

TECHNICAL DATA SHEET EXCEL HOSE RANGE



The Excel range with stainless steel over braid and liner manufactured from cross linked polyethylene (PEX). The range is used extensively in the UK to meet the stringent demands in providing flexible hose connection in health care & public service markets. It provides a safe and taint free conveyance of potable water supplies for domestic and commercial plumbing applications, key attributes are:

- Reduction in the risks associated with micro bacterial colonisation and potential for cross infections
- All materials have been tested and approved to BS 6920 in accordance with Water Regulation Advisory Scheme (WRAS) for both hot and cold water
- Unique green tracer band for easy identification against other materials
- · Robust construction with excellent abrasion and crush resistant
- Wide selection of standard plumbing connections
- Customised design options available for OEM clients

APPLICATION

- Care homes for the elderly
- Hotels
- Public Services

Hospitals

Schools & Colleges

GENERAL PERFORMANCE DATA

HOSE REF	MIN BEND RADIUS	WORKING PRESSURE AT 20°C (BAR)	WORKING PRESSURE AT 65°C (BAR)	SECURITY PRESSURE AT 20°C (BAR)	FLOW RATE AT 3 BAR (LIT/MIN)
DN8	35mm	12	6	18	28
DN10	50mm	12	6	18	48
DN13	60mm	12	6	18	74

Working: Security: Pressure & temperature are stated as the maximum continuous value. Pressure is stated as the peak pressure to be attained for short durations or transient pressure spikes. Installations where water hammer exceeds the limits stated will invalidate warranty.

Bend:

Minimum by which the hose can be bent without causing excessive stress to the hose fabric or kink.



EXCEL HOSE RANGE

GENERAL CONSTRUCTION DATA

END CONNECTION	SIZE RANGE	MATERIAL	STANDARD
FEMALE SWIVEL	1/4BSP, 3/4"BSP	CW614N/CW617N	EN12164/5
FEMALE SWIVEL ELBOW	3/8BSP, 3/4"BSP	CW614N	EN 12164
MALE TAPER	1/4BSP, 3/4"BSP	CW614N	EN12164
COMPRESSION 15MM	15mm	CW614N/CW617N	EN1254-2, ISO 6957
COMPRESSION 22MM	22mm	CW614N/CW617N	EN1254-2, ISO 6957
COMPRESSION ISO VALVE	15mm	CW614N/CW617N	EN1254-2
COMPRESSION ISO VALVE	22mm	CW614N/CW617N	EN1254-2
STANDPIPE	15mm - 22mm	CW614N/CW617N	EN12164/5
PUSH-FIT BRASS	10mm - 22mm	CW614N/CW617N	EN12164/5
MONO BLOCK	8mm to 12mm	CW614N	EN12164
PUSH FIT PLASTIC	15mm – 22mm	Acetyl Black	BS6920
FEMALE SWIVEL	1/2BSP,3/4BSP	Nylon Black	BS6920
FEMALE ELBOW SWIVEL	3/4BSP	Nylon Black	BS6920
STANDPIPE	22mm	Acetyl Black	BS6920
WASHER	1/2BSP,3/4BSP	Fibre & Silicon	BS6920
O RINGS	Various	EPDM	BS6920
HOSE LINER	DN10 - DN25	Cross linked polyethylene (PEX)	BS6920
HOSE BRAID	DN10 - DN26	Stainless Steel 304	EN 10204 3.1
FERRULE	DN10 - DN27	Stainless Steel 304	EN 10088-2

Note:

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- · External Brass fittings are supplied with nickel plated finish to avoid tarnishing
- Male Taper fittings should be used with female swivel or push fit connections to avoid twisting and torsion stress
- Compression Connections tested for Stress Corrosion Cracking to ISO 6957:1998

DIMENSIONING

Hose assemblies are quoted by their overall length; as measured from end face to end face for each fitting. The standard manufacturing tolerance on overall length is:

- <500mm +/- 5.00mm
- >500mm +/- 10.00mm





EXCEL HOSE RANGE

Critical length is the distance between hose mating faces. This must be 10% greater than the actual distance between the two corresponding fixed mating parts to avoid tensile stress whilst in service.

