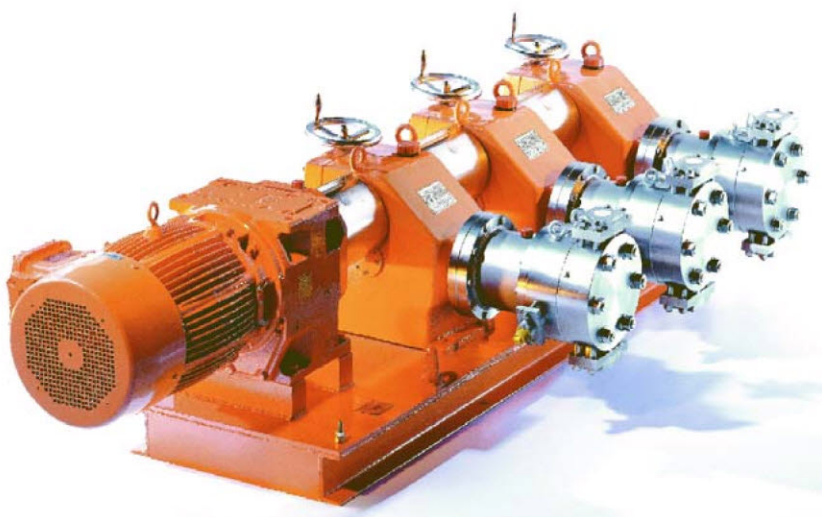


OPERATING MANUAL

for Metering Pumps



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diaphragm rupture control

No.: Z0137-1300400

Rev.: 00

Dat.:

ProMinent Dosiertechnik GmbH

Im Schuhmachergewann 5-11

69123 Heidelberg

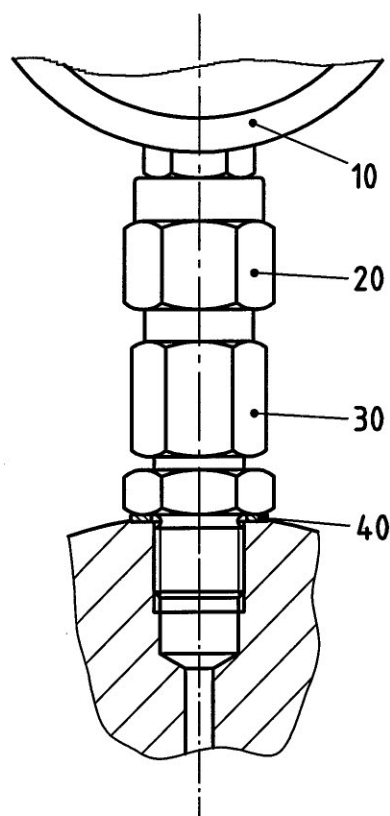
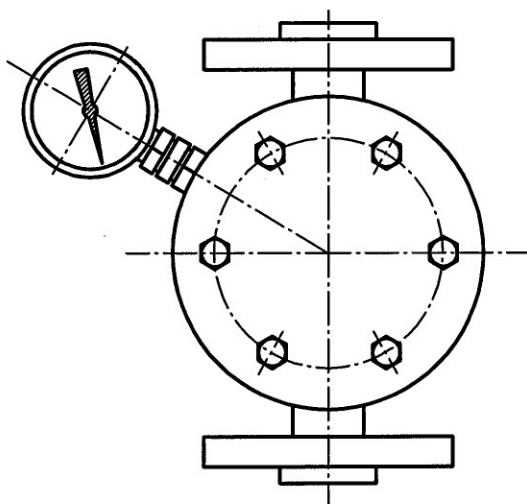
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ProMinent



diaphragm failure control

For transportation of critical products by an ORLITA-diaphragm pump, type Mf diaphragm-control equipments of an easy and reliable construction are available.

The diaphragm-interspace is controlled by a contact gauge at atmospheric pressure. In case the diaphragm will leak because of damage the pressure will rise in the interspace because of infiltration of produkt- or hydraulic oil according to operating pressure, and owing to this the contact pressure gauge gives signaling contact.

In case of using viscous or polluted products a delay of the hydraulic pressure to contact impulse due to congestion has to be taken into account

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Diaph.rupture ctrl G1/4 G1/2 pres.gau. drawing

item	qty	unit	sp	mat.no.	design
0010	1	ST	T		pressure gauge look manifold
0011	1	ST	L	1027436	Seal 6x11,3x4,5 1.4571/1.4404
0020	1	ST	L	1014387	Screwing G1/2 M14x1,5 MAVE6SR 14571
0030	1	ST	L	1014020	Screwing G1/4A 6mm 510 6S14 1.4571
0040	1	ST	V	1013788	Seal DIN7603 14x20x1 1.4571/1.4404
0050	1	ST	L	1027186	T-piece DN4 ETM6 1.4401
0060	1	ST	L	1025118	2-way ball valve 6mm A-lok VA
0070	250	MM	L	15739	Pipe 6 x 1 1.4571

Unit of Quantity

ST - piece
 M - meter
 K - kilogram
 L - liter

Part Type

V - wear part
 L - spare part
 N - non-st. part
 T - text position

Bourdon Tube Pressure Gauges Stainless Steel, Safety Pattern Version Model 232.30/233.30, without/with Liquid Filling

WIKA Data Sheet PM 02.04



Applications

- Increased safety requirements
- With liquid filled case for applications with high dynamic pressure pulsations or vibrations
- Suitable for corrosive environments and gaseous or liquid media that will not obstruct the pressure system
- Process industry: chemical/petro-chemical, power stations, mining, on- and offshore, environmental technology, mechanical engineering and plant construction

Special Features

- Safety pressure gauge with solid baffle wall designed in compliance with operational safety requirements of EN 837-1, BS 1780 and ASME B 40.1
- Excellent load-cycle stability and shock resistance
- All stainless steel construction
- Scale ranges up to 0 ... 1600 bar

Description

Design

EN 837-1

Nominal size

63, 100 and 160 mm

Accuracy class

63 mm: 1.6

100, 160 mm: 1.0

Scale ranges

63 mm: 0 ... 1 to 0 ... 1000 bar

100 mm: 0 ... 0.6 to 0 ... 1000 bar

160 mm: 0 ... 0.6 to 0 ... 1600 bar

or other equivalent units of pressure or vacuum



Bourdon Tube Pressure Gauge Model 232.30

Working pressure

63 mm:	Steady:	full scale value
	Fluctuating:	0.9 x full scale value
	Short time:	1.1 x full scale value
100, 160 mm:	Steady:	full scale value
	Fluctuating:	0.9 x full scale value
	Short time:	1.3 x full scale value

Operating Temperature

Ambient:	-40 ... +60 °C without liquid filling
	-20 ... +60 °C gauges with glycerine filling
Medium:	+200 °C maximum without liquid filling
	+100 °C maximum with liquid filling

Temperature effect

When temperature of the pressure element deviates from reference temperature (+20 °C):
max. $\pm 0.4 \text{ } \%/10 \text{ K}$ of true scale value

Ingress protection

IP 65 per EN 60 529 / IEC 529

Standard features

Pressure connection

Material: stainless steel 316L

Lower mount (LM) or lower back mount (LBM) ¹⁾

63 mm: G ¼ B (male), 14 mm flats

100, 160 mm: G ½ B (male), 22 mm flats (160 mm only lower mount)

Pressure element

Material: stainless steel 316L

< 100 bar: C-type

≥ 100 bar: helical type

Movement

Stainless steel

Dial

White aluminium with black lettering,

63 mm with pointer stop pin

Pointer

Black aluminium

Case

Natural finish stainless steel, case with solid baffle wall and blow-out back

Window

Laminated safety glass

Bezel ring

Cam ring (bayonet type), natural finish stainless steel

Liquid filling (for model 233.30)

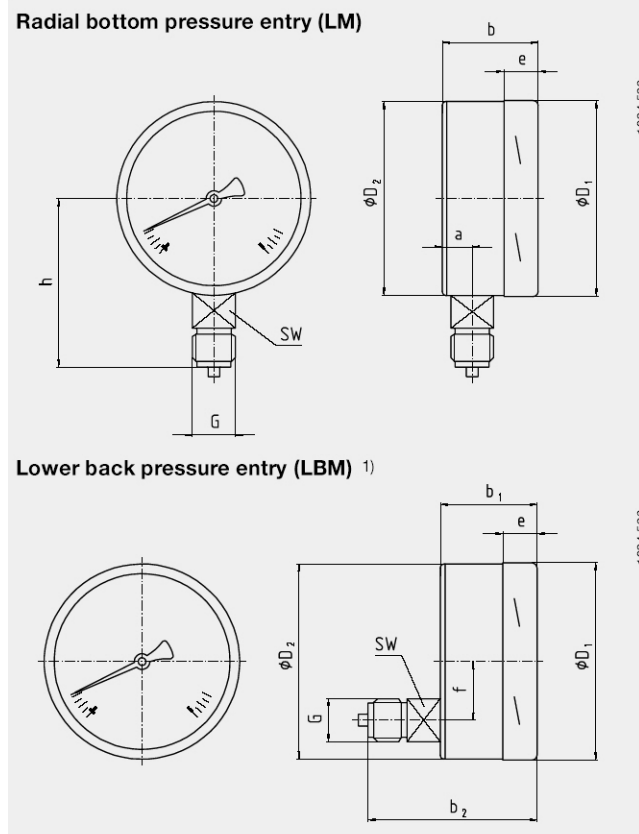
Glycerine 99.7 %

¹⁾ Connector position back mount only for gauges NS 63 and 100 without liquid filling

Optional extras

- Other pressure connections
- Monel pressure system (model 262.30)
- Pressure system stainless steel 1.4571
- 3-hole panel mounting flange, stainless steel or stainless steel, polished
- Surface mounting lugs on case, stainless steel
- Ambient temperature -40 °C: silicon oil filling
- Alarm contacts (see data sheet AC 08.01)
- Transmitter (model 89X.34, see data sheet AE 08.02)

Standard version



Dimensions in mm

NS	Dimensions in mm										Weight in kg		
	a	b	b ₁	b ₂	D ₁	D ₂	e	f	G	h ± 1	SW	Mod. 232.30	Mod. 233.30
63	17.5	42	42	61	63	63	14.5	18.5	G ¼ B	54	14	0.20	0.26
100	25	59.5	59.5	93	101	100	17	30	G ½ B	87	22	0.65	1.08
160	27 ¹⁾	65 ²⁾	-	-	161	159	17.5	-	G ½ B	118	22	1.30	2.34

Standard pressure entry with parallel thread and sealing to EN 837-1 / 7.3

¹⁾ 41.5 mm with pressure ranges ≥ 100 bar

²⁾ 79 mm with pressure ranges ≥ 100 bar

Ordering information

Pressure gauge model / Nominal size / Scale range / Size and location of connection / Optional extras required

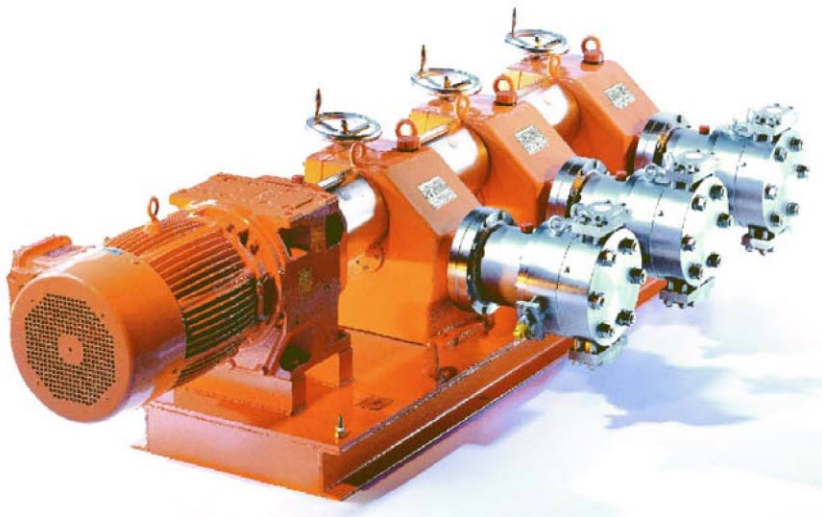
Modifications may take place and materials specified may be replaced by others without prior notice.
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OPERATING MANUAL

for Metering Pumps



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metering pump
Mf+Mh S80+S600+S1400 /x

No.: ZBAMS80E1

Rev.: 00

Dat.: 13.02.02

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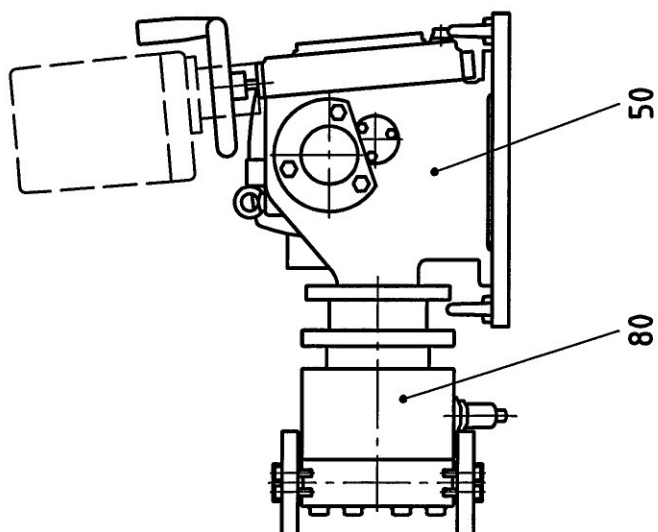
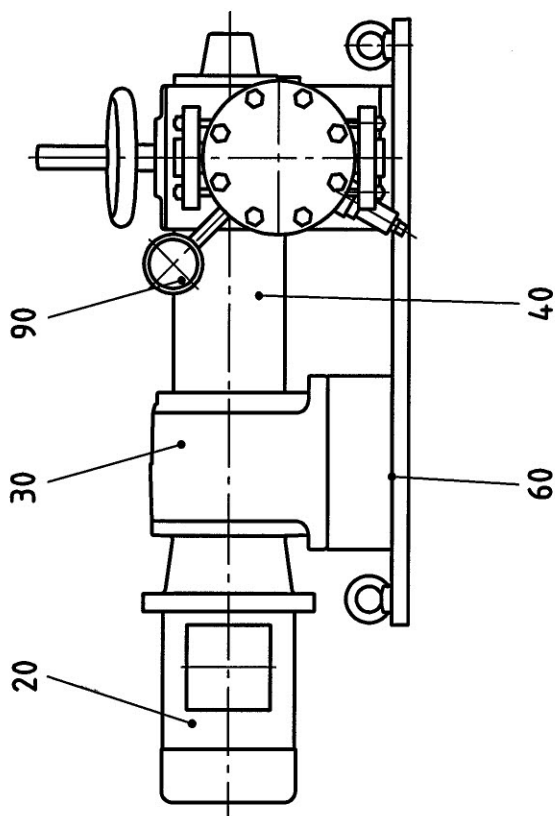
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drawing

metering pump MfS 180/75 **2009601254_10-03 + ZBAMS80E1**

parts list 904014

item qty unit spare mat. No. design

Motor

0020

2010 1 ST -- ----- without motor

Reduktion Gear

0030

3010 1 ST N ----- bevel gear
SEW K77 AM 184 i=29,27

3011 1 ST L **1034083** compensator SEW 11

Coupling

0040

4010 1 ST L **1028479** drive unit S180 D50/D45 Welle D50 Steel

4011 1 ST L **1034109** Coupl. guard, right - S180/SEW K77 SS

0050

5010 1 ST L **1029639** Crank gear S180 1:1 TNK 18000N M16

5011 10 ST L **1033450** gear oil Mobilgear 600XP 150

5012 1 ST L **1029874** manuel handwheel S180 D200 Alu

5014 1 ST L **1029385** blind flange S180 D126x78 3.1245

Baseplatte

0060

6010 1 ST L **1033458** Base plate SEW K77-1xS180 cpl. Welded

6011 8 ST L **1013870** Shim 68x 68x0,5 D= 16 SPI405 SS

6012 8 ST L **1013884** Shim 68x 68x1 D= 16 SPI410 SS

6013 4 ST L **1028537** Sheet 194x 60x0,5 S180 st.steel

6014 4 ST L **1028538** Sheet 194x 60x1 S180 st.steel

pump head

0080

8010 1 ST L **1036298** Liquid end Mf4a/75 1-1/2 300RF 4404 N

8011 4,5 ST L **1011066** Hydraulic oil TTO -24 -50/80°C

Accessories

0090

9010 1 ST L **1029626** type plate 90x64x0,5 SS brushed

9011 1 ST L **1034996** plate 60x18x0,5 SS brushed

drawing

metering pump MfS 180/75

2009601254_10-03 + ZBAMS80E1

parts list 904014

item	qty	unit	spare	mat. No.	design
------	-----	------	-------	----------	--------

9012	1	ST	L	1036308	Diaph.rupture ctrl G1/4 G1/2 pres.gau.
------	---	----	---	---------	--

9013	1	ST	L	1026895	Press.gauge NG100 0-0040 bar 233.30
------	---	----	---	---------	-------------------------------------

drive unit
(S80, S600, S1400)

