

SUBMERSIBLE MOTORS

6 INCH SML

PRODUCT INFORMATION & SERVICE MANUAL



SHAKTI

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6" SML PRODUCT INFORMATION

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PRODUCT APPLICATION AND PRODUCT SPECIFICATION

GENERAL DATA

These 150 mm Rewindable motors, manufactured in ISO 9001:2015 certified facilities

Applications

This motor is built for dependable operation in 150 mm diameter or larger water wells. It is fitted with water lubricated radial and thrust bearings for a maintenance – free operations. The motor is filled with a special fluid, Providing frost protection down to -15°C storage temperature . A special diaphragm ensures pressure compensation inside the motor.

Product advantages

- High efficiency electrical design (low operation cost, cooler winding temperature).
- Motor with oil seal and sand slinger.
- Cable material in accordance with regulations for drinking water.
- Water lubricated radial and thrust bearing.
- All motors pre-filled and 100% tested.
- Non contaminating, water-filled design.
- Max. storage temperature -15°C to +60°C.

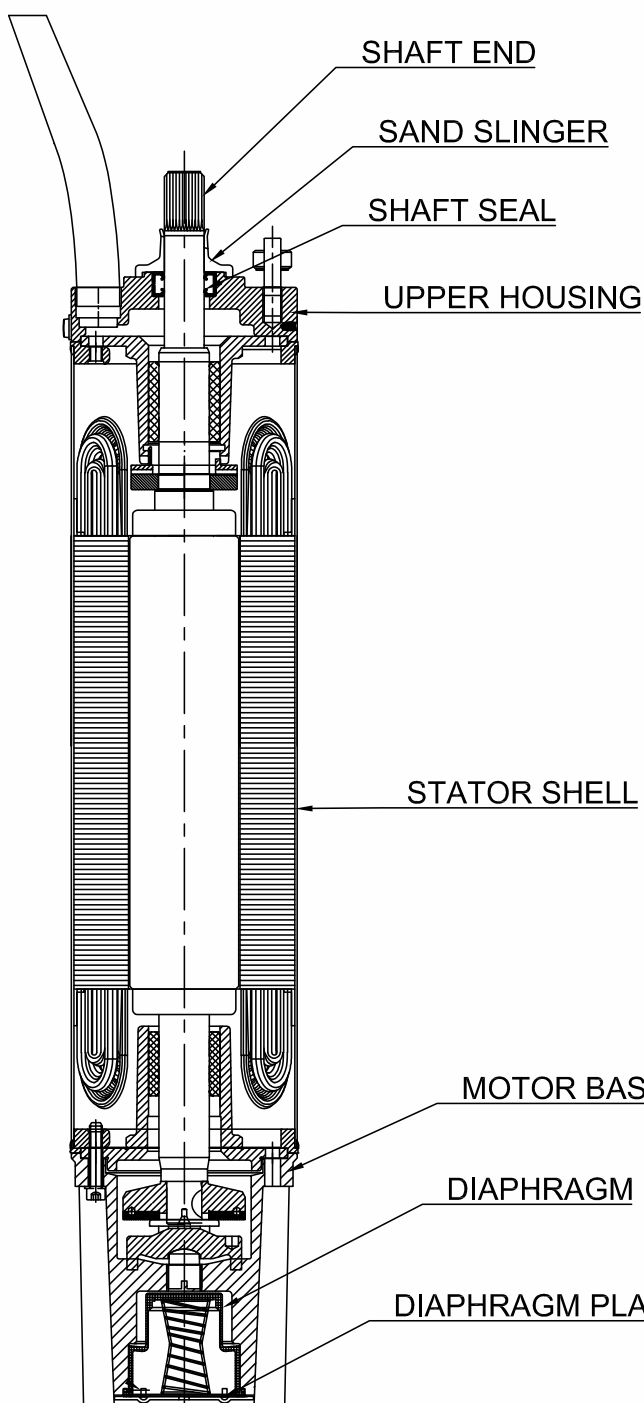
Technical specification

Power range	: 3 - 20 HP / 2.2 - 15 kW
Flange	: 150 mm NEMA
Degree of protection	: IP68
Ambient temperature	: 30°C
Cooling flow	: 3 - 20 HP / 2.2 - 15 kW = 0.2 m/s
Starts/hr	: 20
Voltage tolerance	: +6% / -10% U _N

