

BLUE MANTA AS

WINDER CERTIFICATION PACKAGE

BLUE MANTA SERIAL NUMBER: BM-WS-651

OFFICE ADDRESS:

NORSEA BASE, BUILDING 104
4098 TANANGER
NORWAY

BLUE MANTA CONTACT:

karin.walker@bluemanta.com

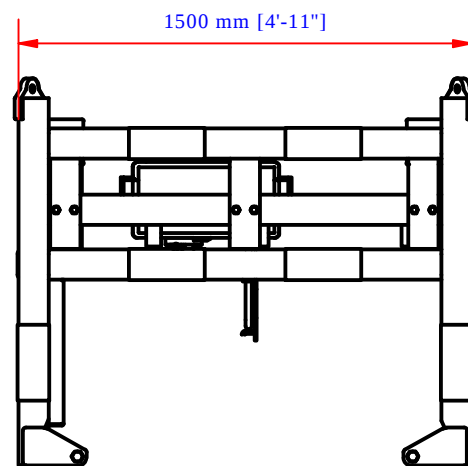
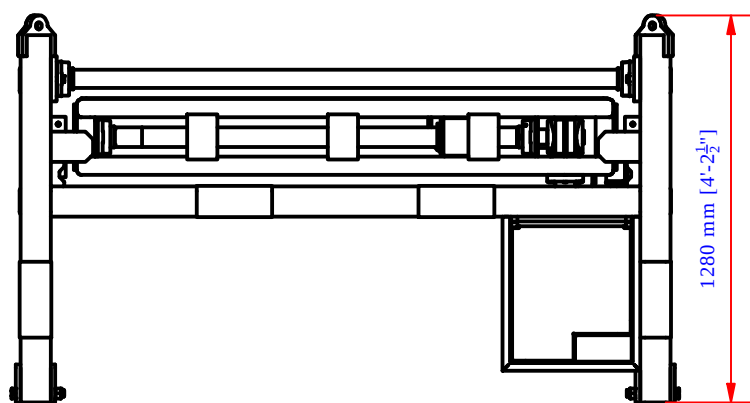
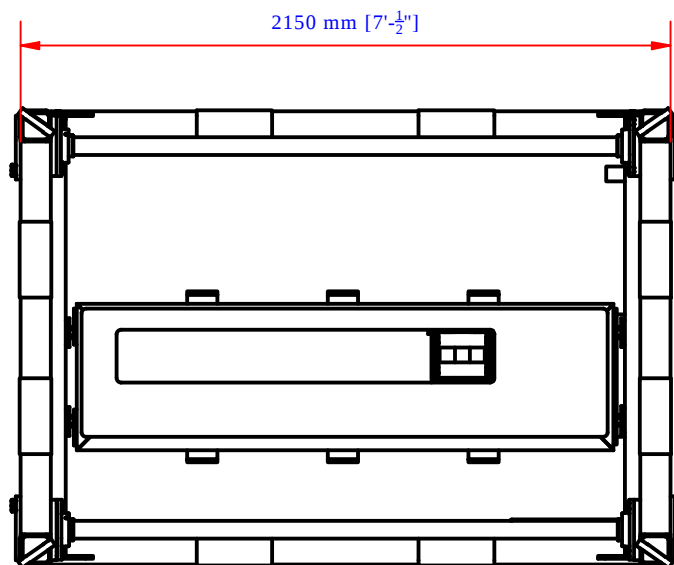
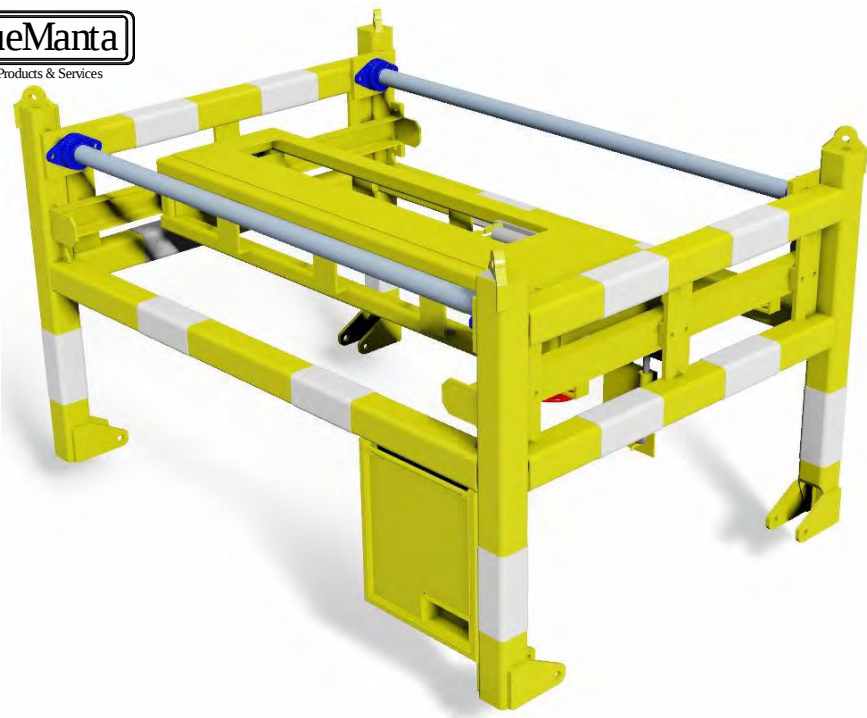
1. SALES DRAWING

2. DNV CERTIFICATION

**3. EC DECLARATION OF CONFORMITY &
NORSOK DECLARATION OF CONFORMITY**

**4. OPERATING AND MAINTENANCE
INSTRUCTIONS**

5. MAINTENANCE HISTORY

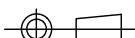


REVISION HISTORY							
REV	BY	DESCRIPTION	DATE	CHKD	APPR	EXT APP	CL APP
1	DB	-	25.01.16	NH	DB	N/A	N/A
2	RG	Added Model Number and Weights	16.09.20	RG	IH	N/A	N/A



Notes:
Model Number: 02-6500-WS
Tare: 700 Kg
Payload: N/A
Gross: 700 Kg



This drawing is copyright© and is the property of Blue Manta International, and must not be reproduced or used without the express permission of Blue Manta International.		General tolerances UNO Steel fabrications: Ø3.00mm Machining: Ø0.25mm Concentric: Ø0.05mm Angular: Ø30mins	Machined corner rads. Inside: Ø0.50mm UNO Outside: Ø0.65mm UNO
Description: 65" Spool Winder			 Third angle projection
Part no: 02-6500-WS		Drawing No: BMD-1393.S	
Client: Bluemanta		Scale: NTS @ A3	



Firma/Company Redkon AS Org.nr./Entity ID: 818745702 Plattformveien 6 4056 TANANGER Norway	Eier/Owner BLUE MANTA AS Skvadronveien 22 4050 SOLA Norway	Lokasjon/Location
65" Spooler Winder system		
Eiers ID/Owner's ID BM-WS-651 Prod. år/year 2016 Total vekt/Max Gross Weight 700kg Høyde/Height 1270m	Serienr./Serial No/Batch BM-WS-651 Sertifisert av/Certified by Lloyds Register Lengde/Length 2160mm NDT test dato/NDT test date ET - 06.03.2023	Produsent/Maker Blue Manta International Limited Tillatt belastning /Payload 700kg Bredde/Width 1500mm
Wiresling 4-Part 18mm WLL.1T v/30°- DNVGL-ST-E271		
Serienr./Serial No/Batch JDS-4774 Prod. iht./acc. to DNVGL-ST-E271, NS-EN 12079 Lengde/Length 2500mm	Produsent/Maker John Dahle Skipshandel AS WLL (tonn) 1t NDT test dato/NDT test date ET - 06.03.2023 (Masterlink)	Prod. år/year 2019 Diameter/Diameter 18mm Sertifikat nr./Certificate no. RED-216176
H-Shackle Anja Arctic no. 856 WLL.4,75t		
Serienr./Serial No/Batch ZPO/10223 WLL (tonn) 4,75t Sertifikat nr./Certificate no. 125621	Produsent/Maker Gunnebo Anja Industrier AS Sertifisert av/Certified by Erling Haug AS	Prod. iht./acc. to EN 13889 / DNV 2.7-1 Antall /Number of 3
H-Shackle Offshore, Gunnebo 856,WLL 4,75 t		
Serienr./Serial No/Batch ZPO-11021 WLL (tonn) 4,75t	Produsent/Maker Gunnebo Anja Industrier AS Antall /Number of 1	Prod. iht./acc. to NS-EN-13889/US Fed Spec RR-C-271 Sertifikat nr./Certificate no. RED-216177
Testet/kontrollert iht. - tested/inspected acc. to NORSOK R003	Sjekkliste/Check list	Sertifikat/Certificate ABN1604098/1
Merknader/Remarks		

Undertegnede attesterer at ovennevnte innretning med tilbehør er inspisert som angitt ovenfor etter bestemmelsene i « Forskrift om administrative ordninger § 8-7»

The signatory confirms that the above mentioned lifting appliance(s) with accessories was inspected in accordance with the regulations given in "Forskrift om administrative ordninger § 8-7»"

OK-Ingen kommentarer/No comments C-Kommentar/Comments MO-Merknad/Memorandum RC-Pålegg/Recommendation NC-Avvik (Ikke godkjent)/Non-conformity ✓ -Løst/Solved

Kontrolldato/Exam. Date 03.12.2024	Kontrolltype/Type of Examination Periodisk kontroll / Periodic control	Status OK Godkjent for bruk/Approved for use	Neste kont./Next Exam. 03.12.2025
Utført av/Done By K. Eike Kenneth Eike, Inspektør		Ansvarlig/Responsible Øyvind Jacobsen Øyvind Jacobsen, Stavanger , Fagleder	

Client/Kunde Blue Manta International			Rapport Nr: 13977.2		
Contractor/Kontraktør			Date/Dato: 06.03.2023		
Object/Objekt 65"Spool Winder System with wiresling			Drawing/Tegning no		
ID: BM-WS-651 with sling id. JDS-4774			Material Carbon (CS).		
Type of weld/ Sveise type T-forbindelse			Reinforcement/Råk høyde Normal		
Heat treat/Varmebeh. No / Nei	Surface cond. /Overflatebesk. Clean/painted	Coating type/ Malingstype Norsok	Thicknes/Tykkelse 0-500 µm		
Examination proc/Undersøkelse pros. 103-1		Reference/Referanse NS-EN ISO 17643, DNV-CG-0051			
Equipment/Utstyr WeldCheck+ Model: IWEL002		Type / Modell IWEL-002	Ser.no. 509341/01		
Sonde Weld probe/Sveiseprobe Balance Built into probe		Probe no. 509314/01			
Adjustment / Instillinger Freq/Frekv: 100kHz Gain / Forsterkning 43 dB Phase / Fase Hipass:DC Lopass: 30Hz					
Reference/ Referanse material Ferromag.	Crack depth / Sprekkdybde 1mm	Alarm 507438/05%	Ser.no 403641-55		
Examined for / Undersøkt for. Begge (Langsgående og tvergående)					
Extent of examination / Kontrollomfang: 100% ET of padeyes and 20% of load bearing construction. 100% ET of masterlink on sling					
Result of examination / Resultat av undersøkelsen: No indications found during inspection Accepted acc. to spec.					
Kommentar/Comments:					
Rep.marked/ Rep merket	Check of / Kontr.av	Enclosures / Vedlegg 0	Inspector/Inspektør Ariel Cichowski	Cert./Sert.no. 2017/ET2-0259/00	
Stempel: 			Inspector / Inspektør Level 2  Ariel Cichowski		

PRODUSENT / ANSVARLIG TEKNISK DOKUMENTASJON PRODUCER / RESPONSIBLE TECHNICAL FILE					
John Dahle Skipshandel AS Kontinentalvegen 24 NO-4056 Tananger Norway					
SAMSVARSERKLÆRING / DECLARATION OF CONFORMITY					
Kunde / Customer	REDKON AS		Sertifikatnr./Certificate no	JDS2019-4774 A	
			Kundes ref. / Customers ref.	2914	
			Vårt ordrenr. / Our order no	16342384	
Merking / Serienr. Marking / Serial no	Artikkelnr. Article no	Beskrivelse av løfteredskapet Description of the Lifting Equipment	Antall Qty	Iht. standarder eller tegninger Standards or drawings used	Største tillatte arbeidslast Working Load Limit (WLL)
JDS -4774 08/19 CE	0101400	WIRESKREV IHT. DNVGL-ST-E271 4-PARTIG 2,5M	1 STK	DNVGL-ST-E271 NS-EN 12079	1 T ved 30 °
		IHT. DNVGL-ST-E271.			
SAMMENSATT AV / COMPONENTS USED					
Artikkelnr. Article no	Beskrivelse av komponenter Description of components		Antall Qty	I samsvar med standard(er) In accord. with standard(s)	ID-nummer ID number
0211304	LØFTEHODE FRAM OFFSHORE MA 25 OF GRADE 8 BLÅ		1 STK	NS-EN 1677-4 og DNV 2.7-1	41/4F
0110818	WIRE HYFLEX 6X36+FC, 1960 N/MM², MBL 21,38 TONN GALVANISERT 18 MM		* STK	NS-EN 12385	39808/1911/005
Navn, adresse og identifikasjonsnummer på teknisk kontrollorgan som eventuelt har gjennomført typegodkjenning i henhold til vedlegg IX, samt nummeret på typegodkjenningsattesten eller som eventuelt har attestert fullstendig kvalitetssikring i henhold til vedlegg X. <i>The name, address and identification number of the notified body which carried out the EC type-examination referred to in Annex IX and the number of the EC type-examination certificate or which approved the full quality assurance system referred to in Annex X.</i>					
Vi bekrefter herved at utstyret som nevnt over samsvarer med de grunnleggende kravene til helse og sikkerhet i Forskrift om Maskiner. Denne samsvarserklæringen er ugyldig hvis utstyret endres eller brukes på en annen måte enn det er ment for uten etter først å ha konsultert oss og fått godkjenning for dette. <i>We hereby declare that the lifting accessory/equipment indicated above meets the basic health and safety requirements of the Forskrift om Maskiner in respect of its concept and design. This declaration is invalid if the lifting accessory/equipment is altered or used in application for which it is not intended without prior consultation with us.</i>					
Sted / City	Dato / Date	Stilling / Position	Navn / Name	Signatur / Signature	
Tananger	2019-08-01	Lagermedarbeider	Karoline Johnsen		
John Dahle Skipshandel AS, Kontinentalvegen 24, 4056 Tananger, Norway Tel: + 47-51646990, Fax: +47-51646991, E-mail: post@john-dahle.no					

Anm: Dette sertifikatet inneholder opplysninger som er i samsvar med de opplysninger som er påkrevd av ILO konvensjon nr.152

Note: This certificate contains information that is consistent with the information required by ILO Convention nr.152



SERTIFISERING · INSPEKSJON · NDT · SALG · Utleie
www.redkon.no · Tlf: 938 86 100 · Tlf: 938 86 101



Kunde/Client: **BLUE MANTA AS**

Sertifikat nr./Certificate no. : **RED-216177**

For prøving og undersøkelse av kjettinger,ringer,kroker,sjakler, svivler, blokker og andre løfteredskaper.

For testing and thorough examination of chains, rings, hooks, shackles, swivels, pulley blocks and other lifting accessories.

Ordrenr/Order No: 2914 Kundens ordrenr/Customer Order No: 0272

FORM 4

ID. Kjenningnr. eller merke / Distinguishing number or mark	Beskrivelse av utstyr / Description of gear	Antall / Number	Dato for prøve / Date of test	Prøvelast (tonn) / ProofLoad (tonnes)	WLL (tonn) / WLL (tonnes)
ZPO-11021	H-Shackle Offshore, Gunnebo 856,WLL 4,75 t Serienr./Serial No/Batch: ZPO-11021 Produsent/Producer: Gunnebo Anja Industrier AS Prod. år/year: 2019 Prod. iht./acc. to: NS-EN-13889/US Fed Spec RR-C-271 Antall /Number of : 4 Material : Carbon Steel - Grade 8 Sik.faktor/Safety fact (SF) : 8:1 Declaration of conformity no. 233841 Testet av produsent i serieproduksjon/ Tested by manufacturer in serial production.	*	*	*	4,75

Ble redskapene undersøkt av en sakkyndig virksomhet etter prøvebelastningen og funnet å ha utholdt belastningen uten deformasjon og å være fri for brudd, brist eller andre feil? / Was the above gear examined by a competent person and found to have withstood the proof load without damage or deformation, and no fraction, cracks etc detected?

Ja/Yes

Navn og adresse til fabrikanten eller forhandleren / Name and address of manufacturer or distributor

Gunnebo Anja Industrier AS

Navn og adresse på den sakkyndige virksomhet, som utførte prøven og undersøkelsen / Name and address of manufacturer, company, association or distributor that performed the test and examination

Redkon AS
Kontinentalveien 10
4056 TANANGER
Norway

Den ansvarshavendes navn og stilling i ovennevnte institusjon, sakkyndig virksomhet som utførte prøven og undersøkelsen / Position of signatory that performed test and examination

Øyvind Jacobsen
Fag Leder

Undertegnede attesterer at ovennevnte innretning med tilbehør er prøvebelastet som angitt ovenfor etter bestemmelsene i «Forskrift 1360 Forskrift om administrative ordninger», at prøven ble utført under oppsyn av en sakkyndig virksomhet, at en grundig undersøkelse av innretningen med tilbehør utført av en sakkyndig virksomhet, viste at den hadde utholdt prøven uten å ha fått skade eller permanente formforandringer, og at den tillatte arbeidsbelastningen av innretningen er som angitt over.

The signatory confirms that the above mentioned lifting appliance(s) with accessories was tested in accordance with the regulations given in "Forskrift 1360 Forskrift om administrative ordninger", and that the load test was carried out under supervision of Sakkyndig Virksomhet(authorised company) and found to have withstood the proof load without damage or deformation, and no fraction, cracks etc. detected, and that the safeworking for the lifting appliance / device is as shown above.

05.08.2019

Øyvind Jacobsen, Fag Leder



Nr/No: 233844

Ordrenr/Order No: 205151 Kundens ordrenr/Customer Order No: 2914

Kjenningssnr. eller merke/Distinguishing mark

ZPO-11021

Antall/Number: 4

Beskrivelse av utstyr/Description of equipment

Sjakkell H Offshore m/mutterbolt, Gunnebo 856,WLL 4,75 t

Produsent/Producer:

Gunnebo Anja Industrier AS

Prod. iht./acc. to:

NS-EN-13889/US Fed Spec RR-C-271

Sjakkell H Offshore m/mutterbolt, Gunnebo 856,WLL 4,75 t

Produsent/Producer:

Gunnebo Anja Industrier AS

Prod. iht./acc. to:

NS-EN-13889/US Fed Spec RR-C-271

Teknisk ansvarlig/Responsible Technical

Gunnebo Anja Industrier AS, 5282 Lonevåg, Norway

Vi bekrefter at overnevnte produkter er i samsvar med bestemmelsene i Forskrift om maskiner, FOR 2009-05-20 vedlegg 1.
We declare that the above mentioned Products are in accordance with the Machinery Directive, 2006/42/EC

Sted og dato/Place and Date:

Follestad, 01.08.2019

Sign.

