



SACHS is a
brand of ZF



2014



SACHS ***Heavy-Duty Clutch***

The Intelligent Choice for the Long Haul



SACHS

About Us

The World's Largest Heavy-Duty Clutch Supplier

Since it was founded in 1915, ZF has grown to become the world's leading OE supplier of driveline and chassis technology to the commercial vehicle, passenger car, off-road, rail, marine and aviation industries.

Worldwide, ZF SACHS is the largest manufacturer of clutch systems for heavy commercial vehicles. Innovations such as the Dual Mass Flywheel, Twin XTend™ self-adjust clutch and ConAct Pneumatic Clutch Actuator are just some of the products ZF SACHS has developed to reduce torsional vibrations, increase clutch life and ease pedal effort.

Self- or manual-adjust, SACHS heavy-duty clutches offer an exceptional combination of benefits for all stakeholders:

- Maximum durability and reliability
- Ease of installation and maintenance
- Enhanced vehicle operator comfort
- Lowest possible operating cost-per-mile

In North America

In North America, ZF has maintained a strong network of research and development, manufacturing and distribution facilities since 1979. At our Northville, Michigan Corporate Headquarters and Technical Center, ZF is on the leading edge of powertrain development for heavy-duty vehicles and strives to engineer and produce the best products for the region.

ZF Services, LLC the aftermarket business unit of ZF, provides added value to North American customers with its 289,000 square-foot remanufacturing and distribution facility in Vernon Hills, Illinois.

Made in the USA

Dramatic increased adoption of AMT (Automated Manual Transmissions) technology in the North American market, provided an opportunity for ZF to transfer new manufacturing processes to the United States. This relocation of production serves as an example of ZF's commitment to the US market and our "Made in America" products. The newly debuted, Next Generation Damper Series clutches for class 8 trucks are made in Gainesville, Georgia.



Vernon Hills, IL



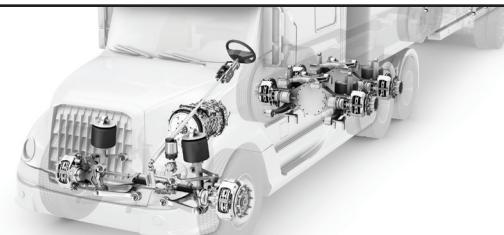
Northville, MI



Gainesville, GA

Total Commercial Vehicle Competence

The Intelligent Choice
for the Long Haul.



Transmissions

Manual and automatic transmissions ■ Hybrid systems

Driveline Components

Gearshift systems ■ Electronic components ■ Steering systems
Clutch systems ■ Torque converters ■ PTOs ■ Retarder systems
Axle drives ■ Bevel gear sets ■ Differentials ■ Powertrain suspension systems

Axles

Front and rear axle systems

Chassis Components

Shock Absorbers ■ 4-point links ■ V-links ■ Torque rods
Tie rods ■ Stabilizers ■ Suspension joints ■ Cabin suspensions ■ Chassis mounts ■ Precision plastics parts
Electronic components

Steering Systems

Hydraulic steering systems ■ Rear axle steering systems
Steering pumps ■ Steering columns ■ Steering gears
Steering accessories

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The purpose of this catalog is to furnish ZF Services, LLC and ZF SACHS customers with as complete a listing of their parts requirements as possible. All listings and interchanges have been compiled as carefully as possible with all available information. ZF Services, LLC and ZF SACHS cannot assume any responsibility for possible errors in listings, applications or interchanges.

All references by ZF Services, LLC and ZF SACHS to the original manufacturer trade names and part numbers are for identification purposes only.

This catalog supersedes all previous catalogs and listings.

SACHS

Optimizing Every Mile

About the SACHS Product Line

SACHS understands that clutches are a critical link in the commercial vehicle truck driveline.

This critical link goes way beyond getting a truck from A to B. Drivers need a clutch that is easy to operate, owners need a clutch that supports the bottom line and maintenance professionals need a clutch that is easy to maintain.

With these aspects in mind, SACHS designed clutches with features that benefit all of the major stakeholders. These benefits are highlighted with the following symbols:



Driver Benefit



Owner Benefit



Maintenance Benefit

NGD Series Disc Features

Advanced Damper characteristics help with control and avoid damaging drivetrain torsional vibrations in an effort to combat today's more aggressive demands on clutches. The disc assembly's construction of heavier gauge steel provides a more robust spring pocket helping to avoid pre-mature wear and failure. 

