

## HU4000M2 series hose end pressure refuelling coupling



### Proven Design Features Retained

Safety in refuelling is of paramount importance. Avery Hardoll's unique internal safety interlock utilises the poppet as an integral part of the interlock system and is therefore not reliant on secondary interlock components. The coupling is unaffected by wear in the aircraft unit slots and tolerates a high level of wear to the lugs. In addition the design of the HU4000M2 does not cause excessive wear to the aircraft unit.

The design includes a wider range of hose adaptor designs, relocation of the swivels, three handle types, and new operating lever design.

Spares and service requirements are also important in this change of design. Ease of maintenance and spares compatibility with its predecessor has been retained.

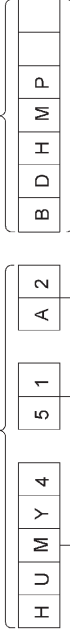
- Unique internal safety interlock integral to the poppet
- Six slot engagement for easier coupling location
- Independent swivel improves ease of coupling
- Improved choice of operation with three handle options
- Improved nose seal design
- Well proven Mk 6 pressure controller
- Suitable for all current aircraft types
- Robust, lightweight construction

# HUMY4000M2 series hose unit - coding chart

**NOTE :-**

- CODES P, X AND Y ARE NOT APPLICABLE WHEN SURGE CONTROLLER/ADAPTOR CODE ENDS IN 0, 1 IE CODE 30 IS SELECTED.
- CODE P IS NOT REQUIRED IF RING HANDLES (CODE R) IS FITTED.
- CODE P IS NOT APPLICABLE IF SURGE CONTROLLER/ADAPTOR CODE STARTS WITH A 0, 1 IE CODE 03 IS SELECTED (NO SURGE CONTROLLER FITTED).
- CODE X OR Y IS NOT APPLICABLE IF SURGE CONTROLLER/ADAPTOR CODE ENDS WITH A 0 OR 3, 1 IE CODE 40 OR 50 IS SELECTED (NO ADAPTOR FITTED OR A - H 90° ELBOW ADAPTOR FITTED).
- SURGE CONTROLLER/ADAPTOR CODES ENDING IN 5, 6 OR 7 (IE CODE 35) ARE NOT STANDARD, HAVE NOT BEEN DRAWN OR CONFIGURED.
- SURGE CONTROLLER/ADAPTOR CODES ENDING IN 5, 6 OR 7 (IE CODE 35) SHOULD BE CONSIDERED AS SPECIAL SURGE CONTROLLERS/ADAPTORS.