SUBMERSIBLE MOTORS

Material	CI, SS-304 & SS-316	Rating	2.2 kW - 15 kW	3 HP - 20 HP
Type	Rewindable	Thrust Rating	15500 N	

6" Rewindable



PART	MATERIAL		
	CI	AISI SS 304	AISI SS 316
UPPER HOUSING	CAST IRON POWDER COATED	AISI SS 304	AISI SS 316
STATOR SHELL	AISI SS 304	AISI SS 304	AISI SS 316
SEALS	NBR	NBR	NBR
SAND SLINGER	NBR	NBR	NBR
SHAFT END	DUPLEX	DUPLEX	DUPLEX
SHAFT SEAL	EPDM + AISI SS 304	EPDM + AISI SS 304	EPDM + AISI SS 304
MOTOR BASE	CAST IRON POWDER COATED	AISI SS 304	AISI SS 316
DIAPHRAGM	EPDM	EPDM	EPDM
DIAPHRAGM PLATE	AISI SS 304	AISI SS 304	AISI SS 316
LEAD	EPR	EPR	EPR

SUBMERSIBLE MOTORS				
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6" REWINDABLE MOTORS - MODEL NUMBERS

P _N		UN / f	Model numbers			
			SML-CI		SML-SS-304	
[kW]	HP	[V] / [Hz]	Y	YΔ	Y	YΔ
2.2	3	380 - 415 / 50	9000011514	-	-	-
4	5.5	380 - 415 / 50	9000006511	9000006463	9000006519	9000006527
5.5	7.5	380 - 415 / 50	9000006512	9000006464	9000006520	9000006528
7.5	10	380 - 415 / 50	9000006457	9000006465	9000006521	9000006529
9.3	12.5	380 - 415 / 50	9000006458	9000006466	9000006522	9000006530
11	15	380 - 415 / 50	9000006459	9000006467	9000006523	9000006531
13	17.5	380 - 415 / 50	9000006460	9000006468	9000006524	9000006532
15	20	380 - 415 / 50	9000006461	9000006469	9000006525	9000006533

* SS-316 Available on request

SUBMERSIBLE MOTORS					
Material	CI, SS-304 & SS-316		Rating	2.2 kW - 15 kW	3 HP - 20 HP
Type	Rewindable		Thrust Rating	15500 N	