Proprietary Friction Facing Material lowers wear rates and smoothes clutch engagement, extending the life of each clutch disc and easing driver effort. 

Fifth Rivet ensures that the clutch facing won't lift in high stress and heat situations, which reduces damaging drag and extends the life of the discs. 

Unique Bearing Features

Engineered Lubrication System designed into the bearing lubricates the bearing and the wear pads through point. With only one point of lubrication maintenance time is reduced and proper lubrication is maintained.

Super Sized Bearing Wear Pad prevents wear out of this highly stressed contact point in the clutch system. Strengthening this part of the clutch system is simple, yet provides another failsafe against breakdown.

Three Zerk Design accommodates all lube routing

 setups, including hydraulic systems.

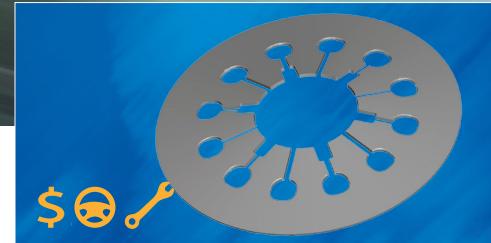
SACHS Manual-Adjust Features

SACHS Manual-Adjust

Our manual-adjust Clutches don't just offer easy pedal effort for operators. They also utilize the same vibration-reducing technology available on our Twin XTend to prevent damaging vibratory torque from being transmitted through the drivetrain.



Torsional Vibrations Have Met Their Match



Proprietary Protection

The application of a special sealant protects the adjusting ring mechanism from contaminants, dirt intrusion and worn facing material. As a result, clutch adjustments are easy and accurate.

29-Lug Adjustment

29-lug adjusting ring provides the easiest and most precise means of bearing position adjustment. This feature ensures proper functionality and longer clutch life.

Diaphragm Spring

Utilization of diaphragm spring promotes uniform plate pressure to be applied while easing pedal effort. The life of the clutch is enhanced along with driver comfort. Further, with fewer moving parts and wear points, reliability is increased.

SACHS Twin XTend Self Adjust Features: No Adjustments,

The Value of Twin XTend

When achieving the lowest operating cost-per-mile is paramount, our Twin XTend Self-Adjust clutch is ready to get the job done. With our simple and robust self-adjust technology, the Twin XTend automatically adjusts for clutch wear without labor and downtime.

Miles Driven	Avoided Adjustments	Avoided Downtime	Maintenance Savings Per Clutch
100,000	3	3 Hours	\$225
200,000	6	6 Hours	\$450
300,000	9	9 Hours	\$675
400,000	12	12 Hours	\$900
500,000	15	15 Hours	\$1125
600,000	18	18 Hours	\$1350

The Ultimate in Cost per Mile Optimization



Patented Controlled Center Plate

The SACHS patented Controlled Center Plate allows quick, consistent gear shifts and guarantees full utilization of all four facing surfaces. Pedal effort is further reduced as a result of this design feature

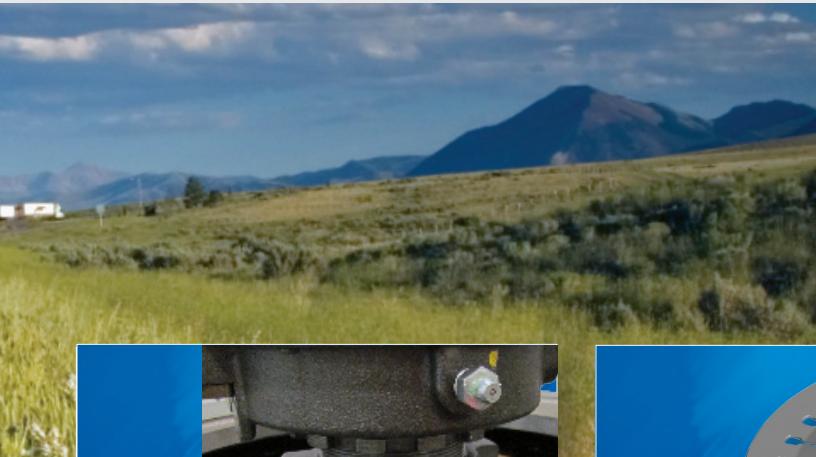
Heavy Duty Adjustment Mechanism

Heavy gauge, robust spring and steel adjustment ring physically locks all accurate movements made by the Twin XTend. As a result, adjustments are precise and instances of over-adjustment are eliminated.

