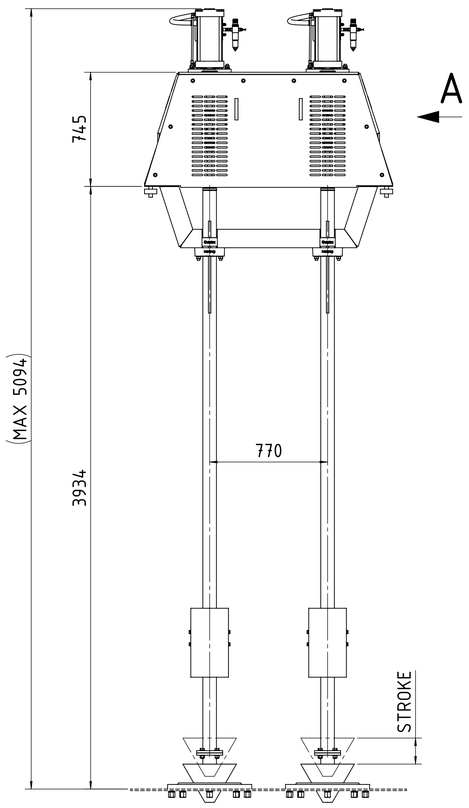
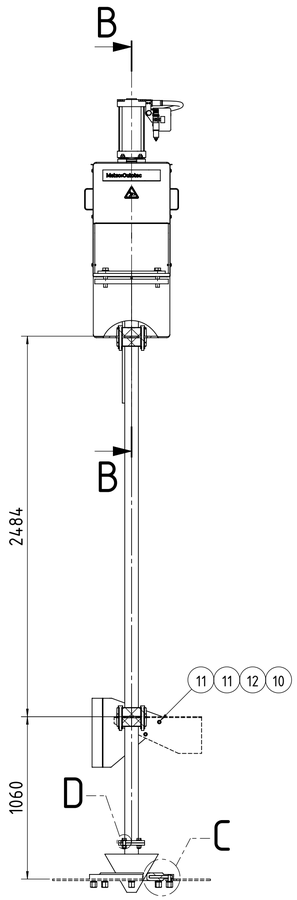
Item Number, rev.: **N031239631, 1** Item Description: **DART ASSEMBLY TankCell® e30 I-DART Ø200** Related Documents: **OU500775477, 0 (Spare Part Drawing)** **OU601801515, 0 (Assembly Drawing)**					Weight: 564kg		Customer:		
L	F/N	Reference Designator	Item Number	Description	Additional Information	BOM	Qty (unit)	Weight (kg)	Related Documents
1	01		N048452654, 6	DART VALVE ACTUATOR Ø160-170mm	DFPI-160-170-ND2P-E-NB3P-LFR-SGS-FNG -ND9106HNR(HART/4-20mA) FESTO, 4457254		2 (EA)	26.7 53.4	OU500592640, 0 (Spare Part Drawing)
1	02		10430301, 2	DART PLUG Ø150-200			2 (EA)	16 32	
1	03		10372121, 1	SOCKET Ø200-495			2 (EA)	32 64	
1	04		10432461, 3	FORK JOINT DART ASSEMBLY		X	2 (EA)	6.5 13	OT00097225, 5 (Assembly Drawing)
1	05		N031120128, 1	DART ROD TankCell® e30			2 (EA)	29 58	
1	06		N031070381, 3	SLIDING PIECE Ø88,9mm		X	4 (EA)	4.6 18.4	OU600655032, 1 (Assembly Drawing)
1	07		N048006885, 1	HEX HEAD SCREW M16x55mm			8 (EA)	0.13 1	
1	08		515281, 1	PLAIN WASHER M16	ISO 7089 - M16 - 200HV - tZn		22 (EA)	0.01 0.22	
1	09		N048003533, 1	HEX NUT M16	ISO 4032 - M16 - tZn		8 (EA)	0.04 0.32	
1	10		N048046611, 1	HEX HEAD SCREW M12x30mm			16 (EA)	0.04 0.64	
1	11		604878, 1	PLAIN WASHER M12	ISO 7089 - M12 - 200HV - A4		32 (EA)	0.01 0.32	
1	12		574989, 1	HEX NUT M12	ISO 4032 - M12 - A4-70 M12 ISO 4032		16 (EA)	0.017 0.27	
1	13		N048089631, 1	STUD M16x45mm			16 (EA)	0.1 1.6	
1	14		10458351, 1	WASHER SOCKET FASTENING			16 (EA)	0.035 0.56	

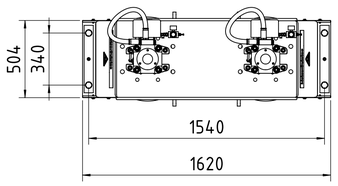
Item Number, rev.: **N031239631, 1** Item Description: **DART ASSEMBLY TankCell® e30 I-DART Ø200** Related Documents: **OU500775477, 0 (Spare Part Drawing)** **OU601801515, 0 (Assembly Drawing)**	Weight: 564kg	Customer:

L	F/N	Reference Designator	Item Number	Description	Additional Information	BOM	Qty (unit)	Weight (kg)	Related Documents
1	15		10302731, 2	SPECIAL LINED NUT			16 (EA)	0.1 1.6	
1	16		N031025954, 1	DART ROD SHIELD TankCell® e30			2 (EA)	7.5 15	
1	17		N031018238, 5	DART RACK TankCell® e30..e40			1 (EA)	257 257	
1	18		N048004486, 1	HEX HEAD SCREW M24x110mm			4 (EA)	0.53 2.1	
1	19		N031018267, 2	WASHER PLATE			2 (EA)	1.9 3.8	
1	20		N031018266, 1	NUT PLATE			2 (EA)	8.9 17.8	
1	21		N048008720, 1	SOCKET SCREW M10x35mm			2 (EA)	0.03 0.06	
1	22		N031149595, 2	LOCKING DEVICE 115x230 D160		X	2 (EA)	10 20	OU601242783, 1 (Assembly Drawing)



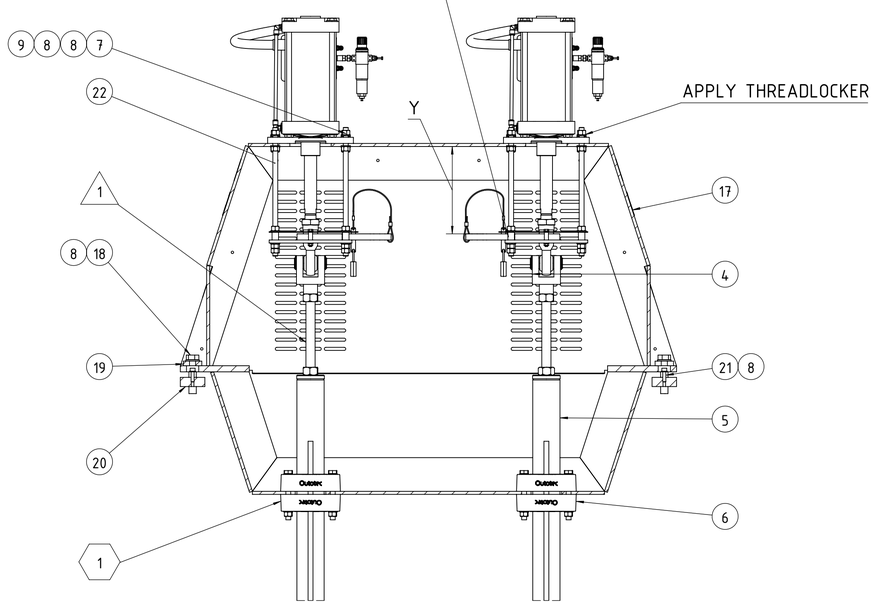


VIEW A



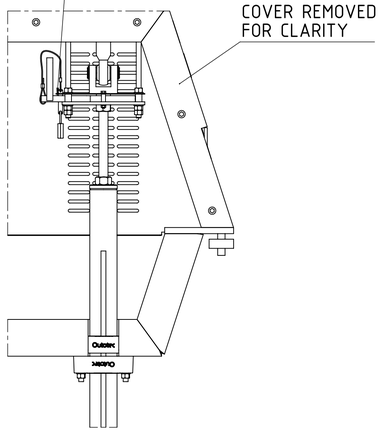
NOTE: EXTRA ACTUATOR FASTENERS COULD BE INCLUDED IN DELIVERY

OPEN POSITION, LOCK WITH PADLOCK



SECTION B-B
SCALE 1 : 10

LOCKED POSITION, LOCK WITH PADLOCK

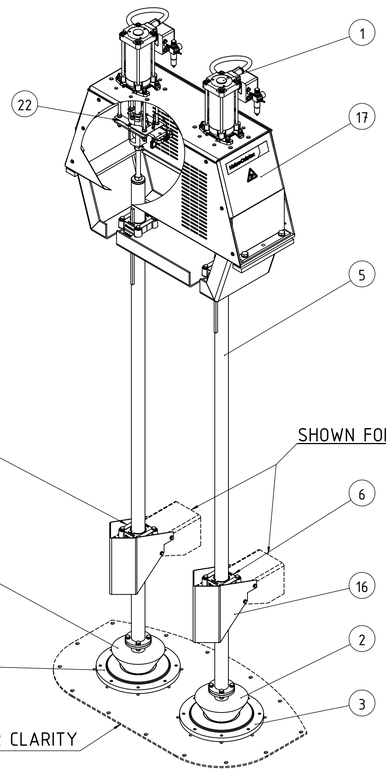


SEE SEPARATE TIGHTENING TORQUE INFORMATION FOR
MORE DETAILED TIGHTENING INSTRUCTIONS

GENERAL TOLERANCES ISO 2768-1 EN ISO 13920 EN ISO 9013 DIN 6935													Values in millimetres
LINEAR DIMENSIONS	Basic size range												
	> 0,5 ≤ 3	> 3 ≤ 6	> 6 ≤ 30	> 30 ≤ 120	> 120 ≤ 400	> 400 ≤ 1000	> 1000 ≤ 2000	> 2000 ≤ 4000	> 4000 ≤ 8000	> 8000 ≤ 12 000	> 12 000 ≤ 16 000	> 16 000 ≤ 20 000	> 20 000
Machining ISO 2768-m	± 0,1	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2					
Chamfers and external radii	± 0,2	± 0,5	± 1										
Welding ISO 13920-B	± 1 (Range 2–30)			± 2	± 2	± 3	± 4	± 6	± 8	± 10	± 12	± 14	± 16
Thermal cutting ISO 9013-2	> 3 ≤ 10	> 10 ≤ 35		> 35 ≤ 125	> 125 ≤ 315	> 315 ≤ 1000	> 1000 ≤ 2000	> 2000 ≤ 4000					Quality of cut surface ISO 9013-44
3,15 < t ≤ 6,3	± 0,7	> t <		± 0,9	± 1,1	± 1,2	± 1,3	± 1,3					
