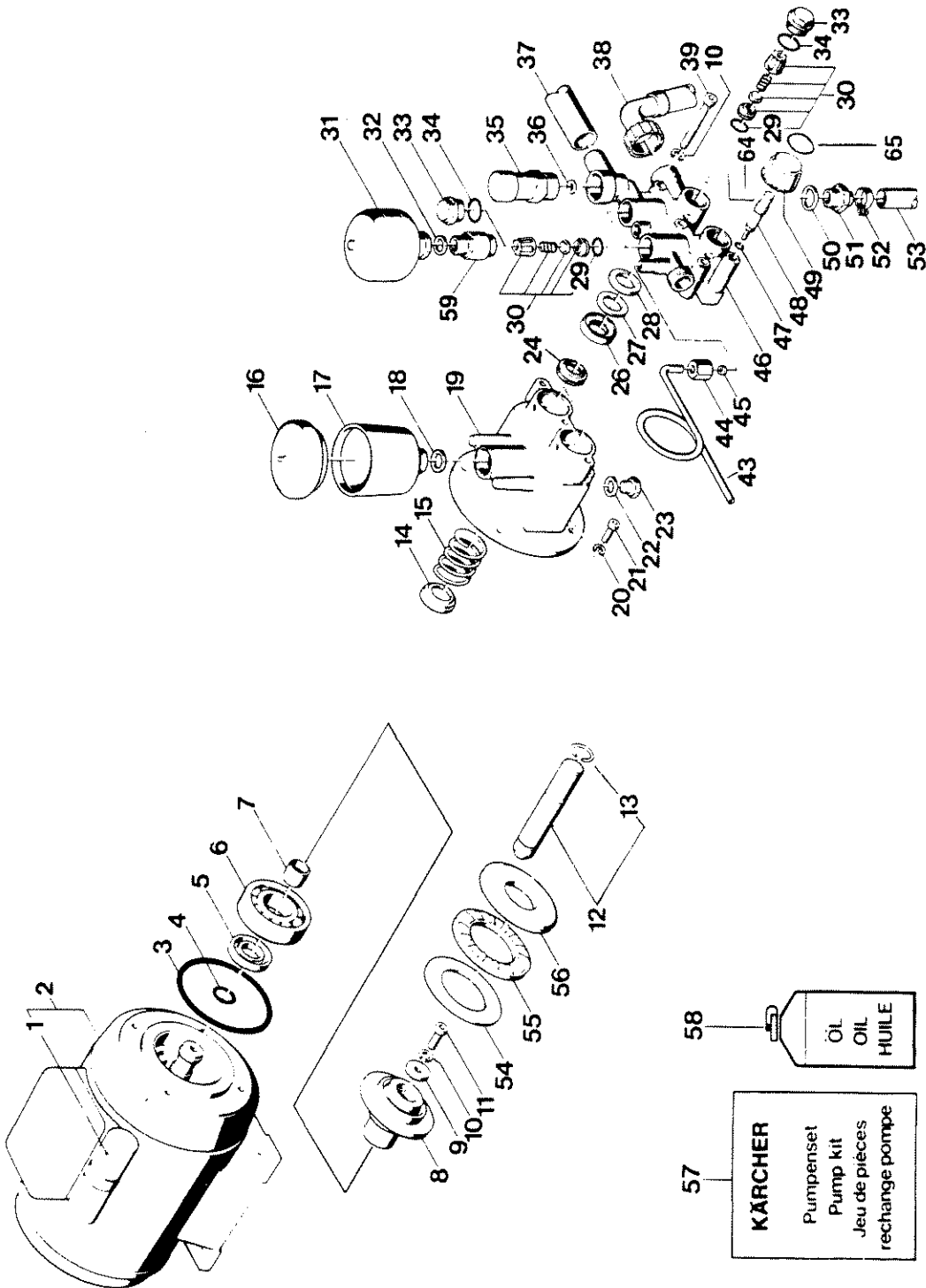
Gruppe 5: Elektrogeräteschrank
 Group 5: Electrical Cabinet
 Groupe 5: Coffret électrique

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Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
1	Haube / Cover / Couvercle	5.066-122	1
2	Schraube M 3×16 / Screw M 3×16 / Vis M 3×16	6.303-014	2
3	Impulsgeber / Impulse transmitter / Relais d'impulsion	6.633-090	1
4	Schraube M 4×8 / Screw M 4×8 / Vis M 4×8	6.303-017	2
5	G-Schmelzeinsatz 2 A / Fuse 2 A / Fusible 2 A	6.644-052	1
6	Steuertrafo / Control transformer / Transfo de commande	6.622-074	1
7	Schraube M 4×16 / Screw M 4×16 / Vis M 4×16	6.303-015	2
9	Scheibe A 5,3 / Washer A 5,3 / Rondelle A 5,3	7.312-278	2
10	6-Kant-Blechschrabe 4,8×16 / Hex. hd. self-tapping screw 4,8×16 / Vis à tête à 6 pans 4,8×16	7.303-121	2
11	Kabelverschraubung Pg 9 / Cable gland Pg 9 / Entrée de câble Pg 9	6.641-355	8
12	Gegenmutter Pg 9 / Locknut Pg 9 / Contre-écrou Pg 9	6.641-366	8
13	Schütz 24 V / Contactor 24 V / Disjoncteur 24 V	6.632-132	1
14	Schraube M 5×8 / Screw M 5×8 / Vis M 5×8	6.303-004	2
15	Zündtrafo / Ignition transformer / Transfo d'allumage	<i>2883-4640</i> 6.622-077	1
16	Schalter / Switch / Contacteur	6.631-197	1
17	Temperaturregler / Temperature control / Régulateur de température	6.685-375	1
20	Gegenmutter Pg 13,5 / Locknut Pg 13,5 / Contre-écrou Pg 13,5	6.641-369	2
21	Kabelverschraubung Pg 13,5 / Cable gland Pg 13,5 / Entrée de câble Pg 13,5	6.641-613	2
26	Senkschraube M 4×8 / Countersunk screw M 4×8 / Vis à tête fraisée M 4×8	7.305-021	4
27	Scheibe / Washer / Rondelle	5.115-375	1
Zusätzlich / accessory / additionell			
	Sicherungsklemme / Safety lug / Porte fusible	6.644-099	1
	Schmelzeinsatz 2,5 A / Fuse 2,5 A / Fusible 2,5 A	6.644-103	1
	Abschlußplatte / Stop plate / Plaque d'obturation	6.644-061	1

Gruppe 2: Pumpensatz
 Group 2: Pump Unit
 Groupe 2: Moto-pompe

HDS 650



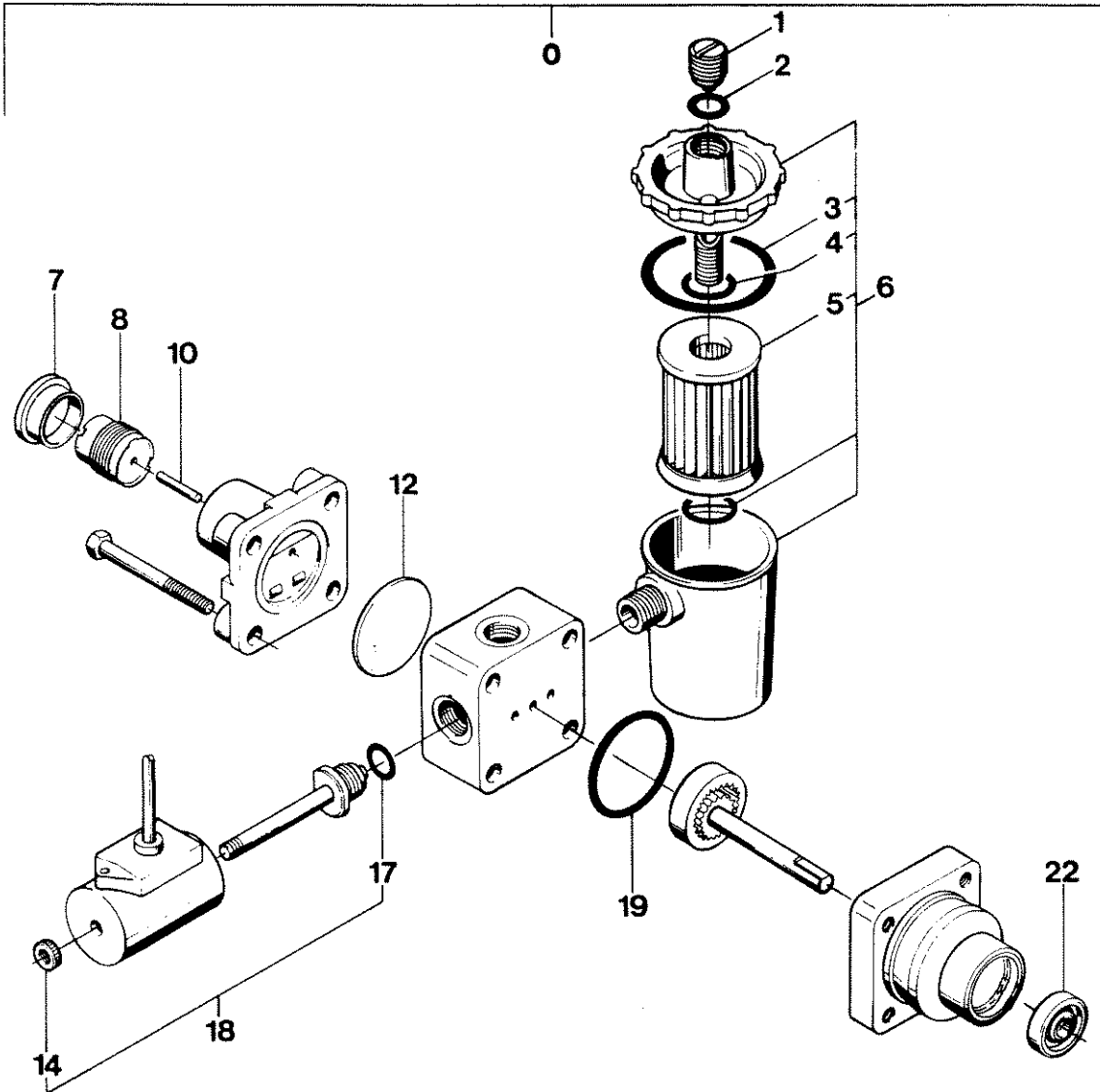
Gruppe 2: Pumpensatz
 Group 2: Pump Unit
 Groupe 2: Moto-pompe

