



Hydro-Lek Ltd

Hydraulic Cylinders & Fittings



2011

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Hydro-Lek – The Company

Hydro-Lek is a leading supplier of remote handling systems for the subsea, nuclear and defence industries. Products range from simple hydraulic components to fully integrated telemetry-controlled remote manipulator systems for integration onto ROVs and remote access platforms. The company employs a dedicated team of design engineers to provide a specialist turnkey project engineering and build service from its facilities in Berkshire England.

Hydraulic Cylinders

Hydro-Lek design and manufacture a range of versatile hydraulic cylinders which by virtue of their high performance, lightweight and excellent resistance to corrosion makes them ideally suited for the subsea and offshore industry. In addition these cylinders are used in defence and nuclear applications.

Hydro-Lek cylinders are available at standard specification or as special bespoke cylinders engineered to our customers' own specification. Hydro-Lek carry significant stock levels of standard cylinders which ensure a fast and efficient delivery to our customers.

We design and manufacture a wide range of cylinders with bore sizes from 10mm to 45mm and stroke lengths from 10mm to 1500mm.

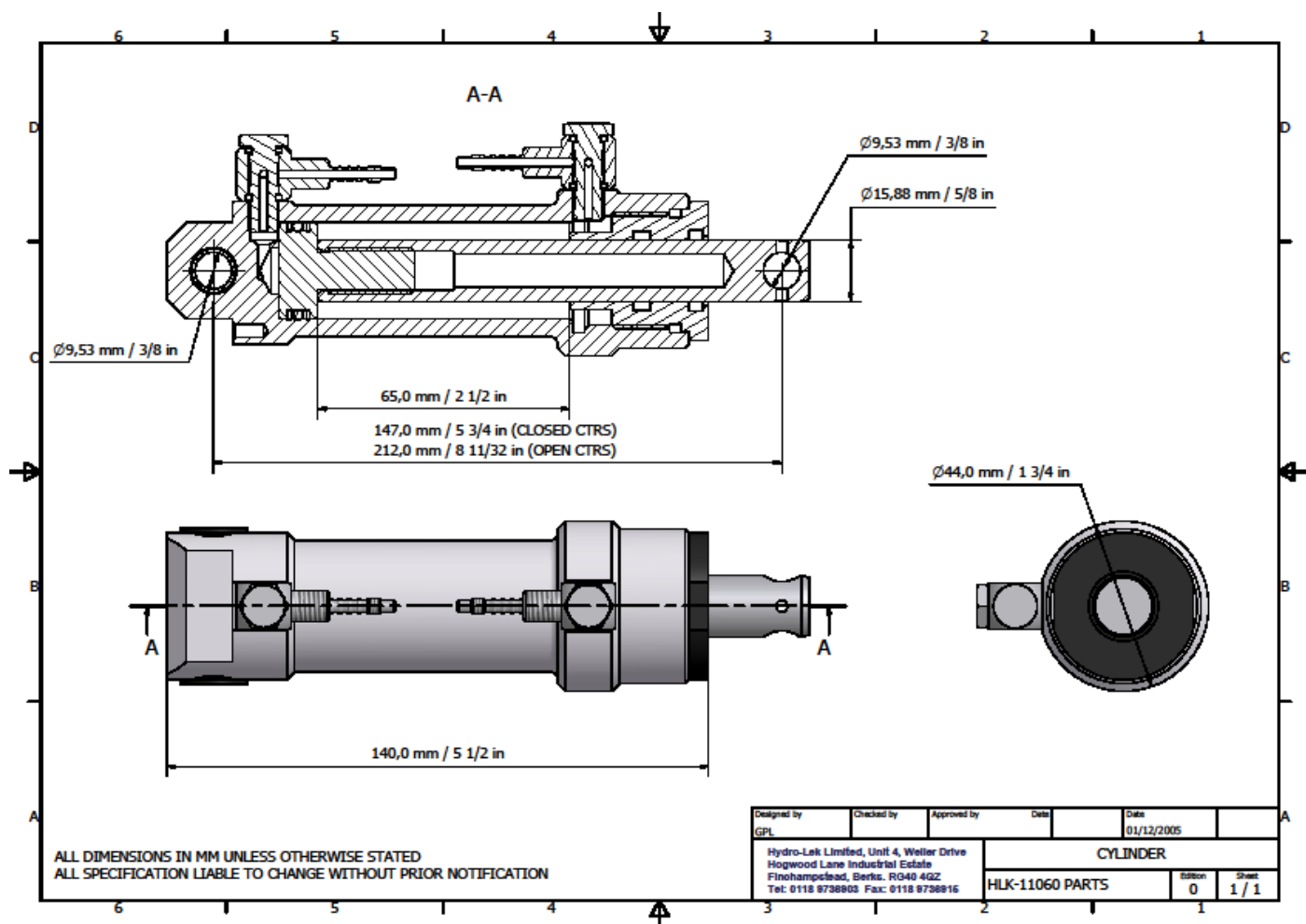
All Hydro-Lek products are rated at working pressures up to 210 bar.