No.: ZA06002.011

Rev.: 06

Dat.: 23.06.08

Orl-08033-069

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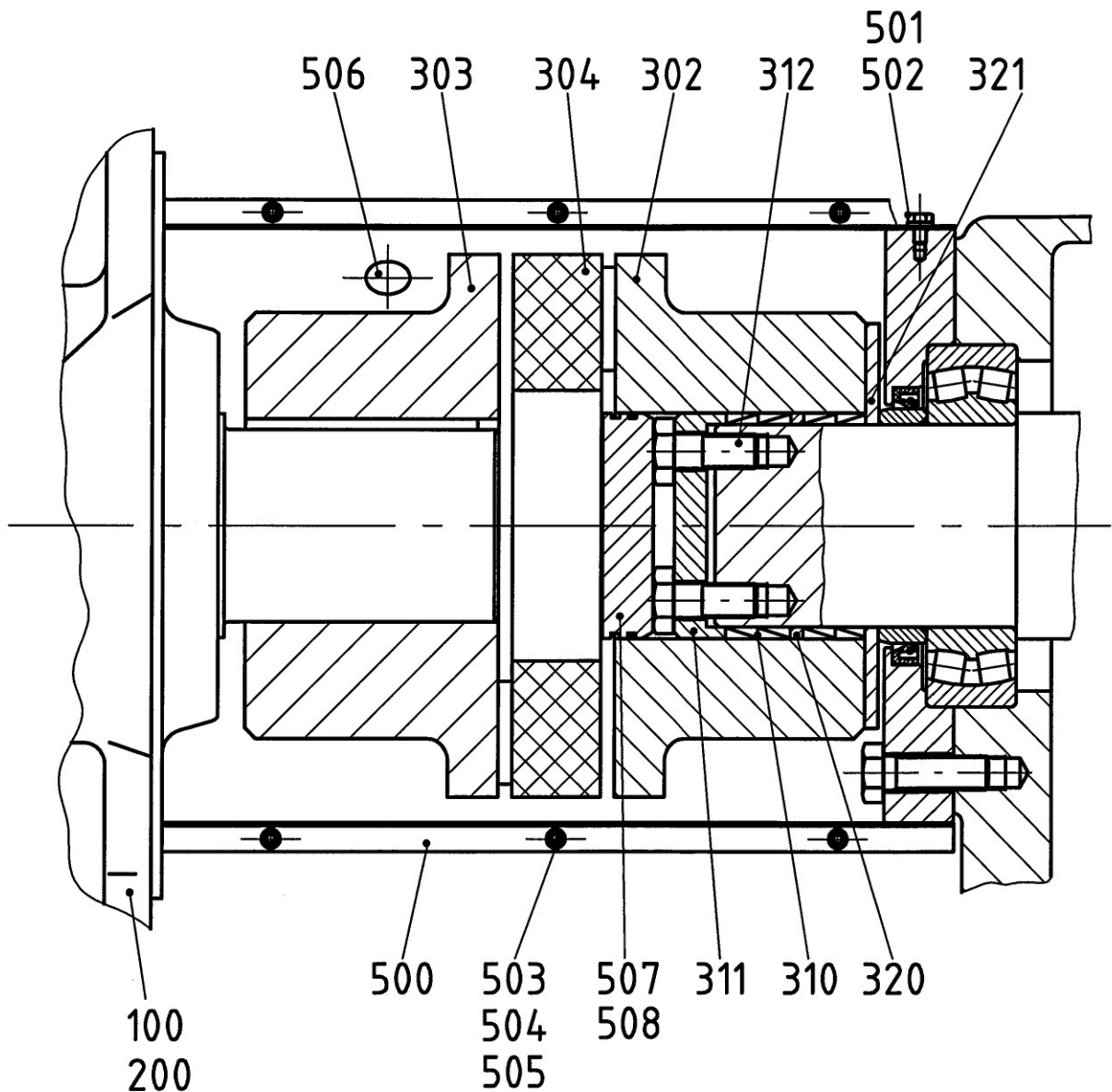
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remark:

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drive unit S180 D50/D45 Welle D50 Steel drawing
 ZA06002.011

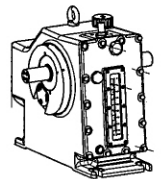
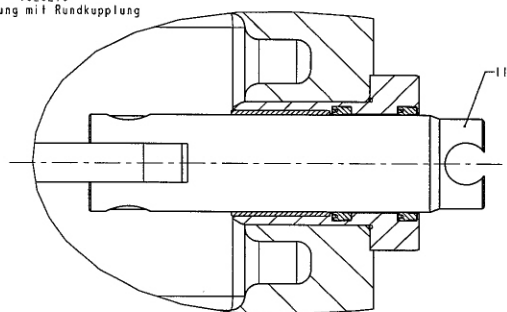
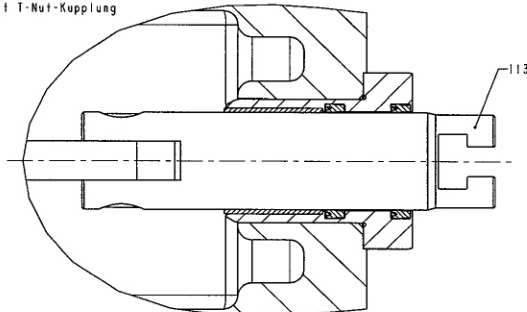
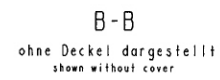
item	qty	unit	sp	mat.no.	design			
0302	1	ST	L	1028480	coupling half	R 55 D 45H7	Steel	
—								
0303	1	ST	L	1028478	coupling half	R 55 D 50H7 (gr.)	GG-25	
—								
0304	1	ST	L	1017149	coupling spider	R 55 PUR-98	Shore	
—								
0310	4	ST	L	1026308	Gripping jaw RFN 8006	40x 45x 8	St	
—								
0311	1	ST	L	1026246	tension cover D44x20	1.6580	S180	
—								
0312	4	ST	L	1011415	Cyl.screw	DIN 912 M10x 25 12.9	galv.	
—								
0320	1	ST	L	1026249	Ring D 40/D 45 x 6	1.6580		
—								
0321	1	ST	L	1028482	spacer D 40/D 56 x 27	1.4571		
—								
0501	2	ST	L	1004834	Hexagon screw DIN 933 M 6x 10		A4	
—								
0502	2	ST	L	462219	Washer DIN 125	A 6.4 A2	BPV	
—								
0503	3	ST	L	1004834	Hexagon screw DIN 933 M 6x 10		A4	
—								
0504	3	ST	L	462219	Washer DIN 125	A 6.4 A2	BPV	
—								
0505	3	ST	L	469050	Hexagon nut DIN 934	M 6	A4	
—								
0506	1	ST	L	1013686	plug	GPN300 21,2 F181	PE-w	
—								

Unit of Quantity

ST - piece
 M - meter
 K - kilogram
 L - liter

Part Type

V - wear part
 L - spare part
 N - non-st. part
 T - text position

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Crank gear		S180	1:1	TNK 18000N	M16	drawing 66_60-101_00_08-00		
item	qty	unit	sp	mat.no.	design			
0101	1	ST	L	1029116	Housing 404x256x380	S180	0.7043	
0102	1	ST	L	1011578	Drain screw	D57x48	G3/4"	PA
0103	1	ST	L	1020080	Crank shaft D75/D40x400	1.6580	nitr.	
0104	1	ST	L	1020146	Eccentric rod cpl. 170x110x56	S180	St52	
0105	1	ST	L	1020075	Bolt D25 x102	1.6580	nitrated	
0106	1	ST	L	1020148	Piston rod cpl. 140x40x22	S180	C45k/B	
0107	2	ST	L	1024049	Swivel lever cpl. 146x56x20	St52/St		
0108	1	ST	L	1024075	Yoke cpl.295x127x160	S180	1.0570	welded
0109	2	ST	L	1020079	Yoke bolt D44x51	S180	1.6580	ht
0110	2	ST	L	1020078	Housing flange D47x55	S180	1.6580	ht
0111	2	ST	V	1014532	O-ring 35x2	-40/100 NBR-70S	DIN3771	
0112	1	ST	L	1020089	Piston bolt D25 x 53	1.6580	nitrated	
0113	1	ST	L	1031461	Piston rod S180 D55x230	TNK	1.4122	DNC
0114	1	ST	V	1023389	Gasket DIN7603 30x 35x1	NBR-65Sh		
0115	1	ST	L	1020163	Ball joint bearing 21309	45x100x25		
0119	4	ST	L	1020152	Snap ring	DIN 471	25x1.2	s.st.
0122	6	ST	V	1003714	Cyl.screw	DIN 912 M 8x 20	8.8	galv.

item	qty	unit	sp	mat.no.	design		
0123	6	ST	L	1005577	Spring washer DIN 127	B 8	A4
0124	2	ST	L	1011398	Thread pin DIN 913 M 6x 8 45H galv.		
0126	3	ST	L	1034017	Sheet S180/S1400	1.4301	
0127	1	ST	L	1029366	Cover 334x194x 17 S180	0.7043	
0128	1	ST	L	1020087	Adj.traverse 162x72x83,5 S180	0.7060	
0129	1	ST	L	1020091	Adjust.spindle S180 M24	1.4057	nit.
0130	1	ST	L	1020092	Slide stone D44x60 M24 S180	1.0503	nit.
0131	1	ST	L	1016317	Ball DIN 5401 D= 6 G 10	1.3541	
0132	2	ST	L	1016961	slide stone 24x18x20	1.0503	nit. S600
0133	2	ST	L	1011111	Fitting key DIN 6885 A 20x 8x 45	St50-1K	
0134	1	ST	L	1023993	Scale 40x200x3 40mm S180	Securityglass	
0135	1	ST	L	1023992	Scale pointer 25x10x82,5 GL40 S180	st	
0136	1	ST	V	1011427	Hex.pipe plug DIN 910 M24x1.5	5.8	galv.
0137	1	ST	L	1020167	Hand wheel GN6336.5-ST-40-M8-40	st.st.	
0138	1	ST	L	1014061	oil sight gl. M30x1,5	brass	
0139	1	ST	L	1024215	Screw plug vsi sf594 G 3/8A	VA/NBR	
0140	14	ST	L	468222	Hexagon screw DIN 933 M 8x 30	8.8	galv.
0141	1	ST	L	1020157	Bearing disk D26/42x3 GS81105	ST	
0142	1	ST	L	1020161	Plain bearing 16x20x15	CB F45	HH

item	qty	unit	sp	mat.no.	design				
0143	2	ST	L	1011526	Cyl.screw	DIN 84	M	4x 6	A4
0144	2	ST	L	1011398	Thread pin	DIN 913	M	6x 8	45H galv.
0145	2	ST	L	1020158	Hexagon nut	DIN 439	M24	14H	galv.
0147	2	ST	L	1011142	Cylinder pin	DIN 6325	14m6x45		st
0148	14	ST	L	1014835	U-Sit ring	8,7x13	x1	ST2K32/NBR	
0149	2	ST	L	1020156	Thrust washer	D26/D44x1,5		iglidur X	
0150	1	ST	V	1024024	Flat gasket	335x 194x0,5		Tesnit BA-50	
0156	1	ST	L	1020160	Bearing disk	D16/28x2,75	GS81102		st
0157	2	ST	L	1017259	Thrust washer	16x30x1,5		iglidur X	
0158	2	ST	L	1021665	Snap ring	DIN 472	100x3		s.st.
0161	2	ST	V	1020159	R.shaft seal	45x100x10	BA NBR72	DIN3760	
0162	2	ST	L	1004030	Snap ring	DIN 471	45x1.75		s.st.
0164	10	L	T		Getriebeöl				
0165	1	ST	L	1031462	Plain bearing	55x60x53	CB F45	HH	
0166	2	ST	V	1020153	Rod sealing	55x65x11	-40/110	PU	
0168	1	ST	L	1028909	Seal support	D100/D56x104	S180	1.4057	
0170	4	ST	L	1017602	Cyl.screw	DIN 912	M 6x 30	8.8	galv.
0171	1	ST	L	1020164	Cyl.roller bearing	NU- 309	45x100x25		
0176	1	ST	L	1011482	Lifting eye bolt	DIN 580	M12		galv.
0177	1	ST	V	1022057	Flat gasket	201x 40x1	NBR 65	Sh	

item	qty	unit	sp	mat.no.	design		
0178	1	ST	L	1015177	mounting flange	60x8x222	1.4404
0179	10	ST	L	1011522	Cyl.screw	DIN 84 M 5x10	A4
0180	1	ST	V	1015179	O-ring	70x2 -30/100 NBR-90S	DIN3771
0181	1	ST	V	1022284	Flat gasket	222x 60x1 NBR 65 Sh	
0182	2	ST	L	1011311	Hexagon screw	DIN 933 M 8x 45	8.8 galv.
0183	4	ST	L	1011496	Hexagon nut	DIN 439 M 8	14H galv.
0184	6	ST	L	462208	Washer	DIN 125 A 8.4	galv.
0185	2	ST	L	468112	Hexagon screw	EN 24017 M 8x 20	8.8 galv.
0186	1	ST	V	1013902	Seal	DIN7603 24x29x2	1.4571/1.4404
0187	2	ST	L	1020149	Plain bearing	F 30x34/38 x24	CB F45 HH
0188	2	ST	L	792325	Hexagon screw	DIN 933 M 8x 10	galv.

Unit of Quantity

ST - piece
M - meter
K - kilogram
L - liter

Part Type

V - wear part
L - spare part
N - non-st. part
T - text position

manual stroke adjustment
S600 / S1400

No.: ZK05001.012

Rev.: 02

Dat.: 07.12.04

ORL-04155

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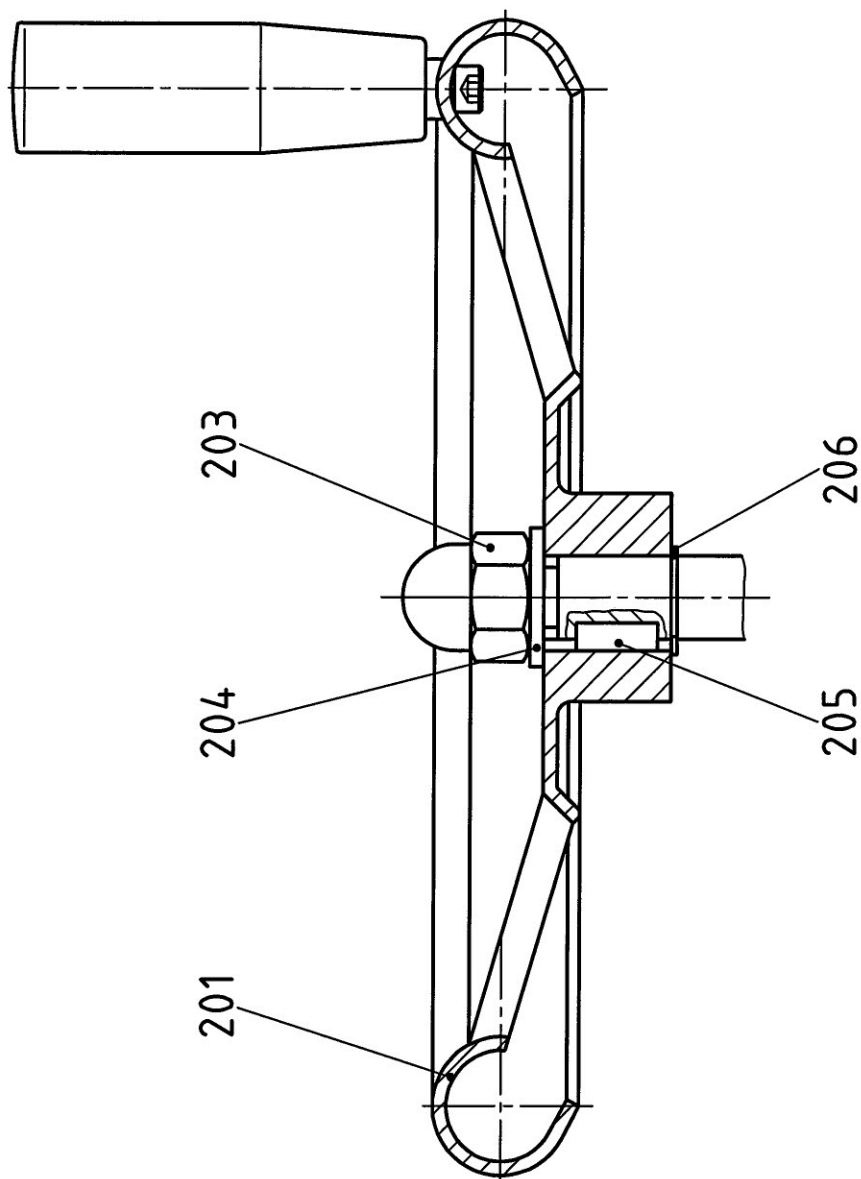
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remark:

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Pos. 207, 208 without illustration

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manuel handwheel S180 D200 Alu drawing
 ZK05001.012

item	qty	unit	sp	mat.no.	design
0201	1	ST	L	1014491	Handwheel D200/B18 m.Nut Alu Lg.241 S600
0204	4	ST	L	1011381	Thread pin DIN 915 M 8x12 A4-70
0205	1	ST	L	1011122	Fitting key DIN 6885 A 6x 6x 18 St50-1K
0208	1	ST	V	1020155	R.shaft seal 20x 35x 6 NBR70 DIN3761