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
1	Betriebskondensator / Running capacitor / Condensateur de service	6.661-096	1
2	Motor, Wechselstrom, 60 Hz / Motor 1-Ph AC, 60 Hz / Moteur, courant alternatif 60 Hz	6.612-093	1
3	O-Ring 85-2 / O-ring 85-2 / Joint torique 85-2	6.362-441*	1
4	O-Ring / O-ring / Joint torique	6.362-395	1
5	Wellendichtung / Oil seal / Bague à lèvres avec ressort	6.367-012	1
6	Schrägkugellager 7306 B / Angular contact ball bearing 7306 B / Roulement à billes à contact oblique 7306 B	7.401-033	1
7	Toleranzring / Tolerance ring / Cale	6.343-011	1
8	Taumscheibe / Swash plate / Disque de nutation	5.120-126	1
9	Scheibe / Washer / Rondelle	7.312-004	1
10	Federring 8 / Spring washer 8 / Rondelle Grower 8	7.313-051	4
11	Zylinderschraube M 8×20 / Cheese head screw M 8×20 / Vis à tête cylindrique M 8×20	7.306-041	1
12	Kolben kpl. / Plunger assy. / Piston complete	4.553-057	2
13	Sicherungsring A 20 / Circlip A 20 / Circlip A 20	7.343-471	2
14	Formteil / Moulding / Pièce profile 1e	5.030-296	2
15	Schraubenfeder / Coil spring / Ressort hélicoïdal	5.332-139	2
16	Deckel / Cap / Couvercle	5.063-237	1
17	Behälter / Reservoir / Réservoir	5.070-048	1
18	Dichtring / Sealing ring / Bague d'étanchéité	5.363-100	1
19	Gehäuse / Housing / Boîtier	5.060-185	1
20	Federring 6 / Spring washer 6 / Rondelle Grower 6	7.313-050	1
21	Zylinderschraube IS M 6×30 / Cheese head screw M 6×30 / Vis à tête cylindrique IS M 6×30	7.306-024	4
22	Dichtring 12×15,5 / Sealing ring 12×15,5 / Bague d'étanchéité 12×15,5	7.362-004	1
23	VS-Schraube M 12×1,5 / Screw M 12×1,5 / Bouchon fileté M 12×1,5	7.382-232	1
24	Nutring 20×68×6/8 / Packing ring 20×68×6/8 / Joint rainuré 20×68×6/8	6.365-052*	2
26	Ring / Ring / Bague	5.115-267	2
27	Scheibe / Washer / Rondelle	5.115-224*	2
28	Nutring 20×68×5 / Packing ring 20×68×5 / Joint rainure 20×68×5	6.365-051*	2
29	O-Ring 13×2 / O-ring 13×2 / Joint torique 13×2	6.362-381	4
30	Ventilsatz komplet / Set of valves, complete / Ensemble de soupape, complet	4.580-110*	4
31	Druckspeicher / Pulsation damper / Accumulateur de pression	6.505-025	1
32	Dichtring 14×18 / Sealing ring 14×18 / Bague d'étanchéité 14×18	7.362-005	1
33	Ventilschraube / Valve screw / Bouchon de soupape	5.583-053	3
34	O-Ring 17,3×2,4 / O-ring 17,3×2,4 / Joint torique 17,3×2,4	6.362-160*	4
35	Sicherheitsventil / Safety valve / Soupape de sûreté	6.412-684	1
36	Dichtung / Gasket / Joint	5.363-094	1
37	Schlauchstück / Hose / Flexible	5.442-503	1
38	Schlauch / Hose / Flexible	s. Gruppe 7	
39	Zylinderschraube M 8×60 / Cheese head screw M 8×60 / Vis à tête cylindrique M 8×60	7.306-047	3
43	Leitungsrohr / Pipe / Tube	5.423-012	1
44	Überwurfmutter / Cap nut / Ecrou raccord	6.386-159	2
45	Schneidring 6 D / Olive 6 D / Bague coupante 6 D	6.386-160	2
46	Zylinderkopf / Cylinder head / Culasse	4.550-086	1

Gruppe 4: Brennstoffpumpe
Group 4: Fuel Pump
Groupe 4: Pompe à combustible

HDS 650



Gruppe 4: Brennstoffpumpe
 Group 4: Fuel Pump
 Groupe 4: Pompe à combustible

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
0	Brennstoffpumpe mit Magnetventil / Fuel pump with solenoid valve / Pompe à combustible avec électrovanne	6.472-344	1
1	Entlüftungsventil / Vent valve / Purgeur	6.472-107	1
2	O-Ring / O-ring / Joint torique	6.472-106	1
3	O-Ring / O-ring / Joint torique	6.472-111	1
4	O-Ring / O-ring / Joint torique	6.472-112	1
5	Filtereinsatz / Filter element / Cartouche de filtre	6.472-113	1
6	Filtergehäuse komplett / Filter housing, complete / Boîtier de filtre complet	6.472-123	1
7	Schutzkappe / Dust cap / Capuchon de protection	6.472-122	1
8	Federgehäuse / Spring housing / Boîtier de ressort	6.472-109	1
10	Stift / Pin / Pointeau	6.472-108	1
12	Membrane / Diaphragm / Membrane	6.472-128	1
14	Rändelmutter / Knurled nut / Ecrou moleté	6.472-340	1
17	O-Ring / O-ring / Joint torique	6.472-125	1
18	Magnetventil komplett / Solenoid valve, complete / Electrovanne complet	6.472-345	1
19	O-Ring / O-ring / Joint torique	6.472-120	1
22	Achsendichtung / Shaft seal / Etoupage d'arbre	6.472-105	1

Gruppe 2: Pumpensatz
 Group 2: Pump Unit
 Groupe 2: Moto-pompe

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
47	O-Ring 5-1.5 / O-ring 5-1.5 / Joint torique 5-1.5	6.362-386	2
48	Formschraube / Special screw / Vis profilée	5.305-123	1
49	Griff / Knob / Poignée	5.321-138	1
50	Dichtung A 18x22 / Seal A 18x22 / Joint A 18x22	7.362-009	1
51	Ventil / Valve / Soupape	4.580-114	1
52	Schlauchschelle 12-9 / Hose damp 12-9 / Collier 12-9	6.388-515	1
53	Schlauchstück / Hose / Flexible	6.388-194	1m
54	Druckscheibe / Thrust plate / Rondelle de pression	6.401-125	1
55	Axial-Rollenkäfig / Roller thrust cage / Cage à rouleaux de butée axiale	6.401-126	1
56	Laufscheibe / Race plate / Rondelle de roulement	6.401-127	1
57	Pumpenset / Pump kit / Jeu de pièces de rechange de pompe	2.880-274	1
58	Hypoid Öl SAE 15 W 40, 1 l / Hypoid Oil SAE 15 W 40, 1 L / Huile hypoid SAE 15 W 40, 1 l	6.288-050	1
59	Ventilschraube / Valve screw / Bouchon de soupape	5.583-061	1
64	Sicherungsfeder / Retaining spring / Circlip	6.313-003	1
65	Stopfen / Plug / Obturateur	5.132-010	1

* Teile sind im Pumpenset 2.880-274 enthalten / * Parts included in pump kit 2.880-274 / * Compris dans le jeu de pièces de rechange pompe 2.880-274

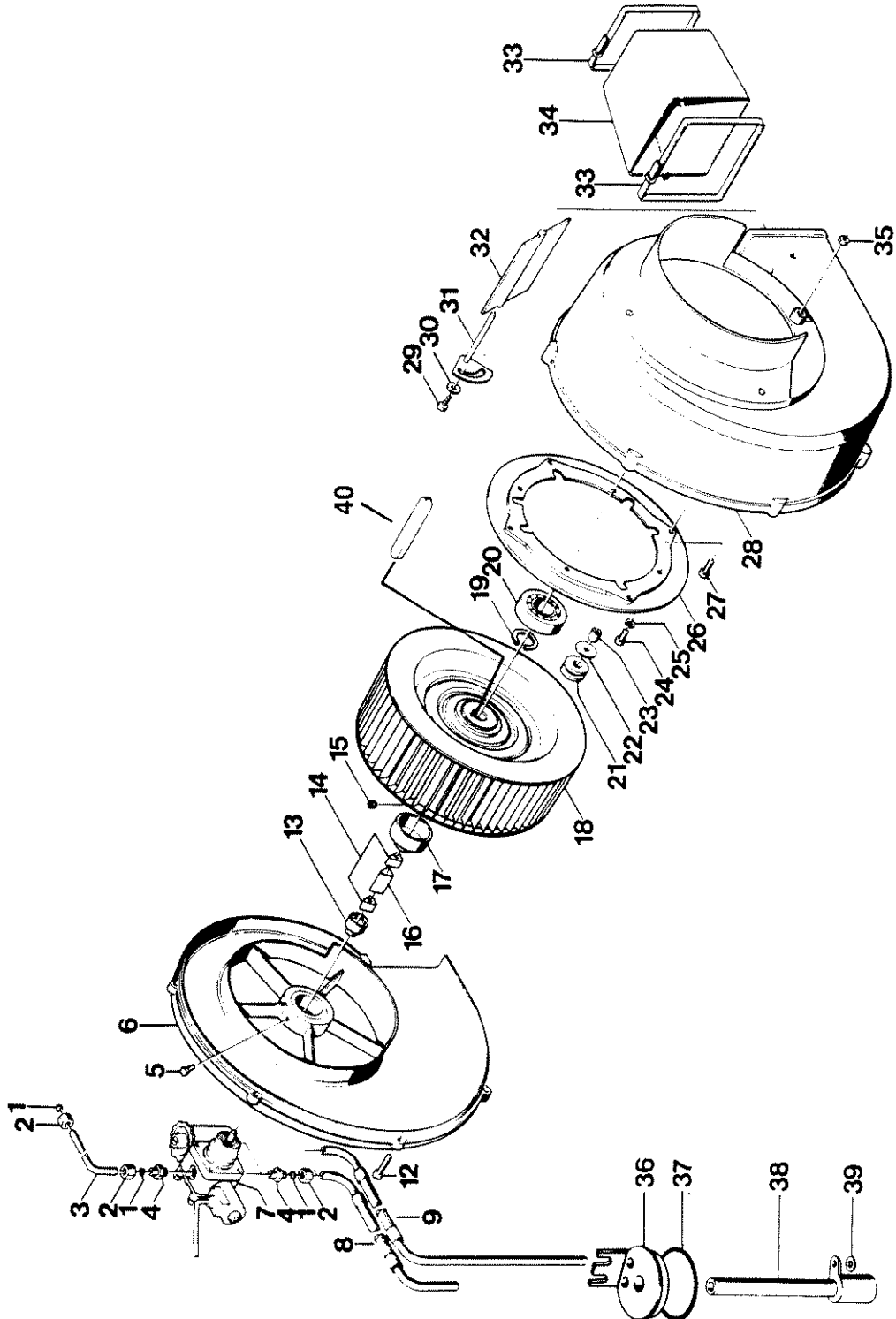
Gruppe 3: Gebläse
 Group 3: Blower
 Groupe 3: Ensemble mécanique

