

ENGINEERING
TOMORROW

Danfoss

Brochure

SEL by Danfoss **Hydraulic hoses** Next generation flexible Spiral hoses

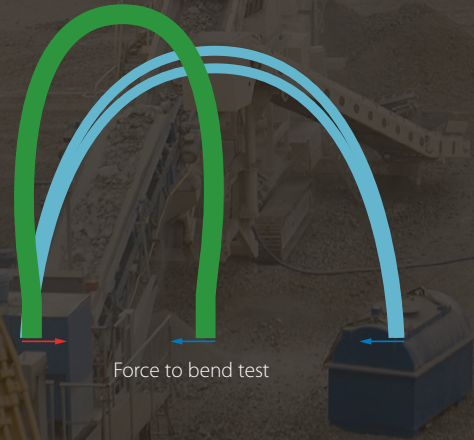


As SEL family we exceed the limits of innovation.

We are proud to be your solution partner with the SEL X-4000 +, X-5000 +, X-6000 + flexible Spiral Hoses. These patent-pending high pressure spiral hydraulic hoses were designed with material science and process innovation to meet the most demanding applications, where very high pressure and the need for easy installation in tight spaces come together.

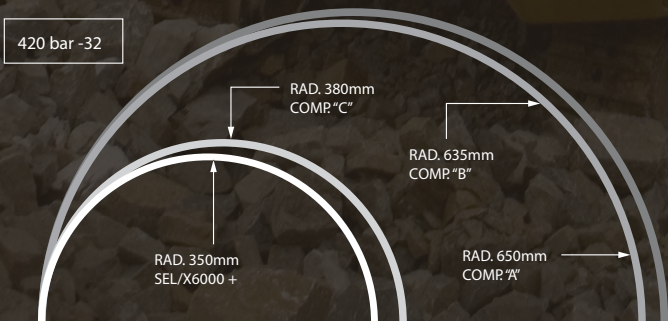
SEL X-4000 +, X-5000 +, X-6000 + hoses exceed performance of SAE 100 R12, R13 and R15 standards as well as ISO 18752-CC standard, by reaching 50% SAE standard bend radii performance, in high pressure demanding applications.

Furthermore, SEL X-4000 +, X-5000 +, X-6000 + hoses were created by improving Force-to-bend, as well as having high abrasion and ozone resistant covers, compared to requirements of SAE and EN standards.



SEL X-4000 +, X-5000 +, X-6000 + new generation flexible hydraulic hoses offer several advantages for the user:

- Improved flexibility for easier installation in tight spaces, due to meeting and exceeding industry requirements at 50% of the installed hose bend.
- Improved compatibility against most general hydraulic fluids in the market, including new generation environmentally accepted hydraulic fluids such as HETG, HEES, HEPG and HEPR oils.
- Improved life time expectation, due to better connection with the fitting as the enhanced synthetic rubber inner tube bears high compression-set properties.
- Improved life time expectation due to high elastic modulus properties of the inner tube, providing higher resistance against deformation in, for example, dynamic applications.
- Improved life time expectation due to high abrasion and ozone resistant cover compared to requirements of SAE and EN standard.
- Improved energy saving due to reduction in weight of spiral hose assembly.
- Less shipping cost due to reduction in weight and outer diameter of hose.



SEL spiral hoses

SEL X-4000 + Hydraulic hose

Exceeds: ISO 18752-CC, SAE100 R12 Performance

GHH280



Layline Example:

SEL by Danfoss	X-4000 +	25.4 MM (1.00 IN) DN25	ISO 18752 / SAE100 R12 MSHA IC-84/43	280 BAR (4060 PSI)	-40°C to +120°C -40°F to +248°F	SEL by Danfoss
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Construction: Inner Tube: Special synthetic rubber tube resistant to mineral, vegetable and glycol based hydraulic oil Reinforcement: 4 or 6 high tensile strength steel wire reinforced Cover: Super high abrasion and weather resistance special synthetic rubber cover

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-16	25.40	1.00	34.70	1.35	37.20	1.46	280	4060	1120	16240	150	1.51	4
-20	31.80	1.25	43.10	1.70	45.90	1.81	280	4060	1120	16240	210	2.30	4
-24	38.10	1.50	50.00	1.97	53.20	2.09	280	4060	1120	16240	250	2.992	4
-32	50.80	2.00	67.60	2.66	71.40	2.81	280	4060	1120	16240	350	5.611	6

Application

For hydraulic systems with high peak pressure and arduous operating conditions such as high pressure hydraulic circuits (for example on booms) on mobile construction equipment, mining equipment, agriculture machines.

