

HLK-4600

Camera Boom Arm

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Issue Date: 10th May 2005
Revision: 1



HYDRO-LEK

REMOTE HANDLING SPECIALISTS



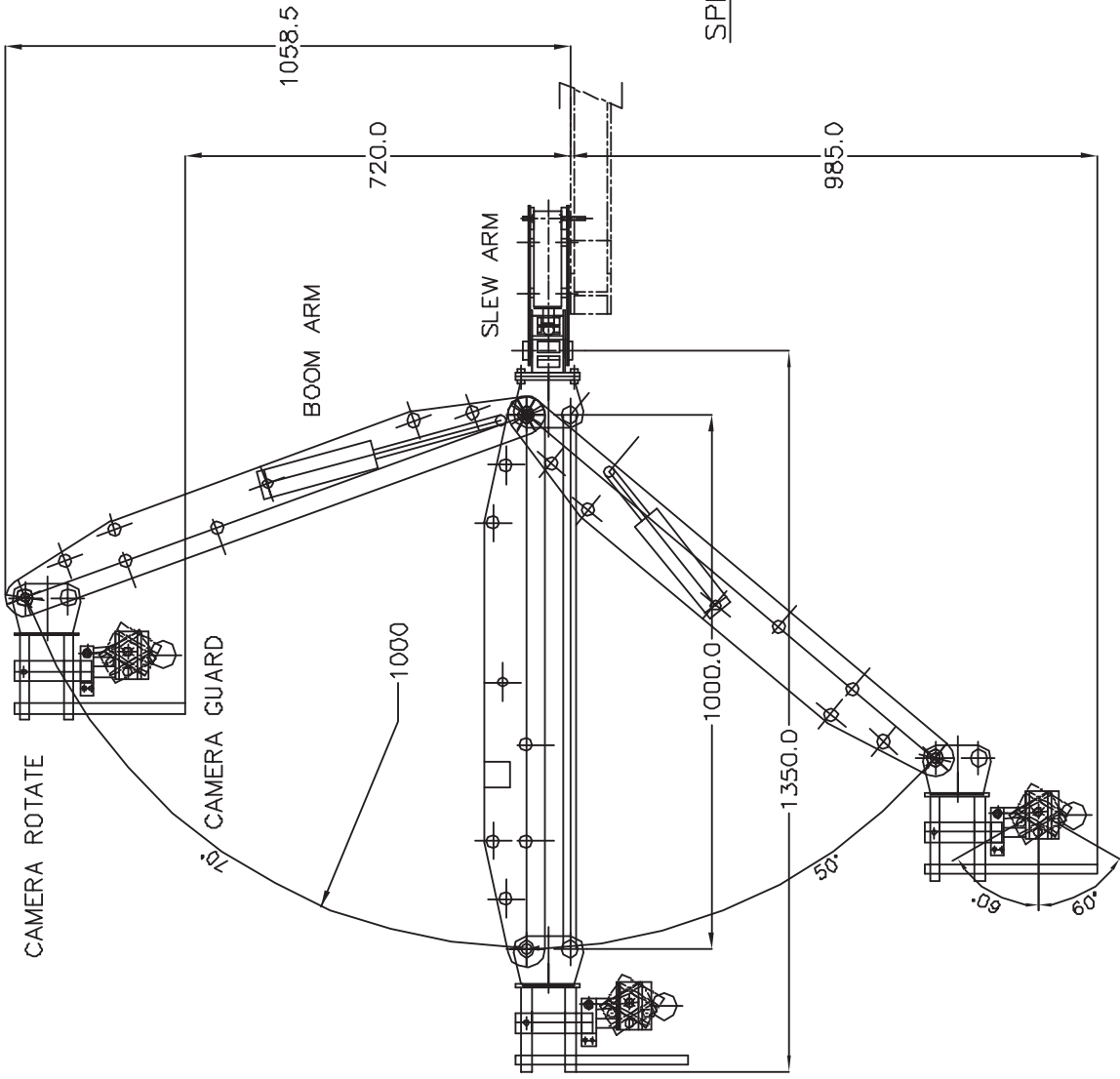
HLK-4600 Camera Boom Arm:

The HLK-4600 Camera Boom Arm has been designed for pipeline inspection work. Using a pair of these arms, pipelines of up to 36" can be easily inspected. Its unique design allows the camera mount to stay at the same angle through the entire 120° of angular movement of the arm. The camera mount can be tilted through a 120°. The arm uses Hydro-Lek's standard HLK-1300 hydraulic cylinders.