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
1	Schneidring / Olive / Bague coupante	6.386-160	4
2	Überwurfmutter / Cap nut / Ecrou raccord	6.386-159	4
3	Leitungsrohr / Pipe / Tube	5.423-013	1
4	Schraubstutzen R 1/8" / Screw union, 1/8" pipe thread / Raccord fileté R 1/8"	6.386-181	3
5	Zylinderschraube IS M 6×16 / Socket head screw M 6×16 / Vis à tête cylindrique IS M 6×16	7.306-020	4
6	Deckel / Cover / Couvercle	5.063-206	1
7	Brennstoffpumpe mit Magnetventil / Fuel pump with solenoid valve / Pompe à combustible avec électrovanne	s. Gruppe 4	
8	Schlauch NW 4 / Hose, nom. dia. 4 / Flexible DN 4	6.388-333	1
9	Schlauch NW 4 / Hose, nom. dia. 4 / Flexible DN 4	6.388-334	1
12	Zylinderschraube BZ 4,8×25 Z 1 / Cheese head screw BZ 4.8×25 Z 1 / Vis à tête cylindrique BZ 4,8×25 Z 1	7.309-022	7
13	Kupplungsteil / Coupling element / Élément d'accouplement	6.463-008	1
14	Kupplungsteil / Coupling element / Élément d'accouplement	6.463-020	2
15	Gewindestift M 8×6 / Grub screw M 8×6 / Goujon fileté M 8×6	7.307-407	1
16	Kupplungsteil / Coupling element / Élément d'accouplement	5.471-050	1
17	Kupplungsteil / Coupling element / Élément d'accouplement	5.471-049	1
18	Gebläserad / Fanwheel / Roue de turbine	6.484-017	1
19	S-Ring 25×1,2 / Circlip 25×1,2 / Circlip 25×1,2	7.343-008	1
20	Kugellager 6305 / Ball bearing 6305 / Roulement à billes 6305	7.401-123	1
21	Gumming / Rubber ring / Bague en caoutchouc	5.379-008	4
22	Scheibe / Washer / Rondelle	5.115-233	4
23	Hülse / Sleeve / Douille	5.110-222	4
24	Zylinderschraube IS M 6×10 / Socket head screw M 6×10 / Vis à tête cylindrique IS M 6×10	7.306-027	4
26	Formteil / Moulding / Pièce profilée	5.030-370	1
27	Zylinderschraube IS M 6×25 / Socket head screw M 6×25 / Vis à tête cylindrique IS M 6×25	7.306-023	4
28	Gehäuse / Housing / Boîtier	5.605-078	1
29	LSK-Blechschaube 4,8×16 / Self-tapping screw 4.8×16 / Vis à tôle à tête bombée fraisée 4,8×16	7.303-362	1
30	Scheibe A 5,3 / Washer A 5,3 / Rondelle A 5,3	7.312-278	1
31	Klappenwelle / Flap shaft / Arbre de volet	5.603-012	1
32	Luftklappe / Air flap / Volet d'admission d'air	5.606-001	1
33	Spannband / Clamp strap / Collier de serrage	6.388-608	2
34	Tuchmanschette / Cloth collar / Soufflet en tissu	5.178-016	1
35	6-Kant-Mutter M 5 / Hex. nut M 5 / Ecrou à 6 pans M 5	7.311-422	4
36	Formteil / Moulding / Pièce profilée	5.030-434	1
37	O-Ring 68×4 / O-ring 68×4 / Joint torique 68×4	6.362-474	1
38	Niveaufühler / Level switch / Contacteur de niveau	6.631-439	1
39	Scheibe / Washer / Rondelle	6.343-119	1
40	Passfeder / Feather key / Ressort d'ajustage	7.318-002	1

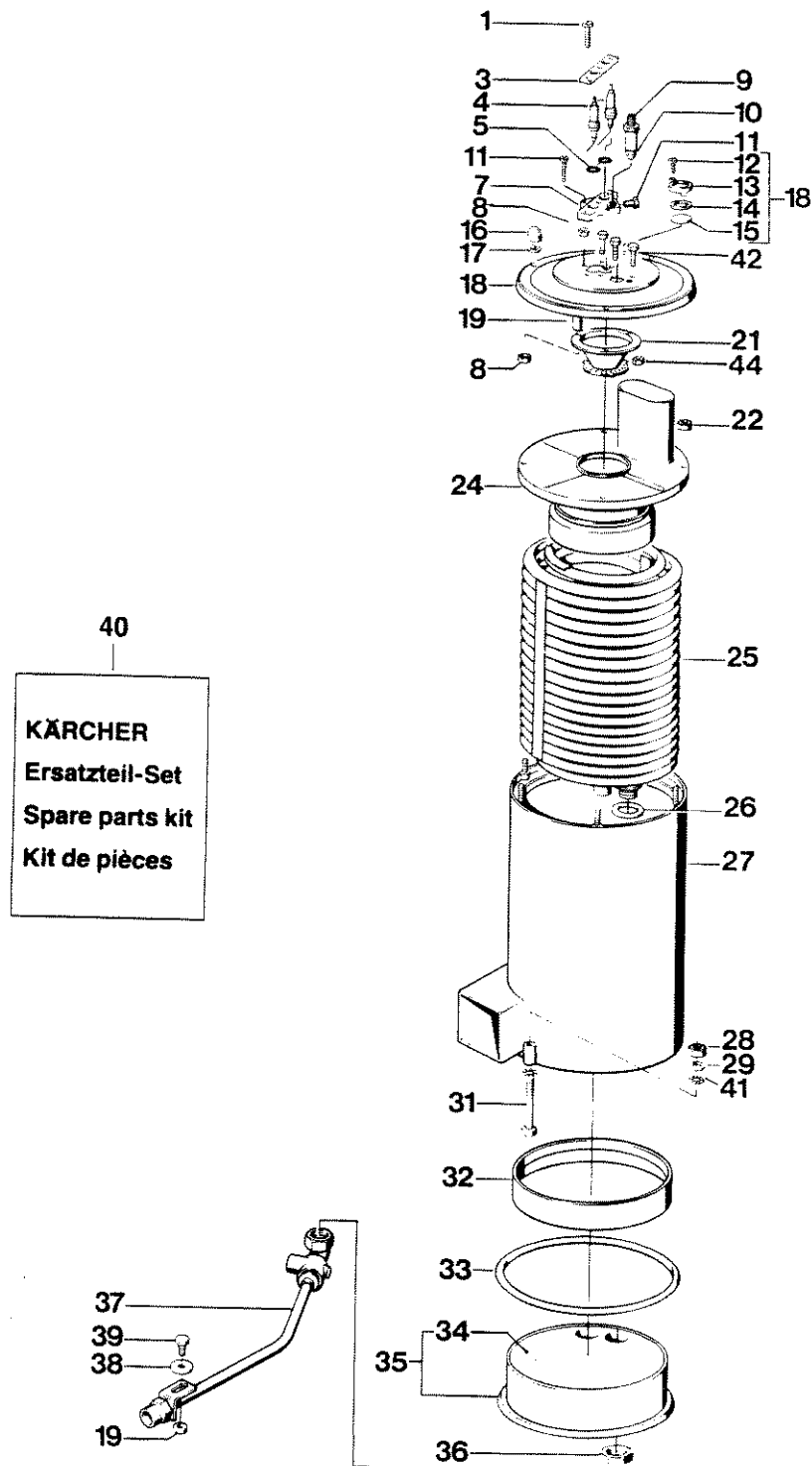
Gruppe 3: Gebläse
Group 3: Blower
Groupe 3: Ensemble mécanique

HDS 650



Gruppe 6: Durchlauferhitzer
Group 6: Continuous Flow Boiler
Groupe 6: Chaudière à circulation forcée

HDS 650



Gruppe 6: Durchlauferhitzer
 Group 6: Continuous Flow Boiler
 Groupe 6: Chaudière à circulation forcée

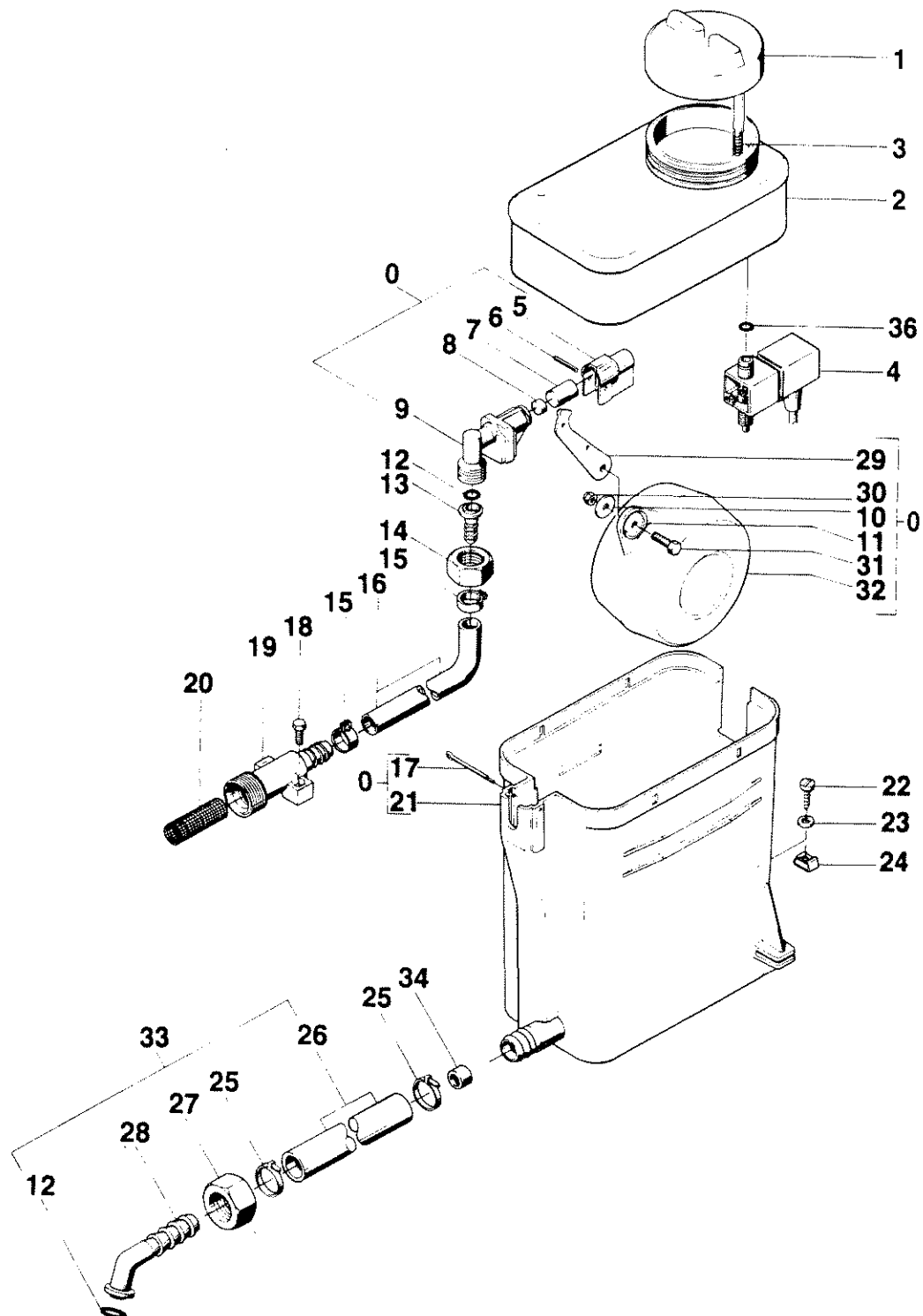
HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
1	6-Kant-Schraube M 5×16 / Hex. hd. screw M 5×16 / Vis à 6 pans M 5×16	7.304-372*	3
2	Federring B 5 / Spring washer B 5 / Rondelle Grower B 5	7.313-002*	9
3	Lasche / Strap / Bride	5.004-228	1
4	Zündefelektrode (2 Stück) / Ignition electrode (2) / Electrodes (2)	2.880-177*	1
5	Dichtring C 12×16 / Sealing ring C 12×16 / Bague d'étanchéité C 12×16	7.362-419*	2
7	Kerzenhalter / Electrode holder / Porte-bougie	5.668-001	1
8	6-Kant-Mutter M 5 / Hex. nut M 5 / Ecrou à 6 pans M 5	7.311-037*	1
9	Düsenhalter / Nozzle holder / Porte-gicleur	5.667-021	1
10	Düse 1,35 gPH / Nozzle 1.35 gPH / Gicleur 1.35 gPH	6.415-001*	1
11	6-Kant-Schraube M 5×12 / Hex. nut hd. screw M 5×12 / Ecrou à 6 pans M 5×12	7.304-371*	7
12	Zylinder-Blechschrabe 3,5×6,5 / Self-tapping screw 3.5×6.5 / Vis à tôle à tête cylindrique 3,5×6,5	7.303-012	1
13	Blech / Plate / Tôle	5.000-590	1
14	Flachdichtung / Gasket / Joint plat	5.364-100	1
15	Glasscheibe / Sight glass / Verre de regard	6.278-014	1
16	Hutmutter M 6 / Cap nut M 6 / Ecrou Chapeau M 6	7.311-380	3
17	Zahnscheibe A 6,4 / Shakeproof washer A 6,4 / Rondelle éventail A 6,4	7.312-167	2
18	Erhitzerdeckel mit Schauglas / Boiler cover with sight glass / Couvercle de chaudière avec verre de regard	4.654-091	1
19	Hülse / Sleeve / Douille	5.110-315	3
21	Brennereinsatz / Burner insert / Brûleur	4.663-060	1
22	6-Kant-Mutter M 6 / Hex. nut M 6 / Ecrou à 6 pans M 6	7.311-039	4
24	Brennereinsatz / Burner funnel / Brûleur	4.663-057	1
25	Heizschlange / Heater coil / Serpentin de chauffage	4.680-062	1
26	Profildichtung / Profile gasket / Joint profilé	5.365-068	1
27	Außenmantel / Outer jacket / Enveloppe extérieure	4.652-055	1
28	Selbstsicherungsmutter M 10 / Self-locking nut M 10 / Ecrou auto-freiné M 10	7.311-511	3
29	Scheibe B 10,5 / Washer B 10,5 / Rondelle B 10,5	7.312-005	3
31	6-Kant-Schraube M 10×6,5 / Hex. hd. screw M 10×6,5 / Vis à 6 pans M 10×6,5	7.304-422	3
32	Zarge / Frame / Tôle	5.012-202	1
33	Profildichtung / Profile gasket / Joint profilé	6.366-009	1
34	Stampfmasse 1 kg / Refractory 1 kg / Ciment 1 kg	6.286-016	8
35	Erhitzerboden komplett / Boiler base, complete / Fond de chaudière complet	4.655-036	1
36	Fl.-6-Kant-Mutter / Flat hex. nut / Ecrou plat à 6 pans	7.311-155	2
37	Rohrleitung / Pipe / Tube	4.420-910	1
38	Unterlage / Base / Cale	5.378-058	1
39	6-Kant-Schraube M 6×16 / Hex. hd. screw M 6×16 / Vis à 6 pans M 6×16	7.304-383	2
40	Ersatzteil-Set / Spare parts kit / Kit de pièces	2.880-345	1
41	Zahnscheibe A 10,5 / Shakeproof washer A 10,5 / Rondelle éventail A 10,5	7.312-160	2
42	6-Kant-Schraube M 5×12 / Hex. nut hd. screw M 5×12 / Ecrou à 6 pans M 5×12	7.306-443	6
44	6-Kant-Mutter M 5 / Hex. nut M 5 / Ecrou à 6 pans M 5	7.311-002	3

