

# Performance Par Excellence

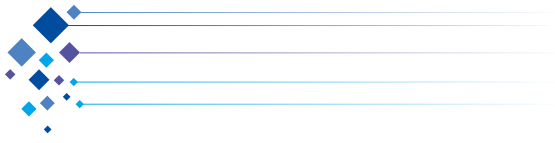
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Stay Ahead



Hydraulic Oils Premium

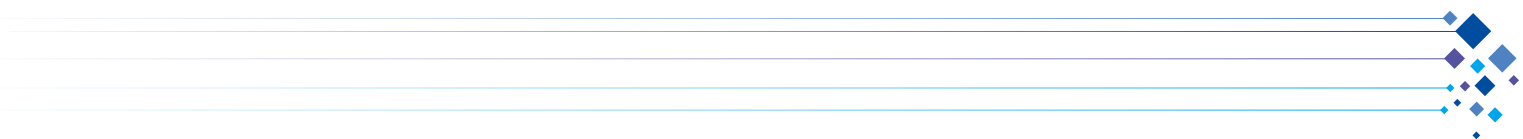
Industrial Oils

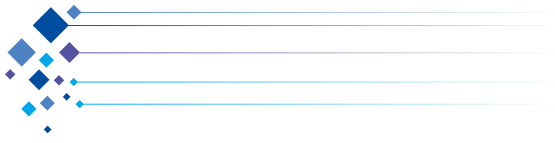
 **divyol**  
solutions within solutions



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## WIDE RANGE OF INDUSTRIAL OILS



## HYDRAULIC OILS PREMIUM

### Worry-free operations assured

We offer pure mineral oils for lubrication of systems operating at moderate temperatures, as well as advanced high-tech oils for more demanding operating conditions. These oils ensure smooth and worry-free operations involving bearings, gears, and other moving parts.



# DIVYOL ENTRO AW HYDRAULIC OILS – 22 / 32 / 46 / 68 / 100 / 150

### Applications:

Divyol Entro AW Hydraulic Oils of grades 22, 32, 46, 68, 100 and 150 are specially formulated blends for use on all heavy duty hydraulic applications (both mobile and stationery) that require a high level of wear protection. This product is recommended for all hydraulic pumps, including high-pressure, high-speed vane, gear, axial and radial piston pumps, except pumps containing silver plated component. Besides hydraulic equipment operating under extreme conditions, it is also used for automated machine tools, press, die casting machines, circulating systems and hydraulic control systems.

### Standards:

Divyol Entro AW Hydraulic Oils conform to performance specifications of DIN 51524 Part II; Eaton Vickers I-286-S, M-2950-S; Denison HF-0, HF-1, HF2; Cincinnati Machine P-68, P-69, P70; and US STEEL 127.

### Advantages:

Each grade in the Divyol Entro AW Hydraulic Oils range has excellent oxidation and thermal stability for effective anti-rust, anti-corrosion and anti wear performance which helps maximize service life of the pump and system components protecting them from the effects of environmental moisture. Its high shear stability minimizes viscosity loss and its filterability prevents filter blockage even in the presence of water. It also has good demulsification property which helps in faster separation of water and resists formation of emulsions. It is compatible rubber seals.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro AW Hydraulic Oils					
			22	32	46	68	100	150
1	Appearance		Clear and bright	Clear and bright	Clear and bright	Clear and bright	Clear and bright	Clear and bright
2	Colour, max.	ASTM D 1500	0.5	0.5	1.0	1.0	1.0	1.5
3	Kinematic viscosity, cSt at 40 °C	ASTM D 445	20 – 24	30 – 34	42 – 50	62 – 74	90 – 110	135 – 165
4	Kinematic viscosity, cSt at 100 °C, min.	ASTM D 445	4.4	5.6	7.1	9.0	11.3	15.0
5	Viscosity index, min.	ASTM D 2270	112	110	110	100	98	90
6	Flash point (COC), °C, min.	ASTM D 92	190	200	210	220	220	230
7	Pour point, °C, max.	ASTM D 97	-15	-15	-15	-12	-12	-9
8	Emulsion test at 54 °C (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)	40-37-3(20)	40-37-3(20)	–	–
9	Emulsion test at 82 °C (mins, max.)	ASTM D 1401	–	–	–	–	40-37-3(30)	40-37-3(30)
10	FZG, Rating stage failure	DIN 51354	11	11	11	11	11	11
11	Copper strip corrosion, at 100 °C, 3 hrs.	ASTM D 130	1a	1a	1a	1a	1a	1a
12	Rust characteristics	ASTM D 665/B	Complies	Complies	Complies	Complies	Complies	Complies
13	Foaming test, foaming stability after 10 mins settling time, foam, ml	ASTM D892						
	at 24°C, max.		NIL	NIL	NIL	NIL	NIL	NIL
	at 93°C, max.		NIL	NIL	NIL	NIL	NIL	NIL
	at 24°C after cool down from 93°C, max.		NIL	NIL	NIL	NIL	NIL	NIL
14	Neutralization number, mg KOH/g	ASTM D664	1.0	1.0	1.0	1.0	1.0	1.0