6,3 < t ≤ 10	± 1	± 1,1		± 1,3	± 1,4	± 1,5	± 1,6	± 1,7					
10 < t ≤ 50	± 1,8	± 1,8		± 1,8	± 1,9	± 2,3	± 3	± 4,2					
ANGULAR DIMENSIONS	Shorter side												
	≤ 10		> 10 ≤ 50		> 50 ≤ 120		> 120 ≤ 400		> 400 ≤ 1000		> 1000		
Machining ISO 2768-m	± 1°		± 0°30'		± 0°20'		± 0°10'		± 0°5'				
Welding ISO 13920-B	± 13 mm/m								± 9 mm/m		± 6 mm/m		
Bending	SEE DIN 6935												
GEOMETRICAL TOLERANCES	Machining ISO 2768-K Welding ISO 13920-F												

No ADJUSTING POINT AND NUMBER OF IT
CHECKING FREQUENCY 6 MONTHS

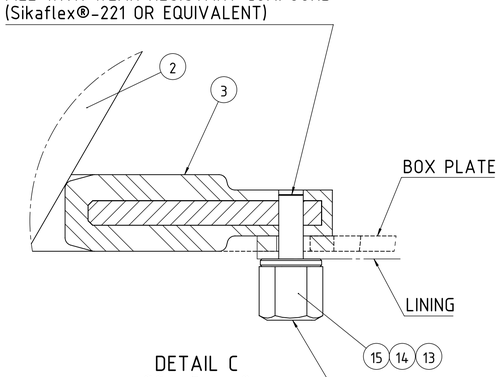
No MAINTENANCE POINT AND NUMBER OF IT
CHECKING FREQUENCY 6 MONTHS



INSTALLATION PROCEDURE FOR DART ASSEMBLY
(SEE MORE DETAILS FROM THE INSTALLATION MANUAL):

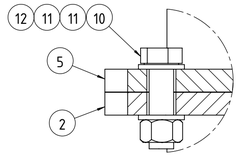
1. INSTALL DART RACK TO THE BRIDGE AND ALIGN WITH DART SOCKET
2. PLACE DART PLUG AGAINST THE DART SOCKET
3. INSTALL DART ROD AND FULLY INSERTED FORK JOINT
4. INSTALL SLIDING PIECES
5. INSTALL THE ACTUATOR AND FULLY EXTEND THE PISTON ROD
6. EXTEND FORK JOINT BY ROTATING AND ALIGN WITH PISTON ROD EYE
7. EXTEND FORK JOINT 3-5 mm UPWARDS FOR GOOD SEALING COMPRESSION
8. INSTALL PIN AND RETAINING RINGS
9. APPLY THREADLOCKER (LOCTITE® 243 OR EQUIVALENT) AND TIGHTEN NUT AGAINST DART ROD END USING TIGHTENING TORQUE 350Nm–395Nm
10. INSTALL DART LOCKING DEVICE, USE THREADLOCKER (LOCTITE® 243 OR EQUIVALENT)

FILL WITH WEAR RESISTANT COMPOUND
(Sikaflex®-221 OR EQUIVALENT)



DETAIL C
SCALE 1 : 2

TIGHTENING TORQUE 40Nm/M16
HEXAGON SOCKET WRENCH (SW=36)



DETAIL D
SCALE 1 : 2

ACTUATOR DIAMETER (mm)	LOCKING DEVICE	Y (mm)	STROKE (mm)	SOCKET
160	115 x 230 D160	288	170	Ø200-495

REV.	NAME	DATE	NAME	DATE	NAME	DATE	REVISION TEXT
0	pasraj	14.12.2021	vestyn	14.12.2021	pekkall	14.12.2021	FOR FABRICATION
	PREPARED		CHECKED		APPROVED		