Harald A. Hope, Managing Director

ABERDEEN LIFTING SERVICES LTD

CERTIFICATE OF TEST, EXAMINATION AND INSPECTION REPORT

Provision and use of Work Equipment Regulations-SI 2306

Lifting Operations and Lifting Equipment Regulations- SI 2307



CLIENT:	BLUE MANTA 6 KIRKTON AVENUE PITMEDDEN RD IND EST DYCE ABERDEEN AB21 0BF	TEST HOUSE:	ABERDEEN LIFTING SERVICES LTD HOWE MOSS CRESCENT KIRKHILL INDUSTRIAL ESTATE, DYCE ABERDEEN AB21 0GN TEL: 01224 723333 FAX: 01224 723311
P.O. NO:	22275	REQUISITION NO:	
CERT NO:	G7579-01	INSPECTION DATE:	02/11/2015

SERIAL NO:	QTY	DESCRIPTION	SWL/PAYLOAD	PROOF LOAD
BM-WS-651	1	65" WINDER SYSTEM TO LLOYDS LAME 2.16M x 1.50M x 1.27M APPROX ALL WELDED STEEL CONSTRUCTION C/W 4 TOP MOUNTED LIFTING POINTS TARE WT: 700 KGS GROSS WT: 700 KGS 4 POINT TEST	NIL	1750 KGS

M.P.I INSPECTION DETAILS

PROCEDURE:	ALNDT.01A REV 03	EQUIPMENT:	Y6 YOKE	METHOD:	WET CONTINUOUS
SPECIFICATION:	ASTME1444/E1444 M-11	MEDIA:	NPT 16 WHITE PAINT	INSPECTOR:	D.CRAIG
MATERIAL:	WELDED CARBON STEEL	INDICATOR:	BLACK INK	QUALS:	SNT 11

RESULTS: A MAGNETIC PARTICLE INSPECTION WAS CARRIED OUT ON LIFTING POINT WELDMENTS. ON THE EQUIPMENT NO CRACK OR CRACKLIKE INDICATIONS WERE NOTED AT TIME OF INSPECTION.

DECLARATION: I HEREBY DECLARE THAT THE ABOVE INFORMATION IS CORRECT AND THE EQUIPMENT HAS BEEN TESTED AND THOROUGHLY EXAMINED IN ACCORDANCE WITH THE APPROPRIATE PROVISIONS AND IS FREE FROM DEFECTS AFFECTING SAFETY.

	COMPLETED BY
ENGINEER	D.CRAIG
SIGNATURE	
DATE	02/11/2015

NEXT INSPECTION DATE: 01/05/2016
DATE OF MANUFACTURE: 10/2015



QF25

ABERDEEN LIFTING SERVICES LTD



MAGNETIC PARTICLE INSPECTION REPORT

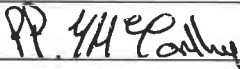
CUSTOMER: BLUE MANTA	LOCATION: ALS YARD
P.O. No: 22275	CERT No: G7579-02
JOB No:	DATE OF INSP: 02/11/2015

JOB DESCRIPTION:

100% MAGNETIC PARTICLE INSPECTION CARRIED OUT PRE & POST LOAD TEST ON ALL LOAD BEARING WELDS & 20% SECONDARY WELDS

ITEM: 65" WINDER SYSTEM	
QUANTITY: 1	SURFACE: AS WELDED
SERIAL No: BM-WS-651	EQUIPMENT: Y6 YOKE
DRG. No:	MEDIA: NPT 16 WHITE PAINT
MATERIAL: CARBON STEEL	INDICATOR: BLACK INK
PROCEDURE: WI ALNDT.01A REV03	METHOD: WET CONTINUOUS
SPECIFICATION: ASTM E1444/E1444M-11	

RESULTS: NO CRACK OR CRACKLIKE INDICATIONS ARE NOTED AT TIME OF INSPECTION.

	COMPLETED BY
ENGINEER/TECHNICIAN	D.CRAIG
SIGNATURE	
DATE	02/11/2015

Project: **65" Spooler Winder (Rental Fleet)**Office: **Aberdeen**Client: **Blue Manta International Limited**Address: **5 Kirkton Avenue, Pitmedden Road Industrial Estate,
Dyce, Aberdeen, AB21 0BF**Date: **01 February 2016**Client's Order Number: **22892**Order Status: **Complete**

Inspection Dates

First: **01 November 2015**Final: **01 February 2016****This certificate is issued to**

Blue Manta International Ltd., Purchase Order No. 22892, to certify that the undersigned Surveyor did at their request attend their premises at Pitmedden Industrial Estate, between the above dates in order to carry out surveys as described below:

Description:

One off 65" Spool Winder Systems

Drawing No. BMD-1393 Rev. 1

Serial No. BM-WS-651

Scope:

1. A general visual examination of the aforementioned items was carried out and no external damage or significant defects noted.
2. Calibration records for test equipment were audited for validity and accepted - all found to be within calibration due dates and traceable to national standards.
3. The Winder Frames were witnessed being load tested in accordance with LR Rules for Lifting Appliances in a Marine Environment.
4. The test records/certificates were reviewed and endorsed on completion.
5. Upon completion of testing the Winder Frames were visually inspected to verify no damage as a consequence of the test - all found satisfactory.
6. The Winder Frames were then fitted to a 65" Spooler and satisfactory function testing witnessed - all found satisfactory.
7. Satisfactory review and endorsement of documentation/certification package carried out on completion of all inspection and testing activities

Equipment Calibration:

Calibration records for test equipment were audited for validity and accepted:

0-12.5Te Cabled Load Link, Serial No. ALS12-5, Calibrated 22 June 2015 - Basis of calibration BS 8422:2003, Accuracy of Device in accordance with BS EN 75001:2004 via UKAS Laboratory 0375

Marking / Identification:

Winder Frame serial number welded to frames:

BM-WS-651

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

EC Declaration of Conformity

In accordance with BS EN ISO/IEC 17050-1:2010

We: **Blue Manta International**
5 Kirkton Avenue
Pitmedden Road Industrial Estate
Dyce, Aberdeen, UK
AB21 0BF

Declare that:

Equipment: 65" Winder System to suit Spooling Unit
Classification: Group II Category 3 G IIB T4
Serial number: BM-WS-651

Is in accordance with the following Directives:

2014/34/EU **Conforms to the Essential Health and Safety Requirements of the equipment in Explosive Atmospheres (ATEX) Directive.**

2009/127/EC **Conforms to the Essential Safety Requirements of the Machinery Directive**

And has been designed and manufactured to the relevant parts of the following standards:

EN 13463-1: 2009 Non – electrical equipment for use in potentially explosive atmospheres
Part 1: Basic methods and requirements.

EN 13463-5: 2011 Non-electrical equipment intended for use in potentially explosive atmospheres.
Protection by constructional safety 'c'

EN 15198: 2007 Methodology for risk assessment of non-electrical equipment and components for
intended use in potentially explosive atmospheres.

And is built in accordance with the following additional standards:

LR Rules for Lifting Appliances in a Marine Environment (L.A.M.E)

ANNEX J
LIST OF ALL EX-APPROVED EQUIPMENT ON THE UNIT

The documentation for the temporary equipment (container or skid), shall include a list of all Ex-approved equipment on the unit, see 5.8.2.

TAG NUMBER	EQUIPMENT DESCRIPTION	APPROVED FOR ZONE	CERTIFICATE	COMMENT
6AM-NRV-22A	Gast Air Motor	Zone 2	N/A	See GAST Declaration of Conformity within NORSOK Package
RA77AM56	SEW Eurodrive Gearbox	Zone 2	N/A	See SEW Eurodrive EU Declaration of Conformity within NORSOK Package

Z-015 DECLARATION OF CONFORMITY

Z-015 DECLARATION OF CONFORMITY																																													
Supplier	ID	Type	Description																																										
Blue Manta International Ltd	BM-WS-651	U10	Winder System to suit Back Tension Spooling Unit																																										
This temporary/equipment is designed in accordance with NORSOK Z-015, without non-conformance ☒, with non-conformance (see list below) ☐, Date / name / company / position / signature: 09.03.2023 / Mark Ritchie / Blue Manta International Ltd / Base Manager  This container/equipment is approved for location in Ex-zone: Zone 1 ☐, Zone 2 ☒, Non-hazardous area ☐, Date / name / company / position / signature: 09.03.2023 / Mark Ritchie / Blue Manta International Ltd / Base Manager  Use of this container/this equipment requires clearance in each case (see 5.5.1) This container/equipment is CE-marked, based on the following regulations (EEA directives, enforcement date for when the regulations apply without transition period): <table border="1"> <thead> <tr> <th>REGULATION / DIRECTIVE</th> <th>APPLICABLE DIRECTIVE</th> <th>OK</th> </tr> </thead> <tbody> <tr> <td>- Simple pressure vessels</td> <td>2014/29/EU FOR-2017-02-10-171</td> <td>☐</td> </tr> <tr> <td>- EMC</td> <td>2014/30/EU FOR-2017-10-10-1597</td> <td>☐</td> </tr> <tr> <td>- ATEX</td> <td>2014/34/EU FOR-2017-11-29-1849</td> <td>☒</td> </tr> <tr> <td>- PED</td> <td>2014/68/EU FOR-2017-10-10-1631</td> <td>☐</td> </tr> <tr> <td>- Machinery regulations</td> <td>2006/42/EF FOR-2009-05-20-544</td> <td>☒</td> </tr> </tbody> </table> Non-conformance: <table border="1"> <thead> <tr> <th>No.</th> <th>Reference requirement doc. (doc. no. and section)</th> <th>Description of non-conformance</th> <th>Compensating measures/remarks</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> Restrictions or special requirements for use of container/equipment: <table border="1"> <thead> <tr> <th>No.</th> <th>Area of validity (see NOTE)</th> <th>Description</th> <th>Name and date (responsible person)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>All</td> <td>No unauthorised modifications to be carried out without the express permission of Blue Manta International as this may invalidate ATEX certification</td> <td>Mark Ritchie 09.03.2023</td> </tr> <tr> <td>2.</td> <td>Offshore Installation</td> <td>The unit must be effectively bonded to the structure of the offshore installation</td> <td>Mark Ritchie 09.03.2023</td> </tr> <tr> <td>3.</td> <td>All</td> <td>The accompanying instructions contain important information for the installation, operation and maintenance of the equipment and must be adhered to.</td> <td>Mark Ritchie 09.03.2023</td> </tr> </tbody> </table> Use of this equipment requires prior acceptance of responsible person in the company, see 5.8.3: Yes ☐ , No ☒ (If Yes, please list the conditions that require prior acceptance in the remarks column) NOTE - Can for example be installation, company or all				REGULATION / DIRECTIVE	APPLICABLE DIRECTIVE	OK	- Simple pressure vessels	2014/29/EU FOR-2017-02-10-171	☐	- EMC	2014/30/EU FOR-2017-10-10-1597	☐	- ATEX	2014/34/EU FOR-2017-11-29-1849	☒	- PED	2014/68/EU FOR-2017-10-10-1631	☐	- Machinery regulations	2006/42/EF FOR-2009-05-20-544	☒	No.	Reference requirement doc. (doc. no. and section)	Description of non-conformance	Compensating measures/remarks					No.	Area of validity (see NOTE)	Description	Name and date (responsible person)	1.	All	No unauthorised modifications to be carried out without the express permission of Blue Manta International as this may invalidate ATEX certification	Mark Ritchie 09.03.2023	2.	Offshore Installation	The unit must be effectively bonded to the structure of the offshore installation	Mark Ritchie 09.03.2023	3.	All	The accompanying instructions contain important information for the installation, operation and maintenance of the equipment and must be adhered to.	Mark Ritchie 09.03.2023
REGULATION / DIRECTIVE	APPLICABLE DIRECTIVE	OK																																											
- Simple pressure vessels	2014/29/EU FOR-2017-02-10-171	☐																																											
- EMC	2014/30/EU FOR-2017-10-10-1597	☐																																											
- ATEX	2014/34/EU FOR-2017-11-29-1849	☒																																											
- PED	2014/68/EU FOR-2017-10-10-1631	☐																																											
- Machinery regulations	2006/42/EF FOR-2009-05-20-544	☒																																											
No.	Reference requirement doc. (doc. no. and section)	Description of non-conformance	Compensating measures/remarks																																										
No.	Area of validity (see NOTE)	Description	Name and date (responsible person)																																										
1.	All	No unauthorised modifications to be carried out without the express permission of Blue Manta International as this may invalidate ATEX certification	Mark Ritchie 09.03.2023																																										
2.	Offshore Installation	The unit must be effectively bonded to the structure of the offshore installation	Mark Ritchie 09.03.2023																																										
3.	All	The accompanying instructions contain important information for the installation, operation and maintenance of the equipment and must be adhered to.	Mark Ritchie 09.03.2023																																										

Z-015 Data Sheet for Temporary Equipment

Z-015 Data Sheet for Equipment Part 1 (always to be completed)			
<u>Supplier</u>	<u>ID No</u>	<u>Type</u>	<u>Description</u>
Blue Manta International	BM-WS-651	U10	Winder System to suit Back Tension Spooling Unit

<u>Outer Dimensions</u> <u>(L x H x D)</u>	<u>Net Weight (kg)</u> <u>Max Weight (kg)</u>	<u>Approved for</u> <u>location in Ex Zone</u>	<u>Year of</u> <u>Manufacture</u>	<u>Latest Modification</u>
2160 mm x 1270 mm x 1500 mm	700kg 700kg	Zone 2	2019	none

Manned when hooked up to Installation

Connect suitable air supply (3/4" minimum hose diameter) via either Crows foot or MacDonald connection. Depending on the connection at the back of the air connection this may have to be changed to match the connection which is being used.

Permanent ☐
 Periodic ☒
 Normally Unmanned ☐

Signature:
(Responsible Person)



Name: Mark Ritchie

Position: Base Manager

Date: 09.03.2023

DATA SHEET, part 2, equipment data (relevant parts shall be completed)			
Supplier	ID		Revision date
Blue Manta International Ltd	BM-WS-651		

DIESEL ENGINE (5.3.1)				
Type, manufacturer	Rated Power	Ignition source emergency shutdown (230 V)	Gas detector	Max temp for emergency shutdown
N/A	N/A	N/A	N/A	N/A
Ex-rating	Exhaust temp.	Surface temp. (max)	Combustion air inlet arrangement	Exhaust pipe
N/A	N/A	N/A	N/A	N/A
Spark arresters	Flame arresters	Over speed protection	Air dampers	
N/A	N/A	N/A	N/A	
Safety functions (stop):				
N/A				
Start system type	Cooling system type	Diesel day tank (volume)		
N/A	N/A	N/A		

COMPRESSOR (5.3.2)				
Type, manufacturer	Output capacity (m ³ /h, bar)	Safety functions (stop)	Design code	Operating pressure
N/A	N/A	N/A	N/A	N/A
Type, manufacturer	Output capacity (power)	Ignition source emergency shutdown (230 V)	Gas detector	Monitoring and safety systems
N/A	N/A	N/A	N/A	N/A
Spark arresters				
N/A				

TANKS (5.3.3)				
Type, manufacturer	Design code pressure rating	Scope of use/ restrictions	Safety valve last tested	Potential ignition sources
N/A	N/A	N/A	N/A	N/A
Temperature range				
N/A				

HIGH PRESSURE CLEANING EQUIPMENT (5.3.4)				
Type, manufacturer	Design code pressure rating	Safety valve last tested	Power supply (electrical/diesel, for diesel, see diesel engine)	Operating temperature range
N/A	N/A	N/A	N/A	N/A
Ignition source emergency shutdown (Compressor's monitoring and safety devices)				
N/A	N/A	N/A	N/A	N/A

DIESEL BURNER (5.3.5)				
Type, manufacturer	Output capacity (power)	Ignition source emergency shutdown (230 V)	Gas detector	Max temp. for emergency shutdown
N/A	N/A	N/A	N/A	N/A
Spark arresters	Flame arresters	Flame protection	Air damper	
N/A	N/A	N/A	N/A	N/A
Ex-rating	Exhaust temp. (maximum)	Surface temp. (maximum)	Combustion air duct	Exhaust duct
N/A	N/A	N/A	N/A	N/A
Safety functions (stop):				
N/A				

BOILER (5.3.5)				
Type, manufacturer	Output capacity (power)	Safety functions (stop):	Design pressure	Operating pressure
N/A	N/A	N/A	N/A	N/A
Safety valve				
N/A				

DATA SHEET, part 3, discipline data (relevant parts shall be completed)			
Supplier	ID		Revision date
Blue Manta International Ltd	BM-WS-651		

MECHANICAL (5.4.1)				
Lifting devices	Fire classification	Main door (dimensions, inward or outward opening, self-closing mechanism)	Emergency exit (dimensions, inward or outward opening, self-closing mechanism)	
S/N: JDS-4774 4 leg Chain Lifting Sling c/w polar shackles	N/A	N/A	N/A	

FIRE (5.4.2)				
Fire alarm panel (type)	Detectors: Type, number, location	Portable fire extinguishers (number, type, size)	Room fire extinguishing system (description)	
N/A	N/A	N/A	N/A	

GAS (5.4.3)				
Gas alarm panel (type)	Detectors: Type, number, location	Alarm level (LEL)	Disconnect level (LEL)	Gas type
N/A	N/A	N/A	N/A	N/A

ELECTRICAL SYSTEMS (5.4.6)				
Battery or UPS requiring special shutdown: N/A				
Electrical equipment, permanently installed consumers: N/A				
Tag	Description	Voltage, Un (V)	Current, In (A)	Power Pn (kW)

VENTILATION (5.4.7)				
Size of fan motor (W)	Air volume fan (m ³ /h)	Air changes (per hour)	Pressurization (Pa)	Shutdown in event of pressurization loss (time delayed, local alarm type)
N/A	N/A	N/A	N/A	N/A

DATA SHEET, part 4 Working Environment Area Chart (WEAC)			
Supplier	ID		Revision date
N/A			