Specification:

Dimensions	Length of arm	1350 mm
	Height	310 mm
	Width	120 mm
Movement Range	Up / Down	70-0-50°
	Left / Right	90-0-30°
	Camera Tilt / Roll	60-0-60°
Weight	Weight in air	14.0 Kg
	Weight in water	9.0 Kg
Construction	316 SS	
	HE 30 Hard Anodised Aluminium	
	Polyethylene	

FOR SLEW PLATE FIXING DETAIL SEE DRG. CMR 4030

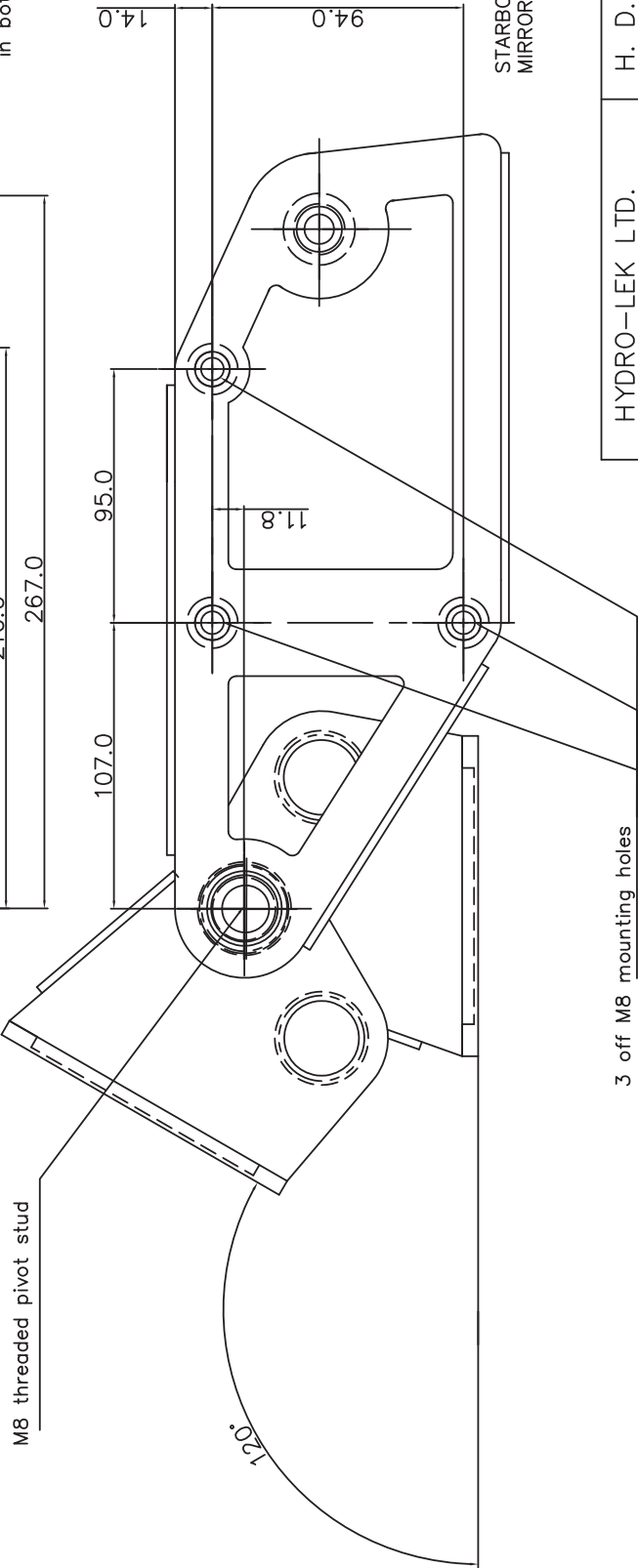
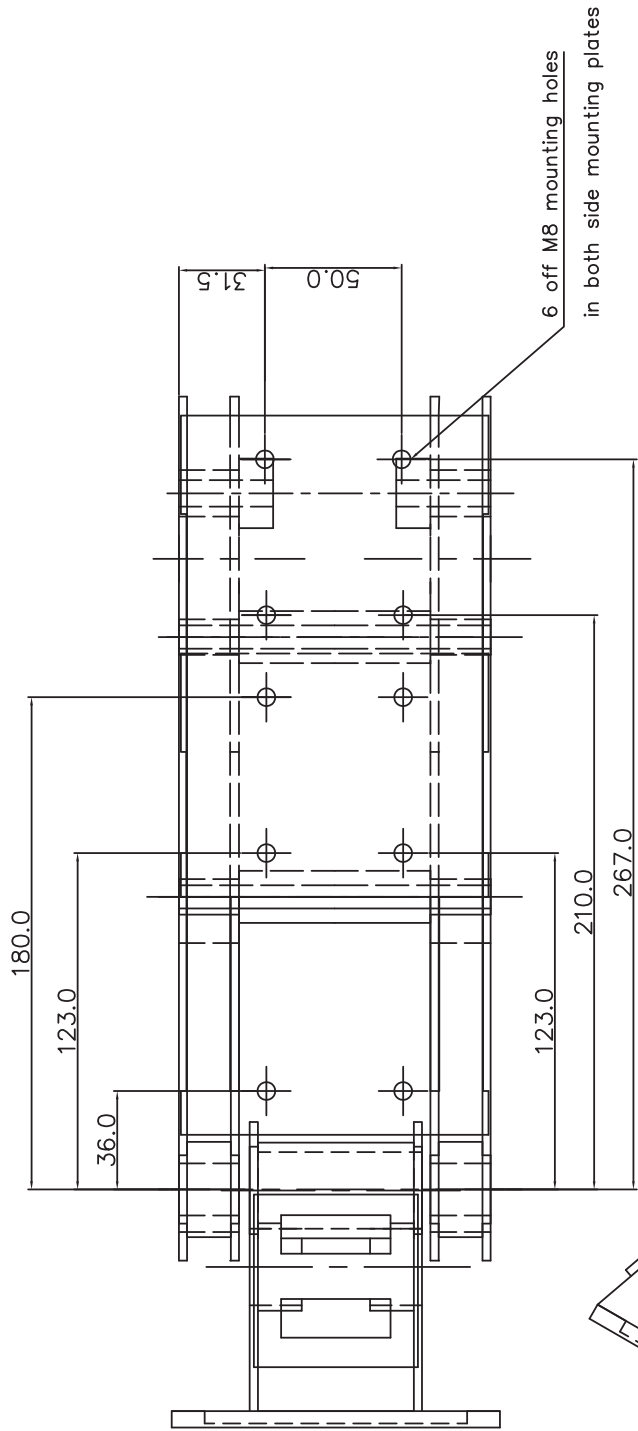