Open Architecture

Open architecture design directs worn friction-facing material and ingested dirt or contaminants away from the adjustment mechanism, eliminating interference with its functionality. Additionally, this setup allows for better cooling of internal components, reducing wear rates.

Just Productivity and Savings



100% Adjustment Capacity

Some aftermarket clutches lose adjustment capacity when being installed on a vehicle with a remachined flywheel. In some instances, this loss can be up to 25%. The Twin XTend was designed to retain 100% Capacity in all applications, new or aftermarket.

Diaphragm Spring

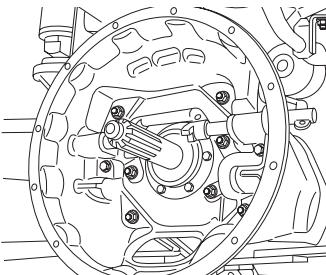
Utilization of diaphragm spring promotes uniform plate pressure to be applied while easing pedal effort. The life of the clutch is enhanced along with driver comfort. Further, with fewer moving parts and wear points, reliability is increased.

Lightweight

When compared with a similar competitor clutch, the SACHS Twin XTend is up to thirteen pounds lighter. It might not sound like much, but in large fleets, the fuel savings can add up.

HCV Clutch Catalog

How to Use the Specification Chart

- 1 Determine clutch diameter**
Heavy-duty clutches commonly come in two sizes, 15.5" and 14" diameters.

- 2 Determine critical fit dimensions and performance specifications**
Spline diameter/number of splines: All SACHS clutches are 2" diameter with 10 teeth.
Flywheel bore opening: Must provide clearance for clutch disc springs. For SACHS clutches, this is 10.25" for 7 springs and 7.5" for 6 springs.
Engine torque rating: Clutch rating must equal or exceed engine peak torque rating.
- 3 Choose additional option preferences**
Manual or self-adjust
Number of disc facings
Pre-damper or not

Supersessions and Discontinued

Old Catalog Number	New Catalog Number	Old Catalog Number	New Catalog Number
00 3131 000 091	Discontinued	20 3488 200 104	3488 200 104
00 3189 600 001	3189 600 001	20 3488 200 105	3488 200 105
00 3474 002 500	Discontinued	20 3488 200 193	3400 300 193
00 3496 000 005	3496 000 005	20 3488 200 194	3400 300 194
16 3488 200 197	3488 200 197	20 3488 200 195	3400 300 195
20 3400 000 358	3400 000 358	20 3488 200 196	3400 300 196
20 3400 200 199	3400 300 199	20 3488 200 248	3400 300 062
20 3400 200 200	3400 300 200	20 3488 200 249	3400 300 249
20 3400 200 219	3400 200 219	20 3488 200 251	3488 200 251
20 3400 200 220	3400 200 220	20 3488 200 253	3488 200 253
20 3400 200 228	3400 300 228		
20 3400 200 305	3400 300 305		
20 3400 200 306	3400 300 306		
20 3400 200 508	3400 300 508		
20 3400 200 764	3400 200 764		
20 3400 200 767	3400 200 767		
20 3488 200 062	3400 300 062		
20 3488 200 063	3400 300 063		

Clutch Specification Chart

(includes clutches for Freightliner M2 Business Class, Volvo Ishift/Mack MDrive and ZF-AS Tronic/FreedomLine Transmissions)