Unit of Quantity

ST - piece
 M - meter
 K - kilogram
 L - liter

Part Type

V - wear part
 L - spare part
 N - non-st. part
 T - text position

blind flange
S80 / S600 / S1400

No.: ZK00001.014

Rev.: 02

Dat.: 03.11.05

ORL-04156

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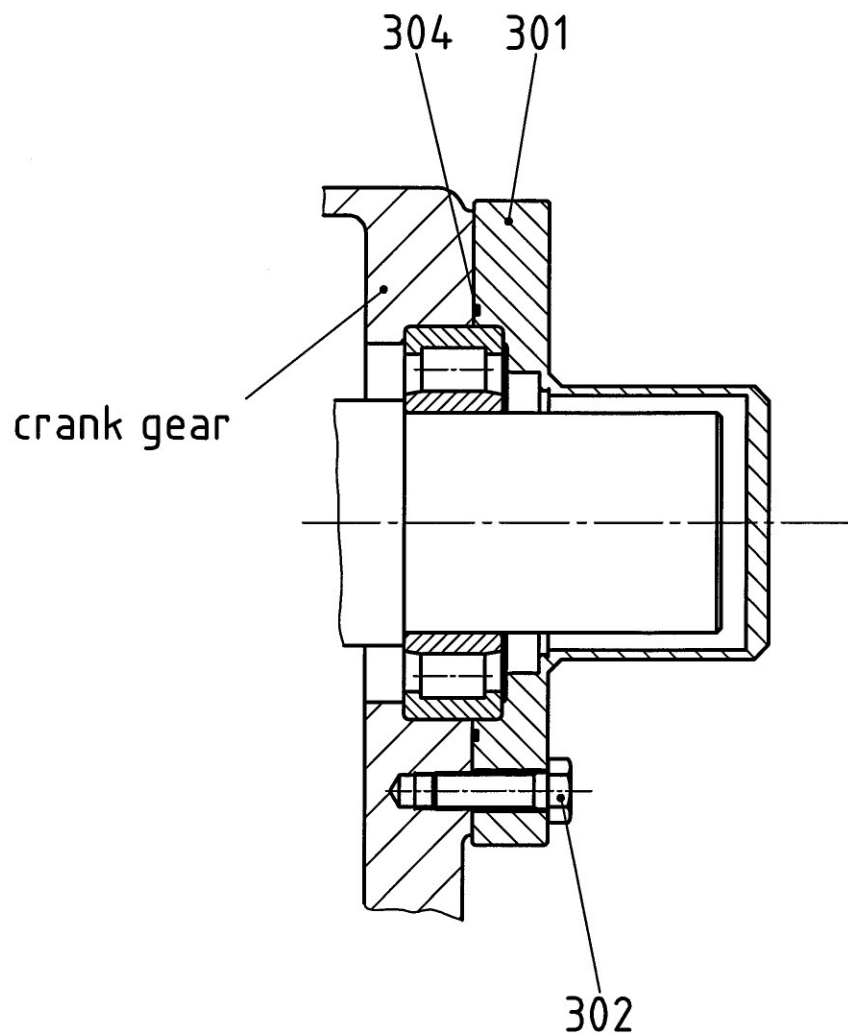
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blind flange S180 D126x78 3.1245 ZK00001.014 drawing

item	qty	unit	sp	mat.no.	design			
0301	1	ST	L	1021760	Cover plate	D126x 75	S180	3.1245
0302	4	ST	L	1017416	Cyl.screw	DIN 912 M 6x 20		A4-70

Unit of Quantity

ST - piece
M - meter
K - kilogram
L - liter

Part Type

V - wear part
L - spare part
N - non-st. part
T - text position

baseplate cpl.

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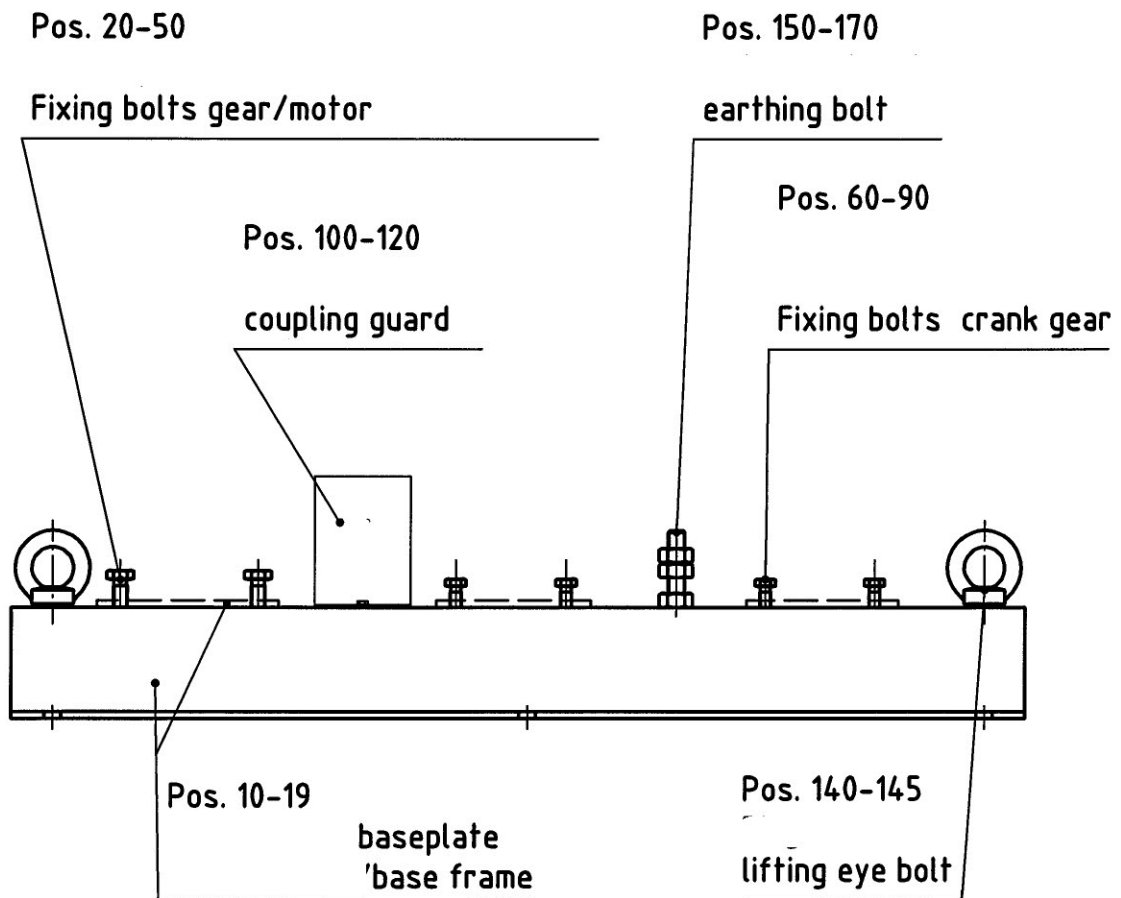
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ProMinent

No.: Z1600-A020

Rev.: 00

Dat.: 11.02.04



not described:

Pos.200-210

'head support

Pos.220-230

Support stroke positioner

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Base plate SEW K77-1xS180 cpl. welded Z1600-A020 drawing

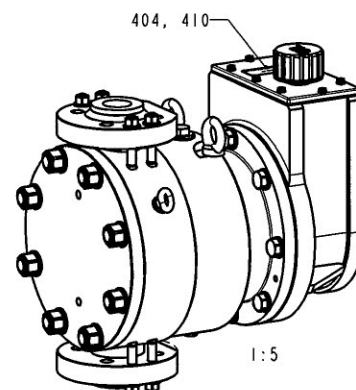
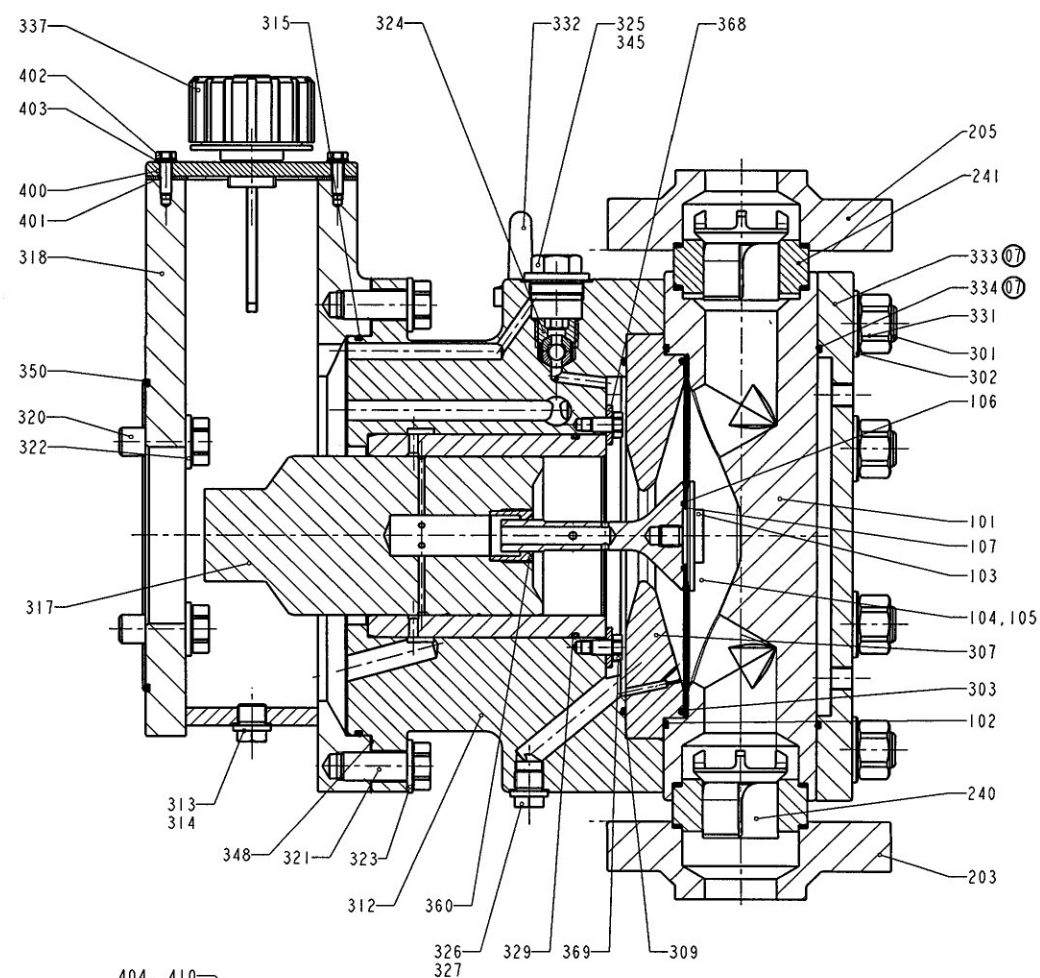
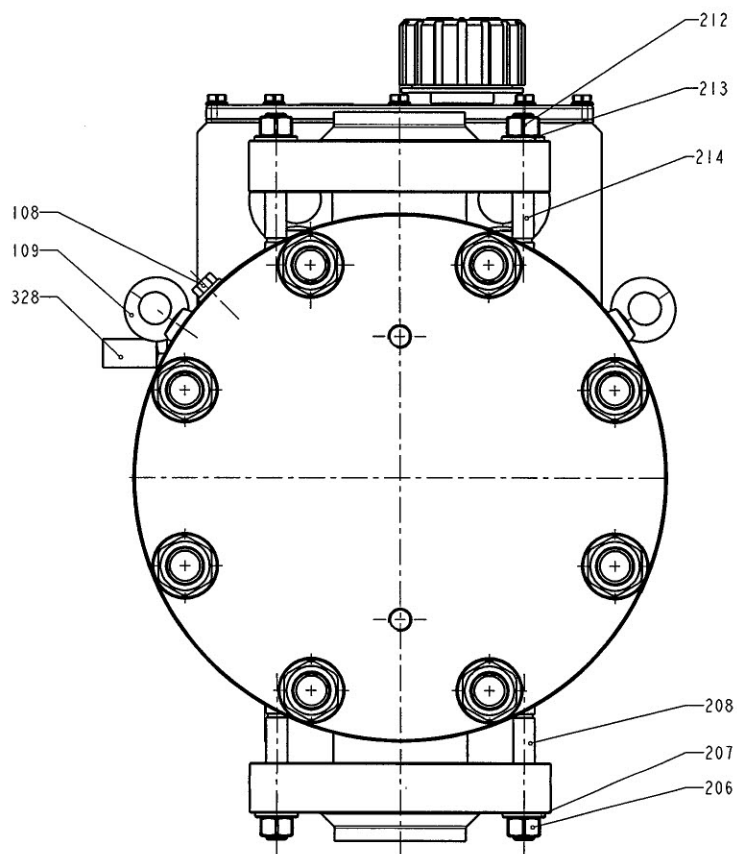
item	qty	unit	sp	mat.no.	design	
0010	1	ST	L	1033455	Base plate 1000x600x350	
0020	4	ST	L	1004671	Hexagon screw DIN 931 M16x 90	A4
0030	8	ST	L	1011507	Washer DIN 125 A 17	A4
0040	4	ST	L	1004672	Hexagon nut DIN 934 M16	A4
0050	4	ST	L	1032812	Washer DIN 434 18	A4
0060	4	ST	L	1011295	Hexagon screw DIN 933 M16x 40	A4-70
0070	4	ST	L	1011507	Washer DIN 125 A 17	A4
0140	4	ST	L	1011479	Lifting eye bolt DIN 580 M24	galv.
0150	6	ST	L	1017742	Hexagon nut DIN 934 M12	A4-80
0160	6	ST	L	462216	Washer DIN 125 B 13	A4
0170	2	ST	L	1013361	Thread bolt M12x75 V4A	

Unit of Quantity

ST - piece
 M - meter
 K - kilogram
 L - liter

Part Type

V - wear part
 L - spare part
 N - non-st. part
 T - text position



Pos. 308, 342 ohne Abbildung / without illustration
Dargestell Mf4a / 90

	Werkbluoch- boetes	Allg. Tel.	Überfl.	Messab- scale	1.-Nr. p.no.	
				Werkstoff material		
		Datum	None	Bezeichnung/description		
07	06033-100	12.08.08	kra	06-05-31	Bonin	
01	0638-004	21.07.08	nk	06-05-31	Bubb	
05	05284	20.05.08	nk	06-05-31	Bubb	
04	06077-001	23.04.08	789			
03	06333-008	02.04.08	JG			
02	05284	17.07.07	Ba			
01	05284	05.05.06	Bubb			
Zust.	Aend.-Mitt.-Nr.	Datum	None	Zchg.-Nr./drawing no.		
				66-63-103-00-06-02		
				Ers. f.		
				Ers. d.		

P r o M i n e n t Dosiertechnik
 Im Schumachergewann 5-11 . 69123 Heidelberg
 Postfach 101760 . 69007 Heidelberg
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Dia.pump head Mf4a/75 1-1/2 300RF 4404 N drawing
 66_63-103_00_06-02

item	qty	unit	sp	mat.no.	design
0101	1	ST	L	1032253	Dosing head D298/205x85 Mf4a DN40 1.4404
0102	1	ST	V	1022218	O-ring 210x3 -40/100 NBR-70S DIN3771
0103	1	ST	L	1025570	Diaph. holding screw D62x24 M12 1.4462
0103	1	ST	T		Pos.103: MA=40Nm
0104	1	ST	V	1022329	Double diaphr. D204,2/D32 set PTFE-TFM
0105	2	ST	V	1022318	Dia.distance disk D204,9/D178 x0,9
0106	1	ST	V	1022216	O-ring 34x2 -40/100 NBR-70S DIN3771
0107	1	ST	L	1021777	Tension rod D62x102 M12 1.6580
0108	1	ST	L	1011433	Hex.pipe plug DIN 910 G 1/4A A4
0108	1	ST	T		Pos.108: MA=20Nm
0109	2	ST	L	1033853	Lifting eye bolt DIN 580 M 8 A4
0109	1	ST	T		Pos.109: MA=12Nm
0203	2	ST	L	1032987	Flange connect. 1-1/2" 300/600RF 1.4404
0206	8	ST	L	1017742	Hexagon nut DIN 934 M12 A4-80
0206	1	ST	T		Pos.206: MA=45Nm
0207	8	ST	L	462216	Washer DIN 125 B 13 A4
0208	8	ST	L	1034220	Doub.end stud DIN 939 M12x 75 A4-70
0240	2	ST	V	1016066	cone valve DN40 PN200 3.7035/1.4404 TT

item	qty	unit	sp	mat.no.	design	
0301	8	ST	L	1022214	Doub.end stud DIN 939 M20x110	A4-70
—						
0302	8	ST	L	1011505	Washer DIN 125 B 21	A4
—						
0303	1	ST	V	1022217	O-ring 195x3 -40/100 NBR-70S	DIN3771
—						
0307	1	ST	L	1022320	support disk D228/D51x32	MfS 1.4404
—					4,5l	
0308	1	ST	T		Öl siehe Netzplan	
—						
0308	1	ST	T			
—						
0309	1	ST	V	1022217	O-ring 195x3 -40/100 NBR-70S	DIN3771
—						
0312	1	ST	L	1028950	hydraulic bl. Mf4a/70-92	PN50 1.4057
—						
0313	1	ST	L	1011431	Hex.pipe plug DIN 910 M16x1.5	A4
—					Pos.313: MA=30Nm	
0313	1	ST	T			
—						
0314	1	ST	L	1013786	Gasket DIN7603 16x 21x1	VF
—						
0315	1	ST	V	1032985	O-ring 220x3 -40/100 NBR-70S	DIN3771
—						
0317	1	ST	L	1032991	Piston/bush cpl. Mf4a/75	7147/7225
—						
0318	1	ST	L	1033534	Latern Mf4a si.2 (Piston d70-d142)	0.7043
—						
0320	4	ST	L	1028507	Hexagon screw DIN 933 M16x 40	A4-80
—					Pos.320: MA=70Nm	
0320	1	ST	T			
—						
0321	8	ST	L	1028507	Hexagon screw DIN 933 M16x 40	A4-80
—					Pos.321: MA=110Nm	
0321	1	ST	T			
—						
0322	4	ST	L	1011507	Washer DIN 125 A 17	A4
—						
0323	8	ST	L	1011507	Washer DIN 125 A 17	A4
—						
0324	1	ST	V	1015327	Vent valve DN6,0 1,0mm str.short	
—						

item	qty	unit	sp	mat.no.	design
0324	1	ST	T		MA=65Nm
0325	1	ST	L	1018859	Screw plug D36x22 M30x1,5 A4
0326	1	ST	L	1011431	Hex.pipe plug DIN 910 M16x1.5 A4
0326	1	ST	T		Pos.326: MA=60Nm
0327	1	ST	V	1013786	Gasket DIN7603 16x 21x1 VF
0328	1	ST	L	1008032	Exc.press rel.valve RV3-16-S-0-13
0328	1	ST	T		Pos.328: MA=120Nm
0329	1	ST	L	1032988	O-ring 110x3 -40/100 NBR-70S DIN3771
0331	8	ST	L	1017744	Hexagon nut DIN 934 M20 A4-70
0331	1	ST	T		Pos.331: MA=270Nm
0332	2	ST	L	1021500	Lifting eye bolt DIN 580 M12 A4
0332	1	ST	T		Pos.332: MA=40Nm
0337	1	ST	L	1014292	Oil dip stick D70x133 Mes.L.85 G3/4 PA
0342	1	ST	L	1033586	Protect. cap 1,5" x 6" (SW39) 200°C
0345	1	ST	L	1014497	Gasket DIN7603 30x 35x1 Tesn.BA-50
0348	6	ST	L	1027912	distance sheet D289 x D227x 0,2 1.4301
0350	1	ST	V	1032989	O-ring 170x3 -40/100 NBR-70S DIN3771
0360	1	ST	L	1029408	Piston screw M30x1.5(piston 52-142) Mf4a
0360	1	ST	T		Pos.360: LOCTITE 270
0368	2	ST	L	1031449	washer D22/18x3,5 MF4a 1.4404
0369	2	ST	L	468217	Hexagon screw DIN 933 M 8x 16 8.8 galv.

