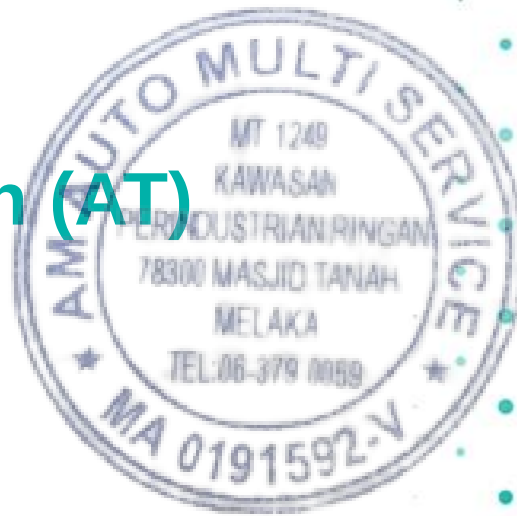
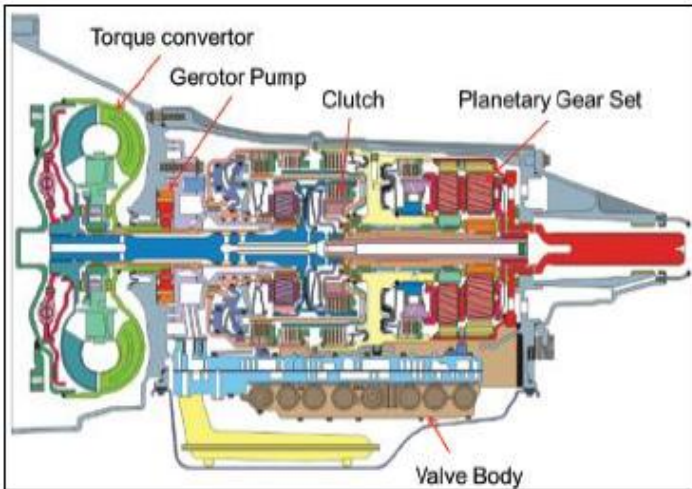


Automatic Transmission (AT)



Latest Automatic Transmission Requirements

Gear Engagement Mechanism AT Planetary (epicyclic) gears engaged automatically using shifting clutches



ADVANTAGES

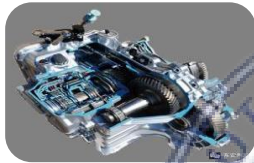
Torque Capacity
Proven Durability

1950s



3 Speed Automatic Transmission

Mid 1950s - present

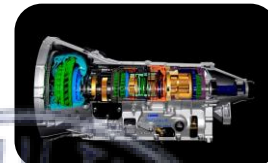


4 Speed Automatic Transmission



5 Speed Automatic Transmission

2000s



6 Speed Automatic Transmission



7 Speed Automatic Transmission



8 Speed Automatic Transmission

NOW



9 Speed Automatic Transmission



10 Speed Automatic Transmission

PETRONAS
Tutela



TUTELA MULTI ATF 700 E

* Recommend : 6-9
speed transmissions



TUTELA MULTI ATF 500

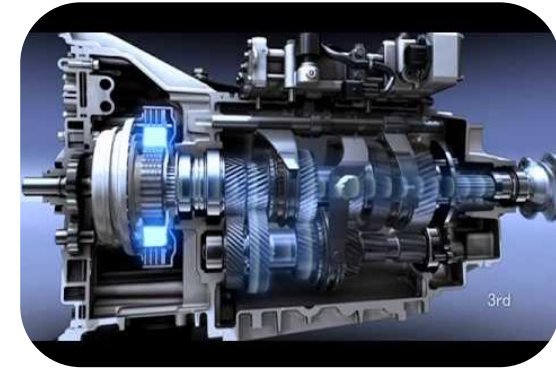
* Recommend : 3-5
speed transmissions

ATF Fluid Requirements



- Viscosity Modifier
- Friction Modifiers
- Foam Inhibitors
- Anti-foaming
- Oxidation Stability
- Rust/Corrosion Inhibitors
- Seal Swell Agent
- Anti-wear
- Pour Point Depressant

Gear Engagement Mechanism AT Planetary (epicyclic) gears engaged automatically using shifting clutches





Product Data Sheet

Revised: 2022/01/13 (version 4.0)

PETRONAS Tutela Multi ATF 700 E



Designed to be the Fluid Technology Solutions of choice providing excellent protection and longer oil life for automatic transmission and power-steering systems

Description and Applications

PETRONAS Tutela Multi ATF 700 E is a fully synthetic multi-vehicle Automatic Transmission Fluid, Low Viscosity formulation, based on a DEXRON®-VI / MERCON® LV approved technology, delivering fuel efficiency, long-lasting shifting performance and component durability for today's automatic transmissions over their standard service life. Its wide coverage of major manufacturer specifications, thanks to extensive bench testing and field-testing, makes it suitable for use for virtually all latest generation automatic transmissions, up to 9 speed. For this reason, Tutela Multi ATF 700 E reduces the risk of using the wrong oil and simplifies inventory management.