**NOZZLE STRUCTURE**



**ANCILLARIES**

**BASIC NUMBER**

DESCRIPTION	PART No.
LEVER OPERATED HOSE UNIT	HUMZ4566

**SURGE CONTROLLER/ADAPTOR**

CODE	DESCRIPTION	PART No.	DESCRIPTION	PART No.
00	NO SURGE CONTROLLER/NO ADAPTOR	NOT AVAIL	30psi MAX. SURGE CONTROLLER/AH 90° ELBOW ADAPTOR	HUMZ4554
01	NO SURGE CONTROLLER/AH STANDARD ADAPTOR	HUMZ4400	45psi MAX. SURGE CONTROLLER/AH 90° ELBOW ADAPTOR	HUMZ4655
02	NO SURGE CONTROLLER/AH 45° ELBOW ADAPTOR	HUMZ4402	50psi MAX. SURGE CONTROLLER/AH 90° ELBOW ADAPTOR	HUMZ4556
03	NO SURGE CONTROLLER/AH 90° ELBOW ADAPTOR	HUMZ4403	55psi MAX. SURGE CONTROLLER/AH 90° ELBOW ADAPTOR	HUMZ4557
04	NO SURGE CONTROLLER/LIGHT REFUELLING ADAPTOR	HUMZ4401	30psi MAX. SURGE CONTROLLER/FL-R STANDARD ADAPTOR	HUMZ4550
05	NO SURGE CONTROLLER/THEM PROFILE ADAPTOR (IND)	(HUMZ4404)	45psi MAX. SURGE CONTROLLER/FL-R STANDARD ADAPTOR	HUMZ4551
06	NO SURGE CONTROLLER/CARTER PROFILE ADAPTOR (IND)	(HUMZ4405)	50psi MAX. SURGE CONTROLLER/FL-R STANDARD ADAPTOR	HUMZ4552
07	NO SURGE CONTROLLER/45° CARTER PROFILE ADAPTOR (IND)	(HUMZ4406)	55psi MAX. SURGE CONTROLLER/FL-R STANDARD ADAPTOR	HUMZ4553
30	30psi MAX. SURGE CONTROLLER/NO ADAPTOR	HUMZ4500	30psi MAX. SURGE CONTROLLER/THEM PROFILE ADAPTOR (IND)	(HUMZ4500 & HUMZ4404)
40	45psi MAX. SURGE CONTROLLER/NO ADAPTOR	HUMZ4501	45psi MAX. SURGE CONTROLLER/THEM PROFILE ADAPTOR (IND)	(HUMZ4501 & HUMZ4404)
50	50psi MAX. SURGE CONTROLLER/NO ADAPTOR	HUMZ4502	50psi MAX. SURGE CONTROLLER/THEM PROFILE ADAPTOR (IND)	(HUMZ4502 & HUMZ4404)
60	55psi MAX. SURGE CONTROLLER/NO ADAPTOR	HUMZ4503	55psi MAX. SURGE CONTROLLER/THEM PROFILE ADAPTOR (IND)	(HUMZ4503 & HUMZ4404)
21	55psi MAX. DOUBLE SURGE CONTROLLER/AH STANDARD ADAPTOR	HUMZ4546	30psi MAX. SURGE CONTROLLER/CARTER PROFILE ADAPTOR (IND)	(HUMZ4500 & HUMZ4405)
31	30psi MAX. SURGE CONTROLLER/AH STANDARD ADAPTOR	HUMZ4504	45psi MAX. SURGE CONTROLLER/CARTER PROFILE ADAPTOR (IND)	(HUMZ4501 & HUMZ4405)
41	45psi MAX. SURGE CONTROLLER/AH STANDARD ADAPTOR	HUMZ4505	50psi MAX. SURGE CONTROLLER/CARTER PROFILE ADAPTOR (IND)	(HUMZ4502 & HUMZ4405)
51	50psi MAX. SURGE CONTROLLER/AH STANDARD ADAPTOR	HUMZ4506	55psi MAX. SURGE CONTROLLER/CARTER PROFILE ADAPTOR (IND)	(HUMZ4503 & HUMZ4405)
61	55psi MAX. SURGE CONTROLLER/AH STANDARD ADAPTOR	HUMZ4507	30psi MAX. SURGE CONTROLLER/R45° CARTER PROFILE ADAPTOR (IND)	(HUMZ4500 & HUMZ4405)
32	30psi MAX. SURGE CONTROLLER/AH 45° ELBOW ADAPTOR	HUMZ4509	45psi MAX. SURGE CONTROLLER/R45° CARTER PROFILE ADAPTOR (IND)	(HUMZ4501 & HUMZ4405)
42	45psi MAX. SURGE CONTROLLER/AH 45° ELBOW ADAPTOR	HUMZ4511	50psi MAX. SURGE CONTROLLER/R45° CARTER PROFILE ADAPTOR (IND)	(HUMZ4502 & HUMZ4405)
52	50psi MAX. SURGE CONTROLLER/AH 45° ELBOW ADAPTOR	HUMZ4512	55psi MAX. SURGE CONTROLLER/R45° CARTER PROFILE ADAPTOR (IND)	(HUMZ4503 & HUMZ4405)
62	55psi MAX. SURGE CONTROLLER/AH 45° ELBOW ADAPTOR	HUMZ4513		