Operating temperature: - 40 °C / + 120 °C

Features and benefits

- Bend radius improved up to 50% according to SAE standard products
- Force to bend improved up to 25% according to standard products

SEL X-5000 +

Hydraulic hose

Exceeds: ISO 18752-CC, SAE100 R13 Performance

GHH350



Layline Example:



Construction: Inner Tube: Special synthetic rubber tube resistant to mineral, vegetable and glycol based hydraulic oil Reinforcement: 4 or 6 high tensile strength steel wire reinforced Cover: Super high abrasion and weather resistance special synthetic rubber cover

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-12	19.0	0.75	27.4	1.08	30.3	1.19	350	5075	1400	20300	120	1.145	4
-16	25.4	1.00	34.7	1.37	37.7	1.48	350	5075	1400	20300	150	1.715	4
-20	31.8	1.25	43.1	1.70	46.1	1.81	350	5075	1400	20300	210	2.298	4
-24	38.1	1.50	50.0	1.97	53.2	2.09	350	5075	1400	20300	250	2.992	4
-32	50.8	2.00	67.6	2.66	71.4	2.81	350	5075	1400	20300	350	5.611	6

**Best-in-class

Operating temperature: - 40 °C / + 120 °C

Features and benefits

- Bend radius improved up to 50% according to SAE standard products
- Force to bend improved up to 40% according to standard products

Application

For hydraulic systems with high peak pressure and arduous operating conditions such as high pressure hydraulic circuits (for example on booms) on mobile construction equipment, mining equipment, agriculture machines.

SEL X-6000 +

Hydraulic hose

Exceeds: ISO 18752-CC, SAE100 R15 Performance

GHH420



Layline Example:



Construction: Inner Tube: Special synthetic rubber tube resistant to mineral, vegetable and glycol based hydraulic oil Reinforcement: 4 or 6 high tensile strength steel wire reinforced Cover: Super high abrasion and weather resistance special synthetic rubber cover

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-6	9.5	0.37	18.1	0.71	20.9	0.82	420	6090	1680	24360	65	0.7	4
-8	12.7	0.50	21.0	0.83	24.4	0.96	420	6090	1680	24360	90	0.92	4
-10	15.9	0.63	24.6	0.97	28.1	1.11	420	6090	1680	24360	100	1.13	4
-12	19.0	0.75	28.4	1.12	30.7	1.21	420	6090	1680	24360	120	1.246	4
-16	25.4	1.00	35.4	1.39	37.9	1.49	420	6090	1680	24360	140**	1.828	4
-20	31.8	1.25	46.6	1.83	49.6	1.95	420	6090	1680	24360	260	3.166	6
-24	38.1	1.50	54.0	2.13	56.9	2.24	420	6090	1680	24360	310	4.396	6
-32	50.8	2.00	68.0	2.68	72.0	2.83	420	6090	1680	24360	350	6.282	6

**Best-in-class

Operating temperature: - 40 °C / + 120 °C

Features and benefits

- Bend radius improved up to 50% according to SAE standard products
- Force to bend improved up to 40% according to standard products

Application

For hydraulic systems with high peak pressure and arduous operating conditions such as high pressure hydraulic circuits (for example on booms) on mobile construction equipment, mining equipment, agriculture machines.

Powerstream 4SH-X

Hydraulic hose
Exceeds: EN 856 4SH

GHH3U2



Layline Example:



Construction: Inner Tube: Mineral, ester based oil, vegetable and glycol based hydraulic oil resistant special rubber Reinforcement: 4 high tensile steel spiral Cover: Hydraulic oil, abrasion and weather resistance special synthetic rubber

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-12	19.0	0.75	28.4	1.12	30.7	1.21	420	6090	1680	24360	150	1.25	4
-16	25.4	1.00	35.4	1.39	37.9	1.49	380	5510	1520	22040	210	1.83	4
-20	31.8	1.25	43.1	1.70	46.1	1.81	325	4712	1300	18850	230	2.30	4
-24	38.1	1.50	50.0	1.97	53.2	2.09	290	4205	1160	16820	250	2.99	4

Application

For hydraulic systems with high peak pressures and arduous operating conditions.