Metso:Outotec

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REPLACES

DOCUMENT TITLE
ASSEMBLY DRAWING
DART ASSEMBLY
I-DART
TankCell® e30

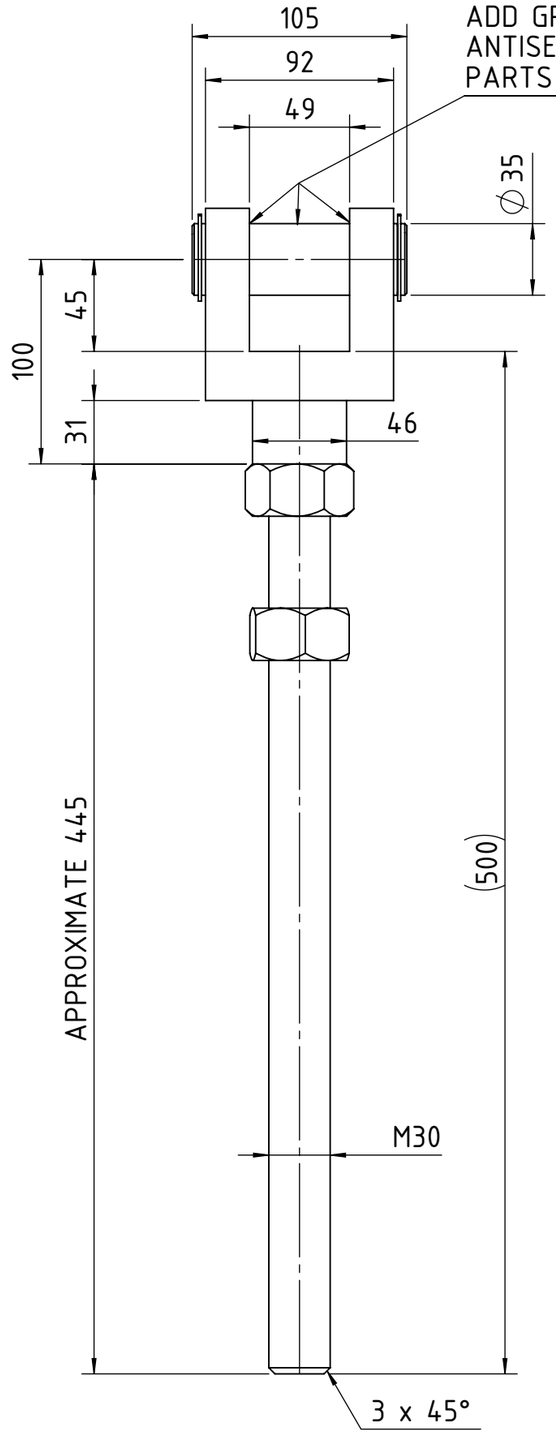
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EN	mm	1:20	A1	1 / 1

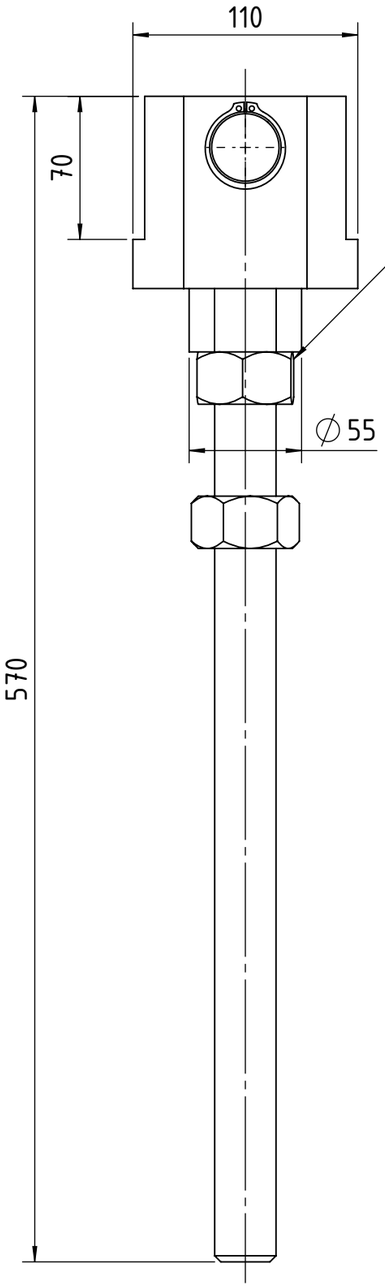
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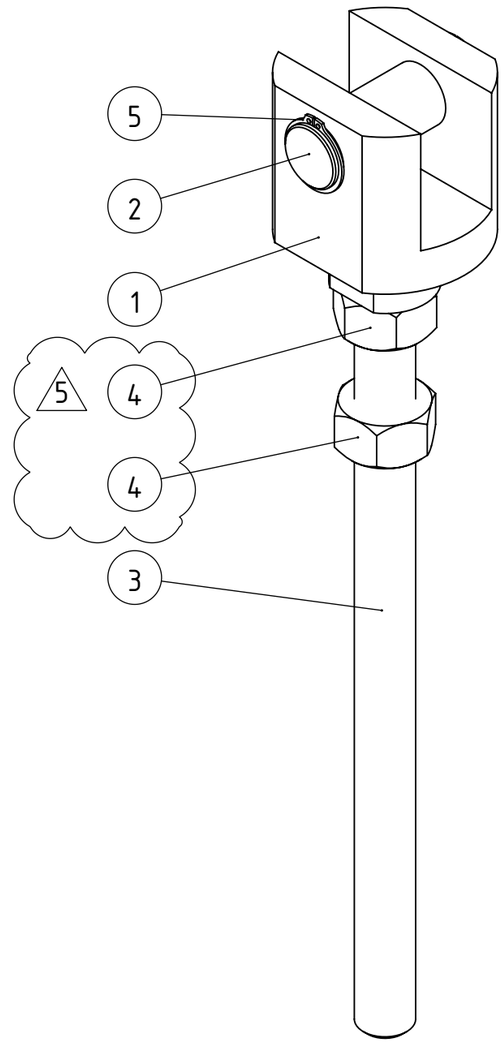
DOCUMENT ID OU601801515 | REVISION 0