Spline Dia. & No. of Splines	Minimum Flywheel Bore Opening	Clutch Torque (must meet or exceed engine peak torque)	No. of Springs	No. of Facings	Bearing Type	Pre- Damper	Manual-Adjust	Twin XTend Self-Adjust
13" Sachs Single Plate Push Type								
1-1/2" - 10		400	8	3	(Not Included)	no	SK1919-7	-----
1-3/8" - 10		450	8	3	(Not Included)	no	SK1919-8	-----
14" Cast Cover Two-Plate, Heavy-Duty Clutch with Cerametallic Facing								
2" - 10	7.1"	1400 lb-ft	8	4	Greaseable-Three Zerk	no	3488 200 197	-----
15.5" Cast Cover Two-Plate, Heavy-Duty Clutch with Cerametallic Facing								
2" - 10	7.6"	1450 lb-ft	6	4	Greaseable-Three Zerk	no	3400 300 196	-----
2" - 10	8.5"	1450 lb-ft	6	4	Greaseable-Three Zerk	no	3400 300 062	3400 300 199
2" - 10	10.1"	1450 lb-ft	7	4	Greaseable-Three Zerk	yes	3488 200 104	3400 200 219
2" - 10	7.6"	1650 lb-ft	6	4	Greaseable-Three Zerk	no	3400 300 194	3400 300 508
2" - 10	8.5"	1700 lb-ft	6	4	Greaseable-Three Zerk	no	3400 300 063	3400 300 200
2" - 10	8.5"	1700 lb-ft	6	6	Greaseable-Three Zerk	no	3400 300 249	3400 300 228
2" - 10	10.1"	1700 lb-ft	7	4	Greaseable-Three Zerk	yes	3488 200 105	3400 200 220
2" - 10	8.5"	1860 lb-ft	6	6	Greaseable-Three Zerk	no	3400 300 193	3400 300 305
2" - 10	10.1"	1860 lb-ft	7	6	Greaseable-Three Zerk	yes	3400 200 253	3400 200 764
2" - 10	8.5"	2050 lb-ft	6	6	Greaseable-Three Zerk	no	3400 300 195	3400 300 306
2" - 10	10.1"	2050 lb-ft	7	6	Greaseable-Three Zerk	yes	3400 200 251	3400 200 767
Freightliner M2 Business Class Trucks								
365 mm Diameter								3400 700 499
395 mm Diameter								3400 700 526
Volvo Ishift & Mack MDrive Transmissions								
MD11 and MD13 Engines								3400 710 061
MD 16 Engine								3400 710 063
ZF-AS Tronic and FreedomLine Transmissions								
For MCI, Prevost, Van Hool and Serta Coaches								3400 000 358
For Newell Coaches								3400 654 141

Additional Clutch Components

For Sachs 14" Cast Cover Two-Plate Heavy-Duty Clutch								
Drive Pins (Quantity 6)								3496 000 005
For Sachs 15" Cast Cover Two-Plate Heavy-Duty Clutch								
Clutch Installation Kit for RT Series of Transmissions Without Hydraulic Clutch Release Systems								3474 600 006
Clutch Installation Kit for FR Series of Transmissions Without Hydraulic Clutch Release Systems								3474 600 018
For Volvo Ishift & Mack MDrive Transmission clutches								
Dual-mass Flywheel for MD 16 Engine Clutch								6594 000 120
ZF-AS Tronic and FreedomLine Transmission Clutches								
Bearing and Roller fork Kit								3189 600 001