HLK 11060 Series 25mm Bore Cylinders



- Compact, lightweight 25 mm bore actuators
- Extend and retract ports positioned at side of cylinder
- Use compact banjo fittings to minimize installation area
- Two standard stroke lengths - 65mm & 100mm. Additional lengths available
- Pivot point in rear designed to accept IGUS® for maximum underwater friction reduction
- Bushes take pins of 3/8" (9.525 mm) diameter
- Various mounting options available



Specification:

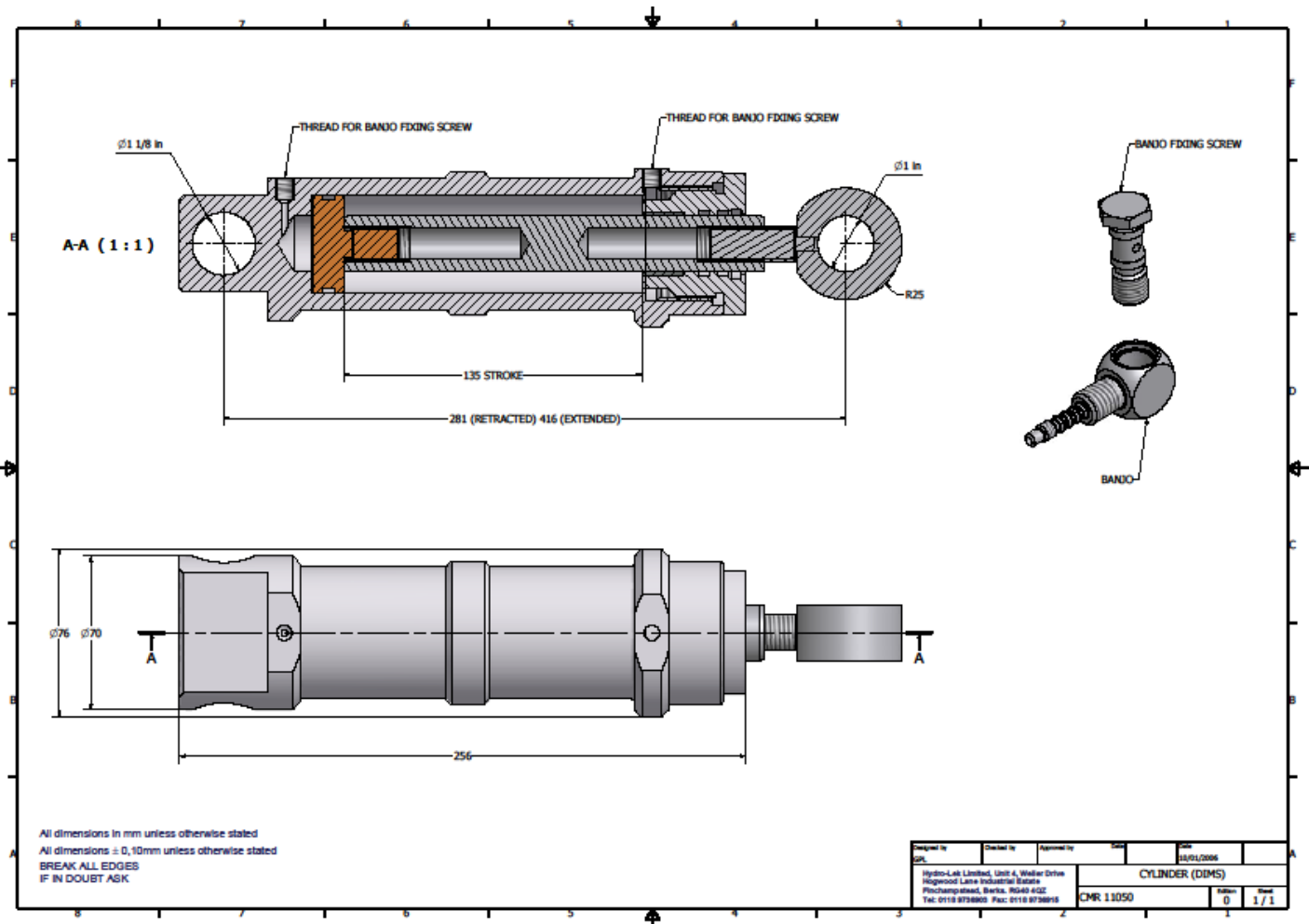
Cylinder Construction	6082 T6 Aluminium
Piston rod	316 Stainless Steel
Extend force at 210 bar	1050 kg
Retract force at 210 bar	650 kg
Standard Stroke length	65 mm & 100 mm
Weight In air	0.50 kg
In Water	0.30 kg
Temperature range	-40°C to +80°C
Face/Nose Mount Adapters	316 Stainless Steel
Hydraulic Ports	Hydro-Lek Mini Banjo Fitting or 1/8 NPT adaptor



