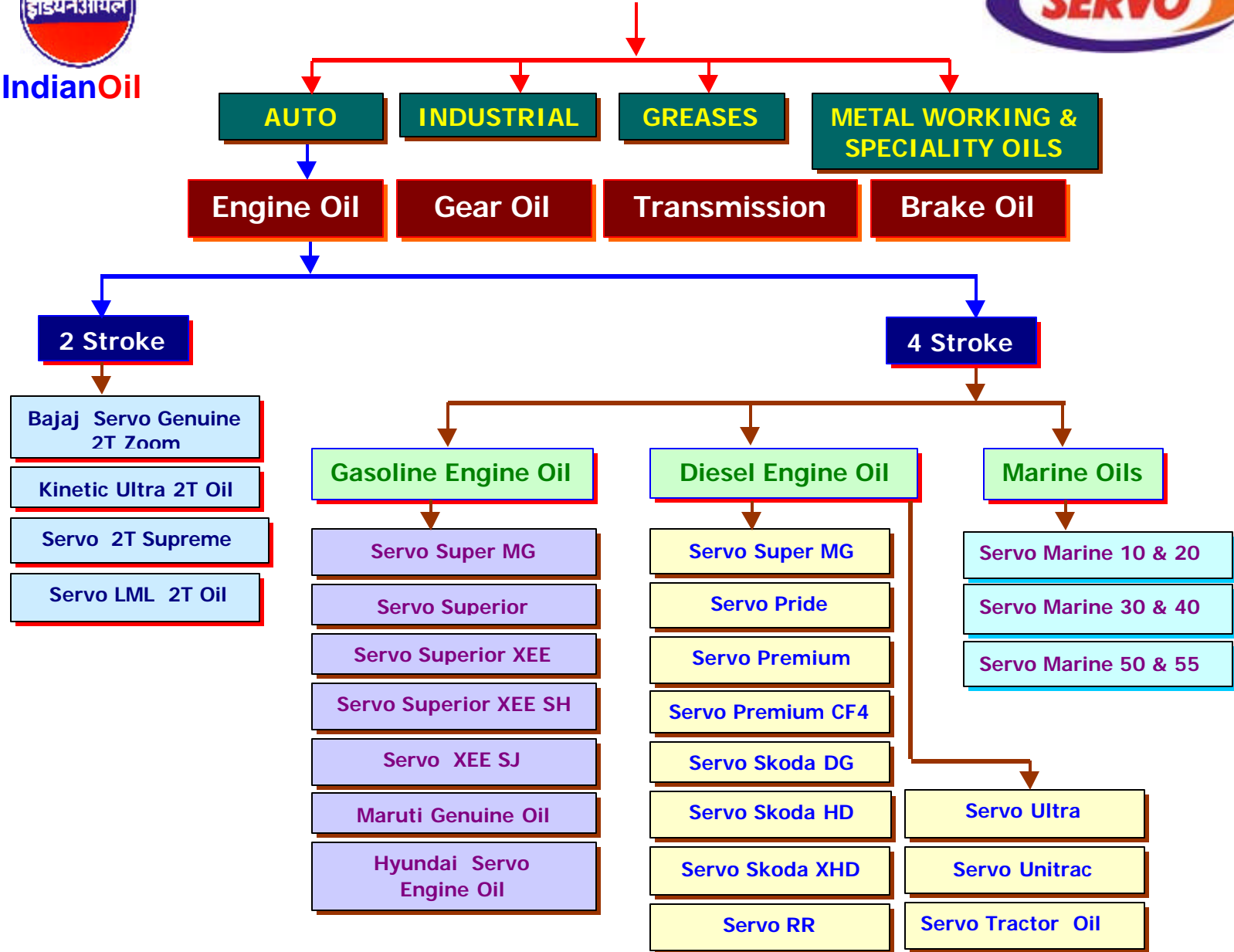




# SERVO<sup>®</sup> PRODUCT DATA SHEET





IndianOil

# SERVO<sup>®</sup> PRODUCT DATA SHEET

## BAJAJ SERVO GENUINE 2T ZOOM



### GRADES AVAILABLE – BAJAJ SERVO GENUINE 2T ZOOM

#### DESCRIPTION

Bajaj Servo Genuine 2T Zoom is a premium quality, low smoke semi-synthetic two-stroke engine oil developed specifically to meet the requirements of Bajaj Scooters/ Mopeds. It is blended from selected base stocks and additives to minimise spark plug fouling and preignition, prevent rusting, minimise deposit formation and provide protection against seizure, scuffing and wear. It is specifically formulated to give additional advantage of lower oil consumption. It contains a diluent for easy mixing with gasoline.

#### APPLICATION

Bajaj Servo Genuine 2T Zoom is recommended for lubrication of two stroke engines fitted on Bajaj scooters, mopeds and Bajaj 3 wheelers. The recommended dosage of Bajaj Servo Genuine 2T Zoom is 20 ml of oil per litre of petrol.

#### PERFORMANCE BENEFITS

- ☞ Low exhaust smoke
- ☞ Maintains engine cleanliness
- ☞ Minimises spark plug fouling
- ☞ Reduces port deposits and ring sticking
- ☞ Prevents seizure and scuffing
- ☞ Is easily pumpable by oil injection system
- ☞ Ensures reduced oil consumption

#### PERFORMANCE STANDARDS

Meets

- ☞ Latest JASO FC specifications.

Manufacturers Approval:

- ☞ M/s. Bajaj Auto Ltd., Pune, has approved Bajaj Servo Genuine 2T Zoom for their two stroke 2/3 wheelers.

### CHARACTERISTICS

Kinematic Viscosity @ 40°C, cSt	48-70
Flash Point (COC), °C, Min	70
Sulphated Ash, % Wt., Max	0.25

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## KINETIC ULTRA 2T OIL



IndianOil

### GRADES AVAILABLE – KINETIC ULTRA 2T OIL

#### DESCRIPTION

Kinetic Ultra 2T Oil is low smoke semi- synthetic two stroke engine oil developed to meet the critical requirements of high performance two stroke engines manufactured by M/s. Kinetic Motors Ltd and Kinetic Engineering Ltd. It is blended from selected base stocks and additives to minimise spark plug fouling and preignition, prevent rusting, minimise deposit formation and provide protection against seizure, scuffing and wear. It is specifically formulated to give additional advantage of lower oil consumption. It contains a diluent for easy mixing with gasoline.

#### APPLICATION

Kinetic Ultra 2T Oil is recommended for lubrication of Kinetic Pride, DX, ZX, Safari and Luna Mopeds. The recommended dosage of Kinetic Ultra 2T Oil is 20 ml of oil per litre of petrol.

#### PERFORMANCE BENEFITS

- ☞ Low exhaust smoke
- ☞ Maintains engine cleanliness
- ☞ Minimises spark plug fouling
- ☞ Reduces port deposits and ring sticking
- ☞ Prevents seizure and scuffing
- ☞ Is easily pumpable by oil injection system
- ☞ Ensures reduced oil consumption

#### PERFORMANCE STANDARDS

Meets

- ☞ Latest JASO FC specifications.

Manufacturers Approval

- ☞ M/s. Kinetic Motors Ltd., and Kinetic Engineering Ltd. have approved Kinetic Ultra 2T Oil for their two stroke scooters and mopeds respectively.

### CHARACTERISTICS

	Kinetic Ultra 2T Oil
Kinematic Viscosity @ 40°C, cSt	48-70
Flash Point (COC), °C, Min	70
Sulphated Ash, % Wt., Max	0.25

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR:

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO 2T SUPREME



IndianOil

### GRADES AVAILABLE – SERVO 2T SUPREME

#### DESCRIPTION

Servo 2T Supreme is low smoke semi-synthetic two stroke engine oil developed to meet the critical requirements of high performance two stroke engines manufactured by leading auto makers. It is blended from selected base stocks and additives to minimise spark plug fouling and preignition, prevent rusting, minimise deposit formation and provide protection against seizure, scuffing and wear. It is specifically formulated to give additional advantage of lower oil consumption. It contains a diluent for easy mixing with gasoline. Servo 2T Supreme is dyed green for easy identification.

#### PERFORMANCE BENEFITS

- ☞ Low exhaust smoke
- ☞ Maintains engine cleanliness
- ☞ Minimises spark plug fouling
- ☞ Reduces port deposits and ring sticking
- ☞ Prevents seizure and scuffing
- ☞ Is easily pumpable by oil injection system

#### APPLICATION

Servo 2T Supreme is recommended for lubrication of scooters, autorickshaws, motorcycles and mopeds operating on two stroke engines. The recommended dosage of Servo 2T Supreme is 20 ml of oil per litre of petrol.

#### PERFORMANCE STANDARDS

Meets

☞ JASO FC specifications.

Manufacturers Approval

☞ Servo 2T Supreme is approved by leading two stroke 2 and 3 wheelers manufacturers having petrol and oil injection lubrication system.

### CHARACTERISTICS

Kinematic Viscosity @ 40°C, cSt	48-70
Flash Point (COC), °C, Min	70
Sulphated ash % wt., Max	0.25

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR:

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO LML 2T OIL



IndianOil

### GRADES AVAILABLE – SERVO LML 2T OIL

#### DESCRIPTION

Servo LML 2T Oil is low smoke semi-synthetic two stroke engine oil developed to meet the critical requirements of high performance two stroke engines manufactured by M/s. LML Ltd. It is blended from selected base stocks and additives to minimise spark plug fouling and preignition, prevent rusting, minimise deposit formation and provide protection against seizure, scuffing and wear. It is specifically formulated to give additional advantage of lower oil consumption. It contains a diluent for easy mixing with gasoline.

#### PERFORMANCE BENEFITS

- ☞ Low exhaust smoke
- ☞ Maintains engine cleanliness
- ☞ Minimises spark plug fouling
- ☞ Reduces port deposits and ring sticking
- ☞ Prevents seizure and scuffing
- ☞ Is easily pumpable by oil injection system
- ☞ Ensures reduced oil consumption

#### APPLICATION

Servo LML 2T Oil is recommended for lubrication of two stroke 2 wheelers manufactured by LML Ltd. Kanpur. The recommended dosage is 20 ml of oil per litre of petrol.

#### PERFORMANCE STANDARDS

Meets

- ☞ Latest JASO FC specifications.

Manufacturers Approval

- ☞ M/s. LML Ltd. Kanpur has approved LML Servo 2T Oil for two stroke scooters.

### CHARACTERISTICS

	Servo LML 2T Oil
Kinematic Viscosity @ 40°C, cSt	48-70
Flash Point (COC), °C, Min	70
Sulphated Ash, % Wt., Max	0.25

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO SUPER MG



IndianOil

### GRADES AVAILABLE - SERVO SUPER MG 5W-30/10W-30/10W-40/20W-40/20W-50

#### DESCRIPTION

Servo Super Multigrade Oils are blended from highly refined base stocks and balanced additive package containing shear stable VI improver, metallic detergent dispersant and anti-oxidant. These oils are formulated to meet lubrication requirements of both gasoline and diesel engines. Servo Super Multigrade Oils are red in colour and suitable for all seasons.

#### APPLICATION

Servo Super MG oils are recommended for

- ☞ Modern passenger cars
- ☞ Naturally aspirated diesel engines operating under severe conditions.
- ☞ Supercharged diesel engines
- ☞ Vehicles encountering continuous start-stop operation.

#### PERFORMANCE BENEFITS

Servo Super Multigrade Oils

- ☞ Enable easy low temperature starting
- ☞ Minimise fuel and oil consumption
- ☞ Give longer battery life
- ☞ Provide maximum protection to engine parts against rust and corrosion
- ☞ Give good high and low temperature performance in the engine
- ☞ Minimise wear of engine parts
- ☞ Ensure system cleanliness by holding contaminants in finely dispersed state

#### PERFORMANCE STANDARDS

Meets the following specifications:

API SC/CC  
US MIL-L-2104B  
E-PL 1/E-DL 1 of IS:13656-1993

#### APPROVAL

Servo Super MG oils are approved by leading auto manufacturers like-  
TELCO, Ashok Leyland, Mahindra & Mahindra, Bajaj Tempo, etc.

### CHARACTERISTICS

SAE GRADE	5W-30	10W-30	10W-40	20W-40	20W-50
Kinematic Viscosity cSt @ 100°C	11-12	9.5 – 11.5	13.5 – 15.5	13.5 – 15.5	17.5 – 19.5
Viscosity Index, Min.	150	135	140	110	125
Flash point (COC), °C Min.	160	190	190	200	200
Pour Point, °C Max.	(-) 33	(-) 27	(-) 27	(-) 21	(-) 21
TBN, mg, KOH/gm	9.2-12.0	6.5-8.5	4.5-6.0	4.2-8.0	4.5-6.0

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO SUPERIOR



IndianOil

**GRADES AVAILABLE – SERVO SUPERIOR 10W-30, 10W-40, 15W-40, 20W-40, 20W-50**

### DESCRIPTION

Servo Superior oils are high performance engine oils for new generation petrol and diesel vehicles. These oils are blended from high viscosity index base stocks and contain additives to meet the stated performance standards.

### APPLICATION

Servo Superior Oils are recommended for new generation petrol and diesel cars. These oils are also suitable for existing passenger cars and four stroke two wheelers i.e. scooters and motorcycles.

### PERFORMANCE BENEFITS

- ☞ Superior performance in terms of oxidation stability, dispersancy characteristics and energy efficiency.
- ☞ Excellent sludge control and extra wear protection at high temperatures and severe operating conditions.
- ☞ Outstanding overall engine cleanliness and also provide long engine life.
- ☞ Fuel savings and low oil top up.
- ☞ Catalytic Converter Compatible.

### PERFORMANCE STANDARDS

- ☞ API SF in gasoline and CC in diesel service.
- ☞ US Military MIL-L-46152 B
- ☞ E-PL 2 / E-DL 1 of IS:13656 - 1993

### APPROVAL

- ☆ Hindustan Motors Ltd for all car models.
- ☆ Premier Automobiles Ltd. for 118 NE cars.
- ☆ Hero Honda Ltd.

### CHARACTERISTICS

SAE GRADE	10W-30	10W-40	15W-40	20W-40	20W-50
Kin. Vis. @ 100°C, cSt	9.5 – 11.5	14.0 – 15.5	13.5 – 15.5	13.5 – 15.5	17.5 – 19.5
Flash Point, COC, °C, Min	200	190	200	200	200
Pour Point, °C, Max	(-) 27	(-) 27	(-) 24	(-) 21	(-) 21
TBN mg KOH/gm	6.2 – 8.3	8.0 – 10.5	6.2 – 12	5.5 – 7.5	5.0 – 7.0

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO SUPERIOR XEE



IndianOil

### GRADES AVAILABLE - -SERVO SUPERIOR XEE 10W-30, 10W-40, 15W-40, 20W-50

#### DESCRIPTION

Servo Superior XEE oils are high performance engine oil for new generation petrol and diesel vehicles. These oils are blended from high viscosity index base stocks and contain additives to meet the stated performance standards

#### APPLICATION

Servo Superior XEE oils are recommended for new generation imported and Indian passenger cars using petrol and diesel. It is also suitable for use in light duty vans and trucks.

#### PERFORMANCE BENEFITS

- ☞ Superior performance in terms of oxidation stability, dispersancy characteristics and energy efficiency.
- ☞ Excellent sludge control and extra wear protection at high temperatures and severe operating conditions.
- ☞ Outstanding overall engine cleanliness and also provide long engine life.
- ☞ Fuel savings and low oil top up.
- ☞ Catalytic Converter Compatible.

#### PERFORMANCE STANDARDS

- ☞ API SG in gasoline and API CD in diesel service.
- ☞ Fuel economy standards API EC II & EC I for 10W-30 and 15W-40 grade respectively.

#### APPROVAL

- ☆ Daewoo Motors India Ltd. for Cielo and Matiz cars.
- ☆ Ind Auto for Fiat Uno petrol cars

### CHARACTERISTICS

SAE GRADE	10W-30	10W-40	15W-40	20W-50
Kin. Viscosity @ 100°C, cSt	9.5 – 11.5	14.0 – 15.5	14.0 – 15.5	17.5 – 19.5
Viscosity Index, Min.	135	140	135	115
Flash Point, COC, °C, Min	200	190	200	200
Pour Point, °C, Max	(-) 27	(-) 27	(-) 24	(-) 21
TBN, mg KOH/gm	6.5 – 8	8 – 10.5	6.2 - 8.3	7.0 – 8.5

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

**E-Mail:** [tsservices@indianoil.co.in](mailto:tsservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO SUPERIOR XEE SH



IndianOil

### GRADES AVAILABLE - SERVO SUPERIOR XEE SH 10W-30, 10W-40, 20W-50

#### DESCRIPTION

Servo Superior XEE SH oils are high performance engine oil for new generation petrol and diesel vehicles. These oils are blended from high viscosity index base stocks and contain additives to meet the stated performance standards.

#### APPLICATION

Servo Superior XEE SH oils are recommended for new generation imported and Indian passenger cars using petrol and diesel. It is also suitable for use in light duty vans and trucks.

#### PERFORMANCE BENEFITS

- ☞ Superior performance in terms of oxidation stability, dispersancy characteristics and energy efficiency.
- ☞ Excellent sludge control and extra wear protection at high temperatures and severe operating conditions.
- ☞ Outstanding overall engine cleanliness and also provide long engine life.
- ☞ Fuel savings and low oil top up.
- ☞ Catalytic Converter Compatible.

#### PERFORMANCE STANDARDS

- ☞ API SH in gasoline and API CF in diesel service.
- ☞ E-PL 3/E-DL 3 of IS:13656-1993

### CHARACTERISTICS

SAE GRADE	10W-30	10W-40	20W-50
Kin. Viscosity @ 100°C, cSt	11 – 12	13.3 – 14.3	17.5 – 19.5
Viscosity Index, Min.	140	140	150
Flash Point, COC, °C, Min	200	200	200
Pour Point, °C, Max	(-) 27	(-) 27	(-) 21
TBN, mg KOH/gm	7 – 8.5	7 – 8.5	7 – 8.5

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** [tservices@indianoil.co.in](mailto:tservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO XEE SJ



IndianOil

**GRADES AVAILABLE - -SERVO XEE SJ 10W-30, 10W-40, 15W-40, 20W-50**

### DESCRIPTION

Servo XEE SJ oils are long life, high performance fuel economy engine oil for new generation petrol and diesel vehicles. These oils are blended from high viscosity index base stocks and contain additives to meet the highest quality performance standard

### APPLICATION

Servo XEE SJ oils are recommended for new generation imported and Indian passenger cars using petrol and diesel. It is also suitable for use in light duty vans and trucks.

### PERFORMANCE BENEFITS

- ☞ Superior performance in terms of improved oil and engine life.
- ☞ Less oil thickening, better deposit control.
- ☞ Fuel savings and low oil top up.
- ☞ Catalytic Convertor Compatible.

### PERFORMANCE STANDARDS

- ☞ API SJ in gasoline and API CF in diesel service.
- ☞ ACEA A3/B3 – 96, VW 500.00/505.00, MB 229.1
- ☞ Fuel economy standards API EC II & EC I for 10W-30 and 15W-40 grade respectively.

### APPROVAL

- ☆ Hindustan Motors Ltd. – Mitsubishi Lancer car

### CHARACTERISTICS

SAE GRADE	10W-30	10W-40	15W-40	20W-50
Kin. Viscosity @ 100°C, cSt	9.5 – 11.0	13.3 – 14.5	13.3 - 14.5	17.5 – 19.5
Viscosity Index, Min	130	130	130	130
Flash Point, COC, °C, Min	200	205	205	205
Pour Point, °C, Min.	(-) 30	(-) 27	(-) 24	(-) 21
TBN, mg KOH/gm	9.5 – 11.0	9 – 11	9 – 11	9 - 11

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## MARUTI GENUINE OIL



IndianOil

### GRADES AVAILABLE – MARUTI GENUINE OIL

<p><b>DESCRIPTION</b></p> <p>Maruti Genuine Oil is high performance engine oil for new generation petrol vehicles. These oils are blended from high viscosity index base stocks and contain additives to meet the stated performance standards. This oil has been extensively evaluated under tough field driving condition.</p>	<p><b>APPLICATION</b></p> <p>Maruti Genuine Oil is recommended for entire Maruti range of petrol vehicles. It is also suitable for other Indian cars.</p>
<p><b>PERFORMANCE BENEFITS</b></p> <ul style="list-style-type: none"> <li>☞ Superior performance in terms of oxidation stability, dispersancy characteristics and energy efficiency.</li> <li>☞ Excellent sludge control and extra wear protection at high temperatures and severe operating conditions.</li> <li>☞ Outstanding overall engine cleanliness and also provide long engine life.</li> <li>☞ Fuel savings and low oil top up.</li> <li>☞ Catalytic Convertor Compatible.</li> </ul>	<p><b>PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"> <li>☞ API SF in gasoline and CC in diesel service.</li> <li>☞ US Military MIL-L-46152 B</li> <li>☞ E-PL 2 / E-DL 1 of IS: 13656- 1993</li> </ul> <p><b>APPROVAL</b></p> <ul style="list-style-type: none"> <li>☆ Maruti Udyog Ltd for all petrol vehicles i.e. Maruti 800/ van / gypsy/ esteem/ wagon R.</li> </ul>

### CHARACTERISTICS

SAE GRADE	20W-40
Kin. Viscosity @ 100°C, cSt	13.5 – 15.5
Flash Point, COC, °C, Min	200
Pour Point, °C, Max	(-) 21
TBN, mg KOH/gm	5 - 7

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :  
 Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051  
**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## HYUNDAI SERVO ENGINE OIL



IndianOil

### GRADES AVAILABLE –HYUNDAI SERVO ENGINE OIL

<p><b>DESCRIPTION</b></p> <p>Hyundai Servo Engine Oil is high performance engine oil for new generation Hyundai vehicles. These oils are blended from high viscosity index base stocks and contain additives to meet the stated performance standards</p>	<p><b>APPLICATION</b></p> <p>Hyundai Servo Engine Oil is recommended for Hyundai vehicles i.e. Santro and Accent. It is also suitable for new generation imported and Indian passenger cars using petrol and diesel</p>
<p><b>PERFORMANCE BENEFITS</b></p> <ul style="list-style-type: none"> <li>☞ Superior performance in terms of oxidation stability, dispersancy characteristics and energy efficiency.</li> <li>☞ Excellent sludge control and extra wear protection at high temperatures and severe operating conditions.</li> <li>☞ Outstanding overall engine cleanliness and also provide long engine life.</li> <li>☞ Fuel savings and low oil top up.</li> <li>☞ Catalytic Convertor Compatible.</li> </ul>	<p><b>PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"> <li>☞ API SG in gasoline and API CD in diesel service.</li> <li>☞ Fuel economy standards API EC II &amp; EC I for 10W-30 and 15W-40 grade respectively.</li> </ul> <p><b>APPROVAL</b></p> <p>☆ M/s. Hyundai Motors India Ltd for all Hyundai vehicles namely Santro, Accent, etc.</p>

### CHARACTERISTICS

SAE GRADE	15W-40
Kin. Viscosity @ 100°C, cSt	13.5 – 15.5
Flash Point, COC, °C, Min	200
Pour Point, °C, Max	(-) 27
TBN, mg KOH/gm	10 – 12

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO SUPER MG



IndianOil

### GRADES AVAILABLE - SERVO SUPER MG 5W-30/10W-30/10W-40/20W-40/20W-50

#### DESCRIPTION

Servo Super Multigrade Oils are blended from highly refined base stocks and balanced additive package containing shear stable VI improver, metallic detergent dispersant and anti-oxidant. These oils are formulated to meet lubrication requirements of both gasoline and diesel engines. Servo Super Multigrade Oils are red in colour and suitable for all seasons.

