

Voith Turbo GmbH & Co. KG, Postfach 1555, 74555 Crailsheim, Germany
Fabrika Maziva (FAM)
attn. Mrs Ana Ivanović

Voith Turbo GmbH & Co. KG
Voithstraße 1
74564 Crailsheim, Germany
Tel. +49 7951 32-0
Fax +49 7951 32-500
www.voithturbo.com

Your Message E-Mail dated 2012-07-11
Our Reference cra_hbrr

Phone +49 7951 32 1381
Date 2012-10-19
E-mail hannes.berroth@voith.com

Letter of Approval for "Fabrika Maziva (FAM) Hidofluid 125" for Voith Variable Speed Drives

Dear Mrs Ivanović,

According to the following product data on page 2, 3 and 4 sent to us with your E-mail dated 2012-07-11,

"Fabrika Maziva (FAM) Hidofluid 125"

is suitable for the use as operating fluid in Voith Variable Speed Drives.

On the occasion of a new issue, we will include "Fabrika Maziva (FAM) Hidofluid 125" in our lists of recommended oils:

- 3625-006058
(Voith Geared Variable Speed Couplings with Bevel Gears of Sizes 1 to 4 of type "R B1-B4"),
- 3625-006072
(Voith Variable Speed Couplings of type "S" and Torque Converters of type "E"),
- 3625-006073
(Voith Geared Variable Speed Couplings of type "R" and Torque Converters of type "EA / EH"),
- 3625-008426
(Voith Geared Variable Speed Couplings of type "R" – special load-carrying characteristics).

With this approval, Voith does not assume any liability for the oil itself. In case of negative operating result, warranty claims made in this connection will not be accepted.

Best regards,



Hannes Berroth
Voith Turbo GmbH & Co. KG
- Lubricants / Tribology -



Chairman Supervisory Board
of the General Partner
Dr. Hermann Jung

Commercial Register
Reg.-Court Ulm, HRA 661038

Board of Management
Dr. Hubert Lienhard, Chairman
Dr. Martin Füllenbach
Matthias Grawe
Dr. Norbert Klapper
Matthias Lindemann
Dr. Volker Zimmermann

General Partner
Voith Turbo Beteiligungs GmbH
Reg.-Court Ulm, HRB 661216

VAT Reg.No.: DE 145216193
Tax No.: 64004/08610

Banking Connection
Commerzbank AG, Filiale Aalen
Bank Code No. 614 400 86
Acc.No.1 011 766
SWIFT-Code: COBAEFF614
IBAN DE78 6144 0086 0101 1766 00

Germany
Land of Ideas



Official Partner

Product data of Fabrika Maziva (FAM) Hidofluid 125:
(according to E-mail dated 2012-07-11)

VOITH	Operating Fluids on the Basis of Hydrocarbons for Voith Variable Speed Drives Questionnaire for Approval
--------------	---

For a preliminary examination of the suitability of an oil type as operating fluid in hydrodynamic machines, the characteristic data stated in the table are required. Please enter the values known and return the document to Voith Turbo GmbH & Co. KG.

Product designation	HIDOFUID 125
Basic oil	MOL 150 N
Manufacturer	FABRIKA MAZIVA FAM AD KRUSĚVAC
Contact	Ana Ivanović
Phone No.	+381/37411876
E-mail address	ana.ivanovic@fam.co.rs
Area of distribution	Europe

Characteristic value	Test procedure	Test conditions	Unit	Actual value	OK?
Physical data					
Kinematic viscosity	DIN 51562	40 °C	mm ² /s	30.7	<input checked="" type="checkbox"/>
	ASTM D 445				
Viscosity index	DIN ISO 2909			100	<input checked="" type="checkbox"/>
	ASTM D 2270				
Density	DIN 51757	15 °C	kg/m ³	875	<input checked="" type="checkbox"/>
	ASTM D 1298		kg/l		
Specific heat capacity		20 °C	J/(kg * K)		
Pour point	DIN ISO 3016		°C	-27	<input checked="" type="checkbox"/>
	ASTM D 97				
Flash point	DIN ISO 2592		°C	207	<input checked="" type="checkbox"/>
	ASTM D 92				
Ignition temperature	DIN 51794		°C	252	<input checked="" type="checkbox"/>
	IEC 60079-4				