SPECIFICATION

OVERALL LENGTH 1625
 OVERALL HEIGHT 310
 OVERALL WIDTH 120
 WORKING PRESSURE 210 BAR
 WEIGHT IN AIR 21.0 KG (APPROX)
 WEIGHT IN WATER 14.0 KG (APPROX)
 MATERIALS: - HE 30 HARD ANODISED ALUMINIUM
 316 ST. STEEL
 NYLON 66
 POLYETHYLENE
 1/8" NPT / 7/16" SAE

PORTS: -

HYDRO-LEK LTD.	CAMERA BOOM
ISS. DATE: -	MAT: -
CHKD BY: -	REV. NO: - 1
DRAWN BY: -	JW 21/5/00
	DRG. NO: - CMR 4600/DATA
	C.M. INNOVATIONS LTD.



STARBOARD SIDE SHOWN
MIRROR FOR PORT SIDE

HYDRO-LEK LTD.	H. D. SLEW ASSEMBLY
ISS. DATE: --	MAT: --
CHKD BY: --	REV. NO: --
DRAWN BY: -- AG 17/7/01	DRG. NO: -- CMR 5330 ASSY
	C.M. INNOVATIONS LTD.

HLK 4600 Camera Boom Arm

Introduction

The HLK-4600 Camera Boom Arm is designed for use to inspect up to 36" diameter pipe. They are mounted either side of an ROV and can be controlled via three standard bi-directional control valves