**HOSE CONNECTORS**

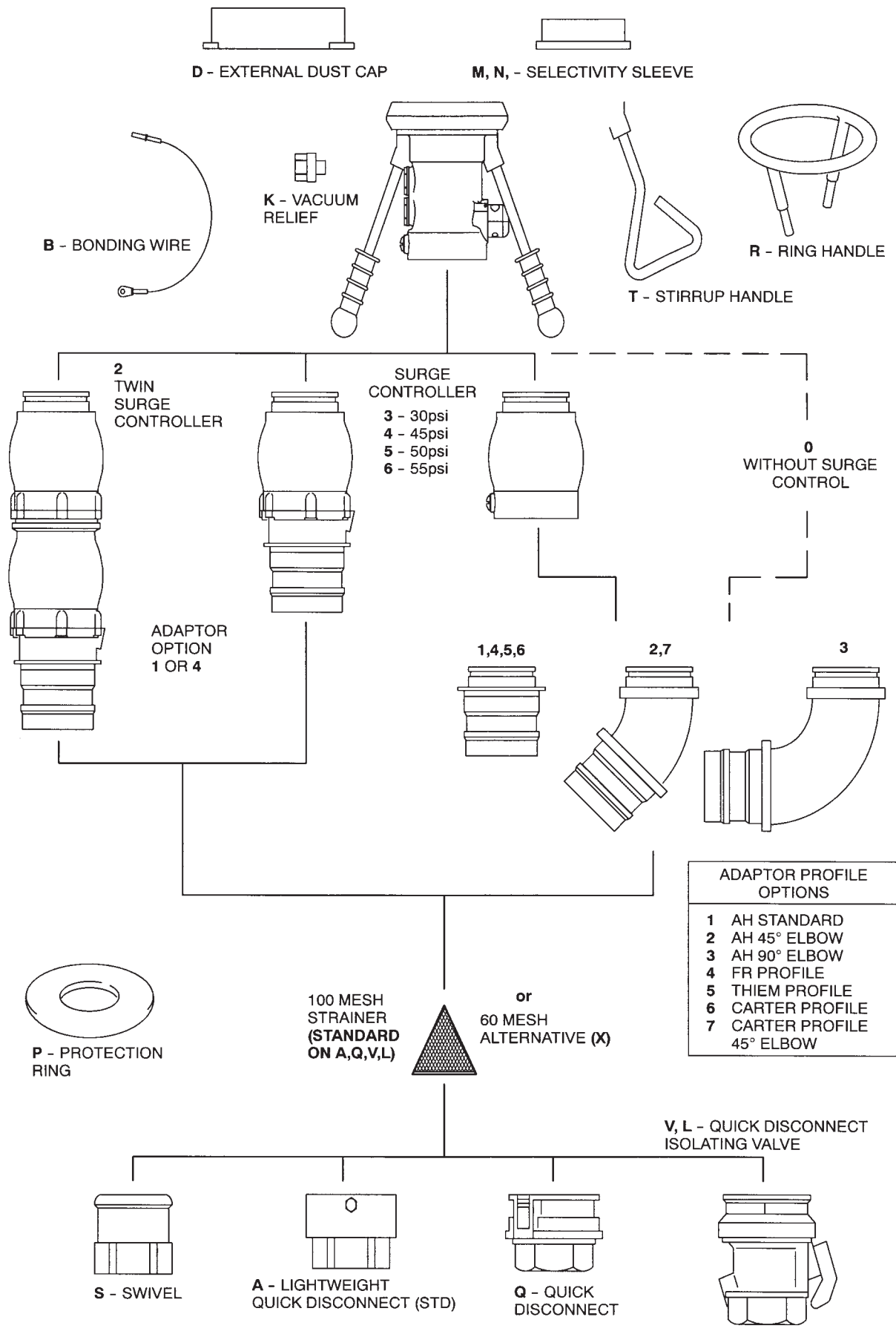
CODE	DESCRIPTION	THREAD OPTIONS AND CODES					
		1	2	3	6	7	8
2" BSP	2.5" BSP	3" BSP	2" NPT	2.5" NPT	3" NPT		
A	LIGHT WEIGHT QUICK DISCONNECT	HUMZ4561	HUMZ4562	HUMZ4563	HUMZ4564	HUMZ4565	HUMZ4566
L	QUICK DISCONNECT ISOLATING VALVE LOCKING SCREW TYPE	HUMZ3671	HUMZ3672	HUMZ3673	HUMZ3674	HUMZ3675	HUMZ3676
Q	QUICK DISCONNECT - STANDARD	HUMZ4412	HUMZ4413	HUMZ4414	HUMZ4415	HUMZ4416	HUMZ4417
S	ISWEL	HUMZ4418	HUMZ4419	HUMZ4420	HUMZ4421	HUMZ4422	HUMZ4423
V	QUICK DISCONNECT ISOLATING VALVE PUSH BUTTON TYPE	HUMZ3667	HUMZ3668	HUMZ3669	HUMZ3670	HUMZ3671	HUMZ3672

NOTE :- INCLUDE THESE COLUMNS ONLY WHEN SURGE CONTROLLER/ADAPTOR CODES ENDS IN 1, 2 OR 3 (IE CODE 31)

**ANCILLARIES**

ADD LETTERS ONLY IF ANCILLARY OPTIONS ARE REQUIRED (PLACE IN ORDER AS LISTED)