HLK 11050 Series 45mm **Bore Cylinder**



- Compact, lightweight 45 mm bore actuators
- Rated at working pressure of 210 bar
- Extend and retract ports positioned at side of cylinder
- Use compact banjo fittings to minimize installation area
- Standard 135 mm stroke length with additional lengths available on request
- Pivot points in rear designed to accept IGUS® for maximum underwater friction reduction
- Bushes take pins of 1" (25.4 mm) diameter



Specification:

Cylinder Construction	6082 T6 Aluminium
Piston rod	316 Stainless Steel & HE30 Aluminium
Extend force at 210 bar	3000 kg
Retract force at 210 bar	2000 kg
Standard Stroke length	135 mm
Weight	
In air	2.5 kg
In Water	1.5 kg
Temperature range	-40°C to +80°C
Face/Nose Mount Adapters	316 Stainless Steel
Hydraulic Parts	Hydro-Lek Mini Banjo Fitting or 1/8 NPT adaptor

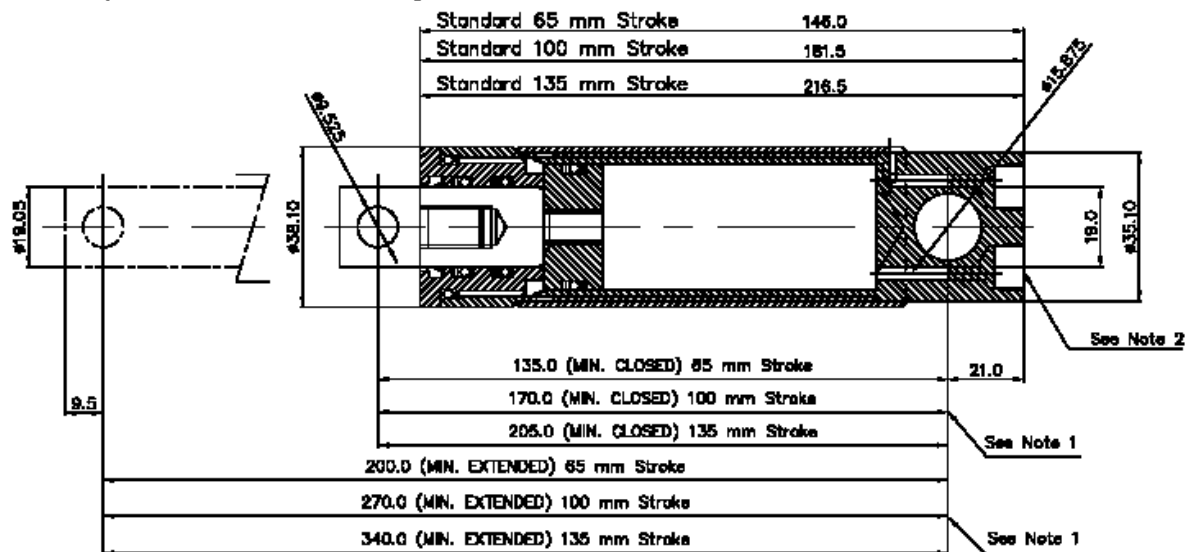


HLK-1300 Series **30mm Bore Cylinder**



- Compact, lightweight 30mm bore actuator
- Highly corrosion resistant
- Extend and retract ports positioned at the rear of cylinder
- Three standard stroke lengths - 65mm, 100mm, 135mm
- Any length cylinder can be provided
- Pivot points in rear designed to accept Hydro-Lek bronze bushes
- Bushes take pins of 0.375" (9.525 mm) diameter
- Various mounting options available

PISTON ROD LENGTHS
 Stroke Closed Centre Distance
 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	G.M. INNOVATIONS LTD.

Specification:

Cylinder Construction	316 Stainless Steel
Piston rod	316 Stainless Steel
Extend force at 210 bar	1485 kg
Retract force at 210 bar	890 kg
Standard Stroke length	65mm 100mm 135mm
Weight In air	65mm Stroke: 950g
	100mm: 1.1 kg
	135mm: 1.5 kg
In Water	65mm Stroke: 800g
	100mm: 930g
	135mm: 1.2 kg
Temperature range	-40°C to +80°C
Face/Nose Mount Adapters	316 Stainless Steel
Hydraulic Ports	Hydro-Lek Mini Banjo Fitting or 1/8 NPT adaptor