Operating temperature: - 40 °C / + 100 °C

Features and benefits

- Bend radius improved up to 50% according to SAE standard products
- Force to bend improved up to 40% according to standard products

Coldstream X-5000+

Hydraulic hose

GHH35C



Layline Example:



Construction: Inner Tube: Mineral, ester based oil, vegetable and glycol based hydraulic oil resistant special rubber Reinforcement: 4 or 6 high tensile steel spiral Cover: Hydraulic oil, abrasion and weather resistance special synthetic rubber

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-12	19.0	0.75	27.4	1.08	26.8	1.05	350	5075	1400	20300	120	1.145	4
-16	25.4	1.00	34.7	1.37	34.3	1.35	350	5075	1400	20300	150	1.715	4
-20	31.8	1.25	43.1	1.70	42.6	1.67	350	5075	1400	20300	210	2.298	4
-24	38.1	1.50	50.0	1.97	48.9	1.92	350	5075	1400	20300	250	2.992	4
-32	50.8	2.00	67.6	2.66	66	2.59	350	5075	1400	20300	350	5.611	6

Application

For hydraulic systems with high peak pressures and arduous operating conditions.

Operating temperature: - 50 °C / + 100 °C

Features and benefits

- The best fit for applications in cold areas up to -50C under isobaric pressure for each size.

Coldstream X-6000+

Hydraulic hose

GHH42C



Layline Example:



Construction: Inner Tube: Mineral, ester based oil, vegetable and glycol based hydraulic oil resistant special rubber Reinforcement: 4 or 6 high tensile steel spiral Cover: Hydraulic oil, abrasion and weather resistance special synthetic rubber

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-6	9.5	0.37	18	0.70	20.9	0.82	420	6090	1680	24360	65	0.7	4
-8	12.7	0.50	20.8	0.81	24.4	0.96	420	6090	1680	24360	90	0.92	4
-10	15.9	0.63	24.1	0.94	28.1	1.11	420	6090	1680	24360	100	1.13	4
-12	19.0	0.75	27.9	1.09	30.7	1.21	420	6090	1680	24360	150	1.246	4
-16	25.4	1.00	34.7	1.36	37.9	1.49	420	6090	1680	24360	210	1.828	4
-20	31.8	1.25	46.3	1.82	49.6	1.95	420	6090	1680	24360	260	3.166	6
-24	38.1	1.50	53.1	2.09	56.9	2.24	420	6090	1680	24360	310	4.396	6
-32	50.8	2.00	66.7	2.62	72.0	2.83	420	6090	1680	24360	350	6.282	6

Application

For hydraulic systems with high peak pressures and arduous operating conditions.

Operating temperature: - 50 °C / + 100 °C

Features and benefits

- Coldstream flexible spiral hoses are specifically designed for use in cold environments, resisting temperatures as low as -50 °C.
- The best fit for applications in cold areas up to -50 °C under isobaric pressure for each size.

Tornado+ 6

Hydraulic hose
Exceeds: ISO 18752-CC

GHH39G



Layline Example:



Construction: Inner Tube: Mineral and glycol based hydraulic oil resistant special synthetic rubber Reinforcement: 6 very high tensile strength steel wire reinforced Cover: Hydraulic oil, high abrasion and weather resistance special synthetic rubber

Dash Size	Hose ID		WSOD (max)		Hose OD max		Max. OP		Burst Pressure		Bending Radius	Weight	4 or 6 Spiral
	mm	in	mm	in	mm	in	bar	psi	bar	psi	mm	kg/m	
-12	19.0	0.75	31.1	1.22	34	1.33	560	8120	2240	32480	260	1.85	6
-16	25.4	1.00	38.1	1.5	41	1.61	560	8120	2240	32480	300	2.70	6
-20	31.8	1.25	47.2	1.86	50.3	1.98	525	7612	2100	30450	420	3.81	6
-24	38.1	1.50	54.8	2.16	58.2	2.29	475	6887	1900	27750	500	5.095	6
-32	50.8	2.00	67.7	2.66	71.4	2.81	420	6090	1680	24360	525	6.33	6
-40	63.5	?	82.2	3.24	85.7	3.37	350	5075	1400	20300	800	8.23	6
-48	76.2	?	95.7	3.77	99.2	3.90	210	3045	840	12180	900	9.11	6

Application

For hydraulic systems with high peak pressures and arduous operating conditions, off-shore, drilling, mining, etc.

Operating temperature: - 40 °C / + 120 °C

Features and benefits

- Our highest pressure Tornado+ 6 is the perfect fit for hydrostatic drive applications up to a working pressure of 560 bar.
- Highest pressure hydraulic hose is working pressure up to 560 bar is specifically designed for high pressure hydrostatic drive applications of material handling and agriculture machinery.

About Danfoss Power Solutions FC

Danfoss hoses, fittings, and tooling provide the ultimate fluid conveyance solutions for a variety of equipment and applications around the world. We proudly engineer to support a sustainable future for tomorrow.

To learn more please visit: <http://www.danfoss.com/en/about-danfoss/our-businesses/power-solutions>

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