6" REWINDABLE MOTORS PERFORMANCE DATA 50 Hz

Material Code	[HP]	[kW]	Thrust	U_N	n_N	I_N	I_A	EFFICIENCY[%]			POWER FACTOR [%]			T_N	T_A
			F[N]	[V]	$[\text{min}^{-1}]$	[A]	[A]	50	75	100	50	75	100	[Nm]	[Nm]
9000011514	3.0	2.2	15500	380	2892	6.5	26.0	68	72	75	0.71	0.64	0.70	7.3	8.6
				400	2900	7.0	28.0	66	71	74	0.61	0.59	0.63	7.2	8.6
				415	2908	7.3	29.2	64	68	72	0.55	0.52	0.59	7.2	8.5
9000006511	5.5	4.0	15500	380	2868	9.5	43.8	80	81	82	0.66	0.73	0.78	13.3	15.8
				400	2876	9.7	46.7	79	81	81	0.59	0.68	0.74	13.3	17.5
				415	2888	10.0	48.6	78	80	81	0.55	0.63	0.70	13.2	19.1
9000006512	7.5	5.5	15500	380	2860	13.1	45.9	82	82	83	0.66	0.69	0.77	18.4	15.6
				400	2872	13.5	51.8	81	82	83	0.59	0.63	0.72	18.6	17.4
				415	2880	13.9	55.0	80	81	82	0.53	0.58	0.68	18.2	19.0
9000006457	10.0	7.5	15500	380	2856	17.1	55.1	81	83	83	0.64	0.74	0.80	25.1	19.3
				400	2864	17.4	61.9	80	83	83	0.57	0.67	0.76	25.0	21.7
				415	2908	18.0	66.1	79	82	83	0.51	0.63	0.72	24.6	23.3
9000006458	12.5	9.3	15500	380	2852	22.0	74.0	84	84	84	0.68	0.72	0.77	31.2	25.9
				400	2860	22.8	83.1	83	83	83	0.61	0.65	0.71	31.1	29.1
				415	2868	23.7	90.6	81	82	83	0.52	0.60	0.68	31.0	31.5
9000006459	15.0	11.0	15500	380	2844	25.1	90.1	84	83	83	0.80	0.71	0.80	36.8	30.7
				400	2856	25.6	100	83	81	82	0.76	0.64	0.76	36.8	35.7
				415	2864	26.6	108	82	80	82	0.73	0.59	0.71	36.7	38.6
9000006460	17.5	13.0	15500	380	2848	29.0	114	85	85	84	0.74	0.78	0.81	43.6	45.5
				400	2864	29.6	125.0	85	85	85	0.67	0.74	0.76	43.4	51.0
				415	2872	30.4	133	83	84	84	0.62	0.69	0.72	43.2	55.3
9000006461	20.0	15.0	15500	380	2796	35.8	148	79	80	81	0.60	0.68	0.79	51.3	55.6
				400	2804	36.6	161.0	78	79	81	0.54	0.61	0.75	50.9	62.2
				415	2816	37.7	169	76	78	81	0.49	0.55	0.71	50.7	62.0

15500 N

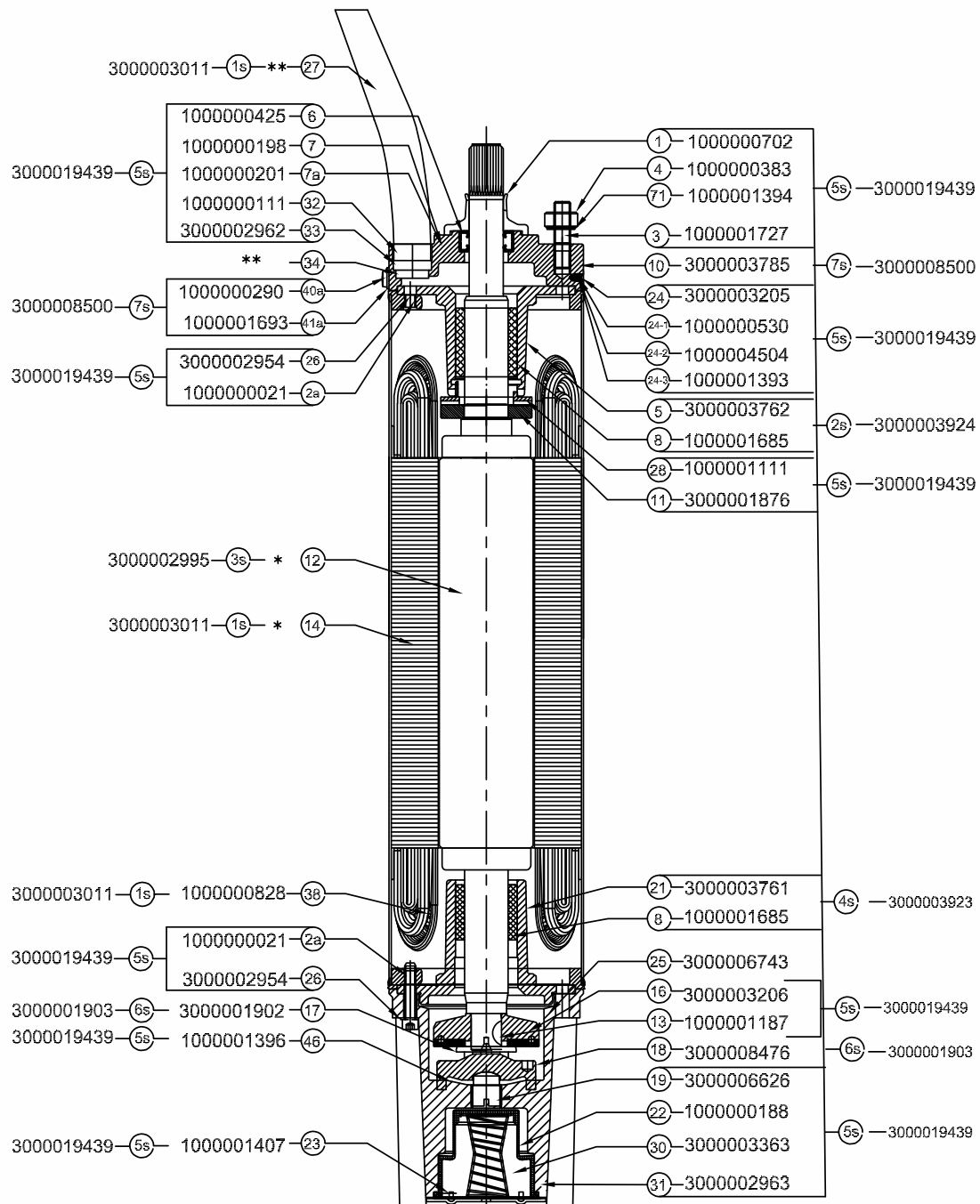
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NOTE: - * INDICATE AS PER (HP)
 ** AS PER REQUIREMENT