PETRONAS Tutela Multi ATF 700 E meets the requirement of and JASO M315-2013 1A-LV, standard recognized by Japanese OEMs for use in automatic transmissions. It is also suitable for use in power steering and hydraulic systems of passenger cars requiring GM DEXRON®-VI/Ford MERCON® LV and previous level of performances.

Its specific technology makes it suitable for hybrid electrified vehicles including Toyota Hybrid transmissions.

Benefits

PETRONAS Tutela Multi ATF 700 E enhances your vehicle availability while significantly reducing your operating costs through:

- Fuel Economy performance by optimized transmission efficiency:
 - o A lower viscosity fluid to help reduce operational energy losses.
 - Extended Transmission Life driven by:
 - o Exceptional thermal and oxidation stability under high temperature, providing viscosity stability and preventing formation of deposits and sludge to prolong oil life
 - o Enhanced shear stability for a constant film strength and effective lubrication to protect all moving parts
 - o Excellent anti-wear, gear and bearing protection to extend components life
 - o Extended transmission fluid life and prevention against fluid breakdown at higher operating temperatures for a total protection of the transmission
 - Compatibility with Electrical components:
 - o Optimized electrical Conductivity/resistivity
 - o Enhanced copper corrosion protection
- Provides outstanding Driving Experience through:
- Extended friction durability for superior anti-shudder performance and enhanced driving comfort
 - Exceptional low temperature viscosity for improved lubrication during start-up and shifting comfort
 - Significantly reduced transmission noise

Approvals, Specifications and Recommendations

Specifications:

- JASO M315-2013 1A-LV, JASO M315-2013 1A, JASO M315-2013 2A

Performance level:

- JWS 3309, JWS 3314, JWS 3324, JWS 3317
- Aisin Warner JWS 3309 (T-IV) & JWS 3324 (WS), AW-1, AW-2
- ATF RED 1, RED 1K
- Audi/Seat/Skoda/VW 5 HP LT71141 (ZF 5 HP 18FL/19FL/24A/30), G 052 025, G 053 025, G 052 162, G 055 025 (JWS 3309), G 052 162, G 055 005, G 055 162, G 080 162, G 052 990, G 055 540, G 052 055, VW TL 521 62, VW G 053 001
- Bentley PY112995PA
- BMW JWS 3309 (T-IV), LA2634, LT71141, ZF 5HP18FL/19FL, 5HP24, 5HP30, 7045E, ETL 8072B, BMW MINI, BMW 83 22 0 142 516, ATF 6
- Chrysler/Dodge/Jeep ATF+2, +3 (MS 7178E), MOPAR AS 68 RC, AS 69 RC (T-IV), SP IV, NAG1, 05127382AA, 68043742AA, 68171886AA, 68157995AA, 68157995AB, 68218925AA, 68171889AA
- Daewoo LT 71141
- Daihatsu AMMIX ATF D-II, Daihatsu AMMIX ATF D-III SP
- FIAT 9.55550-AV1, 9.55550-AV2, 9.55550-AV3, 9.55550-AV5, 9.55550-AV6

[Open]