item	qty	unit	sp	mat.no.	design			
0369	1	ST	T		Pos.369: MA=17Nm			
0400	1	ST	L	1027918	cov. 216x118-G3/4 for latern MF4a		A4	
0401	1	ST	L	1027917	Flat gasket	216x118 MF4a		NBR
0402	8	ST	L	1017417	Hexagon screw DIN 933 M 6x 20			A4-70
0403	8	ST	L	462250	Washer	DIN 125 B 6.4		1.4571
0404	1	ST	L	1031504	type plate 80x30x0,5			VA-gebürstet
0410	4	ST	L	469332	Grooved pin	DIN 1476 2x 6		A2

Unit of Quantity

ST - piece
M - meter
K - kilogram
L - liter

Part Type

V - wear part
L - spare part
N - non-st. part
T - text position

cone valve

ProMinent Dosiertechnik GmbH

Im Schuhmachergewann 5-11

69123 Heidelberg

Germany

Tel.: +49 (6221) 842-0

Fax: +49 (6221) 842-419

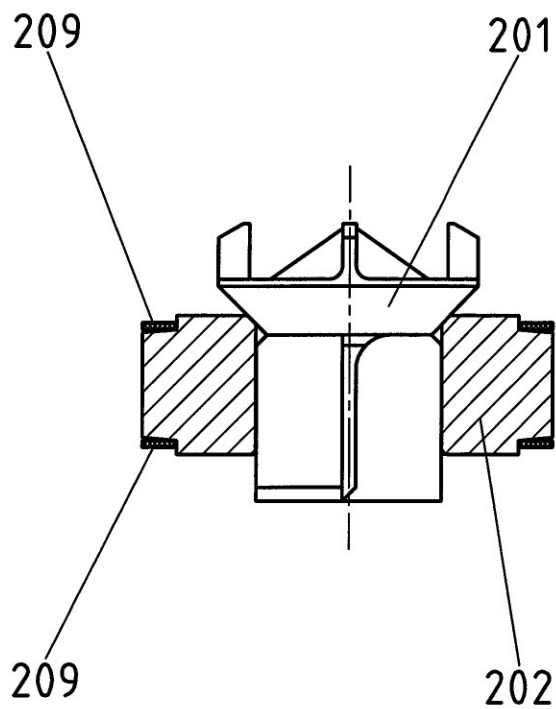
e-Mail: info@prominent.com

ProMinent®

No.: Z0666-0000400

Rev.: 00

Dat.:



P r o M i n e n t Dosiertechnik
Im Schumachergewann 5-11 . 69123 Heidelberg
Postfach 101760 . 69007 Heidelberg
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cone valve DN40 PN200 3.7035/1.4404 TT Z0666-0000400 drawing

item	qty	unit	sp	mat.no.	design
0201	1	ST	V	1013594	valve cone DN40 D52x50 PN200 3.7035
0202	1	ST	V	1013606	valve seat D75/D42x30 DN40 PN200 1.4404
0209	2	ST	V	1014230	Seal D75/D65x2 DN40 1.4571/1.4404

Unit of Quantity

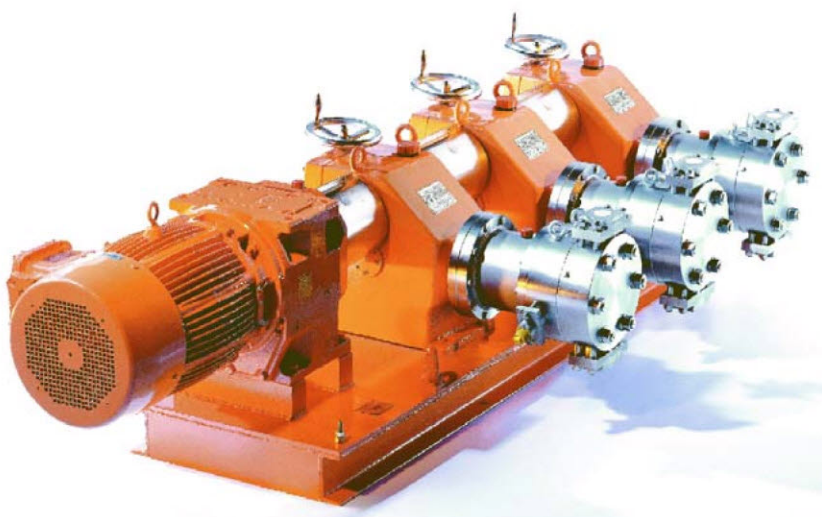
ST - piece
M - meter
K - kilogram
L - liter

Part Type

V - wear part
L - spare part
N - non-st. part
T - text position

OPERATING MANUAL

for Metering Pumps



1

2

3

4

5

6

7

8

9

EC Declaration of Conformity

We,

ProMinent Dosiertechnik GmbH
Im Schuhmachergewann 5 - 11
D - 69123 Heidelberg

hereby declare that, on the basis of its functional concept and design and in the version brought into circulation by us, the product specified in the following complies with the relevant, fundamental safety and health stipulations laid down by EC regulations.

Any modification to the product not approved by us will invalidate this declaration.

Product description :

Process pump Orlita MF_a

Product type :

*MfS18, MfS35, MfS80, MfS180, MfS600, MfS1400 as soon as
MfxS18, MfxS35, MfxS80, MfxS180, MfxS600, MfxS1400
with x=number of heads
as well as the combines aggregates of
different scales of this type*

Serial number :

see type identification plate on device

Relevant EC directives :

*EC - machine directive (98/37/EC)
EC - low voltage directive (2006/95/EC)
EC - EMC - directive (2004/108/EC)*

Harmonised standards used,
in particular :

*EN ISO 12100-1, EN ISO 12100-2, EN 809, EN 60034-1
EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4*

Date/manufacture's signature :

17.01.2007



The undersigned :

Dr. Johannes Hartfiel, assistant development manager

Konformitätserklärung Werkstoffübereinstimmung Letter of Compliance Material Traceability

EN 10 204 3.1

APZ-3.1 MC

Kunde Customer		Pumpentyp Pump Type	Serien-Nr. Serial No.	Auftrags-Nr. Job No.	
ProMinent Fluid Controls Inc.USA		Diaphragm Pump ORLITA MfS 180/75	2009073514	2009601254	
Bestellung Order No.		Tag-Nr. Tag No.	Netzplan/Vorgang Network/Activity	Zeichnung Drawing	
200906683		GA-94 A	904014/0081	66_63-103_00_06- 02	
Pos. Item	Bezeichnung Designation	Material-Nr. Part Item	SAP-ID / Charge	Werkstoff Material	
0101	Dosierkopf D298/205x85 Mf4a DN40 1.4404 Dosing head D298/205x85 Mf4a DN40 1.4404	1032253	90465	1.4404	
0103	Membranhalterschraube D62x24 M12 1.4462 Diaph. holding screw D62x24 M12 1.4462	1025570	80200	1.4462	
0203 discharge	Flanschanschluss 1-1/2" 300/600RF 1.4404 Flange connect. 1-1/2" 300/600RF 1.4404	1032987	90520	1.4404	
0203 suction	Flanschanschluss 1-1/2" 300/600RF 1.4404 Flange connect. 1-1/2" 300/600RF 1.4404	1032987	90520	1.4404	
0312	Hydraulikblock Mf4a/70-92 PN50 1.4057 hydraulic bl. Mf4a/70-92 PN50 1.4057	1028950	80551	1.4057	

Legende / legend

discharge: Druckseite / discharge side
suction: Saugseite / suction side

Datum / Date : 20.10.2009

Seite / Page : 1/3

Konformitätserklärung Werkstoffübereinstimmung Letter of Compliance Material Traceability

EN 10 204 3.1

APZ-3.1 MC

Kunde Customer		Pumpentyp Pump Type	Serien-Nr. Serial No.	Auftrags-Nr. Job No.	
ProMinent Fluid Controls Inc.USA		Diaphragm Pump ORLITA MfS 180/75	2009073514	2009601254	
Bestellung Order No.		Tag-Nr. Tag No.	Netzplan/Vorgang Network/Activity	Zeichnung Drawing	
200906683		GA-94 A	904014/0081	66_63-103_00_06- 02	
Pos. Item	Bezeichnung Designation	Zeichnungsnr. Drawing-No.	Material-Nr. Part Item	SAP-ID / Charge	Werkstoff Material
0240 discharge	Kegelventil DN40 PN200 3.7035/1.4404 TT cone valve DN40 PN200 3.7035/1.4404 TT	Z0666-0000400	1016066		3.7035
0201	Ventilkegel DN40 D52x50 PN200 3.7035 valve cone DN40 D52x50 PN200 3.7035		1013594	90472	3.7035
0202	Ventilsitz D75/D42x30 DN40 PN200 1.4404 valve seat D75/D42x30 DN40 PN200 1.4404		1013606	90281	1.4404
0209	Dichtring D75/D65x2 DN40 1.4571/1.4404 Seal D75/D65x2 DN40 1.4571/1.4404		1014230	90272	1.4571

Legende / legend

discharge: Druckseite / discharge side
suction: Saugseite / suction side

Datum / Date : 20.10.2009

Seite / Page : 2/3

Konformitätserklärung Werkstoffübereinstimmung Letter of Compliance Material Traceability

EN 10 204 3.1

APZ-3.1 MC

Kunde Customer		Pumpentyp Pump Type	Serien-Nr. Serial No.	Auftrags-Nr. Job No.	
ProMinent Fluid Controls Inc.USA		Diaphragm Pump ORLITA MfS 180/75	2009073514	2009601254	
Bestellung Order No.		Tag-Nr. Tag No.	Netzplan/Vorgang Network/Activity	Zeichnung Drawing	
200906683		GA-94 A	904014/0081	66_63-103_00_06- 02	
Pos. Item	Bezeichnung Designation	Zeichnungs-nr. Drawing-No.	Material-Nr. Part Item	SAP-ID / Charge	Werkstoff Material
0240 suction	Kegelventil DN40 PN200 3.7035/1.4404 TT cone valve DN40 PN200 3.7035/1.4404 TT	Z0666-0000400	1016066		3.7035
0201	Ventilkegel DN40 D52x50 PN200 3.7035 valve cone DN40 D52x50 PN200 3.7035		1013594	90472	3.7035
0202	Ventilsitz D75/D42x30 DN40 PN200 1.4404 valve seat D75/D42x30 DN40 PN200 1.4404		1013606	90125	1.4404
0209	Dichtring D75/D65x2 DN40 1.4571/1.4404 Seal D75/D65x2 DN40 1.4571/1.4404		1014230	90272	1.4571

Legende / legend

discharge: Druckseite / discharge side
suction: Saugseite / suction side

Datum / Date : 20.10.2009

Seite / Page : 3/3

Konformitätserklärung Werkstoffübereinstimmung Letter of Compliance Material Traceability

EN 10 204 3.1

APZ-3.1 MC

Kunde Customer		Pumpentyp Pump Type	Serien-Nr. Serial No.	Auftrags-Nr. Job No.	
ProMinent Fluid Controls Inc.USA		Diaphragm Pump ORLITA MfS 180/75	2009073515	2009601254	
Bestellung Order No.		Tag-Nr. Tag No.	Netzplan/Vorgang Network/Activity	Zeichnung Drawing	
200906683		GA-94 B	904014/0081	66_63-103_00_06- 02	
Pos. Item	Bezeichnung Designation	Material-Nr. Part Item	SAP-ID / Charge	Werkstoff Material	
0101	Dosierkopf D298/205x85 Mf4a DN40 1.4404 Dosing head D298/205x85 Mf4a DN40 1.4404	1032253	90465	1.4404	
0103	Membranhalterschraube D62x24 M12 1.4462 Diaph. holding screw D62x24 M12 1.4462	1025570	80200	1.4462	
0203 discharge	Flanschanschluss 1-1/2" 300/600RF 1.4404 Flange connect. 1-1/2" 300/600RF 1.4404	1032987	90520	1.4404	
0203 suction	Flanschanschluss 1-1/2" 300/600RF 1.4404 Flange connect. 1-1/2" 300/600RF 1.4404	1032987	90520	1.4404	
0312	Hydraulikblock Mf4a/70-92 PN50 1.4057 hydraulic bl. Mf4a/70-92 PN50 1.4057	1028950	80551	1.4057	

Legende / legend

discharge: Druckseite / discharge side
suction: Saugseite / suction side

Datum / Date : 21.10.2009

Seite / Page : 1/3

Konformitätserklärung Werkstoffübereinstimmung Letter of Compliance Material Traceability

EN 10 204 3.1

APZ-3.1 MC

Kunde Customer		Pumpentyp Pump Type	Serien-Nr. Serial No.	Auftrags-Nr. Job No.	
ProMinent Fluid Controls Inc.USA		Diaphragm Pump ORLITA MfS 180/75	2009073515	2009601254	
Bestellung Order No.		Tag-Nr. Tag No.	Netzplan/Vorgang Network/Activity	Zeichnung Drawing	
200906683		GA-94 B	904014/0081	66_63-103_00_06- 02	
Pos. Item	Bezeichnung Designation	Zeichnungs-nr. Drawing-No.	Material-Nr. Part Item	SAP-ID / Charge	Werkstoff Material
0240 discharge	Kegelventil DN40 PN200 3.7035/1.4404 TT cone valve DN40 PN200 3.7035/1.4404 TT	Z0666-0000400	1016066		3.7035
0201	Ventilkegel DN40 D52x50 PN200 3.7035 valve cone DN40 D52x50 PN200 3.7035		1013594	90472	3.7035
0202	Ventilsitz D75/D42x30 DN40 PN200 1.4404 valve seat D75/D42x30 DN40 PN200 1.4404		1013606	90319	1.4404
0209	Dichtring D75/D65x2 DN40 1.4571/1.4404 Seal D75/D65x2 DN40 1.4571/1.4404		1014230	90272	1.4571

Legende / legend

discharge: Druckseite / discharge side
suction: Saugseite / suction side

Datum / Date : 21.10.2009

Seite / Page : 2/3

Konformitätserklärung Werkstoffübereinstimmung Letter of Compliance Material Traceability

EN 10 204 3.1

APZ-3.1 MC

Kunde Customer		Pumpentyp Pump Type	Serien-Nr. Serial No.	Auftrags-Nr. Job No.	
ProMinent Fluid Controls Inc.USA		Diaphragm Pump ORLITA MfS 180/75	2009073515	2009601254	
Bestellung Order No.		Tag-Nr. Tag No.	Netzplan/Vorgang Network/Activity	Zeichnung Drawing	
200906683		GA-94 B	904014/0081	66_63-103_00_06- 02	
Pos. Item	Bezeichnung Designation	Zeichnungsnr. Drawing-No.	Material-Nr. Part Item	SAP-ID / Charge	Werkstoff Material
0240 suction	Kegelventil DN40 PN200 3.7035/1.4404 TT cone valve DN40 PN200 3.7035/1.4404 TT	Z0666-0000400	1016066		3.7035
0201	Ventilkegel DN40 D52x50 PN200 3.7035 valve cone DN40 D52x50 PN200 3.7035		1013594	90472	3.7035
0202	Ventilsitz D75/D42x30 DN40 PN200 1.4404 valve seat D75/D42x30 DN40 PN200 1.4404		1013606	90125	1.4404
0209	Dichtring D75/D65x2 DN40 1.4571/1.4404 Seal D75/D65x2 DN40 1.4571/1.4404		1014230	90272	1.4571

Legende / legend

discharge: Druckseite / discharge side
suction: Saugseite / suction side

Datum / Date : 21.10.2009

Seite / Page : 3/3

Eingang
Stappert

03. AUG. 2007



**Stappert
Spezial-
Stahl Handel**

Stappert Spezial-Stahl Handel GmbH
Postf. 1427, 71258 Weil der Stadt

ProMinent Dosiertechnik GmbH
Postfach 101760
69007 Heidelberg

50001853421 30



U M S T E M P E L B E S C H E I N I G U N G
nach DIN EN 10204 Abschnitt 6 und DIN EN 764-5

Rechnung : AR51315610
Auftrag : V36664105

Datum : 02-08-2007 Kundennr.: 1291
Bestell. : 107023950/31-07-2007

Wir bestätigen, daß folgendes Material :

1 Werkst.-Nr.: 1.4462
Rund 70 mm
Materialnr. 1012120/Pos. 30

SAP Kurzzeichen / Chargen-Nr.
SAP short mark / batch No.