Active length is the length by which pressure and movement is absorbed by the flexible hose.

- **HOSE DATA** The Excel range incorporates unique liner manufactured from cross linked polyethylene (PEX). The liner is designed to reduce the growth of waterborne micro-organisms compared to other materials. The hose and liner are identified by:
 - Batch code and identification code for traceability
 - · Green tracer for easy identification in service

FERRULE DATA

The ferrule is an integral part of the swage joint, between the end fitting and the flexible hose. The integrity of the ferrule must be maintained throughout its service. **Note:** Do not use grippers or spanners to secure against the end connections

The ferrule contains important information:

- WRAS Identification: QWRAS
- Temperature: 6 bar @ 65°C
- Date of manufacture: Year and month code

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	ОСТ	NOV	DEC
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STANDARDS

Water Regulations Advisory Scheme (WRAS) approved and complies with requirements of:

- The Water Supply (Water Fittings) Regulations 1999
- The Water Byelaws 2004 Scotland
- Water Supply (Water Fittings) Regulations Northern Ireland 2009

QUALITY ASSURANCE

Hydralectric is ISO 9001: 2008 compliant as certified by British Standards Institute under certification number FM592672. The Excel range is manufactured under strict quality assurance systems to ensure compliance, the following tables summarises the different tests available for product development and manufacturing, these are updated and subject to change.

TEST	DEVELOPMENT	PRODUCTION	
WORKING PRESSURE	Material, Process & new Product.	QA Audit	
BURST PRESSURE	Material, Process & new Product.	QA Audit	
THERMAL AGEING AND FATIGUE	Material, Process & new Product.	QA Audit	
TENSILE PULL TEST	Material, Process & new Product.	Audit	
VISUAL COMPLIANCE		100%	
OVERALL LENGTH		100%	



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INSTALLATION

Check the application does not exceed the rated temperature or pressure as stated for both continuous and transient variations. Excel range must not be exposed to water or ambient temperature below 5°C. Flexible hoses should be installed by a competent Plumber or Engineer in accordance with standards and recommendations of BS 6700:2006. Installation guide parts 1 & 2 available on Hydralectric website **www.hydralectric.com**.

CHEMICAL RESISTANCE

The Excel range is designed for use with hot and cold potable water supplies. The Excel range should not be used in closed systems or in the presence of chemical inhibitors or solder fluxes.

Caution: Brass Fittings used on cold water lines will gather condensation and may become exposed to environments which are alkaline and corrosive, please see installation guide for best practices.

TECHNICAL ASSISTANCE

Please contact out Sales or Technical Support team on 0044 (0) 1932 334200, or visit our website www.hydralectric.com



TECHNICAL DATA SHEET FLEXIBLE HOSE INSTALLATION GUIDE PART 1

PART 1: INSTALLATION GENERAL GUIDE

Flexible hoses should be installed by a competent plumber or qualified engineer and comply with the following guidelines:

Pre-installation checklist:

- Verify flexible hoses intended for use on potable water supplies are WRAS approved (Ferrules stamped "QWRAS")
- Verify temperature and pressure ratings do not exceed those stated for the type of hose selected
- Verify integrity of mating parts and ensure pipe work is clean and free from burrs
- Verify that chilled water applications are not exposed to corrosive contaminants



Post-installation checklist:

- Always verify connections are secure and tested for leaks in accordance with BS 6700:2006
- Always flush water circuits to remove solder fluxes and debris in accordance with BS 6700:2006

Failure to comply with these guidelines may compromise the hose integrity and invalidate your warranty.