Annex C - (Normative) - Checklist matrixes - See explanation of checklists in 5.1.3																												
	Checklist matrixes		Containers														Equipment											
	Type of container and equipment	Detailed requirement in clause Z-015	(A)	(B)	(C)	(E)	(G)	(I)	(J)	(L)	(M)	(N)	(O)	(P)	(Y)	(Z)	U01	U02	U03	U04	U05	U06	U07	U08	U09	U10	U98	U99
Control items			Accommodation container	Office, office bar, ROV, well service,	Workshop for hot work	Workshop for cold work	Container for diesel engine	Stores for flammable materials	Stores for non-flammable materials	Painters' workshop	Refrigeration and freezing containers	Radio and communications room	Toilet container	Electrical equipment container	Non-Ex-proof equipment container	Ex-proof equipment container	Diesel engines	Air compressors	Tanks	High pressure cleaning equipment	Steam generator	Mobile crane	Well equip., wireline, logging,	Habitat for hot work Class A	Equipment for waste handling	Pneumatic/hydraulic pump equipment etc.	Non-Ex-proof equipment on skid	Ex-proof equipment on skid
	Shall not be placed in hazardous area		X						X	X	X													X		X		
	1. MECHANICAL																											
1.1	Signs tagging/labelling	5.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.2	Annual inspection (lifting equipment, cert.)	5.4.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.3	Mech. cond. (lifting eyes/points, structure)	5.4.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.4	Fire classification	5.4.1	X	X	X	X	X		X	X	X	X	X	X	X													
1.5	Air lock	5.4.1		X	X									X	X													
1.6	Self-closing doors	5.4.1	X	X	X	X	X	X		X	X	X	X	X	X	X												
1.7	Emergency exits	5.4.1	X	X	X	X			X		X	X	X										X					
1.8	Mechanical ventilation	5.4.7	X	X	X	X	X		X		X	X	X	X								X						
1.9	Noise measurement carried out (supplier)	5.4.8	X	X			X										X	X		X		X		X	X			
1.10	Antistatic equipment	5.4.10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2. FIRE, GAS AND SAFETY																											
2.1	Gas detector in air inlet	5.4.3	X	X	X	X	X			X		X	X	X	X		X	X		X	X	X	X	X				
2.2	Fire/smoke detector	5.4.2	X	X	X	X	X	X		X		X		X	X	X	X	X		X	X	X	X	X				
2.3	Fire hose	5.4.1	X																									
2.4	Portable fire extinguisher	5.4.2	X	X	X	X	X	X		X		X	X	X	X	X	X	X		X	X	X	X					
2.5	Fire damper	5.4.1	X																									
2.6	Alarm and shutdown if loss of pressurisation/ventilation	5.4.7	X	X	X	X	X			X		X	X	X														
2.7	Fire extinguishing system	5.4.2	X				X										X	X			X	X	X					
	3. ELECTRICAL, EX/ATEX																											
3.1	Cables, glands, equipment etc.	5.4.6.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.2	Insulation resistance - megger	5.8.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.3	Earthing (NB bonding of structure) Write down the measurement result	5.4.6.3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.4	Emergency lighting	5.4.6.2	X	X	X	X	X			X		X	X	X								X	X					
	4. HOOK-UP TO INSTALLATION																											
4.1	Power supply (voltage, freq., plugs)	5.7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.2	Telephone with plug	5.7	X	X								X	X	X								X						
4.3	PA with plug	5.7	X	X	X	X				X		X	X	X								X	X					
4.4	Alarm signal to control room with plug	5.7	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X			X	X	
4.5	Shutdown (ESD) from CCR (for battery system etc.)	5.4.3 & 5.4.6.4	X	X	X		X					X		X			X					X	X			X		
	5. EQUIPMENT																											
5.1	All external installation Ex-proof	5.5.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.2	All internal installation Ex-proof	5.5.1				X	X	X	X	X	X	X	X	X	X	X						X	X					
5.3	Manual emergency stop	5.4.8				X											X	X		X	X	X	X	X	X		X	
5.4	Manual shutdown of diesel supply	5.3.1				X											X	X		X	X	X	X					
5.5	Automatic shutdown of diesel supply	5.3.1				X											X	X		X	X	X	X					
5.6	Drip trays	5.3.1				X											X	X		X	X	X	X					
5.7	Shutoff damper in combustion air inlet	5.3.1				X											X	X		X	X	X	X					
5.8	Shutdown if loss of oil pressure	5.3.1				X											X	X		X	X	X	X					
5.9	Shutdown if high cooling water temperature	5.3.1				X											X	X		X	X	X	X					
5.10	Shutdown if overspeed	5.3.1				X											X	X		X	X	X	X					
5.11	Diesel engine approved for zone 2	5.3.1				X											X	X		X	X	X	X					
5.12	Gas detector in combustion air inlet	5.3.1				X											X	X		X	X	X	X					
5.13	Flame arrester in exhaust pipe	5.3.1				X											X	X		X	X	X	X					
5.14	Spark arrester in exhaust pipe	5.3.1				X											X	X		X	X	X	X					
5.15	Safety valve	5.3.3																X										
5.16	Flame guard	5.3.5																X										X
5.17	Low water level alarm	5.3.5																			X							
5.18	Check of limit switches	5.3.6																				X	X					
	6. DOCUMENTATION																											
6.1	Lifting certificate	5.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.2	Other technical doc. (drawings, data.)	5.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.3	Certificate for equip. with special requ.	5.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.4	Maintenance programme	5.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.5	Maintenance journal	5.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6.6	User manual	5.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

The following ATEX certified parts are included in the assembly:

Description	Manufacturer	Type/Model	Type of protection
Air motor	Gast	6AM-NRV-22A	N/A
Gearbox	SEW Eurodrive	R77AM56	N/A

The following self assessed parts are included in the assembly

Description	Manufacturer	Type/Model	Ignition Risk Assessment Reference
Bearings	Scots Bearing	UCFL 210	
Pneumatic components	Norgren/Camozzi Hydrasun		

Special Conditions for safe use:

1. No unauthorised modifications to be carried out without the express permission of Blue Manta International as this may invalidate ATEX certification.
2. The unit must be effectively bonded to the structure of the offshore installation.
3. The accompanying instructions contain important information for the installation, operation and maintenance of the equipment and must be adhered to.

I hereby declare that the equipment named above has been manufactured and tested and found to comply with the relevant sections of the above referenced directives and standards.

Signature:
(Responsible Person)



Name: Ally Thomson

Position: Base Manager

Date: 01.02.16

65" SPOOLING UNIT WINDER SYSTEM OPERATING AND MAINTENANCE INSTRUCTIONS

Operating Instructions

1. Lift the winder frame onto top of spooler unit using lifting gear attached to frame. The lifting set will have to be removed to avoid snagging during operation.
2. Secure the winder frame in position using the bolts supplied – M20 4 sets. Tighten all bolts.
3. Connect the air supply to the winder from the spooler via the supplied hose from the top of the control panel on the spooler, air supply on/off inside control panel cabinet.
4. Connect remote control pendant.
5. There are 5 connections to be made from the pendant to the spooler and the winder.
6. The connections for the spooler are colour coded red, green and blue. Match up the 3 colours.
7. The connections for the remote operation of the winder (2 off) can be connected to either or, i.e. these 2 are forward and reverse, so it does not matter which way these 2 are connected.
8. Disconnect the transit lock on the inner carriage (pull down the handle and twist to lock position) this will allow the inner carriage to move freely from front to back of spooling unit.
9. Ensure that there are no obstructions around Spooler drum, confirm air shut off, on the air prep set, is closed, and the forward/reverse control lever is in the neutral (upright) position. Turn the two three way valves on the control panel to the 'remote position'. The spooler is now controlled by the remote Pendant.
10. Connect air supply to spooling unit, open air on/off valve, on air prep set, press the remote button (either one of two) turn regulator in a clockwise direction until drum starts to rotate, observing that the drum is clear of all obstacles. Get familiar with the remote operation of the spooler drum.

11. Once it has been established that you have control of the spooler drum, and there are no obstructions. You can now operate the winder.
12. Open the air supply to the winder system. (the valve underneath the control panel)
13. Press one of two buttons on the remote, to move the winder in either direction.
14. Observe movement of the winder block, there is no speed control on the winder it has to be controlled manually by the operator, who must be present at all times during spooler/winder operation.

Maintenance Instructions

1. Ensure the air lubricator is filled with suitable oil - Luna Airtoil 15 oil. Drain any excess water from water trap.
2. The diamond shaft requires greasing periodically.
3. The air motor requires lubrication from lubricator; ensure lubricator is in working condition. When running there should be a drop every few minutes.
4. Grease bearings depending on use, all units are greased prior to leaving BlueManta premises, as well as all maintenance checks.
5. All major servicing should be performed by BlueManta Service Engineers only.

SERVICE & MAINTENANCE PROCEDURE FOR GAST AIR MOTOR

Although Gast have their own Operation and maintenance manual, Blue Manta have put together the following instruction guide complete with photographs to assist in the service of Gast air motors. These are only suggested guidelines and do not supersede Gast's operation and maintenance manual. Blue Manta cannot guarantee field-rebuilt product performance.

DIS-ASSEMBLY PROCEDURE

- 1) Slacken grub screw on drive coupling and remove. ([See figure 1](#)) (The drive coupling comes with the gear box and is not a part of the air motor redress kit)
- 2) Remove keyway. ([See figure 2](#))
- 3) Remove dead end cap with Philips screwdriver. ([See figure 3](#))
- 4) Remove 6 bolts using a 7/16 spanner from the dead-end plate. ([See figure 4](#))
- 5) Remove rotary assembly and dead-end plate. Blue Manta recommend doing this manually ([see figure 5, 6, 7 & 8](#)) but this can also be done using a hydraulic press:
 - To remove manually, grip the motor between your ankles and use a plastic hammer or place a piece of wood or plastic to protect the end of the shaft and hammer the end until the unit comes loose. Safely remove the vanes, vane spring and push pins. ([See figure 9](#)) Be careful not to lose any of the components and place them in a safe and clean area.
- 6) Separate the rotary assembly from the dead-end plate.
 - Place the rotary assembly in a bench vice (**DO NOT GRIP**). Open the vice far enough so that the assembly lies on top of the vice. Hold the assembly with your arm and hammer at the same time until it comes loose. ([See figure 10, 11 & 12](#))
- 7) Remove the bearing from the dead-end plate.
 - Place the dead-end plate in a bench vice (**GRIP LIGHTLY**). Use a hammer and punch to remove the bearing. Work slowly around the edge of the bearing until the bearing comes loose. ([See figure 13 & 14](#))
- 8) Remove the bearing from the body.
 - Remove three screws using a Philips screwdriver. Place the body in a vice and use a punch to remove the bearing from the other end - work around the bearing for it to slip out smoothly. ([See figure 15, 16, 17, 18 & 19](#))
- 9) Clean and inspect all parts.
 - Clean the centre holes in the rotary assembly thoroughly using a fine needle file as it is essential that the pins move backwards and forwards freely and smoothly. ([See figure 21](#))
 - Clean and emery the ends of the two shafts on the rotor assembly. ([See figure 22](#))
 - Emery all sealing surfaces both sides of the body and the dead-end plate using fine emery.
 - Clean all other parts ready for re-assembly. ([See figure 20](#)) When assembling, ensure you lubricate the components thoroughly.
DO NOT USE GREASE –preferred oil is Cengar Green Oil or a similar fine oil

ASSEMBLY PROCEDURE

- 1) Fit 4 x push pins to rotary assembly and lubricate well. Ensure none of the push pins are bent or damaged. ([See figure 23](#))
- 2) Insert rotary assembly into motor body. ([See figure 24](#))
- 3) Lubricate vanes and springs well. Insert first spring and vane. You must now install the spring and vane **opposite** the one you have just installed. Proceed to fit springs and vanes in this manner round the rotary assembly. ([See figure 25, 26, 27, 28 & 29](#))
- 4) Fit gasket and dead-end plate and ensure dowels are aligned. Ensure rotary assembly turns by hand after bolts are tightened. ([See figure 30, 31, 32 & 33](#))
- 5) Fit dead-end bearing to dead end plate. Work slowly around the edge of the bearing until the bearing is fully inserted. Ensure that the rotary assembly turns by hand. ([See figure 34, 35 & 33](#))
- 6) Fit bearing to motor body. Work slowly around the edge of the bearing until the bearing is fully inserted. Rotate rotary assembly by hand. ([See figure 36, 37 & 38](#))
- 7) If the rotary assembly does not turn or is tight to turn, you must tap the ends of rotary assembly in either direction to centralise the assembly until it turns by hand. The rotary assembly must not rub on the dead-end caps. The assembly should have slight clearance between the dead-end caps. ([See figure 39](#))
- 8) Lubricate bearings then fit dead end cap and cap seal on other end. ([See figure 40, 41, 42, 43, 44 & 45](#))
- 9) Once assembled, turn the shaft on the air motor. You should be able to rotate the air motor shaft by hand. If you are unable to turn the shaft the likelihood is that the components are either not cleaned or lubricated properly or the shaft is rubbing on the dead-end plate. The shaft must not rub on either end plate. ([See figure 46](#))

CONNECTING THE AIR MOTOR TO THE GEAR BOX

- 1) Ensure that you install the plastic gear link. The gear coupling and plastic gear link comes with the gear box and is not a part of the air motor redress kit. ([See figure 47](#))
- 2) Install the keyway and gear coupling to the air motor and make up the grub screw until it bottoms out. You should still be able to move the gear coupling. ([See figure 48](#))
- 3) To set the gear coupling, connect the air motor to the gear box ensuring that the drive coupling is far enough forward so that it meets the other gear coupling before both parts come together. Push both parts together. Carefully remove the air motor again. Lightly tap the gear coupling on the air motor back approx. 1mm using a hammer and tighten the grub screw. It is important that both gear couplings are not tight together. ([See figures 49, 50 & 51](#))
- 4) Fit the air motor to the gear box. Move the air motor backwards and forwards. You will see the shaft on the gear box move slightly. This will indicate that both gear links are properly set. Make up the bolts. ([See figure 52](#))

SERVICE PROCEDURE OF GAST AIR MOTOR

DIS-ASSEMBLY PROCEDURE

FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8

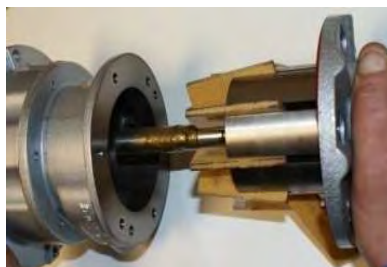


FIGURE 9



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13



FIGURE 14



FIGURE 15



FIGURE 16



FIGURE 17



FIGURE 18



FIGURE 19



FIGURE 20



FIGURE 21



FIGURE 22



FIGURE 23



ASSEMBLY PROCEDURE

FIGURE 24



FIGURE 25



FIGURE 26

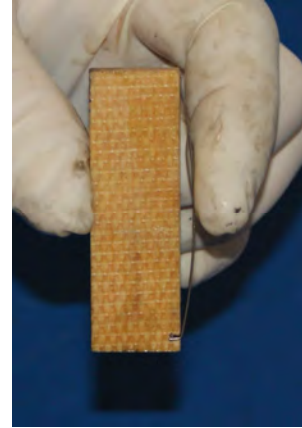


FIGURE 27

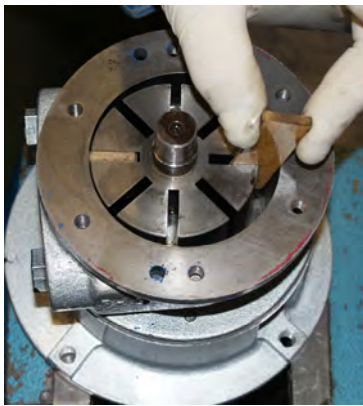


FIGURE 28

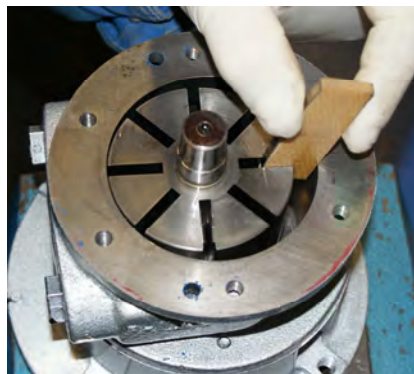


FIGURE 29

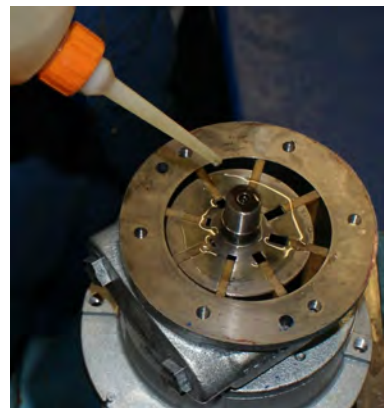


FIGURE 30



FIGURE 31



FIGURE 32



FIGURE 33



FIGURE 34



FIGURE 35



FIGURE 36



FIGURE 37



FIGURE 38



FIGURE 39



FIGURE 40



FIGURE 41



FIGURE 42



FIGURE 43



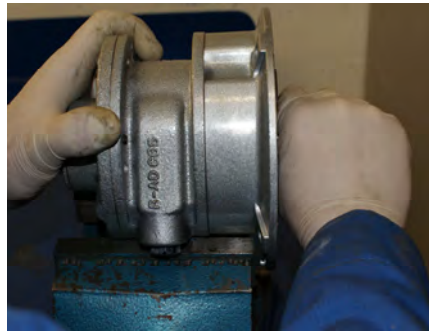
FIGURE 44



FIGURE 45



FIGURE 46



FITTING AIR MOTOR TO GEAR BOX

FIGURE 47



FIGURE 48



FIGURE 49



FIGURE 50



FIGURE 51



FIGURE 52



AM SERIES LUBRICATED AIR MOTORS

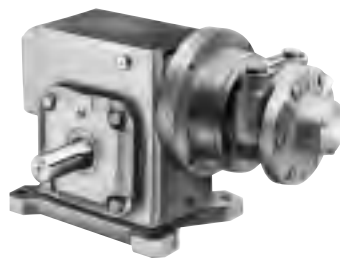
OPERATION & MAINTENANCE MANUAL



Model 2AM Shown



Model 4AM Shown



Model 6AM Shown



Model 16AM Shown

Thank you for purchasing this Gast product. It is manufactured to the highest standards using quality materials. **This manual includes general safety instructions for operation under normal conditions and for operation in hazardous conditions.** Please follow all recommended maintenance, operational and safety instructions and you will receive years of trouble free service.

IMPORTANT: PLEASE READ THIS MANUAL COMPLETELY BEFORE INSTALLING AND USING THIS MOTOR. SAVE THIS MANUAL FOR FUTURE REFERENCE AND KEEP IN THE VICINITY OF THE MOTOR.

General information

Operating Pressure Limits:

Model	Pressure
1AM	100 PSI / 7 bar
1 UP	80 PSI / 5.6 bar
2 AM	100 PSI / 7 bar
4 AM	100 PSI / 7 bar
6 AM	100 PSI / 7 bar
8 AM	100 PSI / 7 bar
16 AM	100 PSI / 7 bar

Vane Life: Depends upon speed, operating pressure and motor maintenance. In normal operating conditions inspect vanes after 5,000 to 8,000 hours of operation.

Product Use Criteria:

- Normal conditions: Operate at temperatures up to 250°F (121°C).
- Hazardous conditions: Operate at temperatures up to 104°F (40°C).
- Protect unit from dirt and moisture.
- Use ONLY compressed air to drive motor.
- Air lines connected to motor should be the same size or the next size larger than the inlet port for efficient output and speed control.
- Protect all surrounding items from exhaust air.
- Bearings are grease packed.
- Use Gast #AD220 or a detergent SAE#10 automotive engine oil for lubricating.

- Motors are to be used in commercial installations only.
-  This symbol appears on labels of air motors that are designed for use in hazardous atmospheres. These air motors comply with the applicable standards and specifications and meet the requirements of the guidelines of the EC directive 94/9EC (ATEX 100a). They are intended to be used in zones 1 and 2 where explosive atmospheres are likely to occur.
- Air supply, directional control valve and pressure regulator should be selected based upon the air consumption of the motor.



ISO 9001 & 14001 CERTIFIED

www.gastmfg.com

Your safety and the safety of others is extremely important.

We have provided many important safety messages in this manual and on your product. Always read and obey all safety messages.



This is the safety alert symbol. This symbol alerts you to hazards that can kill or hurt you and others. The safety alert symbol and the words "DANGER" and "WARNING" will precede all safety messages. These words mean:



DANGER

You will be killed or seriously injured if you don't follow instructions.



WARNING

You can be killed or seriously injured if you don't follow instructions.

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and tell you what can happen if the safety instructions are not followed.