- Ford MERCON®, FF-WSS-M2C-938A/SF, XT-10 QLV, FNR5, XT-9-QMM5, WSS M2C 138CJ, 166H, 922A1, 924A (XT-8-QAW) JWS 3309, XT-2-QDX (M), XT-2-QSM (Syn), ESP-M2C166H, XL-12, ATF C-ML5, XT-6-QSP/DSP
 - Fuso ATF-II, Fuso ATF-SPIII, Fuso ATF-A4
 - GM DEXRON-IIIH, 9986195 (Aisin AW, JWS 3309), 1940700, 1940767, 21005966, 22717466, 88900925, 9986195, 93160393, AW1, 88863400, 88863401, Transfer Case (Auto trak II)
 - Hino Blue Ribbon ATF
 - Honda ATF-Z1 (except in CVTs), ATF Ultra II, DW-1, Honda Type 3.0 and Type 3.1
 - Hyundai/Kia SP-IV, SP-IV M (SP4-M), SPH-IV, SP-IV-RR, SP-III, Dex-III/ SP-II, JWS 3314, NWS 9638
 - Idemitsu K17 3100 PL085
 - ISUZU ATF WSI, BESCO ATF-II, ATF-III, ATF SP, SCS Fluid, ISUZU 08200-9001
 - Jaguar ATF 3403 M115, ATF LT71141, ZF 5HP24, ATF 3403 JLM20238, Jaguar K17, JLM 20292, Jaguar Fluid 8432, Jaguar 02JDE26444, WSS-M2C922A1
 - Land Rover LR023288, TYK500050, LR0022460
 - Maserati 231603
 - Mazda ATF D-II, ATF M-III, ATF M-V, ATF FZ, ATF A7, ATF F-1, ATF S-1, ATF N-1, ATF 3317
 - MINI COOPER T-IV
 - Mitsubishi Diaqueen SK, SP-II, SP-III, SP-IV, AW, J2, J3, ATF PA, ATF MA-1
 - Nissan Matic Fluid C/D/J/K/S/P/W
 - Peugeot/Citroen (PSA) ZF 4HP20, Z 000169756, AL4 Automatic gearbox oil (#9730.AE), PSA 16 350 560 80, PSA B71 2340
 - Porsche ZF 5HP19FL, ZF 5HP20, LT71141, ATF 3403-M115, T-IV (JWS 3309), 000 043 205 09, 999 917-547 00 (A2), 000 043 205 28, Z 000169756
 - Renault DPO/AL4, Matic D2, Renault Samsung SATF-D
 - Ssang yong DSIH 5M-66
 - Subaru ATF, ATF 5AT, ATF HP, ATF AW-1, AT OIL 5D06, ATF 2326, ATF 2384K
 - Suzuki ATF AW-1
 - Toyota ATF T-IV, ATF WS
 - Volvo 97325, 97335, CE 97340, PN 1161521, 1161540/1161640, 31256774/31256675, 1161621
 - ZF all 3 & 4 speed, 6 Speed, 8 speed and 9 speed transmissions; ZF TE-ML 05L, 11A, 11B, 21L
- e-Mobility claims:
- Toyota THSII
 - Ford Escape Hybrid eCVT
 - Mazda SKYACTIVE-HYBRID
 - Nissan Altima Hybrid
 - Jatco JR712E

Note: Always consult your owner's manual to check recommended viscosity grade and specifications for your specific vehicle

Typical Physical Data

Parameters	Method	Unit	Typical Value
Appearance	-	-	Bright & Clear
Color	-	-	Red
Density @15°C	ASTM D 4052	g/cm ³	0.840
Kinematic Viscosity @100°C	ASTM D 445	mm ² /s (cSt)	6.1
Kinematic Viscosity @40°C	ASTM D 445	mm ² /s (cSt)	29.5
Viscosity Index	ASTM D 2270	-	160
Brookfield Viscosity @-40°C	ASTM D 2983	mPa.s (cP)	11500
Pour Point	ASTM D 97	°C	-52
Flash Point COC	ASTM D 92	°C	224

All technical data is provided for reference only. These characteristics are typical of current production. Whilst future production will conform to PL's specification, variations in these characteristics may occur.

Introduction - PETRONAS Tutela Multi ATF 700 E

Premium quality multi-vehicle Automatic Transmission Fluid engineered for Passenger Cars and Commercial Vehicles requiring GM DEXRON®-VI / Ford MERCON® LV



Applications:

- Automatic transmissions
- Power Steering
- Hydraulic Systems

Suitable for:

- Passenger Cars, buses, coaches and Light Commercial Vehicles

Performance

Meeting:

- GM DEXRON®-VI
- Ford MERCON® LV
- JASO M315-2013 1A-LV / 2013 1A / 2013 2A
- JWS 3309 / 3314 / 3324 / 3317

AT OEM Specifications

OEM	Specification
 TOYOTA	Toyota Toyota T-IV Toyota WS JWS 3309, JWS 3324
 HONDA	Honda Honda ATF-Z1 Honda ATF-DW-1
 NISSAN	Nissan Nissan Matic D Nissan Matic J Nissan Matic K Nissan Matic S
 MITSUBISHI MOTORS	Mitsubishi Mitsubishi SP-II Mitsubishi SP-III
 HYUNDAI	Hyundai/Kia Hyundai SP-IV
 mazda	General Japanese specification JASO 1A, 2A JASO M315 A1-LV
 ZF	ZF ZF-TE-3,4,5 ZF-TE-ML09