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## DIVYOL ENTRO TH HYDRAULIC OILS – TH-32 / TH-46 / TH-68

### Applications:

Divyol Entro TH type Hydraulic Oils TH-32, TH-46 and TH-68 are high viscosity index, low pour point blends specially formulated for heavy duty operations as fluid media in all hydraulic system including Tata Hitachi Excavators, JCB and KOMATSU (off highway equipment) where very low operating temperatures are common and the application demands use of oils with a very high viscosity index.

### Standards:

Divyol Entro TH type Hydraulic Oils are blended with high quality base stocks and select additives for optimized performance. These oil blends conform to performance standards as per Denison Hydraulics (HF0, HF1, HF2); EATON VICKERS M-2950 S; EATON VICKERS – 1286 S; ISO: 11158 (HV FLUIDS); DIN 51524 PART 3 HVLP TYPE; and GB 111181 – 1.94 (HV FLUIDS).

### Advantages:

Divyol Entro TH type Hydraulic Oils have special anti-wear additives essential for certain hydraulic equipment used for heavy-duty operations. Their oxidation inhibitor and anti-rust additives ensure excellent wear protection and therefore consistently efficiency and productivity. These blends comply with ASTM D943 test and offer long service life and cleanliness of the hydraulic system. Their defoamant additive prevents the build up of foam. They have high shear stability and ensure a cleaner system thus preventing issues of filter blocking. They also enable easy flow at very low temperatures. These oils are suitable for a wide range of operating temperatures due to their very high viscosity index. They are also compatible with other lubricants and seals and suitable for most hydraulic pumps.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol TH Hydraulic Oils		
			TH-32	TH-46	TH-68
1	Appearance	Visual	Bright and clear	Bright and clear	Bright and clear
2	Colour, max.	ASTM D 1500	0.5	0.5	0.5
3	Kinematic viscosity at 40 °C cSt	ASTM D 445	30 – 34	42 – 50	62 – 74
4	Kinematic viscosity at 100 °C cSt, min.	ASTM D 445	6.22	7.7	11.0
5	Viscosity index, min.	ASTM D 2770	150	150	150
6	Flash point (COC) °C, min.	ASTM D 92	210	220	230
7	Pour point °C, max.	ASTM D 97	-39	-39	-33
8	Copper strip corrosion at 100 °C for 3 hrs., max.	ASTM D 130	1a	1a	1a
9	Air release value at 50 °C, minutes	ASTM D 3427	8	8	8
10	Aniline point, °C	ASTM D 611	115	115	120
11	Foam characteristics tendency/stability, ml, max.	ASTM D 892			
	Sequence I		Nil	Nil	Nil
	Sequence II		Nil	Nil	Nil
	Sequence III		Nil	Nil	Nil
12	Rusting test, 24 hrs. with sea water	ASTM D 665/B	Complies	Complies	Complies

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# DIVYOL ENTRO HVI ZF HYDRAULIC OILS – 46 ZF-SC / 68 ZF-SC

### Applications:

Divyol Entro HVI-ZF Plus Super Clean (SC) Oils 46 ZF-SC and 68 ZF-SC are supreme quality anti-wear hydraulic oils specially developed for applications that require super clean oils and are subjected to a wide range of ambient and operating temperatures, or where a small viscosity change with fluctuating temperature is needed. They are also recommended for power transmission systems operating in similar conditions and requiring super clean oils even in environmentally sensitive applications. These oils meet the stringent requirements of modern hydraulic systems using high-pressure, high output pumps and the critical requirements of other hydraulic system components such as high accuracy numerically controlled machine tools and those employing close clearance servo valves. They can be used in hydraulic systems of excavators, cranes and hydrostatic drives subjected to most severe outdoor operating conditions as also for hydraulic systems operating under high pressures and requiring high degree of load carrying capability and anti-wear protection as also those requiring extended oil change intervals.