#### APPLICATION

Servo Super MG oils are recommended for

- ☞ Modern passenger cars
- ☞ Naturally aspirated diesel engines operating under severe conditions.
- ☞ Supercharged diesel engines
- ☞ Vehicles encountering continuous start-stop operation.

#### PERFORMANCE BENEFITS

Servo Super Multigrade Oils

- ☞ Enable easy low temperature starting
- ☞ Minimise fuel and oil consumption
- ☞ Give longer battery life
- ☞ Provide maximum protection to engine parts against rust and corrosion
- ☞ Give good high and low temperature performance in the engine
- ☞ Minimise wear of engine parts
- ☞ Ensure system cleanliness by holding contaminants in finely dispersed state

#### PERFORMANCE STANDARDS

Meets the following specifications:

API SC/CC  
US MIL-L-2104B  
E-PL 1/E-DL 1 of IS:13656-1993

#### APPROVAL

Servo Super MG oils are approved by leading auto manufacturers like-  
TELCO, Ashok Leyland, Mahindra & Mahindra, Bajaj Tempo, etc.

### CHARACTERISTICS

SAE GRADE	5W-30	10W-30	10W-40	20W-40	20W-50
Kinematic Viscosity cSt @ 100°C	11-12	9.5 – 11.5	13.5 – 15.5	13.5 – 15.5	17.5 – 19.5
Viscosity Index, Min.	150	135	140	110	125
Flash point (COC), °C Min.	160	190	190	200	200
Pour Point, °C Max.	(-) 33	(-) 27	(-) 27	(-) 21	(-) 21
TBN, mg, KOH/gm	9.2-12.0	6.5-8.5	4.5-6.0	4.2-8.0	4.5-6.0

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO PRIDE



IndianOil

### GRADES AVAILABLE – SERVO PRIDE, 10W, 20, 30, 40, 50, MG 10W-30, MG 20W-40

#### DESCRIPTION

Servo Pride oils are heavy duty engine oils for gasoline and diesel service. These oils are red in colour and blended from selected highly refined, high viscosity index base stocks and contain well balanced group of additives, to provide high detergency, dispersancy and anti oxidation characteristics to meet the stated performance standards.

#### APPLICATION

Servo Pride oils are recommended for:

- Naturally aspirated, supercharged and turbocharged diesel engines.
- High powered gasoline engines
- Mixed fleet operation

#### PERFORMANCE BENEFITS

Servo Pride oils

- Provide excellent resistance against wear and deposits in automotive supercharged diesel engines
- Have exceptional thermal and oxidation stability to resist decomposition in supercharged engines operating with high ring zone temperature.
- Provide absolute control of corrosive wear that may result from use of high sulphur fuels because of good built-in alkaline reserves.
- Maintain a high order of engine cleanliness

#### PERFORMANCE STANDARDS

Servo Pride oils meet the following specifications:

- US MIL-L 2104C
- API CD/SC,
- E-DL 3 of IS:13656-1993
- Caterpillar Series 3
- MACK T-7 test for oil thickening tendency

#### MANUFACTURERS APPROVAL

Servo Pride oils are approved by leading auto manufacturers including

- Ashok Leyland Ltd., Madras
- Tata Engineering & Locomotive Co. Ltd., Pune & Jamshedpur.

### CHARACTERISTICS

SAE GRADE	10W	20	30	40	50	10W-30	20W-40
Kin. Vis. cSt @ 100°C	5Min.	6 – 8	10 – 12	13 – 15	18 – 20	11 – 12	13.5 – 15.5
Viscosity Index, Min.	100	95	95	90	90	110	110
Flash point (COC), °C Min.	190	200	220	225	230	190	200
Pour Point, °C Max.	(-)27	(-) 21	(-) 6	(-) 6	(-) 6	(-) 27	(-) 21
TBN mg KOH/gm	10 – 12	10 – 12	10 – 12	10 – 12	10 – 12	10 – 12	10 - 12

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO PREMIUM



IndianOil

### GRADES AVAILABLE - SERVO PREMIUM 20W-40

#### DESCRIPTION

Servo Premium 20W-40 is high performance diesel engine oil, which provides excellent protection against corrosive wear in all types of diesel engines. This oil is suitable for all seasons and retains high level of alkalinity during use.

#### APPLICATION

Servo Premium 20W-40 is recommended for:

- Highly supercharged diesel engines
- Commercial service in diesel engines
- Off highway equipments
- Stationary DG Sets

#### PERFORMANCE BENEFITS

Servo Premium 20W-40 provides:

- Improved cold starting and faster engine warm up.
- Outstanding engine cleanliness even under most severe operating conditions.
- Exceptional thermal and oxidation stability to resist decomposition in super charged engines operating with high ring zone temperatures.
- Longer battery life.
- Lower fuel and engine oil consumption.
- Excellent resistance to wear.

#### PERFORMANCE STANDARDS

Servo Premium 20W-40 meets the following specifications.

- ✘ API CD
- ✘ E-DL 2 of IS: 13656-1993
- ✘ US Military MIL-L-45199B

#### MANUFACTURERS APPROVAL

- Kirloskar Cummins,
- BEML, Mysore;
- Greaves Ltd, Aurangabad;
- Piaggio Greaves, Pune

### CHARACTERISTICS

SAE GRADE	20W-40
Kinematic Viscosity cSt @ 100°C	13.5 – 15.5
Viscosity Index, Min.	110
Flash point (COC), °C Min.	200
Pour Point, °C Max.	(-) 21
TBN mg KOH/gm	10 – 12

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO PREMIUM CF-4



IndianOil

### GRADES AVAILABLE - SERVO PREMIUM CF-4 15W-40

#### DESCRIPTION

Servo Premium CF-4 15W-40 is a premium quality, **API certified**, commercial multipurpose diesel engine oil. The oil is designed for the most severe performance requirements of modern, highly rated turbo charged diesel engines in the over the road transport fleet applications and also off highway operations. It assures outstanding protection against high temperature engine deposits, oil degradation, oil thickening and corrosion resistance. The oil is having excellent shear stability to maintain viscosity under severe, high temperature operations.

#### PERFORMANCE BENEFITS

- # Reduced engine scuffing and bore polishing.
- # High engine cleanliness.
- # Maximum protection from wear and deposits.
- # Suitable for mixed fleet operation.
- # Improved control of oil consumption.
- # Easier cold starting.
- # Excellent all weather performance due to improved cold weather properties.
- # Catalytic Converter compatible.

#### APPLICATION

Servo Premium CF-4 15W-40 is recommended for new generation commercial diesel vehicles of both American and European design such as Caterpillar and Cummins operating on Heavy duty on-highway and off-highway equipments.

#### PERFORMANCE STANDARDS

- \* API CF4/SG
- \* MIL-L-2104E, MIL-L-46152E
- \* MACK EO-K 2
- \* MAN 271
- \* VOLVO VDS
- \* Daimler Benz 228.3
- \* Volkswagen VW 505 issue 11/92
- \* Allison C4

Servo Premium CF-4 15W-40 is approved by:

- \* TELCO , Pune for 207 series of vehicles
- \* VOLVO , Sweden
- \* JOHN DEERE , USA

### CHARACTERISTICS

SAE GRADE	15W-40
Kinematic Viscosity, cSt @ 100°C	14.0 – 15.0
Viscosity Index, Min.	135
TBN, mg KOH/g	10.5 – 12.5
Flash Point, (COC)°C, Min.	200
Pour Point °C, Max.	(-) 24

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** [tsservices@indianoil.co.in](mailto:tsservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO CKD (SKODA) DG



IndianOil

### GRADES AVAILABLE – SERVO CKD (SKODA) GENUINE DG SET OIL

#### DESCRIPTION

Servo CKD (SKODA) Genuine DG Set Oil is state of the art technology. Product manufactured from high viscosity index base stocks and contains appropriate dosages of detergent-dispersant and antioxidant additives to meet the International Performance Standards. The product has demonstrated capability to ensure trouble free and extended engine life coupled with longer oil drain periods.

#### PERFORMANCE BENEFITS

- ☞ Effectively combats the deleterious products of combustion associated with high sulphur fuels, thus minimising deposits and wear.
- ☞ Maintains excellent engine cleanliness by holding contaminants in finely dispersed suspension thus reducing formation of lacquer, varnish and sludge.
- ☞ Minimise deposits resulting from high output, low speed, and low temperature operations.
- ☞ Provides excellent control of cold sludge and corrosive wear.

#### APPLICATION

Servo CKD (SKODA) Genuine DG Set Oil is recommended for all CKD (SKODA) Diesel Engines and Diesel Generating Sets manufactured by M/s. CKD HRADEC KRALOVE A.S. Czech Republic and operating on distillate fuel.

#### PERFORMANCE STANDARDS

Meets the following specifications –

- ☞ API Service CD
- ☞ Caterpillar Series 3
- ☞ Ford M2C-87/88
- ☞ IS:EDL 2 of BIS 13656-1993
- ☞ US Military MIL-L- 45199B

#### Manufacturers Approval

M/s. CKD HRADEC KRAOVE A.S. Czech republic the manufacturers of CKD (SKODA) Diesel Generating Sets has approved the use of Servo CKD (SKODA) Genuine DG Set Oil for all CKD (SKODA) Diesel Engines and Diesel Generating Sets.

### CHARACTERISTICS

<b>SAE GRADE</b>	<b>40</b>
<b>Kin. Viscosity @ 100°C, cSt</b>	<b>13-15</b>
<b>Viscosity Index, Min</b>	<b>90</b>
<b>Flash Point (COC), °C, Min</b>	<b>225</b>
<b>Pour Point, °C, Max</b>	<b>(-) 6</b>

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVO SKODA HD

IndianOil

### GRADES AVAILABLE – SERVO SKODA GENUINE OIL HD

#### DESCRIPTION

Servo Skoda Genuine Oil HD is manufactured from carefully selected and highly refined, high viscosity index base stocks. The oil contains appropriate dosages of detergent-dispersant and antioxidant additives to meet the International Performance Standards. The product has capability to ensure trouble free and extended engine life.

#### APPLICATION

Servo Skoda Genuine Oil HD is recommended for all CKD (SKODA) Diesel Generating Sets manufactured by M/s CKD HRADEC KRALOVE A.S. Czeh Republic and operating on Light Diesel Oil ( LDO) as fuel.

#### PERFORMANCE BENEFITS

Ensures the long life and smooth performance.

- With excellent detergent / dispersant properties ensure clean crankcase, pistons and valves and prevent ring sticking.
- Effectively combats the deleterious products of combustion associated with high sulphur fuels, thus minimising deposits and wear.
- With excellent engine protection, reducing down time, maintenance and operating cost.
- Minimise deposits resulting from high output, low speed and low temperature operations.

#### PERFORMANCE STANDARDS

Servo Skoda Genuine Oil HD meets the following specifications:

- API CD
- US Military MIL-L- 2104 C

M/s CKD HRADEC KRALOVE A.S. Czeh Republic the manufacturers of CKD (SKODA) Diesel Generating Sets has approved the use of Servo Skoda Genuine Oil HD for all CKD (SKODA) DG Sets operating on LDO as fuel.

### CHARACTERISTICS

<b>SAE GRADE</b>	<b>40</b>
Kinematic Viscosity, cSt @ 100°C	14.2-15.5
Viscosity Index, Min.	90
TBN, mg KOH/g	20
Flash Point, (COC)°C, Min.	210
Pour Point °C, Max.	(-)12

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO SKODA XHD

**IndianOil**

## GRADES AVAILABLE - SERVO SKODA GENUINE OIL XHD

### DESCRIPTION

Servo Skoda Genuine Oil XHD is manufactured from carefully selected and highly refined, high viscosity index base stocks. The oil contains appropriate dosages of detergent-dispersant and antioxidant additives to meet the International Performance Standards. The product has capability to ensure trouble free and extended engine life.

### APPLICATION

Servo Skoda Genuine Oil XHD is recommended for all CKD (SKODA) Diesel Generating Sets manufactured by M/s CKD HRADEC KRALOVE A.S. Czech Republic and operating on heavier Residual fuels.

### PERFORMANCE BENEFITS

Ensures the long life and smooth performance.

- With excellent detergent / dispersant properties ensure clean crankcase, pistons and valves and prevent ring sticking.
- Effectively combats the deleterious products of combustion associated with high sulphur fuels, thus minimising deposits and wear.
- With excellent engine protection, reducing down time, maintenance and operating cost.
- Minimise deposits resulting from high output, low speed and low temperature operations.

### PERFORMANCE STANDARDS

Servo Skoda Genuine Oil XHD meets the following specifications:

- API CD
- US Military MIL-L- 2104 C

M/s CKD Hradec Kralove A.S. Czech Republic the manufacturer of CKD (SKODA) Diesel Generating Sets has approved the use of Servo Skoda Genuine Oil XHD for all CKD (SKODA) DG Sets operating on heavier Residual fuel.

## CHARACTERISTICS

<b>SAE GRADE</b>	<b>40</b>
Kinematic Viscosity, cSt @ 100°C	14.2 – 15.5
Viscosity Index, Min.	90
TBN, mg KOH/g	40
Flash Point, (COC)°C, Min.	210
Pour Point °C, Max.	(-) 12

## HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO RR



IndianOil

### GRADES AVAILABLE - SERVO RR 407, 606 MG, 501 MG, 520 MG

#### DESCRIPTION

Servo RR oils have been developed to meet lubrication requirements of various makes of rail road diesel engines currently in operation with the Indian Railways. These oils are blended using high quality base stocks having excellent thermal and oxidation stability. Special additives incorporated in these oils impart high degree of detergency, dispersancy coupled with the desired level of alkalinity to combat the ill effects of combustion products of high sulphur fuels.

#### APPLICATION

Servo RR 407 is “Extra Performance” Generation IV Oil and is recommended for GM, EMD and ALCO Locomotives.

Servo RR 606 MG is Generation IV Plus MG oil and is recommended for ALCO Locomotives.

Servo RR 501 MG and 520 MG are Generation V zinc free MG oils and are recommended for ALCO and GE & GM, EMD Locos.

#### PERFORMANCE BENEFITS

Servo RR oils

- Provide extended service life of rings and cylinder liners
- Give adequate protection to turbocharger bearings
- Keep engine parts clean
- Possess high alkalinity which helps to combat corrosive effect of sulphur present in the fuel

#### PERFORMANCE STANDARDS

Servo RR 407 meets the following specification:

- General Motors Corporation, USA requirements of MI-1761C
- U.S. Military MIL-L-45199B

### CHARACTERISTICS

	RR 407	RR 606 MG	RR 501 MG	RR 520 MG
<b>SAE GRADE</b>	40	20W-40	20W-40	20W-40
<b>Kinematic Viscosity cSt @ 100°C</b>	15.5 – 16.3	15.5 – 16.3	15.5 – 16.3	15.5-16.3
<b>Viscosity Index, Min.</b>	90	110	110	110
<b>Flash point (COC), °C Min.</b>	225	200	200	200
<b>Pour Point, °C Max.</b>	(-) 6	(-) 21	(-) 21	(-)21
<b>TBN, mg. KOH/g (Typical)</b>	13	17	13	17

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVO ULTRA

IndianOil

### GRADES AVAILABLE – SERVO ULTRA 10W, 20, 30, 40, 50

#### DESCRIPTION

Servo Ultra oils are heavy duty diesel engine oils, and are blended from highly refined, high viscosity index base stocks and contain appropriate dosages of detergent-dispersant and antioxidant additives to meet the stated performance standards.

#### PERFORMANCE BENEFITS

Servo Ultra oils

- Effectively combat the deleterious products of combustion associated with high sulphur fuels, thus minimising deposits and wear.
- Maintain excellent engine cleanliness.
- Minimise deposits resulting from high output, low speed, low temperature operations.
- Provide excellent control of cold sludge and corrosive wear.
- Possess excellent oxidation stability ensuring long service life especially in transmission systems.

#### APPLICATION

Servo Ultra oils are recommended for all classes of supercharged diesel engines of high speed, high output such as those in:

- Heavy duty diesel vehicles / Tractors
- Earth moving / Off-highway equipment
- Transmission systems of Caterpillar equipment
- Large generating sets

Servo Ultra 10 meets the requirements of hydraulic fluid Type C2 specification of Detroit Diesel Allison, Division of General Motors Corporation. USA.

#### PERFORMANCE STANDARDS

Servo Ultra oils meet the following specifications:

- API CD
- US MIL-L-45199B
- Caterpillar Series 3
- E-DL 2 of IS:13656-1993 specifications

Servo Ultra oils are approved by the leading manufactures including

- Bharat Earth Movers Ltd., Bangalore
- Escorts Ltd., Faridabad

#### CHARACTERISTICS

SAE GRADE	10W	20	30	40	50
Kinematic Viscosity cSt @ 100°C	5Min.	6 – 8	10 – 12	13 – 15	18 – 20
Viscosity Index, Min.	100	95	95	90	90
Flash point (COC), °C Min.	190	200	220	225	230
Pour Point, °C Max.	(-) 27	(-) 6	(-) 6	(-) 6	(-) 6

#### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO TRACTOR OIL



IndianOil

### GRADES AVAILABLE – SERVO TRACTOR OIL 20W-40

#### DESCRIPTION

Servo Tractor Oil is Multigrade Universal Tractor Oil specifically formulated to meet all the lubrication requirements of tractors. It has a high detergency level and excellent oxidation stability combined with good antiwear and antiweld properties.

#### APPLICATION

Servo Tractor Oil is recommended for the engine, combined transmission, gear box and hydraulic system of all makes of tractors.

#### PERFORMANCE BENEFITS

- ☞ Excellent all weather performance.
- ☞ Prevents wrong use and mixing up of different oils in applications.
- ☞ Reduces the inventory of different grades.
- ☞ Extends oil and equipment life.

#### PERFORMANCE STANDARDS

- ☞ API CD for engine oil and API GL 4 for gear oil
- ☞ US Military MIL-L-45199B for engine oil and MIL-L-2105 for gear oil
- ☞ E-DL2 of IS:13656-1993
- ☞ Caterpillar series 3

#### MANUFACTURERS APPROVAL

- Tractor oil is approved by leading tractor manufacturers.

### CHARACTERISTICS

SAE GRADE	20W-40
Kin. Viscosity @ 100°C, cSt	14.5 – 16.3
Viscosity Index, Min	110
Flash Point, COC, °C, Min	200
TBN mg KOH/gm	11 - 13

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVO UNITRAC

IndianOil

### GRADES AVAILABLE - SERVO UNITRAC 30, 15W-30

#### DESCRIPTION

Servo Unitrac is a highly versatile tractor fluid and comes under the category of fluids commonly referred to as Super Tractor Oil Universal (STOU). It is carefully engineered with selected base stocks and performance additives to meet the diverse performance requirements of Engine, Wet Brakes, Power Take off Clutch, Hydraulic System, Transmission and Final Drive of modern new generation farm tractors.

#### APPLICATION

The parts of the tractor lubricated by STOU type of fluids are Engine, Transmission, Final Drive, Wet Brakes, Power Take Off (PTO) and Hydraulics. These oils can also be used for lubrication of off-highway machinery, industrial tractors and related equipment.

#### PERFORMANCE BENEFITS

- Simplified lubricant inventory – one oil can be used for engines, hydraulics, transmission, wet brakes, PTO and final drive in farm tractors.
- Avoids use of wrong grade.
- Long fluid life
- All weather application.
- Available in mono and multigrade version

#### PERFORMANCE STANDARDS

Servo Unitrac meets the following specifications

- Engine : CCMC D4/G2, API CE/SF, MIL-L-2104D, 46152B, 21260C
- Transmission : API GL4, MIL-L-2105
- Hydraulic : Denison HF0
- Off-Highway : Allison C4 , Caterpillar TO-2

Servo Unitrac also meets the following manufacturer's approval

- Massey Ferguson : M 1139, CMS 1135
- Ford : M2C 159B & 159C & M2C 134D
- Case : MS 1207
- ZF : TE ML 07

### CHARACTERISTICS

SAE GRADE	30	15W-30
Kinematic Viscosity, cSt @ 100°C	10.0 – 10.5	10.0 – 11.0
Viscosity Index, Min.	95	140
TBN mg KOH/gm	9.5 – 11.5	9.5 – 11.5
Flash Point (COC), °C Min	190	200
Pour Point, °C Max.	(-) 30	(-) 30

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO MARINE 10 & 20



IndianOil

### GRADES AVAILABLE - SERVO MARINE 1030, 1040, 2030, 2040

#### DESCRIPTION

Servo Marine 10 and 20 series oils are new generation Marine Engine Oils developed to meet the requirement of modern medium speed trunk piston engines and high speed engines used in Marine propulsion and Land based DG sets, operating on distillate fuels or marine diesel fuel having sulphur content upto 1%.