80200

Nr. Prüfer
No. inspector

PM-11

Charge/Id.-Nr. Gewicht _____ Stück _____ Hersteller _____
713133 178,00K HL *) Ugin

ATTEST EN 10204/3.1 B bzw. 3.1

2 Werkst.-Nr.: 1.4404
Sechskant 32 mm
Materialnr. 1009606/Pos. 50

Charge/Id.-Nr. Gewicht _____ Stück _____ Hersteller _____
937862 306,00K HL *) Olarra

ATTEST EN 10204/3.1 B bzw. 3.1 mit einem Bundetikett
versehen wurde welches das Umstempelzeichen **HSG** trägt.

Die Umstempelung erfolgt mit Zustimmung des TÜV Industrie Service GmbH
TÜV SÜD Gruppe gemäß Genehmigung vom 14-07-1989 / Prüf-Nr. 97494
Die Umstempelbescheinigung wurde maschinell erstellt
und ist ohne Unterschrift gültig.





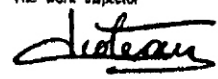
STAPPERT SPEZIAL-STAHLE
Handel GmbH
Der Umstempelungsberechtigte
Heiko Gruber

*) HL = Herstellungslänge(n)

71263 Weil der Stadt
Tel. (07033) 5282-0

Josef-Beyerle-Str. 13
Fax (07033) 5282-4713



N. Nr N° 80401084000010		N° de commande usine - Werkbestellnummer - Works order number 2SK34000		0712SK3400	
<p align="center">ABNAHMEPRUEFZEUGNIS 3.1 CERTIFICAT DE RECEPTION 3.1 INSPECTION CERTIFICATE 3.1</p> <p align="center">EN 10204 / 3.1</p> <p align="right">Page 1/ 2</p>					
Site d'UGINE	Certification - Werkzeuge - Certificate AD 2000-MERKBLATT W0/TRD100 Pressure Equipment Directive 97/23/EC ISO 9001 : 2000 ISO/TS 16949 : 2002 ISO 14001 : 2004		par - von - by   Industrie Service		Marque d'usine - Herstellerzeichen - Supplier's Mark 
			Poinçon de l'expert - Prüfsiegel - Inspector's stamp 		
Produit - Erzeugnisform - Product <p align="center">585800</p> <p>UGI 4462X2 STAB GEWALZT ENTZUNDERT/ÜBERDREHT ABGESCHRECKT K13 RUND 70,000MM LONG. 5,000M +1000,000MM -0,000MM (DE)</p> <p>UGI 4462X2 BARRE LAMINÉ(E) DÉCALAMINÉ(E) HYPERTREMPÉ(E) K13 ROND(E) 70,000MM LONG. 5,000M +1000,000MM -0,000MM (FR) UGI 4462X2 BAR ROLLED DESCALED SOLUTION ANNEALED K13 ROUND 70,000MM LONG. 5,000M +1000,000MM -0,000MM (EN) UGI 4462X2 STAB GEWALZT ENTZUNDERT/ÜBERDREHT ABGESCHRECKT K13 RUND 70,000MM LONG. 5,000M +1000,000MM -0,000MM (DE)</p>					
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner 15046 STAPPERT SPEZIAL-STAHl HANDEL GmbH			N° de commande client - Kundenbestellnummer - Purchaser order number V61581R/UE-E3		
Marque commerciale - Handelsmarke - Trade name UGI 4462X2					
Norme de référence - Bezugsnorm - Standard for reference EN 10272 ED00 1.4462 ; PED 97/23 EC ; EN 10088-3 ED 2005 1.4462 ; VDTUV-WB418 ED 03.2006 1.4462 ;					
Spécifications client - Kundenspezifikation - Customer's specification TL 021 / WRD 4462 rév. 1 du 04.2005			SAP Kurzzeichen / Chargen-Nr. SAP short mark / batch No. 80200 Nr. Prüfer No. inspector PM-11		
(I) Etat de livraison - Lieferzustand - As delivered A 1050°C WASSER/WATER			(I) Traitement de référence - Probestreifenbehandlung - Treatment on test sample		
Identification du produit Erzeugnis Benennung Product Identification 2SK34 000		N° de coulé - Schmelzen Nr - Heat No 713133			
Nombre Stückzahl Pieces Nbr 6		Profil Profile Shape RO		Dimension Ausmessung Dimension 70,000 mm	
Longueur Laenge Length 5,000 m		Poids Gewicht Weight 988 kg			
(4) L = Long Laengs - Long T = Travers Quer - Transverse 58		(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench TH = Trempé à l'huile-Ölhaeten-Oil Quench A = Hypertrempé-Lösungsgegluht-Solution annealed RO = Rond-Rund-Round QR = Carré-Viereckig-Square		R = Revenu-Anlassen-Tempered RT = Recuit-Geglueht-Annealed TRM = Recuit maxi-Weichtgeglueht-Maxi annealed HX = Hexagonal-Sechskant-Hexagonal	
(4) A l'état de référence Zum Bezug Zustand As reference condition 59A		(5) A l'état de livraison In Lieferzustand In state of delivery 59B		Contrôles de marquage, d'aspect et de dimensions : satisfaisants Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung Marking, inspection and measurement : without objection Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande. Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestimmungsvorschriften entsprechen. We certify hereby that the above mentioned products are consistent with the order prescriptions.	
				Ugine, le 21/06/2007 L'agent Réceptionnaire de l'usine Der Werkssachverständige The work inspector  C. BIOTEAU	



N. Nr N° 80401084000010	N° de commande usine - Werkbestellnummer - Works order number 2SK34000	0712SK3400
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ABNAHMEPRUEFZEUGNIS 3.1
CERTIFICAT DE RECEPTION 3.1
INSPECTION CERTIFICATE 3.1

EN 10204 / 3.1

Page 2/ 2

Numéro de prélèvement Probenummer Test Number	Sens Richtung Direction (3)	Température d'essai Probenemperatur Test Temperature	Traction-Zugversuch-Tensile test					Résistance-Kerbschlaggeheißigkeit-Notch Toughness								
			Limites d'élasticité Streckgrenze Yield Strength		Résistance à la traction Zugfestigkeit Tensile	Allongement Bruchdehnung Elongation	Striction Einziehungs Red of Area	Dureté Härte Hardness	Dureté Härte Hardness	Type Form Type	Sens Richtung Direction (3)	Température d'essai Probenemperatur Test Temperature	Valeurs individuelles Einzelwerte Individual Values		Moyenne Mittelwerte Average	Dureté Härte Hardness (5)
			0.2%	1%												
38B	24	25 °C	26A MPa	26B MPa	27 MPa	28 %	29 %	30 HB	37 HRC	31	32	33 °C	35 J		36 J	30B HBLiv
	L	20								ISOV	L	20	200			
	Min		450		680	30		270								
	Max				880											
(8)	621 753 40 226 345-341-343															
(4)																
39A	40	Numéro de contrôle Schmelz Nr Heat N. 713133	Mbr Max	42 % C	43 % Si	44 % Mn	45 % Ni	46 % Cr	47 % Mo	48 % W	49 % B	50 % P				
				0,0300	1,0000	2,0000	6,5000	21,0000	2,5000	0,1200	0,0150	0,0300				
				0,0220	0,5100	1,4900	5,4900	22,7400	2,8100	0,1700	0,0006	0,0180				
38	Mode d'élaboration Erhmel zugsart Melting process EAF + AOD	Démarche Vorschritt Required	Min Max	51 % Nb	52	53	54	55	70	71	72	73	74			

KV -40°C >= 40 J : 245-160-200 J
US GEPRÜFT GEMÄß SEP 1921 KLASSE 3 E/E
INTERKRISTALLINE KORROSION BESTÄNDIG NACH ISO 3651-2 / ASTM A262 PRACT.E
SPEKTROSKOPISCH VERWECHSLUNGSPRÜFUNG IN ORDNUNG

SAP Kurzzeichen / Chargen-Nr.
SAP short mark / batch No.
80200
Nr. Prüfer
No. inspector
PM-11

(3) L = Long Laengs - Long T = Transvers Quer - Transverse 58	(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench TH = Trempé à l'huile-Ölarten-Oil Quench A = Hypertrempé-Lösungsgeglueht-Solution annealed RO = Rund-Rund-Round QR = Carré-Viereckig-Square	R = Revers-Anlassen-Tempered RT = Reclut-Geglueht-Annealed TRM = Reclut maxi-Weichgeglueht-Maxi annealed HX = Hexagonal-Sechskant-Hexagonal	56
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Quick Metall GmbH
Postfach 1242
D- 76691 Forst

TEL (+49) 0 172 7602031 + 32
FAX (+49) 0 7253 956464
e - mail : quickmet@t-online.de



5000234616/10

Abnahmeprüfzeugnis

gemäß EN 10204 - 3.1

Nr.: 853 305

0108016612

Besteller : ProMinent Dosiertechnik GmbH
Im Schuhmachergewann 5 - 11

69123 Heidelberg

Bestell-Nr. : Herr Klingbeil 011/ 0108016612

Gegenstand : Rund, geschmiedet, vergütet

Werkstoff : 1.4057

Anforderungen : DIN 7527, EN 10088-3



40134321

Pos.	Menge	Gegenstand / Abmessung	Schmelze-Nr.
		ProMinent für Artikel Nr.: 1012331	
1	1662 kg	D 300 mm - 3 Stab 1 m	178509

Ist - Analyse : C: 0,18 Si: 0,37 Mn: 0,30 Mo: 0,09
P: 0,027 S: 0,03 Cr: 15,93 Ni: 2,08

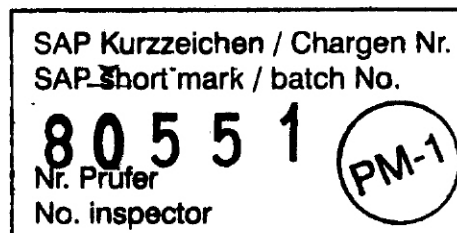
Rm = 775 N / mm² Rp0,2 = 678 N / mm² A5 = 14 %

Besichtigung und Abmessung : i. O.

US - Test gem. EN 10228-3 - Typ 1a Tab. 3 Kl. 3 = i.O.

Mech. und Analysewerte gem. Herstellerangaben,
sowie Verwechslungsprüfung mittels RF Analysator.


Die Lieferung entspricht den gestellten Anforderungen



und ist mit Kennzeichnung: versehen.
TÜV SÜD Prüf- Nr. 600209135

2008 - 05 - 16

Unterschrift

ROLDAN, S.A. - Rostfreier Stahl				ABNAHMEPRÜFZEUGNIS																																																										
WIRK Santo Tomás de las Ollas, S/N Apdo. de Correos 12 PONTRENA (LIMA) TEL.: +34 987 46 43 00 FAX: +34 987 46 43 01 E-MAIL: rds_fabricasacogroup.com				HAUPTVERMÄLTUNG Santiago de Compostela, 100-3° 28028 MADRID (ESPANA) TEL.: +34 913 99 83 87 FAX: +34 913 99 81 33 E-MAIL: roldan@acogroup.com		3.1 EN 10204																																																								
ATTEST NR. 3008/006313		DATUM 26/03/2008		BLATT 1		LIEFERSCHIN NR. 3008/006313																																																								
WERKSTOFF ROLDAN-266		EN10.088.3 (1.4401/1.4404.)																																																												
KUNDE Stappert Spezial-Stahl Handel GmbH																																																														
ABMESSUNGEN 80,00 mm.																																																														
L/MGE 3.100 mm.				TOLERANZ 120 h																																																										
PRÜFZUSTAND Stahstahl rund, geschliffen, geschliffen, poliert.																																																														
ANFORDERUNGEN EN10.088.3				KUNDENBESTELLUNG V.661990R/AD-X																																																										
BÜBENSTÜCK EN 10002-1				AUSGABE AD-2000 W2 AD-2000 W10																																																										
ENTFESCHEND EN 10.272				INTERKRISTALLINE KORROSION EN ISO 3651-2 SATISFACTORY WITHOUT OBJECTIONS																																																										
BEACHTUNG UND MASSKONTROLLE WITHOUT OBJECTIONS				Spektralanalyse Identity Test: O.K.																																																										
KERNSCHLAFSTÜCK, PROBEFORM EN 10.088-1																																																														
BESTELL N°	VORGANG NR.	MARKEN / KISTE	SCHWELZ NR.	PROBE	GEWICHT	PRÜFUNGSGART																																																								
1012255 7		13 / R090216 13 / R090216	R209 R209	R209	492 492	EAF + AOD + CC																																																								
SAP Kurzzeichen / Charge No. SAP short mark / batch No. 9 0 1 2 5 Nr. Prüfer No. inspector <div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 10px auto;"> PM-11 </div>						BEZEICHNUNG DES ANWANDERSCHAUFTRAGS <div style="font-size: 2em; font-weight: bold; text-align: center;">R3</div>																																																								
						ANWANDERSCHAUFTRAGS JOAQUIN DINQUEZ GONZALEZ QUALITY CONTROL REPRESENTATIVE <small>Signature bei den Prüfungen und allen Messungen gültig sein! - EN 10.088</small>																																																								
MECHANISCHE EIGENSCHAFTEN <table border="1" style="width:100%; border-collapse: collapse; font-size: 0.8em;"> <thead> <tr> <th rowspan="2">SCHWELZ</th> <th rowspan="2">PROBE</th> <th rowspan="2">ABMESSUNG DER PROBE</th> <th rowspan="2">TEMPERATUR T °C</th> <th rowspan="2">Rm N/mm²</th> <th rowspan="2">Rp 0.2 N/mm²</th> <th rowspan="2">Rp 1% N/mm²</th> <th rowspan="2">S %</th> <th rowspan="2">A %</th> <th rowspan="2">Agt %</th> <th colspan="2">KERNSCHLAF (NORM 100-V (7))</th> <th rowspan="2">K LITZ mm</th> <th rowspan="2">DINER- CHWELZ- VERFAHREN</th> <th rowspan="2">DINER- CHWELZ- VERFAHREN</th> <th rowspan="2">DINER- CHWELZ- VERFAHREN</th> <th rowspan="2">DINER- CHWELZ- VERFAHREN</th> </tr> <tr> <th>20 °C</th> <th>-100 °C</th> </tr> </thead> <tbody> <tr> <td>R209</td> <td>R209</td> <td>25,00</td> <td>20 °C</td> <td>600</td> <td>340</td> <td>360</td> <td>70</td> <td>51</td> <td></td> <td></td> <td>200</td> <td></td> <td>150</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">ANFORDERUNGEN</td> <td>EN 100</td> <td></td> <td>800</td> <td>300</td> <td>330</td> <td></td> <td>40</td> <td></td> <td></td> <td>300</td> <td>40</td> <td></td> <td>215</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								SCHWELZ	PROBE	ABMESSUNG DER PROBE	TEMPERATUR T °C	Rm N/mm²	Rp 0.2 N/mm²	Rp 1% N/mm²	S %	A %	Agt %	KERNSCHLAF (NORM 100-V (7))		K LITZ mm	DINER- CHWELZ- VERFAHREN	DINER- CHWELZ- VERFAHREN	DINER- CHWELZ- VERFAHREN	DINER- CHWELZ- VERFAHREN	20 °C	-100 °C	R209	R209	25,00	20 °C	600	340	360	70	51			200		150					ANFORDERUNGEN		EN 100		800	300	330		40			300	40		215			
SCHWELZ	PROBE	ABMESSUNG DER PROBE	TEMPERATUR T °C	Rm N/mm²	Rp 0.2 N/mm²	Rp 1% N/mm²	S %											A %	Agt %						KERNSCHLAF (NORM 100-V (7))		K LITZ mm	DINER- CHWELZ- VERFAHREN	DINER- CHWELZ- VERFAHREN	DINER- CHWELZ- VERFAHREN	DINER- CHWELZ- VERFAHREN																															
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BEACHTUNGEN																																																														
PRÜFUNG 1.050 °C AND WATERCOOLED ANFORDERUNGEN EN100 100, AD-2000-W2-W10, D06197/03/BC (PND)																																																														



Ukraine

Centravis Production Ukraine

53201 56, Trubnikov Avenue Nikopol Dnepropetrovsk Region Ukraine tel/fax (05662) 2-51-94

Approved acc. to AD 2000-Merkblatt W0 by TÜV Nord e. V. and certified acc. to Pressure Equipment Directive (97/23/EC) by TÜV CERT-Certification body for pressure equipment of the TÜV NORD GRUPPE; notified body, reg.-no. 0045.