Characteristic value	Test procedure	Test conditions	Unit	Actual value	OK?
Chemical data					
Phosphor (P)			ppm	-	<input checked="" type="checkbox"/>
Zinc (Zn)			ppm	-	<input checked="" type="checkbox"/>
Neutralization number	DIN 51558		mg KOH / g	3.29	<input checked="" type="checkbox"/>
	ASTM D 974				
Corrosive effect on copper	DIN EN ISO 2160	3h at 100 °C	Corrosion category	1-B	<input checked="" type="checkbox"/>
	ASTM D 130				
Anticorrosive properties toward steel	DIN ISO 7120	Procedure A	Corrosion category	Pass	<input checked="" type="checkbox"/>
	ASTM D 665				
IR diagram		to be attached			<input checked="" type="checkbox"/>

Replacing:

Date: 2008-05-15/Shn issued by: airee-TRg checked by: aire-HSi	Voith Turbo GmbH & Co. KG - D-74555 Crailsheim P.O. Box 1555 · Phone (07951) 32-0 · Fax 32-500	3625-008431 en Rev. 0 Page 1 / 2
--	---	--

VOITH	Operating Fluids on the Basis of Hydrocarbons for Voith Variable Speed Drives Questionnaire for Approval
--------------	---

Characteristic value	Test procedure	Test conditions	Unit	Actual value	OK?
Tests					
Aging characteristic	DIN 51587	1000 h at 95 °C	Increase of neutralization number	-	
Aging stability	ASTM D 943	95 °C, neutr.number =2	h	3764	✓
Demulsibility	ISO 6614	Time in minutes at 54 °C	Minutes	5	✓
	ASTM D 1401				
Air release property	DIN ISO 9120	0.2 % at 50 °C, from ISO VG 100: 75 °C	Minutes	4.0	✓
	ASTM D 3427				
Foaming behavior Sequences I - III	ISO 6247	SI at 24 °C	m/ml	SI: 0	✓
	ASTM D 892	SII at 93,5 °C	m/ml	SII: 20	
			SIII at 24 °C	m/ml	SIII: 0
Load carrying capacity FZG test	DIN ISO 14635-1	Test A/8,3/90	Failure load stage	≥ 12	✓
Micropitting performance	FVA No. 54/IV	GT-C8,3/90	Failure load stage	-	
FE8 Test Wear of rollers Wear of cage	DIN 51819-3	D7,5/60-80	Wear of rollers: mg	2.3	✓
			Wear of cage: mg	85.6	✓
Compatibility with sealing material SRE-NBR 1	DIN ISO 1817	SRE-NBR 1 acc. to DIN 53538-1 7 days at 100 °C	Relative change in volume %	7	✓
	DIN ISO 1817 in connection with DIN 53505		Change in hardness Shore A	0	✓

In hydrodynamic circuits, the oil is exposed to high mixture with air and even in case of water ingress, it shall not form any sludge at an operating temperature of 90 °C (temporarily 130 °C).

Release - notes:

Approved:

Yes, for the following types / designs:

No

for test purposes

3625-006058
3625-006072
3625-006073
3625-006076

Remarks:

Date / Name: 2012-10-19

Date: 2008-05-15/Shn
issued by: airee-TRg
checked by: aire-HSI

Voith Turbo GmbH & Co. KG - D-74555 Crailsheim
P.O. Box 1555 · Phone (07951) 32-0 · Fax 32-500

3625-008431 en
Rev. 0
Page 2 / 2