These oils also exhibit better TBN retention, dispersancy characteristics and superior anti-wear protection when compared with any commercial API CD level oil.

#### PERFORMANCE BENEFITS

- Provides maximum protection from - adhesive and corrosive wear at the higher operating temperatures.
- Ensures outstanding Piston and Liner cleanliness.
- Provides higher level of TBN retention.
- Provides reduced Ring and Liner wear.
- Separates easily from water.

#### APPLICATION

Servo Marine oils are recommended for use in Marine propulsion engines and land based DG sets operating on distillate fuels or marine diesel fuel with sulphur content upto 1%.

#### PERFORMANCE STANDARDS

Servo Marine 10 & 20 series oils meet –

- American Petroleum Institute (API) service classification CD.
- Passes MWM-B engine test for high temperature deposit control.

#### MANUFACTURERS APPROVAL

Servo Marine oils are approved by

- ☞ Rolls Royce, U.K for Allen Engines
- ☞ Ulstein Bergen, Norway
- ☞ Kirloskar Oil engines Ltd., Pune

### CHARACTERISTICS

GRADE	1030	1040	2030	2040
SAE GRADE	30	40	30	40
Kin. Viscosity cSt @ 100°C	11.3 – 12.4	14.4 – 15.5	11.3 – 12.4	14.4 – 15.5
Viscosity Index, Min	90	90	90	90
Flash point (COC), °C Min.	220	230	220	230
Pour Point, °C Max.	(-) 15	(-) 12	(-) 15	(-) 12
Total Base No., mg KOH/g, Min	10	10	20	20

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO MARINE 30 & 40



IndianOil

### GRADES AVAILABLE - SERVO MARINE 3030, 3040, 3050, 4030, 4040, 4050,

#### DESCRIPTION

Servo Marine 30 & 40 series oils are new generation Marine Engine Oil developed to meet the requirement of modern medium speed trunk piston engines used in Marine propulsion and Land based DG sets.

The superior performance of these oils has been demonstrated in several laboratory screening test, standard and in-house engine tests. These oils have shown excellent merit rating for piston cleanliness in the MWM KD 12E engine test run in accordance with CEC-L-12-A-76 using residual fuel.

#### PERFORMANCE BENEFITS

- Provides maximum protection from adhesive and corrosive wear at the higher operating temperatures.
- Ensures outstanding Piston and Liner cleanliness.
- Provides higher level of TBN retention.
- Provides reduced Ring and Liner wear.
- Separates easily from water.

#### APPLICATION

Servo Marine oils are recommended for use in Marine propulsion engines and land based DG sets operating on residual fuels. These oils can also be used for the cylinder lubrication of cross head diesel engines where 30 or 40 TBN oil is required.

#### PERFORMANCE STANDARDS

- Meet American Petroleum Institute (API) service classification CD.
- Passes MWM-B engine test for high temperature deposit control.

#### MANUFACTURERS APPROVAL

- Wartsila NSD, Finland for Vasa 22, 22/26 and Vasa 32 engines.
- Rolls Royce, UK
- MAN B & W (Holeby) Engines

### CHARACTERISTICS

	3030	3040	3050	4030	4040	4050
<b>SAE GRADE</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>30</b>	<b>40</b>	<b>50</b>
<b>Kin. Viscosity cSt @ 100°C</b>	11.3-12.4	14.4 – 15.5	19 – 21	11.3 – 12.4	14.4 – 15.5	19 – 21
<b>Viscosity Index, Min</b>	90	90	90	90	90	90
<b>Flash point (COC), °C Min.</b>	220	230	230	220	230	230
<b>Pour Point, °C Max.</b>	(-)15	(-) 12	(-)12	(-) 15	(-) 12	(-) 12
<b>Total Base No., mg KOH/g</b>	30	30	30	40	40	40

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO MARINE 50 & 55



IndianOil

### GRADES AVAILABLE - SERVO MARINE 5040, 5540

#### DESCRIPTION

Servo Marine 50 and 55 series oils are new generation Marine Engine Oil developed to meet the requirement of modern medium speed trunk piston engines used in Marine propulsion and Land based DG sets.

The superior performance of these oils has been demonstrated in several laboratory screening test, standard and in-house engine tests. These oils have shown excellent merit rating for piston cleanliness in the MWM KD 12E engine test run in accordance with CEC-L-12-A-76 using residual fuel.

#### PERFORMANCE BENEFITS

- Provides maximum protection from adhesive and corrosive wear at the higher operating temperatures.
- Ensures outstanding Piston and Liner cleanliness.
- Provides higher level of TBN retention.
- Provides reduced Ring and Liner wear.
- Separates easily from water.

#### APPLICATION

Servo Marine oils are recommended for use in Marine propulsion engines and land based DG sets operating on residual fuels. These oils can also be used for the cylinder lubrication of crosshead diesel engines where 50 or 55 TBN oil is required.

#### PERFORMANCE STANDARDS

- Meet American Petroleum Institute (API) service classification CD.
- Passes MWM-B engine test for high temperature deposit control.

#### MANUFACTURERS APPROVAL

☞ Wartsila NSD, Finland for Vasa 22, 22/26 and Vasa 32 engines.

### CHARACTERISTICS

GRADE	5040	5540
SAE GRADE	40	40
Kin. Viscosity cSt @ 100°C	14.4 – 15.5	14.4 – 15.5
Viscosity Index, Min	90	90
Flash point (COC), °C Min.	230	230
Pour Point, °C Max.	(-) 12	(-) 12
Total Base No., mg KOH/g,	50	55

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO GEAR SM



IndianOil

### GRADES AVAILABLE – SERVO GEAR SM 90,SM 140,SM 250

#### DESCRIPTION

Servo Gear SM oils moderate duty automotive gear oils. These oils are blended from selected lubricating oil stocks, which have high oxidation stability and film strength.

#### PERFORMANCE BENEFITS

Servo Gear SM oils

- Provide adequate lubrication and protection against rust
- Have reduced tendency to foam
- Have good service life due to inherent oxidation stability
- Minimise wear, due to good film strength

#### APPLICATION

Servo Gear SM oils are recommended for:

- Worm gear axles of automotive equipment
- Manual automotive transmission
- Final drive of vehicles not requiring extreme pressure lubricants
- Spiral bevel and double reduction rear axles
- Highly loaded industrial spur, herringbone, helical and spiral bevel gear sets
- Bronze gear units in automotive and industrial applications
- Flexible couplings

#### PERFORMANCE STANDARDS

Servo Gear SM oils meet the following specification:

- API Service GL 1  
IS :1277-1987

### CHARACTERISTICS

SAE GRADE	90	140	250
Kinematic Viscosity cSt @ 100°C	15-18	30-35	45-50
Viscosity Index, Min.	85	85	85
Flash point (COC), °C Min.	190	230	250
Pour Point, °C Max.	(-) 9	0	0

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVO GEAR HP

IndianOil

### GRADES AVAILABLE - SERVO GEAR HP 80W, HP 90,HP 140

#### DESCRIPTION

Servo Gear HP oils are extreme pressure automotive gear lubricants. These oils are blended from selected base stocks and contain additives to provide extreme pressure, anti-rust-corrosion characteristics

#### APPLICATION

Servo Gear HP oils are recommended for passenger car, bus and highway truck hypoid, spiral bevel and worm gear axles and also manual transmission for which an extreme pressure gear lubricant of this type is required. Servo Gear HP 80 is specially designed for power transmission units of vehicles operating at sub-zero temperatures.

#### PERFORMANCE BENEFITS

Servo Gear HP oils

- Satisfy the lubrication requirements of a wide variety of gears.
- Provide protection against wear, due to good EP characteristics
- Give long service life even under high temperature operation since it has excellent oxidation stability
- Provide good protection against corrosion

#### PERFORMANCE STANDARDS

Servo Gear HP oils meets:

- API Service GL 4
- IS: 1118-1957 (Reaffirmed 1993)
- UK Defence CS 3000A
- US military MIL-L-2105

#### APPROVAL

- Ashok Leyland Ltd., Madras
- Bharat Earth Movers Ltd., Bangalore
- Escorts Ltd., Faridabad
- Hindustan Motors Ltd., Calcutta/Hoogly
- Kirloskar Tractors Ltd., Nasik
- Mahindra & Mahindra Ltd., Mumbai

### CHARACTERISTICS

SAE GRADE	80W	90	140
Kinematic Viscosity cSt @ 100°C	8-10	16-18	28-34
Viscosity Index, Min.	90	90	90
Flash point (COC), °C Min.	165	180	190
Pour Point, °C Max.	(-) 27	(-) 9	0

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

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## SERVO GEAR SUPER

IndianOil

### GRADES AVAILABLE - SERVO GEAR SUPER 80W, 85W, 90, 140

#### DESCRIPTION

Servo Gear Super oils are automotive extreme pressure gear oils blended from specially selected high viscosity index base stocks and contain additives which impart extreme pressure, anti-rust, anti-corrosion and anti oxidation characteristics. These are multi-purpose type gear lubricants specifically formulated to meet the rigorous service demand of commercial fleet mechanical transmissions, axles and gear boxes.

#### PERFORMANCE BENEFITS

Servo Gear Super oils

- Have exceptional chemical and thermal stability permitting use upto bulk oil temperature of 150°C
- Have excellent extreme pressure property to give maximum protection against low speed-high torque wear and high speed – shock induced scoring
- Guard automotive gear assemblies against rust and corrosion

#### APPLICATION

Servo Gear Super oils are primarily recommended for the lubrication of hypoid differential units operating under severe conditions and other types of mechanical transmissions and drive axles where extreme pressure gear oils are required.

#### PERFORMANCE STANDARDS

Servo Gear Super oils meet the following specifications:

- API Service GL5
- US Military MIL-L-2105D
- UK Defence CS 3000B

#### APPROVALS

Servo Gear Super oils are approved by :

- Bharat Earth Movers Ltd., Bangalore
- Escorts J.C.B. Ltd., Faridabad
- Hindustan Motors Ltd., Trivellore
- Tata Engineering & Locomotive Co. Ltd., Jamshedpur

### CHARACTERISTICS

SAE GRADE	80W	85W	90	140
Kinematic Viscosity cSt @ 100°C	8 – 10	11 – 12	16 – 18	28 – 34
Viscosity Index, Min.	90	90	90	90
Flash point (COC), °C Min.	165	165	180	190
Pour Point, °C Max.	(-) 27	(-) 9	(-) 9	0

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

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**E-Mail:** [tsservices@indianoil.co.in](mailto:tsservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)



# SERVO<sup>®</sup> PRODUCT DATA SHEET



## SERVO GEAR HP ALFA

IndianOil

### GRADES AVAILABLE – SERVO GEAR HP ALFA 80W-90

#### DESCRIPTION

Servo Gear HP Alfa 80W-90 is a premium quality automotive gear lubricant specially formulated to meet the requirements of the new class of compactly built synchromesh gearboxes. The compactness of the new class of gearboxes with increased power density, low clearances and with gear assembly partly submerged in the oil, results in the gear oil being subjected to greater operational severity. Servo Gear HP Alfa 80W-90 is tailor-made for such applications with superior thermo-oxidative stability, high EP and antiwear properties, low copper activity, enhanced protection against corrosion, rust and formation of sticky deposits.

#### APPLICATION

Servo Gear HP Alfa 80W-90 is specially recommended oil by Maruti Udyog for Esteem, Zen, Maruti 1000 and Gypsy King Models with a drain interval of 20,000 kms or two years whichever is earlier. This oil can also be used in gear box, differential, steering gear box and other mechanical transmission systems of all models of passenger cars, heavy and medium duty vehicles, tractors and off-highway earth moving machinery with extended drain interval and increased component life.

#### PERFORMANCE BENEFITS

- # Enables smooth shifting of gears
- # Gives outstanding protection against rust and corrosion.
- # Provides improved seal life due to good compatibility with seal materials normally used in modern gear boxes.
- # Gives extra fuel economy and excellent all weather performance due to improved cold weather properties.

#### PERFORMANCE STANDARDS

Servo Gear HP Alfa 80W-90 meet the following specifications :

- \* MUL Alfa Specifications
- \* API GL 4
- \* IS 1118 - 92 EP Type GL4 SAE 80W-90

#### MANUFACTURER'S APPROVAL

- M/s. Maruti Udyog Ltd for Maruti Zen, Esteem, Gypsy King and Maruti 1000.

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 100°C	13.5 - 17.0
Viscosity Index, Min.	100
Flash Point, (COC)°C, Min.	165
Pour Point °C, Max.	(-) 27
Copper Corrosion 121°C, 3 hrs., Max.	1b

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO TRANSFLUID A



IndianOil

### GRADES AVAILABLE - SERVO TRANSFLUID A

#### DESCRIPTION

Servo Transfluid A is formulated to meet the General Motor's automatic transmission fluid Type A Suffix A specification. This fluid imparts anti-oxidation, anti-wear, dispersancy, defoaming and desired friction characteristics. Due to its high viscosity index and low pour point it assures quiet and smooth operation of hydraulic equipment under all climatic conditions. It is a fluid with low co-efficient of friction thus permitting clutch plates to engage slowly and gradually as the transmission shifts. The fluid is compatible with seal materials, generally used in transmission systems.

#### APPLICATION

Servo Transfluid A is recommended for automatic transmissions and power steering units of automobiles and light trucks, where the manufacturer specifies Type A Suffix A fluid. It is also recommended for synchromesh gear boxes.

#### PERFORMANCE BENEFITS

Servo Transfluid A

- Provides smooth, chatter-free clutch engagement and keeps automatic transmissions operating smoothly
- Ensures long trouble free life of gears, bearings and other lubricated parts
- Minimises formation of sludge and varnish, thus maintains the system clean
- Protects parts against rusting even during idle period.

#### PERFORMANCE STANDARDS

Servo Transfluid A meets the following specification:

- General Motor's Type A suffix A
- Daimler Benz DBL 6623-10
- TES-122 of DDA, a Division of GM, USA
- TEMPL 03 of ZF, West Germany

#### MANUFACTURERS APPROVAL

Servo Transfluid A is approved by the leading manufacturers, such as:

- Daimler Benz Akt. West Germany for Transmission system and gear boxes of Mercedes Benz Vehicles
- TELCO, for Indica cars and synchromesh gear box GBS 40

### CHARACTERISTICS

Colour	Red
Kinematic Viscosity, cSt @ 100°C	7.4.-7.9
Viscosity Index, Min	160
Flash Point (COC), °C, Min.	180
Pour Point, °C, Max.	(-) 39

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO TORQUE



IndianOil

### GRADES AVAILABLE - SERVO TORQUE 10

#### DESCRIPTION

Servo Torque 10 is specially formulated for hydro-kinetic turbo-transmissions and industrial torque converters. It possess high oxidation stability, anti-foam, anti-rust and EP properties. It is compatible with seal materials normally used in transmission systems.

#### APPLICATION

Servo Torque 10 is recommended for.

- Turbo Transmissions, torque converters and fluid couplings manufactured by Voith Getriebe, West Germany
- Hydraulic transmission systems and gears designed by Motoren UHD Turbinen Union, West Germany
- Suri-Mak Rail Road Transmissions

#### PERFORMANCE BENEFITS

Servo Torque 10

- Ensures power transmission at optimum level
- Has long service life due to excellent thermal and oxidation stability
- Reduces tendency to foam since it has good air release properties
- Protects components against corrosion and wear

#### PERFORMANCE STANDARDS

Servo Torque 10 meets

- Hydraulic Transmission Fluid specification 3.90-8 of Voith Getriebe, West Germany
- MTU Transmission Fluid material specification 1061/9

#### MANUFACTURERS APPROVAL

Servo Torque 10 is approved by:

- Bharat Heavy Electricals Ltd., Hyderabad
- Motoren UHD Turbinen Union, West Germany
- Voith Getriebe K.G., West Germany

### CHARACTERISTICS

GRADE	SERVO TORQUE 10
Kinematic Viscosity, cSt @ 40°C	30
@100°C	4.7 – 5.7
Viscosity Index, Min.	100
Flash Point (COC), °C Min.	160
Pour Point, °C Max.	(-) 25

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET



## SERVO TRANSMISSION C3

IndianOil

### GRADES AVAILABLE - SERVO TRANSMISSION C3 SAE 10, C3 SAE 40

#### DESCRIPTION

Servo Transmission C3 fluids are formulated to meet the specification of General Motors Corporation, USA for hydraulic transmission fluid type C3. These fluids are blended from selected lubricating oil base stocks with special additives to impart high oxidation stability, anti-wear, anti-rust, anti-foam and desired frictional characteristics in service.

#### APPLICATION

Servo Transmission C3 fluids are recommended for all commercial power shift transmissions, industrial torque convertors and automatic transmissions manufactured by Detroit Diesel Allison, Division of General Motors Corporation, USA. Such hauling and cycling transmissions are fitted on a wide variety of off-highway equipment e-g, dumpers, scrapers, shovel loaders, log loaders, crawler tractors, excavators etc.

#### PERFORMANCE BENEFITS

Servo Transmission C3 fluids

- Enable smooth operation of precision hydraulic control systems
- Protect gear and other lubricated parts against wear
- Have the desired friction characteristics for smooth engagement/disengagement of clutch to provide a “soft shift feel”
- Give high protection against rust and corrosion to the components of the transmission system
- Provide excellent seal life due to good compatibility with seal and component materials normally used in hydraulic transmission systems

#### PERFORMANCE STANDARDS

Servo Transmission C3 fluids meet the following specification:

- TES – 122 for Hydraulic Transmission Fluid Type C3 of Detroit Diesel Allison, Division of General Motors Corporation, USA

Servo Transmission C3 fluids are approved by the leading manufacturers, such as:

- Bharat Earth Movers Ltd., Bangalore
- Detroit Diesel Allison, Division of General Motors Corporation, USA
- Hindustan Motors-Terex Ltd., Trivellore

### CHARACTERISTICS

SAE GRADE	10	30
Kinematic Viscosity, cSt @ 100 °C	5.6 Min.	9.3 - 12.5
Viscosity Index, Min.	100	90
Flash Point (COC), ° C Min	190	215
Pour Point, ° C Max.	(-) 29	(-) 18

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

**E-Mail:** [tsservices@indianoil.co.in](mailto:tsservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)



## SERVO TRANSMISSION C4

IndianOil

### GRADES AVAILABLE - SERVO TRANSMISSION C4 SAE 10, C4 SAE30

#### DESCRIPTION

Servo Transmission C4 fluids are formulated to meet the specification of General Motors Corporation, USA for hydraulic transmission fluid type C4. These fluids are blended from selected lubricating oil base stocks with special additives to impart high oxidation stability, anti-wear, anti-rust, anti-foam and desired frictional characteristics in service.

The fluids are compatible with seal material generally used in hydraulic transmission systems.

#### APPLICATION

Servo Transmission C4 fluids are recommended for all commercial power shift transmissions, industrial torque convertors and automatic transmissions manufactured by Detroit Diesel Allison, Division of General Motors Corporation, USA. Such hauling and cycling transmissions are fitted on a wide variety of off-highway equipment e-g., dumpers, scrapers, shovel loaders, log loaders, crawler tractors, excavators

#### PERFORMANCE BENEFITS

- Enable smooth operation of precision hydraulic control systems
- Protect gear and other lubricated parts against wear
- Have the desired friction characteristics for smooth engagement/disengagement of clutch to provide a “soft shift feel”
- Give high protection against rust and corrosion to the components of the transmission system
- Provide excellent seal life due to good compatibility with seal and component materials normally used in hydraulic transmission systems

#### PERFORMANCE STANDARDS

Servo Transmission C4 fluids meets:

- TES – 228 for Hydraulic Transmission Fluid Type C4 of Detroit Diesel Allison, Division of General Motors Corporation, USA

#### APPROVALS

ServoTransmission C4 fluids are approved by:

- Bharat Earth Movers Ltd., Bangalore/ Mysore
- Detroit Diesel Allison, Division of General Motors Corporation, USA
- Hindustan Motors-Terex Ltd., Trivellore
- Allison Transmissions

### CHARACTERISTICS

SAE GRADE	10	30
Kinematic Viscosity, cSt @ 100°C	5.6 Min.	9.3-12.5
Viscosity Index, Min.	100	90
Flash Point (COC), ° C Min	160	160
Pour Point, ° C Max.	(-) 30	(-) 18

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



## SERVO TRANSDEX II

IndianOil

### GRADES AVAILABLE - SERVO TRANSDEX II

#### DESCRIPTION

Servo Transdex II is a red dyed transmission fluid having a low co-efficient of friction. This oil is blended from selected base stocks and additive system to meet the stringent performance requirement. The fluid is compatible with seal materials, generally used in transmission systems.

#### APPLICATION

Servo Transdex II is recommended for automatic transmission and power steering units of automobiles and light trucks requiring Dexron II Fluid.

#### PERFORMANCE BENEFITS

- Provides better oxidation stability and low temperature flow.
- Minimise formation of sludge and varnish, thus maintains the system clean.
- Has desired fluid characteristics for smooth operations over a wide range of ambient temperatures.
- Protects parts against rusting even during idle period.