SUBMERSIBLE MOTORS

Material	CI, SS-304 & SS-316	Rating	2.2 kW - 15 kW	3 HP - 20 HP
Type	Rewindable	Thrust Rating	15500 N	

SECTIONAL VIEW SML 150



NOTE: - * INDICATES AS PER (HP)
** AS PER REQUIREMENT

SUBMERSIBLE MOTORS

Material	CI, SS-304 & SS-316	Rating	2.2 kW - 15 kW	3 HP - 20 HP
Type	Rewindable	Thrust Rating	15500 N	

EXPLODED VIEW SML 150 PART LIST

POS	MATERIAL CODE	PART DESCRIPTION	QTY	MATERIAL
1	1000000702	SAND SLINGER	1	NBR
6	1000000425	OIL SEAL	2	EPDM + SS AISI 304
4	1000000383	NUT(M12)	4	SS AISI-304
71	1000001394	SPRING WASHER	4	SS AISI-304
3	1000001727	STUD	4	SS AISI-304
32	1000000111	CONNECTOR RING	1	BRASS(GRADE-I)
33	3000002962	GROMATE WASHER	2	EN 1.4509
34	**	GROMATE	1	NITRILE RUBBER
2a	1000000021	ALLEN BOLT M8X40	4	SS AISI-304
26	3000002954	COPPER WASHER	4	COPPER
7	1000000198	DRAIN PLUG	1	BRASS
7a	1000000201	DRAIN PLUG WASHER	1	NBR
10	3000003785	UPPER HOUSING	1	CI FG-260
24-1	1000000530	PVC CAP FOR PRV (WHITE)	1	PP
24-3	1000001393	FILTER	2	NA
24-2	1000004504	PVC CAP FOR PRV (GREEN)	1	PP
5	3000003762	END BELL UPPER	1	CI FG-260
8	1000001685	BUSH	1	REGIN IMPREGNATED CARBON
28	1000001111	UP THRUST BEARING	1	NORYL(GLASS FILLED)
11	3000001876	THRUST PLATE	1	CI FG-260
12	*	ROTOR SUB ASSLY	1	N/A
13	1000001187	WOOD RUF KEY	1	En8
40a	1000000290	HH BOLT(M6X12)	1	SS AISI-304
41a	1000001693	SS WASHER	1	SS AISI-304
24	3000003205	PRESSURE RELIEF VALVE ASSLY.	2	N/A
27	**	CABLE	1	RUBBER
14	*	STATOR SUB ASSLY	1	N/A
38	1000000828	LOWER SUPPORTING RING	1	PPS
8	1000001685	BUSH CARBON	1	REGIN IMPREGNATED CARBON
21	3000003761	END BELL LOWER	1	CI FG-260
16	3000003206	REVOLVING PLATE ASSLY	1	NA
17	3000001902	THUST BRG.SEG	3	AISI SS-420
18	3000008476	THRUST BRG PLATE	1	CI FG-260
19	3000006626	ADJUSTING STUD	1	DUPLEX
46	1000001396	MAGNET	1	MAGNET
25	3000006743	MOTOR BASE	1	CI FG-260
26	3000002954	COPPER WASHER	4	COPPER
2a	1000000021	ALLEN BOLT M8X40	4	SS AISI-304
22	1000000188	DIAPHRAM	1	EPDM
30	3000003363	DIAPHRAM SPRING	1	SPRING STEEL
31	3000002963	MOTOR BASE COVER	1	SS AISI-304
23	1000001407	ALLEN BOLT M4X10	4	SS AISI-304