OEM	Specification
 GM	General Motors Dexron- VI Dexron- LV
 Go Further	Ford Mercon Mercon V Mercon LV
 CHRYSLER	Chrysler ATF+3 ATF+4
 Allison Transmission	Allison Allison C4 TES-295 TES-389 TES-439
	Mercedes Benz MB 236.9 MB 236.12 MB 236.14
 Audi	Voith G607 – H55.6635XX G1363 – H55.6336XX

Recommendation TUTELA Multi ATF 700 E Application



Proton : Saga (New), Iriz, Pesona (2010- Current)



PERODUA

Perodua : Myvi SE,H,AV, Alza, Bezza, Axia (2017-2022), Aruz



TOYOTA

Toyota : Camry, Avanza, Rush, Estima, Hilux



Mercedes Benz , BMW, Jaguar, Peugeot, Volvo



Nissan : Navara, Mitsubishi : Exender



HYUNDAI

Hyundai : Santa Fe, Sonata, Starex



Go Further

Ford, Range Rover, Chevrolet



HONDA

Honda : Accord, Jazz, Stream



mazda

Mazda : Mazda 2, Mazda 3, Mazda BT-50



Continuous Variable Transmission (CVT)

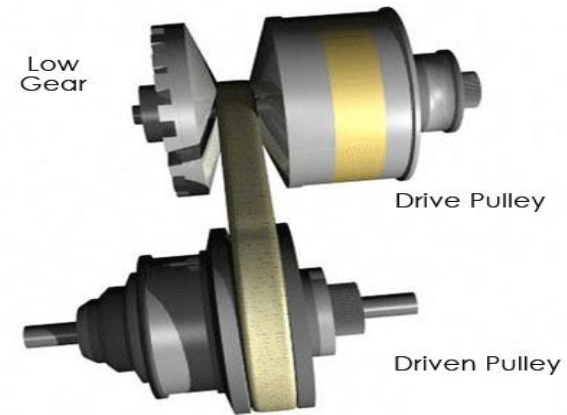


CVT Fluid Special Requirements

- Optimum viscosity
- Wet clutch performance
- Dispersancy
- Anti-foaming
- Oxidation Stability
- Material compatibility



- ✓ Better anti-wear
- ✓ Outstanding shear stability
- ✓ Improved anti-foam
- ✓ Metal-Metal Friction



PETRONAS
Tutela

**High
Performance
CVTF**

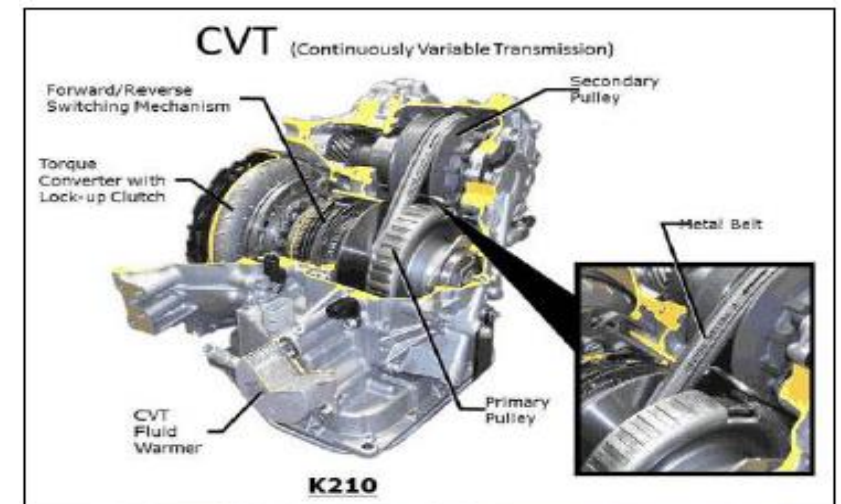


ADVANTAGES

- Fuel Economy
- Comfort, smooth driving
- Smooth Acceleration

CHALLENGES

- Torque Limitation (Performance Limits)
- Ratio increase increases complexity



PETRONAS Tutela Multi CVT 700 Specifications

Premium Fully Synthetic multi-vehicle Continuously Variable Transmission (CVT) fluid for use in passenger cars