Сертифицирован по AD 2000 - W0 / TRD 100 и Директиве 97/23 / ЕС для сосудов высокого давления органом по сертификации ТЮФ СЕРТ технадзора общества TUV NORD GRUPPE. регистрационный номер сертификационного центра 0045.

Inspection Certificate /Certification/ Abnahmezertifikat EN 10204/3.1	Material Test Certificate No. /Certificat de reception № 2008/734 Abnahmeprüfzeugnis	Page/Page/ Seite 1	Pages/Pages/ Seiten 1
Customer/Client/Besteller Country of Destination/ Pays de destination/ Bestimmungsort Address/Adresse/Adresse	STAPPERT SPEZIALSTAHL HANDEL GmbH Germany Industriestrasse, 9 36272 Niederaula - V.66896W/CSG-D4 BIS V.66899 W/CSG-D4.		
Contract No./Numéro du contract/Vertrag-Nr.			

Goods' description/Dénomination de produit/Produktbezeichnung
HOT FINISHED SEAMLESS STAINLESS AUSTENITIC STEEL TUBES/
TUBES INOXYDABLE SANS SOUDURE AUSTÉNITIQUE FINIS À CHAUD/
ROHRE WARMGEFORMT NAHTLOS AUS AUSTENITISCHEN ROSTFREIEN STAHLGÜTE

Specification/Specification/
Spezifikation

DIN 17458 PK1/ EN 10216-5 TC1.

Melting process/Elaboration/Erschmelzungsart EAF + AOD	Marking/ Marquage/Kennzeichnung
---	---------------------------------

State of delivery/ /état de la fourniture
Lieferzustand

Inspector's stamp/visa (inspecteur/Stempel des Sachverständigen)

51

Passivated "C2"

Range of sizes/Assortiment/Umfang der Lieferung							Hydr. Test/essai hydraulique/ Druckprobe
Lot/ No du Lot/ Los-Nr.	Steel grade/ Nuance de l'acier/Stahlgüte	Heat No./Coulée/ Schmelze-Nr.	Pieces/ Pièces/ Stücke	Total Length, m/Messge/ Gesamtläng e, M	Net weight, kg/Poids net,kg/ Gewicht Netto, kg	Dimensions, mm/Dimensions,mm Maßbereich, mm	Bar
315	1.4571/TP316Ti	913470	7	32,71	544	OD 80x 63 ID x 8,5 WT x 3000-7000	80 OK
		TOTAL/ Au total/ Insgesamt	7	32,71	544		

date/date/Datum 6.03.2008

inspector / inspecteur/Der Werkssachverständige

SAP Kurzzeichen / Chargen-Nr.
SAP short mark / batch No.

90272
Nr. Prüfer
No. inspector



Inspection Certificate /Certification/ Abnahmezertifikat EN 10204/3.1		Material Test Certificate No. /Certificat de reception № 2008/734 Abnahmeprüfzeugnis					Page/Page/ Seite 1	Pages/Pages/ Seiten 1		
CHEMICAL COMPOSITION, %/COMPOSITION CHIMIQUE % / CHEMISCHE ZUSAMMENSETZUNG, %										
Heat No./Coulée / Schmelz-Nr.	C	Mn	Si	P	S	Cr	Ni	Ti	Mo	
913470	0,06	1,42	0,44	0,038	0,020	17,00	10,83	0,66	2,16	

РЕЗУЛЬТАТЫ ИСПЫТАНИЙ / TEST RESULTS

МЕХАНИЧЕСКИЕ ИСПЫТАНИЯ / MECHANICAL TESTS ACC. TO EN 10002-1

Lot No/ No du lot/ Lot-Nr.	Specimen No./No du specimen / Probe- Nr.	Test direction/ Direction des essais/ Prüfrichtung	Test Temperature, °C/Température des essais/ Prüftempe- ratur, C	Yield strength, Mpa/limite élastique Rp 0,2 N/mm ² / 0,2%-Streck- grenze N/mm ²	Yield strength, /limite élastique Rp 1,0% N/mm ² / 1%- Streck- grenze N/mm ²	Tensile strength/ Résistance à la traction/ Zugfestig- keit, N/mm ²	Elongation L ₀ =2'' %/A llongement A L ₀ =2'' % , 50mm /Bruch- dehnung	Rockwell Hardness, /Dureté / Härte- prüfung HRB	Yield strength, Mpa/limi- te élastique Rp 1,0% N/mm ² / 1%- Streck- grenze N/mm ² 400°
315	1 2	longitudinal width/ largeur longitudinal gage length/ longueur calibrage 12,5 mm Längsrichtung Probeflänge 12,5 mm	20°	321 321	361 366	622 612	42 42		

DUCTILITY TESTS / ESSAIS DE DUCTILITÉ / TECHNOLOGISCHE PRÜFUNGEN

Ring tensile test, flattening-acceptable./Ring expanding test,faltversuch- ohne

INTERGRANULAR CORROSION TEST / Essais de corrosion intercrystalline / Prüfung auf interkristalline Korrosion :

EN ISO 3651-2, practice A - acceptable- Ohne Beanstandung.

NON-DESTRUCTIVE TEST METHOD / CONTROL NON-DESTRUCTIF / ZERSTÖRUNGSFREIE PRÜFUNG

100% ultrasonic tested - acceptable. 100% Ultraschallprüfung EN 10246 U3/C - Ohne Beanstandung -

100% hydro- tested - acceptable. 100% Wirbelstromprüfung SEP 1925 - Ohne Beanstandung -

Tubes are heat treated: 1080° C holding time 5 minutes then cooled by water/Tubes sont traités thermiquement - 1080° C
hypertrempe à l'eau/ Rohre lösungsgelöst: 1080°C Aufrechterhaltung 5 Minuten und in Wasser abgeschreckt.

VISUAL INSPECTION, DIMENSIONAL MEASUREMENT AND IDENTIFICATION CHECK - SATISFACTORY/
EXAMEN VISUEL, VERIFICATION des DIMENSIONS ET ANTI-MELANGE - SATISFAISANT /
BESICHTIGUNG, MAßKONTROLLE UND VERWECHSLUNGSPRÜFUNG - OHNE BEANSTANDUNG

Excentricity max. 10% of average w.t.
Exzentrizität max. 10% der mittleren

31

V Kuropyatnik

Date/date/Datum 06.03.08

Inspector / inspecteur/ Der Werkstoffverständige

SAP Kurzzeichen / Chargen-Nr.

SAP short mark / batch No.

90272

Nr. Prüfer

No. inspector

PM-11



Ambica Steels Limited
(An ISO 9001 : 2000 & ISO 14001 : 2004 Company)



Works : 51/2, Site IV, Industrial Area,
Sahibabad-201010, Ghaziabad
(U.P.) India.

Phone : +91-120-289 7621, 22, 23, 24, 25
Fax : +91-120-289 7620

E-mail : asltd@del3.vsnl.net.in

Website: www.ambicasteels.com

INSPECTION/ MILL/ QUALITY CERTIFICATE

(Certificate of Analysis)

Certificate No. 04202W1300200011
Certificate No. 0420224400210018

TC No.: 2138/2007

Date: 31-Dec-07

As per EN 10204 - 3.1

Customer Name:	Stappert Spezial Stahl Handel	Manufacturer:	AMBICA STEELS LIMITED, INDIA
Product	Stainless Steel Round Bars	Invoice Number:	EXP 234 dated 31-12-07
Material Grade:	ASMAX 316L (AISI 316L / 1.4404)	Order Number:	E-000 / V 661141W 6118 N/AMBI-E3
Demands:	As Per DIN EN 10088-3, EN 10278	Heat Number:	S- 4356
Bundle Numbers:	AG-7151, AG-7152		
Condition	Annealed, Peeled, ground & Polished	Product Manager Signature	

MATERIAL DETAILS -

Size	Shape	Total No. of Pieces	Material Length	Tolerance	Net Weight
80 mm	Round	8	3.0 - 3.2 mtrs	h9	1.005 Tons

CHEMICAL COMPOSITION -

DEMAND	Min	%C	%Si	%Mn	%P	%S	%Cr	%Mo	%Ni	%Cu	%N	%Ti	%Co	%V	%Al
	Max	0.03	1.00	2.00	0.045	0.03	16.50	2.00	10.0						
RESULT		0.027	0.32	1.81	0.039	0.026	16.74	2.05	10.15		0.11				
											0.0577				

MECHANICAL PROPERTIES -

	Rp 0.2%	Rm	A _{5d}	Z	Hardness
DEMAND	Min.	N/mm ²	N/mm ²	%	(B.H.N)
	Max.	200	500	40	
TEST REPORT		297	610	52	168
				70.83	

Heat Treatment : solution Annealed 1050°C 4 hrs Water Quench

Visual Inspection - OK
Dimensional Check - OK
Material Identification test (spectro) - OK
Micro Macro Test - Satisfactory
IGC as per ASTM A 262 Practice E/DIN - 50814 - Satisfactory
Melting Process : Electric Furnace & Refining through AOD
Improved Machining Quality Stainless Steel (IM)
No Mercury & Radioactive Contamination
Country of Origin - INDIA

AMBICA STEELS LIMITED

MANAGER QA INSPECTOR

We confirm that material has been manufactured and supplied in accordance with the Purchase Order.

SAP Kurzzeichen / Chargen Nr.
SAP short mark / batch No.

90281

Nr. Prüfer
No. inspector

PM-1

Larrondo LOIU (VIZCAYA) España
P.O. Box 1.323/48060 Bilbao
Tel. 34-(4) 4 71 13 00
Fax. 34-(4) 4 53 16 36



Quality
Management
System
Approved
CERT. Nº
SGS 6000397



ACEROS INOXIDABLES

OLARRA



STAPPERT SPEZIAL-STAHL HANDEL GM
EDISONSTR. 19
59199 BOENEN - ALEMANIA

Trade Mark - Zeichen des Lieferwerkes
Anagrama del suministrador



Works Inspector Stamp - Werkssachverständiger
Sello del Inspector

3

Certificate type - APZ Nach Certificado tipo		EN 10.204/3.1		Certificate n° - Prüf-Nr Certificado n°		635.837		Date - Datum - Fecha 3 DE ABRIL 2009							
Our order N° Werk - Nr N° de Referencia		408.087		Heat Schmelze Colada		971689		Your order N° Bestell - Nr Pedido N°							
								10-89236/W							
Steel Grade Werkstoff Calidad		X-2-CRNI-MO-17-12-2 / 1.4404 MECAMAX		According to Entsprechend Corresponde		EN 10.272 2.007									
Shape and Size - Gegenstand Perfil y dimensión RUND 80,00 MM		Tolerance - Toleranz Tolerancia h. 9		Bundles Bunde Bultos		2		Bars Stäbe Barras							
								Weight Gewicht Peso							
								836							
Requirements - Anforderungen - Exigencias															
TRB-100/AD-2000-W2-ADW-10 S235.TL 077. EN 10.088-3.2005 NACE MR 0175-03. Acc.to ASTM A 479/A 479M-08, ASME SA 479/SA 479M-07, Tp 316/316L, 1.4401.					EN 10.278-99 PED97/23/EC, Annex I, Parag. 4.3, Approved Cert. N° 348/2008/MUC										
Melting process / Er schmelzungsart / Proceso de Fusión E.A.F. / A.O.D.					Heat treatment / Wärmebehandlung / Tratamiento térmico 1.060 , 4 HORAS Water / Wasser / Agua										
Solution annealed / Abgeschreckt / Hipertempe >> Centerless grinded / Geschliffen / Rectificado															
Test results - Ergebnis der Prüfungen - Resultados de los ensayos															
Dimension of Specimen Abmessungen des Probestabes Medida de las probetas		Rp 0.2% N/mm2 MPA	Rp 1% N/mm2 MPA	RM N/mm2 MPA	A %L 5D	A %L 4D	Z %	Hardness Härte Dureza HBW	Impact Test / Kerbschlag / Resiliencia ISO V Jules						
RED. 10,00 MM.		Min. 200	235	500	40				100						
		Max.		700				215							
Temperature °C 20C	Spec. N° Probe Nr. Pro N°.	1	304	348	590	50		73	163						
									232/235/230						
Min.	C	Si	Mn	P	S	Cr	Mo	Ni	Ti	Cu	Co	N			
Max.	0,030	1,00	2,00	0,045	0,030	18,50	2,50	13,00							
	0,019	0,35	1,57	0,032	0,029	16,80	2,04	10,00	0,01		0,160	0,0350			
Visual and dimensional inspection Besichtigung und Ausmessung Control visual y dimensional		O.K.		Radioactivity inspection Radioaktivitätskontrolle Control de Radioactividad		O.K.		Antimixing test Spektrosk. Verwechslungspr. Antimezcla		O.K.		Grain Size Korngröße Tamaño de grano			
Remarks - Bemerkungen - Observaciones															
Korrosion Prüfung , Essai de Corrosion , Corrosion test , Ensayo de Corrosion A/EN ISO 3651-2/98 OK. Spektrosk. Verwechslungspr. Durchgeführt. Anti-Mixing test OK Zustimmungsschreiben des Tuv Baden . Vom 28.1.1999 Laut Schreiben des Tuv Baden E.V. Vom 1. März 1977 Wird auf die Gegenzeichnung Verzichtet.														EDV / EDP Acc. EN 10.204 Alfredo Molina Certification Mng.	
														Works Inspector Der Werkssachverständiger Inspector de fábrica	

SAP Kurzzeichen / Chargen Nr.
SAP short mark / batch No.

90319

Nr. Prüfer
No. inspector





Tel. (+39).(030).6829911

Fax. (39).(030).6820616

Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY

BESCHEINIGUNG ÜBER QUALITÄT UND WERKSTOFFPRÜFUNGEN

Certificate of quality and materials tests

ABNAHMEPRÜFZEUGNIS-Nr.**AC/ 1071****DATUM :14/04/08**

Certificate-No.

DATE:

Bescheinigung über Werkstoffprüfungen nach EN 10204.3.1

Inspection certificate according to EN 10204.3.1

BESTELLER: STAPPERT SPEZIAL STAHL HANDEL - DUSSELDORF (GERMANY)

Customer

BESTELL-Nr. : V66327W/IT-K3**AUFTRAGBESTÄTIGUNG 070600**

Order-No.:

Order confirmation:

Schmelze-Nr.

Heat-No.

Stücke

Pieces

MATERIAL-BEZEICHNUNG

Material description

WERKSTOFF-Nr.

Material grade

44889**2****FORGED ROUND PEELED BAR 300 mm DIA**
Geschmiedeter Geschliffen stab dia 300 mm**W.nr.1.4404/1.4401****DIN EN 10272****DIN EN 10088-3****DIN EN 10222-5****316/316L ASTM A479****ASME SA 479****TL005****DIN7527/6****DGRL 97/23****NACE MR0175-2003****AD2000/W0**

SAP Kurzzeichen /-Chargen-Nr.

SAP short mark / batch No.

90465

1918 kg x 3395 mm length

1916 kg x 3392 mm length

Nr. Prüfer

No. inspector

PM-11

Zeichen des Lieferwerkes

Trade mark



Stempel des Werksachverständigen

Inspector's stamp

**Wärmebehandlungszustand:**

Condition of heat treatment:

Lösungsgeglüht 1050°C in Wasser abgeschreckt

Solution annealed 1050° C + water quenched

Schmelzanalyse / Heat analysis

C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn
0,028	1,72	0,43	0,025	0,029	17,20	10,08	2,11		
Ca	Al	V	Ti	W	Ta	As	Co	Nb	Pb
			0,001				0,070		
B	N	Zr	Sb	Fe	PRE	Ferrit / Ferrite (%)		Korngröße ASTM E112	
	0,074								

PRÜFERGEBNISSE - TEST RESULTS ON ACTUAL BAR PROLONGATION

Test nr.	Richtung Direction	R _{p0.2} [MPa]	R _{p1} [MPa]	R _m [MPa]	A [%]	Z [%]	KV (10 x 10 mm) [J]	HB
1	T	300	329	566	42,0	55,1	130-130-109	166
2	T	305	324	570	42,3	55,8	134-128-111	169

Erschmelzung EAF + AOD / Steelmaking process EAF + AOD refining

Hrc <0

Material ohne Schweißen / No welding performed on material

Material ohne Quecksilberverunreinigungen; nicht radioaktiv / Material free from Mercury contamination; non radioactive

Mechanische Prüfungen gem./Mechanical tests performed acc.to UNI EN10002 (Probe/tensile Ø40mmx50mm)+UNI EN10003/1

Besichtigung und Maßnachprüfung ohne Beanstandung / Inspection and dimensional control without objection

Verwechslungsprüfung durchgeführt / PMI performed

Werkstoff nach DIN EN ISO 3651-2 Verfahren A interkristalline Korrosion beständig / Material resistant to intercrystalline

corrosion acc.to DIN EN ISO 3651-2 Verfahren A (Temp.700+/-10°Cx2h)

DER SACHVERSTÄNDIGE

Surveyors

DER KUNDENSACHVERSTÄNDIGE

Customer Inspector

ITALFOND S.p.A.

Der Qualitätsleiter

ITALFOND S.p.A.
 stainless steel and duplex alloy bars
QUALITÀ



Tel. (39).(030).6829911

Fax. (39).(030).6820616

Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY

BESCHEINIGUNG ÜBER QUALITÄT UND WERKSTOFFPRÜFUNGEN

Certificate of quality and material testing

ULTRASCHALLPRÜFUNG

Ultrasonic test

ZEUGNIS-Nr.**UT/ 1071****DATUM: 14/04/08**

Certificate No.