Specification

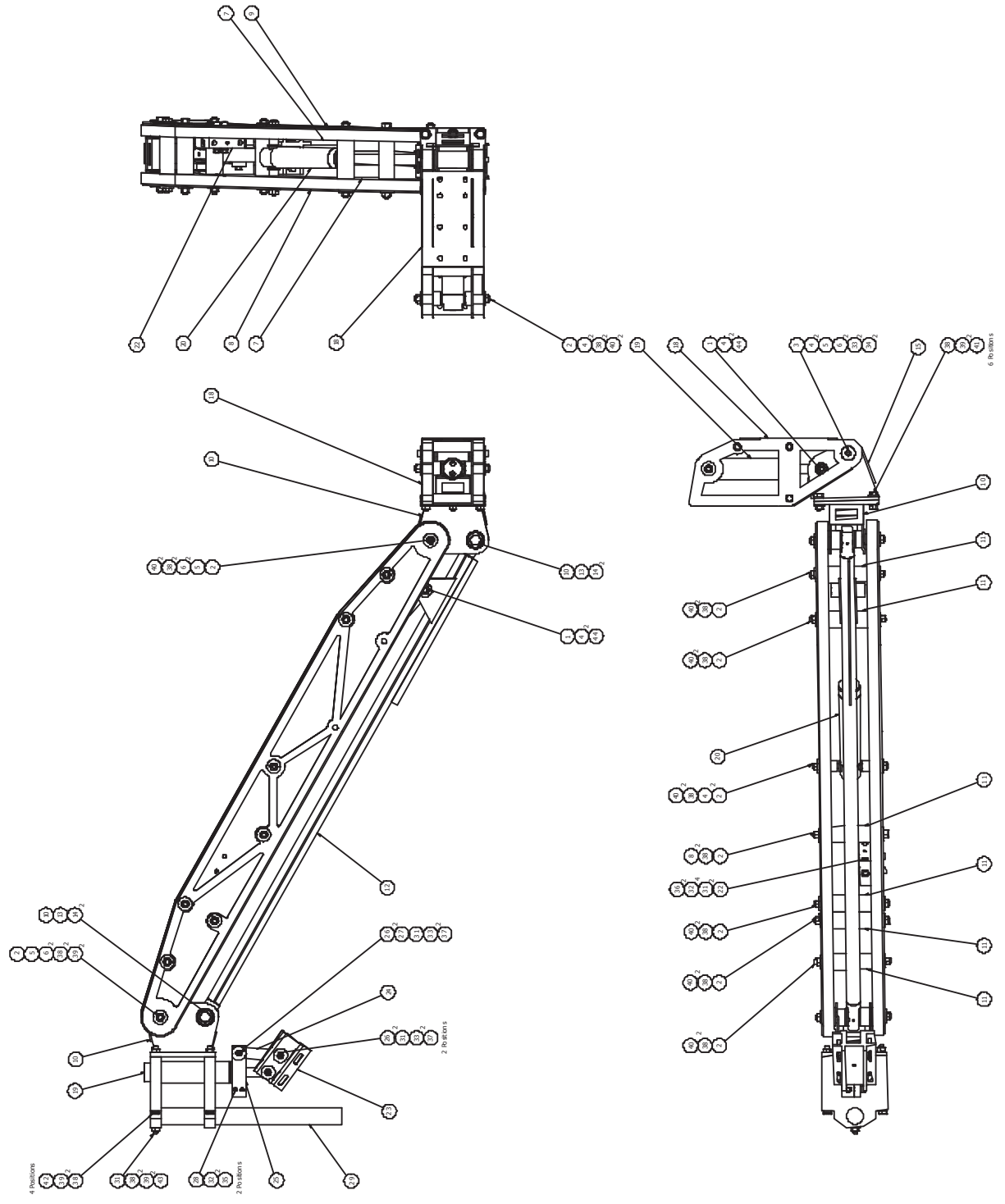
Dimensions	Length	1625 mm
	Width	310 mm
	Height	120 mm
Weight in air		14 Kg
Weight in water		9 Kg
Materials	316 Stainless Steel	
	HE 30 Anodised Aluminium	
	Nylon 66	
	Polyethylene	
Working Pressure	210 bar maximum	
Ports	1/8" BSPT and 7/16" SAE	

Installation

The HLK-4600 is mounted using M6 Screws and Nuts (supplied) - a template for hole drilling is supplied on drawing CMR 4030.