Item Number, rev.: **10432461, 3** Item Description: **FORK JOINT DART ASSEMBLY** Related Documents: **OT00097225, 5 (Assembly Drawing)**	Weight: 6.5kg	Customer:

L	F/N	Reference Designator	Item Number	Description	Additional Information	BOM	Qty (unit)	Weight (kg)	Related Documents
2	01		N031017297, 1	CLEVIS			1 (EA)	3.6 3.6	
2	02		N031017300, 2	PIN			1 (EA)	0.8 0.8	
2	03		N048503078, 1	THREAD BAR 30mm			1 (EA)	2.8 2.8	
2	04		N048364595, 1	HEX NUT M30	ISO 4032 - M30 - A4-70		2 (EA)	0.26 0.52	
2	05		N048005662, 1	RETAINING RING Ø35x1.5mm			2 (EA)	0.005 0.01	







REV.	NAME	DATE	NAME	DATE	NAME	DATE	REVISION TEXT
	PREPARED		CHECKED		APPROVED		
0	AP	17.05.2011	JKP	18.05.2011	AP	18.05.2011	FOR FABRICATION
2	paslah	10.09.2014	mikiha	10.09.2014	juhkau	10.09.2014	ITEM 3 FROM 1000 mm TO 500 mm, ITEM 1 UPDATED
3	otsroi	16.10.2014	mikiha	16.10.2014	juhkau	11.11.2014	DRAWING REVISED
4	juhsalm	09.05.2017	pekkall	24.05.2017	juhkau	24.05.2017	MATERIALS HARMONIZED
5	teemat	08.06.2018	samnis	12.06.2018	jertuo	14.06.2018	ITEM 4 REPLACED

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REPLACES

DOCUMENT TITLE

ASSEMBLY DRAWING
FORK JOINT
D35-M30x500
DART ASSEMBLY

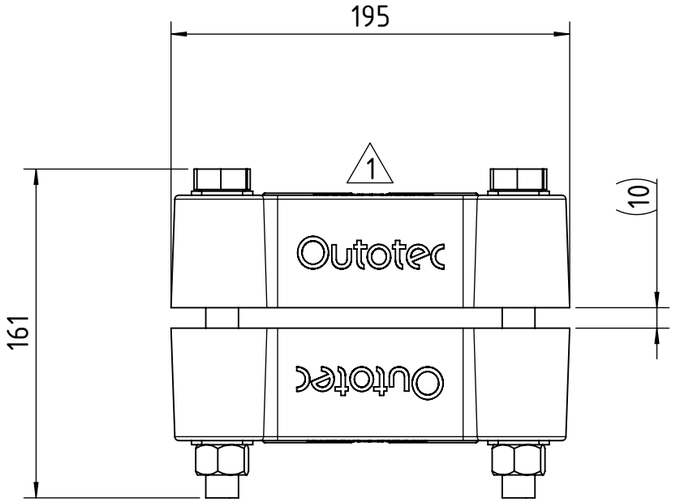
LANGUAGE	UNITS	SCALE	SIZE	SHEET OF SHEETS
EN	mm	1:3	A3	1 / 1

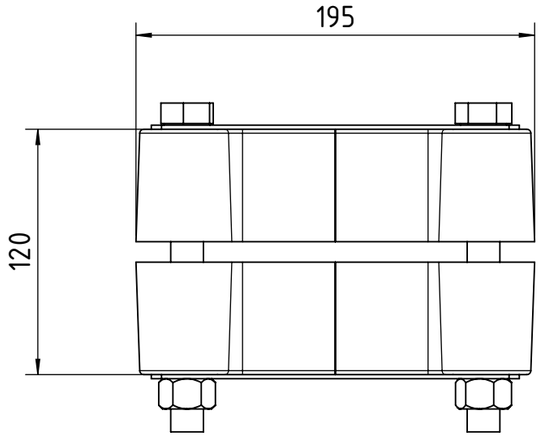
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DOCUMENT ID	REVISION
OT00097225	5

