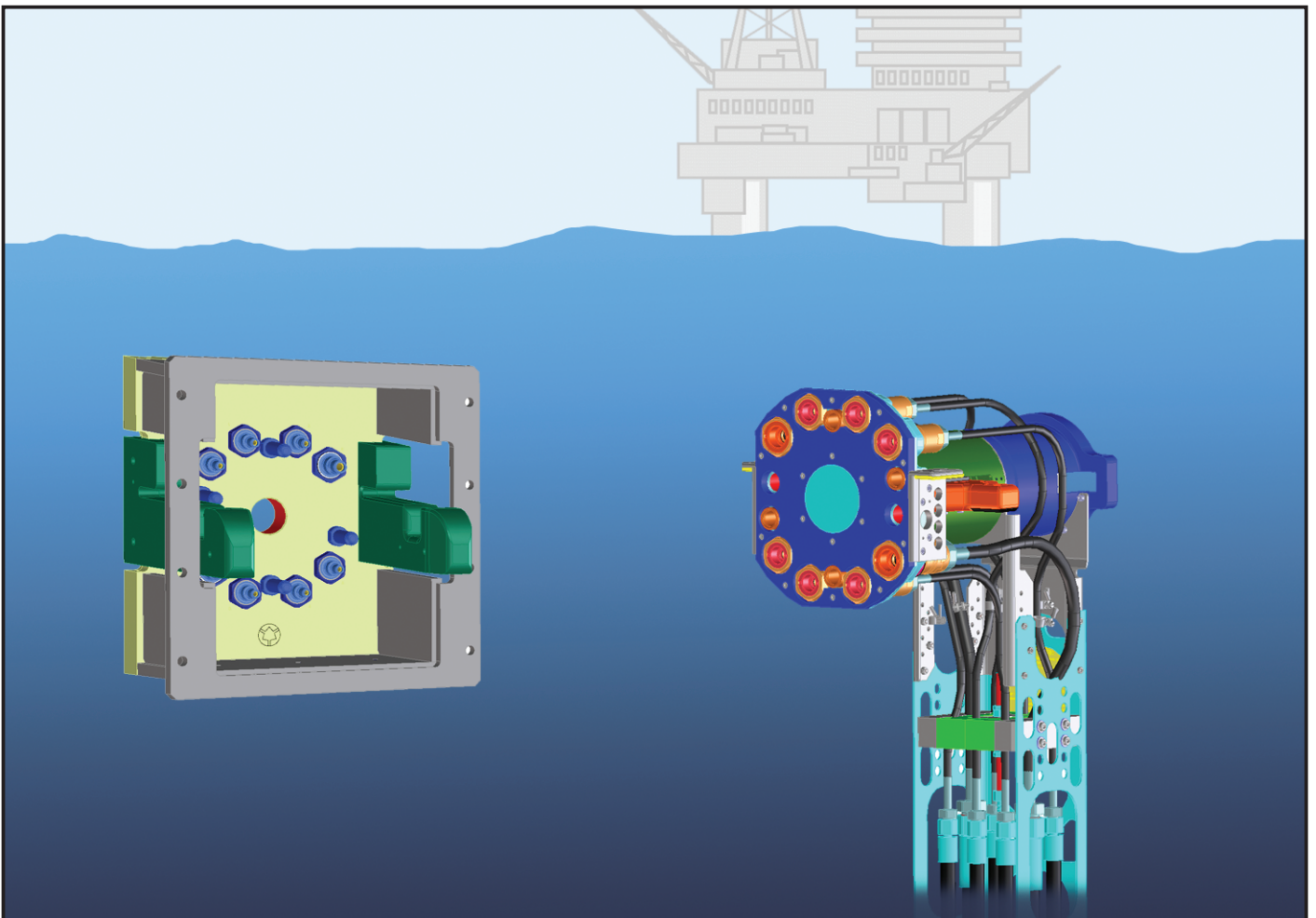
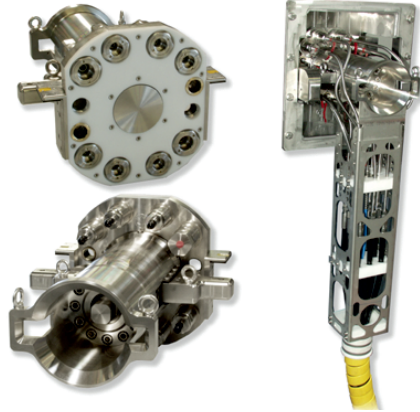