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REPLACEMENT ROTOR & SLEEVE ASSEMBLY

POS	P _N [HP]	P _N [KW]	UPPER SLEEVE	LOWER SLEEVE	ROTOR MODEL NO
12.01	3.0	2.2	3000022406 LENGTH - 79.0 mm	3000022408 LENGTH - 105.5 mm	3000002995
12.02	5.5	4.0			3000002996
12.03	7.5	5.5			3000002997
12.04	10.0	7.5			3000002998
12.05	12.5	9.3			3000002999
12.06	15.0	11.0			3000003000
12.07	17.5	13.0			3000003001
12.08	20.0	15.0			3000003002

REPLACEMENT STATOR ASSEMBLY

POS	P _N [HP]	P _N [KW]	STATOR ASSEMBLY	STATOR MODEL NO
14.01	3.0	2.2		3000003011
14.02	5.5	4.0		3000003012
14.03	7.5	5.5		3000003013
14.04	10.0	7.5		3000003014
14.05	12.5	9.3		3000003015
14.06	15.0	11.0		3000003016
14.07	17.5	13.0		3000003017
14.08	20.0	15.0		3000003018

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PVC INSULATION STANDARD WINDINGS (380 - 415 V / 50 Hz)

PN		Mod.No.	Turns per coil	Wire diameter [mm]	Type of insulation	Group connection	Total wire length (m)	Resistant coil Ω	Resistant Dol (U1-V1)[Ω]
HP	[kW]	Winding kits							
3	2.2	3000003019	51-51-51	1.2	PVC	Star	350	1.73	3.50
5.5	4	3000003020	41-41-41	1.3	PVC	Star	300	1.26	2.65
7.5	5.5	3000003021	55-55-55	1.1	PVC	Delta	450	2.68	1.83
10	7.5	3000003022	46-46-46	1.2	PVC	Delta	400	2.12	1.42
12.5	9.3	3000003023	40-41-40	1.4	PVC	Delta	380	1.69	0.96
15	11	3000003024	35-36-35	1.4	PVC	Delta	360	1.38	0.94
17.5	13	3000003025	30-30-30	1.5	PVC	Delta	340	1.10	0.77
20	15	3000003026	25-26-25	1.7	PVC	Delta	325	0.84	0.58

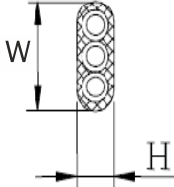
INSULATION RESISTANCE (20 °C / 500 VDC)

New motor without drop cable	200 > M Ω
Used motor without drop cable	20 > M Ω
New motor with drop cable	2 > M Ω
Used motor with drop cable	0.5 - 2 M Ω