For hydraulic plumbing see hydraulic circuit connections and hydraulic fitting installation

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	018-1004	Base
2	1	018-1004	Base
3	1	018-1004	Base
4	1	018-1004	Base
5	1	018-1004	Base
6	1	018-1004	Base
7	1	018-1004	Base
8	1	018-1004	Base
9	1	018-1004	Base
10	1	018-1004	Base
11	1	018-1004	Base
12	1	018-1004	Base
13	1	018-1004	Base
14	1	018-1004	Base
15	1	018-1004	Base
16	1	018-1004	Base
17	1	018-1004	Base
18	1	018-1004	Base
19	1	018-1004	Base
20	1	018-1004	Base
21	1	018-1004	Base
22	1	018-1004	Base
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25	1	018-1004	Base
26	1	018-1004	Base
27	1	018-1004	Base
28	1	018-1004	Base
29	1	018-1004	Base
30	1	018-1004	Base
31	1	018-1004	Base
32	1	018-1004	Base
33	1	018-1004	Base
34	1	018-1004	Base
35	1	018-1004	Base
36	1	018-1004	Base
37	1	018-1004	Base
38	1	018-1004	Base
39	1	018-1004	Base
40	1	018-1004	Base
41	1	018-1004	Base
42	1	018-1004	Base
43	1	018-1004	Base
44	1	018-1004	Base



Specification & Parts Subject to Change Without Prior Notification

REV	DATE	DESCRIPTION	BY	CHKD
1	10/01/00	Initial Release		
2	10/01/00	Change Bore Assembly		

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1	10/01/00	Initial Release		
2	10/01/00	Change Bore Assembly		

Parts List for HLK-4600 Standard Camera Boom Arm

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	CMR 1701-62	Piston Eye Pin 62mm long
2	10	CMR 1704	Pivot Stud 12-114-12mm
3	1	CMR 1713-114	Pivot Shaft 114mm long
4	8	CMR 1714-21	Flange Bush (Bronze)
5	3	CMR 1715-63	Plain Bush
6	6	CMR 1717-2.5	Spacer 2.5mm long
7	2	CMR 4601	Arm Main Plate
8	1	CMR 4602 RH WA	Main Limb Weld Assembly
9	1	CMR 4602 LH WA	Main Limb Weld Assembly
10	2	CMR 4603	Parallel Plane Plate Assembly
11	6	CMR 4609	Retaining Bush
12	1	CMR 4610 WA	Lazy Arm Link Assembly
13	2	CMR 4618	Pivot shaft
14	4	CMR 4619	Bush
15	1	CMR 5322 WA	Slew Plate Assembly
16	1	CMR 4607A	Camera Mount Plate A
17	1	CMR 4607B	Camera Mount Plate B
18	1	CMR 5330	Slew assembly
19	1	HLK-1300-100-S	Cylinder Assembly 100mm Stroke
20	1	HLK-1300-135-S	Cylinder Assembly 135mm Stroke
21	1	HLK-1300-100 (60)-S	Cylinder Assembly 100 (60)mm Stroke
22	1	HLK-6000	Pilot Check Assembly
23	1	CMR 21076	Camera Mount
24	1	CMR 21093	Lazy Link Arm
25	1	CMR 21094	Camera Tilt Clamp
26	6	CMR 1714-b	Nylon Flange Bush 14mm long
27	3	CMR 2194	Bronze Bush
28	2	CMR 1705	Screw Bung
29	1	CMR 4623	Protector Rod
30	1	CMR 4625	Cylinder Bush
31	5	M6 Nut	Nyloc Nut
32	4	M6 Washer	Plain Washer Type A
33	8	M6 Washer	Plain Washer Type B
34	2	M6 x 16	Socket Cap Head Screw
35	2	M6 x 25	Socket Cap Head Screw
36	2	M6 x 50	Socket Cap Head Screw
37	3	M6 x 55	Hexagon Head Screw
38	32	M8 Nut	Nyloc Nut
39	22	M8 Washer	Plain Washer Type A
40	20	M8 Washer	Plain Washer Type B
41	6	M8 x 25	Hex Bolt
42	4	M8 x 120	Hex Bolt
43	1	M8 Studding	M8 Studding
44	2	M3 x 20 Pin	Roll Pin

HLK-1300

Hydraulic Cylinder

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Issue Date: 10th October 2000
Revision: 0



HYDRO-LEK

REMOTE HANDLING SPECIALISTS



HLK-1300 30 mm Bore Cylinder:

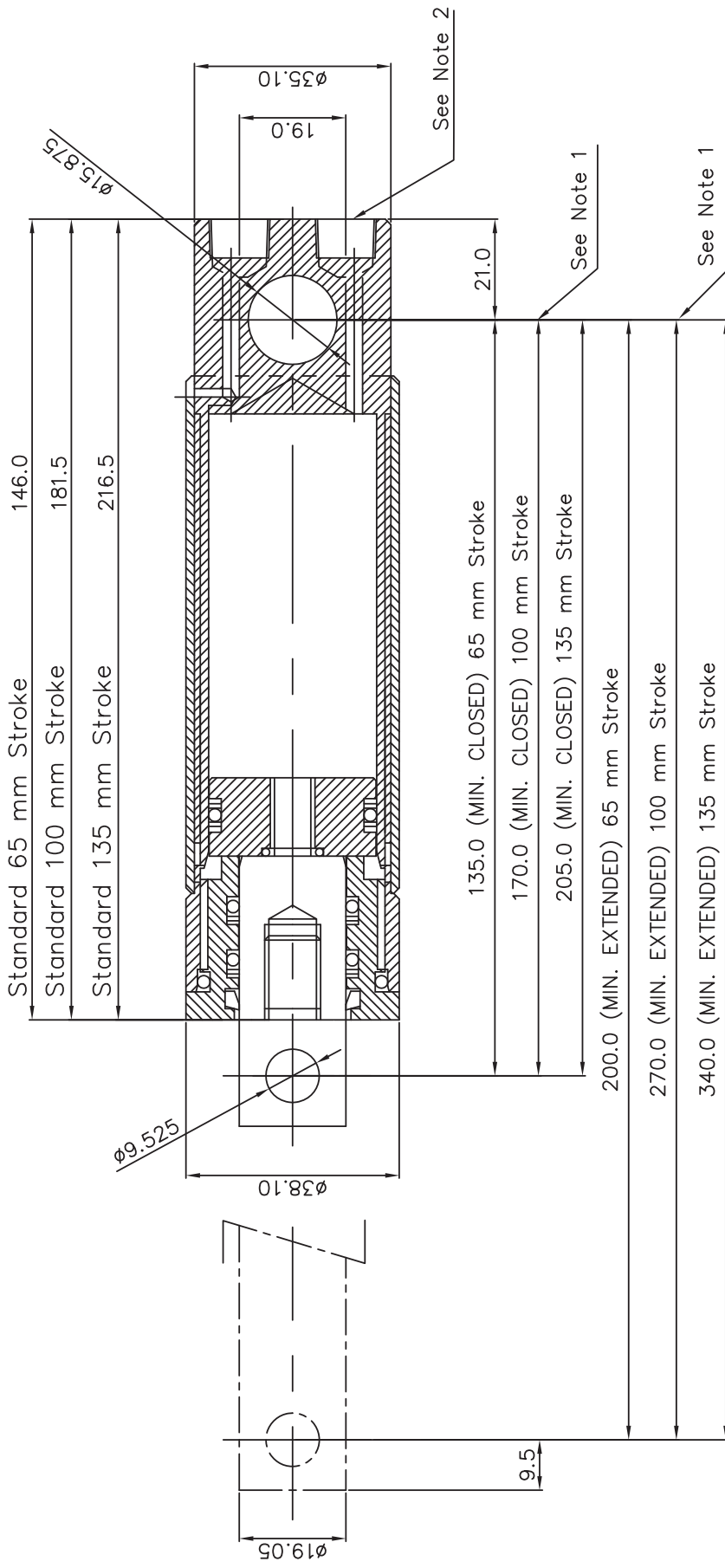
The HLK-1300 30 mm Bore Cylinders are compact devices with both extend and retract ports in the rear of the cylinder. The cylinders are machined from 316 Stainless Steel and rated at working pressures of 210 bar. Three stroke lengths are provided as standard in all Hydro-Lek manipulators, with shafts being supplied in varying lengths. Any length cylinder up to 1500mm can be supplied in this design. Pivot points are designed to accept pins of 9.525mm (0.375") dia.

Specification:

Extending force at 210 bar	1485 Kg
Retract force at 210 bar	890 Kg
Stroke length	65mm
Weight in air	950 g
Weight in water	800 g
Stroke length	100mm
Weight in air	1.1Kg
Weight in water	930 g
Stroke length	135mm
Weight in air	1.5Kg
Weight in water	1.2Kg
Standard port	1/8 NPT
Material	316 SS

PISTON ROD LENGTHS

Stroke
 65mm L reqd-135+107 = Piston Rod Length
 100mm L reqd-170+143 = Piston Rod Length
 135mm L reqd-205+178 = Piston Rod Length



NOTES :-

- 1) Minimum Distances Shown Can Be Increased To Suit Requirements
- 2) Additional 70 mm Required From This Face To Allow For Hose Bend Radius & Fittings

HYDRO-LEK LTD.	HLK-1300 30mm BORE CYLINDER
ISS. DATE: -	MAT: - STAINLESS STEEL
CHKD BY: - REV. NO: -	DRG. NO: - CMR 1300 Distances
DRAWN BY: - AG 12/7/01	C.M. INNOVATIONS LTD.