CODE SYMBOLS



Hazard. Possible consequences: death or severe injuries.



Hazardous situation. Possible consequences: slight or mild injuries.



Dangerous situation. Possible consequences: damage to the drive or the environment.



Important instructions on protection against explosion.



Application tips and useful information.

Improper environment, installation and operation can result in severe personal injury and/or damage to property.

Qualified personnel must perform all work to assemble, install, operate, maintain and repair air motor.

Qualified personnel must follow:

- These instructions and the warning and information labels on the motor.
- All other drive configuration documents, startup instructions and circuit diagrams.
- The system specific legal regulations and requirements.
- The current applicable national and regional specifications regarding explosion protection, safety and accident prevention.



Complete the following checklist prior to starting installation in a hazardous area. All actions must be completed in accordance with ATEX 100a.

Checklist for installation in hazardous areas:

Read air motor label to check that motor has been designed for use in a hazardous application:

- Hazardous zone
- Hazardous category
- Equipment group
- Temperature class
- Maximum surface temperatures

Example:

Model designation: 1UP-NRV-10

Year manufactured: 2003

☉ Gast Mfg. Corp.

II 2GD c T5 *

Benton Harbor, MI USA

Telephone: 269.926.6171

* Legend:

II Equipment group II

2 Equipment category 2

G Gas atmospheres

D Dust atmospheres

c Constructional safety

T5 Max. surface temp. 212°F/100°C

Check the site environment for potentially explosive oils, acids, gases, vapors or radiation

Check the ambient temperature of the site and the ability to maintain proper ambient temperature.

Ambient range:

Normal conditions: 34°F/1°C to 250°F/121°C

Hazardous conditions: 34°F/1°C to 104°F/40°C

Check the site to make sure that the air motor will be adequately ventilated and that there is no external heat input (e.g. couplings). The cooling air may not exceed 104°F/40°C.

Check that products to be driven by the air motor meet ATEX approval.

Check that the air motor is not damaged.

INSTALLATION

Correct installation is your responsibility. Make sure you have the proper installation conditions.



WARNING

Injury Hazard

Install proper guards around output shaft as needed.

Air stream from product may contain solid or liquid materials that can result in eye or skin damage.

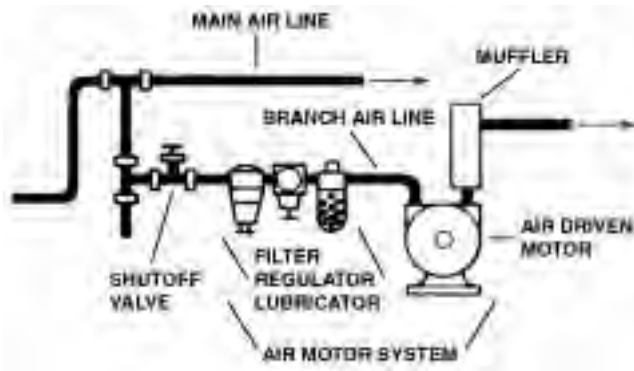
Wear eye protection when installing this product.

Failure to follow these instructions can result in serious injury or property damage.

Mounting

This product can be installed in any orientation. Mount the motor to a solid metal base plate that is mounted to a stable, rigid operating surface. Use shock mounts to reduce noise and vibration. Install a pressure regulator or simple shut-off valve to control motor.

Connection



Check the direction of the motor airflow. A single rotation motor will operate properly only in one direction. Single rotation motors require a sound absorber to be connected to the air port. Remove the plastic shipping plugs from the ports. Save plugs for future use during shutdown.

Install a 5-micron filter in the air line before the connection to the motor. Next install an air pressure regulator to control motor speed and torque.

An automatic air line lubricator should be installed in the air line as close as possible and no more than 18 inches (1/2 meter) from the air motor. Install the lubricator level with or above the air motor so that the oil mist will blow directly into or fall down into the motor.

Fill the oil reservoir to the proper level with Gast #AD220 or SAE 10W high detergent or non-detergent motor oil. For food processing applications, White Rex 425 food grade motor oil is FDA approved. Adjust lubricator to feed 1 drop of oil for every 50 CFM of air while the unit is running, or 1 drop of oil per continuous minute of run time. Do Not overfeed oil or exhaust air may become contaminated.

Clean the compressed air connection with low pressure air to remove any dirt from the line before connecting to the ports.

Use the proper sized fasteners. For the most efficient output and control of speed, use air lines that are the same size as the motor inlet port if the connection is less than 7 feet (2 meters). For longer connections, use the next pipe size larger than the motor intake port. Connect lines to motor in the proper direction.

A reversible motor will work equally well in both directions. Connect a 4-way valve with piping to both air ports of motor to make reversing possible. Connect the sound absorber on the exhaust air port or valve connection.

Do not add any thrust to the end or side of the shaft when making connections.



Do not use a hammer on the shaft or connections.



Lubricating the drive shaft will make assembly easier. Use a puller for removal of pulleys, couplings and pinions on the motor shaft. Check that the tension on the belt pulley matches the manufacturer's specifications. Do not exceed the maximum radial and axial forces on the shaft. If the motor shaft is connected to the part to be driven without a coupling, check that the radial offset and axial force effect will not cause problems.



Use only belts with < 10⁹ electrical leakage resistance to prevent static electrical problems.

Accessories

A muffler is shipped with the air motor (except 16AM) but is not installed. Consult your Gast Distributor/Representative for additional filter recommendations. Install a moisture trap and 5 micron filter in the air line ahead of motor.

Air consumption data at various speeds and pressures are available from your Gast Distributor/Representative or the factory.

OPERATION



WARNING

Injury Hazard

Air stream from product may contain solid or liquid material that can result in eye or skin damage.

Do Not use combustible gases to drive this motor.

Wear hearing protection. Sound level from motor may exceed 85 db (A).

Failure to follow these instructions can result in eye injury or other serious injury.

Check all connections before starting motor. It is your responsibility to operate this product at recommended speeds, loads and room ambient temperatures. Do not run the motor at high speeds with no load. This will result in excessive internal heat that may cause motor damage.

The starting torque is less than the running torque. The starting torque will vary depending upon the position of the vanes when stopped in relation to the air intake port.

Use a pressure regulator and/or simple shut-off valve to regulate the motor's speed and torque. This will provide the required power and will conserve air. Open the air supply valve to the motor. Set the pressure or flow rate to the required speed or torque. Adjust the lubricator to feed one drop of oil for every 50-75 CFM (1.5-2 M³ per minute) of air moving through motor. Check the oil level daily. The gear reducer does not need lubrication.



Operate the motor for approximately 2 hours at the maximum desired load. Measure the surface temperature of the motor on the casting opposite the pipe ports. The maximum surface temperature listed on the motor is for normal environmental and installation conditions. For most air motors, the maximum surface temperature should not exceed 203°F/95°C. Do not continue to operate the motor if the measured surface temperature exceeds temperature listed on the motor. If your measured temperature does exceed listed value, consult with your Gast Distributor/Representative for a recommendation.

MAINTENANCE



WARNING

Injury Hazard

Disconnect air supply and vent all air lines.

Wear eye protection when flushing this product.

Air stream from product may contain solid or liquid material that can result in eye or skin damage.

Flush this product in a well ventilated area.

Do Not use kerosene or other combustible solvents to flush this product.

Failure to follow these instructions can result in eye injury or other serious injury.

It is your responsibility to regularly inspect and make necessary repairs to this product in order to maintain proper operation.

Lubrication

Use Gast #AD220 or a detergent SAE #10 automotive engine oil for lubricating. Lubricating is necessary to prevent rust on all moving parts. Excessive moisture in air line may cause rust or ice to form in the muffler when air expands as it passes through the motor. Install a moisture separator in the air line and an after cooler between compressor and air receiver to help prevent moisture problems.

Manual Lubrication

Shut the air motor down and oil after every 8 hours of operation. Add 10-20 drops of oil to the air motor intake port.

Automatic Lubrication

Adjust inline oiler to feed 1 drop of oil per minute for high speed or continuous duty usage. Do Not overfeed oil or exhaust air may become contaminated.

Check intake and exhaust filters after first 500 hours of operation. Clean filters and determine how frequently filters should be checked during future operation. This one procedure will help assure the motor's performance and service life.

Flushing

Flushing this product to remove excessive dirt, foreign particles, moisture or oil that occurs in the operating environment will help to maintain proper vane performance. Flush the motor if it is operating slowly or inefficiently.

Use only Gast #AH255B Flushing Solvent. DO NOT use kerosene or ANY other combustible solvents to flush this product.

1. Disconnect air line and muffler.
2. Add flushing solvent directly into motor. If using liquid solvent, pour several tablespoons directly into the intake port. If using Gast #AH255B, spray solvent for 5-10 seconds into intake port.
3. Rotate the shaft by hand in both directions for a few minutes.
4. **You must wear eye protection for this step.** Cover exhaust with a cloth and reconnect the air line.
5. Restart the motor at a low pressure of approximately 10 PSI/0.7 bar until there is no trace of solvent in the exhaust air.
6. Listen for changes in the sound of the motor. If motor sounds smooth, you are finished. If motor does not sound like it is running smoothly, installing a service kit will be required (See "Service Kit Installation").

Check that all external accessories such as relief valves or gauges are attached and are not damaged before operating product.

Cleaning sound absorber

1. Remove the sound absorber.
2. Clean the felt filter.
3. **You must wear eye protection for this step.** Lubricate motor with 3-4 drops of oil.
4. Check the air compressor.
5. Listen for changes in the sound of the motor. If motor sounds smooth, you are finished. If motor does not sound like it running smoothly, installing a service kit will be required (See "Service Kit Installation").

Shutdown

It is your responsibility to follow proper shutdown procedures to prevent product damage.

1. Turn off air intake supply.
2. Disconnect air supply and vent all air lines.
3. Disconnect air lines.
4. Remove air motor from connecting machinery.
5. Remove the muffler.
6.   **Wear eye protection. Keep away from air stream.** Use clean, dry air to remove condensation from the inlet port of the motor.
7. Lubricate motor with a small amount of oil into the intake port. Rotate shaft by hand several times to distribute oil.
8. Plug or cap each port.
9. Coat output shaft with oil or grease.
10. Store motor in a dry environment.

SERVICE KIT INSTALLATION

Gast will NOT guarantee field-rebuilt product performance. For performance guarantee, the product must be returned to a Gast Authorized Service Facility.

Service Kit contents vary. Most contain vanes, end cap gasket, body gasket, bearings and a muffler element or felt.

Major and Minor Rebuilds

Tool kits which include a more in-depth rebuild manual are available through your Gast

Distributor/Representative. These kits include the tools required to remove and reassemble end plates, bearings and shaft seals, and to set the proper end clearance. The rebuild manual also includes step by step instructions, including illustrations, to help achieve a successful rebuild. Gast Manufacturing, Inc. highly recommends using the air motor rebuild manual and tool kit when attempting a minor or major rebuild to your Gast air motor.

Minor Rebuild:

1. Remove the end cap.
2. Remove dead end plate bolts.
3. Remove dead end plate. (Use factory issued tool, do not use screwdriver to remove the end plate.)
4. Remove the dowel pins from the body and push back into end plate until flush or just below the machined surface of the end plate.
5. Remove vanes.
6. Clean parts. Check for scoring on the end plate and rotor assembly. If scoring exists, send unit to a Gast authorized service facility.
7. **Lubricated models only:** Lightly oil and reinstall vanes.
8. Place the proper end plate gasket on the end plate. If the original is damaged, replace with a new one supplied in the Service Kit.
9. Place the dead end plate on the body.
10. Press the bearing onto the shaft using a factory supplied bearing pusher.
11. Tap dowel pins into body and install end plate bolts. Tighten bolts to 75-100 in-lbs.
12. Set end clearance as required by model:
1AM-4AM and NL22-NL52 models - use the bearing taper from kit to lightly tap on inner race of the dead end bearing to free up and center the rotor in the body.
6AM-8AM models - lightly strike the drive end shaft with a soft hammer to push the rotor away from the drive end plate. The rotor must NOT rub on either end plate.
13. Reattach end cap.
14. **If the air motor is lubricated**, apply a few drops of Gast #AD220 lubricant into ports. Rotate shaft by hand for a few rotations.

Major Rebuild:

1. Remove the end cap.
2. Remove dead end plate bolts.
3. Remove dead end plate. (Use factory issued tool, do not use screwdriver to remove the end plate.)
4. Remove the dowel pins from the body and push back into end plate until flush or just below the machined surface of the dead end plate.
5. Remove rotor using an arbor press.

6. Remove vanes and ejection mechanism if reversible. (Ejection mechanisms may consist of vane springs, pins, caps or cam rings.)
7. Remove shaft seal and bearings from drive end plate and bearing from dead end plate. (Use factory issued tool.)
8. Do Not remove drive end plate bolts or drive end plate.
9. Clean parts. Check for scoring on the end plates and rotor assembly. If scoring exists, send unit to a Gast Authorized Service Facility.
10. **For reversible models only:**
1AM and 1UP models - place a new cam ring between the rotor and the drive end plate.
2AM and 4AM models - place springs and caps in rotor.
6AM, 8AM and 16AM models - install push pins.
11. Place the drive shaft of the rotor assembly through the drive end plate. Press the drive bearing onto the drive shaft using a factory supplied bearing pusher.
12. Using the bearing taper from the Tool Kit, lightly tap on inner race of the drive end bearing to snug up rotor to drive end plate.
13. Install new vanes as required by model:
All single rotation units - the angle cuts on the vane face to center of the rotor.
Reversible units 2AM and 4AM - the notch on vane faces to center of the rotor.
6AM, 8AM and 16AM models - install the vane spring lip into the notch at one end of the vane and place in rotor vane slot with spring facing pushpin.
14. Place the proper end plate gasket on the body of dead end. If the original is damaged, replace with a new one supplied in the service kit. If your air motor uses O-rings, place the new O-rings in the body groove. Some models do not use end plate gaskets or O-rings.
15. Place the dead end plate on the body.
16. Install the dead end bearing and press into place with bearing pusher tool from tool kit.
17. Install the dowel pins.
18. Fully tighten the remaining bolts to 75-100 in-lbs.
19. Set end clearance as required by model:
1AM-4AM and NL22-NL52 models - use the bearing taper from the Tool Kit and lightly tap on the inner race of the dead end bearing to free up and center the rotor in the body.
6AM-8AM models - lightly strike the drive end shaft with a soft hammer to push the rotor away from the drive end plate. The rotor must NOT rub on either end plate.
20. Apply a small amount of grease to bearing seal and install the drive end bearing seal by pressing flush with bearing pushing tool from Tool Kit.
21. Reattach end cap.
22. **If the air motor is lubricated**, apply a few drops of Gast #AD220 lubricant into ports and rotate shaft by hand for a few rotations.

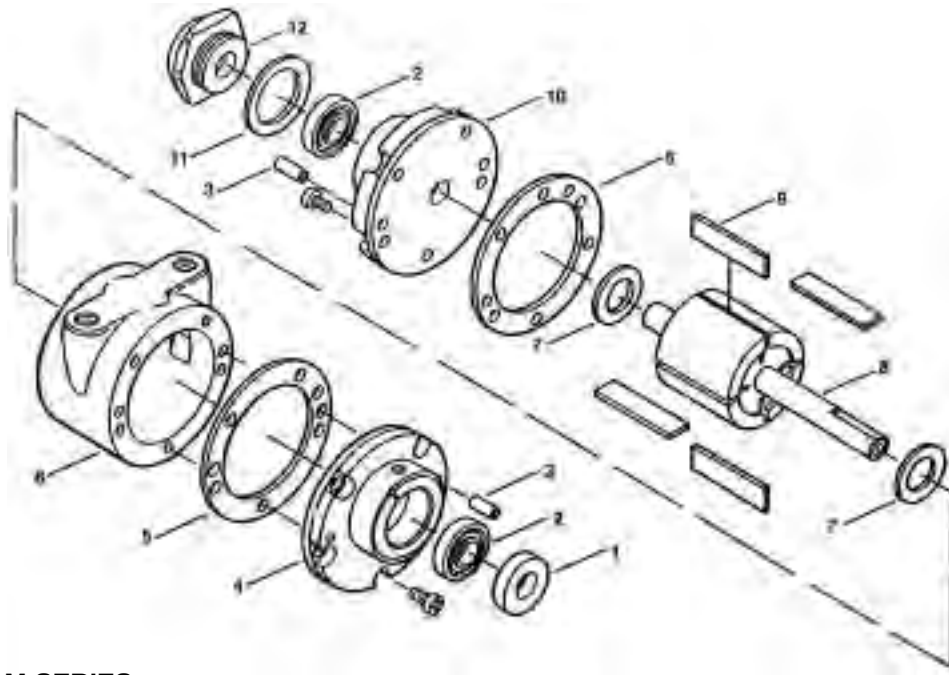
Clearances

Model	Total End Clearance In./mm	Top Clearance In./mm
1AM/1UP	0.0020/0.0508	0.0015/0.0381
2AM	0.0025/0.0635	0.0015/0.0381
2AM*	0.0025/0.0635	0.0025/0.0635
4AM	0.0035/0.0889	0.0015/0.0381
4AM*	0.0035/0.0889	0.0025/0.0635
6AM	0.0035/0.0889	0.0015/0.0381
8AM	0.0048/0.1219	0.0015/0.0381
16AM	0.0060/.1524	0.0015/0.0381
* Models with the last three digits greater than 500 (i.e. 2AM XXX-501)		



Disposal (Please note current regulations)

Parts of the air motor or air powered gear motor, shafts, cast iron or aluminum castings, gear wheels as well as rolling contact bearings may be recycled as scrap metal.