HONDA

SUBARU

SUZUKI

Audi

OEM	Specification
Toyota	Toyota TC
Honda	Honda HMMF
Nissan	Nissan NS-2
Mitsubishi	CVTF-J1 SP-III TC
Suzuki	NS-2 CVT Green 1
Audi/VW	TL 52180 G 052 180
Mercedes Benz	MB 236.20
Ford	Mercon C CVT30 CVT23
GM	Dex-CVT

Applications:

- Belt Continuously Variable Transmission
- Chain Continuously Variable Transmission

Suitable for:

- Passenger Cars with CVT

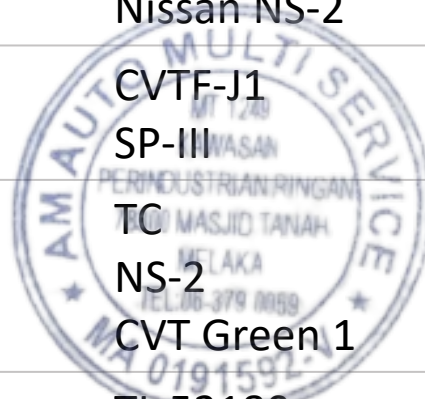
Performance

Meeting:

- Daihatsu AMMIX CVT DFE
- Ford WSD-M2C-199A
- GM/Saturn DEX-CVT, GM CVT
- JWS 3320
- Punch CVT

*Product Replacement for:

- Petronas Tutela Transmission CVT-J



Introduction - PETRONAS Tutela Multi CVT 700

Premium Fully Synthetic multi-vehicle Continuously Variable Transmission (CVT) fluid for use in passenger cars



Applications:

- Belt Continuously Variable Transmission
- Chain Continuously Variable Transmission

Suitable for:

- Passenger Cars with CVT

Performance

Meeting:

- Daihatsu AMMIX CVT DFE
- Ford WSD-M2C-199A
- GM/Saturn DEX-CVT, GM CVT
- JWS 3320
- Punch CVT

PETRONAS Tutela Multi CVT 700



Designed to be the Fluid Technology Solution of choice providing excellent protection and longer oil life for CVT systems

Description and Applications

PETRONAS Tutela Multi CVT 700 is a premium fully synthetic multi-vehicle Continuously Variable Transmission (CVT) fluid, delivering steel to steel optimized friction, torque transfer capacity and component durability for today's automatic transmissions over their standard service life. Its wide coverage of major manufacturer specifications, extensive bench testing and field-testing, makes it suitable for use for virtually all CVT transmissions. For this reason, Tutela Multi CVT 700 reduces the risk of using the wrong oil and simplifies inventory management.

PETRONAS Tutela Multi CVT 700 meets the service fill requirement of most belt and chain CVT OEMs for use in passenger cars.

Benefits

PETRONAS Tutela Multi CVT 700 enhances your vehicle availability while significantly reducing your operating costs through:

- Fuel Economy performance by optimized transmission efficiency:
 - o A lower viscosity fluid to help reduce operational energy losses.
- Extended Transmission Life driven by:
 - o Exceptional thermal and oxidation stability under high temperature, providing viscosity stability and preventing formation of deposits and sludge to prolong oil life
 - o Enhanced shear stability for a constant film strength and effective lubrication to protect all moving parts
 - o Excellent anti-wear, gear and bearing protection to extend components life
 - o Extended transmission fluid life and prevention against fluid breakdown at higher operating temperatures for a total protection of the transmission
 - o Seal compatibility for better leakage prevention
 - o Outstanding control valve cleanliness to keep optimal operating conditions

Provides outstanding Driving Experience through:

- Balanced torque capacity for an efficient power transfer
- Extended friction durability for superior anti-shudder performance and enhanced driving comfort
- Exceptional low temperature viscosity for improved lubrication during start-up and shifting comfort in cold conditions
- Significantly reduced transmission noise

Approvals, Specifications and Recommendations

Performance Level:

- BMW Mini Cooper EZL 799 / EZL 799A / ZF CVT V1 / 83 22 0 136 376/ 83 22 0 429 154
- Chery CVT
- Daihatsu AMMIX CVTF DFE, CVT Fluid DC, CVT Fluid DFE or DFC, Fluid TC
- Dodge/Jeep/Chrysler NS-2, CVT+4
- Ford WSD-M2C-199A
- Fujijyuuko i-CVTF FG
- GM/Saturn DEX-CVT, GM CVT
- Honda HMMF (without starting clutch), HCF2, Z-1 (CVT model, without starting clutch, not Yes for 2001-2007 Honda Fit & Jazz), CVT
- Hyundai/Kia CVT-1, SP III (CVT model)
- Mazda JWS 3320
- Mitsubishi CVTF-J1 (MMC Diaqueen CVT Fluid J1), CVTF-J4 and -J4+ (MMC Diaqueen CVT Fluid J4 and J4+), (Diaqueen) SP-III (CVT model only), CVTF ECO J4
- Nissan NS-1, NS-2 and NS-3
- Punch CVT