* Teile sind im Ersatzteil-Set 2.880-345 enthalten / * Parts included in spare parts kit 2.880-345 / * Pièces comprises dans le jeu de pièces de rechange 2.880-345

Gruppe 7: Schwimmerventil
Group 7: Float Valve
Groupe 7: Bac à flotteur

HDS 650



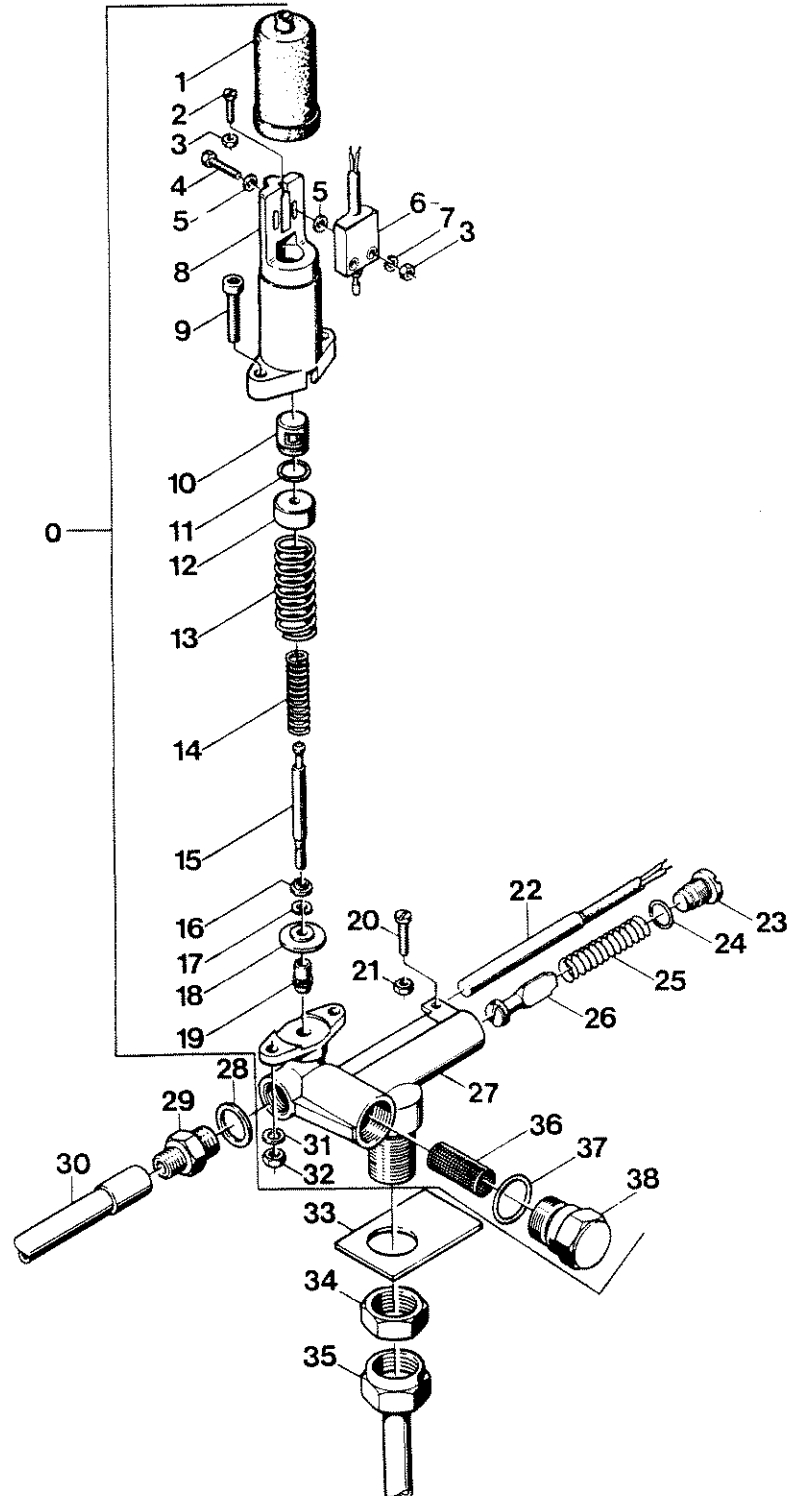
Gruppe 7: Schwimmerventil
 Group 7: Float Valve
 Groupe 7: Bac à flotteur

HDS 650

Pos. Ref. Pos.	Benennung Description Designation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
0	Schwimmerventil / Float valve / Vanne a flotteur	3.593-054	1
1	Deckel DGT / Cover, scale inhibitor / Couvercle DGT	5.063-226	1
2	Behälter / Tank / Reservoir	4.070-094	1
3	Schraubenfeder / Coil spring / Ressort helicoïdal	5.332-001	1
4	Magnetventil / Solenoid valve / Electrovanne	6.685-210	1
5	Schutzteil / Protector / Protection	5.394-066	1
6	Bolzen 3×25 / Pin 3×25 / Axe 3×25	7.316-004	1
7	Ventilbolzen / Valve pin / Poussoir de vanne	5.584-026	1
8	Flachdichtung / Gasket / Joint plat	5.364-095	1
9	Ventilhäuse / Valve housing / Boîtier de vanne	5.587-103	1
10	Scheibe A 6,4 / Washer A 6.4 / Rondelle A 6.4	7.312-279	1
11	Scheibe / Washer / Rondelle	5.115-158	1
12	O-Ring 13,3×2,4 / O-ring 13.3×2.4 / Joint torique 13.3×2.4	6.362-078	2
13	Schlauchnippel / Hose nipple / Raccord de flexible	5.443-224	1
14	Mutter R 3/4" / Nut, pipe thread 3/4" / Ecrou R 3/4"	5.310-061	1
15	Schlauchschelle 16-25 / Hose clamp 16-25 / Collier 16-25	6.388-547	2
16	Schlauchstück / Hose / Flexible	5.442-505	1
17	Splint 4×50 / Split pin 4×50 / Goupille fendue 4×50	7.316-432	1
18	6-Kant-Schraube M 6×16 / Hex. hd. screw M 6×16 / Vis à 6 pans M 6×16	7.304-383	1
19	Knotenstück / Union / Distributeur	5.427-087	1
20	Sieb / Strainer / Crepine	6.414-141	1
21	Behälter / Tank / Bac	5.070-064	1
22	Blechschaube 4,8×25 / Self-tapping screw 4.8×25 / Vis a tôle 4.8×25	7.303-364	2
23	Scheibe A 5,3 / Washer A 5.3 / Rondelle A 5.3	7.312-278	2
24	Schnappmutter 4,8 / Snap nut 4.8 / Clip-ecrou 4.8	6.310-028	2
25	Kabelband / Cable tie / Collier pour flexible	6.641-474	2
26	Schlauch / Hose / Flexible	6.388-739	1
27	Mutter / Nut / Ecrou	5.310-062	1
28	Schlauchnippel / Hose nipple / Raccord de flexible	5.443-211	1
29	Hebel / Lever / Levier	5.481-029	1
30	6-Kt.-Mutter M 6 / Hex. nut M 6 / Ecrou a 6 pans M 6	7.311-422	1
31	6-Kt.-Schraube M 6×20 / Hex. hd. screw M 6×20 / Vis a 6 pans M 6×20	7.304-471	1
32	Schwimmer / Float / Flotteur	5.585-004	1
33	Schlauch komplett / Hose assy. / Flexible complet	4.440-271	1
34	Blende / Aperture / Ouverture	5.112-189	1
36	O-Ring / O-ring / Joint torique	6.362-176	1