**1AM SERIES**

REF#	DESCRIPTION	QTY	1AM-NCC-12	1AM-NCW-14	1AM-NRV-39A	1AM-NRV-56	1AM-NRV-60	1AM-NRV-63A
1 Δ	SEAL	1	AC190A	AC190A	AC190A	AC190A	AC190A	AC190A
2 Δ	BEARING	2	AG549	AG549	AG549	AG549	AG549	AG549
3	DOWEL PIN	4	D324A	D324A	D324A	D324A	D324A	D324A
4	DRIVE END PLATE	1	AC537	AC539	AC520	AC520D	AC520D	AC520
5 ΔΔ	SHIMS	2	AC527B	AC527B	AC527B	AC527B	AC527B	AC527B
6	BODY	1	AC521	AC521	AC191	AC191	AC191	AC191
7	CAM RING	2			AC195	AC195	AC195	AC195
8	ROTOR ASSEMBLY	1	AC524	AC536	AC193	AC187	AC607	AC193B
9 Δ	VANE	4 8	AC205A	AC205A	AC259A	AC259A	AC259A	AC259A
10	DEAD END PLATE	1	AC538	AC540	AC192	AC192	AC192	AC192
11 Δ	END CAP GASKET	1	AC229	AC229	AC229	AC229	AC229	AC229
12	DEAD END CAP	1	AC228A	AC228A	AC228A	AC228A	AC228A	AC228A
*** Δ	MUFFLER	1	AF350	AF350	AF350	AF350	AF350	AF350
***	FOAM	1	AG896	AG896	AG896	AG896	AG896	AG896
***	SERVICE KIT	1	K200	K200	K201	K201	K278	K278

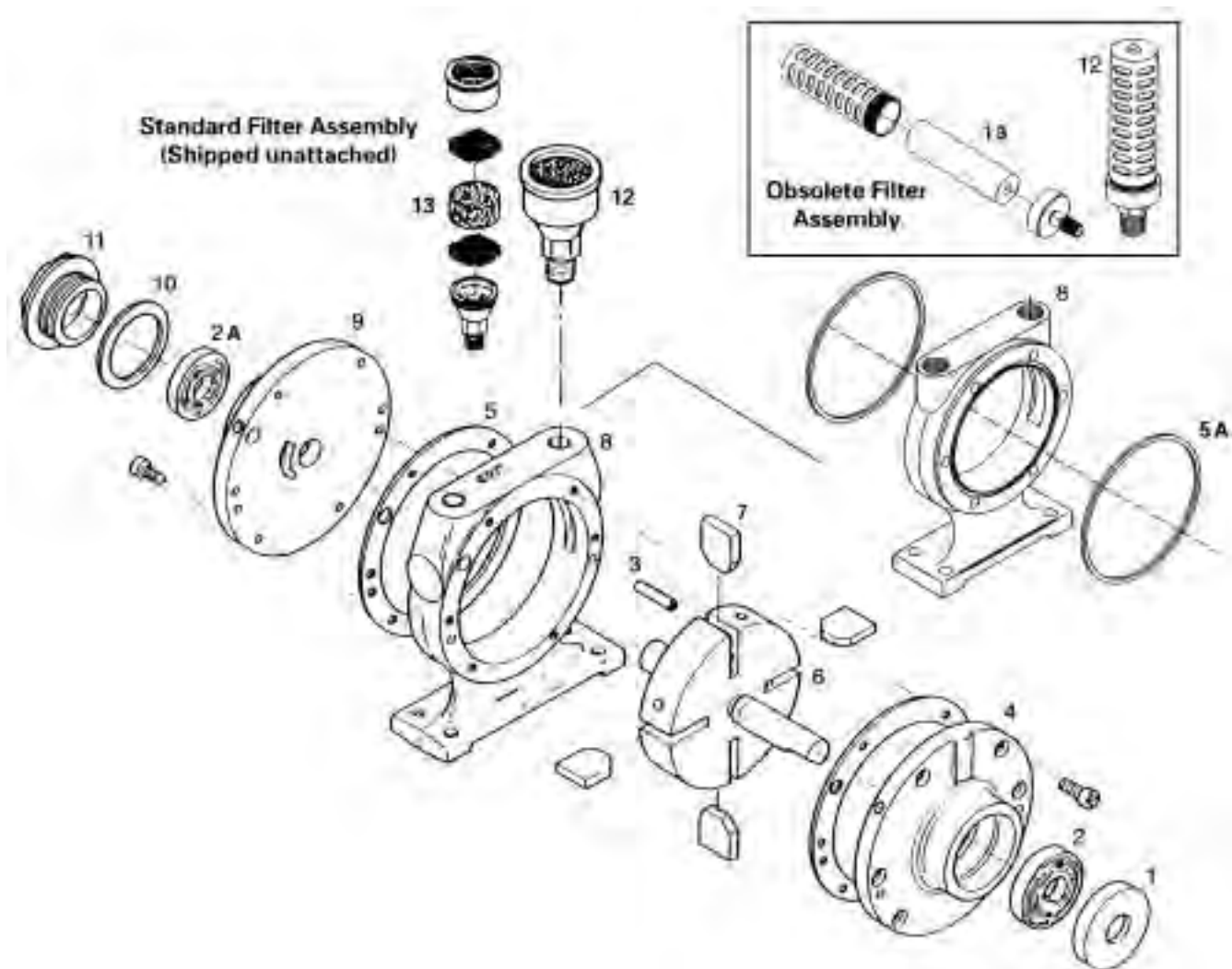
1UP SERIES

REF#	DESCRIPTION	QTY	1UP-NCC-1A	1UP-NCW-2A	1UP-NRV-3A	1UP-NRV-4	1UP-NRV-10	1UP-NRV-11
1 Δ	SEAL	1	AC190A	AC190A	AC190A	AC190A	AC190A	AC190A
2 Δ	BEARING	2	AG549	AG549	AG549	AG549	AG549	AG549
3	DOWEL PIN	4	D324A	D324A	D324A	D324A	D324A	D324A
4	DRIVE END PLATE	1	AC616	AC520B	AC520	AC520D	AC520	AC520D
5 ΔΔ	SHIMS	2	AC527B	AC527B	AC527B	AC527B	AC527B	AC527B
6	BODY	1	AE899	AE899	AE898	AE898	AE898	AE898
7	CAM RING	2			AC195	AC195	AC195	AC195
8	ROTOR ASSEMBLY	1	AE896	AE895	AE897	AF746	AE319	AE333
9 Δ	VANE	4 8	AE893	AE893	AE894	AE894	AE894	AE894
10	DEAD END PLATE	1	AC617	AC192A	AC192	AC192	AC192	AC192
11 Δ	END CAP GASKET	1	AC229	AC229	AC229	AC229	AC229	AC229
12	DEAD END CAP	1	AC228A	AC228A	AC228A	AC228A	AC228A	AC228A
*** Δ	MUFFLER	1	AF350	AF350	AF350	AF350	AF350	AF350
***	FOAM	1	AG896	AG896	AG896	AG896	AG896	AG896
***	SERVICE KIT	1	K285	K285	K286	K286	K298	K298

*** Item not shown.

Δ Denotes parts included in the Service Kit.

ΔΔ Parts listed are for stock models manufactured prior to 1998. For specific OEM models, please consult the factory. When corresponding about or ordering parts, please give complete model and serial numbers. Exploded views are shown for reference only. Units may vary depending upon specific model.



2AM SERIES

REF#	DESCRIPTION	QTY	2AM-FCC-1	2AM-NCW-7A	2AM-FCW-13	2AM-NCC-16	2AM-NCC-43A	2AM-ACC-88 METRIC
1 Δ	SHAFT SEAL	1	AA466B	AA466B	AA466B	AA466B	B2328	B2328
2 Δ	DRIVE END BEARING	1	AA299J	AA299J	AA299J	AA299J	AB519	AB519
2A Δ	DEAD END BEARING	1	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J
3	DOWEL PIN	4	AB162	AB162	AB162	AB162	AB162C	AB162C
4	DRIVE END PLATE	1	AC720	AC726	AC722	AC724	AG708	AK425A
5 Δ **	SHIMS	2	B330	B330	B330	B330	B330	B330
6	ROTOR ASSEMBLY	1	AA470A	AA489A	AA489A	AA470A	AM449A	AM449B
7 Δ	VANE	4	AA13B	AA13B	AA13B	AA13B	AA13B	AA13B
8	BODY	1	AA477	AA467	AA477	AA467	AA467	AA467F
9	DEAD END PLATE	1	AC721	AC723	AC723	AC721	AC721	AB622N
10 Δ	END CAP GASKET	1	AA46	AA46	AA46	AA46	AA46	AA46
11	END CAP	1	AM307D	AM307D	AM307D	AM307D	AM307D	AM307D
12	MUFFLER ASSEMBLY	1	AL445	AL445	AL445	AL445	AL445	AL445
13	MUFFLER FELT	1	AC983	AC983	AC983	AC983	AC983	AC983
***	SERVICE KIT	1	K202	K202	K202	K202	K203A	K203A

*** Item not shown.

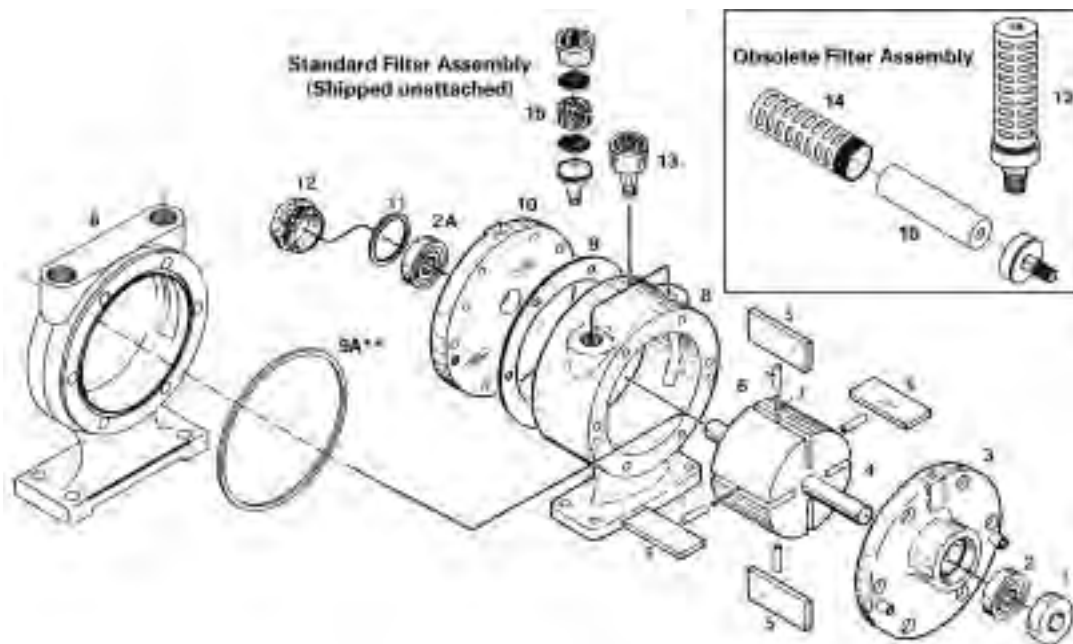
** #AL484 (5A) O-ring replaces shim on some models.

Δ Denotes parts included in the Service Kit.

For specific OEM models, please consult the factory.

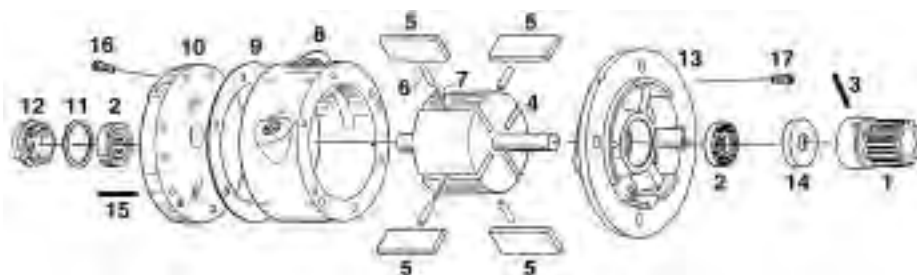
When corresponding about or ordering parts, please give complete model and serial numbers. Exploded views are shown for reference only. Units may vary depending upon specific model.

EXPLODED PRODUCT VIEWS, PARTS & ORDERING INFORMATION 4AM SERIES



4AM SERIES

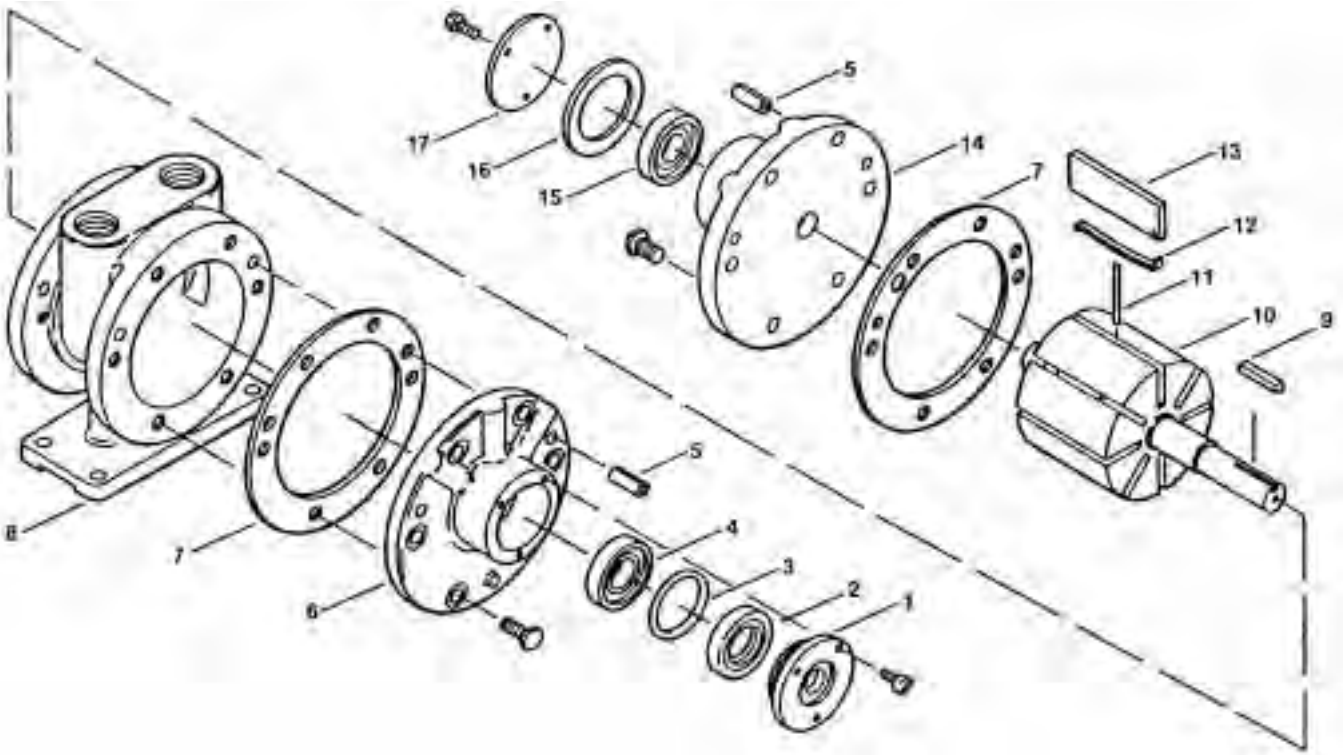
REF#	DESCRIPTION	QTY	4AM-FRV-13C	4AM-NRV-22B	4AM-FRV-24	4AM-NRV-50C	4AM-NRV-54A	4AM-NRV-70C	4AM-ARV-119 METRIC	4AM-ARV-120 METRIC
1 Δ	SHAFT SEAL	1	AC466B	AC466B	NAS2	B2328	AA466B	B2328	B2328	B2328
2 Δ	DRIVE END BEARING	1	AA299J	AA299J	AA299J	AB519	AA299J	AB519	AB519	AB519
2A Δ	DEAD END BEARING	1	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J	AA299J
3	DRIVE END PLATE	1	AC727	AC665	AC727	AG707	AC665	AG707	AK425A	AK425A
4	ROTOR ASSEMBLY	1	AB617	AB617	AM426	AM455A	AM411	AM319A	AM455C	AM455B
5 Δ	VANE	4	AB876	AB876	AB876	AB876	AB876	AB876	AB876	AB876
		8								
6 Δ	PUSH PINS	4	AM467	AM467	AM467	AM467	AM467	AM467	AM467	AM467
		8								
7 Δ	VANE SPRING	2	AM466	AM466	AM466	AM466	AM466	AM466	AM466	AM466
		4								
8	BODY	1	AM425	AM410	AM425	AM410	AM410	AM410	AM410M	AM410M
9 Δ **	SHIMS	2	B330	B330	B330	B330	B330	B330	B330	B330
10	DEAD END PLATE	1	AC728	AC728	AC727	AC728	AC728	AC728	AB622M	AB622M
11 Δ	END CAP GASKET	1	AA46	AA46		AA46	AA46	AA46	AA46	AA46
12	DEAD END CAP	1	AM307D	AM307D		AM307D	AM307D	AM307D	AM307D	AM307D
13	MUFFLER ASSEMBLY	1	AL445	AL445	AL445	AL445	AL445	AL445	AL445	AL445
14 Δ	MUFFLER CARTRIDGE	1	AL458	AL458	AL458	AL458	AL458	AL458	AL458	AL458
15 Δ	MUFFLER FELT	1	AC983	AC983	AC983	AC983	AC983	AC983	AC983	AC983
***	SERVICE KIT	1	K205	K205	K205G	K206A	K279	K280A	K206C	K206B



4AM SERIES

REF#	DESCRIPTION	QTY	4AM-RV-75
1	GEAR STD.	1	AA294
2 Δ	BEARING	2	AA299J
3	PIN	1	AA297
4	ROTOR	1	AA293
5 Δ	VANE	4	AB876
6 Δ	SPRING PIN	4	AM467
7 Δ	SPRINGS	2	AM466
8	BODY	1	AM410
9 Δ	SHIMS	2	B330
10	DEAD END PLATE	1	AC728
11 Δ	END CAP GASKET	1	AA46
12	END CAP	1	AM307D
13	DRIVE END PLATE	1	AA424
14	SEAL	1	AA466B
15	DOWEL PINS	4	AB162
16	1/4-28 x .50 PFHMS	6	BB631
17	1/4-28 x .625 SHCS	6	BB634
***	SERVICE KIT	1	K205

*** Item not shown.
 ** #AL484 (9A) O-ring replaces shim on some models.
 Δ Denotes parts included in the Service Kit.
 For specific OEM models, please consult the factory.
 When corresponding about or ordering parts,
 please give complete model and serial numbers.
 Exploded views are shown for reference only.
 Units may vary depending upon specific model.



