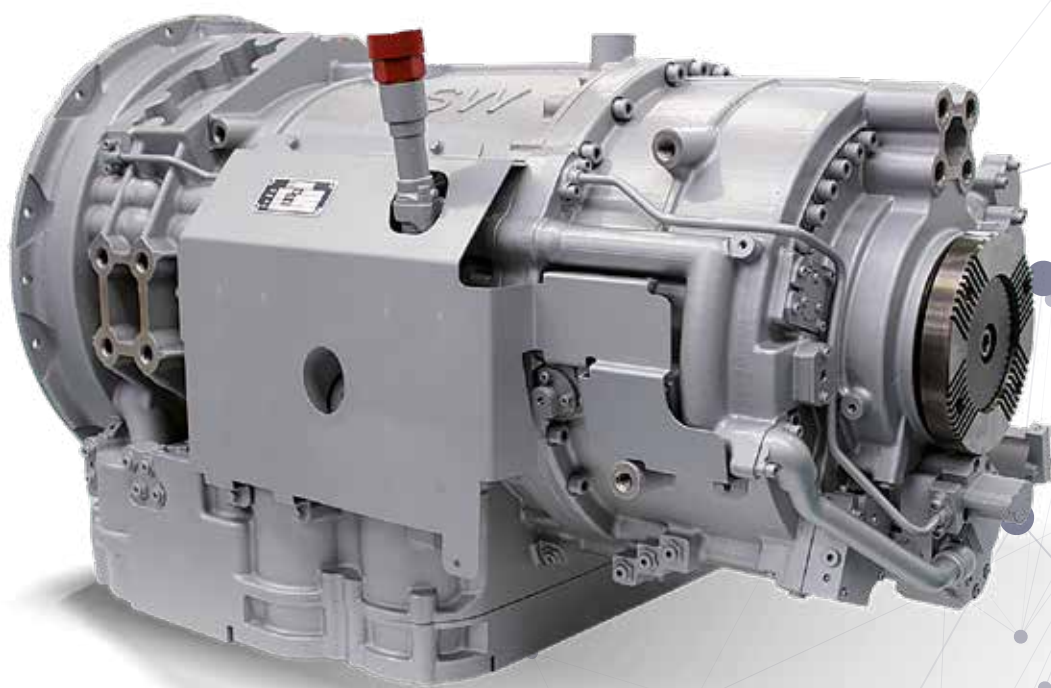


SAPA

Transmission

Wheeled Vehicle Transmissions



Super efficient powershift automatic transmission for wheeled military vehicles

SAPA's advanced technology automatic transmissions meet the high mobility requirements of future wheeled combat vehicles, which present many challenges related to increased vehicle weight, increased power and greater fuel economy.

SAPA has used its new technology to develop the SW family of wheeled vehicle transmissions. This concept aimed to reduce the power losses of the conventional power shifting transmission by eliminating the torque converter, reducing the spin losses-due to hydraulic pumps and friction discs, and improving its mobility on variable terrain situations.

Thanks to its unique and patented multi gear concept, the transmission exhibits a high ratio spread of 31 with 24 gears divided in equal steps at 16% increments. This allows for a quasi-continuous variable transmission, which results in an optimization of engine operation.

Additionally, the advanced shifting system allows for a multi gear system with wider overall ratio and narrower step between gears than a manual automated transmission but without power interruption in gear shifts. These features provide high mobility in extreme situations.

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



Rating & specification

Ratings

Model	SW 516	SW 524	SW 616	SW 624
Max. Input Power (hp/kW)	600/447	600/447	800/596	800/596
Max. Input Torque (lb.ft)	1623	1623	2213	2213
Max. Output Torque (lb.ft)	9736	15489	13276	18439

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

Forward	Gear	Ratio	Gear	Ratio	Reverse	Gear	Ratio	Gear	Ratio
	1	6	9	1,83		1	5	3	3,64
	2	5,16	10	1,58		2	4,33	4	3,13
	3	4,36	11	1,33					
	4	3,75	12	1,15					
	5	3,27	13	1					
	6	2,81	14	0,86					
	7	2,38	15	0,73					
	8	2,04	16	0,62					

Model SW 524 / 624

Forward	Gear	Ratio	Gear	Ratio	Reverse	Gear	Ratio	Gear	Ratio
	1	19	13	3,27		1	21,74	5	5
	2	16,3	14	2,81		2	16,68	6	4,3
	3	14,23	15	2,38		3	15,81	7	3,64
	4	12,23	16	2,04		4	13,59	8	3,13
	5	10,35	17	1,83					
	6	8,89	18	1,58					
	7	7,97	19	1,33					
	8	6,85	20	1,15					
	9	6	21	1					
	10	5,16	22	0,86					
	11	4,36	23	0,73					
	12	3,75	24	0,62					



Power take off provision

Drive

Mounting position

Gear Rating (PTO #1)

Gear Rating (PTO #2)

Engine

11 and 1 o'clock

700 lb.ft

1106 lb.ft

Physical description

Model	SW 516	SW 524	SW 616	SW 624
Length (in)	30,32	36,61	31,1	37,32
Height (in)	23,62	23,62	23,62	23,62
Width (in)	21,65	21,65	21,65	21,65
Dry weight (lb)	816	992	882	1080

Oil system

Model	SW 516	SW 524	SW 616	SW 624
Capacity (US gallons)	7,92	9,2	7,92	9,2
Filters	Integral	Integral	Integral	Integral
Oil level sensor	Standard	Standard	Standard	Standard



Wheeled vehicle transmissions

Applications





SAPA

Transmission

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