Gruppe 8: Sicherheitsblock
Group 8: Safety System
Groupe 8: Bloc de sécurité

HDS 650



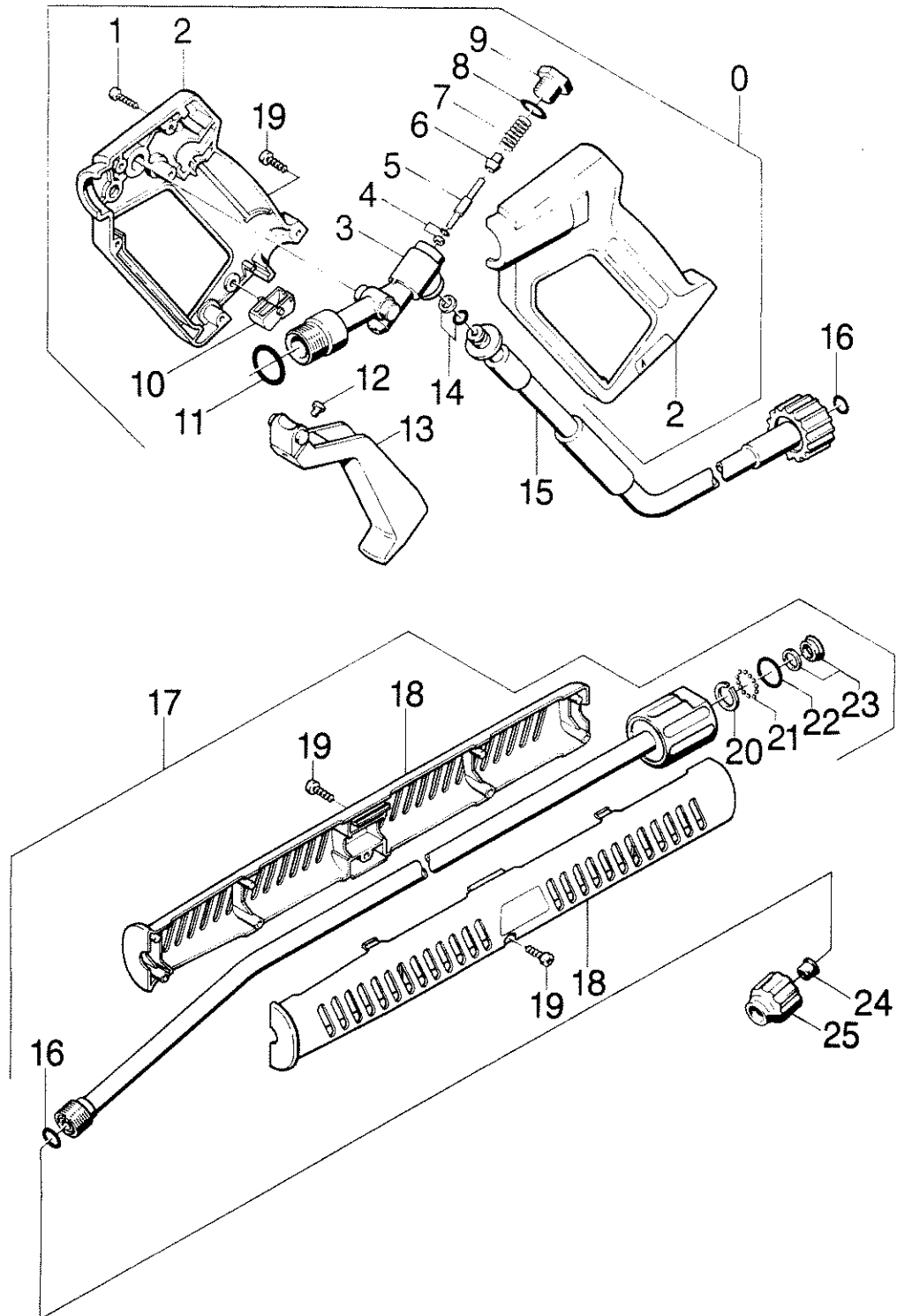
Gruppe 8: Sicherheitsblock
 Group 8: Safety System
 Groupe 8: Bloc de sécurité

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
0	Sicherheitsblock / Safety block / Bloc de sécurité	4.749-013	1
1	Schutzteil / Protector / Protection	5.394-060	1
2	Zylinderschraube M 3×16 / Cheese head screw M 3×16 / Vis à tête cylindrique M 3×16	7.306-406	1
3	6-Kant-Mutter M 3 / Hex. nut M 3 / Ecrou à 6 pans M 3	7.311-000	3
4	6-Kant-Schraube M 3×20 / Hex. hd. screw M 3×20 / Vis à 6 pans M 3×20	7.304-352	2
5	Scheibe B 3.2 / Washer B 3.2 / Rondelle B 3.2	7.312-030	4
6	Schalter / Microswitch / Microrupteur	6.631-125	1
7	Federring B 3 / Spring washer B 3 / Rondelle Grower B 3	7.313-000	2
8	Gehäuse / Housing / Boîtier	5.060-099	1
9	Zylinderschraube IS M 6×30 / Socket head screw M 6×30 / Vis à tête cylindrique IS M 6×30	7.306-024	2
10	Kolben / Piston / Piston	5.553-046	1
11	O-Ring 12,0-2,0 / O-ring 12,0-2,0 / Joint torique 12,0-2,0	6.362-169	1
12	Buchse / Bush / Douille	5.112-113	1
13	Schraubenfeder / Coil spring / Ressort hélicoïdal	5.332-069	1
14	Schraubenfeder / Coil spring / Ressort hélicoïdal	5.332-070	1
15	Stange / Rod / Tige	5.107-023	1
16	Buchse / Bush / Douille	5.112-094	1
17	Sicherungsscheibe / Retaining disc / Circlip	7.343-203	1
18	Scheibe / Washer / Rondelle	5.115-147	1
19	Kolben komplett / Piston assy. / Piston complet	4.553-025	1
20	Zylinderschraube M 5×20 / Cheese head screw M 5×20 / Vis à tête cylindrique M 5×20	7.306-442	1
21	6-Kant-Mutter M 5 / Hex. nut M 5 / Ecrou à 6 pans M 5	7.311-002	1
22	Reedschalter / Reed switch / Contacteur à languette	2.880-194	1
23	Formschraube / Special screw / Vis profilée	5.305-120	1
24	O-Ring 10,0-2,0 / O-ring 10,0-2,0 / Joint torique 10,0-2,0	6.362-151	1
25	Schraubenfeder / Coil spring / Ressort hélicoïdal	5.332-057	1
26	Kolben / Plunger / Piston	4.553-023	1
27	Gehäuse / Housing / Boîtier	5.605-023	1
28	Dichtring A 18×22 / Sealing ring A 18×22 / Bague d'étanchéité A 18×22	7.362-009	1
29	Doppelstutzen 10 / Double union 10 / Double raccord 10	7.386-126	1
30	HD-Schlauch NW 8 / HP hose, nom. dia. 8 / Flexible HP DN 8	6.388-859	1
31	Federring B 6 / Spring washer B 6 / Rondelle Grower B 6	7.313-003	2
32	6-Kant-Mutter M 6 / Hex. nut M 6 / Ecrou à 6 pans M 6	7.311-003	2
33	Halter / Bracket / Fixation	5.042-261	1
34	6-Kant-Mutter M 22×1,5 / Hex. nut M 22×1,5 / Ecrou à 6 pans M 22×1,5	7.311-155	1
35	Rohrleitung / Pipe / Tube	4.420-912	1
36	Sieb / Filter / Crèpine	6.414-111	1
37	O-Ring 17,3-2,4 / O-ring 17,3-2,4 / Joint torique 17,3-2,4	6.362-160	1
38	Verschlußschraube / Screw plug / Bouchon fileté	5.411-059	1

Gruppe 9: Zubehör
Group 9: Accessories
Groupe 9: Accessoires

HDS 650



Gruppe 9: Zubehör
 Group 9: Accessories
 Groupe 9: Accessoires

HDS 650

Pos. Ref. Pos.	Benennung Description Désignation	Teil-Nr. Part No. Référence	St. im Gerät Quant. p. gr. Nbr.
0	Handspritzpistole / Trigger gun / Pistolet	4.775-080	1
1	Schraube 4.2x22 / Screw 4.2x22 / Vis 4.2x22	6.303-024	5
2	Griff-Paar / Grip (pair) / Paire de poignées	5.321-230	1
3	Knotenstück / Strut attach. fitt. / Ferrure nodale	4.427-131	1
4	O-Ring kompl. / O-ring complete / Joint torique compl.	6.362-571	1
5	Stange / Rod / Perche	5.107-097	1
6	Ventilteller / Valve head / Tête de soupape	5.582-084	1
7	Schraubfeder / Coil spring / Ressort à boudin	5.332-157	1
8	O-Ring 12.42x1.78 / O-ring 12.42x1.78 / Joint torique 12.42x1.78	6.362-584	1
9	Verschluß-Schraube / Screw plug / Vis de fermeture	5.411-067	1
10	Hebel / Lever / Levier	5.481-052	1
11	O-Ring 17.12x2.62 / O-ring 17.12x2.62 / Joint torique 17.12x2.62	6.362-496	1
12	Zapfen / Trunnion / Tourillon	5.108-097	1
13	Hebel / Lever / Levier	5.481-066	1
14	O-Ring kompl. / O-ring complete / Joint torique compl.	6.362-422	1
15	Hd-Schlauch Nw 6 / Hp-hose / Tuyau souple à Hp	6.389-056	1
16	O-Ring 10x2 / O-ring 10x2 / Joint torique 10x2	7.362-501	2
17	Strahlrohr / Jet tube / Lance d'incendie	4.760-101	1
18	Griff / Handle / Poignée	5.321-150	2
19	Schraube 4.2x16 / Screw 4.2x16 / Vis 4.2x16	6.303-025	3
20	Dichtring / Sealing ring / Bague d'étanchéité	6.362-529	1
21	Kugel 4d / Ball / Boule	7.401-921	12
22	O-Ring 17x1.5 / O-ring 17x1.5 / Joint torique	6.362-524	1
23	Nutring Kpl. 1st-R. / Grooved ring / Joint en U à lèvres	6.362-532	1
24	Düsenmundstück 25055 / Nozzle 25055 / Buse 25055	6.415-311	1
25	Überwurfmutter / Union nut / Ecrou-raccord	5.401-129	1

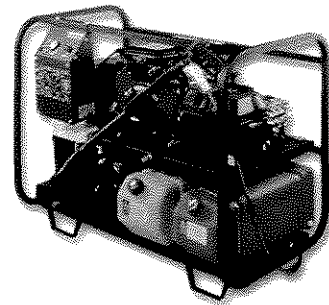
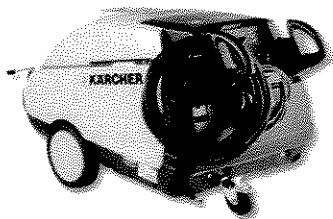


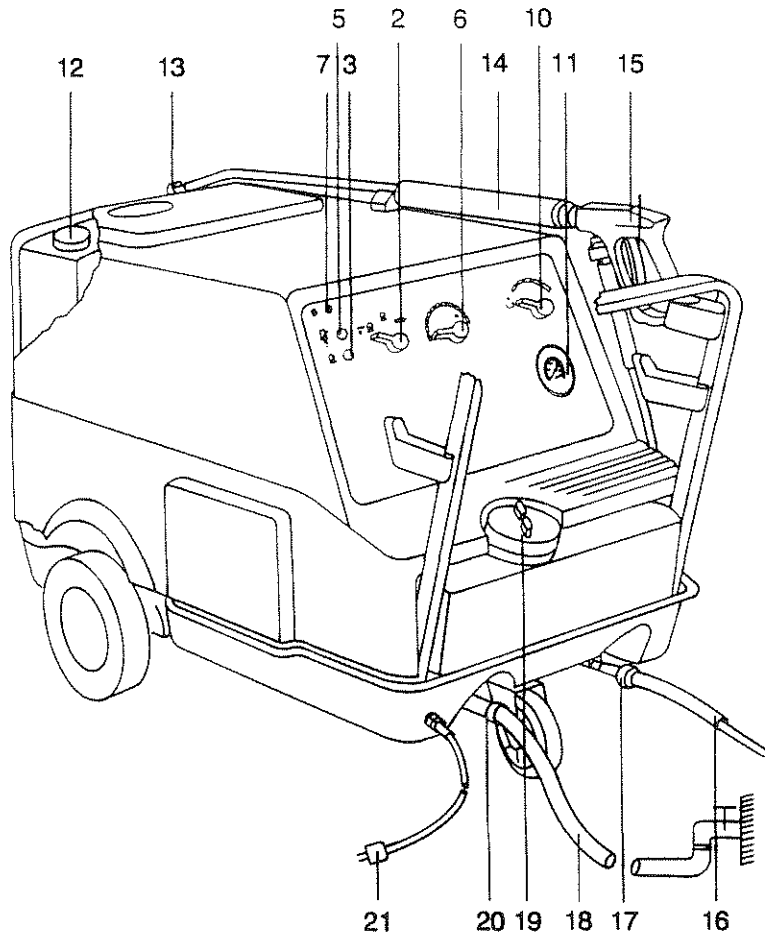
Operating Instructions

HDS 580

HDS 650

1.608-908.0 USA 120V 1~60 HZ





No: Description

- 2 Machine switch
- 3 Control light – Motor overheat or water supply temperature too high
- 5 Control light – Scale prevention empty
- 6 Temperature control
- 7 Control light – Fuel tank empty
- 10 Detergent metering valve
- 11 Pressure gauge
- 12 Detergent tank filter connection
- 13 High pressure nozzle
- 14 Wand