### Standards:

Divyol Entro HVI-ZF Plus Super Clean (SC) Oils 46 ZF-SC and 68 ZF-SC are unique blends of severely hydro processed Group II base oils, a highly shear stable polymer and an advanced ash-less additive system to minimize environmental impact in case of an accidental release into the environment. Both these oil grades conform to performance standards of DIN 51524 Part 3 HVLV; AFNOR NFE 48-603 (HV); ISO: 11158 HV; as also of OEMs Poclain, Hitachi, FIVES CINCINNATI (Former MAG IAS, LLC), Eaton Vickers and Denison.

### Advantages:

Divyol Entro HVI-ZF Plus Super Clean (SC) Oils have outstanding thermal, oxidative and hydrolytic stability ensuring consistent performance even through low and high temperatures. Their unique composition enables excellent air-release properties and demulsibility which helps in faster separation of water from oil and resists emulsion formation. Their extremely high viscosity index assures maximum protection to system components at cold start-up as well as high operating temperatures. Their shear stability minimizes viscosity loss over time ensuring “stay-in-grade” performance under high shear conditions. These properties help improve pump and valve performance, increase production capacity and allow extended oil and filter change intervals. They also reduce deposit formation and protect against wear, rust and corrosion, thus maximizing service life of the system.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro HVI – ZF SC Hydraulic Oils	
			46 ZF SC	68 ZF SC
1	Appearance	Visual	Bight and clear	Bight and clear
2	Colour, max.	ASTM D 1500	L 0.5	L 0.5
3	Kinematic viscosity at 40 °C, cSt	ASTM D 445	42 – 50	62 – 74
4	Viscosity index, min.	ASTM D 2770	140	140
5	Flash point (COC) °C, min.	ASTM D 92	210	210
6	Foam characteristics tendency / stability, ml, max.	ASTM D 892	320	320
	Sequence I		Nil	Nil
	Sequence II		Nil	Nil
	Sequence III		Nil	Nil
7	Rusting test, 24 hrs. with sea water	ASTM D 665/B	Complies	Complies
8	Emulsion test at 54°C, (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)
9	Particle counter, NAS Value	ISO:16232/NAS 1638	7	7
10	Turbine oil stability test, hrs.	ASTM D 943	3000	3000
11	FZG, fail load stage, min.	DIN 51354 Part II	11	11

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# DIVYOL ENTRO HYDRAULIC OILS SC – 32 / 46 / 68

## Applications:

Divyol Entro Hydraulic Oils SC – grades 32, 46 and 68 are super clean oil blends specially formulated for performance over a wide range of operating conditions including low load to severe high load conditions. These oils are recommended for hydraulic systems with servo valve or spool valve. They are also used to actuate various mechanisms under high pressures developed by positive displacement pumps such as gear, vane or piston type. The moving parts of these expensive pumps require the right type of hydraulic oil with adequate anti-wear properties. Without such a lubricant these parts gradually lose efficiency and wear out. These high performance oils are widely used in general manufacturing, power and metal equipment like presses, injection moulding, machine tools, etc. operating at high speeds, loads and temperatures. They are also recommended for the lubrication of rotors, bearings, gears in rotary compressors like screw and vane type.

## Standards:

Divyol Entro Hydraulic Oils SC – grades 32, 46 and 68 are manufactured from highly refined base stock and select anti-wear additives for efficiency and durability. They meet the performance specifications as per DIN 51524 PART II; IS: 11656 -1993(Reaffirmed 2013); Denison Hydraulic (HF0, HF1, HF2); HM 11158; AFNOR NF-E 48-603; Cincinnati Milacron P -70; AIST 127; and Eaton Vickers 35VQ25 Pump Test.

## Advantages:

Divyol Entro SC type hydraulic oils have high oxidation stability ensuring effective protection against rusting and wear, especially to moving metal parts. Sludge formation is also negligible, resulting in longer service between oil change intervals. These oils enable efficient performance even under severe operating conditions, viz. high speeds, loads and temperatures.

## Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro SC Hydraulic Oils		
			32	46	68
1	Appearance	Visual	Bright and clear	Bright and clear	Bright and clear
2	Colour, max.	ASTM D 1500	0.5	0.5	0.5
3	Flash point COC, °C, min.	ASTM D 92	196	200	204
4	Kinematic viscosity at 40 °C, cSt, min.	ASTM D 445	30 – 34	42 – 50	62 – 74
5	Kinematic viscosity at 100 °C, cSt, min.	ASTM D 445	5.4	7.5	8.7
6	Viscosity index, min.	ASTM D 2270	110	110	110
7	Pour point, °C, max.	ASTM D 97	-20	-20	-16
8	Copper corrosion, at 100 °C, 3 hrs.	ASTM D 130	1a	1a	1a
9	Foaming characteristics / stability	ASTM D 892			
	Sequence I/II/III		Nil	Nil	Nil
10	Demulsibility (ml, mins)	ASTM D 1401	40-37-3(20)	40-37-3(20)	40-37-3(20)
11	Particle counter, NAS value	ISO:16232/NAS:1638	7	7	7
12	FZG, Fail load stage, min.	ASTM D 5182	11	11	11

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# DIVYOL ENTRO HYDRAULIC OILS – HVI 46 / 68 / 100

## Applications:

Divyol Entro HVI type Hydraulic Oil grades 46, 68 and 100 are premium high viscosity index, long-life anti-wear hydraulic fluids specially formulated for use in heavy-duty hydraulic applications operating at high pressures and over a wide range of temperatures. These oils provide year-round reliability in mobile and stationary hydraulic systems in excavators, shovels, cranes, drills, crawlers, and boom trucks which require outdoor anti-wear oil. These fluids can also be used in piston, gear and vane hydraulic pumps in outdoor mobile equipment, sawmills, woodland equipment, snow removal equipment and portable compressors. Their efficacy extends to circulating systems, including those servicing plain and rolling element bearings, in pump crankcases and some electric motor bearings as well as gear sets requiring non-EP gear oils.

## Standards:

Divyol Entro HVI type Hydraulic Oils are blends comprising premium quality base oils and additives that optimize performance. They meet performance levels as per Parker Hannifin (Denison) HF-0, HF-1, HF-2; Eaton-Vickers I-286-S, M-2950-S, (brochure 03-401-2010); DIN 51524 HVLP; GM LS-2; Five Cincinnati P-68, P-69, P-70; JCMAS HK; US Steel 127, 136; ISO: 11158; SAE MS1004; and Chinese Standard GM 11118.1.

## Advantages:

Divyol Entro HVI type Hydraulic Oils enable excellent fluidity at low start-up temperatures and maintain optimum oil viscosity at high operating temperatures. They also possess excellent thermal, oxidative and hydrolytic stability, properties that protect against wear, rust and corrosion resulting in longer service life of pumps. They also cause minimal increase in air entrainment and have excellent wet and dry filterability, a quality that matches AFNOR NF E48-690, 691 performance specifications.

## Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro HVI Hydraulic Oils		
			46	68	100
1	Appearance	Visual	Bright and clear	Bright and clear	Bright and clear
2	Colour, max.	ASTM D 1500	L 0.5	L 0.5	0.5
3	Kinematic viscosity at 40 °C, cSt, min.	ASTM D 445	42 – 50	62 – 74	90 – 110
4	Viscosity index, min.	ASTM D 2770	140	140	140
5	Flash point (COC) °C, min.	ASTM D 92	210	210	220
6	Pour point, °C, max.	ASTM D 97	-21	-21	-21
7	Emulsion test at 54°C, (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)	–
8	Emulsion test at 82 °C (mins, max.)	ASTM D 1401	–	–	40-37-3(30)
9	Turbine oil stability test, hrs.	ASTM D 943	3000	3000	5000
10	FZG, fail load stage, min.	DIN 51354	11	11	11
11	Foam characteristics tendency / stability, ml, max.	ASTM D 892			
	Sequence I		Nil	Nil	Nil
	Sequence II		Nil	Nil	Nil
	Sequence III		Nil	Nil	Nil
12	Rusting test, 24 hrs. with sea water	ASTM D 665/B	Complies	Complies	Complies

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## DIVYOL HYDRAULIC OILS HVI 46 / HVI 68

### Applications:

Divyol HVI 46 and HVI 68 are premium grade high viscosity index hydraulic oils recommended for hydraulic Excavators of Tata–Hitachi, L & T, Komatsu, etc. They are also suitable for off-road mobile construction and forestry equipment such as backhoes, bulldozers, crawlers, skid-steer loaders and motor graders. These oils can also be used for chain drives and compressor crankcase lubrication. Both the oil blends possess excellent shear stability and can withstand a wide range of temperatures.