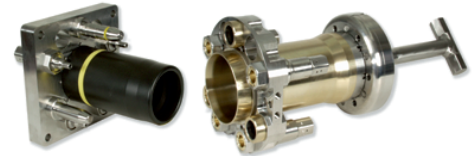
# Subsea Technology HFL Systems



The design of the HFL (Hydraulic flying leads) are based on three requirements: proven technology, reliability and easy handling. Compared with other existing solutions, our systems are easier and quicker to operate. The modularity of our solution allows a multitude of layouts and populations without compromising the proven technology.



**Type 91561 (Heavy Duty)**



**Type 91568**

<b>Key Features</b>		
Seawater depth	3.000 m	3.000 m
Weight	90 kg	< 30 kg
Operational interface	Torque tool to ISO 13628-8 class 4	ROV claw on a T- or D-bar interface or alternatively by API torque tool class 2
Normal operation torque	1.350 Nm (= max. setting of class 3)	200 Nm (max.) in case of gripping profile
Emergency break away torque	2.700 Nm (= max. setting of class 4)	270 Nm (max.) for rotary actuator tool (class 2)
Connection and disconnection	Full working pressure possible (also emergency disconnection)	Under full working pressure
Hose bundle	Coiled single hoses, wrapped and protected against mechanical damage by 5 mm thick high density polyethylene spiral. Central stainless steel wire for tensile forces up to 5000 N	With external polymer protection coil acc. to project requirements
HFL bend radius	Min. 600 mm + 25 % for dynamic movement	Please indicate your specific requirement for your project
Hose bundle termination	Strain relief flange and single line clamping flange, coupling elements equipped with welded tubing, bent into position to meet single hoses; torsion and torque free	Cobra head arrangement, individually suited to project requirements
<b>Project-related features</b>		
Population of elements	Up to 14 element	Up to 6 elements
Strain relief	With cobra head design	With cobra head design (optionally)
Max. separation force	142 kN	39 kN
$F^*_{(p \text{ max, allowed})}$		
Working pressure per line	Up to 69 MPa (10.000 psi)	Up to 69 MPa (10.000 psi)
Hoses available	High collapse resistant hoses available (HCR)	HCR hoses acc. to project specification
Line sizes	1/4" – 1"	1/4" – 1"
<b>Operation sequence</b>	Transport and placement of MQC* free half and dropping in position. Prepositioned unit driven to connect by activation or rotary action of torque tool. The fine centring and mating of coupling elements ist done without further action. *MQC = Stab Plates & Multi-Quick Connectors	Insertion on fixed side funnel. Then turning of grip or activation of torque tool. Approx 12 turns necessary.