6AM SERIES

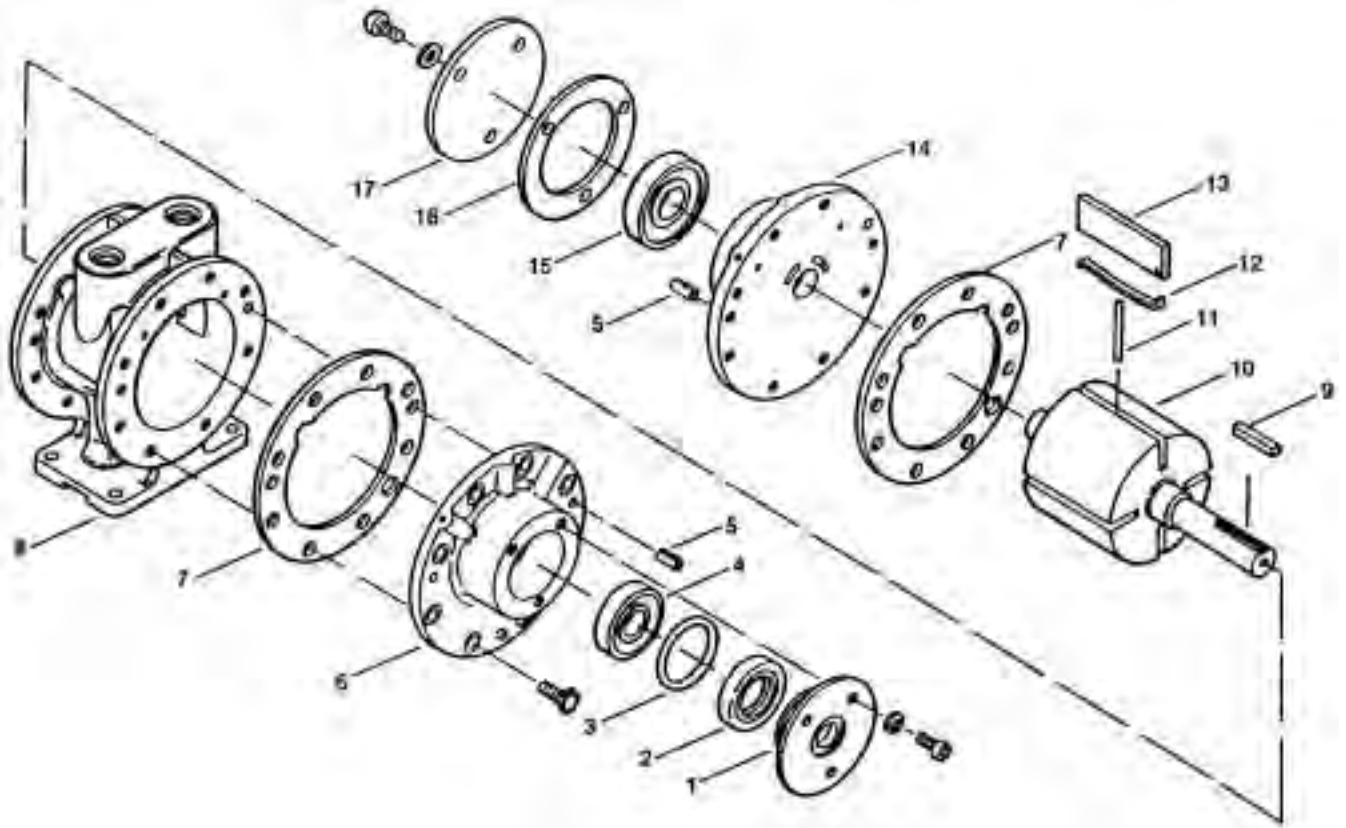
REF#	DESCRIPTION	QTY	6AM-FRV-5A	6AM-NRV-7A	6AM-NRV-22A NEMA	6AM-FRV-23A	6AM-ARV-54	6AM-ARV-55	6AM-NRV-11A
1	DRIVE END CAP	1	AD642A	AD642A	AD642A	AD642A	AC988	AC988	AD642A
2 Δ	SHAFT SEAL	1	AC849	AC849	AC849	AC849	AK423	AK423	AC849
3 Δ	O-RING	1	AD649	AD649	AD649	AD649	AC989	AC989	AD649
4 Δ	DRIVE END BEARING	1	AD638A	AD638A	AD638A	AD638A	AC894B	AC894B	AD638A
5	DOWEL PIN	4	AB162	AB162	AB162C	AB162	AB162C	AB162C	AB162C
6	DRIVE END PLATE	1	AD651	AD666	AD667	AD651	AK424	AK424	AD667
7 Δ	BODY GASKET	2	AD641	AD641	AD641	AD641	AD641	AD641	AD641
8	BODY	1	AD650A	AD665	AD665	AD650A	AD665D	AD665D	AD665
9	KEY	1	AB136	AB136	AB136	AB136	AK422	AK422	AB136
10	ROTOR ASSEMBLY	1	AD652	AD652	AC398	AC779	AD648E	AD648D	AD648
11 Δ	PUSH PIN	2 4	AD655A	AD655A	AD655A	AD655A	AD655A	AD655A	AD655A
12 Δ	VANE SPRING	4 8	AD692	AD692	AD692	AD692	AD692	AD692	AD692
13 Δ	VANE	4 8	AD691	AD691	AD691	AD691	AD691	AD691	AD691
14	DEAD END PLATE	1	AD651	AD651	AD651	AD651	AD651	AD651	AD651
15 Δ	DEAD END BEARING	1	AB519	AB519	AB519	AB519	AB519	AB519	AB519
16 Δ	END CAP GASKET	1	AD644	AD644	AD644	AD644	AD644	AD644	AD644
17	DEAD END CAP	1	AD643	AD643	AD643	AD643	AD643	AD643	AD643
***	MUFFLER ASSEMBLY	1	AC990	AC990	AC990	AC990	AC990	AC990	AC990
***	MUFFLER FELT	1	AC993	AC993	AC993	AC993	AC993	AC993	AC993
***	SERVICE KIT	1	K208	K208	K281	K281	K281A	K281B	K208

*** Item not shown.

Δ Denotes parts included in the Service Kit.

For specific OEM models, please consult the factory.

When corresponding about or ordering parts, please give complete model and serial numbers.
Exploded views are shown for reference only. Units may vary depending upon specific model.



8AM SERIES

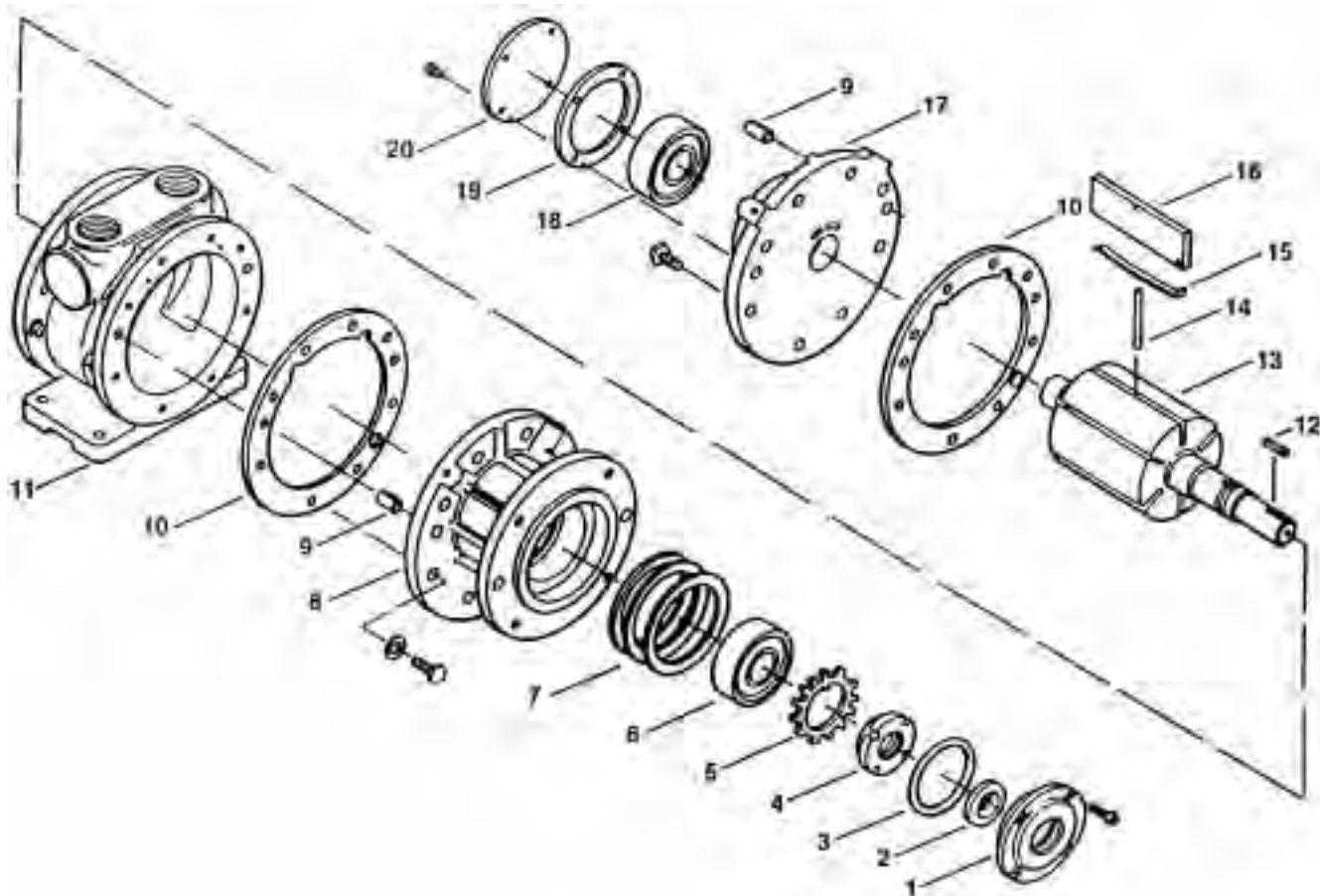
REF#	DESCRIPTION	QTY	8AM-FRV-2B	8AN-NRV-5B	8AM-NRV-28A	8AM-FRV-30A	8AM-NRV-32A	8AM-NRV-42A	8AM-ARV-70 METRIC	8AM-ARV-71 METRIC
1	DRIVE END CAP	1	AC835A	AC835A	AC988	AC835A	AC988	AC835A	AC988	AC988
2 Δ	SHAFT SEAL	1	AC839	AC839	AB936	AC839	AB936	AC839	AK420	AK420
3 Δ	O-RING	1	AC808	AC808	AC989	AC808	AC989	AC808	AC989	AC989
4 Δ	DRIVE END BEARING	1	AA735B	AA735B	AB927	AA735B	AB927	AA735B	AB927	AB927
5	DOWEL PIN	4	AB162	AB162	AB162	AB162	AB162	AB162	AB162	AB162
6	DRIVE END PLATE	2	AC964	AC963	AC965	AC964	AC965	AC963	AK421	AK421
7 Δ	BODY GASKET	2	AC888	AC888	AC888	AC888	AC888	AC888	AC888	AC888
8	BODY	1	AC877A	AC878C	AC878C	AC877A	AC878C	AC878C	AC878G	AC878G
9	KEY	1	AB136D	AB136D	AB136D	AB136D	AB136D	AB136D	AK668	AK668
10	ROTOR ASSEMBLY	1	AC977	AC977	AC986	AC977A	AC986A	AC977A	AC986D	AC986C
11 Δ	PUSH PIN	2	AC879	AC879	AC879				AC879	
		4				AC879	AC879	AC879		AC879
12 Δ	VANE SPRING	4	AC817	AC817	AC817				AC817	
		8				AC817	AC817	AC817		AC817
13 Δ	VANE	4	AC816	AC816	AC816				AC816	
		8				AC816	AC816	AC816		AC816
14	DEAD END PLATE	1	AC964	AC964	AC964	AC964	AC964	AC964	AC964	AC964
15 Δ	DEAD END BEARING	1	AC894B	AC894B	AC894B	AC894B	AC894B	AC894B	AC894B	AC894B
16 Δ	END CAP GASKET	1	AC837	AC837	AC837	AC837	AC837	AC837	AC837	AC837
17	DEAD END CAP	1	AC836	AC836	AC836	AC836	AC836	AC836	AC836	AC836
***	MUFFLER ASSEMBLY	1	AC990	AC990	AC990	AC990	AC990	AC990	AC990	AC990
***	MUFFLER FELT	1	AC993	AC993	AC993	AC993	AC993	AC993	AC993	AC993
***	SERVICE KIT	1	K210	K210	K211	K283	K282	K283	K282A	K282B

*** Item not shown.

Δ Denotes parts included in the Service Kit.

For specific OEM models, please consult the factory.

When corresponding about or ordering parts, please give complete model and serial numbers.
Exploded views are shown for reference only. Units may vary depending upon specific model.



16AM SERIES

REF#	DESCRIPTION	QTY	16AM-FCC-2	16AM-FRV-2	16AM-FRV-13	16AM-FCW-
28						
1	DRIVE END CAP	1	AD816	AD816	AD816	AD816
2 Δ	SEAL	1	AC627	AC627	AC627	AC627
3 Δ	O-RING	1	AD823	AD823	AD823	AD823
4	LOCKNUT	1	AD784	AD784	AD784	AD784
5 Δ	LOCKWASHER	1	AD712	AD712	AD712	AD712
6 Δ	DRIVE END BEARING	1	AB777A	AB777A	AB777A	AB777A
7	SPACER		AD786	AD786	AD786	AD786
8	DRIVE END PLATE	1	AD771A	AD820A	AC323	
9	DOWEL PIN	4	AB162A	AB162A	AB162A	AB162A
10 Δ	SPACER GASKET	2	AD788	AD788	AD788	
11	BODY	1	AD770	AD819	AD819	AD770B
12	DRIVE KEY	1	AC628	AC628	AB136D	AC628
13	ROTOR ASSEMBLY	1	AD775	AD794	AE807	
14 Δ	PUSH PIN	3		AD822	AD822	
15 Δ	VANE SPRING	6		AD796A	AD796A	
16 Δ	VANE	6	AD781	AD795	AD795	AD781
17	DEAD END PLATE	1	AD773A	AD821A	AD821A	
18	DEAD END BEARING	1	AD802	AD802	AD802	AD802
19	END CAP GASKET	1	AG406	AG406	AG406	AG406
20	DEAD END CAP	1	AG405	AG405	AD405	AG405
***	SERVICE KIT	1	K212	K213	K213	K212

*** Item not shown.

Δ Denotes parts included in the Service Kit.

For specific OEM models, please consult the factory.

When corresponding about or ordering parts, please give complete model and serial numbers.
Exploded views are shown for reference only. Units may vary depending upon specific model.

General Information:

The product nameplate specifies all information required when ordering parts or requests for information. The type of lubricant required for unit is also specified on the nameplate.

Product Use Criteria:

- All worm gear reducers require that the air motor be mounted so that the inlet and exhaust ports are at a 90° angle to the centerline of the reducer output shaft.
- Gear reducers are NOT self-locking. If a brake is required for safety, as in the case of air pressure failure, etc., contact your Gast Distributor/Representative.
- Worm gear reducers are shipped with a plug in the top pipe plug. The plug must be removed and the breather plug installed for proper operation.
- Operating an air motor without venting will create internal pressure build-up which can damage the internal parts of the gear reducer.
- Check the oil level in units which have been stored or not operated for a period of time.
- Gear motors require proper lubrication. Insufficient oil level can cause loss of performance, damage or failure of the gear reducer.

Gear Reducer Specifications

Model	GR11	GR20	GR25
Speed Range (Reducer Output Shaft)	33.3 to 400 RPM	30 to 300 RPM	20 to 200 RPM
Gear Reduction	15:1	10:1	15:1
Maximum Allowable End Thrust With Zero Overhung Load. (Reducer Output Shaft)	100 lbs/45,4 kg	200 lbs/90,8 kg @300 RPM to 800 lbs/363,2 kg at 30 RPM	250 lbs/113,5 kg at 200 RPM to 800 lbs/363,2 kg at 20 RPM
Maximum Allowable Overhung Load With Zero End Thrust. (Reducer Output Shaft)	100 lbs/45,4 kg at 333 RPM to 200 lbs/90,8 kg at 33.3 RPM	200 lbs/90,8 kg at 300 RPM to 600 lbs/272,4 kg at 30 RPM	200 lbs/90,8 kg at 200 RPM to 600 lbs/272,4 kg at 20 RPM
Lubrication	Use a 300 ssu at 100°F/38°C turbine quality lubricant – Gast #AG292A, Gulf Harmony 53, Shell Tellus 33, Socony DTE heavy medium or Humble Nuto 53. For horizontal operation , remove both plugs and add oil to top hole until other hole overflows. For vertical operation , fill to overflow point of upper most hole.		

Worm Gear Reducer Series A-F

Gear Reducer Specifications

All output shafts are in the standard location.

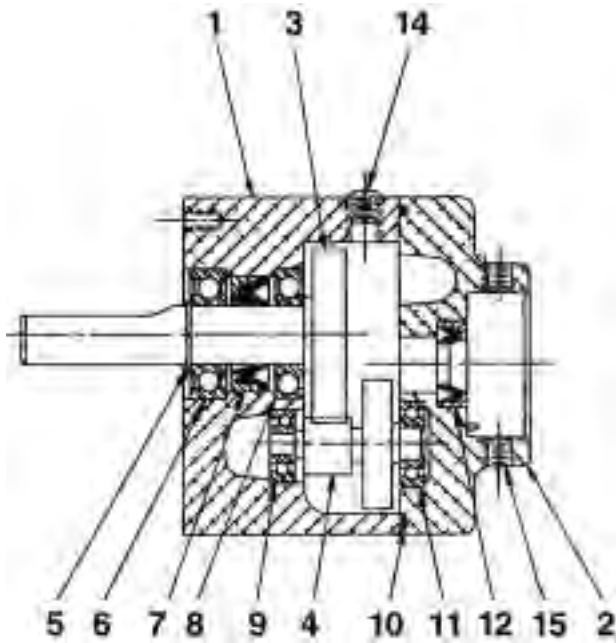
Model	Air Motor	Ratio
AG803	4AM	20:1
AG805	4AM	40:1
AG807	4AM	60:1
AG809	6AM	10:1
AG811	6AM	20:1
AG816	8AM	20:1

Service, Parts or Repair

For service, parts or repair of the worm gear reducer, contact the manufacturer listed on the nameplate.

Change output shaft direction

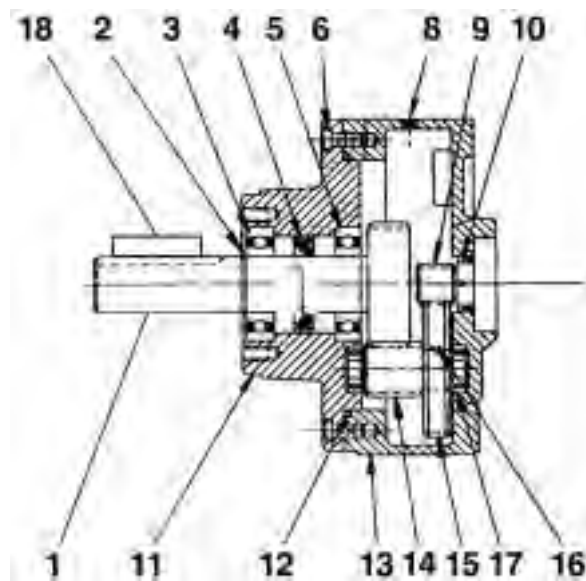
1. Remove drain plug and drain oil from unit.
2. Remove end cover and seal cage cap screws. While supporting output shaft, remove end cover and shims from unit. Keep shims with cover.
3. Remove output shaft and seal cage together from extension side. Keep shims with seal cage.
4. Insert seal cage, shims and sub-assembly into housing from the side opposite from which they were removed.
5. Insert seal cage cap screws and tighten with light pressure.
6. Assemble end cover with shims. Insert end cover cap screws and tighten with light pressure.
7. Turn high speed shaft in both directions to check that gear train is running freely.
8. Cross-tighten seal cage and end cover cap screws.



GR11 SERIES

REF#	DESCRIPTION	QTY	PART NO.
1	GEAR HOUSING	1	AC737
2	GEAR HOUSING COVER	1	AC736
3	GEAR SHAFT	1	AC739
4	CLUSTER GEAR	1	AC738
5	SNAP-RING	1	AE189
6	BEARING	1	AE196A
7	SEAL	1	AA517A
8	BEARING	1	AA498
9	BEARING	1	AE195
10	O-RING	1	AD823
11	BEARING	1	AE197
12	SEAL	1	AA623D
13	SCREWS	4	BB542
14	PIPE PLUG	2	BA500
15	SET SCREW	2	BB626
***	DOWEL PIN	2	AE882

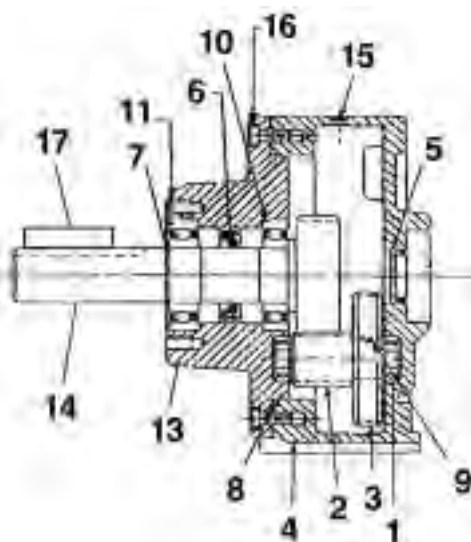
*** Item not shown.