### Standards:

Divyol Hydraulic Oils HVI 46 and HVI 68 are blended with special additives that reduce wear, rust, oxidation and impart good hydrolytic stability and water separation properties. These blends conform to performance specifications as per DIN 51524-3:2017-06; Hannifin (Denison) HF-0, HF-1, HF-2; Eaton-Vickers I-286-S, M-2950-S, (brochure 03-401-2010); GM LS-2; Five Cincinnati P-68, P-69, P-70; JCMAS HK; US Steel 127, 136; ISO 11158 and SAE MS1004.

### Advantages:

Divyol Hydraulic Oils HVI 46 and HVI 68 provide excellent protection against rust, wear and corrosion. Their high viscosity index, thermal and oxidative stability, anti-foam and air release properties ensure smooth operation and system efficiency across a wide range of temperatures. The blend is particularly effective in protecting system components at cold startup and high operating temperatures. Besides multi-metal compatibility, it is also compatible with seals used in hydraulic systems. It prevents internal hydraulic system corrosion and reduces adverse effects of moisture in systems, thus resulting in longer service life of the system.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol HVI Hdraulic Oils	
			HVI 46	HVI 68
1	Appearance	Visual	Bright and clear	Bright and clear
2	Colour, max.	ASTM D 1500	L 0.5	L 0.5
3	Kinematic viscosity at 40 °C, cSt	ASTM D 445	42 – 50	62 – 74
4	Viscosity index, min.	ASTM D 2770	135	140
5	Flash point (COC) °C, min.	ASTM D 92	190	210
6	Pour point, °C, max.	ASTM D 97	-18	-18
7	Emulsion test at 54°C, (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-30(20)
8	Turbine oil stability test, hrs.	ASTM D 943	2000	2000
9	FZG, fail load stage, minimum	DIN 51354	10	10
10	Foam characteristics tendency / stability, ml, max.	ASTM D 892		
	Sequence I		Nil	Nil
	Sequence II		Nil	Nil
	Sequence III		Nil	Nil
11	Rusting test, 24 hrs. with sea water	ASTM D 665/B	Complies	Complies

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# DIVYOL ENTRO HLP HYDRAULIC OILS – HLP 32 / 46 / 68 / 100 / 150

### Applications:

Divyol Entro HLP type Hydraulic Oils of grades 32, 46, 68, 100 and 150 are specially formulated for the lubricating requirements of all heavy duty hydraulic applications (both mobile and stationery) requiring high level of wear protection. These oils are ideal for all hydraulic pumps, including high-pressure, high-speed vane, gear, axial and radial piston pumps, except pumps containing silver plated component. Besides hydraulic equipment operating under extreme conditions, it is also used for automated machine tools, press, die casting machines, circulating systems and hydraulic control systems.

### Standards:

Divyol Entro HLP type Hydraulic Oils conform to performance specifications of DIN 51524 Part II (HLP type); Eaton Vickers I-286-S, M-2950-S; IS:10522-1983 (Reaffirmed 1993), IS:11656-1986 (Reaffirmed 1991); Denison HF-0, HF-1, HF2; US STEEL 127 , 136; and Cincinnati Machine P-68, P-69, P70.

### Advantages:

Divyol Entro HLP type Hydraulic Oils have excellent thermal, hydrolytic and oxidative stability as well as anti-foaming quality (from increased demulsibility) adding to their anti-wear properties. These features enable fast air release and optimise system performance and reliability.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro HLP Hydraulic Oils				
			32	46	68	100	150
1	Appearance	Visual	Clear, water white and bright	Clear, water white and bright	Clear, water white and bright	Clear, water white and bright	Clear, water white and bright
2	Kinematic viscosity, cSt at 40 °C	ASTM D 445	30 – 32	42 – 50	62 – 74	90 – 110	135 – 165
3	Kinematic viscosity, cSt at 100 °C, min.	ASTM D 445	5.6	7.2	9.0	12.3	15.2
4	Viscosity index, min.	ASTM D 2270	110	110	110	100	95
5	Flash point (COC), °C, min.	ASTM D 92	190	210	220	225	230
6	Pour point, °C, max.	ASTM D 97	-15	-15	-15	-12	-9
7	Emulsion test at 54 °C (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)	40-37-3(20)	–	–
8	Emulsion test at 82 °C (mins, max.)	ASTM D 1401	–	–	–	40-37-3(30)	40-37-3(30)
9	FZG, Rating stage failure	DIN 51354	11	11	11	11	11
10	Copper strip corrosion at 100 °C 3 hrs.	ASTM D 130	1a	1a	1a	1a	1a
11	Rust characteristics	ASTM D 665/B	Complies	Complies	Complies	Complies	Complies
12	Foaming test, foaming stability after 10 mins settling time, foam, ml	ASTM D 892					
	at 24 °C, max		Nil	Nil	Nil	Nil	Nil
	at 93 °C, max		Nil	Nil	Nil	Nil	Nil
	at 24 °C after cool down from 93°C, max.		Nil	Nil	Nil	Nil	Nil
13	Neutralization number, mg KOH/g	ASTM D664	1.0	1.0	1.0	1.0	1.0