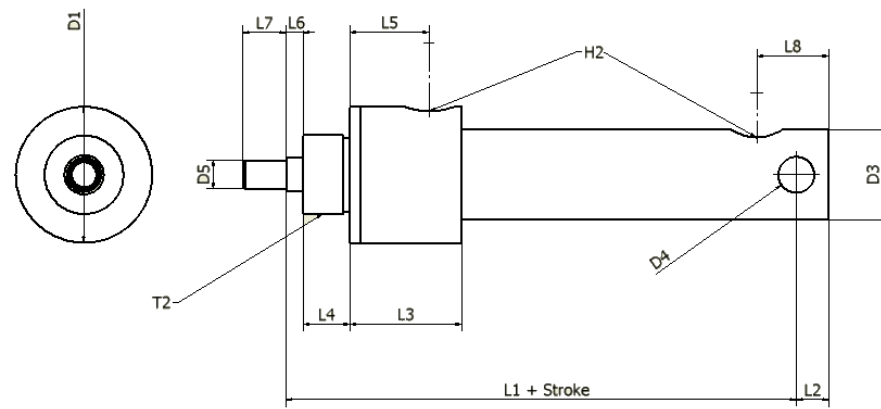


HLK 14000 Series **Industry Standard Cylinders**

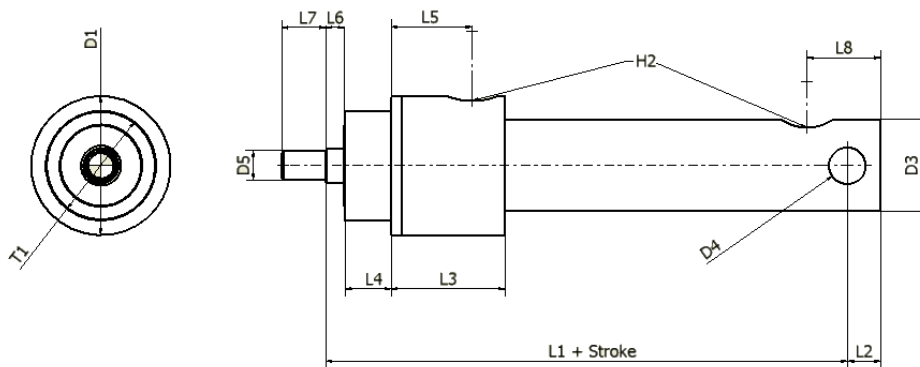


- Highly versatile, hard anodised aluminium cylinders
- Lightweight and highly corrosion resistant
- Range of mounting adaptors
- Interchangeable with industry standard components
- Alternative hydraulic connection adaptors available
- Available in 10mm, 16mm, 20mm & 25mm bore diameters

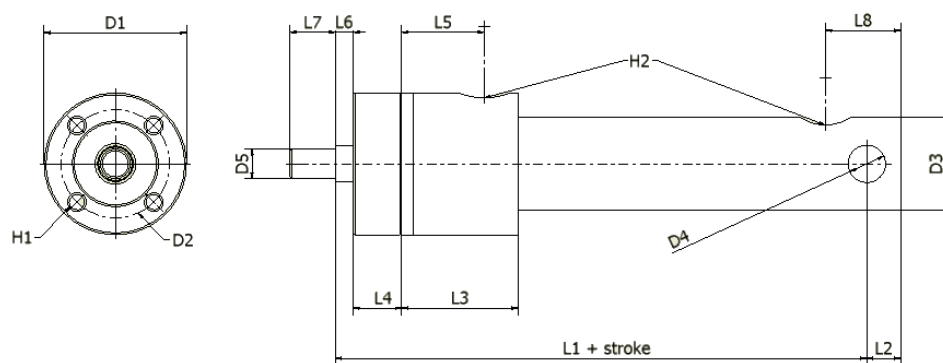
Rear Eye Mount



Nose thread Mount



Rear Eye Mount



Cylinder	Rod	Bore	D1	D2	D3	D4	D5	L1	L2	L3	L4	L5	L6	L7	L8	H1	H2	T1	T2
14 – 10	6	10	32	24	20	5	M5x0.8	68	6	30	10	20	6	8	16	M4x0.7	M8x1.0	M22x1.5	M18x1.0
14 – 16	9.5	16	38	29	25	8	M8x1.25	85	8	31	13	21	8	12	20	M5x0.8	M8x1.0	M30x1.5	M22x2.5
14 – 20	12.7	20	44	34	32	10	M10 x1.5	97	9	38	16	26	10	18	22	M6x1.0	M8x1.0	M36x2.0	M24x2.0
14 – 25	15.9	25	50	40	38	12	M12x1.75	107	12	40	20	26	13	22	25	M6x1.0	M8x1.0	M42x2.0	M30x2.0

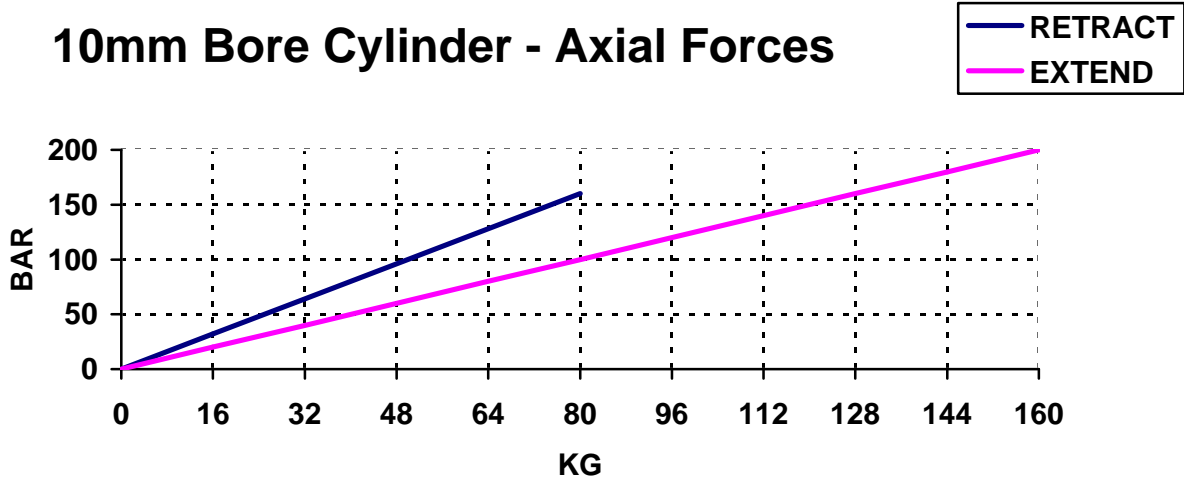
(All measurements in millimetres)