GR20 SERIES

REF#	DESCRIPTION	QTY	PART NO.
1	GEAR SHAFT - OUTPUT	1	AE848
2	RETAINING RING	1	AE853
3	BEARING	1	AE858
4	OIL SEAL	1	AE852
5	BEARING	1	AE857
6	SCREW	6	BB652
***	DOWEL PIN	2	AF482
8	MAGNETIC DRAIN PLUG	2	AH471
9	GEAR - INPUT	1	AA294
10	OIL SEAL	1	AE851
11	HOUSING COVER	1	AE849
12	O-RING	1	AE854
13	GEAR HOUSING	1	AE850
14	GEAR SHAFT	1	AE845
15	GEAR - INTERMEDIATE	1	AE846
16	KEY	1	AE855
17	BEARING	2	AG549
18	KEY	1	AC628

*** Item not shown.



GR25 SERIES

REF#	DESCRIPTION	QTY	PART NO.
1	BEARING	2	AG549
2	GEAR SHAFT	1	AE845
3	GEAR INTERMEDIATE	1	AE846
4	GEAR HOUSING	1	AE850
5	SEAL	1	AE851
6	SEAL	1	AE852
7	RETAINING RING	1	AE853
8	O-RING	1	AE854
9	KEY	1	AE855
10	BEARING	1	AE857
11	BEARING	1	AE858
***	DOWEL PIN	2	AF482
13	HOUSING COVER	1	AH278
14	GEAR SHAFT - OUTPUT	1	AH279
15	MAGNETIC DRAIN PLUG	2	AH471
16	SCREWS	6	BB652
17	KEY	1	AC628

WARRANTY

Gast finished products, when properly installed and operated under normal conditions of use, are warranted by Gast to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from Gast or an authorized Gast Representative or Distributor. In order to obtain performance under this warranty, the buyer must promptly (in no event later than thirty (30) days after discovery of the defect) give written notice of the defect to Gast Manufacturing Incorporated, PO Box 97, Benton Harbor Michigan USA 49023-0097 or an authorized Service Center (unless specifically agreed upon in writing signed by both parties or specified in writing as part of a Gast OEM Quotation). Buyer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls, and gasoline engines not supplied by Gast. Gast's warranties also do not extend to any goods or parts which have been subjected to misuse, lack of maintenance, neglect, damage by accident or transit damage.

THIS EXPRESS WARRANTY EXCLUDES ALL OTHER WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED BY ANY LITERATURE, DATA, OR PERSON. GAST'S MAXIMUM LIABILITY UNDER THIS EXCLUSIVE REMEDY SHALL NEVER EXCEED THE COST OF THE SUBJECT PRODUCT AND GAST RESERVES THE RIGHT, AT ITS SOLE DISCRETION, TO REFUND THE PURCHASE PRICE IN LIEU OF REPAIR OR REPLACEMENT.

GAST WILL NOT BE RESPONSIBLE OR LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, however arising, including but not limited to those for use of any products, loss of time, inconvenience, lost profit, labor charges, or other incidental or consequential damages with respect to persons, business, or property, whether as a result of breach of warranty, negligence or otherwise. Notwithstanding any other provision of this warranty, BUYER'S REMEDY AGAINST GAST FOR GOODS SUPPLIED OR FOR NON-DELIVERED GOODS OR FAILURE TO FURNISH GOODS, WHETHER OR NOT BASED ON NEGLIGENCE, STRICT LIABILITY OR BREACH OF EXPRESS OR IMPLIED WARRANTY IS LIMITED SOLELY, AT GAST'S OPTION, TO REPLACEMENT OF OR CURE OF SUCH NONCONFORMING OR NON-DELIVERED GOODS OR RETURN OF THE PURCHASE PRICE FOR SUCH GOODS AND IN NO EVENT SHALL EXCEED THE PRICE OR CHARGE FOR SUCH GOODS. GAST EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE WITH RESPECT TO THE GOODS SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS SET FORTH IN THIS WARRANTY, notwithstanding any knowledge of Gast regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Gast personnel.

Unauthorized extensions of warranties by the customer shall remain the customer's responsibility.

CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF GAST PRODUCTS FOR CUSTOMER'S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES.

This warranty can be modified only by authorized Gast personnel by signing a specific, written description of any modifications.

MAINTENANCE RECORD

[illegible]

TROUBLESHOOTING CHART

Problem					
Low Torque	Low Speed	Won't Run	Runs Hot	Runs Well Then Slows Down	Reason & Remedy For Problem.
•	•	•			Dirt or foreign material present. Inspect and clean.
•	•	•			Internal rust. Inspect and clean.
•	•	•	•	•	Vanes misaligned. Realign vanes.
•	•				Low air pressure. Increase pressure.
	•				Air line too small. Install larger line(s).
	•			•	Restricted exhaust. Inspect and repair.
•	•	•		•	Motor is jammed. Disassemble and repair.
	•			•	Air source inadequate. Inspect and repair.
	•			•	Air source too far from motor. Reconfigure setup.

We have Gast Authorized Repair Facilities throughout the world. For the most up-to-date listing, contact one of our sales offices below:

World Headquarters

P.O. Box 97
2550 Meadowbrook Rd.
Benton Harbor, MI 49023-0097
Ph: 269/926-6171
FAX: 269/925-8288
www.gastmfg.com

Eastern Sales Office

505 Washington Ave.
Carlstadt, NJ 07072
Ph: 201/933-8484
FAX: 201/933-5545
www.gastmfg.com

European Sales & Service Headquarters

Beech House Knaves Beech
Business Centre
Loudwater, High Wycombe
Bucks, England HP10 9SD
Tel: +44 1628 551500
Fax: +44 1628 551590
www.gastltd.com

Gast Hong Kong

Unit 12, 21/F, Block B
New Trade Plaza
6, On Ping Street, Shatin
N. T. Hong Kong
Ph: (852) 2690 1008
Fax: (852) 2690 1012
www.gasthk.com



ISO 9001 & 14001 CERTIFIED

www.gastmfg.com

Konformitätserklärung

Declaration of Conformity

(im Sinne der Richtlinie 94/9/EG, Anhang VIII)
(according to EC Directive 94/9/EC, Appendix VIII)

GAST, 2300 M 139,
Benton Harbor
Michigan, USA

erklärt in alleiniger Verantwortung, dass die im Folgenden
aufgelisteten Druckluftmotoren der Kategorie 2G und 2D, auf die sich
diese Erklärung bezieht, übereinstimmen mit der

*declares in sole responsibility that the Air motors in category 2G and 2D
that are listed below and that are subject to this declaration are meeting
the requirements set forth in*

Richtlinie 94/9/EG / Directive 94/9/EC
Motortypen / Motor types:

1AM-NCC-11	1UP-NRV-3A	2AM-NCW-72	4AM-NRV-130C	6AM-FRV-17A*	6AM-NRV-82
1AM-NCC-12	1UP-NRV-3B	2AM-NCW-7A	4AM-NRV-131	6AM-FRV-23A	6AM-NRV-9B
1AM-NCC-15A		2AM-NCW-7B	4AM-NRV-133	6AM-FRV-5	6AM-FRV-73
1AM-NCC-15B	2AM-ACC-88	2AM-NCW-7G	4AM-NRV-143	6AM-FRV-5A	
1AM-NCC-59A	2AM-ACC-88A	2AM-NCW-82SSA	4AM-NRV-147	6AM-FRV-62	1AM-NRV-58-GR11
1AM-NCC-59B	2AM-ACC-91	2AM-NCW-86	4AM-NRV-150	6AM-FRV-71	1AM-NRV-60-GR11
1AM-NCC-65	2AM-ARV-92	2AM-NCW-97	4AM-NRV-153	6AM-FRV-81	1AM-NRV-80-GR11A
1AM-NCC-88	2AM-ARV-93	2AM-NRV-104	4AM-NRV-155	6AM-NCC-28	1UP-NRV-11-GR11
1AM-NCC-95	2AM-FCC-1	2AM-NRV-89	4AM-NRV-156	6AM-NCW-9A	1UP-NRV-16-GR11
1AM-NCC-96	2AM-FCC-107	2AM-NRV-90	4AM-NRV-157	6AM-NRV-11	1UP-NRV-21-GR11C
1AM-NCW-100	2AM-FCC-1B	2AM-NCW-82	4AM-NRV-159	6AM-NRV-11A	1UP-NRV-24-GR11
1AM-NCW-101	2AM-FCC-21		4AM-NRV-160	6AM-NRV-11D	1UP-NRV-29-GR11
1AM-NCW-14	2AM-FCC-25	4AM-ARV-119	4AM-NRV-161	6AM-NRV-16	1UP-NRV-4-GR11
1AM-NCW-14C	2AM-FCW-13	4AM-ARV-119A	4AM-NRV-162	6AM-NRV-22A	4AM-RV-127-GR20
1AM-NCW-57	2AM-FCW-13A	4AM-ARV-120	4AM-NRV-164	6AM-NRV-251	4AM-RV-75-GR20
1AM-NRV-105SS	2AM-FRV-109	4AM-ARV-121	4AM-NRV-164A	6AM-NRV-27	4AM-RV-75-GR25
1AM-NRV-39A	2AM-NCC-102SS	4AM-ARV-154	4AM-NRV-165	6AM-NRV-29A	NL22-NCC-5-GR11
1AM-NRV-39C	2AM-NCC-106	4AM-FRV-13A	4AM-NRV-200SS	6AM-NRV-34	
1AM-NRV-39SS	2AM-NCC-106A	4AM-FRV-13C	4AM-NRV-201SS	6AM-NRV-47	
1AM-NRV-56	2AM-NCC-16	4AM-FRV-13G	4AM-NRV-21A	6AM-NRV-47A	
1AM-NRV-60	2AM-NCC-16A	4AM-FRV-13H	4AM-NRV-22A	6AM-NRV-53	
1AM-NRV-63A	2AM-NCC-16B	4AM-FRV-13J	4AM-NRV-22B	6AM-NRV-53A	
1AM-NRV-7SS	2AM-NCC-16D	4AM-FRV-142	4AM-NRV-22D	6AM-NRV-57	
1AM-NRV-82	2AM-NCC-16F	4AM-FRV-142A	4AM-NRV-22F	6AM-NRV-58	
	2AM-NCC-16G	4AM-FRV-145	4AM-NRV-22G	6AM-NRV-60	
1UP-NRV-4	2AM-NCC-40A	4AM-FRV-158	4AM-NRV-50C	6AM-NRV-63	
1UP-NCC-13	2AM-NCC-40B	4AM-FRV-24	4AM-NRV-50H	6AM-NRV-66	
1UP-NCC-14	2AM-NCC-43A	4AM-FRV-51	4AM-NRV-50L	6AM-NRV-67	
1UP-NCC-1A	2AM-NCC-43B	4AM-FRV-58C	4AM-NRV-54	6AM-NRV-68	
1UP-NCC-20	2AM-NCC-43C	4AM-FRV-63	4AM-NRV-54A	6AM-NRV-72	
1UP-NCC-30	2AM-NCC-6	4AM-FRV-63A	4AM-NRV-54B	6AM-NRV-72A	
1UP-NCW-22	2AM-NCC-66	4AM-NRV-109	4AM-NRV-5E	6AM-NRV-75	
1UP-NCW-251	2AM-NCC-74	4AM-NRV-113	4AM-NRV-50M	6AM-NRV-76	
1UP-NCW-2A	2AM-NCC-75A	4AM-NRV-115	4AM-NRV-70C	6AM-NRV-7A	
1UP-NCW-32	2AM-NCC-76	4AM-NRV-122	4AM-NRV-92	6AM-NRV-7B	
1UP-NCW-5	2AM-NCC-78	4AM-NRV-128		6AM-NRV-7C	
1UP-NRV-10	2AM-NCC-85	4AM-NRV-130	6AM-ARV-54	6AM-NRV-7D	
1UP-NRV-11	2AM-NCC-96	4AM-NRV-130A	6AM-ARV-55	6AM-NRV-7E	
1UP-NRV-15	2AM-NCW-108	4AM-NRV-130B	6AM-FRV-17		

8AM-ARV-70
8AM-ARV-71
8AM-FCC-11A
8AM-FRV-2A
8AM-FRV-2B
8AM-FRV-30A
8AM-FRV-40
8AM-FRV-61
8AM-FRV-75
8AM-FRV-78
8AM-NCC-54
8AM-NCC-68
8AM-NRV-17
8AM-NRV-28A

8AM-NRV-29
8AM-NRV-32A
8AM-NRV-39
8AM-NRV-42A
8AM-NRV-43
8AM-NRV-45
8AM-NRV-55
8AM-NRV-5B
8AM-NRV-73
8AM-NRV-76
8AM-NRV-79
8AM-NRV-80
8AM-RV-50
8AM-RV-50A

16AM-FCC-1
16AM-FCC-26
16AM-FCW-28
16AM-FRV-13
16AM-FRV-13A
16AM-FRV-19
16AM-FRV-2
16AM-FRV-251
16AM-FRV-252
16AM-FRV-27
16AM-FRV-32
16AM-FRV-33

NL22-FCW-4
NL22-NCC-1
NL22-NCC-5
NL22-NCW-2

NL32-NCC-1
NL32-NCC-19
NL32-NCC-23
NL32-NCC-251
NL32-NCC-5
NL32-NCC-7
NL32-NCW-2

NL42-NCC-1
NL42-NCC-251
NL42-NCC-5
NL42-NCC-7
NL42-NCW-2
NL42-NCW-252
NL42-NCW-6

NL52-NCC-1
NL52-NCC-3
NL52-NCW-2
NL52-NCW-4

Angewandte Norm: DIN EN 1127-1:2011, DIN EN 13463-1:2009, DIN EN 13463-5: 2011
Applicable standard: DIN EN 1127-1:2011, DIN EN 13463-1:2009, DIN EN 13463-5: 2011

Die Produkte sind mit folgender Kennzeichnung versehen:
The products are marked with the following characteristics:

 II 2 GDC T4 +1°C < Ta < +40°C

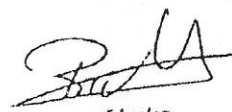
GAST hinterlegt die gemäß 94/9/EG Anhang VIII geforderten Unterlagen bei benannter Stelle:
SIRA Certification Service, EU-Kennnummer 0518

GAST will archive the documents required according to 94/9/EC Appendix VIII at the following location: SIRA Certification Service, EC Code 0518:

GAST / JUN-AIR, Benton Harbor, Michigan USA

November 6, 2013

Ort und Datum der Ausstellung
Place and date of issue


Raouf Luka
Assessing Engineer



(1) **EC-TYPE-EXAMINATION CERTIFICATE** (Translation)



(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

PTB 00 ATEX 3356

(4) Equipment: three-phase motor of the type series eD.. 112..

(5) Manufacturer: SEW-EURODRIVE GmbH & Co

(6) Address: Ernst-Blickle-Str. 42, D-76646 Bruchsal

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report PTB Ex 99-30134.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 50014:1997 **EN 50019:1994**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design and construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:



II2G EEx e II T1,T2,T3 or T4

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, 16.November 2000

Dr.-Ing. U. Engel
Regierungsdirektor

sheet 1/2

EC-type-examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 3356**

(15) Description of equipment

Three-phase motors of the type series eD.. 112.. of the type of protection Increased Safety "e", whose mechanical construction has been specified in the test report according to clause 16 below and whose electrical design has been specified in an associated data sheet, each according the manufacturer's application.

(16) Report PTB Ex 99-30134

(17) Special conditions for safe use

not applicable

(18) Essential health and safety requirements

met by standards

Zertifizierungsstelle Explosionsschutz
By order:

Braunschweig, 16. November 2000

Dr.-Ing. U. Engel
Regierungsdirektor

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

DATA SHEET 01 TO EC-TYPE-EXAMINATION CERTIFICATE PTB 00 ATEX 3356

Manufacturer: SEW-EURODRIVE GmbH & Co, D-76646 Bruchsal

for the three-phase asynchronmotor type series eD.V 112M 4

Ratings

This certificate is valid for the following designs providing the motors of this type differ only negligibly from the sample tested as regards the electrical and thermal stresses:

Power on the output shaft:			3,6				kW
Voltage:	110	230	400	500	690		V
Current:	27,5	13,1	7,5	6,0	4,35		A
Power factor:			0,81				
Frequency:			50				Hz
Speed: (motor)			1440				min ⁻¹
Duty Type:			S1				
I _A /I _N ratio:			7,2				
Thermal class:			B or F				

In addition to the above-mentioned voltages, intermediate values are also permissible. The associated currents are to be converted in the inverse ratio to the voltages. The mains voltage may vary by up to $\pm 5\%$ and the mains frequency by up to $\pm 2\%$ from the rated values, in keeping with range A according to IEC 34-1.

Temperature monitoring

For the selection of a current dependent time-lag protective device, the times t_E were determined as follows:

Temperature class:	T1	T2	T3	
Time t_E :	8	8	8	s

Report PTB Ex 00-30077

Zertifizierungsstelle Explosionsschutz
By order

Braunschweig, 16. November 2000

Dr.-Ing. U. Engel
Regierungsdirektor

- > **Port size:** 3/4" ... 1 1/2"
(ISO G/ PTF)
- > **Complete air processing units**
pre-assembled,
ready to install



Technical features

Medium:

Compressed air only

Maximum operating pressure:

17 bar (246 psi)

Pressure range:

0,4 ... 8 bar (5 ... 116 psi)

Port sizes:

G3/4, G1, G1 1/4 or G1 1/2

Gauge ports:

Rc 1/8

Relieving:

Standard

Filter element:

40 µm;

Drain:

Manual or automatic

Automatic drain conditions:

Pressure to close drain:

> 0,3 bar (4.3 psi)

Pressure to open drain:

< 0,2 bar (2.9 psi)

Minimum air flow to close drain:

0,6 dm³/s (1.3 scfm)

Bowl size (lubricator):

0,5 litre (17 fluid oz)

Ambient/Media temperature:

-20° ... +80°C (-4° ... +176°F)

Version with gauge:

-20° ... +65°C (-4° ... +149°F)

Air supply must be dry enough to
avoid ice formation at temperatures
below +2°C (+35°F).