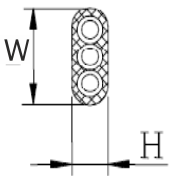
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Material	CI, SS-304 & SS-316	Rating	2.2 kW - 15 kW	3 HP - 20 HP
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6" REWINDABLE MOTORS LEADS @ 400 V 50 Hz

DOL

LEAD	(kW)	HP	Φ (mm) ²	W x H	Length (m)
	2.2	3	3 x 2.5	15.3 x 7.3	3
	4 - 9.3	5.5 - 12.5	3 x 4	17.8 x 8.5	3
	11 - 15	15 - 20	3 x 6	19.5 x 9.5	3

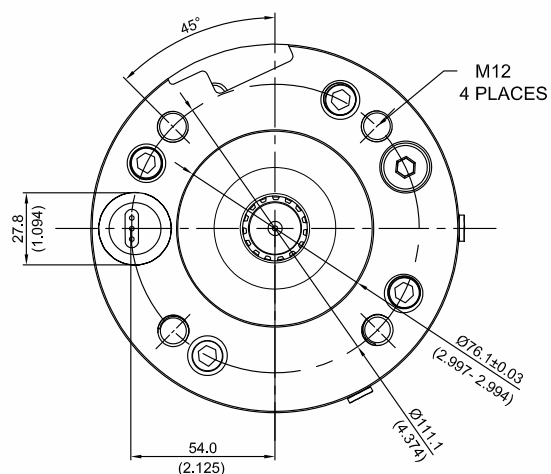
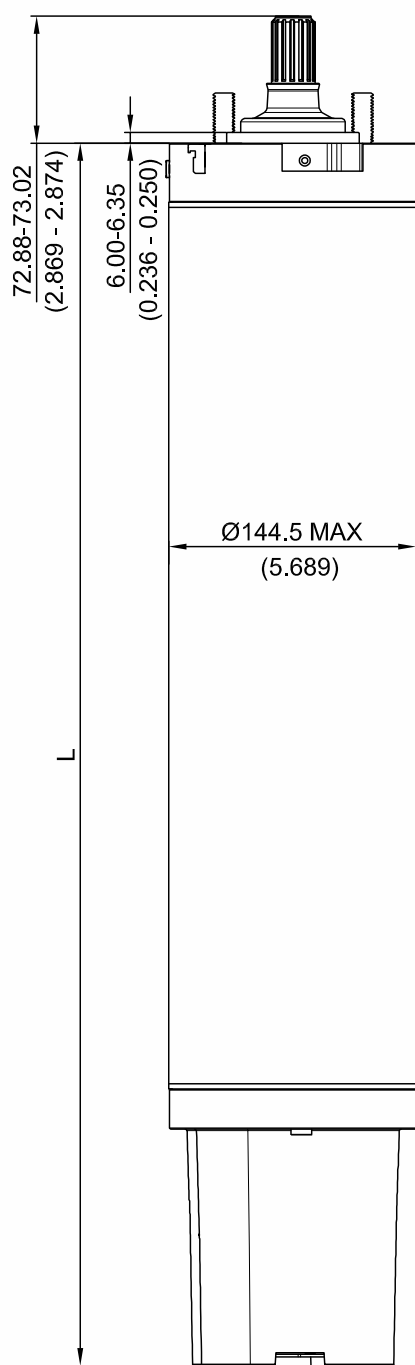
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LEAD	(kW)	HP	Φ (mm) ²	W x H	Length (m)
	2.2 - 15	3 - 20	3 x 2.5, 3 x 2.5	15.3 x 7.3	3

SUBMERSIBLE MOTORS

Material	CI, SS-304 & SS-316	Rating	2.2 kW - 15 kW	3 HP - 20 HP
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SML OUTLINE DIAGRAM



P [kw]	L [mm]	Motor Weight [kg]	
		Net Wt.	incl. Pack
2.2	552	34	37
4	592	38	41
5.5	642	43	46
7.5	682	47	50
9.3	702	49	52
11	746	53	56
13	817	60	63
15	907	69	72



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