Item Number, rev.: **N031070381, 3** Item Description: **SLIDING PIECE Ø88,9mm** Related Documents: **OU600655032, 1 (Assembly Drawing)**	Weight: 4.6kg	Customer:

L	F/N	Reference Designator	Item Number	Description	Additional Information	BOM	Qty (unit)	Weight (kg)	Related Documents
2	01		N031070380, 2	SLIDING PIECE Ø88,9mm			4 (EA)	0.7 2.8	
2	02		N048046377, 1	HEX HEAD SCREW M16x150mm			4 (EA)	0.28 1.1	
2	03		604902, 1	HEX NUT M16	ISO 4032 - M16 - A4-70		4 (EA)	0.04 0.16	
2	04		N031068089, 1	SUPPORT PLATE			4 (EA)	0.1 0.4	





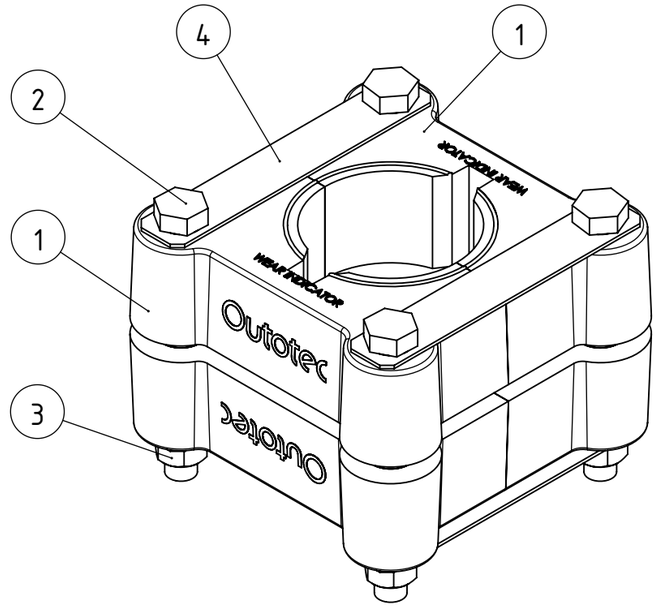
GENERAL TOLERANCES
ISO 2768-1 EN ISO 13920 EN ISO 9013 DIN 6935

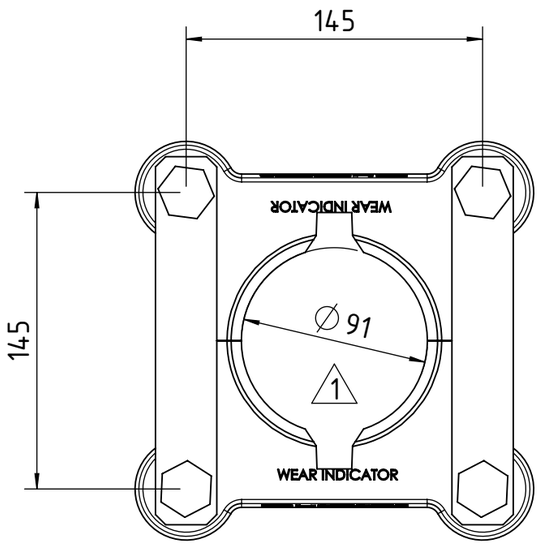
Values in millimetres

	Basic size range												
LINEAR DIMENSIONS	> 0,5 ≤ 3	> 3 ≤ 6	> 6 ≤ 30	> 30 ≤ 120	> 120 ≤ 400	> 400 ≤ 1000	> 1000 ≤ 2000	> 2000 ≤ 4000	> 4000 ≤ 8000	> 8000 ≤ 12 000	> 12 000 ≤ 16 000	> 16 000 ≤ 20 000	> 20 000
Machining ISO 2768-m Chamfers and external radii	± 0,1 ± 0,2	± 0,1 ± 0,5	± 0,2 ± 1	± 0,3	± 0,5	± 0,8	± 1,2	± 2					
Welding ISO 13920-B	± 1 (Range 2–30)			± 2	± 2	± 3	± 4	± 6	± 8	± 10	± 12	± 14	± 16

Thermal cutting ISO 9013-2	≥ 3 < 10	≥ 10 < 35	≥ 35 < 125	≥ 125 < 315	≥ 315 < 1000	≥ 1000 < 2000	≥ 2000 < 4000	Quality of cut surface ISO 9013-44
3,15 < t ≤ 6,3	± 0,7	± 0,8	± 0,9	± 1,1	± 1,2	± 1,3	± 1,3	
6,3 < t ≤ 10	± 1	± 1,1	± 1,3	± 1,4	± 1,5	± 1,6	± 1,7	
10 < t ≤ 50	± 1,8	± 1,8	± 1,8	± 1,9	± 2,3	± 3	± 4,2	