DATE:

Bescheinigung über Werkstoffprüfungen nach EN 10204.3.1

Inspection certificate EN 10204.3.1

BESTELLER: STAPPERT SPEZIAL STAHL HANDEL - DUSSELDORF (GERMANY)

Customer

BESTELL-Nr.: V66327W/IT-K3**AUFTRAGSBESTÄTIGUNG 070600**

Order-Nr.

Order confirmation:

SCHMELZE-Nr.
Heat-No.**STÜCKE**
Pieces**MATERIALBEZEICHNUNG**
Material description**WERKSTOFF-Nr.**
Material grade

44889

2

FORGED ROUND PEELED BAR 300 mm DIA
Geschmiedeter Geschälter stab dia 300 mm

W.nr.1.4404/1.4401

DIN EN 10272

DIN EN 10088-3

DIN EN 10222-5

316/316L ASTM A479

ASME SA 479

TL005

DIN7527/6

DGRL 97/23

NACE MR0175-2003

AD2000/W0

SAP Kurzzeichen / ~~Chargen-Nr.~~

SAP short mark / batch No.

90465

Nr. Prüfer

No. Inspector

PM-11

1918 kg x 3395 mm length

1916 kg x 3392 mm length

Wärmebehandlungszustand:

Lösungsgeglüht 1050°C in Wasser abgeschreckt

Condition of heat treatment:

Solution annealed 1050° C + water quenched

ULTRASCHALLPRÜFBERICHT - Ultrasonic test report**PRÜFGERÄT**

Equipment

: KRAUTKRAMER USN 52R

JUSTIERUNGSVERFAHREN

Calibration Method

: Rückwandecho

: Back wall echo

KOPPLUNGSMITTEL

Couplant

: Öl

: Oil

PRÜFKOPF

Kind of Probe

: B2S

BEARBEITUNGSZUSTAND

Surface Condition

: Geschält

: Peeled

PRÜFVERFAHREN

Testing procedure

: SEP 1921

ZULÄSSIGKEITSGRENZE

Acceptance Criteria

: CLASS 2/D/d

PRÜFERGEBNIS

Test result

: Keine registrierpflichtigen Anzeigen

: No indications found

DER SACHVERSTÄNDIGE
Surveyors**DER KUNDENSACHVERSTÄNDIGE**
Customer Inspector**ITALFOND S.p.A.**
NDE InspectorSNT - TO - 1A
LEVEL II
BRUNO BROCCA

5000291013/10

PROMINENT
DOSIERTECHNIK GMBH
IM SCHUHMACHERGEWANN
7-11
D 69123 HEIDELBERG

Prüfbescheinigung Nr. 041220
Certificate No.

Bestell-Nr./Order no.: 011/0109006722
Works-Nr./Work-order no.: 64628/064318

Zeichen des Lieferwerkes
Trade mark
Stempel des Werksabnahmebeauftragten
Inspector's stamp

Enpar
Sonderwerkstoffe



Erzeugnisform STABMATERIAL, WARMGEFERTIGT, BLANK
Product ROUND BAR, HOT FORMED, BRIGHT

Anforderungen ASTM-B-348, GR. II
Requirements

Werkstoff 3.7035 ENTSPR./ACC.TO TITAN GR. II

Quality

Besichtigung und Maßnachprüfung
Inspection and dimensional control

OHNE BEANSTANDUNG
WITHOUT OBJECTION

Erschmelzung/Nachbehandlung
Melting process/secondary refining

DOUBLE VAR

Verwechslungsprüfung (spectroanalytisch)
Identification test (spectral-analysis)

OHNE BEANSTANDUNG
WITHOUT OBJECTION

Pos. Item	Anzahl Quantity	Abmessung Dimension	Gewicht kg Weight kg	Probe-Nr. Test no.
1	1 STCK.	STAB VM Ø 55 X 500 MM	5,50	685

Schmelz-Nr.

Heat No.	FE	C	N	H	O	TI
080310-13	0,06	0,04	0,02	0,003	0,16	REST

SONSTIGE EINZELN/RESIDUAL EACH: <0,10

SONSTIGE GESAMT/RESIDUAL TOTAL: <0,40

Wärmebehandlungszustand / Condition of heat treatment

Material/material: GEGLÜHT / ANNEALED

Probe/test piece: LIEFERZUSTAND / CONDITION SUPPLIED

Probe Nr. Test no.	Temp. °C	Lage Local	Rp 0.2 N/mm²	Rp 1 N/mm²	Rm N/mm²	A %	Z %	Kerbschlagarbeit Impact value	Härte Hardness
SOLL	RT	L	275		345	20	30		
685	RT	L	335		440	30	58		

SAP Kurzzeichen / Chargen-Nr.
SAP short mark / batch No.

90472

Nr. Prüfer
No. inspector

PM-11



40149202

Die Lieferung entspricht den vereinbarten Lieferbedingungen.

The above mentioned material have been delivered in accordance with the terms of order.



Zulassung nach Richtlinie 97/23/EG, Zertifikat-Nr. 01202811/Q-000004

Approval accord. standard 97/23/EG, certificate-No. 01202811/Q-000004

Anlage
Encl

Gummersbach, den 16.03.2009
place and date

Unterschrift

 ITALFOND		Tel. (+39).(030).6829911							
		Fax. (39).(030).6820818							
Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY									
BESCHEINIGUNG ÜBER QUALITÄT UND WERKSTOFFPRÜFUNGEN Certificate of quality and materials tests									
ABNAHMEPRÜFZEUGNIS-Nr. Certificate-No.		AC/0272	DATUM :06/02/08 DATE:						
Bescheinigung über Werkstoffprüfungen nach EN 10204.3.1 Inspection certificate according to EN 10204.3.1									
BESTELLER: STAPPERT SPEZIAL STAHL HANDEL - DUSSLERDORF (GERMANY) Customer									
BESTELL-Nr. : V63912W/IT-K5 Order-No.:		AUFTRAGBESTÄTIGUNG:070348 Order confirmation:							
Schmelze-Nr. Heat-No.	Stücke Pieces	MATERIAL-BEZEICHNUNG Material description	WERKSTOFF-Nr. Material grade						
44598	3	FORGED ROUND PEELED BAR 170 mm DIA Geschmiedeter Geschälter stab dia 170 mm	W.nr.1.4404/1.4401 DIN EN 10272 DIN EN 10088-3 DIN EN 10222-5 316/316L ASTM A479 ASME SA 479 TL005 DIN7527/8 DGRL 97/23 NACE MR0175-2003 AD2000/W0 AD2000-W2/W10						
732 kg x 4023 mm length 720 kg x 3963 mm length 722 kg x 3960 mm length									
SAP Kurzzeichen / Chargen Nr. SAP short mark / batch No. 90520 Nr. Prüfer No. inspector		PM-1							
Zeichen des Lieferwerkes Trade mark		Stempel des Werksachverständigen Inspector's stamp							
Wärmebehandlungszustand: Condition of heat treatment:		Lösungsgeglüht 1050°C in Wasser abgeschreckt Solution annealed 1050° C + water quenched							
Schmelzanalyse / Heat analysis									
C	Mn	Si	P	S	Cr	Ni	Mo	Cu	Sn
0,021	1,79	0,34	0,027	0,020	17,30	10,17	2,09		
Ca	Al	V	Ti	W	Ta	As	Co	Nb	Pb
			0,009				0,079		
B	N	Zr	Sb	Fe	PRE	Ferrit / Ferrite (%)	Korngröße ASTM E112		
	0,076								
PRÜFERGEBNISSE - TEST RESULTS ON ACTUAL BAR PROLONGATION									
Test nr.	Richtung Direction	R _{p0.2} [MPa]	R _{p1} [MPa]	R _m [MPa]	A [%]	Z [%]	KV (10 x 10 mm) [J]	HB	
1	T	311	344	572	42,8	58,4	134-141-127	167	
2	T	314	348	577	42,5	58,1	137-145-131	165	
3	T	308	351	579	42,3	58,7	130-149-134	168	
									Hrc < 0
Erhitzung EAF + AOD / Steelmaking process EAF + AOD refining Material ohne Schweißen / No welding performed on material Material ohne Quecksilberverunreinigungen; nicht radioaktiv / Material free from Mercury contamination; non radioactive Mechanische Prüfungen gem./Mechanical tests performed acc.to UNI EN10002 (Probe/tensile f 10mmx50mm)+UNI EN10003/1 Besichtigung und Maßnachprüfung ohne Beanstandung / Inspection and dimensional control without objection Verwechslungsprüfung durchgeführt / PMI performed Werkstoffnach DIN EN ISO 3651-2 Verfahren A Interkristalline Korrosion beständig / Material resistant to intercrystalline corrosion acc.to DIN EN ISO 3651-2 Verfahren A (Temp.700+/-10°Cx2h) Ausgestellt in Einvernehmen mit dem TÜV Bayern (March 1995) Issued with the consent of and in accordance with TÜV Bayern (March 1995) Gegenzeichnungsverzicht vom 25 Mai 2008 / Waiving of countersign (May 25th 2008)									
DER SACHVERSTÄNDIGE Surveyors		DER KUNDENSACHVERSTÄNDIGE Customer Inspector				ITALFOND S.p.A. Der Qualitätsleiter			
						 GARANTIE QUALITÀ			



Tel. (39).(030).6829911

Fax. (39).(030).6820616

Via Industriale, 1 - 25021 BAGNOLO MELLA (BS) ITALY

BESCHEINIGUNG ÜBER QUALITÄT UND WERKSTOFFPRÜFUNGEN

Certificate of quality and material testing

ULTRASCHALLPRÜFUNG

Ultrasonic test

ZEUGNIS-Nr.**UT/0272****DATUM: 06/02/08**

Certificate No.

DATE:

Bescheinigung über Werkstoffprüfungen nach EN 10204.3.1

Inspection certificate EN 10204.3.1

BESTELLER: STAPPERT SPEZIAL STAHL HANDEL - DÜSSELDORF (GERMANY)

Customer

BESTELL-Nr.: V63912W/IT-K5**AUFTRAGSBESTÄTIGUNG 070348**

Order-Nr.

Order confirmation:

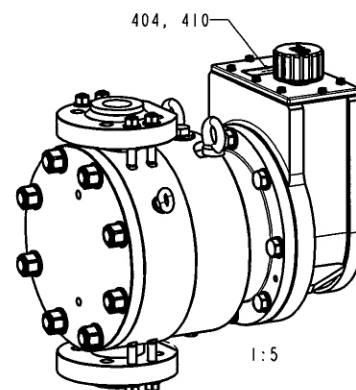
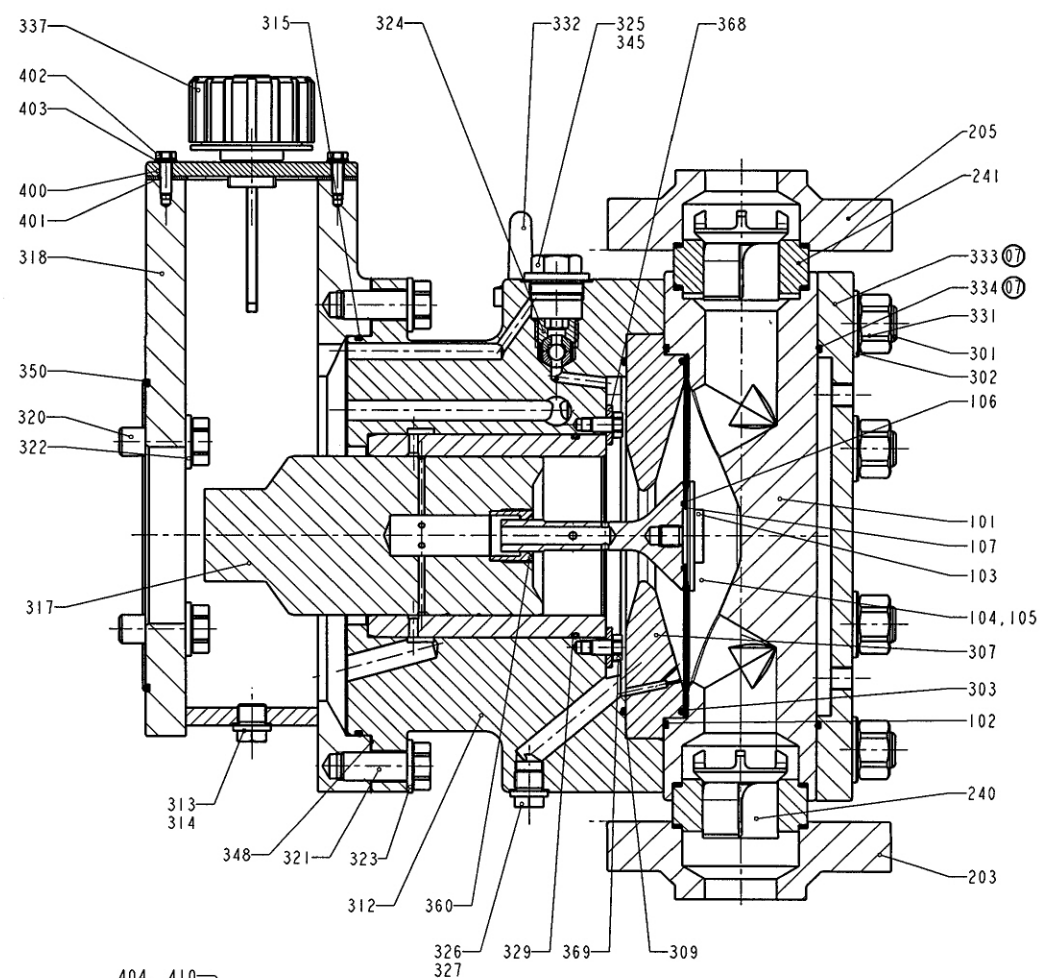
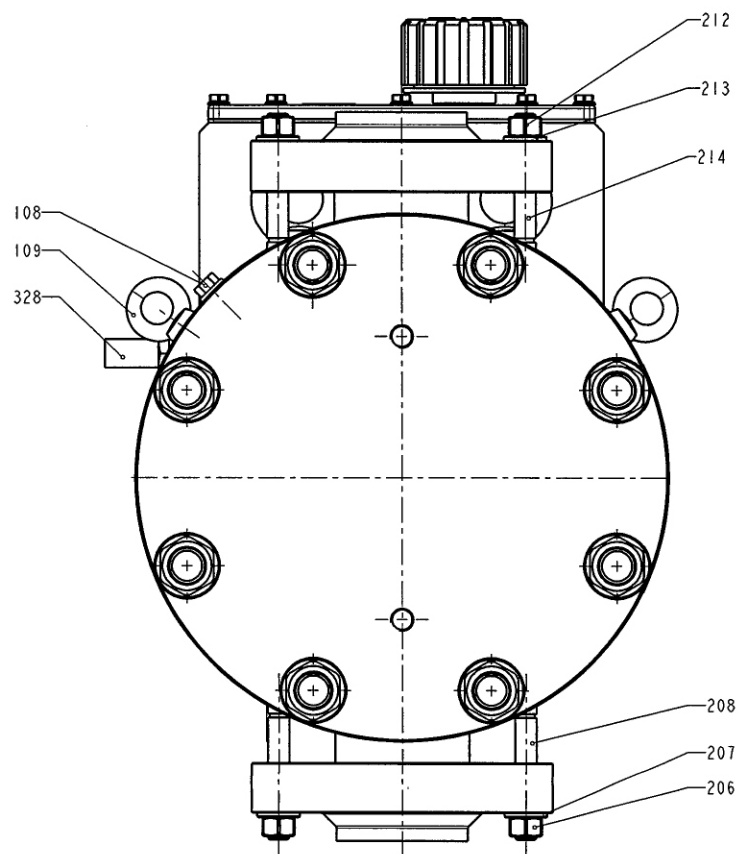
SCHMELZE-Nr. Heat-No.	STÜCKE Pieces	MATERIALBEZEICHNUNG Material description	WERKSTOFF-Nr. Material grade
44598	3	FORGED ROUND PEELED BAR 170 mm DIA Geschmiedeter Geschälter stab dia 170 mm 732 kg x 4023 mm length 720 kg x 3963 mm length 722 kg x 3980 mm length	W.nr.1.4404/1.4401 DIN EN 10272 DIN EN 10088-3 DIN EN 10222-5 316/316L ASTM A479 ASME SA 479 TL005 DIN7527/6 DGRL 97/23 NACE MR0175-2003 AD2000/W0 AD2000-W2/W10
Wärmebehandlungszustand: Condition of heat treatment:		Lösungsgeglüht 1050°C in Wasser abgeschreckt Solution annealed 1050° C + water quenched	
ULTRASCHALLPRÜFBERICHT - Ultrasonic test report			
PRÜFGERÄT Equipment	:	KRAUTKRAMER USN 52R	
JUSTIERUNGSVERFAHREN Calibration Method	:	Rückwandecho Back wall echo	
KOPPLUNGSMITTEL Couplant	:	Öl Oil	
PRÜFKOPF Kind of Probe	:	B2S	
BEARBEITUNGSZUSTAND Surface Condition	:	Geschält Peeled	
PRÜFVERFAHREN Testing procedure	:	SEP 1921	
ZULÄSSIGKEITSGRENZE Acceptance Criteria	:	CLASS 3/E/e	
PRÜFERGEBNIS Test result	:	Keine registrierpflichtigen Anzeigen No indications found	
DER SACHVERSTÄNDIGE Surveyors	DER KUNDENSACHVERSTÄNDIGE Customer Inspector		ITALFOND S.p.A. NDE Inspector
			SNT - TC - 1A LEVEL II BRUNO BOCCA