No: Description

- 15 Trigger gun
- 16 High pressure hose
- 17 Water outlet
- 18 Water hose*
- 19 Fuel tank filler connection
- 20 Water inlet
- 21 Machine plug
- 22 Filter – detergent
- 23 Filter – Fuel pump
- 24 Fuel pump
- 25 Blower with arrow indicating direction of rotation
- 26 Solenoid valve – fuel
- 27 Hood
- 28 Pulsation damper
- 29 Electrical cabinet – impulse transmitter
- 30 Oil tank
- 31 Pressure relief valve

No: Description

- 32 Fuse – control transformer
- 33 Burner cover
- 34 Coil
- 35 Spark plug connector
- 36 Sight glass
- 37 Nozzle assembly
- 38 Float tank
- 39 Container for scale inhibitor with spring and cap
- 40 Solenoid valve – Scale inhibitor
- 41 Low water cut-off
- 42 Filter – low water cut-off
- 43 Pressure switch
- 44 Pressure and volume control
- 45 Oil drain plug
- 46 Water pump
- 47 Motor type plate

* Not included with the machine

I. Technical Data

	HDS 650	HDS 750	HDS 890	HDS 950	HDS 1150	HDS 1290
Operating pressure Hot water (with standard nozzle) Infinitely variable to	1000 290	1500 290	2500 450	2000 290	2500 450	2200 450
Water volume Infinitely variable High pressure volume Steam stage volume	1.3-2.5 2.5 1.3	1.8-3.5 3.5 1.8	1.8-3.7 3.7 1.8	1.8-3.5 3.5 1.8	2.0-4.0 4.0 2.0	2.2-5.3 5.3 2.2
Electrical Voltage Rated consumption	1 ~ 60 Hz 110 2.2	1 ~ 60 Hz 208-240 4.0	3 ~ 60 Hz 240/460 6.0	1 ~ 60 Hz 208-240 4.5	1 ~ 60 Hz 208-240 6.0	3 ~ 60 Hz 208-240 6.0
Temperature Max. water inlet temperature Max. operating temperature -- high pressure stage Permissible operating temperature -- steam stage	86 208 305	86 208 305	86 208 305	86 208 305	86 208 305	86 208 305
Maximum fuel consumption (light fuel oil) For temperature rise of by 120 °F	0.9	1.1	1.5	1.1	1.6	2.0
Dimensions Length Width Height	50 27 29	50 27 30	50 27 30	50 27 30	54 27 34	54 27 34
Capacities Fuel tank Chemical tank (integrated) Chemical supply (infinitely adjustable) Net weight of machine with accessories	6.6 5.3 0-0.25 260	6.6 5.3 0-0.2 290	6.6 5.3 0-0.2 290	6.6 5.3 0-0.2 260	6.6 2x5.3 0-0.2 340	6.6 2x5.3 0-0.2 340

Unit of measurement

PSI
PSI

GPM
GPM
GPM

V
HP

°F
°F
°F

GPM
GPM

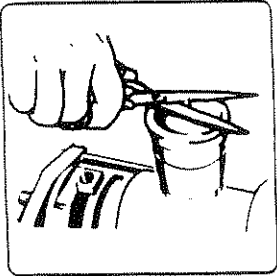
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in
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GAL
GAL
GPM
lbs

d. Important notes

Observe carefully **before** starting

1. If you should discover any shipping damage when unpacking the machine, inform your Karcher Dealer.
2. Open hood (27); cut off tip of oil tank (30).



3. Electrical connection

- The supply voltage must be the same as the voltage shown on the motor type plate (47).
- The main electrical supply line must be protected with a 30 A slow fuse: HDS 650, HDS 950, HDS 1150; 20 A slow fuse: HDS 750, HDS 890.

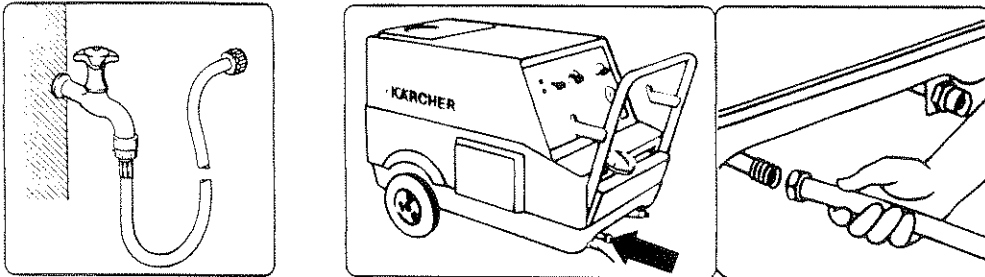
- Try to avoid use of extension cords.
- If an extension cord is used, minimum wire cross-section for lengths up to 50 ft: AWG 10.

CAUTION: The extension cord must always be unwound.

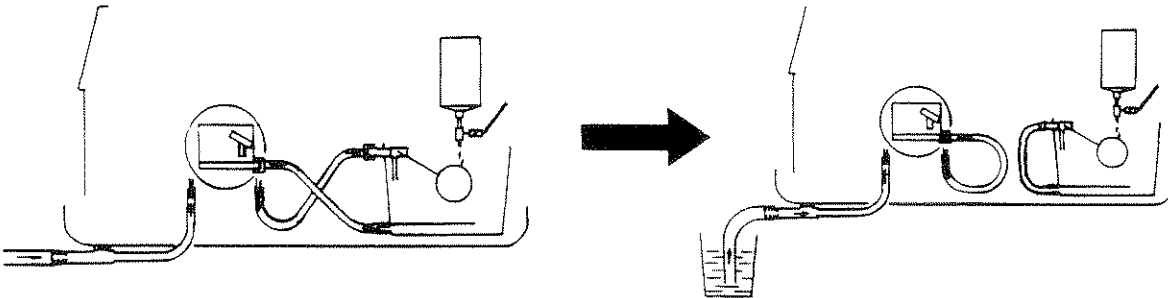
- All current-carrying parts, cords and equipment must be water-proof in the working area.

4. Water supply

- Connect water hose (18), minimum $\frac{5}{8}$ " - $\frac{3}{4}$ ", to water machine inlet (20) and water faucet.
- The water supply capacity must be minimum 4 gpm.

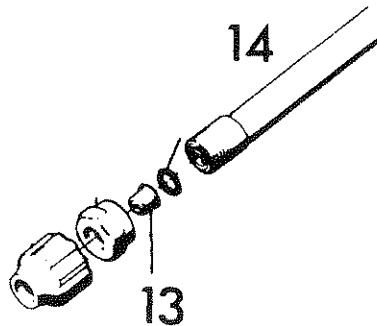


- The water can also be drawn from an open tank: Connect a suction hose, to machine water inlet (20) and connect the hoses according to the drawing.

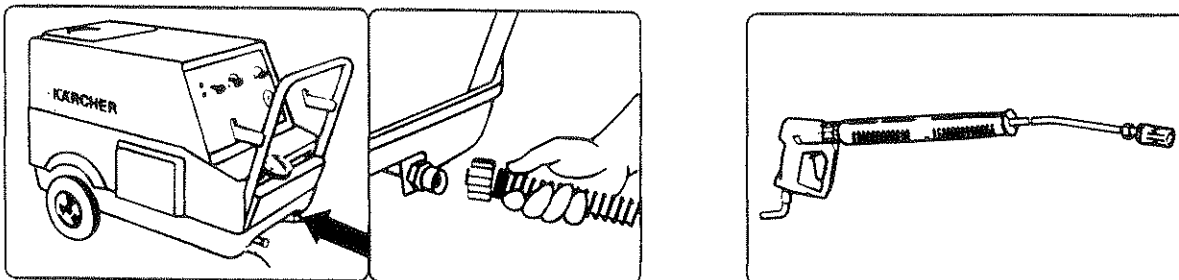


- The water level should not be more than 3 ft. below the machine.
- Caution:** Never draw in unfiltered water or liquids containing solvents (e.g., paint thinner, gasoline, oil, etc.).

5. Attach high pressure nozzle (13) to wand (14).



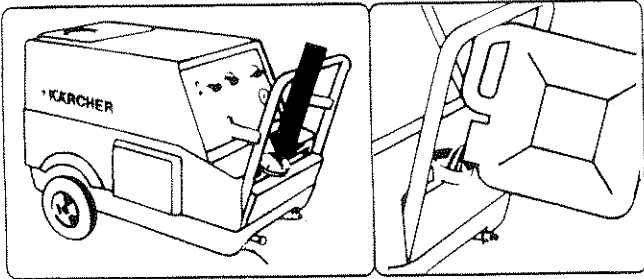
6. Connect high pressure hose (16) to trigger gun (15) and wand (14) and screw high pressure hose to machine water outlet (17).



7. Fuel supply

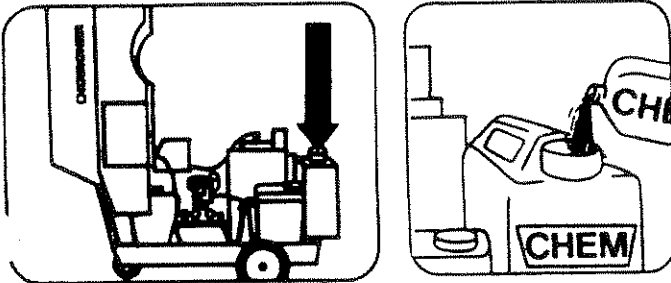
- Fill fuel tank (19) with light fuel oil or diesel oil No. 1, No. 2 or kerosene.

Caution: Dry operation for more than a short period of time can damage the fuel pump.
Do not use gasoline, crankcase drainings or oil containing gasoline.



8. Detergent supply

- Fill detergent tank (12) with Kärcher detergent (see Section V.).

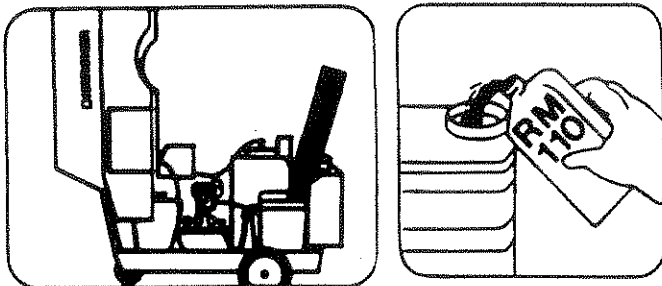


9. Scale protection

- Remove spring from cap support (39).
- Fill container with Kärcher inhibitor fluid, Order No. 6.287-033.
- Obtain water hardness values from local water company, or determine using water hardness testing kit.
- Adjust impulse transmitter (29) in electrical cabinet if necessary. It is factory set on No. 5.

Water hardness	5	10	15	20	25	30
Impulse transmitter	10	8	7	6.5	6	5.5

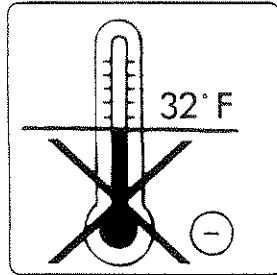
- When the inhibitor fluid container is empty, the indicator light (5) flashes.
- When operating the machine without a scale prevention device, the heater coil may become scaled (see Section VI. 4, "Descaling").
- **Important!** Not using the scale inhibitor will void the coil warranty should any subsequent damage occur to the coil due to scaling.