ANGULAR DIMENSIONS	Shorter side ≤ 10	> 10 ≤ 50	> 50 ≤ 120	> 120 ≤ 400	> 400 ≤ 1000	> 1000
Machining ISO 2768-m	± 1°	± 0°30'	± 0°20'	± 0°10'	± 0°5'	
Welding ISO 13920-B	± 13 mm/m				± 9 mm/m	± 6 mm/m
Bending	SEE DIN 6935					
GEOMETRICAL TOLERANCES	Machining ISO 2768-K Welding ISO 13920-F					





REV.	NAME	DATE	NAME	DATE	NAME	DATE	REVISION TEXT
	PREPARED		CHECKED		APPROVED		
0	juhsalm	16.06.2016	mikiha	16.06.2016	zakmon	17.06.2016	FOR FABRICATION
1	teocor	19.03.2019	teemat	19.03.2019	marraj	26.03.2019	HOLE ENLARGED AND LOGO ADDED

Metso:Outotec

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REPLACES

DOCUMENT TITLE
ASSEMBLY DRAWING
SLIDING PIECE
Ø88,9mm
WITH KEY GROOVE
DART VALVE

LANGUAGE	UNITS	SCALE	SIZE	SHEET OF SHEETS
EN	mm	1:3	A3	1 / 1

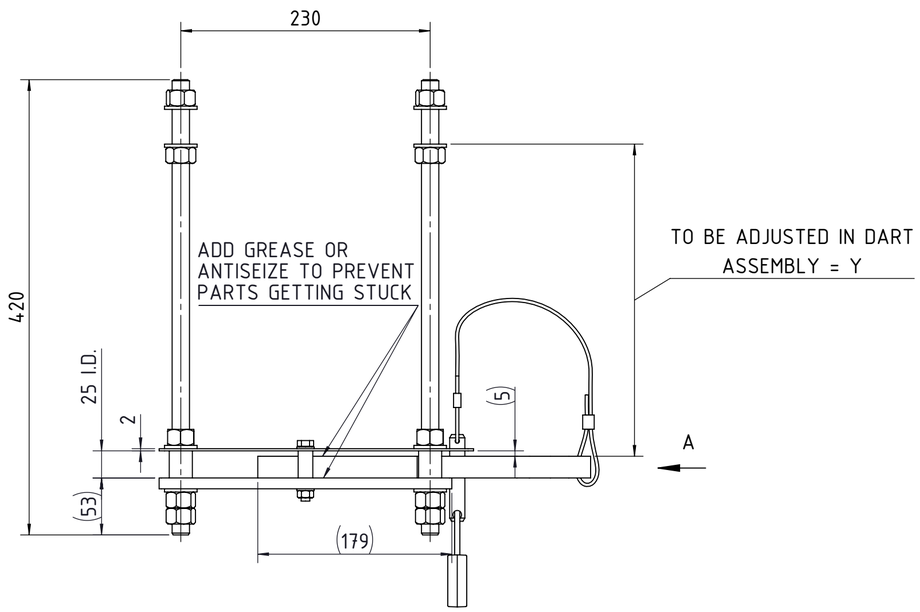
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DOCUMENT ID: OU600655032

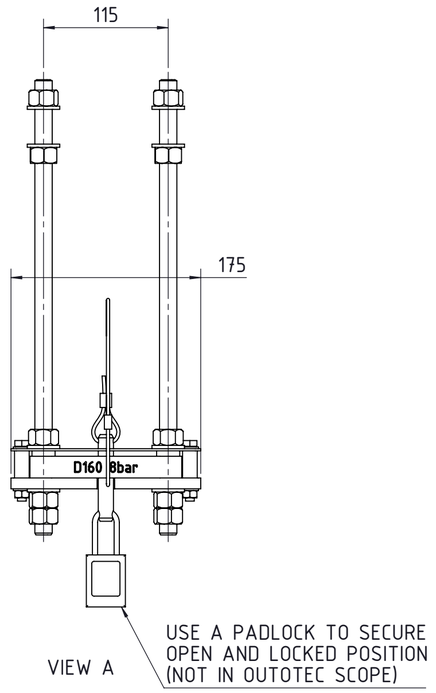
REVISION: 1

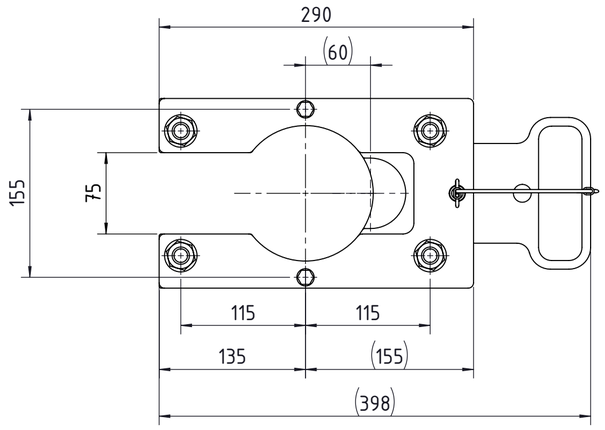
Item Number, rev.: **N031149595, 2** Item Description: **LOCKING DEVICE 115x230 D160** Related Documents: **OU601242783, 1 (Assembly Drawing)**	Weight: 10kg	Customer:

L	F/N	Reference Designator	Item Number	Description	Additional Information	BOM	Qty (unit)	Weight (kg)	Related Documents
2	01		N031149592, 2	FIXING PLATE			1 (EA)	2.2 2.2	
2	02		N031150597, 2	SLIDE ASSEMBLY			1 (EA)	3.1 3.1	
2	03		N031149594, 2	COVER PLATE			1 (EA)	0.4 0.4	
2	04		N048599101, 1	THREAD BAR 16mm			4 (EA)	0.7 2.8	
2	05		N048599102, 1	TUBE			4 (EA)		
2	06		N048599103, 1	TUBE Ø13.5x2mm			2 (EA)		
2	07		515281, 1	PLAIN WASHER M16	ISO 7089 - M16 - 200HV - tZn		16 (EA)	0.01 0.16	
2	08		N048003451, 1	HEX NUT M16	ISO 4032 - M16 - 8 tZn		20 (EA)	0.04 0.8	
2	09		N048005271, 1	PLAIN WASHER M8	ISO 7089 - M8 - 200HV - tZn		4 (EA)	0.001 0.004	
2	10		N048004359, 1	HEX HEAD SCREW M8x50mm			2 (EA)	0.03 0.06	
2	11		N048003447, 1	HEX NUT M8	ISO 4032 - M8 - 8 tZn		2 (EA)	0.01 0.02	

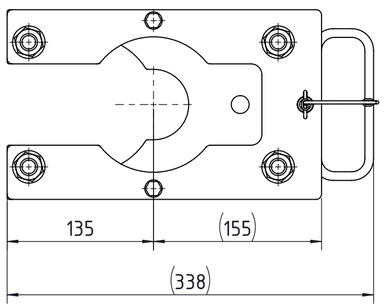


OPEN POSITION

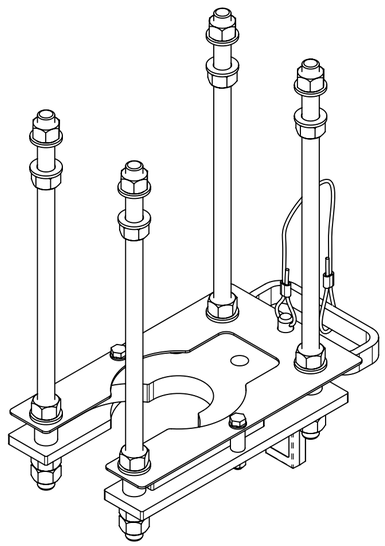




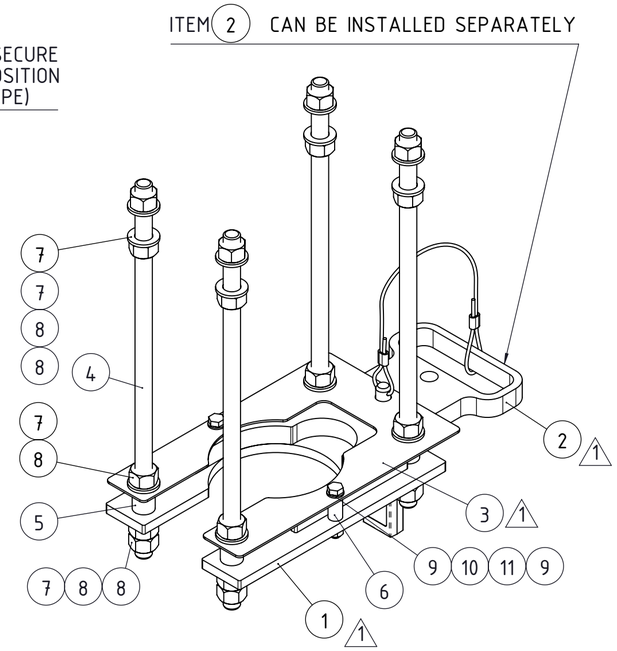
OPEN POSITION



LOCKED POSITION



LOCKED POSITION



OPEN POSITION

REV.	PREPARED NAME	PREPARED DATE	CHECKED NAME	CHECKED DATE	APPROVED NAME	APPROVED DATE	REVISION TEXT
0	teemat	03.09.2019	eritol	03.09.2019	MarRaj	04.09.2019	FOR FABRICATION
1	teemat	30.09.2019	eritol	30.09.2019	MarRaj	01.10.2019	ITEMS REVISED

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REPLACES

DOCUMENT TITLE
ASSEMBLY DRAWING
LOCKING DEVICE
115 x 230 D160
DART ASSEMBLY

LANGUAGE	UNITS	SCALE	SIZE	SHEET OF SHEETS
EN	mm	1:4	A2	1 / 1

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DOCUMENT ID OU601242783

REVISION 1