#### PERFORMANCE STANDARDS

- 6137-M (Dexron II) of General Motors, U.S.A

#### APPROVAL

- Servo Transdex II is approved by major automobile manufacturers i.e. Daewoo Motors for Cielo & Matiz cars.
- Greaves Ltd. , Pune.

### CHARACTERISTICS

GRADE	Servo Transdex II
Kin. Viscosity @ 100°C, cSt	6.8 – 7.5
Viscosity Index, Min.	160
Pour Point, °C, Max	(-) 39

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR:

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IndianOil

# SERVO<sup>®</sup> PRODUCT DATA SHEET

## HYUNDAI SERVO STEERING OIL



### GRADES AVAILABLE - HYUNDAI SERVO STEERING OIL

#### DESCRIPTION

Hyundai Servo Steering Oil is a red dyed transmission fluid having a low co-efficient of friction. This oil is blended from selected base stocks and additive system to meet the stringent performance requirement. The fluid is compatible with seal materials, generally used in transmission systems.

#### APPLICATION

Hyundai Servo Steering Oil is recommended for automatic transmission and power steering units of Hyundai vehicles like Santro & Accent cars manufactured by M/s. Hyundai Motors India Ltd.

#### PERFORMANCE BENEFITS

- Provides better oxidation stability and low temperature flow.
- Minimise formation of sludge and varnish, thus maintains the system clean.
- Has desired fluid characteristics for smooth operations over a wide range of ambient temperatures.
- Protects parts against rusting even during idle period.

#### PERFORMANCE STANDARDS

- 6137-M (Dexron II) of General Motors, U.S.A

#### APPROVAL

- Hyundai Servo Steering Oil is approved by M/s. Hyundai Motors for Hyundai vehicles.

### CHARACTERISTICS

Kin. Viscosity @ 100°C, cSt	6.8 – 7.5
Viscosity Index, Min.	160
Pour Point, °C, Max	(-) 39

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest Office OR:

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO BRAKE FLUID



**IndianOil**

### GRADES AVAILABLE - SERVO BRAKE FLUID SUPER HD

#### DESCRIPTION

Servo Brake Fluid Super HD is heavy duty hydraulic brake fluid which ensures long service life of the brake fluid and components of brake mechanism. It remains clear and uniform fluid under extreme cold climatic conditions, enabling satisfactory operation of brake systems.

The fluid causes the natural rubber and styrene butadiene rubber parts of the brake system to slightly swell and make them leak proof. It also lubricates the moving parts of the brake system very effectively.

#### APPLICATION

Servo Brake Fluid Super HD is designed for use in modern brake system of automotive vehicles operating in heavy duty conditions. The higher boiling point of this product provided greater safety factor while driving at high speed with heavy load or in hilly areas where frequent braking generates higher temperatures in the brake system.

Servo Brake Fluid Super HD is recommended for various hydraulic brake systems including disc type.

#### PERFORMANCE BENEFITS

Servo Brake Fluid Super HD

- Provides very high safety factor during driving at high speed in city and under heavy load in hilly regions
- Provides excellent protection against corrosion to iron, non-ferrous metals and zinc alloys
- Has longer service life, due to excellent oxidation stability

#### PERFORMANCE STANDARDS

Servo Brake Fluid Super HD meets the following specification:

- SAE J 1703
- FMVSS 116.3
- IS:8654-1986

#### MANUFACTURERS APPROVAL

Servo Brake Fluid Super HD is approved by TELCO, Maruti, Daewoo Motors, etc.

### CHARACTERISTICS

Appearance	Clear Homogeneous red liquid
Equilibrium Reflex Boiling Point, °C Min.	205
Kinematic Viscosity, cSt	
@ (-) 40 °C, Max.	1500
@ 100 °C, Min.	1.5
pH Value	7.0-11.5

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## HYUNDAI SERVO BRAKE OIL



IndianOil

### GRADES AVAILABLE – HYUNDAI SERVO BRAKE OIL

#### DESCRIPTION

Hyundai Servo Brake Oil is heavy duty hydraulic brake fluid which ensures long service life of the brake fluid and components of brake mechanism. It remains clear and uniform fluid under extreme cold climatic conditions, enabling satisfactory operation of brake systems.

The fluid causes the natural rubber and styrene butadiene rubber parts of the brake system to slightly swell and make them leak proof. It also lubricates the moving parts of the brake system very effectively.

#### APPLICATION

Hyundai Servo Brake Oil is recommended for hydraulic brake systems of Hyundai vehicles.

The higher boiling point of this product provided greater safety factor while driving at high speed with heavy load or in hilly areas where frequent braking generates higher temperatures in the brake system.

#### PERFORMANCE BENEFITS

Hyundai Servo Brake Oil

- Provides very high safety factor during driving at high speed in city and under heavy load in hilly regions
- Provides excellent protection against corrosion to iron, non-ferrous metals and zinc alloys
- Has longer service life, due to excellent oxidation stability

#### PERFORMANCE STANDARDS

Hyundai Servo Brake Oil meets the following specification:

- SAE J 1703
- FMVSS 116.3
- IS:8654-1986

#### MANUFACTURERS APPROVAL

Hyundai Servo Brake Oil is approved by Hyundai Motors India Ltd., for exclusive use in Hyundai vehicles like Santro cars, etc.

### CHARACTERISTICS

Appearance	Clear Homogeneous red liquid
Equilibrium Reflex Boiling Point, °C Min.	205
Kinematic Viscosity, cSt	
@ (-) 40 °C, Max.	1500
@ 100 °C, Min.	1.5
pH Value	7.0-11.5

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET



## SERVOKOOL

IndianOil

### GRADES AVAILABLE - SERVOKOOL

<p><b>DESCRIPTION</b></p> <p>Servokool is a triple action long life radiator coolant prepared from selected ingredients to meet the highest Japanese standard.</p>	<p><b>APPLICATION</b></p> <p>Servokool is recommended for passenger cars, light commercial vehicles, heavy vehicles and heavy earth moving equipment as a radiator coolant. It provides desired performance when used at 30:70 dilution in distilled water in most of the vehicles.</p>
<p><b>PERFORMANCE BENEFITS</b></p> <ul style="list-style-type: none"> <li>• Does not boil and vaporise in the hottest summer or freeze in swear winter.</li> <li>• Prevents corrosion of radiator coolant and other parts.</li> <li>• Increases cooling efficiency.</li> <li>• Reduces maintenance costs and increases radiator life.</li> </ul>	<p><b>PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"> <li>• JIS K 2234-1987 specification.</li> <li>• IS : 5759-1994</li> </ul> <p><b>APPROVAL</b></p> <p>☆ Servokool Plus is approved by major automobile manufacturers.</p>

### CHARACTERISTICS

Appearance	Green Liquid
Boiling Point, °C, Min	155
Freezing Point	
30% Volume Solution, °C	(-) 14
50% Volume Solution, °C	(-) 34

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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F-Mail – tservices@indianoil.co.in OR tech\_services@indianoil.co.in





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOKOOL PLUS



IndianOil

### GRADES AVAILABLE - SERVOKOOL PLUS

<p><b>DESCRIPTION</b></p> <p>Servokool Plus is a triple action long life radiator coolant prepared from selected ingredients to meet the highest Japanese standard and is free from Amines, Borates, Nitrates and Silicates.</p>	<p><b>APPLICATION</b></p> <p>Servokool Plus is recommended for passenger cars, light commercial vehicles, heavy vehicles and heavy earth moving equipment as a radiator coolant. For desired performance 30 parts of the fluid is to be diluted with 70 parts of distilled water in most of the vehicles.</p>
<p><b>PERFORMANCE BENEFITS</b></p> <ul style="list-style-type: none"> <li>• Does not boil and vaporise in the hottest summer or freeze in swear winter.</li> <li>• Prevents corrosion of radiator coolant and other parts.</li> <li>• Increases cooling efficiency.</li> <li>• Reduces maintenance costs and increases radiator life.</li> </ul>	<p><b>PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"> <li>• JIS K 2234-1994 specification.</li> <li>• IS : 5759-1994</li> <li>• MUL/Suzuki 17011M-50F 10F/1992</li> </ul> <p><b>APPROVAL</b></p> <p>☆ Servokool Plus is approved by major automobile manufacturers.</p>

### CHARACTERISTICS

Appearance	Green liquid
Boiling Point, °C, Min	155
Freezing Point	
30% Volume Solution, °C	(-) 14
50% Volume Solution, °C	(-) 34

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOKOOL BLUE



IndianOil

### GRADES AVAILABLE - SERVOKOOL BLUE

<p><b>DESCRIPTION</b></p> <p>Servokool Blue is a triple action long life blue radiator coolant prepared from selected ingredients to meet the highest Japanese standard and is free from Amines, Borates, Nitrates and Silicates.</p>	<p><b>APPLICATION</b></p> <p>Servokool Blue is recommended for passenger cars, light commercial vehicles, heavy vehicles and heavy earth moving equipment as a radiator coolant.</p>
<p><b>PERFORMANCE BENEFITS</b></p> <ul style="list-style-type: none"> <li>• Does not boil and vaporise in the hottest summer or freeze in swear winter.</li> <li>• Prevents corrosion of radiator coolant and other parts.</li> <li>• Increases cooling efficiency.</li> <li>• Reduces maintenance costs and increases radiator life.</li> </ul>	<p><b>PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"> <li>• JIS K 2234-1994 specification.</li> <li>• IS : 5759-1994</li> </ul>

### CHARACTERISTICS

Appearance	Blue Liquid
Boiling Point, °C, Min	155
Freezing Point	
30% Volume Solution, °C	(-) 14
50% Volume Solution, °C	(-) 34

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## HYUNDAI SERVO COOLANT



IndianOil

### GRADES AVAILABLE - HYUNDAI SERVO COOLANT

<p><b>DESCRIPTION</b></p> <p>Hyundai Servo Coolant is a triple action long life radiator coolant prepared from selected ingredients to meet the highest Japanese standard and is free from Amines, Borates, Nitrates and Silicates.</p>	<p><b>APPLICATION</b></p> <p>Hyundai Servo Coolant is recommended for Hyundai vehicles like Santro, Accent, etc. For desired performance 30 parts of the fluid is to be diluted with 70 parts of distilled water.</p>
<p><b>PERFORMANCE BENEFITS</b></p> <ul style="list-style-type: none"> <li>• Does not boil and vaporise in the hottest summer or freeze in swear winter.</li> <li>• Prevents corrosion of radiator coolant and other parts.</li> <li>• Increases cooling efficiency.</li> <li>• Reduces maintenance costs and increases radiator life.</li> </ul>	<p><b>PERFORMANCE STANDARDS</b></p> <ul style="list-style-type: none"> <li>• JIS K : 2234-1994</li> <li>• IS : 5759-1994</li> </ul> <p><b>APPROVAL</b></p> <p>☆ Hyundai Servo Coolant is approved by M/s. Hyundai Motors India Ltd. for all Hyundai vehicles.</p>

### CHARACTERISTICS

Appearance	Green liquid
Boiling Point, °C, Min	155
Freezing Point	
30% Volume Solution, °C	(-) 14
50% Volume Solution, °C	(-) 34

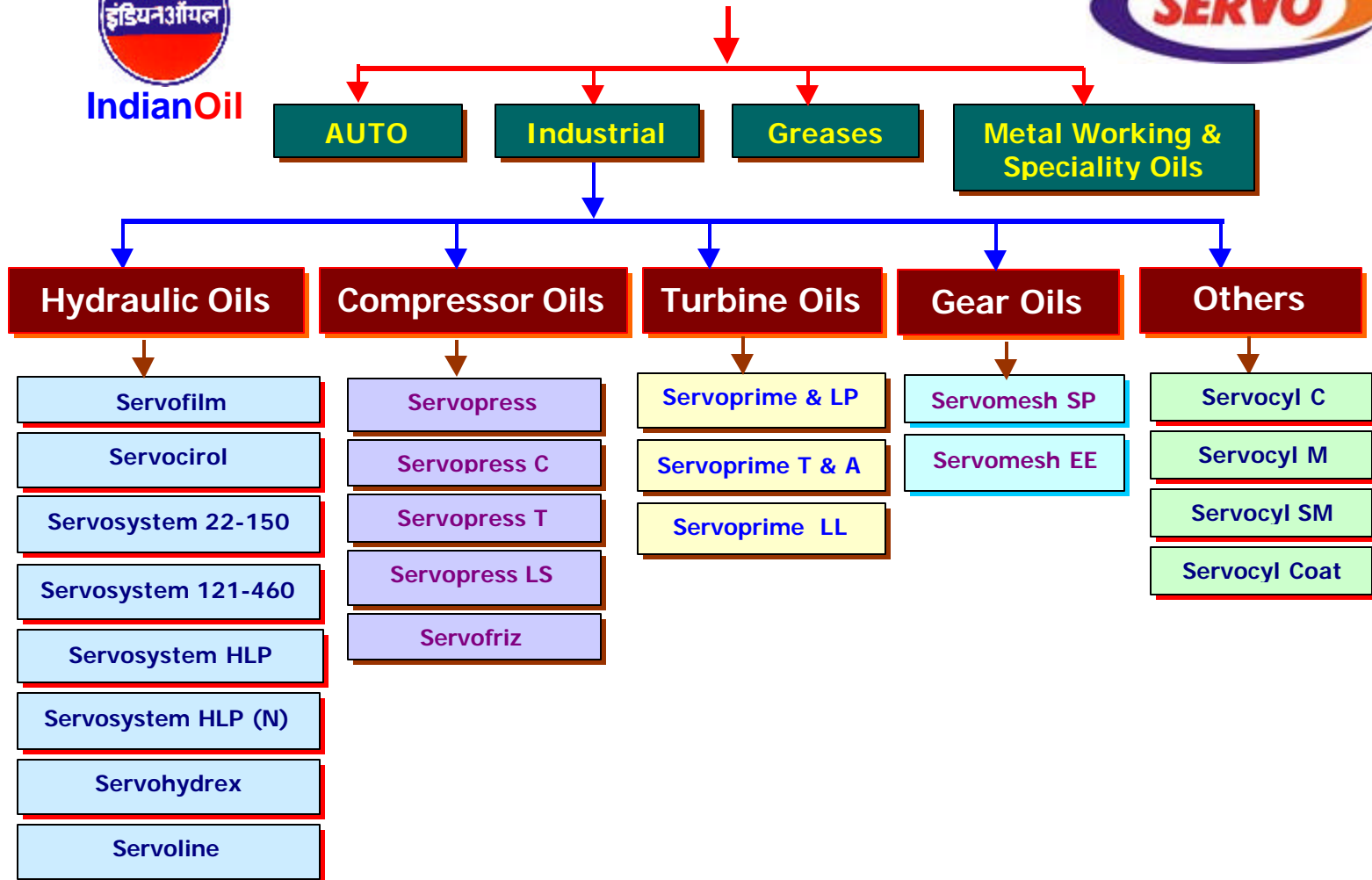
### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOFILM



IndianOil

### GRADES AVAILABLE - SERVOFILM 32/46/68/100/121\*/150/176\*/220/257\*/320/460

#### DESCRIPTION

Servofilm oils are highly refined straight mineral oils having excellent water separation characteristics.

These are blend cuts from solvent refined high viscosity index base stocks having inherent oxidation and thermal stability.

#### PERFORMANCE BENEFITS

Servofilm oils

- Have good resistance to formation of deposits and sludge at normal operating temperatures
- Rapidly separate from water

#### APPLICATION

Servofilm oils suitable for use in oil film bearings in steel mills. These oils are also recommended for use in circulation systems where non-additive type lubricants with high demulsibility characteristics are required.

#### PERFORMANCE STANDARDS

Servofilm oils meet the following specification:

- IPSS 1-09-001-81
- Morgan Construction Co. USA

Servofilm 46 and 257 meet the following specification:

- IS: 6552 – 1972 Grade 1 and 2 respectively with minor deviation in pour point requirements

### CHARACTERISTICS

ISO VG	32	46	68	81	100	121*	150	176*	220	257*	320	460
Kin. Vis.	29–	43 –	64 –	78 –	95 –	118 –	145 –	165–	210–	255–	300 –	440 -
cSt @ 40°C	33	48	72	86	105	124	155	176	230	265	340	480
Viscosity Index, Min	95	95	95	90	90	90	90	90	90	90	90	90
Flash Point (COC), °C Min	190	190	204	204	216	220	230	230	230	232	236	238
Pour Point, °C Max.	0	0	0	0	0	0	0	0	0	0	0	0

\* NON ISO VG Grade

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOSYSTEM 22 - 150



IndianOil

### GRADES AVAILABLE - SERVOSYSTEM 22/32/46/57\*/68/81\*/100/150

#### DESCRIPTION

Servosystem oils are anti-wear hydraulic and circulation oils specially formulated for efficient lubrication of a wide variety of industrial equipment. Servosystem oils are blended from highly refined base stocks and carefully selected antioxidant, anti-wear, anti-rust and anti-foam additives.

#### PERFORMANCE BENEFITS

Servosystem oils

- Provide good wear- protection, thereby prolonging service life of moving parts
- Possess high film strength properties which help minimise friction and wear
- Provide rust-protection, to reduce the incidence of corrosion
- Have excellent resistance to oxidation thereby giving long service life
- Have reduced tendency to foam thereby minimise the chance of noisy operation and erratic actuator response

#### APPLICATION

Servosystem oils are recommended as fluid media for hydraulic systems and hydraulic pumps even under severe operating conditions in stationary and mobile equipment. These oils are also recommended for circulation, splash, bath and ring oiling systems of the bearings (both plain and anti-friction) and gears of industrial machinery that require a long life lubricant. These oils can be used for chain drives and compressor crankcase lubrication.

They are not suitable for lubrication of turbines and silver or silver coated components in any equipment.

#### PERFORMANCE STANDARDS

- IS: 10522:1983 ( Reaffirmed 1993 )

#### MANUFACTURERS APPROVAL

- Bharat Pumps & Compressors Ltd., Naini
- Hindustan Machine Tools Ltd., Bangalore
- Kirloskar Bros. Ltd., Pune
- Heavy Engg. Corporation, Ranchi
- Revathi CP Equipments

### CHARACTERISTICS

GRADE	22	32	46	57*	68	81*	100	150
Kinematic Viscosity, cSt @ 40°C	20-24	29-33	43-48	55-60	64-72	78 - 85	95-105	145-155
Viscosity Index, Min	95	95	95	95	95	95	90	90
Flash Point (COC), °C Min.	160	190	200	210	210	210	210	230
Pour Point, °C Max.	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6
Rust Test, (D-665 A&B, 24 hrs.)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

\* NON ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOSYSTEM 121 - 460



IndianOil

### GRADES AVAILABLE - SERVOSYSTEM 121/176/220/320/460

#### DESCRIPTION

Servosystem oils are high quality circulation oils designed for use in a wide variety of industrial equipment. These oils are incorporated with specially selected sludge dispersant, which prevents the deposition of harmful oil-insoluble sludge and varnish in circulating systems, even on extended service.

#### APPLICATION

These oils are particularly suitable for lubrication of anti-friction particularly of paper mill dryer rolls, plastic film calendars and paper corrugators where the excellent resistance of these oils, to the formation of harmful deposits, results into outstanding benefits. These oils find wide usage as gear and bearing lubricants in coal pulverizers and a variety of other ore and rock crushing machinery. These oils are also extensively used for long, trouble free operation of compressors, machine tools, hydraulic systems, circulating oil systems and small enclosed gears where EP lubricants are not necessary.

#### PERFORMANCE BENEFITS

- Provide long term protection against rust and corrosion
- Have resistance to the formation of sludge and deposits in the system
- Provide long life to moving parts due to adequate anti-wear properties
- Have reduced foaming tendency
- Ensure longer intervals between oil changes and
- Ensure longer intervals between oil changes and system clean ups

#### MANUFACTURERS APPROVAL

Servosystem oils are approved by the leading machinery manufactures, such as:

- S.L.M. Maneklal Industries Ltd., Ahmedabad
- Tat Robins-Fraser Ltd., Jamshedpur

### CHARACTERISTICS

ISO VG	121*	176*	220	320	460
Kinematic Viscosity, cSt @ 40°C	118-124	170-180	210-230	315-350	440-500
Viscosity Index, Min.	90	90	90	90	90
Flash Point (COC), °C Min	220	230	230	230	260
Pour Point, °C Max	(-) 3	(-) 3	(-) 3	(-) 3	(-) 3
Rust Test, (D-665 A&B, 24 hrs)	Pass	Pass	Pass	Pass	Pass

\* Non ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOSYSTEM HLP



IndianOil

### GRADES AVAILABLE – SERVOSYSTEM HLP 22, 32, 46, 68, 100, 150

#### DESCRIPTION

Servosystem HLP oils are high performance hydraulic oils. These oils provide superior antiwear protection, excellent oxidation and thermal stability, outstanding hydraulic stability and good demulsibility. Servosystem HLP oils also possess superior filterability characteristics. These oils provide problem free service and have been found to be far superior in performance compared to other commercially available anti-wear, heavy duty hydraulic oils.

#### APPLICATION

Servosystem HLP oils are recommended as a fluid media in hydraulic systems, operating under extremely severe conditions. These oils are recommended for sophisticated high performance electro-hydraulic or numerically controlled systems. Servosystem HLP oils are also recommended for lubrication of screw compressors requiring oil of excellent thermal stability and low CCR value. These oils are not suitable where the components are of silver or silver coated.

#### PERFORMANCE BENEFITS

Servosystem HLP oils

- # ensure long service life due to outstanding oxidation and thermal stability.
- # provide sludge free high temperature performance.
- # provide excellent filterability characteristics.
- # readily separate from water because of excellent demulsibility characteristics.
- # provide superior long term protection against rust and corrosion.
- # Ensure overall problem free performance.

#### PERFORMANCE STANDARDS

Servosystem HLP oils are formulated to meet the following specifications :

- # DIN 51524 Part 2
  - # DENISON HF-O
  - # US STEEL 127
  - # IS : 11656-1986 (Reaffirmed 1991)
  - # IS:10522-1983(Reaffirmed 1993)
  - # ATLAS COPCO R8 & R9, HOESCH HLP
- Servosystem HLP oils are recommended by the leading equipment manufacturers such as :
- # Atlas Copco (India) Ltd.