\*Other  $F_{(p \text{ max, allowed})}$  available on request

Selected solutions	
Part number	Specification (Please indicate your specific requirement for you project!)
<b>91561-B-00004-AAAI-Y01</b>	HFL 8 way, jumper length 5 metres, ROV stab plates on both ends (other lengths available)
<b>91561-B-00007-AAAJ-Y01</b>	HFL 8 way, jumper length 15 metres, ROV stab plate on one end (other lengths available)
<b>91561-2-FT004-AAAE-Y01</b>	Receptacle, tube tail termination
<b>91561-0-LT004-AAAL-Y03-AA</b>	Simplified free half stab plate to test and flush receptacles
<b>91561-2-FT004-AAAK-Y02-AA</b>	Simplified fixed half stab plate to test and flush HFL
<b>91561-0-LT005-AAAN-Y04-AA</b>	Cross over free half (picture see on reverse)
<b>91568-0-LT001-AAAD-Y04-AC</b>	ROV side stab plate, 5-way for OM-006 elements, D-bar handle
<b>91568-2-FT002-AAAE-Y04-AC</b>	Receptacle side, 5-way for OM-006 elements, adaptor side
<b>91568-0-LT001-AAAA-Y03-AB</b>	ROV side stab plate, 4-way for OM-006 elements, T-bar handle
<b>91568-2-FT002-AAAB-Y02-AB</b>	Receptacle side, 4-way for OM-006 elements, adaptor side
<b>91568-5-AAAC-Y02</b>	Protection cap for receptacles
<b>91568-9-FT002-AAAF-Y04-AC</b>	Parking station for 5-way stab plate

### Hose specifications for Type 91561, sample (Please indicate your specific requirement for your project!)

Diameter	Working pressure [MPa, (PSI)]	Burst pressure [MPa, (PSI)]	Minimum bend radius [mm]	Weight in air [kg/m]	Core material	Pressure reinforcement	Cover
1/4"	69 (10.000)	350 (50.750)	150	0,31	Methanol washed PA 11	High strength wire	PA 12 black
3/8"	69 (10.000)	350 (50.750)	190	0,47			
1/2"	69 (10.000)	325 (47.125)	200	0,94			
3/4"	69 (10.000)	250 (3.625)	250	1,46			
1"	56 (8.120)	225 (3.262)	300	2,00			

### Self sealing elements

Size	Suitable for line size	Working pressure WP <sub>max</sub> [MPa, (PSI)]	Surface S <sub>element</sub> [mm <sup>2</sup> ]
OM-006	1/4"; 3/8"	69 (10.000)	90
OM-010	1/2"	69 (10.000)	215
OM-016	3/4"; 1"	69 (10.000)	435

Geometrical restraints might apply! Please use our service for a feasibility check.

### Materials

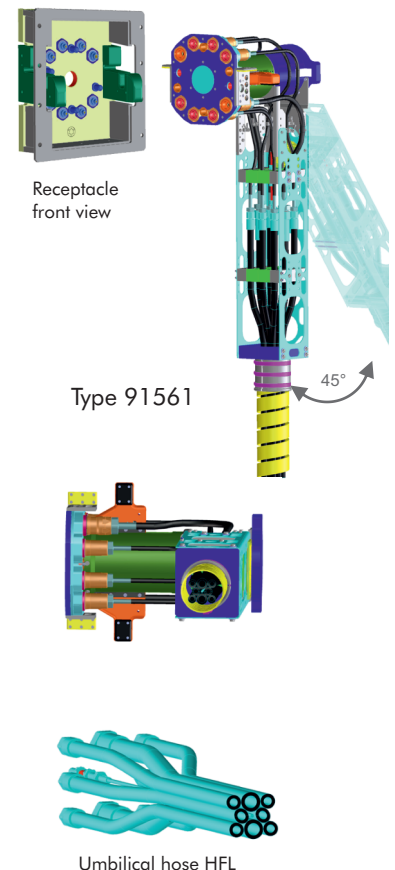
Primary seals	PEEK
Back up and secondary seals	FKM for hydraulic service FFKM for chemical injection / methanol service ( > 100 connection cycles without seal exchange)