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TECHNICAL DATA SHEET FLEXIBLE HOSE INSTALLATION GUIDE PART 2



PART 2: INSTALLATION GUIDE STRESS CORROSION CRACKING

Copper alloys (Brasses) used in the mating connections of flexible hose assemblies have an excellent corrosion resistance and if installed correctly can confidently be expected to provide trouble-free service life. Many millions of flexible hoses and brass mating connections are installed every year without defect, many of which will exceed the life time of the building.

In order to achieve such longevity, designers and installers must take basic precautions. Largely these precautions have been incorporated into various standards and codes of practice such as BS6700. These include the need for protection in certain aggressive or potentially aggressive environments in order to avoid external contamination.

WHAT IS STRESS CORROSION CRACKING (SCC)?

Stress corrosion cracking occurs in duplex brasses and is commonly referred to as season cracking. In the case of copper alloy fittings, it is manifested by the appearance of inter-granular cracking, along lines of material thinning or stress. The essential elements for stress corrosion cracking are:

- Residual Stress
- Stress Cracking Agent
- Moisture
- Alkaline environment

RESIDUAL STRESS:

The more common cause of stress is introduced through the installation process such as tightening tapered male and compression fittings. In the case of compression fittings, tightening the nut will introduce a hoop stress, which, if of a sufficiently high magnitude, can trigger SCC. Joints made between taper male and female threads will always result in a stressed region at the mouth of the female end of the adaptor, especially if subjected to over tightening. Similarly the application of jointing compound to the threads should be avoided, as this tends to pack in the gap and increase the stress levels.

STRESS CRACKING AGENTS:

There are specific stress-cracking agents for brasses, these are usually ammonia or ammoniacal compounds, other less common contaminates are sulphur dioxide and mercury. These agents are common place in building materials such as concrete additives, insulating materials especially foams and flame retarding treatments.

MOISTURE:

Moisture can arise from various sources including soils, cement or concrete, condensation, etc. However, it should be noted that moisture generally poses no problems for copper alloys; it is only when the moisture absorbs aggressive constituents from component surroundings that problems may arise. Particular problem areas are in chilled water installations when the pipe work is usually covered with insulating material especially phenolic foams and flame retarding treatments, which allow the condensed moisture to be retained and kept in close contact with the end fitting. The contaminants will collect in the condensation and promote SCC.



FLEXIBLE HOSE INSTALLATION GUIDE PART 2

ALKALINE ENVIRONMENT:

Alkalinity in itself does not cause stress corrosion cracking and indeed copper alloys generally have good corrosion resistance in alkaline environments. Nevertheless, for stress corrosion cracking to occur, the environment needs to be of an alkaline nature. Thus with plaster and concrete being predominantly based on alkaline cement, most construction sites can be considered to be alkaline. Also certain insulation materials have an alkaline reaction if they become wet.

INSTALLATION GUIDELINES TO AVOID STRESS CORROSION CRACKING:

Adherence to good installation practice will normally prevent the necessary combination of factors,

- Use flat faced spanners, avoid serrated jaw wrenches as these can damage the surface and induce stress
- Do not over tighten fittings, be especially careful to avoid over tightening male taped and compression joints
- Use PTFE tape or approved liquid sealant, avoid use of hemp
- For chilled water application, ensure all joinst are protected from condensation by way of moisture barrier

PRE- INSTALLATION CHECK LIST:

- 1. Verify temperature and pressure rating is correct for application (Technical Documents www.hydralectric.com)
- 2. Verify water quality has been checked in accordance with BS6700
- 3. Verify pipe insulation complies with BS 5422 and other relevant British Standards for construction and avoidance of potentially harmful contaminates



EXPOSE ALL JOINTS BEFORE LEAK TESTING



ONLY USE CORRECTLY SIZED SPANNERS



ENSURE JOINTS INSULATED AND SEALED



EXPOSE HOSE TO CONDENSATION

DON'T



AVOID COVERING LEAKS WITH INSULATION



LEAVE JOINTS EXPOSED TO CONDENSATE

Failure to comply with these guidelines may compromise the flexible hose integrity and invalidate your warranty.