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## DIVYOL ENTRO AW X HYDRAULIC OILS – SERIES

### Applications:

Divyol Entro AW 'X' type Hydraulic Oils of grades 32X, 42X, 68X, 100X, 150X, 220X and 320X are specially blended fluids for the lubricating requirements of all heavy duty hydraulic applications (both mobile and stationery) requiring high level of wear protection. These oils are recommended for all hydraulic pumps, including high-pressure, high-speed vane, gear, axial and radial piston pumps, except pumps containing silver plated component. Besides hydraulic equipment operating under extreme conditions, it is also used for automated machine tools, press, die casting machines, circulating systems and hydraulic control systems.

### Standards:

Divyol Entro AW 'X' type Hydraulic Oils conform to performance standards as per DIN 51524 Part II; Eaton Vickers I-286-S, M-2950-S; Denison HF-0, HF-1, HF2; Cincinnati Machine P-68, P-69, P70; US STEEL 126; Bosch Rexroth RDE 90235; ZF TE-ML 07 H, ZF TE-ML 21M; Eaton Brochure- 02-401-2010; GM LS-2; ISO:11158, HL, HM; and Danieli 0.000.001 Type 10 & 11.

### Advantages:

Divyol Entro AW 'X' type Hydraulic Oils possess excellent oxidation resistance quality and good de-foaming properties, offering superior anti-wear compared to normal grade oils with the same specifications. The blend protects hydraulic system internals against rust and corrosion and its higher film strength results in excellent equipment performance. It also reduces other negative effects of moisture in the system. The oil has good filterability and works for a longer duration, thereby extending service life of equipment as well as the filter.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro AW X Hydraulic Oils						
			32X	46X	68X	100X	150X	220X	320X
1	Appearance		Clear and bright	Clear and bright	Clear and bright	Clear and bright	Clear and bright	Clear and bright	Clear and bright
2	Colour, max.	ASTM D 1500	0.5	0.5	L 0.5	L 05	3.0	3.5	L 4.0
3	Kinematic viscosity at 40 °C, cSt	ASTM D 445	30 – 34	42 – 50	62 – 74	90 – 110	135 – 165	200 – 240	300 – 340
4	Kinematic viscosity at 100 °C cSt, min.	ASTM D 445	5.6	6.9	8.7	11.3	8.3	10.2	12.6
5	Viscosity index, min.	ASTM D 2270	105	96	99	99	98	99	97
6	Flash point (COC), °C, min.	ASTM D 92	210	210	220	225	230	245	258
7	Pour point, °C, max.	ASTM D 97	(-) 18	(-) 18	(-) 18	(-)18	(-)3	(-)3	(-)3
8	Emulsion test at 54 °C (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)	40-37-3(20)	-	-	-	-
9	Emulsion test at 82 °C (mins, max.)		-	-	-	40-37-3(30)	40-37-3(30)	40-37-3(30)	40-37-3(30)
10	FZG, Rating stage failure, min.	DIN 51354	11	11	11	11	10	10	10
11	Copper strip corrosion at 100 °C, 3 hrs.	ASTM D 130	1a	1a	1a	1a	1a	1a	1a
12	Turbine oil stability test, hrs.	ASTM D 943	3000	3000	3000	5000	5000	5000	5000
11	Foaming test, foaming stability after 10 mins. settling time, foam, ml	ASTM D 892							
	at 24°C, max		Nil	Nil	Nil	Nil	Nil	Nil	Nil
	at 93 °C, max		Nil	Nil	Nil	Nil	Nil	Nil	Nil
	at 24°C after cool down from 93 °C, max		Nil	Nil	Nil	Nil	Nil	Nil	Nil
12	Neutralization number mg KOH/g	ASTM D664	0.8	0.8	0.8	0.8	0.8	0.8	0.8

The above properties are typical values and do not constitute specification of the product.