SAP Kurzzeichen / Chargen Nr.
- SAP short mark / batch No.**90520**

Nr. Prüfer

No. inspector

PM-1



Pos. 308, 342 ohne Abbildung / without illustration
Dargestell Mf4a / 90

	Werkstoffbezeichnung	Allg. Teil.	Überfl.	Maßstab scale	1.-Nr. p.no.	
				1:2 (1:5)		
				Werkstoff material		
		Datum	Name	Bezeichnung/description		
07	08033-100	2.08.08	Kra Bonin	Membrankopf Mf4a / 70-92		
06	08136-004	21.07.08	MF Gehr	Dia.pump head Mf4a / 70-92		
05	05284	20.05.08	Born			
04	08077-001	23.04.08	189			
03	08033-008	02.04.08	JGS ProMinent	Zechg.-Nr./drawing no.		
02	05284	17.07.07	Born Dieter Fechtack GmbH	66-63-103-00-06-02		
01	05284	05.05.06	Born B&B Technik GmbH	Blatt		
				1		
Zust.	Änd.-Mitt.-Nr.	Datum	Name	Ers. f.		
				Ers. d.		

cone valve

ProMinent Dosiertechnik GmbH

Im Schuhmachergewann 5-11

69123 Heidelberg

Germany

Tel.: +49 (6221) 842-0

Fax: +49 (6221) 842-419

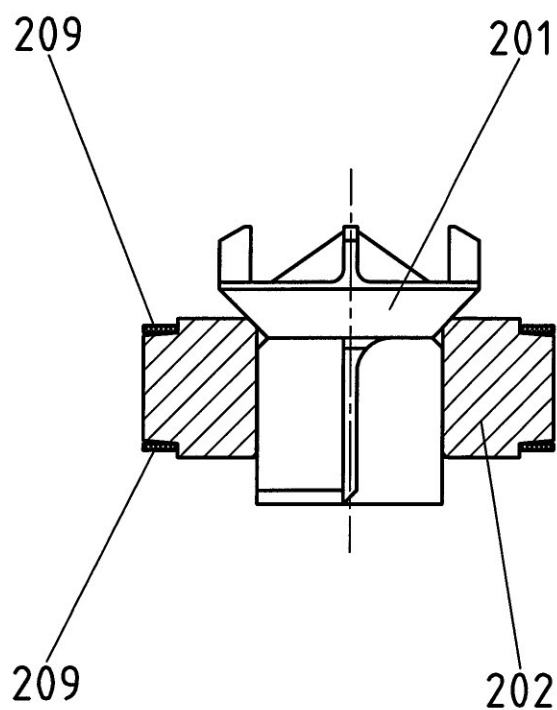
e-Mail: info@prominent.com

ProMinent®

No.: Z0666-0000400

Rev.: 00

Dat.:



Safety data sheet according to directive 91/155 EEC

Date: 01/2000

Name: **Turmofluid TTO 24**

Page 1 of 4

Updating: 05/01/00

Printed:05.01.00

1. Commercial product name and company identification:

Trade name: **Turmofluid TTO 24**

Company: **LUBRICANT CONSULT GMBH**

Gutenbergstraße 13

D-63477 Maintal 2 (Germany) Tel.: +49 6109 / 7650-0 FAX: +49 6109 / 7650-51

2. Composition / Information on ingredients:

Combination of various hydrocarbons.

3. Hazards identification:

The product is a combustible liquid. Fire can be released by open flames and sparks.

4. First aid measures:

Skin contact: Wash with water and soap. Remove contaminated clothing.

Eye contact: Flush with plenty of water for at least 15 minutes. See a physician* if the eye irritation remains.

Ingestion: See a physician* immediately. Do not induce vomiting.

Inhalation: After inhalation of decomposition vapours: Remove the patient to fresh air.

*Show the physician this safety data sheet.

5. Fire fighting measures:

Suitable extinguishing media: dry chemicals, powder, foams, carbon dioxide.

Do not use water !

In the case of fire, the vapour can involve toxic compounds (carbon monoxide).

Prevent entry of contaminated water into sewers or waterways.

Use a respirator to protect from vapours.

6. Accidental release measures:

Absorb small amounts on inert material. Collect the released product and the used absorbent materials in suitable containers for disposal (see sect. 13). Hold back large amounts of liquids by embankment (mound of earth, sand or other inert materials).

Use pumps or call the firebrigade, if necessary. Avoid the uncontrolled discharge in sewage systems, in surface and underground waters.

Safety data sheet according to directive 91/155 EEC

Date: 01/2000

Name: **Turmofluid TTO 24**

Page 2 of 4

Updating: 05/01/00

Printed: 05.01.00

6. Accidental release measures (continuation):

Do not smoke while handling with released liquids. Avoid the contact with fire and sparks. Take measures against electrical charge. Vapours from the product in air may be explosive !

7. Handling and store measures:

Store in cool and dry areas. Protect from water and wetting. The maximum temperature for storage and transportation is 40°C (104°F).

Keeping quality in original drums for the storage conditions mentioned above: minimum 5 years.

Avoid the arising of vapours from the oil. Otherwise, especially when the product is exposed to high temperatures, good ventilation in the working areas is necessary.

Do not eat, drink and smoke in working areas.

8. Exposure control / Personal protection:

Hand protection: When handling the product wear rubber gloves.

Respiratory protection: Avoid breathing the vapours arising from the product.

Eye protection: Wear safety glasses, if necessary.

9. Physical and chemical properties:

Physical state:	liquid		
Colour:	yellow		
Odour:	like mineral oil		
Pour point:	< - 60°C (< - 76°F)		DIN 51 583
Boiling point:	>200°C (>390°F)		
Density:	0,865 g/cm ³	at 15°C (60°F)	DIN 51 757
Vapour pressure:	not determined		
Viscosity:	26 mm ² /s	at 40°C (104°F)	DIN 51 562
	9,5 mm ² /s	at 100°C (212°F)	
Solubility in water:	insoluble		
pH-value:	not determined		
Flash point:	95°C (203°F)		DIN 51 758
Ignition temperature:	>200°C (>390°F)		DIN 51 794
Explosion limits:	lower: 0,6 Vol-%	upper: 6,5 Vol-%	DIN 53 170

10. Stability and reactivity:

Thermal decomposition: >180°C (>356°F)

Safety data sheet according to directive 91/155 EEC

Date: 01/2000

Name: **Turmofluid TTO 24**

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Updating: 05/01/00

Printed:05.01.00

10. Stability and reactivity (continuation):

No decomposition under normal storage and handling conditions.

At temperatures above 40°C (104°F) vapours from mineral oil arise from the product.

Materials to avoid contact: strong oxidising agents (i.e. compressed or liquid oxygen).

11. Toxicological information:

Experimental toxicological data.

oral: $LD_{50} > 5000 \text{ mg/kg}$ (rat)epidermal: $LD_{50} > 3000 \text{ mg/kg}$ (rabbit)

weak irritation of the eyes is possible.

limit value for oil mist: 5 mg/m^3 .**12. Ecotoxicological information:**

Use the product according to the good working practices avoiding polluting the environment.

Water Pollution Class WGK 1: Slightly water endangering (Classification according to German VwVwS from May, 1999): Avoid the contamination of soil and water.

13. Disposal considerations:

Collect the oil for recycling. Do not mix the collected oil with oils from other types. When recycling is not possible, destroy the waste product by incineration according to local laws and regulations.

LAGA- Waste code number (Germany):

541 06 for transformer oils, thermal oils and hydraulic oils, free from polychlorated biphenyls.

542 09 for solid materials contaminated with grease or oil.

EWC- Waste code number (European Community):

13 01 06 for hydraulic oils only based on mineral oil.

15 02 99 D1 for used absorbent and filter materials, cleaning rags and protection clothes contaminated with grease or oil.

17 02 99 D1 for wood, glass and plastics containing grease or oil (for example: residuals of grease in plastic cans).

14. Transport information:

The product is not dangerous for transportation

Road transportation: (ADR) not classified

Rail transportation: (RID) not classified

Sea transportation: IMDG / IMO not classified

Air transportation: ICAO / IATA not classified

Safety data sheet according to directive 91/155 EEC

Date: 01/2000

Name: **Turmofluid TTO 24**

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Updating: 05/01/00

Printed:05.01.00

14. Transport information (continuation):

U.N.-number:	not assigned
Packaging group:	not assigned

15. Regulatory information:

No regulation and classification according to EEC directives necessary.

No labelling with hazard symbols.

Aquatic toxicity: 1 (= German Water Pollution Class)

16. Further Information:

The information given in this safety data sheet is for safety purpose only. It is given in good faith and based on the best knowledge and experience of the company at the date of issuing. The company is not responsible for damages caused by the use of the product in applications for which it was not intended or for conditions of use outside its control.

Former versions of this safety data sheet are no longer valid.

Technische Information

Technical Information Information Technique



TURMOFLUID TTO 24

LUBCON-Low Temperature – Special hydraulic oil

We recommend **Turmofluid TTO 24** being a special hydraulic oil exposed to considerably strong fluctuations of temperature for the lubrication of hydraulic systems in automotive, aircraft and other hydraulic installations being subject to low temperatures.

Due to application of shear resistant Polymers in connection with high-grade special base oils and additives minimizing oxidation and fretting, a secure lubrication for a large temperature is guaranteed.

QUALITY FEATURES

- pressure resistant
- resistant to oxidation
- protection to corrosion
- cold-resistant
- steady viscosity
- low temperature service up to the approach of the pour point

TECHNICAL DATA

TURMOFLUID TTO 24

Density at 15°C DIN 51757	0,865 g/cm ³
Kinematic viscosity mm ² /s DIN 51561	
at - 40°C	925
at + 40°C	26
at + 100°C	9,5
Viscosity index	385
Flash point(P.M.) EN 22719	95°C
Pourpoint DIN ISO 3016	< - 60°C
Neutralization Number DIN 51558 T 1	0,3 mg KOH/g

ORIGINAL PACKING:

6 x 5 l cans / 20 l cans, 60 l drum / 200 l drum (not returnable)



Lubricant Consult GmbH

Gutenbergstraße 13 · D-63477 Maintal 2

Telefon: 0 61 09/6 20 18 · Telefax: 0 61 09/6 17 45

e-Mail: LUBCON.GERMANY @T-ONLINE.DE

INTERNET: <http://www.LUBCON.COM>

Product Name: MOBILGEAR 600 XP 150
Revision Date: 15Nov2007
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SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

As of the revision date above, this (M)SDS meets the regulations in the United Kingdom & Ireland.

PRODUCT

Product Name: MOBILGEAR 600 XP 150
Product Description: Base Oil and Additives
Product Code: 201560401215, 613620-60
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: EXXONMOBIL MARINE LIMITED
ExxonMobil House
MAILPOINT 29, ERMYN WAY
KT22 8UX LEATHERHEAD
United Kingdom

24 Hour Environmental / Health Emergency

+44 1372 222 000

Telephone

Product Technical Information

EAME +420 221 456 618 / Americas +1 800 662 4525 / Asia
Pacific +8621 5464 4588 EXT 5842
sds-norden@exxonmobil.com

e-mail

SECTION 2 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH HAZARDS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

Note: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek

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immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5	FIRE FIGHTING MEASURES
------------------	-------------------------------

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Oxides of carbon, Incomplete combustion products, Aldehydes, Sulphur Oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200C (392F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6	ACCIDENTAL RELEASE MEASURES
------------------	------------------------------------

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

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Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7

HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL.

Information about recommended monitoring procedures can be obtained from the following agency(ies)/institute(s):

France L'Institut National de Recherche et de Sécurité (INRS) Germany Berufsgenossenschaftliches
Institut für Arbeitssicherheit (BIA) UK Health and Safety Executive (HSE)

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

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For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly affect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid

Colour: Amber

Odour: Characteristic

Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.888

Flash Point [Method]: >200C (392F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

Boiling Point / Range: > 316C (600F)

Vapour Density (Air = 1): > 2 at 101 kPa

Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C

Evaporation Rate (N-Butyl Acetate = 1): N/D

pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): > 3.5

Solubility in Water: Negligible

Viscosity: 150 cSt (150 mm²/sec) at 40°C | 14.7 cSt (14.7 mm²/sec) at 100C

Oxidising properties: See Sections 3, 15, 16.

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OTHER INFORMATION

Freezing Point: N/D

Melting Point: N/A

Pour Point: -9°C (16°F)

DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10

STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11

TOXICOLOGICAL INFORMATION

Acute Toxicity

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
INHALATION	
Toxicity: LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
INGESTION	
Toxicity: LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity: LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitising in test animals.

Additional information is available by request.

Product Name: MOBILGEAR 600 XP 150

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SECTION 12	ECOLOGICAL INFORMATION
-------------------	-------------------------------

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13	DISPOSAL CONSIDERATIONS
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 13 02 05

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

This material is considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

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SECTION 14	TRANSPORT INFORMATION
-------------------	------------------------------

LAND (ADR/RID) : Not Regulated for Land Transport

INLAND WATERWAYS (ADNR) : Not Regulated for Inland Waterways Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
-------------------	-------------------------------

Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.

EU LABELING: Not regulated according to EC Directives

Contains: Alkyl Amine May produce an allergic reaction. This material contains one or more sensitizers <1.0% by weight which are not identified in the Composition Section.

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Complies with the following national/regional chemical inventory requirements: IECSC, TSCA, PICCS, AICS, EINECS, KECI

Special Cases:

Inventory	Status
NDSL	Restrictions Apply

SECTION 16	OTHER INFORMATION
-------------------	--------------------------

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:

Section 15: National Chemical Inventory Listing was modified.

Section 15: Special Cases - Header was added.

Section 15: Special Cases Table was added.

Section 15: Inventory - Header was added.

Section 15: Status - Header was added.

Product Name: MOBILGEAR 600 XP 150

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Internal Use Only

MHC: 0, 0, 0, 0, 0, 0

PPEC: A

DGN: 7053935QGB (1012475)

Product Name: MOBIL SHC 630
Revision Date: 14Apr2006
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SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

As of the revision date above, this (M)SDS meets the regulations in the United Kingdom & Ireland.

PRODUCT

Product Name: MOBIL SHC 630
Product Description: Synthetic Base Stocks and Additives
Product Code: 201560500550, 400406, 602953-60
Intended Use: Circulating/gear oil

COMPANY IDENTIFICATION

Supplier: EXXONMOBIL LUBRICANTS & SPECIALTIES EUROPE, A DIVISION OF EXXONMOBIL
PETROLEUM & CHEMICAL, BVBA (EMPC)
POLDERDIJKWEG
B-2030 Antwerpen
Belgium

**24 Hour Environmental / Health Emergency
Telephone**

(UK) 01372 222 000 / (IRELAND) 44 1372 222 000

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH HAZARDS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

Note: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

Product Name: MOBIL SHC 630

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SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur Oxides, Aldehydes

FLAMMABILITY PROPERTIES

Flash Point [Method]: >210°C (410°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist

Product Name: MOBIL SHC 630

Revision Date: 14Apr2006

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before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7	HANDLING AND STORAGE
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HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
------------------	--

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL.

Information about recommended monitoring procedures can be obtained from the following agency(ies)/institute(s):

France	L'Institut National de Recherche et de Sécurité (INRS)	Germany
	Berufsgenossenschaftliches Institut für Arbeitssicherheit (BIA)	UK
	(HSE)	Health and Safety Executive

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

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For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid

Colour: orange

Odour: Characteristic

Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.866

Flash Point [Method]: >210°C (410°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

Boiling Point / Range: > 316°C (600°F)

Vapour Density (Air = 1): > 2 at 101 kPa

Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C

Evaporation Rate (N-Butyl Acetate = 1): N/D

pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): > 3.5

Solubility in Water: Negligible

Viscosity: 220 cSt (220 mm²/sec) at 40°C | 25.2 cSt (25.2 mm²/sec) at 100°C

Oxidising properties: See Sections 3, 15, 16.

OTHER INFORMATION

Product Name: MOBIL SHC 630

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Freezing Point: N/D
Melting Point: N/A
Pour Point: -33°C (-27°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY**STABILITY:** Material is stable under normal conditions.**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.**MATERIALS TO AVOID:** Strong oxidisers**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.**HAZARDOUS POLYMERIZATION:** Will not occur.**SECTION 11 TOXICOLOGICAL INFORMATION****Acute Toxicity**

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
INHALATION	
Toxicity: LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
INGESTION	
Toxicity: LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity: LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation: Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS**Contains:**

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitising in test animals and humans.

Additional information is available by request.

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

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ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

SECTION 13

DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 13 02 06

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

This material is considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.

Empty Container Warning (where applicable): Empty containers may retain residue and can be dangerous. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION 14

TRANSPORT INFORMATION

LAND (ADR/RID) : Not Regulated for Land Transport

INLAND WATERWAYS (ADNR) : Not Regulated for Inland Waterways Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

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AIR (IATA) : Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.

EU LABELING: Not regulated according to EC Directives

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Complies with the following national/regional chemical inventory requirements: DSL, EINECS, ENCS, TSCA

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:

Section 04: First Aid Skin - Header was modified.

Section 04: First Aid Ingestion - Header was modified.

Section 06: Notification Procedures - Header was modified.

Section 11: Ingestion Acute Lethality - Header was modified.

Section 09: Vapour Pressure was modified.

Section 03: Health Hazards was modified.

Section 06: Accidental Release - Spill Management - Water was modified.

Section 09: Viscosity was modified.

Section 08: Environmental Control - Note was modified.

Section 11: Inhalation Lethality Test Data was modified.

Section 01: Supplier Mailing Address was modified.

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Internal Use Only

MHC: 0, 0, 0, 0, 0, 0

PPEC: A

DGN: 2007968XGB (547911)