HLK-1300 30 mm Bore Hydraulic Cylinder

Disassembly Procedure

The Hydro-Lek Cylinders are constructed from stainless steel, phosphor bronze bushes and brass.

They are unique in that both flow and return are via rear entry ports making hydraulic plumbing easy in cramped areas.

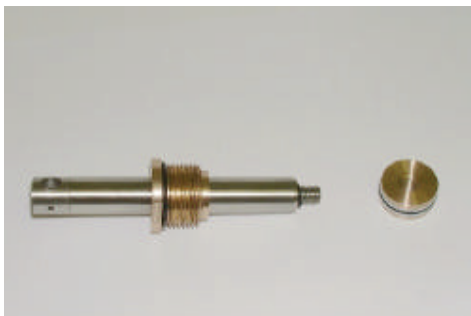
Disassembly



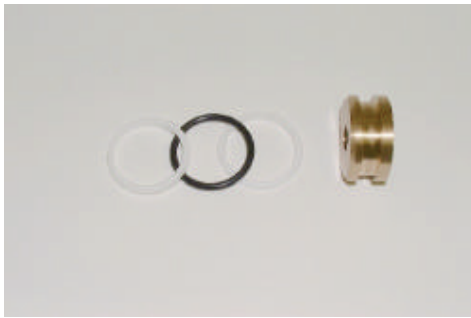
1. **Unscrew Piston Seal Nut (7) from Piston Body (11).**



2. **Pull Piston Shaft Assembly (6) from Piston Body (11)**



3. **Unscrew Piston (5) from Piston Rod (6).**



4. **Replace BS 120 O Ring (20) and BS 120 Backup Washers (26) on the Piston (5)**

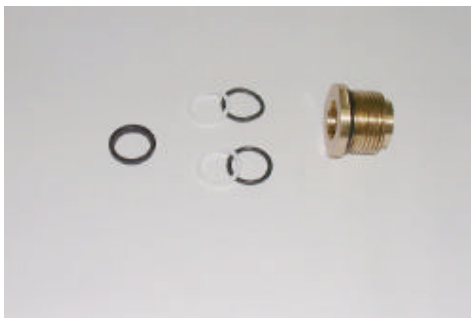


5. **Replace BS 012 O Ring (19) on thread of Piston Rod (6)**



6. **Remove Piston Seal Nut (7) from Piston Rod (6)**

Replace BS 122 O Ring (21) on outside of Piston Seal Nut (7)



7. **Replace BS 116 O Rings (22), BS 116 Backup Washers (25) and Wiper Seal (30) on inside of Piston Seal Nut (7)**