#### CHARACTERISTICS

ISO VG GRADE	22	32	46	68	100	150
Kinematic Viscosity @ 40°C, cSt	20-24	29-33	43-48	64-72	95-105	145 – 155
Viscosity Index, Min	100	100	98	95	95	90
Flash Point(COC), °C, Min	160	200	200	210	210	230
Pour Point, °C, Max	(-)21	(-)21	(-)15	(-)12	(-)12	(-)6
Emulsion Test D-1401, 40-37-3, Minutes, Max	20	20	20	25	25	30
FZG, Rating Stage, Failure	-	10	10	10	10	11

#### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOSYSTEM HLP(N)



IndianOil

**GRADES AVAILABLE – SERVOSYSTEM HLP (N) 22, 32, 46, 68, 100, 150**

### DESCRIPTION

Servosystem HLP(N) oils are high performance hydraulic oils. These oils provide superior antiwear protection, excellent oxidation and thermal stability, outstanding hydraulic stability and good demulsibility. Servosystem HLP (N) oils also possess superior filterability characteristics. These oils provide problem free service and have been found to be far superior in performance compared to other commercially available anti-wear, heavy duty hydraulic oils.

### APPLICATION

Servosystem HLP (N) oils are recommended as a fluid media in hydraulic systems, operating under extremely severe conditions. These oils are recommended for sophisticated high performance electro-hydraulic or numerically controlled systems. Servosystem HLP (N) oils are also recommended for lubrication of screw compressors requiring oil of excellent thermal stability and low CCR value. These oils are not suitable where the components are of silver or silver coated.

### PERFORMANCE BENEFITS

- Servosystem HLP (N) oils
- # ensure long service life due to outstanding oxidation and thermal stability.
  - # provide sludge free high temperature performance.
  - # provide excellent filterability characteristics.
  - # readily separate from water because of excellent demulsibility characteristics.
  - # provide superior long term protection against rust and corrosion.
  - # Ensure overall problem free performance.

### PERFORMANCE STANDARDS

Servosystem HLP (N) oils are formulated to meet the following specifications :

- # DIN 51524 Part 2
- # DENISON HF-O
- # US STEEL 127
- # IS : 11655-1986(Reaffirmed 1991)
- # IS:10522-1983 (Reaffirmed 1993)

Servosystem HLP(N) oils are recommended by the leading equipment manufacturers such as :

- # Atlas Copco (India) Ltd.

### CHARACTERISTICS

ISO VG	22	32	46	68	100	150
Kinematic Viscosity @ 40°C, cSt	20-24	29-33	43-48	64-72	95-105	145 – 155
Viscosity Index, Min	85	95	95	95	95	90
Flash Point(COC), °C, Min	160	200	200	210	210	230
Pour Point, °C, Max	(-)21	(-)21	(-)15	(-)12	(-)12	(-) 18
Emulsion Test D-1401, 40-37-3, Minutes, Max	20	20	20	25	25	30
FZG, Rating Stage, Failure	-	10	10	10	10	10

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOHYDREX



IndianOil

### GRADES AVAILABLE – SERVOHYDREX 32, TH46, 100

#### DESCRIPTION

Servohydrex oils are anti-wear type hydraulic oils having a very high viscosity index and low pour point. These oils are blended with high quality base stocks and are incorporated with oxidation inhibitor and anti-rust additives to give long trouble free service. The defoamant additive prevents build-up of foam in the hydraulic system. Servohydrex oils have special anti-wear additive essential for certain hydraulic equipment used for heavy duty operations.

#### APPLICATION

Servohydrex oils are recommended as fluid media in all hydraulic systems where very low operating temperatures are encountered and the application demands use of a very high viscosity index oils.

#### PERFORMANCE BENEFITS

- Easy flow at very low temperatures
- Suitable for a wide range of operating temperatures due to its very high viscosity index
- Provide good protection against wear thereby prolonging service life of moving parts
- Possess excellent resistance to oxidation
- Have reduced foaming tendency
- Provide protection against rust and corrosion

#### APPROVALS

- Servohydrex TH 46 is approved by TELCO for Tata Hitachi excavators.
- Servohydrex 100 is approved by L&T for use in Poclain excavators.

### CHARACTERISTICS

ISO VG	32	TH46	100
Kinematic Viscosity, cSt @ 40°C	29-33	43-48	100-110
Viscosity Index, Min.	160	135	130
Flash Point (COC), °C Min.	140	200	210
Pour Point, °C Max.	(-) 39	(-) 33	(-) 24
Rust Test, (D-665 B, 24 hrs.)	Pass	Pass	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOLINE



IndianOil

### GRADES AVAILABLE - SERVOLINE 32/46/68/100/150/220/320/460

#### DESCRIPTION

Servoline oils are developed for general lubrication of all types of industrial machinery using once-through lubrication system i.e. all-loss system. These oils contain film strength and anti-rust additives to provide improved performance.

#### PERFORMANCE BENEFITS

Servoline oils

- Provide protection against corrosion and rust, even during idle periods
- Maintain thin film of oil under light and medium loads
- Provide good oiliness for general lubrication of machinery, even under boundary lubrication conditions

#### APPLICATION

Servoline oils are recommended for use in the lubrication systems of machine tools, textile machines and other machine parts, which are lubricated by a thin film of oil. Heavier grades of Servoline series are also used in the lubrication of small open gears, under light duty conditions, where the oil is applied intermittently by means of an oilcan.

#### PERFORMANCE STANDARDS

Servoline oils meet the following specification:  
IS : 493 – 1981Part 1 (Reaffirmed 1993)

Servoline oils are approved by the leading machinery manufacturers, such as:

- ACC Vickers Babcock Ltd., Durgapur
- Texmaco Ltd., Calcutta

### CHARACTERISTICS

ISO VG	32	46	68	100	150	220	320	460
Kin. Viscosity, cSt @ 40°C	29-33	42-50	64-72	95-105	145-155	210-230	300-350	440 - 480
Viscosity Index, Min	90	90	90	90	90	90	90	90
Flash Point (COC), °C Min	150	160	175	175	204	220	230	250
Pour Point, °C Max.	0	0	0	0	0	0	0	0
Rust Test, (D-665A,24 hrs)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** [tservices@indianoil.co.in](mailto:tservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCIROL



IndianOil

### GRADES AVAILABLE - SERVO CIROL 32/46/68/100/150

#### DESCRIPTION

Servocirol oils are rust and oxidation inhibited grades intended for use in situations where long service period is desired and improved anti-wear characteristics are not essential.

#### PERFORMANCE BENEFITS

Servocirol oils

- Readily separate from water since they have good demulsibility
- Provide good protection against rust and corrosion during idle periods, even under humid condition stability
- Help in reducing the number of grades, due to its multi-functional properties

#### APPLICATION

Servocirol oils are recommended for:

- Hydraulic systems where anti-wear properties are not specifically needed
- Enclosed industrial gear boxes where EP lubricants are not required
- Lubrication of plain and anti-friction bearings of turbo-feed pumps, turbo blowers, etc,
- Moderate duty, intermittent operating, turbo sets where the oil is generally changed on yearly basis.

#### PERFORMANCE STANDARDS

- IS : 3098 – 1983 (Reaffirmed 1993).
  - DIN- 51524 for hydraulic oils H and H-L (except very low pour point)
  - US Steel requirement No. 135
- Servocirol 32, 46, 68 and 150 meet Cincinnati Milacron, USA specification P-38, P-55, P-54 and P-57 respectively.

#### MANUFACTURERS' APPROVAL

- Cincinnati Milacron, USA

### CHARACTERISTICS

ISO VG	32	46	68	100	150
Kinematic Viscosity, cSt @ 40°C	29-33	43-48	64-72	95-105	145-155
Viscosity Index, Min	95	95	95	90	90
Flash Point, (COC) °C Min	190	200	210	210	230
Pour Point, °C Max	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6
Rust Test, (D-665 B, 24 hrs)	Pass	Pass	Pass	Pass	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOPRESS



IndianOil

### GRADES AVAILABLE - SERVO PRESS 32, 68, 100, 150, 220, 320

#### DESCRIPTION

Servopress oils are air compressor lubricants specially developed to minimise the incidence of fire and explosions in modern air compressors. These oils provide satisfactory lubrication under prolonged high temperature and load conditions, since they are exceptionally stable and are incorporated with antioxidant and rust inhibitor additives.

#### PERFORMANCE BENEFITS

- Provide excellent resistance to oxidation, thus permitting extended oil drain intervals
- Minimise carbon deposits on the valve plates thereby reducing risk of fire and explosion
- Enable trouble free starting at low temperatures
- Provide effective protection against rust and corrosion during routine shut down
- Reduce oil consumption.
- Reduce maintenance cost, due to minimum carbonisation, resulting in optimum valve service life and longer overhaul intervals

#### APPLICATION

Servopress oils are suitable, not only for cylinder lubrication of high performance, portable and stationary reciprocating units, but also for rotary compressors. Servopress oils are recommended for air compressor lubrication with air discharge temperature upto 220°C

#### PERFORMANCE STANDARDS

Servopress oils meet the following specifications:

- ISO DIS – 6521
- DIN – 51506, VD-L

#### MANUFACTURERS APPROVAL

Servopress oils are approved by:

- Atlas Copco (India) Ltd., Pune
- K. G. Khosla Compressors (Pvt.) Ltd., Faridabad.

#### CHARACTERISTICS

ISO VG	32	46	68	100	150	220	320
Kinematic Viscosity, cSt @ 40°C	29-33	43-48	64-72	95-105	145-155	210 – 230	305 – 335
Viscosity Index, Min,	95	95	95	95	95	90	90
Flash Point (COC), °C Min	190	200	204	210	220	230	250
Pour Point, °C Max	(-) 9	(-) 9	(-) 9	(-) 9	(-) 3	(-) 3	(-) 3
Rust Test, (D-665 A&B, 24 hrs.)	Pass	Pass	Pass	Pass	Pass	Pass	Pass

#### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOPRESS C



IndianOil

### GRADES AVAILABLE - SERVO PRESS C 100, C 220

#### DESCRIPTION

Servopress C oils are high quality, compounded mineral lubricants that have been specially developed for use in multistage air and gas compressors handling moist air/gas.

They have excellent resistance to the washing action of water and maintain a strong oil film on compressor cylinder surfaces. Further more, any carbon formed under high temperature condition is soft and fluffy nature having minimum tendency to adhere to discharge valve and other metal surfaces.

#### APPLICATION

Servopress C oils are recommended for cylinder lubrication of single/multistage air compressors handling moist air. These oils are however, generally not recommended for crankcase lubrication.

Servopress C oil form stable emulsion with water and hence provide excellent lubrication to cylinder liners, piston rings, valves etc., while compressing moist air/gas. The use of Servopress C oils enable easy maintenance and provide long service life to equipment.

#### PERFORMANCE BENEFITS

Servopress C oils

- Provide protection against rust and corrosion
- Reduce carbon forming tendency
- Resist Water Washing action, since they maintain strong oil film on metal surface
- Ensure fluidity even at low temperatures
- Minimise oil consumption

#### PERFORMANCE STANDARDS

Servopress C oils are approved by the leading machinery manufacturers, such as:

- Bharat Pumps and Compressors Ltd., Naini

### CHARACTERISTICS

ISO VG	100	220
Kinematic Viscosity, cSt @ 40°C	95-105	230-240
Flash Point, °C Min.	192	222
Pour Point, °C Max	(-) 9	(-) 9
Rust Test, (D-665 A, 24hrs.)	Pass	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR:

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOPRESS T



IndianOil

### GRADES AVAILABLE - SERVO PRESS T32, T46, T57, T68

#### DESCRIPTION

Servopress oils are new series of compressor lubricants specially formulated for use in rotary vane, centrifugal and screw compressors handling ammonia. These oils are based on high quality turbine base stocks and carefully selected antioxidant and rust inhibitors, which are fully compatible with ammonia. They have minimum sludge forming tendency and do not turn red while in contact with ammonia.

#### APPLICATION

Servopress T oils are suitable for turbine driven centrifugal compressors having common circulation system for bearings, couplings and seal oil system handling ammonia. They can also be used for Screw and Vane Compressors in view of their excellent oxidation stability.

#### PERFORMANCE BENEFITS

- Have excellent resistance to oxidation, and sludge formation, which lead to extended oil drain intervals.
- Provide effective protection against rust and corrosion.
- Do not react with ammonia
- Do not turn red while in contact with ammonia.
- Readily separate from water

#### MANUFACTURERS APPROVAL

Servopress T oils are approved by:

- Bharat Heavy Electricals Ltd., Hyderabad
- Consolidated Pneumatic Tool Co (I) Ltd., Mumbai

### CHARACTERISTICS

ISO VG	32	46	57*	68
Kinematic Viscosity, cSt @ 40°C	29-33	43-48	55 - 60	64 – 72
Viscosity Index, Min,	100	98	95	95
Flash Point (COC), °C Min	200	200	204	215
Pour Point, °C Max	(-)6	(-) 6	(-) 6	(-) 6
Rust Test, (D-665 A&B, 24 hrs.)	Pass	Pass	Pass	Pass
Emulsion Test (ASTM D 1401), 40-37-3, Minutes, Max	15	15	20	20

\* Non ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOPRESS LS



IndianOil

### GRADES AVAILABLE - SERVO PRESS LS 320, LS 460

#### DESCRIPTION

Servopress LS oils are specially developed for cylinder lubrication of high pressure syn-gas reciprocating compressors used in fertiliser plants. This oil is blended from carefully selected base stocks having low sulphur content.

Synthetic gas contains Nitrogen and Hydrogen in the ratio of 1: 3 The syn-gas is passed over catalyst beds in convertor where temperature prevails in the range of 550-570°C. Usage of Servopress LS oil, due to its inherent low sulphur, ensures a longer life of the catalyst.

#### PERFORMANCE BENEFITS

Servopress LS oil

- Ensures long life of catalyst, used in convertor
- Minimises wear of cylinder liner and rings

#### APPLICATION

Servopress LS oil is recommended for cylinder lubrication of syn-gas compressor in methanol plants and ammonia plants in fertiliser manufacturing units. The compressors are generally slow speed, multi-stage, high capacity type and operate at high temperatures (130-150°C).

Servopress LS oil is not intended for use as a crankcase lubricant.

### CHARACTERISTICS

ISO VG	320	460
Kinematic Viscosity, cSt @ 40°C	295 - 305	415 - 470
Viscosity Index, Mix.	85	90
Flash Point (COC), °C Min	226	260
Pour Point, °C Max.	(-) 3	(-) 3

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOFRIZ



IndianOil

### GRADES AVAILABLE - SERVO FRIZ 12, 22, 32, 46, 68, 100

#### DESCRIPTION

Servofriz oils are high quality mineral lubricants formulated for the lubrication of reciprocating and rotary refrigeration compressors.

These oils possess inherent resistance to oxidation and deposit formation.

#### PERFORMANCE BENEFITS

- Possess high fluidity at very low temperatures
- Resist deposit formation thereby keeping compressor parts clean
- Reduce compressor valve maintenance due to less deposits
- Ensure high condenser efficiency
- Have long service life due to high oxidation and thermal stability
- Have reduced tendency to foam
- Minimise copper plating due to their resistance to interact with metals in the system

#### APPLICATION

Servofriz oils are recommended for the lubrication of a wide range of refrigeration compressors. These oils can be used with conventional refrigerants, except sulphur di-oxide, in both reciprocating and rotary compressors.

They are also suitable for use in properly designed and well maintained refrigeration systems, where evaporator temperatures are lower than the pour point of the oil.

#### PERFORMANCE STANDARDS

Servofriz oils meet the following specification:

- IS : 4578-1989
- Servofriz 68 meets Carrier Corporation, USA specification No. PP 46-1

#### MANUFACTURERS APPROVAL

Servofriz oils are approved by the leading refrigeration compressor manufactures, such as:

- Bharat Heavy Electricals Ltd., Hyderabad
- Bharat Pumps and Compressors Ltd., Naini
- Frick India Ltd., Faridabad

### CHARACTERISTICS

ISO VG	12*	22	32	46	68	100
Kinematic Viscosity, cSt @ 40 °C	12-14	20-24	33-35	43-46	63-65	90 - 100
Flash Point (COC), °C Min.	140	150	154	160	170	200
Pour Point, °C Max.	(-) 39	(-) 45	(-) 30	(-) 27	(-) 24	(-) 24

\* Non ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVOPRIME & LP

IndianOil

### GRADES AVAILABLE - SERVO PRIME 32/46/68/100/ 32LP/46LP/68LP

#### DESCRIPTION

Servoprime oils premium quality lubricants especially formulated to give outstanding performance and long life in modern steam, gas and hydraulic turbines. Servoprime oils are manufactured from selectively refined distilled base stocks and contain carefully chosen antioxidant, rust inhibitor and defoamant additives. Servoprime LP oils are special purpose low pour turbine oils.

These oils have been tested for radiation stability and found suitable for use in turbines exposed to radiation encountered in nuclear power plants.

#### PERFORMANCE BENEFITS

- Provide excellent long term protection against rust and corrosion
- Readily separate from water
- Ensure long service life since they possess outstanding oxidation stability
- Reduced tendency to foam
- Able to release entrained air at a rapid rate

#### APPLICATION

Servoprime oils are recommended for use in the lubrication system of steam, gas and hydraulic turbines operating under all service conditions. In addition, Servoprime oils give outstanding performance in hydraulic systems, circulating lubrication systems, enclosed bearings and other industrial machines in which long trouble free service of lubricant is required. Servoprime LP oils are meant for low temperature applications such as Rotoflow expanders and Turbo-compressors used in refrigeration applications.

#### PERFORMANCE STANDARDS

Servoprime oils meet the following specification:

- Turbine oil requirements of BHEL
- BS 489/1983
- GE, USA specification GEK-27070
- IS: 1012 1987-1987 (Reaffirmed)

#### MANUFACTURERS' APPROVAL

- Bharat Heavy Electricals Ltd., Bhopal
- Bharat Heavy Electricals Ltd., Hardwar

### CHARACTERISTICS

ISO VG	32	46	57*	68	100	32LP	46LP	68LP
Kinematic Viscosity, cSt @ 40°C	29-33	43-48	55-60	64-72	95-105	29-33	43-48	64-72
Viscosity Index, Min.	100	98	95	95	95	100	98	95
Flash Point, (COC), °C Min.	200	200	210	210	220	200	200	210
Pour Point, °C Max.	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6	(-) 30	(-) 30	(-) 30
Neutralisation No. mg KOH/gm	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Rust Test, (D-665 A&B, 24 hrs.)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

\* Non ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVOPRIME T & A

IndianOil

### GRADES AVAILABLE – SERVOPRIME 32T, 46T, 57T\*, 68T, 32A

#### DESCRIPTION

Servoprime T oils have been specially formulated to satisfy the demanding requirements of modern high-output steam turbines including their gear units. Servoprime T oils show exceptionally good oxidation stability, excellent demulsibility and prevent foaming tendency. These also possess good air release property. These properties are retained during prolonged service life and helps in giving outstanding performance and trouble free service.

Servoprime 32 A provides extra antiwear and oxidation protection. This increases life of the load gears and prevents deposits induced troubles in critical turbine systems.

#### APPLICATION

Servoprime T oils are recommended for use in the lubrication system of steam, gas and water turbines operating under all service conditions. In addition, Servoprime T oils provide outstanding performance in hydraulic systems, circulation systems, enclosed bearings and other industrial machines in which long trouble free service of lubricant is required.

Servoprime 32 A has been specially developed for GEC Alsthom Turbines.

#### PERFORMANCE BENEFITS

- # Outstanding oxidation and thermal stability that ensure long trouble free service life.
- # Provide excellent antiwear protection.
- # Give excellent long term protection against rust and corrosion.
- # Prevent foaming tendency.
- # Release entrained air quickly.
- # Readily separates out water.

#### PERFORMANCE STANDARDS

Servoprime T oils exceed the following specifications :

- # Brown Boveri HTGD 90117
- # GEK 28143A
- # SIEMENS (TLU 901304)

Servoprime 32 A is approved by the leading Gas Turbine manufacturers:

- \* GEC Alsthom, France

### CHARACTERISTICS

ISO V	32T	46T	57T *	68T	32A
Kinematic Viscosity, cSt @ 40°C	29-33	43-48	55-60	64-72	29-33
Viscosity Index, Min.	100	98	95	95	100
Flash Point, (COC), °C Min.	200	200	210	210	200
Pour Point, °C Max.	(-) 6	(-) 6	(-) 6	(-) 6	(-) 6
Neutralisation No. mg KOH/gm	0.2	0.2	0.2	0.2	0.2
Rust Test, (D-665 B, 24 hrs.)	Pass	Pass	Pass	Pass	Pass
FZG Rating Failure Stage	8	8	8	8	10

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVOPRIME LL

**IndianOil**

**GRADES AVAILABLE – SERVOPRIME 32 LL, 46 LL, 68 LL,**

### DESCRIPTION

Servoprime LL oils are premium quality turbine oils especially formulated for long life in modern turbines. Servoprime LL oils are manufactured from selectively refined base stocks and contain carefully chosen antioxidant, rust inhibitor and defoamant additives.

### APPLICATION

Servoprime LL oils are recommended for use in lubrication system of modern steam, gas and hydraulic turbines operating under all service conditions.

### PERFORMANCE BENEFITS

- Higher oxidation stability reserve, almost two times.
- Superior antiwear and extreme pressure characteristic.
- Exceeds the requirement of all national and international specifications.
- Is a potential oil for providing problem free long life for high severity turbines of modern power plants.

