VALVOLINE™ ADVANCED FULL SYNTHETIC MOTOR OILS

ILSAC GRADES (Formerly marketed in North America as Synpower™)

Valvoline Advanced Full Synthetic ILSAC Grades are premium full synthetic motor oils that are formulated with the highest quality synthetic base oils, and with premium additive chemistry, to meet the demanding requirements of turbo-charged and gasoline direct-injected engines. These oils are specifically formulated to provide high levels of fuel efficiency and deposit protection under severe service conditions.

Valvoline Advanced Full Synthetic ILSAC Grades (*except 0W-16*) meet the newly adopted API SN PLUS classification, protecting GDI (Gasoline Direct Injection) engines from low-speed pre-ignition (LSPI).

Advantages:

- Innovative anti-wear additives to help reduce wear
- Extra detergent and dispersant to help reduce deposits, sludge, and varnish formation
- Enhanced thermal and oxidative stability
- Flows easily at low temperature for enhanced cold start protection

Approvals and Licenses:

	SAE 0W-16	SAE 0W-20	SAE 5W-20	SAE 5W-30	SAE 10W-30
API SN	X	X	X	X	X
API Resource Conserving	X	X	X	X	X
ILSAC GF-5	---	X	X	X	X
GM dexos1™ Gen2 (License #)	---	X D10193GL103	X D10194GL103	X D10195GL103	---

Additional Recommended Applications:

	SAE 0W-16	SAE 0W-20	SAE 5W-20	SAE 5W-30	SAE 10W-30
Ford WSS-M2C945-A	---	---	X	---	---
Ford WSS-M2C946-A	---	---	---	X	---
Ford WSS-M2C947-A	---	X	---	---	---
Chrysler MS-6395	---	X	X	X	X
GM 6094M & 4718M **	---	---	X	X	X
ACEA A5/B5 (Gasoline Engines Only!)	---	---	---	X	---

Typical Properties:

	SAE 0W-16	SAE 0W-20	SAE 5W-20	SAE 5W-30	SAE 10W-30
KV100 (cSt)	6.8	8.1	8.1	10.2	10.8
KV40 (cSt)	34.4	42.2	46.5	60.1	66.8
Viscosity Index	163	167	147	158	151
Density (lbs/gal)	7.0	7.1	7.1	7.1	7.1
CCS (cP @ °C)	<6000@-35°C	<6000@-35°C	<6000@-30°C	<6000@-30°C	<6200@-25°C
Pour Point (°C)	≤ -39 °C	≤ -39 °C	≤ -36 °C	≤ -36 °C	≤ -33 °C
TBN (meq KOH/g)	9.3	9.3	9.3	9.3	9.3
Zinc (ppm)	830	830	830	830	830
Phosphorous (ppm)	760	760	760	760	760
Sulfated Ash (mass %)	0.97	0.97	0.97	0.97	0.97
Noack (% loss)	11.4	11.1	7.6	9.3	8.0
HTHS (cP)	2.4	2.7	2.7	3.2	3.2

This information only applies to products manufactured in the following location(s): USA, Canada

** OBSOLETE

VALVOLINE™ ADVANCED FULL SYNTHETIC MOTOR OILS

NON-ILSAC GRADES (Formerly marketed in North America as Synpower™)

Valvoline Advanced Full Synthetic non-ILSAC Grades are premium full synthetic motor oils that are formulated with the highest quality synthetic base oils, and with premium additive chemistry, to meet the demanding requirements of European OEM's including Mercedes Benz, BMW, Volkswagen, and Porsche. Additionally, Advanced MST and Advanced XL-III are formulated for use in diesel passenger cars with particulate filters.

Approvals and Licenses:

	MST SAE 5W-30	MST SAE 5W-40	HST SAE 5W-40	XL-III SAE 5W-30	0W-40	20W-50
API SN	X	X	X	X	X	X
MB-Approval 229.5[a]	---	---	X	---	X	---
MB-Approval 229.51[b],[d]	X	X	---	X	---	---
MB-Approval 229.52	X	---	---	---	---	---
VW 505 01	X	X	---	---	---	---
VW 502 00 & 505 00	X	X	X	---	X	---
VW 504 00 & 507 00[c]	---	---	---	X	---	---
BMW LL-01	---	---	X	---	X	---
BMW LL-04[d]	X	X	---	X	---	---
Porsche A40	---	X	X	---	X	---
Porsche C30	---	---	---	X	---	---
GM dexos2™ (License #)	X GB2E0227103	X GB2E0511103	---	---	---	---
FCA MS-11106	X	---	---	---	---	---
Renault RN700 & RN710	---	---	---	---	X	---

Additional Recommended Applications:

	MST SAE 5W-30	MST SAE 5W-40	HST SAE 5W-40	XL-III SAE 5W-30	0W-40	20W-50
ACEA C3	X	X	---	X	---	---
ACEA A3/B3 & A3/B4	---	---	X	---	X	X
PSA B71 2296	---	---	X	---	---	---

Typical Properties:

	MST SAE 5W-30	MST SAE 5W-40	HST SAE 5W-40	XL-III SAE 5W-30	0W-40	20W-50[e],[f]
KV100 (cSt)	12.2	13.1	13.5	11.7	13.5	19.0
KV40 (cSt)	70.6	79.0	82.0	68.1	77.0	139.0
Viscosity Index	171	167	168	168	180	155
Density (lbs/gal)	7.1	7.1	7.1	7.1	7.0	7.2
CCS (cP @ °C)	<6400@-30°C	<6400@-30°C	<6400@-30°C	<6200@-30°C	<6200@-35°C	<8500@-15°C
Pour Point (°C)	≤ -39 °C	≤ -39 °C	≤ -39 °C	≤ -39 °C	≤ -42 °C	≤ -30 °C
HTHS (cP)	3.5	3.7	3.7	3.5	3.7	4.8

[a] Valvoline products with MB-Approval 229.5 are also suitable for use in MB229.3 applications.
[b] Valvoline products with MB-Approval 229.51 are also suitable for use in MB 229.31 applications
[c] Valvoline products approved under VW Standard 504 00 / 507 00 can be used in VW 505 01 / 502 00 / 505 00 applications
[d] In the United States
>Valvoline products with MB-Approval 229.51 can also be used in MB 229.5 and 229.3 applications
>Valvoline products with BMW LL-04 approval can also be used in BMW LL-01 applications
These recommendations are not valid in region(s) with lesser fuel quality
[e] Advanced 20W-50 is also suitable for use in applications calling for the performance levels of MB 229.51 & 229.31, VW 502 00 & 505 00, or BMW LL-04
[f] When in doubt, always defer to vehicle owner's manual for recommended viscosity grade and performance specification

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Effective Date:	Replaces:	Author's Initials:
2/20/2018	1/11/2017	MW

Product Information

VALVOLINE COBALT™ GREASE WITH PRESSURE ACTIVATED TECHNOLOGY™

Valvoline Cobalt produces true heavy-duty performance with a break-through viscosity delivery system that reduces friction and handles heat in extreme environments. With Pressure Activated Technology, Valvoline's Cobalt Grease can deliver ISO 1000 lubricating fluid to ensure EP protection and sufficient film thickness between even the heaviest-loaded metal surfaces.

Valvoline Cobalt contains a lithium sulfonate complex thickening system that provides metal with inherent corrosion protection in harsh environments, even salt water. This unique, one-of-a kind grease also offers pumpability and extended oxidation protection for longer service life.

Valvoline Cobalt is suitable in the following applications: Mining, Quarry, Construction, Trucking, Refuse, Ready Mix Fleets, Industrial and Agriculture, and more.

Typical Properties	ASTM Method	NLGI Grade # 1	NLGI Grade # 2
Color	Visual	Blue	Blue
Worked Penetration, @77F	D217	325	280
Mobility @ 60F (15.6 C), g/min	US Steel	>260	>160
Dropping Point, °F / °C	D2265	500 / 260	500 / 260
Point Contact Equipment Life Extension			
4-ball weld load, kg	D2596	>800	>800
Load Wear Index	D2596	>150	>150
Load Wear Index Scar @ 200kg, mm	D2596	<1.15	<1.15
Line Contact Equipment Life Extension			
Timken OK Load, lbs. min	D2509	>70	>70
Falex Ring-on-Block (low speed/high load) 1 hour test, non-replenished sump	D2509 modified		
PSI rating, psi		Pass/>9,000	Pass/>9,000
Max Temp °C		140	140
Average Coefficient of Friction, after 30 min break-in		0.03	0.03
Extended test, hours to failure		>2	>2
Oxidation Testing Grease Life Extension			
Wheel Bearing Life Test – hours to failure after 100 hr. Oxidation Bomb Test (D942)	D3527	Exceeds GC Requirements	Exceeds GC Requirements
Rust Prevention, 100% Sea Water	D5969	Pass	Pass

Part Numbers:	NLGI #1	NLGI #2
Tote	872178	872120
400 Lb. Drum	872174	872193
120 Lb. Keg (L)	872115	872176
35 Lb. Plastic Pail	872177	872173
50/14 Oz. Carton	872175	872117

Refer to Valvoline's Safety Data Sheet for health and safety information.
This information only applies to products manufactured in the following location(s): USA, Canada.

Effective Date:	Expiration Date:	Replaces:	Author's Initials:	Code
3/02/2017	N/A	6/21/2016	JRD	COB 0317