CODE	DESCRIPTION	PART No.	REMARKS
B	BONDING CABLE	HUMZ1386	
D	DUST CAP - STANDARD	HUMZ4392	ALL BUILDS (EXTERNAL & INTERNAL - SELECTIVE AND NON-SELECTIVE)
G	GAMMON JET TEST ADAPTOR AND VENT PORT ADAPTOR	HUMZ4542	FITTED AS ALTERNATIVE TO A PLUG IN THE HOSE UNIT & VENT PORT IN THE SURGE CONTR.
H	VACUUM RELIEF VALVE 10"Hg	HUMZ3635-1	
CR	VACUUM RELIEF VALVE 17"Hg	HUMZ3635-2	
K	VACUUM RELIEF VALVE 22"Hg	HUMZ3635-3	
M	SELECTIVITY, POSITIONS 1, 2 & 3	HUMZ4331	FACTORY SET TO POSITION 1
N	SELECTIVITY, POSITIONS 4 & 5	HUMZ4332	FACTORY SET TO POSITION 4
P	PROTECTION RING	HUPZ2580	NOT REQUIRED IF RING HANDLES ARE FITTED. CANNOT BE USED ON BUILDS WITH NO SURGE CONTROLLER
R	RING HANDLE	HUAZ4357	FITTED IN PLACE OF STANDARD STICK HANDLES
T	STIRRUP HANDLE	HUAZ4358	
CR	NO HANDLES FITTED		
C	STICK HANDLE (FIT AS STANDARD)	HUMZ4353	FITTED AS STANDARD
X	60 MESH STRAINER (INSTEAD OF 100 MESH STRAINER)	HUMZ4422	(SHORT) NO SURGE/CONTR. WITH SURGE/CONTR.
Y	100 MESH STRAINER (FITTED AS STANDARD)	HUMZ4421	REF. TYPE 0 OR 3
Z	EXTREME COLD WEATHER SEALS	PHL4010	FLUOROSILICON SEALS REPLACING STANDARD FLUOROCARBON SEALS (FITTED AS KIT-SET)



D - EXTERNAL DUST CAP

M, N, - SELECTIVITY SLEEVE

B - BONDING WIRE

K - VACUUM RELIEF

R - RING HANDLE

T - STIRRUP HANDLE

2 TWIN SURGE CONTROLLER

SURGE CONTROLLER

- 3 - 30psi
- 4 - 45psi
- 5 - 50psi
- 6 - 55psi

0 WITHOUT SURGE CONTROL

ADAPTOR OPTION 1 OR 4

1,4,5,6

2,7

3

ADAPTOR PROFILE OPTIONS

- 1 AH STANDARD
- 2 AH 45° ELBOW
- 3 AH 90° ELBOW
- 4 FR PROFILE
- 5 THIEM PROFILE
- 6 CARTER PROFILE
- 7 CARTER PROFILE 45° ELBOW

P - PROTECTION RING

100 MESH STRAINER (STANDARD ON A, Q, V, L)

or 60 MESH ALTERNATIVE (X)

V, L - QUICK DISCONNECT ISOLATING VALVE

S - SWIVEL

A - LIGHTWEIGHT QUICK DISCONNECT (STD)

Q - QUICK DISCONNECT

## Pressure rating

Max Working Pressure: 10.3 bar (150psi)  
 Test Pressure: 15.5 bar (225 psi)  
 Max. Flow Rate: 2275 lpm  
 500 l gpm  
 600 US gpm

## Pressure drop (including aircraft adaptor)

Nozzle with Quick-Disconnect and 100 mesh strainer at 1895 lpm 1.03 bar (14.9 psi)

As above plus Surge-Controller 1.79 bar (26.0 psi)

## Strength

Although over a kilo lighter than its predecessor the HU4000 retains its basic strength and has been rigorously tested to ensure safe operation under normal operating conditions.

## Compatibility

British Standard Aerospace Specification 4C14  
 International Standards Organisation ISO R45  
 NATO Stanag 3105  
 Designed to meet the requirements of MIL-N-5877E

## Length

Complete nozzle, surge controller and quick disconnect 370 mm (14.6 in.)

## Materials

Those in contact with the fuel are anodised aluminium alloy, stainless steel, PTFE Viton and high nitrile rubber.

## Operating temperatures

-20 deg C to 60 deg C (-4 deg F to +140 deg F)

## Cold weather conditions

Special seal kits available for temperatures down to -40°C.

## Weights

COMPLETE NOZZLE, SURGE CONTROLLER AND LIGHT WEIGHT QUICK DISCONNECT 5.3Kg (11.6lb)  
 NOZZLE ASSY 2Kg 50g  
 HOSE CONNECTOR ASSY 640g  
 SURGE CONTROL/ADAPTOR 1Kg 570g

STICK HANDLE ASSY (1 SET) 680g  
 DUST CAP ASSY 200g  
 PROTECTION RING 360g  
 VACUUM RELIEF VALVE 60g

## Typical performance curves