Eaton Interchange

Eaton Part No.	SACHS Part No.						
107606-1	SK1919-7	108925-80	3400 300 062	109700-85	3400 300 228	208925-74	3400 300 194
107616-4	SK1919-7	108925-81	3400 300 062	109700-91	3400 300 228	208925-80	3400 300 062
107943-1	SK1919-7	108925-82	3400 300 063	109700-92	3400 300 305	208925-82	3400 300 063
107943-3	SK1919-8	108925-82A	3400 300 063	109700-93	3400 300 228	208925-85	3400 300 249
108001-56A	3400 300 194	108925-82B	3400 300 063	109700-95	3400 300 305	208925-91	3400 300 249
108050-1	3488 200 197	108925-84	3400 300 062	109701-10	3400 300 305	208925-92	3400 300 193
108050-1A	3488 200 197	108925-85	3400 300 249	109701-14	3400 200 220	209701-14	3400 200 220
108050-1B	3488 200 197	108925-86	3400 300 249	109701-15	3400 300 306	209701-20	3400 300 305
108050-52	3488 200 197	108925-92	3400 300 063	109701-19	3400 300 305	209701-24	3400 300 305
108050-52A	3488 200 197	108925-95	3400 300 193	109701-20	3400 300 305	209701-25	3400 300 306
108050-52B	3488 200 197	108926-14	3488 200 105	109701-24	3400 300 305	209701-26	3400 300 306
108050-58	3488 200 197	108926-20	3400 300 193	109701-25	3400 300 306	209701-27	3400 300 306
108050-58B	3488 200 197	108926-25	3400 300 195	109701-29	3400 200 764	209701-28	3400 300 306
108050-59	3488 200 197	108926-30	3488 200 253	109701-30	3400 200 764	209701-29	3400 200 764
108050-59A	3488 200 197	108926-35	3488 200 251	109701-34	3400 200 764	209701-30	3400 200 764
108050-59B	3488 200 197	108926-72	3400 300 196	109701-35	3400 200 767	209701-34	3400 200 220
108059-59	3488 200 197	108926-80	3400 300 062	109701-59	3400 300 199	209701-35	3400 200 767
108391-21	3400 300 194	108926-82	3400 300 063	109701-74	3400 300 508	209701-51	3400 300 200
108391-3	3400 300 194	108926-85	3400 300 249	109701-80	3400 300 199	209701-61	3400 300 305
108391-3A	3400 300 194	108935-15	3400 300 195	109701-81	3400 300 199	209701-74	3400 300 508
108391-3B	3400 300 194	108935-19	3400 300 193	109701-82	3400 300 200	209701-80	3400 300 199
108391-72	3400 300 196	108935-21	3400 300 193	109701-84	3400 300 200	209701-82	3400 300 200
108391-74	3400 300 194	108935-26	3400 300 195	109701-85	3400 300 228	209701-85	3400 300 228
108391-74A	3400 300 194	108935-36	3488 200 251	109701-86	3400 300 199	209701-91	3400 300 228
108391-74B	3400 300 194	108935-5	3400 300 193	109701-93	3400 300 305	209701-92	3400 300 305
108675-80	3400 300 063	108935-51	3400 300 063	109705-14	3400 200 220		
108675-80B	3400 300 063	108935-61	3400 300 193	109705-25	3400 300 306		
108675-82	3400 300 063	108935-71	3400 300 249	109705-30	3400 200 764		
108675-82B	3400 300 063	108935-74	3400 300 194	109705-35	3400 200 767		
108925-10	3400 300 193	108935-80	3400 300 062	109705-80	3400 300 199		
108925-14	3488 200 105	108935-82	3400 300 063	109705-82	3400 300 200		
108925-15	3400 300 195	108935-84	3400 300 062	109705-85	3400 300 228		
108925-20	3400 300 193	108935-85	3400 300 249	109707-91	3400 300 228		
108925-24	3400 300 193	108935-91	3400 300 249	109707-92	3400 300 305		
108925-25	3400 300 195	108935-92	3400 300 193	208925-14	3488 200 105		
108925-29	3488 200 253	108950-59	3488 200 197	208925-19	3400 300 193		
108925-30	3488 200 253	108950-59B	3488 200 197	208925-20	3400 300 193		
108925-34	3488 200 253	109700-19	3400 300 305	208925-25	3400 300 195		
108925-35	3488 200 251	109700-21	3400 300 305	208925-29	3488 200 253		
108925-50	3400 300 063	109700-25	3400 300 306	208925-30	3488 200 253		
108925-51	3400 300 063	109700-36	3400 200 767	208925-34	3488 200 105		
108925-52	3400 300 063	109700-51	3400 300 200	208925-35	3488 200 251		
108925-70	3400 300 249	109700-61	3400 300 305	208925-51	3400 300 063		
108925-71	3400 300 062	109700-82	3400 300 200	208925-61	3400 300 193		