Specification:

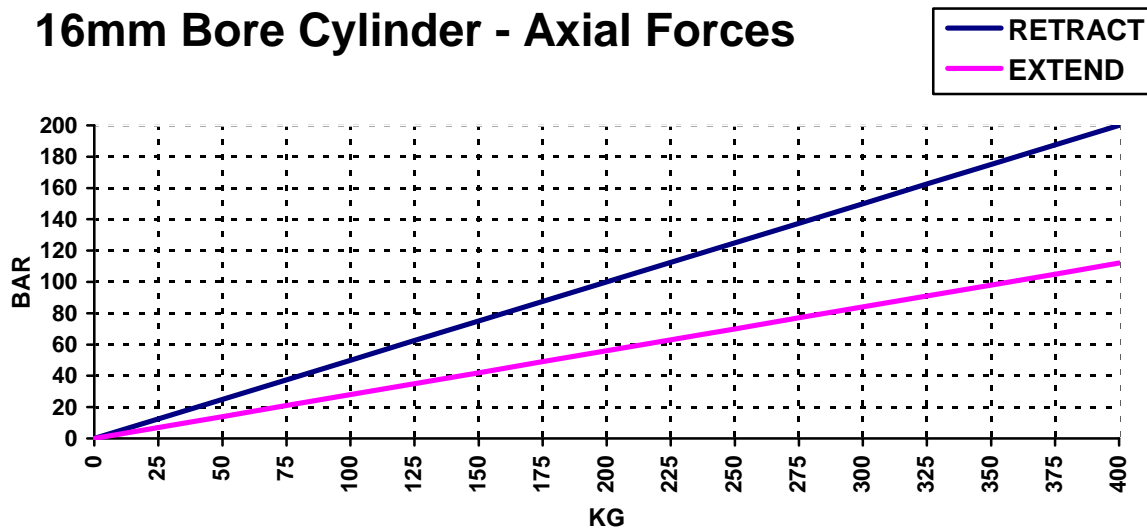
Cylinder Construction	ISO6082 Hard Anodised Aluminium
Piston rod	316 Stainless Steel
Working Pressure	210 bar max
Temperature range	-40°C to +80°C
Face/Nose Mount Adapters	316 Stainless Steel
Hydraulic Ports	M8 x 1.0 pitch to suit Hydro-Lek banjo fittings or 1/8 NPT adapter