### PERFORMANCE STANDARDS

- IS:1012-1987 (Reaffirmed 1993)
- BS:489-1993

### MANUFACTURERS APPROVAL

- BHEL, Haridwar

### CHARACTERISTICS

ISO VG	32	46	68
Kinematic Viscosity @ 40°C	29 – 35	42 – 50	64 – 72
Viscosity Index, Min	100	98	95
Pour Point, °C, Max	(-) 6	(-) 6	(-) 6
Flash Point, °C, Min	200	200	210
Rust Test, D-665B, 24 hrs.	Pass	Pass	Pass
Emulsion Test @ 54°C D-1401, Minutes,	20	20	20

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVOMESH SP

IndianOil

### GRADES AVAILABLE - SERVO MESH SP 68/100/150/220/257/320/460/680/1000

#### DESCRIPTION

Servomesh SP oils are extreme pressure type industrial gear lubricants. These oils demonstrate improved thermal stability and oxidation resistance over conventional lead-naphthenate oils. They have good demulsibility characteristics, low foaming tendency and provide rust and corrosion protection to metal surfaces.

#### PERFORMANCE BENEFITS

- Have reduced tendency to foam
- Provide high load carrying ability
- Ensure excellent wear protection
- Ensure long service life since they have good oxidation and thermal stability
- Minimise the formation of sludge and deposits, even at high bulk oil temperatures
- Ensure ready separation from water due to good demulsibility property
- Protect metals against rust and corrosion

#### APPLICATION

Servomesh SP oils are recommended for all types of enclosed gear drives with circulation or splash lubrication systems. Servomesh SP oils are particularly recommended for gear sets working under heavy or shock load conditions. These oils can be used in systems involving gears, plain bearings, roller bearings and sliding surfaces. They are also suitable for chain drives, sprockets, flexible couplings, plain and rolling element bearings employing splash, circulation and spray lubrication systems

#### PERFORMANCE STANDARDS

- AGMA standard 250.04
  - ASLE standard G-315, G-1000, G-1500 and G-2150
  - IS: 8406 – 1993
  - US Steel requirement No. 222 and 224
- Servomesh SP 68, 100, 150, 220, 320 and 460 meet Cincinnati Milacron, USA specification No. P-63, P-76, P-77, P-74, P-59 & P-35 respectively.

#### MANUFACTURERS' APPROVAL

- Servomesh SP oils are approved by
- Cincinnati Milacron, USA
  - David Brown Gear Industries Ltd., UK

### CHARACTERISTICS

ISO VG	68	100	150	220	257*	320	460	680	1000
Kin. Vis. cst @ 40°C	64 - 72	95 - 105	145 - 155	210 - 230	250 - 280	320 - 350	420 - 500	615 - 660	980 - 1050
Viscosity Index, Min.	90	90	90	90	90	90	90	90	80
Flash Point (COC), °C Min	204	204	204	232	232	232	232	232	280
Pour Point, °C Max.	(-) 6	(-) 6	(-) 6	(-) 3	(-) 3	(-) 3	(-) 3	(-) 3	(+) 6
FZG Rating, 12th Stage	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

\* NON ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVOMESH EE

IndianOil

### GRADES AVAILABLE – SERVOMESH EE 220, 257\*, 320, 460, 680

#### DESCRIPTION

Servomesh EE oils are Energy Efficient industrial gear oils, represent a new and significant advancement in gear lubricant technology. It satisfies the new era's demands – “Energy Savings” and “Resource Conservation” through reduction in frictional losses, extension of gear life and prevention of irregular wear. The superior performance of these oils has been proven in field conditions especially in heavily loaded industrial gear systems. The oils demonstrate improved thermal stability and oxidation resistance over the conventional Sulphur-Phosphorus (S-P) gear oils. These oils possess good demulsibility, low foaming tendency and provide excellent rust and corrosion protection to metal surfaces.

#### PERFORMANCE BENEFITS

- Improve gear efficiency.
- Have outstanding load carrying ability.
- Reduce power consumption and provide energy savings.
- Lower bulk oil temperature.
- Provide smooth running through reduced vibration and noise.
- Minimise formation of sludge and deposits even at high temperatures.
- Protect components against rust and corrosion.

#### APPLICATION

Servomesh EE gear oils provide significant energy savings in industrial gear systems when compared to conventional S-P gear oils. Servomesh EE gear oils meet the most stringent requirements of the modern gear lubricant. These oils are recommended for all types of enclosed gear drives, heavily loaded bearings and industrial gears running at high speeds, high pressures and under impact loads with circulation or splash lubrication systems.

#### PERFORMANCE STANDARDS

Servomesh EE gear oils meet the following specifications:

- US STEEL 224
- DIN 51517 PART 3
- DRAVID BROWN SL:53.101
- FORD MOTOR CO. M-2C 142C
- CINCINNATI MILACRON P-59
- IPSS-1-09-003
- AGMA 250.04
- IS: 8406 : 1993

### CHARACTERISTICS

ISO VG	220	257*	320	460	680
Kinematic Viscosity @ 40°C, cSt	210-230	250-280	320 – 350	420 - 500	615 – 660
Viscosity Index, Min.	90	90	90	90	90
Flash Point (COC), °C, Min.	230	230	232	232	232
Pour Point, °C, Max	(-) 3	(-) 3	(-) 3	(-) 3	(-) 3
Rust test (D-665 B)	Pass	Pass	Pass	Pass	Pass
FZG, Rating Stage, Pass	12	12	12	12	12

\* Non ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCYL C



IndianOil

### GRADES AVAILABLE - SERVOCYL C 460/530/680/800

#### DESCRIPTION

Servocyl C oils are highly refined steam cylinder lubricating oils, compounded with specially selected materials, which can withstand high temperatures, These oils have excellent oiliness, good film strength characteristics and resist water wash out.

#### PERFORMANCE BENEFITS

Servocyl C oils

- Enable higher loading of equipment, due to its high-load carrying ability
- Reduce wear of cylinder walls and piston rings
- Provide Protection against rust and corrosion
- Resist scouring action of steam
- Minimise tendency of deposit formation at elevated temperatures
- Resist severe water washing, due to excellent adhesive property

#### APPLICATION

Servocyl C oils are recommended for steam cylinder lubrication under wet saturated steam conditions.

These oils are not suitable for such applications where the steam condensate is re-used by mixing with boiler feed water. These oils are also recommended for lubrication of worm gears. Other major uses include lubrication of paper and textile mill calendar bearings and sugar mill roller bearings.

#### PERFORMANCE STANDARDS

Servocyl C 460 & 800 meet end-use requirements of IS: 1589-1966 Grade 1 Type 2 and Grade 2 Type 2 respectively.

Servocyl C oils are approved by the leading machinery manufacturers, such as:

- Bharat Heavy Electricals Ltd., Trichy
- Bharat Pumps and Compressors Ltd., Naini

### CHARACTERISTICS

ISO VG	460	530 *	680	800
Kinematic Viscosity, cSt @ 40°C	450-500	520-560	640-680	780-820
Viscosity Index, Min.	90	90	85	85
Flash Point (COC), °C Min.	280	280	280	280
Pour Point, °C Max	6	6	6	6
CCR, % wt., Max	2.5	3.5	3.5	3.5

\* Non ISO VG

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCYL M



IndianOil

### GRADES AVAILABLE - SERVOCYL M 680/1000/1500

#### DESCRIPTION

Servocyl M oils are highly refined steam cylinder lubricants having excellent thermal and chemical stability. These oils provide good resistance to the washing effect of moisture and separate easily from exhaust steam and condensate.

Servocyl M oils are non-additive treated mineral oils, blended from high quality, specially refined, high viscosity index base stocks.

#### APPLICATION

Servocyl M oils are recommended for cylinder lubrication of steam engines handling superheated steam. These oils are specially suitable for services demanding straight mineral oil where –in ready separation of condensate from lubricant is necessary so that the condensate can be further used in certain process work.

These oils are not recommended for wet steam conditions.

#### PERFORMANCE BENEFITS

Servocyl M oils

- Enable higher loading of equipment, since they have high-load carrying ability
- Minimise wear of cylinder wall and piston rings
- Protect engine parts against rusting and corrosion
- Reduce steam consumption, due to excellent sealing characteristics and low frictional losses
- Minimise tendency of deposit formation at elevated temperatures

#### PERFORMANCE STANDARDS

Servocyl M 1000 meets the following specification :

- IS : 1589-1960 with amendment No. 1 of 1966 for Cylinder Oil Grade 2, Type 1 with minor deviation in flash point requirement

### CHARACTERISTICS

ISO VG	680	1000	1500
Kinematic Viscosity, cSt @ 40°C	640-680	980-1050	1450-1550
Viscosity Index, Min.	85	80	80
Flash Point (COC), °C Min.	280	280	280
Pour Point, °C Max.	6	6	6
CCR, % Wt., Max.	3.5	3.5	4.5

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVO SM

IndianOil

### GRADES AVAILABLE - SERVO SM 85, 175, 260

#### DESCRIPTION

Servo SM oils have been exclusively developed from heavy bodied lube base stocks and contain selected non toxic mild EP additives to meet the requirements of heavily loaded, slow speed, mill-roll bearings in sugar mills.

These oils provide excellent lubrication and prevent wear and corrosion of bearings under all operating conditions. Being viscous, they have excellent resistance to leakage and contain special compounding agents to ensure efficient lubrication of machine elements even in the presence of juice.

#### APPLICATION

Servo SM oils are recommended for the lubrication of sugar mill crusher and mill-roll bearings. These oils are generally applied by means of mechanical force feed lubricators.

In certain industries, these grades are used in centralised lubrication system of slow speed spur and helical gears and for slush pan lubrication of open gears.

#### PERFORMANCE BENEFITS

- Provide excellent protection against rust and corrosion even in presence of fermented sugar cane juice
- Have outstanding lubricating properties thereby permitting increased hydraulic loading of top-roll thus improving extraction efficiency
- Ensure minimum oil consumption
- Withstand severe washing action, due to good adhesive properties
- Provide tenacious film that clings on to the bearing surfaces even under severe operating conditions. This permits the bearing to run at normal established operation temperature.

#### MANUFACTURERS APPROVAL

Servo SM oils are approved by the leading sugar machinery manufactures, such as:

- Backau Wolf New India Engg. Works Ltd., Pune
- K. C. P. Ltd., Madras

#### CHARACTERISTICS

GRADE	85	175	260
Kinematic Viscosity, cSt @ 100°C	38-45	78-88	120-130
Flash Point (COC), °C Min.	230	250	250
Pour Point, °C Max.	6	6	9
Copper strip corrosion, for 3 hrs., @ 100°C	1	1	1

#### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCOAT



IndianOil

### GRADES AVAILABLE – SERVOCOAT 110, 120, 140, 170T, 190

#### DESCRIPTION

Servocoat compounds are heavy bodied, adhesive type black lubricants for open gears, wire rope and chain lubrication.

These gear compounds are formulated using highly refined steam cylinder oils having excellent thermal and chemical stability. They contain specially selected bituminous component, which provides excellent adhesiveness. High load carrying characteristics are imparted to the product by a mild EP additive.

#### PERFORMANCE BENEFITS

- ☞ Ensure excellent protection of gear teeth under boundary lubrication conditions.
- ☞ Have excellent film adhesiveness thus minimise lubricant throw off.
- ☞ Provide long lasting lubricating film, which takes care of irregular application in small quantity, thus reducing lubrication cost.
- ☞ Protect components against rusting even during idle periods.
- ☞ Have good resistance against water washing.

#### APPLICATION

Servocoat compounds are primarily designed for the lubrication of a wide variety of open gears ranging from machine tools/small presses to heavily loaded open gears in cement factories, coal mines, etc. These grades are also suitable for lubrication of kiln tyres, operating at high temperatures, in cement mills and chemical plants. Open gears have been found to be sparsely lubricated at irregular intervals. In such situations a microscopic film of lubricant should be able to withstand the load and prevent metal-to-metal contact. Servocoat compounds form highly tenacious film on metals and thus give excellent performance under severe operating conditions. Servocoat compounds are also suitable for lubrication of wire ropes and chains. This product should not be used in food processing industries.

#### MANUFACTURERS APPROVAL

- ☞ ACC – Vickers Babcock Ltd., Shahabad
- ☞ Braithwaite & Co (India) Ltd., Calcutta
- ☞ Backau Wolf New India Engg. Works, Pune
- ☞ EIMCO – KCP Ltd., Madras

### CHARACTERISTICS

GRADE	110	120	140	170T*	190
Kinematic Viscosity, cSt @ 100°C	80-120	220 – 250	400 – 550	710 – 760	900 - 1100
Flash Point (COC), °C Min.	250	250	280	280	280
Copper strip corrosion, 100°C, 3 hrs Max	1	1	1	1	1
Timken OK load, Kg, Min	15	15	15	15	15

\* Also contains special tackiness agent

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

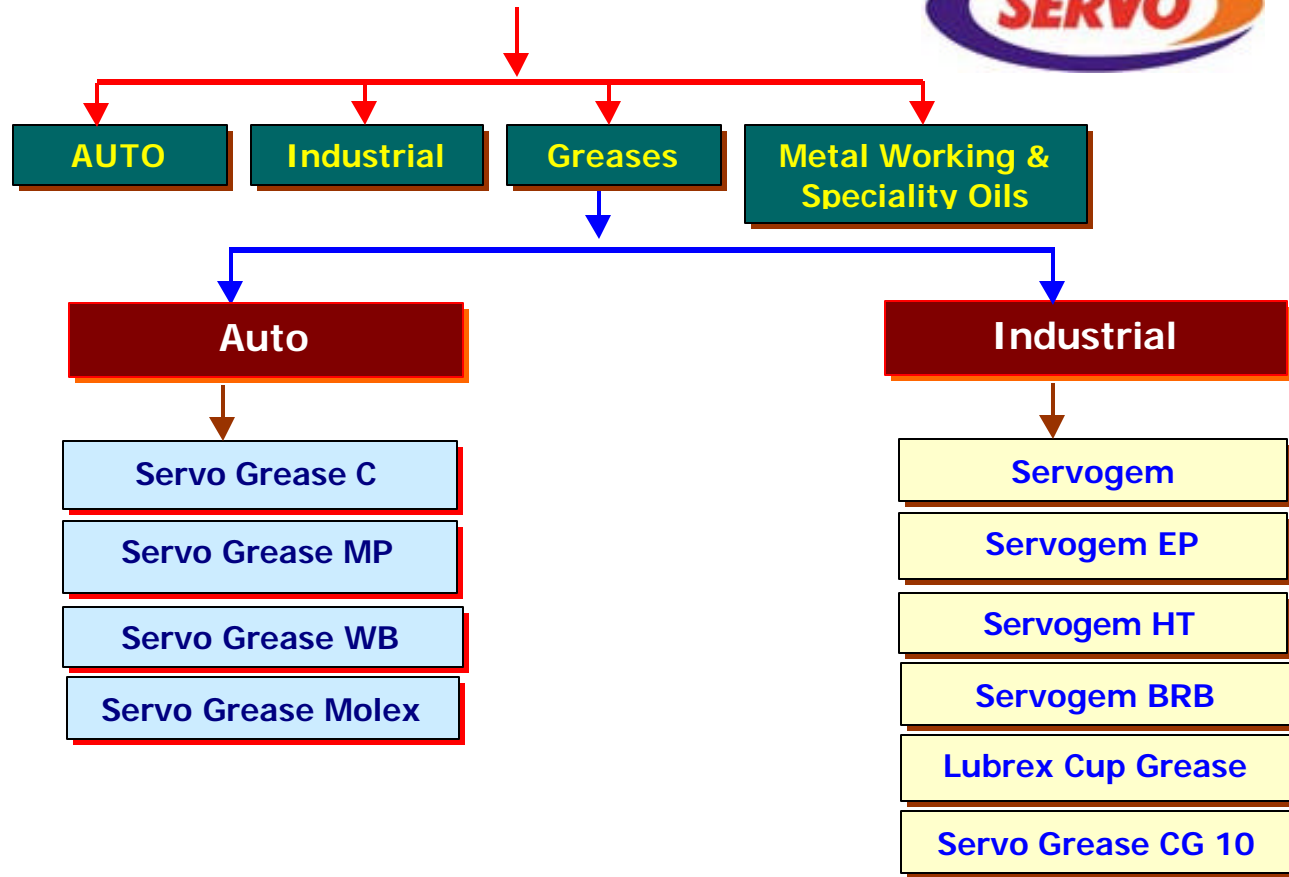
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# SERVO<sup>®</sup> PRODUCT DATA SHEET





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO GREASE C



IndianOil

### GRADES AVAILABLE – SERVOGREASE C

#### DESCRIPTION

Servo Grease C is premium quality calcium base grease, specially developed for the lubrication of automotive chassis parts. It possesses strong affinity for metal surfaces with extremely good stay-put properties and adequate water resistance. As a result, the applied lubricant film is not displaced even under repeated shock-loads and vibrations.

#### APPLICATION

Servo Grease C has adequate consistency to serve as an effective heavy duty chassis grease, with high load carrying ability. It is suitable for all chassis parts including suspension and steering system of automobiles. This grease can also be recommended for open and semi enclosed gearings and chain drives of farm equipment.

#### PERFORMANCE BENEFITS

- Provides excellent resistance to water wash and displacement under shock-loads.
- Ensures protection against wear by preventing metal to metal contact.
- Has equally good dispensing qualities in summer and winter
- Provides protective coating to exposed parts of equipment, during temporary storage.

#### PERFORMANCE STANDARDS

Servo Grease C is approved by the leading manufacturers, such as :

- Bajaj Tempo Ltd., Pune
- Hindustan Machine Tools Ltd., (Tractor Division), Pinjore
- Hindustan Motors Ltd., Calcutta
- Kirloskar Pneumatic Co. Ltd., Pune
- Larsen & Toubro Ltd., Bombay
- Premier Automobiles Ltd., Mumbai

### CHARACTERISTICS

Colour	Brown to Dark Brown
Structure	Smooth
Soap Type	Calcium
Worked Penetration, @25°C, (60 Strokes)	310-340
Drop Point, °C Min.	90

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO GREASE MP



IndianOil

### GRADES AVAILABLE – SERVOGREASE MP, MP 3

#### DESCRIPTION

Servo Grease MP is a premium quality lithium soap, multi-purpose automotive grease, with high drop point, good thermal and structural stability and also having resistance against water wash out. With its smooth structure and high degree of resistance against oxidation and rusting/corrosion it is an ideal product for all grease lubricated parts of automotive equipment.

#### APPLICATION

Servo Grease MP is recommended for water pump, wheel bearings, chassis fittings and universal joints, including those of constant velocity type, for mobile equipment e.g., automotive, off- highway equipment such as tractors, construction equipment etc.

#### PERFORMANCE BENEFITS

- Provides excellent resistance to structural and consistency changes, over wide range of temperatures but remains in place despite severe working or sustained shock impact
- Has excellent low and high temperature properties. It can be dispensed at low temperatures and will maintain adequate stay-put property at the higher temperatures encountered in service
- Resists effectively, water wash out in use, assuring adequate lubrication over extended service periods
- Provides resistance to oxidation, rust and corrosion

#### PERFORMANCE STANDARDS

Servo Grease MP meets IS:12203:1987 (Reaffirmed 1993)

#### MANUFACTURER'S APPROVAL

Servo Grease MP is approved by the leading manufacturers, such as :

- Ashok Leyland Ltd., Madras
- Bharat Earth Movers Ltd., Bangalore
- Escorts Ltd. (Tractor Division), Faridabad
- Hindustan Machine Tools, (Tractor Division), Pinjore
- Premier Automobiles Ltd., Mumbai

### CHARACTERISTICS

GRADE	Grease MP	Grease MP 3
Colour	Brown	Brown
Structure	Smooth	Smooth
Soap Type	Lithium	Lithium
Worked Penetration, @25°C, (60 Strokes)	270-310	220-250
Drop Point, °C Min.	180	180

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO GREASE WB



IndianOil

### GRADES AVAILABLE – SERVO GREASE WB

#### DESCRIPTION

Servo Grease WB is a premium quality, sodium soap grease with short fibres and good structural stability.

This grease is specially formulated to give long service life to anti-friction bearings of light and heavy vehicles

#### APPLICATION

Servo Grease WB is recommended for trouble-free lubrication and protection of wheel bearings and various other automotive components which do not get exposed to moisture. Servo grease WB being soda soap grease, is susceptible to water wash out and hence not suitable for water pump bearing lubrication.

#### PERFORMANCE BENEFITS

- Maintains structural stability in wheel bearing application, even under the most strenuous operation of the automotive vehicles
- Withstands effectively, excessive churning and provides trouble-free long service
- Possesses appropriate pumpability for easy application by grease guns and other manual or power operated dispensing equipment
- Ensures excellent protection to the lubricated parts

#### PERFORMANCE STANDARDS

Servo Grease WB meets IS:10647:1983 (Reaffirmed 1993).

#### MANUFACTURERS APPROVAL

Servo Grease WB is approved by -

- Hindustan Motors Ltd., Calcutta
- Hindustan Machine Tools Ltd., (Tractor Division), Pinjore
- Premier Automobiles Ltd., Mumbai
- Tata Engineering & Locomotive Co. Ltd., Pune
- Revathi CP Equipments Ltd., Coimbatore

### CHARACTERISTICS

Colour	Greenish Brown
Structure	Short fibre
Soap Type	Sodium
Base Oil, Kinematic Viscosity, cSt @ 100°C	15 – 20
Worked Penetration, @ 25°C, (60 Strokes)	250-280
Drop Point, °C Min.	170

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO GREASE MOLEX



IndianOil

### GRADES AVAILABLE – SERVO GREASE MOLEX

#### DESCRIPTION

Servo Grease Molex is superior multi-purpose lithium base grease, compounded with finely dispersed molybdenum di-sulphide. The MoS<sub>2</sub> being a very effective solid lubricant with extremely good anti-scuffing property gives additional protection to the moving parts even under very severe shock load conditions when the grease components may get squeezed out.