Materials:

Body, bowl and yoke: Aluminium

Liquid level indicator: Pyrex

Filter element: Sintered plastic

Elastomers: NBR

Available versions on request

Pressure range:

0,3 ... 4 bar (4 ... 58 psi),

0,7 ... 17 bar (10 ... 246 psi)

Port size:

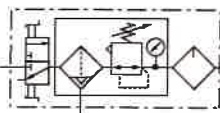
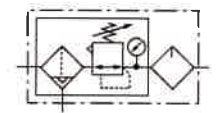
3/4 PTF, 1 PTF, 1 1/4 PTF,

1 1/2 PTF

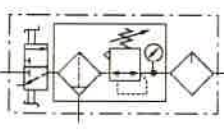
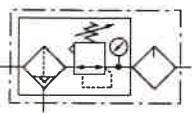
Element:

5 µm

Technical data BL68 - standard models; automatic drain

Symbol	Port size	Size	Pressure range (bar)	Element (µm)	Drain	Lubricator	Mounting	Gauge	Shut-off valve	Model
	G3/4	—	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	With	BL68-601
	G1	Basic	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	With	BL68-801
	G1 1/4	—	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	With	BL68-A01
	G1 1/2	—	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	With	BL68-B01
	G3/4	—	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	With	BL68-611
	G1	Basic	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	With	BL68-811
	G1 1/4	—	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	With	BL68-A11
	G1 1/2	—	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	With	BL68-B12
	G3/4	—	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	Without	BL68-605
	G1	Basic	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	Without	BL68-805
	G1 1/4	—	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	Without	BL68-A05
	G1 1/2	—	0,4 ... 8	40	Automatic	Micro fog	Bracket	With	Without	BL68-B06
	G3/4	—	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	Without	BL68-615
	G1	Basic	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	Without	BL68-815
	G1 1/4	—	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	Without	BL68-A15
	G1 1/2	—	0,4 ... 8	40	Automatic	Oil fog	Bracket	With	Without	BL68-B16

Technical data BL68 - standard models, manual drain

Symbol	Port size	Size	Pressure range (bar)	Element (µm)	Drain	Lubricator	Mounting	Gauge	Shut-off valve	Model
	G3/4	—	0,4 ... 8	40	Manual	Micro fog	Bracket	With	With	BL68-621
	G1	Basic	0,4 ... 8	40	Manual	Micro fog	Bracket	With	With	BL68-821
	G1 1/4	—	0,4 ... 8	40	Manual	Micro fog	Bracket	With	With	BL68-A21
	G1 1/2	—	0,4 ... 8	40	Manual	Micro fog	Bracket	With	With	BL68-B22
	G3/4	—	0,4 ... 8	40	Manual	Oil fog	Bracket	With	With	BL68-631
	G1	Basic	0,4 ... 8	40	Manual	Oil fog	Bracket	With	With	BL68-831
	G1 1/4	—	0,4 ... 8	40	Manual	Oil fog	Bracket	With	With	BL68-A31
	G1 1/2	—	0,4 ... 8	40	Manual	Oil fog	Bracket	With	With	BL68-B32
	G3/4	—	0,4 ... 8	40	Manual	Micro fog	Bracket	With	Without	BL68-625
	G1	Basic	0,4 ... 8	40	Manual	Micro fog	Bracket	With	Without	BL68-825
	G1 1/4	—	0,4 ... 8	40	Manual	Micro fog	Bracket	With	Without	BL68-A25
	G1 1/2	—	0,4 ... 8	40	Manual	Micro fog	Bracket	With	Without	BL68-B26
	G3/4	—	0,4 ... 8	40	Manual	Oil fog	Bracket	With	Without	BL68-635
	G1	Basic	0,4 ... 8	40	Manual	Oil fog	Bracket	With	Without	BL68-835
	G1 1/4	—	0,4 ... 8	40	Manual	Oil fog	Bracket	With	Without	BL68-A35
	G1 1/2	—	0,4 ... 8	40	Manual	Oil fog	Bracket	With	Without	BL68-B36

Accessories

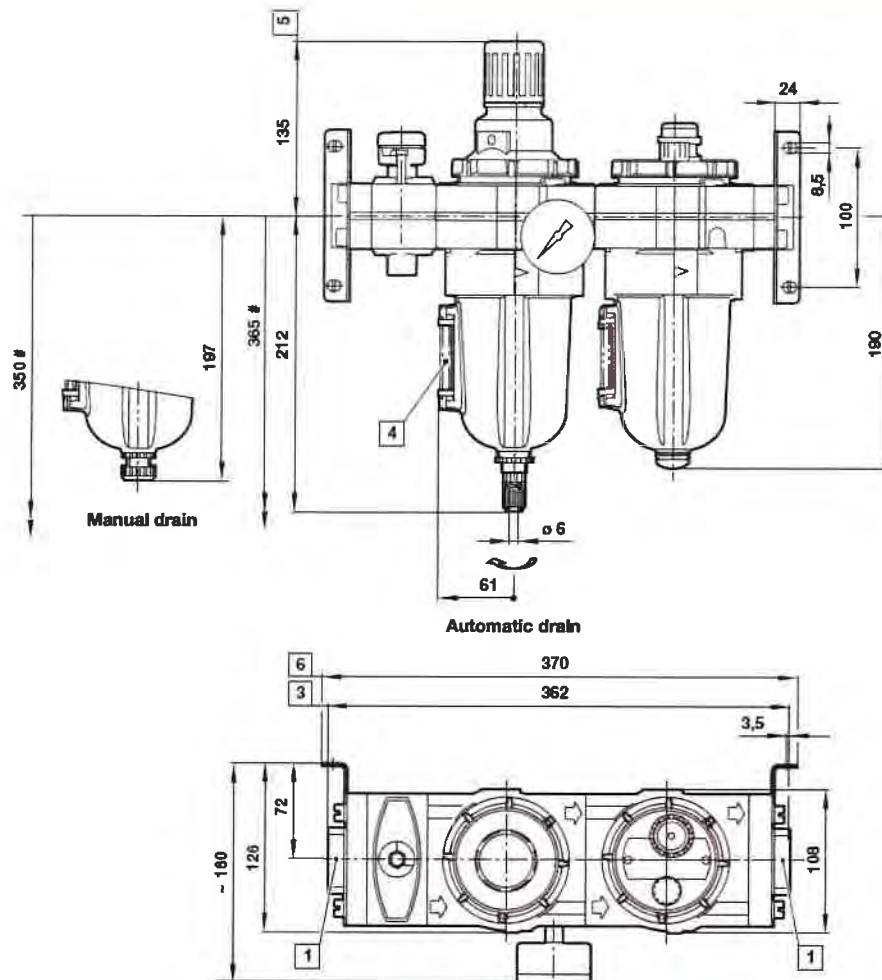
	3/2 Shut-off valve Threaded Inlet only	Threaded outlet only	Bracket mounting
			
Thread			
G3/4	T68H-6GB-B2N	T68H-6GC-B2N	18-001-979
G1	T68H-8GB-B2N	T68H-8GC-B2N	18-001-979
G1 1/4	T68H-AGB-B2N	T68H-AGC-B2N	18-001-978
G1 1/2	T68H-BGB-B2N	T68H-BGC-B2N	18-001-972
3/4 PTF	T68H-6AB-B2N	T68H-6AC-B2N	18-001-979
1 PTF	T68H-8AB-B2N	T68H-8AC-B2N	18-001-979
1 1/4 PTF	T68H-AAB-B2N	T68H-AAC-B2N	18-001-978
1 1/2 PTF	T68H-BAB-B2N	T68H-BAC-B2N	18-001-972

Tamper resistant cap & seal wire	Porting block	Padlock with two keys
		
4355-51	18-026-986 (G1/4 & G1/2) 18-026-983 (1/4 & 1/2 NPT)	0613633 (brass)



Dimensions with shut-off valve

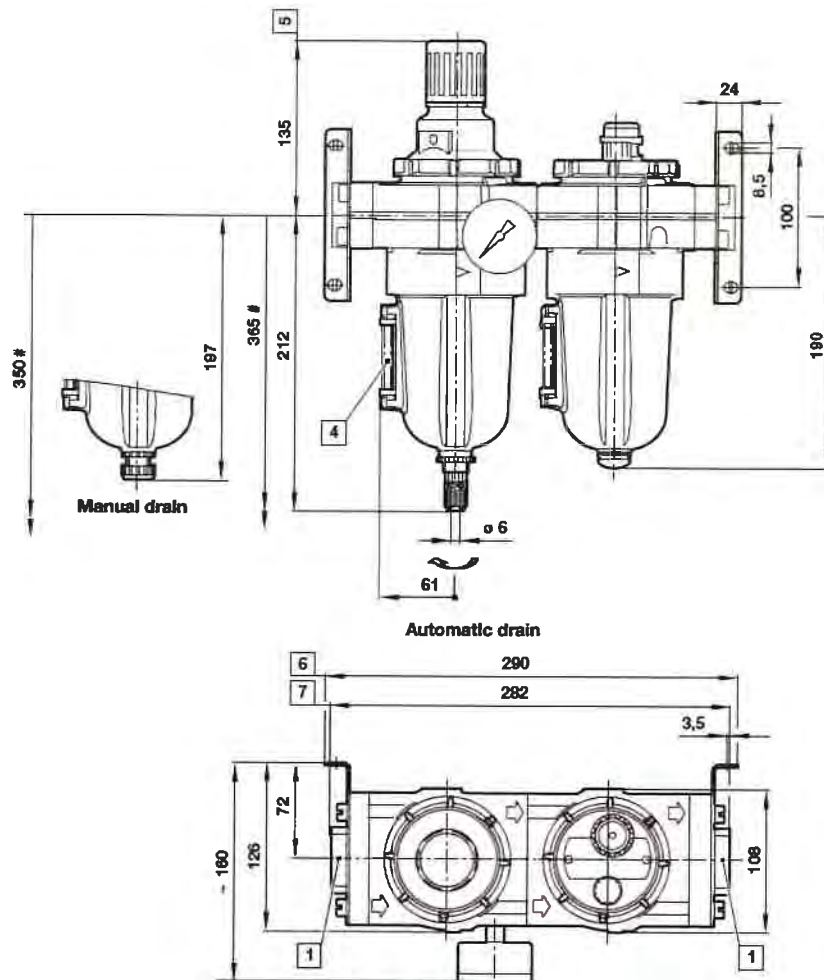
Dimensions in mm
Projection/First angle



- # Minimum clearance required to remove bowl
- 1 Main ports 3/4", 1", 1 1/4" or 1 1/2"
- 3 Plus 10 mm for ports 1 1/4" or 1 1/2"
- 4 Sight glass
- 5 Reduces by 4 mm with knob in locked position
- 6 Plus 10 mm for ports 1 1/4"

Dimensions without shut-off valve

Dimensions in mm
Projection/First angle



Minimum clearance required to remove bowl

1 Main ports 3/4", 1", 1 1/4" or 1 1/2"

4 Sight glass

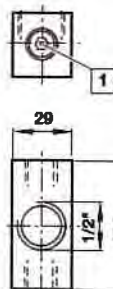
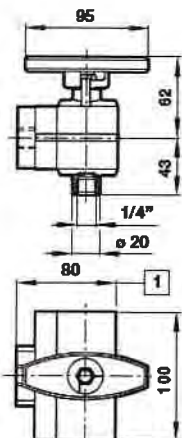
5 Reduces by 4 mm with knob in locked position

6 Plus 10 mm for ports 1 1/4"

7 Plus 10 mm for ports 1 1/4" and 5 mm for 1 1/2"

3/2 Shut-off valve

Porting block



1 For 1 1/2" ported yokes add 5 mm

1 Two additional plugged 1/4" ports

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under **«Technical features/data»**.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult

IMI Precision Engineering, IMI International s.r.o.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

1.2. Relevant identified uses of the substance or mixture and uses advised against

RECOMMENDED USES: Lubricant

1.3. Details of the supplier of the safety data sheet

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

DPD Classification: Xn; R65

CLP Classification: Asp. Tox. 1; H304

Most serious harmful effects:: May be fatal if swallowed and enters airways.

2.2. Label elements



Signal word: None

EC-Label: No

COMPOSITION

VITOLJA, HÖGRAFFINERAD MINERALOLJA (100 %)

H-phrases

H304 May be fatal if swallowed and enters airways.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SUPPLEMENTAL HAZARD INFORMATION (EU)

Risk of aspiration with chemical pneumonia.

2.3. Other hazards

OTHER HAZARDS

Not known

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Ingredient name	Reg. no.	EC No.	CAS No.	Conc. (wt%)	DPD-Classification	CLP-classification
VITOLJA, HÖGRAFFINERAD MINERALOLJA		232-455-8	8042-47-5	100 %	R65	Asp. Tox. 1 H304

Full text of R-, H- and EUH-phrases: see section 16.

The EUH hazard statements mentioned in CLP-classification are only label elements.

SECTION 4: First aid measures

4.1. Description of first aid measures

INHALATION

Provide rest, warmth and fresh air. Rinse nose, mouth and throat with water. Get medical attention if any discomfort continues.

INGESTION

DO NOT INDUCE VOMITING! Contact physician.

SKIN

Wash skin with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues. Immediate hospital care if the product has been forced through the skin at high pressure.

EYES

Rinse with water. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Aspiration during vomiting or ingestion may cause chemical pneumonia. Pulmonary oedema may appear several hours/days after exposure.

4.3. Indication of any immediate medical attention and special treatment needed

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Treat symptomatically.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SECTION 5: Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING MEDIA:

Fire may be extinguished using powder, foam or carbon dioxide (CO₂).

UNSUITABLE EXTINGUISHING MEDIA

Do not use water.

5.2. Special hazards arising from the substance or mixture

SPECIAL HAZARDS

Evolves combustible gases if heated. In the event of a fire, irritating smoke is formed. Carbon monoxide may be formed in the event of incomplete combustion.

5.3. Advice for firefighters

ADVICE FOR FIREFIGHTERS

Wear suitable respiratory protection.

OTHER INFORMATION

Only trained personnel may undertake fire fighting in enclosed spaces. Containers close to fire should be removed immediately or cooled with water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

PERSONAL PRECAUTIONS

Bank in the discharge. Use personal protective equipment.

6.2. Environmental precautions

ENVIRONMENTAL PRECAUTIONS

Prevent discharges into the sewage system, watercourses or lakes.

6.3. Methods and material for containment and cleaning up

METHODS AND MATERIAL

Prevent dispersion through damming with sand, earth or other suitable material. Wipe away or soak up with an absorbent material. Immediately inform the authorities if the emission reaches the sewage system and watercourses. Inform the emergency service in the event of major spillage. Treat as dangerous waste. In the event of spillage into water: Enclose by booms and pump out as much as possible, collect minor quantities, e.g. in bark, and remove immediately.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

6.4. Reference to other sections

REFERENCES

Waste management see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.1. PRECAUTIONS FOR SAFE HANDLING

Avoid spillage. Avoid inhaling vapour/aerosol/mist.

7.2. Conditions for safe storage, including any incompatibilities

7.3. Specific end use(s)

7.3. SPECIFIC END USE(S)

Remains and waste must be treated as dangerous waste.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

LEGAL BASIS

AFS 2011:18

Occupational exposure limits

Ingredient name	CAS No.	Range	ppm	mg/m3	Year	Remarks
VITOLJA, HÖGRAFFINERAD MINERALOLJA	8042-47-5	15 min.		3		
VITOLJA, HÖGRAFFINERAD MINERALOLJA	8042-47-5	8 h		1		

R=Toxic for reproduction, H=Skin absorption, K=Carcinogenic, A=Sensitising, T=Upper limit, M=Mutagenic

BIOLOGICAL THRESHOLD VALUES

Contains mineral oil for which a threshold value for oil mist must be applied.

8.2. Exposure controls

APPROPRIATE ENGINEERING CONTROLS

Good personal hygiene is important. Use only in well-ventilated areas. Remove contaminated clothing. Do not put polluted rags in your pockets. Use suitable protective gloves, protective goggles and protective clothes if there is risk of direct contact or splashing.

EYE PROTECTION

Use eye protection.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SKIN PROTECTION

Apron.

HAND PROTECTION

Protective gloves (nitrile rubber, fluorocarbon rubber).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

STATE	Liquid.
COLOUR	Transparent liquid.
ODOUR	Mild.
SOLUBILITY	Organic solvents.
SOLUBILITY IN WATER	The product has limited solubility in water.

Parameter	Value/unit	Method/reference	Observation
pH (concentrate)	No data		
pH (solution for use)	No data		
Melting point	No data		
Freezing point	No data		
Initial boiling point and boiling range	No data		
Flash point	> 170 °C		1)
Evaporation rate	No data		
Flammability (solid, gas)	No data		
Flammability limits	No data		
Explosion limits	No data		
Vapour pressure	No data		
Vapour density	No data		
Relative density	No data		
Partition coefficient	No data		
Auto-ignition temperature	No data		
Decomposition temperature	No data		
Viscosity	~ 15 mm ² /s	40°C	2)

9.2. Other information

Parameter	Value/unit	Method/reference	Observation
Density	~ 849 kg/m ³	15°C	3)

Note no.	Comments
1	NOT TRANSLATED
2	NOT TRANSLATED
3	NOT TRANSLATED

SECTION 10: Stability and reactivity

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

10.1. Reactivity

10.1. REACTIVITY

No information available

10.2. Chemical stability

10.2. CHEMICAL STABILITY

Stable.

10.3. Possibility of hazardous reactions

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

Reacts with strong oxidants.

10.4. Conditions to avoid

10.4. CONDITIONS TO AVOID

Strong oxidizing agent.

10.5. Incompatible materials

10.5. INCOMPATIBLE MATERIALS

Not known

10.6. Hazardous decomposition products

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

At a fire or strong heat, carbon monoxide (CO) is formed

SECTION 11: Toxicological information

11.1. Information on toxicological effects

ACUTE TOXICITY - ORAL

Aspiration during vomiting or ingestion may cause chemical pneumonia.

ACUTE TOXICITY - DERMAL

Product that has come under the skin at high pressure may cause extensive subcutaneous necrosis.

ACUTE TOXICITY - INHALATION

Oil mist may irritate the respiratory organs.

SKIN CORROSION/IRRITATION

Protracted or repeated contact in combination with poor hygiene may cause skin problems in the form of skin inflammation (dermatitis), eczema and oil acne. Used oils may contain contaminants hazardous to health. Mineral oil that has entered under the skin at high pressure may cause extensive subcutaneous necrosis.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SERIOUS EYE DAMAGE/EYE IRRITATION

May cause discomfort.

ASPIRATION HAZARD

Risk of aspiration with chemical pneumonia.

SECTION 12: Ecological information

12.1. Toxicity

ACUTE AQUATIC TEST RESULTS

Not known

ECOTOXICITY

Not known

12.2. Persistence and degradability

PERSISTENCE AND DEGRADABILITY

The principal constituents are expected to be biodegradable. Slowly biodegradable.

12.3. Bioaccumulative potential

BIOACCUMULATIVE POTENTIAL

Contains component/components that can be bioaccumulated.

12.4. Mobility in soil

MOBILITY

Low solubility in water. The product floats on water. Contains components that strongly adsorb earth particles.

12.5. Results of PBT and vPvB assessment

RESULTS OF PBT AND VPVB ASSESSMENT

No information available

12.6. Other adverse effects

OTHER EFFECTS

Forms an oil film on water surfaces that may harm aquatic organisms and may disturb the transport of oxygen at the air/water interface.

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SECTION 13: Disposal considerations

13.1. Waste treatment methods

GENERAL REGULATIONS

Treat as dangerous waste. May only be transported by a contractor with a special licence.

CATEGORY OF WASTE

EWC 13 02 05

SECTION 14: Transport information

Classified as Dangerous Goods: **No**

SAFETY DATA SHEET

Pneumatic tool oil Luna AIRTOIL 15 155300106, 0205, 0304

Last changed: 21/10/2014

Replaces date: 09/05/2012

Internal No. 155300106

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

OTHER REGULATORY INFORMATION

The CLP Regulation (1272/2008) SFS 2001:1063 AFS 2011:18

15.2. Chemical safety assessment

SECTION 16: Other information

LIST OF RELEVANT R-PHRASES

R65 Harmful: may cause lung damage if swallowed.

LIST OF RELEVANT H-STATEMENTS

H304 May be fatal if swallowed and enters airways.