10. Anti-freeze protection

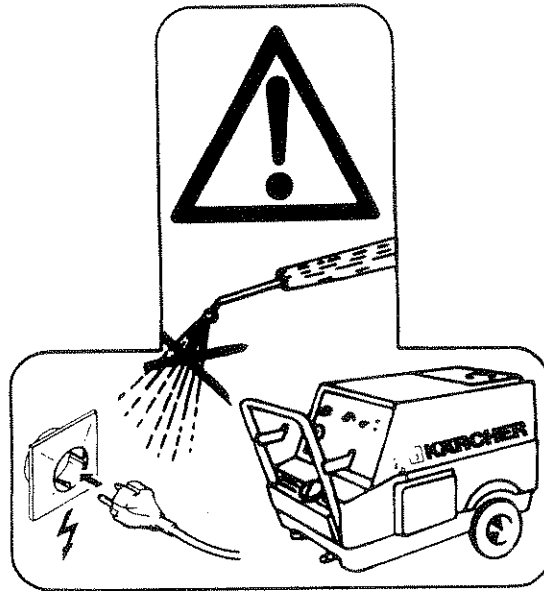
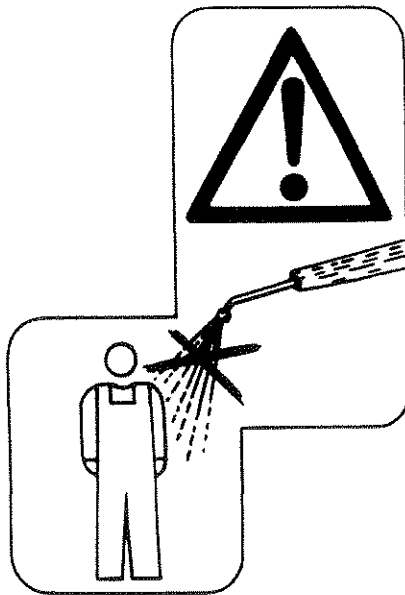
If the machine is stored at below freezing temperatures without being drained and antifreezed, this will lead to damage to the machine, and void any warranties.

The best anti-freeze protection is to keep the machine in a room protected against frost.



11. Safety measures

- **Never** direct the water spray towards any person.
- **Never** direct the water spray directly towards the cleaner or any other electrical equipment.



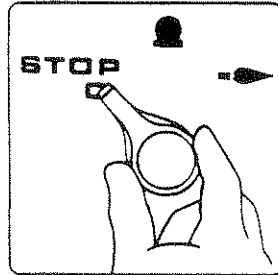
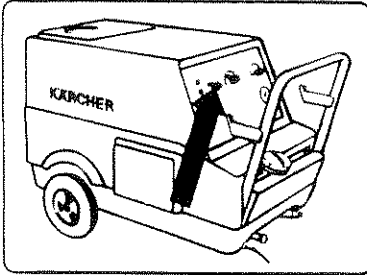
Function of the safety features

- The low water cut off (41)** prevents the burner from being switched on if there is insufficient water. If enough water is supplied, a magnet is pushed forward causing the reed contact to close. This is necessary to open the fuel solenoid valve (26). Clogging of the low water cut off is prevented by a strainer which should be cleaned every week.
- Pressure switch**
The pressure switch switches the machine off if the operating pressure is exceeded, such as when closing the gun, if the nozzle is clogged or if the heating coil is blocked by scale deposits. It switches on again when the pressure drops below about 145 PSI to 345 PSI depending on the model.
- Pressure relief valve**
Whenever the gun is closed, the (31) pressure relief valve opens briefly. The released water is returned to the float chamber. Use only original Kärcher seals as specified in the spare parts list.

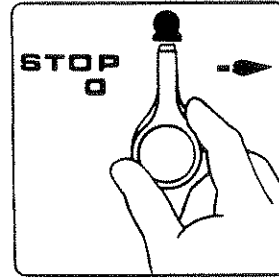
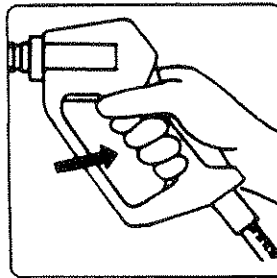
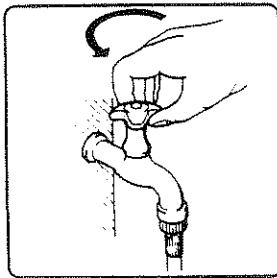
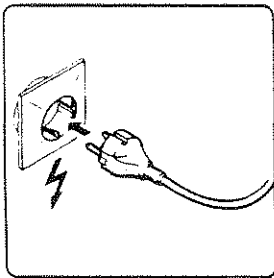
III. Operation

1. Cleaning with cold water

- Machine switch (2) must be at "Stop" position.



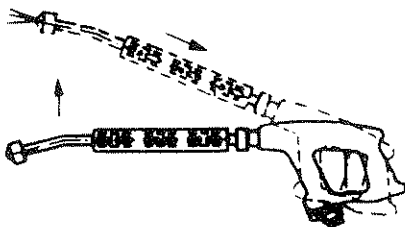
- Connect the grounded electrical plug (21) to electrical supply.
- Turn on water supply.
- Pull trigger of gun, and set machine switch to position "Motor on".



- The pump initially pushes air out of the machine. Water emerges from the nozzle after a brief period.

Caution:

The water jet causes the spray gun to recoil so the wand and gun should be held firmly.

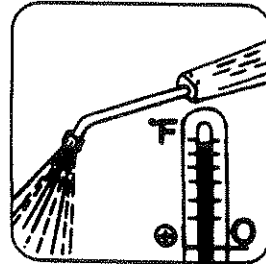
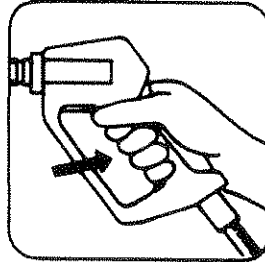
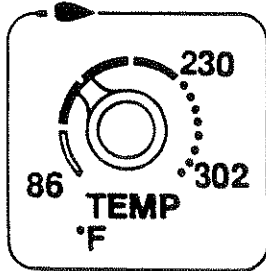
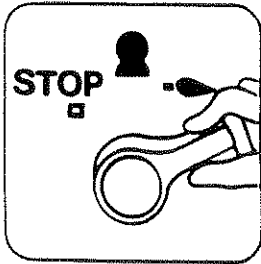


Important:

All machines should be started with the trigger gun open.

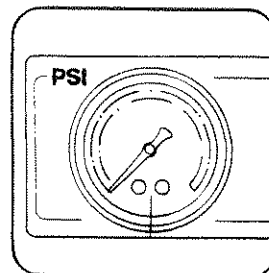
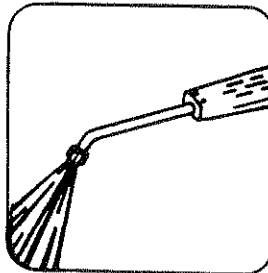
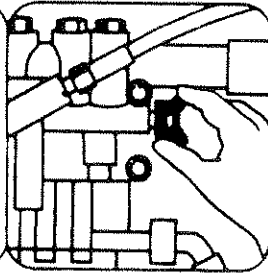
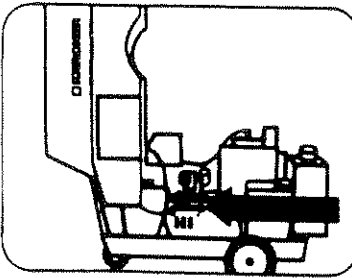
2. Cleaning with hot water

- Wait until water leaves the high pressure nozzle; then set machine switch to "Burner On" position.
- Set temperature regulator to required working temperature.



3. Changing pressure and water volume

- Open hood. Set infinitely variable control knob (44) to desired pressure.

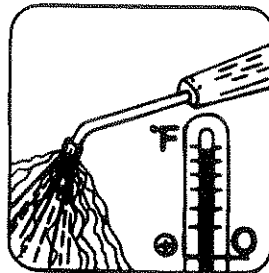
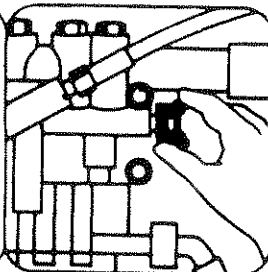
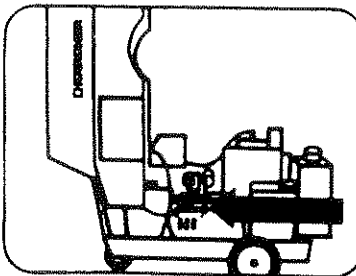
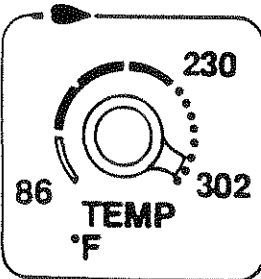


- Machine will stop if the trigger gun is released. Pulling the trigger again will re-start the machine within approximately 2 seconds.

4. Steam operation

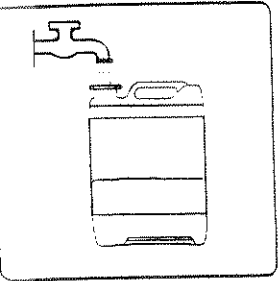
In order to convert from hot water to steam operation, cool the machine down by operating it cold then switch off. Proceed as follows:

- Replace the high-pressure nozzle with a steam nozzle.
- Set the temperature control to 302 °F.
- Set the volume control knob on the high-pressure pump to its lowest setting (counterclockwise).

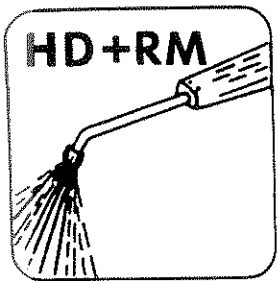


Spraying cleaning agent

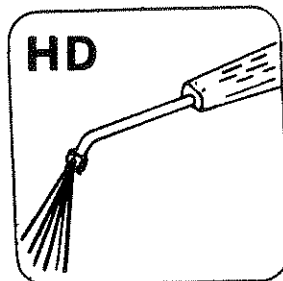
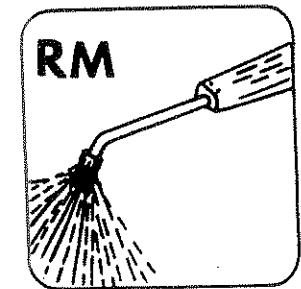
- The amount of dilution and the setting of the metering valve depends on the cleaning agent and on application.



a) The cleaning agent may be applied at **high pressure** in a single pass method.



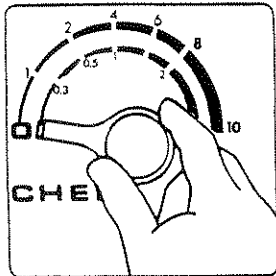
b) The cleaning agent may also be applied at low pressure, allowed to stand for a short time. Then washed and rinsed at high pressure.



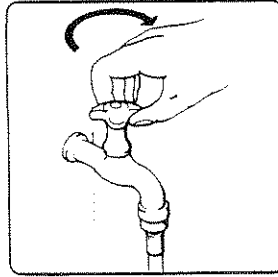
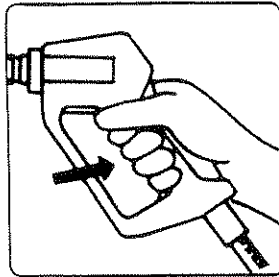
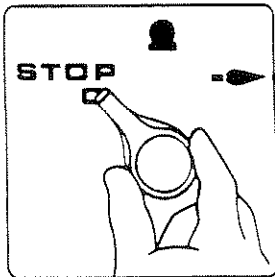
- For most effective cleaning, the cleaning agent should always be applied to a dry surface. The surface to be cleaned should not be wetted down first as this prevents the cleaning agent from penetrating the dirt.