#### PERFORMANCE BENEFITS

- ☞ Resists thinning out even under excessive working in bearings, thereby ensuring minimum leakage and extended service life.
- ☞ Resists effectively, water wash out in use.
- ☞ Has minimum chemical deterioration over extended periods in storage and service.
- ☞ Provides excellent low and high temperature properties. It can be dispensed at low temperatures and maintains adequate stay put property at the higher temperature.
- ☞ Provides solid film lubrication, thus reduces friction between sliding surfaces, resulting in optimum service life of the moving parts.

#### APPLICATION

Servo Grease Molex is recommended for chassis fittings, wheel bearings, grease cups, grease lubricated universal joints and other lubrication points in passenger cars, trucks, buses, farm tractors, mobile construction equipment as well as other earth-moving machinery.

This grease has been found suitable for industrial application where lithium base grease with molybdenum is required.

#### PERFORMANCE STANDARDS

Servo Grease Molex meets IS : 12203:1987 (Reaffirmed 1993)

#### MANUFACTURER'S APPROVAL

Servo Grease Molex is approved by the leading manufacturers, such as:

- ✍ Bharat Earth Movers Ltd., Bangalore
- ✍ Bharat Heavy Electricals Ltd., Hyderabad

### CHARACTERISTICS

Colour	Greyish Black
Structure	Smooth
Soap Type	Lithium
Worked Penetration, @ 25 °C, (60 Strokes)	265-295
Drop Point, °C Min.	180

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOGEM



IndianOil

### GRADES AVAILABLE – SERVOGEM 2, 3

#### DESCRIPTION

Servogem greases are premium quality, lithium soap, multipurpose industrial greases. These greases possess excellent water resistance properties, high oxidation stability, maximum structure stability, high level of anti-rust and anti-corrosion properties. They give outstanding performance under varying operating conditions. These grades are suitable for lubrication under sub-zero (-25°C) to reasonably high (140°C) temperature conditions.

Servogem 2 has excellent pumpability characteristic.

#### APPLICATION

Servogem greases are industrial products which enjoy all round acceptance for both anti-friction and plain bearing lubrication.

Servogem greases are widely used in steel plants, heavy engineering units, textile mills, fertilizer plants, heavy engineering units, textile mills, fertilizer plants, petrochemical/chemicals units, paper mills, jute mills, etc.

#### PERFORMANCE BENEFITS

Servogem Greases

- ☞ has excellent high and low temperature properties. It can be dispensed at low temperatures and will maintain adequate stay put property at the higher temperatures.
- ☞ resists effectively water washout in use.
- ☞ Provides resistance to oxidation, rust and corrosion assuring adequate lubrication over extended service periods.

#### PERFORMANCE STANDARDS

Servogem greases meet the following specification:

- British Timken ALG 1/57
- IS: 7623-1993
- IPSS:1-09-006
- US Steel 374

#### MANUFACTURERS APPROVAL:

Servogem greases are approved by the leading machinery manufacturers, such as:

- ACC Vickers-Babcock Ltd., Shahabad
- Bharat Pumps & Compressors Ltd., Naini
- National Engineering Industries Ltd., Jaipur

### CHARACTERISTICS

NLGI GRADE	2	3
Colour	Light Brown	Light Brown
Structure	Smooth	Smooth
Soap Type	Lithium	Lithium
Worked Penetration @ 25°C, (60 Strokes)	265-295	220-250
Drop Point, °C Min.	180	180

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** [tservices@indianoil.co.in](mailto:tservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOGEM HT & HTXX



IndianOil

### GRADES AVAILABLE – SERVOGEM HT & HTXX

#### DESCRIPTION

Servogem HT & HTXX are non soap base greases. Servogem HT is brown in colour and Servogem HTXX is grayish black, due to the addition of chemically stable Molybdenum disulphide. The presence of MoS, in Servogem HTXX makes it particularly suitable for lubrication of machine elements operating under high temperature conditions. High load bearing properties imparted by MoS<sub>2</sub> and special anti-wear, antioxidant additives, ensure full protection to lubricated parts.

#### PERFORMANCE BENEFITS

Servogem HT & HTXX greases

- have excellent resistance to oxidation thereby enabling it to withstand sustained exposure to high temperatures
- Ensure minimum softening and loss of structure at high temperatures, even when subjected to substantial shear
- Have excellent resistance to water wash out
- Resist effect of mild acids and alkalies

#### APPLICATION

Servogem HT grease has been developed for the lubrication of machine elements, plain bearings and anti-friction bearings operating under high temperature conditions (between 120°C to 250°C). Servogem HT is recommended for calendar roll bearings of textile mills, paper mills and PVC filling machines, hot air exhausters/blowers, high temperature stuffing boxes etc.

Servogem HTXX is recommended for soot blowers of power plants, slides and other moving parts of overhead cranes for soaking pits in steel mill, track rollers of earth moving equipment, billet feeder bearings in rolling mills and bogie cars in sintering plants, etc.

#### PERFORMANCE STANDARDS

Servogem HT & HTXX greases meet US Steel requirement No. 372, IPSS 1-09-008 and IS:12790-1989

#### MANUFACTURERS' APPROVAL

Servogem HT greases are approved by :

- ACC Vickers-Babcock Ltd., Durgapur
- K.C.P. Ltd., Madras

### CHARACTERISTICS

GRADE	HT	HTXX
Colour	Brown	Greyish Black
Structure	Smooth	Smooth
Soap Type	Non-soap	Non-soap
Worked penetration, @ 25°C, (60 Strokes)	265-295	265-295
Drop Point, °C Min.	280	280

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOGEM EP



IndianOil

### GRADES AVAILABLE – SERVOGEM EP 00, EP 0, EP 1, EP 2

#### DESCRIPTION

Servogem EP greases are premium quality lithium soap base products containing an extreme pressure additive. These grades are specially formulated to meet the demand of an EP grease for boundary lubrication conditions so as to prevent excessive wear, localised welding or seizure often associated with such severe operating conditions.

Servogem EP greases possess excellent shear stability, high load carrying capacity, high oxidation stability and capability to provide protection against rust and corrosion.

#### PERFORMANCE BENEFITS

- Possess excellent dispensing properties at low and high temperature, ensuring trouble free lubrication with centralise lubrication system
- Protect machine elements from excessive wear
- Prevent welding and seizure of the moving parts often caused by shock loading
- Protect bearing elements against rust and corrosion
- Resist water wash out thus assuring adequate lubrication over extended service intervals

#### APPLICATION

Servogem EP greases are recommended for the lubrication of both plain and anti-friction bearings in a wide variety of application such as automotive and earth moving equipment, gear couplings, electric motors, mining equipment and general industrial machinery.

#### PERFORMANCE STANDARDS

Servogem EP 0, EP 1 & EP 2 meets IS:7623-1993(EP Type).

Servogem EP 2 also meets IPSS:1-09-005.

Servogem EP greases are approved by the leading machinery manufacturers, such as:

- ACC-Vickers-Babcock Ltd., Durgapur
- BHEL, Hardwar/ Hyderabad
- Bharat Pumps & Compressors Ltd., Naini
- Heavy Engineering Corporation Ltd., Ranchi
- Hindustan Motors Ltd. (Earth Moving Equipment Division), Trivellore
- MECON, Ranchi
- BEML, Mysore,
- MEYA Transmissions, Pune

### CHARACTERISTICS

NLGI GRADE	00	0	1	2
Colour	Brown to Dark Brown	Brown to Dark Brown	Brown to Dark Brown	Brown to Dark Brown
Structure	Smooth	Smooth	Smooth	Smooth
Soap Type	Lithium	Lithium	Lithium	Lithium
Worked Penetration, @ 25°C, (60 X)	400-430	355-385	310-340	265-295
Drop Point, °C Min.	170	180	180	180

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** [tsservices@indianoil.co.in](mailto:tsservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOGEM BRB



IndianOil

### GRADES AVAILABLE – SERVOGEM BRB NO.3

#### DESCRIPTION

Servogem BRB No. 3 is premium grease has short fibrous structure and good oxidation stability. It gives satisfactory performance even on long usage at the moderately high operating temperature (120°C max). This grease also provides excellent protection against rust and corrosion

#### PERFORMANCE BENEFITS

Servogem BRB No.3 grease

- has excellent retention property thereby reducing consumption
- provides protection against corrosion
- assures trouble free service for long periods
- provides ease of application

#### APPLICATION

Servogem BRB No. 3 grease is suitable for lubrication of anti-friction and plain bearings over a wide range of temperature under moderate loads. It is well suited for application by screw-down lubrication system of rolling mills, packed journal bearings and anti-friction.

Being a soda soap grease its resistance to water is limited and hence not recommended for such application where heavy condensation of moisture and water ingress is unavoidable.

Servogem BRB No. 3 has been widely accepted for use in textile mills packed bearings of machine tools, electric motors and similar equipment.

### CHARACTERISTICS

Colour	Light Brown
Structure	Short Fibre
Soap Type	Sodium
Worked Penetration, @ 25°C, (60Strokes)	265-295
Drop Point, °C Min.	150

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## LUBREX CUP GREASE



IndianOil

### GRADES AVAILABLE – LUBREX CUP GREASE 2&3

#### DESCRIPTION

Lubrex Cup Greases are smooth structured, pale yellow coloured calcium soap greases. These greases possess good water resistance characteristic and can be used for lubrication of machine elements operating in conditions where water ingress cannot be avoided.

#### PERFORMANCE BENEFITS

- Perform satisfactorily even in wet conditions since they possess superior water resistance quality
- Possess excellent shear stability
- Provide ease of application by manual lubrication equipment, since they have excellent dispensing property

#### APPLICATION

Lubrex Cup Greases are recommended widely for plain bearings operating under moderate to low temperatures (60°C to 0°C) Where the churning and vibrations are not excessive. The consistency of these greases allows for application by compression grease cups and hand grease guns. Lubrex Cup Greases are recommended for general purpose lubrication. They are not suitable for high temperature applications and situations demanding grease with extreme pressure characteristics.

#### PERFORMANCE STANDARDS

Lubrex Cup Greases meet the following specification:

- IS : 506-1993 Grade 2 and 3 for automotive greases

Lubrex Cup Grease 3 meets the following specification:

- IS : 507-1993 for general purpose grease

### CHARACTERISTICS

NLGI GRADE	2	3
Colour	Yellow To Brown	Yellow to Brown
Structure	Smooth	Smooth
Soap Type	Calcium	Calcium
Worked Penetration, @ 25°C, (60 Strokes)	265-295	220-250
Drop Point, °C Min.	88	88

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOGREASE CG-10



IndianOil

### GRADES AVAILABLE – SERVOGREASE CG-10 ( 500, 1000, 2500)

#### DESCRIPTION

Servogrease CG-10 is a semi-fluid lubricant based on highly viscous mineral oil and aluminium soap as thickener. Special additives and fine colloidal graphite make Servogrease CG-10 an excellent operational lubricant for open girth gears having spray system of lubrication. The product is available with base oils in three different viscosity grades (500, 1000 & 2500).

Servogrease CG-10 is manufactured from highly refined mineral oil, Aluminium soap and superior quality additives. The product is produced in a most modern and sophisticated grease plant under strict manufacturing and quality control measures.

#### APPLICATION

Servogrease CG-10 is a specially designed lubricant for girth gears of cement plants. It is also suitable for heavy-duty gears in rotary kilns and mills, dryers, excavators, large chains, rack & pinion drives, slewing ring and a variety of such applications. The product is applied through automated spray systems.

#### PERFORMANCE BENEFITS

- Excellent adhesive properties.
- Excellent anti-wear and anticorrosive properties.
- High load carrying ability.
- Excellent sprayability.

### CHARACTERISTICS

	500	1000	2500
NLGI Consistency	0	0	0
Penetration @ 25°C	375	384	360
Dropping Point, °C	131	125	130
Base oil Viscosity, @ 40°C, cSt	510	1050	2435
Copper Corrosion, 100°C, 24 hrs	Pass	Pass	Pass
Weld Load, Kg	700	700	700
Wear Scar Dia, mm	0.6	0.6	0.6
Timken OK Load, lbs	45	45	45
Timken Retention, Minutes	30	30	30
FZG Gear Tests, Pass stage	12	12	12

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

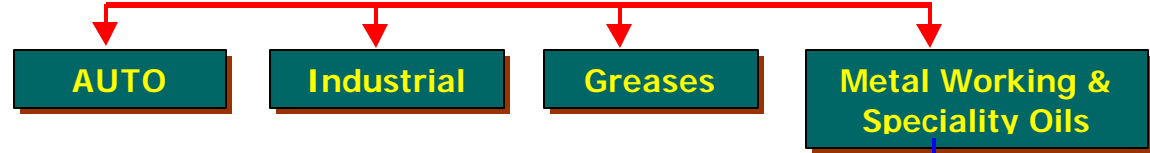
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**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET



- Servocut S
- Servosynth
- Servocut Clear
- Servocut 51
- Servocut 151
- Servocut 253
- Servocut 335 & 345
- Servocut 353

- Servocut 945 & 945 A
- Servocut BR
- Servoquench 11 & C11
- Servoquench 107 & 707



- Servo RP 102
- Servo RP 125
- Servo RP 330
- Servo Rubber 24
- Servo Rubbess 70
- Servo Orchard Spray Oil
- Servo Rubber Spray Oil



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCUT S



IndianOil

### GRADES AVAILABLE – SERVO CUT S

#### DESCRIPTION

Servocut S is a soluble type high quality cutting oil which yields rich milky emulsion with water. Special emulsifier is incorporated to ensure its complete dispersion in water. The emulsion formed is homogeneous and stable in nature, and does not split during usage or routine machine shut down periods, under normal conditions.

Servocut S contains rust inhibitors, which impart anti-rust and anti-corrosive properties to the emulsion. Carefully selected biocide is incorporated to prevent bacterial growth in the emulsion.

#### PERFORMANCE BENEFITS

- Has superior cooling and lubricating properties which contribute towards clean work, excellent surface finish and minimum tool wear
- When used as a grinding coolant, contribute towards long grinding wheel life, and minimised wheel loading
- Provides long lasting stable emulsions
- Protects work-piece, machine components and tool materials from rust and corrosion
- Enables obtain superior finish and accurate tolerances to the parts machined

#### APPLICATION

Servocut S is recommended for variety of cutting operations on ferrous and non-ferrous metals. The oil is specially suitable for metal working operations where the cooling property is more desirable compared to the lubricating characteristics.

This grade can also be used with advantage in cold rolling of steel and not rolling of aluminium. To obtain stable emulsion, oil should be added to water and not vice versa. A homogeneous dispersion of oil in water can be obtained by continuous stirring either manually or mechanically while preparing the emulsion.

Servocut S is normally used in concentration of 5% for mot machining operations. For grinding operations more dilute emulsions are preferred.

#### PERFORMANCE STANDARDS

Servocut S meets the following specification:

- IS : 1115-1986 (Reaffirmed 1996)

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C (Typical)	20
Flash Point (COC), °C Min.	150
Copper strip corrosion @ 100°C	1
Cast Iron corrosion test, 0/1-1	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOSYNTH



IndianOil

### GRADES AVAILABLE – SERVOSYNTH 2 & 5

#### DESCRIPTION

Servosynth products are water soluble synthetic grinding fluids. The solutions prepared from these fluids are fully clear and free from any oil or fatty matter. These products have remarkable antirust property. Servosynth 5 contains a special chemical inhibitor, which protects cuprous metal components of machines tools.

#### PERFORMANCE BENEFITS

- ☞ Gives longer service life to grinding wheels in between re-dressings.
- ☞ Produce good ground finish.
- ☞ Do not emanate obnoxious odour even when machine is shut down fluid is not kept in circulation
- ☞ Are not attacked by bacteria.
- ☞ Have longer life and the solution maintains clarity throughout the service
- ☞ Do not give skin irritation when used in proper dilution range.
- ☞ Have remarkable antirust properties.

#### APPLICATION

Servosynth 2 is recommended for grinding of ferrous metals, high nickel and titanium alloys only. It is of a special value when grinding open grain cast irons, which tends to rust quickly after being machined. Servosynth 5 is specially recommended for grinding operations of Iron-Steel, Non-alloyed Steels and Nickel Chromium Steels. It should not be used for grinding aluminium, zinc, copper or magnesium alloys, tin or cadmium coated parts.

Dilution range for both the products varies from 1:40 min. to 1:100 max. Higher concentrations than required do not give production benefits but may lead to slight discolouration of workers skin.

#### PERFORMANCE STANDARDS

- ☞ Servosynth oils meet IS:11186-1985 reaffirmed 1990 standards.

### CHARACTERISTICS

	Servosynth 2	Servosynth 5
Density at 15°C, gm/ml (Typical)	1.206	1.213
Emulsion type with 10% DW	Clear with green fluorescence	Clear with green fluorescence
PH of solution 2% in DW, Min.	9.0	9.0

### HEALTH & SAFETY

These fluids are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR:

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**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in





# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCUT CLEAR



IndianOil

### GRADES AVAILABLE – SERVO CUT CLEAR

#### DESCRIPTION

Servocut Clear is soluble cutting oil, which yields a translucent type emulsion in water. This product has been specifically developed to meet the engineering industry's demand of soluble cutting oil that offers the advantages of visibility of machining operations.

#### PERFORMANCE BENEFITS

- Provides excellent cooling and lubrication at the chip/tool interface
- Enables visibility of component, jigs, fixtures and cutting tools, thus offers scope for better control of machining operations
- When used for machining, protects components from rusting
- Can be used in very small concentrations and hence is very economical
- Ensures longer tool life
- Enables more jobs to be performed between tool grinding
- Contributes towards improved surface finish

#### APPLICATION

Servocut Clear is recommended for multi-tool set-ups in profile grinding, where the translucent type emulsion enables cutting tools, jigs, fixtures and components to be seen during operations. This product, thus offers better scope for manufacturing components to the correct dimensional tolerances.

Stable and long lasting emulsion of Servocut Clear can be formed by adding oil to water and not vice versa. In order to have homogeneous and complete dispersion of oil in water, continuous stirring is necessary while preparing the emulsion.

Servocut Clear should be used in the concentration of 3% for most of the machining operation, whereas more dilute emulsion would meet the requirements of grinding operations.

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	60 – 100
Flash Point (COC), °C Min.	120
Pour Point, °C Max.	0
Emulsion & Frothing Test	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCUT 51



IndianOil

### GRADES AVAILABLE – SERVO CUT 51

#### DESCRIPTION

Servocut 51 is a non-staining neat cutting oil. This oil has been specially developed for those engineering industries which are involved in carrying out a large number of repetitive machining operations of less severe nature. Servocut 51 is blended from high viscosity index base oils and fatty material, which impart free flowing and good heat dissipation properties to the oils. The product also contains a deodorant.

#### PERFORMANCE BENEFITS

- Provides effective heat dissipation during machining operations and assists in avoiding metal distortion
- Does not stain the components
- Maintains its light colour during operations and hence the components remain visible during machining
- Can be used for machining ferrous and non-ferrous metals
- Gives no obnoxious odour
- Provides good surface finish

#### APPLICATION

Servocut 51 is an excellent metal working oil, particularly for machining operations on automatics, where intense heat is generated at work- piece/tool interface, due to high spindle speeds and short cycle time. It is necessary to dissipate this frictional heat, as quickly as possible, so that fuming of oil or distortion of metal component is avoided.

Servocut 51 is non-staining and hence it can be used while machining copper brass, or alloys containing zinc. It is also suitable for operations on free cutting and mild steels, particularly on screw automatics, capstan or turret lathes.

#### PERFORMANCE STANDARDS

Servocut 51 meets

IS:3065-1985 specification for cutting oil, neat Type 1 grade 2 (Reaffirmed 1990)

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	20 - 24
Flash Point (COC), °C Min	160
Pour Point, °C Max.	0
Copper Strip Corrosion, @ 100°C, 3hrs, Max	1

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVOCUT 151

IndianOil

### GRADES AVAILABLE – SERVO CUT 151

#### DESCRIPTION

Servocut 151 is a superior quality neat cutting oil developed for general duty machining operations. This product is blended from high viscosity index base stocks and contain chlorinated fatty material, which provide distinct advantages to the use of this oil.

#### PERFORMANCE BENEFITS

- Can be used for both ferrous and non-ferrous metals
- Has EP properties which improve machinability
- Can be used for variety of cutting operation
- Is also suitable for machine tool lubrication

#### APPLICATION

Servocut 151 is recommended for a variety of machining operations on both ferrous and non-ferrous metals. It is also suitable for automatic and multi-tool lathes handling high tensile steels. It can be used for such specialised applications as thread-grinding, form-grinding and milling set-ups using multiple cutters. The use of this cutting oil provides improved machinability without the risk of discolouration of components and avoids premature regrinding of cutting tools.

Under selected conditions of speed and load, it can be used for machine tool lubrication also.

### CHARACTERISTICS

Kinematic Viscosity, cSt	20 – 24
Flash Point (COC), °C Min.	160
Pour Point, °C Max.	0
Fats	Present
Chlorine Compounds	Present
Copper Strip Corrosion @ 100°C, 3 hrs, Max	1

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCUT 253



IndianOil

### GRADES AVAILABLE – SERVO CUT 253

#### DESCRIPTION

Servocut 253 is specially formulated product to be used for deep hole boring and trepanning operations, where pressurised coolant system is employed for easy swarf removal.

Servocut 253 is based on carefully selected high viscosity index base oils and contains special fatty material and active sulphur in solution. The product has pleasant red colour.

#### PERFORMANCE BENEFITS

- Helps in continuous accurate cutting in long work cycle operation
- Has minimum mist forming tendency when used in high pressure coolant feed systems
- Provided effective cooling and flushing necessary in deep hole drilling operations
- Ensures good surface finish
- Optimizes filter life due to low sludging tendency at operating temperature
- Gives better tool life

#### APPLICATION

Servocut 253 is recommended for:

- Deep hole drilling including gun drilling operations
- Trepanning operations
- Boring operations

This product is not recommended for operation on non-ferrous metals.