Meritor Interchange

Meritor Part No.	SACHS Part No.	Meritor Part No.	SACHS Part No.	Meritor Part No.	SACHS Part No.
M10151634	3400 300 062	M3152835	3488 200 105	MX154818	3400 200 767
M10152634	3400 300 063	M3153736	3400 300 193	MX154819	3400 200 767
M10152634	3400 300 249	M3153836	3488 200 253	MX154828	3400 200 767
M10153636	3400 300 193	M3154736	3400 300 195	MX154839	3400 200 767
M10154636	3400 300 195	M3154836	3488 200 251	MX155708	3400 300 199
M141411	3488 200 197	M8151634	3400 300 196	MX155718	3400 300 199
M150614	3400 300 196	M8152634	3400 300 194	MX155818	3400 200 219
M151406	3400 300 194	MX10151634	3400 300 199	MX156718	3400 300 200
M151715	3400 300 062	MX10152634	3400 300 200	MX156719	3400 300 228
M151716	3400 300 062	MX10153636	3400 300 305	MX156818	3400 200 220
M151735	3400 300 062	MX10154636	3400 300 306	MX157719	3400 300 305
M151815	3488 200 104	MX151408	3400 300 508	MX157808	3400 200 764
M152614	3400 300 194	MX151418	3400 300 508	MX157819	3400 200 764
M152715	3400 300 063	MX151708	3400 300 199	MX158719	3400 300 306
M152716	3400 300 249	MX151718	3400 300 199	MX158808	3400 200 767
M152735	3400 300 063	MX151738	3400 300 199	MX158819	3400 200 767
M152736	3400 300 249	MX151808	3400 200 219	MX3151738	3400 300 199
M152805	3488 200 105	MX151818	3400 200 219	MX3151838	3400 200 219
M152812	3488 200 105	MX151838	3400 200 219	MX3152638	3400 300 508
M153715	3400 300 193	MX152618	3400 300 508	MX3152738	3400 300 200
M153716	3400 300 193	MX152708	3400 300 200	MX3152739	3400 300 228
M153736	3400 300 193	MX152718	3400 300 200	MX3152838	3400 200 220
M153805	3488 200 253	MX152728	3400 300 200	MX3153739	3400 300 305
M153816	3488 200 253	MX152729	3400 300 228	MX3153839	3400 200 764
M154716	3400 300 195	MX152738	3400 300 200	MX3154739	3400 300 306
M154736	3400 300 195	MX152739	3400 300 228	MX3154839	3400 200 767
M154805	3488 200 251	MX152808	3400 200 220	MX8152634	3400 300 508
M154816	3488 200 251	MX152818	3400 200 220	R140401	3488 200 197
M155715	3400 300 062	MX152838	3400 200 220	R151705	3400 300 062
M155815	3488 200 104	MX153708	3400 300 305	R151706	3400 300 062
M156715	3400 300 063	MX153718	3400 300 305	R152705	3400 300 063
M156716	3400 300 249	MX153719	3400 300 305	R152706	3400 300 249
M156815	3488 200 105	MX153728	3400 300 305	R152725	3400 300 063
M157716	3400 300 193	MX153729	3400 300 305	R153705	3400 300 193
M157816	3488 200 253	MX153739	3400 300 305	R153706	3400 300 193
M158716	3400 300 195	MX153808	3400 200 764	R153725	3400 300 193
M158816	3488 200 251	MX153818	3400 200 764	R153736	3400 300 195
M3141431	3488 200 197	MX153819	3400 200 764	R153755	3400 300 195
M3150634	3400 300 196	MX153828	3400 200 764	R153756	3400 300 195
M3151735	3400 300 062	MX153839	3400 200 764	R157705	3400 300 193
M3151736	3400 300 062	MX154708	3400 300 306	R157755	3400 300 195
M3151835	3488 200 104	MX154718	3400 300 306	R160012	3474 002 500
M3152634	3400 300 194	MX154728	3400 300 306	R171658	3400 000 358
M3152735	3400 300 063	MX154729	3400 300 306		
M3152736	3400 300 249	MX154808	3400 200 767		

Original Equipment Interchange

OE Part No.	SACHS Part No.
Freightliner	
SCD203400000976	3400 300 199
SCD203400000977	3400 300 305
SCD203400000978	3400 300 306
SCD203400000994	3400 300 063
SCD203400000995	3400 300 193
SCD203400000996	3400 300 195
SCD203400200199	3400 300 199
SCD203400200200	3400 300 200
SCD203400200219	3400 200 219
SCD203400200219	3400 200 219
SCD203400200220	3400 200 220
SCD203400200220	3400 200 220
SCD203400200305	3400 300 305
SCD203400200306	3400 300 306
SCD203400200764	3400 200 764
SCD203400200764	3400 200 764
SCD203400200767	3400 200 767
SCD203400200767	3400 200 767
SCD203400300200	3400 300 200
SCD203488200062	3400 300 062
SCD203488200063	3400 300 063
SCD203488200104	3488 200 104
SCD203488200104	3488 200 104
SCD203488200105	3488 200 105
SCD203488200105	3488 200 105
SCD203488200193	3400 300 193
SCD203488200195	3400 300 195

OE Part No.	SACHS Part No.
International	
3928820C91	3400 300 200
3928830C91	3400 300 305
3928833C91	3400 300 063
3928835C91	3400 300 193
4025284C91	3400 300 200
4025285C91	3400 300 305
4025287C91	3400 300 063
4025288C91	3400 300 193

OE Part No.	SACHS Part No.
Volvo/Mack	
21754368	3400 300 199
21754369	3400 300 200
21754371	3400 200 219
21754371	3400 200 219
21754373	3400 200 220
21754373	3400 200 220
21754374	3400 300 228
21754375	3400 300 305
21754376	3400 300 306
21754377	3400 200 764
21754377	3400 200 764
21754378	3400 200 767
21754378	3400 200 767
22082395	3400 300 305
22082411	3400 300 306
22086878	3400 300 063
25129716	3400 300 063
22082378	3400 300 199
22082382	3400 300 200
22082385	3400 300 228

Notes

Notes

Notes

SACHS

***Heavy-Duty Clutch
Catalog***



ZF Services, LLC
+1 800-321-0784, www.zf.com/us/sachs/cvclutches