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## DIVYOL ENTRO HVI-X HYDRAULIC OILS

### Applications:

Divyol Entro HVI-X Type hydraulic oils of grades 46X, 68X and 100X are recommended for all heavy duty hydraulic applications (mobile and stationary) that need high level of wear protection with a wide range of operating temperatures. These blends meet the stringent requirements of various hydraulic systems, including the latest, using high pressure high output pumps. They are especially recommended for hydraulic systems of excavators, cranes and hydrostatic drives that operate in severe outdoor conditions.

### Standards:

Divyol Entro HVI-X Type hydraulic oils are specially formulated blends. These blends comprise group II base oils, a polymer of high shear stability and an advanced additive system. This product conforms to performance standards as per DIN 51524 Part III HVLP Type; Eaton E-FDGN-TB002-E; Parker Denison HF-0, HF-1, HF2; Cincinnati Machine P-68, P-69, P70; ISO: 11158, HV Fluids; Bosch Rexroth RDE 90235; ASTM D 6158 (HV); and ISO: 11158, HV Fluids.

### Advantages:

Divyol Entro HVI-X Type hydraulic oils are able to withstand great mechanical stress and heat because of their advanced additive system. They also have excellent oxidative and thermal stability, effective anti-wear protection of moving parts, and filterability. These oils cause less sludge formation, leading to extended periods between oil change intervals. These benefits add up to extended service life of hydraulic systems.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro HVI-X Type Hydraulic Oils		
			46X	68X	100X
1	Appearance	Visual	Clear and bright	Clear and bright	Clear and bright
2	Colour, max.	ASTM D 1500	L 0.5	L 0.5	0.5
3	Kinematic viscosity, cSt at 40 °C	ASTM D 445	42 – 50	62 – 74	90 – 110
4	Kinematic viscosity, cSt at 100 °C, min.	ASTM D 445	8.5	11.0	15.4
5	Viscosity index, min.	ASTM D 2270	160	160	160
6	Flash point (COC), °C, min.	ASTM D 92	210	230	235
7	Pour point, °C, max.	ASTM D 97	-36	-36	-24
8	Emulsion test at 54 °C (mins. max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)	–
9	Emulsion test at 82 °C (mins. max.)	ASTM D 1401	–	–	40-37-3(30)
10	FZG, Rating stage failure	DIN 51354	11	11	11
11	Copper strip corrosion, at 100 °C 3hrs.	ASTM D 130	1a	1a	1a
12	Turbine oil stability test, hrs.	ASTM D 943	3000	3000	5000
11	Foaming test, foaming stability after 10 mins settling time, foam, ml	ASTM D 892			
	at 24°C, max.		Nil	Nil	Nil
	at 93°C, max.		Nil	Nil	Nil
	at 24°C after cool down from 93 °C, max.		Nil	Nil	Nil
12	Neutralisation number mg KOH/g	ASTM D664	1.0	1.0	1.0

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# DIVYOL ENTRO ASHLESS ZINC FREE HYDRAULIC OILS – ZF-32 / 46 / 68

### Applications:

Divyol Entro ZF-32, ZF-46 and ZF-68 hydraulic oils are premium grade zinc-free, ash-less lubricants specially formulated for severely stressed systems that require high levels of anti-wear performance. These oils are recommended for high pressure hydraulic systems, pumps and industrial hydraulic machines operating at high speeds, loads and temperatures. They are widely used also in sophisticated high performance electro-hydraulic or numerically controlled systems found in concrete mixing units in construction applications. The product is especially suitable for applications involving yellow metals found in hydraulic pumps/hydraulic systems.

### Standards:

Divyol Entro ZF-32, ZF-46 and ZF-68 hydraulic oils are formulated with paraffinic, high viscosity index, low pour point mineral oil. The blend is further augmented with high performance additives including a special ashless multifunctional oxidation, rust and wear inhibiting additives package. These ingredients give the product greater chemical stability even under severe operating conditions. They conform to performance specifications as per Cincinnati Milacron P69, P70; DIN 51524 Part II; Bosch Rexroth RE 90220; ISO: 11158 [HM]; Parker HF-0, HF-1, HF-2 [HM]; SAE MS 1004 [HM]; and ASTM D6158.

### Advantages:

Divyol Entro ZF-32, ZF-46 and ZF-68 hydraulic oils have no ZnDTP or zinc. The blends also contain a low phosphorous and low sulphur EP/AW additive package.