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	9.5 – 11.5
Flash Point (COC), °C Min.	135
Pour Point, °C Max.	0
Copper Strip Corrosion, @ 100 °C, 3 hrs., Max	4

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVOCUT 335 & 345

IndianOil

### GRADES AVAILABLE – SERVO CUT 335/345

#### DESCRIPTION

Servocut 335 and 345 are chlorinated inactive type cutting oils containing additives to impart oiliness and EP properties. Chlorine and non-corrosive sulphurised fat is incorporated to provide anti-weld, extreme pressure and oiliness characteristics to these oils and hence these grades give excellent performance over a wide range of temperatures.

#### PERFORMANCE BENEFITS

- ✎ Minimise welding of the chip to the cutting tool.
- ✎ Help retain sharpness of the cutting edge and reduce stress at the cutting point.
- ✎ Reduce friction between chip and tool face thus generate less heat
- ✎ Do not stain non-ferrous metals
- ✎ Can be used as a hydraulic and general purpose lubricating oils in case cross leakages occur.

#### APPLICATION

Servocut 335 & 345 oils are recommended for:

- ✎ All machining operations on non-ferrous metals.
- ✎ Machining of ferrous metals where the severity of operation is not high.

Addition of chlorine enables the use of these oils for extreme pressure – low/moderate temperature cutting operations where feed rates are high but speeds are low.

These operations include gear hobbing, screw cutting, tapping, milling, reaming etc.

### CHARACTERISTICS

GRADE	335	345
Kinematic Viscosity, cSt @ 40°C	31 – 35	40 - 44
Flash Point (COC), °C Min.	160	180
Pour Point, °C Max.	0	0
Copper Strip Corrosion, @ 100 °C, 3 hrs, Max	1	1

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVOCUT 353

**IndianOil**

## GRADES AVAILABLE – SERVOCUT 353

### DESCRIPTION

Servocut 353 is a low viscosity sulphur-chlorinated type cutting oil. Its selected additives impart marked antiweld properties, which helps machining of intricate shapes with high precision. Being a low viscosity product it has excellent cooling and quick swarf removal characteristics.

### PERFORMANCE BENEFITS

- ☞ Caters for more arduous machining of tough ferrous and ferrous alloys.
- ☞ Gives high precision on long work cycle operations.
- ☞ Provides effective flushing of fine swarf.
- ☞ Ensures faster cooling of tool and work piece.
- ☞ Has minimum rust forming tendency when use in high pressure coolant feed systems.
- ☞ Has minimum misting tendency when use in high pressure coolant feed systems.
- ☞ Assists in achieving high rate of production.
- ☞ Has low sludging tendency to give optimum filter life.
- ☞ Helps achieve longer tool life.

### APPLICATION

Servocut 353 is recommended for deep hole boring and deep hole drilling of ferrous and ferrous alloys. It gives excellent finish, because of balanced combination of fat, chlorine and active sulphur, under continuous and long work cycle. It is also suitable for certain honing operations.

This product is not recommended for machining of non-ferrous metals.

## CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	12 – 14
Flash Point (COC), °C Min.	135
Pour Point, °C Max.	0
Copper strip corrosion @ 100°C, 3 Hrs, Max	4

## HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCUT 945 & 945A



IndianOil

### GRADES AVAILABLE – SERVO CUT 945, 945 A

#### DESCRIPTION

Servocut 945 & 945 A are active type neat cutting oils and 945 A contains higher dosage of sulphurised fats. These oils contain a sulphurised fatty material, which improves oiliness property thus providing better surface finish.

Sulphur incorporated in these oils become chemically active at the tool-work piece-chip interface and ensures protection to the cutting tool over a wide range of operating temperatures.

#### PERFORMANCE BENEFITS

- Provides continuous protection to tool edges over a wide range of operating temperatures.
- Helps in improved surface finish due to the added oiliness property.
- Enables machining of tough, ductile steels in severe operations.
- Prevents localised welding between the chip and tool.
- Keeps at minimum, oil drag-out losses on components and swarf.

#### APPLICATION

Servocut 945 and 945 A are recommended for most of the cutting operations on ferrous metals under severe operating conditions, which demand high degree of chemical activity in oils. This oil is suitable for machining operations on high tensile stainless steel as well as Ni-Cr alloys by automatics, gear cutting, hobbing, drilling, reaming and thread cutting machines. To obtain best results with the use of this product, it is necessary that a copious flow of oil at low pressure is maintained at the cutting area.

The use of Servocut 945/945 A for cutting operation on non-ferrous metals and its contact with soft metal bushes in machines should be avoided.

#### PERFORMANCE STANDARDS

- Meets IS : 3065-1985 (Reaffirmed 1995) Type III Grade 2.

### CHARACTERISTICS

	Servocut 945 & 945 A
Kinematic Viscosity, cSt @ 40°C	28 - 34
Flash Point (COC), °C Min.	160
Pour Point, °C Max	0
Copper strip corrosion, @ 100°C, 3 hrs, Max	4
Saponification No.	18 (only 945 A)

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOCUT BR



IndianOil

### GRADES AVAILABLE – SERVO CUT BR

#### DESCRIPTION

Servocut BR is a special purpose neat cutting oil of non-corrosive type, developed for flute grinding of drills and various other critical form grinding operations.

Servocut BR possesses very high oiliness characteristic due to the presence of carefully selected fatty material. Excellent foam release property is imparted to the oil by incorporation of a defoamant.

#### APPLICATION

Servocut BR is recommended for flute grinding of drills, reamers and various other form grinding tools, which involve sever type metal grinding processes. This product is also suitable for gear cutting, hobbing and high speed metal working operations on automatics. Servocut BR can be used both for ferrous as well as non-ferrous metals, since it is not corrosive in nature.

Servocut BR is widely used in the production of automobile components and in the cutting tool manufacturing industries.

#### PERFORMANCE BENEFITS

- Prevents overheating of work-piece/grinding wheel thus helps in production of components to correct dimensional accuracies
- Ensures improved surface finish.
- Has high oiliness property, which helps in heavy duty machining.
- Can be used for machining both ferrous and non-ferrous metals.
- Prevents foaming.

### CHARACTERISTICS

Kinematic Viscosity, cSt, @ 40°C	45 – 49
Flash Point (COC), °C Min.	170
Pour Point, °C Max.	0
Copper Corrosion, @ 100°C 3 hrs, Max	1

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVOQUENCH 11 & C 11



IndianOil

### GRADES AVAILABLE – SERVO QUENCH 11 & C11

#### DESCRIPTION

Servoquench 11 and Servoquench C11 oils are high quality oils developed for general purpose metal quenching operations.

These oils are formulated from specially selected high viscosity index base stocks having good oxidation stability, good fluidity and low volatility. Servoquench 11 is a straight mineral oil having normal quenching characteristics. Servoquench C11 is incorporated with a polar additive, which imparts accelerated quenching property to the oil so as to meet certain specific end use requirements.

#### PERFORMANCE BENEFITS

Servoquench C and C 11

- Have good quenching characteristics
- Have long service life due to excellent oxidation stability
- Impart uniform hardness without distortion
- Have a wide application range

#### APPLICATION

Servoquench oils are used for all normal quenching operations on a wide variety of steel to impart the desired hardness to components without distortion. The special compounding agent incorporated in Servoquench C11 improves the wetting ability of the oil, so that it provides faster initial cooling for optimum hardness, where as the base oil ensures slow cooling in the final stage for stress relief and distortion free results.

Servoquench 11 is normally used for hardening nuts, bolts, ball bearings and certain types of brake drums as well as many other components manufactured by automobile and light engineering industries. Servoquench C11 is suitable for hardening of a variety of ball bearings, high speed steel tools, and other components in major industries

#### PERFORMANCE STANDARDS

Servoquench 11 meets IS : 2664-1980

(Reaffirmed 1993) for straight mineral type medium grade quenching oil

Servoquench C11 meets IS : 2664-1980

(Reaffirmed 1993) for additive type quenching oil

### CHARACTERISTICS

GRADE	11	C11
Kinematic Viscosity, cSt @ 40°C	27-33	27-33
Viscosity Index, Min	95	95
Flash Point (C)OC), °C Min.	200	200
Pour Point, °C Max.	0	0
Compounding	---	Yes

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVOQUENCH 107 & 707

**IndianOil**

## GRADES AVAILABLE – SERVO QUENCH 107 & 707

### DESCRIPTION

Servoquench 107 and Servoquench 707 are low viscosity quenching oils of exceptionally high quality. These oils are suitable for heat treatment operations on metal components with demand-accelerated rate of quenching.

These oils are blended from selected low sulphur base stocks having excellent oxidation stability, good thermal stability, high fluidity and low volatility.

### PERFORMANCE BENEFITS

- Provide accelerated rate of quenching
- Ensure cleanliness of quenching oil systems
- Have low drag-out on components thus reduce oil consumption
- Have exceptionally long, oil service life due to excellent oxidation stability, good thermal stability as well as low volatility
- Retain quenching power over extended periods due to minimum oil thickening and sludge forming tendency
- Assist in obtaining uniform hardness of metal components

### APPLICATION

Servoquench 107 is recommended for general purpose fast quenching applications. It is recommended for hardening of many components, in automobile and light engineering industries. This product is particularly used for hardening of bolts, set screws, crankshafts, axles camshafts, steering arms and brake drums.

Servoquench 707 is recommended for accelerated quenching of a variety of steel components in major industries. It is particularly used for quenching of high-speed steel tools, bolts, nuts and ball bearings.

Servoquench 707 is also used for quenching of many components after carbonitriding.

### PERFORMANCE STANDARDS

Servoquench 107 meets:

- IS : 2664-1980 (Reaffirmed 1993) for straight mineral type medium grade quenching oil, with minor deviations.

Servoquench 707 meets:

- IS: 2664-1980 (Reaffirmed 1993) for additive type quenching oil, with minor deviations

## CHARACTERISTICS

GRADE	107	707
Kinematic Viscosity, cSt @ 40°C	20 – 24	20 – 24
Viscosity Index, Min.	95	95
Flash Point (COC), °C, Min.	175	175
Pour Point, °C, Max.	0	0
TAN, mg KOH/gm, Max	0.05	0.1

## HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO RP 102



IndianOil

### GRADES AVAILABLE – SERVO RP 102

#### DESCRIPTION

Servo RP 102 is a dewatering fluid, containing oil soluble surface-active agent dissolved in a solvent with suitable corrosion- preventive and film-forming materials.

It contains selected additives which impart excellent ability to wet metal surfaces in preference to water. It can be applied at room temperature by dip or spray method.

The film formed over metal surfaces can be easily removed by dipping the parts in suitable solvent.

#### APPLICATION

Servo RP 102 provides effective protection against rust on to the work-pieces during short-term storage in between operations. When the work-piece is dipped in Servo RP 102 the water adhering to the metal surface gets dislodged by a thin film of this product. After the application, the solvent evaporates, leaving a soft grease like protective film on the metal surface.

Usual precautions with a solvent based product should be taken while using Servo RP 102.

#### PERFORMANCE BENEFITS

- Forms very thin protective film, which does not interfere with gauging of the work-piece dimension
- Provides excellent rust protection to metal surfaces during storage, in between machining operations
- Film formed can be removed easily with the help of a common petroleum solvent

#### PERFORMANCE STANDARDS

Servo RP 102 meets the following specification:

- BS: 7451- 1992 Type TP 2 (b)
- IS : 1154-1957 (Reaffirmed 1190)

### CHARACTERISTICS

Kinematic Viscosity cSt @ 40°C (Typical)	1.5
Flash Point, (Abel) °C Min.	30
Copper Strip Corrosion @ 50°C, 3 hrs Max	1
Emulsifying Properties, volume separated in 60 minutes in ml., Min.	60
Water displacement Test IS 1154 Appendix 'A'	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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## SERVO RP 125

IndianOil

### GRADES AVAILABLE – SERVO RP 125

#### DESCRIPTION

Servo RP 125 is a non-solvent type light bodied mineral oil, inhibited with special additives to ensure very good protection against rusting. It has been developed for indoor usage, however, the product can also be used for short-term outdoor storage. The oil can be applied by dipping/ brushing/ spraying. The oil film can be removed easily by treatment with petroleum solvent, alkaline cleaning or vapour degreasing agents.

#### APPLICATION

Servo RP 125 is used as rust-preventive for protection of black sheets during storage and transportation in Steel Plants. This product can be applied for short-term protection during storage, in between operation and for rust protection of components before wrapping. It is also recommended as flushing oil for internal protection of engines and machinery where removal of oil film is difficult. The film formed on the internal surfaces is compatible with lubricating oils.

#### PERFORMANCE BENEFITS

- Ensures good protection against rusting of components during indoor storage
- Oil film need not be removed as the same is compatible with lubricating oil
- Does not contain any solvent hence no special precaution required to handle this product

#### PERFORMANCE STANDARDS

Servo RP 125 meets the following specifications:

- BS : 7451 - 1992 Type TP 6 (a)

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	20.5 – 23.5
Flash Point (COC), °C Min	160
Copper Strip Corrosion @ 100 °C, 3 hrs, Max	1
Film thickness, Microns	5
Rust Prevention test, as per IS 958 ( 240 hrs).	Pass

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO RP 330



IndianOil

### GRADES AVAILABLE – SERVO RP 330

#### DESCRIPTION

Servo RP 330 is an excellent rust preventive of non-solvent type blended from mineral oil base stock and additives to provide long-term protection to metal components against rusting. On application, a non-drying type greasy film is formed on the metal surfaces. It is suitable for both indoor and outdoor applications. It can be applied by brush or by spraying (after heating to about 50°C temperature). The film formed can be removed by wiping with a suitable solvent.

#### APPLICATION

Servo RP 330 is recommended where a thick protective greasy film is desired. It is generally used by engineering industries for protection of ferrous components against rusting. It is most suitable for those applications, where removal of protective coating is not essential for further processing of the component.

#### PERFORMANCE BENEFITS

- Provides excellent protection against rusting, for a longer duration, even in outdoor storage
- Oil film is non-drying type and therefore its removal is easier.
- Being a non-solvent type, does not require and special precautions during storage, handling and application

#### CHARACTERISTICS

Kinematic Viscosity, cSt @ 100°C	27 – 35
Flash Point (COC), °C Min	250
Copper strip corrosion, @ 100 °C, 3hours Max.	1
Film Thickness, microns	30

#### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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# SERVO RUBBER 24

IndianOil

## GRADES AVAILABLE – SERVORUBBER 24

### DESCRIPTION

Servorubber 24 is a light bodied, naphthenic type rubber process oil specially developed for the automotive tyre and tube manufacturing industries, as well as for general usage in various units producing rubber goods. This is an ASTM 103 Type oil.

Servorubber 24 can be used for processing natural rubber as well as butyl rubber.

Servorubber 24 due to its non-staining nature is used with advantage in the production of white wall automotive tyre and light colour rubber components

### APPLICATION

Servorubber 24 is used as one of the essential components in the processing of rubber for the manufacture of automotive tyres, tubes and many other moulded rubber goods. The ease of processibility of rubber compound and the tensile strength of the finished product are the two most important properties in a large number of rubber products. The dynamic properties like low heat build up and good rebound resilience are the additional properties, which improve the overall quality, in case of automotive tyres.

### PERFORMANCE BENEFITS

- ☞ Improves the plasticity of rubber, resulting in lower milling temperature
- ☞ Accelerates the dispersion of ingredients in the batch during compounding thus resulting in reduced milling time and less power consumption.
- ☞ Improves the elongation and tear strength of the cured stocks.
- ☞ Imparts better ageing properties in the rubber goods.
- ☞ Does not stain and therefore is suitable for manufacture of white walled tyres.

### MANUFACTURERS APPROVAL

- Madras Rubber Factory Ltd., (Mansfield Tyres), Madras
- Premier Tyres, Ltd., Kalamassery

## CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	20 – 24
Flash Point, (COC), °C Min	160
Pour Point, °C Max	6
Colour, ASTM, Max.	7.5
Aniline Point, °C	80 – 88

## HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

**E-Mail:** [tsservices@indianoil.co.in](mailto:tsservices@indianoil.co.in) OR [tech\\_services@indianoil.co.in](mailto:tech_services@indianoil.co.in)



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO RUBBESS 70



IndianOil

### GRADES AVAILABLE – SERVORUBBESS 70

#### DESCRIPTION

Servorubbess 70 is medium bodied predominantly paraffinic type rubber process oil. This product is an excellent ingredient for the manufacture of various rubber products from both natural as well as Synthetic rubber. This is an ASTM 104 Type oil. Servorubbess 70 is formulated from carefully selected highly refined, solvent extracted base stocks of low sulphur content.

Servorubbess 70 helps in achieving lower milling temperature, shorter milling time thus resulting in substantial savings in power consumption. It helps impart low heat buildup properties, and good air retention ability, and hence is mostly preferred by the automotive tube manufacturing units.

#### APPLICATION

Servorubbess 70 is primarily used in the compounding of rubber for procession of automotive compound particularly where butyl rubber is used. The selection of a process oil for compounding of rubber, needs careful consideration as the type of oil used affects the final properties of goods manufactured.

Servorubbess 70 improves the elongation strength and tear strength of the cured stocks. It also gives improved ageing properties to the finished rubber goods.

Servorubbess 70 is widely used in compounding of shredded rubber and in the production of large number of light coloured rubber articles

#### PERFORMANCE BENEFITS

- Helps achieve lower milling temperature and shorter milling time
- Provides excellent air retention property which is one of the primary requirements of good quality tubes
- Reduces mould fouling thus provide good quality control
- Improves tear and elongation strength of the finished rubber goods
- Improves ageing properties of rubber articles.

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	60 – 65
Flash Point, (COC), °C Min	200
Pour Point, °C Max	0
Colour, ASTM, Max.	4
Aniline Point, °C (Typical)	98

### HEALTH & SAFETY

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**E-Mail:** tservices@indianoil.co.in OR tech\_services@indianoil.co.in



# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO ORCHARD SPRAY OIL



IndianOil

### GRADES AVAILABLE - SERVO ORCHARD SPRAY OIL

#### DESCRIPTION

Servo Orchard Spray Oil has been specially developed for the protection of apple trees from the ill effects of San Jose scale. The use of this product results in healthier trees and helps to increase the apple crop. This product is blended from selected high quality base stocks, and it does not have any toxic influence.

#### PERFORMANCE BENEFITS

- Eliminates a high percentage of the pests San Jose Scale
- Is economical in use since emulsion of 1:40 in water gives optimum results
- Has no adverse or toxic effect on apples, and other tender parts of the apple tree
- Can be handled with ease in cold weather due to its very low pour point
- Yields a very high percentage of kill without the risk of upsetting the ecological balance of the region, generally associated with pesticide spray.

#### APPLICATION

Servo orchard Spray Oil is specifically recommended for spraying on the apple orchards, in the form of an emulsion in water, so as to control the disease caused by the attack of a pest called San Jose scale. The spraying of the emulsion dissolves the waxy protective shield of the insect and the oil film envelops it thus forming a barrier, which cuts off its air supply. The pests are choked to death due to suffocation or respiratory failure.

To make a stable and homogeneous emulsion, the oil should be added to the water and not vice-versa, with continuous stirring. Servo Orchard Spray Oil can also be used for protection of eucalyptus, cinchona etc.

#### APPROVAL :

Servo Orchard Spray Oil is approved by Fruit Research Station, Shalimar.

### CHARACTERISTICS

Appearance	Clear
Colour	Red
Kinematic Viscosity, cSt @ 40°C	15 – 19
Flash Point (COC), °C Min.	150
Pour Point, °C, Max	(-) 3

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

For further information please contact our nearest office OR :

Technical Services Dept., Indian Oil Corporation Ltd., G-9, Ali Yavar Jung Marg, Bandra (East), Mumbai – 400 051

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# SERVO<sup>®</sup> PRODUCT DATA SHEET

## SERVO RUBBER SPRAY OIL



IndianOil

### GRADES AVAILABLE – SERVO RUBBER SPRAY OIL

#### DESCRIPTION

Servo Rubber Spray Oil is a low viscosity oil of selected hydro-carbons, specially developed for use in rubber plantations. This product is an excellent carrier for spraying copper oxychloride on rubber plantations to combat the severe attack by the fungus “PHYTOPHTHORA” which leads to abnormal leaf fall affecting the vitality of the trees and resulting in loss of latex yield.

#### PERFORMANCE BENEFITS

- ✦ Keeps the copper particles in suspension and properly distributed on the leaf surfaces and leaf stalks.
- ✦ Ensures excellent leaf retention even under adverse conditions of humidity and heavy rains which are conducive to excessive attack by Phytophthora
- ✦ Helps to obtain a higher latex yield.
- ✦ Provides effective protection to rubber trees from the fungus attack resulting in healthier trees.

#### APPLICATION

Servo Rubber Spray Oil is specifically recommended for spraying on rubber plantations. The mixture of Servo Rubber Spray Oil and copper oxychloride is conveniently applied either by minimicron sprayers or aerial spraying. The spreading characteristics of the oil enables the copper particles to readily and uniformly distribute on the leaf surfaces and leaf stalks, while at the same time not permitting the copper to be easily washed out.

Servo Rubber Spray Oil has been used with satisfactory results by a large number of rubber plantations/organisations like

- ✦ Harrison & Crossfield, Cochin
- ✦ Pierce Lesslie & Co., Cochin
- ✦ Plantation Corporation of Kerala

#### APPROVAL:

Servo Rubber Spray Oil has been approved by Rubber Research Institute of India, Kottayam.

### CHARACTERISTICS

Kinematic Viscosity, cSt @ 40°C	2.5 – 4.0
Pour Point, °C Max.	0
Phytotoxicity	Negative
U.S.R Value %	80 (Typical)

### HEALTH & SAFETY

These oils are unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of industrial and personal hygiene are maintained.

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