Calculating Axial Forces

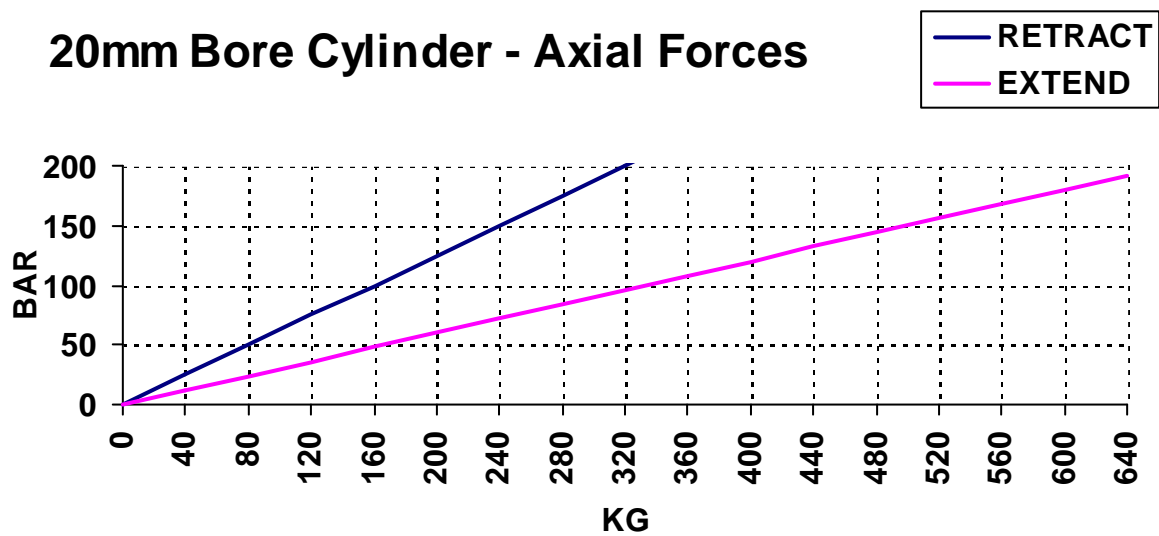
10mm Bore Cylinder - Axial Forces



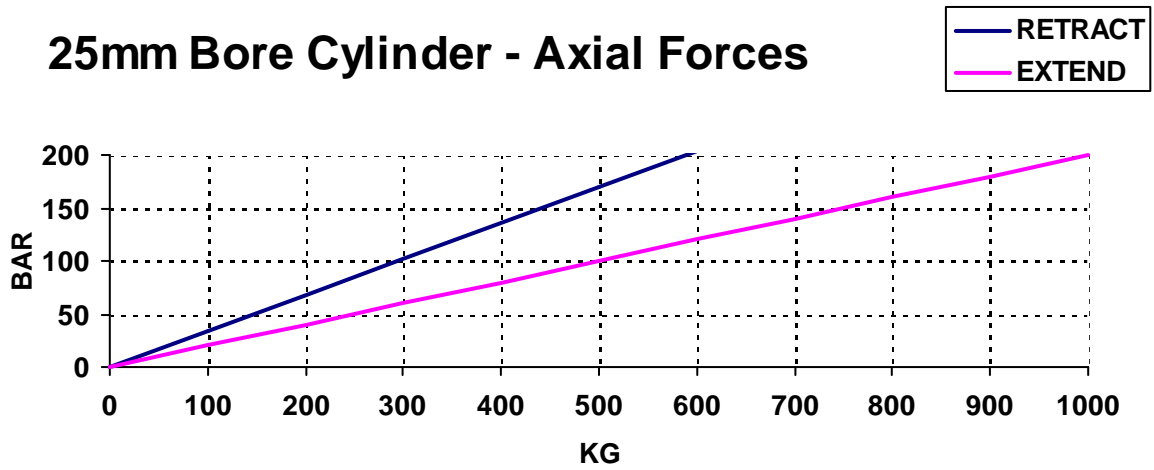
16mm Bore Cylinder - Axial Forces



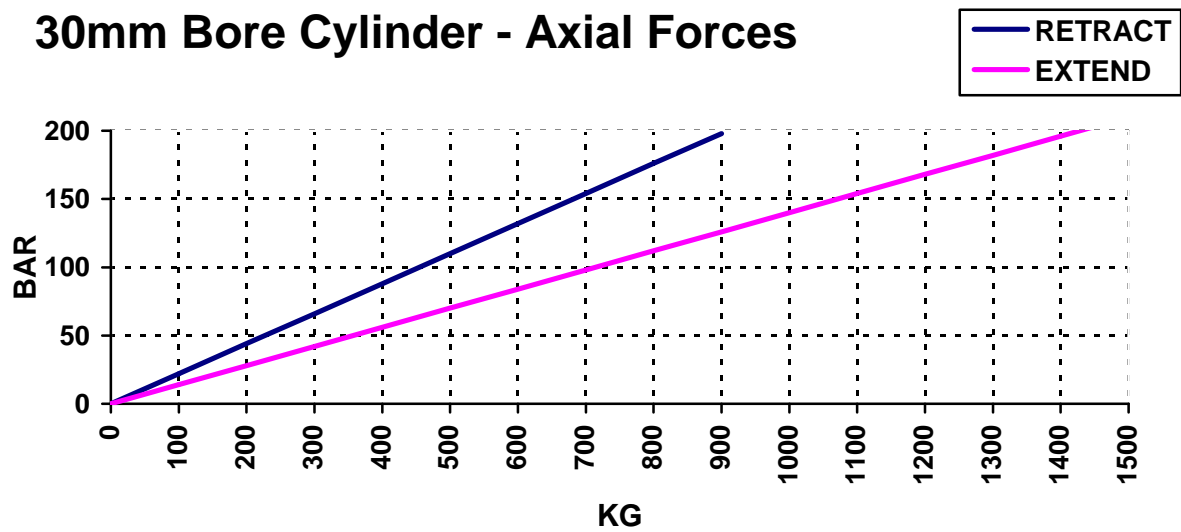
20mm Bore Cylinder - Axial Forces



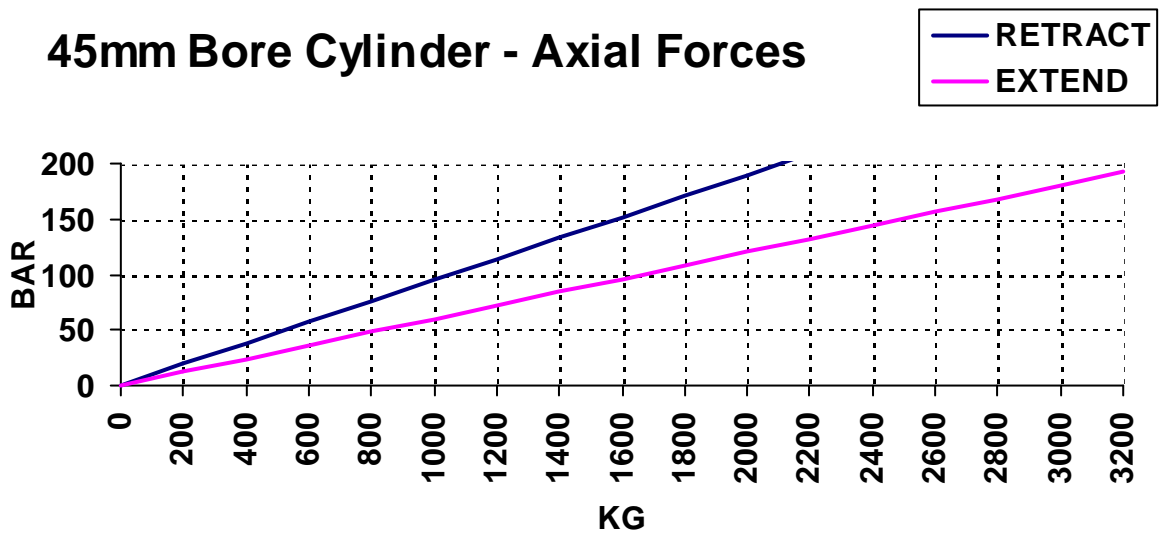
25mm Bore Cylinder - Axial Forces



30mm Bore Cylinder - Axial Forces



45mm Bore Cylinder - Axial Forces





Self-Assembly Swageable Fittings



Hydro-Lek also manufactures a wide range of fittings and components for self assembly. These include thread sizes of 1/4 BSP, 1/8 NPT, No 4JIC, Swagelok compatible and Hydro-Lek compact 8mm banjos.

The self-assembly swageable fittings have been developed in conjunction with HYDRO-LEK 2, 3 & 4 mm bore hose. By following the simple step by step guide, high-pressure hose assemblies can be made up offshore using our hand Swage tool. This quick and simple procedure also produces hose ends which are lighter and compact enabling tight bend radii to be achieved, yet fully functional at 210 bar.



Small Bore Hydraulic Hose Assemblies



To Order Request as below:






Hose Diameter / Hose End 1 / Overall Hose Length / Hose End 2

2mm

3mm

Length in Meters

(eq: 550mm = 0.55)

Hose Ends Available		
	Hose Assembly Order Ref Code	Description
	A	Hydro-Lek 1/4 BSP - 90° Cone (Female End)
	B	1/4 BSP 60° Cone (Female End)
	C	1/4 JIC -4 (Female End)
	D	1/8 NPT (Male End)
	E	1/4 Spigot Male (Swagelok & Parker Compatible)
	F	90° Compact Banjo (with M8 x 1 Stem Thread)