6. Shutting down the cleaner

- Set the detergent metering valve to "0" position.
- With machine switch at "Motor" position, run until cool for at least 1 minute.



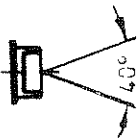
- Set machine switch to "Stop" position.
- Pull trigger gun until the cleaner is relieved of pressure.
- Use trigger lock to prevent trigger gun against being opened accidentally.



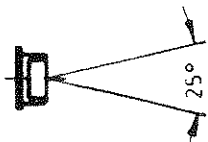
IV. Application

The machine is designed to remove dirt from surfaces by way of a high pressure water jet. Some applications of the machine are to clean machinery, floors, facades and livestock sheds.

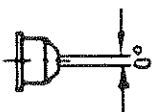
Nozzle selection



Fan-jet nozzle 40°



Fan-jet nozzle 25°



Pencil-jet nozzle 0°

1. Selections of operating pressure

The operating pressure is selected to match the cleaning job. The maximum possible pressure should be used for cleaning hard, encrusted dirt. The pressure should not exceed 725 PSI when cleaning tiled walls, due to the risk of damaging joints.

The operating pressure depends on the nozzle orifice and the upper limit is the switch-off pressure of the pressure switch.

Apart from the pressure and the distance between the nozzle and the object being cleaned, the type of nozzle used also affects the cleaner's effectiveness. The pencil-jet nozzle with a 0° spray angle has the greatest mechanical effect and is particularly suitable for cleaning livestock sheds and very dirty construction machinery. The 25° fan-jet nozzle is suitable for general use or the 40° nozzle where large areas have to be cleaned.

V. Cleaning compounds

Important information

We recommend that only Karcher cleaning agents be used and that the use of other, unsuitable cleaning agents may lead to damage both to the high-pressure cleaner and to the object to be cleaned. The use of any cleaning agent other than a Karcher cleaning agent can void the machine warranty.

Product	Application and properties	Ref. no.
RM 31 Heavy Duty Degreaser	Strong alkaline liquid cleaner. Highly effective degreaser capable of removing even the most stubborn soiling. Trouble-free utilization in areas with very hard water. Not suitable for car paintwork.	4x1 gal 6.291-777 5 gal 6.291-828 55 gal 6.291-827
RM 55 Multi Purpose Detergent	Neutral Liquid cleaner. Removes oil, grease and residual grime from sensitive surfaces. Extremely effective. For cleaning painted or unpainted surfaces and metallic and heat-resistant surfaces. Provides maximum protection.	4x1 gal 6.291-776 5 gal 6.291-802
RM 81 Vehicle and Truck Wash	Alkaline liquid cleaner. Removes dirt oil and grease from painted and unpainted surfaces. Particularly well suited for cleaning cars, trucks, buses, farm machinery and tools.	4x1 gal 6.291-775 5 gal 6.291-798 55 gal 6.291-797
RM 110 Scale Inhibitor	Liquid compound containing heat-resistant organic and inorganic salts. Effectively prevents build-up of boiler scale on heater coils of high-pressure cleaners used in hard-water areas.	5 gal 6.287-033


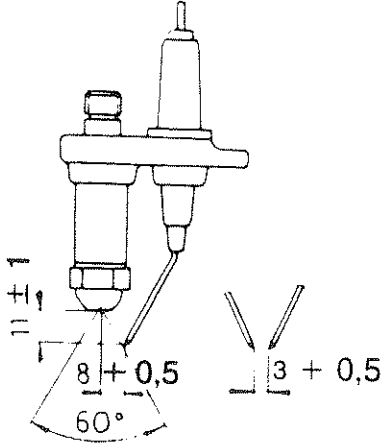
Caution: When using cleaning agents, please read all product informations on the material being used (particularly when using cleaning agents in conjunction with hot water).

VI. Care and maintenance

Users are responsible for proper care and maintenance. Servicing operations must be performed carefully, to ensure that the cleaner will continue to give good service.

Before doing any maintenance and repair work, pull the electric plug and disconnect the water supply.

1. Maintenance Schedule

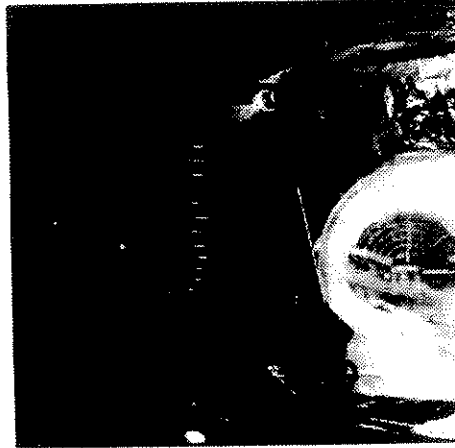
Daily	<p>Oil level: If oil is milky or oil level has sunk below the minimum mark, change or top off as required (see Section VI. 2, "Oil Change").</p>
Weekly	<p>Clean the filter (42) serving the low water cut-off (41).</p>
Monthly	<p>Remove burner nozzle assembly (37) and clean ignition electrodes or reset electrode gap as required.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
Halfyearly or as required	<p>Empty and clean fuel tank (19). Clean filters (23) of fuel pump and fuel nozzle. Clean sulphur and soot deposits from heater coil (see Section VI. 3, "De-sooting Heating Coil"). Oil change see Section VI. 2, "Oil Change").</p>

2. Oil Change

- Release drain plug (45), and drain oil off into a drain pan.
- Retighten drain plug.
- Fill oil up to "max." mark.
- Oil type: Hypoid Oil SAE 15 W/40, Order No. 6.288-050, 1 litre (HDS 650, HDS 750, HDS 950, HDS 1150).
Kärcher special 90, Order No. 6.288-016 (HDS 890, HDS 1290).

3. De-sooting heater coil

- Disassemble all connections to the boiler jacket such as cloth collar, spark plug connectors, fuel line and fastening screws.
- Lift off boiler jacket.
- Cover machine with a plastic sheet and
Clean heater coil.



4. Descaling

- It is recommended that only approved boiler cleaning compounds such as Kärcher descaling acid (Order No. 6.287-008) may be used for descaling.
- Pay careful attention to the directions for use and accident prevention, (i.e. wearing gloves and protective goggles).
- Fill an approximately 5 gallon tank $\frac{3}{4}$ full with water.
- Connect up water hose (18) directly to suction side of water pump, and place other end of hose in tank.
- Remove high pressure nozzle (14) from wand (13), and place wand in tank.
- Pour 1 part descaling acid for every 9 parts water into tank.
- Start machine (temperature: max. 104 °F).
- The descaling process is completed after about 15 minutes if descaling is carried out regularly.
- Then flush machine out well with clear water, for at least $\frac{1}{2}$ hour.

Caution: When performing descaling, the trigger gun must be kept open.

VII. Trouble shooting

Problems	Possible Cause	Remedy
1. Machine does not start	a) No electric power	Check plug, power cord, socket and fuses
	b) Thermal sensor in the motor or in the high pressure line has been tripped – Motor light is on	Caution! Thermal sensor restarts machine automatically when cooled down. Remove cause of overload
	c) Fuse blown in control transformer	Replace fuse. If fuse blows again, remove cause of overload
	d) Water system under pressure	Relieve machine of pressure by pulling trigger gun. Check pressure switch.
	e) Contactor K 1 is defective	Check coil and contacts, replace if necessary
2. Burner will not ignite or flame extinguishes during operation	a) No ignition spark (observable through sight glass in burner cover)	Clean electrodes or adjust electrode gap. Check ignition transformer, ignition cable and spark plug connectors
	b) Fuel tank empty	Replenish tank
	c) Fuel filter contaminated	Remove and clean
	d) Insufficient atomization at burner nozzle	Remove and clean filter
	e) Fuel pump or its couplings defective	Remove and replace damaged parts
	f) Solenoid valve not energized or is damaged (a noise can be heard when the valves opens)	Check electrical connections, correct any defect. replace valve if necessary
3. Low pressure	a) Water supply inadequate	Open water faucet
	b) Strainer before the low water cut-off is blocked	Remove filter and clean
	c) Pressure relief valve leaking	Fit new packing
	d) Nozzle is worn or wrong size	Replace with new correct nozzle
4. Machine starts and stops when trigger gun is open	a) Nozzle blocked	Check and clean
	b) Machine is scaled	Descale machine (refer to "Descaling")
	c) Switch point of pressure switch has shifted	Have pressure switch adjusted by Kärcher service
5. Water pump knocking. Pressure gauge fluctuates dramatically	a) Vibration damper defective	Replace vibration damper
	b) Water pump drawing in minimal amounts of air	Check suction system and eliminate leak
6. Insufficient or no detergent delivery	a) Detergent filter blocked or tank empty	Clean or replenish as required
	b) Detergent suction hoses, detergent metering valve leaking or blocked	Check and clean
7. Low water cut-off making no contact – no flame	a) Water faucet closed	Open valve
	b) Water supply inadequate	Locate better water supply
	c) Strainer before the low water cut-off is blocked	Remove filter and clean
	d) Valves in water pump leaking or dirty	Check valve disks and seats; replace if necessary
	e) Pressure in water supply too low	Correct fault

VIII. General Notes

1. Test pressure and construction comply with the current European safety regulations for steam boilers.
2. It is recommended that high pressure sprayers be tested regularly (yearly) by a qualified service technician for proper operation.
3. When operating the machines within confined spaces, ensure that safe exhaust facilities are provided for smoke fumes (smoke flue with draft interrupter). Care must also be taken to provide adequate ventilation (combustion air).
4. **High-pressure hoses**
It is important that only original tested Kärcher high-pressure hoses be used. Kärcher will not be liable for any damages caused by the use of any non-Kärcher hoses.

I. Datos técnicos

	Unidad	HDS 650	HDS 750	HDS 890	HDS 950	HDS 1150	HDS 1290
Presión de servicio							
Agua caliente (con boquilla estándar) regulable de forma continua hast	PSI PSI	1000 290	1500 290	2500 450	2000 290	2500 450	2200 450
Cantidad de proyección regulable de forma continua							
Agua	GPM	1.3-2.5	1.8-3.5	1.8-3.7	1.8-3.5	2.0-4.0	2.2-5.3
Chorro de vapor	GPM GPM	2.5 1.3	3.5 1.8	3.7 1.8	3.5 1.8	4.0 2.0	5.3 2.2
Tipo de corriente							
Tensión de la corriente	V	1~60 Hz	1~60 Hz	3~60 Hz	1~60 Hz	1~60 Hz	3~60 Hz
Toma normal	HP	110 2.2	208-240 4.0	240/460 6.0	208-240 4.5	208-240 6.0	208-240 6.0
Temperatura							
Temperatura máxima de entrada	°F	86	86	86	86	86	86
Temperatura máx. de servicio - nivel de alta presión	°F	208	208	208	208	208	208
Temperatura admisible de servicio - nivel de vapor	°F	305	305	305	305	305	305
Consumo máximo de fuel-oil (EL) al aumentar en 50 °C la temperatura							
	GPM GPM	0.9	1.1	1.5	1.1	1.6	2.0
Dimensiones							
Largo	in	50	50	50	50	54	54
Ancho	in	27	27	27	27	27	27
Alto	in	29	30	30	30	34	34
Cantidad de llenado							
Depósito de combustible (incorporado)	GAL	6.6	6.6	6.6	6.6	6.6	6.6
Depósito de productos químicos (incorporato)	GAL	5.3	5.3	5.3	5.3	2x5.3	2x5.3
Aspiración de productos químicos (regulable de forma continua)	GPM	0-0.25	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
Peso en vacío de la máquina con accesorios	lbs	260	290	290	260	340	340