8. **Assembly is the reverse procedure of above.**

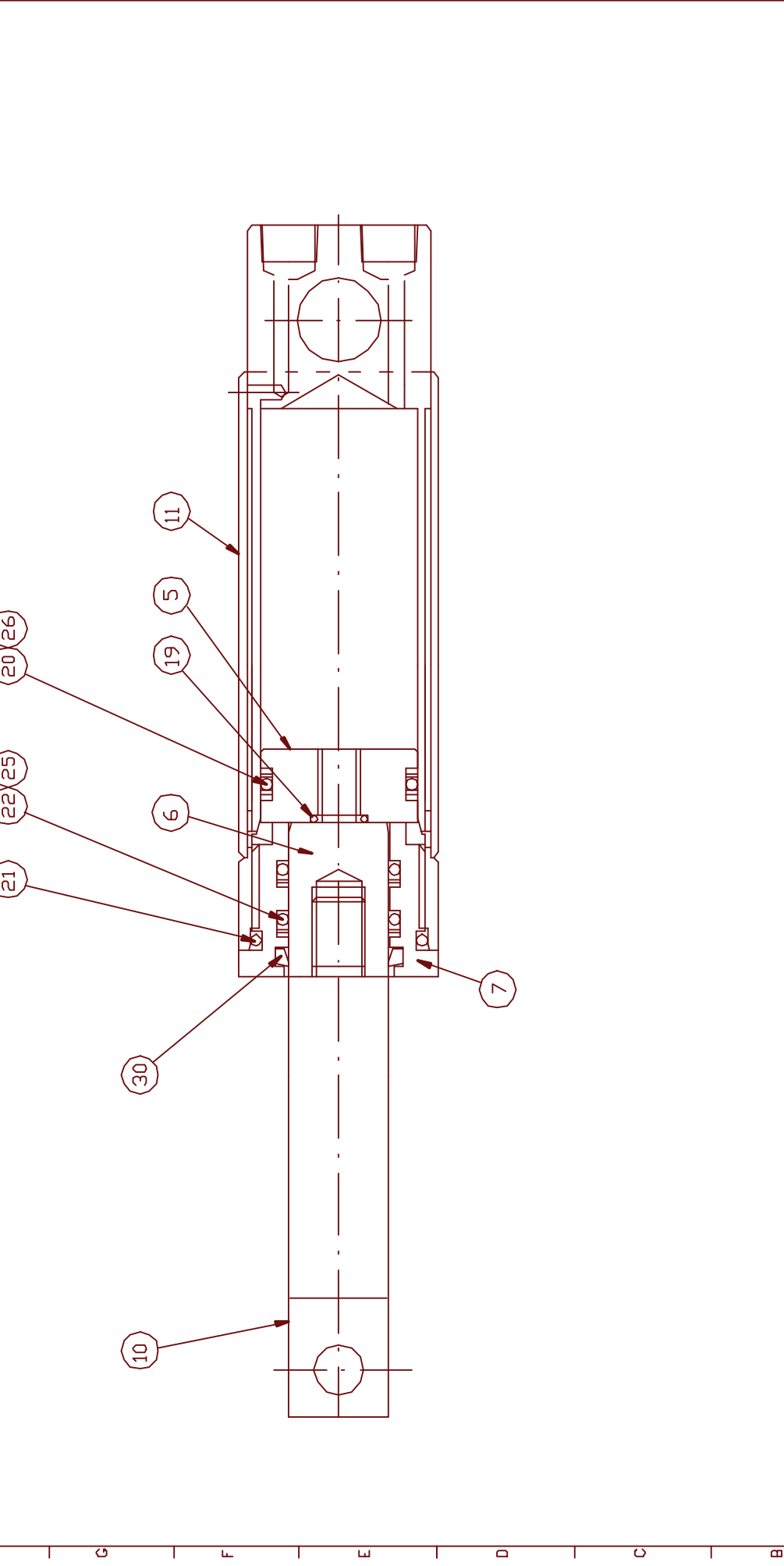
Grease all O Rings and Seals before assembly

Apply a small amount of Loctite 270 to the thread of Piston Rod (6) before re fitting Piston (5)

DIMENSIONS IN mm 1 2 3 4 5 6 7 8 9 10 11 12 DO NOT SCALE

REMOVE ALL BURRS AND SHARP EDGES

IN 2 POS'NS



TOLERANCES		SCALE 1:1		DRAWN B.K.	
ANGLES $\pm 0.5^\circ$		APPD		DATE 18/9/00	
X ± 0.4		MATERIAL VARIES		TITLE $\phi 80$ SS CYLINDER ASSEMBLY	
X.X ± 0.2		FINISH		DRG No CMR 1300	
X.XX ± 0.1		UNLESS OTHERWISE STATED		ISS A	
0.05					
HYDRO-LEK					
Hydro-Lek Ltd, Unit 3-5, Marina Way, Hogwood Lane Ind. Est. Finchampstead, Berkshire, England. RG40 4RF					
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NEW DRAWING.		MODIFICATION RECORD			
ISSUE	DATE	DESCRIPTION.			
A					

HLK-1300

30 mm Bore Cylinder

Parts List

Spares List

Item	DRG No.	Description	QTY	Seal
5	1303	Piston	1	
6	1304-L	Piston Shaft	1	
7	1305	Cylinder Seal Nut	1	
10	1075	Piston Rod Eye	1	
11	1307	Cylinder Body Assembly	1	
19		O Ring BS 012	1	1
20		O Ring BS 120	1	1
21		O Ring BS 122	1	1
22		O Ring BS 116	2	2
25		Backup Washer BS 116	2	2
26		Backup Washer BS 120	2	2
30		Wiper Seal 218 105 4490	1	1