Please note that all hose assemblies are uniquely coded for total traceability and ease of replacement.

Swageable Hose Inserts		
Hose Bore Size	Part Number	Description
2mm	CMR-17016	1/4 BSPP (90° Cone)
	CMR-17012	1/4 BSPP (60° Cone)
	CMR-17010	7/16 JIC (-4)
	CMR-17011	1/4 Spigot Male (Swagelok & Parker Compatible)
	CMR-17020	Banjo Fitting
3mm	CMR-1751	1/4 BSPP (90° Cone)
	CMR-17018	1/4 BSPP (60° Cone)
	CMR-17015	7/16 JIC (-4)
	CMR-17014	1/4 Spigot Male (Swagelok & Parker Compatible)
	CMR-17019	1/8 NPT (Male)
	CMR-17008	Banjo Fitting
4mm	CMR-17032	1/4 BSPP (90° Cone)
	CMR-17037	1/4 BSPP (60° Cone)
	CMR-17039	Banjo Fitting

Swageable Hose Nuts		
Hose Bore Size	Part Number	Description
2, 3 & 4mm	CMR-1758	1/4 BSPP
2 & 3mm	CMR-17013	7/16 JIC (-4)

Banjo Bolt		
Hose Bore Size	Part Number	Description
2, 3 & 4mm	CMR-17007	Banjo Bolt M8-1 (Including O-Rings)

Swageable Ferrule		
Hose Bore Size	Part Number	Description
2mm	CMR-17009	2mm Swagable Fitting
3mm	CMR-17003	3mm Swagable Fitting
4mm	CMR-17038	4mm Swagable Fitting



MALE / MALE ADAPTORS

Part Number	Description
CMR-1850	1/4 BSPP (60° Cone) x 1/4 BSPP (60° Cone)
CMR-1851	1/4 BSPP (60° Cone) x 1/4 BSPP (90° Cone)
CMR-1852	3/8 BSPP (60° Cone) x 1/4 BSPP (60° Cone)
CMR-1853	3/8 BSPP (60° Cone) x 1/4 BSPP (90° Cone)
CMR-1862	1/4 BSPP (60° Cone) x M8-1
CMR-1754	7/16 x 20 UNF (SAE -4) x 1/4 BSPP (90° Cone)
CMR-1755	1/8 NPT x 1/4 BSPP (90° Cone)
CMR-1794	7/16 x 20 UNF (SAE -4) x 7/16 JIC (-4)
CMR-1795	1/8 NPT x 7/16 JIC (-4)