These ingredients impart excellent hydrolytic stability, demulsibility, filterability, anti-foaming and air release properties. These qualities in turn ensure ashless performance besides effective protection against wear, corrosion, resisting emulsification and any formation of unwanted stable foam. Consequently, they help extend service life of the hydraulic systems. These oils are also compatible with calcium and zinc containing fluids.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entrol ZF Hydraulic Oils		
			ZF-32	ZF-46	ZF-68
1	Appearance	Visual	Bright and clear	Bright and clear	Bright and clear
2	Colour, max.	ASTM D 1500	0.5	0.5	0.5
3	Kinematic viscosity at 40 °C, cSt	ASTM D 445	30 – 35	42 – 50	62 – 74
4	Flash point (COC), °C, min.	ASTM D92	205	215	225
5	Pour point, °C, max.	ASTM D 97	-21	-21	-15
6	Viscosity index, min.	ASTM D 2270	112	112	112
7	Copper strip corrosion at 100°C, 3 hrs.	ASTM D 130	1a	1a	1a
8	Rust test	ASTM D 665/B	Complies	Complies	Complies
9	FZG, Rating stage failure	DIN 51354	11	11	11

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# DIVYOL ENTRO ASHLESS ZINC FREE HYDRAULIC OILS – HVI-ZF-46 / HVI-ZF-68

### Applications:

Divyol Entro HVI ZF-46 and HVI ZF-68 are premium quality ashless, zinc-free hydraulic oil blends specially formulated for hydraulic and power transmission systems that are subjected to a wide range of ambient and operating temperature changes, even in environmentally sensitive applications. These oils are ideal for critical hydraulic systems such as high accuracy numerically controlled machine tools and those employing close clearance servo valves. The product is widely used for hydraulic systems of excavators, cranes and hydrostatic drives subjected to most severe outdoor operating conditions, such as high pressures and requiring high degree of load carrying capability and anti-wear protection.

### Standards:

Divyol Entro HVI ZF-46 and HVI ZF-68 are blends containing severely hydro processed Group II base oils, a highly shear stable polymer and an advanced ash-less additive system. They were developed for hydraulic applications operating in a wide range of temperatures or where a small viscosity change with fluctuating temperature is needed. The blends conform to performance levels such as Global industry standards viz. DIN 51524 Part 3 HVLP; AFNOR NFE 48-603 (HV); ISO: 11158; HV and majority of the international OEMs viz. Poclain, Hitachi, Fives Cincinnati (Former MAG IAS, LLC); and Eaton & Denison.

### Advantages:

Divyol Entro HVI ZF-46 and HVI ZF-68 have excellent thermal and oxidative stability which reduces deposit formation and enables efficient pump performance even in low and high temperatures. These blends provide effective protection against wear, rust and corrosion leading to extended service life of the system plus longer oil and filter change intervals. The system gets effective protection at cold start-up as well as high operating temperatures. Over time, viscosity loss is negligible, ensuring ‘stay-in-grade’ performance of the oils even under high shear conditions. Their air release properties and faster water separation resists the formation of emulsions. Their hydrolytic stability helps prevent breakdowns and improve production capacity. Lastly, their advanced ash-less additive system minimizes environmental impact in case of an accidental spillage.

### Typical properties:

Sr. No.	Characteristics	Test Method	Divyol Entro HVI ZF Hydraulic Oils	
			HVI ZF-46	HVI ZF-68
1	Appearance	Visual	Bright and clear	
2	Colour, max.	ASTM D 1500	L 0.5	L 0.5
3	Kinematic viscosity at 40 °C, cSt, min.	ASTM D 445	42 – 50	62 – 74
4	Kinematic viscosity at 100 °C, cSt, min.	ASTM D 445	8.5	11.4
5	Viscosity index, min.	ASTM D 2770	160	160
6	Flash point (COC) °C, min.	ASTM D 92	200	220
7	Pour point, °C, max.	ASTM D 97	-21	-21
8	Copper strip corrosion	ASTM D 130	1a	1a
9	Foam characteristics tendency / stability, ml, max.	ASTM D 892		
	Sequence I		Nil	Nil
	Sequence II		Nil	Nil
	Sequence III		Nil	Nil
10	Rusting test, 24 hrs. with sea water	ASTM D 665/B	Complies	Complies
11	Emulsion test at 54 °C, (mins, max.)	ASTM D 1401	40-37-3(20)	40-37-3(20)
12	Turbine oil stability test, hrs.	ASTM D 943	3000	3000
13	FZG, fail load stage, min.	DIN51354	11	11

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**Gandhar Oil Refinery (India) Limited**

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, GMP Certified, NABL Accreditation and Government Recognized Three Start Export House

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