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- Subaru iCVT, iCVT F and FG, ECVT, Lineartronic chain CVT and CVT II Fluid (K0425Y0710), Lineartronic High Torque (HT) CVT Fluid (K0421Y0700), Subaru NS-2
- Suzuki CVTF TC, CVTF 3320, CVTF 4401, Suzuki NS-2, CVT Green 1, CVT Green 2, CVT Green 1V
- Toyota CVTF TC, CVTF FE
- Volvo CVT 4959
- Audi Multitronic, Audi/VW TL 521 16 (G 052 516), Audi/VW TL 521 80 (G 052 180)

Note: Always consult your owner's manual to check recommended viscosity grade and specifications for your specific vehicle

Typical Physical Data

Parameters	Method	Unit	Typical Value
Appearance	-	-	Bright & Clear
Density @15°C	ASTM D 4052	g/cm ³	0.850
Kinematic Viscosity @100°C	ASTM D 445	mm ² /s (cSt)	7.4
Kinematic Viscosity @100°C	ASTM D 445	mm ² /s (cSt)	33
Viscosity Index	ASTM D 2270	-	185
Brookfield Viscosity @-40°C	ASTM D 2983	mPa.s (cP)	9500
Pour Point	ASTM D 97	°C	-45
Flash Point COC	ASTM D 92	°C	216

All technical data is provided for reference only. These characteristics are typical of current production. Whilst future production will conform to PLI's specification, variations in these characteristics may occur.



Recommendation TUTELA Multi CVT 700 Application

	OEM	Type CVT	Model
	PROTON	Wet mechanical clutch (Punch CVT)	Saga FLX (2011-2016), Saga (2016–present), Iriz (2014- present), Persona (2016- present), Preve, Suprima S,
	PERODUA	Dual- CVT (Daihatsu CVT Fluid DFE)	Ativa, Myvi (2022), Alza (2022), Axia (2023) Daihatsu Rocky
	TOYOTA	Direct Shift CVT (Toyota CVT Fluid FE)	Vios (2016- 2022), Yaris (2023), Prius, Innova C-HR, Vellfire, Camry Hybrid, Corolla Altis (2019), Corolla Hybrid, Corolla Cross, Highlander Hybrid, Prius Prime (PHEV), RAV4 Hybrid, RAV4 Prime (PHEV), Sienna, Harrier, Veloz
	HONDA	Torque converter Honda HMMF, HCF2, Z-1	City (2014), Accord (2020), Accord Hybrid, Civic, CR-V, CR-V Hybrid, HR-V, Insight, Odyssey, WR-V
	HYUNDAI Hyundai/Kia SP CVT-1	IVT - Intelligent Variable Transmission	Elantra, Kona, Kia- Forte, Kia-Rio

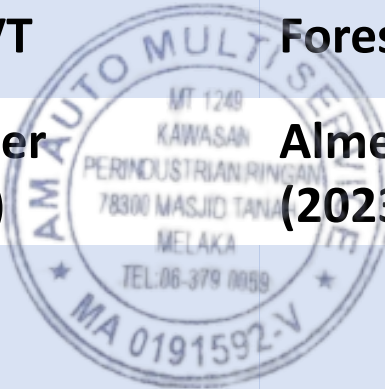
Recommendation TUTELA Multi CVT 700 Application



OEM	Type CVT	Model
Subaru	Lineartronic CVT	Forester, Outback, WRX, XV



NISSAN	Torque converter (KTF-1, NS 1-3)	Almera, Serina, X-Trail, Teana, Sylphy, Sentra (2023)



Product Equivalent

PETRONAS	CASTROL	SHELL	MOBIL
TUTELA MULTI CVT 700	TRANSMAX ATF/ CVT Universal	SPIRAX S5 CVT X	CVTF Multi-Vehicle
TUTELA MULTI ATF 700 E	TRANSMAX ATF/ CVT Universal	SPIRAX S6 ATF X	Multi-Vehicle ATF
TUTELA MULTI ATF 500	TRANSMAX MULTIVEHICLE	SPIRAX S5 ATF X	MOBIL ATF 3309