

# SW FAMILY

## HIGHLY EFFICIENT TRANSMISSIONS



HIGHLY EFFICIENT TRANSMISSIONS

**SAPA PLACENCIA**

[www.sapaplacencia.com](http://www.sapaplacencia.com)  
[sapa@sapaplacencia.com](mailto:sapa@sapaplacencia.com)

Carretera N1, s/n  
20140 Andoain  
Gipuzkoa -Spain

Nuñez de Balboa, 49 5º 53  
28001 Madrid  
Spain

2101 NE 21st, ST.  
Fort Lauderdale, FL.  
3305 USA

**SAPA PLACENCIA**

The very high mobility requirements, the reclaim of weight, power & space and the actual relevance of the fuel consumption require a rethinking and a new vision of the automatic transmission concept and design.



This is what SAPA has been working on the last 12 years, obtaining excellent technical and commercial results.



Continuing the development of its new technology SAPA started on 2009 the design of its entire SW (SAPA WHEELS) family of transmissions. A concept aimed at reducing the power losses of the conventional powershifting transmission eliminating the torque converter, reducing the spin losses -due to hydraulic pumps and friction discs-, and improving its mobility on variable terrain situations such as off-road.

### SUPER EFFICIENT POWERSHIFT AND HIGH RATIO SPREAD AUTOMATIC TRANSMISSION FOR THE FUTURE WHEEL MILITARY VEHICLES



Thanks to its UNIQUE and PATENTED MULTIGEAR CONCEPT, the transmission exhibits a very high ratio spread of 31 with 24 gears divided in equal steps with 16% increments. This allows a quasi-continuous variable transmission behaviour and as a result an optimization of engine operation.

The concept modularity and the kinematic system with high commonality level permit more cost effective options for other not so demanding military applications or for the civil market providing 16 gears.

Besides the kinematic concept, the advanced shifting system allows a multigear system with wider overall ratio and narrower step between gears than a manual automated transmission but without power interruption between gears. These features make provide very high mobility on extreme situations (heavy off-road, combat, ...)

The transmission with its planetary gears module, low drag friction discs and special developed synchronizer system presents the highest torque/power to weight ratio of the powershift transmission market.



## RATING & SPECIFICATION

RATINGS			
Model	Max. Input Power hp (kW)	Max. Input Torque Nm	Max. Output Torque Nm
SW 516	600 (447)	2000	12000
SW 524	600 (447)	2000	21000
SW 616	800 (596)	3000	18000
SW 624	800 (596)	3000	25000

ENGINE SPEEDS		
MODEL	FULL LOAD SPEED Min-Max (rpm)	IDLE SPEED Min-Max (rpm)
SW 516/524/616/624	1800-2300	600-800

GEAR RATIOS							
MODEL							
SW 516/616				SW 524/624			
Forward				Forward			
Gear	Ratio	Gear	Ratio	Gear	Ratio	Gear	Ratio
1	6	9	1,83	1	19,63	13	3,27
2	5,11	10	1,57	2	16,87	14	2,81
3	4,36	11	1,33	3	14,21	15	2,38
4	3,75	12	1,14	4	12,27	16	2,04
5	3,27	13	1	5	11	17	1,83
6	2,81	14	0,85	6	9,45	18	1,57
7	2,38	15	0,72	7	8	19	1,33
8	2,04	16	0,62	8	6,87	20	1,14
Reverse				Reverse			
Gear	Ratio	Gear	Ratio	Gear	Ratio	Gear	Ratio
1	5	3	3,64	10	5,11	22	0,85
2	4,31	4	3,12	11	4,36	23	0,72
				12	3,75	24	0,62

POWER TAKE OFF PROVISION	
Drive	Engine
Mounting position	11 and 1 o'clock
Gear Rating (1pto)	950 Nm
Gear Rating (2pto)	1500Nm

Gear	Ratio	Gear	Ratio
1	30	5	5
2	25,78	6	4,31
3	21,82	7	3,64
4	18,75	8	3,12

PHYSICAL DESCRIPTION				
MODEL	LENGTH mm	HEIGHT mm	WIDTH mm	DRY WEIGHT kg
SW 516	770	630	550	370
SW 524	930	630	550	450
SW 616	790	630	550	400
SW 624	970	630	550	490

OIL SYSTEM			
MODEL	CAPACITY (liters)	FILTERS	OIL LEVEL SENSOR
SW 516	30	Integral	Standard
SW 524	35	Integral	Standard
SW 616	30	Integral	Standard
SW 624	35	Integral	Standard

Recommended oil types for all models are SAE 5W 30/SAE 10W/SHELL SPIRAX S6 ATF ZM/ A295/S4 ATF HDX