MALE / FEMALE ADAPTORS

Part Number	Description
CMR-1856	1/4 BSPP (60° Cone) x M8 x 1



Blanking Caps & Plugs

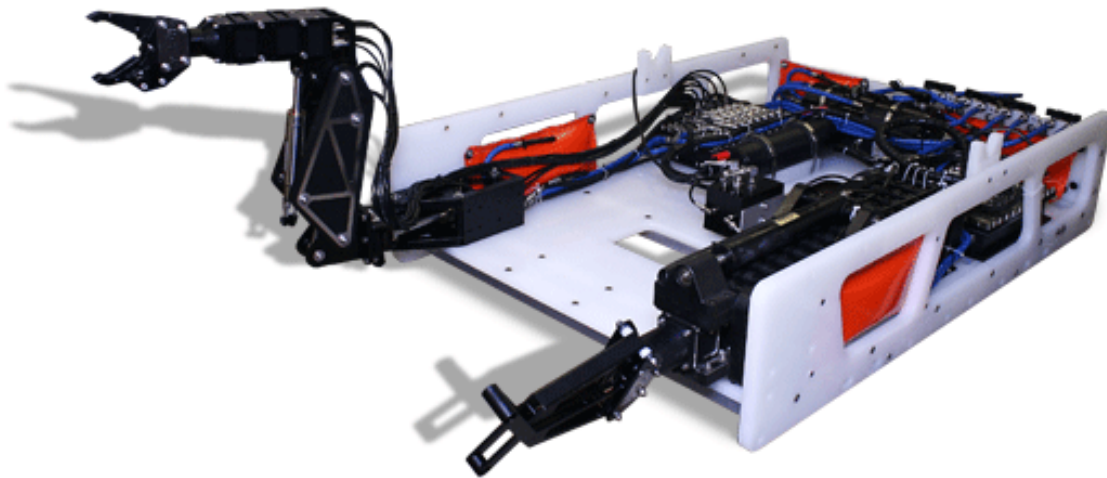
Part Number	Description
CMR-1761	1/4 BSPP (90° Cone) Blanking Plug
CMR-1855	1/4 BSPP (60° Cone) Blanking Plug
CMR-1854	7/16 JIC (-4) Blanking Plug
CMR-1759*	1/4 BSPP (90° Cone) Blanking Cap Cone*
CMR-1857*	1/4 BSPP (60° Cone) Blanking Cap Cone*
CMR-1854*	7/16 JIC (-4) Blanking Cap Cone*
CMR-1758	1/4 BSP Blanking Cap Nut
CMR-17013	7/16 JIC (-4) Blanking Cap Nut

* Requires the Mating Blanking Cap Nut

This is the basic range to suit our small bore hydraulic hose assemblies. Other sizes are available on request.



Empowering the small ROV



- *Manipulators*
- *Power packs*
- *Valve packs*
- *Tool skids*
- *Water Jetters*
- *Cylinders*
- *Cutters*
- *Fittings*
- *Hoses*
- *Telemetry systems*
- *Pan & Tilts*
- *Pilot Check Valves*
- *Camera Rotators*

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CYLINDER ENQUIRY FORM

Company Name:	Contact Name:
Address:	Phone No:
	Fax No:
	Email:

CYLINDER DETAILS	
Preferred Cylinder Series:	Quantity:
Bore:	Stroke:
Body Mounting:	Rod Mounting:
Open Centers:	Closed Centers:

SYSTEM DETAILS	
Load to Push:	Load to Pull:
Side Loads:	Load Guides:
WorkCycle: Times per Hour/Day/Wk	Clearance Restrictions:
Speed:	System Pressure (Bar):

ADDITIONAL INFORMATION
What does the cylinder do:
Special Notes:

Other subsea tooling products available from Hydro-Lek



Hydraulic Cylinders



Pan & Tilts



Sub Sea Hydraulic Valve Packs



Sub Sea Water Jet



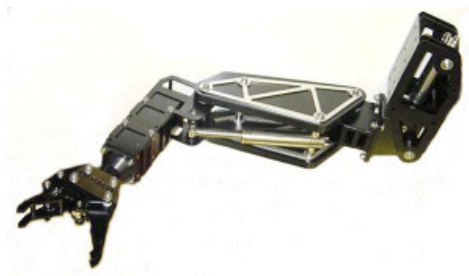
Sub Sea Hydraulic Rotary Cutter



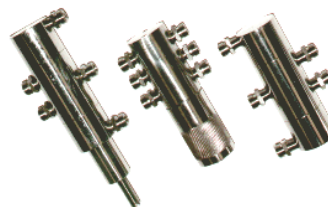
Sub Sea Hydraulic Anvil Cutters



Sub Sea Hydraulic Power Packs



Manipulator Arms



Control Valves

Visit Our Website for further information – <http://www.hydro-lek.com>

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