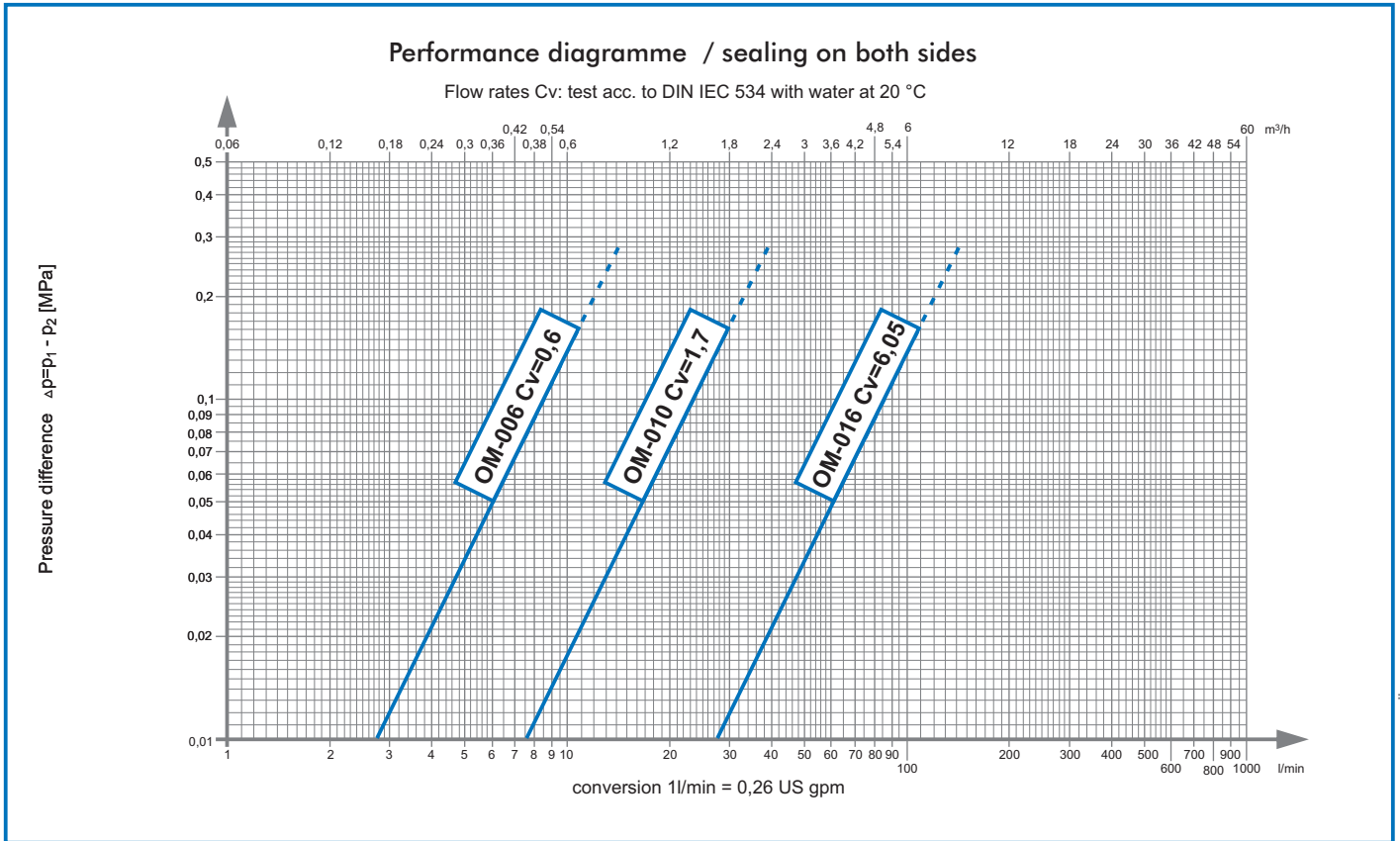
### Population - Determination

$$F_{P(specific)} [kN] = \sum_{n=1}^{specific} (S_{element n} [mm^2] \cdot WP_{element n} [MPa])$$

with:  $F_{P(max. allowed)}^* > F_{P(specific)}$ ;  $WP_{element n} < WP_{max}$

\*Other  $F_{P(max. allowed)}$  available on request





## Other product lines by WALTHER:

Single line HFL with T-bar interface  
Series 87 (1/4" upto 1")



Parking station



Fixed side



ROV- side



Series 87  
XL-style

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